

Hard Start

Checks	Action
DEFINITION: The engine cranks normally, but does not start in a normal amount of time. The engine does eventually run, or may start but immediately dies.	
Preliminary Checks	- Refer to Symptoms - Engine Controls . - Make sure the vehicle operator is using the correct starting procedure.
Sensor Checks	- Check the engine coolant temperature (ECT) sensor with the scan tool. Compare the engine coolant temperature with the ambient air temperature on a cold engine. If the coolant temperature reading is more than approximately 5 degrees more or less than the ambient air temperature on a cold engine, check for a high resistance in the coolant sensor circuit. - Check the throttle position (TP) sensor. If a sticking throttle shaft or binding linkage causes a high TP sensor voltage, or an open throttle indication, the control module will not control the idle. While monitoring the TP sensor voltage, the scan tool should display less than 0.85 volt with the throttle closed.
Fuel System Checks	Important: A damaged in-tank fuel pump check valve will allow the fuel in the lines to drain back into the tank after the engine stops. - Check the fuel pump relay for proper operation. The fuel pump should operate for the first 2 seconds when the ignition is turned ON. Refer to Fuel Pump Electrical Circuit Diagnosis . - Check the fuel pressure. Refer to Fuel System Diagnosis . - Check for water contamination in the fuel. - Perform the fuel injector coil test. Refer to Fuel Injector Solenoid Coil Test . - Perform the fuel injector balance test. Refer to Fuel Injector Balance Test with Tech 2 . - Check the fuel pump check valve. Refer to Fuel System Diagnosis .
Ignition System Checks	- Check for the proper ignition voltage output with J 26792 Spark Tester or the equivalent. - Check the spark plugs for the following conditions: - Wet plugs - Cracks - Wear - Improper gap - Burned electrodes - Heavy deposits - Check for bare or shorted ignition wires. - Check for moisture in the distributor cap, if applicable.

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	• Check for loose ignition coil connections. • Check for loose ignition control module connections. • Check for a faulty control module or ignition system grounds. • Check the ignition control (IC) circuit for an open or short to ground.
Engine Mechanical Checks	• Check for the following conditions: - Improper valve timing - Low compression - Bent pushrods - Worn rocker arms - Broken or weak valve springs - Worn camshaft lobes--Refer to Upper Engine Noise, Regardless of Engine Speed in Engine Mechanical 4.3L. • Check the intake and exhaust manifolds for casting flash.
Additional Checks	• Check the idle air control (IAC) operation. Refer to Idle Air Control (IAC) System Diagnosis . • Check for a restricted exhaust. Refer to Restricted Exhaust in Engine Exhaust.