



CODE 21

THROTTLE POSITION SENSOR (TPS) CIRCUIT (SIGNAL VOLTAGE HIGH) 2.5L "P" SERIES (TBI)

Circuit Description:

The throttle position sensor (TPS) provides a voltage signal that changes relative to the throttle valve. Signal voltage will vary from less than 1.25 volts at idle to about 4.5 volts at wide open throttle (WOT).

The TPS signal is one of the most important inputs used by the ECM for fuel control and for many of the ECM controlled outputs.

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

- This step checks to see if Code 21 is the result of a hard failure or an intermittent condition. A Code 21 will set if:
 - TPS reading above 2.5 volts.
 - Engine speed less than 1800 rpm.
 - MAP reading below 60 kPa.
 - All of the above conditions present for 2 seconds.
- This step simulates conditions for a Code 22. If the ECM recognizes the change of state, the ECM and CKTs 416 and 417 are OK.
- This step isolates a faulty sensor, ECM, or an open CKT 452. If CKT 452 is open, there may also be a Code 15 stored.

Diagnostic Aids:

A "Scan" tool displays throttle position in volts. Closed throttle voltage should be less than 1.25 volts. TPS voltage should increase at a steady rate as throttle is moved to WOT.

A Code 21 will result if CKT 452 is open or CKT 417 is shorted to voltage. If Code 21 is intermittent, refer to Section "B".

THROTTLE POSITION (DEGREES)	VOLTS	MAP (kPa)
0	0.5	100
10	1.0	90
20	1.5	80
30	2.0	70
40	2.5	60
50	3.0	50
60	3.5	40
70	4.0	30
80	4.5	20
90	4.5	10

CODE 21
THROTTLE POSITION SENSOR (TPS) CIRCUIT
(SIGNAL VOLTAGE HIGH)
2.5L "P" SERIES (TBI)

1 • THROTTLE CLOSED.
 DOES "SCAN" DISPLAY TPS OVER 2.5 VOLTS?

YES

NO

2 • DISCONNECT SENSOR.
 "SCAN" SHOULD DISPLAY TPS
 BELOW .2 VOLTS (200mV).
 DOES IT?

CODE 21 IS INTERMITTENT. IF NO
 ADDITIONAL CODES WERE STORED,
 REFER TO "DIAGNOSTIC AIDS" ON
 FACING PAGE.

YES

NO

3 • PROBE SENSOR GROUND CIRCUIT WITH A
 TEST LIGHT CONNECTED TO 12 VOLTS.

CKT 417 SHORTED TO
 VOLTAGE OR FAULTY ECM.

LIGHT "ON"

LIGHT "OFF"

FAULTY
 CONNECTION
 OR SENSOR

OPEN SENSOR
 GROUND CIRCUIT
 OR FAULTY ECM.

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

2-24-87

• 75 3057-6E