

Engine Cranks but Does Not Run

Refer to *Engine Controls Schematics*.

Circuit Description

The diagnosis for an engine that cranks but does not run must have three elements present before proceeding with the diagnostic table. The following conditions must exist:

- The battery must be adequately charged.
- The engine cranking speed must be sufficient.
- There must be an adequate amount of fuel in the fuel tank.

Diagnostic Aids

If no trouble is found in the fuel pump circuit or the ignition system and the cause of an Engine Cranks But Will Not Run has not been found, check the following conditions:

- Perform the *Fuel Injector Coil Test*.
- An after-market vehicle theft deterrent system could cause a start then stall or a no start condition.
- Fouled spark plugs
- An EGR valve stuck open
- Water or foreign material in the fuel system
- A grounded or intermittently grounded Ignition Control (IC) signal circuit
- Restricted exhaust system. Refer to *Restricted Exhaust System Check*
- Check the following ignition components:
 - Worn distributor cap
 - Worn distributor rotor
 - Check ignition wires by lightly spraying them with water in order to identify intermittent no starts

Check the following mechanical components:

- Cylinder valve timing
- Loose or broken timing chain
- Low compression
- Worn camshaft lobes
- Bent or burned intake or exhaust valves

The VCM has integrated circuits that are fault protected; therefore, if a circuit has failed, the integrated circuit may not be damaged. If that is the case, the system will keep the circuit open until the condition has been corrected.

Afterwards, reinstall the VCM and check the circuit. Replace the VCM only if the circuit is still inoperative.

An intermittent may be caused by any of the following conditions:

- A poor connection
- Rubbed through wire insulation
- A broken wire inside the insulation

Thoroughly check any circuitry that is suspected of causing the intermittent complaint. Refer to *Intermittents and Poor Connections Diagnosis* in Wiring Systems.

If a repair is necessary, refer to *Wiring Repairs or Connector Repairs* in Wiring Systems.

Test Description

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

2. If the engine starts, the problem could be intermittent. Basic engine mechanical problems, the vehicle theft deterrent (VTD) system (if equipped), and poor connections could cause a no start condition.
3. This step will determine if the cause of the no start or start and stall is related to the VTD.
4. If the signal is over 2.5 volts, the engine may be in the clear flood mode which will cause starting problems.
5. If the engine coolant sensor is below -30°C (-22°F), the VCM provides fuel for this extremely cold temperature which will severely flood the engine.
6. Voltage at the spark plug is checked using the *J 26792* spark plug tester tool. No spark indicates a basic ignition problem.
7. This test will determine if there is fuel pressure at the fuel injection unit and holding steady.
8. Use the *J 34730-375* injector test lamp in order to test the injector circuits. A blinking lamp indicates that the VCM is controlling the injector.

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| Step | Action | Value(s) | Yes | No |
|------|--|----------------------------|--|---|
| 1 | Important: Before clearing the DTCs, use the scan tool Capture info. to save the Freeze Frame and the Failure Records for reference. The control module's data is deleted once the Clear Info function is used. Did you perform the Powertrain On-Board Diagnostic (OBD) System Check? | — | Go to Step 2 | Go to A Powertrain On Board Diagnostic (OBD) System Check |
| 2 | Attempt to start the engine. Does the engine start and continue to run? | — | Go to Symptoms | Go to Step 3 |
| 3 | 1. Install a scan tool. 2. Monitor the VTD Fuel Disabled parameter. 3. Crank the engine. Does the VTD Fuel Disabled parameter display active while you crank the engine? | — | Go to A Diagnostic System Check - Theft Deterrent in Theft Deterrent | Go to Step 4 |
| 4 | Monitor the TP sensor on the scan tool. With the throttle closed, is the TP sensor more than the specified value? | 2.5 V | Go to DTC P0121 Throttle Position (TP) Sensor Performance | Go to Step 5 |
| 5 | Monitor the ECT sensor on the scan tool. Is the ECT sensor below the specified value? | -30°C (-22°F) | Go to DTC P0118 Engine Coolant Temperature (ECT) Sensor Circuit High Voltage | Go to Step 6 |
| 6 | Check for spark at two spark plug wires using the J 26792 spark tester. Is spark present at both spark plug wires? | — | Go to Step 7 | Go to Enhanced Ignition System Diagnosis |
| 7 | 1. Reconnect the spark plug wires. 2. Turn OFF the ignition. 3. Connect the J 34730-1A fuel pressure gauge. 4. Turn ON the ignition leaving the engine OFF. Is the fuel pressure within the specified range? | 379-413 kPa (55-60 psi) | Go to Step 8 | Go to Fuel System Diagnosis |
| 8 | 1. Disconnect the injector connector at the intake manifold. 2. Install the J 34730-375 injector test lamp into each injector circuit one at a time. 3. Crank the engine with the injector test lamp in each circuit. Does the injector test lamp flash for each injector circuit? | — | Go to Diagnostic Aids | Go to Fuel Injector Circuit Diagnosis |