Braking System

Braking System

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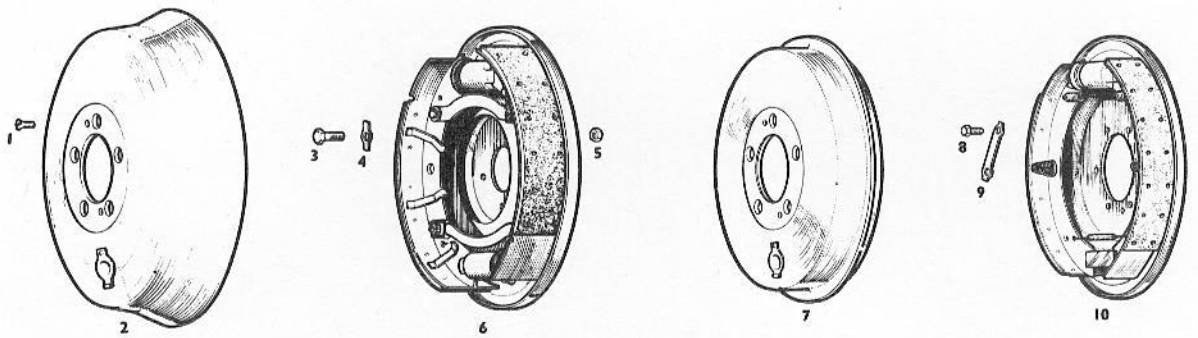
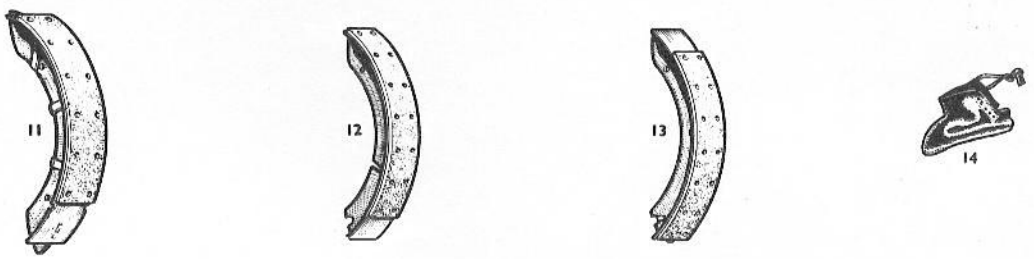
FRONT AND REAR BRAKES.

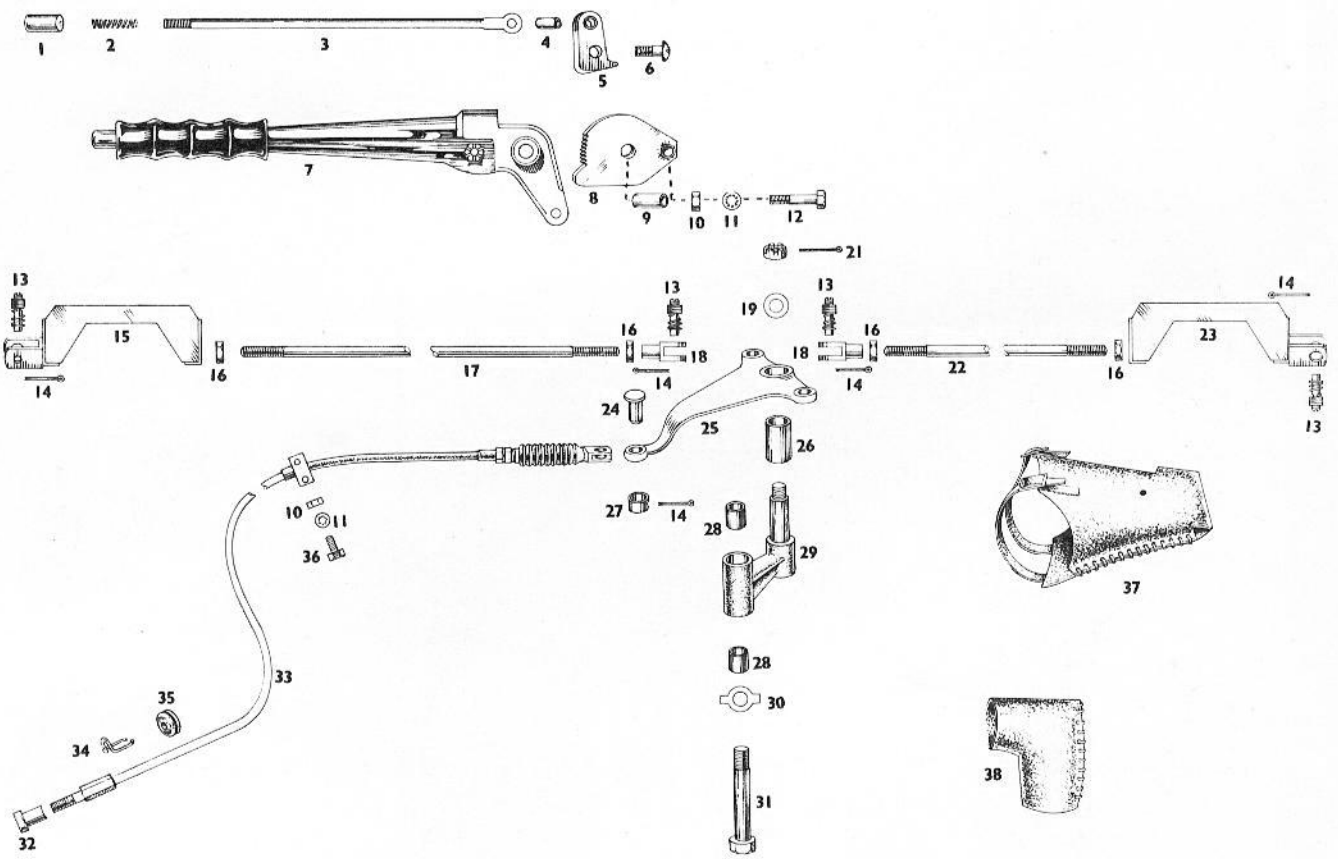
Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
-	1	Screw ¼" BSF Csk. Head .6 long	8	N.501451	8	Bolt	12
404-1-23060	2	Front Brake Drum - Balanced	2	N.501441	9	Tabwasher	6
FB.106/7D	3	Bolt 3/8" BSF 7/8" long	8	404-11-30034	10	Rear Brake LH Lockheed 11" x 1¾"	1
N.421291	4	Tabwasher	8	404-11-30055	-	Rear Brake RH Lockheed 11" x 1¾"	1
FN.106/K	5	Nut 3/8" BSF	8	404-11-23096	11	Front Brake Shoe	4
404-11-23094	6	Front Brake LH. Lockheed 12" x 2¼"	1	N.719076	12	Rear Brake Shoe - Leading	2
404-11-23095	-	Front Brake RH. Lockheed 12" x 2¼"	1	N.719077	13	Rear Brake Shoe - Trailing	2
N.422321	7	Rear Brake Drum - Balanced	2	N.460521	14	Gaiter - Brake Lever	2





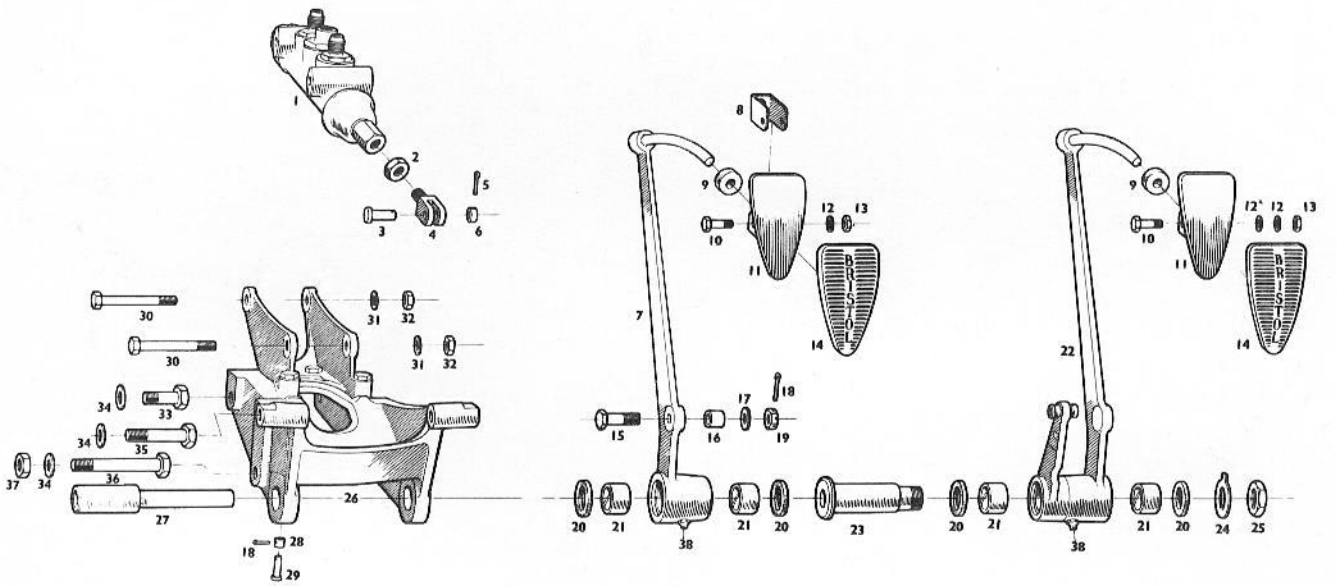
TYPE 404. HANDBRAKE AND HANDBRAKE CONTROL.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
N.713047	1	Pawl Rod Knob	1	FB405/K	20	Nut 5/16" BSF Slotted	1
N.713048	2	Pawl Return Spring	1	-	21	Split Pin 1/16" dia. 1" long	1
N.713049	3	Pawl End	1	404-1-24034	22	Brake Rod L.H.	1
N.713050	4	Pawl Rod Pin	1	404-1-24036	23	End Coupling L.H.	1
N.713051	5	Handbrake Pawl	1	SP4.F11	24	Shackle Pin	1
N.713052	6	Pawl Pivot Bolt	1	N.719005	25	Lever - Brake Operating	1
404-1-24076	7	Handbrake Lever Assy.	1	N.719010	26	Bush	1
N.713046/50	8	Handbrake Ratchet	1	AGS.899/6	27	Collar	1
N.713019	9	Pivot	1	N.502051	28	Bush	2
FN.104/K	10	Nut ¼ "BSF	2	N.719006	29	Compensating Lever	1
-	11	Shakeproof Washer ¼" dia.	2	AGS.195/4	30	Tabwasher	1
FB104/11D	12	Bolt ¼" BSF	2	N.502091	31	Bolt	1
N.719075	13	Pin & Spring	4	404-1-24075	32	Extension Nut	1
-	14	Split Pin 3/32" dia. ¾" long	4	404-1-24048	33	Handbrake Control	1
404-1-24049	15	End Coupling R.H.	1	404-1-24046	34	Spring Clip	1
FB205/K	16	Locknut 5/16" BSF	4	404-1-24047	35	Grommet	1
404-1-24035	17	Brake Rod R.H.	1	FS104/5D	36	Setscrew ¼" BSF	2
N.719011	18	Fork End	2	N.460451	37	Brake Lever Gaiter	1
AGS.160E	19	Washer	1	N.460661	38	Elbow Gaiter	1



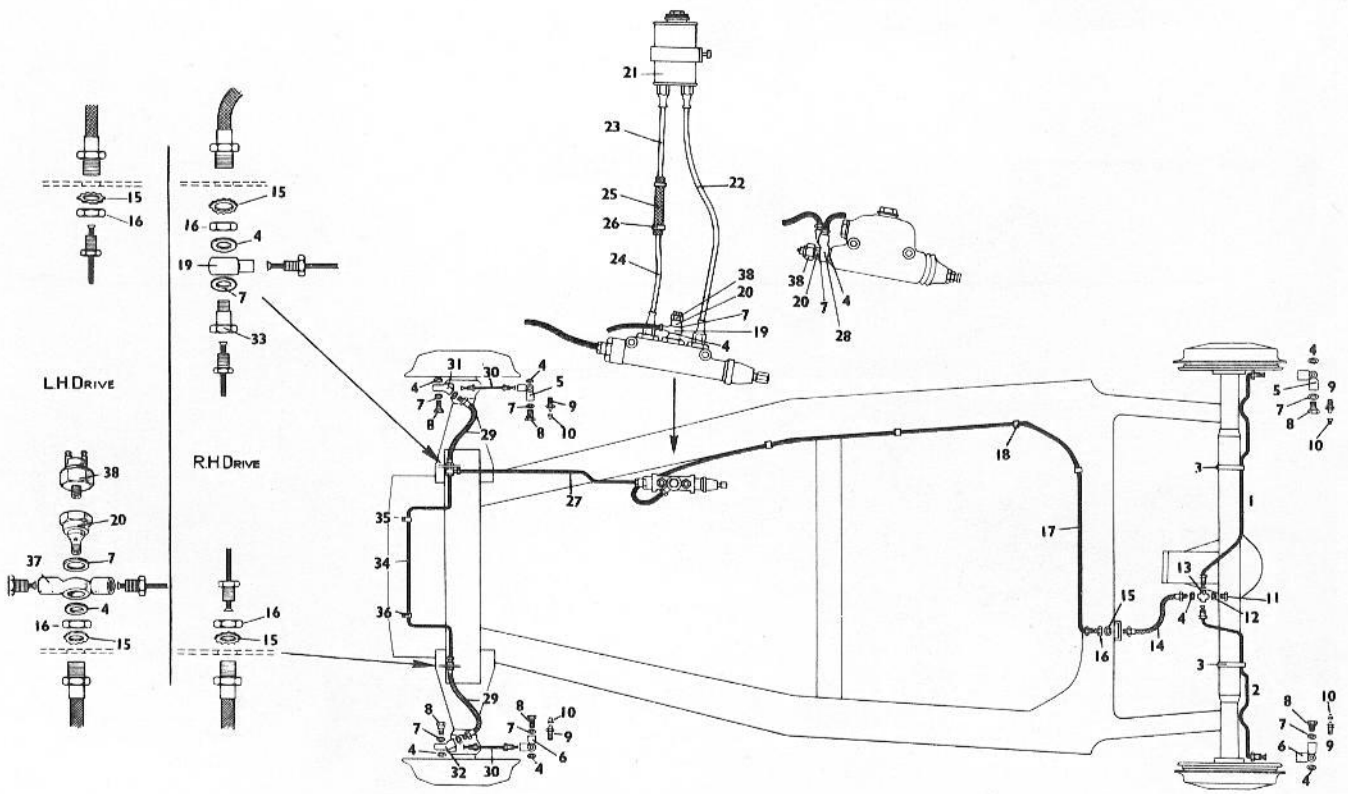
BRAKE AND CLUTCH PEDAL UNIT.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
404-1-24001	1	Tandem Master Cylinder. Lockheed Ref. 31526/3 Chassis 2001 to 2028	1	-	18	Split Pin 1/16" dia. 1" long	2
				FN.406/L	19	Nut 3/8" BSF	1
				N.471231	20	Felt Washer	4
N.470561	-	Integral Master Cylinder. Lockheed 22634 Chassis 2029 on	1	N.471250	21	Pedal Bearing	4
				404-1-24007	22	Foot Brake Lever RHD	1
UNF.206A	2	Locknut (used with 404-1-24008)	1	404-1-24070	-	Foot Brake Lever LHD	-
FN.206/K	-	Locknut (used with N.713062)	1	N.470101	23	Pedal Sleeve Bearing	1
SP.4/F12	3	Steel Pin	1	N.470111	24	Tabwasher	1
404-1-24008	4	Fork (used with Tandem Master Cylinder)	1	N.470121	25	Special Nut	1
N.713062	-	Fork (used with Integral Master Cylinder)	1	404-1-24005	26	Pedal Cradle complete Chassis 2001 to 2028	1
-	5	Split Pin 3/32" dia. x 1" long	1				
AGS.899/6	6	Collar	1	N.713058	-	Pedal Cradle. Chassis 2029 on	1
404-1-24043	7	Clutch Lever RHD	1	N.470211	27	Pedal Bearing Pin	1
404-1-24073	-	Clutch Lever LHD	-	AGS.899/2	28	Collar	1
N.713064	8	Stop Plate	1	SP.4/B9	29	Steel Pin	1
N.713061	9	Rubber Stop	2	FN.105/24D	30	Bolt (used with Tandem Master Cylinder)	2
FB.104/9D	10	Bolt	2	N.470251	-	Special Bolt (used with Integral Master Cylinder)	2
404-1-24042	11	Pedal Pad	2				
-	12	Washer ¼" Shakeproof	2	-	31	Washer 5/16" Shakeproof	2
-	12A	Washer ¼" Plain	1	FN.105/L	32	Nut 5/16" BSF	2
FN.104/L	13	Nut ¼" BSF	2	FB-106/10D	33	Bolt	1
404-1-24041	14	Rubber Pedal Pad	2	-	34	Washer 3/8" Shakeproof	3
N.470171	15	Bolt	1	FB.106/18D	35	Bolt	1
N.470181	16	Distance Piece	1	FB.106/26D	36	Bolt	1
-	17	Washer 3/8" Plain	1	FN.106/K	37	Nut 3/8" BSF	1
				N.471240	38	Grease Nipple	2



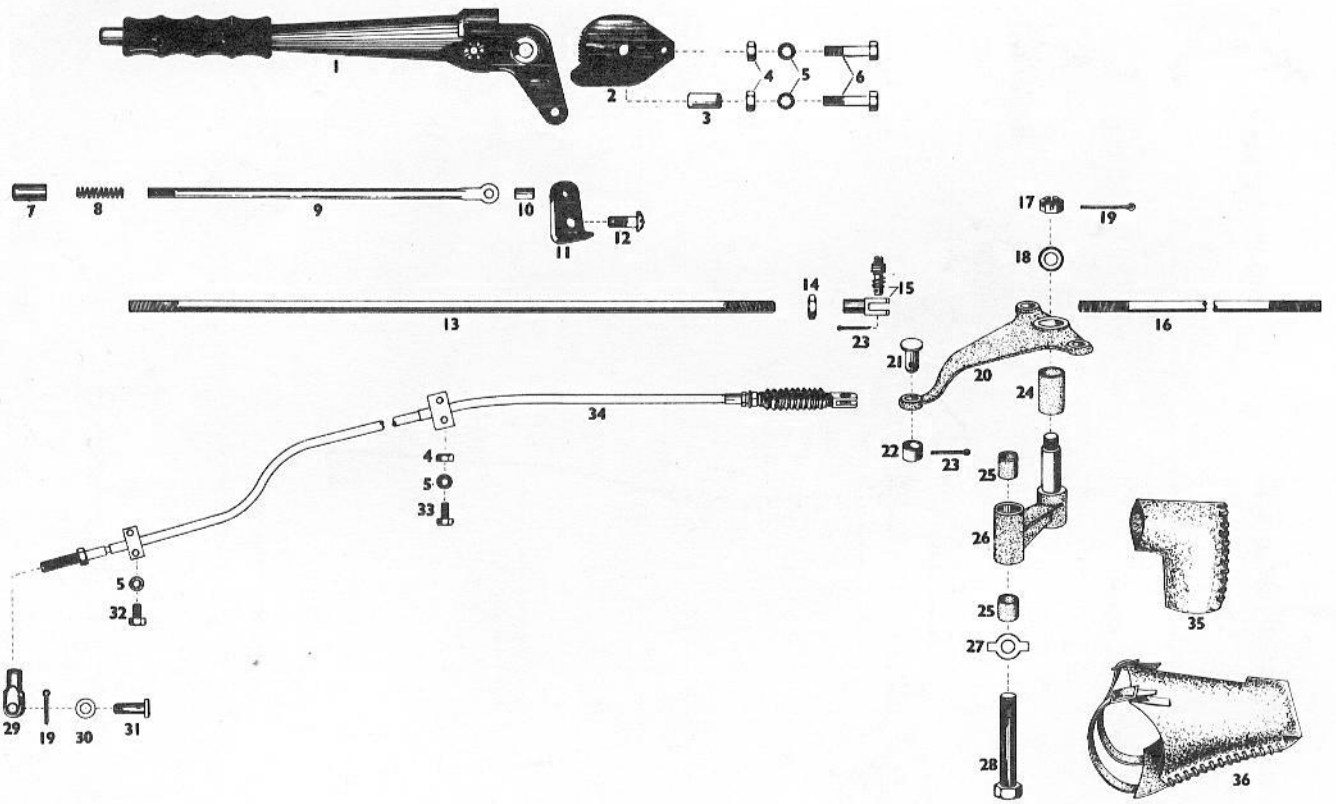
TYPE 404. HYDRAULIC BRAKE SYSTEM.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
404-1-24029	1	Rear Brake Pipe - RH	1	404-1-24014	21	Supply Tank - Lockheed 7218/3)	1
404-1-24030	2	Rear Brake Pipe - LH	1	404-1-24017	22	Supply Pipe)	1
N.470761	3	Clip	2	404-1-24015	23	Supply Pipe - Short - Upper) Used	1
N.470771	4	Gasket - Lockheed KL.45518	8	404-1-24016	24	Supply Pipe - Short - Lower) up to	1
404-1-23064	5	Banjo Connection - Lockheed 22864	2	404-1-24020	25	Hose - Lockheed 16742) Chassis	1
404-1-23065	6	Banjo Connection - Lockheed 22863	2	404-1-24021	26	Hose Clip - Lockheed K.20202) 2028	2
N.470781	7	Gasket - Lockheed KL.44522	7	404-1-24018	27	Front Brake Pipe RHD)	1
N.470791	8	Banjo Bolt - Lockheed 10543	4	404-1-24071	-	Front Brake Pipe LHD)	1
N.470831	9	Bleeder Screw - Lockheed 12272	4				
N.471091	10	Cover for Bleeder Screw - Lockheed 11655	4	405-1-24016	-	Front Brake Pipe RHD) Used on	1
FS.106/4D	11	Setscrew 3/8" BSF ½" long	1	405-1-24018	-	Front Brake Pipe LHD) and from	1
-	12	Washer 3/8" Shakeproof	1	404-1-23068	28	Banjo - Two Way - Lockheed) Chassis	1
N.470741	13	3 Way Union - Lockheed 7965/4	1			23775) 2029	
N.470891	14	Brake Hose - Rear	1				
N.470821	15	Washer - Shakeproof Lockheed K.19411	3	N.470901	29	Brake Hose - Front	2
N.470811	16	Locknut - Lockheed 23897	3	404-1-23063	30	Bridge Pipe	2
404-1-24019	17	Rear Brake Pipe - RHD) Used up to	1	404-1-23068	31	Banjo Connection - Lockheed 23775	1
404-1-24072	-	Rear Brake Pipe - LHD) Chassis 2028		404-1-23069	32	Banjo Connection - Lockheed 23776	1
				N.470801	33	Banjo Bolt - Lockheed 7964	1
404-11-24078	-	Rear Brake Pipe RHD) Used on and from	1	404-1-24009	34	Front Cross Pipe RHD	1
404-11-24080	-	Rear Brake Pipe LHD) Chassis 2029		404-1-24081	-	Front Cross Pipe LHD	1
				404-1-24024	35	Clip RH	1
N.620571	18	Spring Clip - Trimount 99304	5	404-1-24025	36	Clip LH	1
N.470711	19	Banjo Connection - Lockheed 7960	1	N.470701	37	Banjo Union Lockheed 8035	1
404-1-24023	20	Banjo Bolt - Lockheed 8048	1	404-1-24022	38	Stop Light Switch - Lucas HL2	1



TYPE 405. HANDBRAKE AND HANDBRAKE CONTROL.

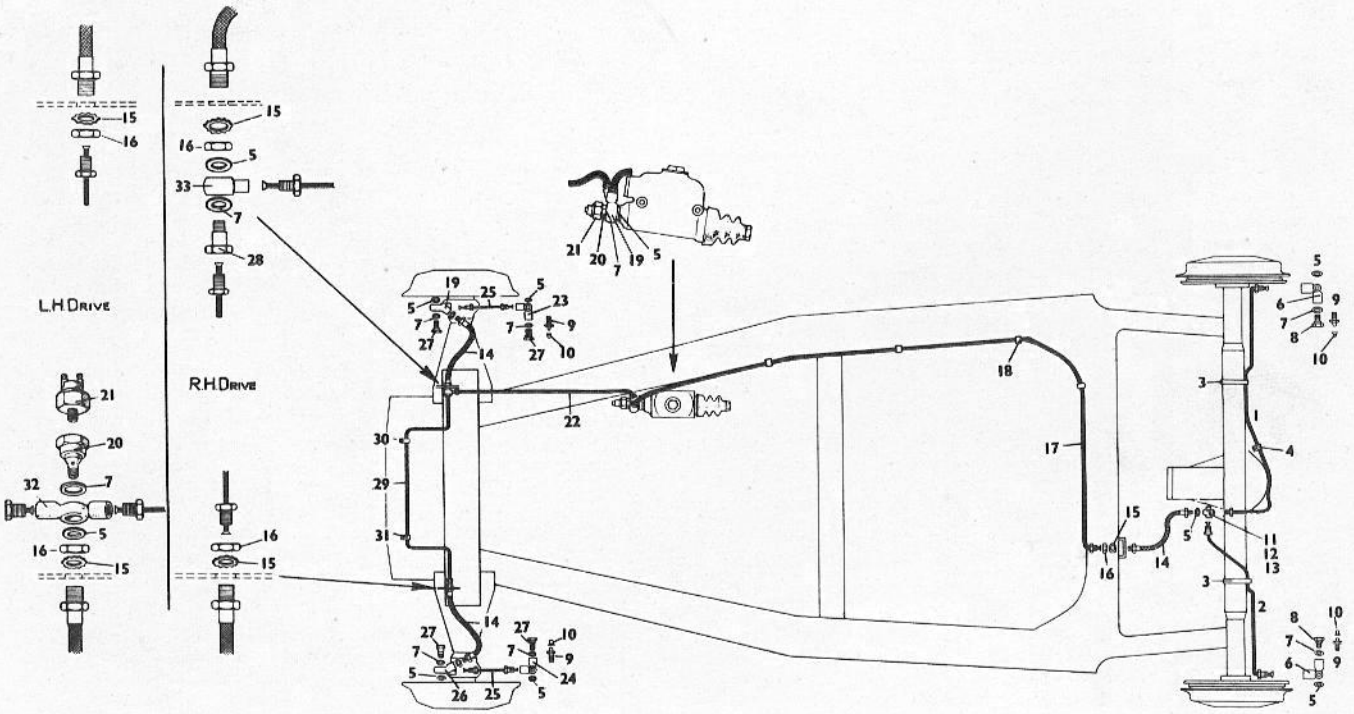
Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
405-1-24026	1	Handbrake Lever	1	-	19	Split Pin 1/16" dia. x 1" long	2
N.713046/50	2	Handbrake Ratchet	1	N.719005	20	Lever - Brake Operating	1
N.713019	3	Pivot	1	SP.4/F11	21	Shackle Pin	1
FN.104/K	4	Nut ¼" BSF	4	AGS.899/6	22	Collar	1
-	5	Washer ¼" Shakeproof	6	-	23	Split Pin 3/32" dia. x ¾" long	5
FB.104/15D	6	Bolt ¼" BSF	2	N.719010	24	Bush	1
N.713047	7	Pawl Rod Knob	1	N.502051	25	Bush	2
N.713048	8	Pawl Return Spring	1	N.719006	26	Compensating Lever	1
N.713049	9	Pawl Rod	1	AGS.195/4	27	Tabwasher	1
N.713050	10	Pawl Rod Pin	1	N.502091	28	Bolt	1
N.713051	11	Pawl	1	N.713069	29	Fork End	1
N.713052	12	Pawl Pivot Bolt	1	-	30	Washer ¼" Plain	1
N.719009	13	Brake Rod R.H.	1	N.713020	31	Handbrake Lever Pin	1
FN.205/K	14	Locknut 5/16" BSF	4	FS.104/4D	32	Setscrew ¼" BSF	2
N.719011	15	Fork End	4	FS.104/5D	33	Setscrew ¼" BSF	2
N.719008	16	Brake Rod L.H.	1	N.713079	34	Handbrake Control	1
FN.405/K	17	Nut 5/16" BSF Slotted	1	N.460661	35	Elbow Gaiter	1
AGS.160/E	18	Washer 5/16" dia.	1	N.460451	36	Brake Lever Gaiter	1



TYPE 405. HYDRAULIC BRAKE SYSTEM.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
405-1-30002-2	1	Rear Brake Pipe RH	1	405-1-24019	-	Rear Brake Pipe - LH Drive	1
405-1-30002-1	2	Rear Brake Pipe LH	1	N.620571	18	Spring Clip - Trimount 99304	1
N.470761	3	Clip	2	404-1-23068	19	Banjo Connection - Lockheed 23775 - RH Drive	1
-	-	Screw 2BA Cheese Head 5/8" long	2				
-	-	Washer 2BA Shakeproof	2	404-1-23069	-	Banjo Connection - Lockheed 23776 - LH Drive	1
-	-	Nut 2BA Plain	2				
405-1-30022	4	Clip	1	404-1-24023	20	Banjo Bolt - Lockheed 8048 - RH Drive	2
-	-	Bolt 2BA Hex. Hd 7/16" long	1	404-1-24012	-	Banjo Bolt - Lockheed 10543/4 LH Drive	1
-	-	Washer 2BA Shakeproof	1	404-1-24022	21	Stop Light Switch - Lucas H.L.2	1
-	-	Nut 2BA Plain	1	405-1-24016	22	Front Brake Pipe - RH Drive	1
N.470771	5	Gasket - Lockheed KL.44518	9	405-1-24018	-	Front Brake Pipe - LH Drive	1
N.470751	6	Banjo Connection - Lockheed 8047	2	404-1-23064	23	Banjo Connection - Lockheed 22864	1
N.470781	7	Gasket - Lockheed KL.44522	8	404-1-23065	24	Banjo Connection - Lockheed 22863	1
N.471271	8	Banjo Bolt - Lockheed 27175	2	404-1-23063	25	Bridge Pipe	2
N.470831	9	Bleeder Screw - Lockheed 12272	4	404-1-23069	26	Banjo Connection - Lockheed 23776	1
N.471091	10	Cover for Bleeder Screw - Lockheed 11655	4	N.470791	27	Banjo Bolt - Lockheed 10543	4
N.470741	11	3 way Union - Lockheed 7965/4	1	N.470801	28	Banjo Bolt - Lockheed 7964	1
FB.104/12D	12	Bolt ¼" BSF Hex Hd 1½" long	1	404-1-24009	29	Front Cross Pipe RH Drive	1
-	13	Washer ¼" Shakeproof	1	404-1-24081	-	Front Cross Pipe LH Drive	1
N.470901	14	Flexible Brake Pipe - Lockheed KL.48924	3	404-1-24024	30	Clip RH	1
N.470821	15	Washer Shakeproof Lockheed K.19411	3	404-1-24025	31	Clip LH	1
N.470811	16	Locknut - Lockheed 23897	3	N.470701	32	Banjo Union Lockheed 8035	1
405-1-24012	17	Rear Brake Pipe - RH Drive	1	N.470711	33	Banjo Connection Lockheed 7960	1

* Lockheed Rear Wheel cylinders 83287 with Disc & Brake & Lever.



Braking System

Description

The 'Lockheed' hydraulic foot brake system operates on all four wheels via an integral master cylinder mounted in the foot pedal cradle.

On Type 404 Cars up to Chass 2028 a tandem master cylinder is fitted Fig.138 the front cylinder actuating the rear wheel brakes and the rear cylinder actuating the front brakes. A separate reservoir mounted on the bulkhead is linked to the master cylinder by two feed pipes.

On and from Chassis 2029 and all Type 405 Cars have a single type master cylinder with its own internal reservoir. Fig.139 and Fig.140.

A pressure operated electrical switch fitted to the integral cylinder brings the stop lamp into operation.

Adjustments and Maintenance

Front Brakes Fig.141

Adjustment to the front brakes is entirely automatic by means of an adjusting mechanism which operates on application of the brakes.

Fitting Replacement Brake Shoes

No special tools are needed.

Jack up the car, remove the road wheel, then remove the brake drum.

Remove the soft circlip and washer from each brake shoe pivot post. Extract the split pin, remove the nut and the adjuster parts and adjuster bar finally removing the spring and bolt.

On later Type 405 Cars only a brake shoe steady spring is fitted and this must be compressed and unhooked from its bracket on the backplate.

Move the brake shoes to relieve the tension springs, detach the springs and lift away the shoes.

To refit brake shoes, position them and fit the tension springs, where applicable fit the steady springs. Fit the adjuster bars and keep the brake shoes in the fully closed position.

Fit the brake drums and with the normal application of the brake pedal the shoes should automatically adjust themselves. Check this and see that the drum is comparatively free when the brake is released.

Fit the road wheel. Bed the brakes in carefully when driving without early resorting to hard braking at high speed, causing heat spotting.

Rear Brakes Fig.142

Adjustment for Normal Wear

The following is the correct method of adjustment to compensate for wear of the rear brake linings. When they are adjusted by this method excessive travel of the handbrake lever due to brake lining wear is corrected.

Wedge the front wheels, release the handbrake, jack up the rear of the car and remove the road wheels.

Swing the dust cap on the brake drum to expose the adjuster hole then turn the brake drum until it is opposite the slotted head of the micram adjuster.

Using a screwdriver Fig.143 turn the adjuster clockwise until the shoes bear against the drum, then turn the adjuster back to the nearest notch. Revolve the drum then apply the footbrake hard, this will ascertain that the shoes are positioned correctly. Check the free rotation of the drum again, close the dust cap and fit the road wheel.

Adjust both brakes as near as possible equally.

Fitting Replacement Brake Shoes

With the front wheels wedged, jack up the rear of the car, remove the road wheel and then the brake drums.

Remove the steady spring from the trailing shoe then tilt the shoe free of its locations. Remove the steady spring from the leading shoe and withdraw the shoes. Detach the pull-off and tension springs, and remove the micram adjuster and mask from the end of the leading shoe.

To refit the shoes, position the micram adjuster and mask on the leading brake shoe. Note the trailing shoe is identified by a small pad welded near the slot at the end of the shoe. Position the shoe in the backplate pad and locate the mask and adjuster on the wheel cylinder. Fig.144.

Fit the trailing shoe to the backplate pad and to the rear of the brake cylinder. Fit the pull-off and tension springs and fit the steady springs.

Check that the handbrake is off and that the handbrake lever protruding through the backplate is fully released. With the micram adjuster in its minimum setting, fit the brake drums.

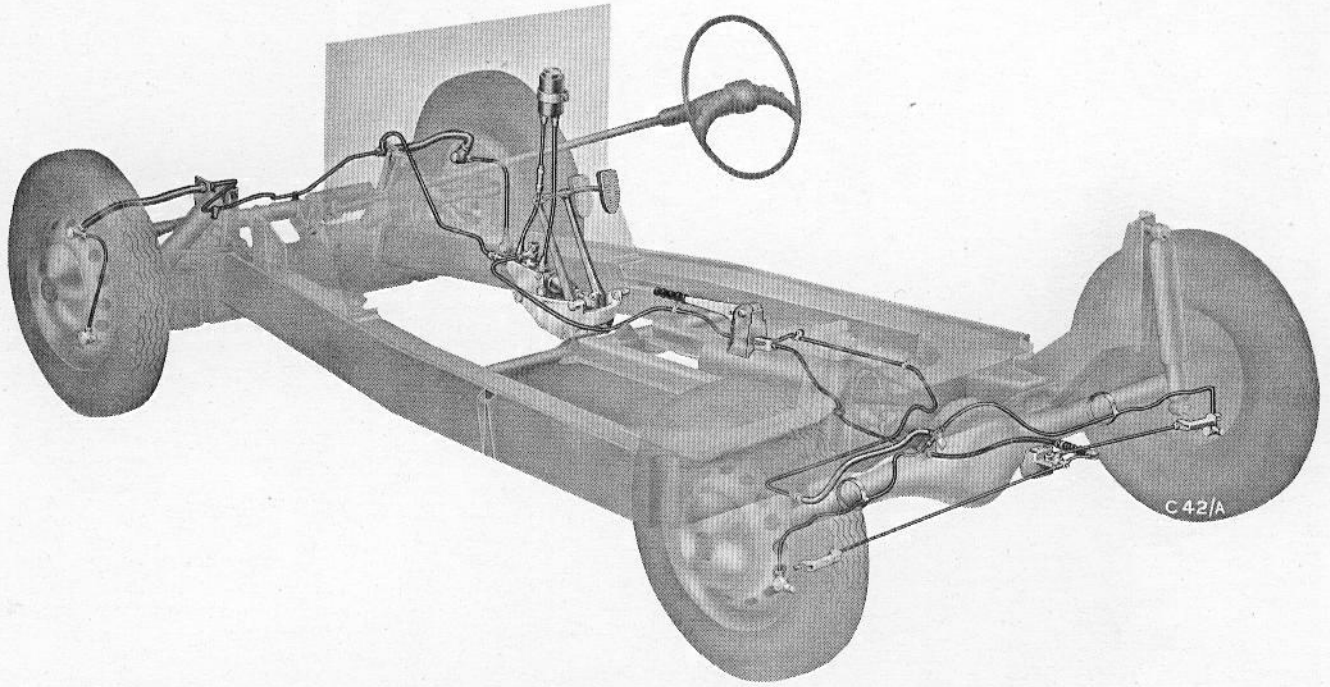


Fig. 138. Braking system (Type 404 car) tandem master cylinder

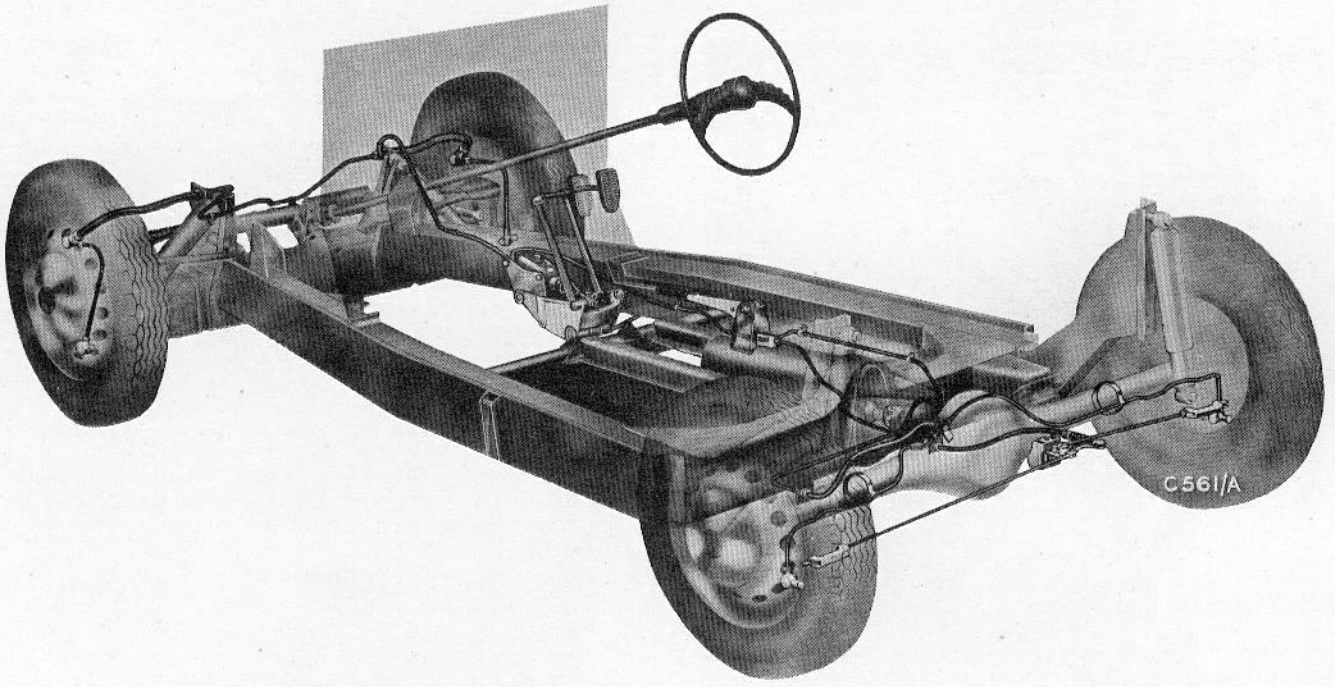


Fig. 139. Braking system (Type 404 car) integral master cylinder

Check the free rotation of the drum, push back the dust cover and using a screwdriver Fig.143 turn the adjuster clockwise until the shoes bear against the drum, then turn the adjuster back to the nearest notch. Revolve the drum then apply the footbrake hard to ensure that the shoes are positioned correctly.

Check the free rotation of the drum again, close the dust cap and fit the road wheel.

As with the front brakes, bed the shoes in by careful application of the brakes in the early stage.

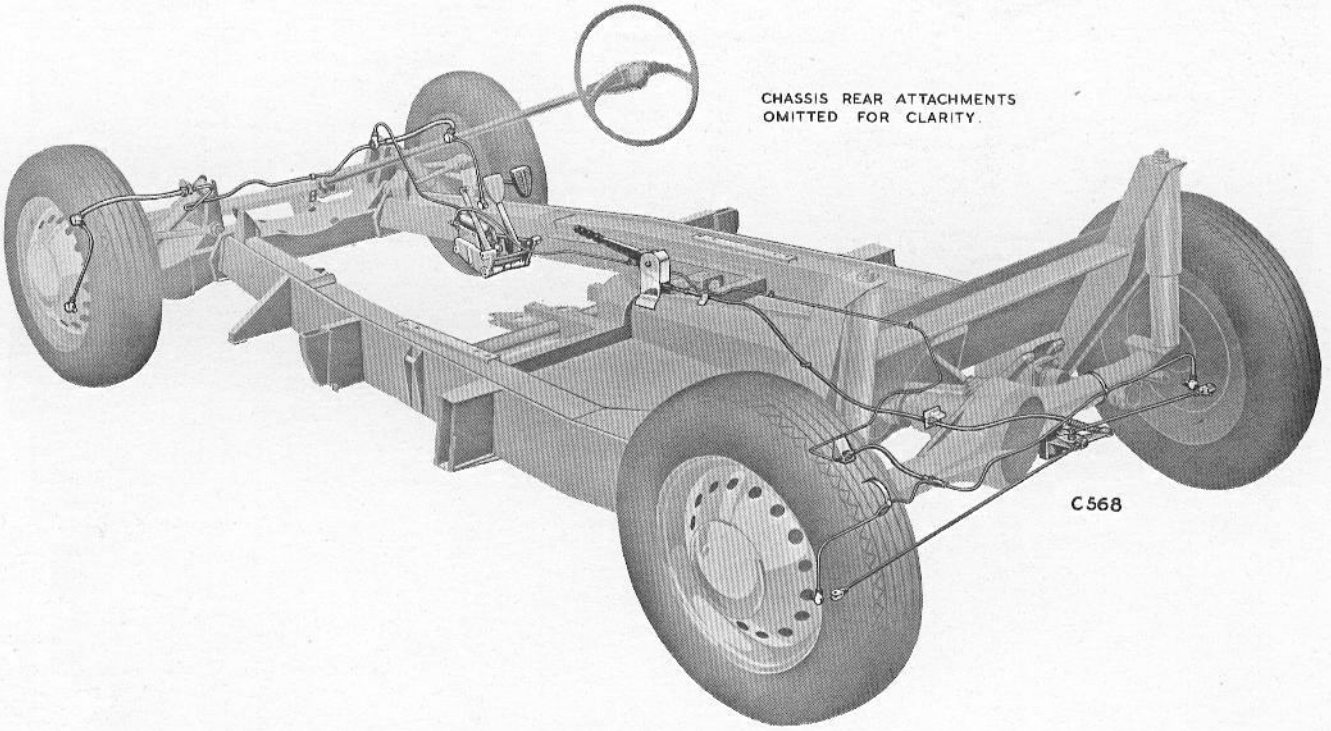


Fig. 140. Braking system (Type 405 car)

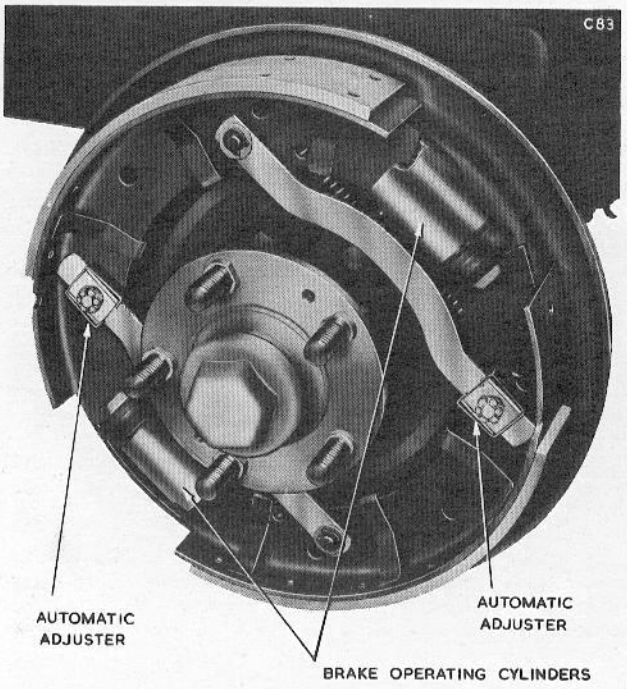


Fig. 141. Front brake

Handbrake

The handbrake is a normal ratchet controlled lever, situated between the front seats, and operates the rear brakes through an encased cable control assembly. The cable is connected to a brake operating lever mounted on a pivoted compensating lever Fig. 145 on the rear axle casing; brake rods link the operating lever with the levers in the rear brake cylinders.

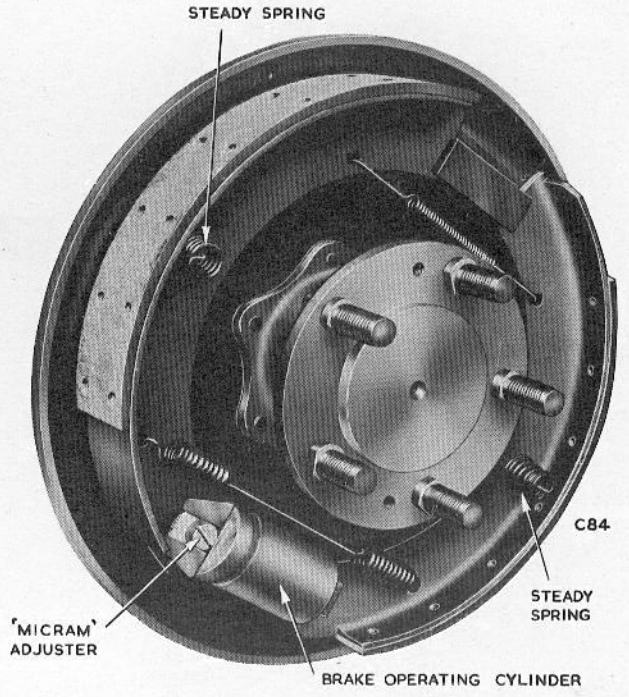


Fig. 142. Rear brake

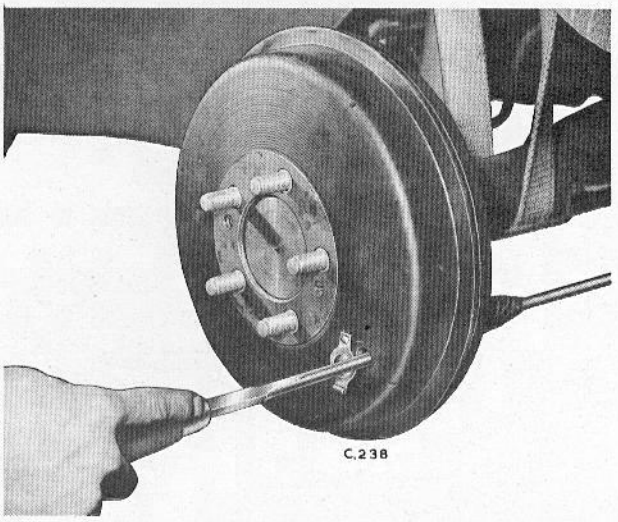


Fig. 143. Adjusting rear brakes

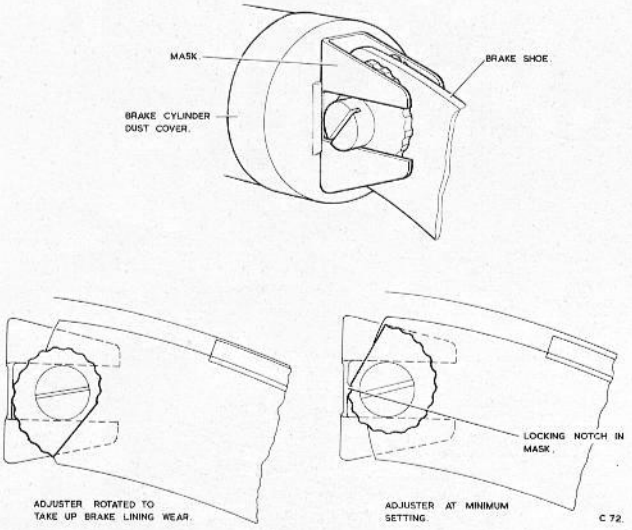


Fig. 144. 'Micram' adjuster

The correct handbrake travel is 3 to 4 notches on the ratchet. On no account attempt to correct for wear by adjusting the cable or the rods since these are set by the manufacturers. When the rear brakes are set correctly the handbrake should have its correct travel.

Replacements

In the event of a cable breaking it is necessary to replace the complete handbrake control assembly as the cable is swaged into the ends and load tested.

To Remove the Handbrake Control

Type 404 Cars

Remove the seats, carpets and floor coverings.

Referring to Fig.146 remove the adjusting nut and the spring clip, take the cable clear of these attachments. Remove the grommet from the right hand rear floor. From beneath detach the two screws securing the control to the chassis, release the locknut Fig.145 on the rear axle casing, remove the gaiters and take out the pin attaching the fork end to the brake compensating lever.

To Fit a Handbrake Control

Feed the rigid end through the floor aperture and connect the chassis attachments, connect to the axle casing and tighten securely. Fit the spigot grommet. Leave the front and rear ends for final setting.

To Remove the Handbrake Control

Type 405 Cars.

Remove the seats, carpets and floor coverings.

Referring to Fig.146 extract the split pin and remove the pin from the handbrake fork end. Release the locknut and unscrew the fork end.

Remove the screws securing the clip to the chassis on the tunnelling and remove the sealing plate from the rear floor. From beneath detach the two screws securing the control to the chassis, release the locknut Fig.145 on the rear axle casing and extract the pin attaching the fork end to the brake operating lever.

To Fit a Handbrake Control

Feed the rigid end through the floor aperture and connect the chassis attachments. Fit the sealing plate to the rear floor. Connect to the axle casing and tighten securely. Leave the front and rear fork ends free for final setting.

Setting the Handbrake and Controls

This setting is only applicable if a component of the braking system has been disturbed for the replacement of a part, for example. It should not be used to compensate for normal wear.

Wedge the front wheels, jack up the rear of the car and support on chassis stands. Remove the rear wheels. Assuming that the seats, floor coverings and carpets have already been removed. Remove the gaiters and detach the brake rod fork ends from the brake cylinder levers at the brake backplates.

Connect the handbrake control at the front and rear ends at the same time adjusting the cable to give the .100 inch dimension as shown in Fig.146. Check that the handbrake lever will move through 8 notches (full ratchet range).

Adjust the brake shoes by means of micram adjusters (1 click off from binding position).

With the handbrake lever in the off position adjust the brake rods so that the fork ends can be assembled to the rear cylinder levers with the brake compensating lever positioned dead fore and aft. Take up any slackness in the brake cylinder lever then re-pin the fork ends and

lubricate. Check that the drum is free to rotate. Fit the gaiters.

Refit the wheels. With the car standing on the ground this adjustment should enable the handbrake to be applied

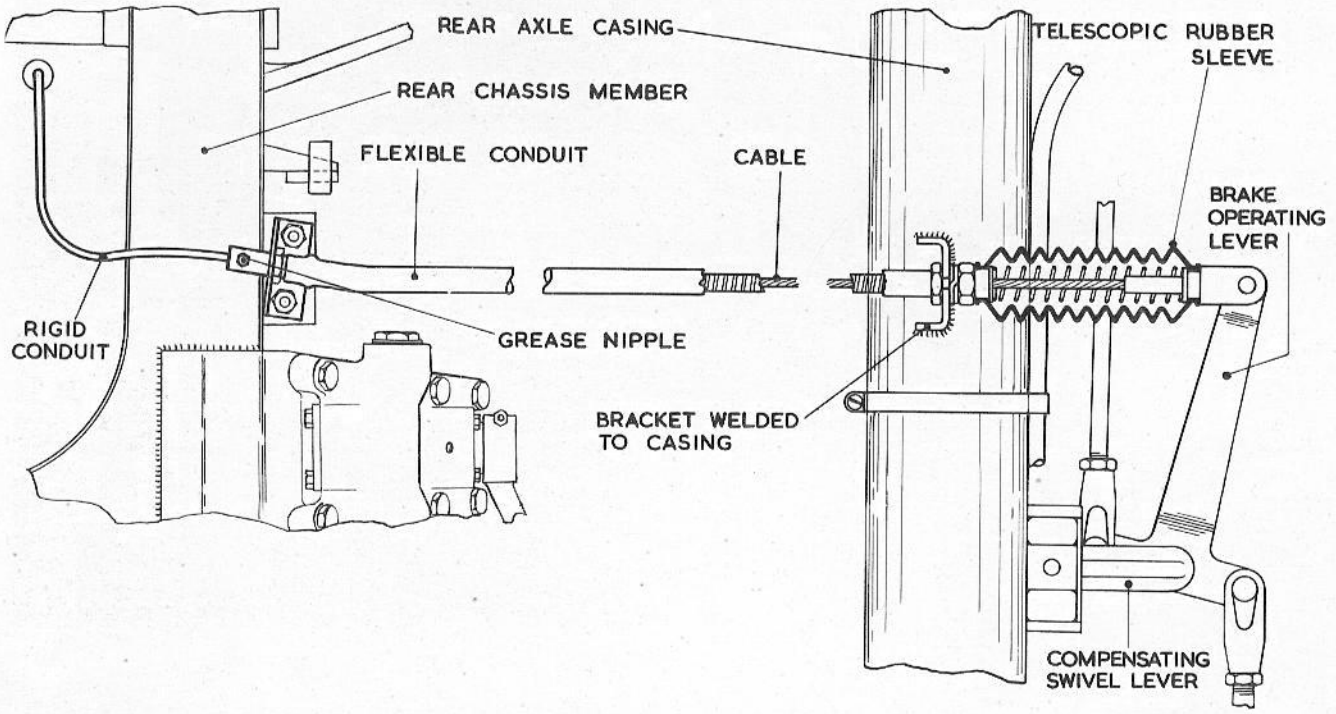


Fig. 145. Handbrake arrangement at rear axle

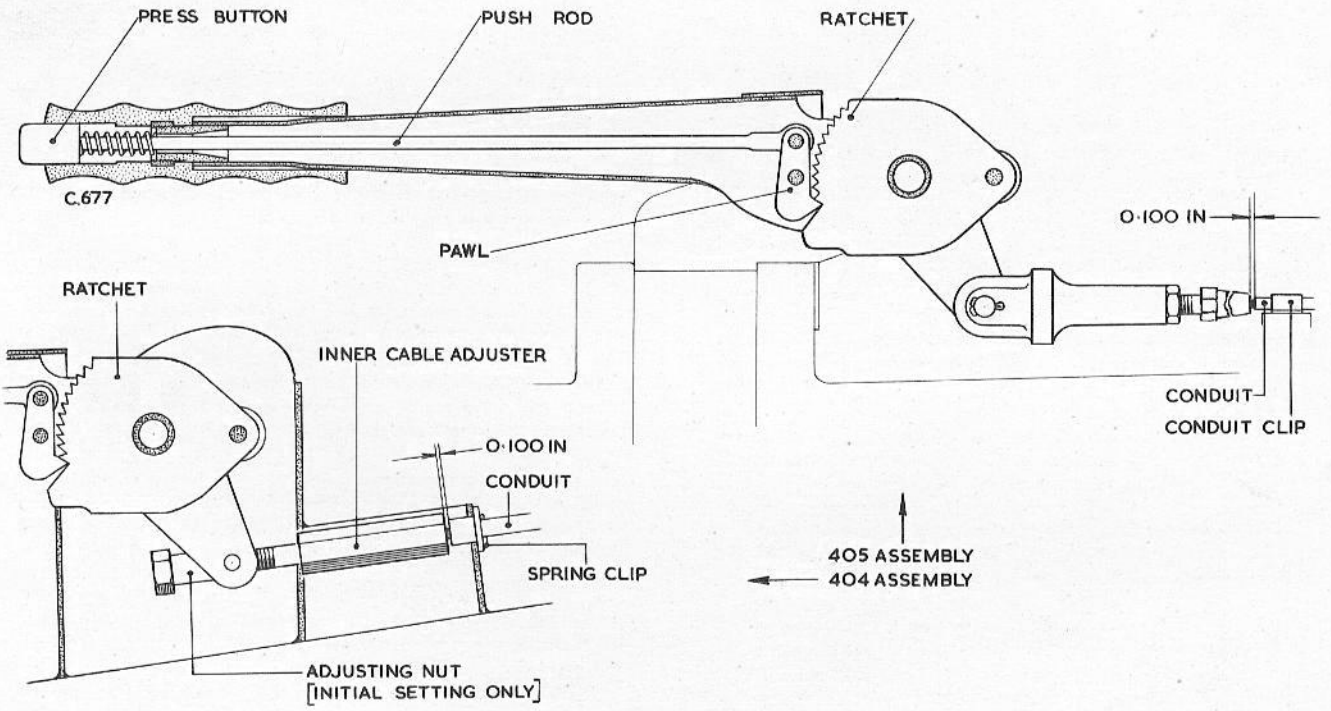


Fig. 146. Handbrake

3 to 4 teeth on the ratchet from the 'off' to the 'on' position.

Brake Pedal Adjustment

The end float between the push rod and piston of the integral master cylinder is correct when the brake pedal pad can be depressed 1/2 inch before the piston commences to move. This is best checked by hand.

If adjustment is necessary, release the locknut Fig.147 and rotate the push rod on the thread of the fork end. Lock securely when correct adjustment has been made.

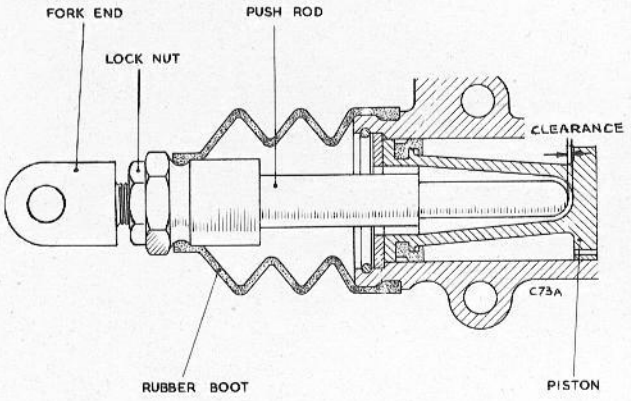


Fig. 147. Brake pedal adjustment

It is essential to have clearance between the push rod and piston or the by-pass port may be obstructed causing the brake to drag.

Bleeding the System

'Bleeding' the system is not a routine maintenance operation and it should only be necessary when the hydraulic system has been disturbed.

On Type 404 Cars up to Chassis 2028 where the tandem master cylinder is used, the feed to the primary cylinder is direct from the reservoir while a second tank within the reservoir feeds the secondary cylinder. Maintaining the fluid level while bleeding the brakes is essential and on this system it is recommended that the brakes are bled in pairs ie, both front brakes and then both rear brakes.

On Type 404 Car Chassis 2029 onwards and on all Type 405 Cars fill the reservoir of the master cylinder to 1/2 inch below the filler cap and keep it at least 1/4 full throughout the operation otherwise air will be drawn into the system necessitating a fresh start.

On both systems proceed as follows:

A bleeder screw is located on each brake backplate and is protected by a rubber cap. Clean off all surrounding dirt, remove the cap and attach the rubber tube, supplied with the car tool kit. Submerge the other end of the rubber tube in a glass jar containing brake fluid. Fig.148.

Using the bleeder wrench, supplied with the car tool kit, open the bleeder screw one complete turn.

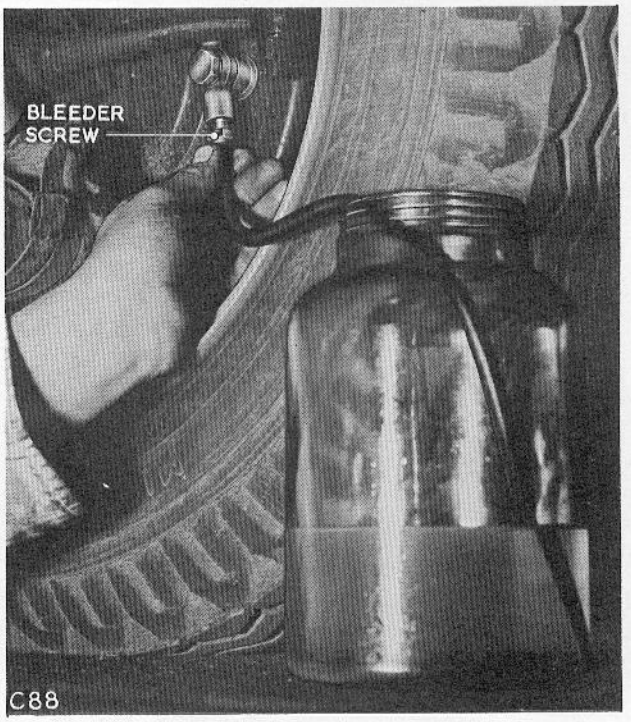


Fig. 148. Bleeding the brakes

Have the brake pedal depressed slowly and allow it to return unassisted, and repeat the pumping action with a slight pause between each action. Watch the flow of fluid into the jar, when air bubbles cease to appear tighten the bleeder screw securely as the brake pedal is being depressed, then remove the tube and refit the cap.

Repeat the process on the other wheels.

Removing and Fitting Flexible Brake Pipes

Fig.149 shows the connections from the rigid pipes to the flexible pipes.

To avoid damage on joints (A) unscrew the union nut and release the rigid pipe. Holding the hexagon of the flexible pipe to prevent it from turning unscrew and remove the locknut and special washer. The flexible pipe is now free to rotate and can be unscrewed by its own hexagon at the other end. At joint (B) unscrew the union and release the rigid pipe. Unscrew the banjo bolt. Then as (A). At joint (C), unscrew the stop light switch and the banjo bolt. Then as (A).

To refit the pipes, reverse the removing procedure and finally bleed the system.

Tandem Master Cylinder Lockheed Part No. 31873

Removing

Disconnect the battery and referring to Fig.150 disconnect the leads from the stop light switch.

Detach the two pipe connections making provision to

catch the fluid in a clean container (see 10A). Unscrew the stop light switch and remove the banjo bolt to release the upper pipe line. Unscrew the union and release the front pipe line.

Locate a suitable rod in the push rod seating in the end of the primary piston and carefully push the remaining parts clear of the cylinder.

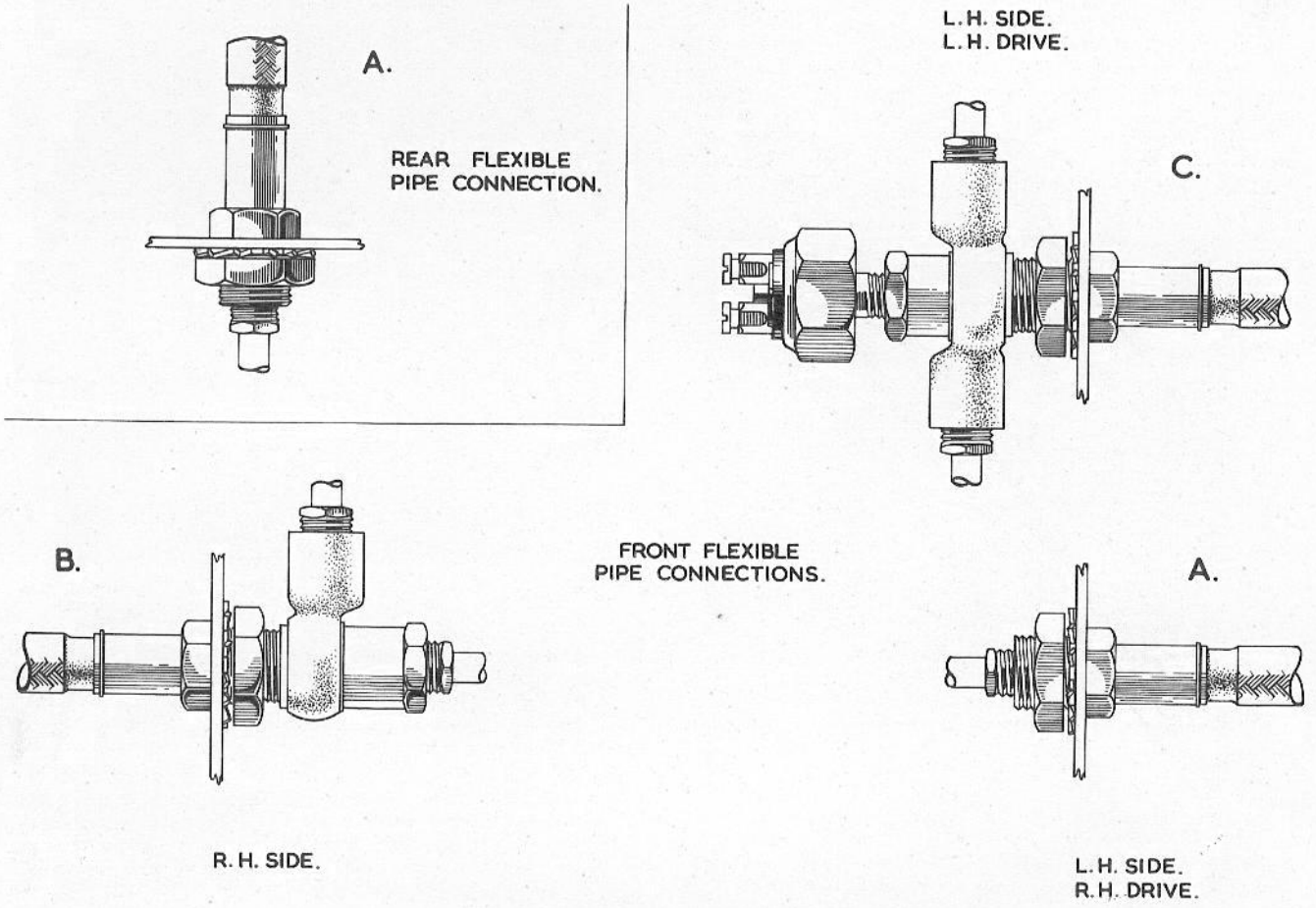


Fig. 149. Flexible pipe fittings

Remove the nuts, shakeproof washers and bolts securing the cylinder to the pedal cradle, then ease the rubber boot from the cylinder barrel and withdraw the assembly leaving the rubber boot and push rod in position.

Dismantling Fig.151.

Unscrew the inlet adaptors from the top of the cylinder, followed by the outlet adaptor from the centre with its valve parts.

At the push rod end, push the piston down the barrel slightly and extract the circlip and stop washer. Unscrew the outlet adaptor at the other end and withdraw the parts back to the secondary piston.

Remove the stop pin and washer from the underside of the barrel.

Re-assembling

Replacement rubber parts are:-

Valve Cup	Lockheed 608(2 reqd)
Valve Washer	Lockheed 5966(2 reqd)
Seal for Piston	Lockheed 30832(3 reqd)
Seal for Inlet Adaptor	Lockheed 31592(2 reqd)
Seal for Outlet Adaptor	Lockheed 31593(1 reqd)
Boot	Lockheed 24995(1 reqd)

Wash all parts thoroughly. If rubber parts are being used again clean with brake fluid.

Dip the parts in brake fluid and assemble wet.

Stretch the rubber seals into their respective recesses in the secondary piston with the smaller diameters back to back against the dividing collar, and insert this assembly, seals last, into the plain end of the cylinder pushing it about central into the bore.

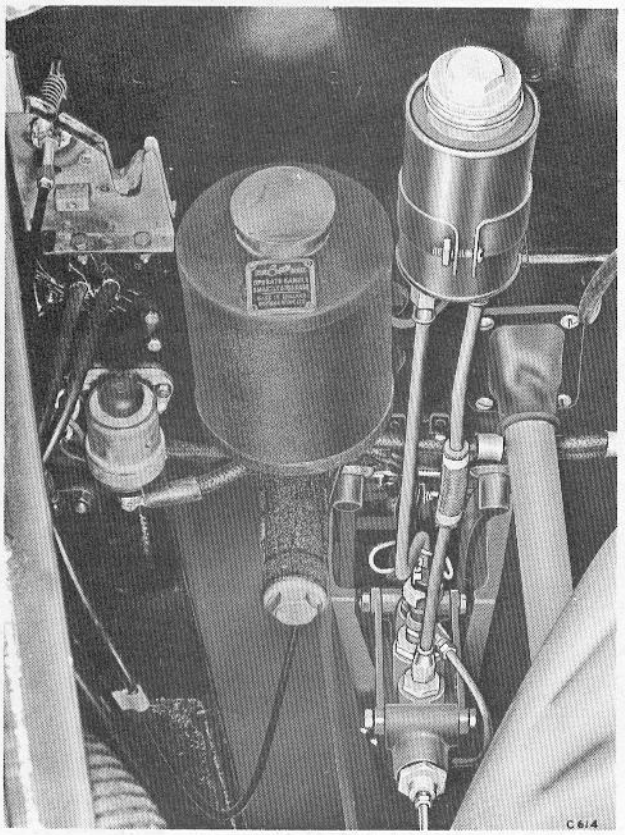


Fig. 150. Tandem master cylinder

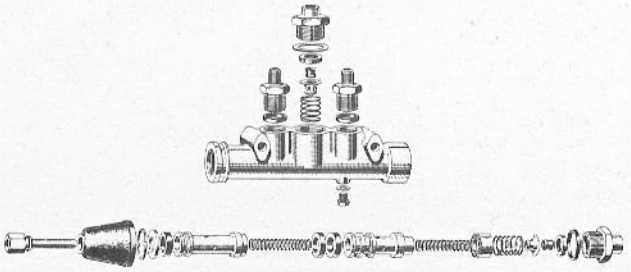


Fig. 151. Tandem master cylinder detail parts

At the threaded end, insert a spring into the end of the piston, then fit the stop and then the valve spring. Fit a valve cup into the valve body, then a rubber valve washer and rubber seal to the outlet adaptor, insert the valve body and screw in the adaptor.

Stretch a rubber seal into the recess of the primary piston, larger diameter to the inside, fit a spring between the pistons and insert the primary piston, seal end last. Fit the stop washer, press the primary piston down with a suitable tool and insert the circlip.

Through the inlet aperture ease back the secondary piston and screw in the stop pin with its washer into the long recess of the piston.

Fit a valve cup to the remaining valve body and a rubber valve washer to the outlet adaptor, then fit the spring and valve body and screw in the outlet adaptor with its gasket.

Fit seals to the two inlet adaptors and screw them partially in. With the cylinder held firmly in a vice press hard on the piston at the push rod end with a suitable rod causing both pistons to move rearwards. With the piston in this position screw in and tighten the inlet adaptors.

Refitting to the Pedal Cradle

Position the cylinder into the pedal cradle, at the same time inserting the push rod. Fit the rubber boot. Fit the two securing bolts, shakeproof washers and nuts and tighten. Check the adjustment of the brake pedal as described. Joint the two feed pipes from the supply tank to the inlet adaptors and refill the tank with fluid.

Test the operation by operating the brake pedal and allowing it to return unassisted. After a few applications the fluid should flow from the control and front outlets.

Connect the banjo bolt and its pipe line to the central adaptor and fit the stop light. Connect the pipe line to the front outlet.

Finally bleed the brakes and check for leaks by applying pressure to the brake pedal.

Connect the leads to the stop light switch, connect the battery and check the stop light.

Integral Master Cylinder Lockheed Part No. 88839

Removing

Disconnect the battery and referring to Fig. 152 disconnect the leads from the stop light switch. Unscrew the banjo bolt from the head of the cylinder and release the brake pipes. Remove the bolts securing the cylinder to the pedal cradle and lift the cylinder clear, leaving the rubber boot and push rod attached to the pedal linkage.

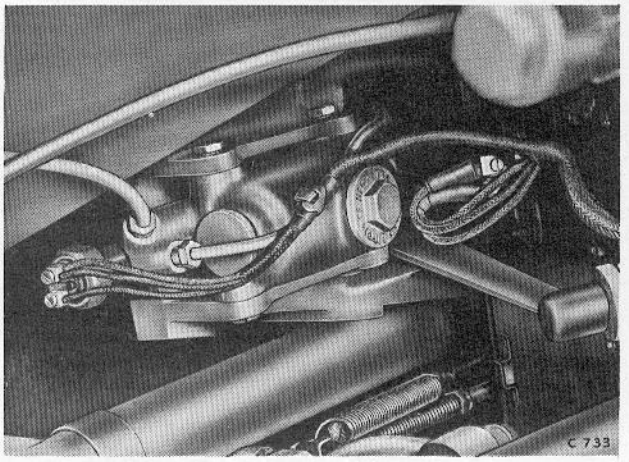


Fig. 152. Integral master cylinder

Unscrew the filler cap and empty the fluid into a clean container.

Dismantling Fig.153.

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.

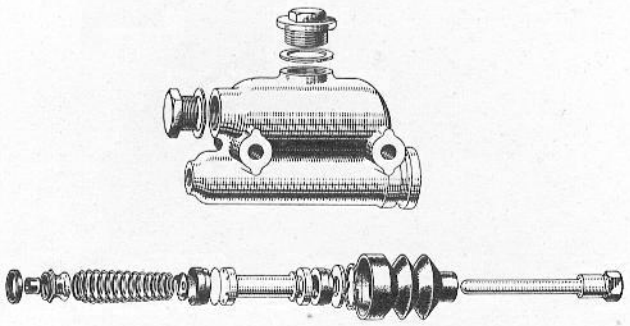


Fig. 153. Integral master cylinder detail parts

Re-assembling

Replacement rubber parts are:-

Main Cup.....Lockheed 112.
Secondary Cup.....Lockheed 400.
Valve Cup.....Lockheed 608.
Valve Washer.....Lockheed 3590.
Boot.....Lockheed 437.

Wash all parts thoroughly. If rubber parts are being used again clean with brake fluid.

Ensure that the by-pass port and the vent holes in the filler cap are clear. Dip all parts in brake fluid and assemble wet.

Stretch the secondary cup over the piston and locate it in its recess. Fit the valve washer and valve cup to the valve body and fit the assembly to the larger end of the return spring with the spring retainer at the smaller end. Insert the assembly valve first into the cylinder.

Insert the main cup taking care not to turn back the lip and press it down to the spring retainer. Insert the piston washer then the piston with its secondary cup.

Push the piston a short way into the bore, insert the piston stop and then the circlip.

Refitting to the Pedal Cradle

Position the cylinder in the pedal cradle, at the same time inserting the push rod. Fit the rubber boot. Fit the bolts, shakeproof washers and nuts and tighten securely. Check the adjustment of the brake pedal as described.

Fill the cylinder with clean Lockheed brake fluid and test the operation by operating the brake pedal and allowing it to return unassisted. After a few applications fluid should flow from the outlet.

Connect up the banjo bolt of the pipe lines and bleed the system.

Check the system for leaks by applying firm pressure to the brake pedal.

Connect the leads to the stop light, connect the battery and check the stop light.

Front Wheel Brake Cylinder Lockheed Part No. 30635

Removing from the Backplate

First carry out the instructions for the removal of the brake shoes.

Then remove the flexible pipe to instructions.

Unscrew the banjo bolt from both cylinders and remove the banjo connectors, bridge pipe and gaskets. Remove the securing nuts and withdraw the cylinders.

Dismantling Fig.154.

Remove the clip or wire and remove the rubber boot with the piston.

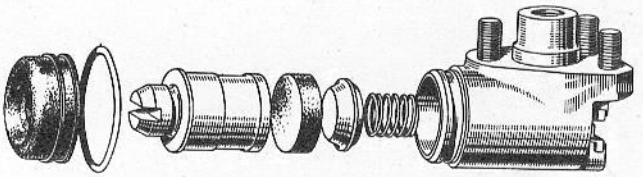


Fig. 154. Front wheel brake cylinder detail parts

Taking care not to damage the bore, hook out the rubber cup at the same time releasing the cap filler and spring.

Re-assembling

Replacement rubber parts are:-

Cup.....Lockheed 2762.
Boot.....Lockheed 30632.

Thoroughly clean all parts. If the rubber cup is being used again clean with brake fluid.

Examine the bore of the cylinder and polish out any roughness. If scored badly replace the cylinder. Dip the parts in brake fluid and assemble wet.

Fit the cup with its cup filler and spring taking care not to damage or turn back the lip of the cup. Insert the piston, fit the rubber boot and secure with the clip or soft wire.

Refitting to the Backplate

Fit the cylinders to the backplate and secure with the three spring washers and nuts.

Secure the banjo adaptors complete with bridge pipe by inserting the banjo bolts into the cylinders, making pressure tight joints with the gaskets.

Attach the flexible pipe to the banjo bolt of the upper

cylinder and tighten to make a pressure tight joint.

Secure the flexible pipe and fit the brake shoes as instructed and bleed the system.

Check for leaks by applying firm pressure to the brake pedal.

Rear Brake Cylinder Lockheed Part No. 83604

Removing from the Backplate

First carry out the instructions for the removal of the brake shoes.

From there remove the banjo bolt securing the banjo adaptor at the rear of the backplate. Remove the gaiter then disconnect the fork end from the brake cylinder lever. Remove the rubber boot from the lever.

Tilt the wheel cylinder and manoeuvre it from the slot in the backplate.

Dismantling Fig.155.

Remove the piston and dust cover and sealing ring. Push out the lever pivot pin, withdraw the lever and shake out the inner piston.

Taking care not to damage the bore, hook out the rubber cup at the same time releasing the cup filler and spring.

Re-assembling

Replacement rubber parts are:-

Cup .....Lockheed 2762.
Boot .....Lockheed 35415.

Thoroughly clean all parts. If the rubber cup is being used again clean with brake fluid. Examine the bore of the cylinder and polish out any roughness. If scored badly replace the cylinder. Dip all internal parts in brake fluid and assemble wet.

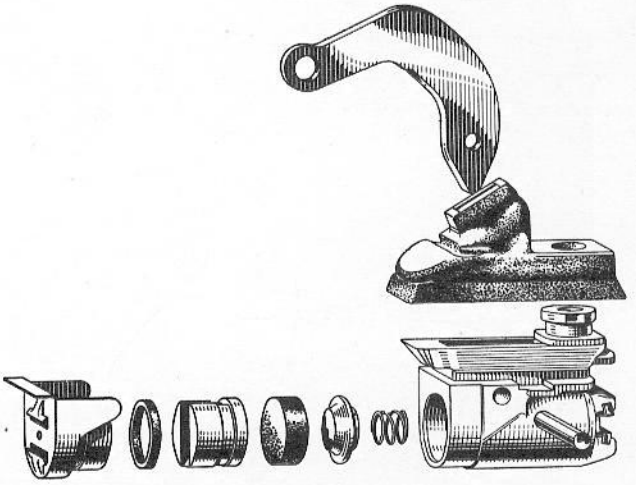


Fig. 155. Rear wheel brake cylinder detail parts

Insert the cup filler in the cup then fit this assembly, spring first, into the cylinder, taking care not to damage or turn back the lip of the cup.

Insert the inner piston, slot to the open end and aligned with the lever slot. Insert the lever with the crank towards the open end of the cylinder and secure it with the pivot pin.

Fit the seal and then the piston and dust cover.

Refitting to the Backplate

Offer the cylinder to the backplate with the lever facing to the rear, then manoeuvre the cylinder into position in the slot. Fit the rubber boot.

Connect the banjo adaptor to the cylinder with the banjo bolt making a pressure tight joint. Secure the fork end to the lever and fit the gaiter.

Fit the brake shoes as instructed.

Finally bleed the system and check for leaks by applying firm pressure to the brake pedal.