



## CODE 33

### MAP SENSOR CIRCUIT SIGNAL VOLTAGE HIGH (LOW VACUUM) ALL ENGINES

#### Circuit Description:

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

**Test Description:** Step numbers refer to step numbers on diagnostic chart.

1. Code 33 will set when:
  - Signal is too high for a time greater than 6 seconds.  
Engine misfire or a low unstable idle may set Code 33.
  - Engine Running:  
Manifold pressure greater than 75.3 kPa (A/C "OFF") 81.2 kPa (A/C "ON")  
Throttle angle less than 2%  
Conditions met for 2 seconds.
2. With the MAP sensor disconnect the ECM; should see a low voltage if the ECM and wiring is OK.

#### Diagnostic Aids:

The "Altitude To Voltage" scale at the right may be used to test the MAP sensor at a specific altitude level to evaluate the possibility of a "slewed" (mis-scaled) sensor. A "slewed" sensor could result in poor driveability complaints.

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 2.

"SCAN" DIAGNOSTICS

**CODE 33**

**MAP SENSOR CIRCUIT  
SIGNAL VOLTAGE HIGH  
(LOW VACUUM)  
ALL ENGINES**

1

- IF ENGINE IDLE IS ROUGH, UNSTABLE OR INCORRECT, CORRECT BEFORE USING CHART. SEE SYMPTOMS IN SECTION 2.
- ENGINE IDLING.
- DOES "SCAN" DISPLAY A MAP OF 2.5 VOLTS OR OVER?

YES

NO

2

- 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 455/469 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 CIRCUIT 455/469.

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

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

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