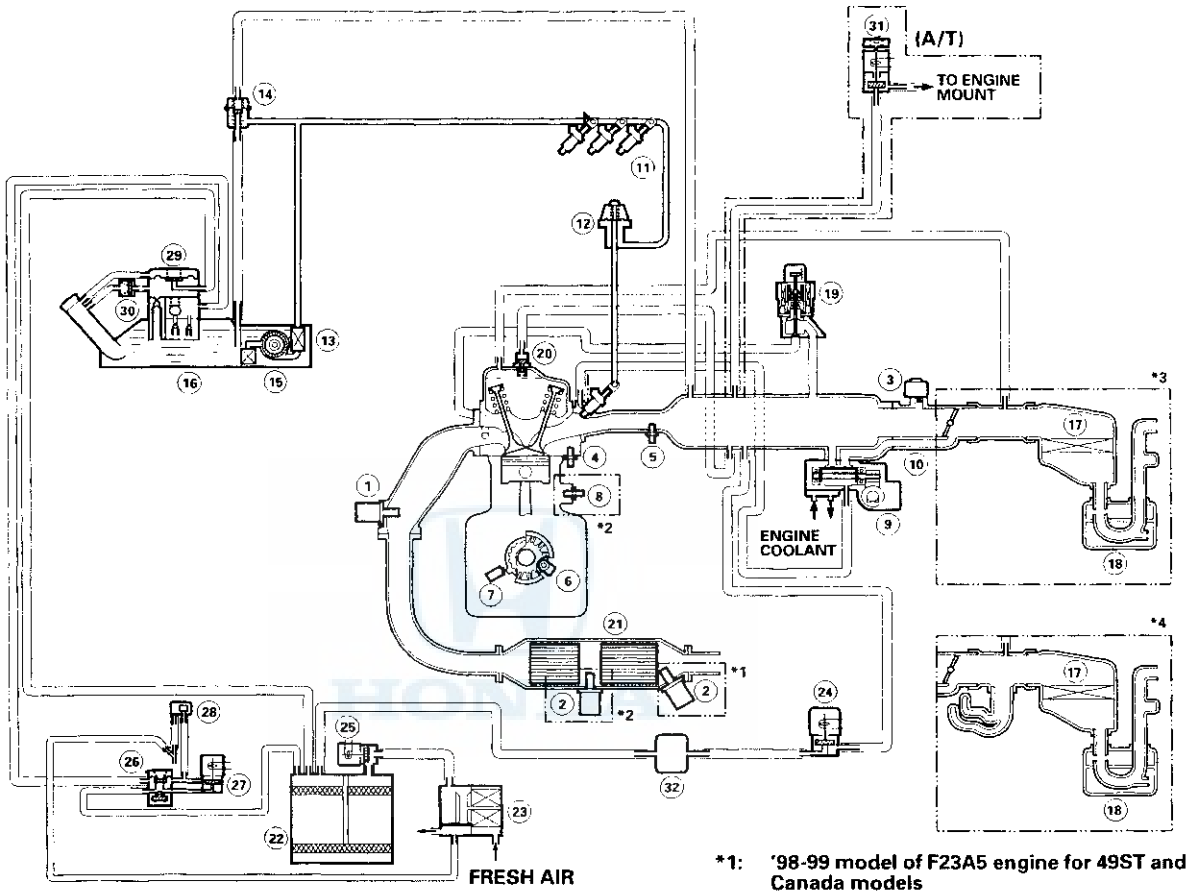
DTC (MIL indication *)	Temporary DTC	Detection Item	Note
P0325 (23)	———	Knock Sensor (KS) Circuit Malfunction	(see page 11-72)
P0335 (4)	———	Crankshaft Position (CKP) Sensor Circuit No signal	(see page 11-73)
P0336 (4)	———	Crankshaft Position (CKP) Sensor Intermittent Interruption	(see page 11-73)
P0401 (80)	P0401	Exhaust Gas Recirculation (EGR) Insufficient Flow	(see page 11-138)
P0420 (67)	———	Catalyst System Efficiency Below Threshold	(see page 11-137)
P0451*[6] (91)	P0451	Fuel Tank Pressure (FTP) Sensor Range/Performance Problem	(see page 11-145)
P0452 (91)	P0450	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	(see page 11-146)
P0453 (91)	P0450	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	(see page 11-147)
P0500*[1] (17)	———	Vehicle Speed Sensor (VSS) Circuit Malfunction	(see page 11-75)
P0505 (14)	P0505	Idle Control System Malfunction	(see page 11-101)
P0560*[3] (34)	———	ECM/PCM Back up Circuit Low Voltage	(see page 11-76)
P07xx*[2,**] (70)	———	Automatic Transaxle	Refer to the Automatic Transmission DTC Troubleshooting Index
P1106 (13)	P1106	Barometric Pressure (BARO) Sensor Range/ Performance Problem	(see page 11-77)
P1107 (13)	———	Barometric Pressure (BARO) Sensor Circuit Low Voltage	(see page 11-77)
P1108 (13)	———	Barometric Pressure (BARO) Sensor Circuit High Voltage	(see page 11-77)
P1121 (7)	P1121	Throttle Position (TP) Sensor Lower Than Expected	(see page 11-56)
P1122 (7)	P1122	Throttle Position (TP) Sensor Higher Than Expected	(see page 11-56)
P1128 (5)	P1128	Manifold Absolute Pressure (MAP) Sensor Lower Than Expected	(see page 11-49)
P1129 (5)	P1129	Manifold Absolute Pressure (MAP) Sensor Higher Than Expected	(see page 11-49)
P1149*[8] (61)	P1149*[3]	Air Fuel Ratio (A/F) Sensor (Sensor 1) Range/ Performance Problem	(see page 11-78)
P1162*[3] (48)	———	Air Fuel Ratio (A/F) Sensor (Sensor 1) Circuit Malfunction	(see page 11-79)
P1163*[3] (61)	P1163*[3]	Air Fuel Ratio (A/F) Sensor (Sensor 1) Slow Response	(see page 11-61)
P1164*[3] (61)	P1164*[3]	Air Fuel Ratio (A/F) Sensor (Sensor 1) Range/ Performance Problem	(see page 11-80)
P1165*[8] (61)	P1165*[3]	Air Fuel Ratio (A/F) Sensor (Sensor 1) Range/ Performance Problem	(see page 11-78)
P1166*[3] (41)	———	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater Circuit Malfunction	(see page 11-81)
P1167*[3] (41)	———	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater System Malfunction	(see page 11-83)

*: These DTCs are indicated by a blinking Malfunction Indicator Lamp (MIL) when the SCS service signal line is jumped with the Honda PGM Tester.
**: The D4 indicator light and the MIL may come on simultaneously.
*1: M/T
*2: A/T
*3: F23A4 engine
*4: F23A1 engine
*5: F23A1, F23A5 engine
*6: '00 model
*7: '01-02 models
*8: F23A4 ULEV engine

(cont'd)

Vacuum Distribution



*1: '98-99 model of F23A5 engine for 49ST and Canada models
*2: F23A4, F23A1 engine
*3: '98-01 models
*4: '02 model

① AIR FUEL (A/F) SENSOR OR PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) (SENSOR 1)
② SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
④ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
⑤ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑥ CRANKSHAFT POSITION (CKP) SENSOR
⑦ TOP DEAD CENTER (TDC) SENSOR
⑧ KNOCK SENSOR (KS)
⑨ IDLE AIR CONTROL (IAC) VALVE
⑩ THROTTLE BODY
⑪ INJECTOR
⑫ FUEL PULSATION DAMPER
⑬ FUEL FILTER
⑭ FUEL PRESSURE REGULATOR
⑮ FUEL PUMP
⑯ FUEL TANK
⑰ AIR CLEANER
⑱ RESONATOR
⑲ EXHAUST GAS RECIRCULATION (EGR) VALVE and POSITION SENSOR
⑳ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
㉑ THREE WAY CATALYTIC CONVERTER
㉒ EVAPORATIVE EMISSION (EVAP) CANISTER
㉓ EVAPORATIVE EMISSION (EVAP) CANISTER FILTER
㉔ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉕ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉖ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
㉗ EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
㉘ FUEL TANK PRESSURE (FTP) SENSOR
㉙ FUEL TANK VAPOR CONTROL VALVE
㉚ FUEL TANK VAPOR RECIRCULATION VALVE
㉛ ENGINE MOUNT CONTROL SOLENOID VALVE
㉜ PURGE JOINT

(cont'd)

System Descriptions (cont'd)

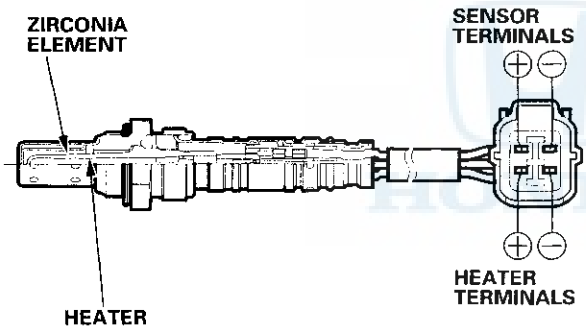
PGM-FI System

The Programmed Fuel Injection (PGM-FI) system is a sequential multiport fuel injection system.

Air conditioning (A/C) Switch
The A/C (air conditioning) switch signals the ECM/PCM whenever there is a demand for cooling.

A/C Compressor Clutch Relay
When the ECM/PCM receives a demand for cooling from the A/C system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

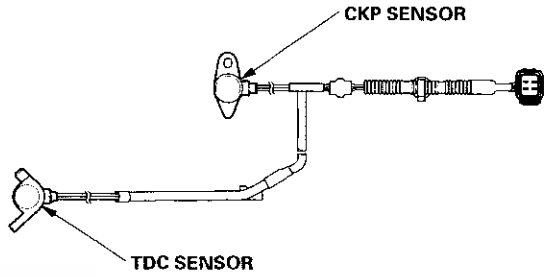
Air Fuel Ratio (A/F) Sensor (F23A4 engine)
The A/F Sensor operates over a wide air/fuel range. The A/F Sensor is installed in the exhaust manifold.



Alternator Control
The alternator signals the ECM/PCM during charging. The ECM/PCM then controls the voltage generated at the alternator according to the electrical load determined by the ELD (Electrical Load Detector) and driving mode. This reduces engine load to improve fuel economy.

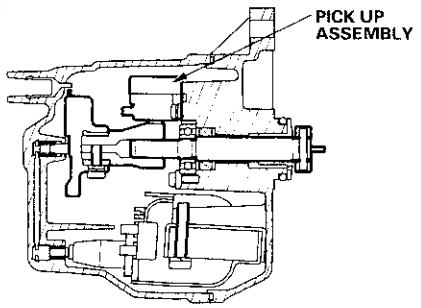
Barometric Pressure (BARO) Sensor
The barometric pressure sensor is inside the ECM/PCM. It converts atmospheric pressure into a voltage signal that modifies the basic duration of the fuel injection discharge.

Crankshaft Position (CKP) and Top Dead Center (TDC) Sensors
The CKP sensor determines fuel injection timing and ignition timing for each cylinder, and also detects engine speed. The TDC sensor determines ignition timing at start-up and when crankshaft position signal is abnormal.

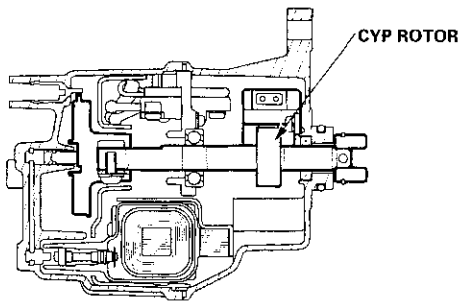


Cylinder Position (CYP) Sensor
The CYP sensor inside the distributor detects the position of the No. 1 cylinder as a reference for sequential fuel injection to each cylinder.

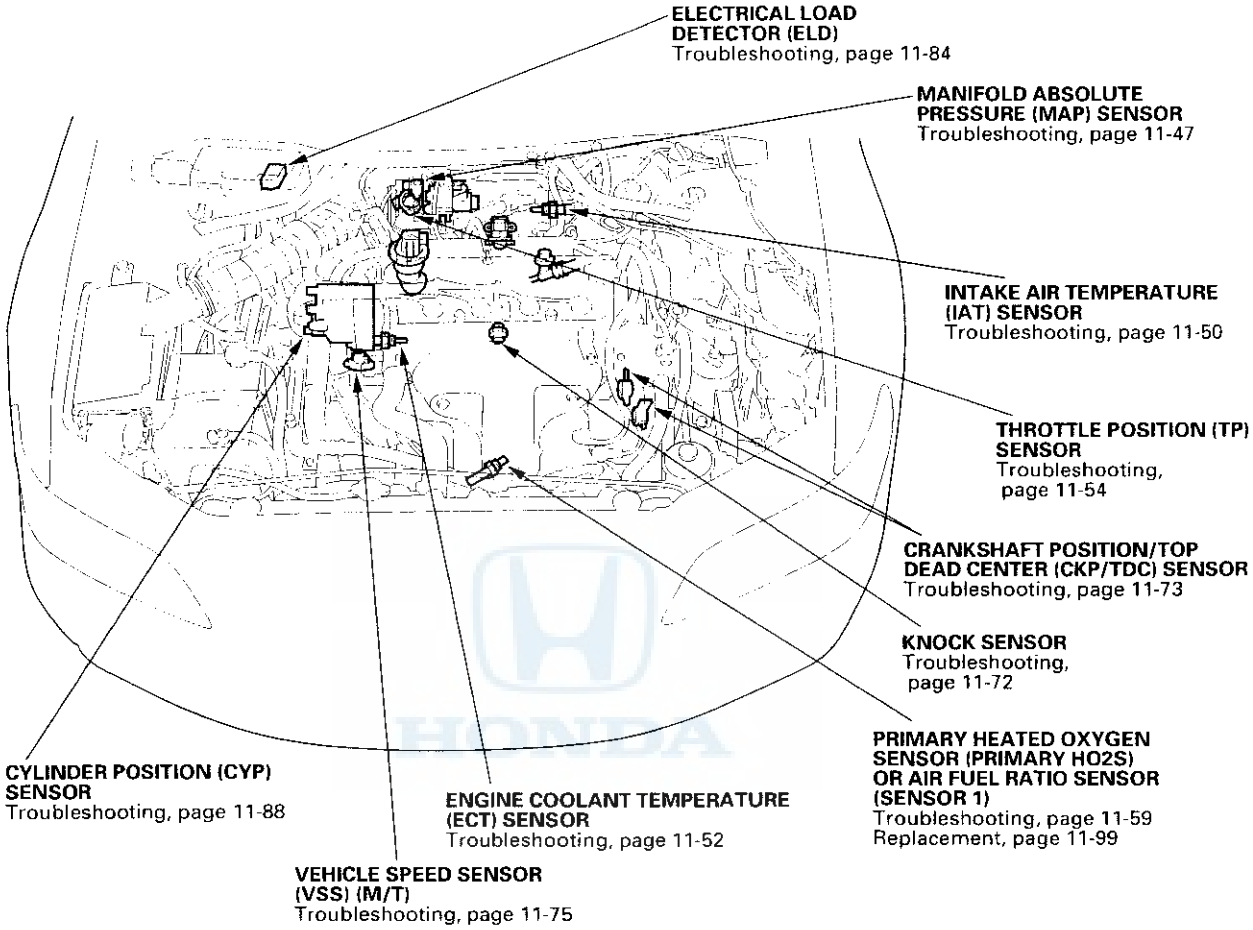
F23A1, F23A4 engine:

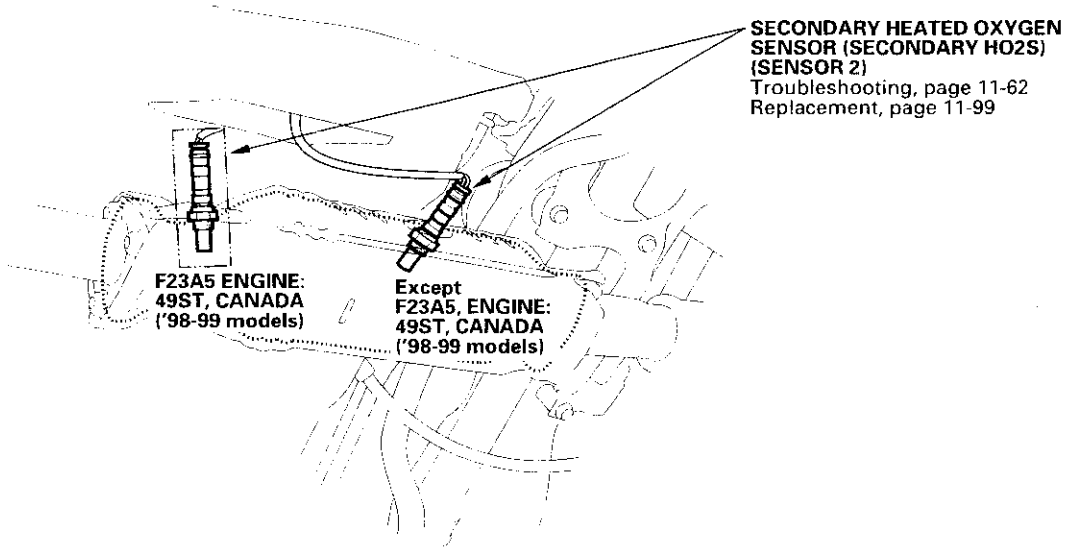


F23A5 engine:



Component Location Index





(cont'd)

DTC P1166: A/F Sensor (Sensor 1) Heater Circuit Malfunction

1. Reset the ECM/PCM (see page 11-4).
2. Start the engine.

   Is DTC P1166 indicated?

   YES – Go to step 3.

   NO – Intermittent failure, system is OK at this time. Check for poor connections or loose wires at C102 (located under the under-hood fuse/relay box), A/F Sensor relay, the A/F Sensor (Sensor 1) and the ECM/PCM. ■

3. Check the following fuses:

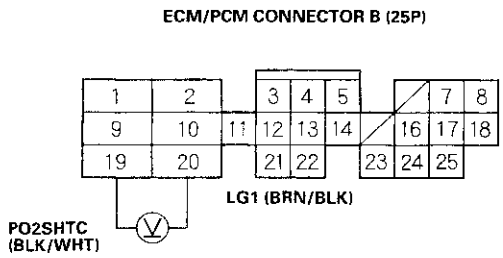
   - POWER SEAT (20A) fuse in the under-hood fuse/relay box.
   - No. 4 ECU (ECM/PCM) CRUISE CONTROL (15A) fuse in the driver's under-dash fuse/relay box.
   - No. 6 LAF HEATER (20A) in the passenger's under-dash fuse/relay box.

   Are any of the fuses blown?

   YES – Repair short in the wire between the A/F Sensor relay and the fuses. ■

   NO – Go to step 4.

4. Measure voltage between ECM/PCM connector terminals B19 and B20, 30 seconds after the ignition switch is turned ON (II).



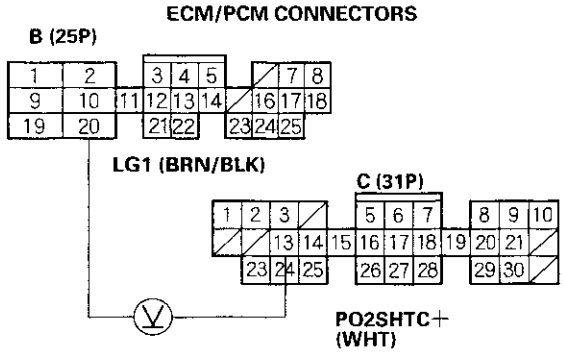
Wire side of female terminals

Is there battery voltage?

YES – Substitute a known-good ECM/PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original ECM/PCM. ■

NO – Go to step 5.

5. Measure voltage between ECM/PCM connector terminals C13 and B20.



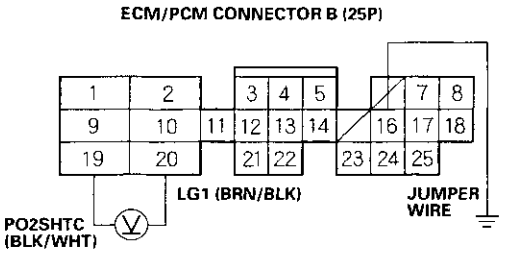
Wire side of female terminals

Is there battery voltage?

YES – Go to step 6.

NO – Go to step 10.

6. Turn the ignition switch OFF.
7. Disconnect ECM/PCM connector B (25P).
8. Turn the ignition switch ON (II).
9. Connect ECM/PCM connector terminal B16 to body ground with a jumper wire, then measure voltage between ECM/PCM connector terminals B19 and B20.



Wire side of female terminals

Is there battery voltage?

YES – Substitute a known-good ECM/PCM and recheck (see page 11-5). If the symptom/indication goes away, replace the original ECM/PCM. ■

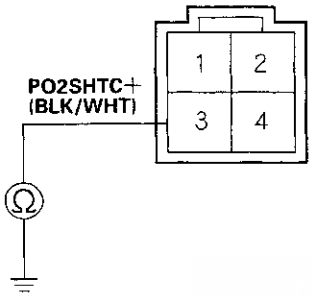
NO Repair open or short in the wire between A/F Sensor (Sensor 1) and ECM/PCM (B19). ■

(cont'd)

DTC Troubleshooting (cont'd)

10. Turn the ignition switch OFF.
11. Disconnect ECM/PCM connector B (25P) and the A/F Sensor (Sensor 1) 4P connector.
12. Check for continuity between A/F Sensor (Sensor 1) 4P connector terminal No. 3 and body ground.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Terminal side of male terminals

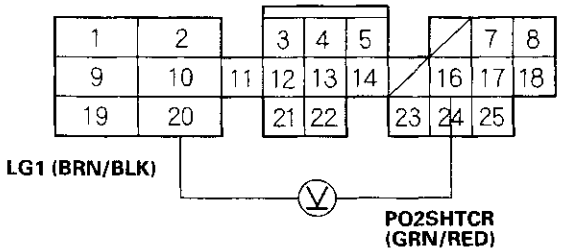
Is there continuity?

YES – Repair short in the wire between the A/F Sensor (Sensor 1) and ECM/PCM (B19). ■

NO – Go to step 13.

13. Turn the ignition switch ON (II).
14. Measure voltage between ECM/PCM connector terminals B16 and B20

ECM/PCM CONNECTOR B (25P)



Wire side of female terminals

Is there battery voltage?

YES – Repair open in the wire between the ECM/PCM (C13) and the A/F Sensor (Sensor 1) or Secondary HO2S (Sensor 2). ■

NO – Go to step 15.

15. Check for continuity in the wires between A/F Sensor and the fuses.

Is there continuity?

YES – The wires are OK. Replace the A/F Sensor relay. ■

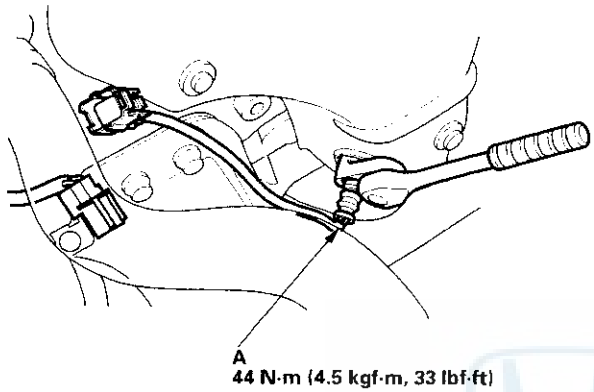
NO – Repair open in the wire between the A/F Sensor relay and the fuses. ■

Primary HO2S and A/F Sensor Replacement

Special Tools Required

O2 sensor wrench SNAP-ON YA8875 or SP Tools 93750 or equivalent, commercially available

1. Disconnect the primary HO2S or A/F Sensor 4P connector, then remove the primary HO2S or A/F Sensor (A).



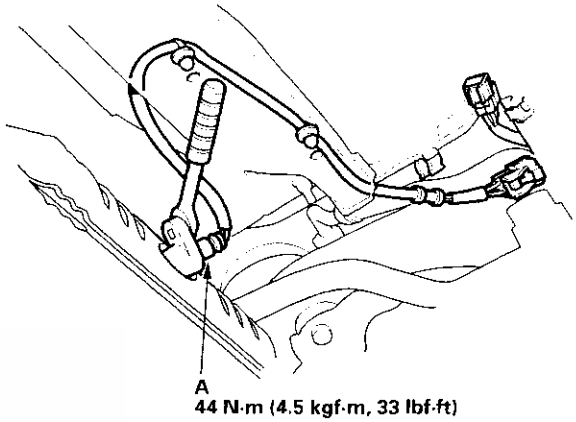
2. Install the primary HO2S or A/F Sensor in the reverse order of removal.

Secondary HO2S Replacement

Special Tools Required

O2 sensor wrench SNAP-ON YA8875 or SP Tools 93750 or equivalent, commercially available

1. Disconnect the secondary HO2S 4P connector, then remove the secondary HO2S (A).



2. Install the secondary HO2S in the reverse order of removal.

General Troubleshooting Information

Intermittent Failures

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the Malfunction Indicator Lamp (MIL) on the dash does not come on, check for poor connections or loose wires at all connectors related to the circuit that you are troubleshooting.

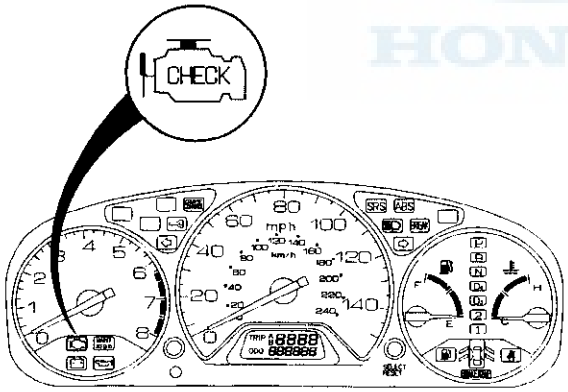
Opens and Shorts

"Open" and "Short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics such as ECMs/PCMs, this can sometimes mean something works, but not the way it's supposed to.

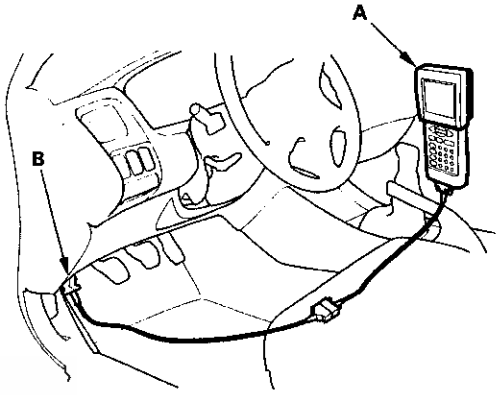
How to Use the PGM Tester or a Scan Tool

If the MIL (Malfunction Indicator Lamp) has come on

1. Start the engine and check the MIL.



2. If the MIL stays on, connect the Honda PGM Tester (A) or an OBDII scan tool to the Data Link Connector (DLC) (B) located under the driver's side of the dashboard.



3. Turn the ignition switch ON (II).

4. Check the Diagnostic Trouble Code (DTC) and note it. Then also check the freeze data. Refer to the DTC Troubleshooting Index and begin the appropriate troubleshooting procedure.

   NOTE:
   - Freeze data indicates the engine conditions when the first malfunction, misfire, or fuel trim malfunction was detected.
   - The scan tool and the Honda PGM tester can read the DTC, freeze data, current data, and other Engine Control Module (ECM)/Powertrain Control Module (PCM) data.
   - For specific operations, refer to the user's manual that came with the scan tool or PGM Tester.

If the MIL did not come on

If the MIL did not come on but there is a driveablility problem, refer to the Symptom Troubleshooting index in this section.

If you can't duplicate the DTC

Some of the troubleshooting in this section requires you to reset the ECM/PCM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the code, do not continue through the procedure. To do so will only result in confusion and, possibly, a needlessly replaced ECM/PCM.

(cont'd)

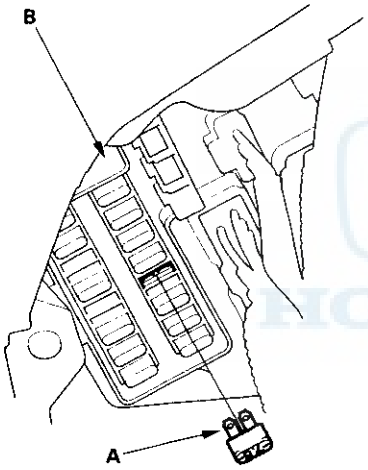
General Troubleshooting Information (cont'd)

How to Reset the ECM/PCM

You can reset the ECM/PCM in either of two ways:

- Use the OBD II scan tool or Honda PGM Tester to clear the ECM/PCM memory.
  See the OBD II scan tool or Honda PGM Tester user's manuals for specific instructions.
- Turn the ignition switch OFF, and remove the No.13 CLOCK BACKUP fuse (7.5A) (A) from the passenger's under-dash fuse/relay box (B) for 10 seconds.

  NOTE: If the No. 13 CLOCK BACK UP (7.5A) fuse is removed and engine is started, the MIL will come on and the PCM will store DTC P0560 (F23A4 engine).



How to End a Troubleshooting Session (required after any troubleshooting)

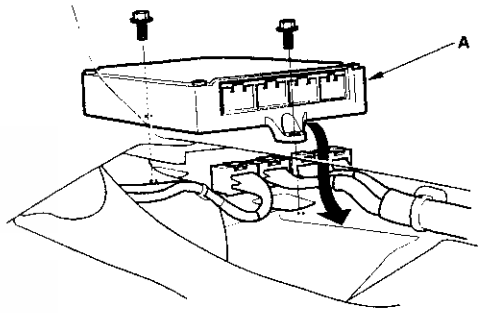
1. Reset the ECM/PCM as described above.
2. Turn the ignition switch OFF.
3. Disconnect the OBD II scan tool or Honda PGM Tester from the DLC.

   NOTE: The ECM/PCM is part of the immobilizer system. If you replace the ECM/PCM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the Honda PGM Tester.

How to Remove the ECM/PCM for Testing

If the inspection for a trouble code requires voltage or resistance checks at the ECM/PCM connectors, remove the ECM/PCM and test it:

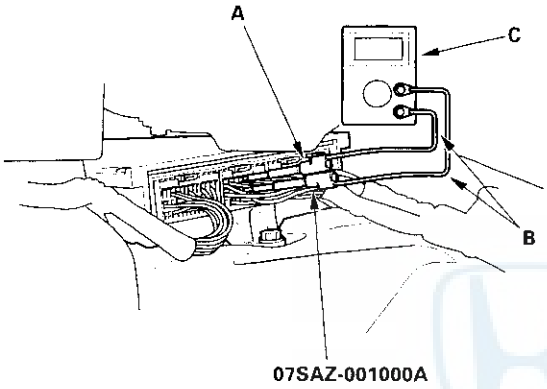
1. Pull back the carpet from the passenger's and driver's side of the center console to expose the ECM/PCM.
2. Remove the two bolts (4 cylinder model), or three bolts (V6 model) from the ECM/PCM (A).



How to Troubleshoot Circuits at the ECM/PCM

Special Tools Required
- Digital Multimeter KS-AHM-32-003 (1) or a commercially available digital multimeter
- Backprobe Set 07SAZ-001000A (2)

1. Connect the backprobe adapters (A) to the stacking patch cords (B), and connect the cords to a multimeter (C).

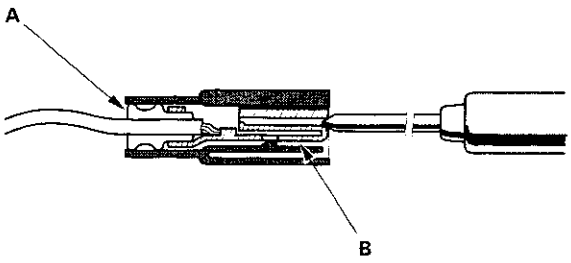


2. Using the wire insulation as a guide for the contoured tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it touches the end of the wire terminal.

3. If you cannot get to the wire side of the connector or the wire side is sealed (A), disconnect the connector and probe the terminals (B) from the terminal side. Do not force the probe into the connector.

NOTICE

Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.



How to substitute the ECM/PCM for testing purposes

Use this procedure if you need a known-good ECM/PCM to test a vehicle. It allows you to swap an ECM/PCM from a "donor" vehicle without having to program it to the test vehicle's ignition key.

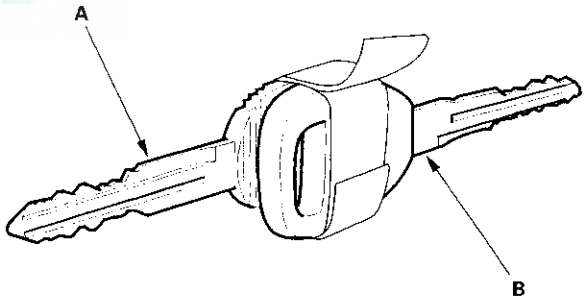
1. Cut a temporary ignition key for the test vehicle with a non-immobilizer key blank.

2. Remove the ECM/PCM from the test vehicle.

3. Write the test vehicle's VIN on the ECM/PCM you just removed to avoid confusing it with the donor vehicle's ECM/PCM.

4. Remove the known-good ECM/PCM from the donor vehicle, and install it in the test vehicle.

5. Tape the donor vehicle's ignition key head-to-head to the test vehicle's temporary key (A). The ECM/PCM will recognize the code from the donor vehicle's key (B) and allow you to start the engine with the temporary key.



6. After completing your tests, reinstall both ECMs/PCMs, and destroy the temporary key.