

K369

Girling

SERVICE KIT INSTRUCTIONS

Lucas Girling Limited, Parts & Service, Birmingham Road, West Bromwich West Midlands B71 4JR England.

WARNING For cleaning brake parts use only Girling Cleaning Fluid or unused Castrol/Girling Brake and Clutch Fluid. Use only Castrol/Girling Universal Brake and Clutch Fluid in Girling Car Brake Systems and CRIMSON Fluid in Girling Commercial Vehicle Systems.

WARNING: Lucas Girling recommend that for optimum results and safety, worn units should be replaced by new units. If, however, it is decided to service a used component particular attention should be paid to the following, but in any case of doubt replace the unit or seek professional advice.

M16 'AH' CALIPER

The Service Kit for M16AH type calipers has been divided, and the components/seals required to service the hydraulic cylinder and the handbrake lever, are packed individually within the kit box.

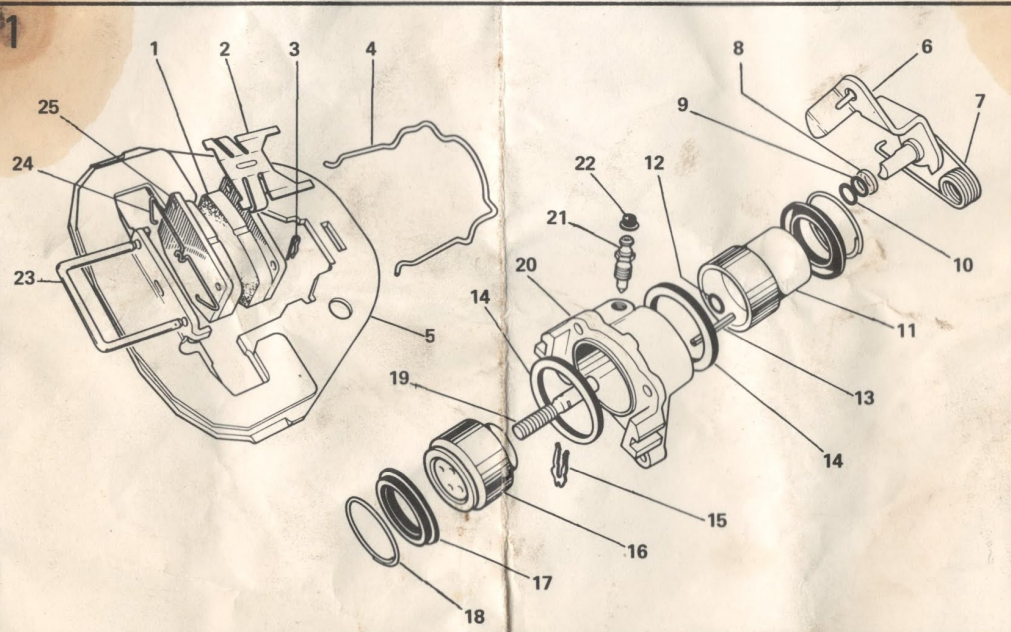
The individual kits are easily recognised by virtue of their size and type of grease content.

A. Hydraulic kit contains 16 items and rubber grease.

B. Handbrake lever kit contains 6 items and G.R.C Grease.

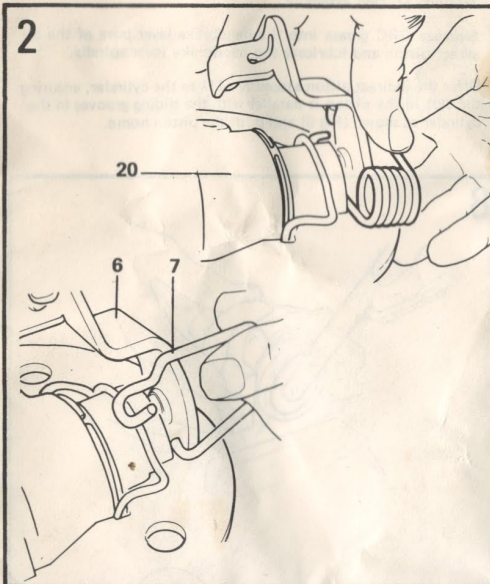
IMPORTANT: DO NOT USE EITHER TYPE OF GREASE OTHER THAN WHERE SPECIFIED IN THE FITTING INSTRUCTION.

Note: The illustration (Fig 1) shows a typical caliper. A special Girling PISTON WIND-BACK TOOL is required to service the caliper. The PART NO. is 67932001.



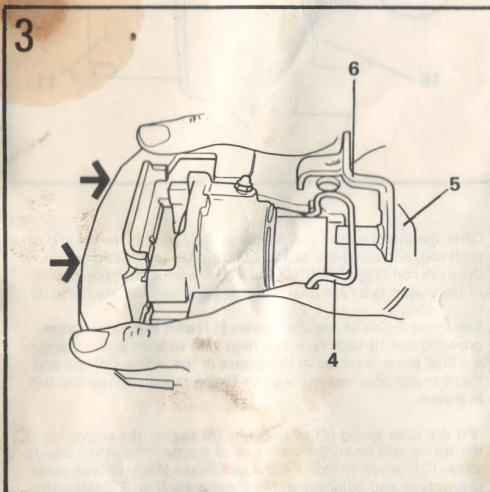
DISMANTLING

Clamp the cylinder (20) mounting lugs in a bench vice (fitted with padded jaws) and remove the handbrake lever return spring (7) (Fig. 2).



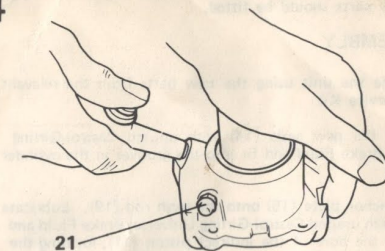
Slide the yoke (5) off the cylinder (Fig.3) and remove the yoke spring (4) and handbrake lever (6).

Remove the retaining rings (18) and dust covers (17).



Remove cylinder from bench vice, place on the bench and eject one of the pistons by applying compressed air to the inlet connection (Fig. 4). Taking care not to damage the internal surfaces, push out the remaining piston.

4



Remove the retainer (8) and 'O' ring (9) & (10) from the indirect piston (Fig. 5).

Taking care not to damage the internal surfaces, remove the seals (14) from the cylinder bore.

Unscrew the bleedscrew (21).

CLEANING

Clean all parts with Girling Cleaning Fluid or unused Castrol-Girling Universal Brake Fluid.

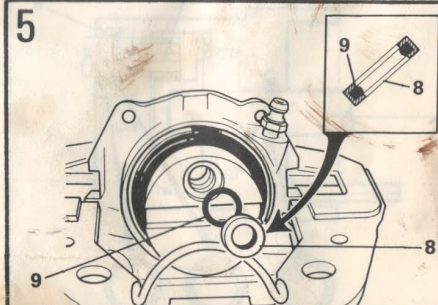
NOTE: The indirect piston (11) should be wiped clean, as washing or immersing with fluid will tend to wash out the internal grease lubricating the ball bearings and actuation plate.

Examine all parts for signs of wear, damage and corrosion, paying particular attention to the piston assemblies and the cylinder bore.

Check the spring pin (13) fitted to the indirect piston is not bent or damaged and is secure in the piston. Also ensure the push rod (19) screws easily into the adjuster assembly fitted in the direct piston (16).

Check the sliding edges of the yoke and the grooves in the cylinder body are smooth and free from corrosion. If necessary, remove corrosion using a wire brush or wire-wool, but material removal must be avoided if the small gap between the two components when assembled is to be maintained within design limits.

5



All parts must be in good working order and where doubt exists new parts should be fitted.

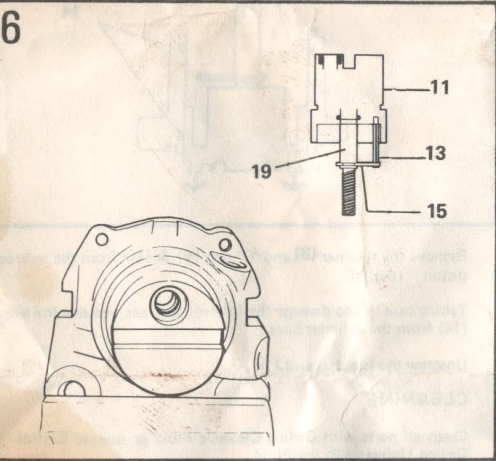
REASSEMBLY

Reassemble the unit using the new parts from the relevant Girling Service Kit.

Lubricate the new seals (14) with unused Castrol-Girling Universal Brake Fluid and fit into the grooves in the cylinder bore.

Fit the anchor plate (15) onto the push rod (19). Lubricate the rod with unused Castrol-Girling Universal Brake Fluid and push into the bore of the indirect piston (11), locating the anchor plate on the spring pin (13) (Fig. 6).

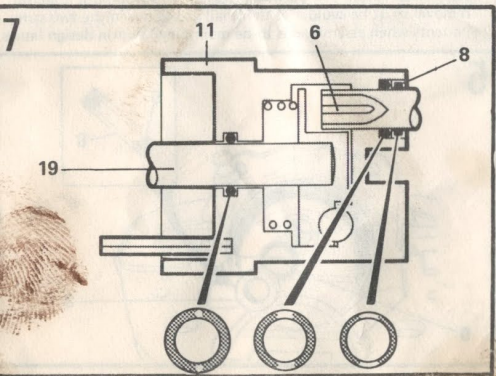
Clamp the cylinder in a vice (Fig. 6).



IMPORTANT

TO HELP WITH IDENTIFICATION REFER TO THE ILLUSTRATION FIG. 7. THE TWO 'O' RINGS WITH THE WHITE PAINT MARKINGS ARE FOR USE WITH THE PUSH RODS (19) AND THE FOUR 'O' RINGS WITH THE RED PAINT MARKINGS ARE FOR USE WITH THE HAND BRAKE LEVER CAMS (6). WHERE DOUBT EXISTS CHECK THE SIZE, THE TWO 'O' RINGS FOR USE ON THE PUSH RODS ARE SLIGHTLY LARGER THAN EITHER OF THE OTHER 'O' RINGS.

NOTE: When fitting the new 'O' rings to the indirect piston, care must be used to ensure the 'O' rings do not slip down the bore and into the cam housing.



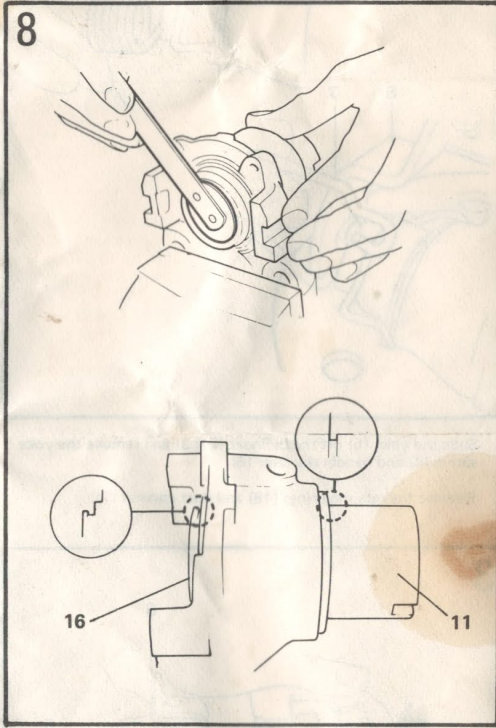
Wipe clean the handbrake lever and the mouth of the indirect piston bore.

Smear the new handbrake lever 'O' ring seals from the kit with the GRC grease provided and fit the SMALLER 'O' ring (9) into the retainer (8).

Fit a large 'O' rings (10) into the piston bore and follow with retainer/'O' ring assembly

Squeeze GRC grease into the handbrake lever bore of the indirect piston and lubricate the handbrake lever spindle.

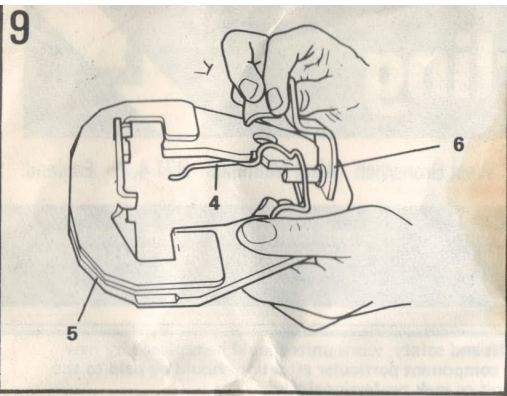
Offer the indirect piston assembly (11) to the cylinder, ensuring the slot in the piston is parallel with the sliding grooves in the cylinder as shown (Fig 6) and push the piston home.



Offer the direct piston (16) to the cylinder and threaded end of push rod, and using the special tool WIND the direct piston onto the push rod (Fig 8). WIND and PUSH both piston together until the piston faces are level with the body as illustrated (Fig 8).

Smear the inside of the dust covers (17) with the rubber grease provided and fit with retaining rings (18) to both pistons; ensure the dust cover is seated in the groove in the indirect piston and that damage does not ensue when fitting the cover over the slot in piston.

Fit the yoke spring (4) to the yoke (5) so that the angled leg of the spring will be on the same side of the cylinder as the bleed-screw (21) when fitted. Fit the handbrake lever (6) with cable connection also adjacent to the bleedscrew (Fig. 8). Offer the yoke with spring to the cylinder and manipulate the edge of the yoke and the spring ends into the cylinder grooves (Fig 10) take care to align the yoke with the slot in the indirect piston as shown and lift the handbrake lever to locate the cam shaft in the indirect piston cam housing. When aligned, push fully home, but take care not to push the indirect piston into the cylinder. (Refer to Fig. 8) as damage will ensue to the cylinder seal.

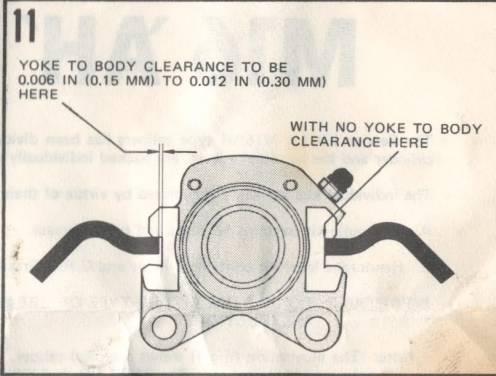
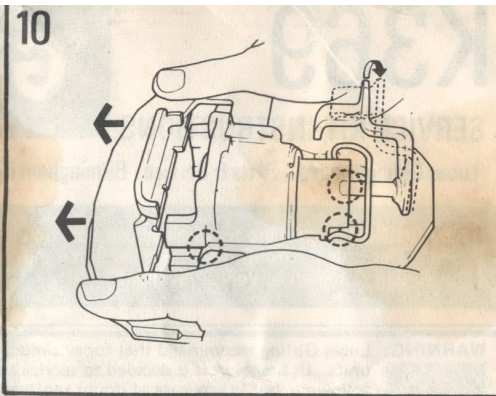


Slide the handbrake lever return spring under the cam shaft as shown (Fig 2) and press into position on the lever.

Check the dust covers are not twisted and that they are secure with the retaining rings correctly fitted.

If the mating surfaces of the yoke and cylinder were corroded and have been cleaned, check the gap with feeler gauges (Fig. 11). The measurement should be 0.006 in. (0.15 mm) to 0.012 in. (0.30 mm). However, a gap of up to 0.015 in. (0.38 mm) maximum is permissible as the caliper will still work efficiently, but calipers with large gaps have a tendency to be noisy during brake operation.

Reverse the removal procedure and refit the caliper to the vehicle. Fit new pads (instructions are contained in every box) and repeat procedure with opposite front caliper. Top up the master cylinder reservoirs with unused Castrol-Girling Universal Brake Fluid and pump the pedal 60 to 80 times to reposition the pads against the disc and adjust the handbrake. Recheck the brake fluid level, confirm hand-brake and foot brake lever movement is satisfactory and road test vehicle.



TECHNICAL TALK

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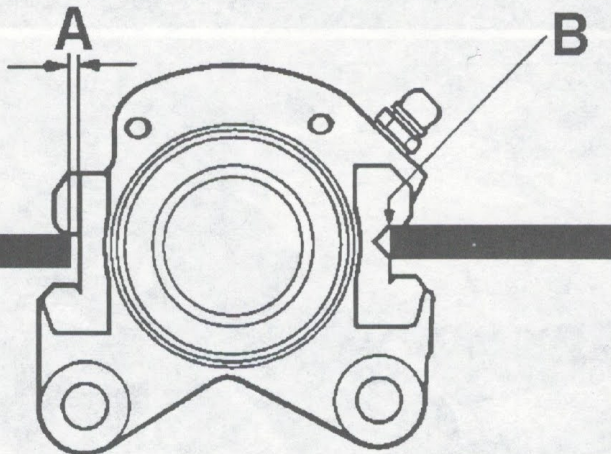
Tip of the Month

99/900 Caliper clunk

[A loud "thunk" when first backing up is not uncommon in high mileage 99s and 900s. It can be front wheel bearings, worn ball joints, loose brake pads or pads of the wrong composition, or, most likely, the piston assembly shifting in the caliper yoke. These Girling calipers were fitted to Saab 99s and 900s from 1975 through 1987.]

I was particularly interested in the letter to Doktor Nio from Rick Cohn (June 92) about the clunking noise in his brakes upon applying them the first time while backing up. My car is also a **1984 900 Turbo**, with 130,000 miles on the odometer. I had the same problem, but tried a different repair.

I believe that the best and most permanent cure is to remove the calipers from the car, separate the yoke and the cylinder and have a welder build up on of the mating surfaces on the yoke. This is the surface that slides in the groove in the cylinder. Girling's specification for clearance is 0.006 to 0.012 in., but after 100,000 miles, the clearance becomes excessive and is the cause of the clunking.



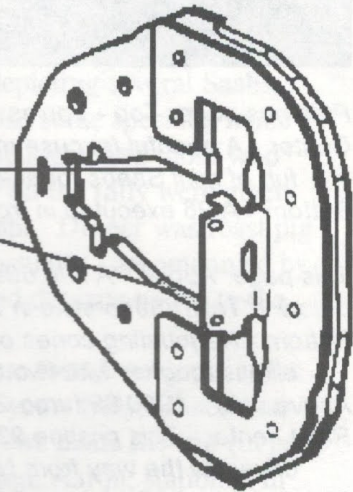
Correct yoke clearances on the front brake cylinder housing

A 0.006 to 0.012 in. (0.15 to 0.30 mm)

B Nil clearance

My welder used a very hard steel and built up a layer about 1/16th to 1/8th inch. I then filed the metal carefully by hand until the cylinder fitted nicely with only a few thousandths of an inch clearance.

Material should be added to these surfaces by welding



While I had everything apart, I rebuilt the cylinder and handbrake assembly. Andrews (of Princeton, Minnesota) supplied the Lucas/Girling kit which contains everything needed. The kit number is SP7267-1.

For lubricating the sliding edges of the yoke and the grooves in the cylinder, Andrews provided a special grease. It is a Ford product called Disk Brake Caliper Slide Grease, #DZAZ-19590-A. I recommend this highly. It adheres tenaciously to the metal and is not removed by rain, salt, snow or dirt. A thin layer applied to the U-shaped pin that secures the pads makes it simple to remove. As anyone who has worked on their brakes knows, the pin can become frozen (rusted) in place when ordinary grease or even anti-seize are used.

My brakes now work like new. No clunks.

Emerson Morse
Berlin NH