



CODE 33

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR CIRCUIT (SIGNAL VOLTAGE HIGH - LOW VACUUM) 2.8L "P" SERIES (PORT)

Circuit Description:

The manifold absolute pressure sensor (MAP) responds to changes in manifold pressure (vacuum). The ECM receives this information as a signal voltage that will vary from about 1-1.5 volts at idle to 4-4.5 volts at wide open throttle.

A "Scan" displays manifold pressure in volts. Low pressure (high vacuum) reads a low voltage, while a high pressure (low vacuum) reads a high voltage.

If the MAP sensor fails, the ECM will substitute a fixed MAP value and use the throttle position sensor (TPS) to control fuel delivery.

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

- Code 33 will set when:
 - Signal is too high, (kPa greater than 69 kPa with A/C "OFF" or greater than 75 kPa with A/C "ON") for a time greater than 5 seconds
 - TPS less than 1.6%

Engine misfire or a low unstable idle may set Code 33. Disconnect MAP sensor and system will go into backup mode. If the misfire or idle condition remains, see Symptoms in Section "B".
- If the ECM recognizes the low MAP signal, the ECM and wiring are OK.

Diagnostic Aids:

If idle is rough or unstable, refer to symptoms in Section "B" for items which can cause an unstable idle.

An open in CKT 469 or the connection will result in a Code 33.

Ignition "ON" engine "OFF", voltages should be within the values shown in the table on the chart.

Also CHART C-1D can be used to test the MAP sensor.

Refer to "Intermittents" in Section "B".

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- IF ENGINE IDLE IS ROUGH, UNSTABLE OR INCORRECT, CORRECT BEFORE USING CHART. SEE SYMPTOMS IN SECTION "B".
- ENGINE IDLING.
- DOES "SCAN" DISPLAY A MAP OF 4.0 VOLTS OR OVER?

YES

NO

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- IGNITION "OFF".
- DISCONNECT MAP SENSOR ELECTRICAL CONNECTOR.
- IGNITION "ON".
- "SCAN" SHOULD READ A VOLTAGE OF 1 VOLT OR LESS. DOES IT?

CODE 33 IS INTERMITTENT. IF NO ADDITIONAL CODES WERE STORED, REFER TO "DIAGNOSTIC AIDS" ON FACING PAGE.

YES

NO

- PROBE CKT 469 WITH A TEST LIGHT TO 12 VOLTS.
- TEST LIGHT SHOULD LIGHT. DOES IT?

CKT 432 SHORTED TO VOLTAGE, SHORTED TO CKT 416, OR FAULTY ECM.

YES

NO

PLUGGED OR LEAKING SENSOR VACUUM HOSE OR FAULTY MAP SENSOR.

OPEN CKT 469.

IGNITION "ON" ENGINE STOPPED VOLTAGES

ALTITUDE		VOLTAGE RANGE
Meters	Feet	
Below 305	Below 1,000	3.8--5.5V
305-- 610	1,000--2,000	3.6--5.3V
610-- 914	2,000--3,000	3.5--5.1V
914--1219	3,000--4,000	3.3--5.0V
1219--1524	4,000--5,000	3.2--4.8V
1524--1829	5,000--6,000	3.0--4.6V
1829--2133	6,000--7,000	2.9--4.5V
2133--2438	7,000--8,000	2.8--4.3V
2438--2743	8,000--9,000	2.6--4.2V
2743--3048	9,000--10,000	2.5--4.0V

LOW ALTITUDE = HIGH PRESSURE = HIGH VOLTAGE