

CDI Electronics®

Mercury

Six Cylinder Engines

1994-2003 225/250 3.0L Engines Using CDM Modules

Service Notes: Please use the Factory recommended spark plug (currently Champion QL77CC) gapped at 0.035" for EFI engines and 0.040" for Carbureted engines.

The Crank Position Sensor should be gapped at 0.040" +/- 0.020".

The maximum spark timing is controlled by the ignition ECU and is non-adjustable. As long as the ECU, Crank Position Sensor and Throttle Position Indicator are functioning properly, the maximum timing will be correct.

NO SPARK OR WEAK SPARK ON ANY CYLINDER:

1. Disconnect the Black/Yellow stop wires from the harness. Retest. If the engine's ignition now has spark, the stop circuit has a fault. Check the key switch, harness and shift switch.
2. Inspect the spark plug wires, boots and spark plugs. Check for chafing on the wiring and harnesses.
3. Inspect and clean all engine and ignition ground connections.
4. Check the Stator Harness for loose connections.
5. Check the Alternator for dragging and shorted diodes.
6. Check the Crank Position Sensor resistance as given below:

WIRE	READ TO	RESISTANCE
Red	White	900-1300

NO SPARK OR WEAK SPARK ON ONE CYLINDER:

1. Inspect the spark plug wires, boots and spark plugs. Check for chafing on the wiring and harnesses.
2. Clean and inspect CDM ground wire connection to engine ground.
3. If the cylinders are only misfiring above an idle, connect an inductive RPM meter to all cylinders and try to isolate the problem cylinders.
4. Check the Stator resistance and DVA output as given below:

WIRE	READ TO	RESISTANCE	DVA (Connected)
Green	Engine GND	990-1210	100 V +
Green/Red	Engine GND	990-1210	100 V +
Green/Yellow	Engine GND	990-1210	100 V +
Green/Blue	Engine GND	990-1210	100 V +
Green/Orange	Engine GND	990-1210	100 V +
Green/Black	Engine GND	990-1210	100 V +

5. Check the resistance of each of the CDM modules as follows:

	RED METER LEAD	BLACK METER LEAD	READING
CDM Pin #	A	C	OEM 2200-2400 Ohms – CDI 1200-1300 Ohms
CDM Pin #	D	A	DIODE*
CDM Pin #	A	D	DIODE*
CDM Pin #	D	B	DIODE*
CDM Pin #	B	D	DIODE*
CDM Pin #	A	B	DIODE*

High Tension Lead

A

OEM 700-1300 Ohms – CDI 2200-2400 Ohms

* Diode readings are to be read one way, then reverse the leads and read again. You should get a low reading in one direction and a higher reading in the other.

TIMING FLUCTUATES:

Service Notes: It is normal for timing to fluctuate 2° @ idle.

If engine overheats (above 200°F), Engine Temperature Sensor will retard timing to limit RPM to 3000.

If engine RPM exceeds 6000, over-rev circuit in ECU will retard timing to reduce RPM.

If engine RPM drops below 475, idle stabilizer in ECU will advance timing 3° to 6°.

1. Clean and inspect all ground connections.
2. Check the Crank Position Sensor gap (0.040" +/- 0.020") and resistance as given below:

WIRE	READ TO	RESISTANCE
Red	White	900-1300

3. Check the Throttle Position Sensor.
4. Check the Engine Temperature Sensor.
5. Check the ECU.

TIMING WILL NOT ADVANCE:

Service Note: If timing will not advance on only one cylinder, check wiring between Ignition Module and ECU. If wiring is OK, replace Ignition Module.

1. Check the Crank Position Sensor.
2. Check the Throttle Position Sensor.
3. Check the ECU.



ENGINE MISSES AT HIGH RPM:

1. Check the Ignition Modules.
2. Check the Crank Position Sensor.
3. Check the Alternator's Red output lead for tightness.
4. Check the ECU.
5. Check for correct spark plugs (use Champion QL77CC).

ENGINE HARD TO START WHEN COLD:

1. Check the Enrichment Solenoid (Carbureted engines).
2. Check the Engine Temperature Sensor.
3. Check the Crank Position Sensor.
4. Check the ECU.
5. Check the Harness for loose connections between ECU and Starter Solenoid.

ENGINE MISSES @ LOW RPM, BUT RUNS SMOOTH @ HIGH RPM:

1. Check the Harness for loose connections between ECU and Ignition Modules.
2. Check the Ignition Modules.

ENGINE STARTS HARD WHEN HOT:

1. Check the Enrichment Solenoid (Carbureted engines).
2. Check the Crank Position Sensor.
3. Check the Engine Temperature Sensor.

ENGINE WILL NOT RUN OVER 3000 RPM AND IS NOT OVERHEATING:

1. Check the Engine Temperature Sensor.
2. Check the Throttle Position Sensor.
3. Check the ECU, Map Sensor and Shift Interrupt Switch.

