

**CODE 33A - MAP SENSOR (SIGNAL VOLTAGE HIGH)**

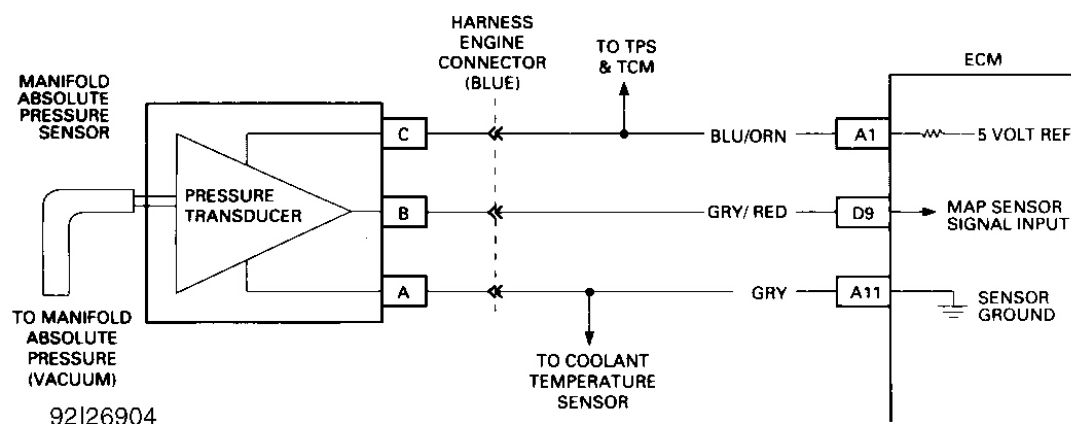
The MAP sensor responds to changes in manifold pressure (vacuum). The ECM receives a signal voltage from MAP sensor which will vary from about 1-1.5 volts at idle (closed throttle) to 4-4.5 volts at wide open throttle. If MAP sensor fails, ECM will substitute a fixed MAP value based on TPS to control fuel delivery.

**NOTE:** Test numbers refer to numbers on diagnostic chart.

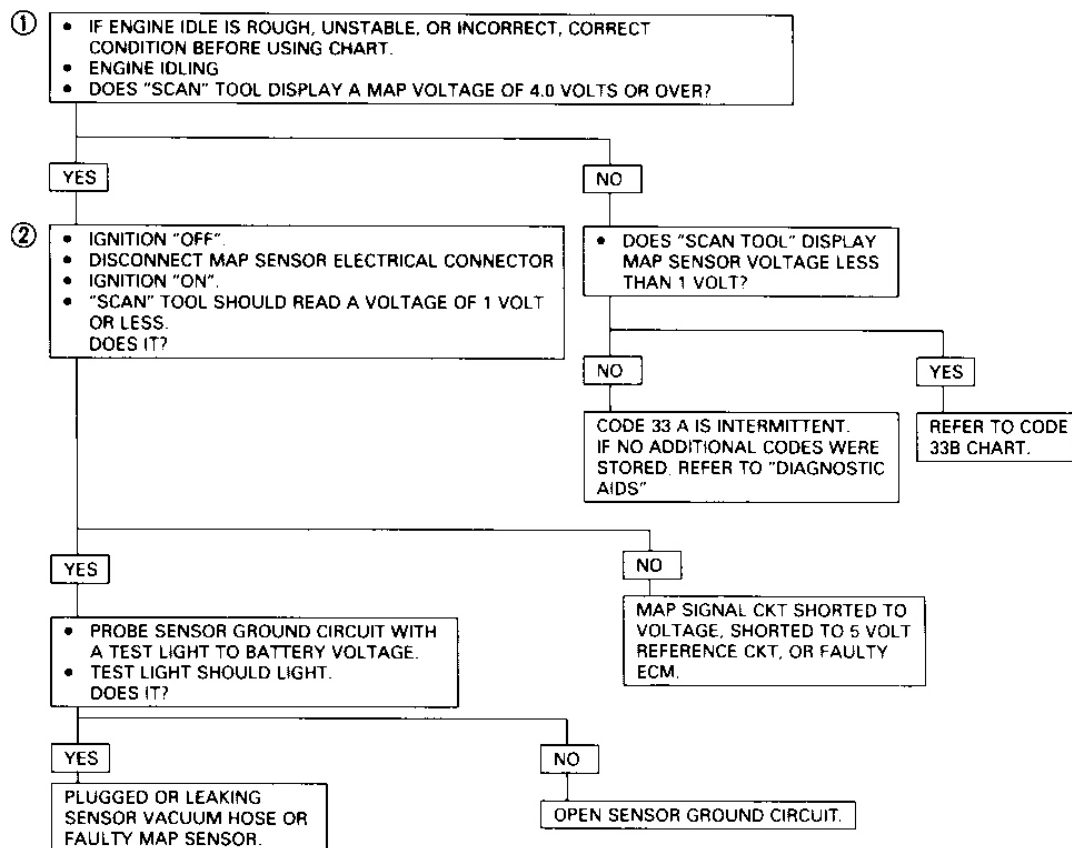
1. Code 33A will set when MAP signal is greater than 13.8 psi (95 kPa), TPS is less than 2 percent, and Codes 21A and 21B are not set. These conditions must be present for more than 5 seconds.
2. This simulates conditions for a Code 33B. If ECM recognizes change, ECM and wiring are okay. If ground circuit is open, Code 23 may also set.

**Diagnostic Aids**

An open in circuit will cause Code 33A to set. If circuit to signal terminal is shorted to voltage, or circuit is shorted to circuit voltage, Code 33A will set. With ignition on and engine off, manifold pressure is equal to atmospheric pressure and voltage will be high. For intermittent inspection, see **INTERMITTENTS** in appropriate **H - TESTS W/O CODES** article.



**Fig. 27: Code 33A - Schematic**  
Courtesy of ISUZU MOTOR CO.



CLEAR CODES AND CONFIRM "CLOSED LOOP" OPERATION AND NORMAL "CHECK ENGINE" LIGHT OPERATION.

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**Fig. 28: Code 33A - Diagnostic Flowchart**

Courtesy of ISUZU MOTOR CO.

### CODE 33B - MAP SENSOR (SIGNAL VOLTAGE LOW)

The MAP sensor responds to changes in manifold pressure (vacuum). The ECM receives a signal voltage from MAP sensor which will vary from about 0.45-0.85 volt at idle (closed throttle) to 3.8-4.5 volts at Wide Open Throttle (WOT). If MAP sensor fails, ECM will substitute a fixed MAP value based on TPS to control fuel delivery.

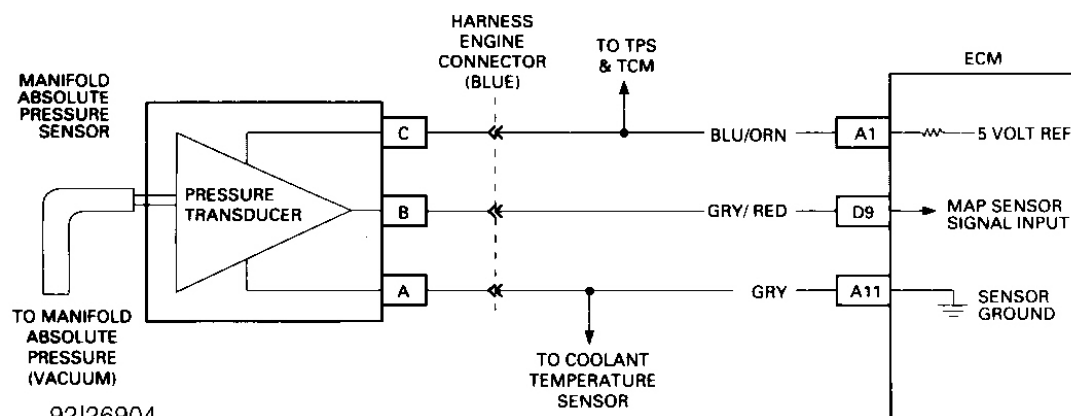
**NOTE:** Test numbers refer to numbers on diagnostic chart.

1. Code 33B will set if engine speed is greater than 1100 RPM, MAP signal is less than 1.55 psi (10.7 kPa), TPS is greater than 20 percent, and Codes 21A and 21B are not set. These conditions must be present for more than 0.1 second.
2. Connect harness terminal "B" to terminal "C" to determine if sensor is at fault, or if problem is in ECM or wiring.
3. Scan tester may not read 12 volts. The important thing is that ECM recognizes voltage is more than 4 volts, indicating ECM and wiring are okay.

### Diagnostic Aids

An open in ground circuit will cause Code 33B to set. If circuit is shorted to voltage, Code 33B will set. With ignition on and engine off, manifold pressure is equal to atmospheric pressure and voltage will be high.

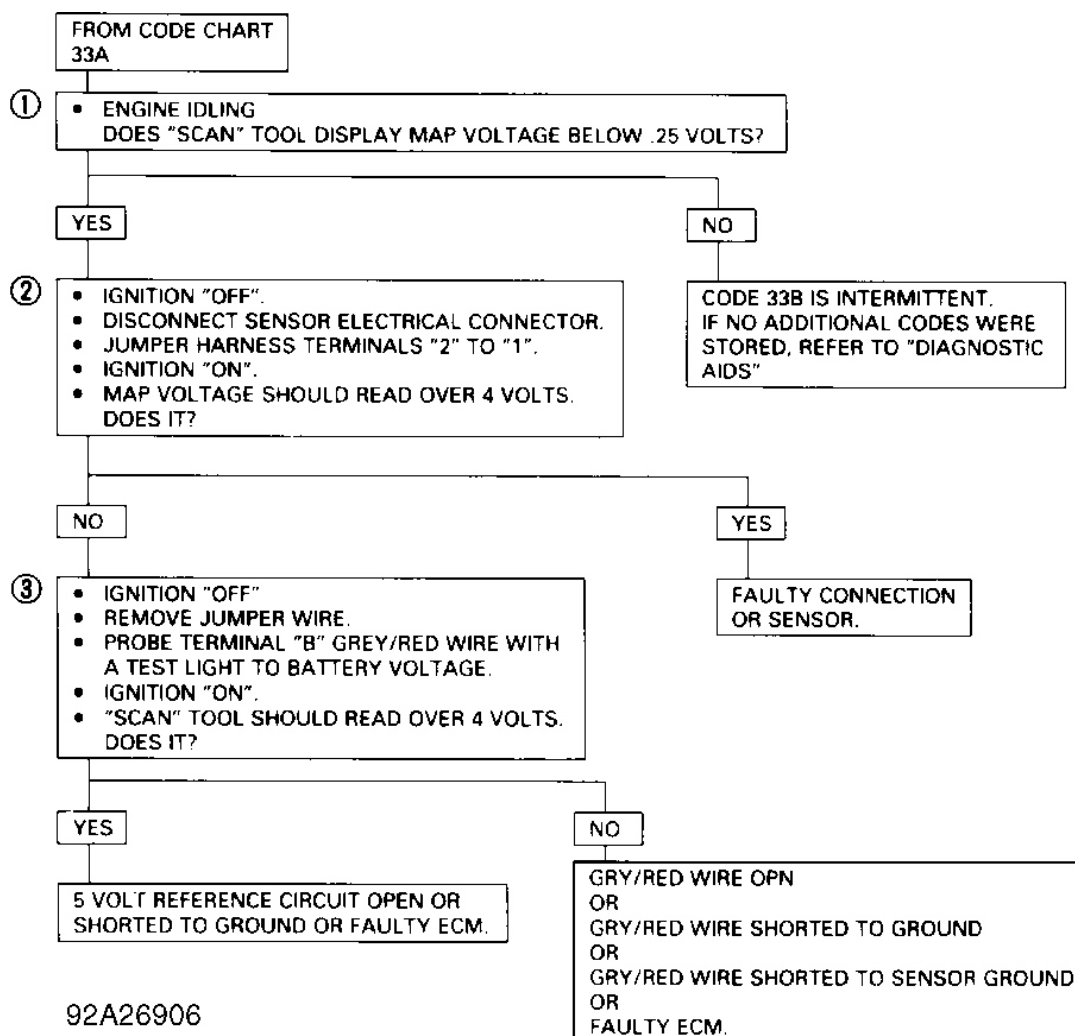
For intermittent inspection, see INTERMITTENTS in **H - TESTS W/O CODES** article.



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**Fig. 29: Code 33B - Schematic**

Courtesy of ISUZU MOTOR CO.



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**Fig. 30: Code 33B - Diagnostic Flowchart**

Courtesy of ISUZU MOTOR CO.