

## CODE 45

### OXYGEN SENSOR CIRCUIT (RICH EXHAUST INDICATED) 2.8L "P" SERIES (PORT)

#### Circuit Description:

The ECM supplies a voltage of about .45 volt between terminals "D6" and "D7". (If measured with a 10 megohm digital voltmeter, this may read as low as .32 volt.) The O<sub>2</sub> sensor varies the voltage within a range of about 1 volt if the exhaust is rich, down through about .10 volt if exhaust is lean.

The sensor is like an open circuit and produces no voltage when it is below about 315°C (600°F). An open sensor circuit or cold sensor causes "Open Loop" operation.

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

- Code 45 is set when the O<sub>2</sub> sensor signal voltage or CKT 412
  - Remains above .7 volt for 50 seconds; and in "Closed Loop"
  - Engine time after start is 1 minute or more
  - Throttle angle greater than 2% (about .2 volt above idle voltage)

#### Diagnostic Aids:

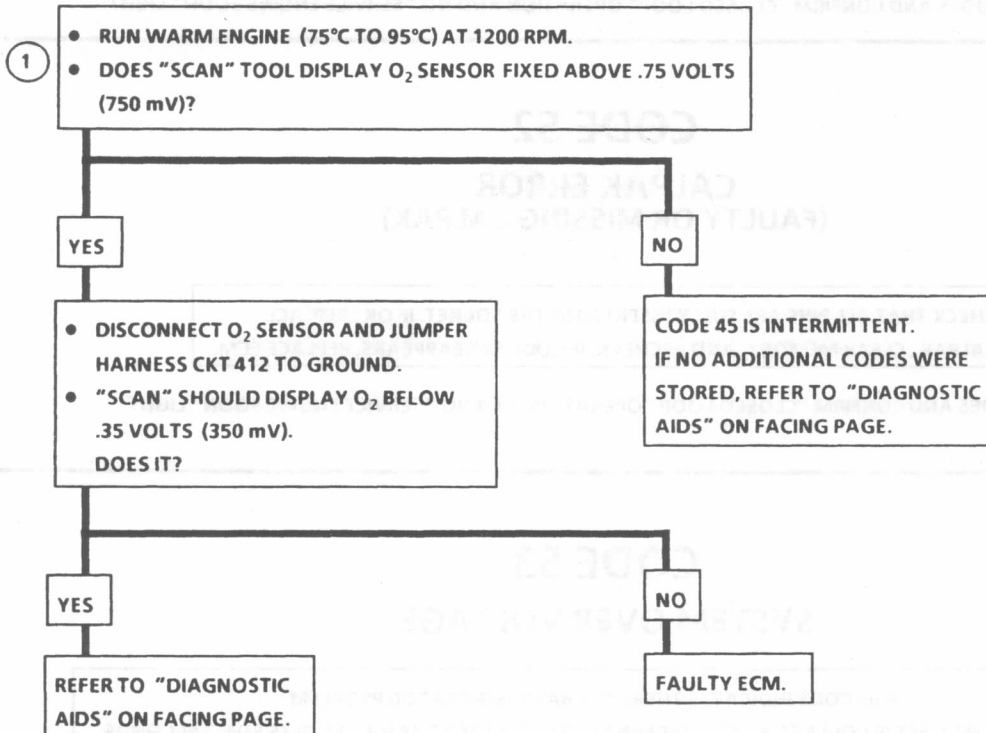
Using the "Scan", observe the block learn values at different rpm conditions to determine when the Code 45 may have been set. If the conditions for Code 45 exists, The block learn values will be around 115.

Check:

- Fuel pressure** System will go rich if pressure is too high. The ECM can compensate for some increase. However, if it gets too high, a Code 45 may be set. See fuel system diagnosis CHART A-7.
- For rich injector** Perform injector balance test CHART C-2A.
- For leaking injector** See CHART A-7.
- For fuel contaminated oil

- HEI shielding** An open ground CKT 453 (ignition system reflow) may result in EMI, or induced electrical "noise". The ECM looks at this "noise" as reference pulses. The additional pulses result in a higher than actual engine speed signal. The ECM then delivers too much fuel, causing system to go rich. Engine tachometer will also show higher than actual engine speed, which can help in diagnosing this problem.
- Canister purge** Check for fuel saturation. If full of fuel, check canister control and hoses. See canister purge Section "C3".
- MAP sensor** An output that causes the ECM to sense a lower than normal vacuum can cause the system to go rich. Disconnecting the MAP sensor will allow the ECM to set a fixed value for the sensor. Substitute a different MAP sensor if the the rich condition is gone while the sensor is disconnected, and check for a Code 34.
- For leaking fuel pressure regulator diaphragm by checking vacuum line to regulator for fuel
- TPS** An intermittent TPS output will cause the system to go rich, due to a false indication of the engine accelerating.

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