Section L4

Coolant pump

Coolant pump - To remove

For normal service and maintenance, including reconditioning, it is unnecessary to remove the pump casing from the engine.

All moving parts can be withdrawn, complete with the bearing housing. (see Fig. L5).

1. Raise the car to a convenient working height.
2. Place a clean container under the car to collect the coolant. Attach a length of rubber hose from the radiator drain tap to direct coolant into the container.
3. Open the radiator drain tap (see Fig. L1) and drain the coolant from the radiator. Close the drain tap, cover the container to prevent contamination of the fluid then lower the car.
4. Remove the header tank from the radiator.
5. Dismantle the upper half of the fan cowl to facilitate withdrawal of the fan and viscous coupling assembly.
6. Remove the four nuts and washers securing the viscous coupling, fan and pulley to the driving flange.

When removed, it is not necessary to separate the fan and coupling unless one of them is to be replaced.

7. Release the tension on all drive belts. Remove the belts.
8. Slide the coolant pump pulley forward **carefully** to reveal the bearing housing setscrews.
9. Unscrew the six setscrews which secure the bearing housing to the coolant pump casing.
10. Detach the bearing housing containing all the moving parts of the pump. It will be possible to manoeuvre the pulley off the assembly at this stage.
11. Remove and discard the 'O' ring from the pump casing.

If it is necessary to remove the pump casing from the engine, carry out the following operations.

12. Slacken the worm drive clips and disconnect the pump casing to radiator bottom tank hose.
13 If the car is fitted with an exhaust emission control system, remove the air injection pump as described in Chapter U - Emission Systems.
14. Remove the nut and washer from the jockey pulley pivot pin and withdraw the jockey pulley assembly.
15. Remove the adjusting setscrew to the pivot plate of the steering pump (see Chapter N - Steering System Fig. N15). Swing the steering pump away from the engine.
16. Remove the nuts and bolts securing the refrigeration compressor but do not disconnect the pipe work. Lift bodily away from the working area placing carefully onto a protective cover to ensure that no damage is caused to other engine components.
17. Remove the alternator as described in Chapter M - Electrical System.
18. For cars fitted with **S.U. carburetters,** unscrew and remove the setscrews and plain washers from the by-pass elbow. Remove the elbow and swan neck pipe, discard the 'O' rings and gasket.

For cars fitted with a **Solex carburetter** remove the three setscrews attaching the lower pipe flange of the thermostat housing to the pump. By virtue of the allowable movement in the 'O' ring bobbins the thermostat flange can be moved slightly upwards when withdrawal of the pump is undertaken. Discard the gasket.

19. Slacken the worm drive clips and disconnect the hose from the expansion tank to coolant pump pipe and from the heater return pipe. Remove the setscrew and washer securing each pipe to the coolant pump casing, detach the pipes and discard the 'O' rings.
20. Unscrew and remove the two lower setscrews securing the coolant pump casing to the crankcase, and the two setscrews and plain washers entering the top of the coolant pump casing from the crankcase side with the air injection pump bracket attached.
21. Detach the coolant pump casing, together with the Neoprene sealing strip, fitted to its lower edge.
22. With a sharp knife, cut the paper gasket across the upper edge of the crankshaft front cover and discard this portion of the gasket.

Coolant pump - To dismantle

For normal service operation, the bearing housing will have already been separated from the pump casing.

1. Draw the impeller off the shaft using the special tool (RH 7098).
2. Remove the peg screw which retains the bearing in the housing.
3. Support the bearing housing to enable the bearing assembly to be lightly driven out with a mallet.
4. Remove and discard the seal and counter face.
5. Examine the shaft and bearing for wear and damage. The assembly contains lubricant. No attempt must be made to wash any of the components.

Note

Operations 6 to 8 are intended for use in areas where an assembled kit of replacement parts are not available.

6. If the diameter of the impeller end of the shaft is below the limits specified, (see Section L5 Dimensional Data), if it is damaged, or if the flange is damaged, it will be necessary to draw the flange off the shaft using special tool (RH 8615) and discard

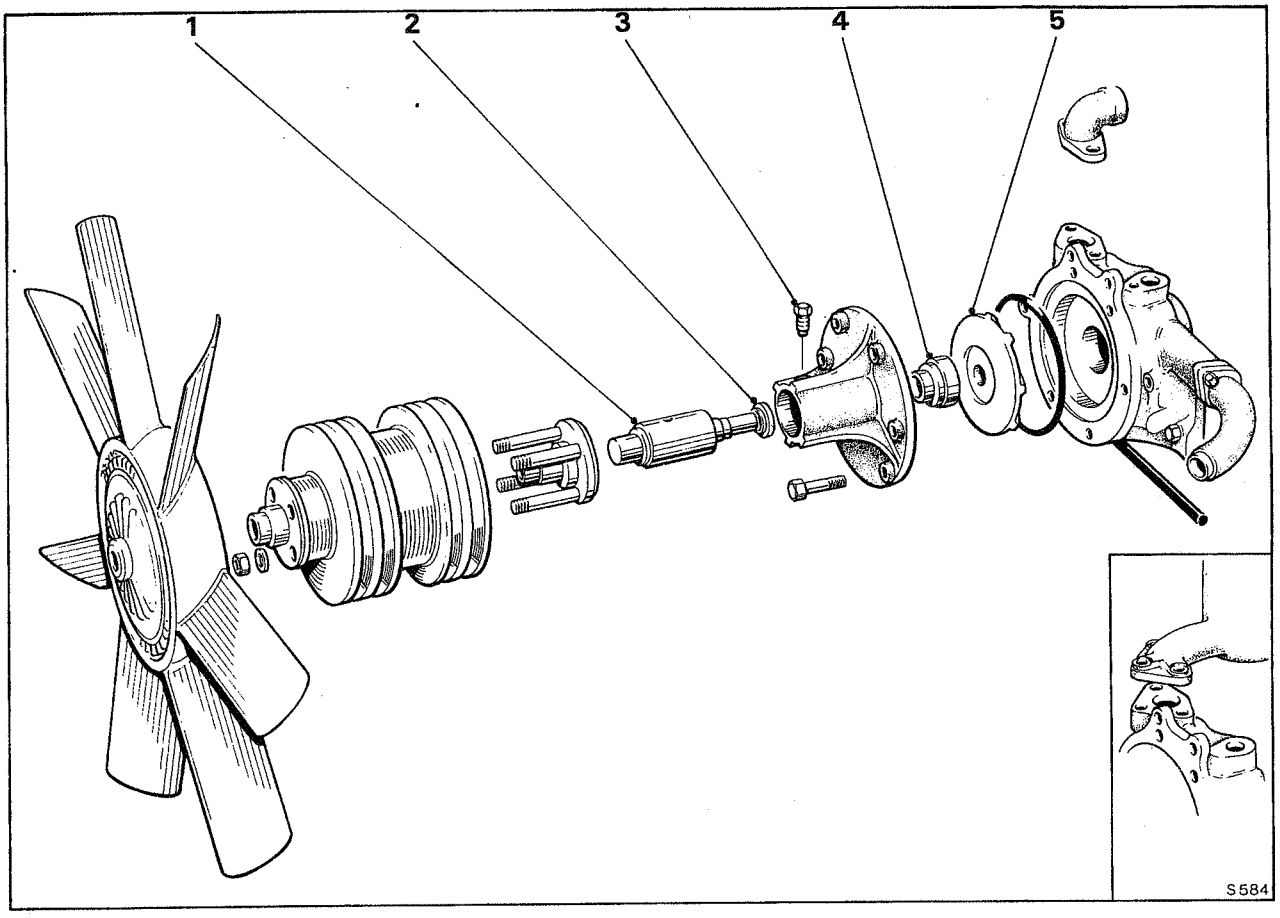

Fig. L5 Coolant pump. Exploded view
Inset - Thermostat housing mounting for cars fitted with Solex carburetters. Note that the mounting elbow is retained by three setscrews.
1 Shaft and bearing assembly.
2 Counterface.
3 Locating screw.
4 Sealing gland assembly
5 Impeller

the shaft or flange as necessary.

If no damage has occurred and the diameter of the shaft is within the specified limits it will not be necessary to withdraw the flange.

7. With the flange withdrawn,check that the bore of the flange conforms to the limits specified (see Section L5 Dimensional Data). If satisfactory, the flange may be used for further service.

8. Measure the diameter of a new shaft to ensure that the tolerances required for the flange and impeller are within the limits shown (see Section L5 Dimensional Data).

Coolant pump - To assemble

1. Before assembly, any damage marks on the joint faces of the bearing housing and pump casing should be removed using a fine carborundum stone.

2. Lightly coat the inside surface of the gland cover with a waterproofing solution such as 'Silastic' then fit the sealing gland assembly into the gland cover (see Fig. L6).

3. Fit the sealing gland assembly into the impeller end of the bearing housing. The assembly must lie flush with the end of the housing (see Fig. L5).

4. If the driving flange is not fitted at this stage press the flange onto the shaft. Check that the run-out of the flange is less than 0,05 mm. (0.002 in.) total indicator reading.

To check if the correct interference fit exists between the flange and shaft ensure a minimum load of 513kg. (1350lb.) is achieved during the pressing operation.

5. Fit a new seal counterface onto the shaft until the chamfered face abuts the shoulder.

6. Insert the impeller end of the shaft into the outer end of the bearing housing. Using a soft headed mallet, tap the bearing into the bore until the locating holes are aligned. Fit the locating screw.

7. Ensure the inner end of the shaft and the impeller bore are free from burrs.

8. Lightly smear the contact surfaces with Retinax 'A' grease.

9. Press the impeller into position on the shaft checking that a load of at least 363kg. (800lb.) is applied to give the correct interference fit between the impeller bore and shaft.

10. Using feeler gauges, ensure that the gap, between the faces of the bearing housing and impeller is 1,143 mm. to 1,219 mm. (0.045in. to 0.048in.).

Spin the assembly to ensure the shaft rotates freely.

Coolant pump - To fit

If the coolant pump casing was detached from the engine it should be fitted by reversing the procedure given for its removal. A new Neoprene sealing strip should be fitted to the bottom edge of the casing.

1. Remove any burrs which may exist on the joint face of the pump casing by lightly stoning with a fine carborundum stone.
2. Modify a new coolant pump casing gasket to suit the coolant pump casing.
3. All bolts should be tightened to the standard torque tightness figures, relative to size, shown in Chapter P.
4. Fit the belt driven auxiliaries as described in Chapter U for the air injection pump, Chapter N for the steering pump, Chapter C for the refrigeration compressor and Chapter M for the alternator.
5. Ensure a new strip of polyether foam is fitted between the upper quadrants of the fan cowl and radiator, before securing.
6. Examine all hoses for deterioration and renew any that are unserviceable. Check the security of all worm drive clips.
7. Fill the cooling system with the correct anti-freeze/water mixture as shown in Section L1 Cooling system - To fill, pouring slowly to avoid air locks.
8. Carefully examine all joints and hoses for leaks.

Belt tensioning (see Fig. L7)

The belt tensioning recommended for the various engine driven external auxiliaries is as follows.

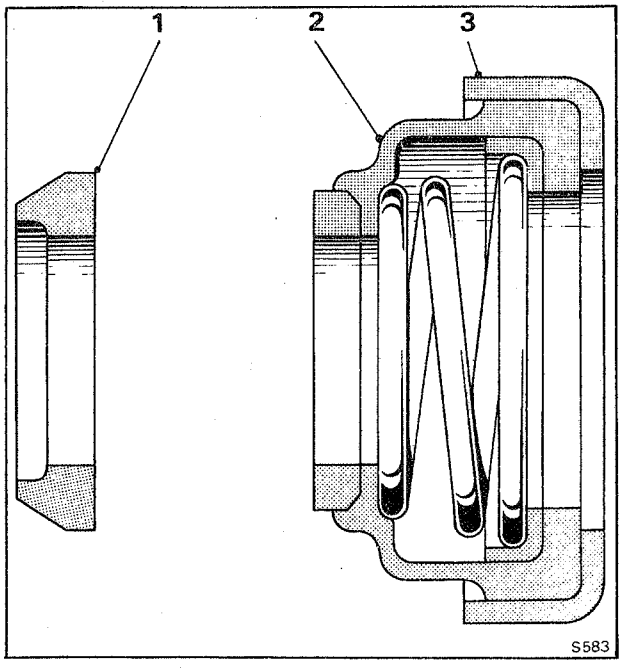

Fig. L6 Shaft seal and counterface
1 Counterface.
2 Sealing gland assembly.
3 Gland cover.

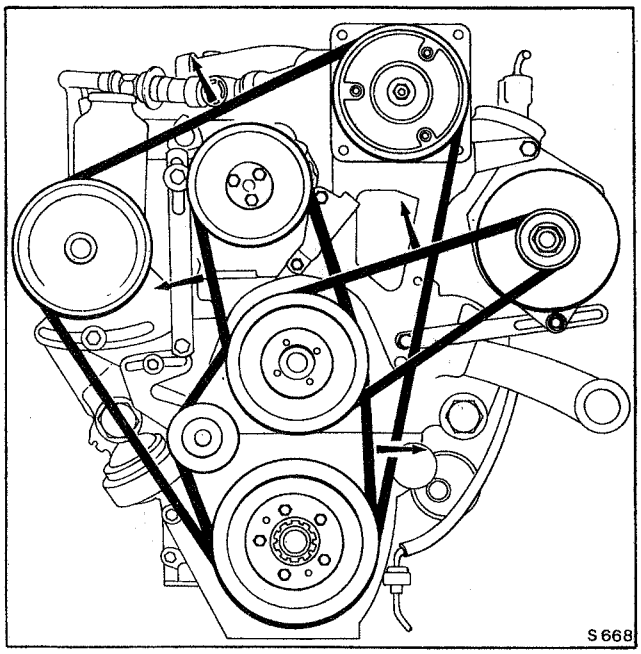

Fig. L7 Engine belt runs
Arrows show checking positions.

This must be checked at a point midway between the two pulleys by the use of a belt tension meter, (see Chapter N - Steering System Fig. N16), or by applying a spring balance to give a 9,5mm. (3/8in.) belt deflection.

In a pair of belts, if the tension of one belt differs markedly from the other, a new matched pair must be fitted.

Belt dressing must not be applied to prevent slip

The difference between the spring balance loads for similar belt tension meter loads is due to the varying lengths of belt between the individual pulley centres.

Crankshaft to coolant pump

Load may be applied on either side of the belt run.

Belt tension meter	23 kg (50lb)
Spring balance	4,1 kg (9lb)

Coolant pump to alternator

Load may be applied on either side of the belt run.

Belt tension meter	23 kg (50lb)
Spring balance	3,6 kg (8lb)

Steering pump to refrigeration compressor

Load must be applied on the top run of the belts. Each belt to be checked individually.

Belt tension meter	32 kg (70lb)
Spring balance	4,1 kg (9lb)

Coolant pump to air injection pump (cars fitted with exhaust emission control systems)

Load may be applied on either side of the belt run.

Belt tension meter	18 kg (40lb)
Spring balance	5,44 kg (12lb)