1975-79 DISTRIBUTORS & IGNITION SYSTEMS
Chrysler Corp. Electronic Lean Burn

1976-79 Chrysler Corp.

DESCRIPTION

Starting in 1979, the Electronic Lean Burn (ELB) ignition system became known as the Electronic Spark Control (ESC) system. The system is governed by the Spark Control Computer (SCC) and various engine sensors. The function of this system is to provide a method for burning a lean air/fuel mixture. *See Fig. 1.*

In addition, the ESC system was used on 1979 Aspen and Volare models with 225" 6-cylinder California engines as part of a total emission system called Electronic Feedback Carburetor (EFC) system.

NOTE: For additional information regarding the Electronic Feedback Carburetor (EFC) system, see COMPUTERIZED ENGINE CONTROLS section.

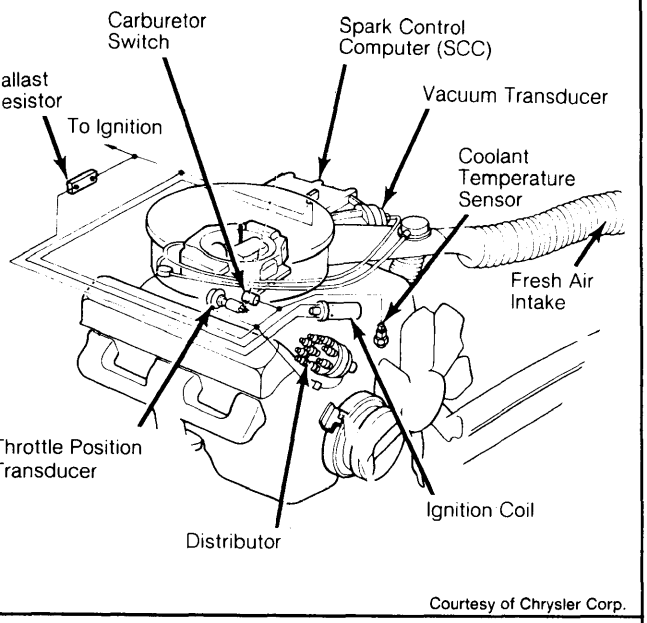


Fig. 1: Electronic Lean Burn (ELB) System

SPARK CONTROL COMPUTER

The Spark Control Computer (SCC) is the heart of the ELB system. It gives the ELB system the capability of igniting a lean air/fuel mixture according to different modes of engine operation by delivering an infinite amount of variable advance curves. There are 2 different computers depending upon application.

The computer determines the exact instant when ignition is required, then feeds the ignition coil to produce electrical impulses which fire the spark plugs. The computer receives signals from several sensors and instantly makes any necessary correction to engine advance or retard to maintain maximum efficiency.

AIR TEMPERATURE SENSOR

1976-78 Models - Located inside the Spark Control Computer, this sensor supplies a signal to the computer to indicate the temperature of the air coming into the air cleaner from the fresh air system.

The computer also uses the air temperature sensor signal to modify the amount of additional spark advance created by the throttle position transducer signal.

START PICK-UP COIL

1976-77 Models - Used on dual pick-up distributors, this sensor is located in the distributor. It supplies a signal to the computer ignition control module and cause the spark plugs to fire at a fixed amount of advance during cranking.

RUN PICK-UP COIL

1976-77 Models - Used on dual pick-up distributors, this sensor is located in the distributor. This sensor supplies the basic timing signal to the computer. This signal will tell the computer to create the maximum amount of timing advance available for any engine RPM. From this signal, the computer can determine engine RPM and when each piston is coming up on its compression stroke.

PICK-UP COIL

1977-79 Models - Located in single pick-up distributors, this unit supplies the Spark Control Computer with information concerning engine speed and crankshaft location. The computer is able to supply proper maximum advance for any given engine condition through this signal. On Omni and Horizon, a Hall-Effect pick-up coil assembly is used.

COOLANT TEMPERATURE SENSOR

Located on water pump housing or on intake manifold, this sensor informs the Spark Control Computer when engine coolant temperature is below 150°F.

THROTTLE POSITION TRANSDUCER

The throttle position transducer is located on the carburetor and signals the Spark Control Computer of the position and rate of change of the throttle plates. Additional spark advance will be given by the computer when the throttle plates start to open, and in every position to full throttle. A throttle position transducer is not used on 4-cylinder engines.

CARBURETOR SWITCH SENSOR

Located on the idle stop solenoid or on the A/C solenoid, this switch tells the Spark Control Computer if the engine is at idle or off idle.

VACUUM TRANSDUCER

The vacuum transducer provides an intake manifold vacuum signal to the Spark Control Computer. The higher the vacuum, the more spark advance that is given. To obtain the greatest amount of advance for any inch of vacuum, the carburetor switch must be open for a specified time. The advance at this time happens slowly. If the carburetor switch closes, the advance is cancelled, but the computer puts the last point of advance in memory; then the advance slowly drops to zero. If the carburetor switch is opened before the advance drops to zero, the advance at point of memory, is restored. If zero advance is reached, the advance must start from zero.

OPERATION

1976-77 Dual Pick-Up Distributor Models - With engine cranking, the start pick-up coil will signal the ignition control module to provide additional spark advance during cranking. When engine starts, the run pick-up coil takes over. If coolant temperature is over 150°F, the computer creates additional spark advance for 1 minute, then gradually diminishes.

If coolant temperature is below 150°F, the temperature signal will cause the computer to prevent any spark advance which might be created by the vacuum transducer signal.

After reaching operating temperature, normal system operation will begin. The computer will use all sensor signals to provide an infinite variation of spark advance for all engine running conditions.

If the computer should fail, the system will switch to the "limp-in" mode. This will enable the engine to continue running, but poor performance will be experienced. Should the start pick-up coil or ignition control module fail, the engine will not start.

1977-79 Single Pick-Up Distributor Models - The Spark Control Computer functions in 2 modes, the start mode and the run mode. During engine cranking the start mode is in operation. A fixed

Chrysler Corp. Electronic Lean Burn (Cont.)

advance is established in the ignition system during this mode. The pick-up coil tells the computer that the engine is in the cranking/start mode.

When the engine is started, the run mode takes over. The pick-up coil signals the computer during the run mode; however, the amount of advance will be determined by the signals received from all system sensors.

Should the run mode fail, the start mode will take over. At this point, the fixed amount of advance will again be supplied and engine operation will continue but will be below standard.

If the computer should fail, the system will switch to the "limp-in" mode. This will enable the engine to continue running, but poor performance will be experienced. Should the pick-up coil or start mode of the computer fail, the engine will not start.

TESTING

IGNITION SYSTEM STARTING TEST

1) Remove coil wire from distributor cap. Hold end of wire about 1/4" away from a good engine ground. Have an assistant crank engine while you look for a bright Blue spark at coil wire.

2) If there is no spark, go to FAILURE TO START TEST. If spark is constant and bright Blue, continue to crank engine while moving coil wire away from ground and look for arcing at coil tower (between coil terminals). If arcing occurs, replace coil.

3) If spark is good and there is no arcing at coil tower, ignition system is producing necessary high secondary voltage. Make sure this spark is getting to plugs by checking distributor rotor, cap, spark plugs, and plug wires.

4) If ignition system checks out okay, but engine still will not start, the ignition system is not the problem. It will be necessary to check fuel system and engine mechanical items.

FAILURE TO START TEST

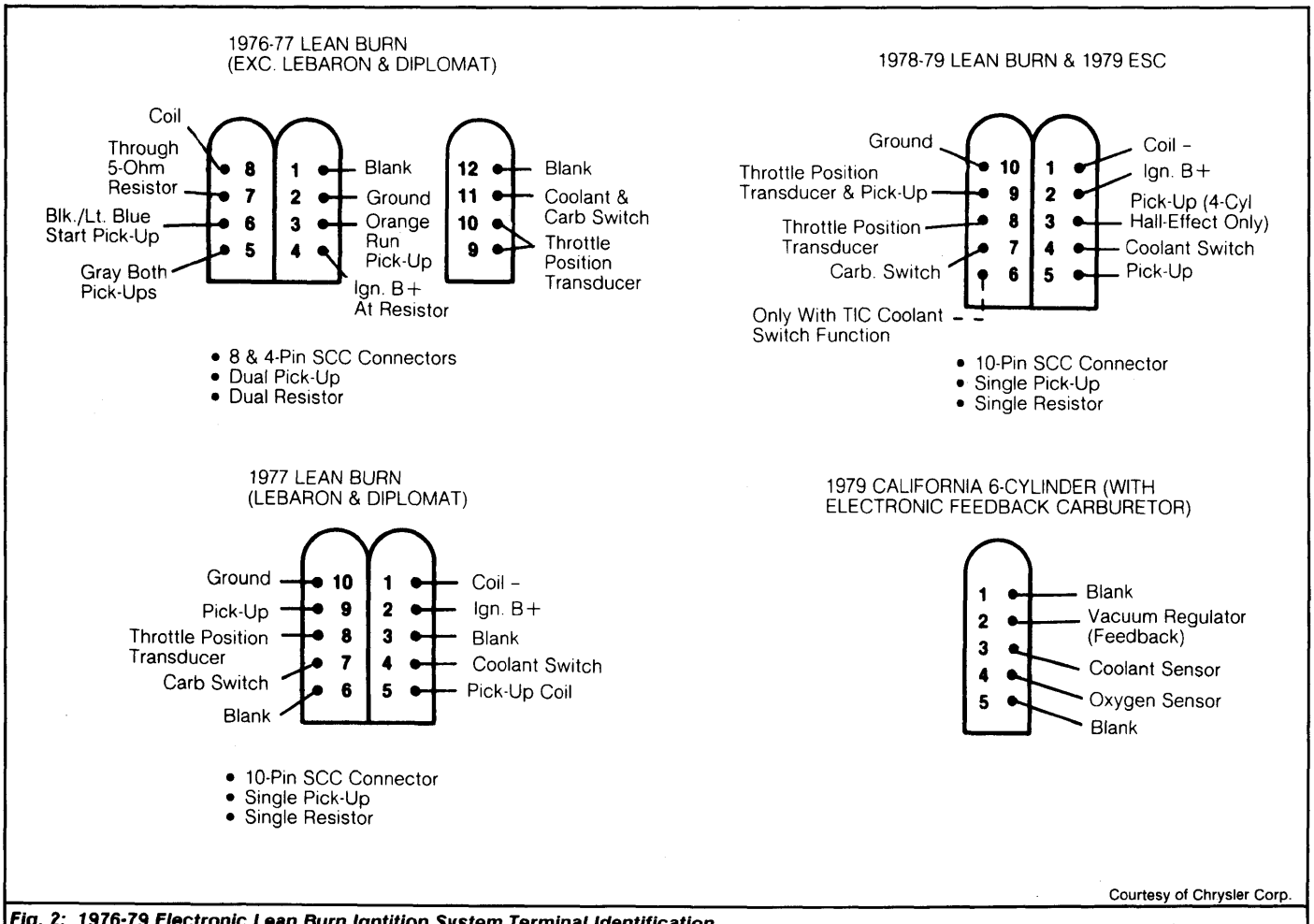
NOTE: Perform IGNITION SYSTEM STARTING TEST first. Failure to do so may lead to a time consuming diagnosis and incorrect results.

All 1976-77 Models With Dual Pick-Up Distributor - 1) Use a voltmeter to measure battery voltage. Note and record this reading. Battery specific gravity must be at least 1.220 (temperature corrected) in order to deliver proper voltage to the cranking (ignition) system.

2) Disconnect coolant sensor lead, insert a piece of paper between idle adjustment screw and carburetor switch to ensure screw does not contact switch. Connect voltmeter negative lead to ground.

3) Turn ignition on and measure voltage at carburetor switch terminal. If voltage is greater than 5 volts, go to step **7)**. If voltage is less than 5 volts, turn ignition off and detach 8-pin connector from Spark Control Computer. *See Fig. 2.*

4) Turn ignition on and measure voltage at terminal No. 4 of 8-pin connector. Voltage should be within one volt of noted battery voltage. If voltage is correct, go to next step. If not, check wiring between terminal No. 4 of 8-pin connector and ignition switch for opens, shorts or poor connections.



Courtesy of Chrysler Corp.

Fig. 2: 1976-79 Electronic Lean Burn Igntition System Terminal Identification

5) Turn ignition off and disconnect 4-pin connector from computer. Check for continuity between terminal No. 11 of 4-pin connector and carburetor switch terminal. If no continuity exists, check for opens, shorts or poor connections.
6) If continuity exists between carburetor switch and terminal No. 11 of 4-pin connector, check for continuity between terminal No. 2 of 8-pin connector and ground. If continuity exists, replace Spark Control Computer. If none, check wire for opens or poor connections. If engine still fails to start, go to next step.
7) Turn ignition on. Check for voltage at terminals No. 7 and 8 at 8-pin connector. If voltage at both terminals is within one volt of noted battery voltage, go to step **9)**. If voltage at terminal No. 7 reads low, check wiring between terminal and ignition switch. Also check 5-ohm side of ballast resistor.
8) If voltage at terminal No. 8 reads low, check wiring between terminal and ignition switch. Also check ignition coil primary windings and 1/2-ohm side of ballast resistor.
9) With ignition off, measure resistance between terminals No. 5 and 6 at 8-pin connector. If resistance is between 150-900 ohms, go to step **11)**. If not, disconnect start pick-up coil leads from distributor and measure start pick-up coil resistance.
10) If start pick-up coil resistance is 150-900 ohms, there is an open, shorted or poor connection between distributor and terminals No. 5 and 6 of connector. If resistance is incorrect, replace defective start pick-up coil.
11) Connect one lead of ohmmeter to engine ground, and with other lead check for continuity at each terminal of leads going into distributor. If continuity exists at any lead, replace start pick-up coil.
12) Remove distributor cap. Check start pick-up coil air gap and adjust if necessary. Install distributor cap, reconnect all wiring and try to start engine. If engine fails to start, replace Spark Control Computer.
13) If, after installing new computer, engine still fails to start, replace original Spark Control Computer and repeat test sequence (one of the steps was probably improperly performed or false readings were obtained).

All 1977-79 Models With Single Pick-Up Distributor (Except Omni & Horizon) - 1) Use a voltmeter to measure battery voltage. Note and record this reading. Battery specific gravity must be at least 1.220 (temperature corrected) in order to deliver proper voltage to the cranking (ignition) system.
2) Disconnect coolant sensor lead, insert a piece of paper between idle adjustment screw and carburetor switch to ensure screw does not contact switch. Connect a voltmeter negative lead to ground.
3) Turn ignition on and measure voltage at carburetor switch terminal. If voltage is greater than 5 volts but less than 10 volts, go to step **10)**.
4) If voltage in step **3)** is more than 10 volts, check to be sure there is continuity between terminal No. 10 of connector and ground.
5) If voltage in step **3)** is less than 5 volts, turn ignition off and detach 10-pin connector from bottom of Spark Control Computer. *See Fig. 2.*
6) Turn ignition back on and measure voltage at terminal No. 2. Voltage should be within one volt of noted battery voltage.
7) If voltage is correct, go to next step. If not, check wiring between terminal No. 2 of 10-pin connector and ignition switch for opens, shorts or poor connections.
8) Turn ignition off. Disconnect 10-pin connector from bottom of computer. Check for continuity between terminal No. 7 of 10-pin connector and carburetor switch terminal. If there is no continuity, check for opens, shorts or poor connections.
9) If continuity exists between carburetor switch and 10-pin connector, test for continuity between terminal No. 10 of 10-pin connector and ground. If continuity exists, replace Spark Control Computer. If no continuity exists, check wire for opens or poor connections.

NOTE: Proceed with remainder of this test only if engine fails to start.

10) Turn ignition on. Check voltage between ground and terminal No. 1 of 10-pin connector. Voltage should be within one volt of noted battery voltage. If voltage is correct, go to next step. If not, check wiring and connections between terminal No. 1 and ignition switch.
11) Turn ignition off and measure resistance between terminals No. 5 and 9. If resistance is between 150-900 ohms, go to step **13)**. If not, disconnect pick-up coil leads from distributor.
12) Measure resistance at lead going into distributor. If resistance is in 150-900 ohms range, there is an open, shorted or poor connection between distributor and terminals No. 5 and 9 of 10-pin connector. If resistance is still out of specifications, pick-up coil is bad.
13) Connect one lead of ohmmeter to engine ground, and with other lead check for continuity at each terminal of lead going into distributor. There should be no continuity. Reconnect distributor lead. If there is continuity, replace pick-up coil.
14) Remove distributor cap and check pick-up coil air gap, adjust gap if necessary. Install distributor cap, reconnect all wiring and try to start engine. If engine fails to start, replace Spark Control Computer.
15) If, after installing new computer, engine still fails to start, install original computer and repeat test sequence (one of the steps was probably improperly performed or false readings were obtained).

1979 Omni & Horizon - 1) Use a voltmeter to measure battery voltage. Note and record this reading. Battery specific gravity must be at least 1.220 (temperature corrected) in order to deliver proper voltage to the cranking (ignition) system.
2) Disconnect wire from ignition coil negative terminal. Remove coil secondary wire from distributor cap. With key on, use a jumper wire and quickly touch negative terminal of coil to ground while holding coil secondary wire 1/4" from good engine ground. A spark should be obtained.
3) If no spark occurs, check for at least 9 volts at ignition coil positive terminal with key on. If 9 volts, replace ignition coil. If less than 9 volts, check ballast resistor, wiring and connections. If car still does not start, proceed to next step.
4) If spark was obtained in step **2)**, turn key off and reconnect ignition coil negative terminal wire. Disconnect distributor 3-pin wire harness. *See Fig. 3.*
5) Turn key on and measure voltage between pin "B" on 3-pin wire harness going to Spark Control Computer and a good engine ground. Voltage should be same as originally recorded. If so, go to step **8)**. If not, turn key off and disconnect computer harness connector.
6) With both harnesses disconnected, check continuity between pin "B" of 3-pin wire connector and terminal No. 3 of 10-pin Spark Control Computer wire harness connector. If no continuity exists, repair wire. If continuity exists, go to next step.
7) Turn on key and measure voltage between terminals No. 2 and 10 of disconnected 10-pin connector. Battery voltage should be obtained. If not, check wiring and connections. If battery voltage exists, replace Spark Control Computer.
8) Reconnect 10-pin connector, turn key on and hold ignition coil secondary wire about 1/4" from good ground. With a jumper wire, quickly touch pin "A" to pin "C". If no spark, go to next step. If spark, replace defective Hall-Effect pick-up.
9) Turn off key and disconnect 10-pin connector from computer. Check continuity between pin "C" of 3-pin wire connector and terminal No. 9 of 10-pin connector. Also check continuity between pin "A" and terminal No. 5. If continuity exists, replace Spark Control Computer. If no continuity exists, repair wiring and repeat test starting at step **8)**.

Chrysler Corp. Electronic Lean Burn (Cont.)

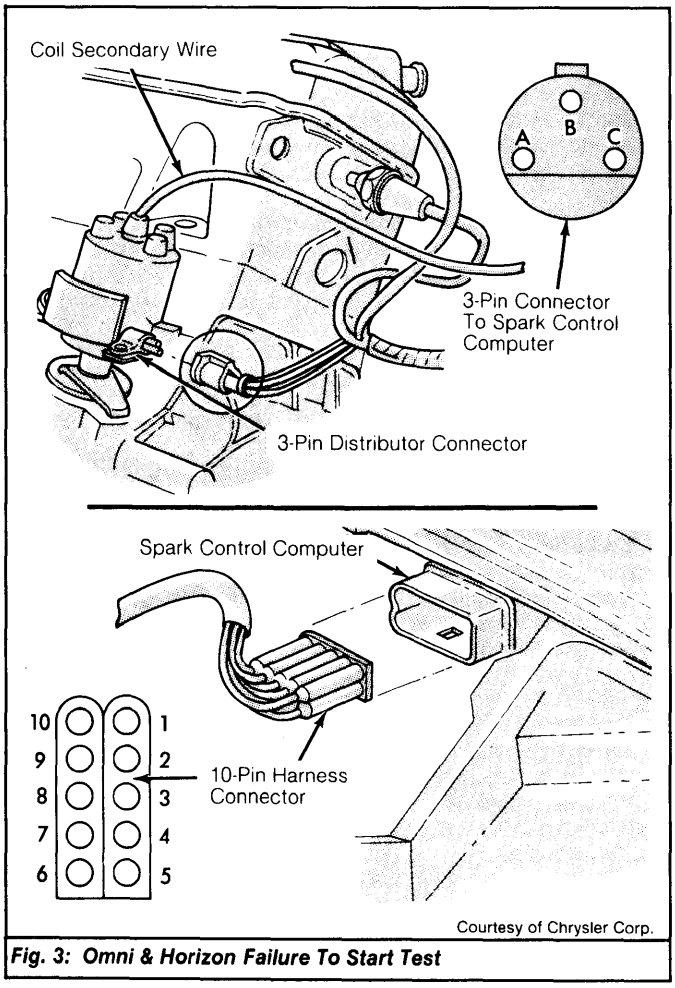


Fig. 3: Omni & Horizon Failure To Start Test

POOR PERFORMANCE TESTS

NOTE: Be sure basic timing and curb idle are set before beginning the following tests.

Run Pick-Up Coil Advance Timing Test (1976-77 Dual Pick-Up Distributor Models) - 1) Start engine. Wait 90 seconds and disconnect start pick-up coil lead. If engine continues to run, reconnect start pick-up coil lead and go to START TIMER ADVANCE TIMING TEST.

2) If engine stops, reconnect start pick-up coil lead. Turn ignition off and disconnect 8-pin connector from Spark Control Computer. Check resistance between terminals No. 3 and 5 at 8-pin connector. If resistance is 150-900 ohms, go to step **5)**. If not, go to next step.

3) Measure resistance at distributor run pick-up coil leads. If run pick-up coil resistance is 150-900 ohms, check for open, shorted or poor connection between distributor and terminals No. 3 and 5 of 8-pin connector.

4) If wires are okay and resistance is still not within specifications, replace run pick-up coil and repeat step **1)**. If engine still fails to run, go to next step.

5) Connect one lead of ohmmeter to ground, and with other lead check for continuity at each terminal of leads going into distributor. If continuity exists at any lead, replace run pick-up coil and repeat step **1)**. If engine still fails to run, go to next step.

6) Remove distributor cap. Check run pick-up coil air gap and adjust if necessary. Install distributor cap, reconnect all wiring and try to start engine. If engine fails to start, replace Spark Control Computer.

7) If, after installing new computer, engine still fails to start, install original Spark Control Computer and repeat test sequence (one of the steps was probably improperly performed or false readings were obtained).

Start Timer Advance Timing Test - 1) Connect adjustable timing light to engine so total timing advance can be checked at crankshaft. On 1979 models, connect a jumper wire between carburetor switch and a known good ground. Start engine.

2) On 1976-78 models, set parking brake and apply service brakes. Have an assistant start engine, snap open and close throttle, and immediately place transmission in Drive. Look at timing mark on damper immediately after shifting transmission into Drive.

2) On all models, continue to observe timing for one minute while adjusting timing light to maintain initial timing. Advance should slowly decrease to initial timing in about one minute.

3) If timing did not increase and/or decrease to initial timing, replace Spark Control Computer. If timing performed satisfactorily, go to SPEED ADVANCE SCHEDULE TEST. Do not remove timing light or jumper wire (if used).

1976 SPARK ADVANCE SCHEDULE SPECIFICATIONS

Test Name	[1] Additional Advance (Degrees BTDC or Inches Hg)
Start Timer Advance (All Models)	5-9
Throttle Advance (Transducer Out 1 Inch)	
At 75°	7-12
At 104°	4-7
Transducer Core Moved Rapidly In And Out	7-12 (1 Second)
Vacuum Advance (Operating Vacuum Range)	[2] 32-35"
Thermal Ignition Control Advance	[3] 18-35"

[1] - Additional advance does not include initial ignition timing.
[2] - After 6 to 9 minutes, 16 in. Hg minimum.
[3] - Within 2 seconds, 14 in. Hg minimum. With Thermal Ignition Control disconnected on some models after march 1, 1976.

Speed Advance Schedule Test (1977-79 Single Pick-Up Distributor Models) - 1) Connect a jumper wire between carburetor switch terminal and a good ground. Disconnect wiring harness connector from throttle position transducer.

2) Start and run engine for 2 minutes. Raise RPM to specifications. Adjust timing light so that initial timing is seen at timing plate. Additional advance seen on timing light meter should be as specified. If not, replace computer and repeat test. If within specifications, ensure throttle position transducer is adjusted properly and go to THROTTLE ADVANCE SCHEDULE TEST.

Throttle Advance Schedule Test (1976-77 Dual Pick-Up Distributor Models) - 1) Ensure that throttle position transducer is properly adjusted. Turn ignition off. Disconnect 4-pin connector from Spark Control Computer. With ohmmeter, measure resistance between terminals No. 9 and 10 of 4-pin connector. If reading is 50-90 ohms, reconnect computer and go step **3)**.

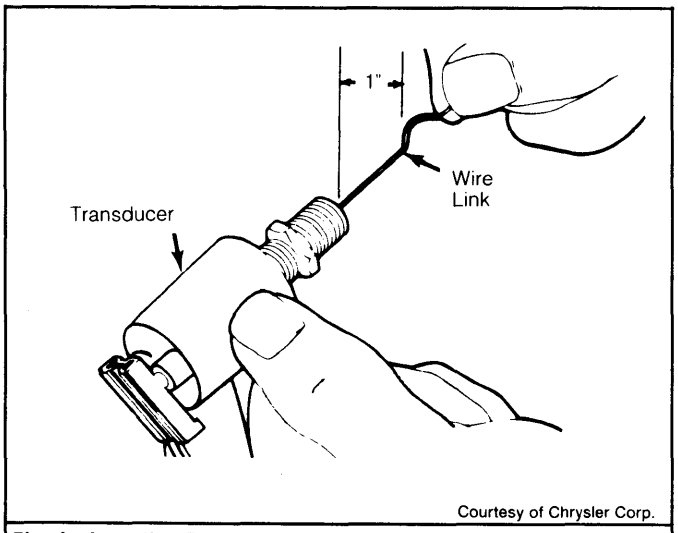
2) If reading is incorrect, remove connector from throttle position transducer and measure resistance at transducer terminals. If resistance is now 50-90 ohms, an open, short or poor connection exists between transducer and terminals No. 9 and 10. If resistance is incorrect, replace transducer and go to next step.

3) Reconnect all wires and turn ignition on. Connect voltmeter negative lead to ground, and positive lead to each transducer terminal. Fully open and close throttle. A 2 volt change should occur with throttle action.

4) Position throttle linkage on fast idle cam and ground carburetor switch with jumper wire. Disconnect wiring harness connector from throttle position transducer, and connect it to known good transducer (for testing purposes).

5) Move transducer core in until fully bottomed. Start engine, wait 90 seconds, then pull transducer core slowly out to about one inch. *See Fig. 4.*

1975-79 DISTRIBUTORS & IGNITION SYSTEMS
Chrysler Corp. Electronic Lean Burn (Cont.)



Courtesy of Chrysler Corp.

Fig. 4: Actuating Throttle Position Transducer

1977 SPARK ADVANCE SCHEDULE SPECIFICATIONS

Test Name	[1] Additional Advance (Degrees BTDC or Inches Hg)
Start Timer Advance	
318"	8
All Others	5-9
Throttle Advance (Transducer Out 1 Inch At 75°) [2]	
318"	8-12
440"	
California	4-8
Federal	3-5
All Others	3-6
Transducer Core Moved Rapidly In And Out	
318"	8-12
440"	
California	8
Federal	5
All Others	10
Vacuum Advance (Operating Vacuum Range) [3]	
318"	[4] 13-15
360"	6-8
440"	None
All Others	3-5
Accumulation Time Advance (After 7-8 Min.)	
318"	32-36
440"	
California	30
Federal	28
All Others	34
Speed Advance (At 2000 RPM)	
318"	[5] 1-3
360"	2-4
440"	
California	5-7
Federal	7-9
All Others	3-5

[1] - Additional advance does not include initial ignition timing.
[2] - On models without air temperature sensor set to 10°BTDC. Disregard specifications on Spark Ccontol Computer that has a Red dot on case, no air temperature sensor is used.
[3] - Operating range is 0-14" Hg on 318" engine. Operating range is 12" Hg on 440" engine.
[4] - No advance on 318" engine equipped with 4091468 Spark Control Computer.
[5] - At 4000 RPM, advance should be 3-7 degrees.

6) Adjust timing light so initial timing is seen at timing plate. Meter on timing light should show additional amount of advance as indicated under specifications.
7) If timing is within specifications, move core back into transducer. Timing should return to initial timing setting. If so, go to next step. If timing did not react as indicated, replace Spark Control Computer. Repeat procedure starting at step **3)**. If vehicle fails test, replace transducer.
8) Return timing light advance meter to zero. Observe timing marks while having an assistant rapidly move core of test throttle position transducer in and out 1 inch (5-6 times).
9) Timing should advance as specified for about 1 second, then return to zero. If advance is not as specified, replace Spark Control Computer. Repeat test starting at step **3)**, using original transducer. If test fails, replace original transducer.

Throttle Advance Schedule Test (1977-79 Single Pick-Up Distributor Models) - 1) Turn ignition off. Disconnect 10-pin connector from Spark Control Computer. With ohmmeter, measure resistance between terminals No. 8 and 9 of 10-pin connector. If reading is 50-90 ohms, reconnect computer and go to step **3)**.
2) If reading is incorrect, remove connector from throttle position transducer and measure resistance at transducer terminals. If transducer resistance is 50-90 ohms, an open, short or poor connection exists between terminals No. 8 and 9 and transducer. If resistance is incorrect, replace transducer and go to next step.
3) Reconnect all wiring and turn ignition on. Connect voltmeter negative lead to ground and touch positive lead to each transducer terminal. Fully open and then close throttle. A 2 volt change should occur with throttle action.
4) Position throttle linkage on fast idle cam and ground carburetor switch with jumper wire. Disconnect wiring harness from throttle position transducer and connect it to a known good transducer (for testing purposes).
5) Move transducer core in until fully bottomed. Start engine, wait 90 seconds, then pull transducer core slowly out to about 1 inch. *See Fig. 4*.
6) Adjust timing light so initial timing is seen at timing plate. Meter on timing light should show additional amount of advance as indicated under specifications.
7) If within specifications, move core back into transducer and timing should return to initial setting. If timing returns to initial setting, go to next step. If timing did not react as indicated, replace Spark Control Computer. Repeat test starting at step **3)**. If vehicle fails test, replace throttle position transducer.
8) Return timing light advance meter to zero. Observe timing marks while having an assistant rapidly move core of test throttle position transducer in and out one inch (5-6 times).
9) Timing should advance as specified for about 1 second, then return to zero. If advance is not as specified, replace Spark Control Computer. Repeat test starting at step **3)**, using original transducer. If test fails, replace original transducer.

POOR FUEL ECONOMY & UNUSUALLY HIGH IDLE SPEED TESTS

Coolant Sensor Test - Connect ohmmeter to ground and touch terminal of sensor with other ohmmeter lead. With engine cold, Black/Red wire (Black wire on 1976 models) should have continuity. At 150°F normal operating temperature, no continuity should exist.

Vacuum Advance Schedule Test (1976-78 Models) - 1) Connect adjustable timing light and tachometer to engine. On 1976 models, disconnect coolant sensor lead. Turn ignition on. Disconnect idle stop solenoid lead and push solenoid plunger in until it bottoms.
2) Open throttle linkage and reconnect solenoid lead. Solenoid plunger should pop out. Release throttle linkage. Solenoid plunger should hold linkage open. If not, replace solenoid. On all models, start engine and warm to normal operating temperature.

Chrysler Corp. Electronic Lean Burn (Cont.)

1978 SPARK ADVANCE SCHEDULE SPECIFICATIONS

Test Name	[1] Additional Advance (Degrees BTDC or Inches Hg)
Start Timer Advance (All Models)	8
Throttle Advance (Transducer Out 1 Inch)	
1700 CC	[2] 4-6
318"	2-5
360"	5-8
400"	2-5
440"	
California	3-6
Federal	1-4
Vacuum Advance (Operating Vacuum Range)	
1700 cc	1-14"
318"	[3] 0-15.5"
360"	0-14"
400"	0-12"
440"	0-12"
Accumulation Time Advance (After 7-8 Min.)	
1700 cc	18-22
318"	[4] 18-22
360"	24
400"	18-22
440"	[5] 20-24
Speed Advance (At 2000 RPM)	
1700 cc	6-10
318"	[6] 0-1
360"	1-5
400"	4-8
440"	7-11

[1] - Zero additional advance on 400" engine equipped models with SCC part numbers 4111169, 4111170 and 4111172.
[2] - Zero additional advance on models equipped with SCC part numbers 5206467 and 5206501, including engine code E-57.
[3] - 0-10" on California models.
[4] - 23-28 degrees on California models.
[5] - 28-32 degrees on California models.
[6] - 1-4 degrees on California models.

3) Place transmission in Neutral and apply parking brake. Place a thin insulator (piece of paper) between carburetor switch and curb idle adjustment screw. *See Fig. 5.* With curb idle screw not touching carburetor switch, make sure that fast idle cam is not on high step or binding.
4) Adjust timing light so initial timing is seen at timing plate. Meter on timing light should show additional amount of advance as specified. If advance is incorrect, replace Spark Control Computer. If correct, run engine for at least 9 minutes. Make sure there is at least 16 in. Hg of vacuum at throttle position transducer.
5) Now place timing light so initial timing can be seen at timing plate. Meter on timing light should show additional amount of advance as specified. If advance is incorrect, replace Spark Control Computer. If correct, go to step **6)** (step **8)** on 1977-78 models).
6) Remove paper insulator from carburetor switch and note that timing returns to initial timing setting. If timing returns to initial setting, go to THERMAL IGNITION CONTROL ADVANCE SCHEDULED TEST. If timing does not return to initial timing, go to next step.
7) Turn ignition off. Check wire for open, short or poor connections between carburetor switch terminal and terminal No. 11 of 4-pin connector. If wire is okay, replace Spark Control Computer.
8) Remove paper insulator from carburetor switch and note that timing returns to initial timing setting. If timing does not return to initial timing, make sure curb idle adjustment screw is touching carburetor switch.
9) Turn ignition off and check wire for continuity between carburetor switch terminal and corresponding terminal on Spark Control Computer. If wire is okay, repeat test. If timing is still not returning to basic setting, replace Spark Control Computer.

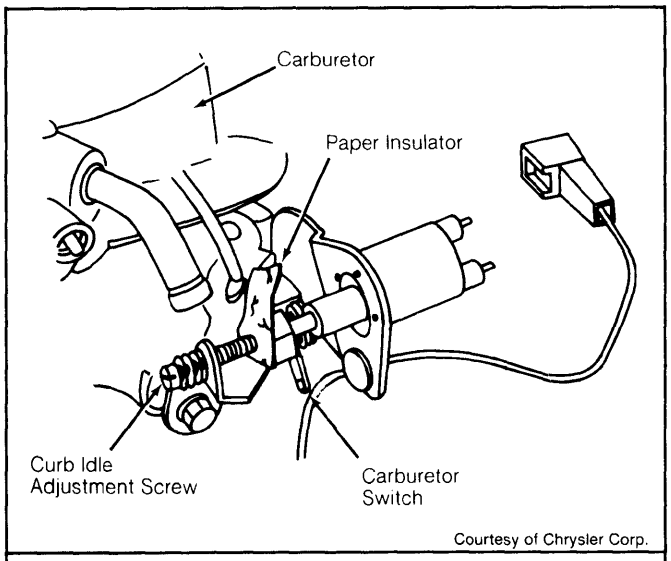


Fig. 5: 1976-78 Vacuum Advance Schedule Test

Vacuum Advance Schedule Test (1979 Models) - 1) Connect adjustable timing light and tachometer to engine. Start engine and warm to normal operating temperature. If already at operating temperature, wait at least 1 minute for start-up advance to return to basic timing. Place transmission in Neutral and apply parking brake.
2) Check basic timing and adjust if not to specification. Remove and plug vacuum line at vacuum transducer. Using a jumper wire, ground carburetor switch and (if equipped) remove connector from throttle position transducer. Set engine speed to 1100 RPM.
3) Check speed advance timing. Be sure it is at specifications. With engine at 1100 RPM, remove carburetor switch ground and reconnect vacuum line to vacuum transducer.

CAUTION: Use of a rubber exhaust tube for ventilation may result in fire due to high temperature experienced during this test. Only use a metal exhaust tube.

4) Check zero time offset. It should be at specification. Allow accumulator in computer to "clock up." Check specified time.
5) With accumulator clocked up and engine at 1100 RPM, check vacuum advance. It should be to specification. Disconnect and plug vacuum line at vacuum transducer and increase engine speed to 1500 (3000 RPM on Omni and Horizon). Note speed advance timing.
6) Reconnect vacuum line to vacuum transducer. Check vacuum advance. It should be as specified. Return to curb idle, connect bar switch ground wire and (if equipped) install connector to throttle position transducer.

Coolant Switch Test (1979 Models) - 1) Remove connector from coolant switch and ground carburetor switch. If timing advances, hot idle function of valve is okay. If not, go to next step.
2) Ground Black/White wire of coolant switch connector. If timing retards, coolant switch is bad and must be replaced. If not, go to next step.
3) Check wire between coolant switch connector for opens, shorts or poor connections. If okay, replace Spark Control Computer. If not, repair wire, reset basic timing and curb idle; then repeat test.

NOTE: Coolant switch has two functions: not to allow additional spark advance from transducer until coolant temperature is above 150°F and to give additional advance above basic timing at hot idle (above 235°F).

Thermal Ignition Control Advance Scheduled Test (1976 Models) - 1) With ignition off, ground Orange lead at coolant sensor connector. Start and run engine for 90 seconds and adjust timing

light to flash at initial timing setting. Advance meter should indicate specified additional advance.

2) If advance is within specifications, go to COOLANT SENSOR TEST. If not, turn ignition off and disconnect 4-pin connector from Spark Control Computer. Using an ohmmeter, check continuity between terminal No. 12 and Orange wire terminal at coolant sensor.

3) If continuity exists, replace Spark Control Computer. If no continuity exists, repair open or poor connection in Orange wire. Reconnect Spark Control Computer and repeat step **1)**. If computer checks good, disconnect ground at Orange lead.

ADJUSTMENTS

IGNITION TIMING & THROTTLE POSITION TRANSDUCER

1976-77 Models - 1) With temperature sensor below 135°F, start engine and wait 90 seconds. Using a jumper wire, ground carburetor sensor and disconnnect transducer electrical lead. Check and adjust timing to specification. Reconnect transducer and note ignition timing.

2) To obtain specified timing, loosen transducer lock nut. Turn transducer clockwise if timing is too great, counterclockwise if below specifications. When timing is set, turn transducer an additional 1/2 turn clockwise, then tighten lock nut.

THROTTLE POSITION TRANSDUCER

1978-79 - Disconnect wiring from throttle position transducer. Loosen lock nut. Place measuring device (C-4522) between outer portion of transducer and transducer mounting bracket. Adjust transducer by turning clockwise or counterclockwise until clearance fit is obtained. Tighten lock nut.

PICK-UP COIL AIR GAP

1976-77 Dual Pick-Up Distributor Models - Loosen pick-up coil hold-down screw and align reluctor blade with run pick-up coil pole. Set air gap to .008" using a non-magnetic feeler gauge, then tighten hold-down screw. Check that .010" feeler gauge cannot be inserted into gap. Repeat procedure for start pick-up coil, setting air gap to .012" clearance. Check that .014" feeler gauge cannot be inserted into gap.

1977-79 Single Pick-Up Distributor Models - Loosen pick-up coil hold-down screw and align reluctor blade with pick-up coil pole. Set air gap to .006" using a non-magnetic feeler gauge, then tighten hold-down screw.

NOTE: Air gap is not adjustable on Hall-Effect pick-up, 4-cylinder models.

WIRING DIAGRAMS

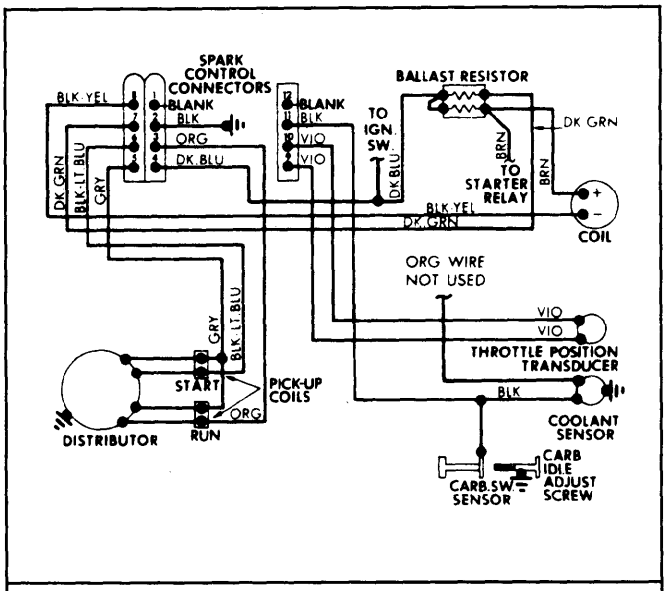


Fig. 6: 1976-77 ELB (Dual Pick-Up Distributor) System Wiring Diagram

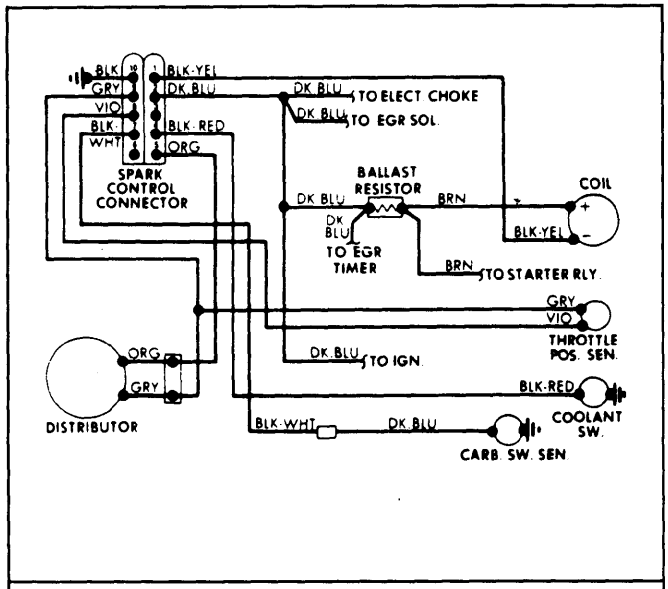


Fig. 7: 1977 ELB (Single Pick-Up Distributor) System Wiring Diagram

Chrysler Corp. Electronic Lean Burn (Cont.)

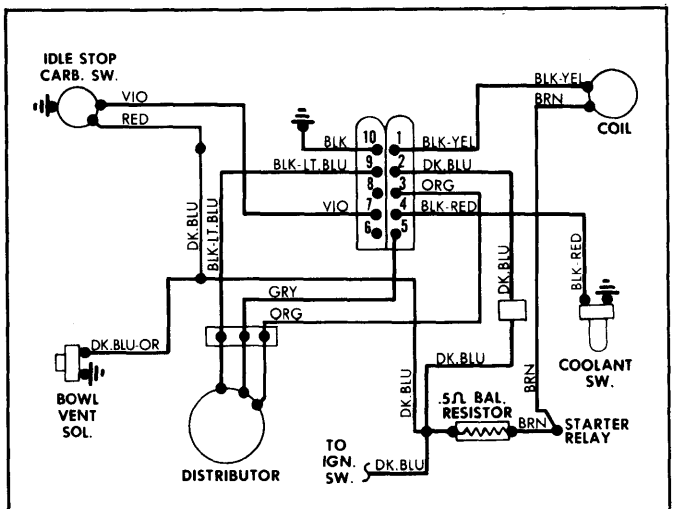


Fig. 8: 1979 Omni & Horizon ESC System Wiring Diagram

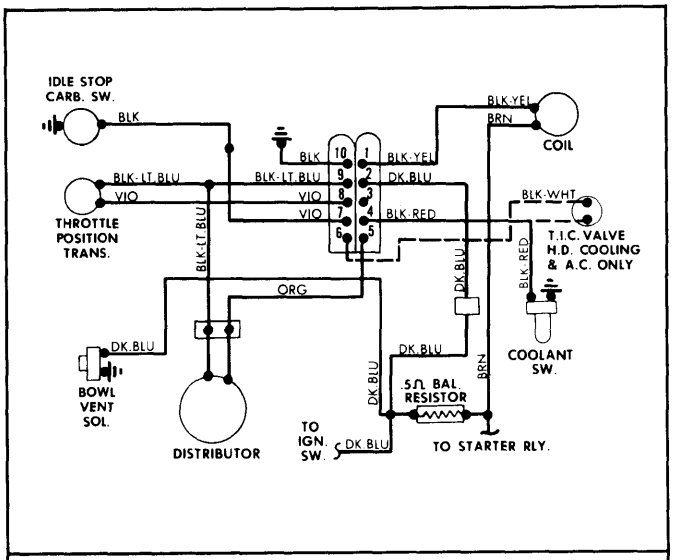


Fig. 10: 1978-79 ELB/ESC System Wiring Diagram (All Other Models)

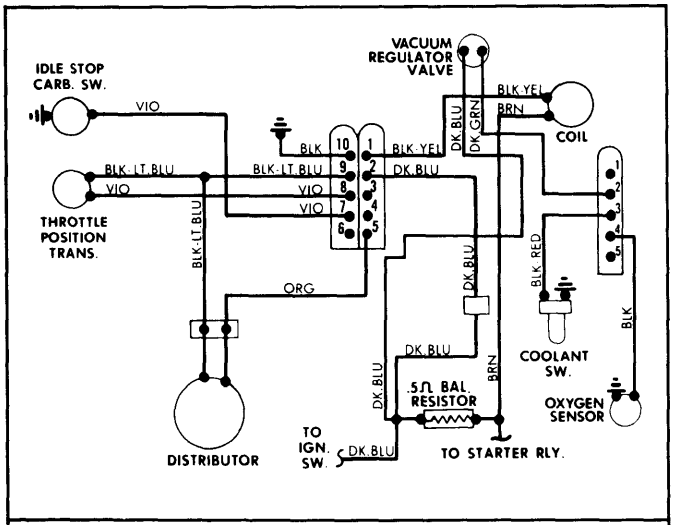


Fig. 9: 1979 Aspen & Volare (Calif.) ESC System Wiring Diagram