

I - SYSTEM/COMPONENT TESTS

Article Text

1993 Honda Prelude

For Cadi Centre Nsk CA 95051

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ARTICLE BEGINNING

1993 ENGINE PERFORMANCE

Honda System & Component Testing

Accord, Civic, Civic Del Sol, Prelude

NOTE: For testing and diagnosis of Civic Variable Valve Timing (VTEC) system, see CODE 21 and CODE 22 charts in G - TESTS W/ CODES article in the ENGINE PERFORMANCE Section.

INTRODUCTION

NOTE: Perform all voltage tests using a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance, unless stated otherwise in test procedure. Testing individual components does not isolate shorts or opens. Use ohmmeter to isolate wiring harness shorts or opens.

Before testing separate components or systems, perform procedures in F - BASIC TESTING article in the ENGINE PERFORMANCE Section. Since many computer-controlled and monitored components set trouble codes if they malfunction, also perform procedures in G - TESTS W/ CODES article in the ENGINE PERFORMANCE Section.

AIR INDUCTION SYSTEMS

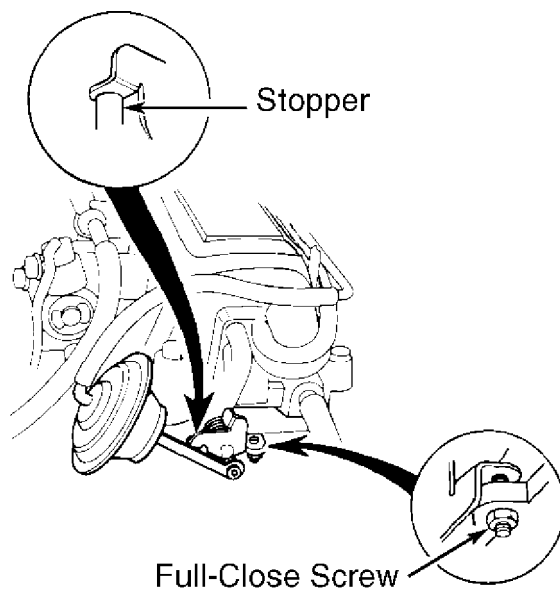
AIR INTAKE SYSTEM

NOTE: DO NOT adjust by-pass valve full-close screw. Adjustment is preset at factory.

Intake Air By-Pass (IAB) Valve (Accord F22A6 & Prelude 2.3L)

1) Check valve shaft for binding and sticking. Check valve for smooth movement. Ensure tab on valve contacts stopper when valve is fully open. See Fig. 1.

2) Ensure tab of by-pass valve contacts full-close screw when valve is fully closed. If any fault is found, clean linkage and shafts using carburetor cleaner. If problem still exists after cleaning, disassemble intake manifold and inspect by-pass valve.



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Fig. 1: Intake Air By-Pass Valve Linkage ID (Prelude Shown; Accord F22A6 Similar)

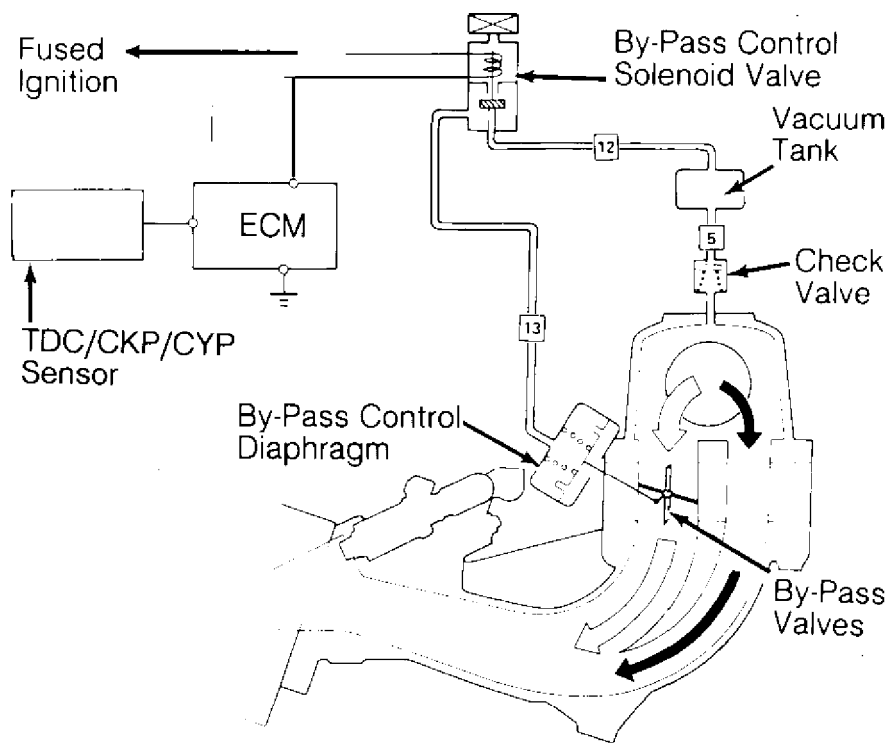
Courtesy of American Honda Motor Co., Inc.

IAB Control Solenoid Valve (Accord F22A6 & Prelude 2.3L)

Start and idle engine. Remove vacuum hose No. 13 from by-pass control diaphragm. See Fig. 2. Connect vacuum gauge to hose. If vacuum exists, go to next step. If vacuum does not exist, remove vacuum hose No. 12 from vacuum tank. Check for vacuum. If vacuum exists, go to step 3). If vacuum does not exist, repair blockage or leak between vacuum tank and intake manifold. Retest system.

2) Increase engine speed to 5000 RPM. Check for vacuum at hose No. 13. If vacuum does not exist, solenoid is okay. If vacuum exists, unplug connector at solenoid. Check for vacuum again. If vacuum still exists, replace solenoid valve. If vacuum no longer exists, solenoid valve is okay.

3) If vacuum existed in step 1), unplug connector at solenoid. Measure voltage between Black/Yellow (positive) wire terminal and Pink or Blue/Pink (negative) wire terminal. If battery voltage exists, replace by-pass control solenoid valve. If battery voltage does not exist, check continuity of harness wiring to solenoid valve.



Note: Boxes containing numbers indicate vacuum hose identification numbers, not components.

93H79050

Fig. 2: By-Pass Control System ID (Accord F22A6 & Prelude 2.3L)
 Courtesy of American Honda Motor Co., Inc.

Intake Control Diaphragm (Accord & Prelude)

Connect vacuum pump to vacuum hose on intake control diaphragm. Apply vacuum. If diaphragm holds vacuum, intake diaphragm is okay. If vacuum does not hold, inspect vacuum line for improper connection and disconnected hose. If hose is okay, replace intake control diaphragm.

Intake Control Solenoid Valve (Accord & Prelude)

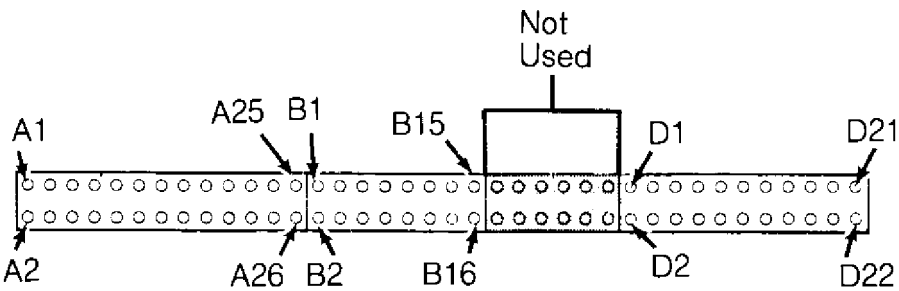
1) Start and idle engine. Remove upper vacuum hose from intake control solenoid valve, located at top of engine, on left side. Connect vacuum gauge to solenoid valve. If vacuum does not exist, go to step 2). If vacuum exists, increase engine speed to 3700 RPM (4200 RPM for Prelude). If vacuum still exists, go to step 4). If vacuum no

1. SYSTEM COMPONENT TESTS Article Text (p. 3) 1993 Honda Prelude For Cadi Centre Nsk CA 95051 Copyri

2) Disconnect lower vacuum hose of solenoid valve from air chamber. Connect vacuum gauge. If vacuum exists, go to next step. If vacuum does not exist, inspect vacuum line for improper connection, cracks and blockage in hose. If vacuum line is okay, clean manifold port.

3) Unplug connector from intake control solenoid valve.

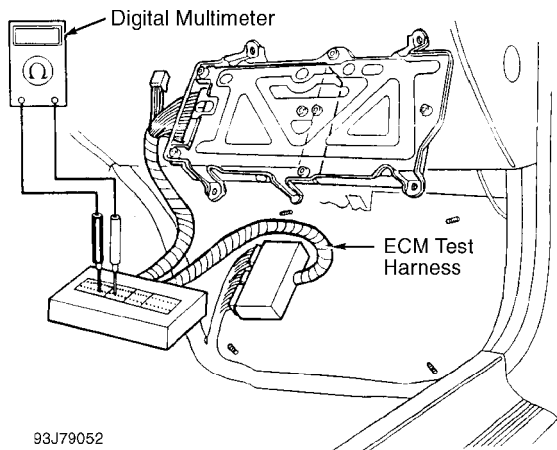
ECM POWER CIRCUITS FUSE IDENTIFICATION TABLE	
AA	
Application	Fuse
Accord, Civic & Civic Del Sol	
Ignition Switch In OFF Position	BACK-UP
Ignition Switch In ON Position	ECM
Prelude	
Ignition Switch In OFF Position	CLOCK
Ignition Switch In ON Position	BACK-UP
AA	



93I79051
Fig. 3: Identifying ECM Terminals
Courtesy of American Honda Motor Co., Inc.

ENGINE SENSORS & SWITCHES

NOTE: Some test procedures require Test Harness (07LAJ-PT3010A) when testing certain components or systems. SeeFig. 4. Connect test harness between control unit and main wiring harness connectors.



93J79052
Fig. 4: Connecting Test Harness
Courtesy of American Honda Motor Co., Inc.

AIR CONDITIONING (A/C) SIGNAL SWITCH

Voltage Test

1) Connect test harness between ECM and main wiring harness. See Fig. 4. Unplug connector "B" from main harness, but not from ECM. Turn ignition on. Measure voltage between terminals A26 and B5. See Fig. 3.

2) If voltage is about 5 volts, go to step 3). If voltage is not as about 5 ohms, substitute known good ECM and retest system. If voltage is now about 5 ohms, replace ECM. If voltage is still not about 5 ohms, check and repair wiring between A/C switch and ECM. See L - WIRING DIAGRAMS article in the ENGINE PERFORMANCE Section.

3) Turn ignition off. Reconnect main harness. Turn ignition on. Momentarily connect ECM terminals A15 and A26 together. If A/C clutch does not click, go to next step. If clutch clicks, start engine and turn A/C on. If A/C operates, A/C signal exists. If A/C does not operate, go to step 5).

4) Using jumper, connect Red/Blue wire from A/C compressor control unit to chassis ground. See L - WIRING DIAGRAMS article in the ENGINE PERFORMANCE Section. If A/C clutch clicks, repair open circuit between ECM and A/C compressor control unit. If clutch does not click, repair A/C system. See appropriate MITCHELL(R) AIR CONDITIONING & HEATING SERVICE & REPAIR manual.

5) With engine running and A/C on, measure voltage between terminals A26 and B5. If voltage is less than one volt, substitute a known good ECM. If A/C now functions, replace ECM. If voltage is greater than one volt, repair open circuit between ECM and A/C switch. See L - WIRING DIAGRAMS article in the ENGINE PERFORMANCE Section.

BAROMETRIC PRESSURE (BARO) SENSOR

Barometric pressure (BARO) sensor is built into ECM. See G - TESTS W/ CODES article in the ENGINE PERFORMANCE Section for testing.

ENGINE COOLANT TEMPERATURE (ECT) SENSOR

Resistance Test

Start engine, and warm it to normal operating temperature. Unplug sensor connector. Sensor is located on front of engine, near distributor. Measure resistance between sensor terminals. If resistance is not 200-400 ohms, replace sensor.

EGR VALVE LIFT SENSOR

See EMISSION SYSTEMS & SUB-SYSTEMS.

HEATED OXYGEN (O2) SENSOR

NOTE: Heated oxygen sensor is also known as HO2S. Civic D15B8 uses non-heated oxygen sensor. See OXYGEN (O2) SENSOR.

Accord, Civic D15B7 & D16Z6, Civic Del Sol, & Prelude

1) Unplug connector at O2 sensor. Sensor is threaded into exhaust manifold or exhaust pipe. Measure resistance between terminals "A" and "B" of sensor connector. See Fig. 5 or 6. If resistance is 15-40 ohms, go to next step. If resistance is not 15-40 ohms, replace O2 sensor.

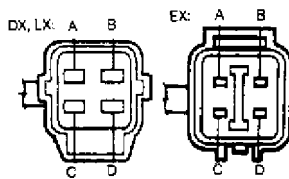
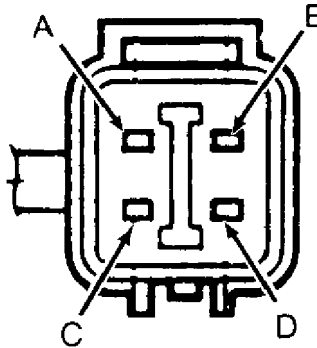


Fig. 5: Identifying Heated O2 Sensor Terminals (Accord)
Courtesy of American Honda Motor Co., Inc.



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Fig. 6: Heated O2 Sensor Term. ID (Civic D15B7 & D16Z6, Civic Del Sol, & Prelude)
Courtesy of American Honda Motor Co., Inc.

2) Check for continuity to ground at sensor terminals "C" and "D". If continuity exists, replace O2 sensor. If continuity does not exist, go to next step.

3) Check for continuity between terminals "A" and "D" and between terminals "B" and "D". If continuity exists in either case, replace O2 sensor. If continuity does not exist, go to next step.

4) Turn ignition on. Measure voltage between Yellow/Black and Orange/Black wires at sensor connector. If battery voltage does not exist, go to next step. If battery voltage exists, go to step 7).

5) Measure voltage between Yellow/Black wire at connector and body ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair open in Yellow/Black wire between

6) Turn ignition off. Reconnect wiring to sensor. Connect test harness connector "A" to main wiring harness only, not to ECM. Turn ignition on. Measure voltage between terminals A6 and A23. If battery voltage does not exist, repair open in Orange/Black wire between ECM and main relay. If battery voltage exists, replace ECM and retest system.

7) Unplug connector "A" from ECM. Measure voltage between Yellow/Black and Orange/Black wires at sensor connector. If battery voltage does not exist, go to next step. If battery voltage exists, repair short to voltage in Orange/Black wire between sensor and ECM.

8) Reconnect wiring to sensor. Connect test harness connector "A" to main wiring harness only, not to ECM. Connect ammeter between terminals A6 and A26. Monitor current for at least 5 minutes. If current is not less than 0.1 amp, temporarily substitute known good ECM. Retest system. If current is less than 0.1 amp, replace sensor.

Civic (D15Z1)

1) Turn ignition off. Connect test harness between ECM and main harness. See Fig. 4. Wait at least 3 minutes. Turn ignition on. Measure voltage between terminals D8 and D22. See Fig. 3. If voltage is greater than 0.5 volt, go to next step. If voltage is not greater than 0.5 volt, check White/Blue wire between sensor and ECM for shorts. If wiring is okay, go to next step.

2) If voltage is greater than 5.0 volts, go to next step. If voltage is not greater than 5.0 volts, go to step 7).

3) Measure voltage between terminals D16 and D22. If voltage is greater than 0.5 volt, go to next step. If voltage is not greater than 0.5 volt, check Blue/Green wire between sensor and ECM for shorts.

4) If voltage between terminals D3 and D22 is 0.3-4.9 volts, go to next step. If voltage is not 0.3-4.9 volts, go to step 8).

5) Start engine, and warm it until radiator fan comes on. Measure voltage between terminals D16 and D22. If voltage is 2.6-2.8 volts, go to next step. If voltage is not 2.6-2.8 volts, go to step 9).

6) Measure voltage between terminals D14 and D22. If voltage is greater than 0.4 volt, replace ECM and retest system. If voltage is not greater than 0.4 volt, repair short in Orange/Blue wire between sensor and ECM.

7) Unplug connector from sensor. Sensor is threaded into exhaust manifold. Measure voltage between terminals D8 and D22. If voltage is greater than 5 volts, replace sensor. If voltage is not greater than 5 volts, replace ECM and retest system.

8) Turn ignition off. Unplug connector from sensor. Sensor is threaded into exhaust manifold. Turn ignition on. Measure voltage between White wire on harness connector and ground. If voltage is about 5 volts, replace sensor. If voltage is not about 5 volts, repair open in White or Blue/Yellow wire between sensor and ECM.

9) Measure voltage between terminals D8 and D22. If voltage is less than 2.8 volts, replace ECM and retest system. If voltage is not less than 2.8 volts, repair open in White/Blue or Green/White wire between sensor and ECM.

INTAKE AIR TEMPERATURE (IAT) SENSOR

Resistance Test

Unplug sensor connector. On Accord and Prelude, sensor is located at top of engine, on left side. On Civic and Civic Del Sol, sensor is located on rear side of engine, near center. Measure resistance between sensor terminals. Resistance should be as specified. See INTAKE AIR TEMPERATURE (IAT) SENSOR RESISTANCE table. If resistance is not within specification, replace sensor.

INTAKE AIR TEMPERATURE (IAT) SENSOR RESISTANCE

Temperature		Resistance
oF (oC)		(Ohms)
-4 (-20)	15,000-18,000
68 (20)	1000-4000
176 (80)	200-400

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR

Voltage Test

1) Connect test harness between ECM and main harness. See Fig. 4. Turn ignition on. Measure voltage between terminals D19 and D21. See Fig. 3.

2) If voltage is about 5 volts, go to next step. If voltage is not about 5 volts, check wiring between sensor and ECM for continuity or shorts. If wiring is okay, replace MAP sensor.

3) Connect vacuum pump to MAP sensor. On Accord and Prelude, MAP sensor is located at top center of firewall. On Civic and Civic Del Sol, MAP sensor is located near throttle body. Apply vacuum. If MAP sensor does not hold vacuum, replace sensor.

OXYGEN (O₂) SENSOR

NOTE: All models except Civic D15B8 use heated oxygen sensor. See HEATED OXYGEN (O2) SENSOR.

Civic (D15B8)

1) Turn ignition off. Connect test harness between ECM and vehicle wiring harness. See Fig. 4. Wait at least 2 minutes. Connect jumper between test harness terminals A6 and A26. Connect OVC cable

terminals A26 and D14. Turn ignition on. Immediately observe DVOM. Voltage should be 0.4-0.5 volt and decrease to 0.1 volt or less within 2 minutes. If voltage is not as specified, go to next step. If voltage is as specified, go to step 3).

2) Unplug connector from O2 sensor, threaded into exhaust manifold. Measure voltage at harness connector White and Green/White wires. If voltage is greater than 0.1 volt, replace O2 sensor. If voltage is not greater than 0.1 volt, repair open in White or Green/White wire between ECM and O2 sensor.

3) Unplug connector from O2 sensor, threaded into exhaust manifold. Measure voltage at harness connector White and Green/White wires. If voltage is not greater than 0.1 volt, go to next step. If voltage is greater than 0.1 volt, replace O2 sensor.

4) Unplug connector "D" from main wiring harness. Measure voltage between terminals A26 and D14. If voltage is greater than 0.1 volt, repair short to voltage in White wire between ECM and O2 sensor. If voltage is not greater than 0.1 volt, replace ECM and retest system.

POWER STEERING PRESSURE (PSP) SWITCH

1) Connect test harness between ECM and wiring harness. See Fig. 4. Turn ignition on. Measure voltage between test harness terminals B8 and A26. See Fig. 3. If voltage is greater than one volt, go to next step. If voltage is not greater than one volt, go to step 4).

2) Unplug connector on PSP switch. Switch is located on steering gear. On Accord, Civic and Civic Del Sol, connect jumper between Brown/Red and Black wire terminals. On Prelude, connect jumper between Red/Green and Black wire terminals.

3) On all models, check for voltage at test harness terminals A26 and B8. If voltage does not exist, replace PSP switch. If voltage exists, repair open in Brown/Red or Red/Green wire between ECM terminal B8 and PSP switch or Black wire between PSP switch and ground.

4) If voltage did not exist in step 1), start engine. Turn steering wheel slowly. Measure voltage between test harness terminals A26 and B8. If battery voltage exists, PSP signal is okay. If battery voltage does not exist, go to next step.

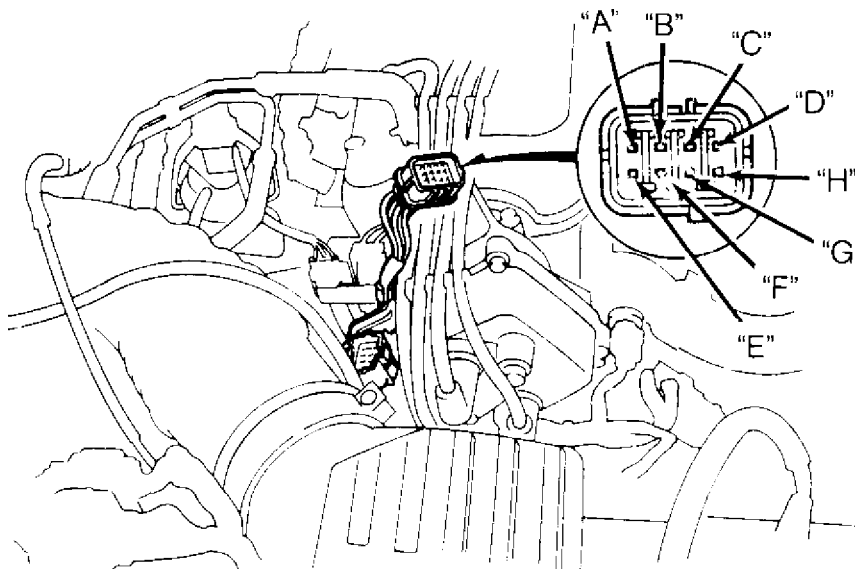
5) Turn ignition off. Unplug test harness connector "B" from main wiring harness only, not ECM. Turn ignition on. If battery voltage exists, go to next step. If battery voltage does not exist, replace ECM and retest system.

6) Reconnect harness connector "B" to main wiring harness. Unplug connector from PSP switch. If battery voltage exists, replace PSP switch. If battery voltage does not exist, repair short in Brown/Red or Red/Green wire between ECM terminal B8 and PSP switch.

TDC/CKP/CYP SENSOR

1) Unplug TDC/CKP/CYP sensor connector, located at distributor. Measure resistance between terminals "B" and "F". Measure resistance between terminals "C" and "G". Measure resistance between terminals "D" and "H". See Fig. 7. If resistance is 350-700 ohms for each pair, go to next step. If any measurement is not 350-370 ohms, replace distributor.

2) Check for continuity between each terminals B/F, D/H and chassis ground. If continuity exists on any terminal, replace distributor.



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Fig. 7: TDC/CKP/CYP Sensor Connector Term. ID (Accord Shown; Other Models Are Similar)

Courtesy of American Honda Motor Co., Inc.

THROTTLE POSITION (TP) SENSOR

1) Turn ignition off. Connect test harness between ECM and vehicle harness connector. See Fig. 4.

2) Turn ignition on. Measure voltage between test harness terminals D11 and D22. Open and close throttle while observing voltmeter. Voltage should be about 0.5 volt with throttle fully closed and 4.5 volts with throttle wide open. Voltage should change smoothly as throttle opens and closes.

3) If voltage is not as specified on Accord M/T, Civic, Civic Del Sol and Prelude M/T, replace TP sensor. If voltage is as specified, replace ECM and retest system.

4) On Accord A/T and Prelude A/T, unplug 22-pin connector from Transmission Control Module (TCM). TCM is located below center of dashboard. Measure voltage as throttle is opened and closed. If

voltage does not change as specified in step 2), go to next step. If voltage now changes as specified, replace TCM.

5) If voltage is not as specified, check for short or open in Red/Black wire between ECM terminal D11 and TP sensor. If wire is okay, replace TP sensor. If problem still exists, see G - TESTS W CODES article in the ENGINE PERFORMANCE Section.

VEHICLE SPEED SENSOR (VSS)

1) Turn ignition off. Connect test harness between ECM and main harness connector. See Fig. 4. Raise and support front of vehicle so front wheels are free to rotate. Connect voltmeter between terminals B10 and A26. See Fig. 3.

2) Turn ignition on. Slowly rotate left front wheel. Voltage should pulse between zero and 5 volts. If voltage pulses as specified, replace ECM and retest system. If voltage does not pulse as specified, check for open or short in wiring between ECM terminal B10 and speed sensor. See L - WIRING DIAGRAMS article in the ENGINE PERFORMANCE Section. If wiring is okay, replace defective VSS or ECM.

RELAYS & SOLENOIDS

RELAYS

Main Relay (PGM-FI)

1) If vehicle starts and continues to run, relay is okay. To test, remove main relay, located under left side of dash. Using jumper wires, connect terminal No. 6 to battery voltage. Connect terminal No. 8 to ground. See Fig. 8.

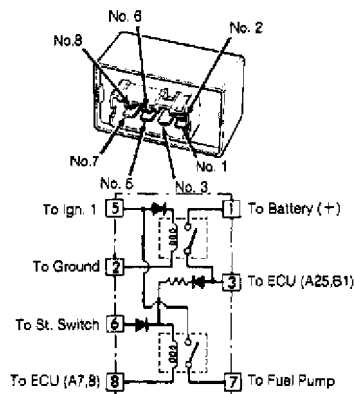


Fig. 8: Identifying PGM-FI Relay Terminals
Courtesy of American Honda Motor Co., Inc.

2) Check for continuity between relay terminals No. 5 and 7. Continuity should exist. If continuity does not exist, replace relay. Disconnect battery leads. Repeat measurement. Continuity should not

exist. If continuity is as specified, go to next step. If continuity is not as specified, replace relay.

3) Connect battery voltage to relay terminal No. 5. Connect terminal No. 2 to ground. Check for continuity between terminals No. 1 and 3. Continuity should exist. Disconnect battery leads. Repeat measurement. Continuity should not exist. If continuity is not as specified, replace relay.

4) Connect battery voltage to relay terminal No. 3. Connect terminal No. 8 to ground. Check for continuity between terminals No. 5 and 7. Disconnect battery leads. Repeat measurement. Continuity should not exist. If continuity is as specified, relay is okay. If continuity is not as specified, replace relay. If fuel pump still fails to operate, test main relay harness. See MAIN RELAY HARNESS under FUEL CONTROL under FUEL SYSTEM.

SOLENOIDS

IAB Control Solenoid (Accord F22A6 & Prelude 2.3L)
See AIR INDUCTION SYSTEMS.

Idle Air Control (IAC) Valve
See IDLE CONTROL SYSTEM.

EGR Control Solenoid Valve
See EXHAUST GAS RECIRCULATION (EGR) SYSTEM under EMISSION SYSTEMS & SUB-SYSTEMS.

Intake Air Control Solenoid Valve (Accord & Prelude)
See AIR INDUCTION SYSTEMS.

EVAP Purge Control Solenoid Valve
See FUEL EVAPORATION under EMISSION SYSTEMS & SUB-SYSTEMS.

FUEL SYSTEM

FUEL DELIVERY

NOTE: For fuel system pressure testing, see F - BASIC TESTING article in the ENGINE PERFORMANCE Section.

FUEL CONTROL

Fuel Injectors

Unplug connector at injector. Measure resistance between injector terminals. Resistance should be as specified. See FUEL INJECTOR RESISTANCE table. If resistance is not as specified, replace injector.

FUEL INJECTOR RESISTANCE TABLE

AA

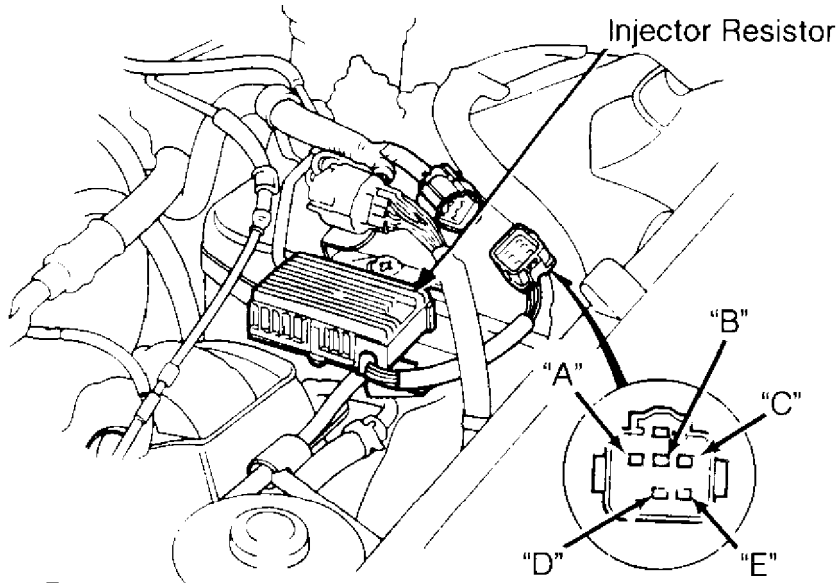
Application	Ohms
Accord & Prelude	
Injector	1.5-2.5
Injector Resistor	5.0-7.0
Civic & Civic Del Sol	
Injector (1)	10.0-13.0

(1) - Injectors have internal resistor.

AA

Fuel Injector Resistor (Accord & Prelude)

Unplug injector resistor harness connector. Injector resistor is located over left front fenderwell on Accord and at upper left firewall on Prelude. Measure resistance between each injector resistor terminal ("B", "C", "D" and "E") and power terminal ("A"). See Fig. 9. Resistance should be 5-7 ohms for each pair of terminals. If any measurement is not as specified, replace injector resistor.



90E17149
Fig. 9: Injector Resistor Connector Term. ID (Accord Shown; Prelude Similar)
Courtesy of American Honda Motor Co., Inc.

Main Relay Harness

1) Turn ignition off. Unplug main relay harness connector. Check for continuity between connector terminal No. 2 and chassis ground. See Fig. 10. If continuity exists, go to next step. If continuity does not exist, repair open in Black wire from terminal No.

Section.

2) Measure voltage between connector terminal No. 1 and body ground. If battery voltage exists, go to next step. If battery voltage does not exist, check wiring between battery and main relay and check ECM fuse in underhood relay box. Repair as necessary.

3) Turn ignition on. Measure voltage between relay connector terminal No. 5 and body ground. If battery voltage exists, go to next step. If battery voltage does not exist, check wiring from ignition switch and main relay. Check fuse No. 23 on Prelude, No. 2 on Accord, or AGC on Civic and Civic Del Sol. Check wiring from fuse box to main relay. Repair or replace as necessary.

4) Connect voltmeter to connector terminal No. 6 and body ground. Turn ignition switch to START position. If battery voltage exists, go to next step. If battery voltage does not exist, check wiring between ignition switch and main relay. Check fuse No. 9. Check wiring from fuse box to main relay. Repair or replace fuse or wiring as necessary.

5) Connect jumper between connector terminals No. 5 and 7. Turn ignition on. Fuel pump should operate. If fuel pump fails to operate, check fuel pump wiring.

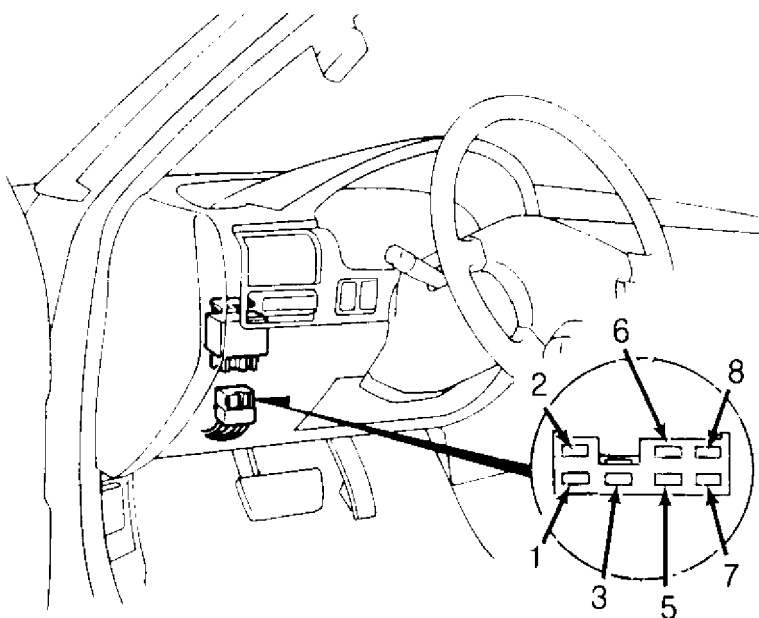


Fig. 10: Main Relay Harness Connector Term. ID (Accord Shown; Other Models Are Similar)

Courtesy of American Honda Motor Co., Inc.

IDLE CONTROL SYSTEM

Electric Load Detector

- 1) Connect ECM test harness between ECM and main harness. See 1-SYST

Fig. 4. Turn ignition on. Measure voltage between terminals D10 and A26. See Fig. 3.

2) Set headlight switch to first position. Voltage should be 1.8-2.8 volts for Accord, 2.5-3.5 volts for Civic and Civic Del Sol, and 1.5-3.0 volts for Prelude.

3) Set headlight switch to second position. Voltage should be .8-1.8 volts for Accord, 1.5-2.5 volts for Civic and Civic Del Sol, and 1.0-2.0 volts for Prelude. If voltage is not as specified, replace electric load detector. Electric load detector is located at far right side of firewall.

Idle Air Control (IAC) Valve

1) Turn ignition off. Unplug IAC valve connector. IAC is located near throttle body. Turn ignition on. Measure voltage between Yellow/Black wire on harness connector and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair Yellow/Black wire between IAC valve and PGM-FI main relay.

2) Turn ignition off. Connect test harness to vehicle wiring harness, not to ECM. See Fig. 4. Turn ignition on. Momentarily connect terminal A9 to terminal A26 (A23 on Civic Del Sol). If IAC valve clicks, temporarily substitute known good ECM and retest system. If IAC valve does not click, repair Black/Blue wire between IAC and ECM terminal A9.

Fast Idle Valve (Accord & Prelude)

1) Start engine. Remove fast idle valve cover. Fast idle valve is located near throttle body. Place finger on valve seat area. Check for airflow with engine cold and idling. If airflow does not exist, replace fast idle valve.

2) Warm engine to full operating temperature (cooling fan comes on). Verify valve is completely closed. Valve is leaking if suction can be felt in valve seat area. Replace valve if valve operation is not as specified.

Fast Idle Valve (Civic & Civic Del Sol)

1) Disconnect air intake duct from throttle body. Start engine. Place finger over lower port on throttle body. Check for airflow with engine cold and idling. If airflow does not exist, replace fast idle valve. Fast idle valve is located near throttle body.

2) Warm engine to full operating temperature (cooling fan comes on). Verify valve is completely closed. Valve is leaking if suction can be felt in lower port on throttle body. Replace fast idle valve if operation is not as specified.

NOTE: For basic ignition checks, see F - BASIC TESTING article in the ENGINE PERFORMANCE Section.

EMISSION SYSTEMS & SUB-SYSTEMS

EXHAUST GAS RECIRCULATION (EGR) SYSTEM

EGR Valve

Ensure all connectors between EGR valve lift sensor and ECM are securely connected. Warm engine to full operating temperature. Disconnect vacuum hose from EGR valve. Connect vacuum pump to EGR valve. Apply vacuum. EGR valve should hold vacuum and engine should die once vacuum is applied. If results are not as specified, replace EGR valve.

Accord & Prelude

1) Start and idle engine. Disconnect hose No. 16 from EGR valve, located at top of engine. Connect vacuum pump/gauge to hose. If vacuum exists, go to next step. If vacuum does not exist, go to step 4).

2) On Accord, unplug 4-pin connector from control box, located at top of firewall, toward passenger side. On Prelude, unplug 2-pin connector from EGR control solenoid valve, located over left front fenderwell. On all models, check for vacuum on hose No. 16. If vacuum does not exist, go to next step. If vacuum exists, check EGR system vacuum hose routing. If hoses are okay, replace EGR control solenoid valve.

3) Turn ignition off. Unplug connector "A" from ECM. Check for continuity between ground and Pink wire on Accord, or Red wire on Prelude, at 2-pin connector. If continuity exists, repair short in appropriate wire. If continuity does not exist, replace ECM and retest system.

4) Connect vacuum pump/gauge to EGR valve. With engine idling, apply 8 in. Hg vacuum to EGR valve. If engine stalls or runs roughly, and EGR valve holds vacuum, go to next step. If engine operation remains same or EGR valve does not hold vacuum, replace EGR valve.

5) Turn ignition off. On Accord, unplug 4-pin connector from control box, located at top of firewall, toward passenger side. See Fig. 11. On Prelude, unplug 2-pin connector from EGR control solenoid valve, located over left front fenderwell. On all models, turn ignition on. Measure voltage between harness connector Black/Yellow wire and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair Black/Yellow wire between harness connector and fuse panel.

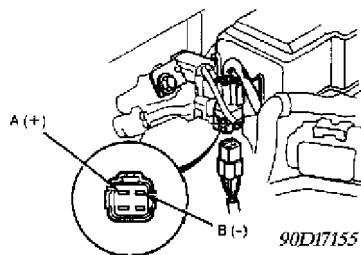


Fig. 11: Identifying EGR System Connector Terminals (Accord)
 Courtesy of American Honda Motor Co., Inc.

6) Connect vacuum pump/gauge to hose disconnected in step 1). On Accord, connect fused jumper wire between positive battery terminal and Black/Yellow wire on control box connector. Observe voltmeter while connecting jumper wire between Pink wire on control box connector and negative battery terminal. Go to step 8).

7) On Prelude, connect fused jumper wire between positive battery terminal and Red wire on EGR solenoid valve connector. Observe voltmeter while connecting jumper wire between Black/Yellow wire on EGR solenoid valve connector and negative battery terminal.

8) On all models, gauge should indicate about 8 in. Hg within one second. If gauge indicates as specified, go to next step. If gauge does not indicate as specified, go to step 14).

9) Turn ignition off. Reconnect vehicle harness. Unplug 3-pin connector from EGR valve lift sensor, located on EGR valve. Turn ignition on. On Accord, measure voltage between Yellow/White and Green/White wires on harness connector; on Prelude, measure voltage between Red/White and Green/White wires on harness connector. If voltage is about 5 volts, go to step 10). If voltage is not about 5 volts, go to step 16).

10) Turn ignition off. Reconnect wiring to valve lift sensor. Connect test harness. See Fig. 4. Turn ignition on. Measure and record voltage between terminals D12 and D22 with no vacuum applied to EGR valve. Apply 8 in. Hg vacuum to EGR valve. Voltage should be about 1.2 volts with no vacuum applied and 4.3 volts with vacuum applied. If voltage is not as specified, go to step 11). If voltage is as specified, go to step 12).

11) Check for open or short circuit in White/Black wire between EGR valve and ECM terminal D12. If wire is okay, replace EGR valve.

12) Observe voltmeter as vacuum is applied and released. If voltage increases and decreases smoothly, go to next step. If voltage does not change smoothly, replace EGR valve.

13) Reconnect hose to EGR valve. Start and idle engine. Connect jumper between terminals A11 and A26. If engine stalls or runs roughly, replace ECM and retest system. If engine does not stall or runs roughly, replace EGR control solenoid valve. ECM terminal A11 and EGR control solenoid valve.

14) Turn ignition off. Inspect hoses No. 16 and 24 for leaks, restrictions and misrouting. If hoses are okay, go to next step. Make any repairs as necessary.

15) Disconnect lower hose from EGR control solenoid. Connect vacuum pump/gauge to hose. Start and idle engine. If 6-10 in. Hg vacuum exists, replace EGR solenoid valve. If vacuum is not 6-10 in. Hg, replace EGR valve.

16) Measure voltage at Yellow/White (Accord) or Red/White (Prelude) wire. If voltage is not about 5 volts, go to step 17). If voltage is about 5 volts, repair open in wire between EGR valve and ECM terminal D22.

17) Turn ignition off. Connect test harness connector "D" to ECM only, not to vehicle harness. Turn ignition on. Measure voltage between terminals D20 and D22. If voltage is about 5 volts, repair open in Yellow/White (Accord) or Red/White (Prelude) wire between EGR lift sensor and ECM terminal D20. If voltage is not about 5 volts, replace ECM and retest system.

Civic (D15Z1)

1) Start and idle engine. Disconnect vacuum hose from EGR valve, located to rear of distributor. Connect vacuum pump/gauge to hose. If vacuum exists, go to next step. If vacuum does not exist, go to step 4).

2) Unplug 2-pin connector from control box. Control box is located at top center of firewall. If vacuum no longer exists, go to next step. If vacuum still exists, check EGR system vacuum hose routing.

3) Turn ignition off. Unplug connector "A" from ECM. Check for a short in Pink/Green or Orange/Blue wire between EGR control solenoid valve and ECM terminal A11. If wire is okay, replace ECM and retest system.

4) Connect vacuum pump/gauge to EGR valve. Apply 8 in. Hg vacuum to EGR valve. If engine stalls or runs roughly, and EGR valve holds vacuum, go to next step. If engine operation remains same, or EGR valve does not hold vacuum, replace EGR valve.

5) Turn ignition off. Unplug 2-pin connector from control box, located at top center of firewall. Turn ignition on. Measure voltage between harness connector Black/Yellow wire and ground. If battery voltage exists, go to next step. If battery voltage does not exist, repair Black/Yellow wire between EGR control solenoid valve and fuse panel. EGR control solenoid valve is located in control box.

6) Reconnect vacuum pump/gauge to hose. Start and idle engine. Connect fused jumper wire between terminal "A" (Black/Yellow wire on mating harness connector) of control box connector and positive battery terminal. Observe vacuum gauge while connecting remaining control box terminal to ground.

7) If gauge indicates about 8 in. Hg with system component tests are next step. If gauge indication is not as specified, go to step 13).

8) Turn ignition off. Reconnect vehicle harness to control box. Unplug 3-pin connector from EGR valve. EGR valve is located behind distributor. Turn ignition on. Measure voltage between Yellow/White and Green/White wires at harness connector. If voltage is about 5 volts, go to next step. If voltage is not about 5 volts, go to step 15).

9) Turn ignition off. Reconnect vehicle harness to EGR valve. Connect test harness. See Fig. 4. Turn ignition on. Measure and record voltage between terminals D12 and D22 with no vacuum applied to EGR valve. Apply 8 in. Hg vacuum to EGR valve. Voltage should be about 1.2 volts with no vacuum applied and 4.3 volts with vacuum applied. If voltage is not as specified, go to step 10). If voltage is as specified, go to step 11).

10) Check for open or short circuit in White/Black wire between EGR valve and ECM terminal D12. If wire is okay, replace EGR valve.

11) Observe voltmeter as vacuum is applied and released. If voltage increases and decreases smoothly, go to next step. If voltage change is not as specified, replace EGR valve.

12) Reconnect hose to EGR valve. Start and idle engine. Connect jumper between terminals A11 and A26. If engine stalls or runs roughly, replace ECM and retest system. If engine does not stall or run roughly, repair open in Pink/Green or Orange/Blue wire between ECM terminal A11 and EGR control solenoid valve.

13) Turn ignition off. Check vacuum hoses for leaks, restrictions and misrouting. If hoses are okay, go to next step. Repair as necessary.

14) Disconnect lower hose from EGR control solenoid valve. EGR control solenoid valve is located in control box, at top center of firewall. Connect vacuum gauge/pump to hose. Start and idle engine. If gauge indicates 6-10 in. Hg vacuum, replace EGR control solenoid valve. If vacuum is not as specified, replace EGR vacuum control valve, located in control box.

15) Measure voltage between Yellow/White wire and body ground. If voltage is not about 5 volts, go to next step. If voltage is about 5 volts, repair open in Green/White wire between ECM terminal D22 and EGR valve.

16) Turn ignition off. Connect test harness. See Fig. 4. Turn ignition on. Measure voltage between terminals D20 and D22. If voltage is about 5 volts, repair open in Yellow/White wire between EGR valve and ECM terminal D20. If voltage is not about 5 volts, replace ECM and retest system.

FUEL EVAPORATION

EVAP Purge Control Solenoid Valve

1) Disconnect vacuum hose from EVAP purge control diaphragm valve, located on charcoal canister. Connect vacuum gauge to hose.]- SYSTEM/

Start and idle engine. Engine coolant temperature must be below 160°F (75°C) on all engines except D15Z1. On D15Z1, temperature must be below 158°F (70°C).

2) If vacuum does not exist, go to step 4). If vacuum exists, unplug connector at EVAP purge control solenoid valve. See EVAP PURGE CONTROL SOLENOID LOCATION table. Measure voltage between specified wires. See EVAP PURGE CONTROL SOLENOID CONNECTOR IDENTIFICATION table.

EVAP PURGE CONTROL SOLENOID LOCATION IDENTIFICATION TABLE

Application	Location
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Accord	In Control Box On Firewall
Civic & Civic Del Sol	Left Of IAC Valve
Prelude	Near Throttle Position Sensor

EVAP PURGE CONTROL SOLENOID CONNECTOR IDENTIFICATION

Application	Positive Terminal Wire Color	Negative Terminal Wire Color
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Accord & Prelude

(4-Pin Connector)	Black/Yellow	Red/Green
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Civic & Civic Del Sol	Yellow/Black	Red
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3) If battery voltage exists, inspect vacuum hose for leaks, blockage and incorrect routing. If hose is okay, replace EVAP purge control solenoid valve. If voltage does not exist, measure voltage between positive terminal and chassis ground. If battery voltage does not exist, repair open circuit in appropriate positive wire. If voltage exists, check for open circuit between negative terminal and ECM. If wire is okay, replace ECM.

4) Warm engine to full operating temperature (cooling fan comes on). Turn off and restart engine. If vacuum now exists, go to CHARCOAL CANISTER. If vacuum does not exist, unplug connector at EVAP purge control solenoid valve.

5) If vacuum now exists, check for short circuit in negative wire between harness connector and ECM. If wire is okay, substitute known good ECM. Retest system. If system now operates properly, replace ECM. If vacuum still does not exist, check vacuum hose for leaks, blockage and improper routing. If hose is okay, replace EVAP purge control solenoid valve.

Charcoal Canister

Connect vacuum gauge to canister purge air hose, located at ~~1-5~~ SYSTEM/C

bottom of canister. See Fig. 12. Start engine. Increase engine speed to 3500 RPM. Vacuum should register on gauge within one minute. If results are not as specified, inspect purge hose for blockage. If hose is okay, replace charcoal canister.

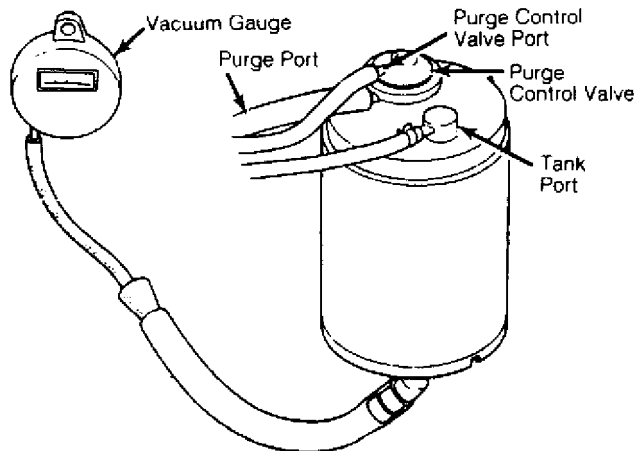


Fig. 12: Testing Charcoal Canister & Purge Control Valve
Courtesy of American Honda Motor Co., Inc.

2-Way Valve

1) Remove fuel filler cap. Disconnect vapor hose from fuel tank side of 2-way valve, located in fuel tank area. Install "T" fitting into hose. Connect vacuum gauge and vacuum pump to "T" fitting.

2) Slowly apply vacuum while observing vacuum gauge. Vacuum should stabilize momentarily at 0.2-0.6 in. Hg. If vacuum is as specified, go to next step. If vacuum is not as specified, replace 2-way valve. Retest system.

3) Move vacuum hose from vacuum to pressure fitting side of vacuum pump. Slowly pressurize vapor line while observing gauge. If pressure stabilizes at 0.4-1.4 in. Hg, valve is okay. If pressure stabilizes at less than 0.4 in. Hg or greater than 1.4 in. Hg, replace valve and retest.

POSITIVE CRANKCASE VENTILATION (PCV)

Inspect crankcase ventilation hoses and connections for leaks and clogging. Start engine. With engine at idle, pinch and release PCV hose. Valve should click. If valve does not click, check for vacuum at PCV valve end of hose. If manifold vacuum exists, replace PCV valve and recheck. If vacuum does not exist, clear blockage in hose.

END OF ARTICLE