Thermostat

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MONITOR DESCRIPTION

The engine control module (ECM) estimates the engine coolant temperature (ECT) based on starting temperature, engine loads, and engine speeds. The ECM then compares the estimated ECT with the actual ECT. When the estimated ECT reaches 75 °C (167 °F), the ECM checks the actual ECT. If the actual ECT is less than 75 °C (167 °F), the ECM will interpret this as a fault of the thermostat or the engine cooling system and set a DTC.

MONITOR STRATEGY

Related DTCs	P0128	Thermostat malfunction
Required sensors/Components	Main	ECT sensor
	Sub	IAT sensor, Crankshaft position sensor, MAF sensor, Vehicle speed sensor
Frequency of operation	Once per driving cycle	
Duration	900 sec.	
MIL operation	2 driving cycles	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever the following DTCs are not present	See page In−4	
Battery voltage	11 V	–
(a) IAT at engine start	−10˚C (14˚F)	35˚C (95˚F)
(b) ECT at engine start	−10˚C (14˚F)	35˚C (95˚F)
Difference between (a) and (b)	−15 ˚C (5˚F)	7˚C (45˚F)
Accumulative time with vehicle speed 80 km/h (50 mph) or more	–	20 sec.

TYPICAL MALFUNCTION THRESHOLDS

Detection Criteria	Threshold
Duration period for both (c) and (d)	5 sec. or more
(c) Estimated ECT	75˚C (167˚F)
(d) ECT (sensor output)	Less than 75˚C (167˚F)

COMPONENT OPERATING RANGE

Parameter	Standard Value
Simulated ECT	75˚C (167˚F)
ECT (sensor output)	75˚C (167˚F) or more