Section G6

Hydraulic pumps

Before commencing any operations on the hydraulic pumps the car wings should be suitable protected with wing covers.

Hydraulic pump housing sealing rings - To renew
If brake fluid leakage occurs from a brake pump housing it is possible to renew the two sealing rings with the pump(s) in position using the following procedure.
1. Depressurise the hydraulic systems as described in Section G2.
2. Ensure that the pump(s) and the surrounding area is thoroughly clean.
3. Compress the rubber hose section of the hydraulic pump low pressure inlet pipe to prevent fluid flow. Remove the hose at the centre connection worm-drive clip. Suitably blank the hose end or allow the fluid to drain into a clean container.

Note
When work is being carried out on the rear hydraulic pump the ignition distributor should be removed as described in Chapter M.

On cars fitted with an exhaust emission control system the three way connector and check valve must be removed from above the front hydraulic pump (see Section U2).
4. Disconnect the high pressure outlet and low pressure inlet pipes from the hydraulic pump.
5. Remove the circlip from the top of the pump and draw the outer housing upwards and off the pump.
6. Discard the two old sealing rings; fit new ones lubricated with clean brake fluid of the approved type.
7. Fit the pump outer housing, aligning the port with the inlet pipe. Press the housing firmly into position then fit the circlip.
8. Prime the pump with approved brake fluid, connect the low pressure feed and high pressure outlet pipes to the pump, also connect the low pressure hose from the reservoir.
9. Top-up the reservoir with approved fluid (see Chapter D) and bleed the hydraulic systems as described in Section G4.

Hydraulic pumps - To remove
1. Carry out Operations 1 to 5 inclusive of Hydraulic pump housing sealing rings - To renew.
2. Using special box spanner (RH 8428) unscrew and remove the pump from its pedestal on the tappet chest cover; blank off the pedestal against the ingress of dirt.

Note
The pump cannot be removed using the top adapter as a spannering point.

Hydraulic pump - To dismantle
When two pumps are being dismantled the components from each pump must not be interchanged.
1. Remove the adapter from the top of the pump and withdraw the non-return valve assembly from the bore.

Gentle use of a small screwdriver may be necessary to assist removal of the chamfered washer; if the washer has spread it should be discarded and a new one fitted on assembly.
2. Remove the inlet valve ring, spacer ring and conical valve spring.
3. From the lower end of the pump remove the circlip and withdraw the plunger and spring collar; collect the spring.

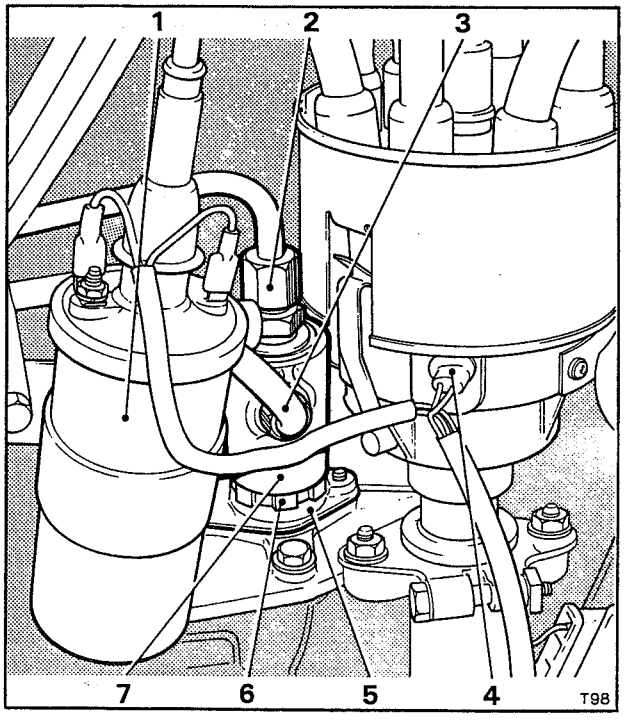

Fig. G8 Rear hydraulic pump
1 Ignition coil
2 High pressure outlet pipe
3 Low pressure inlet pipe
4 Ignition distributor
5 Pump mounting pedestal
6 Hydraulic pump spanner point
7 Pump outer housing

July 1978
T.S.D. 4200

4. Carefully withdraw the plunger barrel from the pump body.

Note

The barrel and plunger are a matched ground component and pieces are not interchangeable with pieces from other assemblies.

5. Remove and discard the three 'O' rings from the pump body.

6. To dismantle the non-return valve assembly, remove the circlip, push out the valve from the outer body and collect the spring, end stop and valve.

Hydraulic pump components - To clean and inspect

Important

Ensure that all components are absolutely clean.

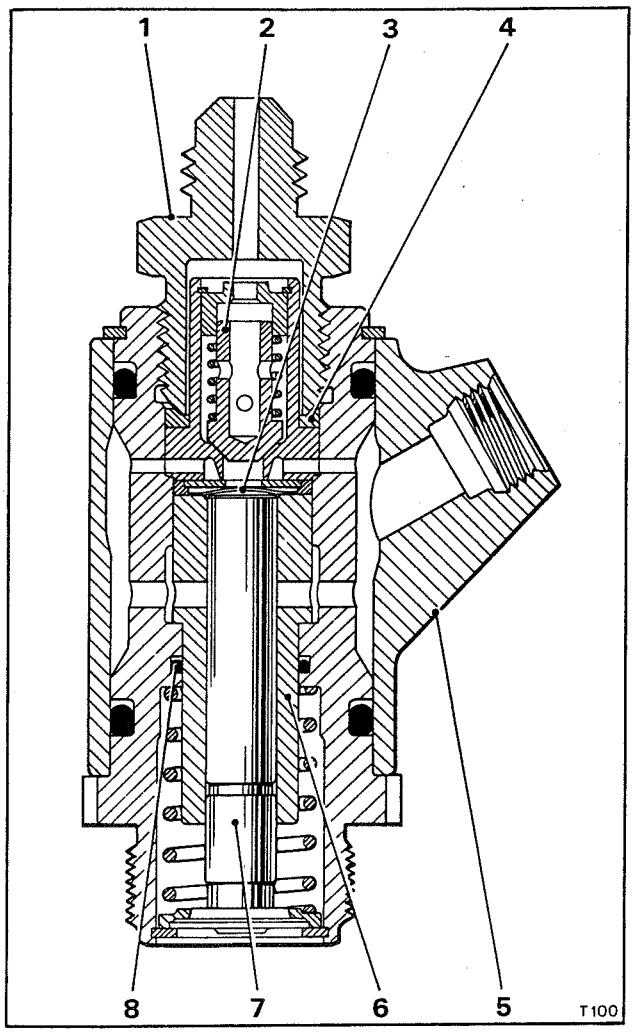

Fig. G9 Hydraulic pump - Sectional view

1 Adapter - high pressure outlet
2 Non-return valve
3 Inlet valve
4 Chamfered ring
5 Outer housing
6 Pump barrel
7 Plunger
8 Sealing ring

Tapped holes require special attention to ensure that they are free from foreign matter and slivers of thread which might break off during assembly and become entrapped in the hydraulic system. One method of achieving this is to screw slave adapters or setscrews down the threads before thoroughly cleaning the components in methylated spirits and drying with dry compressed air, **not cloth.**

It is important that the seating of the valves is correct and that the finely machined barrel and plunger are not scored or damaged.

Under normal circumstances after a thorough cleaning, and the introduction of a new set of sealing rings, the only parts that might need renewal are the small coil springs.

Hydraulic pump - To assemble

When assembling a hydraulic brake pump reference should be made to Figure G9.

1. Lubricate all parts including sealing rings with approved brake fluid (see Chapter D) prior to fitting in their respective positions.
2. Fit the small 'O' ring into position in the centre bore of the pump body.
3. Insert the plunger barrel into the pump body, pressing it through the sealing ring until it abuts the shoulder.
4. Insert and locate the spacer; fit the valve spring (crowned face towards inlet valve) and the inlet valve into position adjacent to the barrel head. Ensure that the seating face of the valve is free from damage marks otherwise the efficiency of the pump will be reduced.
5. Assemble the non-return valve, reversing the procedure given for its dismantling. Ensure that the valve is fully seated and the circlip correctly located in its groove. The end stop should be drawn upward to abut the circlip.
6. Fit the non-return valve assembly larger diameter leading into the pump body bore to abut the inlet valve ring.
7. Fit the chamfered sealing ring, small bore diameter leading into the pump body bore, to abut the shoulder of the non-return valve.
8. Fit the adapter to the top of the pump body, torque tightening to the figures quoted in Chapter P. Blank off the union.
9. Fit the coil spring into the lower end of the pump body.
10. Fit the spring collar to the barrel plunger and carefully insert the plunger into the bore of the barrel.
11. Depress the plunger against the spring sufficiently to enable the circlip to be fitted in its location.
12. Fit the two 'O' rings to the outside of the pump body. The pump is now ready for fitting to the engine.

Hydraulic pump - To fit and set

Prior to fitting the pump to the engine tappet cover flange, ensure that the shim washer fitted between the pump mounting flange and tappet cover is of the

correct thickness. For checking procedure refer to Chapter E Engine.

To fit the hydraulic pump, reverse the procedure for removal noting the following points.

1. The hydraulic pump and pipe connections should be torque tightened in accordance with the figures quoted in Chapter P. The pump should only be tightened using special box spanner (RH 8428), the top adapter should never be used as a spannering point.
2. Bleed the hydraulic systems as described in Section G4. Check all disturbed pipe connections for leaks.

Hydraulic pumps - To test (on the car)

1. Depressurise the system as described in Section G2.
2. Place a length of bleed tube onto the bleed screw of the accumulator pressurised by the pump to be tested; place and secure the other end of the tube in a clean measuring vessel, then open the bleed screw.
3. Ensure the appropriate reservoir compartment is full and start the engine.
4. Fluid should flow from the bleed tube in a series of spurts, coinciding with each revolution of the camshaft. The rate of flow should be approximately 250 ml. or just under ½ pint per minute at an engine speed of 1 000 r.p.m.
5. If fluid does not flow or the pumped quantity is below requirements the pump should be removed and overhauled.

July 1978
T.S.D. 4200