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Document ID# 1459667
2005 Chevrolet Kodiak C-Series
(Conventional) C4/C5

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Engine Cranks but Does Not Run

Circuit Description

The Engine Cranks but Does Not Run diagnostic table is an organized approach to identifying a condition that causes an engine not to start. The Engine Cranks but Does Not Run diagnostic table directs the service technician to the appropriate system diagnosis.

The Engine Cranks But Does Not Run diagnostic table assumes the following:

- The batteries are completely charged. Refer to [Battery Inspection/Test](#) in Engine Electrical.
- The cranking speed is within specifications. Refer to [Engine Cranks Slowly](#) in Engine Electrical.
- There is adequate fuel in the fuel tanks.

Diagnostic Aids

If the cause of an engine cranks but will not run condition has not been found, inspect for the following conditions:

- Hard starting only in cold ambient temperatures. These may cause an intermittent condition that may not occur in the service bay:
 - Fuel heater inoperative--Refer to [Fuel Heater Inoperative](#) .
 - Ice blockage at the fuel pickup in the fuel tank--This will be a high vacuum in the supply lines while cranking, and the problem will disappear after the vehicle is brought in the service bay. It may also exhibit a start and stall condition or a starting condition with no acceleration.
- The correct cranking speed is 100 RPM cold and 180 RPM hot.
- Water or foreign material in fuel system
- A basic engine problem
- More than 1 ohm of resistance in the ignition 1 voltage circuit to the fuel injection control module may cause a crank no start condition.
- Low engine coolant may cause the engine to shut down.

Test Description

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

5. This step tests for an ignition 1 voltage supply to the engine control module (ECM).
6. If there is fuel in the engine oil, fuel may be leaking from the fuel injector or fuel injection pump into the crankcase.

7. If the fuel system will not even briefly prime to 10 psi and will not start, the check valve in the fuel filter/heater element housing is stuck open.
8. This step determines if the fuel system is bleeding down causing a no start. The fuel pressure will slowly drop to 0 psi, but should still be above 8 psi 10 seconds after pressurizing the fuel system.
9. In some cases, no compression, possibly with excessive fuel, in a single cylinder can cause a no start.
10. This step determines if the problem is a stuck open or broken fuel injector. If fuel vapors come out of any of the glow plug holes, excessive fuel is being sent into a cylinder, and not being distributed to all of the fuel injectors.
11. The engine will not run without an actual fuel rail pressure more than 10 MPa (1,450 psi).

Step	Action	Values	Yes	No
1	Did you perform the Diagnostic System Check - Vehicle?	--	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	<ul style="list-style-type: none"> • Turn ON the ignition, with the engine OFF. • Observe the DTC Information with a scan tool. Does the scan tool display DTC P0090, P0193, P0335, P0336, P0340, P0370, P0374, P0601, P0602, P0603, P0604, P0611, P0612, P0642, P0643, P0670, P0698, P0699, P1621, P1626, P1631, P1683, P1687, or U0105?	--	Go to Diagnostic Trouble Code (DTC) List - Vehicle in Vehicle DTC Information	Go to Step 3
3	Is the customer's concern with a fuel smell or fuel leak?	--	Go to Fuel Leaks	Go to Step 4
4	Observe the Actual Fuel Rail Pressure parameter with a scan tool. Is the pressure within the specified range?	1-1.8 MPa	Go to Step 5	Go to Step 15
5	Observe the Ignition 1 signal parameter with a scan tool. Is the Ignition 1 signal parameter at the specified value?	B+	Go to Step 6	Go to Step 18
6	Inspect for the following conditions: <ul style="list-style-type: none"> • Excessive fuel in the engine oil--Refer to Fuel in Engine Oil in Engine Mechanical. 	--	Go to Step 26	Go to Step 7

	<ul style="list-style-type: none"> Fuel specific gravity--Refer to Contaminants-in-Fuel Diagnosis . <p>Did you find and correct the condition?</p>			
7	<ul style="list-style-type: none"> Install the J 44638 Vacuum Gage to the fuel system service port on the right front side of the engine. Attempt to hand prime the fuel manager 30 times or until the specified pressure is reached. <p>Can you prime the system to the specified value?</p>	8 psi	Go to Step 8	Go to Step 23
8	Does the pressure measure more than the specified value for more than 2 minutes?	2 psi	Go to Step 9	Go to Step 12
9	Perform the Engine Compression Test. Refer to Engine Compression Test in Engine Mechanical. Repair the engine as necessary.	--	Go to Step 27	Go to Step 10
10	Did any of the cylinders emit any fuel vapor during the Engine Compression Test?	--	Go to Step 22	Go to Step 11
11	<ul style="list-style-type: none"> Crank the engine for 15 seconds. Observe the Actual Fuel Rail Pressure parameter with a scan tool. <p>Is the Actual Fuel Rail Pressure parameter more than the specified value?</p>	10 MPa (1,450 psi)	Go to Step 13	Go to Step 12
12	<ul style="list-style-type: none"> Prime the fuel manager to 10 psi. Attempt to start the engine while the prime is still above 8 psi. <p>Does the engine start?</p>	--	Go to Fuel System Diagnosis	Go to Fuel System Diagnosis - High Pressure Side
13	<p>Important</p> <p>If there is high resistance in the signal or low reference circuits of the crankshaft position (CKP) sensor the Engine Speed parameter of the scan tool will display a value more than 0. It will not be an accurate measure of engine speed, and can cause an Engine Cranks but does Not Run condition.</p> <p>Test the CKP sensor signal and low reference circuits for high resistance. Refer to Circuit Testing in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	--	Go to Step 26	Go to Step 14

14	<p>Inspect for the following conditions:</p> <ul style="list-style-type: none"> • A plugged air filter • A collapsed air intake duct • The fuel heater is inoperative. If the customer concern is that the engine will not start when ambient temperatures are less than 2-4°C (35-40°F), refer to Fuel Heater Inoperative. • A restricted exhaust system--Refer to Symptoms - Engine Exhaust in Engine Exhaust. <p>Did you find and correct the condition?</p>	--	Go to Step 26	Go to Diagnostic Aids
15	<ul style="list-style-type: none"> • Disconnect the fuel rail pressure sensor. • Observe the Actual Fuel Rail Pressure parameter on the scan tool. <p>Does the Actual Fuel Rail Pressure parameter measure more than the specified value?</p>	175 MPa	Go to Step 17	Go to Step 16
16	<p>Test the fuel rail pressure sensor signal circuit for a short to ground. Refer to Circuit Testing in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	--	Go to Step 26	Go to Step 25
17	<p>Test the fuel rail pressure sensor circuits for high resistance. Refer to Circuit Testing in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	--	Go to Step 26	Go to Step 19
18	<ul style="list-style-type: none"> • Test the ignition 1 voltage circuit of the engine control module (ECM) for a short to ground, a high resistance or an open. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. • Replace the fuse, if necessary. <p>Did you find and correct the condition?</p>	--	Go to Step 26	Go to Step 20
19	<p>Test for an intermittent or for a poor connection at the fuel rail pressure sensor. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	--	Go to Step 26	Go to Step 24
20		--	Go to Step 26	Go to Step 21

	<ul style="list-style-type: none"> • Clean and tighten the ECM shared ground. Refer to Power and Grounding Component Views in Wiring Systems. • Attempt to start the engine. <p>Does the engine start?</p>			
21	<p>Test for an intermittent and for a poor connection at the ECM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	--	Go to Step 26	Go to Step 25
22	<p>Important</p> <p>When the fuel injector pressure lines are removed, debris will fall on the fuel injector inlet fitting. Vacuum the debris from the area to prevent the debris from falling in the fuel injector.</p> <p>Replace the fuel injectors on the affected cylinders. Refer to Fuel Injector Replacement.</p> <p>Did you complete the replacement?</p>	--	Go to Step 26	--
23	<p>Replace the fuel filter/heater element housing. Refer to Fuel Filter/Heater Element Housing Replacement.</p> <p>Did you complete the replacement?</p>	--	Go to Step 26	--
24	<p>Replace the fuel rail pressure sensor. Refer to Fuel Rail Pressure (FRP) Sensor Replacement.</p> <p>Did you complete the replacement?</p>	--	Go to Step 26	--
25	<p>Replace the ECM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming.</p> <p>Did you complete the replacement?</p>	--	Go to Step 26	--
26	<ul style="list-style-type: none"> • Clear any DTCs with a scan tool. • Attempt to start the engine. <p>Does the engine start and continue to run?</p>	--	Go to Step 27	Go to Step 2
27	<ul style="list-style-type: none"> • Allow the engine to idle until normal operating temperature is reached. 	--	Go to Diagnostic Trouble Code (DTC) List -	System OK

<ul style="list-style-type: none">• Observe the DTC Information with a scan tool. <p>Are any DTCs displayed?</p>	<p>Vehicle in Vehicle DTC Information</p>
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