



CODE 23

MANIFOLD AIR TEMPERATURE (MAT) SENSOR CIRCUIT (LOW TEMPERATURE INDICATED) 2.5L "P" SERIES (TBI)

Circuit Description:

The manifold air temperature sensor uses a thermistor to control the signal voltage to the ECM. The ECM applies a voltage (4-6 volts) on CKT 472 to the sensor. When manifold air is cold, the sensor (thermistor) resistance is high, therefore, the ECM will see a high signal voltage. As the air warms, the sensor resistance becomes less and the voltage drops.

Test Description: Numbers below refer to circled numbers on the diagnostic chart.

- This step checks to see if Code 23 is the result of a hard failure or, an intermittent condition.
A Code 23 will set if:
 - Signal voltage indicates a MAT temperature less than -30°C.
 - Engine is running for longer than 58 seconds.
- This test simulates conditions for a Code 25. If the "Scan" tool displays a high temperature, the ECM and wiring are OK.
- This step checks continuity of CKTs 472 and 469. If CKT 469 is open, there may also be a Code 33.

Diagnostic Aids:

If the engine has been allowed to cool to an ambient temperature (overnight), coolant and MAT temperatures may be checked with a "Scan" tool and should read close to each other.

A Code 23 will result if CKTs 472 or 469 become open.

If Code 23 is intermittent, refer to Section "B".

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MANIFOLD AIR TEMPERATURE (MAT)
SENSOR CIRCUIT
(LOW TEMPERATURE INDICATED)
2.5L "P" SERIES (TBI)

1 • DOES "SCAN" TOOL DISPLAY MAT -30°C OR COLDER?

YES

NO

2 • DISCONNECT SENSOR.
 • JUMPER HARNESS TERMINALS TOGETHER.
 • "SCAN" SHOULD DISPLAY TEMPERATURE OVER 130°C.
 DOES IT?

CODE 23 IS INTERMITTENT. IF NO
 ADDITIONAL CODES WERE STORED,
 REFER TO DIAGNOSTIC AIDS ON
 FACING PAGE.

YES

NO

FAULTY CONNECTION OR SENSOR.

3 • JUMPER CIRCUIT 472 TO GROUND.
 • "SCAN" SHOULD DISPLAY TEMP. OVER 130°C.
 DOES IT?

YES

NO

OPEN CIRCUIT 469,
 FAULTY CONNECTION
 OR FAULTY ECM.

OPEN CIRCUIT 472,
 FAULTY CONNECTION
 OR FAULTY ECM.

DIAGNOSTIC AID

MAT SENSOR		
TEMPERATURE TO RESISTANCE VALUES (APPROXIMATE)		
°F	°C	OHMS
210	100	185
160	70	450
100	38	1,800
70	20	3,400
40	4	7,500
20	-7	13,500
0	-18	25,000
-40	-40	100,700

CLEAR CODES AND CONFIRM "CLOSED LOOP" OPERATION AND NO "SERVICE ENGINE SOON" LIGHT.