

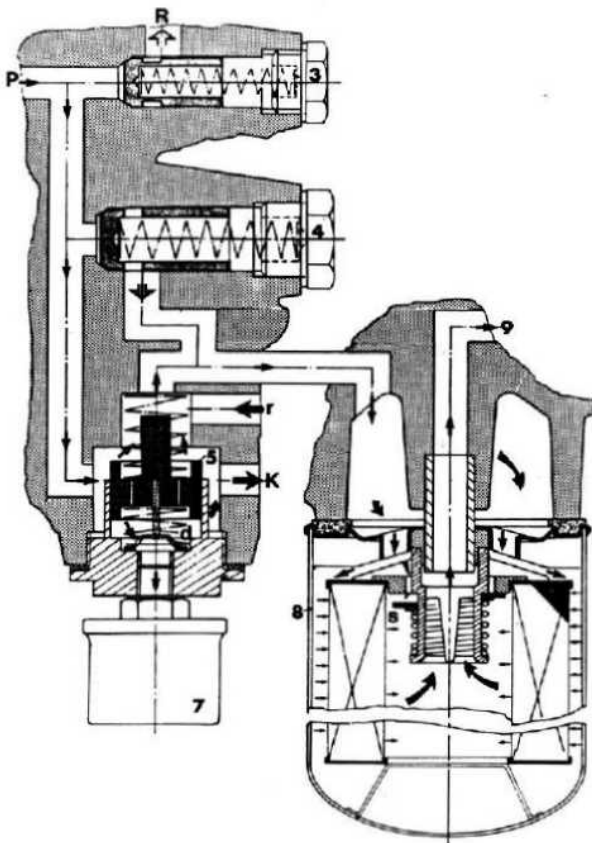
ENGINE – Lubrication

Oil Circuit Diagram

The oil delivered by the oil pump goes first to the pressure relief valve (3). The pressure relief valve will open when a pressure of 8 bar is reached. The excessive oil will return into the suction side of the pump. The oil required for lubrication continues to the thermostat (5), on which the oil pressure sending unit (7) is located.

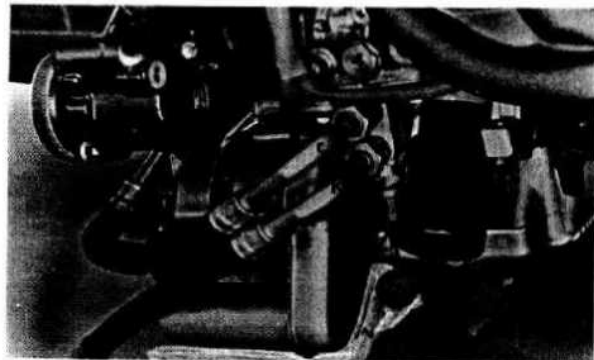
If the oil is cold, the thermostat will be open (position illustrated). The oil flows around the expansion element and through the oil filter to the main passage (9). In this condition the feed opening "k" and the return opening "r" of the oil cooler will have the same pressure, so that no oil flows through the cooler.

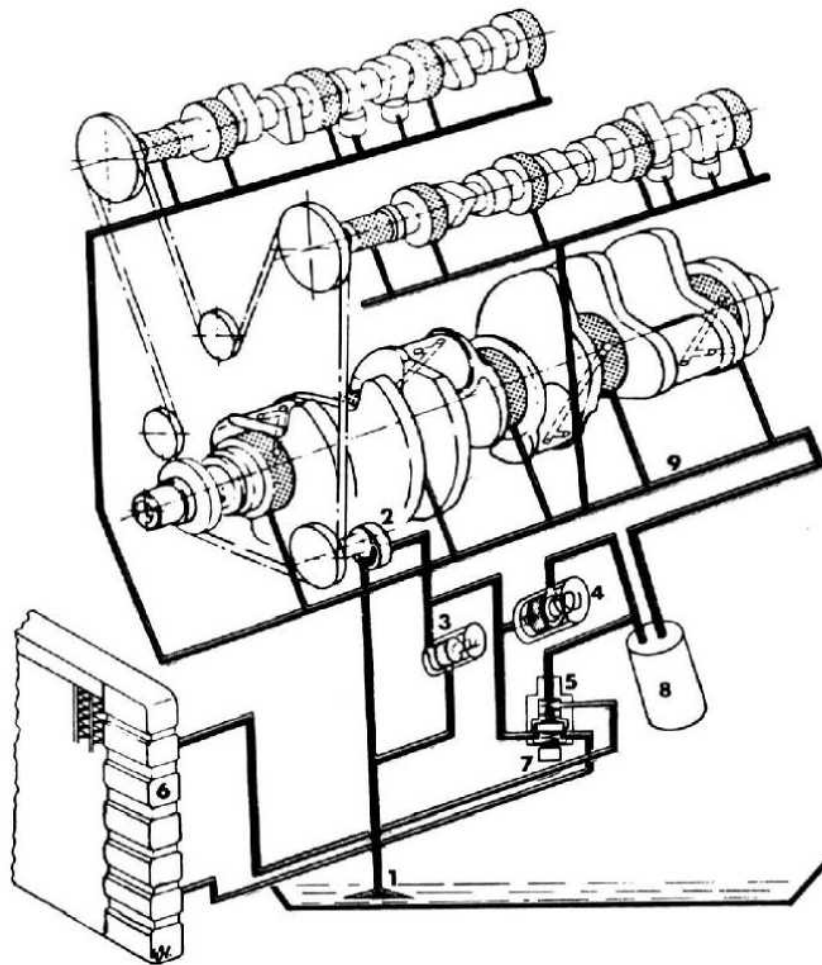
As the oil temperature increases (starting from 87°C) the expansion element will stop the flow to the main passage. Feed opening "k" is now under full oil pressure. The oil now flows through the cooler.



- P – Oil under pressure from the pump
- R – Return into suction side of oil pump
- K – Feed to oil cooler
- r – Return from oil cooler
- d – Thermostat pressure pin
- s – Safety valve (opens when filter is plugged)

- 3 – Pressure relief valve
- 4 – Bypass valve
- 5 – Thermostat
- 7 – Oil pressure sending unit
- 8 – Oil filter
- 9 – Main oil passage





- 1 – Oil pick-up tube
- 2 – Oil pump
- 3 – Pressure relief valve
(opens at 8 bar)
- 4 – Bypass valve
(opens at 0.5 to 1.0 bar difference in pressure)
- 5 – Thermostat (opens circuit to oil cooler
at 87°C)
- 6 – Oil cooler
(integrated in radiator)
- 7 – Oil pressure sending unit
- 8 – Full flow oil filter
- 9 – Main oil passage

The oil is filtered by the full flow oil filter and flows under pressure into the main oil passage (9) of the crankcase lower section. At this point it branches off to the main bearings and through drillings to the left and right camshaft housings to provide lubrication for the cam bearings and hydraulic lifters. The conrod bearings are lubricated through inclined bores from the main bearings. A bypass valve (4) is located between the oil pump and the thermostat as a safety valve to ensure that the oil pressure in the oil cooler never exceeds the design limit.