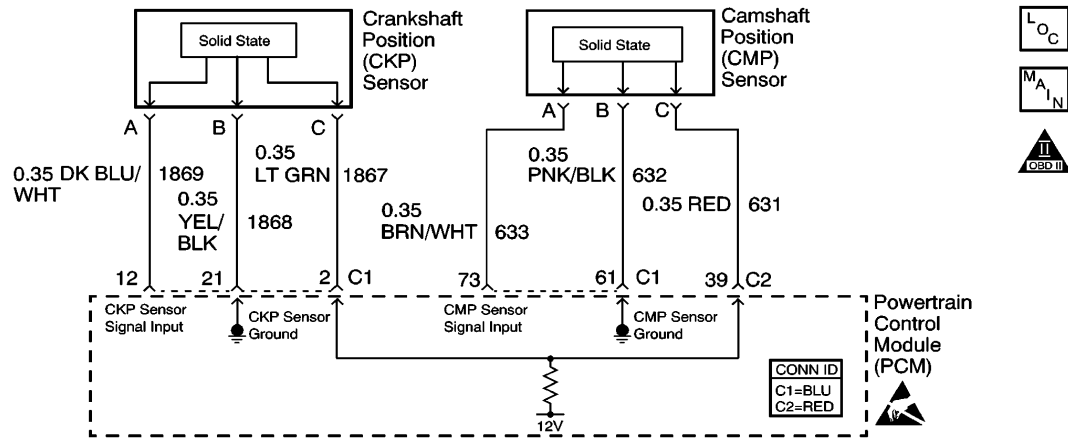


Engine Cranks But Does Not Run



Description

The Engine Cranks but Does Not Run diagnostic table assumes that the battery condition and the engine cranking speed are OK. If the battery condition and the cranking speed are not OK, refer to [Diagnostic System Check - Engine Electrical](#) in Engine Electrical for diagnosis. Make sure that there is adequate fuel in the fuel tanks.

Diagnostic Aids

- Check the duct work between the mass air flow (MAF) sensor and the throttle body for air leaks.
- A malfunctioning MAF sensor may cause a no start or a stall after start. If you suspect this, disconnect the MAF sensor. The powertrain control module (PCM) will default to the speed density in order to calculate the load and the air flow. If this corrects the condition and the connections are OK, replace the MAF sensor.

If the steps above check OK, refer to [Symptoms](#) .

Test Description

The numbers below refer to the step numbers on the diagnostic table.

4. It may be necessary to connect a battery charger to the battery for this step. If the battery state of charge is low, the scan tool may reset during the cranking test.
5. This step tests the ignition relay for proper operation. The ignition relay supplies voltage to the injectors and the ignition coils. When the ignition relay is not operating properly, a no

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start condition occurs. If the test lamp does not illuminate, this indicates the ignition relay is not supplying a voltage to the fuses.

6. The crankshaft position (CKP) sensor is located above the starter.
7. The camshaft position (CMP) sensor is located at the rear of the engine behind the intake manifold.
8. The ignition feed circuit for the CMP and CKP sensors is internally connected within the PCM. A short to ground on either circuit will cause a no start condition.
10. The fuel cap may need to be removed in order to hear if the fuel pump is operating.
12. At this point the engine should start. Refer to Hard Start for further diagnosis.

Step	Action	Value (s)	Yes	No
1	Did you perform the Powertrain On-Board Diagnostic (OBD) System Check?	--	Go to Step 2	Go to Powertrain On Board Diagnostic (OBD) System Check
2	<p>Important: Refer to the applicable DTC table if any of the following DTCs are set: P0230, P0335, P0336, P0601, P0602, P0604, P1626, P1631, or any communication codes (U type).</p> <p>Crank the engine for the specified amount of time.</p> <p>Does the scan tool display any DTCs that failed this ignition?</p>	15 Seconds	Go to the applicable DTC table	Go to Step 3
3	<p>Check the body control module (BCM) for DTCs related to the vehicle theft deterrent (VTD) system.</p> <p>Does the scan tool display any BCM VTD DTCs?</p>	--	Go to Diagnostic System Check - Theft Deterrent in Theft Deterrent	Go to Step 4
4	<p>Monitor the engine speed while cranking the engine.</p> <p>Is engine RPM indicated on the scan tool?</p>	--	Go to Step 5	Go to Step 6
5	<ol style="list-style-type: none"> 1. Turn ON the ignition, with the engine OFF. 2. Probe both sides of the fuses located in the underhood electrical center) listed below using the J 35616-200 test lamp connected to ground. <ul style="list-style-type: none"> • INJR A 	--		

	<ul style="list-style-type: none"> • INJR B • ECM I <p>Does the test lamp illuminate on both sides of the fuses?</p>		Go to Step 9	Go to Ignition Relay Diagnosis
6	<ol style="list-style-type: none"> 1. Disconnect the crankshaft position (CKP) sensor electrical connector. 2. Measure the voltage at the ignition feed circuit at the CKP electrical connector using the DMM J 39200 . <p>Does the DMM display near the specified value?</p>	B+	Go to Step 13	Go to Step 7
7	<ol style="list-style-type: none"> 1. Disconnect the camshaft position (CMP) sensor electrical connector. 2. Measure the voltage at the ignition feed circuit at the CMP electrical connector using the DMM J 39200 . <p>Does the DMM display near the specified value?</p>	B+	Go to Step 14	Go to Step 8
8	<p>Inspect the camshaft and crankshaft position sensor ignition positive voltage circuits for a short to ground.</p> <p>Did you find and correct the condition?</p>	--	Go to Step 16	Go to Step 15
9	<p>Monitor the engine coolant temperature (ECT) using the scan tool.</p> <p>Is the ECT on the scan tool close to the actual engine temperature?</p>	--	Go to Step 10	Go to DTC P0118 Engine Coolant Temperature (ECT) Sensor Circuit High Voltage
10	<p>Enable the fuel pump using the scan tool.</p> <p>Does the fuel pump operate?</p>	--	Go to Step 11	Go to Fuel Pump Electrical Circuit Diagnosis
11	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Install a fuel pressure gauge. Refer to Fuel System Diagnosis . <p>Important: The fuel pump operates for about 2 seconds when the ignition is turned ON. The fuel pressure must be observed when the fuel pump is operating.</p> <ol style="list-style-type: none"> 3. Turn ON the ignition, with the engine OFF. 4. Observe the fuel pressure while the fuel pump is operating. 	379-427 kPa (55-62 psi)		Go to Fuel

	Is the fuel pressure within the specified range?		Go to Step 12	System Diagnosis
12	<p>Perform the following additional inspections:</p> <ul style="list-style-type: none"> • Inspect the duct work between the mass air flow (MAF) sensor and the throttle body for air leaks. • Inspect that the throttle angle is at 0 percent at a closed throttle. If the throttle angle is not at 0 percent , refer to DTC P0122 Throttle Position (TP) Sensor Circuit Low Voltage or DTC P0123 Throttle Position (TP) Sensor Circuit High Voltage . • A malfunctioning MAF sensor may cause a no start or a stall after a start. If you suspect this, disconnect the MAF sensor. The PCM will default to the speed density in order to calculate the engine load and the intake air flow. If disconnecting the MAF sensor corrects the condition and the connections are OK, replace the MAF sensor. Refer to Mass Airflow Sensor/Intake Air Temperature Sensor Replacement • Inspect the spark plugs for being gas fouled. Refer to Spark Plug Visual Diagnosis in Engine Electrical. If the spark plugs are gas fouled, determine what caused the rich condition. • Inspect for an engine mechanical failure that causes an engine not to start such as timing chain, low compression. Refer to Engine Compression Test in Engine Mechanical 4.8L, 5.3L, 6.0L/. • Compare the MAP/BARO parameters to another vehicle. The parameter values should be close to each other. <p>Did you find and correct the condition?</p>	--	<p>Go to Step 16</p>	Go to Hard Start for diagnosis
13	<p>Replace the CKP sensor. Refer to Crankshaft Position Sensor Replacement .</p> <p>Is the action complete?</p>	--	<p>Go to Step 16</p>	--
14	<p>Replace the CMP sensor. Refer to Camshaft Position Sensor Replacement .</p> <p>Is the action complete?</p>	--	<p>Go to Step 16</p>	--
	<p>Important:: The replacement PCM must be</p>			

15	<p>programmed.</p> <p>Replace the PCM. Refer to Powertrain Control Module Replacement</p> <p>Is the action complete?</p>	--	<p>Go to Step 16</p>	--
16	<p>1. Select the Diagnostic Trouble Codes (DTC) option and the Clear DTC Information option using the scan tool.</p> <p>2. Attempt to start the engine.</p> <p>Does the engine start and continue to run?</p>	--	<p>Go to Step 17</p>	<p>Go to Step 2</p>
17	<p>1. Idle the engine at the normal operating temperature.</p> <p>2. Select the Diagnostic Trouble Code (DTC) option using the scan tool.</p> <p>Are any DTCs displayed?</p>	--	<p>Go to the applicable DTC table</p>	<p>Go to Step 18</p>
18	<p>Select the Capture Info option and the Review Info option using the scan tool.</p> <p>Are any DTCs displayed that you have not diagnosed?</p>	--	<p>Go to the applicable DTC table</p>	<p>System OK</p>