WHEEL UNITS-REAR

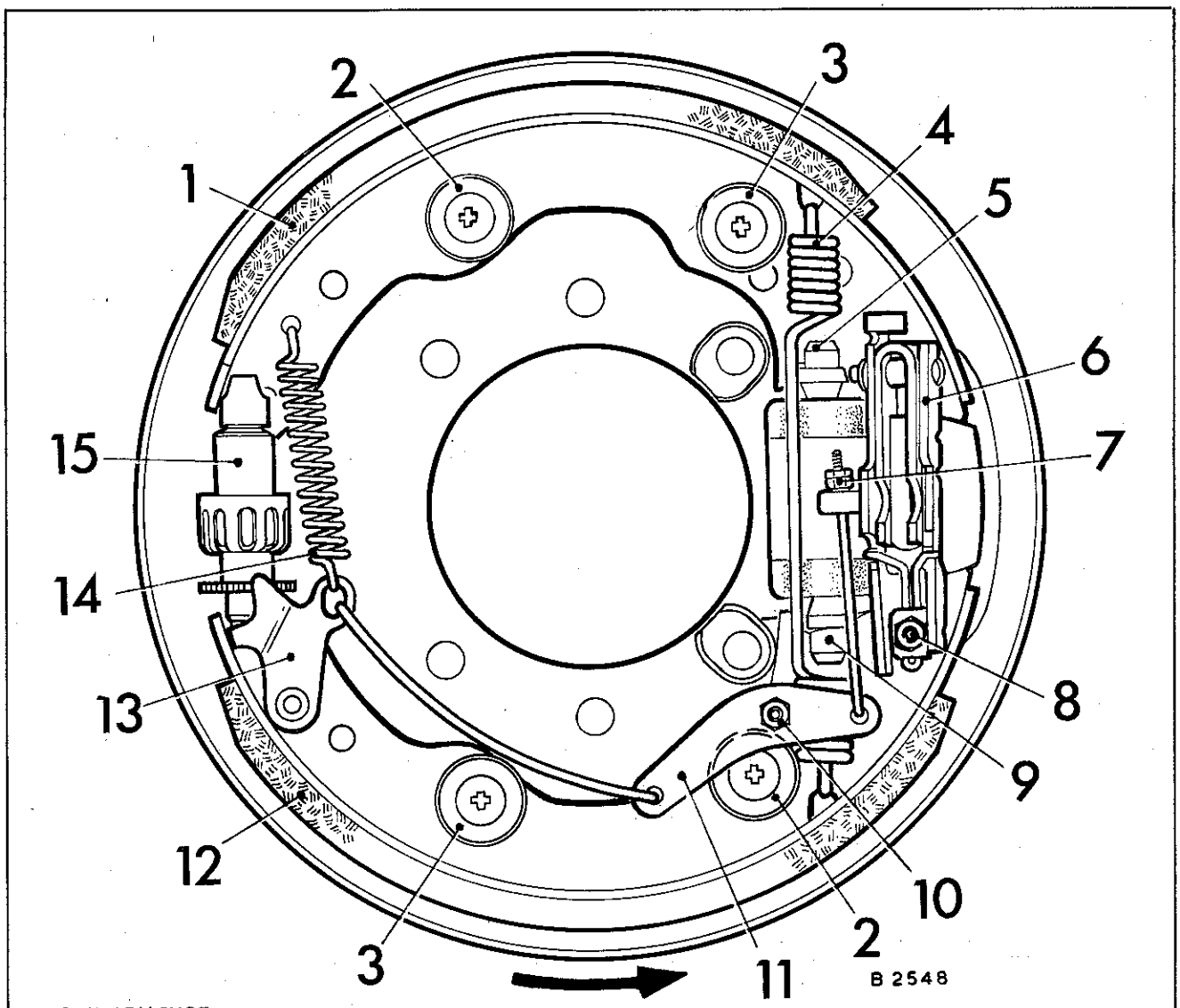
(Air/hydraulic Models)

Description

A double acting wheel cylinder operates the two brake shoes which adjust automatically.

Provision is made for handbrake operation by a mechanical expander fitted between the brake shoes and actuated by a cable.

The automatic adjuster assembly is not anchored to the backplate which allows the shoes to centralise to the drum providing a degree of self servo. This arrangement also gives two leading shoe characteristics in both directions of wheel rotation.



1. PRIMARY SHOE
2. STEADY SPRING (RED)
3. STEADY SPRING (BLACK)
4. PULL-OFF SPRING
5. TOP PUSH ROD
6. HANDBRAKE EXPANDER ASSEMBLY
7. ADJUSTING NUT AND LOCKNUT
8. LOCKNUT, WASHER AND RETAINER PLATE
9. LOWER PUSH ROD
10. LOCKNUT
11. LONG ADJUSTER LEVER
12. SECONDARY SHOE
13. SHORT ADJUSTER LEVER
14. SPRING, ADJUSTER LEVER TO WEB
15. ADJUSTER

Fig. 1 *Rear brake assembly*

TO FIT NEW SHOES

To ensure balanced performance, it is necessary to renew the shoes on both brake assemblies of an axle.

Chock the front wheels, charge the air system, place the parking brake in the OFF position and raise the rear of the vehicle.

Open the pivoted cover in the backplate and de-adjust the automatic mechanism.

Remove the road wheels, brake drums and hubs.

Note the relative position of brake shoes, springs and steady spring colours.

Remove the spring retainer securing the cable trunnion in the handbrake expander assembly, and ease cable trunnion from expander cut-outs.

Remove nut, washer and retainer plate securing handbrake expander assembly to backplate, remove assembly.

Remove the locknut and nut from the connecting link adjacent to the wheel cylinder.

Disengage and remove the adjuster from the shoe webs.

Disconnect the spring from the shoe web and adjusting lever.

Carefully note the positions of the red and black coloured steady springs, for future refitting. Depress and turn the shoe steady spring washers and release the pins and springs.

Remove the steady pins from the inboard side of backplate.

Using a shoe horn disengage the primary shoe from the brake cylinder push rod, disengage the pull-off spring and remove shoes. Collect wheel cylinder push rods.

Retain the pistons in the wheel cylinder using wire or a strong rubber band. Care should be taken not to damage the rubber boots.

Remove all dust and dirt from the backplate. Do not blow out with an air line – it could be harmful to inhale the dust – but remove with a vacuum cleaner or wipe clean with a damp rag. Do not use petrol or paraffin – if a solvent is necessary methylated spirit should be used.

Look for signs of leakage from the wheel cylinder. Inspect flexible hoses and metal brake pipes for wear, damage or corrosion.

Examine the pull-off springs for damage or over-stretching and renew as necessary.

The brake shoes should be renewed if the linings are contaminated with lubricants or hydraulic fluid irrespective of the state of wear.

Remove the adjuster levers and linkage from the old secondary shoe. Examine for wear or damage.

Lightly smear the two pivot pins on the new brake shoe with high melting point grease.

Refit the short adjuster lever which operates the adjuster and secure with new circlip.
Note: The longer adjuster lever is fitted after the steady springs are fitted.

Lightly grease the tips of the brake shoes, the areas where the shoes contact the backplate and the threads and friction faces of the adjuster assembly. Check that the teeth are undamaged on the adjuster wheel, screw in the threaded end to give minimum adjustment.

Insert the lower cylinder push rod and position secondary shoe to the backplate, supporting the shoe with a small jack.

Hook the large pull-off spring into the shoe webs, fit the top cylinder push rod and pull the primary shoe into position.

Refit the steady springs, primary shoe spring (black) and secondary shoe spring (red) adjacent to the cylinder.

Refit the remaining adjuster lever and connecting links, torque tighten the new locking nut to 7.9 Nm (5.8 lbf.ft). Ensure both adjuster levers move freely.

Pull the shoe ends apart and fit the adjuster assembly between them with the toothed wheel nearest the secondary shoe.

Refit the spring to the primary shoe web and adjuster lever, ensuring that the lever spur rests on the secondary shoe platform.

From this position tighten the adjusting nut on the rod adjacent to the wheel cylinder until the gap between the spur and the platform is between 2.5/2 mm(0.10/0.08 in). Finally, securely tighten the locknut.

Refit the handbrake expander between the shoes, place the spring, retainer plate and washer into position then screw on the new locknut to a torque of 7.9 Nm (5.8 lbf.ft).

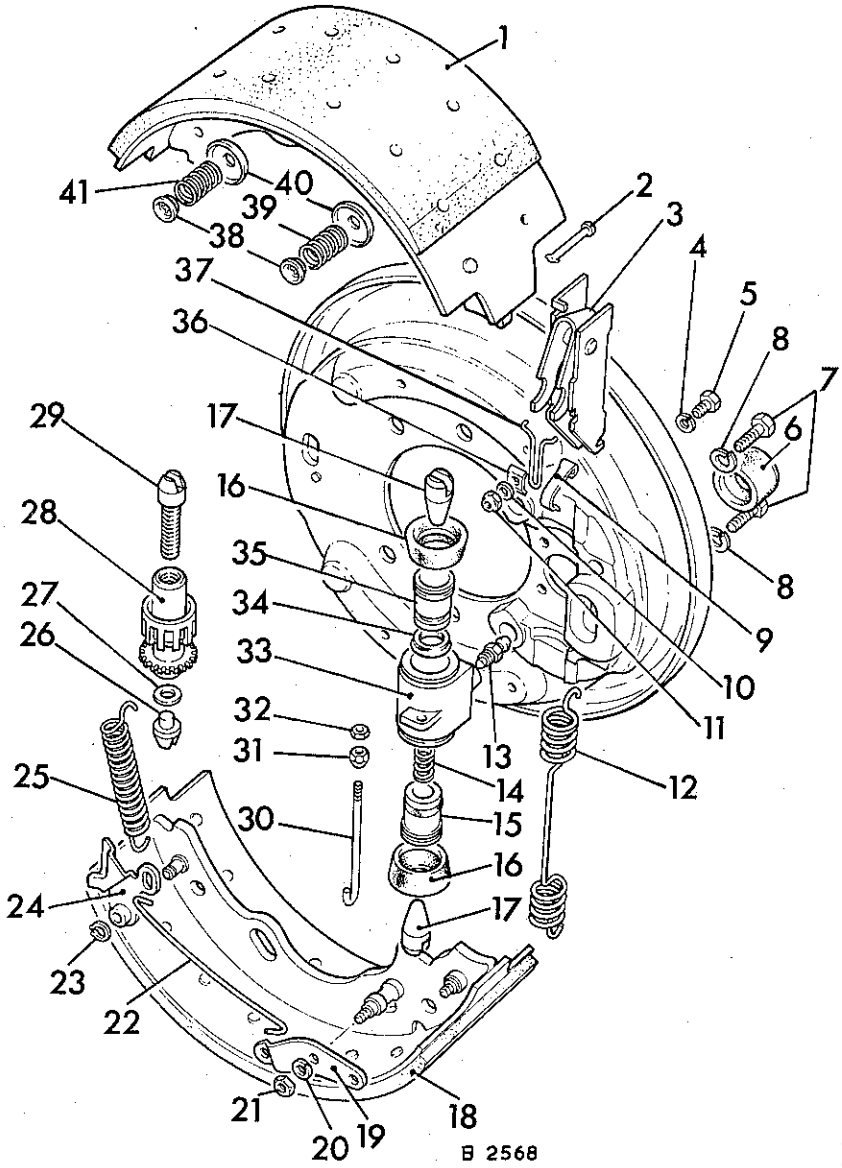
Locate the handbrake cable trunnion in the expander cut-outs and secure with the spring retainer.

Adjust the mechanism manually so that the drum will just go on.

Refit the hub, brake drum and road wheels.

Apply the foot brake hard several times to allow the auto adjuster to set the brake shoe running clearance.

Remove axle stands and jack.



1. PRIMARY SHOE
2. STEADY PIN
3. HANDBRAKE EXPANDER ASSEMBLY
4. SPRING WASHER
5. SETSCREW
6. RUBBER BOOT
7. SETSCREW
8. SPRING WASHER
9. SPRING CLIP
10. WASHER
11. LOCKNUT
12. PULL-OFF SPRING
13. BLEED SCREW
14. SPRING
15. PISTON AND SEAL
16. RUBBER BOOT
17. CYLINDER PUSH ROD
18. SECONDARY SHOE
19. LONG ADJUSTER LEVER
20. SPRING WASHER
21. LOCKNUT
22. CONNECTING LINK
23. CIRCLIP
24. ADJUSTER LEVER
25. SPRING
26. ADJUSTER TAPPET
27. WASHER
28. ADJUSTER
29. ADJUSTER SCREW
30. ADJUSTABLE CONNECTING LINK
31. NUT
32. LOCKNUT
33. BRAKE CYLINDER
34. SEAL
35. PISTON
36. RETAINER PLATE
37. SPRING
38. STEADY WASHER
39. STEADY SPRING (BLACK)
40. SPRING CUP
41. STEADY SPRING (RED)

Fig. 2 *Rear brake details*

WHEEL CYLINDERS

To Remove

Remove the brake shoes as detailed previously.

Fit a suitable hose clamp and disconnect all hydraulic connections, carefully noting all pipe positions.

Remove the bleed screw and plug the ports and pipe ends to prevent fluid loss.

Remove the two setscrews and washers securing the cylinder to the backplate. Remove cylinder.

To Dismantle

Thoroughly clean the cylinder.

Disengage the rubber boots from the cylinder body and pistons.

Carefully pull the pistons from the bore and collect the spring.

Remove the seal from each piston and wash all parts in clean brake fluid.

Examine the piston bore and pistons for signs of corrosion or score marks. If surfaces are clean and free from ridges new seals may be fitted. If in doubt fit new cylinder assembly.

To Re-assemble

Coat each piston seal with clean brake fluid and using the fingers only, fit the seal into the groove, the larger diameter facing away from the concave head of the pistons.

Coat the cylinder bore with clean brake fluid, and push one of the piston assemblies into the bore taking care not to bend back the lip of the seal, insert the spring followed by the second piston assembly.

Refit the boots, ensuring that each is seated correctly in both the piston and cylinder body grooves.

To Refit

Refit the cylinder to the backplate and tighten the setscrews to the correct torque.

Fit the bleed screw and reconnect the hydraulic pipes. Release the hose clamp.

Refit the brake shoes as described previously.

Bleed the system and ensure the reservoir has the correct level of fluid.

BACKPLATE

To Remove

Remove the wheel, hub and drum as described in sub-section M 100.

If required, remove the brake shoes as described in this section.

Remove the spring retainer securing the cable trunnion in the handbrake expander assembly, and ease cable trunnion from expander cut-outs. Remove rubber boot from backplate. Withdraw cable through backplate.

Fit a suitable hose clamp and disconnect the feed pipe at the wheel cylinder.

Remove the nuts from the bolts securing the backplate to the rear axle flange. Withdraw the backplate.

If required remove the wheel cylinder from the backplate.

To Refit

Clean the mating faces of the backplate and axle flange.

Fit backplate assembly to the axle flange passing bolts through the flange from the flange side.

Refit the wheel cylinder and brake shoes (if removed) as previously described in this section.

Refit the cable trunnion in the handbrake assembly and secure with the spring retainer. Ensure the rubber boot is fitted to the backplate.

Reconnect the hydraulic pipe to the wheel cylinder and remove hose clamp.

Refit the hub, drum and wheel as described in sub-section M 100.

Bleed the system and ensure the reservoir has the correct level of fluid.