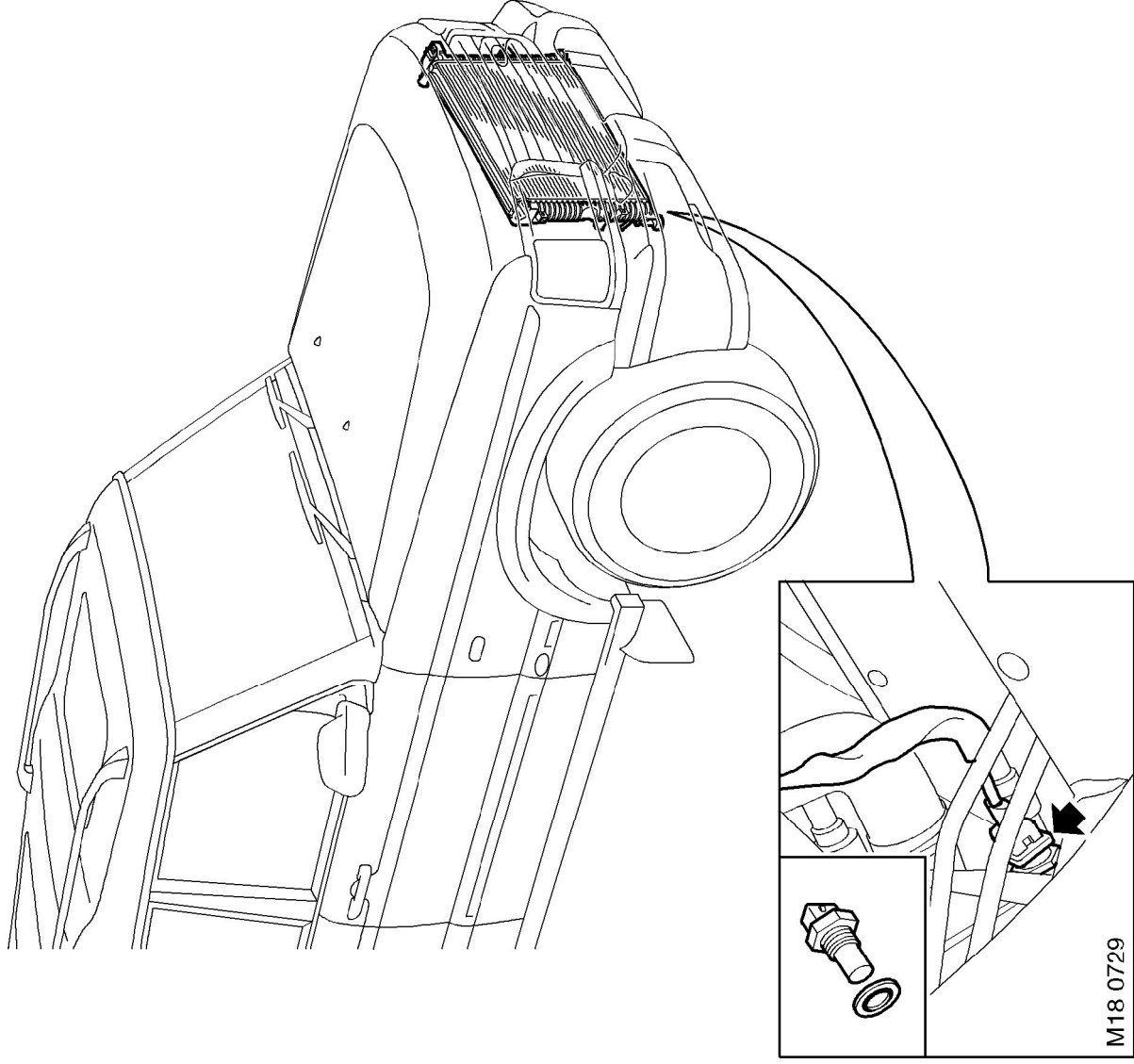




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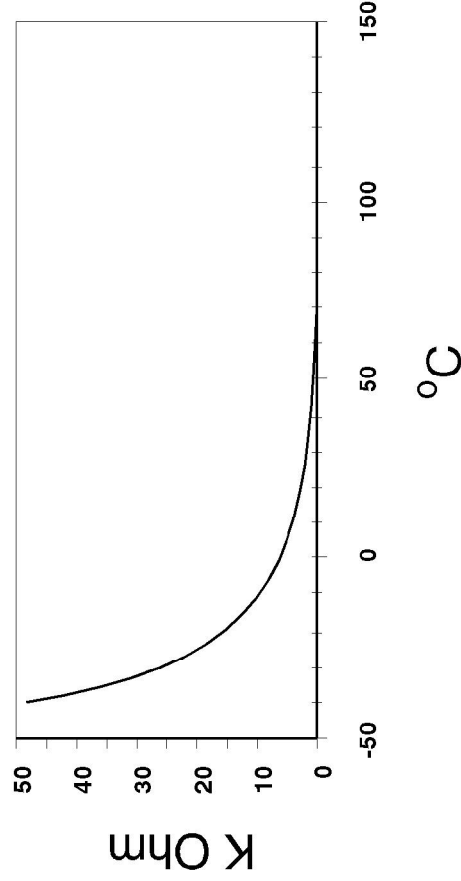
Thermostat Monitoring sensor



The thermostat monitoring sensor is located in the radiator, adjacent the bottom hose. The ECM compares the temperature measured by the thermostat monitoring sensor to the temperature measured by the ECT sensor. If the difference between the two readings is too great, the ECM determines the thermostat is stuck. In this case, the ECM registers a fault code in its memory.

The thermostat monitoring sensor works as a Negative Temperature Coefficient (NTC) sensor. As temperature rises, the resistance in the sensor decreases, as temperature decreases, the resistance in the sensor increases. With this information, the ECM is able to monitor the performance of the thermostat. The normal operating parameters of the thermostat monitoring sensor are as follows:

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Input/Output

The ECM provides the thermostat monitoring sensor with a 5 volt reference via pin 21 of connector C0635 of the ECM, and an earth via pin 5 of connector C0635 of the ECM.

There are three types of thermostat monitoring sensor diagnostic checks:

- Sensor signal is above maximum threshold. For the ECM to register this as a fault, and illuminate the MIL, the temperature registered by the thermostat monitoring sensor must be above 140 °C (284 °F) for more than 1 second.
- Sensor signal is below minimum threshold. For the ECM to register this as a fault, and illuminate the MIL, the temperature registered by the thermostat monitoring sensor must be below -33 °C (-27 °F) for more than 1 second, while the inlet air temperature reading is greater than -32 °C (-25 °F).
- Signal difference between ECT sensor and thermostat monitoring sensor is below maximum threshold. For the ECM to register this as a fault, and illuminate the MIL, the following conditions must exist:
 - No maximum or minimum threshold signal faults exist.
 - No faults are recorded against the thermostat monitoring sensor or vehicle speed signal.
 - Engine not in idle speed control.
 - Fuel cut-off not active.
 - Engine speed is greater than 400 rpm.
 - Road speed is greater than 0 mph.
 - Integrated mass air flow from engine start to fuel cut-off is greater than set value (between 3 kg and 10 kg dependent upon engine coolant temperature at engine start).
 - Engine coolant temperature at engine start is between 9 °C and 39 °C (48 °F and 102 °F).
 - High range is selected.
 - Delay time before thermostat monitoring is enabled is between set limits (between 50 and 500 seconds dependent upon engine coolant temperature at engine start).
 - Engine coolant temperature is greater than 90 °C (194 °F).
 - The difference between the ECT sensor reading and the thermostat monitoring sensor reading is less than 39 °C (102 °F).