Basic Diagnostic Procedures - 3.4L Aztek & Rendezvous

INTRODUCTION

Before proceeding with basic diagnostic procedures, ensure testing procedure is followed, as some systems which may result in a no-start condition may cause a Diagnostic Trouble Codes (DTC) to be stored in the Powertrain Control Module (PCM). See **DIAGNOSTIC STARTING POINT - ENGINE CONTROLS** under SELF-DIAGNOSTIC SYSTEM in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article.

If no-start condition still exists after checking and repairing all DTCs, perform a careful and complete visual inspection. Many problems result from mechanical breakdowns, poor electrical connections or damaged/misrouted vacuum hoses. See **VISUAL INSPECTION** under PRELIMINARY INSPECTION & ADJUSTMENTS. Before condemning the computerized system, perform each test listed in this article.

NOTE: Perform all voltage tests with a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance, unless stated otherwise in test procedure.

PRELIMINARY INSPECTION & ADJUSTMENTS

VISUAL INSPECTION

Visually inspect all electrical wiring. Look for chafed, stretched, cut or pinched wiring. Ensure electrical connectors fit tightly and are not corroded. Ensure vacuum hoses are properly routed and not pinched or cut. If necessary, see **VACUUM DIAGRAMS - AZTEK & RENDEZVOUS** article to verify routing and connections. Inspect air induction system for possible vacuum leaks.

MECHANICAL INSPECTION

Cylinder Compression Pressure

Check engine mechanical condition with compression gauge, vacuum gauge, or engine analyzer. See engine analyzer manual for specific instructions. For compression specifications, see **ENGINE COMPRESSION SPECIFICATIONS** table. Install and tighten spark plugs to 11 ft. lbs (15 N.m).

ENGINE COMPRESSION SPECIFICATIONS

Application	Specification - psi (kPa)
Normal Compression Pressure	(1)
Minimum Compression Pressure	(1)
Compression Variance	(2)

(1) Lowest compression reading should not be less than 70 percent of highest compression reading. No cylinder compression reading should be less than 100 psi (689.5 kPa).

(2) Information is not available from manufacturer.

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Cylinder Combustion Pressure Leakage

1. Disconnect negative battery cable. Remove spark plugs. Install Cylinder Head Leakdown Tester (J-35667-A). Measure each cylinder on the compression stroke, with both valves closed.

NOTE: Hold crankshaft balancer bolt in order to prevent piston movement.

2. Apply air pressure to cylinder leakdown tester. Record the cylinder leakage readings for each cylinder. Normal cylinder leakage is from 12 to 18 percent. Make note of any cylinder with more leakage than the other cylinders. Any cylinder with 30 percent leakage or more requires service.
3. Inspect the following primary areas in order to properly diagnose a leaking cylinder.
   - If air is heard from the intake or exhaust system, remove valve rocker arm cover of the suspect cylinder head. Ensure that both valves are closed. Inspect cylinder head for a broken valve spring or remove and inspect suspect cylinder head.
   - If air is heard from the crankcase system at the crankcase oil filler tube, remove piston from suspect cylinder. Inspect piston and connecting rod assembly. Inspect engine block.
   - If bubbles are observed in the radiator, remove and inspect both cylinder heads. Inspect engine block.
4. After performing test, remove leakdown tester. Install spark plugs and reconnect negative battery cable.

Exhaust System Backpressure

Before replacing any components, check exhaust system for restrictions. Use vacuum gauge or low-pressure (0-5 psi) gauge to check exhaust system.

If vacuum gauge is used, connect vacuum gauge hose to intake manifold vacuum port and start engine. Observe vacuum gauge. Partially open throttle and hold steady. If vacuum gauge reading slowly drops after stabilizing, exhaust system should be checked for restriction. If using low pressure gauge, connect gauge in the following manner:

- **Check At Oxygen Sensor** - Remove oxygen sensor. Install backpressure tester in place of oxygen sensor. After test is completed, coat oxygen sensor threads with anti-seize compound before installation.

Diagnosis

1. Start engine and allow it to reach normal operating temperature. Increase engine speed to 2000-2500 RPM and note gauge. If reading exceeds 1.25 psi (.09 kg/cm^2), exhaust system is restricted.
2. Check exhaust system for collapsed pipe, heat distress and possible internal muffler failure. If none of these conditions exist, check for restricted catalytic converter. Replace as necessary.

NO-START DIAGNOSIS

NOTE: For terminal and circuit identification, see WIRING DIAGRAMS

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Definition - No-start is defined as engine cranks properly, but does not start. Engine may fire a few times.

NO-START - ENGINE CRANKS OKAY

Preliminary Checks

Before performing the following tests, check battery condition, engine cranking speed and for adequate fuel in tank. Perform diagnostic system check following any repairs. See **DIAGNOSTIC SYSTEM CHECK - ENGINE CONTROLS** under SELF-DIAGNOSTIC SYSTEM in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article.

Test Description

The numbers below refer to the step numbers in the diagnostic procedure.

3 - This step determines if ignition relay is providing listed fuses with voltage.

5 - This step determines if the fuel pump is operating electrically.

6 - If all the Cylinder Injector Circuit Status parameters display FAULT, this indicates a condition with the injector supply voltage circuit.

Diagnostic Procedures

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK -- ENGINE CONTROLS** under SELF-DIAGNOSTIC SYSTEM in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article. After performing diagnostic system check, go to next step.
2. Turn ignition on, with engine off. Using scan tool, check for DTCs. If DTCs P0101, P0230, P0336, P0601, P0602, P1626, P1630 or P1631 are set, diagnose DTCs. See **DIAGNOSTIC TROUBLE CODE DEFINITIONS** in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article. If DTC(s) are not set, go to next step.
3. Using a test light, probe both sides of the following fuses: ELEC, ENG and Fuel INJ fuses. Does test light illuminate on at least one side of the fuses listed? If yes, go to next step. If no, diagnose or replace ignition relay.
4. Turn ignition off. Disconnect a spark plug wire. Install a Spark Tester (J 26792) to spark plug wire. Attempt to start engine. Is spark present at spark tester? If yes, go to next step. If no, diagnose electronic ignition system. See **IGNITION SYSTEMS** .
5. Using scan tool, command fuel pump ON. Does the fuel pump turn on? If yes, go to next step. If no, diagnose fuel pump electrical circuit. See **FUEL SYSTEMS** .
6. While monitoring the cylinder 1-6 injector circuit status parameters with scan tool, crank engine. Do all of the Cylinder Injector Circuit Status parameters display OK while cranking the engine? If yes, go to next step. If no, diagnose fuel injector. See **FUEL INJECTOR COIL TEST** under FUEL SYSTEMS in SYSTEM & COMPONENT TESTING - 3.4L AZTEK & RENDEZVOUS article.
7. Turn ignition off. Reinstall all disconnected components. Install Fuel Pressure Gauge (J 34730-1A). Turn ignition on, with engine off. Using scan tool, command fuel pump on. Is fuel pressure within 52-59 psi (358-405 kPa)? If yes, go to next step. If no, perform fuel system diagnosis. See **FUEL SYSTEMS** .
8. Check for collapsed air intake duct, restricted air filter element, fouled spark plugs, engine mechanical

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condition or restricted exhaust system. Check ECT sensor value (ECT sensor is NOT close to actual engine temperature), compare MAP/BARO parameters to another vehicle (parameters should be close in value) or check TP sensor for being stuck in range. Did you find and correct the condition? If yes, go to next step. If no, problem is intermittent.

9. Using scan tool, clear any DTCs that are set. Attempt to start engine. Does engine start and continue to operate? If yes, go to next step. If engine does not start, go to step 2 .
10. Allow engine to reach operating temperature. Observe DTC information on scan tool. Does the scan tool display any DTCs that you have not diagnosed? If yes, diagnose affected DTC. See **DIAGNOSTIC TROUBLE CODE DEFINITIONS** in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article. If no, system is okay.

FUEL SYSTEMS

FUEL SYSTEM PRESSURE RELEASE

WARNING: Remove fuel tank cap and release fuel system pressure before servicing any fuel injection-related components. After releasing fuel system pressure, a small amount of fuel may be released when servicing fuel lines, fuel pump or fuel connections. Cover the fuel system components with a shop towel before disconnection. DO NOT allow fuel to contact engine or electrical components.

CAUTION: Fuel system is under pressure. Pressure must be released prior to servicing fuel system.

Loosen retaining bolt on intake manifold sight shield at top of engine. Remove intake manifold sight shield from top of engine. Disconnect negative battery cable. Loosen fuel filler cap. Install Fuel Pressure Gauge Fitting Adapter (J-34730-262) to fuel pressure test port connection. Install Fuel Pressure Gauge (J-34730-1A) to fuel pressure gauge fitting adapter on fuel rail. Wrap a shop towel around pressure connection when installing fuel pressure gauge to absorb fuel leakage. Place gauge bleed hose into an approved gasoline container. Open bleed valve to release fuel pressure.

FUEL SYSTEM PRESSURE TEST

System Description

PCM turns on the in-tank fuel pump when ignition is on. The fuel pump will remain on as long as engine is cranking or running and PCM is receiving ignition reference pulses. If there are no ignition reference pulses, PCM will turn the fuel pump off 2 seconds after ignition is turned on or 2 seconds after engine stops running. The fuel pump is attached to fuel sender assembly and is designed to provide fuel at a pressure above the pressure needed by the fuel injectors. A fuel pressure regulator, attached to fuel rail, keeps fuel available to fuel injectors at a regulated pressure. Unused fuel is returned to fuel tank by a separate fuel return pipe.

Test Description

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The numbers below refer to step numbers in the diagnostic procedure.

2 - This step verifies that the fuel pump is operating.

4 - This step tests for an internal fuel leak. If the fuel pressure drops during this test, then an internal loss of pressure is indicated.

6 - This step tests the fuel pressure regulator. The fuel pressure regulator is controlled by engine vacuum. With engine vacuum applied, pressure should drop the specified value.

9 - This step inspects the fuel pressure regulator for a fuel leak from the vacuum port. If fuel leaks from the fuel pressure regulator while fuel pump is commanded ON, replace fuel pressure regulator.

10 - This step tests for a loss of fuel pressure between the fuel feed pipe shut off adapter and fuel pump.

11 - This step tests for a leaking fuel injector or fuel pressure regulator. If fuel pressure remains constant during this test, fuel injectors are not leaking fuel.

14 - This step tests for a restricted fuel return pipe. If fuel pressure is within the specified values, a restriction in the fuel return pipe is indicated.

16 - This step determines if fuel pressure regulator or fuel pump is the cause of the low fuel pressure. If pressure rises above the specified value, fuel pump is okay.

18 - This step verifies that a circuit condition is not the cause of a fuel pressure concern. Inspect all fuel pump electrical circuits thoroughly.

Diagnostic Procedures

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK - ENGINE CONTROLS** under SELF-DIAGNOSTIC SYSTEM in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article. After performing diagnostic system check, go to next step.
2. Turn ignition on, with engine off. Using scan tool, command fuel pump on. Does the fuel pump operate? If yes, go to next step. If no, diagnose fuel pump electrical circuit. See **FUEL PUMP ELECTRICAL CIRCUIT DIAGNOSIS** under FUEL SYSTEMS in SYSTEM & COMPONENT TESTING - 3.4L AZTEK & RENDEZVOUS article.
3. Turn ignition off. Turn off all accessories. Install Fuel Pressure Gauge (J-34730-1A) and Fuel Pressure Gauge Fitting Adapter (J-34730-262). Turn ignition on, with engine off. Using scan tool, command fuel pump (fuel pump runs for about 2 seconds) in order to obtain the highest possible fuel pressure. DO NOT start engine. Observe fuel pressure gauge with fuel pump commanded on. Is fuel pressure within 52-59 psi (358-405 kPa)? If yes, go to next step. If no, go to step 12 .
4. Monitor fuel pressure gauge for one minute. Does the fuel pressure drop more than 5 psi (34 kPa)? If yes, go to step 9 . If no, go to next step.
5. Relieve fuel pressure to 10 psi (69 kPa). Monitor fuel pressure gauge for 5 minutes. Does fuel pressure drop more than 2 psi (14 kPa)? If yes, go to step 24 . If no, go to next step.
6. Turn ignition off for 15 seconds. Turn ignition on, with engine off. Monitor fuel pressure gauge. Start engine. Does fuel pressure drop by 3-10 psi (21-69 kPa) when engine is started? If yes, go to next step. If no, go to step 8 .
7. Operate the vehicle within the conditions of the customers concern. Monitor fuel related parameters with a scan tool. Do any of the scan tool parameters indicate a lean condition? If yes, go to step 17 . If no, see **DIAGNOSTIC SYSTEM CHECK - ENGINE CONTROLS** under SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article.

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8. Disconnect vacuum hose from fuel pressure regulator. Monitor fuel pressure gauge. Operate engine at idle. Using a hand-held vacuum pump, apply 12-14 in. Hg (34-47 kPa) to fuel pressure regulator. Does fuel pressure drop to 3-10 psi (21-69 kPa) when vacuum is applied? If yes, go to step 21 . If no, go to step 23 .
9. Turn ignition off. Remove vacuum hose from fuel pressure regulator. Turn ignition on, with engine off. Using scan tool, command fuel pump on. Inspect for fuel leak from fuel pressure regulator vacuum port. Is fuel pressure regulator leaking fuel? If yes, go to step 23 . If no, go to next step.
10. Turn ignition off. Relieve fuel pressure. See **FUEL SYSTEM PRESSURE RELEASE** . Disconnect fuel feed hose and fuel return hose from fuel rail pipes. Install a Fuel Line Shut-Off Adapters (J-37287) between fuel hoses and the fuel rail pipes. Open valves on fuel pipe shut-off adapters. Turn ignition on, with engine off. Command fuel pump on using scan tool. Obtain highest possible fuel pressure. Bleed air from fuel pressure gauge. Close fuel feed pipe shut-off valve. Monitor fuel pressure gauge for one minute. Does fuel pressure remain constant? If yes, go to step 19 . If no, go to next step.
11. Turn ignition off. Open fuel feed pipe shut-off valve. Turn ignition on, with engine off. Command fuel pump ON and then OFF with scan tool. Close fuel return pipe shut-off valve. Monitor fuel pressure gauge for one minute. Does the fuel pressure remain constant? If yes, go to step 23 . If no, go to step 20 .
12. Is fuel pressure greater than 59 psi (427 kPa)? If yes, go to step 14 . If no, go to next step.
13. Is fuel pressure greater than zero psi? If yes, go to step 16 . If no, go to step 17 .
14. Turn ignition off. Relieve fuel pressure. Disconnect fuel return hose from fuel rail return pipe. Attach a length of flexible fuel hose to fuel rail outlet passage. Place open end of the flexible fuel hose into an approved gasoline container. Turn ignition on, with engine off. Using scan tool, monitor fuel pressure gauge while fuel pump is operating. Is fuel pressure within 52-59 psi (358-405 kPa)? If yes, go to step 22 . If no, go to next step.
15. Inspect the fuel rail return pipe and fuel rail outlet passage for a restriction. Did you find and correct the condition? If yes, go to step 25 . If no, go to step 23 .
16. Turn ignition off. Relieve fuel pressure. Disconnect fuel return hose from fuel rail return pipe. Install a Fuel Line Shut-Off Adapters (J-37287) between fuel return pipe and fuel rail. Open valve in the fuel pipe shut-off adapter. Turn ignition on, with engine off. Bleed air from fuel system. Monitor fuel pressure gauge. DO NOT allow fuel pressure to exceed 75 psi (517 kPa). Excessive pressure may damage fuel system. Slowly close valve in fuel return pipe shut-off adapter. Command fuel pump on with scan tool. Does the fuel pressure rise to greater than 52 psi (358 kPa)? If yes, go to step 23 . If no, go to next step.
17. Inspect fuel filter and fuel feed pipe for restriction. Did you find and correct the condition? If yes, go to step 25 . If no, go to next step.
18. Inspect the harness connectors and ground circuits of the fuel pump for poor connections. Did you find and correct the condition? If yes, go to step 25 . If no, go to next step.
19. Remove the fuel sender assembly. Inspect fuel pump flex hose for damage, fuel pump harness connectors for poor connections, fuel strainer for a restriction or contaminates in fuel tank Did you find and correct the condition? If yes, go to step 25 . If no, go to step 24 .
20. Turn ignition off. Raise fuel rail with fuel lines connected. Turn ignition on, with engine off. Command fuel pump on with scan tool. Locate and replace the leaking fuel injector. After repairs, go to step 25 .
21. Repair vacuum source to fuel pressure regulator. After repairs, go to step 25 .
22. Locate and repair restricted fuel return line. After repairs, go to step 25 .
23. Replace fuel pressure regulator. After replacing fuel pressure regulator, go to step 25 .

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24. Replace fuel pump. After replacing fuel pump, go to next step.
25. Operate the system in order to verify the repair. Did you correct the condition? If yes, system is okay. If no, go to step 3 .

IGNITION SYSTEMS

NOTE: For additional ignition system and component diagnosis, see IGNITION SYSTEMS in SYSTEM & COMPONENT TESTING - 3.4L AZTEK & RENDEZVOUS article.

CAMSHAFT POSITION SENSOR

For testing procedures and specifications, perform appropriate diagnostic test. See **DIAGNOSTIC TROUBLE CODE DEFINITIONS** in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article.

CRANKSHAFT POSITION SENSOR

For testing procedures and specifications, perform appropriate diagnostic test. See **DIAGNOSTIC TROUBLE CODE DEFINITIONS** in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS article.

ELECTRONIC IGNITION SYSTEM

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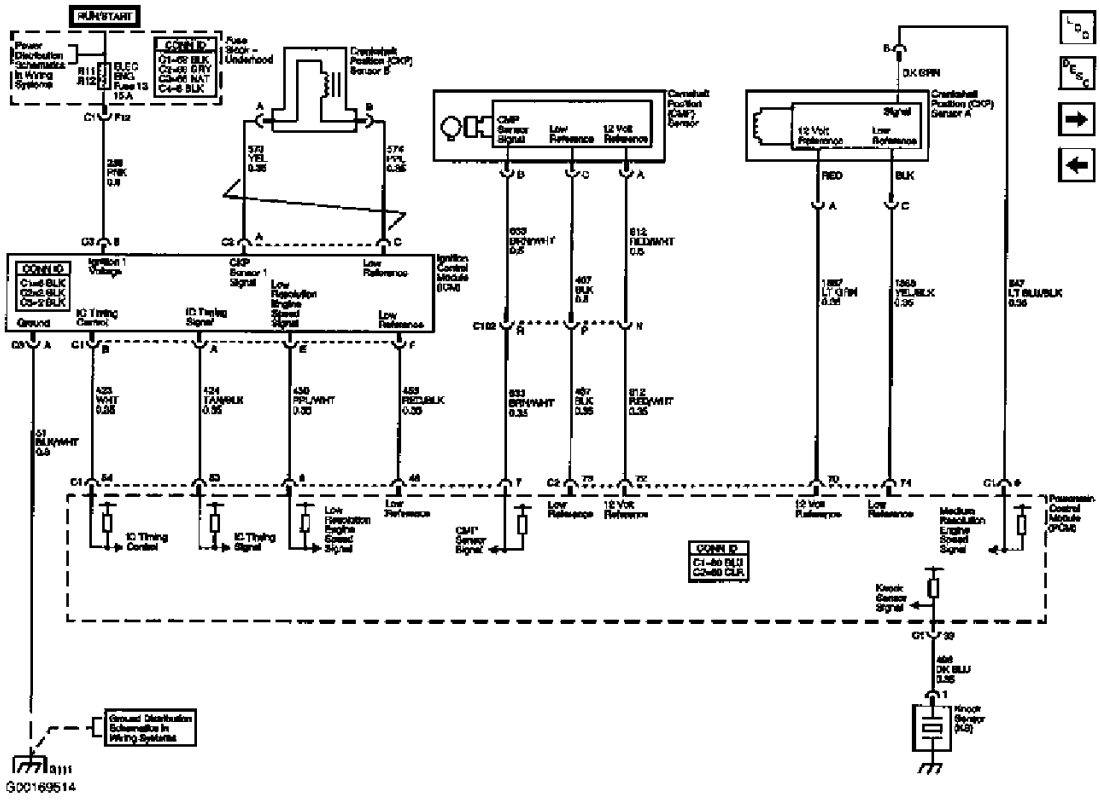

Fig. 1: Electronic Ignition Electrical Schematic
Courtesy of GENERAL MOTORS CORP.

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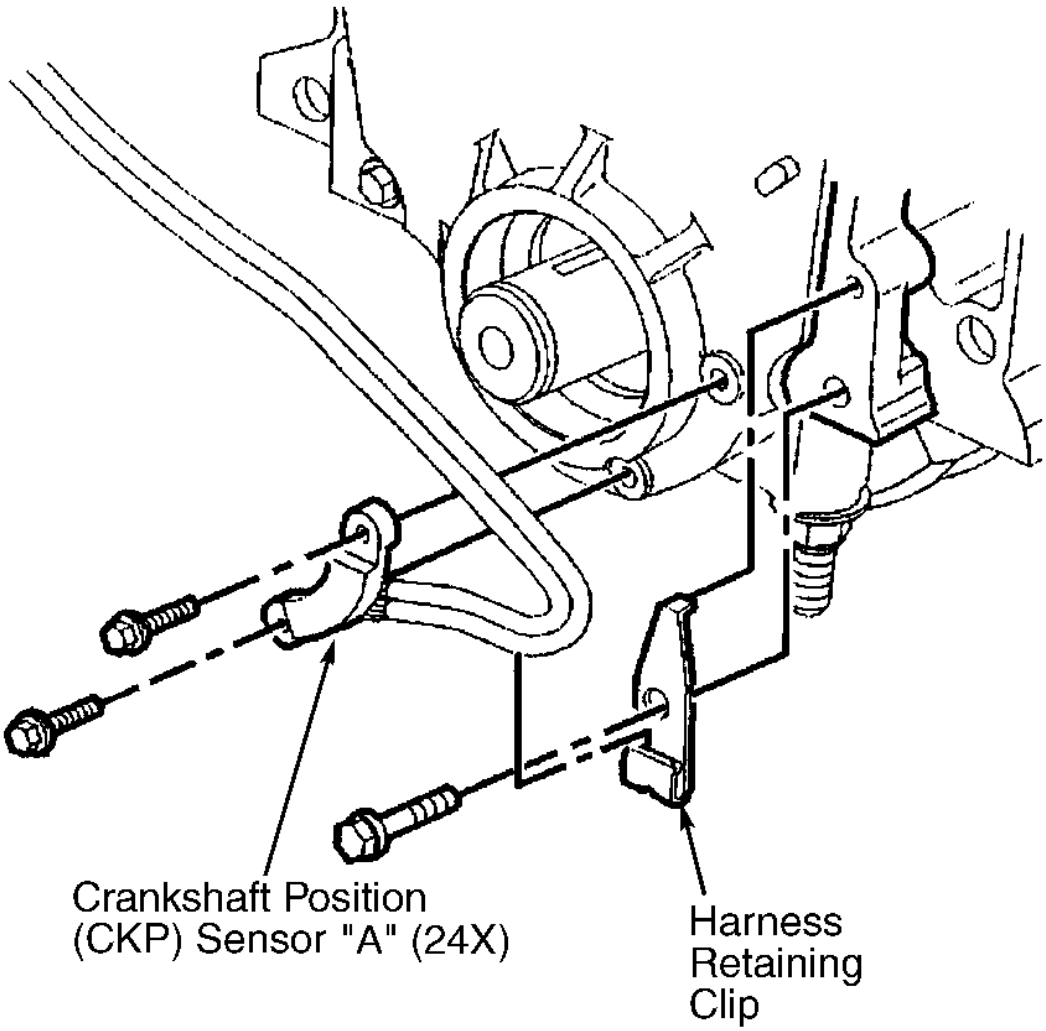

Fig. 2: Locating Crankshaft Position Sensor "A" (24X)
Courtesy of GENERAL MOTORS CORP.

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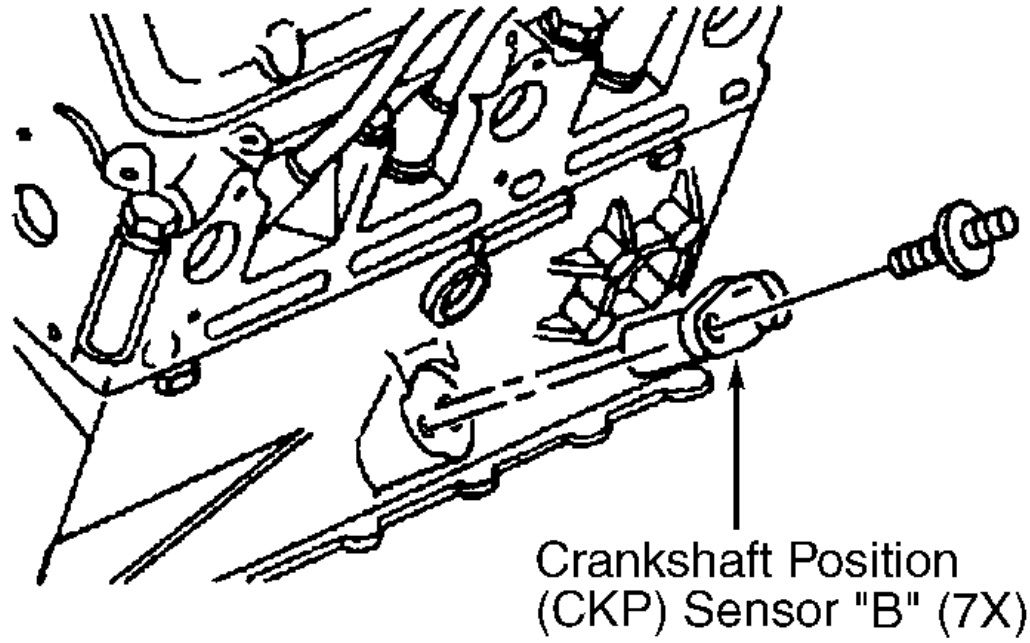

Fig. 3: Locating Crankshaft Position Sensor "B" (7X)
Courtesy of GENERAL MOTORS CORP.

Circuit Description

The Ignition Control (IC) module has independent power and ground circuits. The circuits between the IC module and the PCM consist of the IC timing signal, IC timing control, low resolution engine speed signal and a low reference signal.

The IC module sends 3X signals to the PCM. The IC module controls the timing advance during engine cranking. The timing advance changes to PCM control after the PCM receives the second 3X signal and after the PCM applies 5 volts to the IC timing signal circuit.

Diagnostic Aids

An arcing spark plug wire or an arcing ignition coil to the IC module may cause a stall, misfire or a no-start condition.

Diagnostic Procedures

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK - ENGINE CONTROLS** under SELF-DIAGNOSTIC SYSTEM in SELF-DIAGNOSTICS - 3.4L AZTEK & RENDEZVOUS

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article. After performing diagnostic system check, go to next step.

2. Attempt to start the engine. Does engine start and run? If yes, go to next step. If no, go to step 4 .
3. Disconnect the Crankshaft Position Sensor (CKP) sensor "B" connector from the Ignition Control Module (ICM). ICM control module is located on top of rear valve cover. CKP sensor "B" is located on right side of engine block. See **Fig. 3** . Measure the resistance from the CKP sensor 1 signal circuit to the low reference circuit of the CKP sensor "B" with a DVOM. See **Fig. 1** . Is the resistance within 800-1200 ohms? If yes, go to next step. If no, go to step 28 .
4. Disconnect the CKP sensor "A". CKP sensor "A" is located on front of engine, near crankshaft pulley. See **Fig. 2** . Observe the 3X crank sensor parameter with a scan tool. Crank the engine. Does the scan tool indicate a 3X crank sensor signal present? If yes, go to next step. If no, go to step 11 .
5. Reconnect the CKP sensor "A". Test for spark at each cylinder with a Spark Tester (J-26792). Did you observe any non-sparking cylinders? If yes, go to next step. If no, go to step 9 .
6. Inspect and test the affected cylinder spark plug wires, ignition coils and spark plugs for a short to ground or an arching to ground. If carbon tracking or corrosion is present, replace both components that are affected. Did you find and correct the condition? If yes, go to step 32 . If no, go to next step.
7. Test the resistance of the spark plug wires. Is resistance more than 3000 ohms per foot? If yes, go to step 30 . If no, go to next step.
8. Measure the secondary resistance of the ignition coils. Is the resistance 5000-8000 ohms? If yes, go to step 25 . If no, go to step 29 .
9. Inspect the spark plug wires for proper routing and for the correct firing order. If any spark plug wires are found to be misrouted, reroute as necessary. Did you find and correct the condition? If yes, go to step 32 . If no, go to next step.
10. Remove spark plugs. Inspect spark plugs. Did you find the problem? If yes, go to step 31 . If no, see **DIAGNOSTIC AIDS** .
11. Connect the CKP sensor "A". Disconnect the IC module. Turn ignition on. Connect a test light between the IC module ignition 1 voltage circuit and a good ground. See **Fig. 1** . Does the test light illuminate? If yes, go to next step. If no, go to step 24 .
12. Connect a test light between the IC module ignition 1 voltage circuit and the IC module ground circuit. Does the test light illuminate? If yes, go to next step. If no, go to step 26 .
13. Test for an intermittent and for a poor connection at the ICM. Did you find and correct the condition? If yes, go to step 32 . If no, go to next step.
14. Disconnect the CKP sensor "B" connector from the ICM. Probe the CKP sensor 1 signal circuit of the CKP sensor "B" with a test light connected to battery voltage. Does the test light illuminate? If yes, go to step 17 . If no, go to next step.
15. Probe the CKP sensor 1 signal circuit of the CKP sensor "B" with a test light connected to a good ground. Does the test light illuminate? If yes, go to step 18 . If no, go to next step.
16. Ensure the battery voltage is within specifications. Measure the voltage from the CKP sensor 1 signal circuit and the low reference circuit of the CKP sensor "B" with DVOM at the ICM harness connector. Crank the engine while observing the AC scale. Is the voltage greater than 200 mV? If yes, go to step 27 . If no, go to step 19 .
17. Test the CKP sensor 1 signal circuit for a short to ground. Did you find and correct the condition? If yes, go to step 32 . If no, go to step 20 .
18. Test the CKP sensor 1 signal circuit for a short to ground. Did you find and correct the condition? If yes,

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go to step 32 . If no, go to step 20 .

19. Test the CKP sensor "B" circuits for an open or CKP sensor 1 signal and low reference circuit shorted together. Did you find and correct the condition? If yes, go to step 32 . If no, go to next step.
20. Test for an intermittent and for a poor connection at the ICM. Did you find and correct the condition? If yes, go to step 32 . If no, go to next step.
21. Test for an intermittent and for a poor connection at the CKP sensor. Did you find and correct the condition? If yes, go to step 32 . If no, go to next step.
22. Remove CKP sensor. Visually inspect the CKP sensor for physical damage, excessive play or looseness, improper installation, foreign material passing between the CKP sensor and reluctor wheel or wiring routed too closely to secondary ignition components. Did you find and correct the condition? If yes, go to step 32 . If no, go to next step.
23. Visually inspect the reluctor wheel for foreign material passing between the CKP sensor and reluctor wheel, physical damage, excessive end play or looseness, improper installation, or excessive air gap between CKP sensor and reluctor wheel. Did you find and correct the condition? If yes, go to step 32 . If no, go to step 28 .
24. Repair the open or the short to ground in the IC module ignition 1 voltage circuit. Replace fuse, if necessary. After repairs, go to step 32 .
25. Remove the coils associated with the cylinder that did not have spark. Connect a test light across the ignition module primary circuit, between the ICM terminals for the coils. Observe the test light while cranking the engine. Does the test light flash continuously while the engine is being cranked? If yes, go to step 29 . If no, go to step 27 .
26. Repair open in the IC module ground circuit. After repairs, go to step 32 .
27. Replace IC module. After replacing module, go to step 32 .
28. Replace CKP sensor "B". After replacing sensor, go to step 32 .
29. Replace affected ignition coil(s). After replacing ignition coil(s), go to step 32 .
30. Replace spark plug wires. After replacing spark plug wires, go to step 32 .
31. Replace spark plugs. After replacing spark plugs, go to next step.
32. Turn ignition off for 30 seconds. Start engine and operate vehicle. Observe the MIL, vehicle performance and driveability. Does the vehicle operate normally, with no MIL? If yes, system is okay. If no, go to step 2 .

IGNITION RELAY

See **IGNITION RELAY** under MODULES, MOTORS, RELAYS & SOLENOIDS in SYSTEM & COMPONENT TESTING - 3.4L AZTEK & RENDEZVOUS article.

IDLE SPEED & IGNITION TIMING

Idle speed and ignition timing are controlled by PCM. Incorrect idle speed are normally caused by dirty throttle plate or vacuum leaks. Ensure all vacuum components are functioning properly.

WIRING DIAGRAMS

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AZTEK

For wiring diagrams, see **ENGINE PERFORMANCE** in SYSTEM WIRING DIAGRAMS article in ELECTRICAL.

RENDEZVOUS

For wiring diagrams, see **ENGINE PERFORMANCE** in SYSTEM WIRING DIAGRAMS article in ELECTRICAL.

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