SERVO UNITS - GENERAL

INTRODUCTION

The Girling units described in the following sub-sections are designed to provide controlled vacuum power assistance to the effort applied at the footbrake.

The vacuum which is created and held in the chassis mounted reservoir is provided by manifold depression on petrol engines and by exhauster unit on diesel models.

The input rod of the servo is connected directly to the footbrake whilst the output rod acts directly on the hydraulic master cylinder.

A single diaphragm unit is used on the lighter vehicles in the range and a twin diaphragm type is fitted to the heavier models (see Data).

Vacuum is applied to both sides of the diaphragm(s) until a footbrake application is made when air at atmospheric pressure is allowed to enter on one side. The pressure differential thus created supplies the power.

The following sub-sections describe the operating sequences more fully.

Should vacuum failure occur, the input and output rods act as a single rod thus ensuring that the brakes will still function as a conventional hydraulic system; although more brake pedal pressure will be required.

FAULT FINDING

Testing

The following tests will assist fault finding. It is assumed that any fault connected with the braking system e.g. adjustments or fluid leaks etc. have been eliminated.

a. Jack up the front of the vehicle and ensure that wheels turn freely. With full vacuum available apply the brake pedal several times noting that is is possible to turn the wheel immediately after the pedal is released. If the brakes bind suspect a major fault in the unit.

b. With the engine running apply the footbrake several times and check its operation. If the response is sluggish the vacuum supply line may be faulty or the filters may require changing.

c. With full vacuum available, several brake applications should be power assisted as indicated by the effort required at the pedal. If no assistance is felt the reservoir non-return valve may be faulty or there may be a leak in the vacuum system.

d. Press pedal several times to deplete all vacuum from reservoir. Holding pedal down lightly, start engine. If unit is working correctly the pedal will fall away under pressure and less effort will be required to hold it in the applied position.

Possible Fault	Action
Restricted vacuum filter	Fit new filters
Faulty vacuum system	Check pipe lines and hoses for kinking, loose connections.
Faulty non-return valve	Fit new valve
Vacuum leak from unit	Check for obvious leaks. Fit new parts from service kit or fit new unit.
Major fault in unit	Fit new unit.

SERVICING

Routine service maintenance is not required unless the vehicle is operating in extremely dusty conditions.

See the Planned Maintenance Schedule for servicing at extended mileage intervals.

Service kits are available and consist of replacement seals and filters.

To Remove

Open and secure bonnet.

Remove two nuts and spring washers securing master cylinder to servo. Withdraw master cylinder and secure.

Disconnect and remove hose from servo adaptor.

Note: Do not remove the adaptor unnecessarily as this may affect the effectiveness of the seal.

At the brake pedal disconnect the input rod from the pedal lever.

Remove four retaining nuts and washers and withdraw servo from bulkhead.

Note: No dismantling of the unit is possible as special equipment is required. Never attempt to adjust the domed nut at the end of the push rod, this is pre-set during manufacture.

Hose adaptor

Noting the angle of the adaptor in relation to the unit shell, lever it out of its grommet as illustrated taking care not to damage the unit shell.

Remove the grommet taking care that it is not pushed into the vacuum cylinder.

Lightly lubricate the new grommet with the BMS grease supplied with the service kit and fit to unit. Lubricate ribs of adaptor and press fully into the grommet.

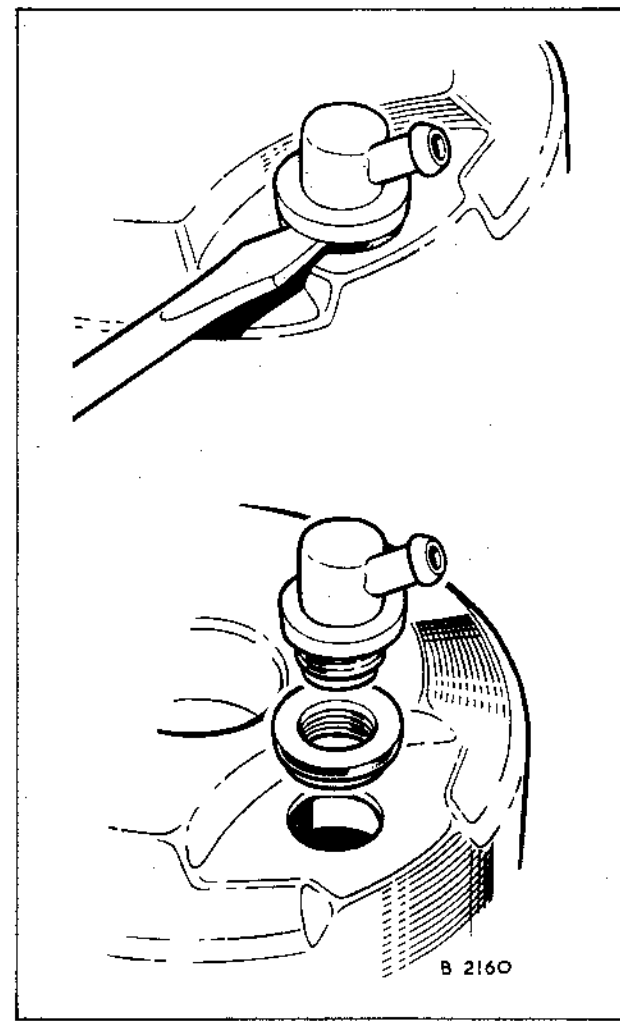


Fig. 1 *Vacuum hose adaptor*

Filters — To Remove and Refit

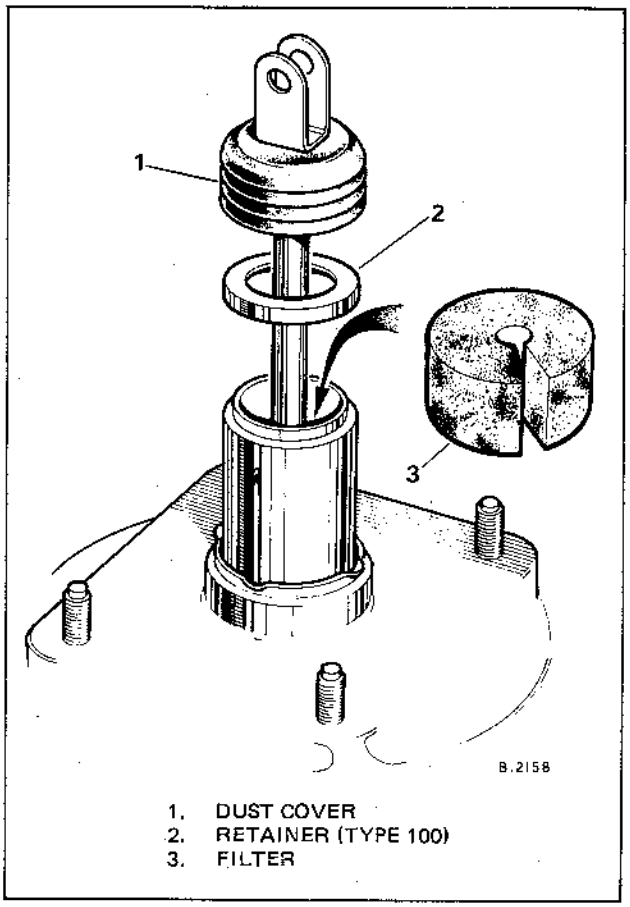
Withdraw the dust cover following by the retainer (when fitted).

Hook out the filter disc.

Cut the disc and remove from input rod.

Cut the new filter as illustrated in Fig. 2, fit over the input shaft and press into position.

Refit the filter retainer, lubricate and fit new dust cover.



1. DUST COVER
2. RETAINER (TYPE 100)
3. FILTER

Fig. 2 *Filter renewal*

Seal Assembly

Using a screwdriver lever out the plate and seal assembly from its recess in the front shell.

Note: On some units an '0' ring type seal may be fitted. This will generally come away with the master cylinder when it is removed.

When the plate and seal type of assembly is fitted wipe clean the output rod and the recess wall; lubricate these parts together with the new seal assembly with the BMS grease.

Fit seal assembly, rubber side leading, over the rod and into the recess.

To Refit

Refitting is a reversal of the removal procedure.

Tighten all fixings to the correct torque and secure hydraulic pipes.