

DL: Cylinder Head Temperature (CHT) Sensor Introduction

DL: Pinpoint Tests →

Note

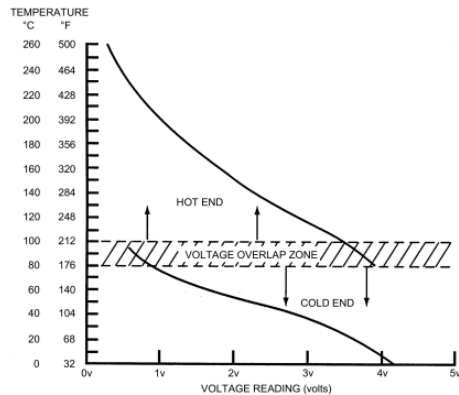
This Pinpoint Test is intended to diagnose the following:

- Cylinder head temperature (CHT) sensor (6G004)
- Harness circuits: CHT, VREF, and SIG RTN
- Powertrain control module (PCM) (12A650)

Tables and Graphs

On applications that do not use a ECT sensor, the CHT sensor is used to determine the engine coolant temperature in place of the ECT sensor. In this case the PCM may store both CHT and ECT Diagnostic Trouble Codes (DTCs). To cover the entire temperature range of both the CHT and ECT sensors, the PCM has a dual switching resistor circuit on the CHT input. A graph showing the temperature switching from the COLD END line to the HOT END line with increasing temperature and back with decreasing temperature is included. Note the temperature to voltage overlap zone. Within this zone it is possible to have either a COLD END or HOT END voltage at the same temperature. For example, at 90°C (194°F) the voltage could read either 0.60 volt or 3.71 volts. Refer to the table for the temperature to voltage expected values.

Voltage values were calculated for VREF = 5.0 volts. These values can vary 15 percent due to sensor and VREF variations.



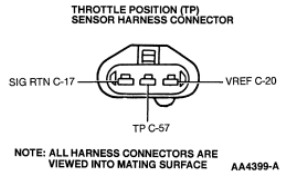
AA0885-B

CYLINDER HEAD TEMPERATURE SENSOR EXPECTED VALUES

Temperature		CHT Sensor Values		
°C	°F	COLD END	HOT END	Resistance (K ohms)
-40	-40	4.89	—	965.808
-30	-22	4.81	—	513.019
-20	-4	4.67	—	283.664
-10	14	4.45	—	162.584
0	32	4.14	—	96.255
10	50	3.73	—	59.175
20	68	3.26	—	37.387
30	86	2.74	—	24.215
40	104	2.23	—	16.043
50	122	1.76	—	10.85
60	140	1.36	—	7.487
70	158	1.04	—	5.268
80	176	0.79	3.99	3.775
85	185	0.69	3.86	3.215
90	194	0.60	3.71	2.75
95	203	0.53	3.56	2.361
100	212	0.46	3.41	2.034
110	230	—	3.07	1.523
120	248	—	2.74	1.155
130	266	—	2.41	0.8866
140	284	—	2.10	0.6891
150	302	—	1.81	0.5417
160	320	—	1.55	0.4301
170	338	—	1.33	0.3449
180	356	—	1.13	0.2791
190	374	—	0.96	0.2278
200	392	—	0.82	0.1875
210	410	—	0.70	0.155
220	428	—	0.60	0.130
230	446	—	0.51	0.109
240	464	—	0.44	0.092
250	482	—	0.35	0.078
260	500	—	0.33	0.067

Pinpoint Test Schematics and Connectors

LS6/LS8



All Others

