BRAKES

G

CATEGORY 2.

BRAKE FLUID SUPPLY TANK.

To prevent any possibility of foreign matter entering the Hydraulic Brake Fluid supply tank, which would endanger the efficient working of the braking system, a gauze filter should be fitted in the top of the tank.

The following cars require the incorporation of this filter, and Retailers are requested to deal with those in their respective areas.

Bentley "S" Type.

B-2-AN to B-400-AN, B-1-AP to B-285-AP.
B-289-AP and B-327-AP.

Bentley "S" Continental.

BC-1-AF to BC-54-AF, BC-56-AF to BC-69-AF,
and BC-74-AF.

Silver Cloud.

SWA-2 to SWA-86, SWA-90, SWA-112 to SWA-130.
and SWA-150.

Remove the supply tank cover and install the 80 mesh gauze filter with one gasket either side of the filter rim. Replace supply tank cover.

The necessary Part Numbers are given below, and Retailers should order these from The London Service Station as required:

UR.2837	Gauze Filter	1 off.
UR.284.2	Gasket	2 off.

No. CB.22.

FOR INFORMATION.

DUAL MASTER CYLINDER BRAKING SYSTEM.

From Rolls-Royce Silver Cloud SYB-50, Bentley 'S' Type saloon B-245-BC, Bentley 'S' Type Continental BC-21-BG, all models subsequently produced and a small number previously produced, a dual hydraulic master cylinder braking system is fitted.

The dual system is, in principle, similar to the single system except that two master cylinders are fitted, each with a separate replenishing reservoir. One cylinder actuates one brake shoe in each front brake, the other operates the second shoe in the front brake and both rear shoes. The safety factor is therefore greatly increased in the event of a defect in either cylinder.

The assembly of master cylinder operating levers (Fig.1) is arranged to provide equal pressures in each master cylinder hydraulic system by means of the balance lever pivotted above a needle roller bearing. The bearing is to be greased with Shell "Retinax" every 10,000 miles at the greasing nipple provided on the outside of the operating lever assembly.

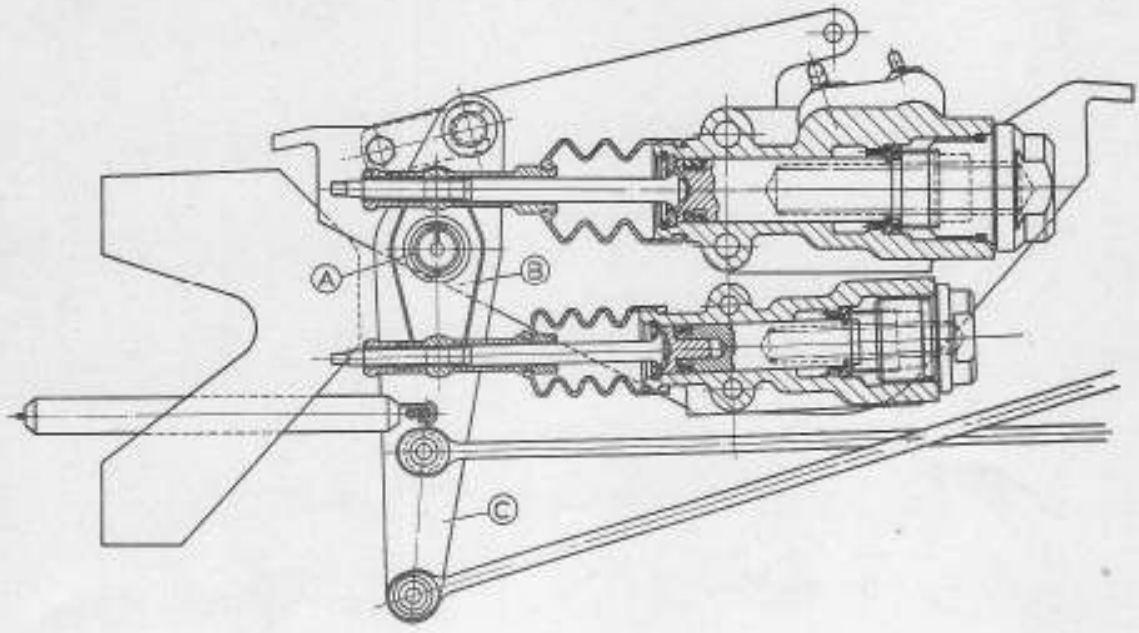


Fig.1.

A. Balance Lever Pivot Needle Roller Bearing.
B. Master Cylinder Balance Lever.
C. Assembly of Master Cylinder Operating Levers.

A check valve has been included in the hydraulic pressure line from each master cylinder to reduce the depression in the hydraulic lines during release of brakes.

As acceleration of the brake fluid on release of the brakes is greater than the acceleration during application of the brakes, there is a momentary depression during release of quite a high value, and if one of the wheel cylinder rubbers will not hold as great a depression as the master cylinder seal, air will be induced into the system through the wheel cylinder. The check valve in the pressure line from the master cylinder will prevent this momentary depression being generated forward of the check valve, and therefore air will not be induced into the system.

The check valve operates both ways at a pressure of 8 lbs sq/in. and does not maintain a permanent pressure difference in the pressure line either side of it, but permits leakage at the valve seat so that the pressure is equal after a short period of time.

All brake shoe expanders are made from cast iron but differ from the latest fitted to the single master cylinder system in that they are not fitted with air excluders but incorporate mechanical seal spreaders to prevent the possibility of fluid leaking, or air entering the system via the seals. Brake shoe expanders fitted with this seal spreader are stamped with the letter 'S' on the machined external faces. These expanders are not interchangeable with those of the single master cylinder system at present.

The brake shoes of the dual system are made from stronger material and have additional strengthening pieces on the operating end of the shoe, and are not interchangeable with brake shoes of the single master cylinder system unless the operating fork is also changed.

BRAKE ADJUSTMENT, BLEEDING AND CHECKING INSTRUCTIONS (Fig.2).

The following should first be disconnected:-

1. Spring S (Pedal Lever).

2. Spring M (Hand Brake Lever).

3. Pin E (Rod B).

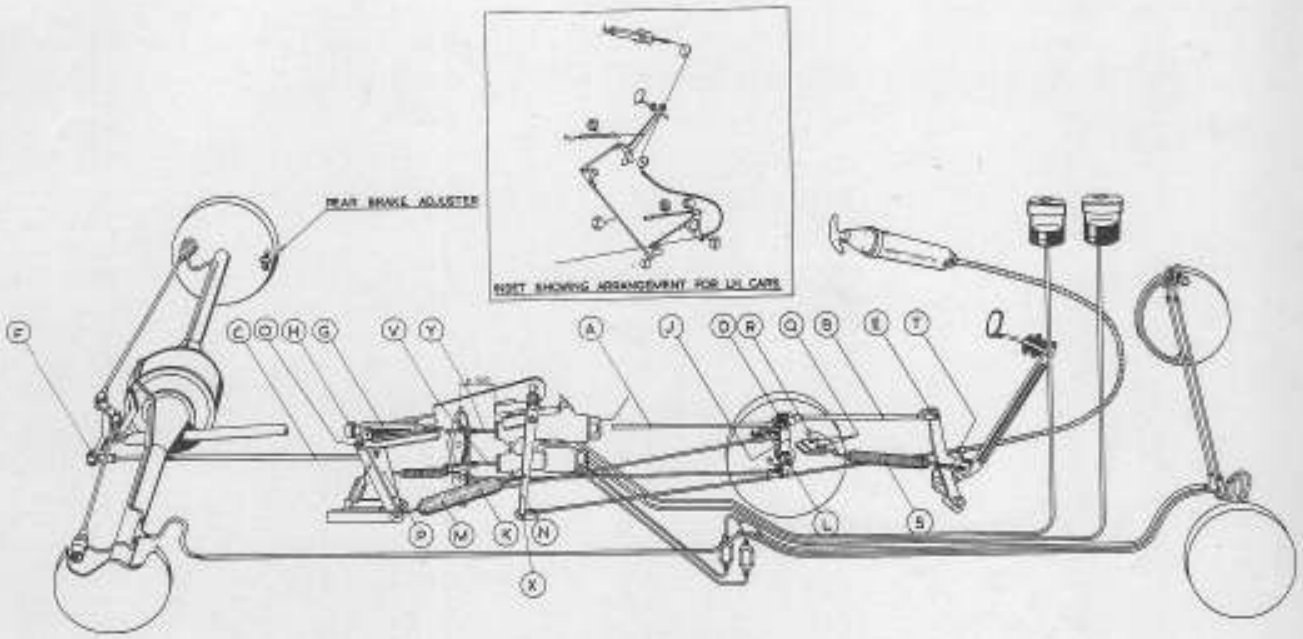


Fig.2.

4. Pin D (Outer Servo Cam Lever).

5. Split pin O. The outer connecting link should then be removed from the pin, lowered and the split pin replaced temporarily. (This is to facilitate spannering of the locknut on rod A.)

6. Pin F (Rear Equaliser).

7. Pin X (Hand Brake Lever).

8. Pin I (Rod Z) L.H. cars only.

In addition the bolts Q retaining on-stop R to the frame should be slackened, and the rear brake adjusters tightened to lock the brake drums.

The linkage can now be adjusted as follows:-

1. <u>Adjustment of Rod A</u>.

Adjust rod A so that when slotted link G is in contact with off-stop H, the clearance between servo cam lever J and the frame is between .200" and .300".

Replace pin D and lock up nut on rod A.

Replace connecting link and renew split pin C.

2. Adjustment of on-stop R.

Place a 1.600" distance piece between slotted link G and off-stop H.

Position on-stop R in contact with the outer servo cam lever J. Lockup bolts Q.

3. Adjustment of Rod Z.

L.H. cars only. Adjust rod Z to the nearest turn of the jaw to give 19.875" centre distance between the two pins.

Replace pin I and lock up nut on rod Z.

4. Adjustment of Rod B.

This rod can only be finally set after the body is in position.

With rod A held rearwards on the off-stop, adjust rod B so that the seal on the pedal stem is compressed approximately .200" by contact with the pedal gap plate.

Replace pin E and spring S and lock up the nut on rod B.

5. Adjustment of Rod C.

Adjust rod C so that there is just sufficient tension in the rods from rear brakes to equaliser to ensure freedom from rattles.

Replace pin F and lock up nut on rod C.

Re-adjust the rear brakes by slackening the adjuster two "clicks".

6. Adjustment of Handbrake.

Replace pin X, and spring M.

Adjust the handbrake cable at the abutment T, to give approximately .250" free movement of the lower end of lever N before lever P is picked up and rod C moves. Lock up the nut on the cable adjuster.

7. Adjustment of Master Cylinders.

Set the push rod Y to give 3.7" between the master cylinder and face and the trunnion U as shown. (NB. In the case of a complete car it must be set before assembling the master cylinder on the car).

Set the push rod V to give just no free movement of lever K before the push rods contact the master cylinder pistons, shorten the push rod V $\frac{1}{4}$ turn and lock up nut.

No on-stop adjustment is necessary.

8. Adjustment of Servo.

Adjust locknuts L until drag between the plates can just be felt on rocking the servo. Undo the locknuts two flats to free the servo applying the pedal once to ensure that the outer cam lever has followed back the locknuts.

Tighten the locknuts L.

NOTE: All split pins removed must be renewed and not replaced.

BLEEDING THE HYDRAULIC SYSTEM.

Make certain that both Brake Fluid Reservoirs are full.

Fix a rubber tube to one of the brake bleed screws and immerse the other end in about 1" of brake fluid in a clean bottle.

Fit the lever (Tool No.RH.417 Fig.3) to the lever K and operate the master cylinders with a firm movement, opening the bleed screw at the same time.

At the end of the forward stroke close the bleed screw and allow the master cylinder pistons to return fully.

Pull the lever K right back and wait five seconds before making a further movement forward with lever and opening the bleed screw.

Continue this cycle ten times or longer if air bubbles still appear in the bottle.

Repeat for the other brakes noting that there are two bleed screws for each front brake and one for each rear brake.

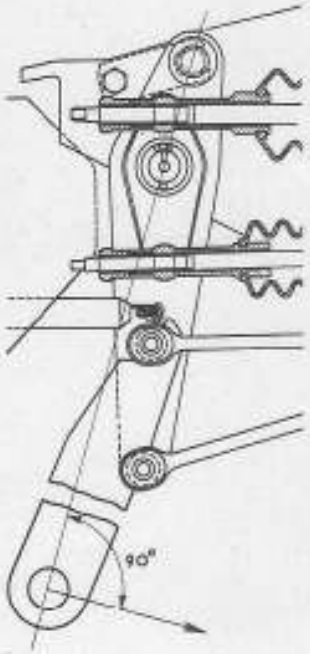


Fig.3.

The 100 lb effort is applied to the lever (Tool No.RH.417) in the direction of the arrow.

During bleeding after two or three cycles, pull the lever K fully forward and then return it fully rearward and note the time taken for the master cylinder pistons to return. This will be evident by the pistons striking the push rod retaining washers on returning. The time permitted is between one and four seconds; if less or more time is taken, the relevant master cylinder or master cylinders must be replaced.

TO CHECK THAT THE HYDRAULIC SYSTEM IS FREE FROM AIR.

Fit the lever (Tool No.RH.417) to the lever K and pull forward pressing the brake shoes hard against the drums, examine the whole hydraulic system for leaks while it is under pressure, then allow the master cylinder pistons to return fully to recuperate.

Fit a spring balance to the lever and exert an effort of 100 lbs forward. Note the distance the bottom clevis pin in the lever K has moved from rest, if this exceeds 2.250" the hydraulic system must be re-bled and re-checked. This distance is known as the "BRAKE SPONGE FIGURE".

CATEGORY 2 MODIFICATION.

MODIFICATION TO THE DUAL MASTER CYLINDER BRAKE FLUID RESERVOIR PIPING.

To overcome any possibility of air being trapped in the master cylinder recuperation pipes and being drawn into the master cylinders on recuperation, larger diameter pipes, rising throughout their length from the master cylinders to the brake fluid reservoirs are to be fitted.

Certain vehicles already have the lower master cylinder recuperation pipe modified and consequently modification is necessary on the upper master cylinder pipe only.

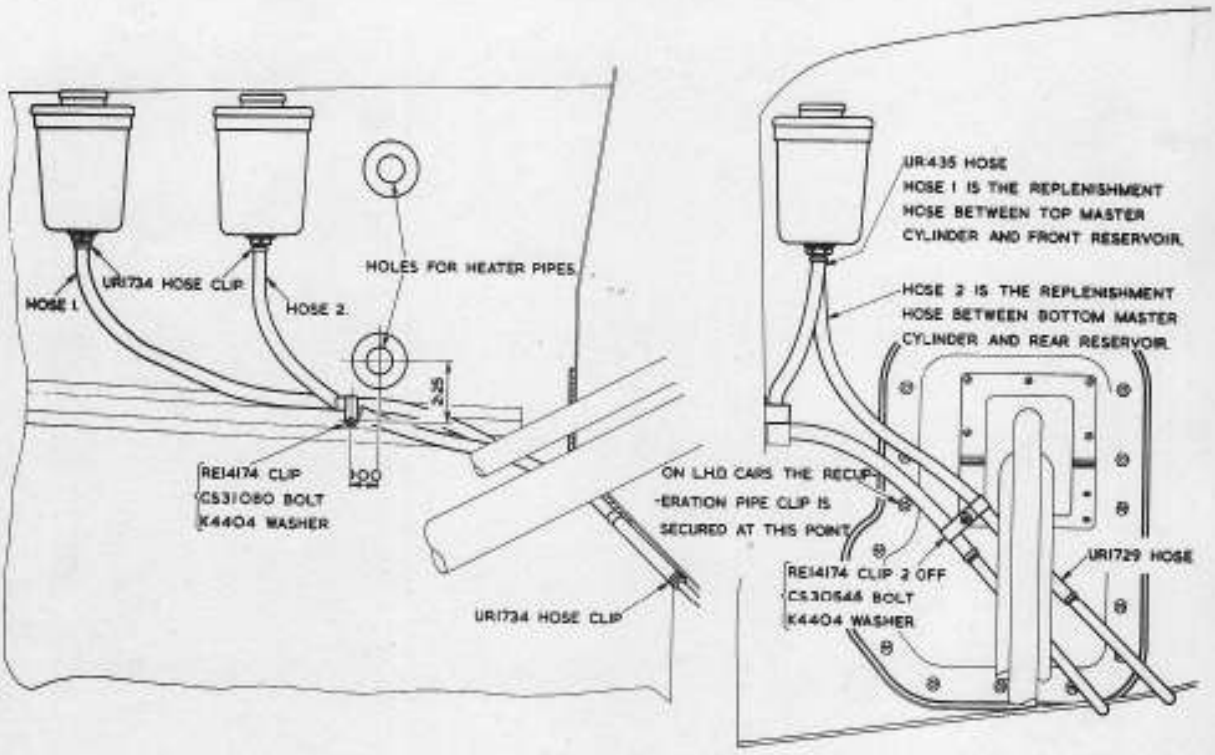
PROCEDURE.

General.

Inspect the car from below and ascertain the extent of modification necessary if any.

Adjust the rear brakes and check and record the Brake Sponge Figure as indicated in the Brake Adjustment and Bleeding Instructions. If the figure is above the limit, any defective master cylinder which can be detected by observing the movement of the master cylinder balance lever, must be replaced. Remove the front carpets, and if only the upper master cylinder requires modification, drain the front brake fluid reservoir, if both master cylinders require modification, drain both reservoirs and keep the brake fluid in a scrupulously clean sealed container until it can be returned to the braking system. The wiring loom fitted along the right hand undersurface of the floor is then to be removed from its clips and eased towards the side of the car to avoid possible damage when drilling the pipe clip fixing holes through the floor as indicated below.

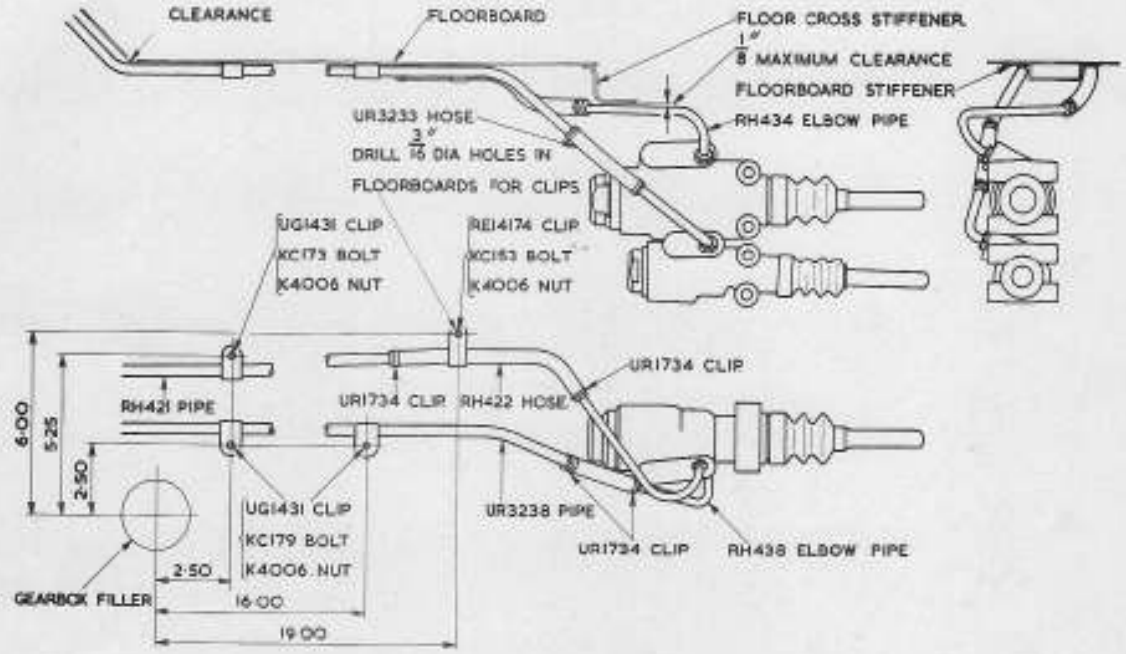
Marking out and drilling the floor to take the hose securing clip setscrews has to be extremely accurate, and it is recommended that the fore and aft centre line of the car be marked on the floor in chalk by measuring the floor width at the front door post, and at the front of the seat which will then indicate the vehicle's centre line, bisecting these dimensions to obtain the centre of the car, and joining the two points. Another line is then drawn parallel to it rearwards from the centre of the gearbox filler; this will provide an accurate position line for the clip fixing holes to be marked from.



MODIFICATION TO THE RECUPERATION PIPE TO THE UPPER MASTER CYLINDER.

Mark and drill the two 3/16" dia. holes in the floor and 1/8" dia. hole through the valance as indicated for the upper master cylinder only.

Take the component pipes and assemble them loosely. The rubber hoses are to be eased over the metal pipes with brake fluid as lubricant, for a distance of one inch. The hose clips and pipe securing clips are then slipped on, and the assembly offered in position, screwing the master cylinder elbow union finger tight only. Adjust the pipe assembly for an even and smooth rise from the master cylinder and adjust the position of the elbow pipe as indicated, so that there is no more than 1/8" clearance between the pipe and the floor panel cross stiffener. The rubber hose at that point is not to be fitted close under the stiffener but clear of it, as indicated. Note that the elbow piece passes over the apex formed by the chassis cruciform member and left hand master cylinder support plate and is above the recuperation pipe from the lower master cylinder at that point.



Allow clearance for the pipe as it passes upwards, at the toe board. When the arrangement of the pipe is satisfactory, tighten the hose clips first, then the master cylinder elbow union and finally the pipe securing clips to the floor; the longer setscrew fits the front clip. Connect the front reservoir to the recuperation pipe with the longer hose provided, tighten the hose clips and then secure the hose to the valance and the steering column seal.

MODIFICATION TO THE RECUPERATION PIPE TO THE LOWER MASTER CYLINDER.

Fitting the lower master cylinder recuperation pipe is carried out in a similar manner to that for the upper system, care being taken to ensure a smooth and continuous rise from the master cylinder. The existing hose from the brake fluid reservoir is to connect the rear reservoir to the lower master cylinder recuperation pipe, contrary to the standard un-modified arrangement.

Refill the brake fluid reservoirs, filtering the fluid previously drained from the system or employing new fluid if satisfactory filtration is

not possible, bleed the braking system, and once more check and record the brake sponge figure after road test.

It is requested that the two brake sponge figures, one obtained before modification and one after, be recorded on the Guarantee Claim Form which is then to be dealt with in the usual manner.

The time permitted for modifying the upper master cylinder is five hours and a further two hours are permitted for modifying the lower master cylinder.

CHASSIS NOS.

Silver Cloud - (SXA. 247, 249, 251.
(SYB. 2, 4, 6, 10, 12, 30, 36, 38, 50, onwards to
(SZB. 67 and LSZB. 19.

Bentley 'S' Type B-BC. 75, 237, 245 onwards to B.378-CK.

Bentley Continental BC-BG. 16, 17, 18, 19, 21 to BC.28-BG.

PARTS REQUIRED.

For Modification to the Upper Master Cylinder.

	RH.421.	Pipe - Recuperation.	1 off.
	RH.422.	Connector - Hose - Rubber.	1 off.
	RH.434.	Piece - Elbow - Upper Cylinder.	1 off.
	UR.1734.	Clips - Hose - Connector.	4 off.
	RE.14174.	Clip - Valance - Wing.	1 off.
	RE.14174.	Clip - Seal - Column.	1 off.
	UG.1431.	Clip - Floor Panel - Front.	1 off.
	RE.14174.	Clip - Floor Panel - Rear.	1 off.
	KC.173.	Screw - 2BA.	1 off.
	KC.153.	Screw - 2BA.	1 off.
	K.4006/Z.	Nut - 2BA.	2 off.
*	CS.30544/Z.	Screw - 2BA.	1 off.
≠	CS.30546/Z.	Screw - 2BA.	1 off.
≠	K.4006/Z.	Nut - 2BA.	1 off.
≠	K.4404/Z.	Washer - 2BA.	1 off.
	CS.31080.	Screw - Self Tapping.	1 off.
	K.4404/Z.	Washer - 2BA.	4 off.

RH.435.	Pipe - Flexible - Reservoir.	1 off.

x Not required on L.H. drive cars.

≠ To be used for the toe-board clip on L.H. drive cars only.

For modification to the Lower Master Cylinder.

UR.3238.	Pipe - Recuperation.	1 off.
UP.3233.	Connector - Hose - Rubber.	1 off.
RH.438.	Piece - Elbow - Lower Cylinder.	1 off.
UR.1734.	Clips - Hose - Connector.	3 off.
RE.14174.	Clip - Seal - Column.	1 off.
UG.1431.	Clip - Floor Panel - Front.	1 off.
UG.1431.	Clip - Floor Panel - Rear.	1 off.
KC.179.	Screw - 2BA.	2 off.
K.4006/Z.	Nut - 2BA.	2 off.
K.4404/Z.	Washers - 2BA.	2 off.

No. CB.26.

CATEGORY 2 MODIFICATION.

MODIFICATION TO THE SINGLE MASTER CYLINDER BRAKE FLUID RESERVOIR PIPING.

To prevent any possibility of air being trapped in the master cylinder recuperation pipe, which may be drawn into the master cylinder on recuperation, a larger diameter pipe rising throughout its length from the master cylinder to the brake fluid reservoir is to be fitted.

PROCEDURE.

Firstly adjust the rear brakes and check and record the BRAKE SPONGE FIGURE (see below). If the sponge figure is excessive the master cylinder must be changed for one of the latest type.

Remove the front carpets. The flexible pipe from the brake fluid reservoir is then to be removed from the recuperation pipe, draining as much fluid as possible into a scrupulously clean container which is then sealed until the fluid can be returned to the reservoir. Disconnect the other end of the pipe from the master cylinder (on cast iron master cylinders the union is unscrewed from the cylinder itself, whereas on aluminium master cylinders the union is unscrewed from the "banjo" union and not the master cylinder). Remove the pipe securing clips and demount the pipe; the pipe may be cut a short distance from the master cylinder to make removal simpler.

Remove the wiring loom fitted along the right hand undersurface of the floor from its clips and ease it towards the side of the car to avoid damage when drilling the two 3/16" dia. holes in the floor which are to be marked and drilled as indicated to take the new hose clip securing setscrews (Fig.1). Drill the 1/8" dia. hole in the right hand valance as indicated (Fig.2).

The two clip holes through the floor must be drilled with great accuracy which will be facilitated if the fore and aft centre line of the car is marked on the floor in chalk and a line drawn rearwards from the centre of the gearbox filler parallel to it to provide an accurate position line for the holes to be marked from.

Take the master cylinder elbow pipe and immerse the end of it in brake fluid so that the short rubber hose can be simply eased over it until the end of the hose coincides with the edge of the large diameter of the elbow pipe where it joins the smaller diameter section, next immerse the straight end of the long pipe in brake fluid and insert it into the other

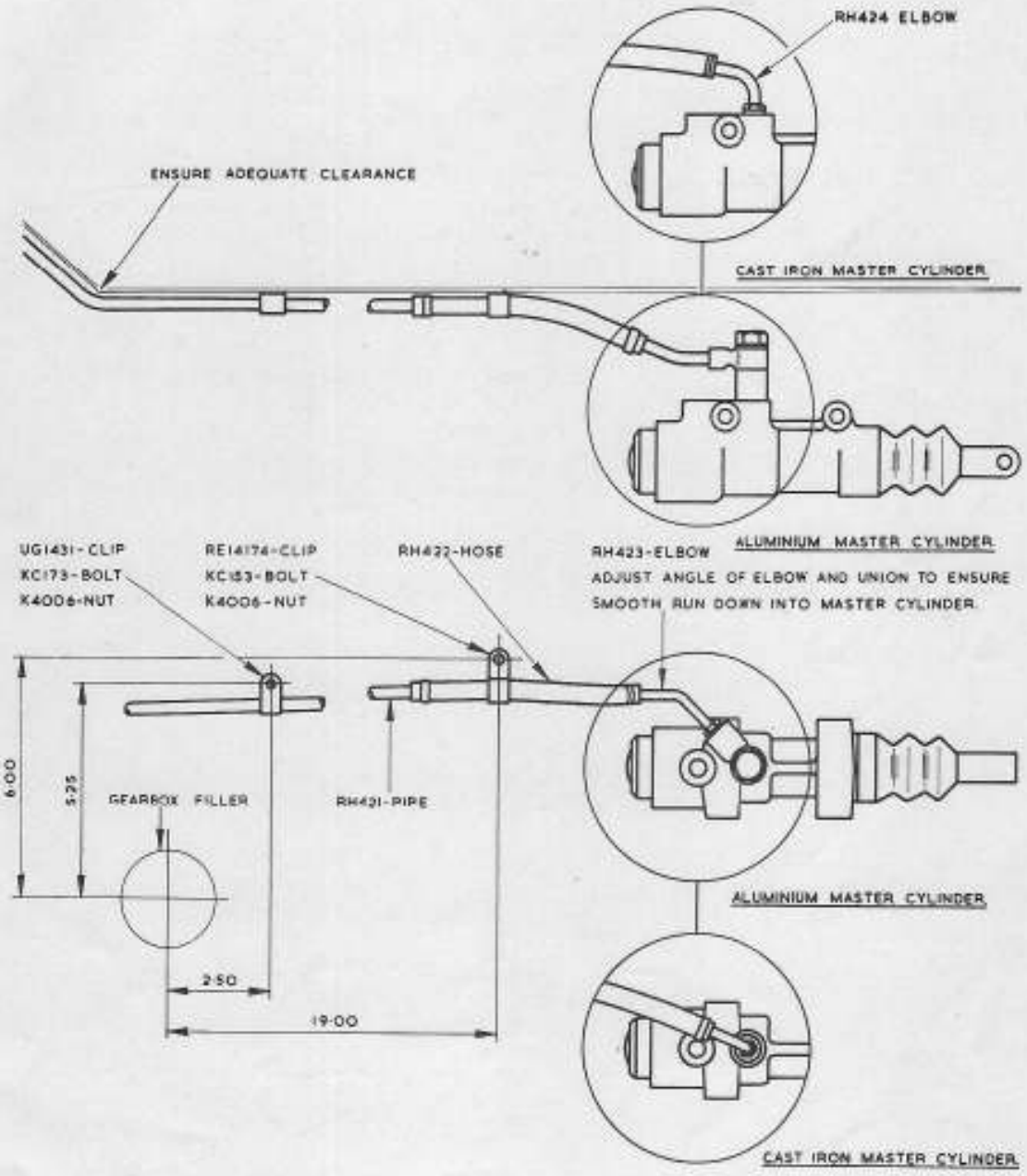

RH424 ELBOW
ENSURE ADEQUATE CLEARANCE
CAST IRON MASTER CYLINDER
ALUMINIUM MASTER CYLINDER
UG1431-CLIP
KC173-BOLT
K4006-NUT
RE14174-CLIP
KC153-BOLT
K4006-NUT
RH422-HOSE
RH423-ELBOW
ADJUST ANGLE OF ELBOW AND UNION TO ENSURE SMOOTH RUN DOWN INTO MASTER CYLINDER
6·00
5·25
GEARBOX FILLER
RH421-PIPE
2·50
19·00
ALUMINIUM MASTER CYLINDER
CAST IRON MASTER CYLINDER

Fig.1.

end of the short rubber hose. Any adjustments to the length of the pipe assembly, and to the angular position are to be made at this point and not where the master cylinder elbow pipe is fitted into the rubber hose.

Fit loosely the two rubber hose clips and the two clips which will secure the pipe to the floor and offer the assembly in position.

Screw the master cylinder union nut finger tight and adjust the pipe for length to provide adequate clearance at the toe-board as indicated (Fig.1) and for angular displacement so that the pipe will align correctly at the master cylinder elbow and also at the steering column seal clip fixing (Fig.2). All adjustments for length and angle are to be made at the point previously described.

Inspect the pipe assembly to ensure that there is a smooth and continuous rise from the master cylinder to the toe-board. The master cylinder elbow union nut for the cast iron master cylinder is left slack and the "banjo" union on the aluminium master cylinder is slackened to permit this final adjustment.

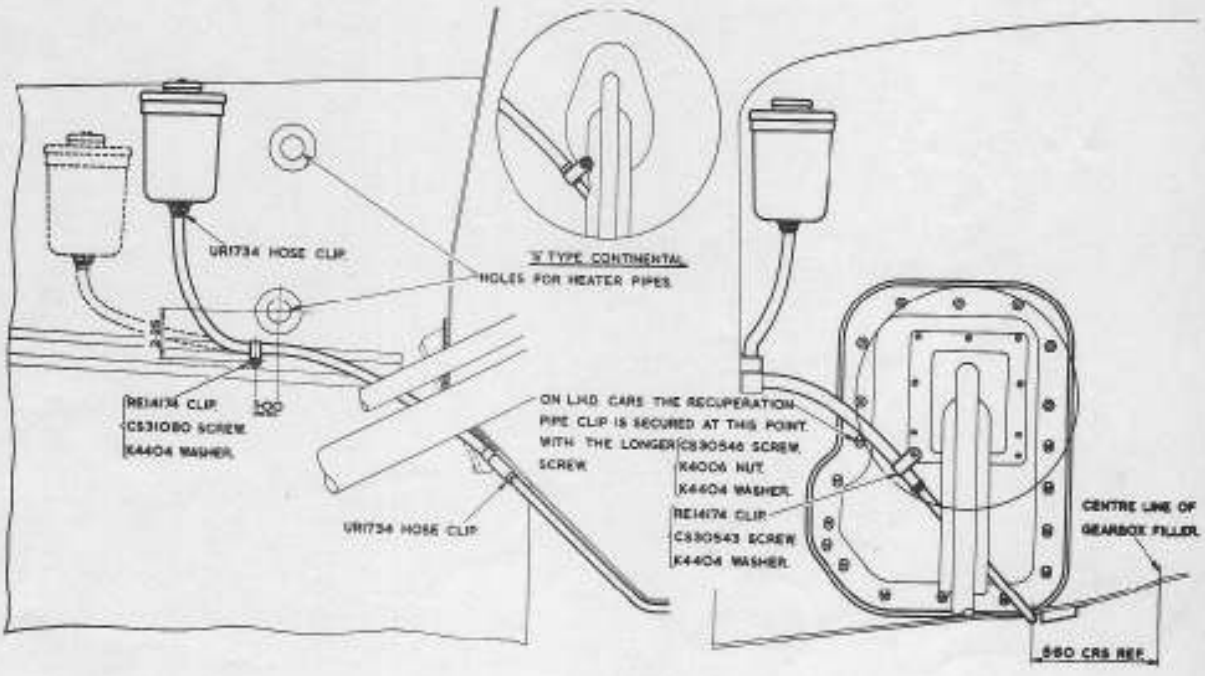


Fig.2.

When satisfactory, tighten the clips on the short rubber hose, the master cylinder elbow union nut and where applicable, the master cylinder banjo union. Fit the longer of the two 2BA setscrews to the front clip and the shorter to the rear and fit the pipe securely to the undersurface of the floor. Note that the larger diameter clip is fitted to the rear and circumscribes the rubber hose and not the metal pipe as the front clip does. Connect the rubber hose from the reservoir to the metal recuperation pipe, tighten the hose clip and secure the hose to the valance with the self tapping screw in the hole drilled in the valance, and also to the floor board at the steering column seal with the longer screw provided, (Fig.2). On LHD cars, the clip is secured to one of the rivet nuts in the pedal gap plate as indicated, by replacing the existing setscrew with a longer one and securing the clip with a spring washer and nut. The reservoir hose should lie along the top edge of the valance stiffener for a short distance before running down to the recuperation pipe.

Replace the wiring loom under the floor into its clips, refill the brake fluid reservoir, bleed the hydraulic system and check and record the BRAKE SPONGE FIGURE once more.

The two BRAKE SPONGE FIGURES obtained, the first before any work has been done, and the second when everything has been completed, are to be noted on the Guarantee Claim Form and sent to Rolls-Royce Limited, in the usual way.

NOTE: The Continental Bentley will require a longer flexible hose from the reservoir to the recuperation pipe and consequently new hoses are provided. (The reservoir and part of the recuperation pipe for the Continental Bentley are shown dotted in Fig.2).

The time permitted for this work is 4 hours.

BLEEDING THE HYDRAULIC SYSTEM

Make certain that the Brake Fluid Reservoir is full.

Fix a rubber tube to one of the brake bleed screws and immerse the other end in about 1" of brake fluid in a clean bottle.

Fit the lever (Tool No.RH.322 or RH.312) to the lever K and operate the master cylinder with a firm movement, opening the bleed screw at the same time.

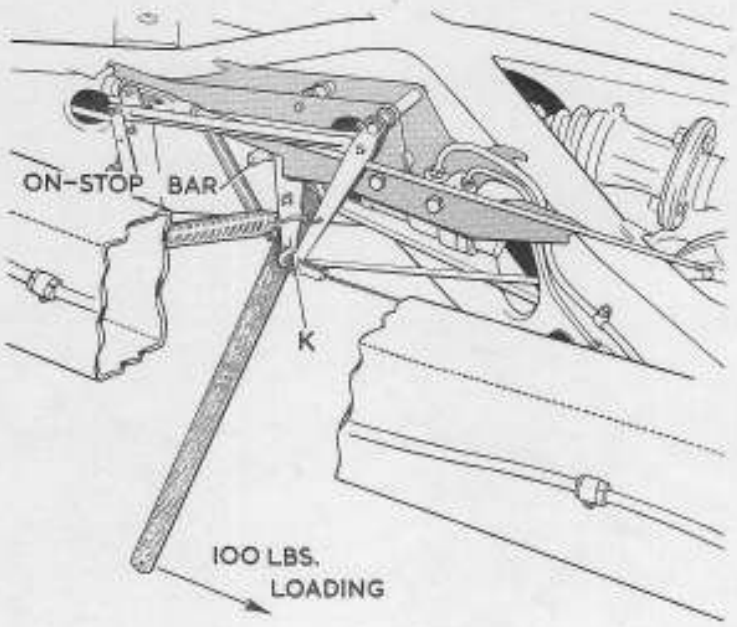
At the end of the forward stroke close the bleed screw and allow the master cylinder piston to return fully.

Pull the lever K right back and wait five seconds before making a further movement forward with lever and opening the bleed screw.

Continue this cycle ten times or longer if air bubbles still appear in the bottle.

Repeat for the other brakes.

During bleeding, after two or three cycles, pull the lever K fully forward and then return it fully rearward and note the time taken for the master cylinder piston to return. This will be evident by the piston striking the push rod retaining washer on returning. The time permitted is between one and four seconds; if less or more time is taken, the master cylinder must be replaced.



CHECKING AND RECORDING "BRAKE SPONGE FIGURE".

Fit the lever (Tool No. RH.312 or RH.322) to the lever K and pull forward, pressing the brake shoes hard against the drums, examine the whole hydraulic system for fluid leaks while it is under pressure then allow the master cylinder piston to return fully to recuperate.

Fit a spring balance to the lever and exert an effort of 100 lbs forward. Note the distance the master cylinder on-stop bar has moved from rest, if this exceeds 0.85" the hydraulic system must be re-bled and re-checked.

This distance is known as the "BRAKE SPONGE FIGURE" and gives indication of the presence of air in the braking system.

CHASSIS NOS:

Rolls-Royce Silver Cloud.	
Up to SYB-50.	Where fitted with the single master cylinder.
Bentley "S" Type.	
Up to B-245-BC.	" " " "
Bentley "S" Type Continental.	
Up to BC-21-BG.	" " " "

MATERIALS.

		No.Off.
RH.421.	Pipe - Replenishment.	1.
RH.422.	Connector - Hose - Rubber.	1.
RH.423.	Piece-Elbow (Aluminium Master Cylinder)	1.
RH.424.	Piece-Elbow (Cast Iron Master Cylinder)	1.
UR.1734.	Clips - Hose - Connector	3.
RS.14174.	Clip - Valance - Wing.	1.
RE.14174.	Clip - Seal - Column.	1.
UG.1431.	Clip - Floor Panel - Front.	1.
RE.14174.	Clip - Floor Panel - Rear.	1.
KC.173.	Screw - 2BA.	1.
KC.153.	Screw - 2BA.	1.
K.4006/Z.	Nut - 2BA.	2.
CS.30543/Z.	Screw - Binding Head - 2BA.	1.
CS.31080.	Screw - Self Tapping.	1.
K.4404/Z.	Washer - 2BA.	4.

Additional Parts Required for the Bentley Continental.

UR.3232.	Pipe - Flexible - Reservoir.	1.
UR.1734.	Clip - Hose - Connector.	1.

Additional Parts Required for Left Control Cars.

CS.3-546/Z.	Screw.	1.
K.4006/Z.	Nut.	1.
K.4404/Z.	Washer.	1.

No. CB 28.

CANCELS SERVICE BULLETIN CB.28
Issued 18.9.56 Ref: SB/VX/TRY.1/PR.

CATEGORY 2 MODIFICATION.

BRAKE PIPE FOULING AGAINST THE VALANCE ON CARS FITTED WITH DUAL MASTER CYLINDERS.

On a small number of cars fitted with dual master cylinders, it is possible for the rearmost brake pipe on the front brake assembly to chafe against the wing valance adjacent to the front suspension damper.

In order that this might be overcome bend the mounting bracket, which secures the two brake pipes to the front damper, outwards, so that a minimum clearance of 0.375" is maintained between the rearmost of the two front brake pipes and the valance. If there is still insufficient clearance after bending the bracket, further clearance may be obtained by bending the edge of the valance plate away from the brake pipes.

It is necessary to remove the front wheels to carry out inspection and modification. Fit new pipes if their condition warrants replacement.

The following chassis have had the flanges of the valance plates turned back on production to clear the brake pipes.

Crewe built body.	Bentley 'S' Type	B-470-FA and on
	Silver Cloud	SGE-280 and on
Coach built body.	Bentley 'S' Type Continental	BC-30-EL
		BC-31-EL
		BC-35-EL
		BC-37-EL and on
	Silver Cloud	SCE-270 and on.

All cars, fitted with dual master cylinders, produced before the above mentioned chassis numbers must be checked for brake pipe/valance clearance and modified if necessary.

No. CB.30

CATEGORY 3A MODIFICATION

SINGLE MASTER CYLINDER BRAKING SYSTEM

To fit an improved hydraulic master cylinder with aluminium body as a replacement on all cars fitted with a single cast iron unit.

Although the external finish of both types of master cylinders are similar in appearance, the cast iron type can be identified by reference to the end cap which has six spannering flats whereas the aluminium type has two flats.

If the modification to the single master cylinder brake fluid reservoir piping as described in Service Bulletin No. CB.26 has not been carried out then opportunity must be taken to incorporate this scheme. Where this modification has already been carried out it will be found that the replenishment piping from the reservoir is attached to the underside of the floor panel whereas previously it was attached to the right-hand side frame member.

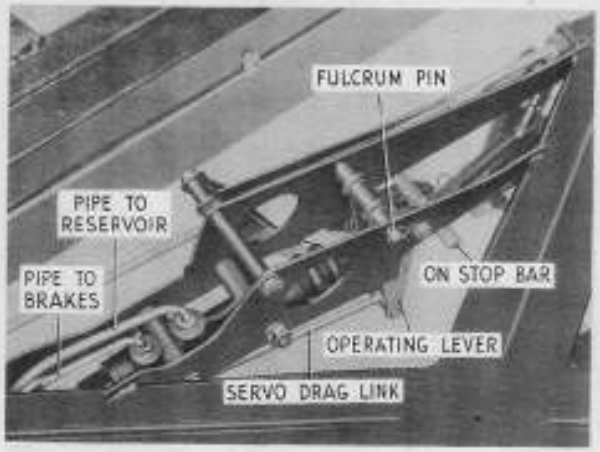


FIG.1. MASTER CYLINDER IN POSITION.

TO REMOVE THE MASTER CYLINDER

For the sake of clarity the master cylinder is shown in position on the chassis in Fig.1, but ready access to all disconnection points is possible from under the car with the body in position.

Remove the clip from the lower end of the flexible pipe leading from the reservoir, disconnect the pipe simultaneously allowing the fluid from the reservoir to drain into a scrupulously clean container which should then be sealed until the fluid can be returned to the reservoir.

Thoroughly wipe away any grit from around the two pipes near the unions of the master cylinder and disconnect the outlet and inlet pipes. On cast iron master cylinders the outlet and inlet pipe union nuts are screwed into the master cylinder itself, whereas on aluminium master cylinders the union nuts are unscrewed from the banjos and not the master cylinder.

Disconnect the servo motor drag links from the master cylinder operating lever by removing the split pins and pins. Disconnect the return spring from the lever.

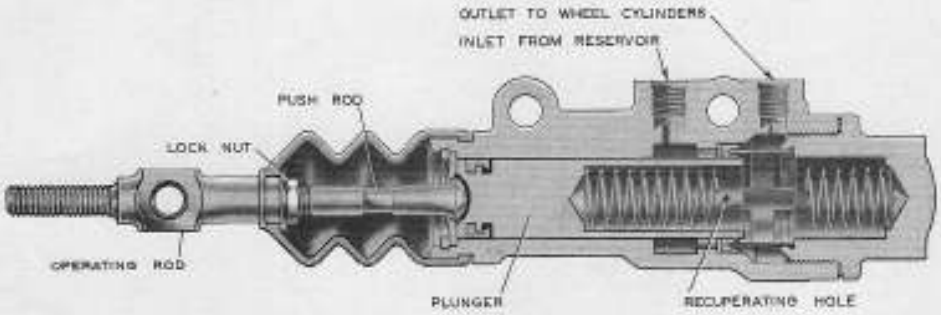


FIG.2. MASTER CYLINDER - SECTIONAL VIEW

Push the rear end of the rubber boot forward and release the lock nut situated on the push rod (see Fig.2). Ease the front end of the boot away from the master cylinder, place a spanner on the spannering flats of the push rod and rotate this rod to release it from the operating rod.

Remove the two through bolts securing the master cylinder to its bracket and remove the master cylinder; leaving the operating rod and on-stop bar in position.

TO FIT THE NEW CONNECTIONS TO THE ALUMINIUM MASTER CYLINDER

NOTE: It is of the utmost importance that no foreign matter whatsoever is allowed to enter the replacement master cylinder or the inlet and outlet pipes. All parts must be free from grease, grit and lint from cleaning rags.

Remove the two hexagon headed blanking plugs from the adaptors of the aluminium master cylinder.

The banjo connections and copper gaskets (see "Materials Required"), should be positioned as follows :-

(a) The outlet banjo (UG.2490) is positioned towards the front of the master cylinder i.e. nearest to the end cap. This banjo has a smaller diameter threaded hole than the inlet banjo (UG.2489).

(b) A copper gasket must be fitted to the top and bottom of the banjos. The gasket (UG.2492) which has a larger external diameter than the gasket UG.2491 is fitted beneath the banjos.

(c) The banjos should be positioned on the adaptors so that their threaded portions point approximately to the right-hand side front of the car and the banjo bolts then tightened just sufficiently at this stage to allow the banjos to be rotated for alignment with the pipes.

(d) Temporarily seal the orifice of each banjo to prevent ingress of foreign matter.

TO REFIT THE REPLACEMENT MASTER CYLINDER TO THE FRAME

The sequence for re-fitting is the reversal of that for removing.

If a thread protecting sleeve is found on the push rod of the new master cylinder it should of course be discarded.

After screwing the original lock nut onto the push rod of the new master cylinder as far as it will go, the push rod should then be screwed into the operating rod but it is not necessary to tighten the lock nut at this stage.

MODIFICATION TO THE SINGLE MASTER CYLINDER BRAKE FLUID RESERVOIR PIPING

Where this modification, as mentioned on page 1 has not been incorporated then it should be carried out at this stage and as detailed in Service Bulletin No. CB.26. It should be noted that if this modification has already been carried out in conjunction with a cast iron master cylinder it will therefore be necessary to replace the existing elbow piece, RH.424 by the elbow piece RH.423 together with a new hose clip UR.1734. Both these elbows are illustrated in position on page 2 of Service Bulletin No. CB.26.

Disconnect the existing outlet pipe from the 3-way junction and fit the new pipe (UR.2901).

Connect the pipes to the master cylinder and tighten down the bolts of the two banjos.

Replenish the reservoir and bleed the hydraulic system as described in Service Bulletin No. CB.26 and top up the reservoir.

TO ADJUST THE MASTER CYLINER PUSH ROD

Correct adjustment is essential to ensure that the plunger can return to its fully off position when the holes in its inner end are behind the lip of the main seal and recuperation can take place.

With the lock nut (see Fig.2) screwed back as far as it will go and the push rod screwed into the operating rod up to the lock nut so that there is slack between the end of the push rod and plunger; this slack can be felt by moving the lower end of the operating lever (this lever is shown in Fig.1) gently backwards and forwards. Do not pull hard on the operating lever or the plunger will be forced along the cylinder and as it returns slowly the subsequent adjustment may be false.

Lengthen the push rod until free movement at the lower end of the operating lever is just lost. Shorten the push rod one flat (1/4 turn) and tighten the lock nut.

TO ADJUST THE ON-STOP BAR

Adjust the on-stop bar (this bar is shown in Fig.1) to travel 1.600" before it contacts the edges of the master cylinder support bracket by slackening off the lock nut on either side of the bar and adjusting as necessary until the required travel is obtained. When tightening the lock nuts make sure that the on-stop bar is horizontal.

FINAL OPERATIONS

Check and record the "Brake Sponge Figure" as described in Service Bulletin No. CB.26. This operation should be carried out prior to and after the road test. The "Brake Sponge Figure" must be noted on the Guarantee Claim Form and sent to Rolls-Royce Ltd., in the usual way.

Prior to and after road testing the car check that there are no fluid leakages from the inlet or outlet side of the system. This can be ascertained on the outlet side by fitting the lever (Tool No.RH.322 or RH.312) as described beneath "Bleeding the Hydraulic System" and operating the master cylinder so as to induce pressure in the system.

MATERIAL REQUIRED

Part No.	Description.	No.Off.
UG.2495	Hydraulic Master Cylinder (aluminium)	1
UG.2489	Banjo-inlet-Master Cylinder	1
UG.2490	Banjo-outlet-Master Cylinder	1
UG.2491	Copper Gasket-Banjo Bolt to Banjo	2
UG.2492	Copper Gasket-Banjo to Adaptor	2
UG.2488	Bolt-Banjo Connection	2
UR.2901	Pipe-Master Cylinder to 3-way junction	1
UR.1734	Clip-Hose-Connector	1
RH.423	Elbow Piece-Master Cylinder	1

Will all Retailers please notify the London Service Station of the chassis numbers of cars on which this modification is carried out and also quote the serial number of the aluminium master cylinder fitted which will be found to be stamped on the body near to the end cap.

Retailers in the United Kingdom only should return the original cast iron master cylinder to the London Service Station.

The time permitted is :-

Fitting an aluminium master cylinder 4 hours, or 7½ hours if the modification to the brake fluid reservoir piping as per Service Bulletin No. CB.26 has to be carried out at the same time.

No. CB.34.

CATEGORY 2 MODIFICATION.

BRAKES.

A check valve is to be incorporated in the hydraulic system of all cars fitted with the single cylinder brake installation.

This valve is designed to pass fluid in both directions when the pressure differential exceeds approximately 8 lbs. per square inch. Incorporated in the design is the facility for the pressure differential to return to zero as soon as flow ceases, and this is provided for by allowing the valve to leak internally.

On release of the brake pedal, after a brake application, a depression is caused in the hydraulic system by the master cylinder plunger returning to the rest position. The depression has been measured and is in the order of 12" of mercury. Under these conditions air could be drawn into the system past the lips of the rubber cups in the wheel cylinders.

The fitment of a check valve in the system adjacent to the master cylinder has the effect of eliminating the possibility of a depression occurring in the wheel cylinders and thus prevents the possibility of air obtaining ingress into the hydraulic system.

The following cars require the incorporation of this modification and Retailers are asked to deal with those in their respective areas.

Bentley 'S' Type.

B-2-AN to B-73-BC. B-77-BC to B-235-BC. B-239-BC to B-243-BC.

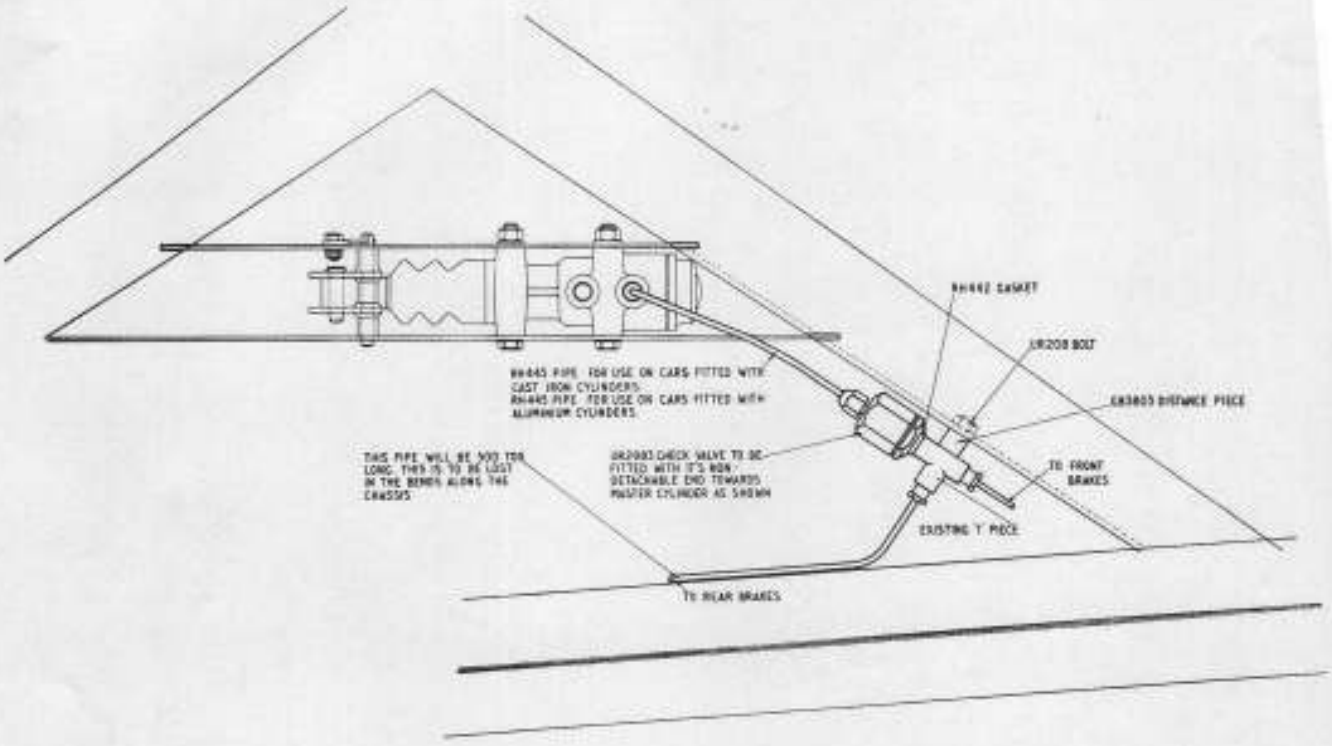
Bentley 'S' Continental.

BC-1-AF to BC-15-BC. BC-20-BG.

Silver Cloud.

SWA-2 to SXA-245. SYB-8. SYB-14 to SYB-28. SYB-32 to SYB-34. SYB-40 to SYB-48.

The drawing below illustrates the method of installation. The existing pipe from the master cylinder to the junction on the "X" frame member should be removed.



Check Valve in Position.

Depending on whether a cast-iron or aluminium master cylinder is installed, Pipe RH.443 or Pipe RH.445 should be fitted.

The check valve should be screwed onto the existing 'T' piece with RH.442 gasket interposed between the valve and the 'T' piece. It is important that the check valve is installed with its non-detachable end towards the master cylinder as shown.

Refit the 'T' piece to the 'X' member using a new bolt UA.208/Z and the distance piece GB.3803 and the existing nut and washer.

Connect up the pipe and bleed the system.

The time allowed for this modification is four hours.

The necessary material Part Numbers are given below and Retailers should order these from The London Service Station as required:

RH.443	-	Pipe (Cast-iron master cylinder only)	1 off	Alternative.
RH.445	-	Pipe (Aluminium master cylinder only)	1 off	
UR.2983	-	Check Valve	1 off	
RH.442	-	Gasket, Check Valve	1 off	
GB.3803	-	Distance Piece, 'T' Junction	1 off	
UA.208/Z	-	Bolt, 'T' Junction	1 off	

No. CB.50

CATEGORY 3.

This Service Bulletin Cancels Previous Service Bulletin CB.50 dated 16.5.57.

SERVO MOTOR SEALING.

The standard of servo sealing has been improved on current production cars, and when disturbing the servo for any reason, it will be necessary to carry out the following re-sealing procedure.

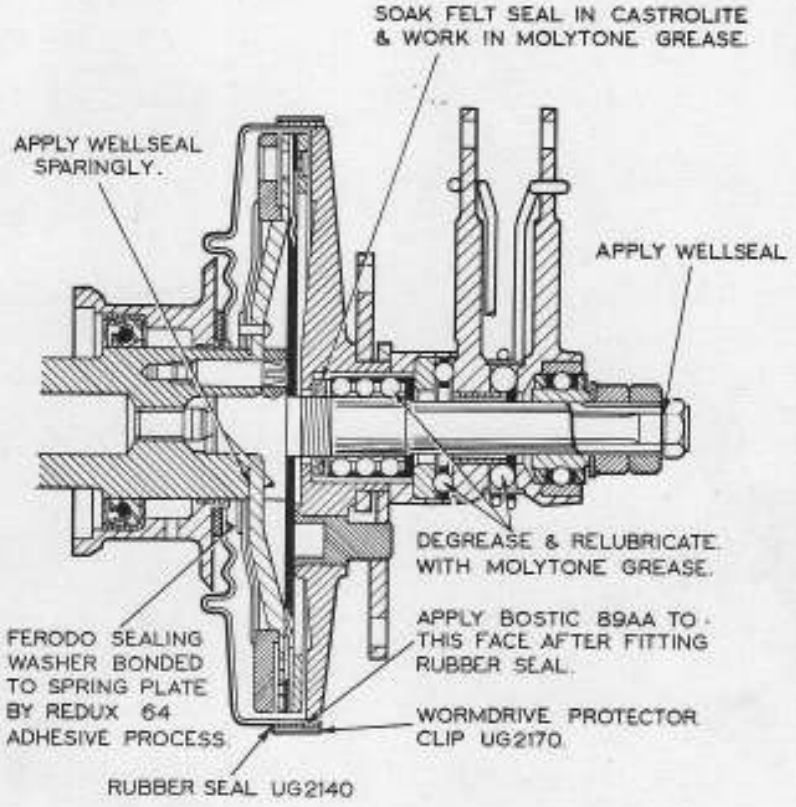


FIG.1.

1. Pack and lubricate thrust race, operating lever cams and pressure plate ball race with Molytone grease.

2. Soak felt washer (located in pressure plate) in engine oil and lightly coat with Milytone grease.

Cont'd.....

3. Apply Wellseal sparingly to the end face of the servo drive shaft, both sides of the centre of the inertia plate, to the end face and driving pins of the servo driven shaft and under the head of the servo retaining setscrew, after ensuring that all surfaces are free from oil or grease.

   A pencil brush may be used for the application of the Wellseal.

   Allow at least five minutes for air drying before assembling the joints.

4. The Ferobestos seal washer (V.G.100) is adhered to the spring plate by a special process. In the event of it becoming severed a replacement spring plate and washer assembly should be obtained and fitted. Under no circumstances should the seal washer be refitted with Bostik.

5. Apply Bostik sparingly to the circumferential joint between the spring plate and pressure plate after assembly, also to the inside of the rubber seal.

   With the pressure plate uppermost, place the rubber seal on top and ease the seal over the rim edge, without stretching. Hold there easing the opposite side and remainder into position.

6. Position the protector ring with the worm drive towards the rear of the car.

NOTE: (a) It is NOT possible to use the rubber seal more than once, nor is it possible to use the seal if it has been stretched in an unsuccessful attempt to fit it.

(b) Trichlorethylene applied to the Bostik will assist easy separation when required.

PARTS AND MATERIAL REQUIRED.

Description.	No. Off.
Bostik, Adhesive (89AA) Molytone 265 Grease (RH.566) 2 oz.tube. Wellseal	1.
Rubber Seal (UG.2140)	1.
Spring Plated Ferodo Washer Assembly, (As required) (UG.3528)	1.

Cont'd.....

CHASSIS NOS:

Applicable to cars produced after

Rolls-Royce Silver Cloud	SDD-316
Bentley 'S' Type	B-278-EG
Bentley 'S' Type Continental	BC-4-CH

Attention to cars produced without the production method of sealing.

Where inspection of the liner shows presence of oil, the source of oil leakage must first be ascertained and rectified.

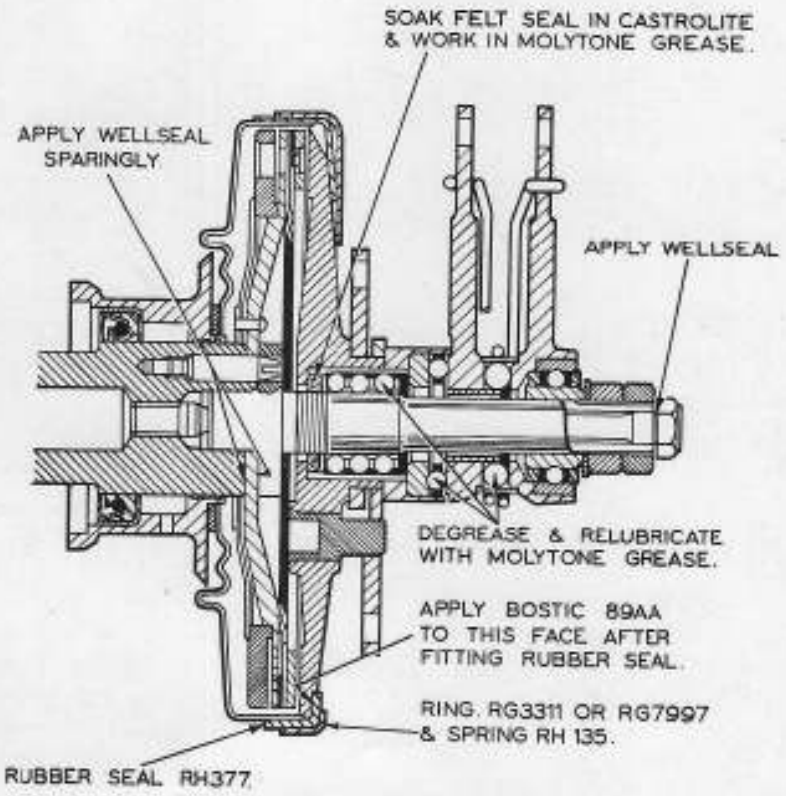


FIG.2.

Cont'd.....

Before re-assembling the following modifications are required, if not already incorporated.

1. Remove the water drain on the servo spring plate, this is simply done by unsweating.

   Blank off the spring plate drain holes located in the rim, by filling with solder. This is best done by tinning the inside of the rim, resting the spring plate holes downwards on a sheet of asbestos, so that the solder is prevented from running through and building up on the outside of the rim. The solder is then smoothed over and the spring plate repainted with a good quality air drying chassis black.

2. Degrease thrust race, operating lever cams and pressure plate ball race ensuring that they are thoroughly clean and free from grease.

   Re-lubricate with Molytone grease.

3. Renew and soak felt washer (located in pressure plate) in engine oil and lightly coat with Molytone grease.

4. Apply Wellseal sparingly to the end face of the servo drive shaft, both sides of the centre of the inertia plate, to the end face and driving pins of the servo driven shaft and under the head of the servo retaining setscrew, after ensuring that all surfaces are free from oil or grease.

   A pencil brush may be used for the application of the Wellseal.

   Allow at least five minutes for air drying before assembling the joints.

5. The Ferobestos seal washer (V.G.100) should be assembled completely dry, free from any adhesive or lubricant.

6. With the pressure plate uppermost, place the rubber seal on top with the flap covering the ventilating slots and ease the seal over the rim edge without stretching. Hold there, easing the opposite side over the plate edge.

   It is essential that the pulling is limited to the inner diameter only, thereby preventing distortion of the outer periphery. Ease the remainder of the seal into position until the inner periphery fits closely against the machined surface.

Cont'd.....

By carefully lifting the rubber seal which overlaps the ventilating slots and machined surface, apply Bostik to the inner face of the seal, a small area at a time, until the complete circumference of the inner face has been treated in this manner.

Allow Bostik to set for approximately one hour before using the car.

7. Discard the existing worm drive protector ring and replace with the spring type ring (RG.7997 or RG.3311).

Position the spring towards the rear of the car and not to the lowermost position as was customary with earlier cars. The position of the baffle plate is immaterial if using the earlier type protector ring (RG.7997).

The servo can then be fitted to the car, the seal being finally checked after road testing.

NOTE: (a) It is NOT possible to use the rubber seal more than once, nor is it possible to use the seal if it has been stretched in an unsuccessful attempt to fit it.

(b) Trichlorethylene applied to the Bostik will assist easy separation when required.

PARTS AND MATERIAL REQUIRED.

Description.	No. Off.
Bostik Adhesive (89AA)	
Molytone 265 Grease 2 oz.tube (RH.566)	1
Wellseal	
Rubber Seal (RH.377)	1
Felt Seal (D.54399)	1
Protector Ring retaining spring (RH.135)	1
Protector Ring (RG.7997 or RG.3311)	1
Ferobestos Seal (V.G.100)	1

CHASSIS NOS:

Up to:-

Rolls-Royce Silver Cloud	SDD-134
Bentley 'S' Type	B-276-EG
Bentley 'S' Type Continental	BC-6-CH

The time allowed for each modification 4½ hours.

FOR INFORMATION

"S" SERIES TOOLS

In view of the rather heavy outlay involved and the fact that certain tools are seldom required for repair work, the following are now available to all Retailers in the U.K. on a loan basis.

Retailers will be invoiced at the full tool value, this amount being credited when the tool is returned undamaged, less 5% of the retail price, which constitutes a loan fee.

Rear Springs

RH.344	Hydraulic Jack for removing Silentbloc bushes.
RH.196	Compressing Tool.

Body

RH.343	Jig, Windscreen Glazing.
RH.341	Jig, Rear Window Glazing.
RH.580	Body Floating Equipment.

FOR INFORMATION

HANDBRAKE CABLES

Investigation has shown that there is a possibility of the handbrake cable being placed over the hexagon adjustment nuts on the Servo Shaft, following either the replacement of the Servo Motor from underneath the car, or, when the handbrake cable has been disturbed for any reason.

The incorrect positioning of the cable in this manner, will cause fraying with consequent breakage of the cable, also damage to the hexagon nut where frictional contact is made.

To prevent the possibility of this trouble occuring, will Retailers check the run of the cable on all cars following the displacement of either the Servo Motor or handbrake cable.

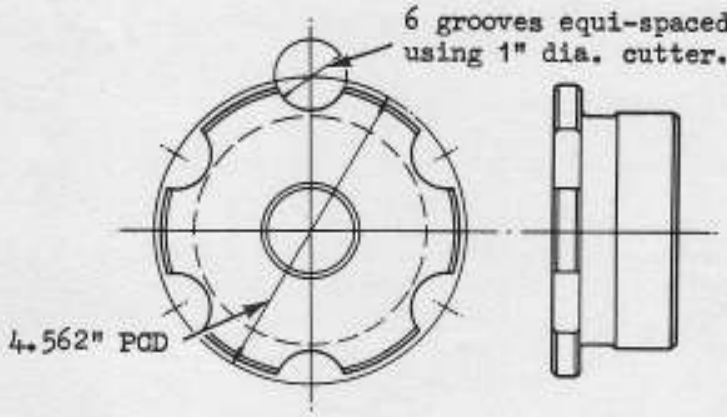
No. C.B.71

FOR INFORMATION.

AXLE PINION SETTING TOOL.

In order to carry out the pinion adjustment when overhauling the rear axle, it is necessary to use a setting tool, (RH 366), similar to that used for earlier models.

Retailers possessing the tool used for earlier Post-War cars may adapt this to suit the Silver Cloud and 'S' Type axle by machining grooves in one bush to clear the differential housing studs, as illustrated below.



MODIFICATION TO BUSH - PINION SETTING TOOL.

The depth gauge is replaced by the later pattern, RH 361, after which the modified tool is suitable for all Post-War cars.

No. CB.80.

CATEGORY 2.

CANCELS SERVICE BULLETIN CB.80.
Issued 13.12.57 ref.SB/TJ.3/ET.

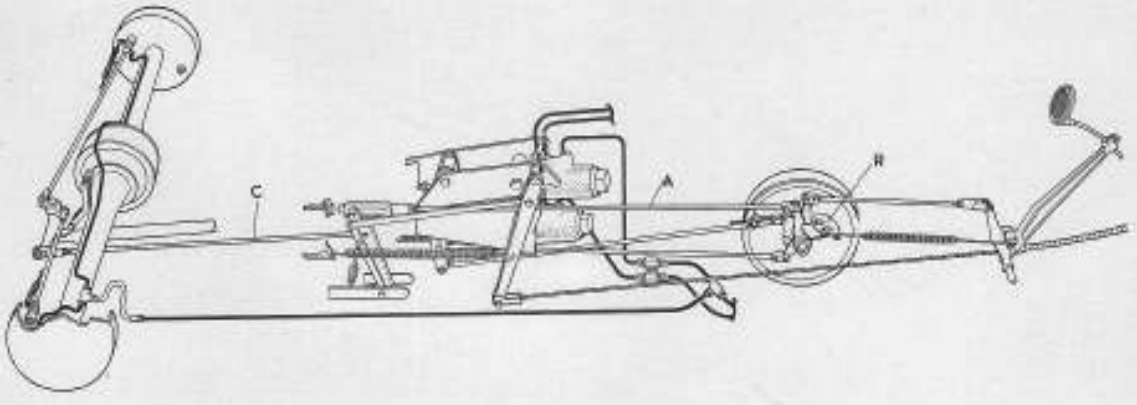
SERVO ON-STOP ADJUSTMENT.

Complete brake failure can occur, in the event of failure or maladjustment of the mechanical rear brakes if the servo on-stop adjustment is incorrect, on cars fitted with either single or twin master cylinder brake systems.

There have been instances of owners driving for long periods without having the rear brakes adjusted. In extreme cases the draw link wedge can pull past the tappets in the wheel cylinders, rendering the mechanical brakes ineffective. In these cases the servo relies entirely upon the on-stop bracket to operate the cams and apply the hydraulic brakes in the normal way.

It is therefore essential that the on-stop bracket R is adjusted correctly (see illustration below). Remove the clevis pin from the rear equaliser to disconnect the actuating rod C. Place a 1.25" distance piece between the rear end of the operating rod A and its off-stop. Position the on-stop bracket in contact with the outer servo cam lever and tighten the clamping bolts to locate in this position.

With this adjustment correctly carried out the cam lever will bear against the on-stop bracket and create normal cam reaction on brake application should the mechanical brakes fail to function.



If an additional carpet has been fitted to the front compartment the brake pedal must be removed and an additional clamping bolt groove filed between the last groove and the end of the curved pedal rod in order to maintain adequate brake pedal clearance.

No. CB. 84

FOR INFORMATION.

MASTER CYLINDER AND WHEEL CYLINDER OVERHAUL.

In the past, wheel cylinders and master cylinders, requiring reconditioning have always been returned for replacement. With the co-operation of the manufacturers it has now been made possible to release complete overhaul kits, as and when required to Retailers who are desirous of carrying out their own repair service on these units. It must be emphasised that the individual kits contain the necessary parts for overhauling only aluminium master cylinders and cast iron wheel cylinders.

No attempt must be made to overhaul cylinders of any materials other than those respectively mentioned above. The following points should be observed in connection with cylinder overhaul.

PROCEDURE.

Master Cylinders.

All single cast iron cylinders should be scrapped and single aluminium cylinders refitted in replacement.

Both single and dual aluminium cylinders may be overhauled when the condition of the cylinders permits further service. The kits contain all the necessary parts and an instruction leaflet on assembly. The overhaul simply consists of discarding all parts duplicated in the kit and assembling the new parts as instructed.

Wheel Cylinders.

All aluminium cylinders should be scrapped and spreader type cast iron cylinders fitted in replacement.

Cast iron cylinders fitted with air excluders should be converted to comply with the latest specification, which would entail a systematic replacement of used parts and the installation of spreaders. All the applicable parts required to introduce this conversion are contained in the wheel cylinder overhaul kits.

On each front cylinder simply discard the dust cover, seal, abutment, spring and air excluder, also the dust cover and ball of the bleed valve and refit all the new parts as instructed in the leaflet enclosed in the kit.

On each rear cylinder discard the dust covers, seals, air excluders and the spring, also the dust cap and ball of the bleed valve and refit new parts as instructed.

Cont'd.....

Cast iron cylinders already fitted with spreaders should be overhauled. Again a straight forward replacement of used parts by those supplied in the overhaul kits.

It should be noted that if necessity arises any one or more wheel cylinders in the system may be modified to spreader type or have a new spreader type cylinder fitted without replacing or modifying the other remaining cylinders providing that a check valve is installed in the system.

Check valves.

Check valves were standardised at the introduction of the dual aluminium master cylinder system which incorporated all spreader type cast iron wheel cylinders. All single aluminium master cylinder systems should have check valves fitted as instructed in Service Bulletin CB.34.

Consequently the braking system of all cars undergoing an extensive overhaul should ultimately result in either a single or dual aluminium master cylinder unit, one or two check valves respectively, and all cast iron wheel cylinders incorporating spreaders.

For this reason great care must be taken when ordering complete brake overhaul kits to state whether parts for earlier modifications which have not already been executed, are also required. This should be checked with reference to Service Bulletins in the Brake section G.

In all cases discretion must be used by the Retailer in deciding whether a master or wheel cylinder is suitable for further service and consequently overhauled, or whether it should be discarded and replaced by a new unit.

Materials.

Separate overhaul kits are issued containing the necessary parts for overhauling cylinders under the following part numbers.

Cast iron front wheel cylinder	(1 off)	Part No.	CD1203
Cast iron rear wheel cylinder	(1 off)	Part No.	CD1204
1" dia. aluminium master cylinder	(Single)	Part No.	CD1205
1" dia. aluminium master cylinder	(Dual)	Part No.	CD1206
3/4" dia. aluminium master cylinder	(Dual)	Part No.	CD1207

No. CB.93

FOR INFORMATION.

MECHANICAL REAR BRAKE EXPANDERS.

Instances have been reported of seizure of the tappets in the guide resulting in failure of the rod operated expander with consequent failure to release the rear brakes.

It has been shown that the seizure is caused by the accumulation of packed brake lining dust and that this condition can be alleviated by increasing the clearance of the tappets in the guide plate.

The four distance pieces have been lengthened by 0.020" to 0.274" and this gives a clearance of 0.025" between the tappet and the guide plate.

An indication that seizure of the tappets has occurred can be gained from the feel of the operation of the foot brake pedal. If two distinct pressures can be felt, the first movement taking up the slack in the rods and the second operating the servo, it is advisable to check the condition of the tappets. Of course, overheating of the rear brakes may also be experienced.

Should trouble of this nature be experienced, the units should be dismantled, cleaned, washed free of any lubricant and reassembled with the new longer distance pieces.

Whilst carrying out this work, the opportunity should be taken to inspect the pistons in the hydraulic wheel cylinders. These should be cleaned, as should the bores of the cylinder and should then be refitted using a trace of Molytone C as a lubricant.

To indicate that this modification has been carried out, mark the offside chassis side member at the extreme rear end with a spot of white paint on the angular surface.

Material.

UG.3462 - Distance Piece - 8 off.

It is recommended that these new parts are ordered and stocked for use as necessary. All stocks of the old part (No. UG.862) should be scrapped.

FOR INFORMATION.

SERVICE REPLACEMENT BRAKE DRUMS.

A service replacement brake drum scheme has been inaugurated. There are now two sizes of drums available, namely 'Standard' and 'Oversize'. These will be supplied to Retailers against worn drums returned for reconditioning.

The cost of the 'Oversize' replacement drum will be 66.2/3% of the price of the 'Standard' drum.

Credit at the above mentioned percentage, less the cost of reconditioning, will be allowed on worn drums returned, providing they can be reground within the prescribed limits.

Drums which do not conform to these limits have no salvage value and consequently will be scrapped.

Part numbers.

Standard replacement brake drum part Nos.	Oversize replacement brake drum part Nos.
UG.264	RH.693
UG.2287	RH.694

No. CB.96.

FOR INFORMATION.

HANDBRAKE CABLE.

If the handbrake handle is released and pushed rapidly to the 'off' position so fast that it's movement exceeds the retractive speed of the return spring on the handbrake lever, there is the possibility that the cable nipple will spring out of the cable connector on the end of the handle shaft.

Under these circumstances, remove the handbrake lever clevis pin adjacent to the master cylinders and the four handle assembly mounting bolts from under the dashboard. Withdraw the assembly and cable. If the condition of the cable warrants replacement, fit a new cable assembly; locate the cable nipple in the connector on the handle.

A small securing plate has been designed to fit over the entrance slot to retain the nipple and prevent further dislocation. The plate is held in position by the 2 BA cable connector bolt. Fit the plate as shown in either figure 1 or 2, depending upon the design of the connector. Refit the complete assembly to the dashboard; replace the clevis pin and check for correct $\frac{1}{4}$" free travel on the end of the handbrake lever, adjust as necessary.

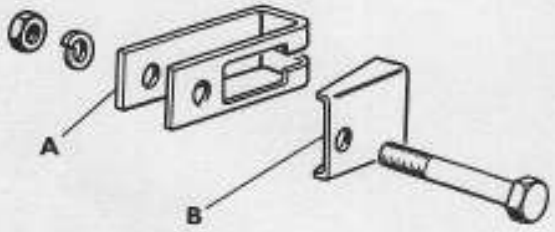


Fig.1
A Cable connector UG.2350
B Securing plate RH.701

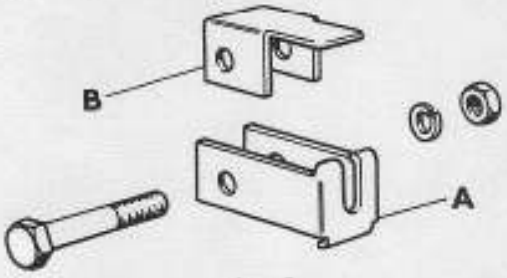


Fig.2
A Cable connector UG.1831
B Securing plate RH.702

Material required.

Securing plate:-	either	RH.701
	or	RH.702
Handbrake assembly may be required	Left hand	UG.1214
	Right hand	UG.1201

No. CB.120

FOR INFORMATION

'S' TYPE BRAKES - RUBBER COMPONENTS

In the interests of safety it has been decided to specify mileages at which the rubber components on the brake system should be renewed. This Bulletin gives mileages and details of the replacement action necessary.

40,000 miles

Renew. High and low pressure hoses and wheel cylinder cups.

80,000 miles

Renew. Brake master cylinder cups.

The above components should be changed at a brake reline nearest to the mileage quoted. Dust and water excluders should be changed as and when necessary, that is, after examination at a brake reline or if the shoes are removed for any reason.

The cost of replacing all rubber components is chargeable to the customer. However, it must be emphasised that it should not be a normal function to replace such components unless other work is being undertaken at the same time and the approval of the customer obtained as to the charges to be incurred.

PRINTED IN ENGLAND

No. CB.118.

FOR INFORMATION.

BRAKE SHOE SHAKE-BACK STOP.

A modification has been introduced to the shake-back stop collar fitted to the front and rear brake shoes on Rolls-Royce Silver Cloud and Bentley 'S' type cars.

The modified collar has an external $\frac{1}{4}$ in. diameter thread and a plain nut is used to clamp the friction washers and spring, whereas the existing collar is threaded internally and a bolt is used to clamp the friction washers and spring; the existing and modified types of collars are illustrated in Figures 1 and 2.

The reason for the introduction of a modified collar is primarily one of economy and it is therefore intended that supplies of the existing type collar and bolt should be used until stocks are exhausted, after which requests for this collar and bolt will be dealt with by supplying the modified type collar together with the nut.

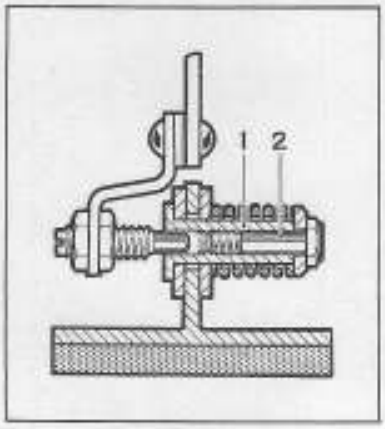


Fig.1. Existing type shake-back collar and bolt.

1. Shake-back collar. (UG.2324).
2. Special clamping bolt. (UG.2326).

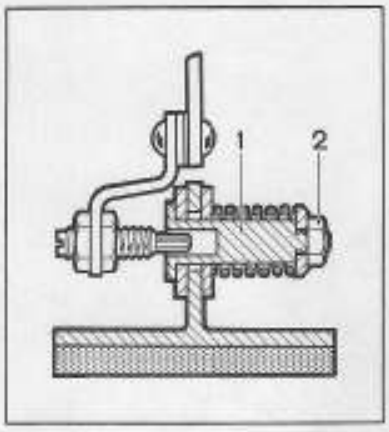


Fig.2. Modified type shake-back collar and nut.

1. Shake-back collar. (UG.3658).
2. Nut. (UG.3659).

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FOR INFORMATION:

Deletion of Check Valves from the Dual Master Cylinder Braking System on 'S' Type Cars.

In 1956 check valves together with spreaders in the wheel cylinder cups were added to the hydraulic circuits as part of a series of modifications to the brakes to prevent the possible ingress of air. Details of the incorporation of a check valve as a service modification on single master cylinder systems was given in Service Bulletin CB-34 Section G.

The specific purpose of the check valves was to prevent a vacuum being created behind the wheel cylinder cup seals during the return stroke of the master cylinder piston, if the cup seal failed to move back with the fluid because of any increase in friction due to spreader load.

Engineering wise, it has now been established that the spreaders are fully capable of maintaining an adequate interference between the lips of the cup seals and wheel cylinder bores without the assistance of check valves and effectively prevent air from being induced into the system as the line pressure is released, and the brake shoes resume their normal shake-back clearance.

Check valves are therefore considered redundant in the presence of spreaders, which should ensure that the cup seals remain free from air or fluid leaks during their normal life cycle of 40,000 miles.

It is not intended that any retrospective action should be taken in service to remove check valves fitted as original equipment on dual master cylinder systems, or as a modification on single master cylinder systems, which will now of course cease.

The instructions contained in Service Bulletin CB-34 are therefore cancelled.

The Chassis numbers at which the check valves were deleted on Production are as follows:-

R.R. Silver Cloud	LSJF.212	and onwards
LWB. Silver Cloud	CLC.9	" "
Bentley 'S' Type	B.513 LFD	" "

FOR INFORMATION:

'S' TYPE BRAKE SERVO MOTOR

Our attention has recently been drawn to the fact that the Corrugated Washer Part No. R.5037, which is fitted to pre 'S' Type servo motors to overcome complaints of judder, is also being fitted by some Retailers to 'S' Type servo motors.

We cannot emphasize too strongly that the Corrugated Washer must NOT be fitted to 'S' Type servo motors, as some considerable danger may result from following this practice.

The incorporation of the Corrugated Washer on pre 'S' Type servo motors has, of necessity, been associated with an increase in pedal travel. This increase cannot be accomodated on 'S' Type with the standard servo on-stop setting, without reducing the safety factor of the system should the direct mechanical linkage between the pedal and the rear brakes fail.

Additional dangers are that the servo operating rods would be subjected to compressive loads, which they are not designed to withstand; also the forward braking off-take rod and linkage may be damaged as a result of toggling upwards and fouling the chassis frame during reverse braking.

Servo judder has been notably absent from 'S' Type cars, mainly because of the substitution of mechanical actuation by hydraulic between the servo and the rear brakes, which renders 'feed-back' of the servo output on to the cam levers virtually impossible. There is therefore no justification for introducing any additional damping on the 'S' Type servo motor.

It is essential that any 'S' Type car known or found to have been fitted with a Corrugated Washer should have it replaced by the standard washer Part No. GB.5083 without delay.

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