

Thermostat Monitor

The thermostat monitor is designed to verify correct thermostat operation. This monitor is executed once per drive cycle and has a monitor run duration of 300-800 seconds. If a concern is present, DTC P0125 or P0128 is set and the malfunction indicator lamp (MIL) is illuminated.

The monitor checks the engine coolant temperature (ECT) or cylinder head temperature (CHT) sensor to warm up in a predictable manner when the engine is generating sufficient heat. A timer is initialized while the engine is at moderate load and the vehicle speed is above a calibrated limit. The target timer value is based on ambient air temperature at start-up. If the timer exceeds the target time and ECT or CHT has not warmed up to the target temperature, a concern is indicated. The test runs if the start-up intake air temperature from the intake air temperature (IAT) sensor is at, or below the target temperature. A 2-hour engine off soak time is also required to enable the monitor and to prevent erasing of any pending DTCs during a hot soak. This soak time feature also prevents false-passes of the monitor when the engine coolant temperature rises after the engine is turned off during a short engine off soak period.

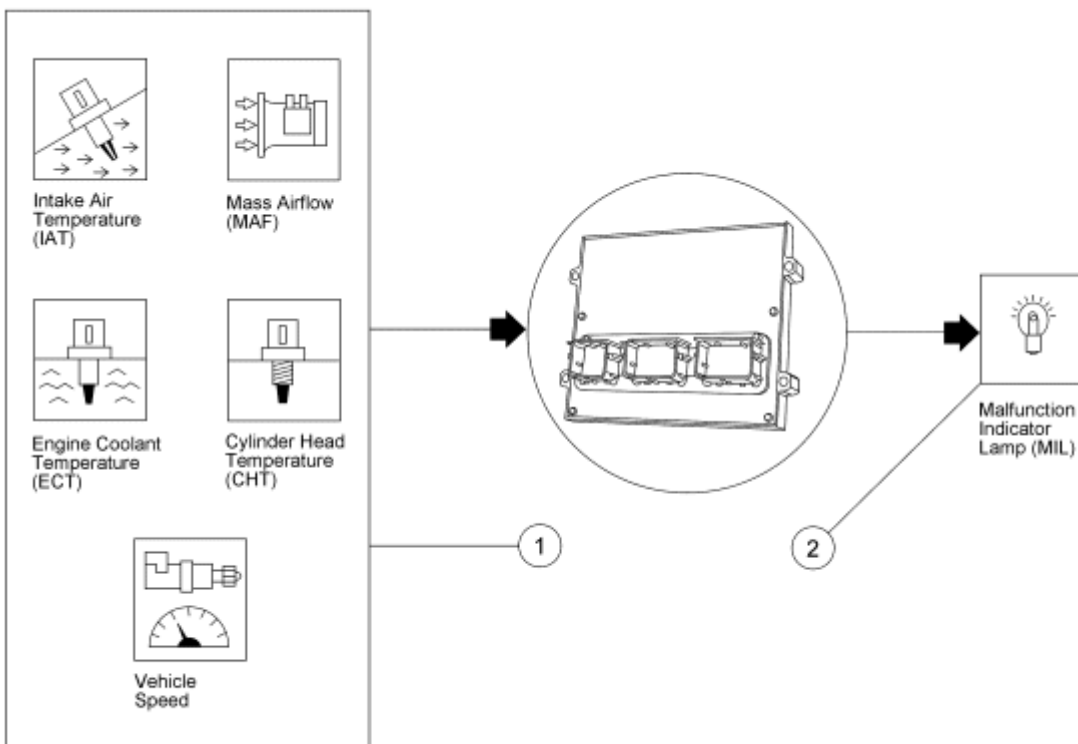
The target temperature is calibrated to -11°C (20°F) the thermostat regulating temperature. For a typical 90°C (195°F) thermostat, the target temperature would be calibrated to 79°C (175°F). Some vehicle calibrations may lower the target temperature to less than 27°C (50°F) for vehicles that do not warm-up to thermostat regulating temperatures in the 11°C (20°F) to 27°C (50°F) ambient temperature range.

- Inputs: ECT or CHT, IAT, engine LOAD (from MAF sensor) and vehicle speed input.

Typical monitor entry conditions:

- vehicle speed greater than 24 km/h (15 mph)
- intake air temperature at start-up is between -7°C (20°F) and target thermostat temperature
- engine load greater than 30%
- engine off (soak) time greater than 2 hours

- Output: MIL.



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