

S E C T I O N 8

B R A K I N G S Y S T E M

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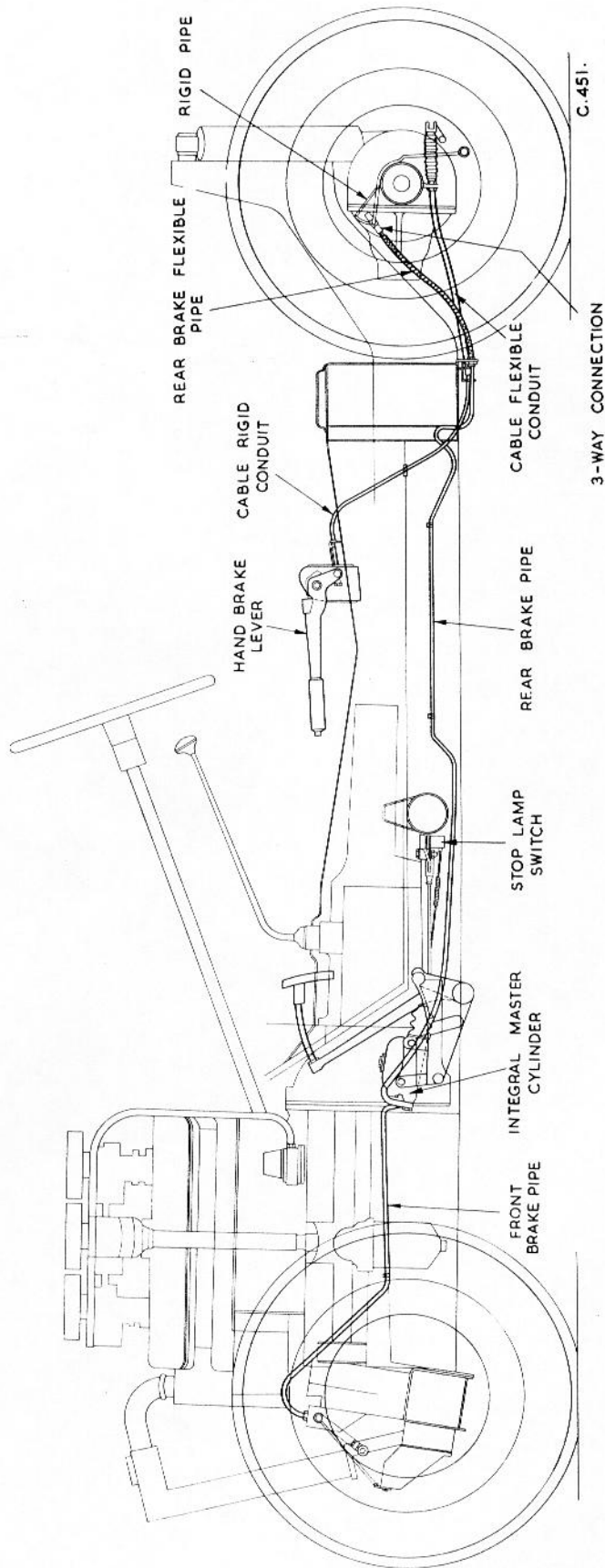


Fig. 1 Diagram of braking system.

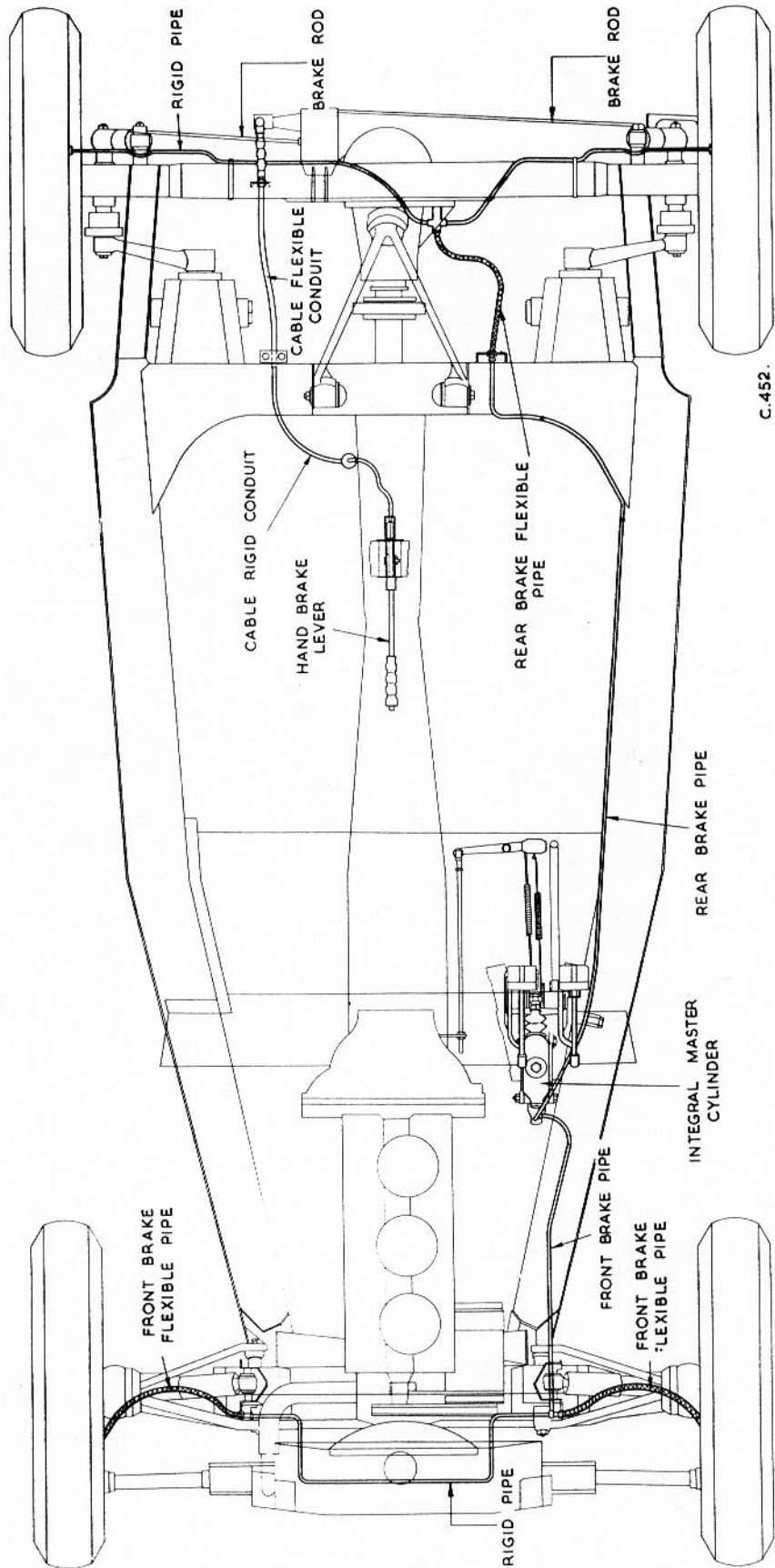


Fig. 2 Diagram of braking system.

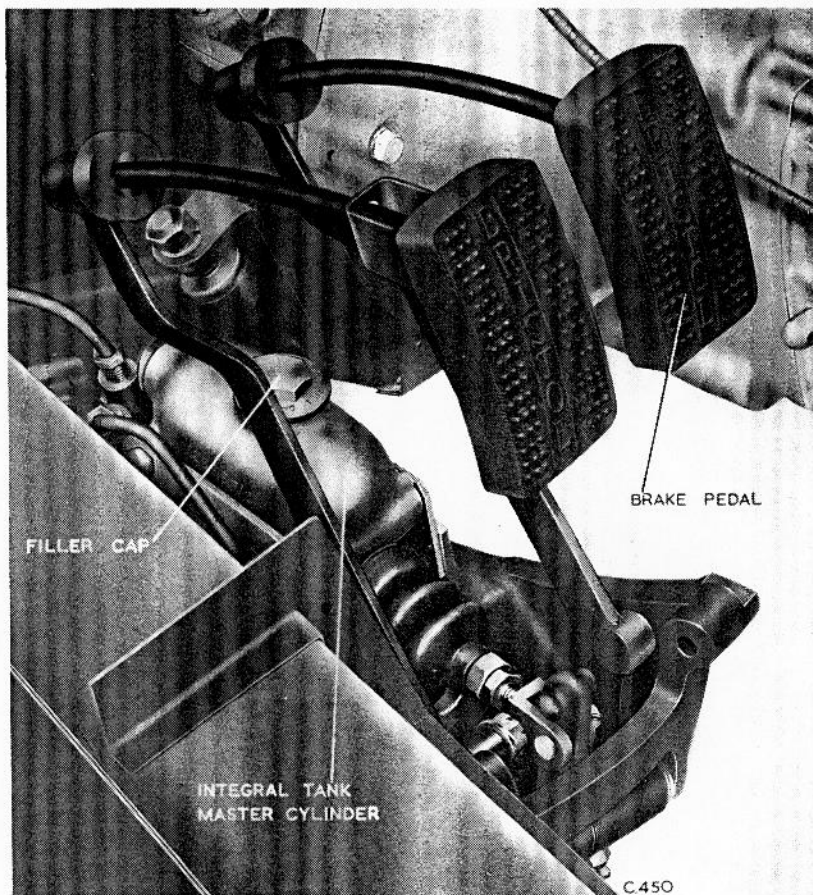


Fig. 3 Brake and clutch pedal unit.

B R A K I N G S Y S T E M

DESCRIPTION

General

The braking mechanism comprises the pedal-operated hydraulic system which actuates the brakes on all four wheels, and the hand brake which operates the brakes in the rear wheels through the medium of a cable and rods. The system is illustrated diagrammatically in Figs. 1 and 2.

Hydraulic system

This is of the Lockheed type and consists of the following items :-

1. An integral tank master cylinder fitted in the brake clutch pedal unit, see Fig. 3.
2. Single-ended internal wheel cylinders which operate the two "leading shoe" front brakes.
3. Single-ended internal wheel cylinders incorporating the hand brake-operated levers which actuate the "leading" and "trailing" type rear brakes.
4. Pipe lines which consist of "Bundylock" tubes, a flexible pipe and the necessary unions and fittings, etc. connecting the main units. The "Bundylock" pipe lines are attached to the chassis frame by spring "U" clips.

Integral tank master cylinder

This unit is illustrated in position in the brake and clutch pedal unit in Fig. 3 and a section view is shown in Fig. 4.

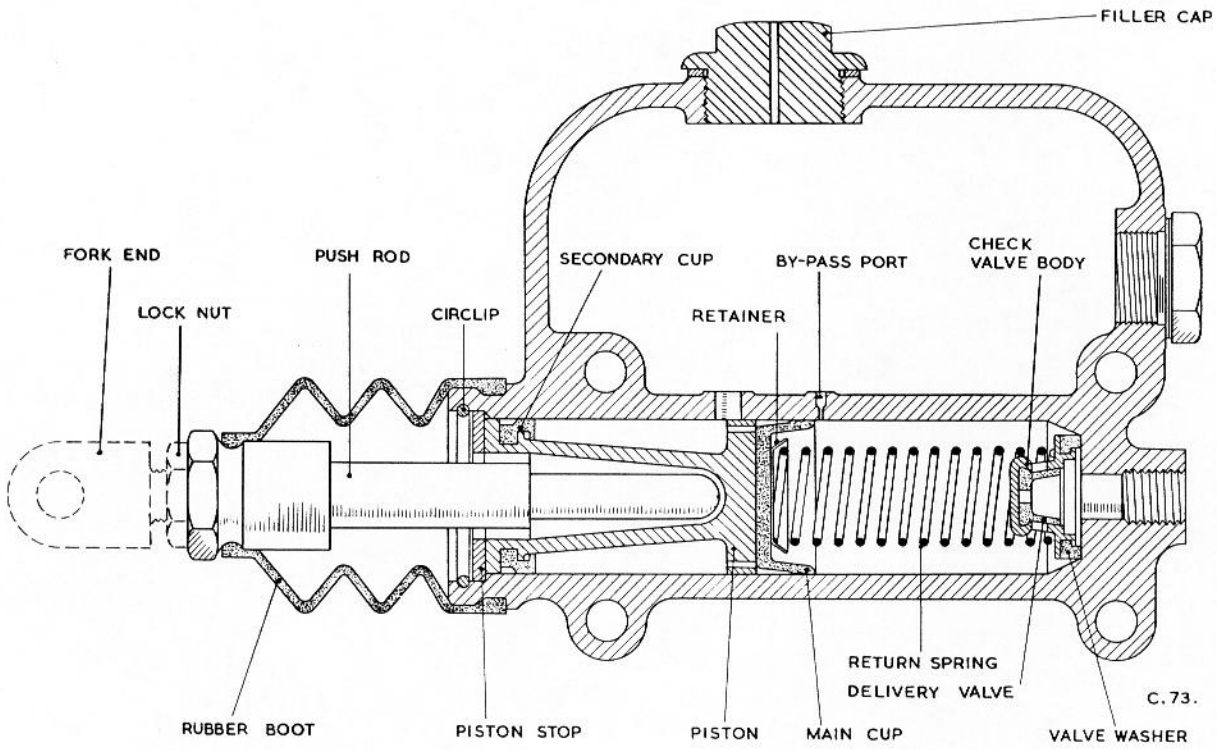


Fig.4 Integral tank master cylinder.

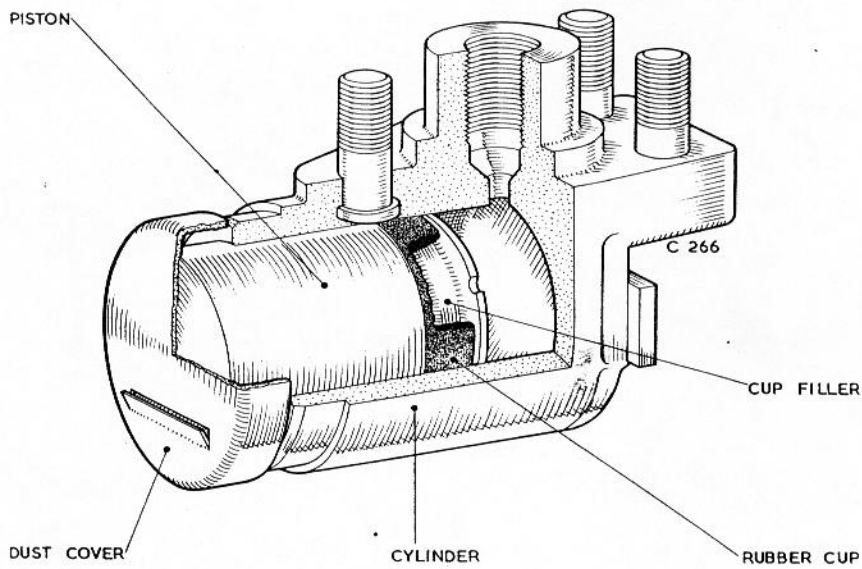


Fig.5 Front wheel cylinder.

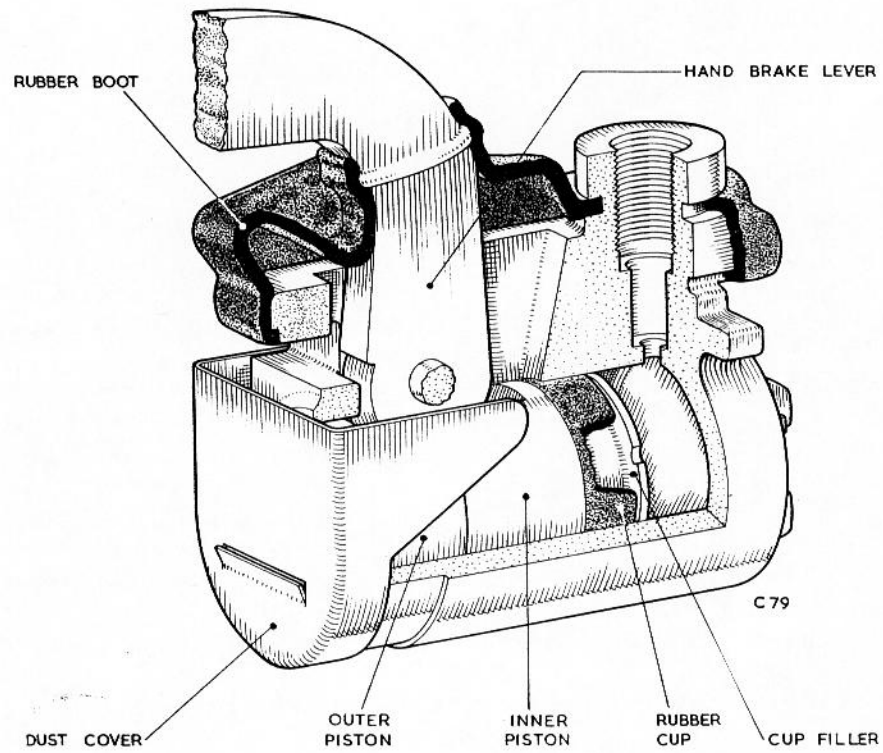


Fig.6 Rear wheel cylinder.

Front wheel brake mechanism

This is of conventional type. Two single-ended cylinder assemblies are mounted rigidly on each brake shoe backplate, and mount identical brake shoes which are held in position by two pull-off springs. A steady spring on each shoe is anchored to a bracket on the backplate, see Fig.13.

Slots in the piston end of each brake shoe fit on a "Micram" adjuster located between the shoe and the piston dust cap. The construction and operation of the "Micram" adjuster is described subsequently.

The construction of the front wheel cylinders is shown in Fig.5.

Rear wheel brake mechanism

Each rear assembly (see Fig.12) has "leading" and "trailing" type brake shoes, these being operated by a single-ended cylinder fitted with a split-type piston. The "leading" shoes are identical with the front shoes, but the "trailing" shoes are identified by a lug welded near the slot at the end of the shoes. A fulcrum for both shoes is provided by a slotted anchor bracket welded to the backplate, the shoes being held in position by a tension spring. Steady springs similar to those of the front shoes are fitted.

The "trailing" shoe locates in a slot in the cylinder casting, while the "leading" shoe locates on the "Micram" adjuster interposed between the shoe and the dust cover of the piston. A pull-off spring is fitted between the shoes at this end.

The construction of the rear wheel cylinders is shown in Fig.6.

When operated manually (i.e. by the hand brake), the heel of the hand brake lever located between the pistons moves the outer piston to operate the "leading" shoe without disturbing the inner piston. As soon as the leading shoe contacts the brake drum, the reaction on the lever fulcrum moves the cylinder to operate the "trailing" shoe.

"Micram" adjuster

This unit and its operation are illustrated in Fig.7; it provides for normal brake adjustment. The unit comprises a spindle which is slotted on one end to receive a screwdriver for adjustment purposes, and has two integral serrated cams between which the brake shoe is located. The cam unit is mounted in a slotted mask which is located on the piston dust cap of the brake operating cylinders. The slots permit the cam unit to move laterally. Therefore, by rotating the cam, the distance between the cam operating cylinder unit and the brake shoe is increased, enabling adjustment to be made to compensate for wear of the brake linings. The serrations on the cams engage a ridge in the mask thus locking the adjustment and providing an audible "click" when adjustment is made.

IMPORTANT :- It should be noted that any alteration of the setting at the "Micram" adjuster on the rear wheels, affects both the foot and hand brakes.

Hand brake

The hand brake lever operates the rear wheel brakes through an encased cable connected to a brake operating lever which is mounted on a pivoted compensating lever, (see Fig.8) on the rear axle casing; brake rods link the operating lever with the hand brake levers in the rear wheel cylinders.

The hand brake lever, see Fig.10, is operated by pulling it up, the ratchet retaining it in position. The brake is released by pressing the button and lowering the lever.

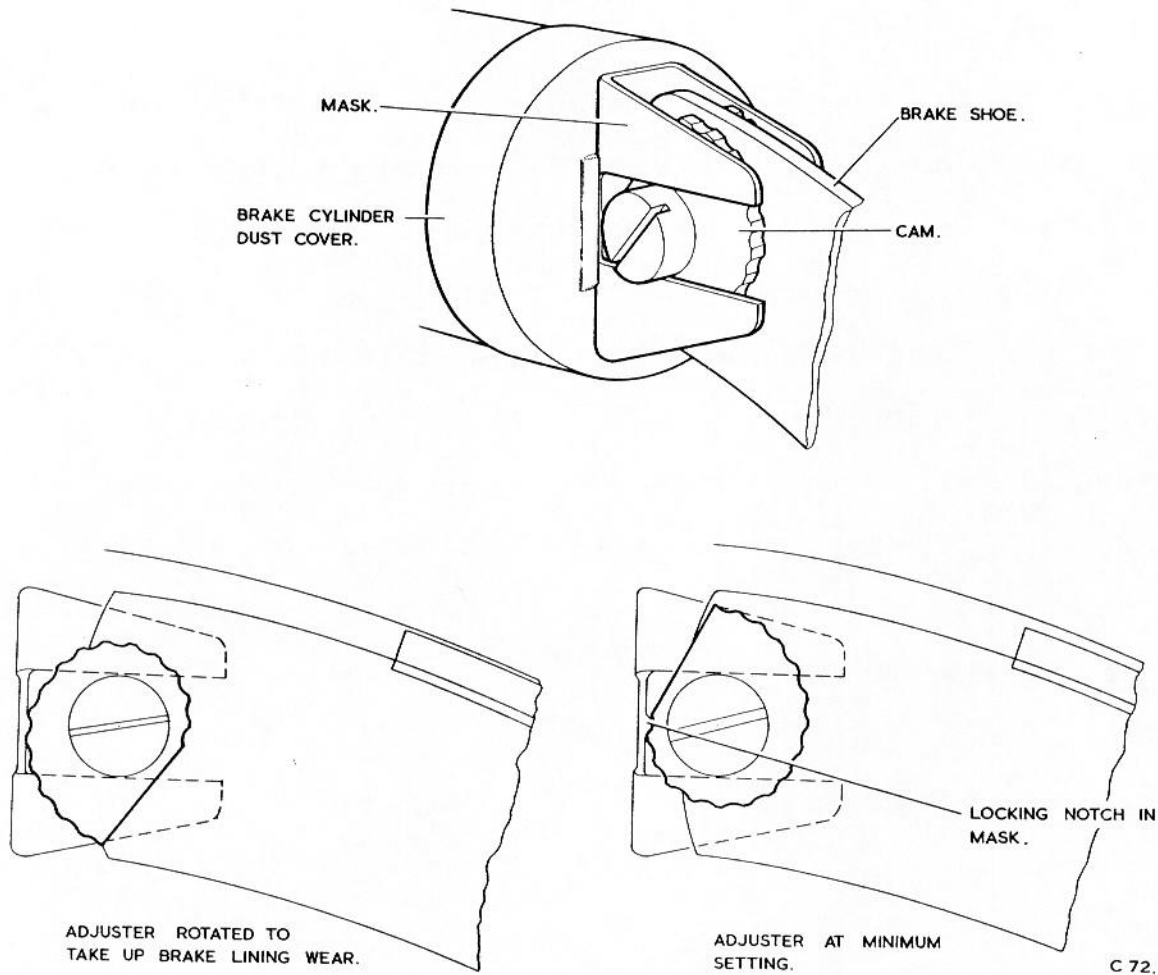


Fig. 7 "Micram" adjuster.

The metal brake cable conduit terminates at a bracket on the rear chassis cross member, a flexible conduit continuing the run to the bracket welded to the rear axle casing; a return spring is fitted between the end of the flexible conduit and the fork connection at the end of the cable as shown in Fig. 9. The spring and cables are protected by a telescopic rubber sleeve, and the brake and compensating levers by a gaiter. A grease nipple is provided at the rear end of the rigid conduit to enable the cable to be lubricated.

MAINTENANCE

At the first 500 miles (800 km.)
Check the fluid level in the reservoir.

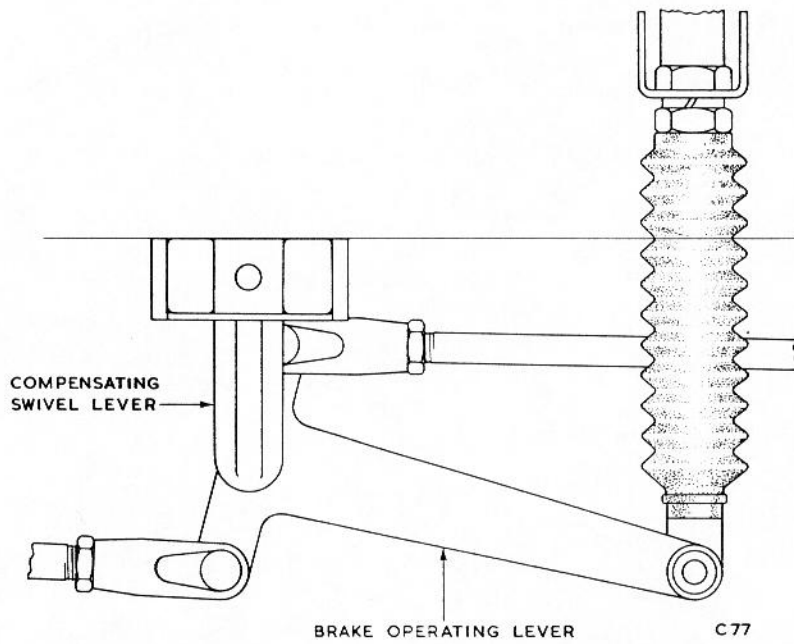


Fig.8 Brake operating and compensating levers.

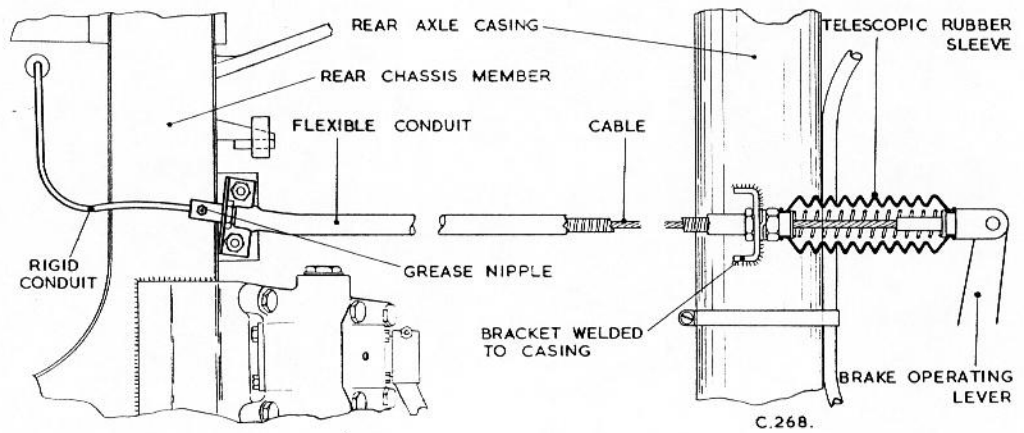


Fig.9 Cable return spring arrangement.

At intervals of 1,500 miles (2,500 km.)

Check the fluid level in the reservoir; keep the level within half an inch below the filler cap, using only Lockheed brake fluid (orange). A rapid or considerable fall in fluid level indicates a leak in the system, which should be traced and rectified. Ensure that the air vent in the filler cap is free, as an obstruction may cause all brakes to "drag".

Grease the brake cable through the nipple at the conduit support bracket, positioned on the underside of the chassis cross member, see Fig.9.

At intervals of 12,000 miles (20,000 km.)

Remove the brake drums, check the condition of the linings and ensure freedom from grease and dirt.

ADJUSTMENTS

Adjustment for normal wear

The following is the correct method of making adjustment to compensate for wear of the brake linings. When the rear brakes are adjusted by this method, excessive travel of the hand brake lever due to brake lining wear is automatically corrected.

Front brakes

1. With the hand brake "ON", support the car on jacks or a chassis stand, and remove the wheels.
2. Swing the dust cap on the brake drum to expose the adjuster hole, then turn the brake drum so that the hole is opposite the slotted head of one of the "Micram" adjusters.

3. Insert a screwdriver and turn the adjuster in a clockwise direction until the brake shoe bears hard on the brake drum. Now turn the adjuster back one notch; this should provide the correct clearance between the shoe and the drum. If closer adjustment is required, spin the drum and apply the brake hard; this will position the shoe correctly. Re-adjust as necessary.
4. Rotate the drum to expose the other adjuster then repeat operation 3; close the dust cap.
5. Repeat operations 2 to 4 on the opposite front wheel.
6. Refit the wheels, lower the car and remove the jacks.

Rear brakes

1. Place wedges under the front wheels.
2. Release the hand brake.
3. Jack up the car, then remove the wheels.
4. Swing the dust cap on the brake drum to expose the adjuster hole, then turn the brake drum so that the hole is opposite the slotted head of the "Micram" adjuster.
5. Apply either the hand or foot brake to ensure that the wheel cylinder is centralised, then release the brake. Insert the screwdriver and turn the adjuster clockwise until the shoes bear against the drum, then turn the adjuster back one notch. Spin the drum then apply the brake hard; this will position the shoes correctly. Re-adjust as necessary.
6. Close the dust cap.
7. Repeat operations 4 to 6 on the opposite rear drum.
8. Refit the wheels, apply the hand brake, lower the car and remove the wedges and jacks.

Note :- When adjusting the brakes after extended periods of running, it is recommended that the brake drums are removed and the mechanism blown out with an air blast.

Brake pedal adjustment

The end-float between the push rod and the piston of the integral type master cylinder (see Fig.4) is adjusted correctly by the car manufacturer. The correct

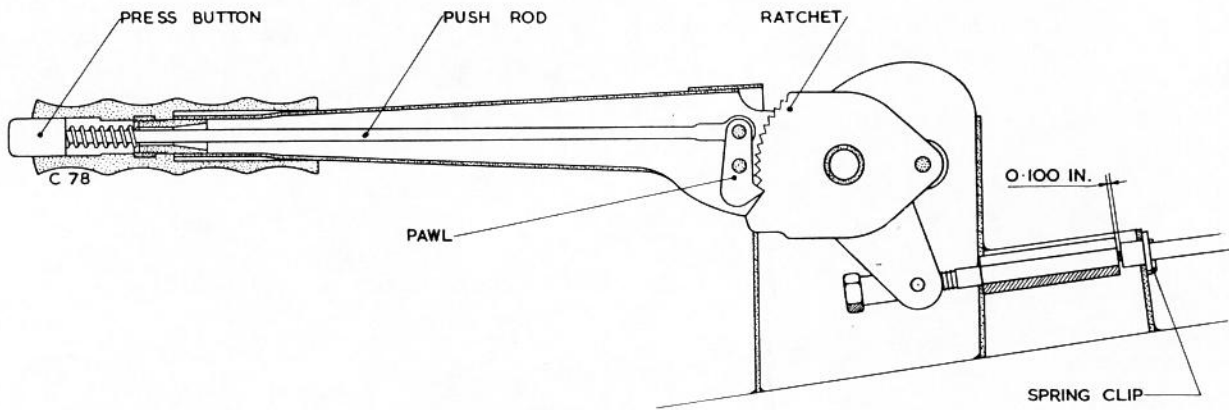


Fig. 10 Hand brake lever.

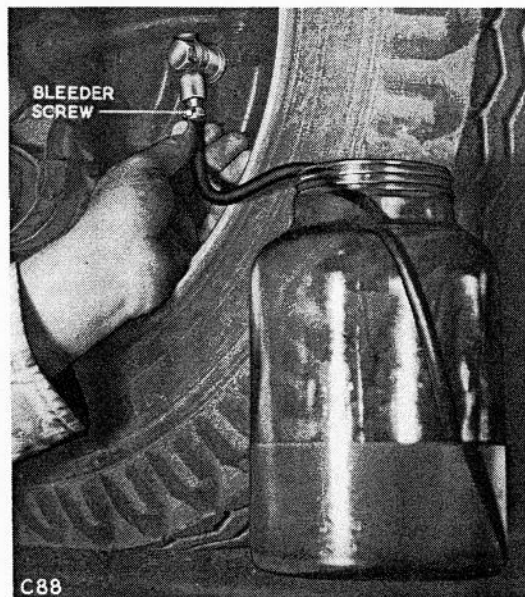


Fig. 11 Bleeding the system.

setting allows the brake pedal to be depressed $\frac{1}{2}$ in. before the piston commences to move. This is best checked by hand. An incorrectly positioned mat or other obstruction on the floor board may prevent complete return of the pedal to the "off" position, and may take up the necessary end-float when, actually, the adjustment is correct. If adjustment is necessary, release the locknut, see Fig.4, and rotate the push rod in the thread of the fork end. Lock again securely when adjusted correctly. It is essential to have clearance between the push rod and piston or the by-pass port to the reservoir may be obstructed and cause brake drag.

If, after adjusting the rear wheel "Micram" adjusters, it is found that the hand brake lever travel does not comply with the limits enumerated on page 23, check all pins, bushes, ratchet and pawl teeth etc. for wear.

Under no circumstances adjust the brake rods or cables to correct lining wear; these are set by the manufacturer and require no further adjustment.

BLEEDING THE SYSTEM

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

1. Fill the reservoir of the master cylinder with brake fluid to $\frac{1}{2}$ in. below the filler cap and keep it at least a quarter full throughout the operation; otherwise air will be drawn into the system necessitating a fresh start.
2. A bleeder screw is located at the rear of each of the wheel brake cylinders and is protected by a rubber cap. Clean off all surrounding dirt then remove the cap from all of the screws and attach a length of rubber tube. Place a clean glass jar containing a little fluid in an appropriate position, then submerge the free end of the tube into the jar, see Fig.11.

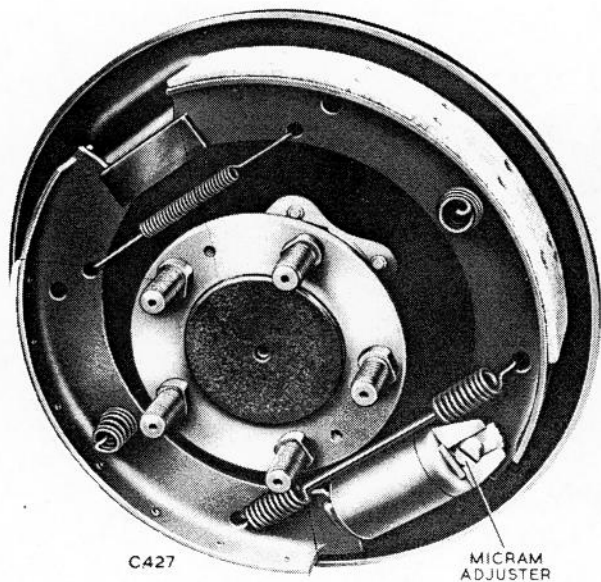


Fig. 12 Rear brake.

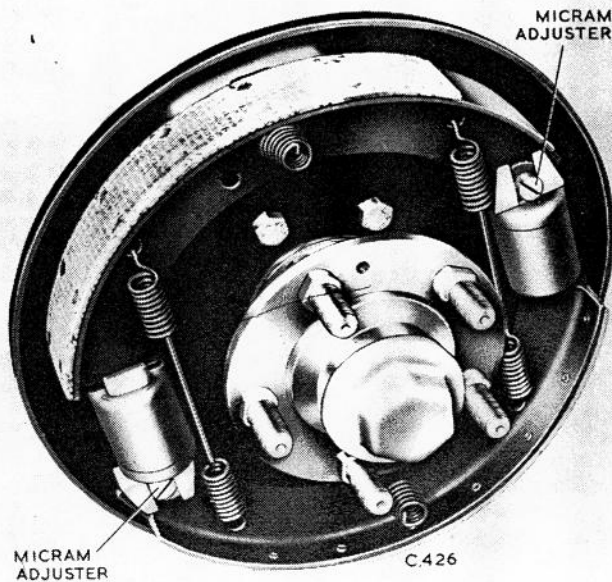


Fig. 13 Front brake.

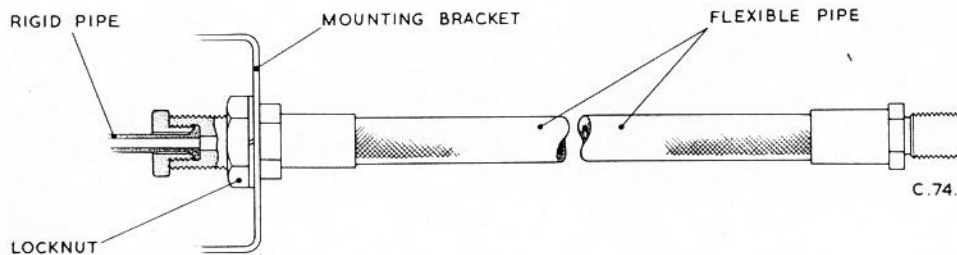


Fig. 14 Brake system flexible pipe.

3. Open the bleeder screw one complete turn.
4. Depress the brake pedal quickly and allow it to return unassisted. Repeat the pumping action with a slight pause between each operation. Watch the flow of fluid in the glass jar; when air bubbles cease to appear in the jar, tighten the bleeder screw securely as the brake pedal is being depressed, then refit the cap.
5. Repeat at all the wheel cylinders.

Note :- Clean fluid bled from the system should be allowed to stand for several hours until all air bubbles are expelled before being used again. Dirty fluid should be discarded.

RE-LINING THE BRAKES

On Arnolt-Bristol cars, the linings are ground after fitment to the brake shoes to ensure maximum contact with the brake drums. Do not therefore attempt to re-line the brake shoes unless facilities are available for grinding. When correct braking is no longer obtainable by adjustment of the "Micram" adjusters, fit replacement brake shoes with ground linings. Proceed as follows :-

Wedge the wheels, jack up the car, lower the car on to chassis stands, and remove the relevant wheels and brake drums.

Rear brakes

1. Remove the steady spring (Lockheed 21792) from the trailing shoe, then tilt the shoe away from the backplate.
2. Remove the second steady spring. Withdraw the shoes, detach the pull-off (Lockheed 21791) and tension springs (Lockheed 21934) then remove the "Micram" adjuster and mask from the end of the leading brake shoe.

Fit the replacement shoes as follows :-

1. Position the "Micram" adjuster and mask on the leading brake shoe then fit the pull-off and tension springs to the shoe.
2. Position the brake shoe in the anchor bracket, locating the opposite end on the piston of the brake cylinder.
3. Position the trailing shoe in the anchor bracket, locating its opposite end on the brake cylinder. Tilt it and connect the pull-off and tension springs then push it back into position.
4. Press both shoes on to the backplate so that the steady springs can be fitted. Make sure that the shanks of the hooks are inside of the brackets.

Front brakes

1. Remove one of the steady springs (Lockheed 21792) and tilt the brake shoe to relieve the tension of the pull-off springs (Lockheed 21791); the "Micram" adjuster can now be withdrawn.
2. Remove the second steady spring and lift off the brake shoes, complete with pull-off springs; the second "Micram" adjuster will fall away.

Fit the replacement shoes as follows :-

1. Refit the pull-off springs to one of the brake shoes.
2. Position the "Micram" adjuster and mask on the shoe then hold the shoe in position on the brake cylinders.
3. Position the second "Micram" adjuster and mask on the other shoe, place the shoe in position then tilt it so that the pull-off springs can be attached. Push both shoes back into position.
4. Press both shoes against the backplate so that the steady springs can be fitted. Make sure that the shanks of the hooks are on the inside of the brackets.

Check that the "Micram" adjusters are in the slackened-off position, then fit the brake drums. Check the free rotation of the drums then tighten the "Micram" adjusters until the brake shoes bear on the drums. Slacken off the adjusters one notch from this position and again check for free rotation of the drums. Slide the dust caps over the adjuster holes in the brake drums, then fit the wheels and remove the jack.

REMOVING AND FITTING FLEXIBLE PIPES

The connections at the ends of the brake system flexible pipe are integral with the pipe. This means that the connections cannot be turned in relation to the pipe and it is therefore essential to adopt the correct procedure for removing and fitting pipes. Fig.14 illustrates the method of fitting the flexible pipe to the rigid pipe, and shows the connection to the front brake operating cylinder or 3-way union on the rear axle.

Referring to this illustration, proceed as follows :-

1. Unscrew the union nut of the rigid pipe from the flexible pipe connections. The union nut is inboard of the connection mounting bracket.
2. Holding the hexagon of the flexible pipe firm with a spanner, unscrew and remove the locknut, then extract the spring washer and withdraw the end of the flexible pipe from the bracket.
3. Using a spanner on the hexagon, unscrew the complete pipe from the rear of the brake operating cylinder, or the 3-way union on the rear axle, then remove the gasket.

When refitting a pipe, proceed as follows :-

1. Using a new gasket, screw the complete pipe into the brake operating cylinder, or the 3-way union. Tighten it securely, using a spanner on the hexagon.
2. Insert the opposite end into the mounting bracket, then fit the spring washer and locknut.
3. Holding the hexagon on this end of the pipe firmly with a spanner, tighten the locknut securely.
4. Screw on and tighten the union nut of the rigid pipe.
5. Bleed the system, see page 18.

If the rear flexible pipe is removed, make sure that the pipe refitted is of the correct length; the correct pipe is marked KL.48926. Under no

circumstances should a front pipe (marked KL.48924) be fitted to the rear, as this will result in ultimate failure.

SETTING THE HAND BRAKE AND CONTROLS

1. Place the rear of the car on chassis stands, allowing the back axle to rest in the snubber straps. Remove the rear wheels.
2. Detach the brake rods from the hand brake levers and the cable from the brake operating lever.
3. Set the hand brake to the "off" position. Adjust the fork end at the front end of the cable until 0.100 in. clearance is obtained at the location shown in Fig. 10.
4. Check that the handbrake lever will move through 8 notches (providing a full ratchet range).
5. Adjust the brake shoe "Micram" adjusters until the brake shoes bear hard on the drum.
6. Adjust the brake rods so that the fork ends can be assembled to the hand brake levers with the compensating lever parallel with the centre line of the chassis.
7. Take up any backlash between the brake rods and brake cylinder levers, then re-pin the brake rod fork ends and lubricate. Slacken the "Micram" adjusters one notch and check for free rotation of the drum.
8. Refit the wheels and remove the chassis stands. With the car standing on the ground, this adjustment should enable the hand brake to be applied 3 to 4 teeth on the ratchet from the "off" to the "on" positions.

IMPORTANT. All future adjustment must be made at the brake shoes "Micram" adjusters ONLY. Under no circumstances must adjustments be made at the cable to compensate for lining wear.

INTEGRAL MASTER CYLINDER (Lockheed Part No. 28710 - less push rod)

Removing

1. Disconnect the pipe from the banjo in the head of the cylinder.

2. Remove the bolts securing the cylinder to the pedal cradle.
3. Lift the cylinder clear, leaving the rubber boot and push rod attached to the pedal linkage.
4. Unscrew the filler cap and drain the fluid into a clean container.

Dismantling

1. Push the piston down the cylinder bore slightly to release any pressure on the piston stop, then remove the circlip. All internal parts may then be withdrawn.
2. It is advisable to discard all rubber components.

Re-assembling

When re-assembling, refer to Fig.4. Replacement rubber parts are listed below :-

Valve washer	-	Lockheed Part No.3590.
Valve cup	-	Lockheed Part No.608.
Main clip	-	Lockheed Part No.11.
Secondary cup	-	Lockheed Part No.400.

1. Wash all components thoroughly. If any rubber parts are being retained, use Lockheed brake fluid only for cleaning these parts. All traces of petrol, paraffin or trichlorethylene used for cleaning metal parts must be removed before assembly.
2. Examine any serviceable rubber parts for damage, wear or distortion.
3. Ensure that the by-pass port in the cylinder barrel is not obstructed by passing a piece of 23 s.w.g. wire through its orifice; the filler cap hole is used to gain access to the port.
4. Dip all parts in brake fluid and assemble wet.
5. Stretch the secondary cup over the flange of the piston stem, with the larger diameter to the piston crown. Locate it as shown in Fig.4 then work round gently with the fingers to ensure that it is seated correctly.

6. Fit the valve washer to the check valve. Fit the rubber delivery valve to the check valve then assemble the combined delivery and check valve to the larger end of the return spring, ensuring that the retainer is attached securely to the smaller end. Insert the assembly, valve first, into the cylinder.
7. Insert the main cup, taking care not to damage or turn back the lip, then press it down on to the spring retainer.
8. Follow up with the piston; take care not to turn back the lip of the secondary cup when entering the cylinder.
9. Push the piston a short way down the cylinder bore, insert the piston stop, then refit the circlip into the groove provided.

Refitting

1. Position the cylinder in the pedal cradle, at the same time inserting the push rod. Refit the rubber boot so that when the master cylinder is in position on the chassis, the vent hole in the boot will be at the bottom; if the boot is damaged or distorted, discard it and fit a replacement.
2. Fit the bolts, shake-proof washers and nuts and tighten securely.
3. Check the adjustment of the brake pedal, as described on page 16.
4. Refill the fluid reservoir with clean Lockheed brake fluid (orange) and test the operation by pushing the piston down the bore of the cylinder and allowing it to return unassisted. After a few applications, fluid should flow from the outlet in the cylinder head. Connect the fluid pressure pipe, and bleed the system as described on page 18.
5. Check the system throughout for leaks by applying firm pressure to the brake pedal.

FRONT WHEEL CYLINDER (Lockheed Part No. 25452)

Removing

1. With the rear wheels adequately wedged, jack up the car and remove the front wheels and brake drums.

2. Remove the brake shoes as described on page 21.
3. Remove the flexible pipe from behind the backplate, see page 22.
4. Unscrew the banjo bolt from both the cylinders and remove the banjo adapters, complete with bridge pipe and gaskets.
5. Remove the securing nuts and withdraw the cylinders.

Dismantling

Referring to Fig.5, proceed as follows :-

1. Withdraw the dust cover, followed by the piston.
2. Apply sufficient air pressure to the fluid connection to blow out the rubber cup and cup filler.

Re-assembling

The necessary rubber replacement part is - Cup, Lockheed Part No. 2762.

1. Thoroughly clean all parts, using Lockheed brake fluid only for the rubber components. All traces of paraffin, petrol or trichlorethylene used for cleaning metal parts must be removed before assembly.
2. Examine the rubber cups for damage, wear or distortion. Usually it is advisable to renew all rubber parts when rebuilding.
3. Dip all parts in brake fluid and assemble wet.
4. Fit the cup filler to the cup then fit this assembly, (filler first) to the cylinder, taking care not to damage or turn back the lip of the cup.
5. Insert the piston complete and finally assemble the dust cover.

Refitting

1. Fit the cylinders into their respective positions on the backplate, and secure each with three spring washers and nuts.

2. Secure the banjo adapters, complete with bridge pipe, by inserting the banjo bolts in both cylinders, making pressure-tight joints with new gaskets.
3. Attach the flexible pipe, with a new gasket interposed, to the banjo bolt of the upper cylinder and tighten to make a pressure-tight joint.
4. Secure the opposite end of the pipe as described on page 22.
5. Refit the brake shoes, see page 21.
6. Fit the brake drum and "bleed" the system as described on page 18.
7. Adjust the brake shoes by the "Micram" adjuster as detailed on page 16.
8. Check the system throughout for leaks by applying firm pressure to the brake pedal.
9. Refit the wheels and lower the car.

REAR WHEEL CYLINDER
(Lockheed Part No. 25453)

Removing

The rubber replacement parts required are as follow :-

Cup - Lockheed Part No. 2762.
Boot - Lockheed Part No. 21740.

1. With the front wheels wedged fore and aft, jack up the rear of the vehicle, then remove the rear wheels and brake drums.
2. Remove the brake shoes as described on page 20.
3. Remove the banjo bolt securing the banjo adapter at the rear of the backplate.
4. Remove the gaiter then disconnect the brake rod from the hand brake lever. Remove the protective rubber boot from the lever.
5. Tilt the cylinder and manoeuvre it from the slot in the backplate.

Dismantling

1. Remove the dust cover and the outer piston.
2. Push out the hand brake lever pivot pin, then withdraw the lever.
3. Shake out the inner piston then apply sufficient air pressure at the fluid connection to blow out the cup and cup filler.
4. Clean all parts thoroughly, using Lockheed brake fluid only for rubber parts. All traces of petrol, paraffin or trichlorethylene must be removed before assembly.

Re-assembling

1. Examine all rubber parts for damage, wear or distortion. Usually it is advisable to renew all the rubber parts when rebuilding.
2. Dip all internal components in brake fluid and assemble them wet.
3. Insert the cup filler in the cup then fit this assembly (cup filler first) into the cylinder, taking care not to damage or turn back the lip of the cup.
4. Insert the inner piston, ensuring that the slot in the piston faces the open end of the cylinder and is aligned with the lever slot in the casting.
5. Insert the hand brake lever with the crank towards the open end of the cylinder then secure it with its pivot pin.
6. Insert the outer piston so that its slot engages the lever then fit the dust cover.

Refitting

1. Offer up the cylinder to the backplate, with the hand brake lever through the slot and facing to the rear, then manoeuvre the cylinder into position in its slot.
2. Refit the rubber boot.
3. Connect the banjo adapter to the cylinder with the banjo bolt, making a pressure tight joint with new copper gaskets.

4. Refit the brake shoes as described on page 20.
5. Fit the brake drum and "bleed" the system as detailed on page 18.
6. Adjust the brake shoes by the "Micram" adjuster as detailed on page 16.
7. Offer up the transverse brake rod to the hand brake lever and fit the clevis pin.
8. Check the system throughout for leaks by applying a firm pressure to the brake pedal.
9. Refit the wheels and lower the car; remove the wedges from the front wheels.

FAULTS AND REMEDIES

Pedal can be depressed to floor-board

Normal wear of linings.

Indicated by brakes operating if the foot pedal is "pumped". Re-adjust brakes at the "Micram" adjusters or, if worn badly, fit relined brakes.

Leakage in the system.

Indicated by the pedal reaching the floor-board if under steady pressure. Check the pipe lines, joints and wheel cylinders for leaks. If these are satisfactory, examine the piston and cylinder of the integral master cylinder for scoring and wear.

Air in the system

Indicated by "springy" pedal action or, in extreme cases, pedal reaching floor-board when under normal pressure. Correct by "bleeding" the system.

Incorrect adjustment of the brake pedal.

Indicated by excessive free movement of the brake pedal. Re-adjust to give $\frac{1}{2}$ in. free movement. Excessive free movement can be caused by incorrect hand brake adjustment, e.g. adjustment of cable to compensate for brake lining wear.

No fluid in the supply tank.

Re-fill the tank and "bleed" the system.

All brakes drag

Mineral oil in the system.

Engine oil, paraffin or any other mineral base liquid will cause the rubber cup etc. in the system to swell and distort, thereby preventing correct operation. Remove and replace all rubber cups etc. and clean the system. Re-fill with Lockheed brake fluid (orange) only.

Incorrect adjustment of the brake pedal.

This may prevent the cup of the master cylinder uncovering the by-pass port in the cylinder and thereby allowing a gradual build-up of pressure in the system and causing the brakes to drag without operation of the foot pedal. Immediate relief may be obtained by opening the bleeder screw at one wheel to release the excess fluid. Close the screw before operating the brakes. Re-adjust the brake pedal to give the desired amount of free movement. Blockage of the by-pass port by foreign matter will cause the same symptoms.

Vent-hole in integral master cylinder filler cap obstructed.

Remove the filler cap and clean out the vent hole; refit the cap.

Rear brakes drag

Hand brake adjusted incorrectly.

Re-adjust.

One brake drags

Weak brake shoe pull-off spring.

Replace the defective spring or springs.

Brake shoe set too close to the drum.

Re-adjust the brake.

Cups distorted.

This condition can be caused by the rubber caps having been in contact with a mineral base oil or other fluid. The consequent swelling and distortion of the cups may retard or prevent the return action of the brake shoes. Correct by removing the cups and fitting new cups which should be dipped in the approved brake fluid before installation.

Car pulls to one side when
brakes are applied

- | | |
|----------------------------------|--|
| Grease-soaked brake lining. | Remove the defective brake shoes and fit re-lined shoes. |
| Shoes incorrectly adjusted. | Re-adjust. |
| Loose brake backplate. | Tighten the bolts and nuts, and secure with the tabwashers then re-adjust the brake shoes. |
| Brake linings of different make. | The difference in efficiency of various brake lining materials will cause uneven braking. A high efficiency lining will cause the wheel affected to be braked more quickly than the others and will pull the car to that side. Correct by ensuring that linings of the same make and type are fitted to all brake shoes. |
| Tyres incorrectly inflated. | Ensure that all tyres are inflated to the correct pressure. |

"Springy" pedal action

- | | |
|--------------------|-----------------------------------|
| Air in the system. | Correct by "bleeding" the system. |
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Excessive pedal pressure required
to stop the car

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|--|--|
| Incorrect linings. | Low efficiency linings become ineffective after a few thousand miles and excessive pressure is required to stop the car. Ensure that all brakes are fitted with the correct linings. |
| Oil on the linings. | Replace the affected shoes and inspect the oil seal of the hub. If the oil seal is worn or damaged it should be replaced. |
| Partial contact between lining and drum. | This can usually be corrected by dressing down the high spots on the linings. If it is found that the brake shoes are twisted or sprung, they should be replaced. |

Severe braking with light
pedal pressure

Incorrectly adjusted brake shoes.

Re-adjust.

Loose brake backplate.

Tighten the bolts and nuts and secure with
tabwashers then re-adjust the brake shoes.

Oil or grease on the linings.

Replace the affected shoes and inspect the
oil seal of the hub. If the oil seal is
worn or damaged, it should be replaced.