

Lubrication System

GENERAL
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GENERAL

An eccentric rotor type oil pump is fitted and is driven by a gear on the crankshaft. Oil is pumped from the sump, through a wire gauze strainer and to the various lubricating points of the engine.

The oil filter is an external, full-flow, renewable element type. A balance valve ensures an oil supply to the engine bearings even if the filter element should become blocked.

ROUTINE MAINTENANCE

Daily: Check the engine oil level using the dipstick which is located on the opposite side of the engine to the oil filter. With the car standing on level ground, withdraw the dipstick and wipe clean with a clean rag. Re-insert the dipstick fully and again withdraw it. The mark made by the oil on the lower end should be up to the knurled patch. If the oil level requires topping-up, remove the oil filler cap on the camshaft cover and add engine oil of the correct grade to bring the level to the knurled patch. Do NOT over-fill as this may result in oil leaks. If the engine has been running, wait 1 minute before checking the level.

The engine oil should be changed every 6,000 miles (10,000 km). The oil filter element should also be replaced at this time. Under adverse conditions, such as continuous town, or stop-start driving, change the oil more often.

OIL FILTER - Replacing the element

Place a suitable container under the filter to catch any oil. Remove the air cleaner then remove the front carburettor overflow pipe support plate and disconnect the pipe from the carburettor float chamber. From beneath the car, disconnect the rubber hose from the oil filter return valve. Unbolt the centre bolt (Fig. B.1), and withdraw the filter bowl and element. Unbolt the filter head from the cylinder block then remove the filter head assembly from the top of the engine compartment. Remove the rubber sealing ring from the groove in the mounting flange. Locate a new sealing ring in the groove at four diametrically opposite points. Do NOT fit the ring at one point

Technical Data

Oil pressure, hot
 2.8 kg/cm² at 3,000 RPM
 40 lb/sq. in.
 Oil pump, type
 eccentric rotor
 Lobe end clearance
 0.15 mm (0.006 in.) max.
 End clearance
 0.06 mm (0.0025 in.) max.
 Outer rotor/body clearance
 0.25 mm (0.010 in.) max.
 Engine refill capacity
 17.5 US. pts, 8.25 litres
 (inc. filter)
 14.5 Imp. pts.

Assemble the pump in the reverse order, fitting new suction and delivery pipe 'O' rings, and ensuring that the outer rotor chamfered end is fitted first.

Check the pump body and cover for excessive wear or damage. Check the drive shaft and shaft bores similarly. Replace as necessary. Hold the drive shaft in a soft-jawed vice and check the inner rotor for fitment. If necessary, replace the drive shaft and inner and outer rotors as an assembly only.

The clearance between the inner and outer rotor lobes should be 0.15 mm (0.006 in.) at the most (Fig. B.2). The clearance between the outer rotor and the pump body should be no more than 0.25 mm (0.010 in.) (Fig. B.3). The end float of the rotors should be no more than 0.06 mm (0.0025 in.) (Fig. B.4). In an emergency only, obtain the necessary clearance by lapping the outer rotor and pump body on a surface plate to suit the inner rotor.

Remove the four bolts retaining the bottom cover, remove the cover and the inner and outer rotors from the pump body. Do NOT remove the inner rotor from the drive shaft.

OIL PUMP - Overhaul

Remove the sump as previously described. Disconnect the oil delivery and suction pipe brackets and remove the pipes from the pump. Unbend the pump retaining bolt tab washers. Unbolt and remove the pump from the front main bearing cap collecting the coupling sleeve from the drive shaft top. Install in the reverse order then verify that the coupling sleeve has slight end float. Remember to fit the sleeve in the drive shaft squared end.

OIL PUMP - Removal and Installation

and then work it round the groove as the rubber may stretch and cause a leak. Thoroughly clean the filter bowl and insert the new element. Fit a new sealing washer on the centre bolt and locate the filter assembly on the mounting flange, after installing the parts in the reverse order to removal. Set the centre bolt at a torque of 2.07 - 2.76 kg.m (15 - 20 lb.ft.). Start the engine and check for oil leaks. Check the oil level.

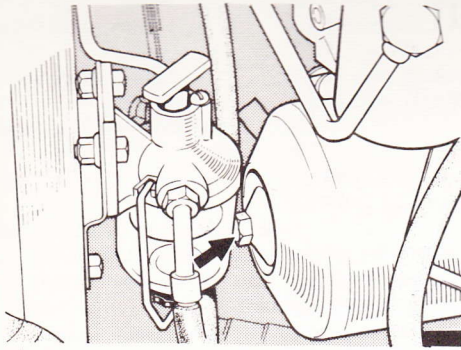


Fig.B.1 Oil filter centre bolt

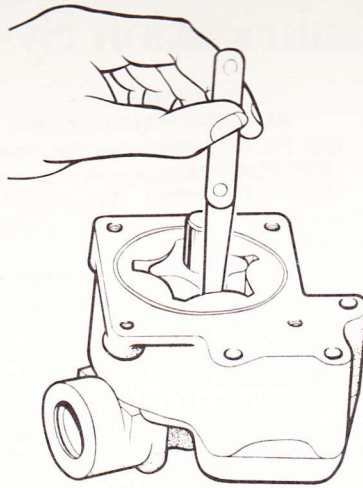


Fig.B.2 Measuring the inner to outer rotor clearance

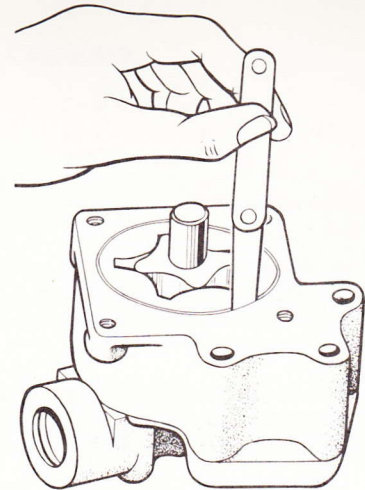


Fig.B.3 Measuring the outer rotor to pump body clearance

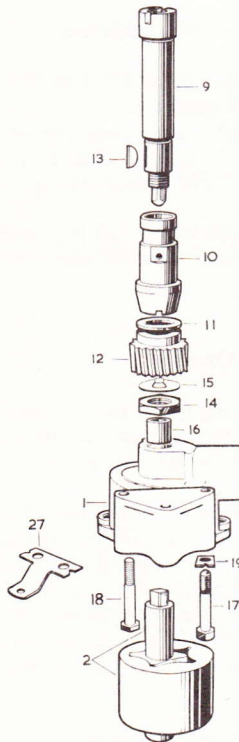


Fig.B.4 Measuring the rotor end float

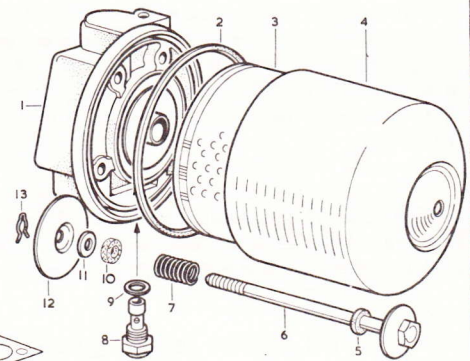


Fig.B.6 Details of the oil filter

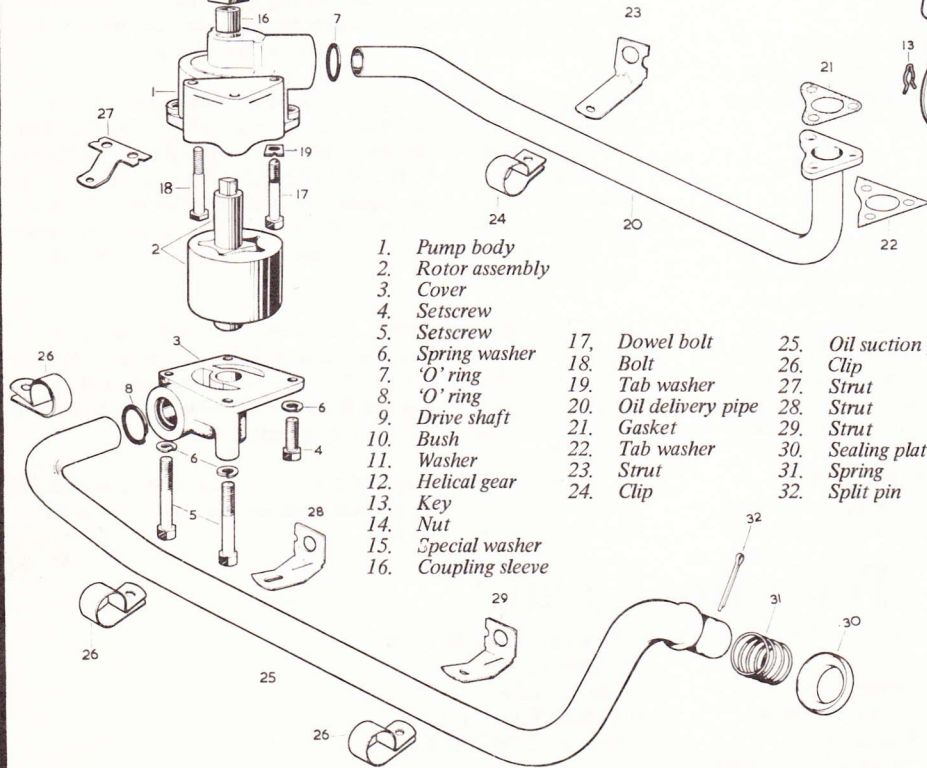


Fig.B.5 Exploded view of the oil pump

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|---------------------|-----------------------|----------------------|
| 1. Pump body | 17. Dowel bolt | 25. Oil suction pipe |
| 2. Rotor assembly | 18. Bolt | 26. Clip |
| 3. Cover | 19. Tab washer | 27. Strut |
| 4. Setscrew | 20. Oil delivery pipe | 28. Strut |
| 5. Setscrew | 21. Gasket | 29. Strut |
| 6. Spring washer | 22. Tab washer | 30. Sealing plate |
| 7. 'O' ring | 23. Strut | 31. Spring |
| 8. 'O' ring | 24. Clip | 32. Split pin |
| 9. Drive shaft | | |
| 10. Bush | | |
| 11. Washer | | |
| 12. Helical gear | | |
| 13. Key | | |
| 14. Nut | | |
| 15. Special washer | | |
| 16. Coupling sleeve | | |

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| 1. Filter head |
| 2. Sealing ring |
| 3. Filter element |
| 4. Canister |
| 5. Sealing ring |
| 6. Bolt |
| 7. Spring |
| 8. Balance valve |
| 9. Sealing ring |
| 10. Felt washer |
| 11. Washer |
| 12. Clamping plate |
| 13. Spring clip |