

## **Blowing Hot And Cold**

**"If two lie together they keep warm; but how can one keep warm alone?"  
Ecclesiastes 4.11**

**Since time immemorial Man has sought to keep some kind of even temperature, particularly in winter when a source of warmth is always appreciated. Internal-combustion engines like to be kept evenly warm too, the ideal temperature is fairly close but not too close to the boiling point of their cooling solution.**

**Allowing an engine to overheat will have the obvious consequence of boiling, a danger sign which must not be ignored. Engines which run too cool will be wasteful of petrol, performance will not be at its best and wear will be accelerated.**

**The motor car has long relied on a heat-sensitive valve, commonly known as a thermostat to control the flow of water through the cooling system, thus controlling the temperature of the water immediately surrounding the engine, keeping it within the optimum limits. The physical presence of the thermostat forms a useful restriction to the flow of water, creating better circulation within the engine's waterways which helps to obviate air pockets and actively promotes a better flow through the heater.**

**The thermostat is one of those vital components which is 'out of sight and out of mind' and rarely receives any consideration. In cold weather and in the early stages of any journey it is continually adjusting the flow of water in the cooling system, and its usefulness should not be underestimated.**

**Like any other component, thermostats can go wrong - often**

**without the driver's knowledge. If a thermostat sticks in the CLOSED position (fig. 1) water circulation will be restricted and**

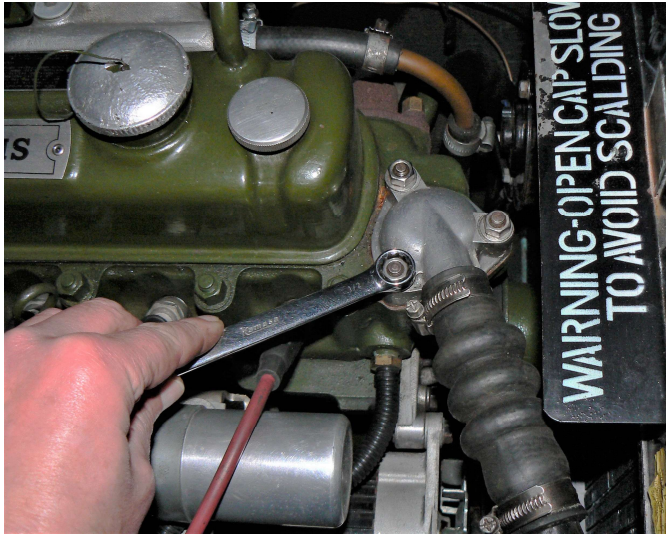


**boiling will soon occur, generally a very obvious problem which must be dealt with immediately.**

**If, on the other hand, the thermostat sticks in the OPEN position (fig. 2), opens**



**much too early or has been removed, the consequences are less obvious but equally undesirable. The entire amount of coolant is immediately in circulation and the radiator is doing its best to dissipate any heat that comes its way. The engine will require choke for longer than is normal, which wastes petrol and a contributes significantly to bore wear. The heater will take forever to warm up, and will not do so at all on a short journey. Water vapour generated within the engine will condense internally instead of remaining as vapour and escaping through the crankcase breather. Signs of this can be found by removing the oil filler cap on top of the engine. Water and oil don't mix but combine to form a greyish deposit not unlike mayonnaise which will be found on the underside of the cap. Cool engines need a richer petrol/air mixture at all times so also expect lumpy running and an unreliable tickover.**



**The thermostat is one of the most accessible components of the Minor's engine, see fig. 3; for a general layout of parts see fig. 4. The only preparation needed for removal is to drain the coolant. If the housing has not been taken off for a long time it may well be corroded to its studs, making removal a**

**painstaking business. Fortunately new housings and studs are readily available via the Club's spares scheme.**



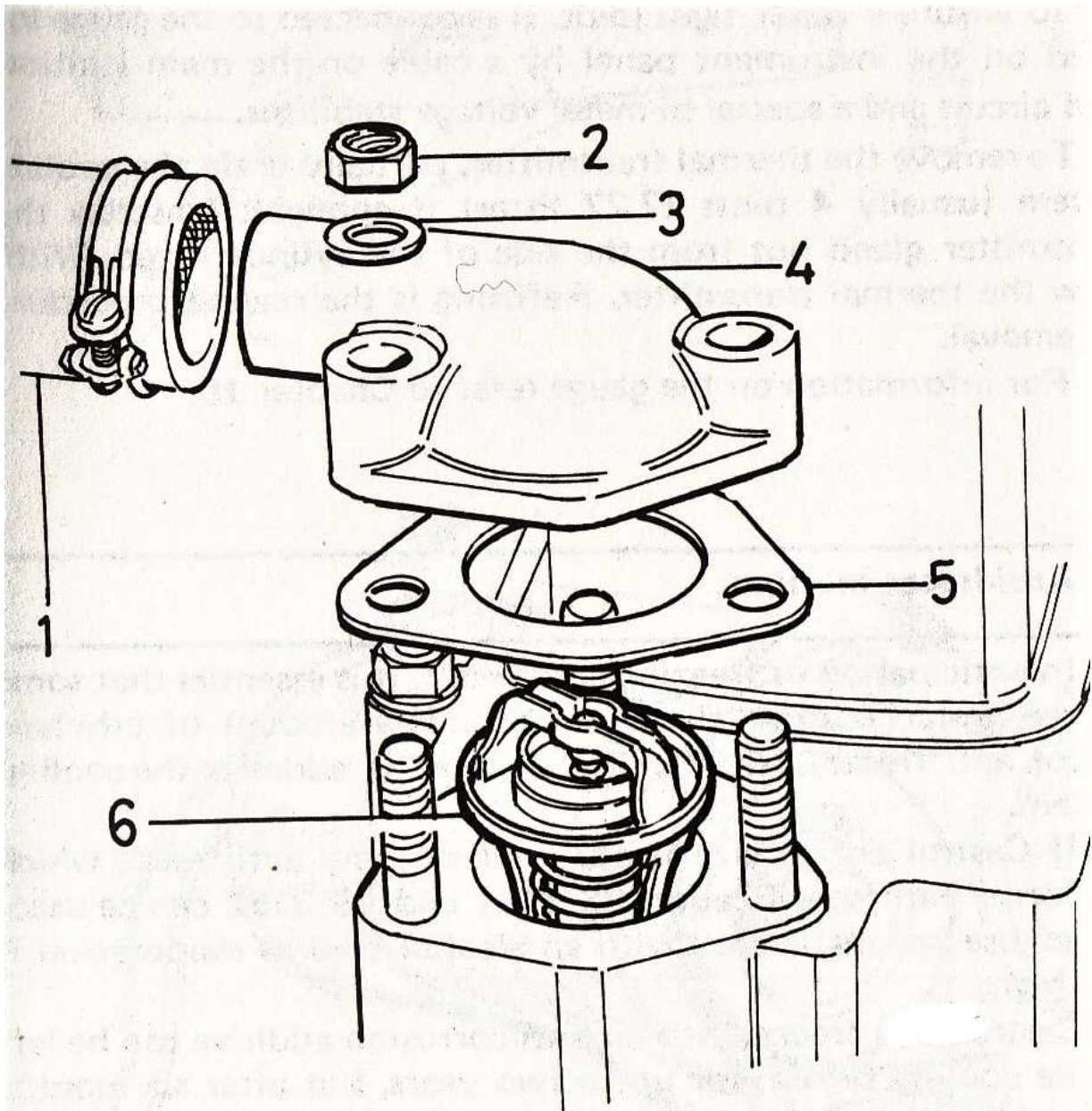
**A thermostat may be tested in a rather rudimentary fashion by dangling it in hot water (fig. 5) Boil the kettle and drop the thermostat in. as long as the water is near boiling point the thermostat should open, as in fig. 2. On removing it from the water it should begin to close immediately. If it opens in water which is well below boiling, it is faulty, as is a thermostat which does not begin to close as soon as it is removed from the heat.**

**The opening temperature is usually, but not always stamped on the body of the thermostat as in fig. 6. That illustrated is 82 deg. C which should be regarded as a minimum figure for a replacement, with 88 deg. as a maximum.**



**Whilst the coolant is drained it may be advantageous to detach both heater hoses at the engine end and flush the heater through in both directions with a garden hose. Cover the distributor and HT leads before doing this as water is bound to be spilt. Sometimes a surprising amount of silt can be dislodged from the heater.**

**An engine with a correctly-functioning thermostat will warm up quickly, run more efficiently, and the heater has a better chance of working well. Three most desirable attributes which may be gained from a comparatively small outlay of time and money.**



### THERMOSTAT HOUSING

- 1 Radiator top hose
- 2 Nut
- 3 Plain washer

- 4 Thermostat housing
- 5 Gasket
- 6 Thermostat