

MASTER CYLINDER

Description

The unit consists of a combined reservoir and master cylinder, the cylinder is bored to accommodate a piston, two rubber seals and a return spring.

A feed port and by-pass port allows fluid to flow from and return to the reservoir.

The piston is operated by a push rod which is connected through a rubber boot to the clutch pedal.

Operation

When the clutch pedal is depressed, the push rod moves the piston along the cylinder bore. The fluid is thus displaced under pressure to operate the slave cylinder via the pressure pipe line.

On releasing the load on the pedal, the return spring moves the piston back towards its end stop faster than the fluid is displaced to the master cylinder. This causes the lip of the main rubber seal to relax, allowing fluid to pass over

the seal from behind the piston head. The holes drilled in the head of the piston provide passages for the fluid, which are uncovered during the withdrawal of the piston along the bore.

When the piston is fully back against its stop, the main seal uncovers a small by-pass port in the barrel which releases all pressure within the master cylinder. The by-pass port also allows for expansion or contraction of the fluid caused by changes in temperature.

To Remove

Open and secure the bonnet.

Remove heater air duct.

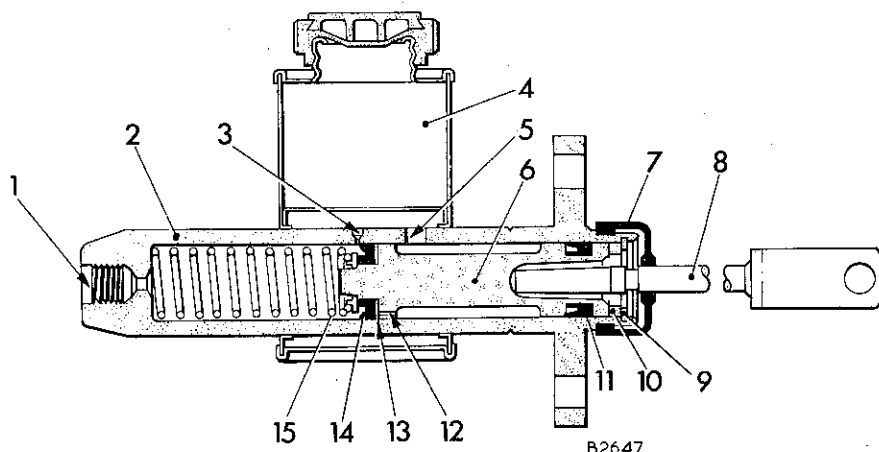
Position a drain container under the master cylinder.

Disconnect pressure pipe.

Remove two nuts and bolts securing master cylinder to mounting bracket.

Displace push rod and remove master cylinder.

1. OUTLET PORT
2. BODY
3. BY-PASS PORT
4. FLUID RESERVOIR
5. FEED PORT
6. PISTON
7. RUBBER BOOT
8. PUSH ROD
9. CIRCLIP
10. STOP WASHER
11. SECONDARY SEAL
12. TRANSFER PORTS
13. WASHER
14. MAIN SEAL
15. SPRING



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Fig. 1 Clutch master cylinder

To Dismantle

Thoroughly clean the cylinder exterior.

Remove reservoir cap and drain unit.

Remove rubber cap.

Remove circlip and stop washer.

Remove piston assembly and spring.

Remove the main seal, washer and secondary seal from the piston. Discard seals.

Inspection and Overhaul

Thoroughly clean all parts and blow dry with compressed air.

Carefully examine piston and cylinder bore. If any corrosion, scratches or scoring are evident the piston and cylinder are unserviceable.

Ensure the holes in the piston head are clear.

Ensure the return spring is not coil bound or distorted.

Ensure the by-pass port in the cylinder is clear.

Examine the rubber boot for cracks or holes. Try the fit of the boot in the groove on the cylinder body, if it is a slack fit, the boot has lost its elasticity and must be renewed.

To Re-assemble

Ensure that all parts are scrupulously clean prior to assembly and lubricate with clean brake fluid.

Fit a new main seal and washer to the front of the piston and a new secondary seal to the rear of the piston. Use fingers only when fitting seals.

Lubricate the cylinder bore with clean brake fluid, insert the spring, small end to the rear.

Insert the piston assembly into the cylinder bore, ensuring the piston seal lips are not damaged. Fit the stop washer and secure with circlip.

Smear the inside of the rubber boot with a suitable rubber lubricant. Fit the boot to the cylinder body, ensuring the inner lip engages firmly with the cylinder.

To Refit

Refitting is a reversal of the removal procedure, noting the following.

Fill the reservoir with the correct fluid, slowly operate the clutch pedal until fluid emerges from the outlet port and refit pressure pipe.

Bleed the system, section E200, and check for leaks with the clutch pedal held down, i.e. system under pressure.

Check for correct drag free clutch operation.