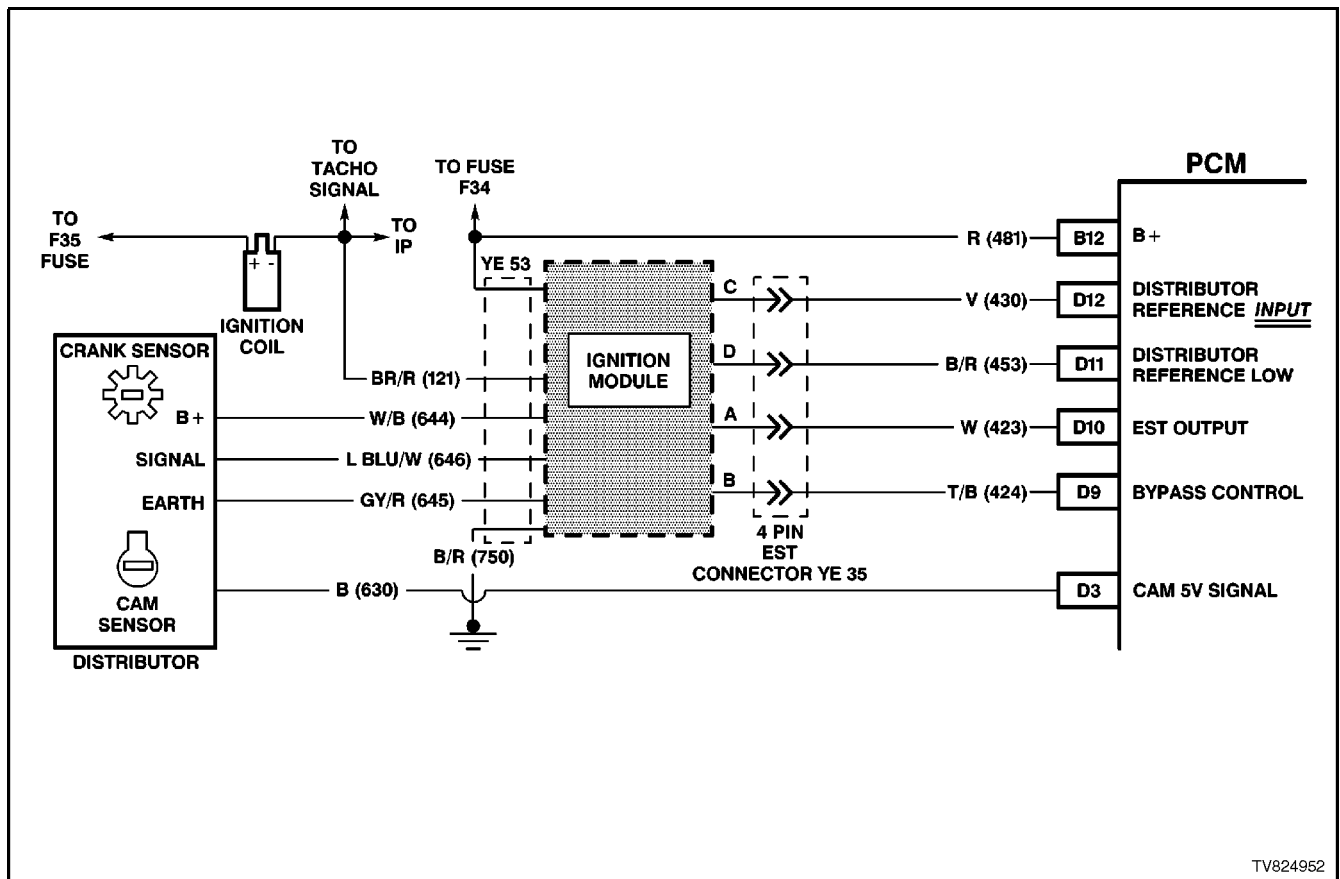


DTC 49 - CAM/CRANK SENSOR SIGNAL INTERMITTENT



CIRCUIT DESCRIPTION:

During cranking, the ignition module monitors the crank sensor signal. The crank sensor signal is used to determine the correct cylinder pair to spark first. After the crank sensor signal has been processed by the ignition module, it sends a crankshaft reference pulse to the PCM. When the PCM receives this pulse it will command all eight injectors to open for one priming shot of fuel in all cylinders. After the priming, the injectors are left OFF for the next eight crankshaft reference pulses from the ignition module (two crankshaft revolutions). This allows each cylinder a chance to use the fuel from the priming shot. During this waiting period, a cam signal will have been received by the PCM. Now the PCM begins to operate the injectors by energising each injector based on true camshaft position. With the engine running, the PCM monitors the cam and the crank sensor signal pulses it receives and expects to see eight crankshaft sensor reference pulses for each cam pulse. If the sequence of pulses is not correct for 15 occurrences, a DTC 49 will set, indicating an intermittent problem with the cam signal or crankshaft sensor reference signal.

DTC 49 WILL SET IF:

- The engine is running.
- The PCM does not receive 8 out of 10 cam sensor signals.

TEST DESCRIPTION

Number(s) below refer to step number(s) on the diagnostic chart.

2. Determines if conditions necessary to set DTC 49 exist on this ignition cycle.
6. Move the wiring harness around to try to induce the fault. If the fault is induced while moving the wires inspect for a loose connection.

NOTE:

If a DTC 48 is set along with a DTC 49, use DTC 48 chart for diagnosis first.

DIAGNOSTIC AIDS:

A DTC 49 indicates an intermittent fault and may not set immediately or under all conditions. Customer comments of symptoms experienced may help isolate the cause of the condition. A poor connection or fault in the cam sensor circuits 630, 633, 644, or 645 or a faulty cam sensor may cause the PCM to re-initialise injector sequence when the fault occurs, causing a possible stumble or miss.

Inspect circuit 630 for a short to voltage.

STEP	ACTION	VALUE	YES	NO
1	Was the "On-Board Diagnostic" (OBD) System Check performed?		Go to Step 2	Go to OBD System Check in this Section
2	1. Install a Tech 2 Scan tool. 2. Start and idle the engine. 3. Using a Tech 2 Scan tool, look at IGN Cycles in DTC history. Is DTC 49 current?		Go to Step 3	DTC 49 is intermittent. If no additional DTC's are set, refer to "Diagnostic Aids" above.
3	1. Ignition OFF. 2. Disconnect the PCM connectors. 3. Connect a DVM between the PCM harness connector terminal "D3" and earth. 4. Ignition ON. Is the voltage at the specified value?	Approx. 5 volts	Go to Step 5	Go to Step 4
4	Bump the engine with the starter. Is the voltage at the specified value?	Approx. 5 volts	Go to Step 5	Go to DTC 48 in this Section
5	Monitor the voltage at "D3" while moving the powertrain wiring harness to the PCM connector. Does the voltage remain steady as the wiring harness is being moved?		Go to Step 6	Go to Step 8
6	Check for: <ul style="list-style-type: none"> Poor connections at the PCM. Faulty crank/cam sensor (malfunctioning hot/cold). Are all the above OK?		Go to Step 7	Verify Repair
7	Check for a poor connection at the crankshaft position sensor or the ignition control module. Repair as necessary. Is the action complete?		Verify Repair	
8	Check for a poor connection between the distributor 4 wire connector and the PCM. Was a fault found?		Verify Repair	Go to Step 9
9	Repair the intermittent open/short to earth in circuit 630. Is the action complete?		Verify Repair	