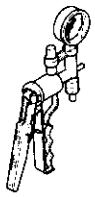
Fuel and Emissions

Special Tools

Ref. No.	Tool Number	Description	Qty
①	A973X-041-XXXXX	Vacuum Pump/Gauge, 0—30 in.Hg	1
②	07JAZ-001000B	Vacuum/Pressure Gauge, 0—4 in.Hg	1
③	07SAZ-001000A	Backprobe Set	2
④	07VAJ-0040100	Fuel Pressure Gauge Adapter	1
⑤	07NAJ-P07010A	Pressure Gauge Adapter	1
⑥	07XAA-001010A	Fuel Sender Wrench	1
⑦	07ZAJ-S5AA200	Hose, Oil Pressure	1
⑧-1	07406-0020201	A/T Pressure Hose	1
⑧-2	07406-0070300	A/T Low Pressure Gauge W/Panel	1
⑧-3	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	1
⑧-4	07MAJ-PY40120	A/T Pressure Hose Adapter	1
⑨	07406-004000A	Fuel Pressure Gauge	1
⑩	07ZAJ-S5A0100	Fuel Pressure Gauge Set	1



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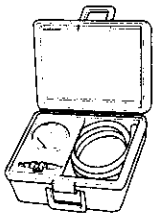

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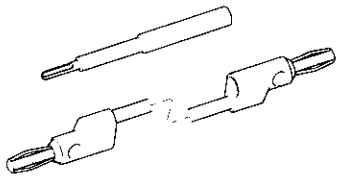

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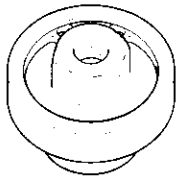

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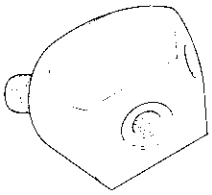

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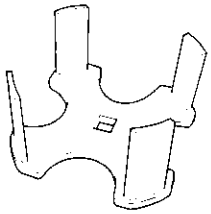

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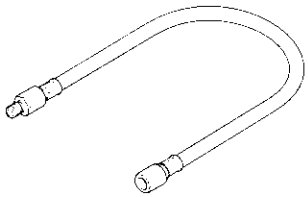

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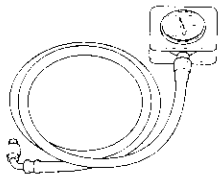

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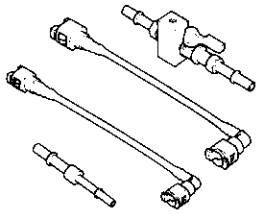
⑨



⑩

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 terminals at all connectors related to the circuit that you are troubleshooting.

Opens and Shorts

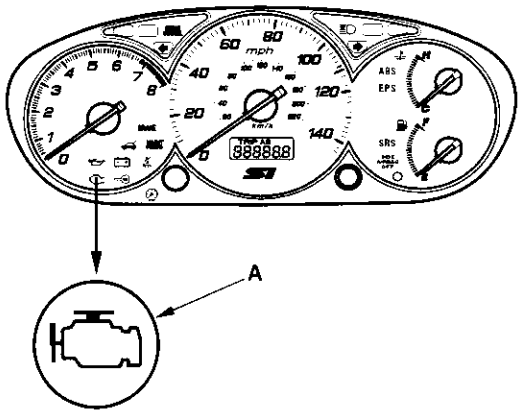
"Open" and "Short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as ECMs) this can sometimes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

How to Use the PGM Tester or a Scan Tool

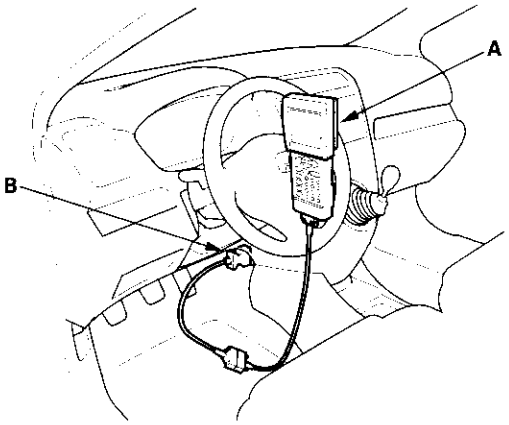
If the MIL (Malfunction Indicator Lamp) has come on

1. Start the engine and check the MIL (A).

   NOTE: If the ignition switch is turned ON (II), and the engine is not started, the MIL will stay on for 15—20 seconds (see page 11-46).



2. If the MIL stays on, connect the Honda PGM Tester (A) or an OBD II 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. Also check the freeze data. Refer to the DTC Troubleshooting Index, and begin the appropriate troubleshooting procedure.

5. If you do not find any DTCs, go to MIL circuit troubleshooting (see page 11-97).

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) data.
- For specific operations, refer to the user's manual that came with the scan tool or Honda PGM Tester.

If the MIL did not stay
If the MIL did not come on but there is a driveability 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 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.

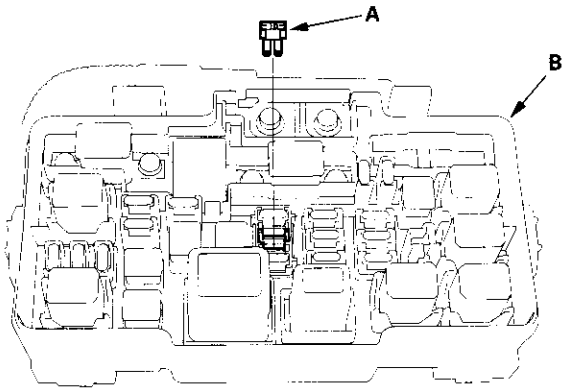
(cont'd)

General Troubleshooting Information (cont'd)

How to Reset the ECM

You can reset the ECM in either of two ways:

- Use the OBD II scan tool or Honda PGM Tester to reset the ECM 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. 6 ECU (ECM) (15A) fuse (A) from the under-hood fuse/relay box (B) for 10 seconds.



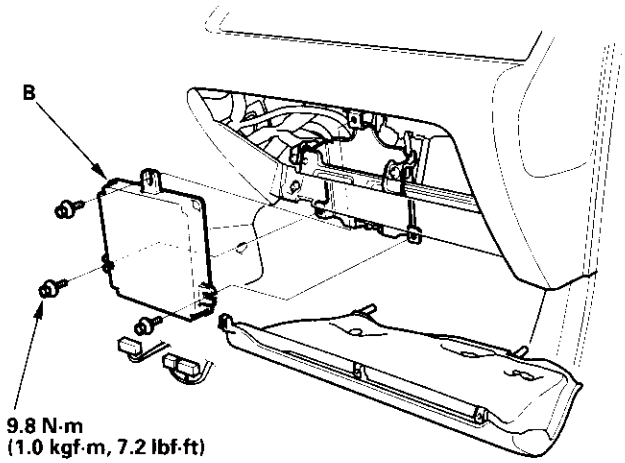
How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the ECM as described above.
2. Do the ECM idle learn procedure (see page 11-139)
3. Turn the ignition switch OFF.
4. Disconnect the OBD II scan tool or Honda PGM Tester from the DLC.

   NOTE: The ECM is part of the immobilizer system. If you replace the ECM, 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 for Testing

1. Remove the passenger's dashboard lower cover (see page 20-63), the passenger's kick panel (see page 20-63), and the glove box (see page 20-63).
2. Remove the ECM mounting bolts (B) and the ECM (C).



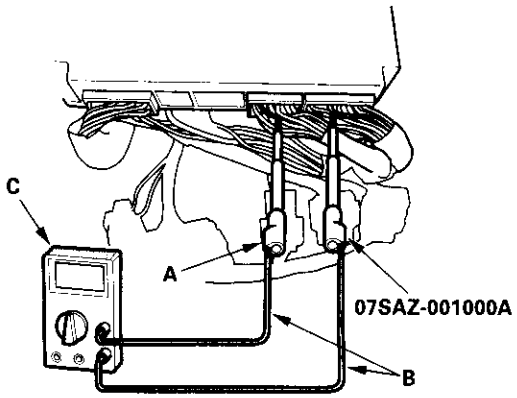
3. Remove the ECM (B).
4. Install the ECM in the reverse order of removal.

How to Troubleshoot Circuits at the ECM

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 digital multimeter (C).

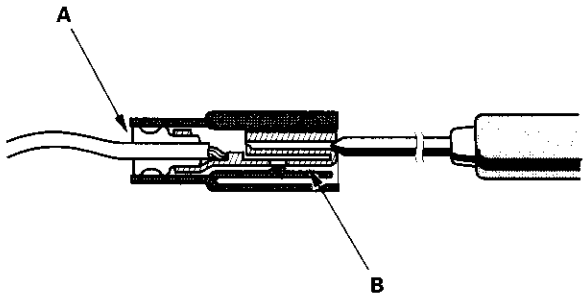


2. Using the wire insulation as a guide for the contoured tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it touches the end of the wire terminal.

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.



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General Troubleshooting Information (cont'd)

ECM Updating and Substitution for Testing

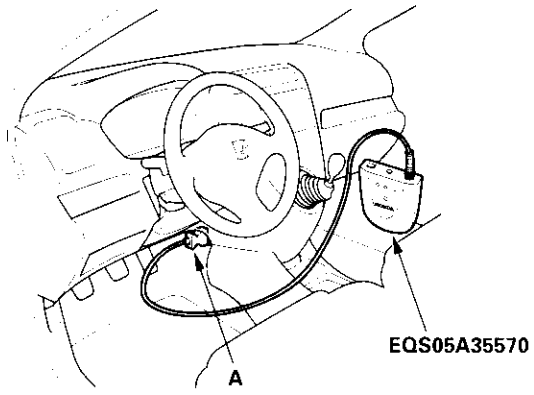
Special Tools Required
Honda Interface Module (HIM) EQS05A35570

Use this procedure when you have to substitute a known-good ECM in a troubleshooting procedure. Update the ECM only if the ECM does not already have the latest software loaded.

NOTE:
- Make sure the battery is fully charged before you update the ECM.
- To prevent ECM damage during the update, do not turn the ignition switch OFF, and do not use any of the vehicle's electrical devices (light, horn, radio, etc.).

How to Update the ECM

1. Turn the ignition switch ON (II). Do not start the engine.
2. Connect the Honda Interface Module (HIM) to the Data Link Connector (DLC) (A) located under the driver's side of dashboard.



3. Do the ECM update procedure as described on the HIM label and in the ECM update system.

How to Substitute the ECM

1. Remove the ECM from the vehicle.
2. Install a known-good ECM in the vehicle.
3. Rewrite the immobilizer code with the ECM replacement procedure from the Honda PGM Tester. It allows you to start the engine.
4. After completing your tests, reinstall the original ECM and rewrite the immobilizer code with the ECM replacement procedure on the Honda PGM Tester again.

DTC Troubleshooting Index

DTC (MIL indication*)	Temporary DTC	Detection Item	Note
P0010 (56)	———	Variable Valve Timing Control (VTC) Oil Control Solenoid Valve Malfunction	(see page 11-118)
P0011 (56)	P0011	Variable Valve Timing Control (VTC) System Malfunction	(see page 11-119)
P0107 (3)	———	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage	(see page 11-52)
P0108 (3)	———	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage	(see page 11-53)
P0112 (10)		Intake Air Temperature (IAT) Sensor Circuit Low Voltage	(see page 11-55)
P0113 (10)	———	Intake Air Temperature (IAT) Sensor Circuit High Voltage	(see page 11-56)
P0116 (86)	P0116	Engine Coolant Temperature (ECT) Sensor Range/ Performance Problem	(see page 11-57)
P0117 (6)	———	Engine Coolant Temperature (ECT) Sensor Circuit Low Voltage	(see page 11-58)
P0118 (6)	———	Engine Coolant Temperature (ECT) Sensor Circuit High Voltage	(see page 11-59)
P0122 (7)	———	Throttle Position (TP) Sensor Circuit Low Voltage	(see page 11-60)
P0123 (7)	———	Throttle Position (TP) Sensor Circuit High Voltage	(see page 11-62)
P0128 (87)	P0128	Cooling System Malfunction	(see page 11-64)
P0134 (41)		Air Fuel Ratio (A/F) Sensor (Sensor 1) No Activity Detected	(see page 11-65)
P0137 (63)	P0137	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit Low Voltage	(see page 11-65)
P0138 (63)	P0138	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit High Voltage	(see page 11-66)
P0139 (63)	P0139	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Slow Response	(see page 11-67)
P0141 (65)	———	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Heater Circuit Malfunction	(see page 11-68)
P0171 (45)	P0171	Fuel System Too Lean	(see page 11-70)
P0172 (45)	P0172	Fuel System Too Rich	(see page 11-70)
P0300 and any of P0301 (71) P0302 (72) P0303 (73) P0304 (74)	P0300 and any of P0301 P0302 P0303 P0304	Random Misfire	(see page 11-71)
P0301 (71)	P0301	No. 1 Cylinder Misfire	(see page 11-72)
P0302 (72)	P0302	No. 2 Cylinder Misfire	(see page 11-72)
P0303 (73)	P0303	No. 3 Cylinder Misfire	(see page 11-72)
P0304 (74)	P0304	No. 4 Cylinder Misfire	(see page 11-72)

* : These DTCs are indicated by a blinking malfunction indicator lamp (MIL) when the SCS service signal line is jumped with the Honda PGM Tester.

(cont'd)

DTC Troubleshooting Index (cont'd)

DTC (MIL indication*)	Temporary DTC	Detection Item	Note
P0325 (23)		Knock Sensor Circuit Malfunction	(see page 11-77)
P0335 (4)		Crankshaft Position (CKP) Sensor No Signal	(see page 11-78)
P0336 (4)		Crankshaft Position (CKP) Sensor Intermittent Interruption	(see page 11-78)
P0340 (57)		Camshaft Position (CMP) Sensor A No Signal	(see page 11-121)
P0344 (57)		Camshaft Position (CMP) Sensor A Intermittent Interruption	(see page 11-121)
P0341 (57)		Variable Valve Timing Control (VTC) Phase Gap	(see page 11-122)
P0420 (67)	P0420	Catalyst System Efficiency Below Threshold	(see page 11-167)
P0451 (91)	P0451	Fuel Tank Pressure (FTP) Sensor Range/Performance Problem	(see page 11-171)
P0452 (91)	P0452	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	(see page 11-172)
P0453 (91)	P0453	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	(see page 11-173)
P0500 (17)		Vehicle Speed Sensor (VSS) Circuit Malfunction	(see page 11-80)
P0505 (14)	P0505	Idle Control System Malfunction	(see page 11-130)
P0563 (34)		Engine Control Module (ECM) Power Source Circuit Unexpected Voltage	(see page 11-81)
P0600 (39)		Serial Communication Link Malfunction	Refer to the Multiplex Control System Troubleshooting (see page 22-172).
P1106 (13)	P1106	Barometric Pressure (BARO) Sensor Range/ Performance Problem	(see page 11-83)
P1107 (13)		Barometric Pressure (BARO) Sensor Circuit Low Voltage	(see page 11-83)
P1108 (13)		Barometric Pressure (BARO) Sensor Circuit High Voltage	(see page 11-83)
P1121 (7)	P1121	Throttle Position (TP) Sensor Signal Lower Than Expected	(see page 11-63)
P1122 (7)	P1122	Throttle Position (TP) Sensor Signal Higher Than Expected	(see page 11-63)
P1128 (5)	P1128	Manifold Absolute Pressure (MAP) Sensor Signal Lower Than Expected	(see page 11-54)
P1129 (5)	P1129	Manifold Absolute Pressure (MAP) Sensor Signal Higher Than Expected	(see page 11-54)
P1157 (48)		Air Fuel Ratio (A/F) Sensor (Sensor 1) Range/ Rerformance Problem	(see page 11-84)
P1158 (48)		Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS − Terminal Low Voltage	(see page 11-85)
P1159 (48)		Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS + Terminal Low Voltage	(see page 11-86)
P1163 (61)	P1163	Air Fuel Ratio (A/F) Sensor (Sensor 1) Slow Response	(see page 11-88)
P1164 (61)	P1164	Air Fuel Ratio (A/F) Sensor (Sensor 1) Range/ Performance Problem	(see page 11-88)
P1166 (41)		Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater Circuit Malfunction	(see page 11-89)
P1167 (41)*1		Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater System Malfunction	(see page 11-91)

* : These DTCs are indicated by a blinking MIL when the SCS service signal line is jumped with the Honda PGM Tester.
* 1: '02 model

DTC (MIL indication*)	Temporary DTC	Detection Item	Page
P1259 (22)	———	VTEC System Malfunction	(see page 11-123)
P1297 (20)	———	Electrical Load Detector (ELD) Circuit Low Voltage	(see page 11-92)
P1298 (20)	———	Electrical Load Detector (ELD) Circuit High Voltage	(see page 11-93)
P1361 (8)	———	Camshaft Position (CMP) Sensor B (Top Dead Center (TDC) Sensor) Intermittent Signal Interruption	(see page 11-95)
P1362 (8)	———	Camshaft Position (CMP) Sensor B (Top Dead Center (TDC) Sensor) No Signal	(see page 11-95)
P1456 (90)	P1456	Evaporative Emissions (EVAP) Control System Leakage (Fuel Tank System)	(see page 11-175)
P1457 (90)	P1457	Evaporative Emissions (EVAP) Control System Leakage (EVAP Canister System)	(see page 11-180)
P1505 (109)	P1505	Positive Crankcase Ventilation (PCV) Air Leakage	(see page 11-168)
P1519 (14)	———	Idle Air Control (IAC) Valve Circuit Malfunction	(see page 11-131)
P1607 (—)	———	Engine Control Module (ECM) Internal Circuit Malfunction	(see page 11-96)

*: These DTCs are indicated by a blinking MIL when the SCS service signal line is jumped with the Honda PGM Tester.

Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check the diagnostic trouble code (DTC) with the scan tool. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-50). 2. Test the starter (see page 4-8). 3. Troubleshoot the fuel pump circuit (see page 11-141).	• Low compression • No ignition spark • Intake air leaks • Locked up engine • Broken timing chain • Contaminated fuel
Engine will not start (MIL comes on and stays on, or never comes on at all, no DTCs set)	Troubleshoot the MIL circuit (see page 11-97).	
Engine will not start (immobilizer indicator stays on or flashs)	Troubleshoot the immobilizer system (see page 22-165).	
Hard starting (MIL works OK, no DTCs set)	1. Test the battery (see page 22-50). 2. Check the fuel pressure (see page 11-145).	• Low compression • Intake air leaks • Contaminated fuel
Cold fast idle too low (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-139). 2. Check the idle speed (see page 11-138).	
Cold fast idle too high (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-139). 2. Check the idle speed (see page 11-138). 3. Inspect/adjust the throttle cable (see page 11-163). 4. Inspect and test the throttle body (see page 11-160).	
Idle speed fluctuates (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-139). 2. Check the idle speed (see page 11-138). 3. Inspect/adjust the throttle cable (see page 11-163). 4. Inspect and test the throttle body (see page 11-160)	Intake air leaks
After warming up, idle speed is below specifications with no load (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-139). 2. Troubleshoot the alternator FR signal circuit (see page 11-134). 3. Inspect and test the throttle body (see page 11-160).	Vacuum hose clogged/ cracked/poor connection
After warming up, idle speed is above specifications with no load (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-139). 2. Troubleshoot the alternator FR signal circuit (see page 11-134).	
Low power (MIL works OK, no DTCs set)	1. Check the fuel pressure (see page 11-145). 2. Inspect and test the throttle body (see page 11-160). 3. Inspect/adjust the throttle cable (see page 11-163).	• Low compression • Camshaft timing problem • Engine oil level problem
Engine stalls (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-139). 2. Check the fuel pressure (see page 11-145). 3. Check the idle speed (see page 11-138). 4. Troubleshoot the brake pedal position switch signal circuit (see page 11-137).	• Intake air leaks • Faulty harness and sensor connections

Symptom	Diagnostic procedure	Also check for
Difficult to refuel (MIL works OK, no DTCs set)	1. Test the fuel tank vapor control valve (see page 11-187). 2. Inspect the fuel tank vapor control signal tube between the fuel pipe and the fuel tank vapor control valve. 3. Inspect the fuel tank vapor vent tube between the EVAP canister and the fuel tank vapor control valve. 4. Check the EVAP canister.	Malfunctioning gas station filling nozzle.
Fuel overflows during refueling (No DTCs set)	Replace the fuel tank vapor control valve (see page 11-189).	Malfunctioning gas station filling nozzle.

System Descriptions

Electronic Control System

The functions of the fuel and emission control systems are managed by the engine control module (ECM).

Fail-safe Function
When an abnormality occurs in the signal from a sensor, the ECM ignores that signal and assumes a pre-programmed value for that sensor that allows the engine to continue to run.

Back-up Function
When an abnormality occurs in the ECM, the injectors are controlled by a back-up circuit independent of the system to permit minimal driving.

Self-diagnosis
When an abnormality occurs in the signal from a sensor, the ECM supplies ground for the malfunction indicator lamp (MIL) and stores the diagnostic trouble code (DTC) in erasable memory. When the ignition is first turned on, the ECM supplies ground to the MIL for 15 to 20 seconds to check the MIL bulb condition.

Two Driving Cycle Detection Method
To prevent false indications, the "two driving cycle detection method" is used for some self-diagnostic functions. When an abnormality occurs, the ECM stores it in its memory. When the same abnormality recurs after the ignition switch is turned OFF and ON (II) again, the ECM turns on the MIL.

ECM Data

You can retrieve data from the ECM by connecting the OBD II scan tool or the Honda PGM Tester to the data link connector (DLC). The items listed in the table below conform to SAE recommended practice. The Honda PGM Tester also reads data beyond that recommended by SAE to help you find the causes of intermittent problems.
NOTE:

- The "operating values" listed are approximate and may vary depending on the environment and the individual vehicle.
- Unless noted otherwise, "at idle speed" means idling with the engine completely warmed up in the neutral position, and the A/C and all accessories turned off.

Data	Description	Operating Value	Freeze Data
Diagnostic Trouble Code (DTC)	If the ECM detects a problem, it will store it as a code consisting of one letter and four numbers. Depending on the problem, an SAE-defined code (P0xxx) or a Honda-defined code (P1xxx) will be output to the tester.	If no problem is detected, there is no output.	YES
Engine Speed	The ECM computes engine speed from the signals sent from the crankshaft position (CKP) sensor. This data is used for determining the time and amount of injected fuel.	Nearly the same as tachometer indication At idle speed: 750±50 rpm	YES
Vehicle Speed	The ECM converts pulse signals from the vehicle speed sensor (VSS).	Nearly the same as speedometer indication	YES
Manifold Absolute Pressure (MAP)	The absolute pressure caused in the intake manifold by engine load and speed.	With engine stopped: Nearly the same as atmospheric pressure. At idle speed: about 20—41 kPa (150—310 mmHg, 6—12 in.Hg), 0.7—1.3 V	YES
Engine Coolant Temperature (ECT)	The ECT sensor converts coolant temperature into voltage and signals the ECM. The sensor is a thermistor whose internal resistance changes with coolant temperature. The ECM uses the voltage signals from the ECT sensor to determine the amount of injected fuel.	With cold engine: Same as ambient temperature and IAT With engine warmed up: about 176—212°F (80—100°C), 0.5—0.8 V	YES
Air Fuel Ratio (A/F) Sensor, (Sensor 1)	The A/F sensor detects the oxygen content in the exhaust gas and sends voltage signals to the ECM. Based on these signals, the ECM controls the air/fuel ratio. When the oxygen content is high (that is, when the ratio is leaner than the stoichiometric ratio), the voltage signal is lower. When the oxygen content is low (that is, when the ratio is richer than the stoichiometric ratio), the voltage signal is higher. The A/F sensor signals are electrical current that are indicated as voltage on the scan tool.	0.0—1.25 V —8.0—11.0 mA (PGM Tester) At idle speed: about 0.1—0.9 V	NO
Secondary Heated Oxygen Sensor (Secondary HO2S, Sensor2)	The HO2S detects the oxygen content in the exhaust gas and sends voltage signals to the ECM. Based on these signals, the ECM controls the air/fuel ratio. When the oxygen content is high (that is, when the ratio is leaner than the stoichiometric ratio), the voltage signal is lower. When the oxygen content is low (that is, when the ratio is richer than the stoichiometric ratio), the voltage signal is higher.	0.0—1.25 V At idle speed: about 0.1—0.9 V	NO

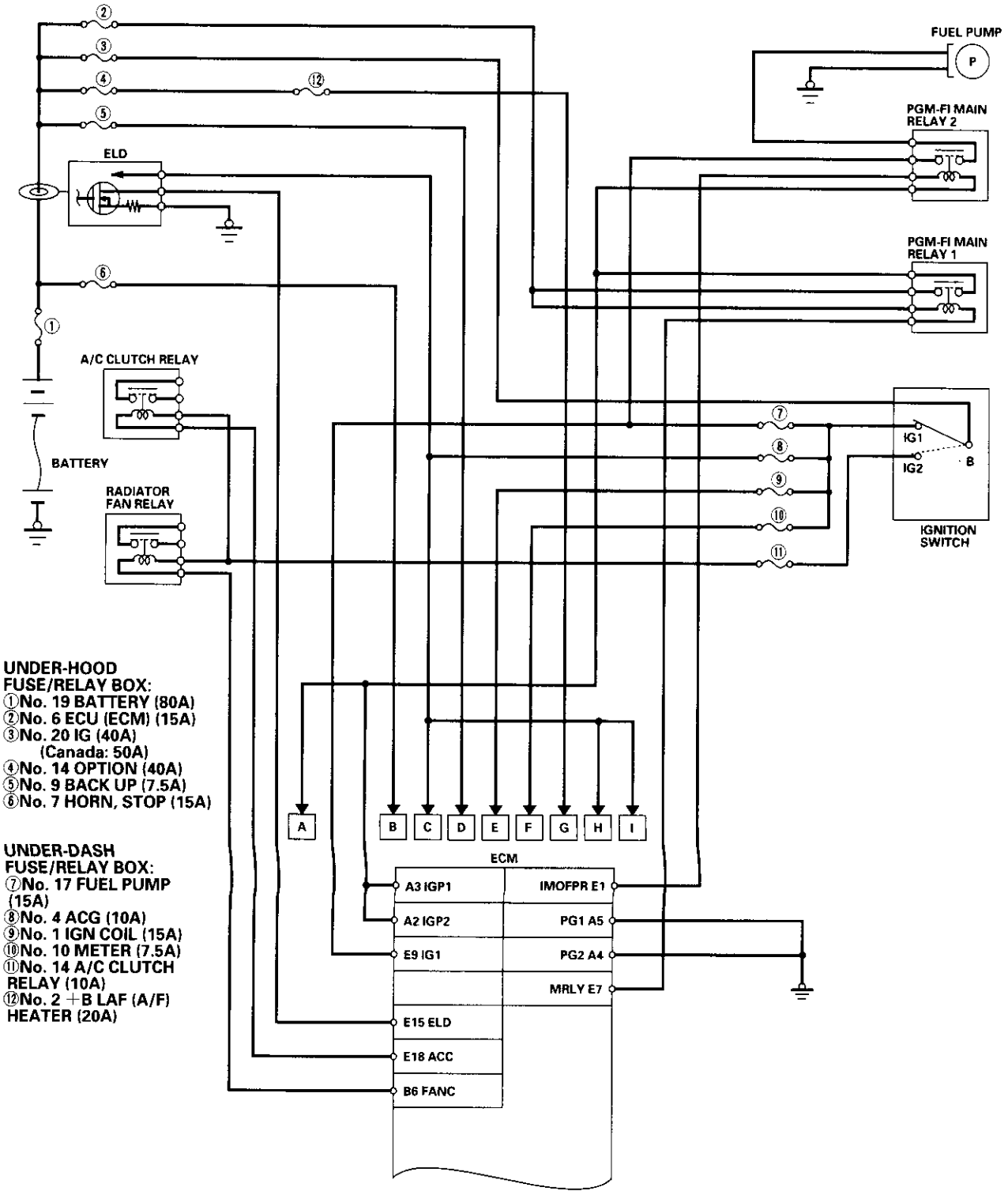
(cont'd)

System Descriptions (cont'd)

ECM Data (cont'd)

Data	Description	Operating Value	Freeze Data
Fuel System Status	Fuel system status is indicated as "open" or "closed". Closed: Based on the A/F Sensor output, the ECM determines the air/fuel ratio and controls the amount of injected fuel. Open: Ignoring A/F Sensor output, the ECM refers to signals from the throttle position (TP), manifold absolute pressure (MAP), intake air temperature (IAT), barometric pressure (BARO), and engine coolant temperature (ECT)) sensors to control the amount of injected fuel.	At idle speed: closed	YES
Short Term Fuel Trim	The air/fuel ratio correction coefficient for correcting the amount of injected fuel when the fuel system status is "closed." When the ratio is leaner than the stoichiometric ratio, the ECM increases short term fuel trim gradually, and the amount of injected fuel increases. The air/fuel ratio gradually gets richer, causing a lower oxygen content in the exhaust gas. Consequently, the short term fuel trim is lowered, and the ECM reduces the amount of injected fuel. This cycle keeps the air/fuel ratio close to the stoichiometric ratio when in closed loop status.	0.7—1.5	YES
Long Term Fuel Trim	Long term fuel trim is computed from short term fuel trim and indicates changes occurring in the fuel supply system over a long period. If long term fuel trim is higher than 1.00, the amount of injected fuel must be increased. If it is lower than 1.00, the amount of injected fuel must be reduced.	0.8—1.2	YES
Intake Air Temperature (IAT)	The IAT sensor converts intake air temperature into voltage and signals the ECM. When intake air temperature is low, the internal resistance of the sensor increases, and the voltage signal is higher.	With cold engine: Same as ambient temperature and ECT	YES
Throttle Position	Based on the accelerator pedal position, the opening angle of the throttle valve is indicated.	At idle speed: about 10 %	YES
Ignition Timing	Ignition timing is the ignition advance angle set by the ECM. The ECM matches ignition timing to driving conditions.	At idle speed: 8° ± 5° BTDC when the SCS service signal line is jumped with the Honda PGM Tester	NO
Calculated Load Value (CLV)	CLV is the engine load calculated from MAP data.	At idle speed: 12—34% At 2,500 rpm with no load: 14—34%	YES

ECM Electrical Connections



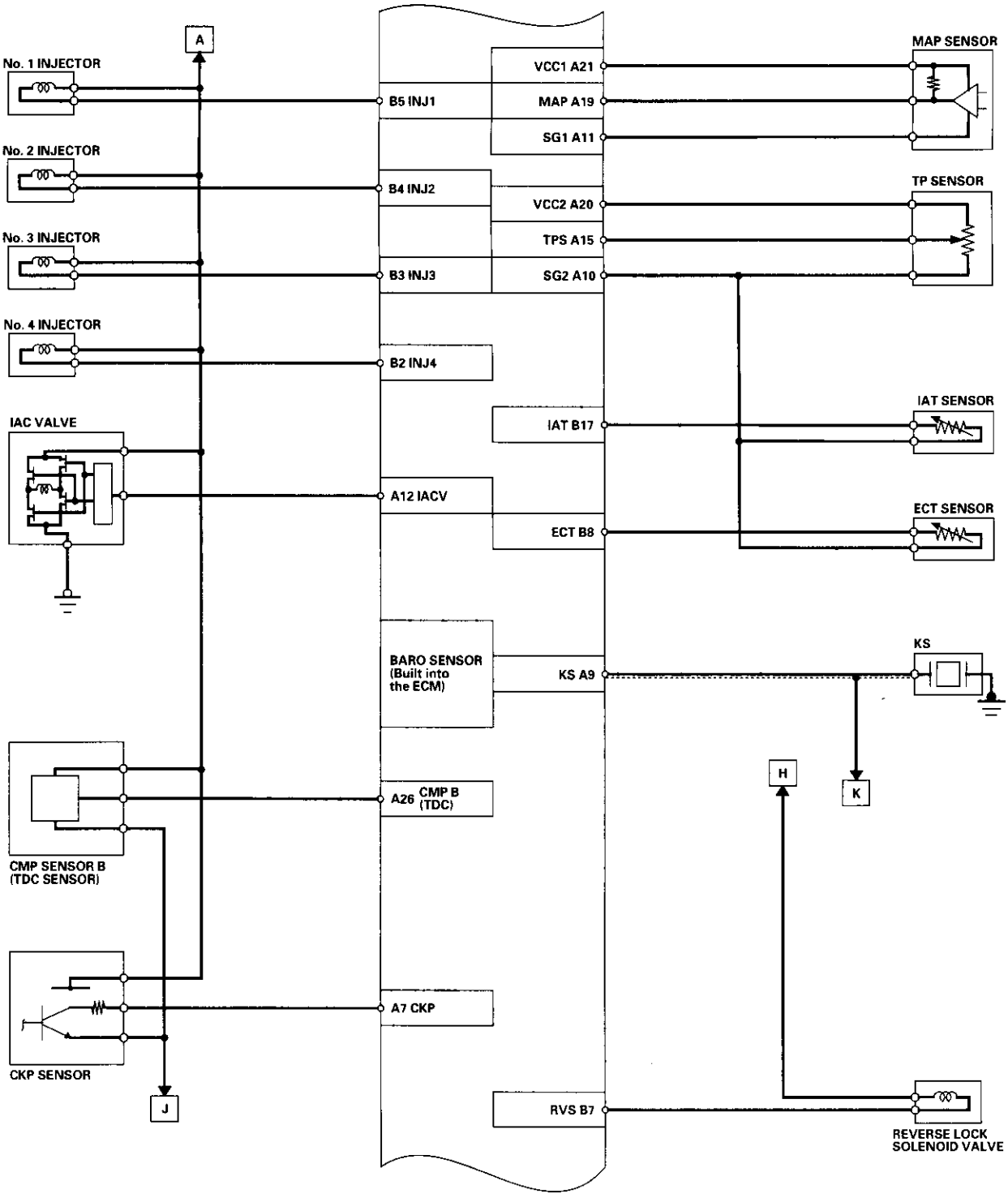
UNDER-HOOD FUSE/RELAY BOX:
①No. 19 BATTERY (80A)
②No. 6 ECU (ECM) (15A)
③No. 20 IG (40A)
(Canada: 50A)
④No. 14 OPTION (40A)
⑤No. 9 BACK UP (7.5A)
⑥No. 7 HORN, STOP (15A)

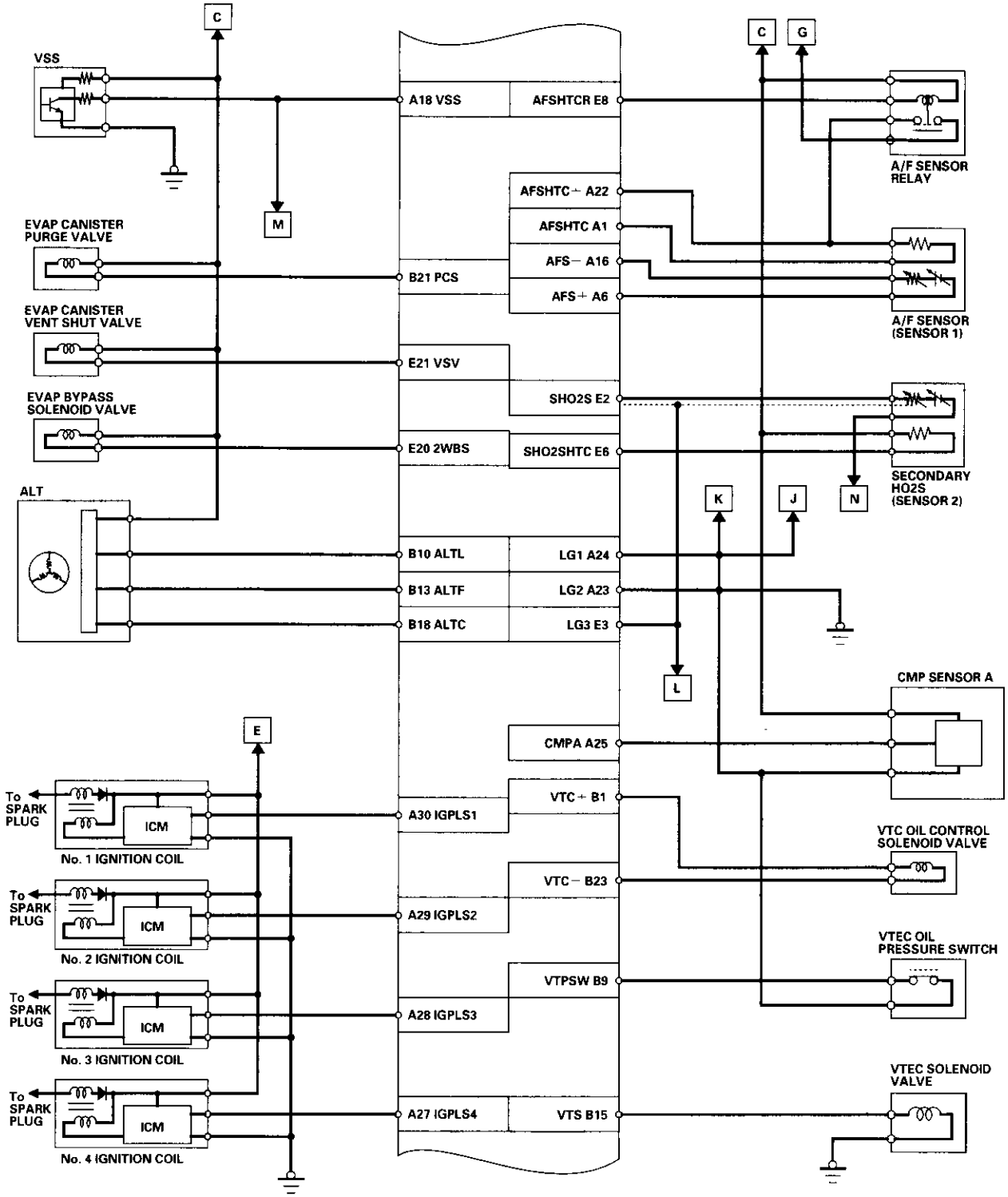
UNDER-DASH FUSE/RELAY BOX:
⑦No. 17 FUEL PUMP (15A)
⑧No. 4 ACG (10A)
⑨No. 1 IGN COIL (15A)
⑩No. 10 METER (7.5A)
⑪No. 14 A/C CLUTCH RELAY (10A)
⑫No. 2 +B LAF (A/F) HEATER (20A)

(cont'd)

System Descriptions (cont'd)

ECM Electrical Connections

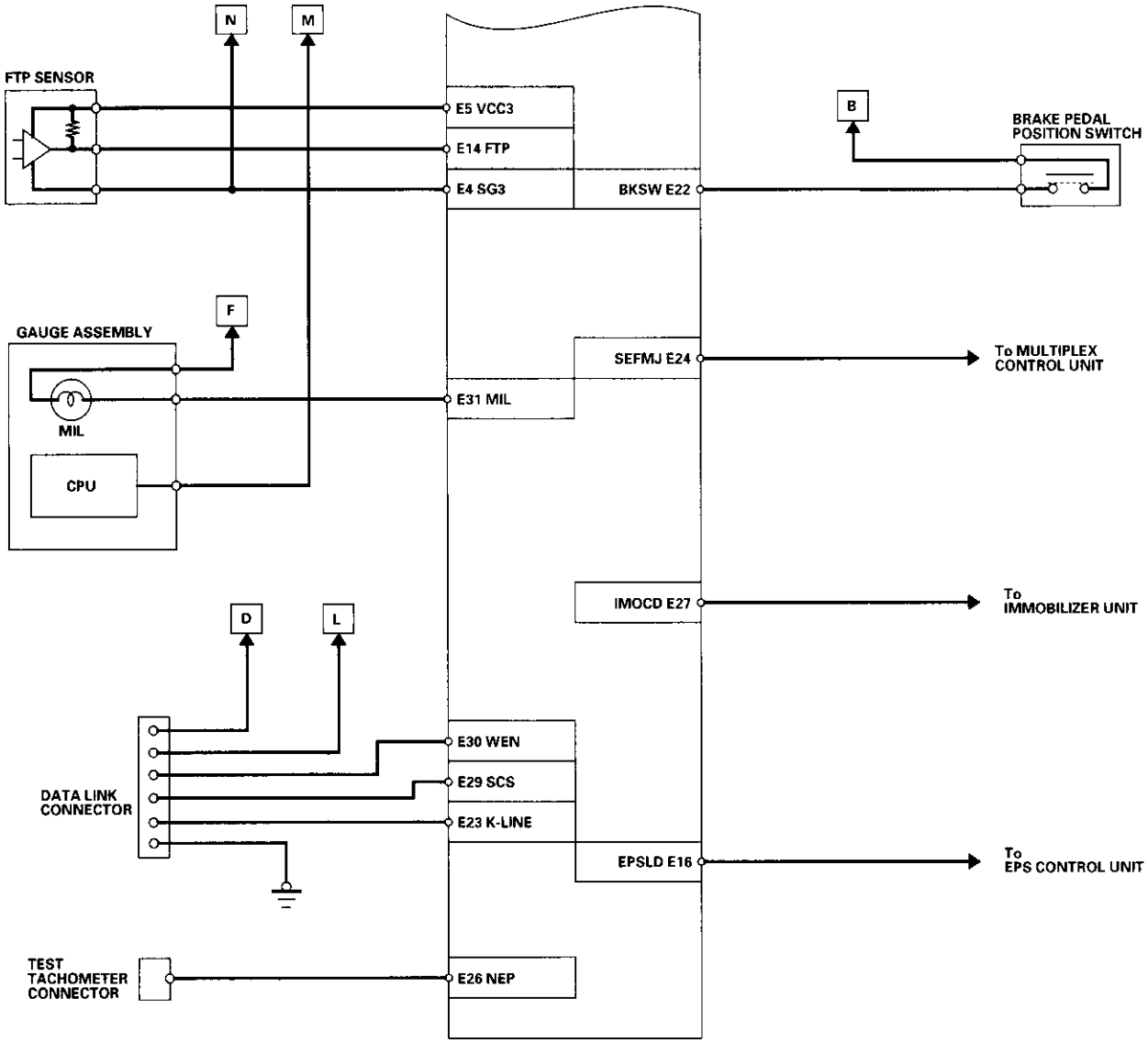


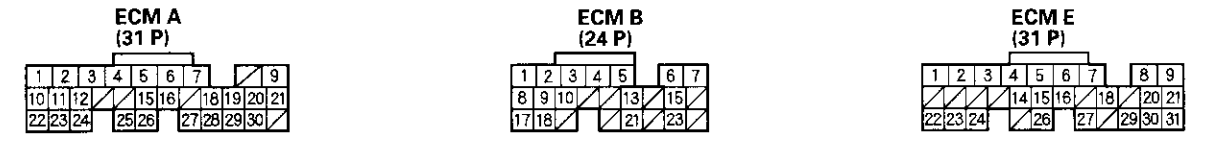

C
VSS
A18 VSS
AFSHTCR E8
C
G
A/F SENSOR RELAY
M
AFSHTC– A22
AFSHTC A1
AFS– A16
AFS+ A6
EVAP CANISTER PURGE VALVE
B21 PCS
A/F SENSOR (SENSOR 1)
EVAP CANISTER VENT SHUT VALVE
E21 VSV
SHO2S E2
EVAP BYPASS SOLENOID VALVE
E20 2WBS
SHO2SHTC E6
SECONDARY HO2S (SENSOR 2)
ALT
K
J
N
B10 ALTL
LG1 A24
B13 ALTF
LG2 A23
B18 ALTC
LG3 E3
L
CMP SENSOR A
E
CMPA A25
To SPARK PLUG
ICM
No. 1 IGNITION COIL
A30 IGPLS1
VTC+ B1
VTC OIL CONTROL SOLENOID VALVE
VTC– B23
No. 2 IGNITION COIL
A29 IGPLS2
VTEC OIL PRESSURE SWITCH
VTPSW B9
No. 3 IGNITION COIL
A28 IGPLS3
VTEC SOLENOID VALVE
No. 4 IGNITION COIL
A27 IGPLS4
VTS B15

(cont'd)

System Descriptions (cont'd)

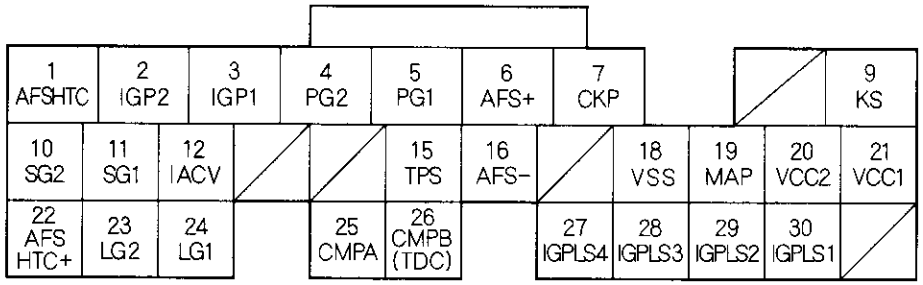
ECM Electrical Connections





TERMINAL LOCATIONS

ECM Inputs and Outputs at Connector A (31P)



Wire side of female terminals

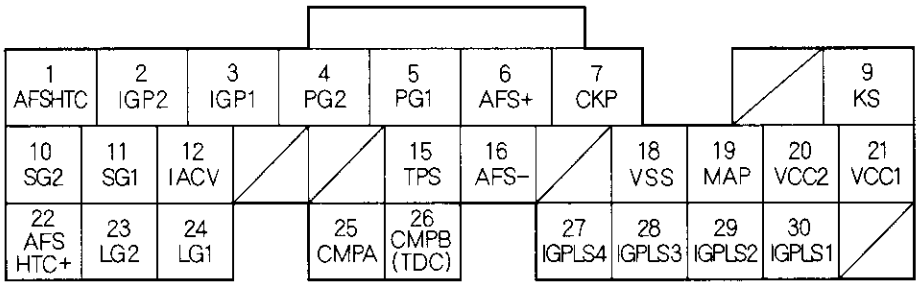
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLK/WHT	AFSHTC (AIR FUEL RATIO (A/F) SENSOR HEATER CONTROL)	Drives A/F sensor heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: 0 V
2	YEL/BLK	IGP2 (POWER SOURCE)	Power source for the ECM circuit	With the ignition switch ON (II): battery voltage With the ignition switch OFF: about 0 V
3	YEL/BLK	IGP1 (POWER SOURCE)	Power source for the ECM circuit	With the ignition switch ON (II): battery voltage With the ignition switch OFF: about 0 V
4	BLK	PG2 (POWER GROUND)	Ground for the ECM circuit	Less than 1.0 V at all times
5	BLK	PG1 (POWER GROUND)	Ground for the ECM circuit	Less than 1.0 V at all times
6	RED	AFS + (AIR FUEL RATIO (A/F) SENSOR, SENSOR 1 + SIDE)	Detects A/F sensor (sensor 1) signal	
7	BLU	CKP (CRANKSHAFT POSITION SENSOR)	Detects CKP sensor signal	With engine running: pulses
9	RED/BLU	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
10	GRN/YEL	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
11	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
12	BLK/RED	IACV (IDLE AIR CONTROL (IAC) VALVE)	Drives IAC valve	With engine running: duty controlled
15	RED/BLK	TPS (THROTTLE POSITION SENSOR)	Detects TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.5 V
16	RED/YEL	AFS − (AIR FUEL RATIO (A/F) SENSOR, SENSOR 1 − SIDE)	Detects A/F sensor (sensor 1) signal	
18	WHT/GRN	VSS (VEHICLE SPEED SENSOR)	Detects VSS signal	With ignition switch ON (II) and front wheels rotating: cycles from about 0 V to about 5 V or battery voltage

(cont'd)

System Descriptions (cont'd)

ECM Inputs and Outputs at Connector A (31P)

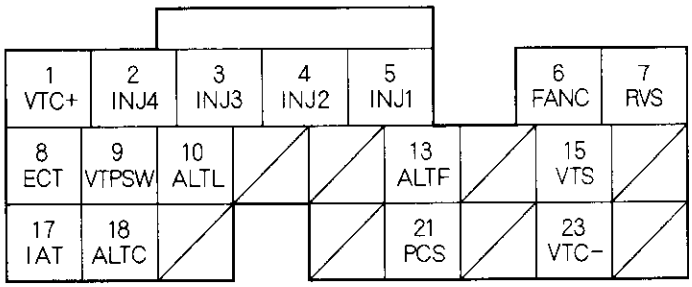


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
19	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3 V At idle: about 1.0 V (depending on engine speed)
20	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5 V With ignition switch OFF: about 0 V
21	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5 V With ignition switch OFF: about 0 V
22	WHT	AFSHTC − (AIR FUEL RATIO (A/F) SENSOR HEATER CONTROL − SIDE)	Detects A/F sensor heater voltage	With ignition switch ON (II): battery voltage
23	BRN/YEL	LG2 (LOGIC GROUND)	Ground for the ECM circuit	Less than 1.0 V at all times
24	BRN/YEL	LG1 (LOGIC GROUND)	Ground for the ECM circuit	Less than 1.0 V at all times
25	BLU/WHT	CMP A (CAMSHAFT POSITION SENSOR A)	Detects CMP sensor A signal	With engine running: pulses
26	GRN	CMP B CAMSHAFT POSITION (CMP) SENSOR B (TDC (TOP DEAD CENTER SENSOR))	Detects CMP sensor B (TDC sensor)	With engine running: pulses
27	BRN	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
28	WHT/BLU	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
29	BLU/RED	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
30	YEL/GRN	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	

ECM Inputs and Outputs at Connector B (24P)



Wire side of female terminals

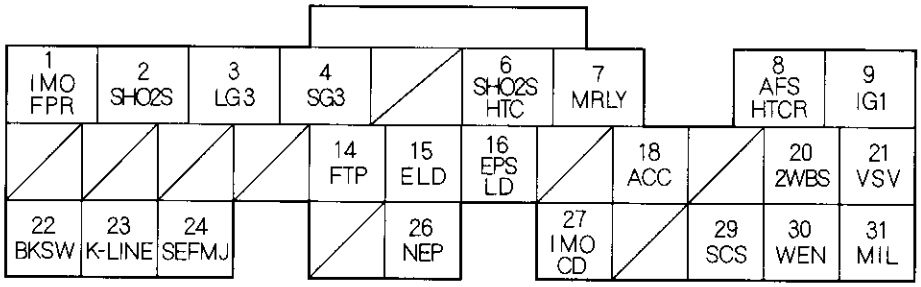
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLU/WHT	VTC+ (VTC OIL CONTROL SOLENOID VALVE +SIDE)	Drives VTC oil control solenoid valve	With ignition switch ON (II): 0 V
2	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	At idle: duty controlled
3	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	
4	RED	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	
5	BRN	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	
6	GRN	FANC (RADIATOR FAN CONTROL)	Drives radiator fan relay	With radiator fan running: about 0 V With radiator fan stopped: battery voltage
7	GRN/WHT	RVS (REVERSE LOCK SOLENOID VALVE)	Drives reverse lock solenoid valve	With vehicle speed below 9.4 mph (15 km/h): battery voltage With vehicle speed above 12.5 mph (20 km/h): 0 V
8	RED/WHT	ECT (ENGINE COOLANT TEMPERATURE SENSOR)	Detects ECT sensor signal	With the ignition switch ON (II): about 0.1−4.8 V (depending on engine coolant temperature)
9	BLU/BLK	VTPSW (VTEC OIL PRESSURE SWITCH)	Detects VTEC oil pressure switch signal	With engine at low engine speed: about 0 V With engine at high engine speed: battery voltage
10	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator L signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
13	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 0 V−5 V (depending on electrical load)
15	GRN/YEL	VTS (VTEC SOLENOID VALVE)	Drives VTEC solenoid valve	At idle: about 0 V
17	RED/YEL	IAT (INTAKE AIR TEMPERATURE SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1 V−4.8 V (depending on intake air temperature)
18	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With engine running: about 0 V−5 V (depending on electrical load)
21	YEL/BLU	PCS (EVAPORATIVE EMISSION CANISTER PURGE VALVE)	Drives EVAP canister purge valve	With engine running, engine coolant below 149°F (65°C): battery voltage With engine running, engine coolant above 149°F (65°C): duty controlled
23	BLK/WHT	VTC− (VTC OIL CONTROL SOLENOID VALVE −SIDE)	Drives VTC oil control solenoid valve	With the ignition switch ON (II): 0 V

(cont'd)

System Descriptions (cont'd)

ECM Inputs and Outputs at Connector E (31P)

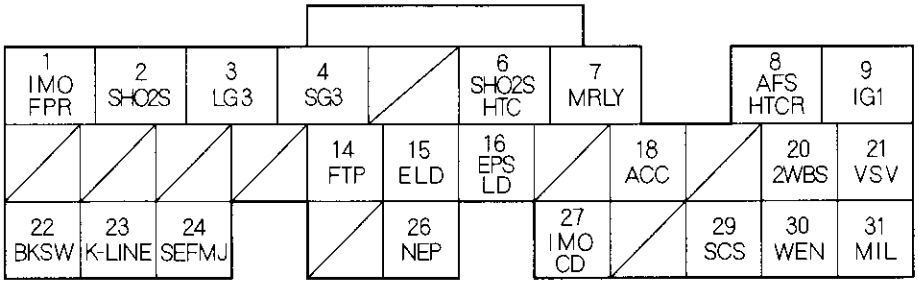


Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	GRN/YEL	IMO FPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
2	WHT/RED	SHO2S (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S), SENSOR 2)	Detects secondary HO2S (sensor 2) signal	With throttle fully opened from idle with fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
3	BRN/YEL	LG3 (LOGIC GROUND)	Ground for the ECM/PCM control circuit	Less than 1.0 V at all times
4	PNK	SG3 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
5	YEL/BLU	VCC3 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5 V With ignition switch OFF: about 0 V
6	BLK/WHT	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) HEATER CONTROL)	Drives secondary HO2S heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
7	RED/YEL	MRLY (PGM-FI MAIN RELAY)	Drives PGM-FI main relay 1 Power source for the DTC memory	With ignition switch ON (II): about 0 V With ignition switch OFF: battery voltage
8	ORN	AFSHTCR (AIR FUEL RATIO (A/F) SENSOR HEATER CONTROL RELAY)	Drives air fuel ratio sensor heater relay	With ignition switch ON (II): 0 V
9	YEL/BLK	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
14	LT GRN	FTP (FUEL TANK PRESSURE (FTP) SENSOR)	Detects FTP sensor signal	With ignition switch ON (II) and fuel fill cap open: about 2.5 V
15	GRN/RED	ELD (ELECTRICAL LOAD DETECTOR)	Detects ELD signal	With ignition switch ON (II): about 0.1 V—4.8 V (depending on electrical load)
16	LT GRN/BLK	EPSLD (ELECTRICAL POWER STEERING LOAD DETECT)	Detects Power steering load signal	At idle with steering wheel in straight ahead position: about 0 V At idle with steering wheel at full lock: momentary battery voltage
18	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	With compressor ON: about 0 V With compressor OFF: battery voltage

ECM Inputs and Outputs at Connector E (31P)



Wire side of female terminals

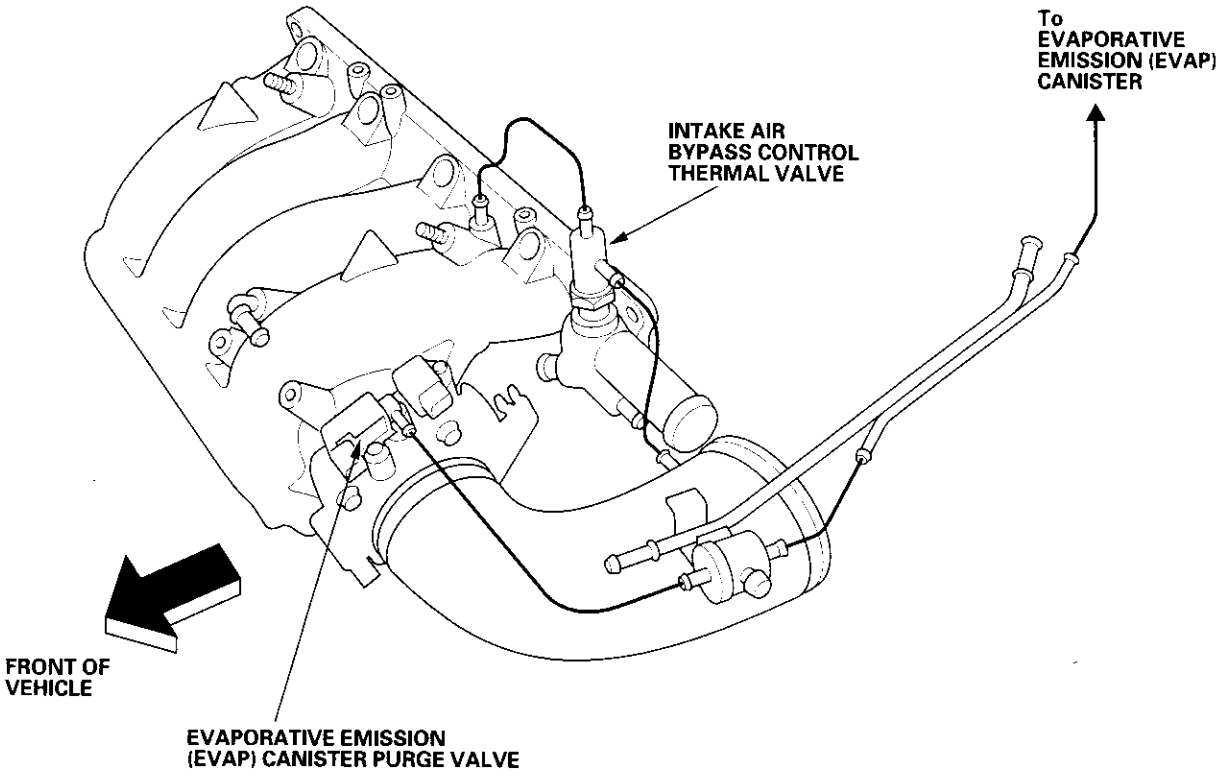
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
20	BLU/RED	2WBS (EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE)	Drives EVAP bypass solenoid valve	With ignition switch ON (II): battery voltage
21	LT GRN/RED	VSV (EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
22	WHT/BLK	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage
23	LT BLU	K-LINE	Sends and receives scan tool signals	With ignition switch ON (II): pulses or battery voltage
24	YEL	SEFMJ	Communicates with multiplex control unit	With ignition switch ON (II): about 5 V With engine running under load: pulses
26	BLU	NEP (ENGINE SPEED PULSE)	Outputs engine speed pulse	With engine running: pulses
27	RED/BLU	IMOCD (IMMOBILIZER CODE)	Detects immobilizer signal	
29	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With the service check signal shorted with the PGM Tester: about 0 V With the service check signal opened: about 5 V
30	RED/WHT	WEN (WRITE ENABLE SIGNAL)	Detects write enable signal	With ignition switch ON (II): about 0 V
31	GRN/ORN	MIL (MALFUNCTION INDICATOR LAMP)	Drives MIL	With MIL turned ON: about 0 V With MIL turned OFF: battery voltage

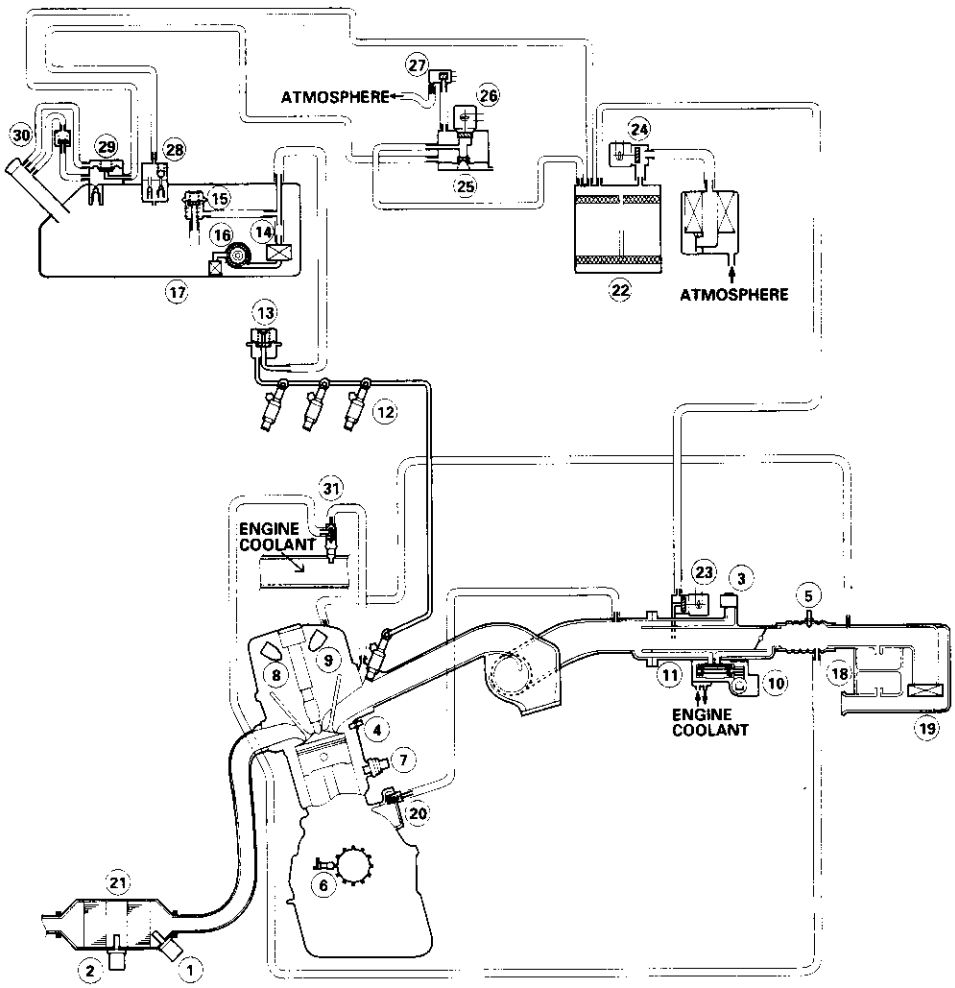
(cont'd)

System Descriptions (cont'd)

Vacuum Hose Routing



Vacuum Hose Routing



① AIR FUEL RATIO (A/F) SENSOR (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 KNOCK SENSOR
⑧ CAMSHAFT POSITION (CMP) SENSOR B (TOP DEAD CENTER (TDC) SENSOR)
⑨ CAMSHAFT POSITION (CMP) SENSOR A
⑩ IDLE AIR CONTROL (IAC) VALVE
⑪ THROTTLE BODY
⑫ INJECTOR
⑬ FUEL PULSATION DAMPER
⑭ FUEL FILTER
⑮ FUEL PRESSURE REGULATOR
⑯ FUEL PUMP
⑰ FUEL TANK
⑱ RESONATOR
⑲ AIR CLEANER
⑳ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
㉑ THREE WAY CATALYTIC CONVERTER
㉒ EVAPORATIVE EMISSION (EVAP) CANISTER
㉓ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉔ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉕ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
㉖ EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
㉗ FUEL TANK PRESSURE (FTP) SENSOR
㉘ EVAPORATIVE EMISSION (EVAP) VALVE
㉙ FUEL TANK VAPOR CONTROL VALVE
㉚ FUEL TANK VAPOR RECIRCULATION VALVE
㉛ INTAKE AIR BYPASS CONTROL THERMAL VALVE

(cont'd)

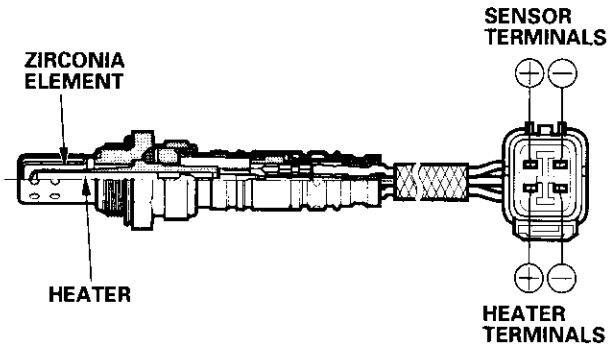
System Descriptions (cont'd)

PGM-FI System

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

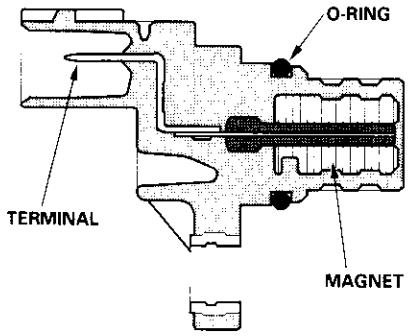
Air Conditioning (A/C) Compressor Clutch Relay
When the ECM receives a demand for cooling from the A/C system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

Air Fuel Ratio (A/F) Sensor
The A/F Sensor operates over a wide air/fuel range. The A/F Sensor is installed upstream of the TWC, and sends signals to the ECM which varies the duration of fuel injection accordingly.

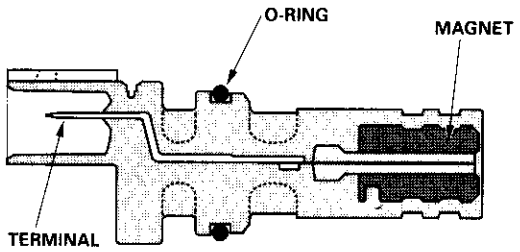


Barometric Pressure (BARO) Sensor
The BARO sensor is inside the ECM. It converts atmospheric pressure into a voltage signal that the ECM uses to modify the basic duration of the fuel injection discharge.

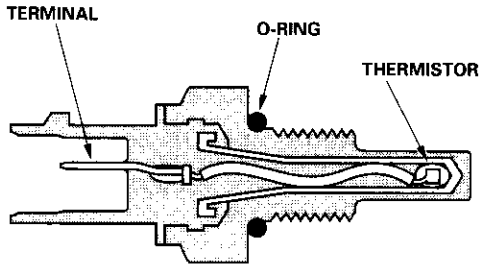
Camshaft Position (CMP) Sensor B (Top Dead Center (TDC) Sensor)
The CMP sensor B (TDC sensor) detects the position of the No. 1 cylinder as a reference for sequential fuel injection to each cylinder.



Crankshaft Position (CKP) Sensor
The CKP sensor detects crankshaft speed and determines ignition timing and timing for fuel injection of each cylinder as well as detecting engine misfire.



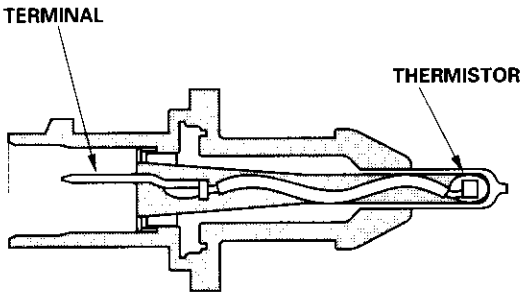
Engine Coolant Temperature (ECT) Sensor
The ECT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the engine coolant temperature increases.



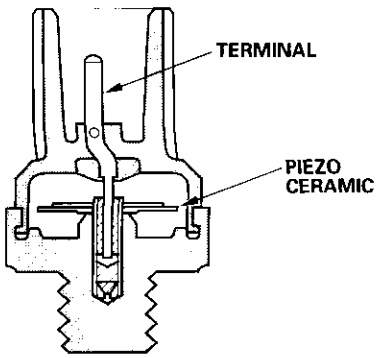
Ignition Timing Control
The ECM contains the memory for basic ignition timing at various engine speeds and manifold absolute pressure. It also adjusts the timing according to engine coolant temperature.

Injector Timing and Duration
The ECM contains the memory for basic discharge duration at various engine speeds and manifold pressures. The basic discharge duration, after being read out from the memory, is further modified by signals sent from various sensors to obtain the final discharge duration.
By monitoring long term fuel trim, the ECM detects long term malfunctions in the fuel system and sets a Diagnostic Trouble Code (DTC).

Intake Air Temperature (IAT) Sensor
The IAT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the intake air temperature increases.



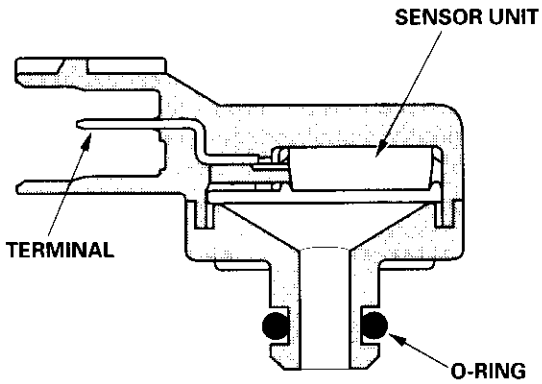
Knock Sensor
The knock control system adjusts the ignition timing to minimize knock.



Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)
The vehicle has certain "readiness codes" that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the ECM has been reset, these codes are set to incomplete. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the test and the test cannot be finished.

To check if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are set to complete. If it blinks several times, one or more readiness codes are not set to complete. To set each code, drive the vehicle or run the engine as described in the procedures to set them in this section (see page 11-46).

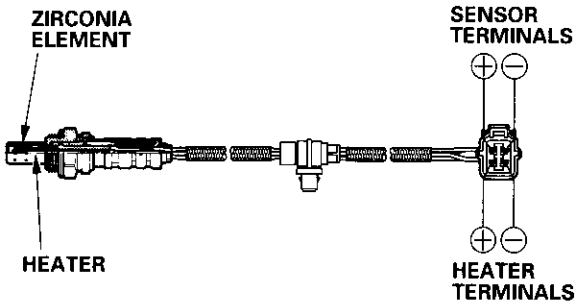
Manifold Absolute Pressure (MAP) Sensor
The MAP sensor converts manifold absolute pressure into electrical signals to the ECM.



(cont'd)

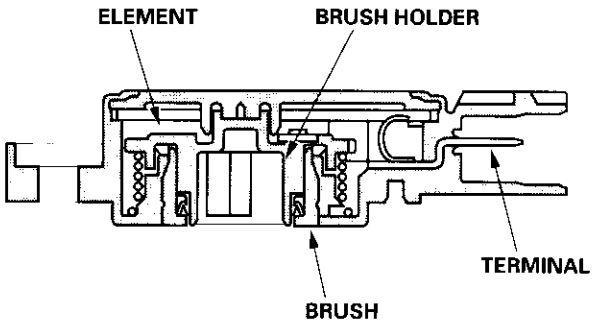
System Descriptions (cont'd)

Secondary Heated Oxygen Sensor (Secondary HO2S)
The secondary HO2S detects the oxygen content in the exhaust gas downstream of the three way catalytic converter (TWC) and sends signals to the ECM which checks the efficiency of the TWC. To stabilize its output, the sensor has an internal heater. The secondary HO2S is installed in the TWC.

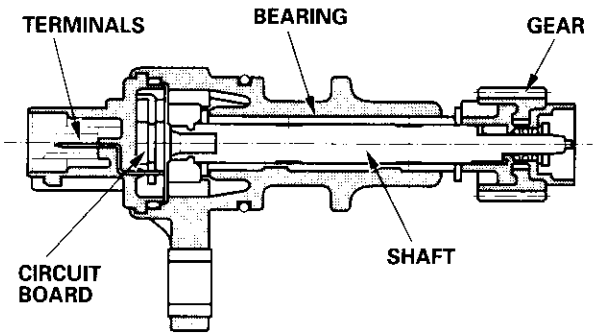


Starting Control
When the engine is started, the ECM provides a rich mixture by increasing injector duration.

Throttle Position (TP) Sensor
The TP sensor is a potentiometer connected to the throttle valve shaft. As the throttle position changes, the sensor varies the signal voltage to the ECM. The TP sensor is not replaceable apart from the throttle body.

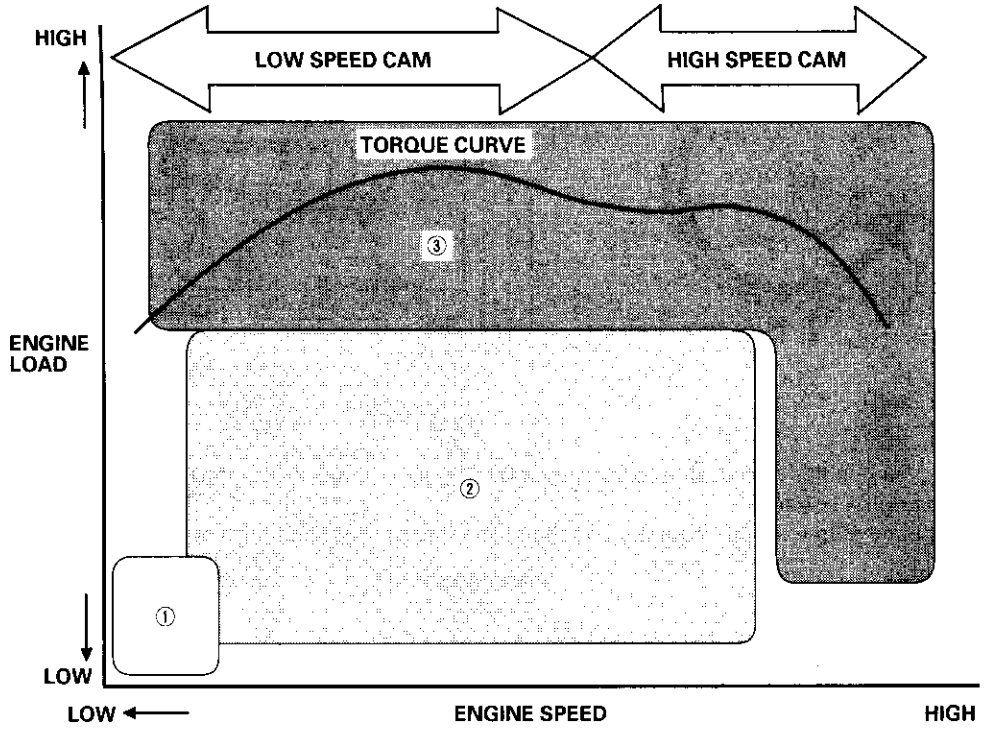


Vehicle Speed Sensor (VSS)
The VSS is driven by the differential. It generates a pulsed signal from an input of 5 volts. The number of pulses per minute increases/decreases with the speed of the vehicle.



VTEC/VTC

- The i-VTEC has a VTC (Variable Valve Timing Control) mechanism on the intake camshaft in addition to the usual VTEC.
  This mechanism improves fuel efficiency and reduces exhaust emissions at all levels of engine speed, vehicle speed, and engine load.
- The VTEC mechanism changes the valve lift and timing by using more than one cam profile.
- The VTC changes the phase of the intake camshaft via oil pressure. It changes the intake valve timing continuously.



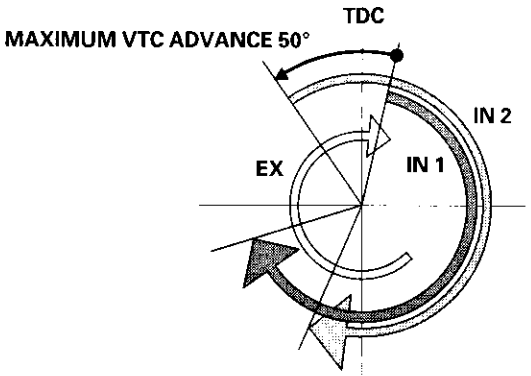
Driving Condition	VTC Control	Description
① Light-load	Base Position	Cam angle is retarded to reduce the entry of exhaust gas into the intake port and to achieve stable fuel consumption during lean burn.
② Medium/high-load	Advance Control	Cam angle is advanced for EGR effect and to reduce this pumping loss. The intake valve is closed quickly to help reduce the entry of air/fuel mixture into the intake port and improve the charging effect.
③ High speed	Advance-Base Position	Cam phase angle is controlled for optimum valve timing and maximum engine power.

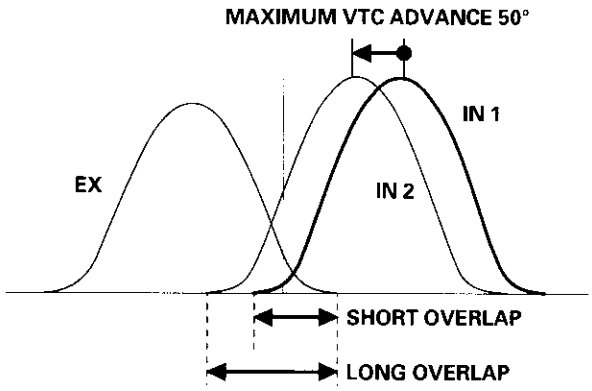
(cont'd)

System Descriptions (cont'd)

VTC system

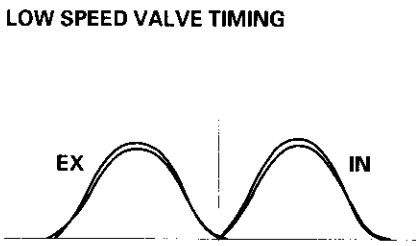
- The VTC system makes continuous intake valve timing changes based on operating conditions.
- Intake valve timing is optimized to allow the engine to produce maximum power.
- Cam angle is advanced to obtain the EGR effect and reduce the pumping loss. The intake valve is closed quickly to reduce the entry of the air/fuel mixture into the intake port and improve the charging effect.
- Cam angle is reduced at idle to stabilize combustion and reduces engine speed.
- If a malfunction occurs, the VTC system control is disabled and the valve timing is fixed at the fully retarded position.

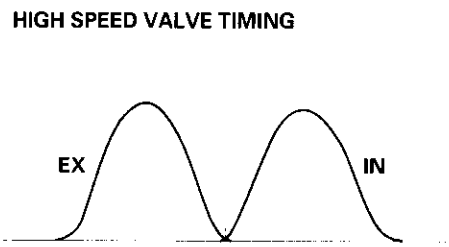




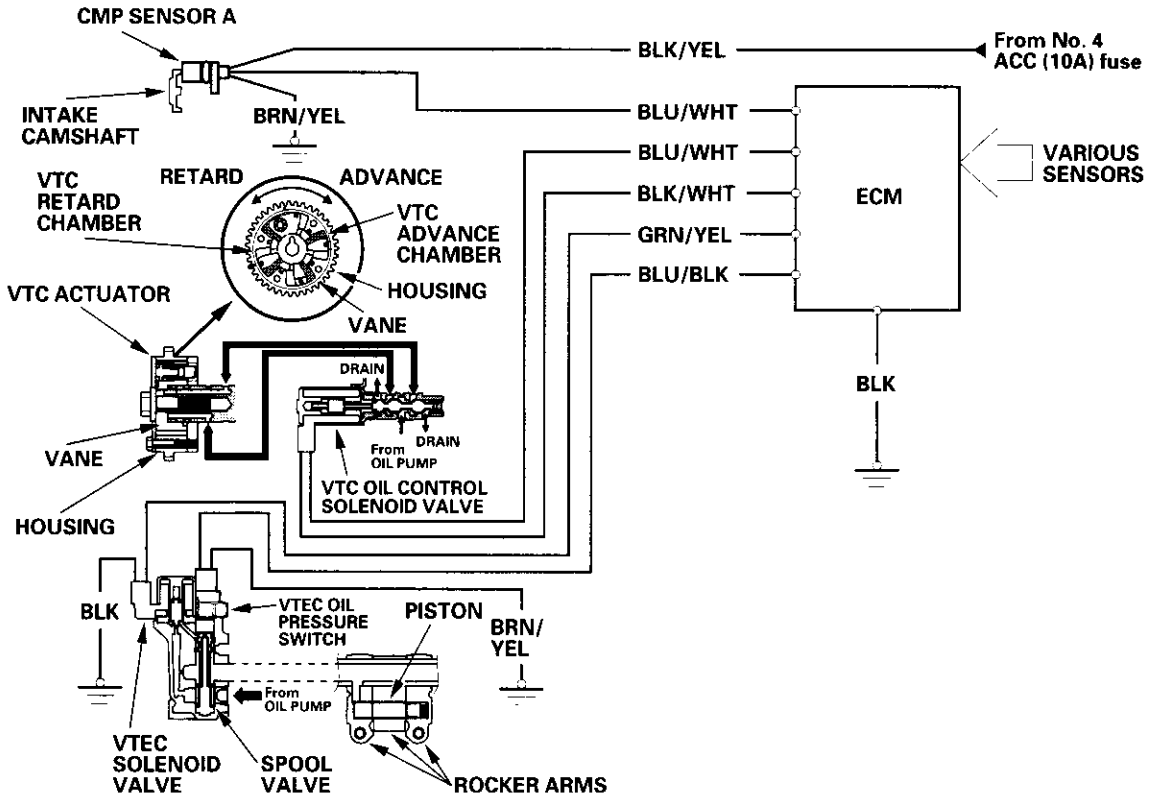
VTEC system

- The VTEC system changes the cam profile to correspond to engine speed. It maximizes torque at low engine speed and output at high engine speed.
- The low lift cam is used at low engine speeds, and the high lift cam is used at high engine speeds.



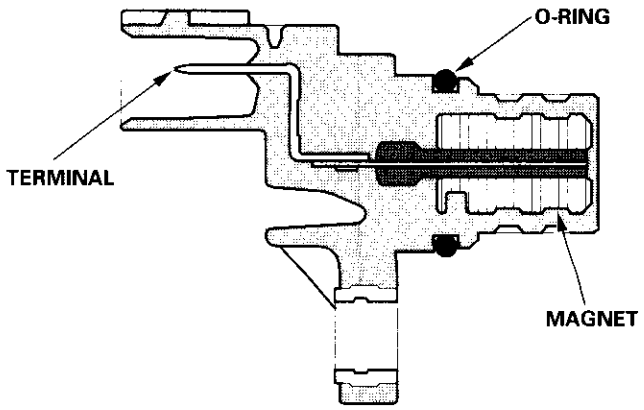


System Diagram



Camshaft Position (CMP) Sensor

The CMP sensor detects camshaft angle position for the VTC system.



(cont'd)

System Descriptions (cont'd)

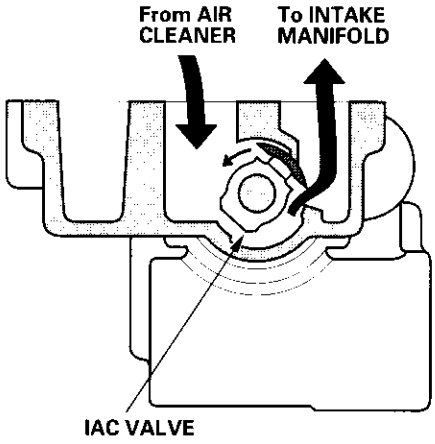
Idle Control System

When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is pressed, the power steering load is high, or the alternator is charging, the ECM controls current to the Idle Air Control (IAC) valve to maintain the correct idle speed. Refer to the System Diagram to see the functional layout of the system.

Brake Pedal Position Switch
The brake pedal position switch signals the ECM when the brake pedal is pressed.

Electrical Power Steering (EPS) Senser
The EPS sensor signals the ECM when the power steering load is high.

Idle Air Control (IAC) Valve
To maintain the proper idle speed, the IAC valve changes the amount of air bypassing the throttle body in response to an electrical signal from the ECM.



Fuel Supply System

Fuel Cut-off Control
During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 1,030 rpm. Fuel cut-off action also occurs when engine speed exceeds 6,900 rpm, regardless of the position of the throttle valve, to protect the engine from over-revving. When the vehicle is stopped, the ECM cuts the fuel at engine speeds over 6,500 rpm.

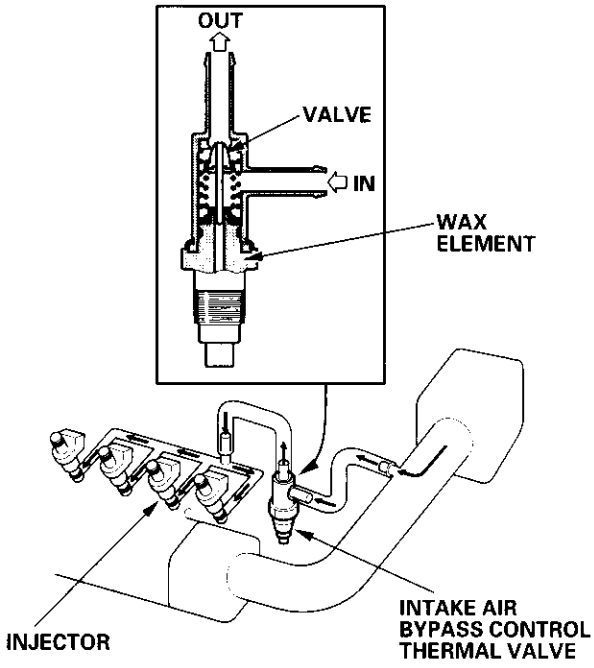
Fuel Pump Control
When the ignition is turned on, the ECM grounds the PGM-FI main relay which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM grounds the PGM-FI main relay and feeds current to the fuel pump. When the engine is not running and the ignition is on, the ECM cuts ground to the PGM-FI main relay which cuts current to the fuel pump.

PGM-FI Main Relay 1 and 2
The PGM-FI main relay consists of two separate relays. Relay 1 is energized whenever the ignition switch is ON (II) to supply battery voltage to the ECM power to the injectors, and power for relay. Relay 2 is energized to supply power to the fuel pump for 2 seconds when the ignition switch is turned ON (II), and when the engine is running.

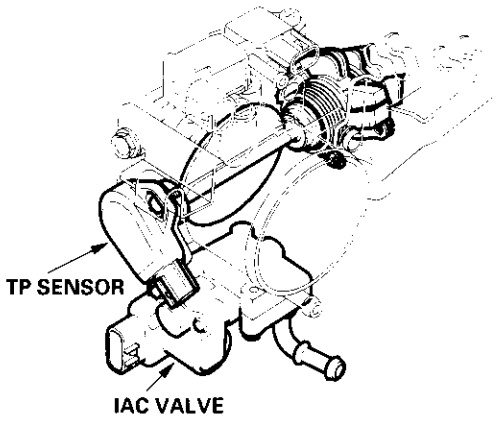
Intake Air System

Refer to the System Diagram to see the functional layout of the system.

Intake Air Bypass Control Thermal Valve
When the engine is running, the intake air bypass control thermal valve sends air to the injectors.



Throttle Body
The throttle body is a single-barrel side draft type. It houses the TP senser and the IAC valve. The lower portion of the IAC valve is heated by engine coolant from the cylinder head.

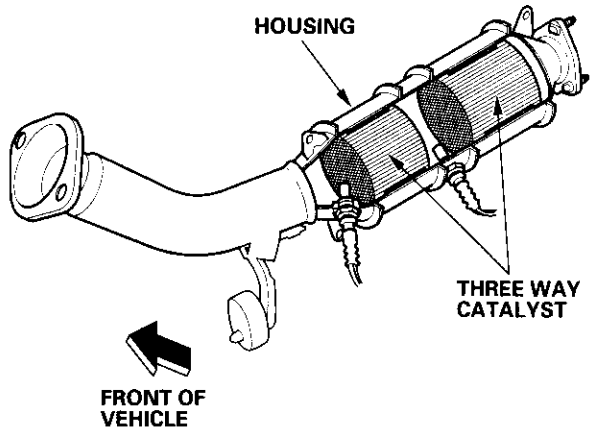


(cont'd)

System Descriptions (cont'd)

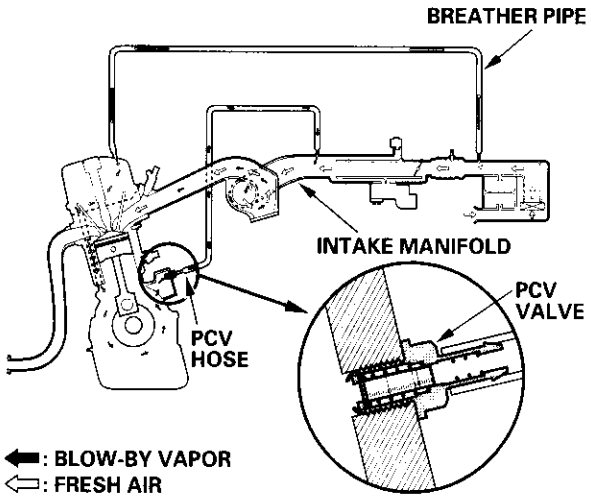
Catalytic Converter System

Three Way Catalytic Converter (TWC)
The TWC converts hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO2), dinitrogen (N2), and water vapor.



Positive Crankcase Ventilation (PCV) System

The PCV valve prevents blow-by gasses from escaping into the atmosphere by venting them into the intake manifold.



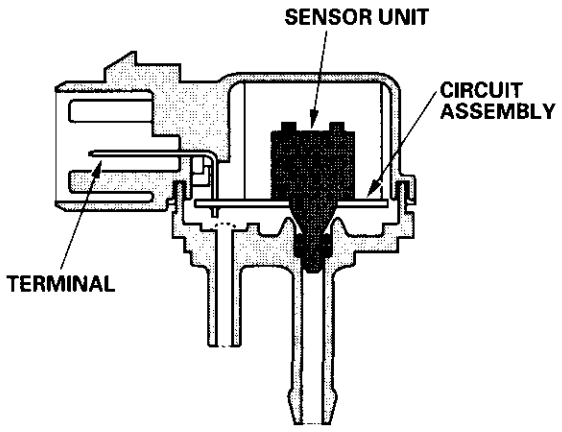
Evaporative Emission (EVAP) Control System

Refer to the System Diagram to see the functional layout of the system.

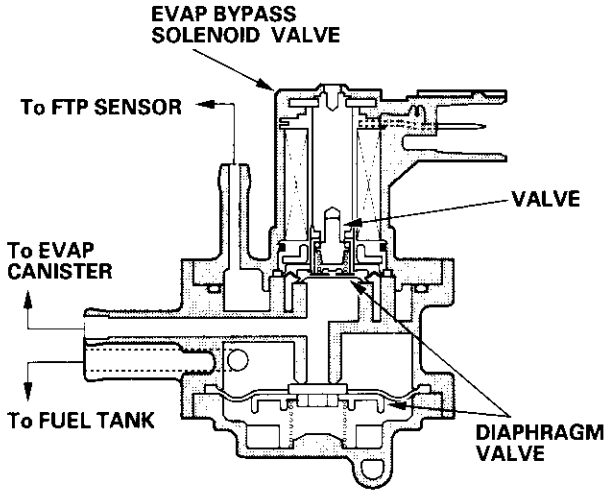
EVAP Canister
The EVAP canister temporarily stores fuel vapor from the fuel tank until it can be purged back into the engine and burned.

EVAP Canister Purge Valve
When the engine coolant temperature is below 149°F (65°C), the ECM turns off the EVAP canister purge valve which cuts vacuum to the EVAP canister.

Fuel Tank Pressure (FTP) Sensor
The FTP sensor converts fuel tank absolute pressure into an electrical input to the ECM during the EVAP leak check.



EVAP Two Way Valve and EVAP Bypass Solenoid Valve
The EVAP two way valve is installed between the fuel tank and the EVAP canister line.
The EVAP two way valve sends fuel vapor to the EVAP canister corresponding to the pressure inside the fuel tank. It also relieves excess vacuum in the tank by allowing fresh air to be drawn into the tank through the EVAP canister.
The EVAP bypass solenoid valve opens to bypass the two way valve during the EVAP leak check.



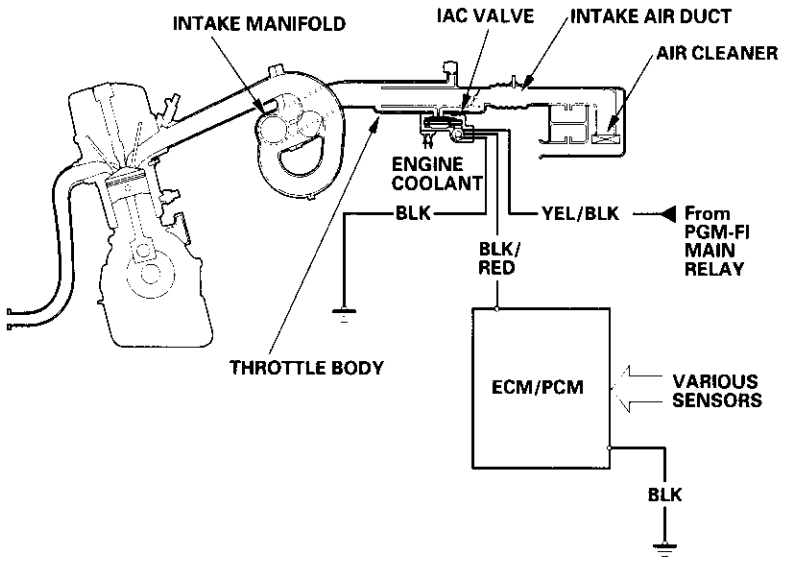
(cont'd)

System Descriptions (cont'd)

Idle Control System Diagram

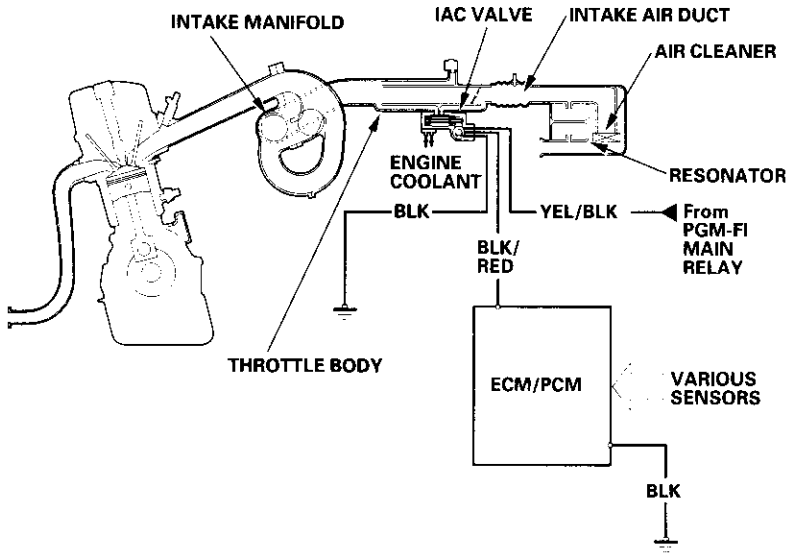
The idle speed of the engine is controlled by the Idle Air Control (IAC) valve:

- After the engine starts, the IAC valve opens for a certain amount of time. The amount of air is increased to raise the idle speed.
- When the engine coolant temperature is low, the IAC valve is opened to obtain the proper fast idle speed. The amount of bypassed air is controlled in relation to engine coolant temperature.



Intake Air System Diagram

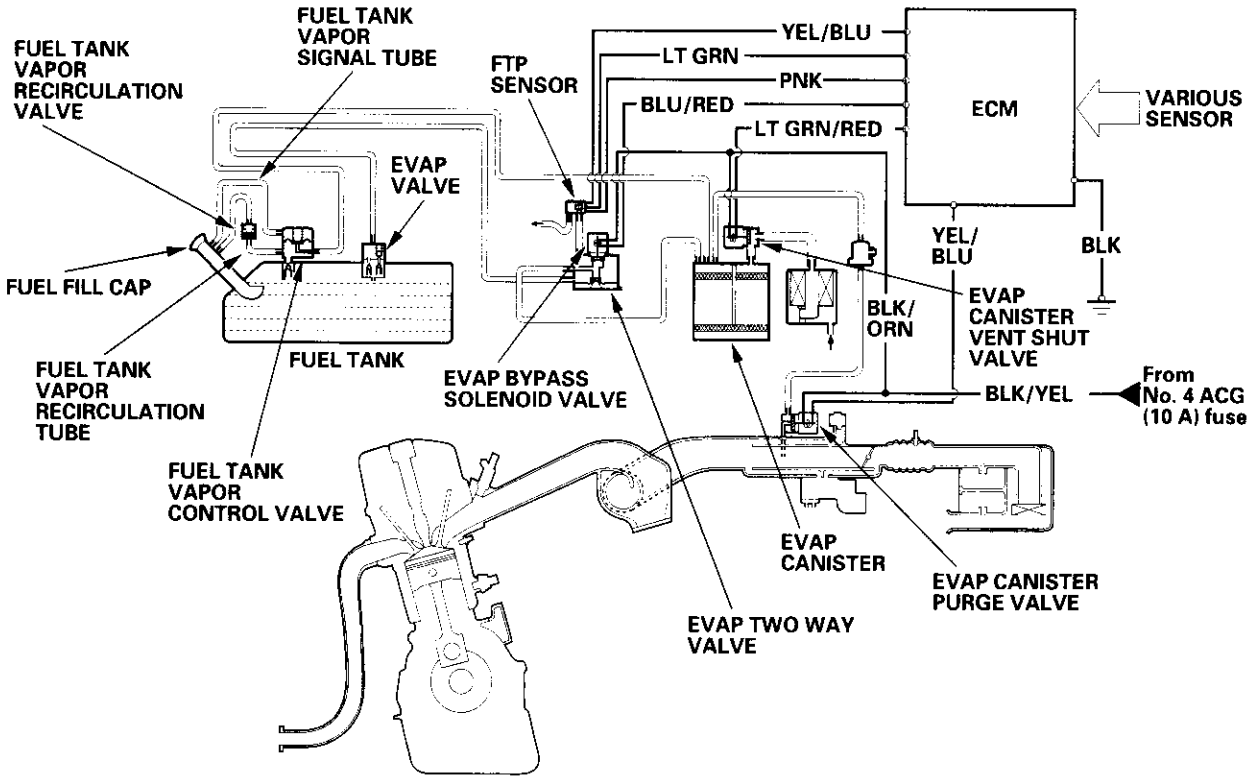
This system supplies air for engine needs. A resonator in the intake air pipe provides additional silencing as air is drawn into the system.



Evaporative Emission (EVAP) Control Diagram

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP canister until it can be purged from the canister into the engine and burned.

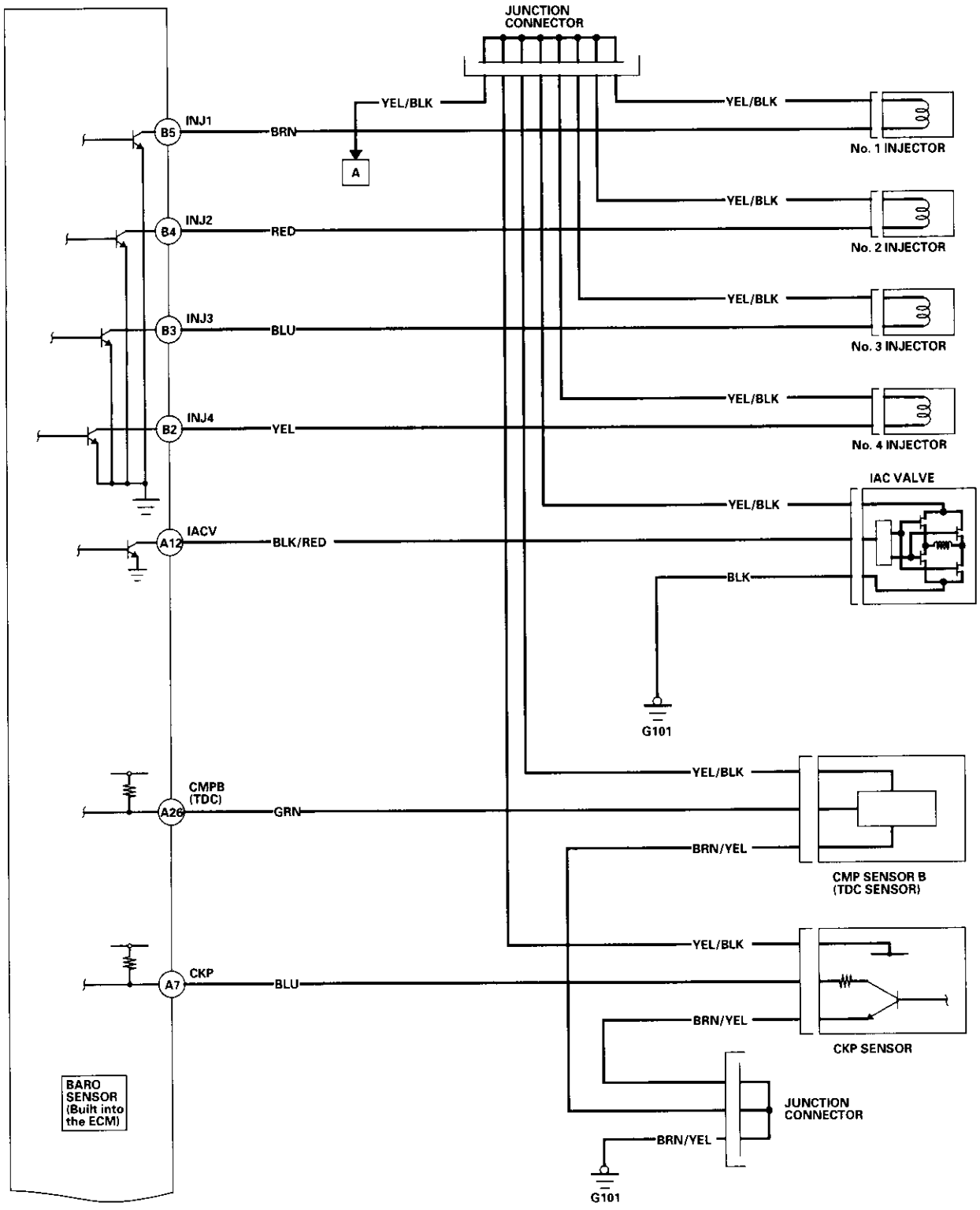
- The EVAP canister is purged by drawing fresh air through it and into a port on the intake manifold. The purging vacuum is controlled by the EVAP canister purge valve, which operates whenever engine coolant temperature is above 149°F (65°C).
- When vapor pressure in the fuel tank is higher than the set value of the EVAP two way valve, the valve opens and regulates the flow of fuel vapor to the EVAP canister.
- During refueling, the fuel tank vapor control valve opens with the pressure in the fuel tank, and feeds the fuel vapor to the EVAP canister.

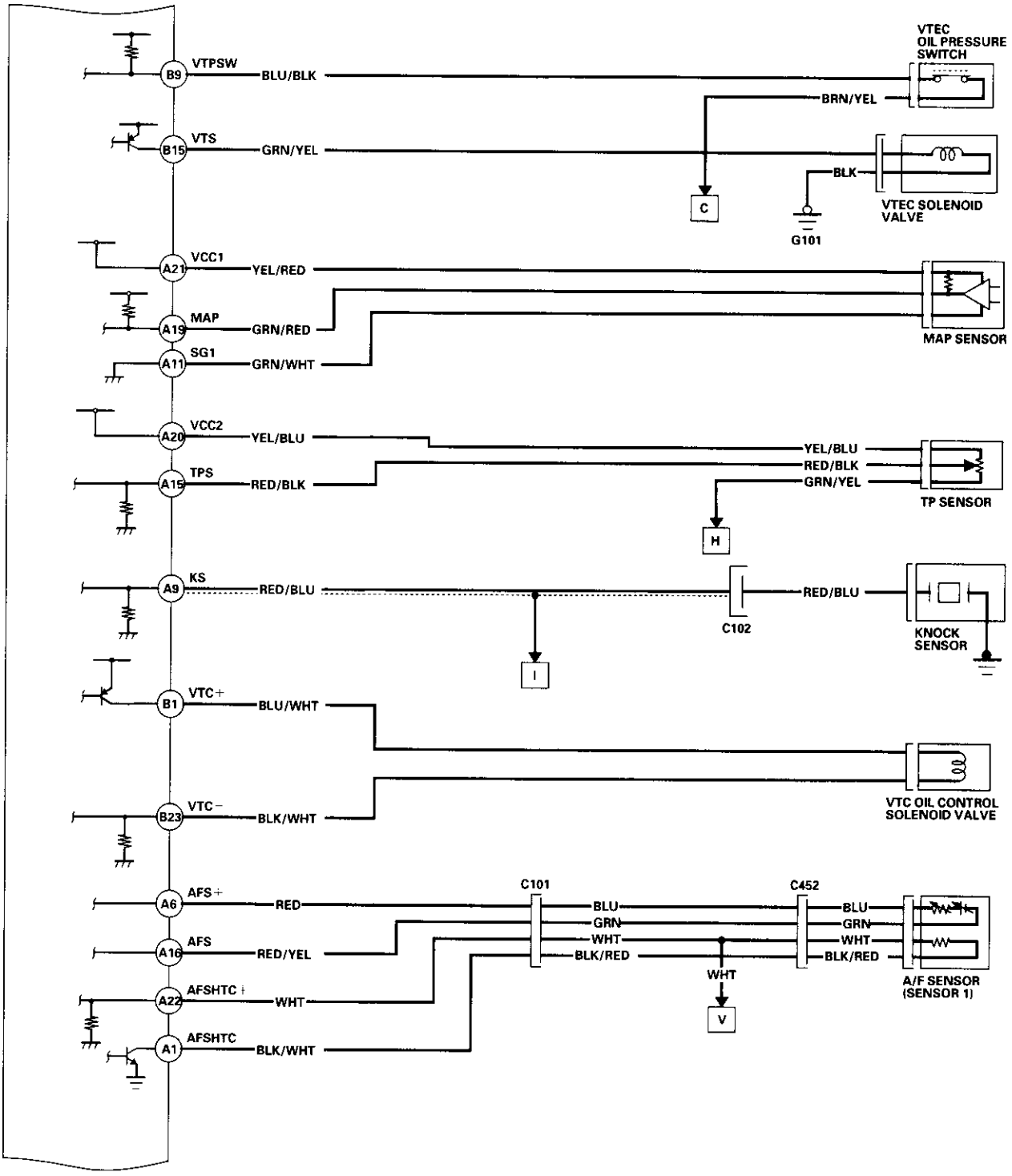


(cont'd)

System Descriptions (cont'd)

ECM Circuit Diagram

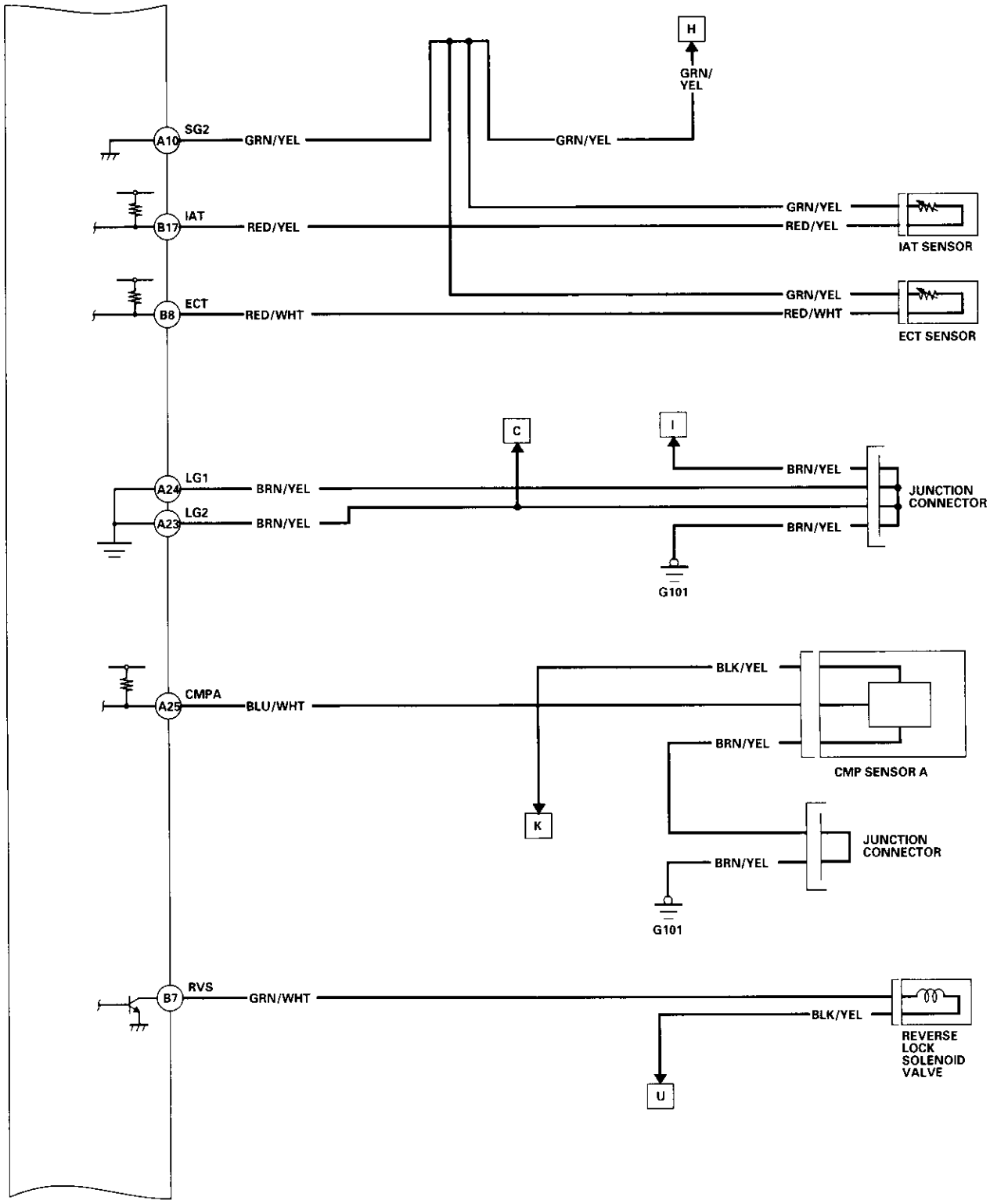


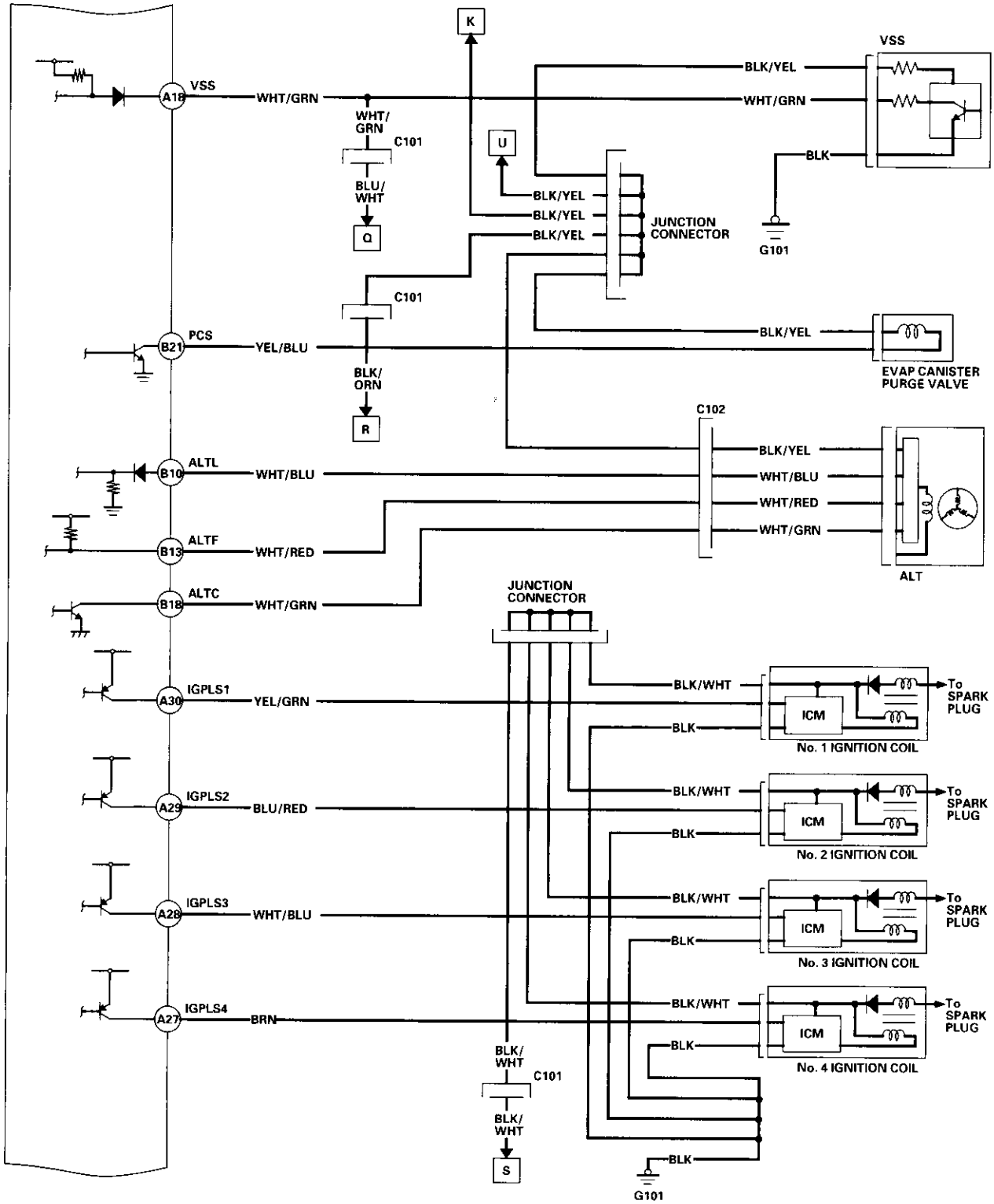

VTPSW
B9
BLU/BLK
VTEC OIL PRESSURE SWITCH
BRN/YEL
VTS
B15
GRN/YEL
C
BLK
VTEC SOLENOID VALVE
G101
VCC1
A21
YEL/RED
MAP
A19
GRN/RED
MAP SENSOR
SG1
A11
GRN/WHT
VCC2
A20
YEL/BLU
YEL/BLU
RED/BLK
GRN/YEL
TPS
A15
RED/BLK
TP SENSOR
H
KS
A9
RED/BLU
C102
RED/BLU
KNOCK SENSOR
I
VTC+
B1
BLU/WHT
VTC OIL CONTROL SOLENOID VALVE
VTC−
B23
BLK/WHT
C101
C452
AFS+
A6
RED
BLU
GRN
WHT
BLK/RED
AFS
A16
RED/YEL
AFSHTC+
A22
WHT
WHT
V
AFSHTC−
A1
BLK/WHT
A/F SENSOR (SENSOR 1)

(cont'd)

System Descriptions (cont'd)

ECM Circuit Diagram (cont'd)

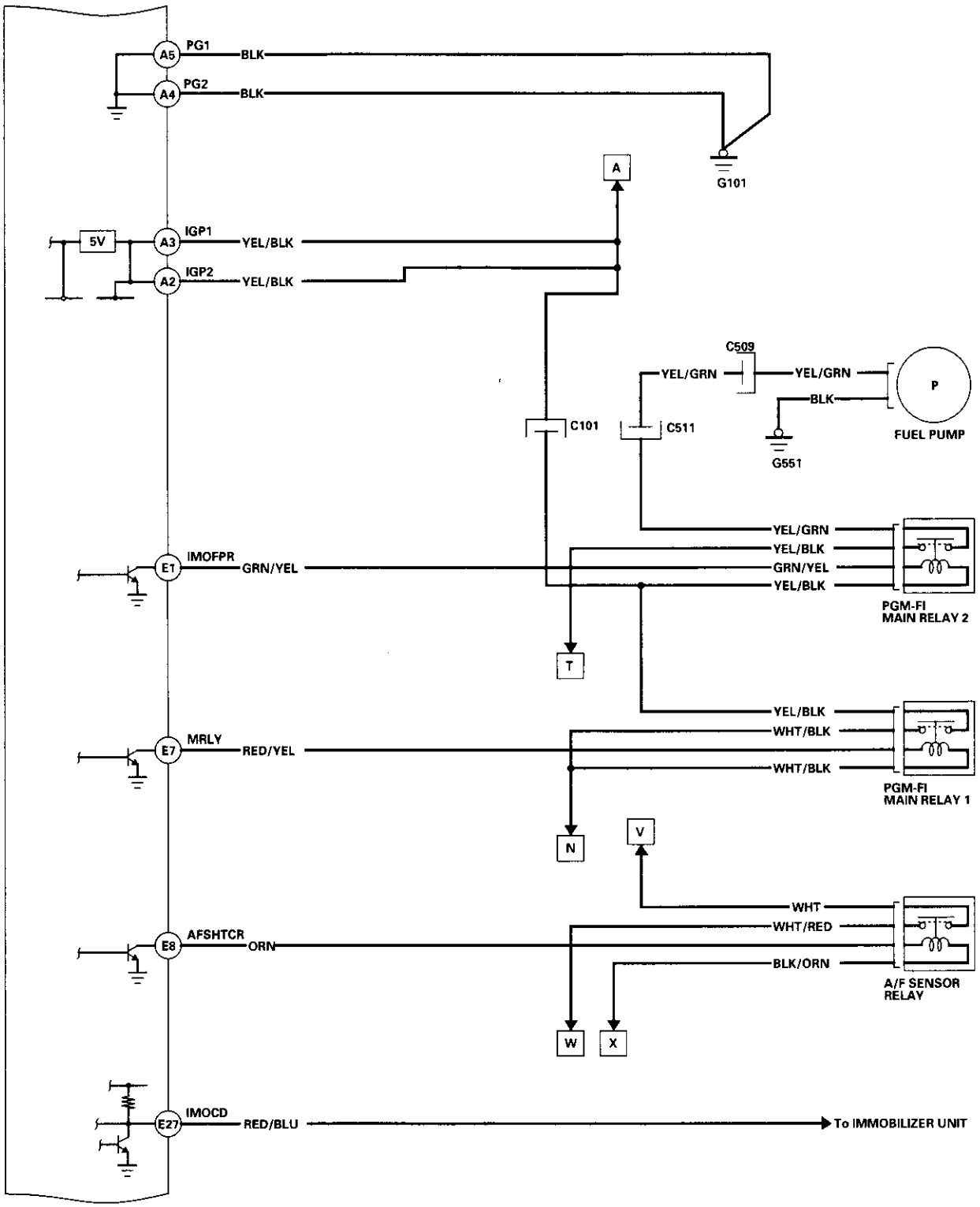


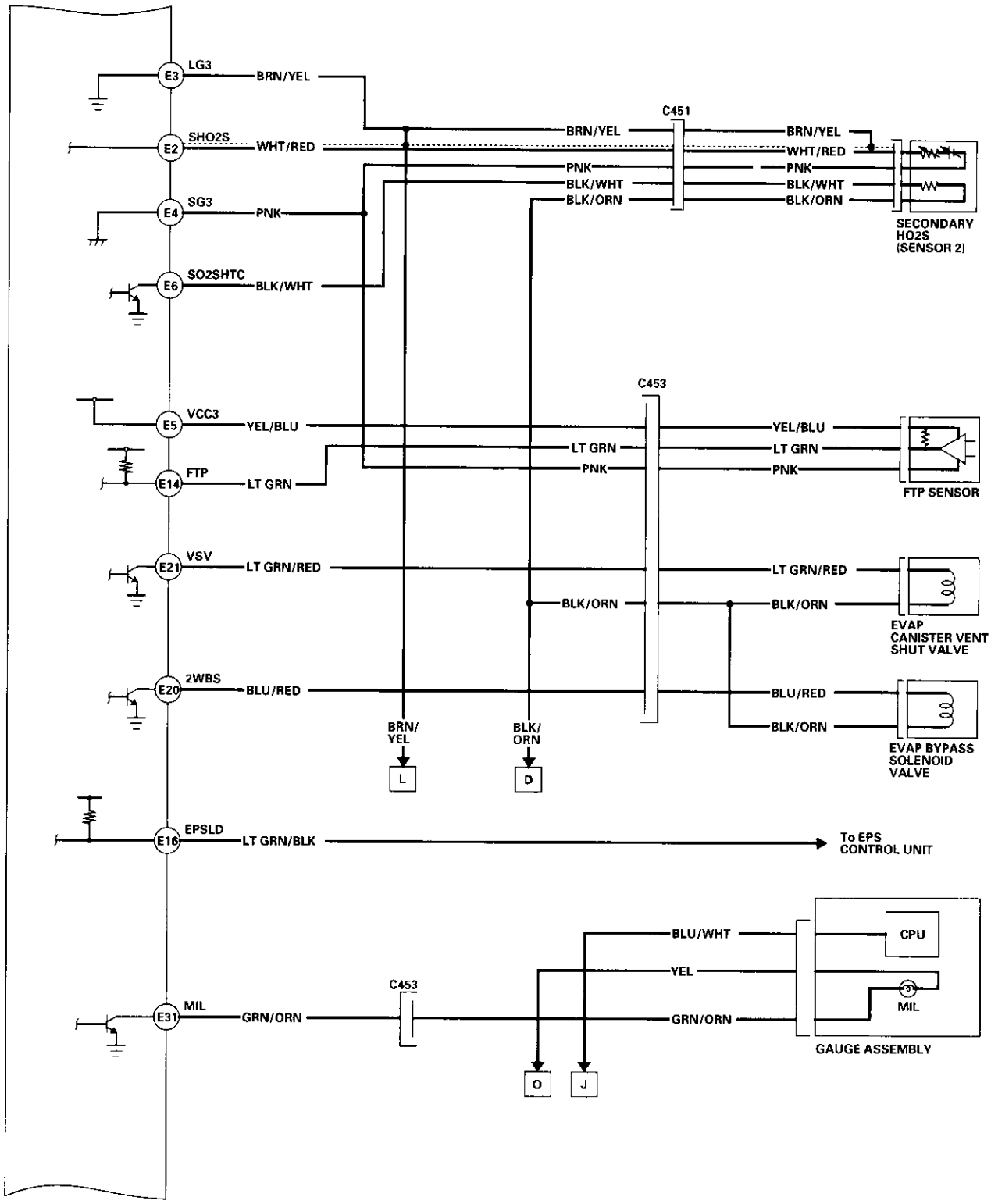

VSS
A18
WHT/GRN
WHT/
GRN
C101
BLU/
WHT
Q
K
U
BLK/YEL
BLK/YEL
BLK/YEL
JUNCTION
CONNECTOR
BLK/YEL
WHT/GRN
BLK
VSS
G101
C101
PCS
B21
YEL/BLU
BLK/
ORN
R
BLK/YEL
EVAP CANISTER
PURGE VALVE
C102
ALTL
B10
WHT/BLU
ALTF
B13
WHT/RED
ALTC
B18
WHT/GRN
BLK/YEL
WHT/BLU
WHT/RED
WHT/GRN
ALT
JUNCTION
CONNECTOR
IGPLS1
A30
YEL/GRN
IGPLS2
A29
BLU/RED
IGPLS3
A28
WHT/BLU
IGPLS4
A27
BRN
BLK/WHT
BLK
ICM
No. 1 IGNITION COIL
To
SPARK
PLUG
BLK/WHT
BLK
ICM
No. 2 IGNITION COIL
To
SPARK
PLUG
BLK/WHT
BLK
ICM
No. 3 IGNITION COIL
To
SPARK
PLUG
BLK/WHT
BLK
ICM
No. 4 IGNITION COIL
To
SPARK
PLUG
BLK/
WHT
C101
BLK/
WHT
S
BLK
G101

(cont'd)

System Descriptions (cont'd)

ECM Circuit Diagram (cont'd)

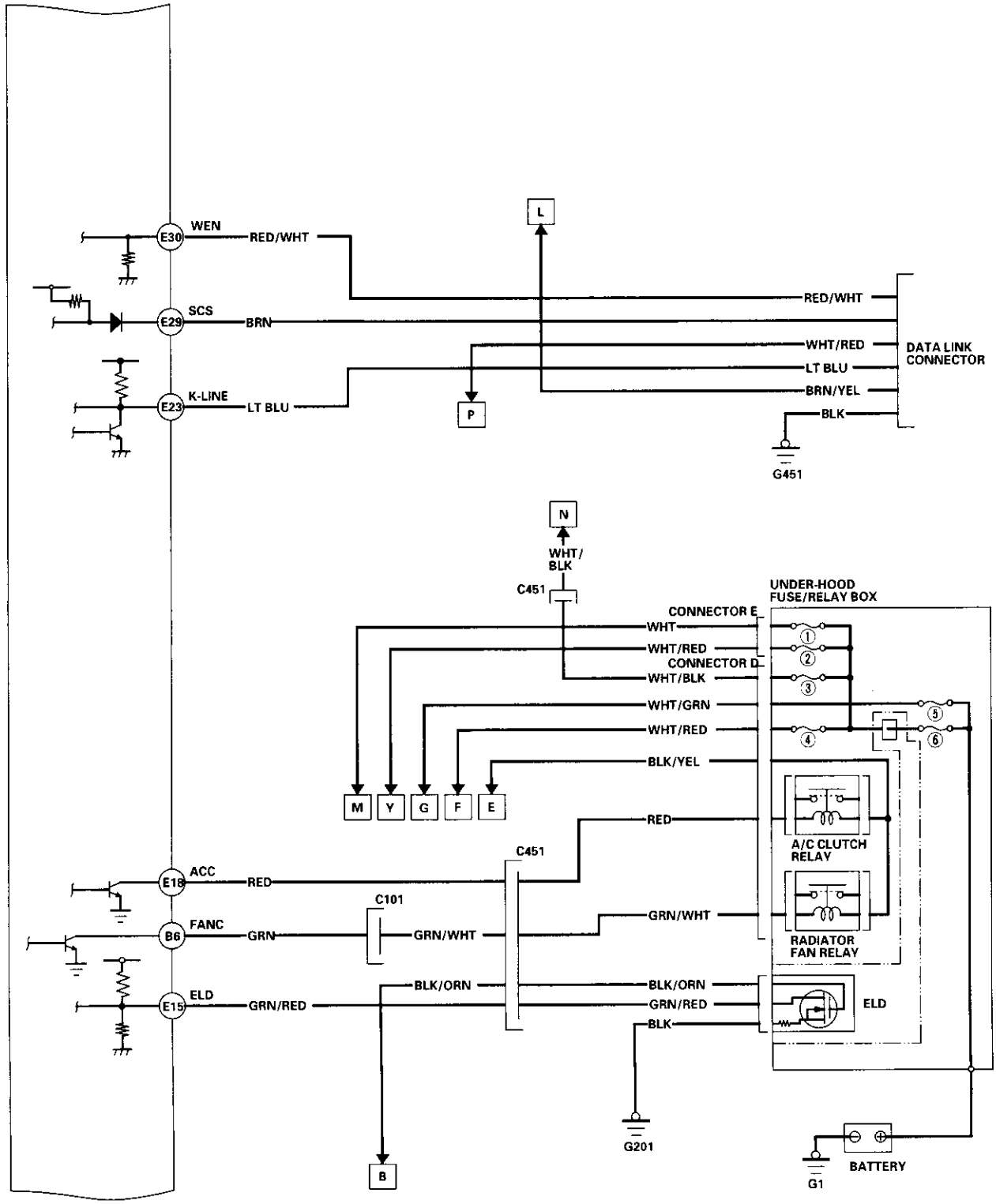


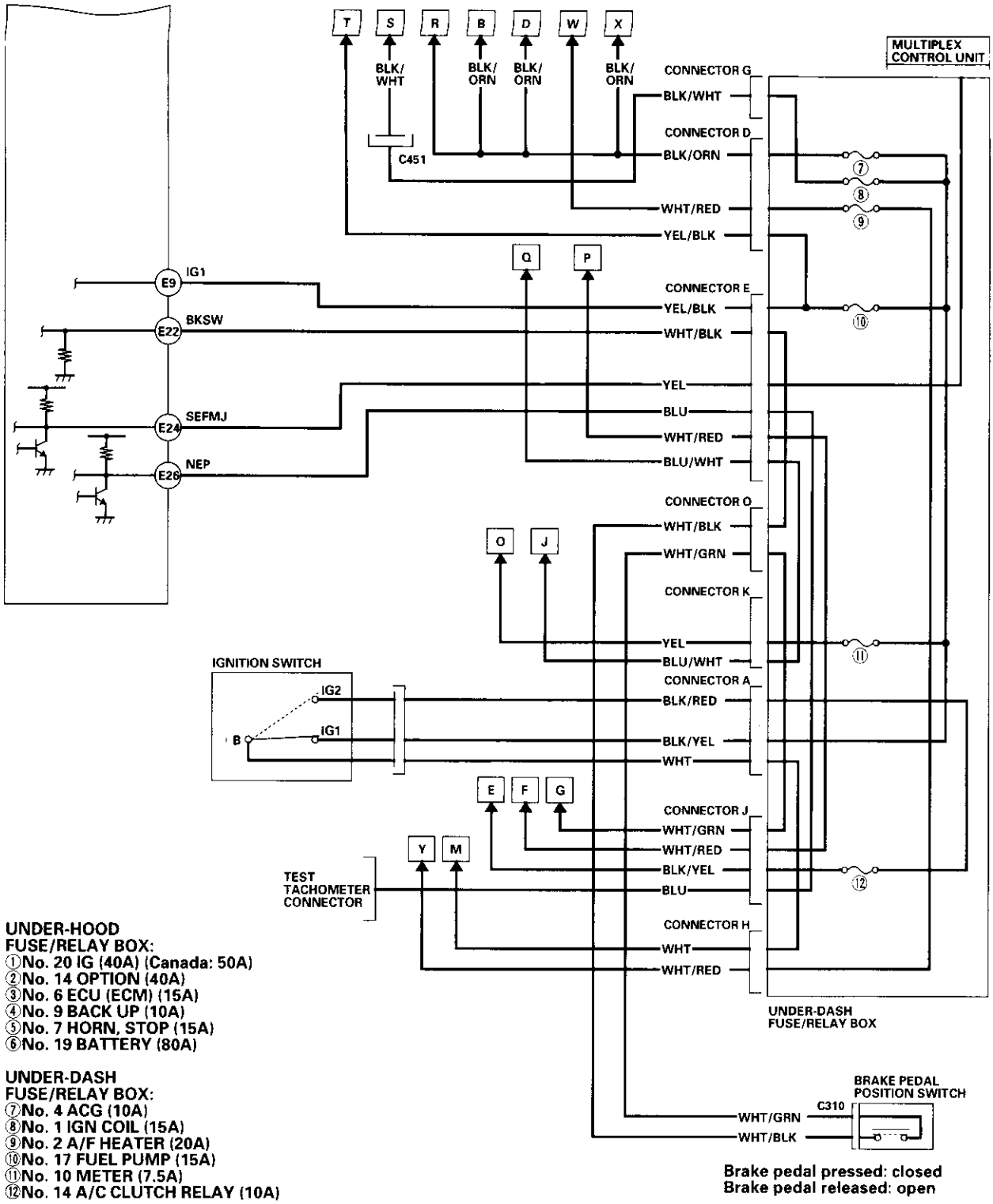

E3
LG3
BRN/YEL
E2
SHO2S
WHT/RED
E4
SG3
PNK
E6
SO2SHTC
BLK/WHT
C451
BRN/YEL
WHT/RED
PNK
BLK/WHT
BLK/ORN
SECONDARY HO2S (SENSOR 2)
C453
E5
VCC3
YEL/BLU
E14
FTP
LT GRN
FTP SENSOR
E21
VSV
LT GRN/RED
BLK/ORN
EVAP CANISTER VENT SHUT VALVE
E20
2WBS
BLU/RED
EVAP BYPASS SOLENOID VALVE
BRN/YEL
BLK/ORN
L
D
E16
EPSLD
LT GRN/BLK
To EPS CONTROL UNIT
E31
MIL
GRN/ORN
BLU/WHT
YEL
CPU
MIL
GAUGE ASSEMBLY
O
J

(cont'd)

System Descriptions (cont'd)

ECM Circuit Diagram (cont'd)





UNDER-HOOD FUSE/RELAY BOX:
①No. 20 IG (40A) (Canada: 50A)
②No. 14 OPTION (40A)
③No. 6 ECU (ECM) (15A)
④No. 9 BACK UP (10A)
⑤No. 7 HORN, STOP (15A)
⑥No. 19 BATTERY (80A)

UNDER-DASH FUSE/RELAY BOX:
⑦No. 4 ACG (10A)
⑧No. 1 IGN COIL (15A)
⑨No. 2 A/F HEATER (20A)
⑩No. 17 FUEL PUMP (15A)
⑪No. 10 METER (7.5A)
⑫No. 14 A/C CLUTCH RELAY (10A)

Brake pedal pressed: closed
Brake pedal released: open

How to Set Readiness Codes

Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)

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Catalytic Converter Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected or when the ECM is cleared with the OBD II scan tool or Honda PGM Tester.
- Low ambient temperatures or excessive stop-and-go traffic may increase the drive time needed to switch the readiness code from incomplete to complete.
- The readiness code will not switch to complete until all the enable criteria are met.
- If a fault in the secondary HO2S system caused the MIL to come on, the readiness code cannot be set to complete until you correct the fault.

Enable Criteria
- ECT at 158°F (70°C) or higher.
- Intake air temperature (IAT) at 20°F (−7°C) or higher.
- Vehicle speed is steady, and vehicle speed sensor (VSS) reads more then 25 mph (13km/h).

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (3 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

Evaporative Emissions (EVAP) Control System Monitor and Readiness code

NOTE:
- All readiness code are cleared when the battery is disconnected or when the ECM is cleared with the OBD II scan tool or Honda PGM Tester.
- The enable criteria must be repeated if the intake air temperature (IAT) drops lower than 36°F (20°C) from its value at engine start up.

Enable Criteria
- At engine start up, ECT and IAT are higher than 32°F (0°C) , but lower than 95°F (35°C).
- At engine start up, the ECT and IAT are within 12°F (7°C) of each other.

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 2.5 miles (1.6 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

Air Fuel Ratio (A/F) Sensor Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected or when the ECM is cleared with the OBD II scan tool or Honda PGM Tester.

Enable Criteria
ECT at 140°F (60°C) or higher.

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (wirh the throttle fully closed) for 5 seconds. After about 3.5 miles (2.2 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, the enable criteria was probably not met; repeat the procedure.

Air/Fuel Ratio (A/F) Sensor Heater Monitor Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected or when the ECM is cleared with the OBD II scan tool or Honda PGM Tester.

Procedure
1. Connect the scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.
3. If the readiness code is still set to incomplete, check for a temporary DTC. If there is no DTC, repeat the procedure.

(cont'd)

How to Set Readiness Codes (cont'd)

Misfire Monitor and Readiness Code

- This readiness code is always set to available because misfiring is continuously monitored.
- Monitoring pauses, and the misfire counter resets, if the vehicle is driven over a rough road.
- Monitoring also pauses, and the misfire counter holds at its current value, if the throttle position changes more than a predetermined value, or if driving conditions fall outside the range of any related enable criteria.

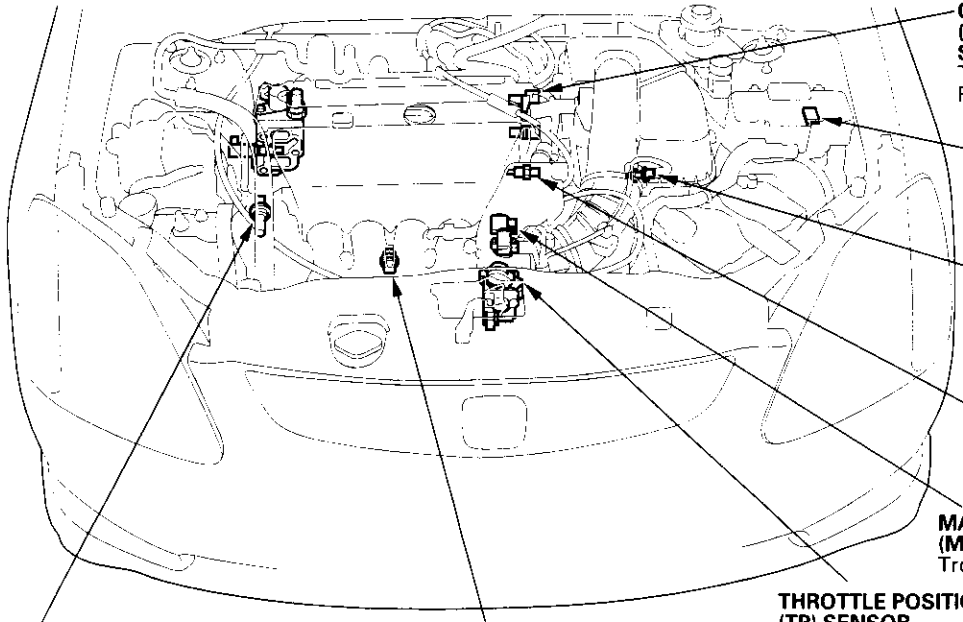
Fuel System Monitor and Readiness Code

- This readiness code is always set to available because the fuel system is continuously monitored during closed loop operation.
- Monitoring pauses when the catalytic converter, EVAP control system, and A/F sensor monitors are active.
- Monitoring also pauses when any related enable criteria are not being met. Monitoring resumes when the enable criteria is again being met.

Comprehensive Component Monitor and Readiness Code

This readiness code is always set to available because the comprehensive component monitor is continuously running whenever the engine is cranking or running.

Component Location Index



CAMSHAFT POSITION (CMP) SENSOR B (TOP DEAD CENTER (TDC) SENSOR)
Troubleshooting, page 11-95
Replacement, page 11-114

ELECTRICAL LOAD DETECTOR (ELD)
Troubleshooting, page 11-92

INTAKE AIR TEMPERATURE (IAT) SENSOR
Troubleshooting, page 11-55
Replacement, page 11-115

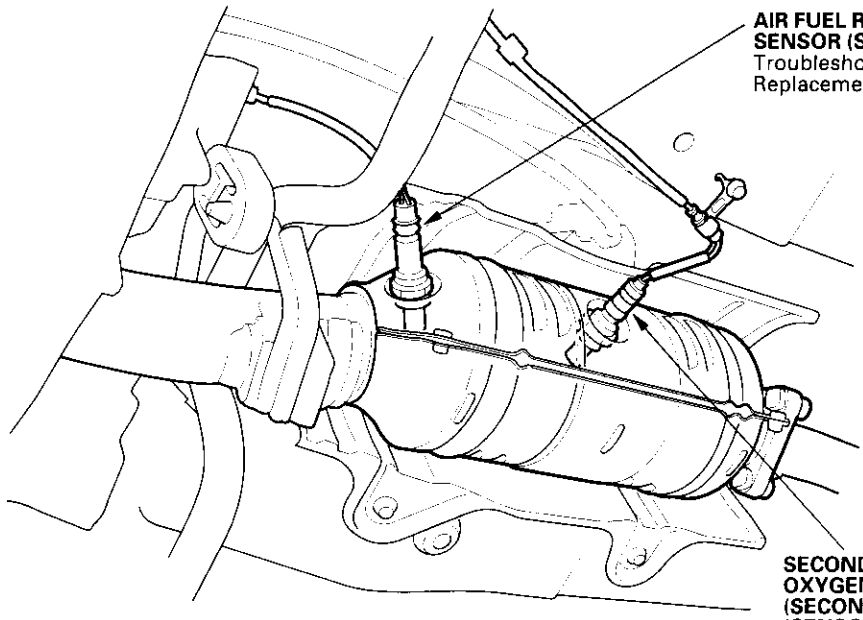
ENGINE COOLANT TEMPERATURE (ECT) SENSOR
Troubleshooting, page 11-57
Replacement, page 11-114

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
Troubleshooting, page 11-52

THROTTLE POSITION (TP) SENSOR
Troubleshooting, page 11-60

CRANKSHAFT POSITION (CKP) SENSOR
Troubleshooting, page 11-78
Replacement, page 11-116

KNOCK SENSOR
Troubleshooting, page 11-77
Replacement, page 11-115

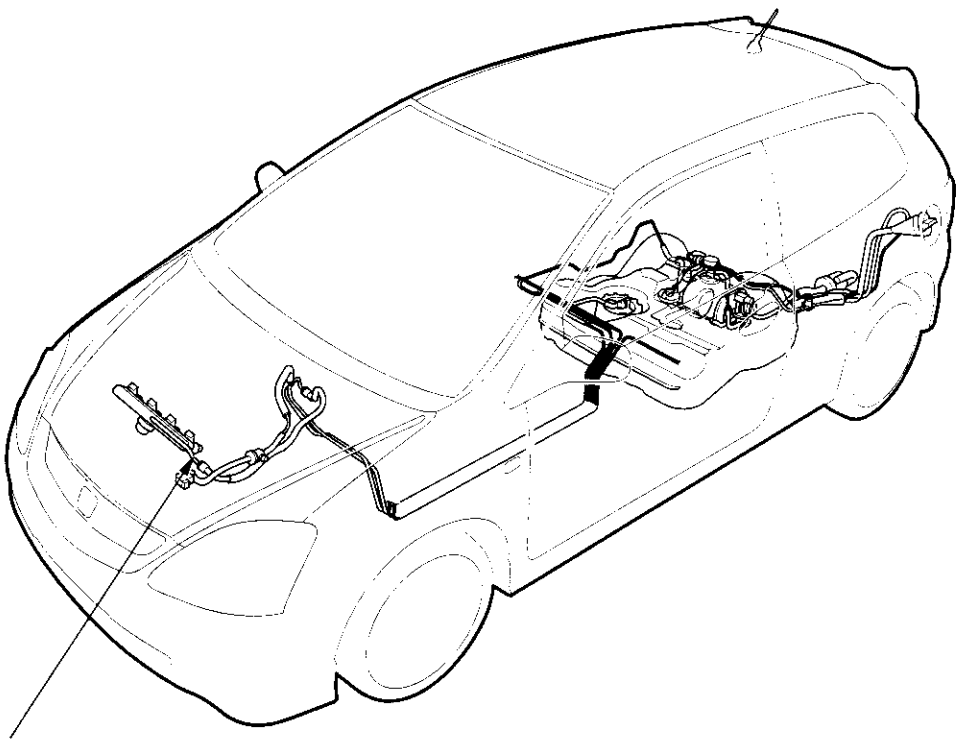


AIR FUEL RATIO (A/F) SENSOR (SENSOR 1)
Troubleshooting, page 11-84
Replacement, page 11-113

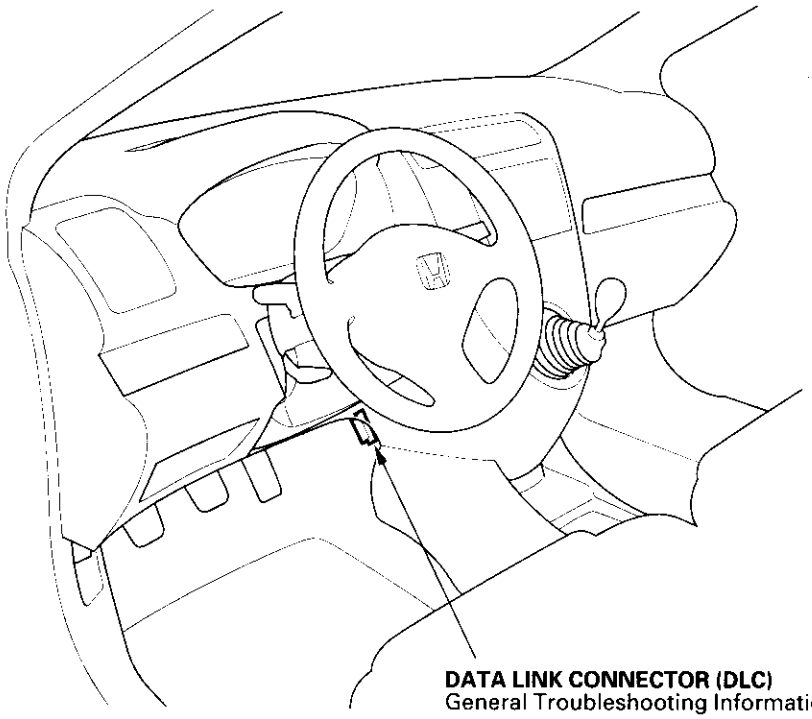
SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
Troubleshooting, page 11-65
Replacement, page 11-113

(cont'd)

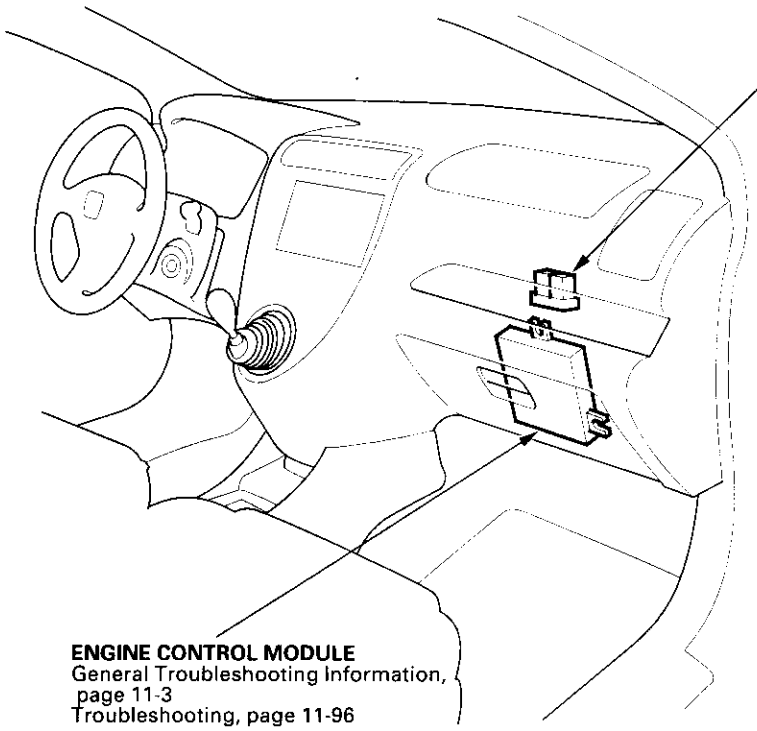
Component Location Index (cont'd)



INJECTORS
Replacement, page 11-111



DATA LINK CONNECTOR (DLC)
General Troubleshooting Information, page 11-3



PGM-FI MAIN RELAY 1
Troubleshooting, page 11-97

ENGINE CONTROL MODULE
General Troubleshooting Information, page 11-3
Troubleshooting, page 11-96

DTC Troubleshooting

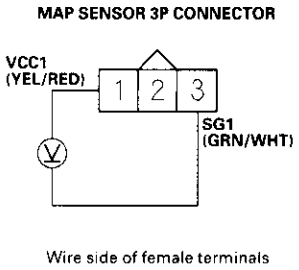
DTC P0107: MAP Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the MAP with the scan tool.

   Is about 101 kPa (760 mmHg, 30 in.Hg) or 2.9 V indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and at the ECM.■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.



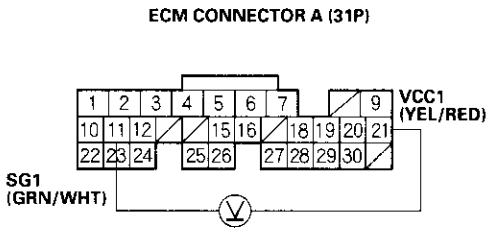
Wire side of female terminals

Is there about 5 V?

YES—Go to step 8.

NO—Go to step 7.

7. Measure voltage between ECM connector terminals A11 and A21.



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A21) and the MAP sensor.■

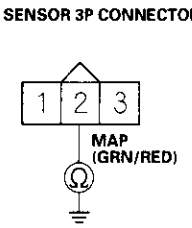
NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

8. Check the MAP with the scan tool.

   Is 2 kPa (15 mmHg, 0.6 in.Hg) or less or 0 V indicated?

   YES—Go to step 9.

   NO—Replace the MAP sensor.■
9. Turn the ignition switch OFF.
10. Disconnect ECM connector A (31P).
11. Check for continuity between MAP sensor connector terminal No. 2 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A19) and the MAP sensor.■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DTC P0108: MAP Sensor Circuit High Voltage

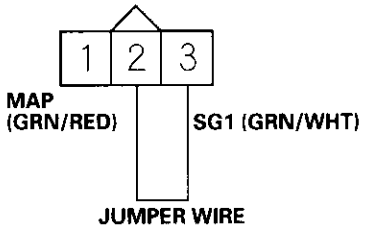
1. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with the scan tool.

   Is about 101 kPa (780 mmHg, 30 in.Hg) or higher, or about 2.9 V or higher indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and at the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Connect MAP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

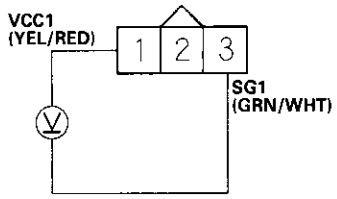
6. Turn the ignition switch ON (II).
7. Check the MAP with the scan tool.

   Is about 101 kPa (760 mmHg, 30 in.Hg) or higher, or about 2.9 V or higher indicated?

   YES—Go to step 8.

   NO—Replace the MAP sensor.■
8. Remove the jumper wire.
9. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

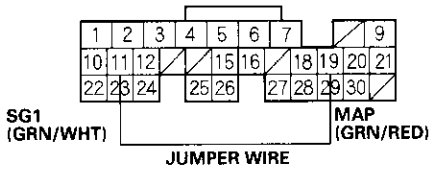
Is there about 5 V?

YES—Go to step 10.

NO—Repair open in the wire between the ECM (A11) and the MAP sensor.■

10. Turn the ignition switch OFF.
11. Connect ECM connector terminals A11 and A19 with a jumper wire.

ECM CONNECTOR A (31P)



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the MAP with the scan tool.

    Is about 101 kPa (760 mmHg, 30 in.Hg) or higher, or about 2.9 V or higher indicated?

    YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

    NO—Repair open in the wire between the ECM (A19) and the MAP sensor.■

DTC Troubleshooting (cont'd)

DTC P1128: MAP Sensor Signal Lower Than Expected

1. Turn the ignition switch ON (II).
2. Check the MAP with the scan tool.

   Is 54.1 kPa (406 mmHg, 16.0 in.Hg), 1.6 V, or higher indicated?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the MAP sensor. ■

DTC P1129: MAP Sensor Signal Higher Than Expected

1. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with the scan tool.

   Is 36.9 kPa (277 mmHg, 10.9 in.Hg), 1.1 V, or less indicated?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the MAP sensor. ■

DTC P0112: IAT Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the IAT with the scan tool.

   Is 302°F (150°C) or higher (or H-Limit in Honda mode of PGM Tester), or 0 V indicated?

   YES—Go to step 3.

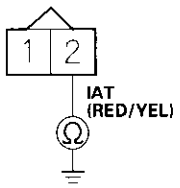
   NO—Go to step 8.
3. Disconnect the IAT sensor 2P connector.
4. Check the IAT with the scan tool.

   Is 302°F(150°C) or higher (or H-Limit in Honda mode of PGM Tester), or 0 V indicated?

   YES—Go to step 5.

   NO—Replace the IAT sensor.■
5. Turn the ignition switch OFF.
6. Disconnect ECM connector B (24P).
7. Check for continuity between IAT sensor 2P connector terminal No. 2 and body ground.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

   Is there continuity?

   YES—Repair short in the wire between the ECM (B17) and the IAT sensor.■

   NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■
8. Check the temperature reading on the scan tool. Be aware that if the engine is warm, the reading will be higher than ambient temperature. If the engine is cold, the IAT and ECT will have the same value.

   Is the correct ambient temperature indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and at the ECM.■

   NO—Replace the IAT sensor.■

DTC Troubleshooting (cont'd)

DTC P0113: IAT Sensor Circuit High Voltage

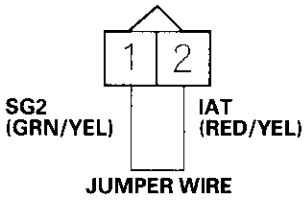
1. Turn the ignition switch ON (II).
2. Check the IAT with the scan tool.

   Is −4°F (−20°C) or less (or L-Limit in Honda mode of PGM Tester) or 5 V indicated?

   YES—Go to step 3.

   NO—Intermitent failure, system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and at the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAT sensor 2P connector.
5. Connect IAT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

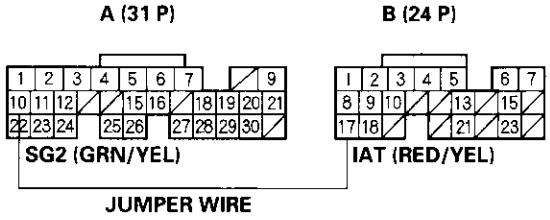
6. Turn the ignition switch ON (II).
7. Check the IAT with the scan tool.

   Is −4°F (−20°C) or less (or L-Limit in Honda mode of PGM Tester) or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the IAT sensor. ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Connect ECM connector terminals A10 and B17 with a jumper wire.

ECM CONNECTORS



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the IAT with the scan tool.

    Is −4°F (−20°C) or less (or L-Limit in Honda mode of PGM Tester) or 5 V indicated?

    YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

    NO—Repair open in the wire between the ECM (A10, B17) and the IAT sensor. ■

DTC P0116: ECT Sensor Range/Performance Problem

NOTE: If DTC P0117 and/or P0118 are stored at the same time as DTC P0116, troubleshoot those DTCs first, then recheck for DTC P0116.

1. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.

2. Check the ECT with the scan tool.

   Is 176—212°F (80—100°C) or 0.5—0.8 V indicated?

   YES—Intermittent failure, system is OK at this time. Check the thermostat and the cooling system. ■

   NO—Check the thermostat and the cooling system. If they are OK, replace the ECT sensor. ■

DTC Troubleshooting (cont'd)

DTC P0117: ECT Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the ECT with the scan tool.

   Is 150°C (302°F) or higher (or H-Limit in Honda mode of PGM Tester) or 0 V indicated?

   YES—Go to step 3.

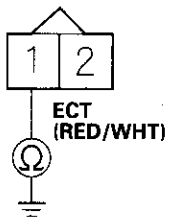
   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ECT sensor and at the ECM.■
3. Disconnect the ECT sensor 2P connector.
4. Check the ECT with the scan tool.

   Is 150°C (302°F) or higher (or H-Limit in Honda mode of PGM Tester) or 0 V indicated?

   YES—Go to step 5.

   NO—Replace the ECT sensor.■
5. Turn the ignition switch OFF.
6. Disconnect ECM connector B (24P).
7. Check for continuity between the ECT sensor 2P connector terminal No. 1 and body ground.

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (B8) and the ECT sensor.■

NO—Update the ECM if it does not have the latest software,or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DTC P0118: ECT Sensor Circuit High Voltage

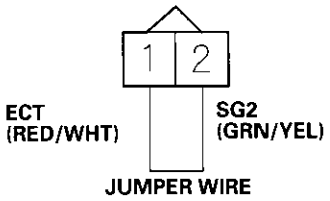
1. Turn the ignition switch ON (II).
2. Check the ECT with the scan tool.

   Is −20°C (−4°F) or less (or L-Limit in Honda mode of PGM Tester) or 5 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ECT sensor and at the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2P connector.
5. Connect the ECT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

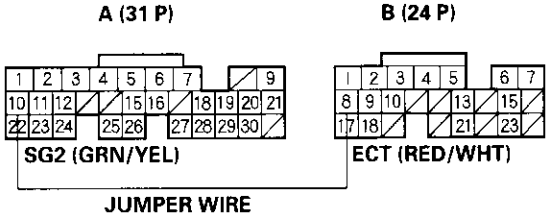
6. Turn the ignition switch ON (II).
7. Check the ECT with the scan tool.

   Is −20°C (−4°F) or less (or L-Limit in Honda mode of PGM Tester) or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the ECT sensor. ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Connect ECM connector terminals A10 and B8 with a jumper wire.

ECM CONNECTORS



Wire side of female terminals

11. Turn the ignition switch ON (II).
12. Check the ECT with the scan tool.

    Is −20°C (−4°F) or less (or L-Limit in Honda mode of PGM Tester) or 5 V indicated?

    YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

    NO—Repair open in the wire between the ECM (A10, B8) and the ECT sensor. ■

DTC Troubleshooting (cont'd)

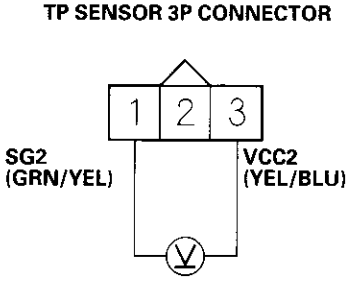
DTC P0122: TP Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Check the throttle position with the scan tool.

   Is there about 10% or 0.5 V when the throttle is fully closed and about 90% or 4.5 V when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TP sensor and at the ECM.■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the TP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between the TP sensor 3P connector terminals No. 1 and No. 3.



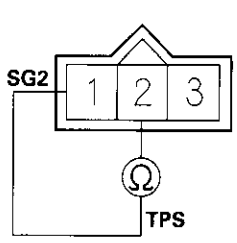
Wire side of female terminals

Is there about 5 V?

YES—Go to step 7.

NO—Go to step 14.

7. Turn the ignition switch OFF.
8. At the sensor side, measure resistance between the TP sensor 3P connector terminals No. 1 and No. 2 with the throttle fully closed.



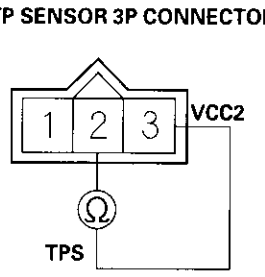
Terminal side of male terminals

Is there about 0.5—0.9 kΩ ?

YES—Go to step 9.

NO—Replace the throttle body (the TP sensor is not available separately).■

9. Measure resistance between the TP sensor 3P connector terminals No. 2 and No. 3 with the throttle fully closed.



Terminal side of male terminals

Is there about 4.5kΩ ?

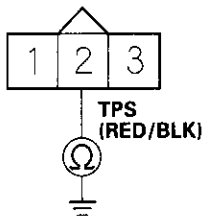
YES—Go to step 10.

NO—Replace the throttle body (the TP sensor is not available separately).■

10. Disconnect ECM connector A (31P).

11. At the wire harness side, check for continuity between TP sensor 3P connector terminal No. 2 and body ground.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

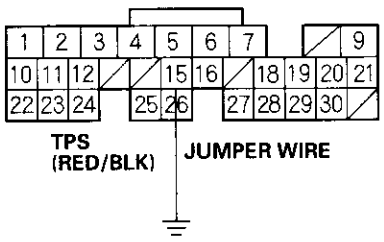
Is there continuity?

YES—Repair short in the wire between the ECM (A15) and the TP sensor. ■

NO—Go to step 12.

12. Connect ECM connector terminal A15 to body ground with a jumper wire.

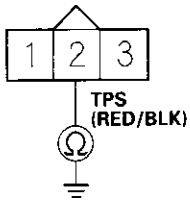
ECM CONNECTOR A (31P)



Wire side of female terminals

13. At the wire harness side, check for continuity between TP sensor 3P connector terminal No. 2 and body ground.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

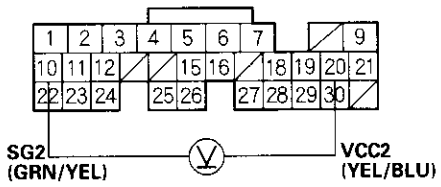
Is there continuity?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Repair open in the wire between the ECM (A15) and the TP sensor. ■

14. Measure voltage between ECM connector terminals A10 and A20.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A20) and the TP sensor. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom indication goes away with a known-good ECM, replace the original ECM. ■

DTC Troubleshooting (cont'd)

DTC P0123: TP Sensor Circuit High Voltage

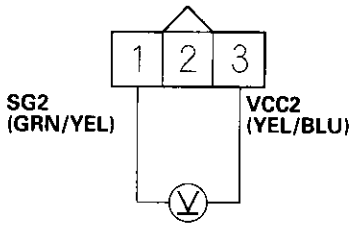
1. Turn the ignition switch ON (II).
2. Check the throttle position with the scan tool.

   Is there about 10% or 0.5 V when the throttle is fully closed and about 90% or 4.5 V when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the TP sensor and at the ECM. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the TP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. At the wire harness side, measure voltage between the TP sensor 3P connector terminals No. 1 and No. 3.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

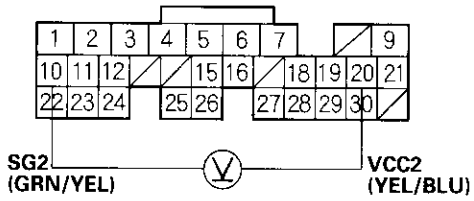
Is there about 5 V?

YES—Replace the throttle body (the TP sensor is not available separately). ■

NO—Go to step 7.

7. Measure voltage between ECM connector terminals A10 and A20.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A10) and the TP sensor. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

DTC P1121: TP Sensor Signal Lower Than Expected

1. Turn the ignition switch ON (II).
2. Check the throttle position with the scan tool.

   Is 12.9 %, 0.6 V, or higher indicated when the throttle is fully opened?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the TP sensor (the TP sensor is not available separately). ■

DTC P1122: TP Sensor Signal Higher Than Expected

1. Turn the ignition switch ON (II).
2. Check the throttle position with the scan tool.

   Is 12.9 %, 0.6 V, or less indicated when the throttle is fully closed?

   YES—Intermittent failure, system is OK at this time. ■

   NO—Replace the TP sensor (the TP sensor is not available separately). ■

DTC Troubleshooting (cont'd)

DTC P0128: Cooling System Malfunction

NOTE: If the DTCs listed below are stored at the same time as DTC P0128, troubleshoot those DTCs first, then recheck for P0128.

P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P1106, P1107, P1108: Barometric pressure (BARO) sensor
P1259: VTEC system
P0116, P0117, P0118: Engine coolant temperature (ECT) sensor
P0112, P0113: Intake air temperature (IAT) sensor
P0500: Vehicle speed sensor (VSS)
P0335, P0336: Crankshaft position (CKP) sensor
P0300: Random misfire
P0301, P0302, P0303, P0304: No. 1, No. 2, No. 3 or No. 4 cylinder misfire
P0505: Idle control system malfunction
P1519: Idle air control (IAC) valve

DTC P0128 can occasionally set when the hood is opened while the engine is running.

1. Check the engine coolant level.

   Is the engine coolant level low?

   YES—Refill the engine coolant. If necessary, repair the coolant leakage.■

   NO—Go to step 2.

2. Turn the ignition switch ON (II), and make sure the A/C is off.

3. Check the radiator fan.

   Does the radiator fan keep running?

   YES—Check the radiator fan circuit (see page 10-14), the radiator fan switch circuit (Short) (see page 10-16), and the radiator fan switch (see page 10-17). Also, inspect the ECT and IAT circuits and terminal connections. If the circuits, the switch, and the connections are OK, update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

   NO—Replace the thermostat (see page 10-8).■

DTC P0134: A/F Sensor (Sensor 1) No Activity Detected

1. Check the attachment state of the A/F sensor (Sensor 1).

   Is it slacked from the exhaust pipe?

   YES—Reinstall the A/F sensor (Seneor 1) (see page 11-113).■

   NO—Go to step 2.

2. Reset the ECM (see page 11-4).

3. Start the engine. Hold the engine speed at 3,000rpm with no load (in neutral) until the radiator fan comes on, then let it idle for 2 minute.

   Is DTC PO134 indicated?

   YES—Replace the A/F sensor (Seneor 1) (see page 11-113).■

   NO—Intermittent failure, sistem is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Seneor 1) and the ECM.■

DTC P0137: Secondary HO2S (Sensor 2) Circuit Low Voltage

1. Reset the ECM (see page 11-4).

2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.

3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool.

   Is there 0.3 V or less?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM.■

4. Turn the ignition switch OFF.

5. Disconnect the secondary HO2S (Sensor 2) 4P connector.

6. Turn the ignition switch ON (II).

7. Check the secondary HO2S (Sensor 2) output voltage with the scan tool.

   Is there 0.3 V or less?

   YES—Go to step 8.

   NO—Replace the secondary HO2S (Sensor 2).■

8. Turn the ignition switch OFF.

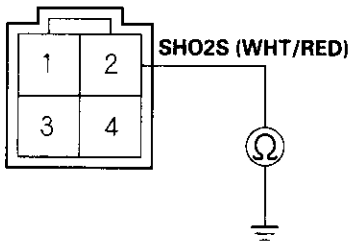
9. Disconnect ECM connector E (31P).

(cont'd)

DTC Troubleshooting (cont'd)

10. Check for continuity between the secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E2) and the secondary HO2S (Sensor 2).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DTC P0138: Secondary HO2S (Sensor 2) Circuit High Voltage

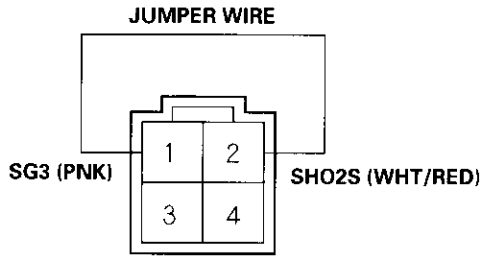
1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool.

   Is there 1.0 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

7. Turn the ignition switch ON (II).

8. Check the secondary HO2S (Sensor 2) output voltage with the scan tool.

   Is there 1.0 V or more?

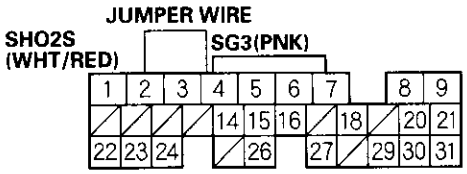
   YES—Go to step 9.

   NO—Replace the secondary HO2S (Sensor 2). ■

9. Turn the ignition switch OFF.

10. Connect ECM connector terminals E2 and E4 with a jumper wire.

ECM CONNECTOR E (31P)



Wire side of female terminals

11. Turn the ignition switch ON (II).

12. Check the secondary HO2S (Sensor 2) output voltage with the scan tool.

    Is there 1.0 V or more?

    YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

    NO—Repair open in the wire between the ECM (E2, E4) and the secondary HO2S (Sensor 2). ■

DTC P0139: Secondary HO2S (Sensor 2) Slow Response

1. Reset the ECM (see page 11-4).

2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.

3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with the scan tool.

   Is there 0.3—0.8 V, for 2 minutes?

   YES—Replace the secondary HO2S (Sensor 2). ■

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM. ■

DTC Troubleshooting (cont'd)

DTC P0141: Secondary HO2S (Sensor 2) Heater Circuit Malfunction

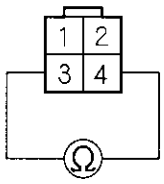
1. Reset the ECM (see page 11-4).
2. Start the engine.

   Is DTC P0141 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the secondary HO2S (Sensor 2) 4P connector.
5. At the secondary HO2S (Sensor 2) side, measure resistance between HO2S 4P connector terminals No. 3 and No. 4.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

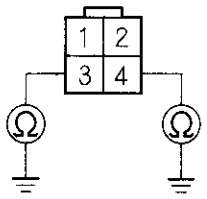
Is there about 3.3 Ω ?

YES—Go to step 6.

NO—Replace the secondary HO2S (Sensor 2). ■

6. Check for continuity between body ground and secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4 individually.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

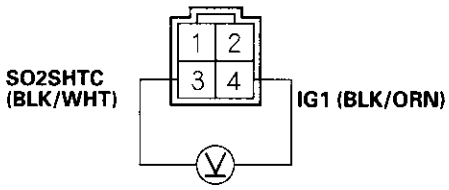
Is there continuity?

YES—Replace the secondary HO2S (Sensor 2). ■

NO—Go to step 7.

7. Turn the ignition switch ON (II).
8. Measure voltage between secondary HO2S 4P connector terminals No. 3 and No. 4.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there battery voltage?

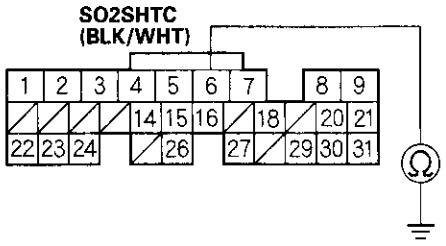
YES—Go to step 9.

NO—Go to step 12.

9. Turn the ignition switch OFF.
10. Disconnect ECM connector E (31P) .

11. Check for continuity between ECM connector terminal E6 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

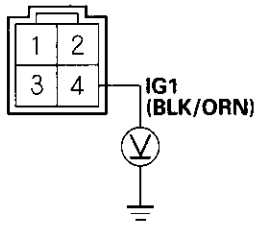
Is there continuity?

YES—Repair short in the wire between the ECM (E6) and the secondary HO2S (Sensor 2).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

12. Measure voltage between secondary HO2S (Sensor 2) 4P connector terminal No. 4 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there battery voltage?

YES—Go to step 13.

NO—Check the No. 4 ACG (10A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the secondary HO2S (Sensor 2) and No. 4 ACG (10A) fuse.■

13. Turn the ignition switch OFF.

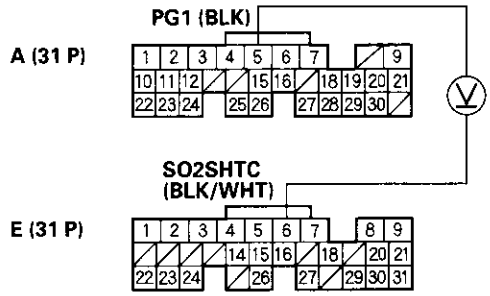
14. Reconnect the secondary HO2S (Sensor 2) 4P connector.

15. Disconnect ECM connector E (31P).

16. Turn the ignition switch ON (II).

17. Measure voltage between ECM connector terminal E6 and A5.

ECM CONNECTORS



Wire side of female terminals

Is there 0.1 V or less?

YES—Repair open in the wire between the ECM (E6) and the secondary HO2S (Sensor 2).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DTC Troubleshooting (cont'd)

DTC P0171: Fuel System Too Lean

DTC P0172: Fuel System Too Rich

NOTE: If some of the DTCs listed below are stored at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then recheck for P0171 and/or P0172.

P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P1162, P1166, P1167: A/F sensor (Sensor 1) heater
P0137, P0138: Secondary HO2S (Sensor 2)
P0141: Secondary HO2S (Sensor 2) heater
P1259: VTEC system

1. Check the fuel pressure (see page 11-145).

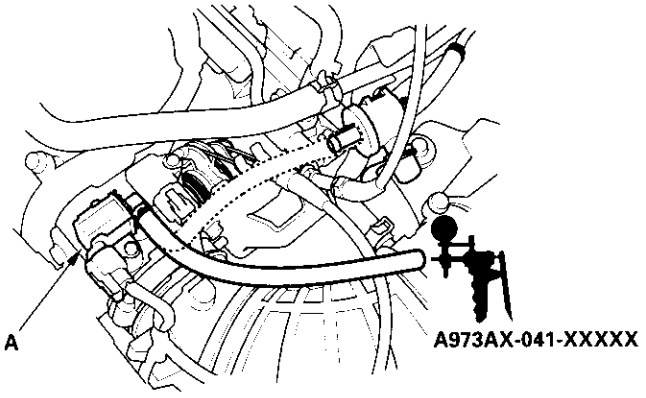
   Is fuel pressure OK?

   YES—Go to step 2.

   NO—Check these items:

   - If the pressure is too high, replace the fuel pressure regulator (see page 11-152).■
   - If the pressure is too low, check the fuel pump, the fuel feed pipe, the fuel filter, and replace the fuel pressure regulator (see page 11-152).■

2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.
3. Turn the ignition switch OFF.
4. With a vacuum pump, apply vacuum to the evaporative emission (EVAP) canister purge valve (A) from the evaporative emission (EVAP) canister side.



Does it hold vacuum?

YES—Check the engine valve clearances and adjust if necessary. If the valve clearances are OK, replace the injectors (see page 11-111).■

NO—Replace the EVAP canister purge valve.■

DTC P0300: Random Misfire and Any Combination of the Following:

DTC P0301: No. 1 Cylinder Misfire

DTC P0302: No. 2 Cylinder Misfire

DTC P0303: No. 3 Cylinder Misfire

DTC P0304: No. 4 Cylinder Misfire

NOTE:
- If the misfiring is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some combination of P0301 through P0304) will be stored.
- If the misfiring is frequent enough to damage the catalyst, the MIL will blink whenever the misfiring occurs, and DTC P0300 (and some combination of P0301 through P0304) will be stored. When the misfiring stops, the MIL will remain on.

1. Troubleshoot the following DTCs first if any of them were stored along with the random misfire DTC(s):
   P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
   P0171, P0172: Fuel system
   P0335, P0336: Crankshaft position (CKP) sensor
   P0505: Idle control system
   P1149, P1162, P1163, P1164, P1165: Air fuel ratio (A/F) sensor
   P1259: VTEC system
   P1361, P1362: Camshaft position (CMP) sensor B (Top dead center (TDC) sensor)
   P1519: Idle air control (IAC) valve

2. Test-drive the vehicle to verify the symptom.

3. Find the symptom in the chart below, and do the related procedures in the order listed until you find the cause.

Symptom	Procedure(s)	Also check for:
Random misfire only at low RPM and under load	Check fuel pressure (see page 11-145).	• Low compression. • Low quality fuel.
Random misfire only during acceleration	Check fuel pressure (see page 11-145).	Malfunction in the VTEC system (see page 11-123).
Random misfire at high RPM, under load, or under random conditions	Check fuel pressure (see page 11-145).	Correct engine valve clearances (see page 6-9).

DTC Troubleshooting (cont'd)

DTC P0301: No. 1 Cylinder Misfire

DTC P0302: No. 2 Cylinder Misfire

DTC P0303: No. 3 Cylinder Misfire

DTC P0304: No. 4 Cylinder Misfire

1. After checking and recording the freeze data, reset the ECM (see page 11-4). If there is no freeze data of the misfire, just clear the DTC.
2. Start the engine, and listen for a clicking sound from the injector at the problem cylinder.

   Does the injector click?

   YES—Go to step 3.

   NO—Go to step 30.
3. Turn the ignition switch OFF.
4. Exchange the ignition coil from the problem cylinder with one from another cylinder.
5. Test-drive the vehicle for several minutes in the range of the freeze data or under various conditions if there was no freeze data.
6. Check for a DTC or a Temporary DTC with the scan tool.

   Is DTC or Temporary DTC P0301, P0302, P0303 or P0304 indicated?

   YES—Go to step 7.

   NO—Intermittent misfire due to poor contact at the ignition coil connectors (no misfire at this time). Make sure the coil connections are secure.■
7. Determine which cylinder(s) had the misfire.

   Does the misfire occur in the cylinder where the ignition coil was exchanged?

   YES—Replace the faulty ignition coil.■

   NO—Go to step 8.
8. Turn the ignition switch OFF.
9. Exchange the spark plug from the problem cylinder with one from another cylinder.
10. Test-drive the vehicle for several minutes in the range of the freeze data or under various conditions if there was no freeze data.
11. Check for a DTC or Temporary DTC with the scan Tool.

    Is DTC or Temporary DTC P0301, P0302, P0303 or P0304 indicated?

    YES—Go to step 12.

    NO—Intermittent misfire due to spark plug fouling, etc. (no misfire at this time).■
12. Determine which cylinder(s) had the misfire.

    Does the misfire occur in the cylinder where the spark plug was exchanged?

    YES—Replace the faulty spark plug.■

    NO—Go to step 13.
13. Turn the ignition switch OFF.
14. Exchange the injector from the problem cylinder with one from another cylinder.
15. Let the engine idle for 2 minutes.

16. Test-drive the vehicle for several minutes in the range of the freeze data or under various conditions if there was no freeze data.

17. Check for a DTC or a Temporary DTC with the scan Tool.

    Is DTC or Temporary DTC P0301, P0302, P0303 or P0304 indicated?

    YES—Go to step 18.

    NO—Intermittent misfire due to bad contact at the injector connector (no misfire at this time). Make sure the injector connection is secure. Check for poor connections or loose terminals at the injector.■

18. Determine which cylinder(s) had the misfire.

    Does the misfire occur in the cylinder where the injector was exchanged?

    YES—Replace the faulty injector.■

    NO—Go to step 19.

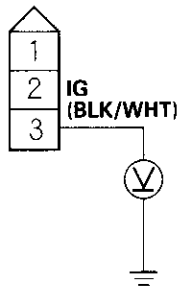
19. Turn the ignition switch OFF.

20. Disconnect the ignition coil 3P connector from the problem cylinder.

21. Turn the ignition switch ON (II).

22. Measure voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

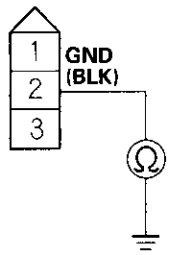
YES—Go to step 23.

NO—Repair open in the wire between the No. 1 IGN COIL (15A) fuse and the ignition coil.■

23. Turn the ignition switch OFF.

24. Check for continuity between ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the ignition coil and G101.■

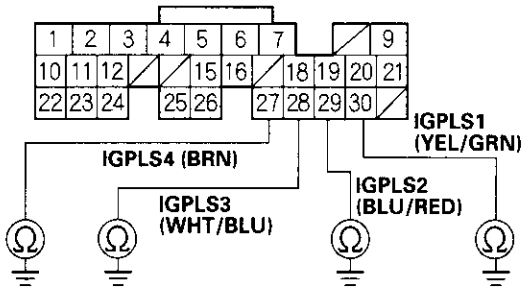
25. Disconnect ECM connector A (31P).

(cont'd)

DTC Troubleshooting (cont'd)

26. Check for continuity between body ground and ECM connector terminal (see table).

ECM CONNECTOR A (31P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	A30	YEL/GRN
No. 2	P0302	A29	BLU/RED
No. 3	P0303	A28	WHT/BLU
No. 4	P0304	A27	BRN

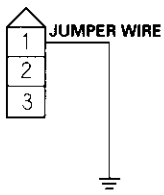
Is there continuity?

YES—Repair short in the wire between the ECM and the ignition coil.■

NO—Go to step 27.

27. Connect ignition coil 3P connector terminal No. 1 to body ground with a jumper wire (see table).

IGNITION COIL 3P CONNECTOR

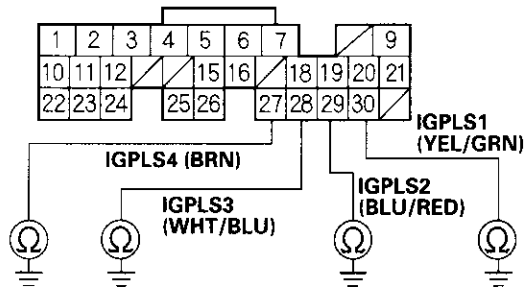


Wire side of female terminals

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	YEL/GRN
No. 2	P0302	BLU/RED
No. 3	P0303	WHT/BLU
No. 4	P0304	BRN

28. Check for continuity between body ground and ECM connector terminal (see table).

ECM CONNECTOR A (31P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	A30	YEL/GRN
No. 2	P0302	A29	BLU/RED
No. 3	P0303	A28	WHT/BLU
No. 4	P0304	A27	BRN

Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the ECM and the ignition coil.■

29. Check the engine compression.

Is the compression OK?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

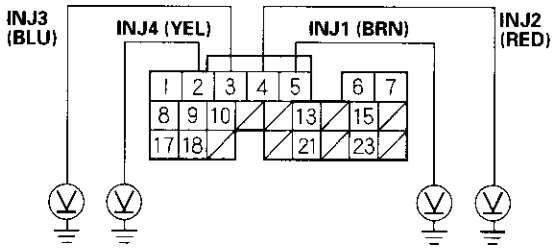
NO—Repair the engine.■

30. Disconnect ECM connector B (24P).

31. Turn the ignition switch ON (II).

32. Measure voltage between body ground and ECM connector terminal (see table).

ECM CONNECTOR B (24P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B5	BRN
No. 2	P0302	B4	RED
No. 3	P0303	B3	BLU
No. 4	P0304	B2	YEL

Is there battery voltage?

YES—Go to step 33.

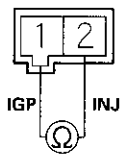
NO—Go to step 41.

33. Turn the ignition switch OFF, and remove the engine cover.

34. Disconnect the injector 2P connector from the problem cylinder.

35. Measure the resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10 Ω — 13Ω ?

YES—Go to step 36.

NO—Replace the injector (see page 11-111).■

36. Exchange the injector from the problem cylinder with one from another cylinder.

37. Let the engine idle for 2 minutes.

38. Test-drive the vehicle for several minutes in the range of the freeze data or under various conditions if there was no freeze data.

39. Check for a DTC or Temporary DTC with the scan tool.

Is DTC or Temporary DTC P0301, P0302, P0303, or P0304 indicated?

YES—Go to step 40.

NO—Intermittent misfire due to injector malfunction, etc. Make sure the injector connections are secure. Check for poor connections or loose terminals at the injector connector.■

40. Determine which cylinder(s) had the misfire.

Does the misfire occur in the cylinder where the injector was exchanged?

YES - Replace the faulty injector.■

NO Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

41. Turn the ignition switch OFF.

42. Remove the engine cover.

43. Disconnect the injector 2P connector from the problem cylinder.

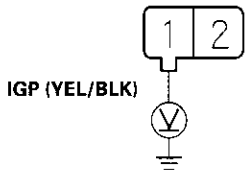
44. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

45. Measure voltage between injector 2P connector terminal No. 1 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

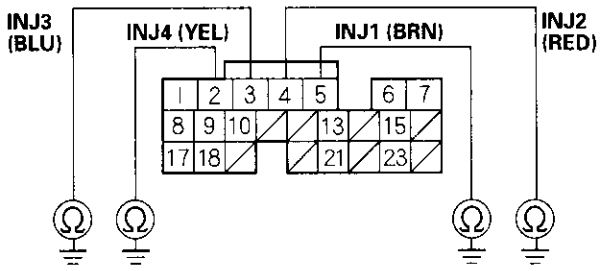
YES—Go to step 46.

NO—Repair open in the wire between the injector and the PGM-FI main relay 1.■

46. Turn the ignition switch OFF.

47. Check for continuity between body ground and ECM connector terminal (see table).

ECM CONNECTOR B (24P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B5	BRN
No. 2	P0302	B4	RED
No. 3	P0303	B3	BLU
No. 4	P0304	B2	YEL

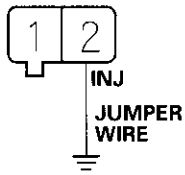
Is there continuity?

YES—Repair short in the wire between the ECM and the injector.■

NO—Go to step 48.

48. Connect injector 2P connector terminal No. 2 to body ground with a jumper wire (see table).

INJECTOR 2P CONNECTOR

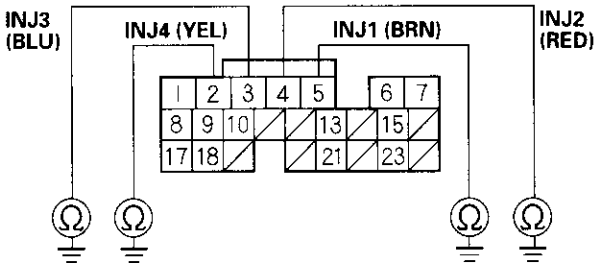


Wire side of female terminals

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	BRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	YEL

49. Check for continuity between body ground and ECM connector terminal (see table).

ECM CONNECTOR B (24P)



Wire side of female terminals

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B5	BRN
No. 2	P0302	B4	RED
No. 3	P0303	B3	BLU
No. 4	P0304	B2	YEL

Is there continuity?

YES—Replace the injector, then recheck.■

NO—Repair open in the wire between the ECM and the injector.■

DTC P0325: Malfunction in Knock Sensor Circuit

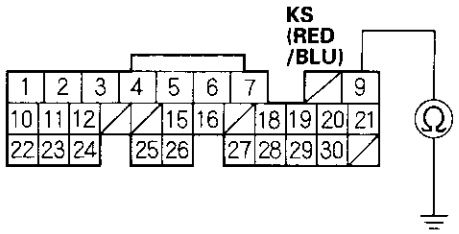
1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
3. Hold the engine at 3,000—4,000 rpm for at least 60 seconds.

   Is DTC P0325 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the knock sensor and at the ECM. ■
4. Turn the ignition switch OFF.
5. Disconnect the starter subharness 6P connector.
6. Check for continuity between ECM connector terminal A9 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

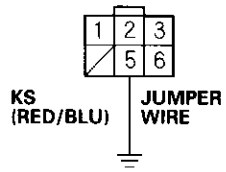
Is there continuity?

YES—Repair short in the wire between the ECM (A9) and the starter subharness 6P connector. ■

NO—Go to step 7.

7. Connect starter subharness 6P connector terminal No. 5 to body ground with a jumper wire.

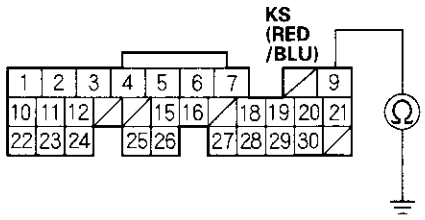
STARTER SUBHARNESS 6P CONNECTOR



Wire side of female terminals

8. Check for continuity between body ground and ECM connector terminal A9.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the ECM (A9) and the starter subharness 6P connector. ■

9. Check the starter subharness between the 6P connector and the knock sensor for an open or short. If it's OK, substitute a known-good knock sensor and recheck.

   Is DTC P0325 indicated?

   YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

   NO—Replace the original knock sensor and/or starter subharness. ■

DTC Troubleshooting (cont'd)

DTC P0335: CKP Sensor No Signal

DTC P0336: CKP Sensor Intermittent Interruption

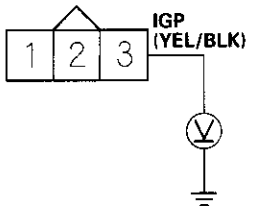
1. Reset the ECM (see page 11-4).
2. Start the engine.

   Is DTC P0335 and/or P0336 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and at the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the CKP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between CKP sensor 3P connector terminal No. 3 and body ground.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

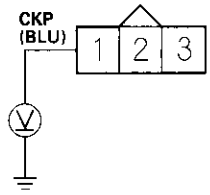
Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between PGM-FI main relay 1 and the CKP sensor.■

7. Measure voltage between CKP sensor 3P connector terminal No. 1 and body ground.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

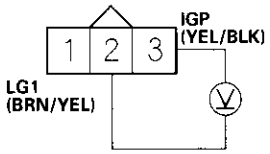
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 10.

8. Measure voltage between CKP sensor 3P connector terminals No. 2 and No. 3.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the CKP sensor and G101.■

9. Substitute a known-good CKP sensor and recheck.

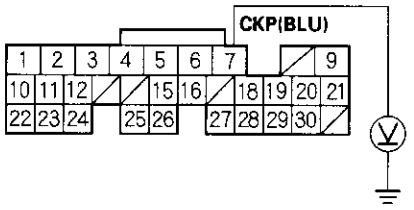
   Is DTC P0335 and/or P0336 indicated?

   YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

   NO—Replace the original CKP sensor.■

10. Measure voltage between ECM connector terminal A7 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A7) and the CKP sensor. ■

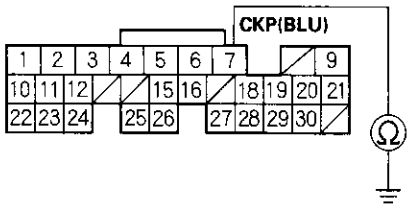
NO—Go to step 11.

11. Turn the ignition switch OFF.

12. Disconnect ECM connector A (31P).

13. Check for continuity between ECM connector terminal A7 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A7) and the CKP sensor. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

DTC Troubleshooting (cont'd)

DTC P0500: VSS Circuit Malfunction

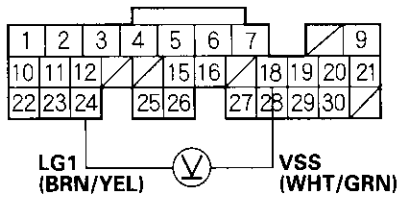
1. Test-drive the vehicle.
2. Check the vehicle speed with the scan tool.

   Is the correct speed indicated?

   YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the VSS and at the ECM.■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Block the rear wheels, and set the parking brake.
5. Raise the front of the vehicle, and make sure it is securely supported.
6. Turn the ignition switch ON (II).
7. Block the right front wheel, and slowly rotate the left front wheel.
8. Measure voltage between ECM connector terminals A18 and A24.

ECM CONNECTOR A (31P)



Wire side of female terminals

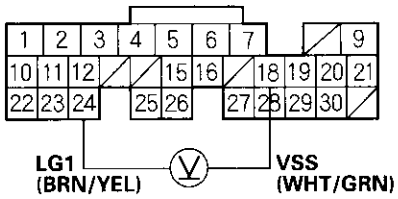
Does the voltage pulse between 0 V and 5 V or between 0V and battery voltage?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Disconnect ECM connector A (31P).
11. Turn the ignition switch ON (II).
12. Block the right front wheel, and slowly rotate the left front wheel.
13. Measure voltage between ECM connector terminals A18 and A24.

ECM CONNECTOR A (31P)



Wire side of female terminals

Does the voltage pulse between 0 V and 5 V or between 0V and battery voltage?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Check these items:

- A short or an open in the wire between the ECM (A18) and the VSS.■
- If the wire is OK, test the VSS (see page 22-71).■

DTC P0563: ECM Power Source Circuit Unexpected Voltage

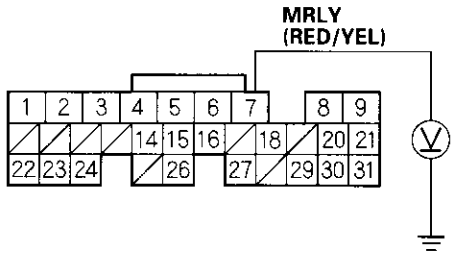
1. Reset the ECM (see page 11-4).
2. Turn the ignition switch OFF.
3. Wait 5 seconds.
4. Turn the ignition switch ON (II).

   Is DTC P0563 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the No. 6 ECU (ECM) (15 A) fuse in the under-hood fuse/relay box and at the ECM.■
5. Turn the ignition switch OFF.
6. Disconnect ECM connector E (31P).
7. Turn the ignition switch ON (II).
8. Measure voltage between ECM connector terminal E7 and body ground.

ECM CONNECTOR E (31P)



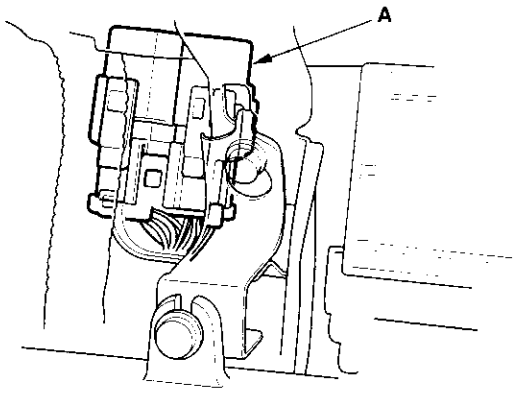
Wire side of female terminals

Is there battery voltage?

YES—Go to step 12.

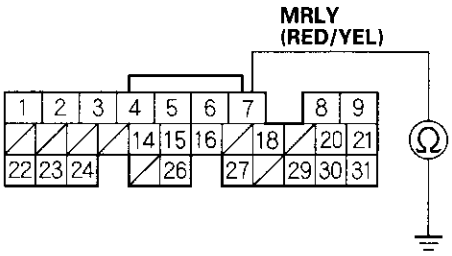
NO—Go to step 9.

9. Remove the glove box (see page 20-63).
10. Remove the PGM-FI main relay 1 (A).



11. Check for continuity between ECM connector terminal E7 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E7) and the PGM-FI main relay 1.■

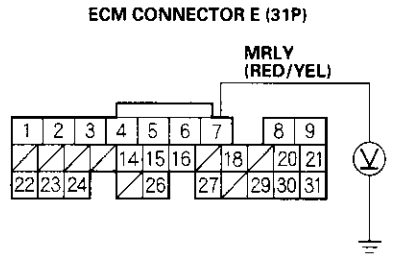
NO—Replace the PGM-FI main relay 1.■

12. Turn the ignition suitch OFF.
13. Reconnect ECM connector E (31P).

(cont'd)

DTC Troubleshooting (cont'd)

14. Measure voltage between ECM connector terminal E7 and body ground.



Wire side of female terminals

Is there battery voltage?

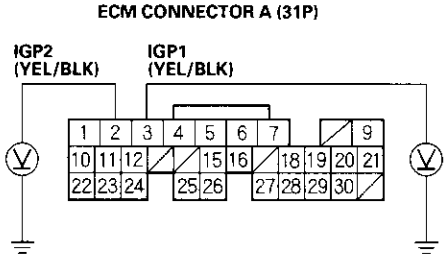
YES—Go to step 15.

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

15. Disconnect ECM connector A (31P).

16. Turn the ignition switch ON (II).

17. Measure voltage between body ground and ECM connector terminals A3 and A2 individually.



Wire side of female terminals

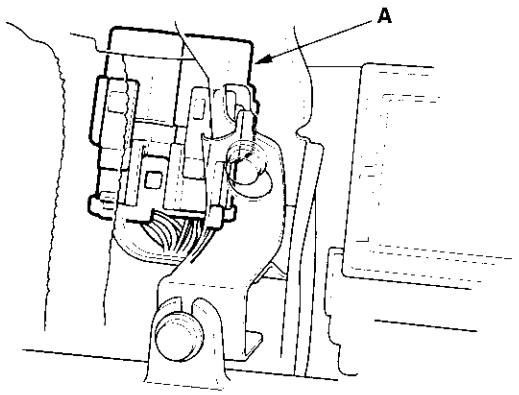
Is there battery voltage?

YES—Go to step 18.

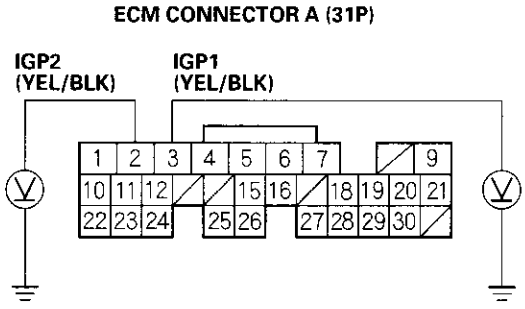
NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM/PCM.■

18. Remove the glove box (see page 20-63).

19. Remove the PGM-FI main relay 1 (A).



20. Measure voltage between body ground and ECM connector terminals A3 and A2 individually.



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the ECM (A2,A3) and the PGM-FI main relay 1.■

NO—Replace the PGM-FI main relay 1.■

DTC P1106: BARO Sensor Range/Perfomance Problem

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
3. Test-drive with the transmission in 4th gear.
4. Accelerate for 5 seconds using wide open throttle.
5. Check for a Temporary DTC with the scan tool.

   Is Temporary DTC P1106 indicated?

   YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

   NO—Intermittent failure, system is OK at this time.■

DTC P1107: BARO Sensor Circuit Low Voltage

DTC P1108: BARO Sensor Circuit High Voltage

1. Reset the ECM (see page 11-4).
2. Turn the ignition switch ON (II).

   Is DTC P1107 or P1108 indicated?

   YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

   NO—Intermittent failure, system is OK at this time.■

DTC Troubleshooting (cont'd)

DTC P1157: A/F Sensor (Sensor 1) Range/ Performance Problem

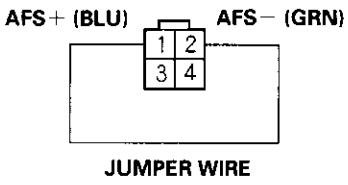
1. Reset the ECM (see page 11-4).
2. Start the engine.

   Is DTC P1157 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and at the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the A/F sensor (Sensor 1) 4P connector and ECM connector A (31P).
5. Connect A/F sensor (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.

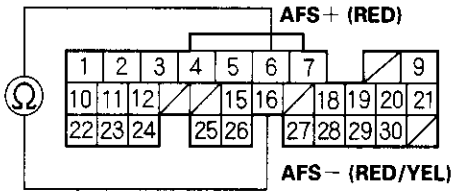
A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

6. Check for continuity between ECM connector terminals A6 and A16.

ECM CONNECTOR A (31P)



Wire side of female terminals

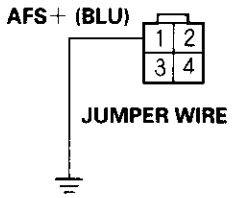
Is there continuity?

YES—Go to step 9.

NO—Go to step 7.

7. Connect A/F sensor (Sensor 1) 4P connector terminal No. 1 to body ground with a jumper wire.

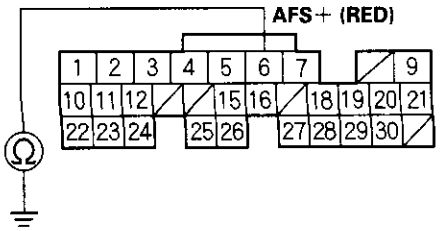
A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

8. Check for continuity between ECM connector terminals A6 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair open in the wire between the A/F sensor (Sensor 1) and the ECM (A16).■

NO—Repair open in the wire between the A/F sensor (Sensor 1) and the ECM (A6).■

9. Substitute a known-good A/F sensor (Sensor 1) and recheck.

Is DTC P1157 indicated?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). if the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Replace the A/F sensor (Sensor 1).■

DTC P1158: A/F Sensor (Sensor 1) AFS — Terminal Low Voltage

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

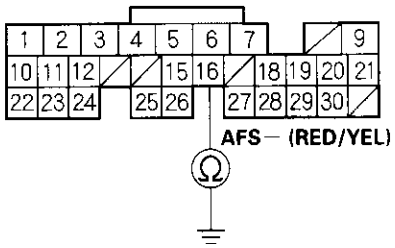
Is DTC P1158 indicated?

YES—Go to step 3.

NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and at the ECM■

3. Turn the ignition switch OFF.
4. Disconnect the A/F sensor (Sensor 1) 4P connector, and ECM connector A (31P).
5. Check for continuity between ECM connector terminal A16 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the A/F sensor (Sensor 1) and the ECM (A16).■

NO—Go to step 6.

(cont'd)

DTC Troubleshooting (cont'd)

6. Substitute a known-good A/F sensor (Sensor 1) and recheck.

   Is DTC P1158 indicated?

   YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). if the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

   NO—Replace the A/F sensor (Sensor 1). ■

DTC P1159: A/F Sensor (Sensor 1) AFS + Terminal Low Voltage

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

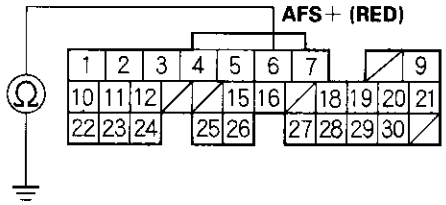
   Is DTC P1159 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and at the ECM. ■

3. Turn the ignition switch OFF.
4. Disconnect the A/F sensor (Sensor 1) 4P connector and ECM connector A (31P).
5. Check for continuity between ECM connector terminal A6 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the A/F sensor (Sensor 1) and the ECM (A6). ■

NO—Go to step 6.

6. Substitute a known-good A/F sensor (Sensor 1) and recheck.

Is DTC P1159 indicated?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). if the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Replace the A/F sensor (Sensor 1).■

DTC Troubleshooting (cont'd)

DTC P1163: A/F Sensor (Sensor 1) Slow Response

NOTE: If DTC P1162 is stored at the same time as DTC P1163, troubleshoot DTC P1162 first, then recheck for DTC P1163.

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.
3. Test-drive under the following conditions:
   - 55 mph (89 km/h) steady speed
   - Transmission in 5th gear
   - Until the A/F sensor readiness code or Temporary DTC P1163 comes on
4. Check for a Temporary DTC with the scan tool.

   Is Temporary DTC P1163 indicated?

   YES—Replace the A/F sensor (Sensor 1).■

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and at the ECM.■

DTC P1164: A/F Sensor (Sensor 1) Circuit Range/Performance Problem

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.
3. Test-drive in 3rd gear. Starting at 1,600 rpm, accelerate using wide open throttle for at least 5 seconds. Then decelerate for at least 5 seconds with the throttle completely closed until the A/F sensor readiness code is set to complete or Temporary DTC P1164 comes on.
4. Check for a Temporary DTC with the scan tool.

   Is Temporary DTC P1164 indicated?

   YES—Replace the A/F sensor (Sensor 1).■

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the A/F sensor relay, at the A/F sensor (Sensor 1), and at the ECM.■

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

1. Reset the ECM (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 terminals at the A/F sensor relay, the A/F sensor (Sensor 1), and the ECM. ■

3. Check the following fuse:

   - No. 14 OPTION (30A) fuse in under-hood fuse/relay box.
   - No. 2+B LAF (A/F) HEATER (20A) fuse in under-dash fuse/relay box.
   - No. 4 ACG (10A) in under-dash fuse/relay box.

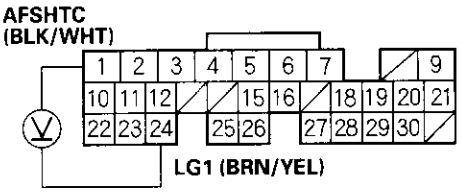
   Are any of the fuses blown?

   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 connector terminals A1 and A24, 30 seconds after the ignition switch is turned ON (II).

ECM CONNECTOR A (31P)



Wire side of female terminals

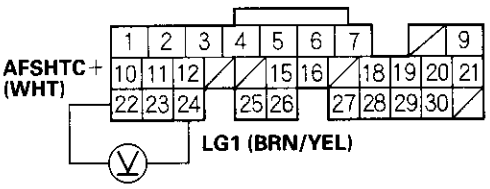
Is there battery voltage?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Go to step 5.

5. Measure voltage between ECM connector terminals A22 and A24.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

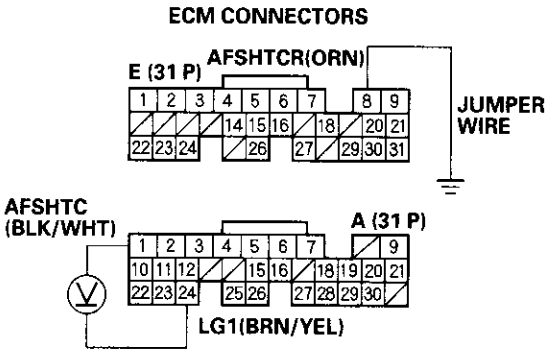
NO—Go to step 10.

6. Turn the ignition switch OFF.
7. Disconnect ECM connector E (31P).
8. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

9. Connect ECM connector terminal E8 to body ground with a jumper wire, then measure voltage between ECM connector terminals A1 and A24.



Wire side of female terminals

Is there battery voltage?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

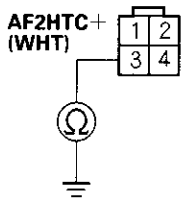
NO—Repair open in the wire between the A/F sensor (Sensor 1) and ECM (A1).■

10. Turn the ignition switch OFF.

11. Disconnect the ECM connector A (31P) and the A/F sensor (Sensor 1) 4P connector.

12. Check for continuity between the A/F sensor (Sensor 1) 4P connector terminal No. 3 and body ground.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

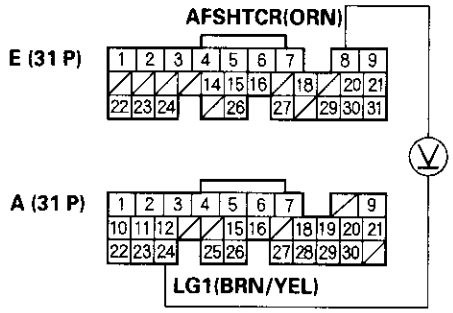
YES—Repair short in the wire between the A/F sensor relay, A/F sensor (Sensor 1) and ECM (A22).■

NO—Go to step 13.

13. Turn the ignition switch ON (II).

14. Measure voltage between ECM connector terminals E8 and A24.

ECM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Repair open in the wire between the ECM (A22) and the A/F sensor (Sensor 1).■

NO—Go to step 15.

15. Check for continuity in the wires between the 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.■

DTC P1167: A/F Sensor (Sensor 1) Heater Circuit Malfunction

NOTE: If DTC P1162 is stored at the same time as DTC P1167, troubleshoot DTC P1162 first, then troubleshoot DTC P1167.

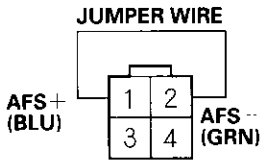
1. Reset the ECM (see page 11-4).
2. Start the engine. Wait for at least 80 seconds.

   Is DTC P01167 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the A/F sensor relay, at the A/F sensor (Sensor 1), and at the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the A/F sensor 4P connector and ECM connector A (31P).
5. Connect the A/F sensor (Sensor 1) 4P connector terminals No. 2 and No. 1 with a jumper wire.

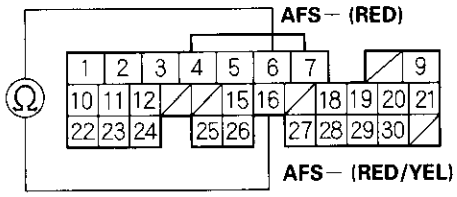
A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

6. Check for continuity between ECM connector terminals A6 and A16.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Replace the A/F sensor (Sensor 1).■

NO—Repair open in the wire between the A/F sensor (Sensor 1) and the ECM (A6 or A16).■

DTC Troubleshooting (cont'd)

DTC P1297: ELD Circuit Low Voltage

1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Turn on the headlights.

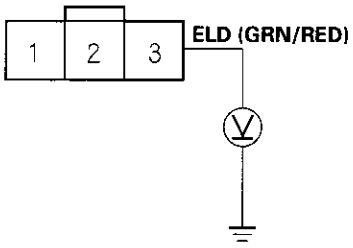
   Is DTC P1297 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ELD and at the ECM.■

4. Turn the ignition switch and the headlights OFF.
5. Disconnect the ELD 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between body ground and ELD 3P connector terminal No. 3.

ELD 3P CONNECTOR



Wire side of female terminals

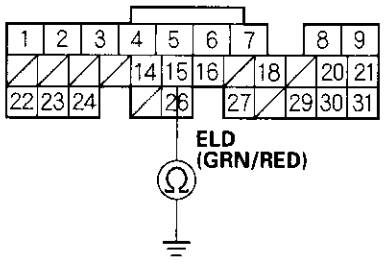
Is there about 5 V?

YES—Replace the ELD.■

NO—Go to step 8.

8. Turn the ignition switch OFF.
9. Disconnect ECM connector E (31P).
10. Check for continuity between body ground and ECM connector terminal E15.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E15) and the ELD.■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DTC P1298: ELD Circuit High Voltage

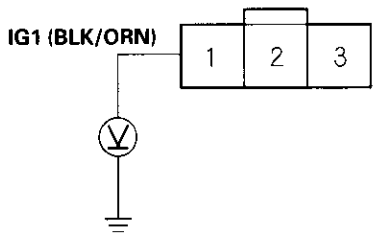
1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Turn on the headlights.

   Is DTC P1298 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the ELD and at the ECM.■
4. Turn the ignition switch and headlights OFF.
5. Disconnect the ELD 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between body ground and ELD 3P connector terminal No. 1.

ELD 3P CONNECTOR



Wire side of female terminals

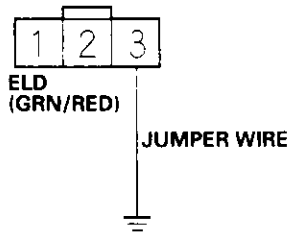
Is there battery voltage?

YES—Go to step 8.

NO—Check the No. 4 ACG (10A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 4 ACG (10A) fuse and the ELD.■

8. Turn the ignition switch OFF.
9. Connect ELD 3P connector terminal No. 3 to body ground with a jumper wire.

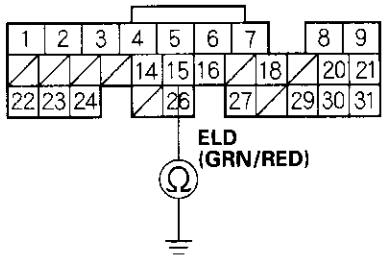
ELD 3P CONNECTOR



Wire side of female terminals

10. Disconnect ECM connector E (31P).
11. Check for continuity between body ground and ECM connector terminal E15.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

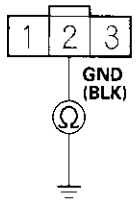
NO—Repair open in the wire between the ECM (E15) and the ELD.

(cont'd)

DTC Troubleshooting (cont'd)

12. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

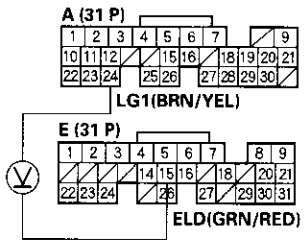
NO—Repair open in the wire between the ELD and G201.■

13. Reconnect the ELD 3P connector and ECM connector E (31P).

14. Start the engine and let it idle.

15. While measuring voltage between ECM connector terminals A24 and E15, turn the headlights on (high).

ECM CONNECTORS



Wire side of female terminals

Does the voltage drop?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Replace the ELD.■

DTC P1361: Camshaft Position (CMP) Sensor B (TDC Sensor) Intermittent Interruption

DTC P1362: Camshaft Position (CMP) Sensor B (TDC Sensor) No Signal

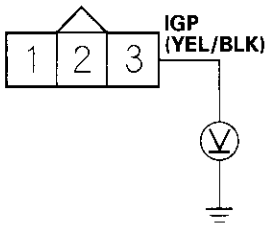
1. Reset the ECM (see page 11-4).
2. Start the engine.

   Is DTC P1361 and/or P1362 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the CMP sensor B (TDC sensor) and at the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the CMP sensor B (TDC sensor) 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between CMP sensor B (TDC sensor) 3P connector terminal No. 3 and body ground.

CMP SENSOR B (TDC SENSOR) 3P CONNECTOR



Wire side of female terminals

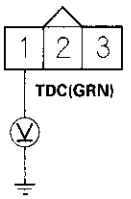
Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the PGM-FI main relay 1 and the CMP sensor B (TDC sensor). ■

7. Measure voltage between CMP sensor B (TDC sensor) 3P connector terminal No. 1 and body ground.

CMP SENSOR B (TDC SENSOR) 3P CONNECTOR



Wire side of female terminals

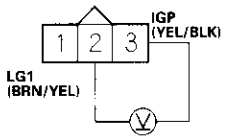
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 10.

8. Measure voltage between CMP sensor B (TDC sensor) 3P connector terminals No. 2 and No. 3.

CMP SENSOR B (TDC SENSOR) 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the CMP sensor B (TDC sensor) and G101. ■

9. Substitute a known-good CMP sensor B (TDC sensor) and recheck.

   Is DTC P1361 and/or P1362 indicated?

   YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

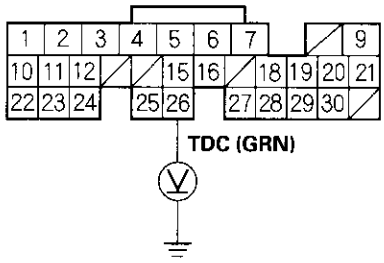
   NO—Replace the original CMP sensor B (TDC sensor). ■

(cont'd)

DTC Troubleshooting (cont'd)

10. Measure voltage between ECM connector terminal A26 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A26) and CMP sensor B (TDC sensor). ■

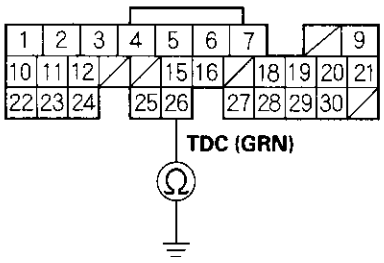
NO—Go to step 11.

11. Turn the ignition switch OFF.

12. Disconnect ECM connector A (31P).

13. Check for continuity between ECM connector terminal A26 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A26) and the CMP sensor B (TDC sensor). ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

DTC P1607: Malfunction in ECM Internal Circuit

1. Reset the ECM (see page 11-4).

2. Turn the ignition switch ON (II), and wait for 40 seconds.

Is DTC P1607 indicated?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Intermittent failure, system is OK at this time. A low battery can cause this problem . Ask the customer if there has been any recent trouble starting the engine. ■

MIL Circuit Troubleshooting

1. Connect an OBD II scan tool/Honda PGM Tester (see page 11-3).

2. Turn the ignition switch ON (II) and read the OBD II scan tool/Honda PGM Tester.

   Does the OBD II scan tool/Honda PGM Tester communicate with the ECM?

   YES—Go to step 3.

   NO—Go to troubleshooting " DLC Circuit Troubleshooting" (see page 11-109).

3. Check the OBD II scan tool/Honda PGM Tester for DTCs.

   Are any DTCs indicated?

   YES—Go to the DTC Troubleshooting Index.

   NO—Go to step 4.

4. Turn the ignition switch OFF.

5. Turn the ignition switch ON (II) and watch the Malfunction Indicator Lamp (MIL).

   Does the MIL come on and stay on for more than 20 seconds after turning the ignition switch ON (II)?

   YES—If the MIL always comes on and stays on, go to step 76. But if the MIL sometimes works normally, first check for these problems.

   - An intermittent short in the wire between the ECM (E29) and the data link connector (DLC).
   - An intermittent short in the wire between the ECM (E31) and the gauge assembly.

   NO—If the MIL is always off, go to step 6. But if the MIL sometimes works normally, first check for these problems.

   - A loose No. 10 METER (7.5A) fuse in the under-dash fuse/relay box.
   - A loose No. 20 IG (40A) (Canada: 50A) fuse in the under-hood fuse/relay box.
   - A loose No. 6 ECU (ECM) (15A) fuse in the under-hood fuse/relay box.
   - A loose No. 17 FUEL PUMP (15A) fuse in the under-dash fuse/relay box.
   - A poor connection at ECM terminal E31.
   - An intermittent open in the GRN/ORN wire between the ECM (E31) and the gauge assembly.
   - An intermittent short in the wire between the ECM (A21) and the manifold absolute pressure (MAP) sensor.
   - An intermittent short in the wire between the ECM (A20) and the throttle position (TP) sensor.
   - An intermittent short in the wire between the ECM (E5) and the fuel tank pressure (FTP) sensor.

6. Turn the ignition switch OFF.

7. Turn the ignition switch ON (II).

   Is the low oil pressure light on?

   YES—Go to step 10.

   NO—Go to step 8.

8. Inspect the No. 10 METER (7.5A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 9.

   NO—Repair short in the wire between No. 10 METER (7.5A) fuse and the gauge assembly. Also replace the No. 10 METER (7.5A) fuse.■

9. Inspect the No. 20 IG1 (40A) (Canada: 50A) fuse in the under-hood fuse/relay box.

   Is the fuse OK?

   YES—Repair open in the wire between the No. 20 IG (40A) (Canada: 50A) fuse and the gauge assembly. If the wire is OK, test the ignition switch (see page 22-53).

   NO—Repair short in the wire between No. 20 IG (40A) (Canada: 50A) fuse and the under-dash fuse/relay box. Also replace the No. 20 IG (40A) (Canada: 50A) fuse.■

(cont'd)

MIL Circuit Troubleshooting (cont'd)

10. Try to start the engine.

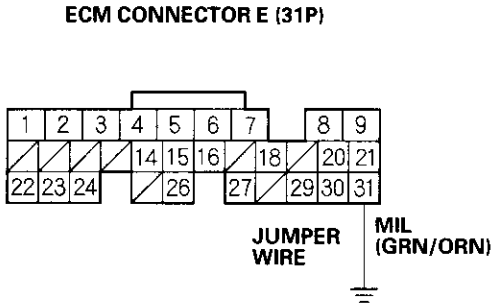
    Does the engine start?

    YES—Go to step 11.

    NO—Go to step 14.

11. Turn the ignition switch OFF.

12. Connect ECM connector terminal E31 to body ground with a jumper wire.



Wire side of female terminals

13. Turn the ignition switch ON (II).

    Is the MIL on?

    YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

    NO—Check for an open in the wire between the ECM (E31) and the gauge assembly. Also check for a blown MIL bulb. If the wires and the bulb are OK, replace the gauge assembly.■

14. Turn the ignition switch OFF.

15. Inspect the No. 6 ECU (ECM) (15A) fuse in the under-hood fuse/relay box.

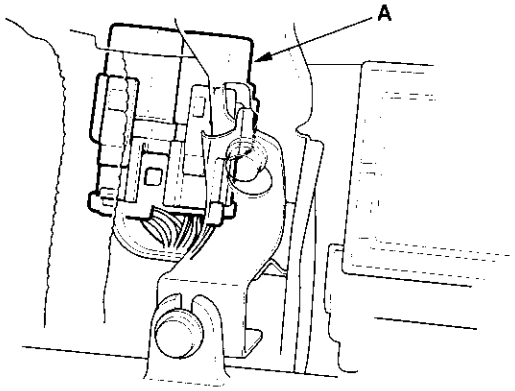
    Is the fuse OK?

    YES—Go to step 22.

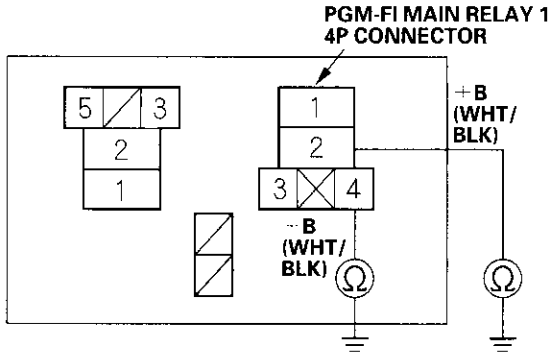
    NO—Go to step 16.

16. Remove the blown No. 6 ECU (ECM) (15A) fuse from the under-hood fuse/relay box.

17. Remove the glove box (see page 20-63) and the PGM-FI main relay 1.



18. Check for continuity between body ground and PGM-FI main relay 1 4P connector terminals No. 2 and No. 4 individually.



Wire side of female terminals

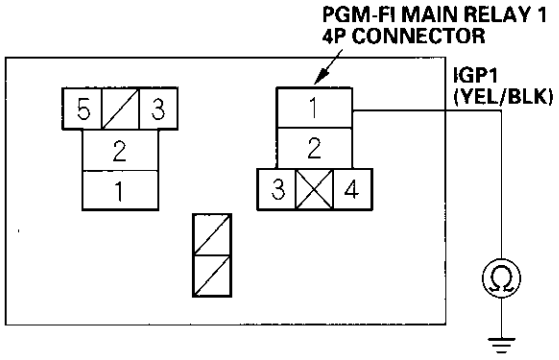
Is there continuity?

YES—Repair short in the wire between the No. 6 ECU (ECM) (15A) fuse and the PGM-FI main relay 1. Also replace the No. 6 ECU (ECM) (15A) fuse.■

NO—Go to step 19.

19. Disconnect each of the components or the connectors below, one at a time, and check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.

    - PGM-FI main relay 2
    - ECM connector A (31P)
    - Each injector 2P connector
    - Idle air control (IAC) valve 3P connector
    - Camshaft Position (CMP) sensor B (Top dead center (TDC) sensor) 3P connector
    - Crankshaft position (CKP) sensor 3P connector



Wire side of female terminals

Is there continuity?

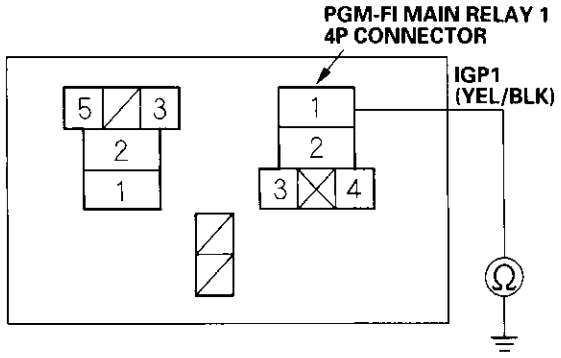
YES—Go to step 20.

NO—Replace the component that made continuity to body ground go away when disconnected. If the item is the ECM, update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.
Also replace the No. 6 ECU (ECM) (15 A) fuse.

20. Disconnect the connectors of all these components.

    - PGM-FI main relay 2
    - ECM connector A (31P)
    - Injectors
    - Idle air control (IAC) valve
    - Camshaft Position (CMP) sensor B (Top dead center (TDC) sensor)
    - Crankshaft position (CKP) sensor

21. Check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PGM-FI main relay 1 and each item. Also replace the No. 6 ECU (ECM) (15A) fuse.■

NO—Replace the PGM-FI main relay 1. Also replace the No 6 ECU (ECM) (15A) fuse.■

22. Inspect the No. 17 FUEL PUMP (15A) fuse in the under-dash fuse/relay box.

    Is the fuse OK?

    YES—Go to step 34.

    NO—Go to step 23.

23. Remove the blown No. 17 FUEL PUMP (15A) fuse from the under-dash fuse/relay box.

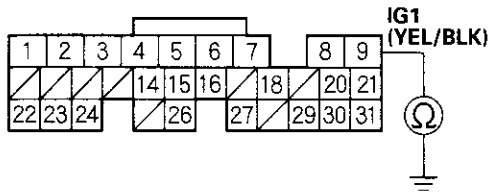
24. Disconnect ECM connector E (31P).

(cont'd)

MIL Circuit Troubleshooting (cont'd)

25. Check for continuity between ECM connector terminal E9 and body ground.

ECM CONNECTOR E (31P)



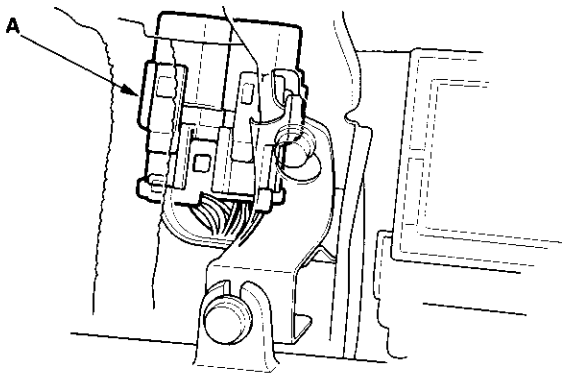
Wire side of female terminals

Is there continuity?

YES—Go to step 26.

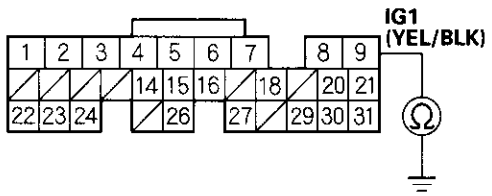
NO—Replace the No. 17 FUEL PUMP (15 A) fuse, and update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

26. Remove the PGM-FI main relay 2 (A).



27. Check for continuity between ECM connector terminal E9 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the No. 17 FUEL PUMP (15A) fuse and the ECM (E9), or between the No. 17 FUEL PUMP (15 A) fuse and the PGM-FI main relay 2. Also replace the No. 17 FUEL PUMP (15A) fuse.■

NO—Go to step 28.

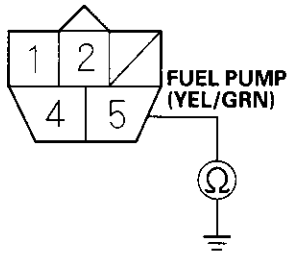
28. Remove the rear seat cushion (see page 20-80).

29. Remove the access panel from the floor.

30. Disconnect the fuel pump 5P connector.

31. Check for continuity between fuel pump 5P connector terminal No. 5 and body ground.

FUEL PUMP 5P CONNECTOR



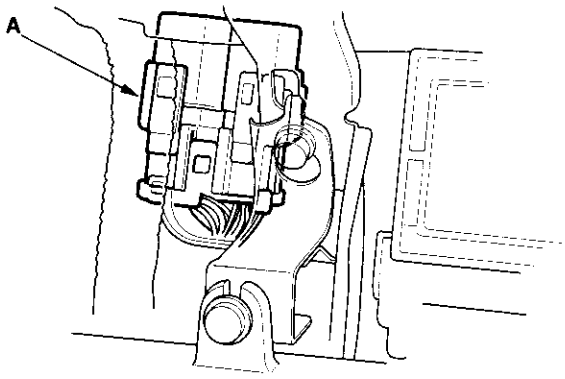
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the fuel pump and the PGM-FI main relay 2. Also replace the No. 17 FUEL PUMP (15A) fuse. ■

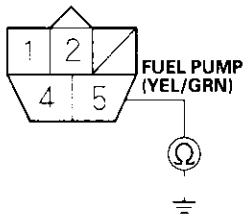
NO—Go to step 32.

32. Reinstall the PGM-FI main relay 2 (A).



33. Check for continuity between fuel pump 5P connector terminal No. 5 and body ground.

FUEL PUMP 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the PGM-FI main relay 2. Also replace the No. 17 FUEL PUMP (15A) fuse. ■

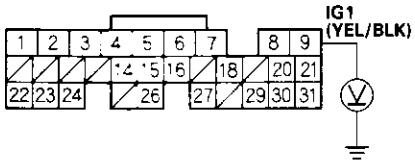
NO—Check the fuel pump, and replace it if necessary. Also replace the No. 17 FUEL PUMP (15A) fuse. ■

34. Disconnect ECM connector E (31P).

35. Turn the ignition switch ON (II).

36. Measure voltage between ECM connector terminal E9 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there battery voltage?

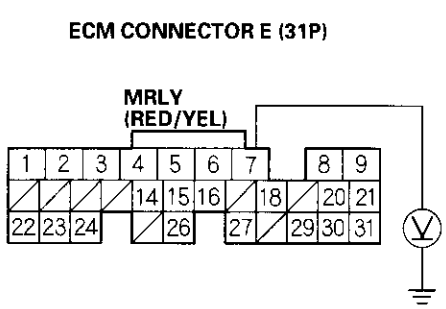
YES—Go to step 37.

NO—Repair open in the wire between the No. 17 FUEL PUMP (15A) fuse and the ECM (E9). ■

(cont'd)

MIL Circuit Troubleshooting (cont'd)

37. Measure voltage between ECM/PCM connector terminal E7 and body ground.



Wire side of female terminals

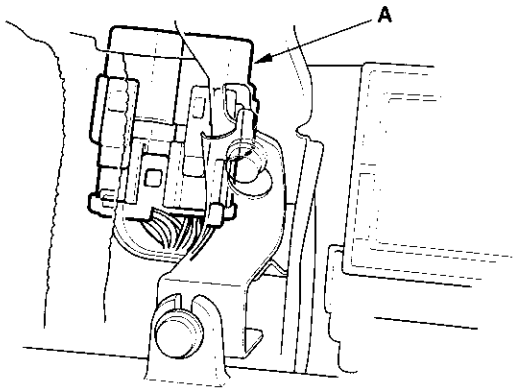
Is there battery voltage?

YES—Go to step 42.

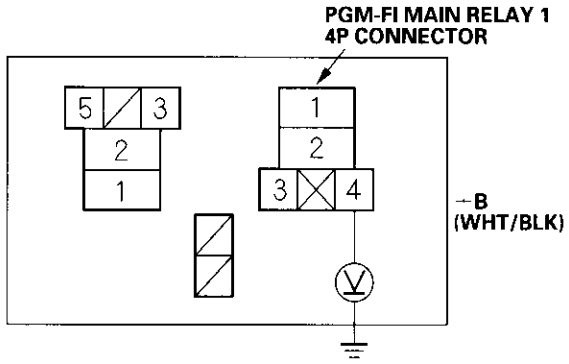
NO—Go to step 38.

38. Turn the ignition switch OFF.

39. Remove the PGM-FI main relay 1 (A).



40. Measure voltage between PGM-FI main relay 1 4P connector terminal No. 4 and body ground.



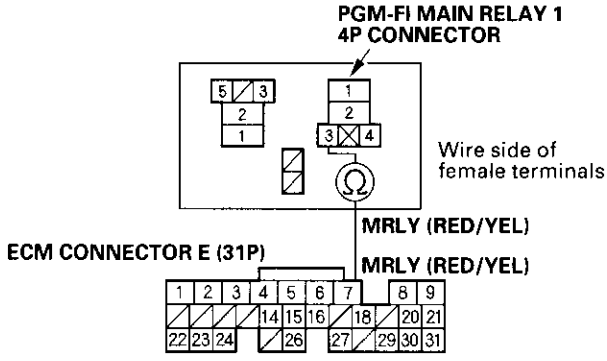
Wire side of female terminals

Is there battery voltage?

YES—Go to step 41.

NO—Repair open in the wire between the No. 6 ECU (ECM) (15A) fuse and the PGM-FI main relay 1. ■

41. Check for continuity between PGM-FI main relay 1 4P connector terminal No. 3 and ECM connector terminal E7.



Wire side of female terminals

Is there continuity?

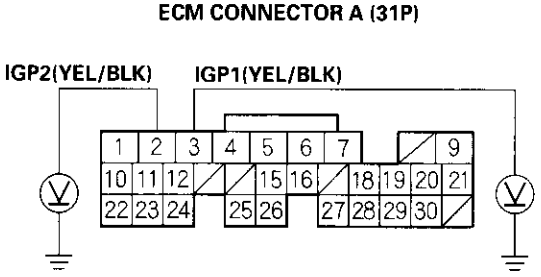
YES—Test the PGM-FI main relay 1 (see page 22-51). If the relay is OK, update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Repair open in the wire between the PGM-FI main relay 1 and the ECM (E7). ■

42. Reconnect ECM connector E (31P).

43. Turn the ignition switch ON (II).

44. Measure voltage between body ground and ECM connector terminals A2 and A3 individually.



Wire side of female terminals

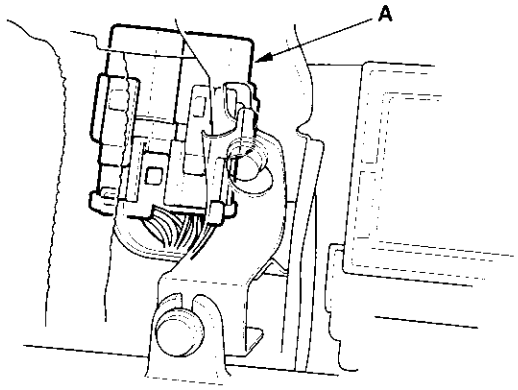
Is there battery voltage?

YES—Go to step 51.

NO—Go to step 45.

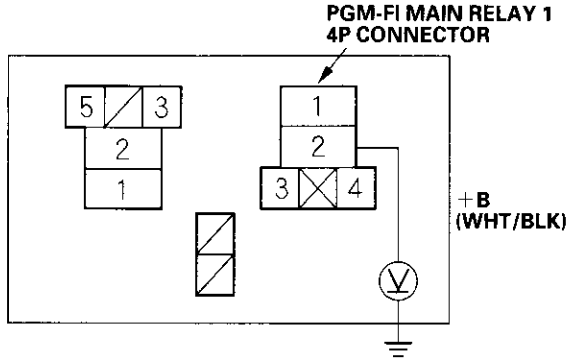
45. Turn the ignition switch OFF.

46. Remove the PGM-FI main relay 1 (A).



47. Turn the ignition switch ON (II).

48. Measure voltage between PGM-FI main relay 1 4P connector terminal No. 2 and body ground.



Wire side of female terminals

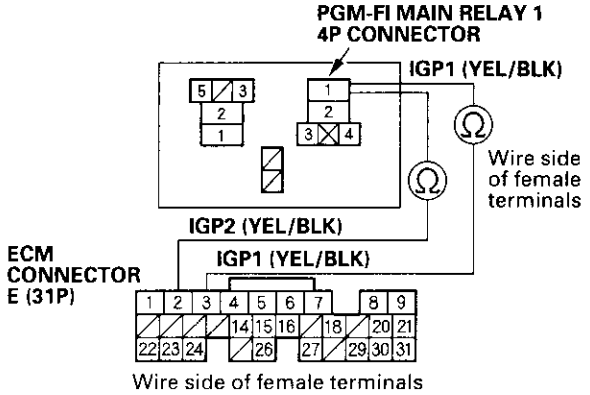
Is there battery voltage?

YES—Go to step 49.

NO—Repair open in the wire between the No. 6 ECU (ECM) (15A) fuse and the PGM-FI main relay 1.■

49. Turn the ignition switch OFF.

50. Check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and ECM connector terminals A2 and A3 individually.



Wire side of female terminals

Is there continuity?

YES—Replace the PGM-FI main relay 1.■

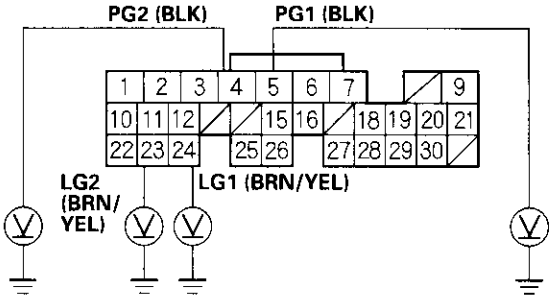
NO—Repair open in the wire between the PGM-FI main relay 1 and the ECM (A2, A3).■

(cont'd)

MIL Circuit Troubleshooting (cont'd)

51. Measure voltage between body ground and ECM connector terminals A4, A5, A23, and A24 individually.

ECM CONNECTOR A (31P)



Wire side of female terminals

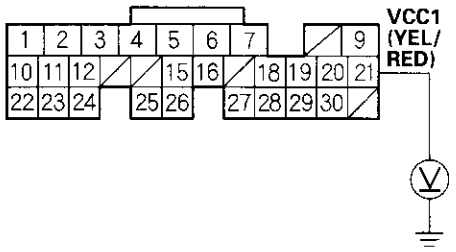
Is there more than 1.0 V?

YES—Go to step 52.

NO—Repair open in the wire(s) that had more than 1.0 V between G101 and the ECM (A4, A5, A23, A24).■

52. Measure voltage between body ground and ECM connector terminal A21.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Go to step 60.

NO—Go to step 53.

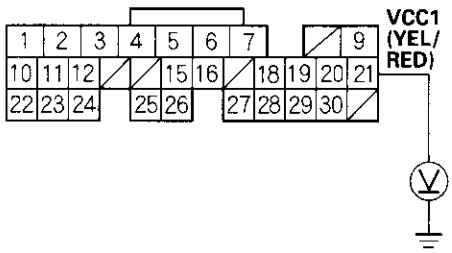
53. Turn the ignition switch OFF.

54. Disconnect the manifold absolute pressure (MAP) sensor 3P connector.

55. Turn the ignition switch ON (II).

56. Measure voltage between body ground and ECM connector terminal A21.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Replace the MAP sensor.■

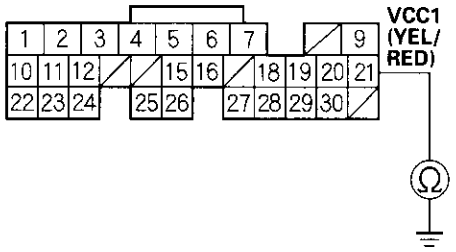
NO—Go to step 57.

57. Turn the ignition switch OFF.

58. Disconnect ECM connector A (31P).

59. Check for continuity between ECM connector terminal A21 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

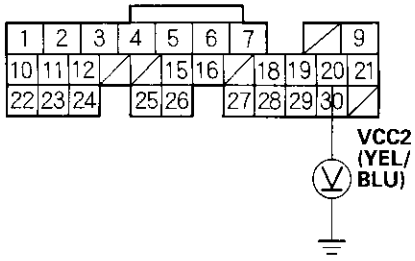
Is there continuity?

YES—Repair short in the wire between the ECM (A21) and the MAP sensor. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

60. Measure voltage between body ground and ECM connector terminal A20.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Go to step 68.

NO—Go to step 61.

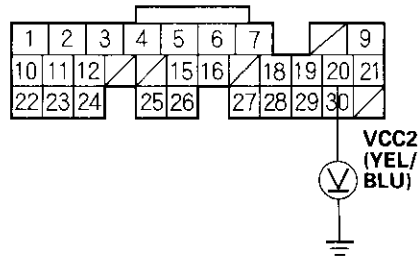
61. Turn the ignition switch OFF.

62. Disconnect the throttle position (TP) sensor 3P connector.

63. Turn the ignition switch ON (II).

64. Measure voltage between body ground and ECM connector terminal A20.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Replace the throttle body (the TP sensor is not available separately). ■

NO—Go to step 65.

65. Turn the ignition switch OFF.

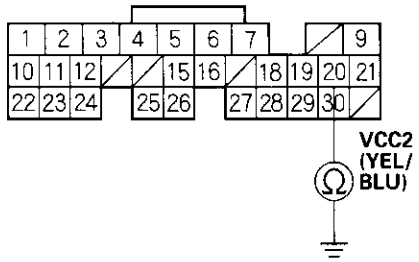
66. Disconnect ECM connector A (31P).

cont d

MIL Circuit Troubleshooting (cont'd)

67. Check for continuity between ECM connector terminal A20 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

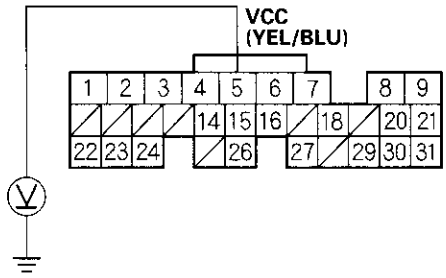
Is there continuity?

YES—Repair short in the wire between the ECM (A20) and the TP sensor, or repair short in the wire between the ECM (A8) and the knock sensor. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

68. Measure voltage between body ground and ECM connector terminal E5.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Go to step 69.

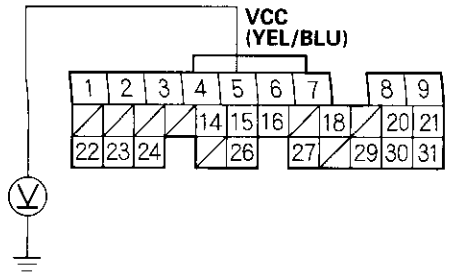
69. Turn the ignition switch OFF.

70. Disconnect the fuel tank pressure (FTP) sensor 3P connector.

71. Turn the ignition switch ON (II).

72. Measure voltage between body ground and ECM connector terminal E5.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Replace the FTP sensor.■

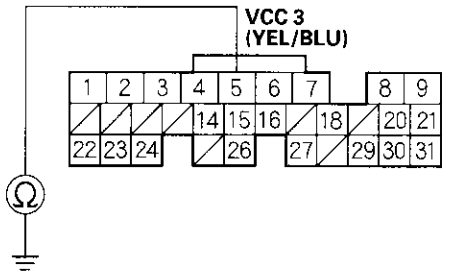
NO—Go to step 73.

73. Turn the ignition switch OFF.

74. Disconnect ECM connector E (31P).

75. Check for continuity between ECM connector terminal E5 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E5) and the FTP sensor.■

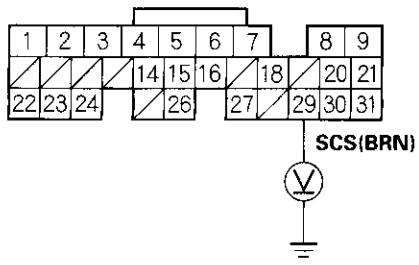
NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

76. Turn the ignition switch OFF.

77. Turn the ignition switch ON (II).

78. Measure voltage between ECM connector terminal E29 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V (or battery voltage)?

YES—Go to step 82.

NO—Go to step 79.

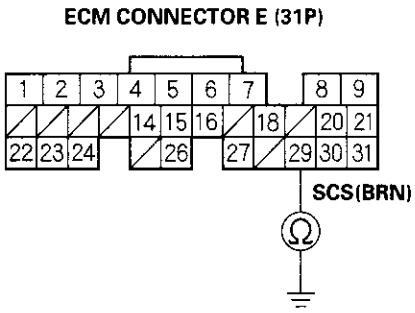
79. Turn the ignition switch OFF.

80. Disconnect ECM connector E (31P).

(cont'd)

MIL Circuit Troubleshooting (cont'd)

81. Check for continuity between ECM connector terminal E29 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the data link connector (DLC) and the ECM (E29).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

82. Turn the ignition switch OFF.

83. Disconnect ECM connector E (31P).

84. Turn the ignition switch ON (II).

Does the MIL stay on?

YES—Repair short in the wire between the gauge assembly and the ECM (E31). If the wire is OK, replace the gauge assembly.■

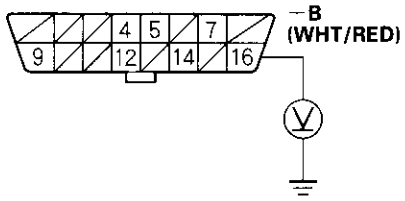
NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DLC Circuit Troubleshooting

If the ECM does not communicate with the OBD II scan tool, Honda PGM Tester, or I/M test equipment, do this troubleshooting procedure.

1. Measure voltage between DLC terminal No. 16 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

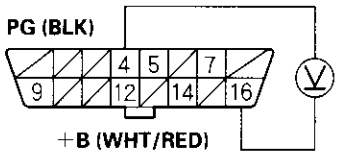
Is there battery voltage?

YES—Go to step 2.

NO—Repair open in the wire between DLC terminal No. 16 and the No. 9 BACK UP (7.5 A) fuse in the under-hood fuse/relay box.■

2. Measure voltage between DLC terminals No. 4 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

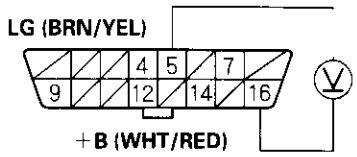
Is there battery voltage?

YES—Go to step 3.

NO—Repair open in the wire between DLC terminal No. 4 and body ground.■

3. Measure voltage between DLC terminals No. 5 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there battery voltage?

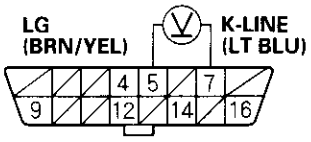
YES—Go to step 4.

NO—Repair open in the wire between DLC terminal No. 5 and the ECM (E3).■

4. Turn the ignition switch ON (II).

5. Measure voltage between DLC terminals No. 5 and No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there 8.5 V or more?

YES—Go to step 10.

NO—Go to step 6.

6. Turn the ignition switch OFF.

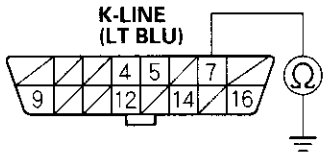
(cont'd)

DLC Circuit Troubleshooting (cont'd)

7. Disconnect ECM connector E (31P). Make sure the OBD II scan tool or Honda PGM Tester is disconnected from the DLC.

8. Check for continuity between DLC terminal No. 7 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

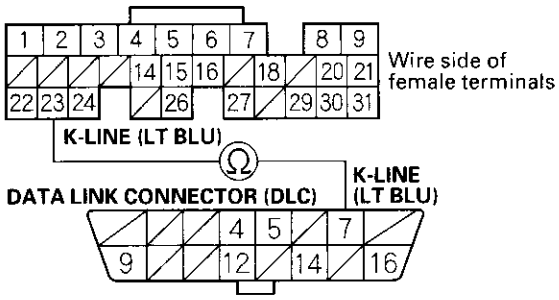
Is there continuity?

YES—Repair short to ground in the wire between DLC terminal No. 7 and the ECM (E23). After repairing the wire, check the DTC with the OBD II scan tool/Honda PGM Tester, and go to the DTC Troubleshooting index.■

NO—Go to step 9.

9. Check for continuity between DLC terminal No. 7 and ECM terminal E23.

ECM CONNECTOR E (31P)



Terminal side of female terminals

Is there continuity?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Repair open in the wire between DLC terminal No. 7 and the ECM (E23). After repairing the wire, check the DTC with the OBD II scan tool/Honda PGM Tester, and go to the DTC Troubleshooting index.■

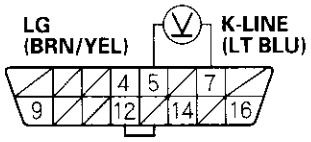
10. Turn the ignition switch OFF.

11. Disconnect ECM connector E (31P). Make sure the OBD II scan tool or Honda PGM Tester is disconnected from the DLC.

12. Turn the ignition switch ON (II).

13. Measure voltage between DLC terminals No. 5 and No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

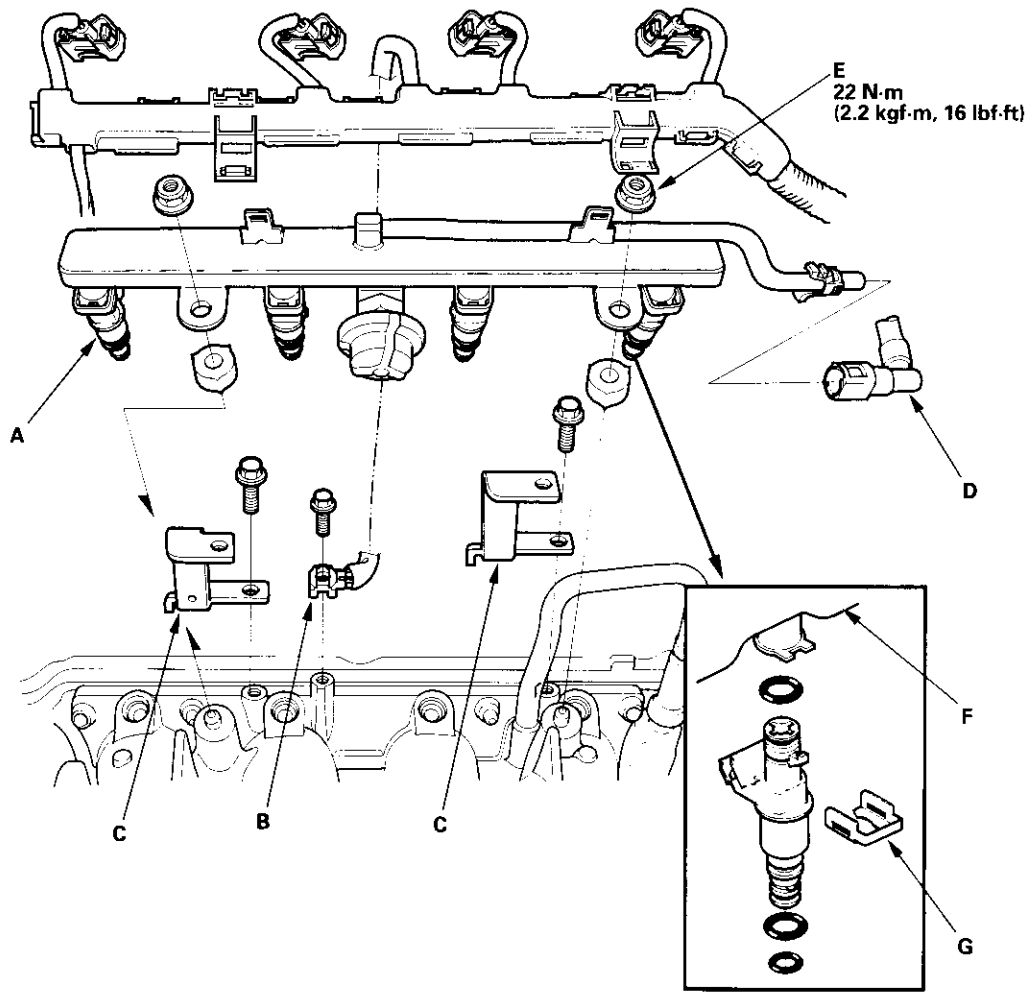
Is there 0 V?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Repair short to power in the wire between the DLC terminal No. 7 and the ECM (E23). After repairing the wire, check the DTC with the OBD II scan tool/Honda PGM Tester, and go to the DTC Troubleshooting index.■

Injector Replacement

1. Relieve fuel pressure (see page 11-144).
2. Disconnect the connectors from the injectors (A), disconnect the ground cable (B), and remove the bracket (C).

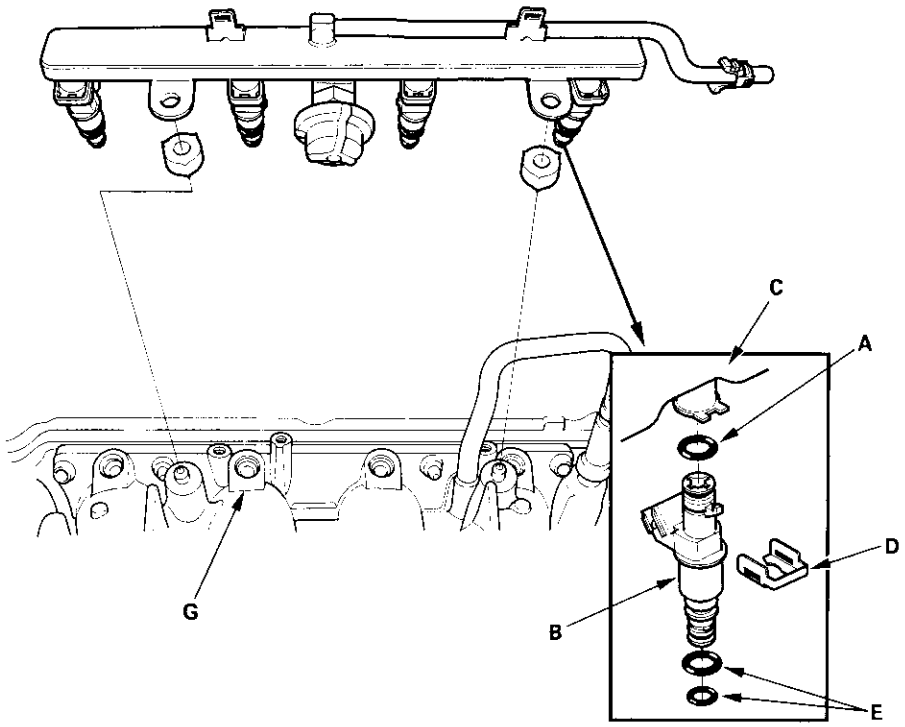


3. Disconnect the quick-connect fittings (D).
4. Remove the fuel rail mounting nuts (E) from the fuel rail (F) then remove the fuel rail and injectors as an assembly.
5. Remove the injector clip (G) from the injector.
6. Remove the injector from the fuel rail.

(cont'd)

Injector Replacement (cont'd)

7. Coat the new o-rings (A) with clean engine oil, and insert the injectors (B) into the fuel rail (C).

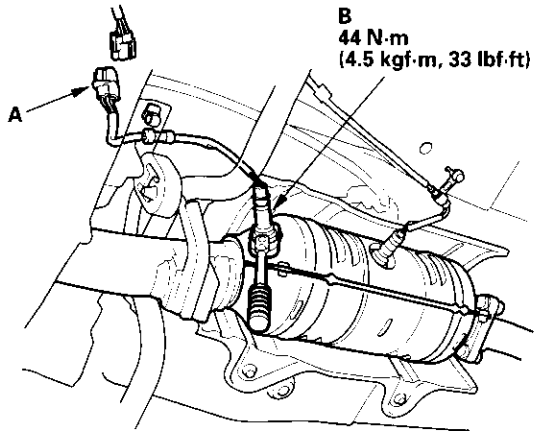


8. Install the injector clip (D).
9. Coat the injector o-rings (E) with clean engine oil.
10. Install the injectors into the fuel rail, then install the fuel rail into the intake manifold (G).
11. Install the fuel rail mounting nuts, ground cable, and bracket.
12. Connect the connectors to the injectors.
13. Connect the quick-connect fittings.
14. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check for fuel leakage.

A/F Sensor Replacement

Special Tools Required
O2 sensor wrench, Snap-on YA8875, SP Tools 93750 , or equivalent, commercially available

1. Disconnect the A/F sensor 4P connector (A), then remove the A/F sensor (B).

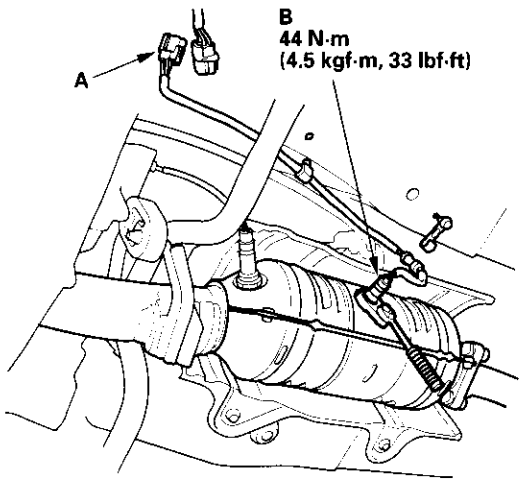


2. Install the A/F sensor in the reverse order of removal.

Secondary HO2S Replacement

Special Tools Required
O2 sensor wrench, Snap-on YA8875, SP Tools 93750 , or equivalent, commercially available

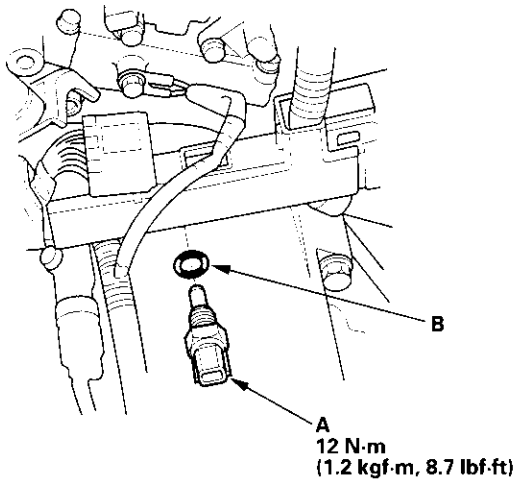
1. Disconnect the secondary HO2S 4P connector (A), then remove the secondary HO2S (B).



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

ECT Sensor Replacement

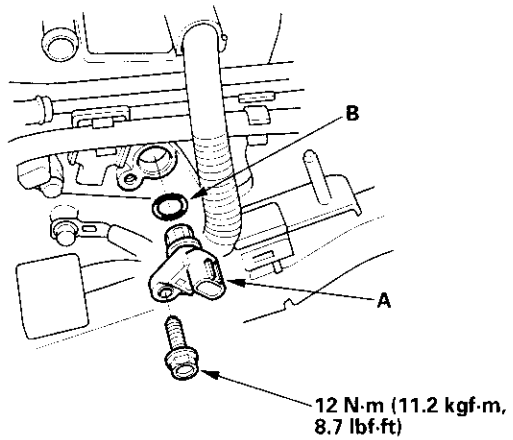
1. Remove the air cleaner (see page 11-162).
2. Disconnect the ECT sensor 2P connector.
3. Remove the ECT sensor (A).



4. Install the sensor in the reverse order of removal with a new o-ring (B).

CMP Sensor B (TDC Sensor) Replacement

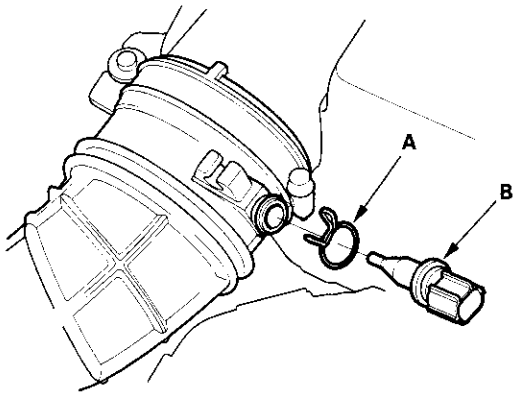
1. Remove the air cleaner (see page 11-162).
2. Disconnect the CMP sensor B (TDC sensor) 3P connector.
3. Remove the CMP sensor B (TDC sensor) (A).



4. Install the sensor in the reverse order of removal with a new o-ring (B).

IAT Sensor Replacement

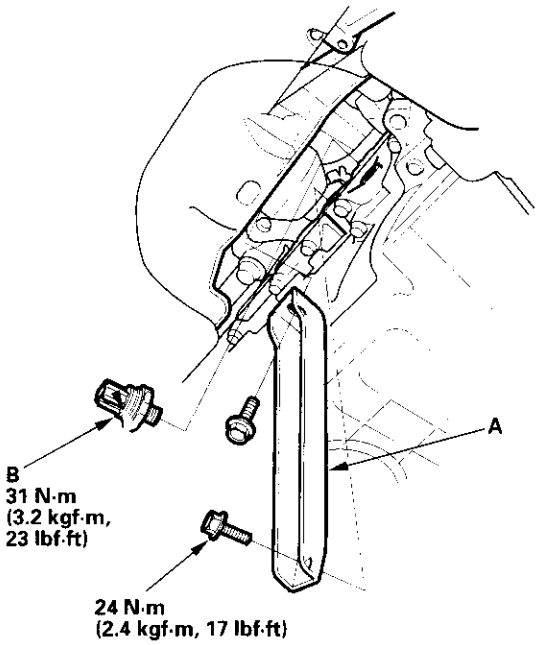
1. Disconnect the IAT sensor 2P connector.
2. Remove the clip (A) and the IAT sensor (B).



3. Install the sensor in the reverse order of removal.

Knock Sensor Replacement

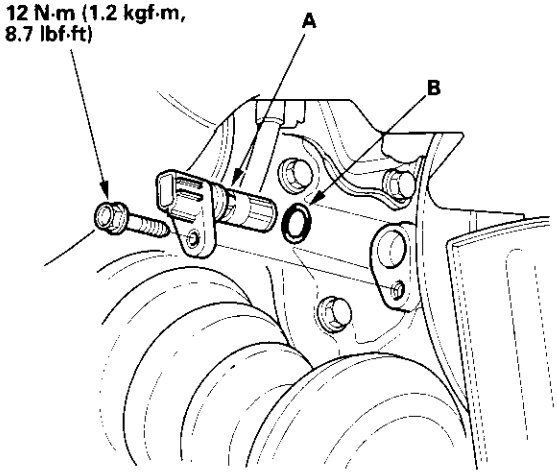
1. Remove the intake manifold bracket (A).



2. Disconnect the knock sensor 1P connector.
3. Remove the knock sensor (B).
4. Install the sensor in the reverse order of removal.

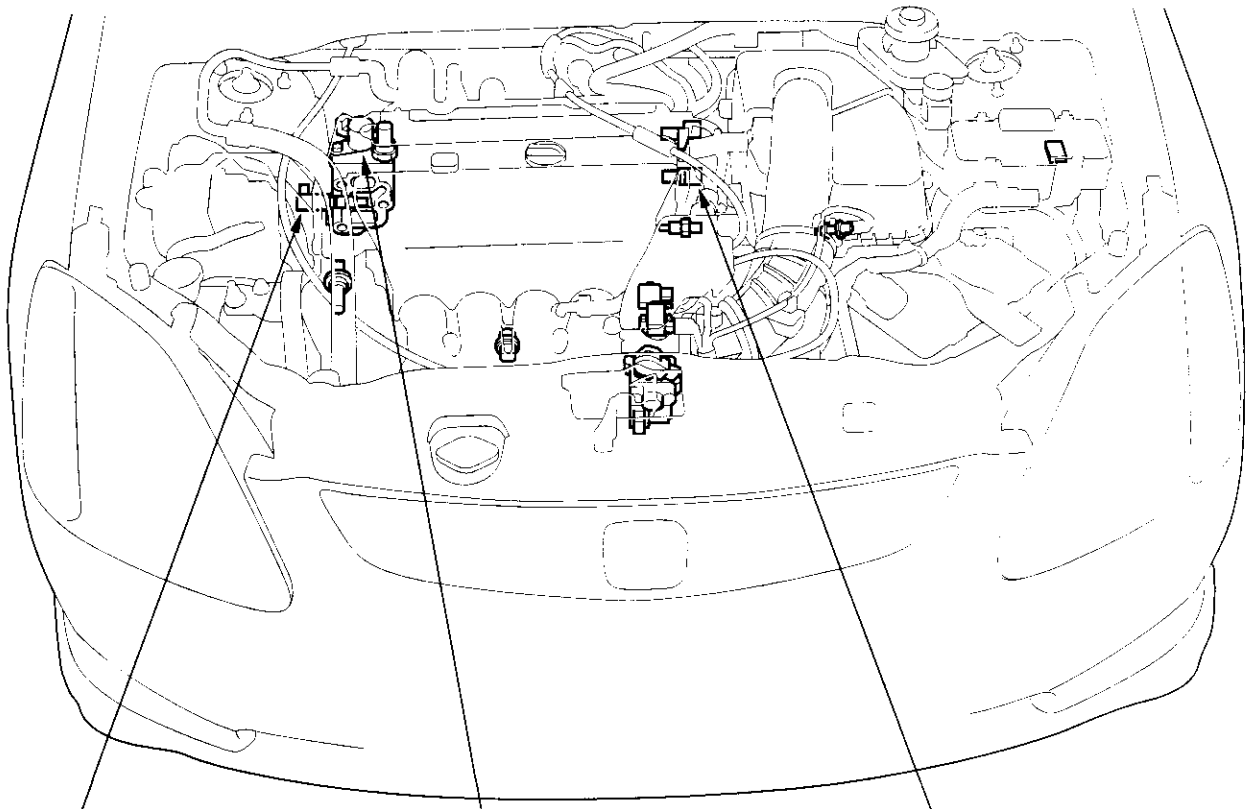
CKP Sensor Replacement

1. Disconnect the CKP sensor 3P connector.
2. Remove the CKP sensor (A).



3. Install the sensor in the reverse order of removal with a new o-ring (B).

Component Location Index



VTC OIL CONTROL SOLENOID VALVE
Troubleshooting, page 11-118
Test,page 11-127

VTC SOLENOID VALVE
Troubleshooting, page 11-123
Removal/Inspection, page 11-128

CAMSHAFT POSITION (CMP) SENSOR A
Troubleshooting, page 11-121
Replacement, page 11-128

DTC Troubleshooting

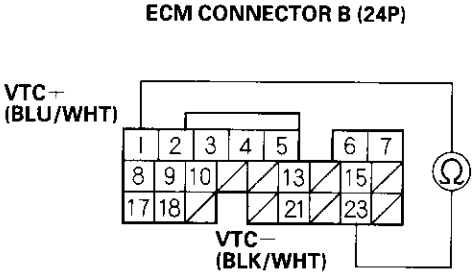
DTC P0010: VTC Oil Control Solenoid Valve Malfunction

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
3. Test-drive at a steady speed between 20-40 mph (30-60 km/h) for 10 minutes.

   Is DTC P0010 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the VTC oil control solenoid valve and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the ECM connector B (24P).
6. Measure resistance between ECM connector terminals B1 and B23.



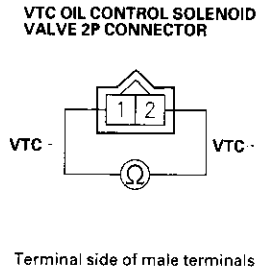
Wire side of female terminals

Is there 6.75—8.25 Ω ?

YES—Go to step 11.

NO—Go to step 7.

7. Disconnect the VTC oil control solenoid valve 2P connector.
8. Measure resistance between VTC oil control solenoid valve 2P terminals No. 1 and No. 2.



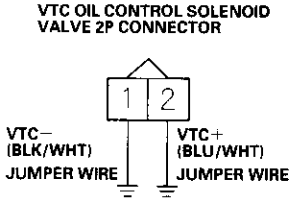
Terminal side of male terminals

Is there 6.75—8.25 Ω ?

YES—Go to step 9.

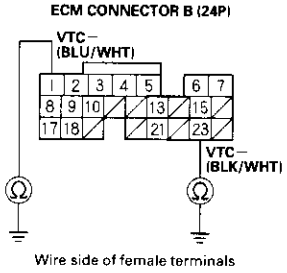
NO—Replace the VTC oil control solenoid valve (see page 11-127).■

9. Connect VTC oil control solenoid valve 2P connector terminals No. 1 and No. 2 to body ground with a jumper wire individually.



Wire side of female terminals

10. Check for continuity between ECM connector terminals B1 and B23 and body ground individually.



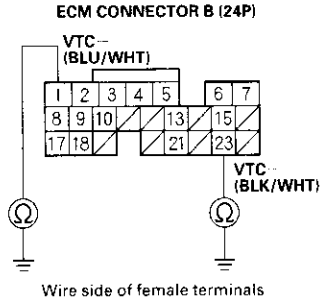
Wire side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the ECM (B1, B23) and the VTC oil control solenoid valve.■

11. Check for continuity between ECM connector terminals B1 and B23 and body ground individually.



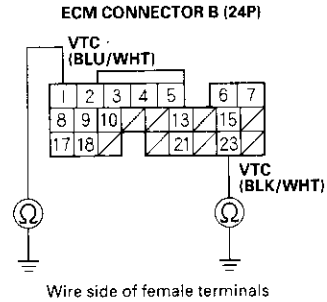
Is there continuity?

YES—Go to step 12.

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

12. Disconnect the VTC oil control solenoid valve 2P connector.

13. Check for continuity between ECM connector terminals B1 and B23 and body ground individually.



Is there continuity?

YES—Repair short in the wire between the ECM (B1, B23) and the VTC oil control solenoid valve. ■

NO—Replace the VTC oil control solenoid valve (see page 11-127). ■

DTC P0011: VTC System Malfunction

1. Reset the ECM (see page 11-4).

2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.

3. Test-drive at a steady speed between 20—40 mph (30—60 km/h) for 10 minutes.

4. Check for Temporary DTC P0011 with the scan tool.

   Is Temporary DTC P0011 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose wires at the VTC oil control solenoid valve and at the ECM. ■

5. Watch the low oil pressure light with the engine running.

   Is the low oil pressure light on?

   YES—Check the oil pressure (see page 8-4). ■

   NO—Go to step 6.

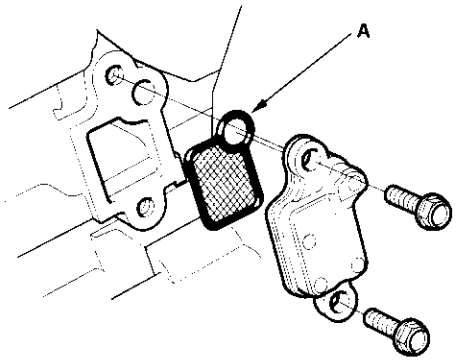
6. Turn the ignition switch OFF.

7. Remove the auto-tensioner (see page 4-28).

(cont'd)

DTC Troubleshooting (cont'd)

8. Remove the VTC strainer (A). Check the VTC strainer for clogging.



Is the strainer OK?

YES—Go to step 9.

NO—Clean the VTC strainer, then replace the engine oil filter and the engine oil. ■

9. Check the VTC oil control solenoid valve (see page 11-127).

Is the VTC oil control solenoid valve OK?

YES—Go to step 10.

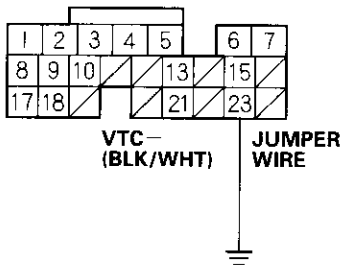
NO—Clean the ports of the VTC oil control solenoid valve, or replace the VTC oil control solenoid valve (see page 11-127). ■

10. Install the VTC oil control solenoid valve.

11. Start the engine. Hold the engine at 700—1,000 rpm.

12. Connect ECM connector terminal B23 to body ground with a jumper wire.

ECM CONNECTOR B (24P)

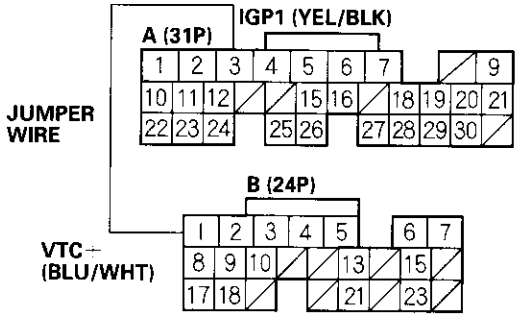


Wire side of female terminals

13. Connect ECM connector terminals A3 and B1 with a jumper wire momentarily.

NOTE: Do not jump for more than 1 minute.

ECM CONNECTORS



Wire side of female terminals

Did the engine stall or run rough?

YES—Test-drive at a steady speed between 20—40 mph (30—60 km/h) for 10 minutes. If temporary DTC P0011 is indicated, update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Go to step 14.

14. Check the VTC actuator (see page 6-8).

Is the VTC actuator OK?

YES—Remove the auto-tensioner (see page 4-28), and clean or replace the VTC oil strainer. Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Replace the VTC actuator. ■

DTC P0340: CMP Sensor A No Signal

DTC P0344: CMP Sensor A Intermittent Interruption

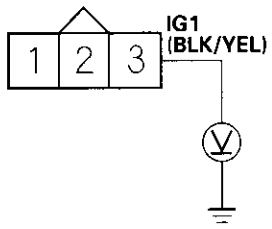
1. Reset the ECM (see page 11-4).
2. Start the engine.

   Is DTC P0340 and/or P0344 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the CMP sensor A and at the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the CMP sensor A 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between CMP sensor A 3P connector terminal No. 3 and body ground.

CMP SENSOR A 3P CONNECTOR



Wire side of female terminals

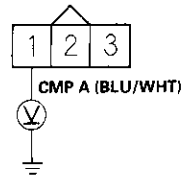
Is there battery voltage?

YES—Go to step 7.

NO—Check the No. 4 ACG (10A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the CMP sensor A and No. 4 ACG (10A) fuse.■

7. Measure voltage between CMP sensor A 3P connector terminal No. 1 and body ground.

CMP SENSOR A 3P CONNECTOR



Wire side of female terminals

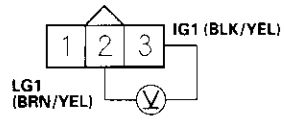
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 10.

8. Measure voltage between CMP sensor A 3P connector terminals No. 2 and No. 3.

CMP SENSOR A 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the CMP sensor A and G101.■

9. Substitute a known-good CMP sensor A and recheck.

   Is DTC P0340 and/or P0344 indicated?

   YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

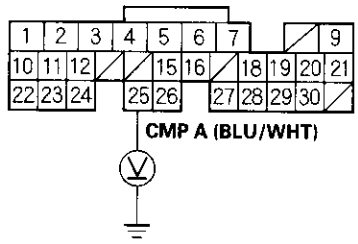
   NO—Replace the original CMP sensor A (see page 11-128).■

(cont'd)

DTC Troubleshooting (cont'd)

10. Measure voltage between ECM connector terminal A25 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A25) and CMP sensor A. ■

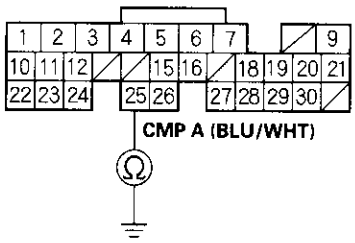
NO—Go to step 11.

11. Turn the ignition switch OFF.

12. Disconnect ECM connector A (31P).

13. Check for continuity between ECM connector terminal A25 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A25) and the CMP sensor A. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

DTC P0341: VTC Phase Gap

1. Reset the ECM (see page 11-4).

2. Start the engine.

Is DTC P0341 indicated?

YES—Go to step 3.

NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the CMP sensor A and at the ECM. ■

3. Check the VTC oil control solenoid valve (see page 11-127).

Is the VTC oil control solenoid valve OK?

YES—Go to step 4.

NO—Clean the VTC oil control solenoid valve, or replace it (see page 11-127). ■

4. Remove the head cover, and check the cam chain (see page 6-12).

Is the cam chain OK?

YES—Go to step 5.

NO—Replace the cam chain (see page 6-12). ■

5. Check the VTC actuator (see page 6-8).

Is the VTC actuator OK?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Replace the VTC actuator. ■

DTC P1259: VTEC System Malfunction

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070300
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure adapter 07MAJ-PY40120
- Oil pressure hose 07ZAJ-S5AA200

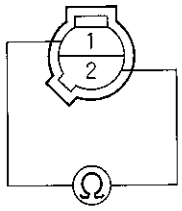
1. Reset the ECM (see page 11-4).
2. Check the engine oil level, and refill if necessary.
3. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.
4. Road test the vehicle:
   Accelerate in the 1st gear to an engine speed over 4,000 rpm. Hold the speed for at least 2 seconds. If DTC P1259 is not repeated during the first road test, repeat the test two more times.

   Is DTC P1259 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, system is OK at this time. Check the oil consumption if oil was added in step 2. Check for poor connections or loose terminals at the VTEC solenoid valve, the VTEC oil pressure switch, and at the ECM. ■
5. Turn the ignition switch OFF.
6. Disconnect the VTEC oil pressure switch 2P connector.
7. Check for continuity between VTEC oil pressure switch 2P connector terminals No. 1 and No. 2.

VTEC OIL PRESSURE SWITCH 2P CONNECTOR



Terminal side of male terminals

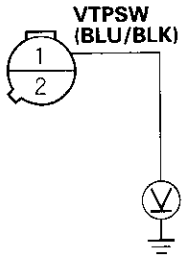
Is there continuity?

YES—Go to step 8.

NO—Replace the VTEC oil pressure switch. ■

8. Turn the ignition switch ON (II).
9. Measure voltage between VTEC oil pressure switch 2P connector terminal No. 1 and body ground.

VTEC OIL PRESSURE SWITCH 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 14.

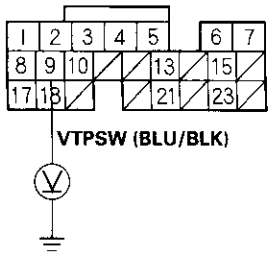
NO—Go to step 10.

(cont'd)

DTC Troubleshooting (cont'd)

10. Measure voltage between ECM connector terminal B9 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there battery voltage?

YES—Repair open in the wire between the VTEC oil pressure switch and the ECM (B9).■

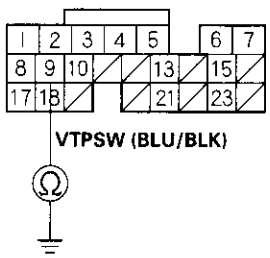
NO—Go to step 11.

11. Turn the ignition switch OFF.

12. Disconnect ECM connector B (24P).

13. Check for continuity between ECM connector terminal B9 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

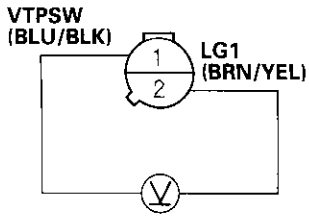
Is there continuity?

YES—Repair short in the wire between the VTEC oil pressure switch and the ECM (B9).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

14. Measure voltage between VTEC oil pressure switch 2P connector terminals No. 1 and No. 2.

VTEC OIL PRESSURE SWITCH 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 15.

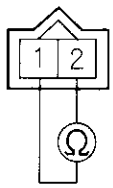
NO—Repair open in the wire between the VTEC oil pressure switch and G101.■

15. Turn the ignition switch OFF.

16. Disconnect the VTEC solenoid valve 2P connector.

17. Check for resistance between VTEC solenoid valve 2P connector terminals No. 1 and No. 2.

VTEC SOLENOID VALVE 2P CONNECTOR



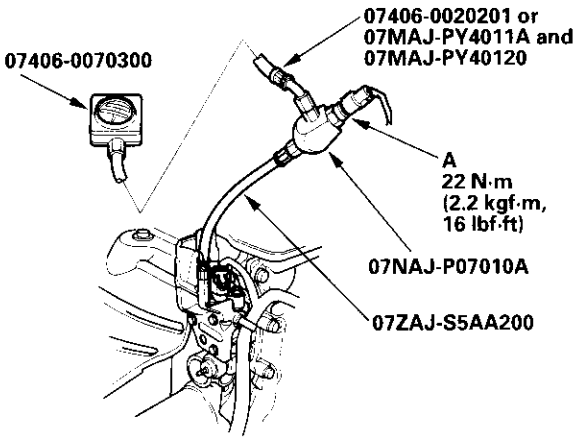
Terminal side of male terminals

Is there 14–30 Ω ?

YES—Go to step 18.

NO—Replace the VTEC solenoid valve (see page 11-128).■

18. Remove the VTEC oil pressure switch (A) and install the special tools as shown, then reinstall the VTEC oil pressure switch.



19. Reconnect the VTEC solenoid valve 2P connector and VTEC oil pressure switch 2P connector.

20. Connect a tachometer or OBD II scan tool/Honda PGM Tester to the DLC.

21. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.

22. Check the oil pressure at engine speeds of 1,000 and 2,000 rpm. Keep the measuring time as short as possible (less than 1 minute) because the engine is running with no load.

    Is the oil pressure below 49 kPa (0.5 kgf/cm², 7 psi)?

    YES—Go to step 23.

    NO—Inspect the VTEC solenoid valve (see page 11-128).■

23. Turn the ignition switch OFF.

24. Disconnect the VTEC solenoid valve 2P connector.

25. Attach the battery positive terminal to VTEC solenoid valve 2P connector terminal No. 2.

26. Start the engine, then connect the battery negative terminal to VTEC solenoid valve 2P connector terminal No. 1, and check the oil pressure at an engine speed of 3,000 rpm.

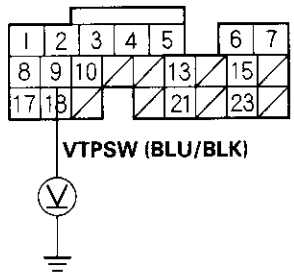
    Is the oil pressure above 390 kPa (4.0 kgf/cm², 57 psi)?

    YES—Go to step 27.

    NO—Inspect the VTEC solenoid valve (see page 11-128).■

27. With the battery terminals still connected to the VTEC solenoid valve connector, measure voltage between ECM connector terminal B9 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

    Is there battery voltage above 4,000 rpm?

    YES—Go to step 28.

    NO—Replace the VTEC oil pressure switch (see page 11-128).■

28. Turn the ignition switch OFF.

29. Disconnect the battery terminals from the VTEC solenoid valve terminal connector.

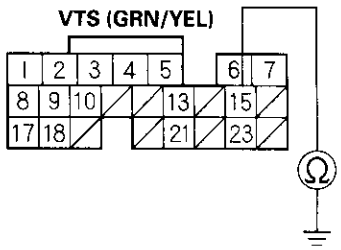
(cont'd)

DTC Troubleshooting (cont'd)

30. Disconnect ECM connector B (24P).

31. Check for continuity between ECM connector terminal B15 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

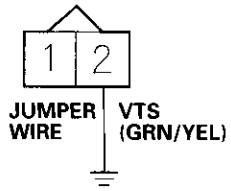
Is there continuity?

YES—Repair short in the wire between the VTEC solenoid valve and the ECM (B15).■

NO—Go to step 32.

32. Connect VTEC solenoid valve 2P connector terminal No. 2 to body ground with a jumper wire.

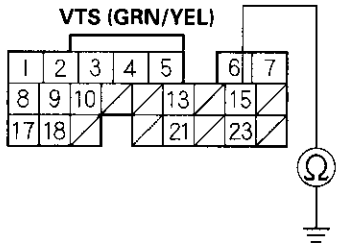
VTEC SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

33. Check for continuity between ECM connector terminal B15 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

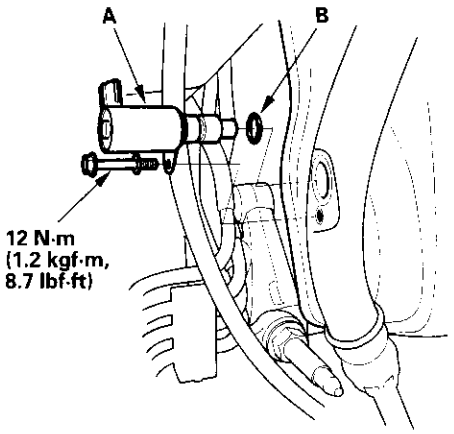
NO—Repair open in the wire between the VTEC solenoid valve and the ECM (B15).■

VTC Oil Control Solenoid Valve Removal/Test

1. Remove the VTC oil control solenoid valve (A).

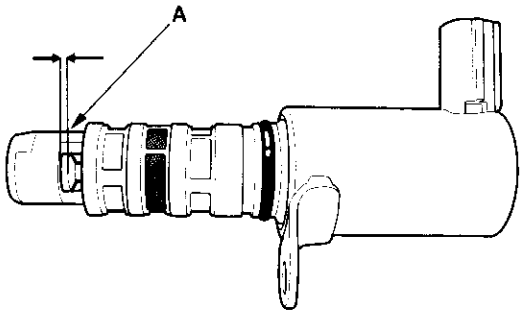
   NOTE: Install the valve in the reverse order of removal with a new o-ring (B), then check these items:

   - Clean and dry the VTC oil control solenoid valve mating surface.
   - Coat the O-ring with engine oil.
   - Do not install the VTC oil control solenoid valve while wearing fibrous gloves.
   - Be careful not to contaminate the cylinder head opening.

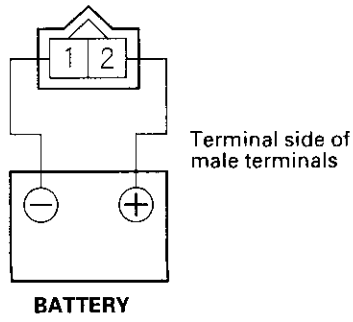


2. Check the VTC oil control solenoid valve filter for clogging. If it is clogged, replace the VTC oil control solenoid valve.

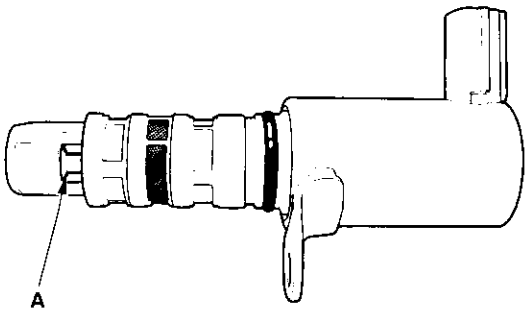
3. Check the clearance between the port (advance side) and the valve. The clearance (A) should be at least 2.8 mm (1/8 in.).



4. Connect the battery positive terminal to VTC oil control solenoid valve 2P connector terminal No. 2.

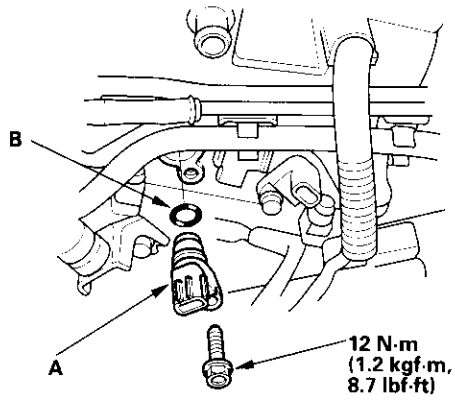


5. Connect the battery negative terminal to VTC oil control solenoid valve 2P connector terminal No. 1, then make sure the valve (A) opens fully.



CMP Sensor A Replacement

1. Remove the air cleaner (see page 11-162).
2. Disconnect the CMP sensor A 3P connector.
3. Remove the CMP sensor A (A).

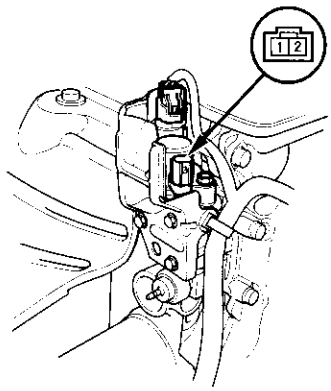


4. Install the sensor in the reverse order of removal with a new o-ring (B).

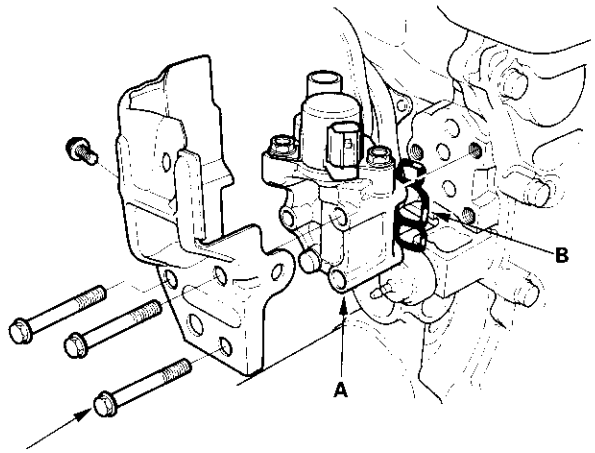
VTEC Solenoid Valve Removal/ Inspection

1. Disconnect the VTEC solenoid valve 2P connector.
2. Measure resistance between VTEC solenoid valve connector terminals No. 1 and No. 2.

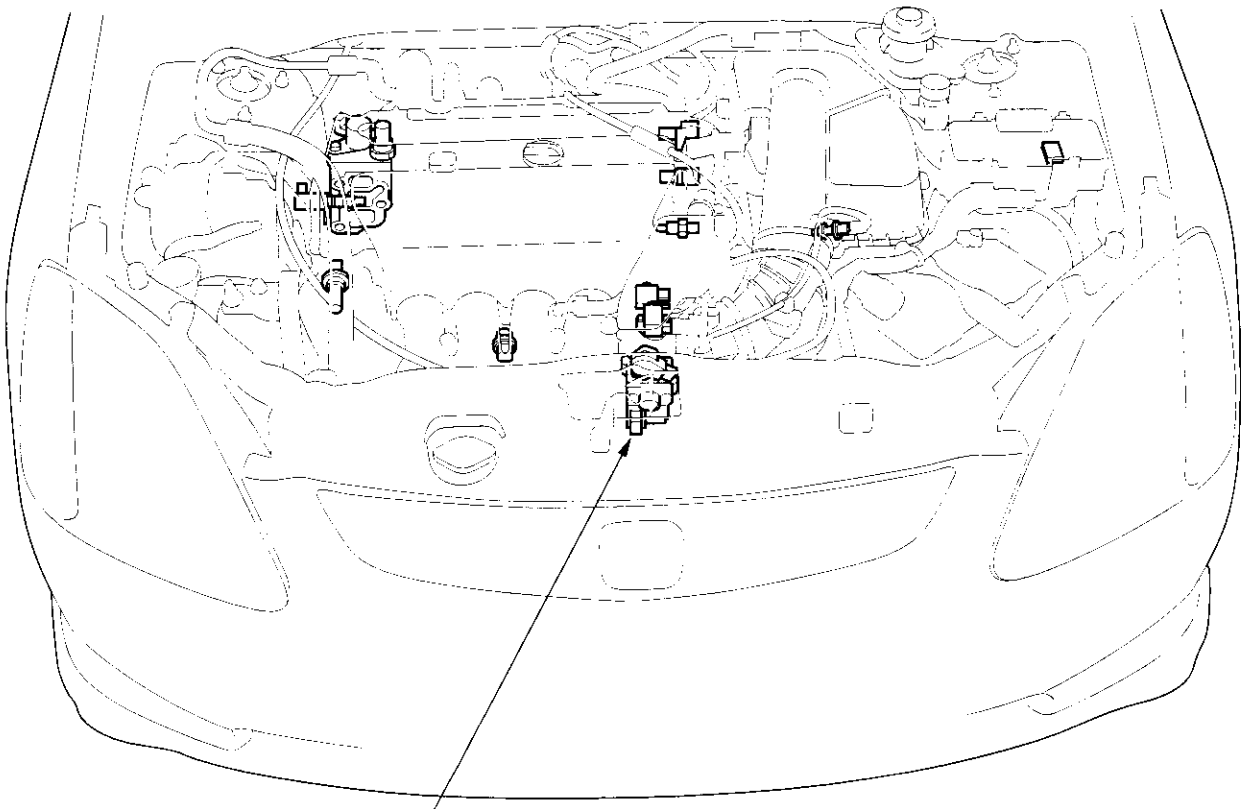
Resistance: 14—30 Ω



3. If the resistance is within specifications, remove the VTEC solenoid valve assembly (A) from the cylinder head, and check the VTEC solenoid valve filter (B) for clogging. If it is clogged, replace the solenoid valve filter, the engine oil filter, and the engine oil.



Component Location Index



IDLE AIR CONTROL (IAC) VALVE
Troubleshooting, page 11-131

DTC Troubleshooting

DTC P0505: Idle Control System Malfunction

NOTE: If DTC P1519 is stored at the same time as DTC P0505, troubleshoot DTC P1519 first, then recheck for DTC P0505.

1. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
2. Check the engine speed at idle with no-load conditions: headlights, blower fan, rear defogger, radiator fan, and air conditioner off.

   Is the engine running at 750±50 rpm?

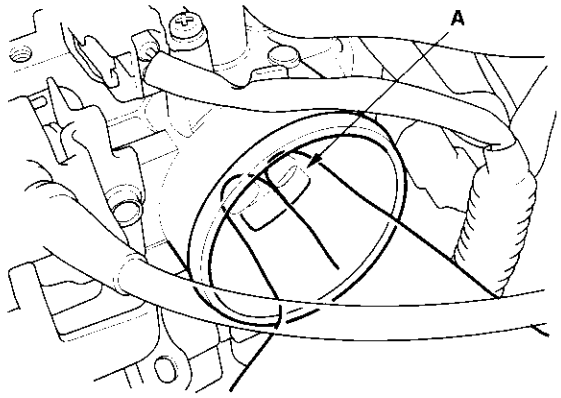
   YES—Intermittent failure, system is OK at this time. ■

   NO—If the idle speed is less than 700 rpm, go to step 3; if it's 800 rpm or higher, go to step 4.
3. Disconnect the idle air control (IAC) valve 3P connector.

   Does the engine speed increase or fluctuate?

   YES—Check the idle speed (see page 11-138). If the idle will not adjust properly, clean the passage in the throttle body, and then adjust the idle. ■

   NO—Replace the IAC valve. ■
4. Turn the ignition switch OFF.
5. Remove the intake air duct from the throttle body.
6. Start the engine, and let it idle.
7. Put your fingers on the lower port (A) in the throttle body.



Does the engine stall?

YES—Check the idle speed (see page 11-138). If it's out of specification, replace the IAC valve. ■

NO—With the throttle valve completely closed, check for vacuum leaks, and repair as necessary. ■

DTC P1519: IAC Valve Circuit Malfunction

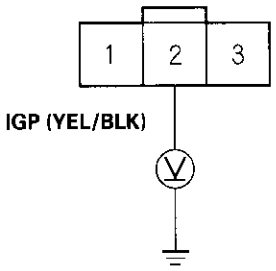
1. Reset the ECM (see page 11-4).
2. Turn the ignition switch ON (II).

   Is DTC P1519 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the IAC valve and at the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the IAC valve 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between IAC valve 3P connector terminal No. 2 and body ground.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

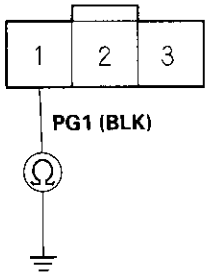
Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the IAC valve and the PGM-FI main relay 1.■

7. Turn the ignition switch OFF.
8. Check for continuity between body ground and IAC valve 3P connector terminal No. 1.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

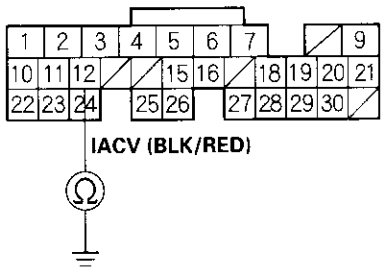
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the IAC valve and G101.■

9. Disconnect ECM connector A (31P).
10. Check for continuity between body ground and ECM connector terminal A12.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the IAC valve and the ECM (A12).■

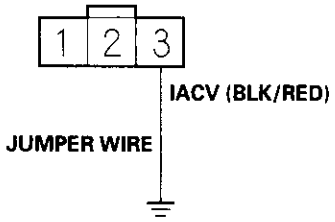
NO—Go to step 11.

(cont'd)

DTC Troubleshooting (cont'd)

11. Connect IAC valve 3P connector terminal No. 3 to body ground with a jumper wire.

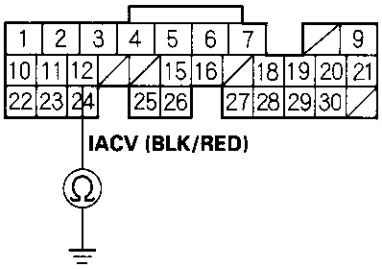
IAC VALVE 3P CONNECTOR



Wire side of female terminals

12. Check for continuity between ECM connector terminal A12 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

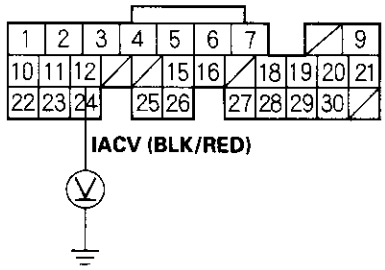
NO—Repair open in the wire between the IAC valve and the ECM (A12). ■

13. Reconnect the IAC valve 3P connector.

14. Turn the ignition switch ON (II).

15. Measure voltage between body ground and ECM connector terminal A12.

ECM CONNECTOR A (31P)



Wire side of female terminals

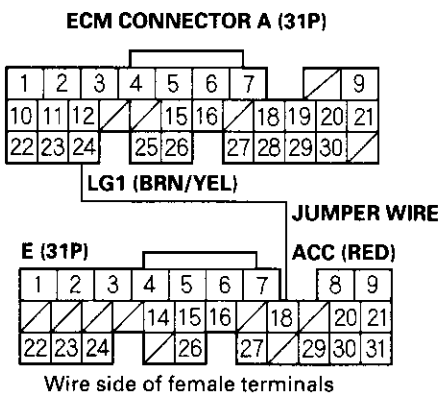
Is there battery voltage?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Replace the IAC valve. ■

A/C Signal Circuit Troubleshooting

1. Turn the ignition switch ON (II).
2. Momentarily connect ECM connector terminals A24 and E18 with a jumper wire several times.



Is there a clicking noise from the A/C compressor clutch?

YES—Go to step 3.

NO—Go to step 6.

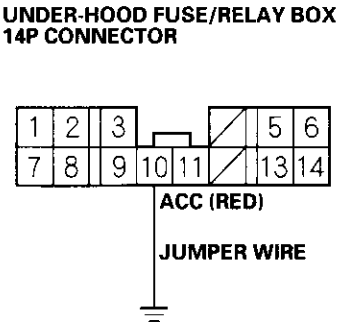
3. Start the engine.
4. Turn the blower switch ON.
5. Turn the A/C switch ON.

Does the A/C operate?

YES—The air conditioning signal is OK. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

6. Momentarily connect under-hood fuse/relay box 14P connector terminal No. 10 to body ground with a jumper wire several times.



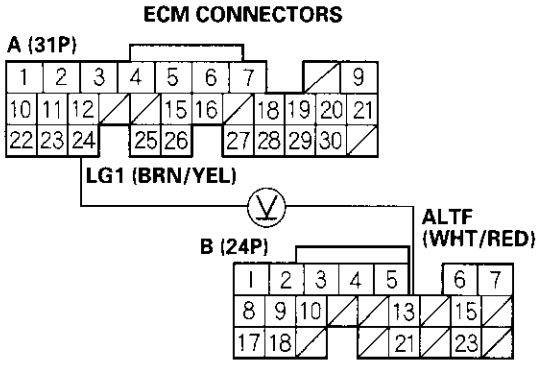
Is there a clicking noise from the A/C compressor clutch?

YES—Repair open in the wire between the ECM (E18) and the A/C clutch relay. ■

NO—Check the A/C system for other symptoms. ■

Alternator FR Signal Circuit Troubleshooting

1. Disconnect the alternator 4P connector from the alternator.
2. Turn the ignition switch ON (II).
3. Measure voltage between ECM connector terminals A24 and B13.



Wire side of female terminals

Is there about 5 V?

YES—Go to step 4.

NO—Go to step 13.

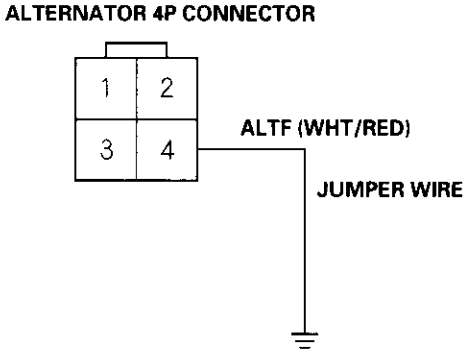
4. Turn the ignition switch OFF.
5. Reconnect the alternator 4P connector.
6. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
7. Measure voltage between ECM connector terminals A24 and B13.

Does the voltage decrease when the headlights and rear window defogger are turned on?

YES—The alternator FR signal is OK.■

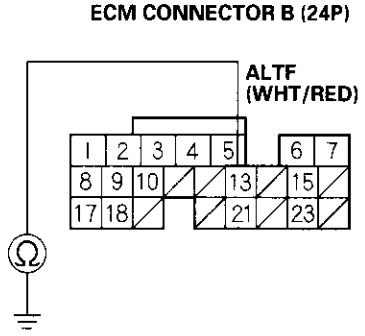
NO—Go to step 8.

8. Turn the ignition switch OFF.
9. Disconnect ECM connector B (24P).
10. Disconnect the alternator 4P connector.
11. Connect alternator 4P connector terminal No. 4 to body ground with a jumper wire.



Wire side of female terminals

12. Check for continuity between body ground and ECM connector terminal B13.



Wire side of female terminals

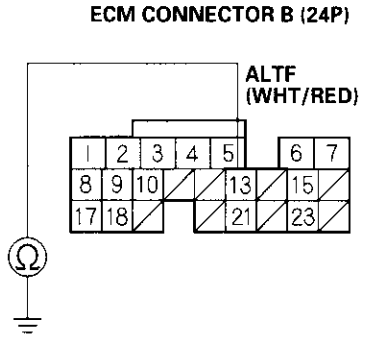
Is there continuity?

YES—Test the alternator (see page 4-22).■

NO—Repair open in the wire between the ECM (B13) and the alternator.■

13. Turn the ignition switch OFF.
14. Disconnect ECM connector B (24P).

15. Check for continuity between body ground and ECM connector terminal B13.



Wire side of female terminals

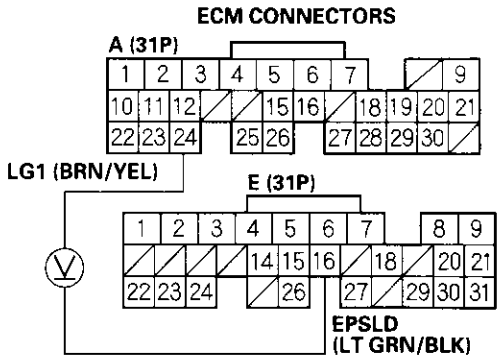
Is there continuity?

YES—Repair short in the wire between the ECM (B13) and the alternator. ■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

Electrical Power Steering (EPS) Signal Circuit Troubleshooting

1. Turn the ignition switch ON (II).
2. Measure voltage between ECM connector terminals A24 and E16.



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Go to step 3.

3. Start the engine.
4. Turn the steering wheel to the full lock position.
5. Measure voltage between ECM connector terminals A24 and E16.

Is there momentary battery voltage?

YES—The EPS signal is OK. ■

NO—Go to step 10.

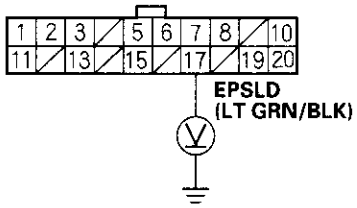
6. Turn the ignition switch OFF.
7. Disconnect the EPS control unit 20P connector.
8. Turn the ignition switch ON (II).

(cont'd)

Electrical Power Steering (EPS) Signal Circuit Troubleshooting (cont'd)

9. Measure voltage between EPS control unit terminal No.17 and body ground.

EPS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

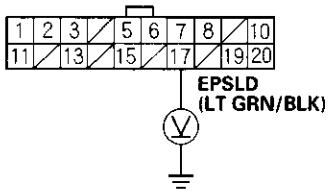
Is there battery voltage?

YES—Substitute a known-good EPS control unit and recheck.■

NO—Repair open in the wire between the ECM (E16) and the EPS control unit.■

10. Turn the ignition switch OFF.
11. Disconnect the EPS control unit 20P connector.
12. Turn the ignition switch ON (II).
13. Measure voltage between EPS control unit terminal No. 17 and the body ground.

EPS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

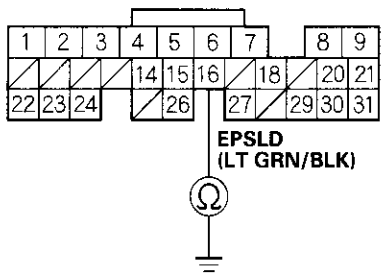
Is there battery voltage?

YES—Substitute a known-good EPS control unit and recheck.■

NO—Go to step 14.

14. Turn the ignition switch OFF.
15. Disconnect the ECM connector E (31P).
16. Check for continuity between body ground and ECM connector terminal E16.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E16) and the EPS control unit.■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

Brake Pedal Position Switch Signal Circuit Troubleshooting

1. Check the brake lights.

   Are the brake lights on without pressing the brake pedal?

   YES—Inspect the brake pedal position switch (see page 19-6).■

   NO—Go to step 2.

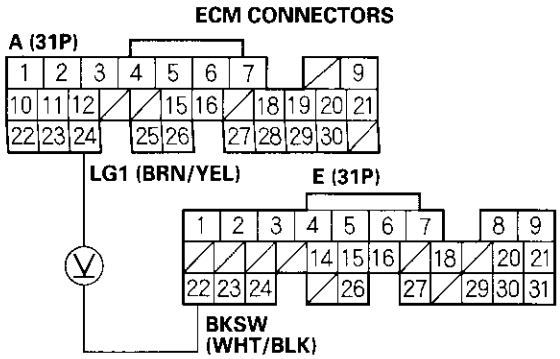
2. Press the brake pedal.

   Do the brake lights come on?

   YES—Go to step 3.

   NO—Go to step 4.

3. Measure voltage between ECM connector terminals A24 and E22 with the brake pedal pressed.



Wire side of female terminals

   Is there battery voltage?

   YES—The brake pedal position switch signal is OK.■

   NO—Repair open in the wire between the ECM (E22) and the brake pedal position switch.■

4. Inspect the No. 7 HORN, STOP (15A) fuse in the under-hood fuse/relay box.

   Is the fuse OK?

   YES—Repair open in the wire between the brake pedal position switch and the No. 7 HORN, STOP (15A) fuse. Inspect the brake pedal position switch (see page 19-10).■

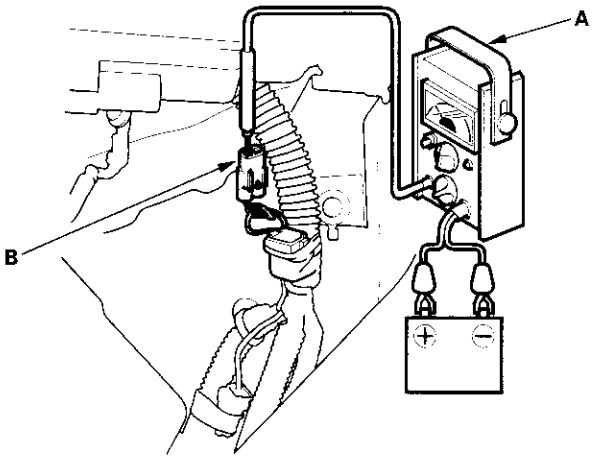
   NO—Repair short in the wire between the ECM (E22) and the No. 7 HORN, STOP (15A) fuse. Replace the No. 7 HORN, STOP (15A) fuse.■

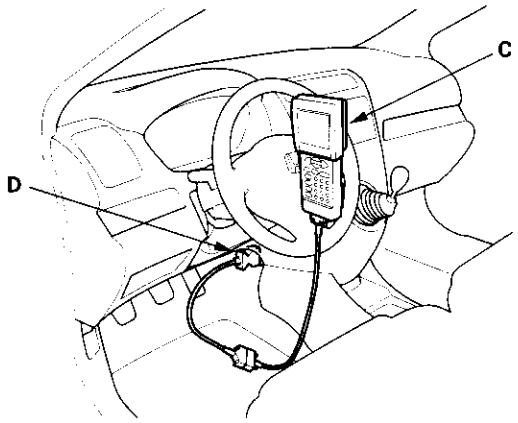
Idle Speed Inspection

NOTE:
- Leave the idle air control (IAC) valve connected.
- Before checking the idle speed, check these items:
  - The malfunction indicator lamp (MIL) has not been reported on.
  - Ignition timing
  - Spark plugs
  - Air cleaner
  - PCV system
- Pull the parking brake lever up. Start the engine, and make sure the headlights are off.

1. Disconnect the evaporative emission (EVAP) canister purge valve 2P connector.

2. Connect a tachometer (A) to the test tachometer connector (B), or connect the Honda PGM Tester (C) or an OBD II scan tool to the data link connector (DLC) (D) located under the driver's side of the dashboard.





3. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.

4. Check the idle speed with no-load conditions: headlights, blower fan, radiator fan, and air conditioner off.

   Idle speed should be: 750 ± 50 rpm

5. Let the engine idle for 1 minute with the heater fan switch on HI and air conditioner on, then check the idle speed.

   Idle speed should be: 750 ± 50 rpm

   NOTE: If the idle speed is not within specification, go to the Symptom Troubleshooting Index.

6. Reconnect the EVAP canister purge valve 2P connector.

ECM Idle Learn Procedure

The idle learn procedure must be done so the ECM can learn the engine idle characteristics.

Do the idle learn procedure whenever you do any of these actions:

- Disconnect the battery.
- Replace the ECM or disconnect its connector.
- Reset the ECM.
  NOTE: Erasing DTCs with the Honda PGM Tester does not require you to do the idle learn procedure.
- Remove the No.6 ECU (ECM) (15A) fuse from the under-hood fuse/relay box.
- Remove the No.19 battery (80A) fuse from the under-hood fuse/relay box.
- Remove PGM-FI main relay 1.
- Remove any of the wires from the under-hood fuse/relay box.
- Disconnect any of the connectors from the under-hood fuse/relay box.
- Disconnect the connector between the engine compartment wire harness and ECM wire harness.
- Disconnect the G2 terminal from the transmission housing.
- Disconnect the G1 terminal from the body.
- Disconnect the G101 terminal from the cylinder head cover.

Procedure:

To complete the idle learn procedure, do this:

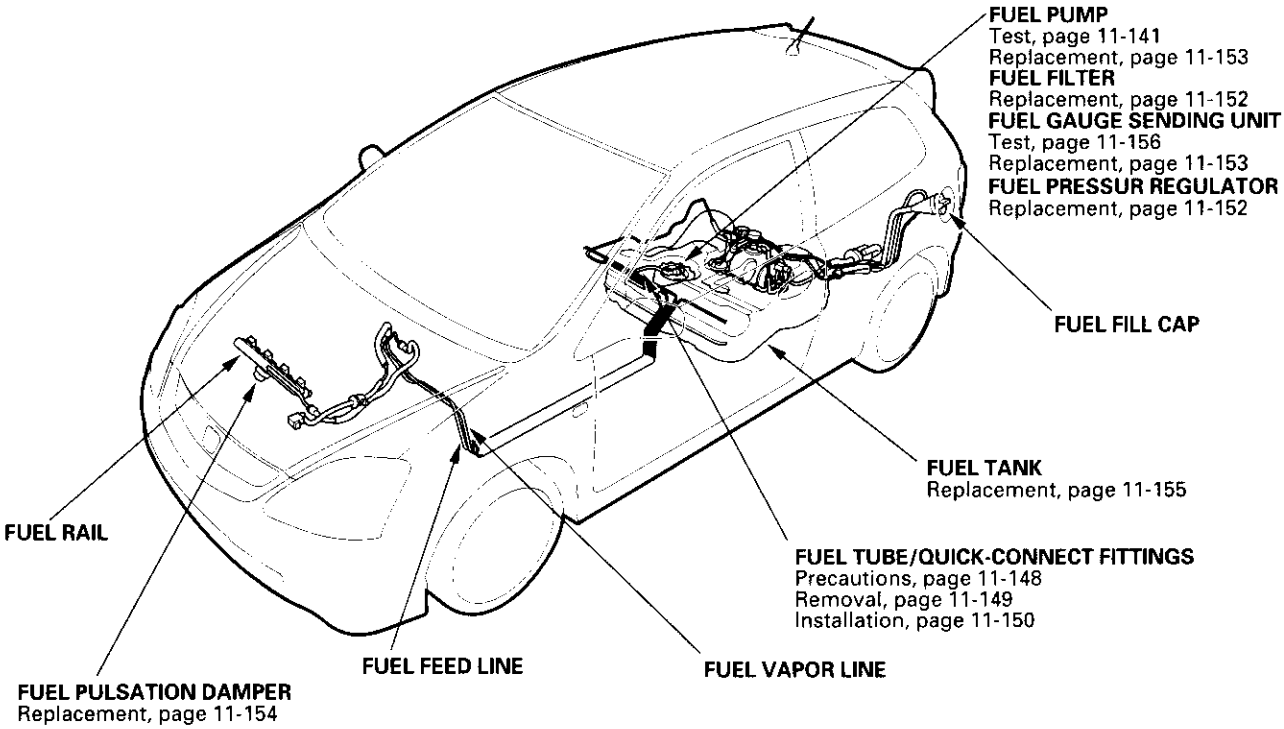
1. Make sure all electrical items (A/C, audio, rear defogger, lights, etc.,) are off.

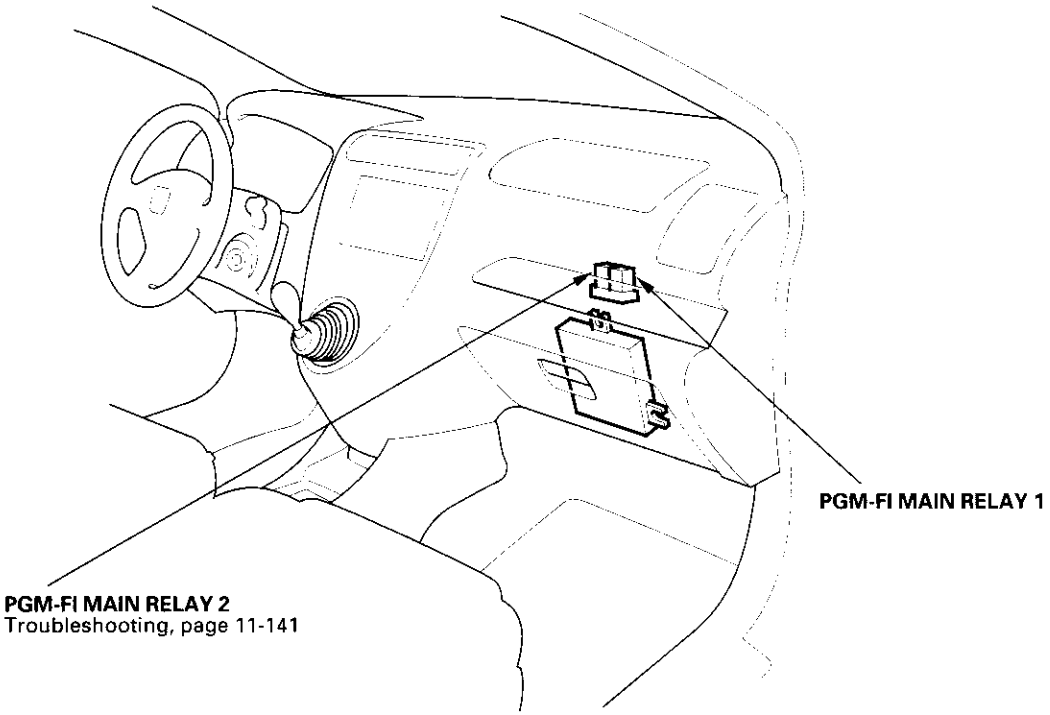
2. Start the engine, and hold it at 3,000 rpm with no load (in neutral) until the radiator fan comes on, or until the engine coolant temperature reaches 194°F (90°C).

3. Let the engine idle for about 5 minutes with the throttle fully closed.

NOTE: If the radiator fan comes on, do not include its running time in the 5 minutes.

Component Location Index

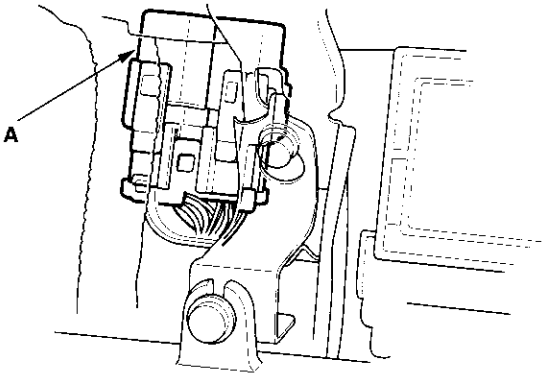




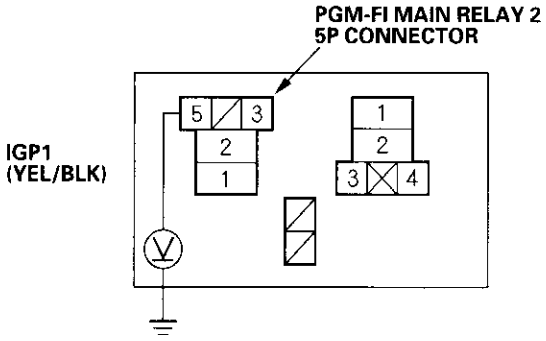
Fuel Pump Circuit Troubleshooting

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is on, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on. If the fuel pump does not make noise, check as follows:

1. Turn the ignition switch OFF.
2. Remove the glove box (see page 20-63), then remove the PGM-FI main relay 2 (A).



3. Turn the ignition switch ON (II).
4. Measure voltage between PGM-FI main relay 2 5P connector terminal No. 5 and body ground.



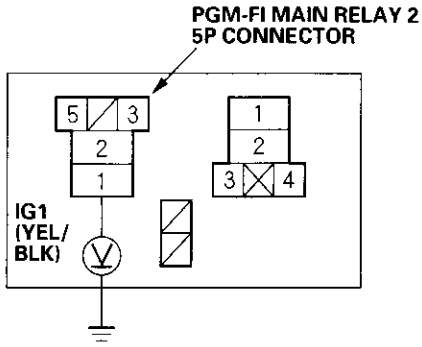
Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the PGM-FI main relay 1 and the PGM-FI main relay 2.■

5. Measure voltage between PGM-FI main relay 2 5P connector terminal No. 1 and body ground.



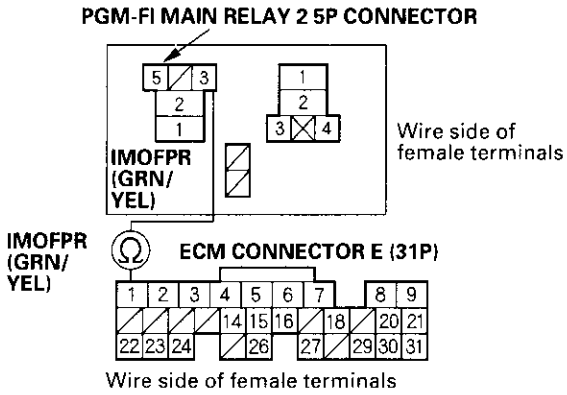
Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between the under-dash fuse/relay box and PGM-FI main relay 2.■

6. Turn the ignition switch OFF.
7. Disconnect ECM connector E (31P).
8. Check for continuity between PGM-FI main relay 2 5P connector terminal No. 3 and ECM connector terminal E1.



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

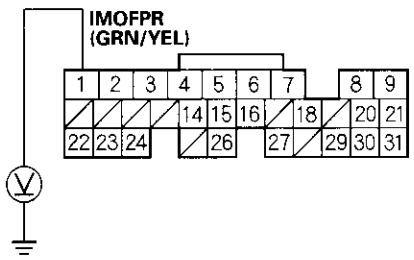
NO—Repair open in the wire between the PGM-FI main relay 2 and the ECM (E1).■

(cont'd)

Fuel Pump Circuit Troubleshooting (cont'd)

9. Reinstall the PGM-FI main relay 2.
10. Turn the ignition switch ON (II).
11. Measure voltage between ECM/PCM connector terminal E1 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

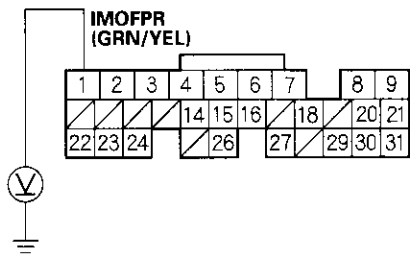
Is there battery voltage?

YES—Go to step 12.

NO—Replace the PGM-FI main relay 2.■

12. Turn the ignition switch OFF.
13. Reconnect ECM connector E (31P).
14. Turn the ignition switch ON (II), and measure voltage between ECM connector terminal E1 and body ground within the first 2 seconds after the ignition switch was turned ON (II).

ECM CONNECTOR E (31P)



Wire side of female terminals

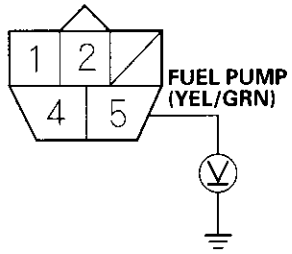
Is there battery voltage?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Go to step 15.

15. Turn the ignition switch OFF.
16. Remove the rear seat cushion (see page 20-80).
17. Remove the access panel from the floor.
18. Measure voltage between fuel pump 5P connector terminal No. 5 and body ground within the first 2 seconds after the ignition switch was turned ON (II).

FUEL PUMP 5P CONNECTOR



Wire side of female terminals

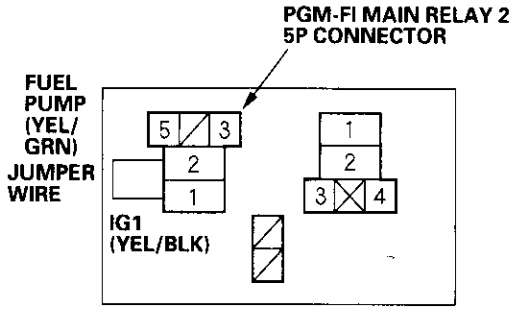
Is there battery voltage?

YES—Go to step 24.

NO—Go to step 19.

19. Turn the ignition switch OFF.
20. Remove the PGM-FI main relay 2.

21. Connect PGM-FI main relay 2 5P connector terminals No. 1 and No. 2 with a jumper wire.

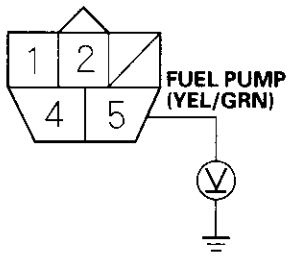


Wire side of female terminals

22. Turn the ignition switch ON (II).

23. Measure voltage between fuel pump 5P connector terminal No. 5 and body ground.

FUEL PUMP 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

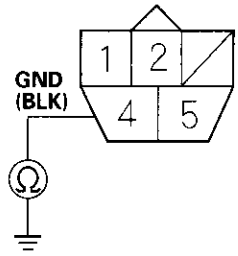
YES—Replace the PGM-FI main relay 2.■

NO—Repair open in the wire between the PGM-FI main relay 2 and the fuel pump 5P connector.■

24. Turn the ignition switch OFF.

25. Check for continuity between fuel pump 5P connector terminal No. 4 and body ground.

FUEL PUMP 5P CONNECTOR



Wire side of female terminals

Is there continuity?

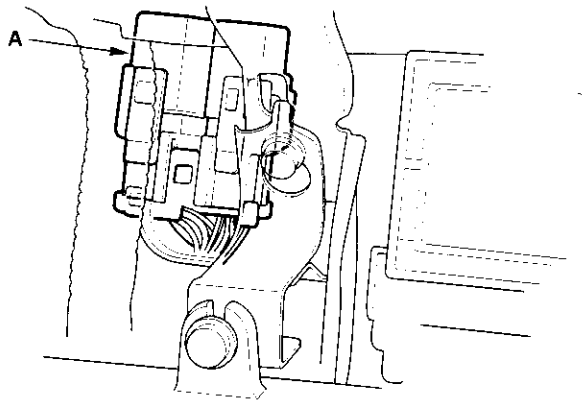
YES—Replace the fuel pump.■

NO—Repair open in the wire between the fuel pump 5P connector and G551.■

Fuel Pressure Relieving

Before disconnecting fuel lines or hoses, relieve pressure from the system by disconnecting the fuel tube/quick connect fitting in the engine compartment.

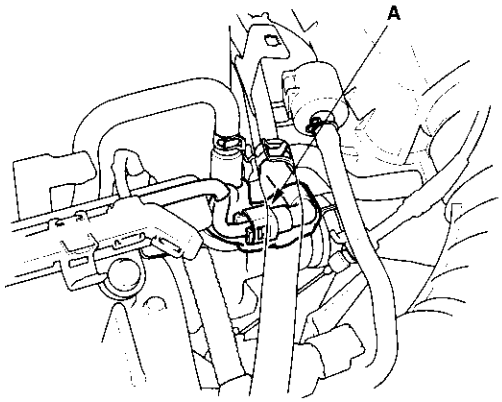
1. Turn the ignition switch OFF.
2. Remove the PGM-FI main relay 2 (A).



3. Start the engine, and let it idle until it is stalls.

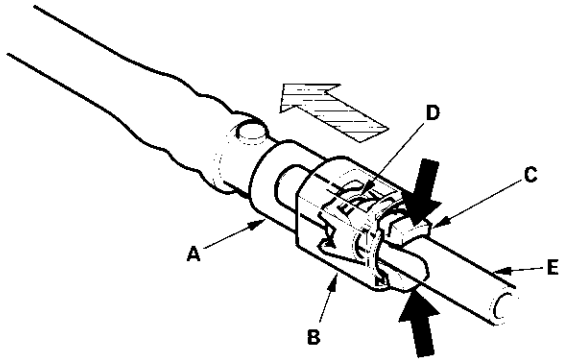
   NOTE: The DTCs or Temporary DTCs P0301, P0302, P0303, P0304 may come on during this procedure. If any DTCs are stored, ignore them.

4. Turn the ignition switch OFF.
5. Remove the fuel fill cap, and relieve fuel pressure in the fuel tank.
6. Remove the engine cover.
7. Disconnect the negative cable from the battery.
8. Check the fuel quick-connect fitting for dirt, and clean it if necessary.
9. Place a rag or shop towel over the quick-connect fitting (A).



10. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand and squeeze the retainer tabs (C) with the other hand to release them from the locking pawls (D). Pull the connector off.

    NOTE:
    - Prevent the remaining fuel in the fuel feed line or hose from flowing out with a rag or shop towel.
    - Be careful not to damage the line (E) or other parts.
    - Do not use tools.
    - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
    - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



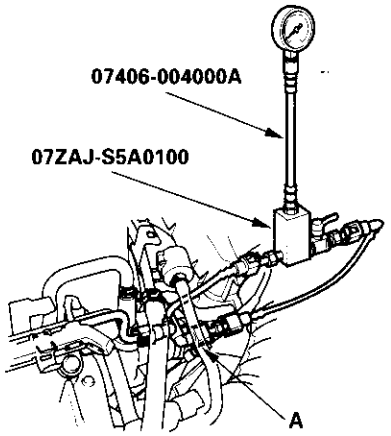
11. After disconnecting the quick-connect fitting, check it for dirt or damage (see page 11-149).

Fuel Pressure Test

Special Tools Required
- Fuel pressure gauge 07406-004000A
- Fuel pressure gauge set 07ZAJ-S5A0100

1. Relieve the fuel pressure (see page 11-144).

2. Disconnect the quick-connect fitting (A). Attach the fuel pressure gauge set and fuel pressure gauge.



3. Start the engine and let it idle.

   - If the engine starts, go to step 5.
   - If the engine does not start, go to step 4.

4. Check to see if the fuel pump is running: listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on.

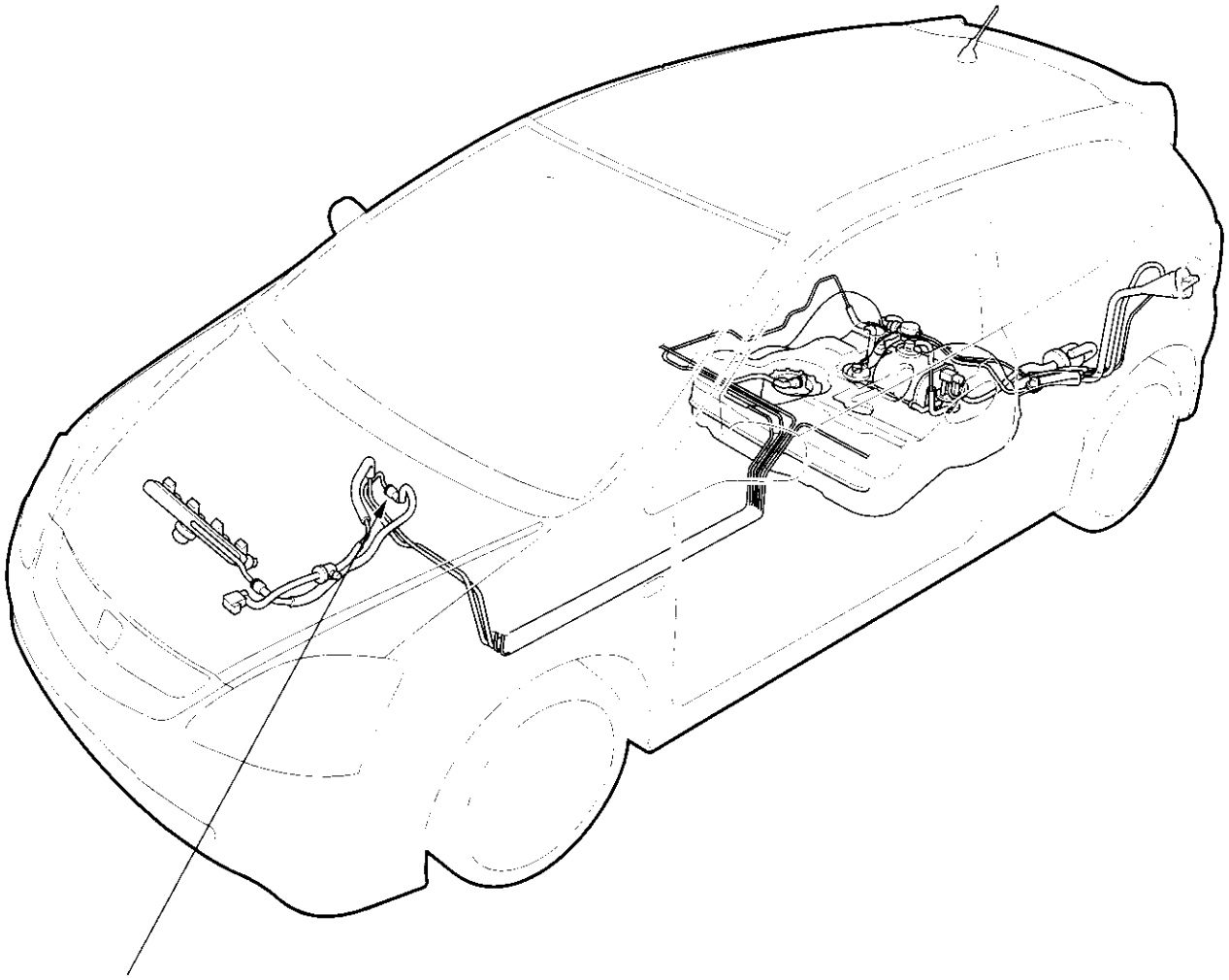
   - If the pump runs, go to step 5.
   - If the pump does not run, do the fuel pump circuit troubleshooting (see page 11-141).

5. Read the pressure gauge. The pressure should be 320—370 kpa (3.3—3.8 kgf/cm^2, 47—52 psi)

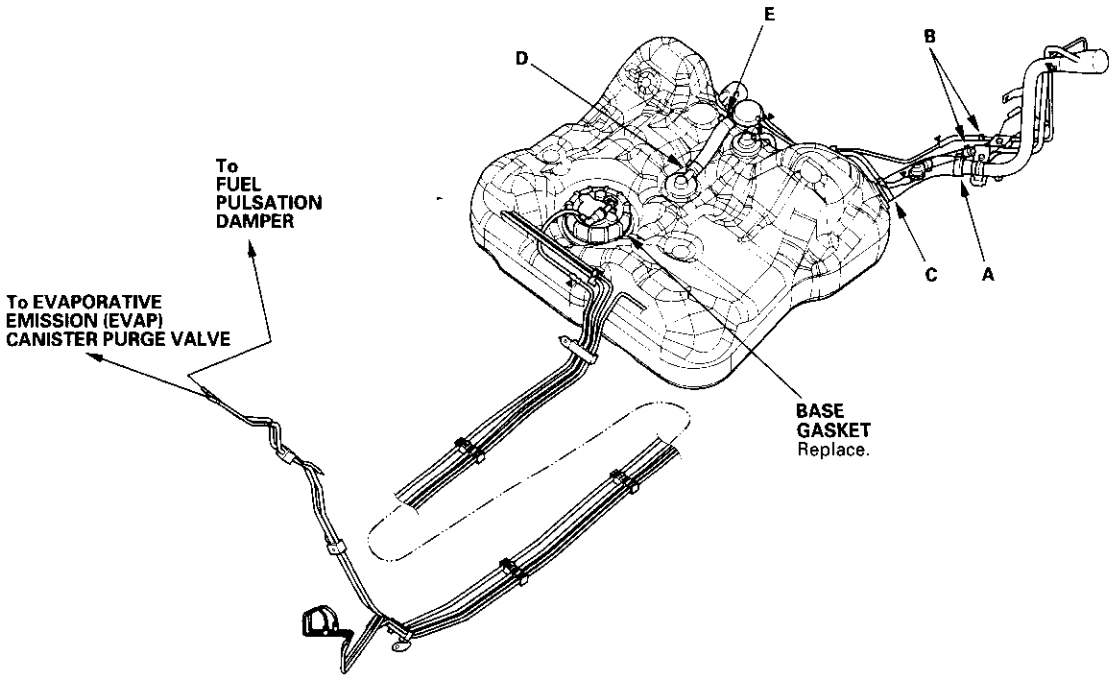
   - If the pressure is OK, the test is complete.
   - If the pressure is out of specification, replace the fuel pressure regulator and the fuel filter (see page 11-152), then recheck the fuel pressure.

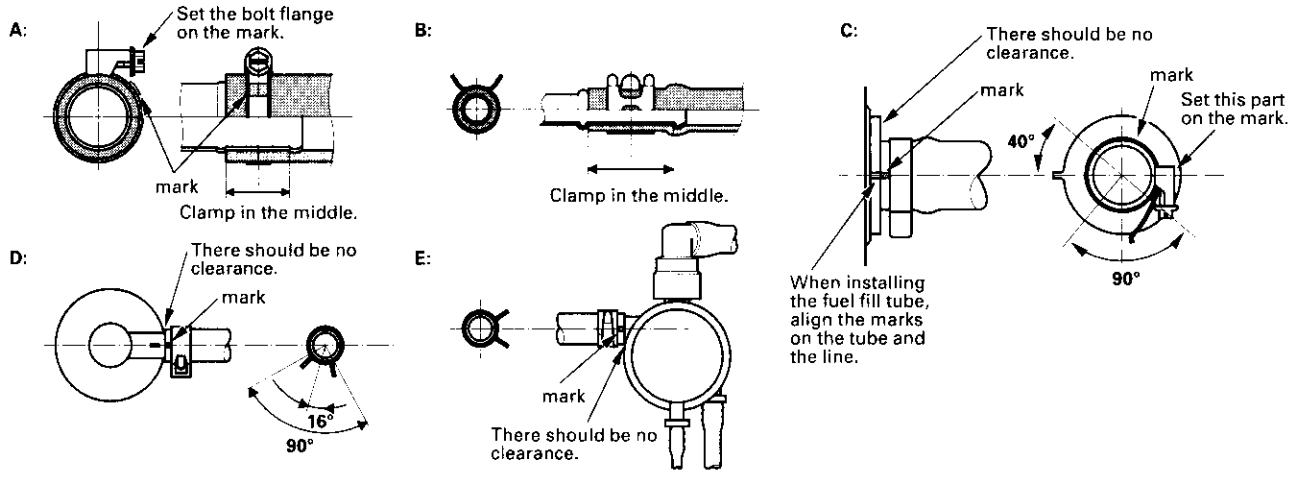
Fuel Line Inspection

Check the fuel system lines, hoses, and fuel filter for damage, leaks, and deterioration. Replace any damaged parts.



Check all clamps and retighten if necessary.
▲: Do not disconnect the hose from the line at these joints.

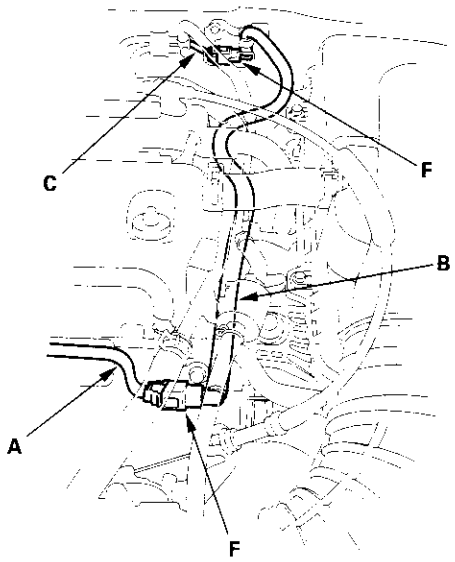


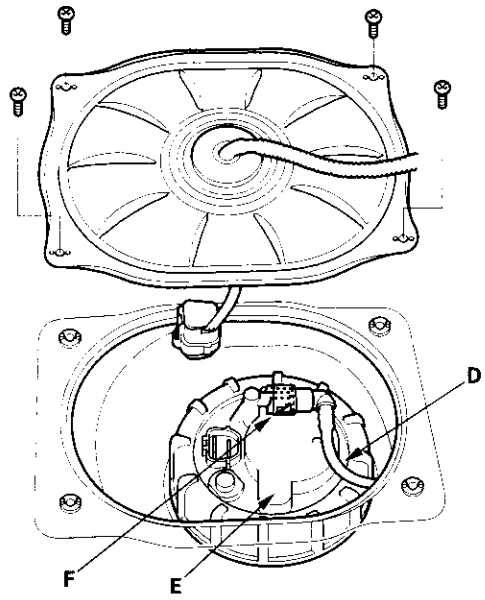


Fuel Line/Quick-Connect Fittings Precaution

The fuel tube/quick-connect fittings connect the fuel rail (A) to fuel feed hose (B), the fuel feed hose (B) to the fuel line (C), and the fuel tube (D) to the fuel pump assembly (E). When removing or installing the fuel feed hose, fuel pump assembly, or fuel tank, it is necessary to disconnect or connect the quick-connect fittings. Pay attention to the following:

- The fuel feed hose (B), fuel tube (D), and quick-connect fittings (F) are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel feed hose (B), fuel tube (D) and quick-connect fittings (F) are not acid-proof; do not touch them with a shop towel which was used for wiping battery electrolyte. Replace them if they came into contact with electrolyte or something similar.
- When connecting or disconnecting the fuel feed hose (B), fuel tube (D), and quick-connect fittings (F), be careful not to bend or twist them excessively. Replace them it they are damaged.





A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line. Replace the retainer when

- replacing the fuel rail.
- replacing the fuel line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- it has been removed from the line.
- it is damaged.

PART	MANUFACTURER	RETAINER COLOR
ENGINE COMPARTMENT (FUEL FEED HOSE: FUEL LINE SIDE)	TOKAI	GREEN
ENGINE COMPARTMENT (FUEL FEED HOSE: FUEL RAIL SIDE)	TOKAI	BLU
FUEL TANK UNIT	SANOH	WHITE

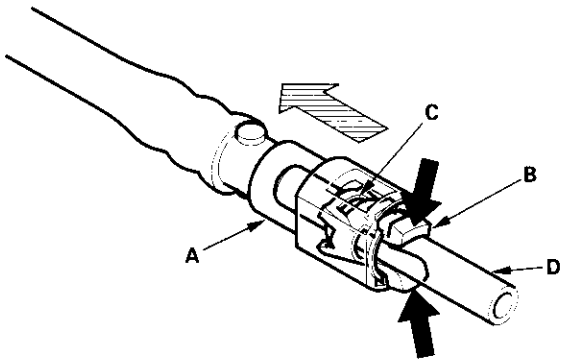
Fuel Line/Quick-Connect Fittings Removal

1. Relieve fuel pressure (see page 11-144).

2. Check the fuel quick-connect fittings for dirt, and clean if necessary.

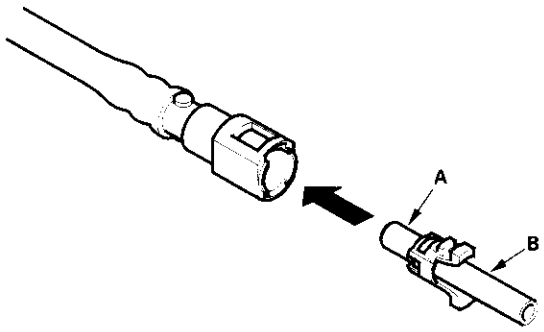
3. Hold the connector (A) with one hand and squeeze the retainer tabs (B) with the other hand to release them from the locking paws (C). Pull the connector off.

   NOTE:
   - Be careful not to damage the line (D) or other parts. Do not use tools.
   - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
   - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



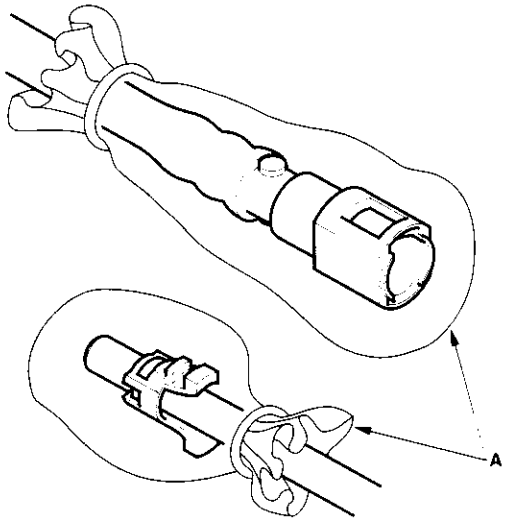
4. Check the contact area (A) of the line (B) for dirt and damage.

   - If the surface is dirty, clean it.
   - if the surface is rusty or damaged, replace the fuel pump, fuel filter, fuel feed line.



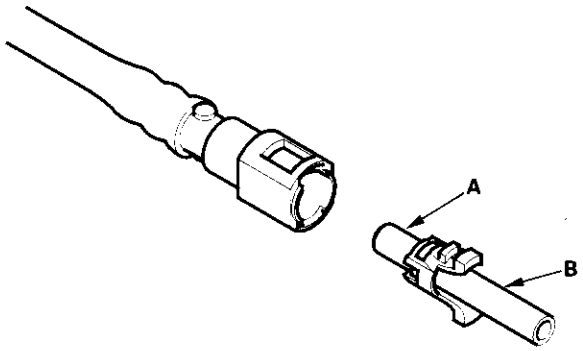
5. To prevent damaged and keep foreign matter out, cover the disconnected connector and line end with plastic bags (A).

   NOTE:
   - The retainer cannot be reused once it has been removed from the line.
     Replaced the retainer when
     - replacing the fuel rail.
     - replacing the fuel feed line.
     - replacing the fuel pump.
     - replacing the fuel filter.
     - replacing the fuel gauge sending unit.
     - it has been removed from the line.
     - it is damaged.

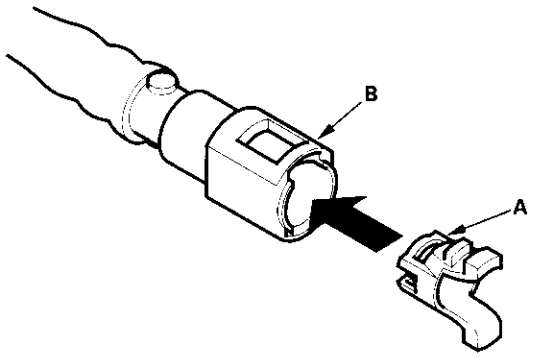


Fuel Line/Quick-Connect Fittings Installation

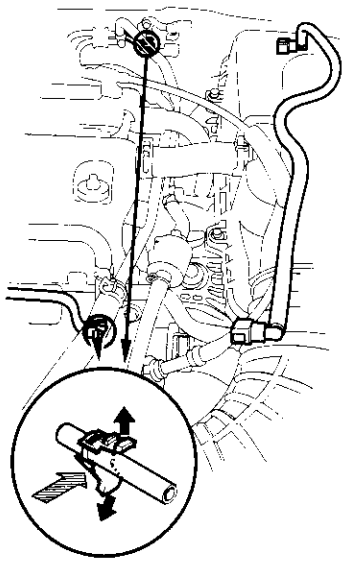
1. Check the contact area (A) of the line (B) for dirt and damage, and clean if necessary.

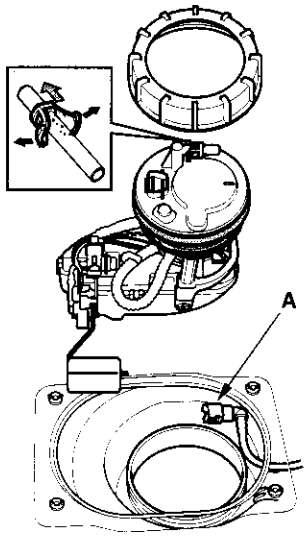


2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after
   - replacing the fuel rail.
   - replacing the fuel feed line.
   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the fuel gauge sending unit
   - removing the retainer from the line.



3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer from the mating line.

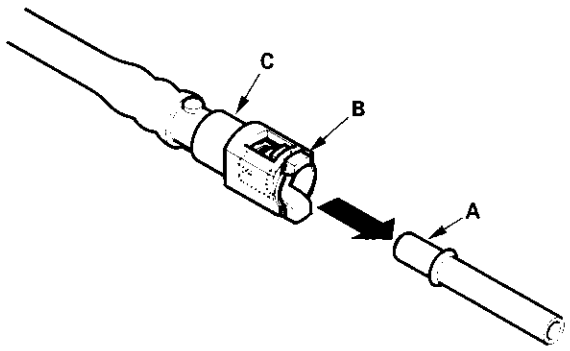




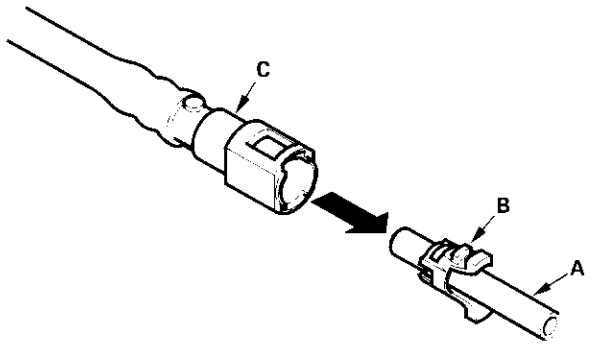
4. Align the quick-connect fittings with the line (A), and align the retainer (B) locking pawls with the connector (C) grooves. Then press the quick-connect fittings onto the line until both retainer pawls lock with a clicking sound.

   NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

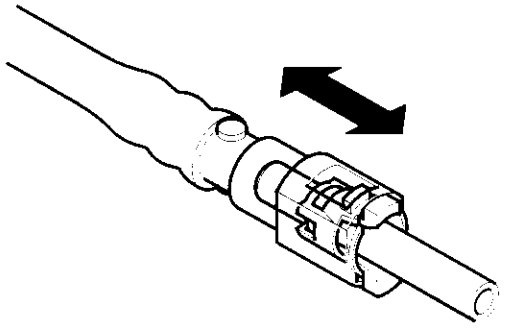
Connection with new retainer:



Reconnection to existing retainer:



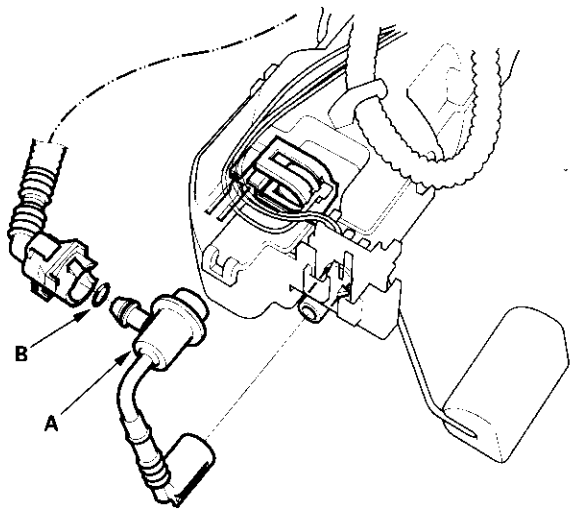
5. Make sure the connection is secure and that the pawls are firmly locked into place; check visually and by pulling the connector.



6. Reconnect the negative cable to the battery, and turn the ignition switch ON (II). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat 2 or 3 times, and check that there are no fuel leaks.

Fuel Pressure Regulator Replacement

1. Remove the fuel pump (see page 11-153).
2. Remove the fuel pressure regulator (A).

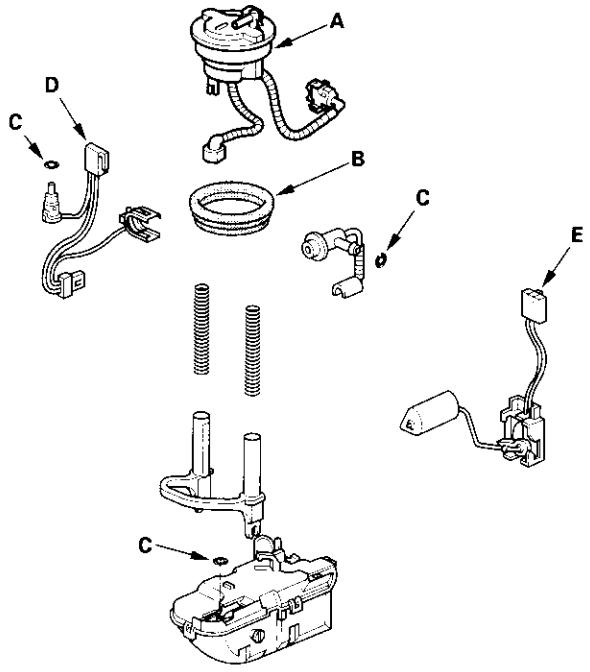


3. Install the part in the reverse order of removal with a new o-ring (B).

Fuel Filter Replacement

The fuel filter should be replaced whenever the fuel pressure drops below the specified value (270—320 kPa, 2.8—3.3 kgf/cm², 40—47 psi), after making sure that the fuel pump and the fuel pressure regulator are OK.

1. Remove the fuel pump (see page 11-153).
2. Remove the fuel filter (A).

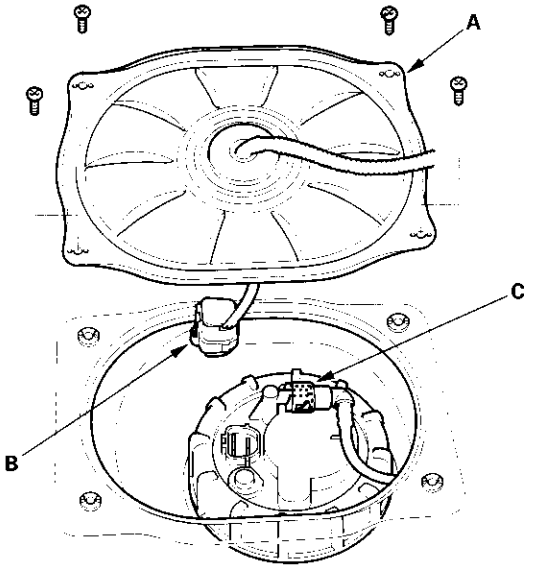


3. Install in the reverse order of removal with a new base gasket (B) and a new o-ring (C), then check these items:
   - When connecting the wire harness, make sure the connection is secure and the terminal (D) is firmly locked into place.
   - When installing the fuel gauge sending unit (E), make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

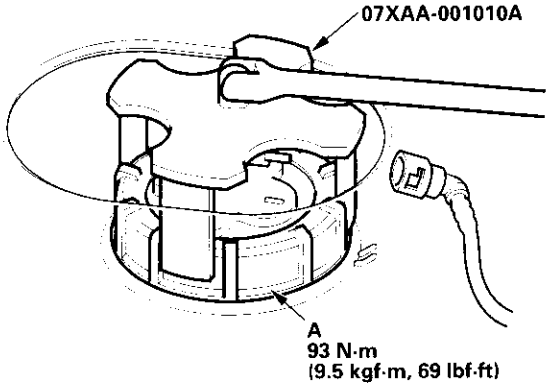
Fuel Pump/Fuel Gauge Sending Unit Replacement

Special Tools Required
Fuel sender wrench 07XAA-001010A

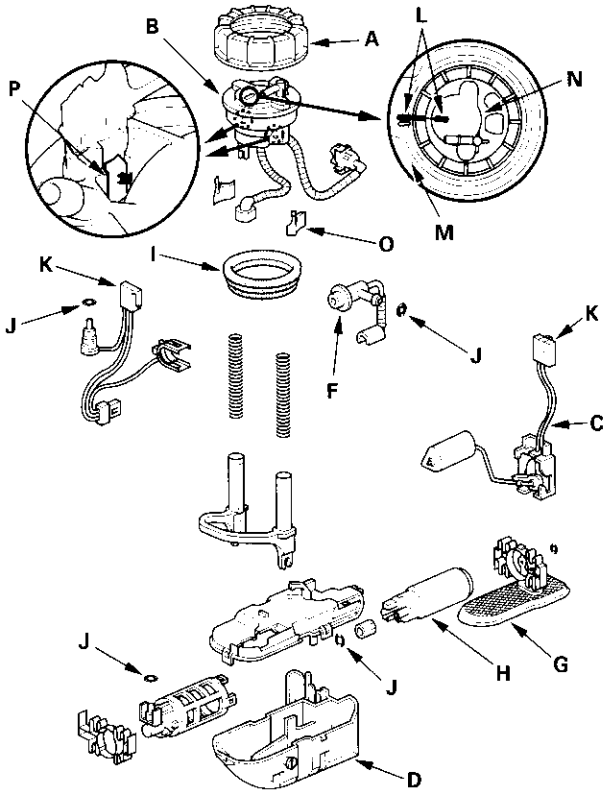
1. Relieve the fuel pressure (see page 11-144).
2. Remove the fuel fill cap.
3. Remove the seat cushion (see page 20-80).
4. Remove the access panel (A) from the floor.



5. Disconnect the fuel pump 5P connector (B).
6. Disconnect the quick-connect fitting (C) from the fuel tank unit.
7. Using the special tool, loosen the fuel tank unit locknut (A).



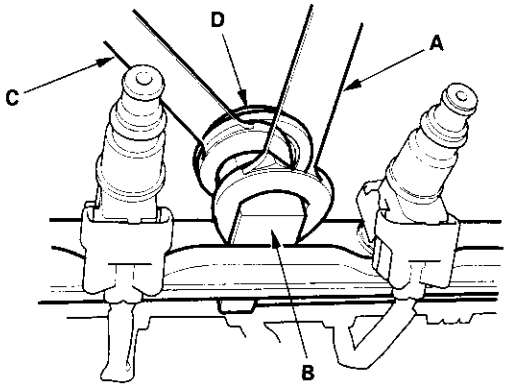
8. Remove the locknut (A) and the fuel tank unit.



9. Remove the stopper (O). Release the hook (P) and remove the fuel filter (B), the fuel gauge sending unit (C), the case (D), the wire harness (E), and the fuel pressure regulator (F).
10. When connecting the fuel tank unit, make sure the connection is secure and the suction filter (G) is firmly connected to the fuel pump (H).
11. Install the fuel tank unit in the reverse order of removal with a new base gasket (I) and new o-rings (J), then check these items:
    - When connecting the wire harness, make sure the connection is secure and the connector (K) is firmly locked into the place.
    - When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist the connector excessively.
    - When installing the fuel tank unit, align the marks (L) on the fuel tank (M) and the fuel tank unit (N).

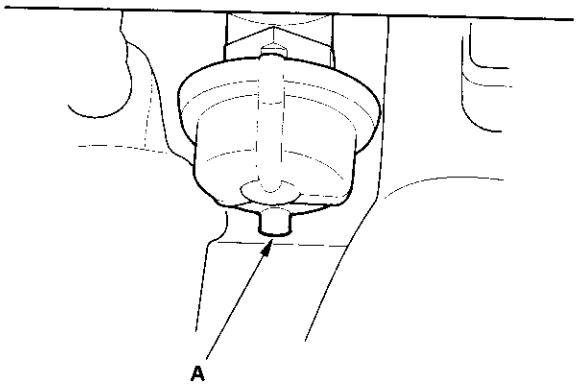
Fuel Pulsation Damper Replacement

1. Relieve the fuel pressure (see page 11-144).
2. Remove the engine cover.
3. Remove the fuel rail mounting nuts from the fuel rail.
4. Remove the ground cable (G101).
5. Raise the fuel rail.
6. Place a wrench (A) on the fuel rail (B).



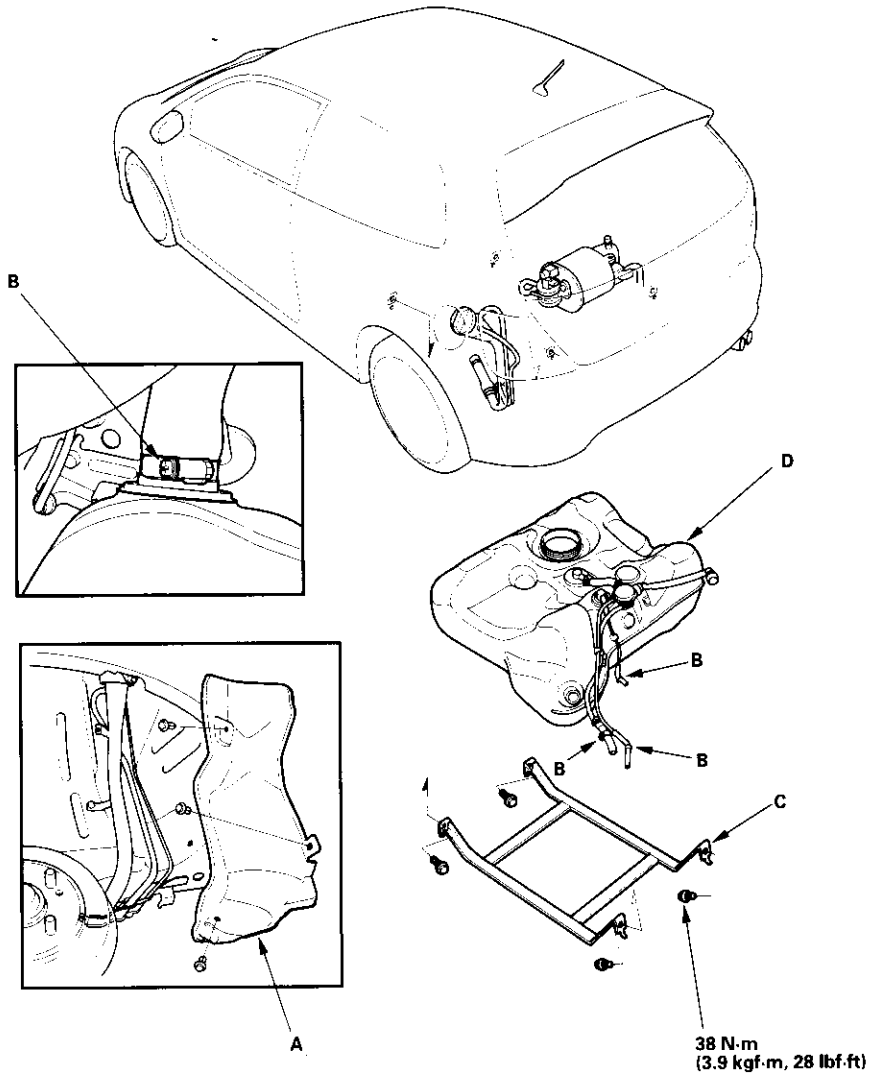
7. Place a wrench (C) on the fuel pulsation damper (D).
8. Remove the pulsation damper.
9. Install the fuel pulsation damper in the reverse order of removal with new washers.

NOTE:
- Replace all washers whenever the fuel pulsation damper is loosened or removed.
- If the drain hole (A) of the fuel pulsation damper cover does not face bottom, reinstall it as shown.



Fuel Tank Replacement

1. Relieve the fuel pressure (see page 11-144).
2. Drain the fuel tank: Remove the fuel pump (see page 11-153). Using a hand pump, hose, and container suitable for gasoline, draw the fuel from the fuel tank.
3. Jack up the vehicle, and support it with safety stands.
4. Remove the fuel pipe cover (A). Disconnect the fuel vapor hose and quick-connect fittings. Disconnect the hoses. Slide back the clamps (B), then twist the hoses as you pull to avoid damaging them.



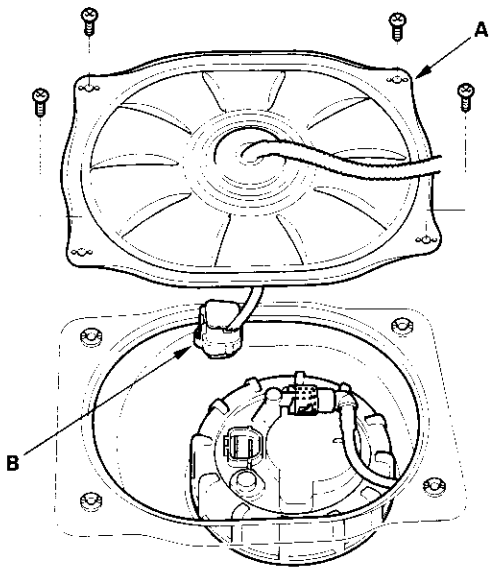
5. Place a jack or other support under the tank.
6. Remove the strap bolts, and let the strap (C) hang free.
7. Remove the fuel tank (D). If it sticks to the undercoat on its mount, carefully pry it off the mount.
8. Install the parts in the reverse order of removal.

Fuel Gauge Sending Unit Test

Special Tools Required
Fuel sender wrench 07XAA-001010A

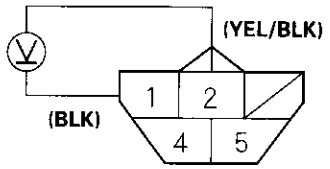
NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram (see page 22-58).

1. Check the No. 10 METER (7.5A) fuse in the under-dash fuse/relay box before testing.
2. Do the gauge drive circuit check (see page 22-56).
   - If the fuel gauge needle sweeps from minimum to maximum position and then returns to the minimum position, the gauge is OK. Go to step 3.
   - If the fuel gauge needle does not sweep from minimum to maximum position position and then return to the minimum position, replace the gauge assembly and retest.
3. Turn the ignition switch OFF.
4. Remove the rear seat cushion (see page 20-80).
5. Remove the access panel (A) from the floor.



6. Disconnect the fuel pump 5P connector (B).
7. Measure voltage between fuel pump 5P connector terminals No. 1 and No. 2 with the ignition switch ON (II). There should be battery voltage.
   - If the voltage is as specified, go to step 8.
   - If the voltage is not as specified, check for:
     - an open in the YEL/BLK or BLK wire.
     - poor ground (G551).

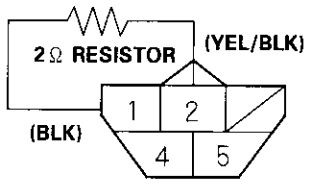
FUEL PUMP 5P CONNECTOR



Wire side of female terminals

8. Turn the ignition switch OFF. Remove the No. 9 BACK UP (7.5A) fuse from the under-hood fuse/relay box for at least 10 seconds, then reinstall it.
9. Install a 2 Ω resistor between fuel pump 5P connector terminals No. 1 and No. 2, then turn the ignition switch ON (II).

FUEL PUMP 5P CONNECTOR



Wire side of female terminals

10. Check that the pointer of the fuel gauge indicates "F".

    - If the pointer does not indicate "F", replace the gauge.
    - If the pointer indicates "F", inspect the fuel gauge sending unit.

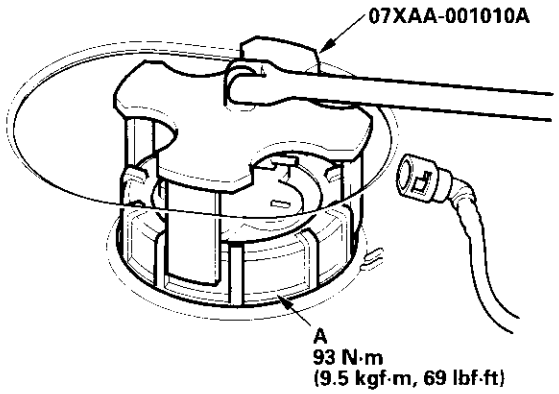
    NOTE: The pointer of the fuel gauge returns to the bottom of the gauge dial when the ignition switch is OFF, regardless of the fuel level.

11. Relieve the fuel pressure (see page 11-144).

12. Remove the fuel fill cap.

13. Disconnect the quick-connect fittings from the fuel pump.

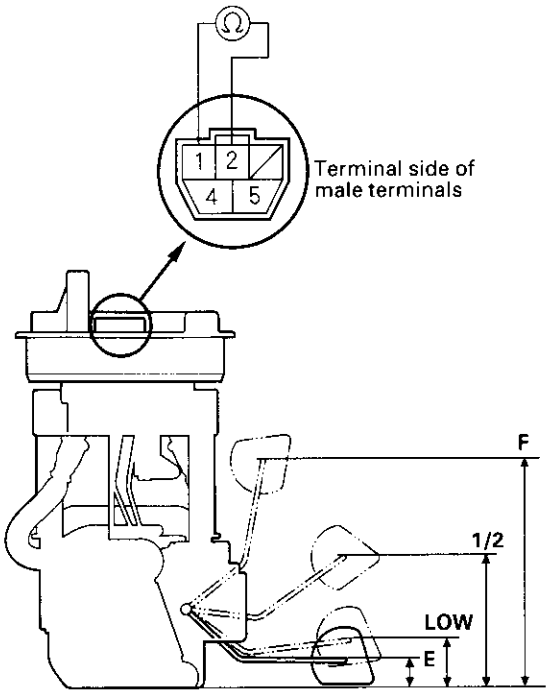
14. Using the special tool, loosen the fuel tank unit locknut (A).



15. Measure resistance between the No. 1 and No. 2 terminals with the float at E (EMPTY), 1/2 (HALF FULL), and F (FULL) positions.
    If you do not get the following readings, replace the fuel gauge sending unit (see page 11-163).

Float Position	F	1/2	LOW	E
Resistance (Ω)	11 to 13	68.5 to 74.5	114.4 to 126.6	130 to 132

NOTE: Remove the No. 9 BACK UP (7.5A) fuse from the under-hood fuse/relay box for at least 10 seconds after completing troubleshooting, otherwise it may take up to 20 minutes for the fuel gauge to indicate the correct fuel level.



Low Fuel Indicator Test

1. Do the fuel gauge sending unit test (see page 11-156).

   - If the system is OK, go to step 2.
   - If the system has any malfunction, repair it.

2. Turn the ignition switch OFF. Remove the No. 9 BACK UP (10A) fuse from the under-hood fuse/relay box for at least 30 seconds, then reinstall it.

3. Turn the ignition switch ON (II) with the float at the E (EMPTY) position.

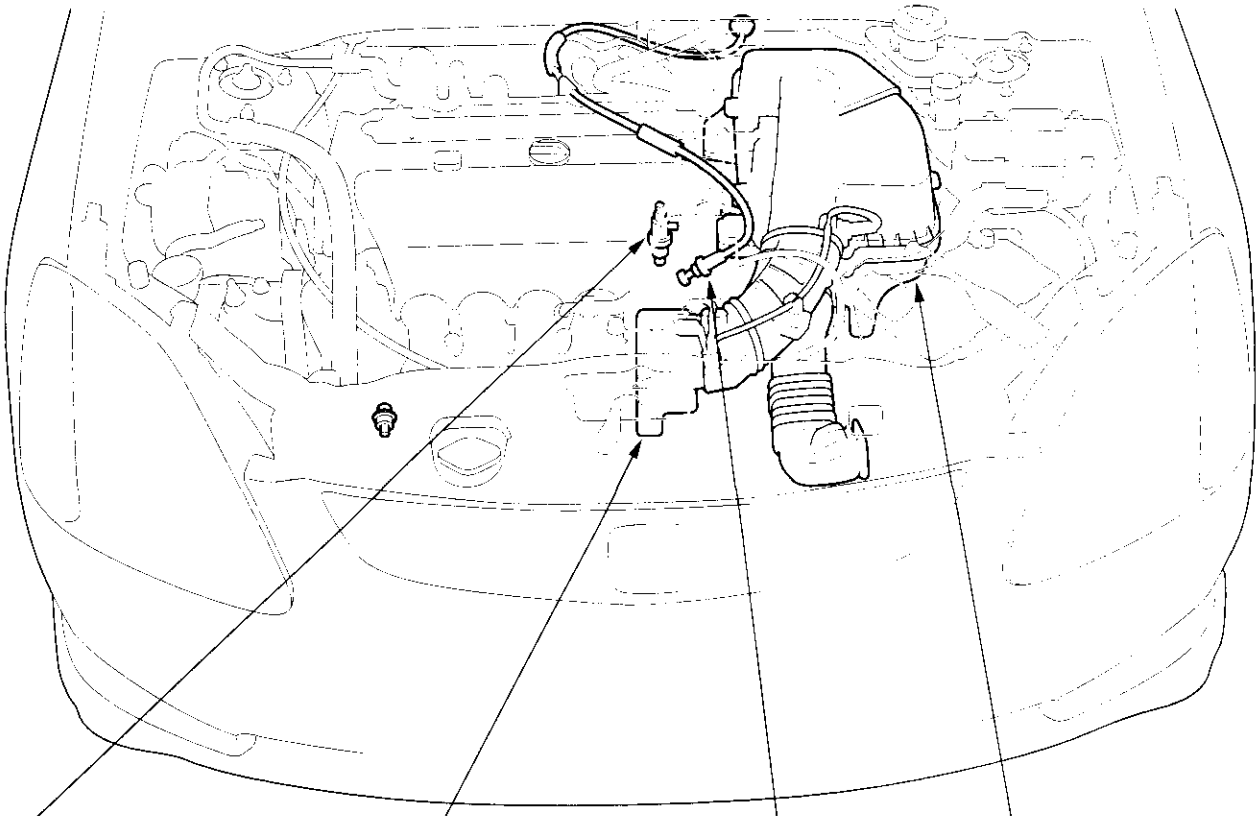
   - If the low fuel indicator is on, go to step 4.
   - If the low fuel indicator is not on, refer to the low fuel indicator Circuit Diagram (see page 22-58) and check the circuit.

4. Turn the ignition switch OFF. Remove the No. 9 BACK UP (10A) fuse from the under-hood fuse/relay box for at least 30 seconds, then reinstall it.

5. Lift the float above the LOW position.

   - If the low fuel indicator goes off, the system is OK.
   - If the low fuel indicator is still on, refer to the low fuel indicator Circuit Diagram (see page 22-58), and check the circuit.

Component Location Index



INTAKE AIR BYPASS CONTROL THERMAL VALVE
Test, page 11-161

THROTTLE BODY
Test, page 11-160
Removal/Installation, page 11-165
Disassembly/Reassembly, page 11-166

THROTTLE CABLE
Adjustment, page 11-163
Removal/Installation, page 11-164

AIR CLEANER
Replacement, page 11-162
AIR CLEANER ELEMENT
Replacement, page 11-162

Throttle Body Test

NOTE:
- Do not adjust the throttle stop screw. It is preset at the factory.
- If the malfunction indicator lamp (MIL) has been reported on, check for diagnostic trouble codes (DLCs) (see page 11-3).

1. With the engine off, check the throttle cable movement. The cable should move without binding or sticking.

   - If the cable moves OK, go to step 2.
   - If the cable binds or sticks, check it and its routing.
   - If the cable is faulty, reroute it or replace it and adjust it (see page 11-163), then go to step 2.

2. Move the throttle lever by hand to see if the throttle valve and/or shaft are too loose or too tight.

   - If there is excessive play in the throttle valve shaft, or any binding in the throttle valve at the fully closed position, replace the throttle body.
   - If the throttle valve and shaft are OK, go to step 3.

3. Connect the scan tool to the DLC.

4. Turn the ignition switch ON (II).

5. Check the throttle position with the scan tool. The reading should be about 10% when the throttle is fully closed and about 90% when the throttle is fully opened.

   - If the throttle position is correct, the throttle body is OK.
   - If the throttle position is not correct, replace the throttle body.

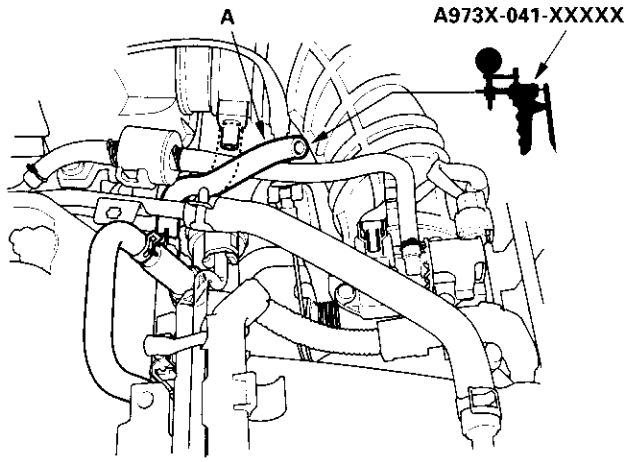
Intake Air Bypass Control Thermal Valve Test

Special Tools Required
Vacuum Pump/Gauge, 0—30 in. Hg A973X-041-XXXXX

1. Start the engine. Then let it idle.

   NOTE: The engine coolant temperature must be below 149 °F (65 °C).

2. Remove the vacuum hose (A) from the intake air duct, and connect a vacuum pump/gauge to the hose.



3. Raise and lower the engine speed, and make sure the vacuum gauge reading changes as the engine speed changes.

   If the vacuum reading does not change, check for these problems:

   - Misrouted, leaking, broken, or clogged intake air bypass control system vacuum lines.
   - A cracked or damaged intake air bypass control thermal valve.

4. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.

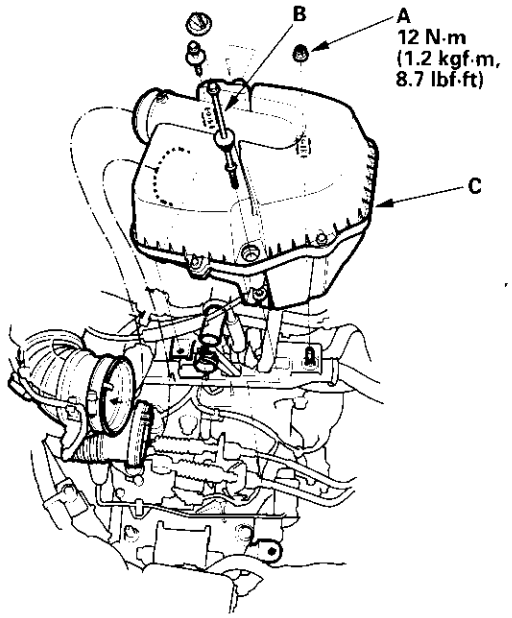
5. Raise and lower the engine speed, and make sure the vacuum gauge reading does not change as the rpm changes.

   If the vacuum reading changes, check for these problems:

   - Misrouted, leaking, broken, or clogged intake air bypass control system vacuum lines.
   - A cracked or damaged intake air bypass control thermal valve.

Air Cleaner Replacement

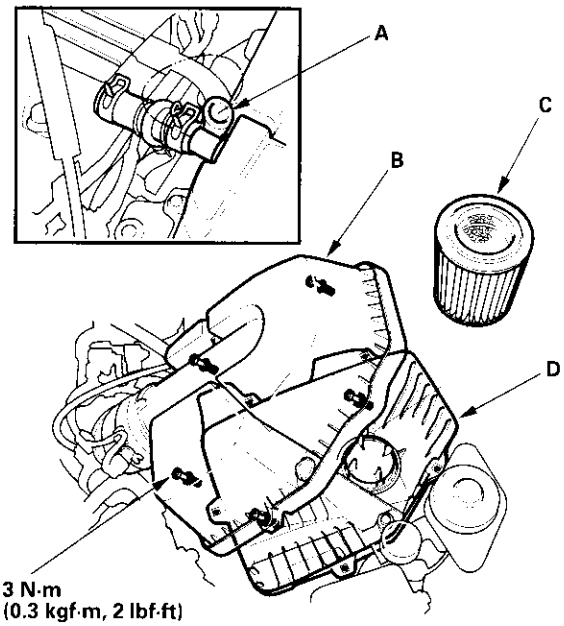
1. Remove the nuts (A) and the stud (B).



2. Remove the air cleaner (C).
3. Install in the reverse order of removal.

Air Cleaner Element Replacement

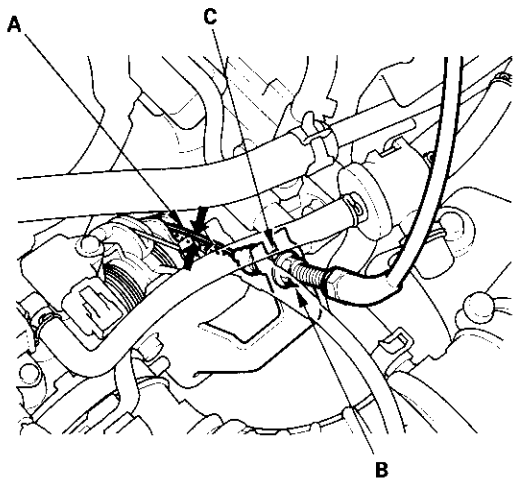
1. Disconnect the PCV hose (A).



2. Open the air cleaner housing cover (B).
3. Remove the air cleaner (C) from the air cleaner housing (D).
4. Install in the reverse order of removal.

Throttle Cable Adjustment

1. Check cable free play at the throttle linkage. Cable free play (A) should be 10—12 mm (3/8—1/2 in.).

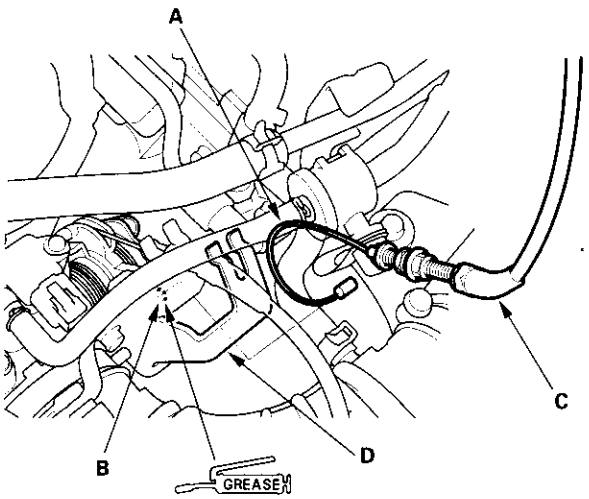


2. If the free play is not within spec (10—12 mm, 3/8—1/2 in.), loosen the locknut (B), turn the adjusting nut (C) until the free play is as specified, then retighten the locknut.

3. With the cable properly adjusted, check the throttle valve to be sure it opens fully when you push the accelerator pedal to the floor. Also check the throttle valve to be sure it returns to the idle position whenever you release the accelerator pedal.

Throttle Cable Removal/Installation

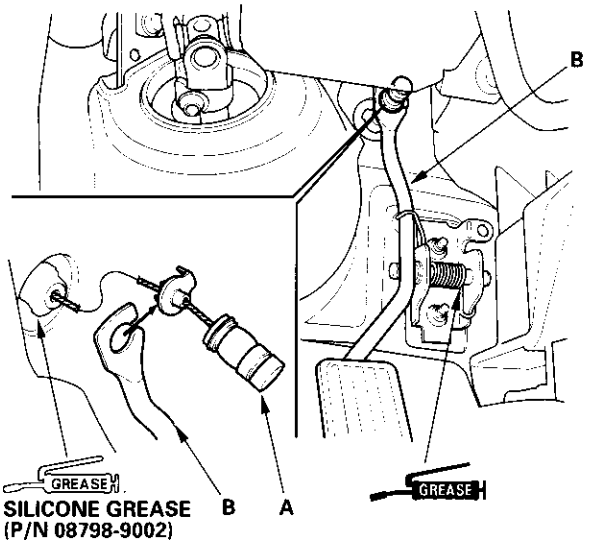
1. Fully open the throttle valve, then remove the throttle cable (A) from the throttle link (B).



(P/N 08798-9002)

2. Remove the cable housing (C) from the cable bracket (D).

3. Remove the throttle cable (A) from the accelerator pedal (B).



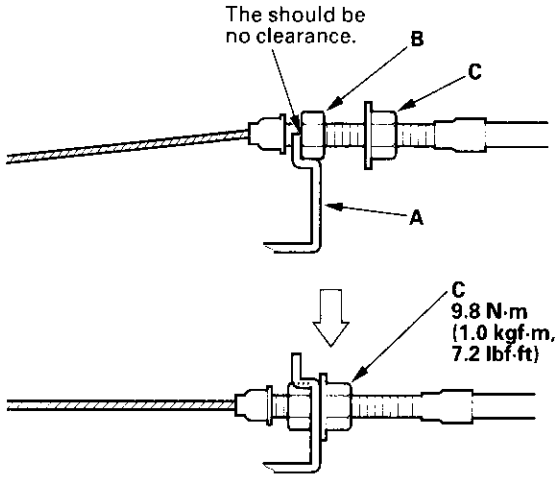
SILICONE GREASE
(P/N 08798-9002)

4. Install in the reverse order of removal.

5. After installing, start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.

6. Hold the cable, removing all slack from it.

7. Set the locknut on the cable bracket (A). Turn the adjusting nut (B) so that its free play is 0 mm.

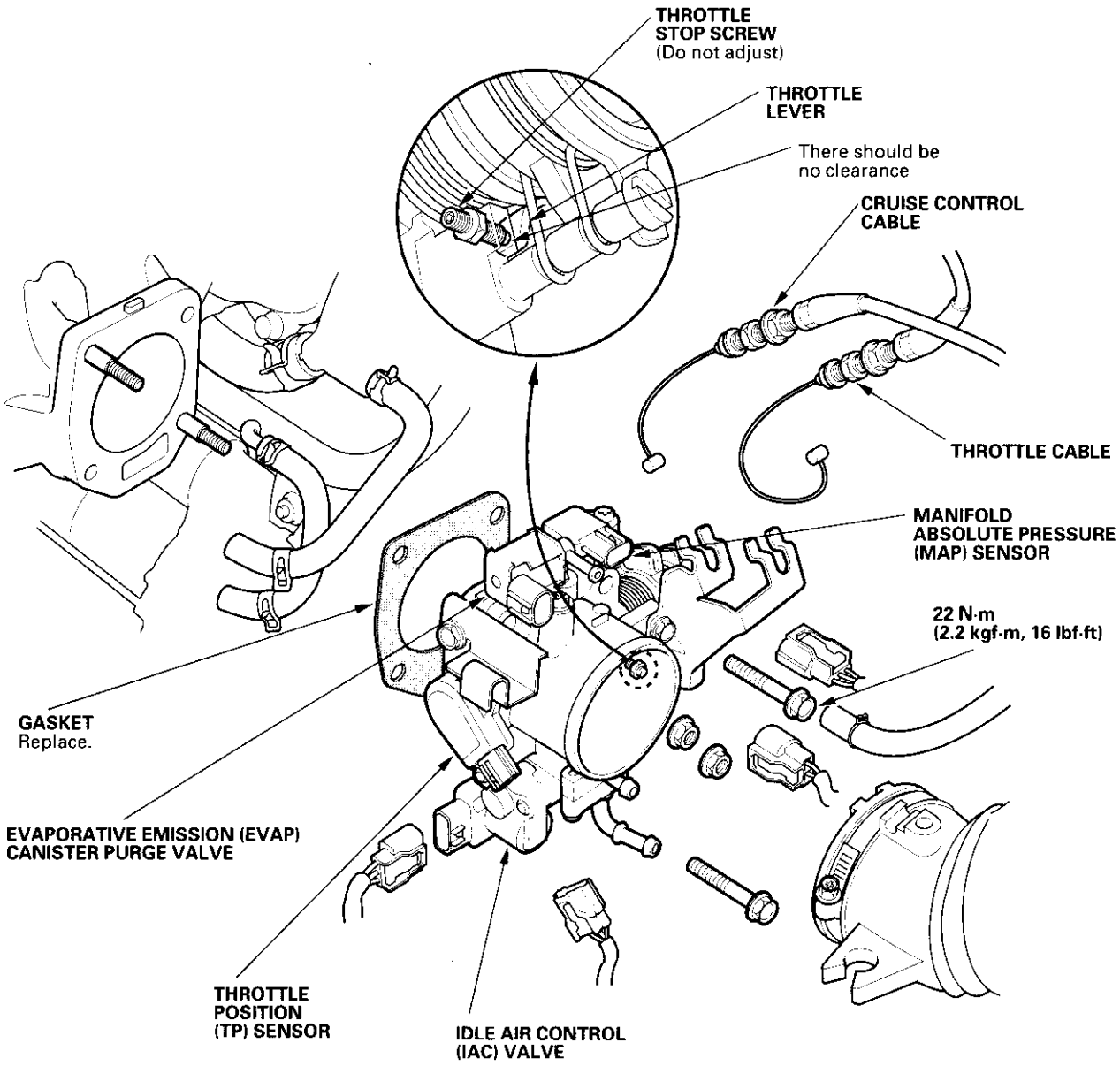


8. Remove the cable from the cable bracket (A). Set the adjusting nut on the other side of the throttle bracket, then tighten the locknut (C).

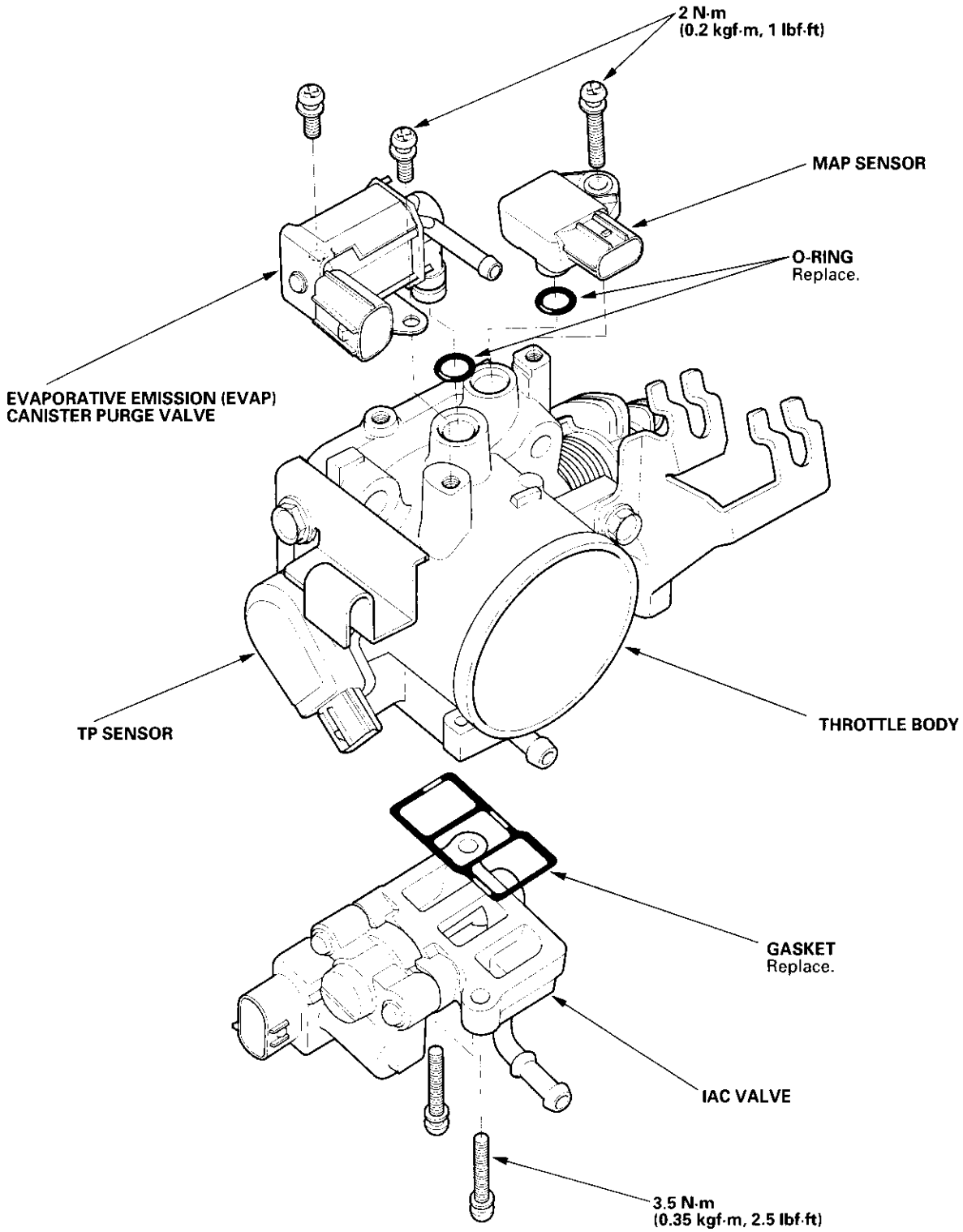
9. With the cable properly adjusted, check the throttle valve to be sure it opens fully when you push the accelerator pedal to the floor. Also check the throttle valve to be sure it returns to the idle position whenever you release the accelerator pedal.

Throttle Body Removal/Installation

NOTE:
- Do not adjust the throttle stop screw.
- After reassembly, adjust the throttle cable (see page 11-163) and the cruise control cable (see page 4-45).
- The throttle position (TP) sensor is not removable.



Throttle Body Disassembly/Reassembly



DTC Troubleshooting

DTC P0420: Catalytic System Efficiency Below Threshold

NOTE: If some of the DTCs listed below are stored at the same time as DTC P0420, troubleshoot those DTCs first, then recheck for DTC P0420.

P0137, P0138: Secondary Heated Oxygen Sensor (secondary HO2S) (Sensor 2)
P0141: Secondary HO2S (Sensor 2) heater

1. Reset the ECM (see page 11-4), then continue to step 2 through 5 to reset the readiness code.
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.
3. Drive for about 10 minutes without stopping. Your speed can vary.
4. With the transmission in 4th gear, drive at a steady speed between 50—62 mph (80—100 km/h) for 30 seconds.
5. Repeat step 4 three times. Between each repetition, close the throttle completely for 1—2 seconds. If the engine is stopped during this part of the procedure, repeat steps 3, 4 and 5.
6. Check for a Temporary DTC with the scan tool.

   Does the scan tool indicate Temporary DTC P0420?

   YES—Check the TWC. If necessary, replace the TWC. ■

   NO—Check for readiness code completion. If the readiness is complete, it was a intermittent failure, and the system is OK at this time. If the readiness code is incomplete, repeat steps 2 through 5. ■

DTC Troubleshooting

DTC P1505: PCV Air Leakage

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine at 3,000 rpm with no load (in neutral) until the radiator fan comes on.
3. Let the engine idle for at least 40 seconds with the throttle fully closed.
4. Check for a DTC P1505 with the scan tool.

   Is DTC P1505 indicated?

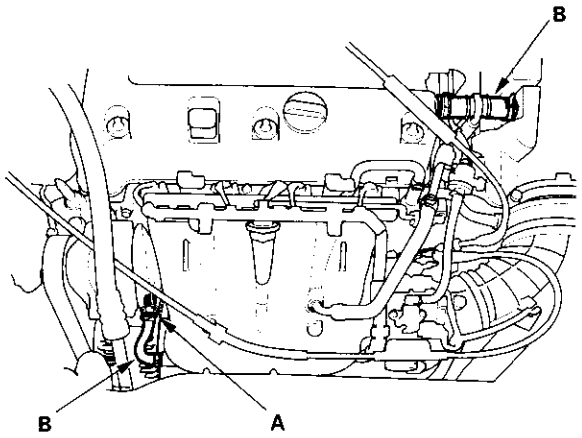
   YES—Check these parts for vacuum leaks.■

   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Brake booster hose

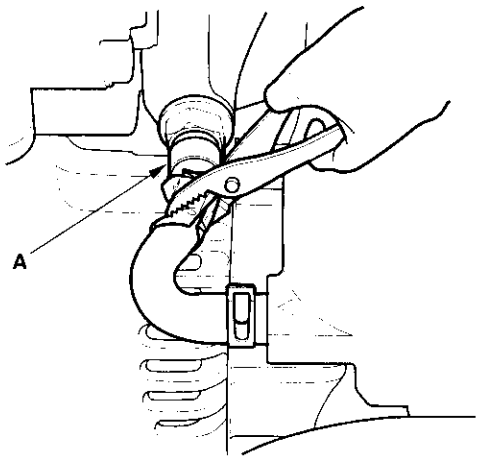
   NO—Intermittent failure, system is OK at this time.■

PCV Valve Inspection and Test

1. Check the PCV valve (A), hoses (B), and connections for leaks or restrictions.

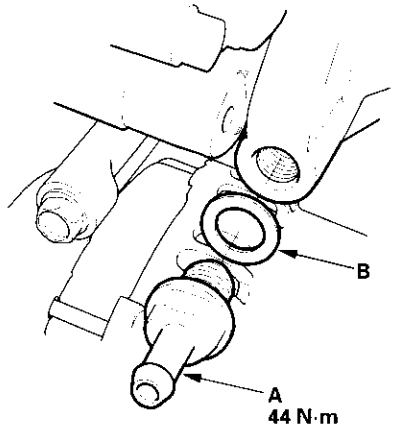


2. At idle, make sure there is a clicking sound from the PCV valve when the hose between the PCV valve and intake manifold is lightly pinched (A) with your fingers or pliers.
   If there is no clicking sound, check the PCV valve grommet for cracks or damage. If the grommet is OK, replace the PCV valve and recheck.



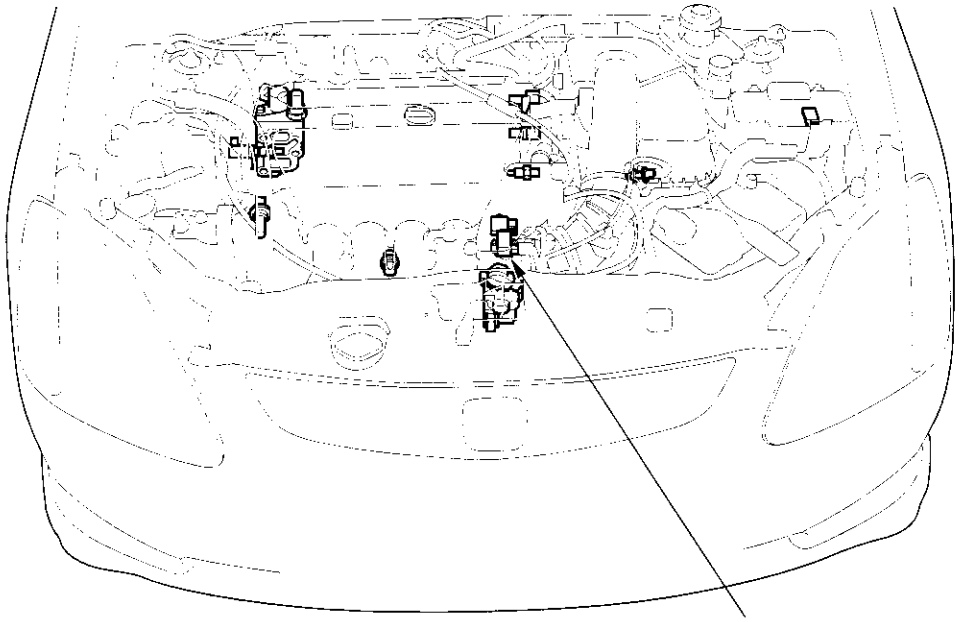
PCV Valve Replacement

1. Disconnect the PCV hose.
2. Remove the PCV valve (A).

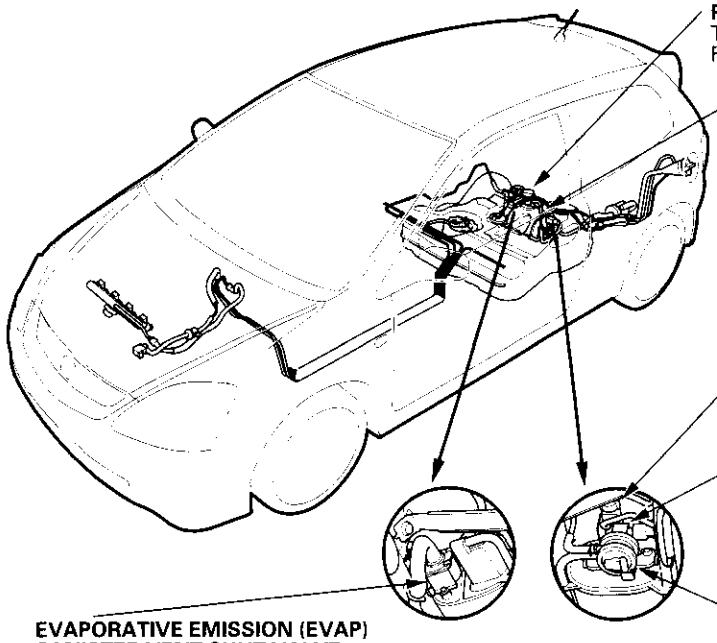


3. Install the parts in the reverse order of removal with a new gasket (B).

Component Location Index



EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
Troubleshooting,
step 3 on page 11-175,
step 1 on page 11-180



FUEL TANK VAPOR CONTROL VALVE
Test, page 11-187
Replacement, page 11-189

EVAPORATIVE EMISSION (EVAP) CANISTER
Troubleshooting, step 28 on page 11-183
Replacement, page 11-189

FUEL TANK PRESSURE SENSOR
Troubleshooting, page 11-171

EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
Troubleshooting,
step 12 on page 11-176,
step 10 on page 11-181

EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
Troubleshooting,
step 23 on page 11-178,
step 19 on page 11-182

EVAPORATIVE EMISSON (EVAP) TWO WAY VALVE
Test, page 11-186

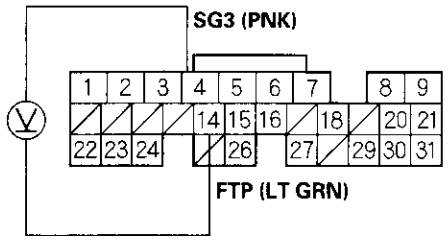
DTC Troubleshooting

DTC P0451: FTP Sensor Range/Performance Problem

Special Tools Required
Vacuum Pump/Gauge, 0—30 in. Hg A973X-041-XXXXX

1. Remove the fuel fill cap.
2. Turn the ignition switch ON (II).
3. Monitor fuel tank pressure (FTP) sensor voltage with the Honda PGM Tester, or measure voltage between ECM connector terminals E4 and E14.

ECM CONNECTOR E (31P)



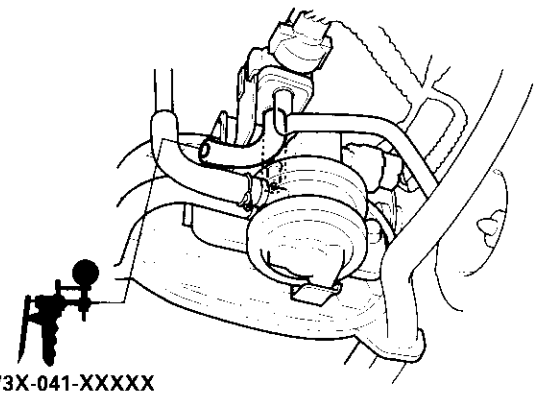
Wire side of female terminals

Is there about 2.5V?

YES—Go to step 4.

NO—Replace the FTP sensor. ■

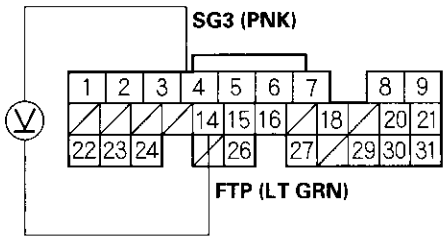
4. Turn the ignition switch OFF.
5. Disconnect the hose between the EVAP two way valve and the FTP sensor at the EVAP two way valve end.
6. Connect a vacuum pump to the open end of the hose.



A973X-041-XXXXX

7. Turn the ignition switch ON (II).
8. Monitor FTP sensor voltage with the Honda PGM Tester, or measure voltage between ECM connector terminals E4 and E14, and carefully squeeze the vacuum pump a little.

ECM CONNECTOR E (31P)



Wire side of female terminals

9. The voltage should smoothly drop from about 2.5 V to about 1.5 V. Stop applying vacuum when the voltage drops to about 1.5 V or damage to the FTP sensor may occur.

Does the voltage drop to about 1.5 V and hold?

YES—Check for misrouted, leaking, or broken FTP sensor vacuum lines. If the vacuum lines are OK, update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO—Replace the FTP sensor. ■

DTC Troubleshooting (cont'd)

DTC P0452: FTP Sensor Circuit Low Voltage

1. Check the vacuum lines at the FTP sensor for misrouting, leakage, breakage, or clogging.

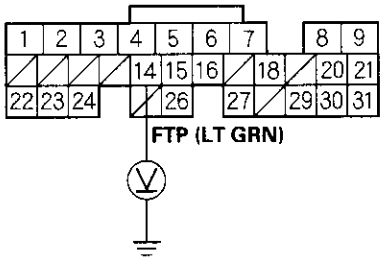
   Are the vacuum lines OK?

   YES—Go to step 2.

   NO—Repair or replace vacuum lines as necessary.■

2. Reset the ECM (see page 11-4).
3. Remove the fuel fill cap.
4. Turn the ignition switch ON (II).
5. Monitor FTP sensor voltage with the Honda PGM Tester, or measure voltage between body ground and ECM connector terminal E14.

ECM CONNECTOR E (31P)



Wire side of female terminals

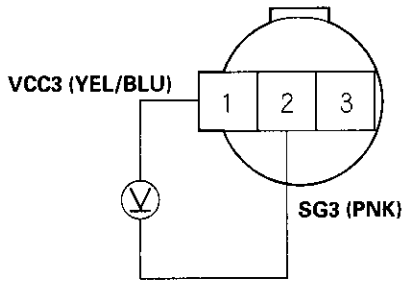
Is there about 2.5 V?

YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and at the ECM.■

NO—Go to step 6.

6. Turn the ignition switch OFF.
7. Reinstall the fuel fill cap.
8. Disconnect the FTP sensor 3P connector.
9. Turn the ignition switch ON (II).
10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FUEL TANK PRESSURE SENSOR 3P CONNECTOR



Wire side of female terminals

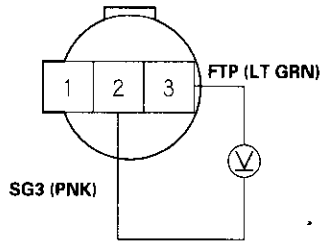
Is there about 5 V?

YES—Go to step 11.

NO—Repair open in the wire between the FTP sensor and the ECM (E5).■

11. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.

FUEL TANK PRESSURE SENSOR 3P CONNECTOR



Wire side of female terminals

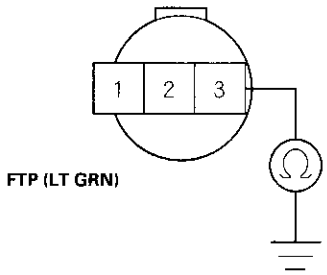
Is there about 5 V?

YES—Replace the FTP sensor.■

NO—Go to step 12.

12. Turn the ignition switch OFF.
13. Disconnect ECM connector E (31P).
14. Check for continuity between FTP sensor 3P connector terminal No. 3 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the FTP sensor and the ECM (E14).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DTC P0453: FTP Sensor Circuit High Voltage

1. Check the vacuum lines at the FTP sensor for misrouting, leakage, breakage, or clogging.

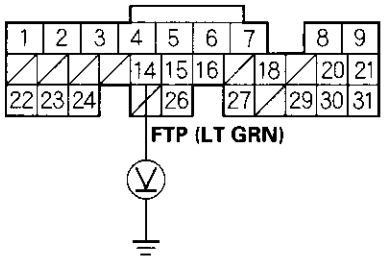
   Are the vacuum lines OK?

   YES—Go to step 2.

   NO—Repair or replace vacuum lines as necessary.■

2. Reset the ECM (see page 11-4).
3. Remove the fuel fill cap.
4. Turn the ignition switch ON (II).
5. Monitor FTP sensor voltage with the Honda PGM Tester, or measure voltage between body ground and ECM connector terminal E14.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 2.5 V?

YES—Intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and at the ECM.■

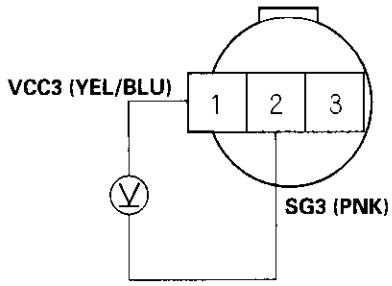
NO—Go to step 6.

(cont'd)

DTC Troubleshooting (cont'd)

6. Turn the ignition switch OFF.
7. Reinstall the fuel fill cap.
8. Disconnect the FTP sensor 3P connector.
9. Turn the ignition switch ON (II).
10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

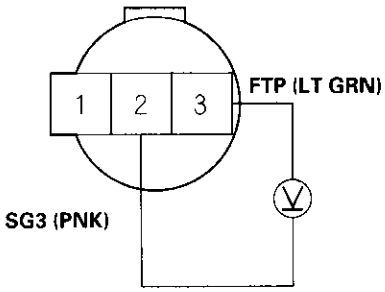
Is there about 5 V?

YES—Go to step 11.

NO—Repair open in the wire between the FTP sensor and the ECM (E4).■

11. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

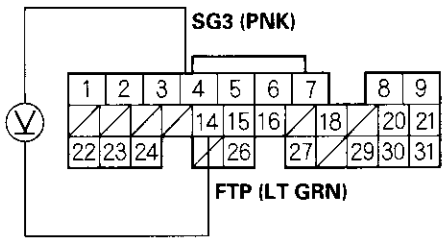
Is there about 5 V?

YES—Replace the FTP sensor.■

NO—Go to step 12.

12. Measure voltage between ECM connector terminals E4 and E14.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the FTP sensor and the ECM (E14).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

DTC P1456: EVAP Control System Leakage (Fuel Tank System)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

Vacuum Pump/Gauge, 0—30 in. Hg A973X-041-XXXXX

This is a two-trip code. Once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the ECM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code.

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE: Fresh fuel has a higher volatility that creates greater pressure/vacuum. The optimum condition for testing is fresh fuel, and must be less than a full tank. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

Fuel Fill Cap Check

1. Check the fuel fill cap (the cap must say "If not tightened 3 clicks check engine light may come on").

   Is the proper fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap.■

2. Check the fuel fill cap seal.

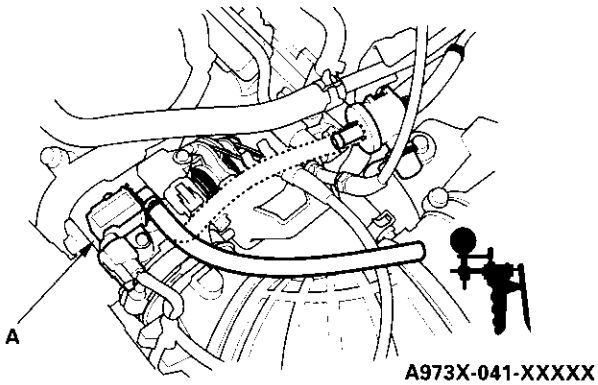
   Is the fuel fill cap seal missing or damaged?

   YES—Replace the fuel fill cap.■

   NO—The fuel fill cap is OK. Go to step 3.

EVAP Canister Purge Valve Test

3. Disconnect the vacuum hose from the EVAP canister purge valve (A), and connect a vacuum pump to the hose.



A973X-041-XXXXX

4. Turn the ignition switch ON (II).

5. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—The EVAP canister purge valve is OK. Go to step 11.

   NO—Go to step 6.

6. Turn the ignition switch OFF.

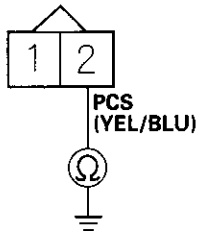
7. Disconnect the EVAP canister purge valve 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

8. Check for continuity between EVAP canister purge valve 2P connenctor terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

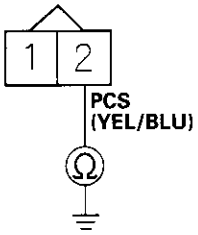
YES—Go to step 9.

NO—Replace the EVAP canister purge valve.■

9. Disconnect ECM connector B (24P).

10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

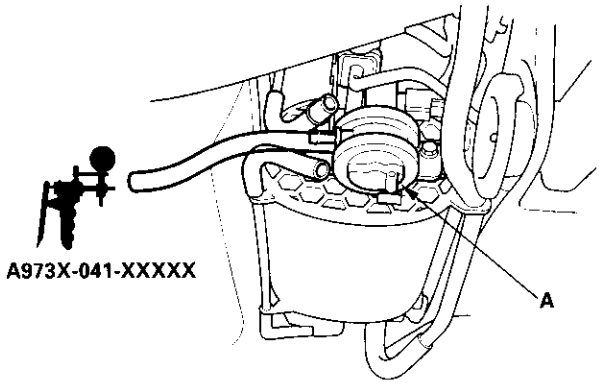
Is there continuity?

YES—Repair short in the wire between the EVAP canister purge valve and the ECM (B21).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

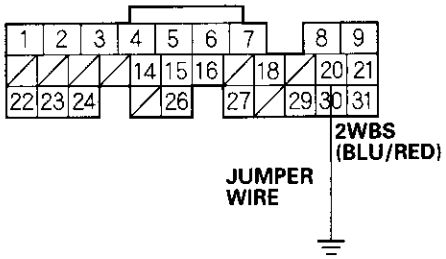
EVAP Bypass Solenoid Valve Test

11. Disconnect both vacuum hoses from the EVAP two way valve (A), and connect a vacuum pump to the canister port on the EVAP two way valve.



12. Turn the EVAP bypass solenoid valve on with the Honda PGM Tester, or connect ECM connecter terminal E20 to body ground with a jumper wire.

ECM CONNECTOR E (31P)



Wire side of female terminals

13. Turn the ignition switch ON (II).

14. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—Go to step 15.

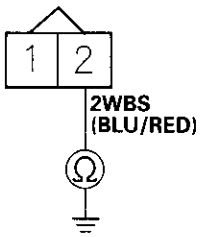
NO—Go to step 20.

15. Turn the ignition switch OFF.

16. Disconnect the EVAP bypass solenoid valve 2P connector.

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

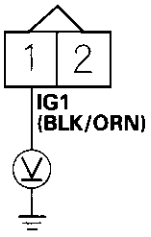
YES—Go to step 18.

NO—Repair open in the wire between the EVAP bypass solenoid valve and the ECM (E20).■

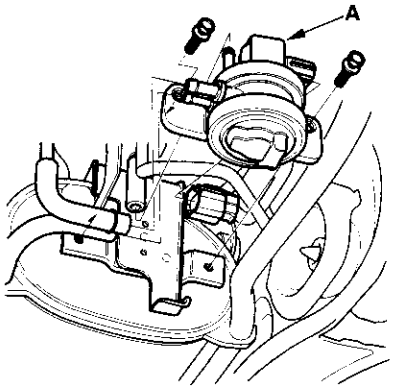
18. Turn the ignition switch ON (II).

19. Measure voltage between EVAP bypass solenoid valve 2P connector terminal No. 1 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals



Is there battery voltage?

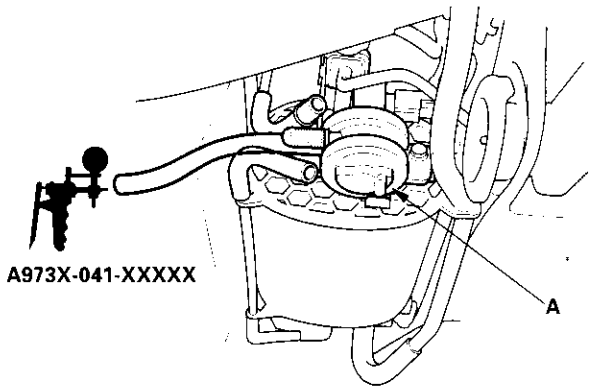
YES—Replace the EVAP two way/bypass solenoid valve (A).■

NO—Repair open in the wire between the EVAP bypass solenoid valve and the No. 4 ACG (10A) fuse.■

(cont'd)

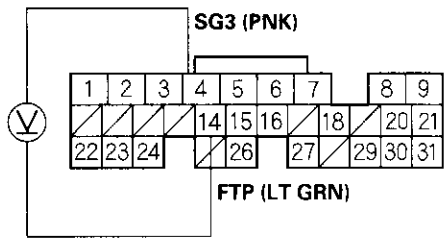
DTC Troubleshooting (cont'd)

20. Plug the fuel tank port (A) of the EVAP two way valve.



21. While monitoring FTP sensor voltage with the Honda PGM Tester, or measuring the voltage between ECM connector terminals E4 and E14, slowly pump the vacuum pump until the voltage drops to about 1.5 volts.

ECM CONNECTOR E (31P)



Wire side of female terminals

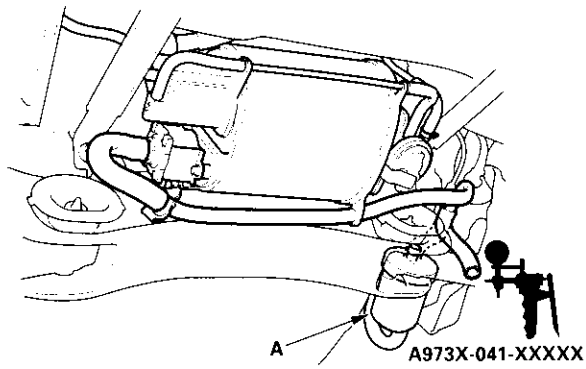
Does the voltage drop to 1.5 V and hold for at least 20 seconds?

YES—The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 22.

NO—Repair the leak from the EVAP bypass solenoid valve, EVAP two way valve, or FTP sensor. ■

EVAP Canister Vent Shut Valve Test

22. Disconnect the vacuum hose from the EVAP canister vent filter (A), and connect a vacuum pump to the hose.



23. Turn the ignition switch ON (II).

24. Apply vacuum to the hose with five strokes of the pump.

Does the valve hold vacuum?

YES—Go to step 25.

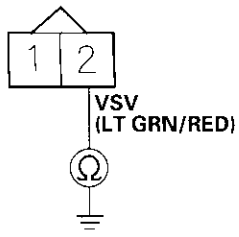
NO—The EVAP canister vent shut valve is OK. Go to step 30.

25. Turn the ignition switch OFF.

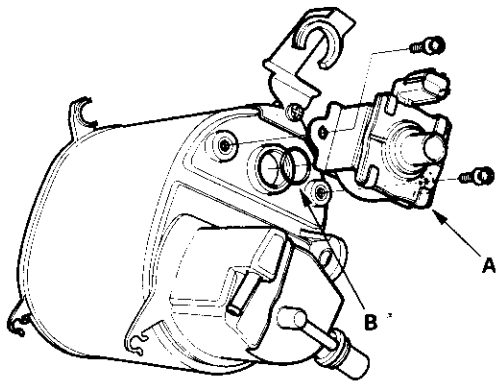
26. Disconnect the EVAP canister vent shut valve 2P connector.

27. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals



Is there continuity?

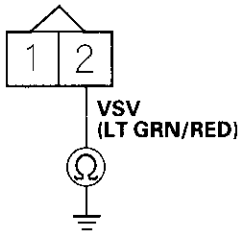
YES—Go to step 28.

NO—Replace the EVAP canister vent shut valve (A) and o-ring (B).■

28. Disconnect ECM connector E (31P).

29. Check for continuity between EVAP canister vent solenoid valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the EVAP canister vent shut valve and the ECM (E21).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

Vacuum Hoses and Connections Test

30. Do the fuel tank vapor control valve test (see page 11-187).

Is the fuel tank vapor control valve OK?

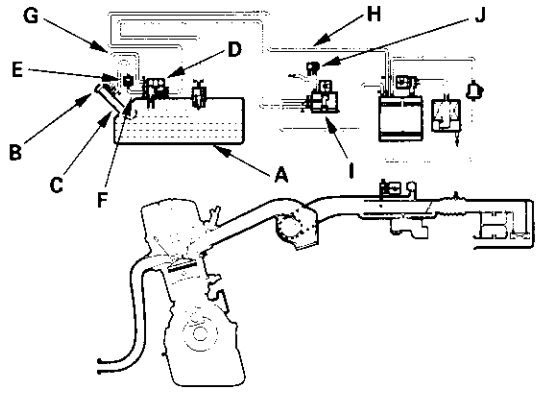
YES—Go to step 31.

NO—Replace the fuel tank vapor control valve.■

31. Tighten the fuel cap 3 "clicks", then monitor the FTP sensor readings with the Honda PGM Tester.

32. Start the engine, and let it idle for 5 minutes.

33. Check the FTP sensor readings.



Is the reading above 0.5 kpa (4 mm Hg, 0.16 in. Hg) pressure, or about 3 V?

YES—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

NO—Check the following parts for leaks:■

- Fuel tank (A)
- Fuel fill cap (B)
- Fuel fill pipe (C)
- Fuel tank vapor control valve (D)
- Fuel tank vapor recirculation valve (E)
- Fuel tank vapor recirculation tube (F)
- Fuel tank vapor signal tube (G)
- Fuel tank vapor control vent tube (H)
- FTP sensor (J)
  - Repair or replace any leaking parts.

DTC Troubleshooting (cont'd)

DTC P1457: EVAP Control System Leakage (EVAP Canister System)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank system failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg A973X-041-XXXXX

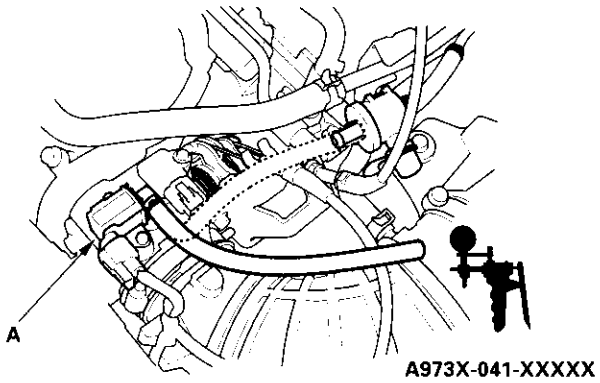
This is a two-trip code. Once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the ECM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code.

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE: Fresh fuel has a higher volatility that creates greater pressure/vacuum. The optimum condition for testing is fresh fuel, and there must be less than a full tank. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

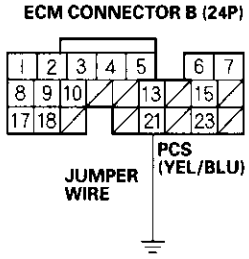
EVAP Canister Purge Valve Test

1. Disconnect the vacuum hose from the EVAP canister purge valve (A), and connect a vacuum pump to the hose.



A973X-041-XXXXX

2. Turn the EVAP canister purge valve on with the Honda PGM Tester, or connect ECM connector terminal B21 to body ground with a jumper wire.



Wire side of female terminals

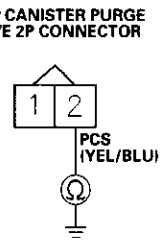
3. Turn the ignition switch ON (II).
4. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—Go to step 5.

   NO—The EVAP canister purge valve is OK. Go to step 10.

5. Turn the ignition switch OFF.
6. Disconnect the EVAP canister purge valve 2P connector.
7. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.



Wire side of female terminals

   Is there continuity?

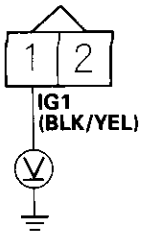
   YES—Go to step 8.

   NO—Repair open in the wire between the EVAP canister purge valve and the ECM/PCM (B21).■

8. Turn the ignition switch ON (II).

9. Measure voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

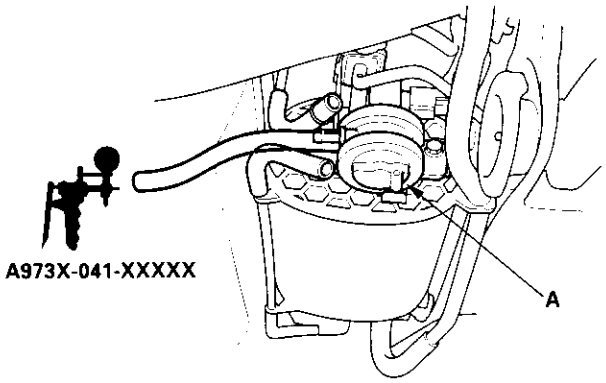
Is there battery voltage?

YES—Replace the EVAP canister purge valve. ■

NO—Repair open in the wire between the EVAP canister purge valve and the No. 4 ACG (10A) fuse. ■

EVAP Bypass Solenoid Valve Test

10. Disconnect both vacuum hoses from the EVAP two way valve (A), and connect a vacuum pump to the canister port on the two way valve.



11. Turn the ignition switch ON (II).

12. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—The EVAP two way/bypass solenoid valve is OK. Go to step 18.

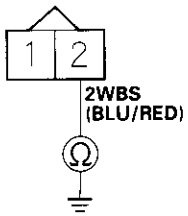
NO—Go to step 13.

13. Turn the ignition switch OFF.

14. Disconnect the EVAP bypass solenoid valve 2P connector.

15. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

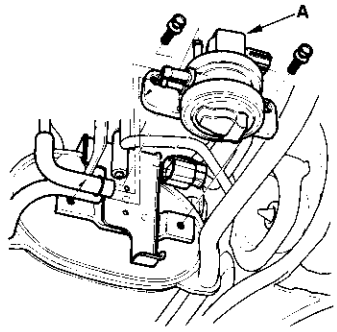
EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)



Is there continuity?

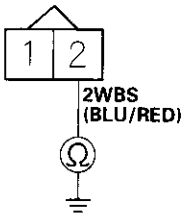
YES—Go to step 16.

NO—Replace the EVAP two way/bypass solenoid valve (A).■

16. Disconnect ECM connector E (31P).

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

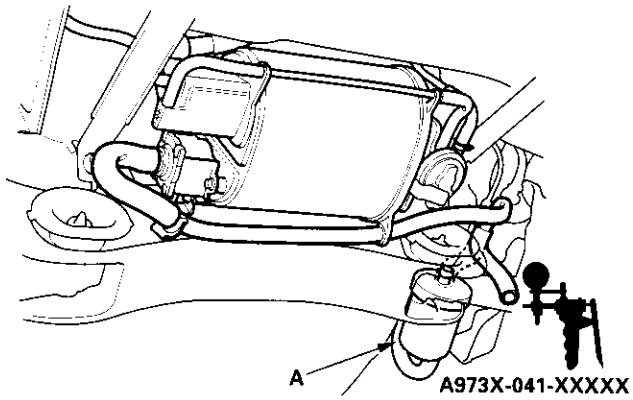
Is there continuity?

YES—Repair the short in the wire between the EVAP bypass solenoid valve and the ECM (E20).■

NO—Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck (see page 11-6). If the symptom/indication goes away with a known-good ECM, replace the original ECM.■

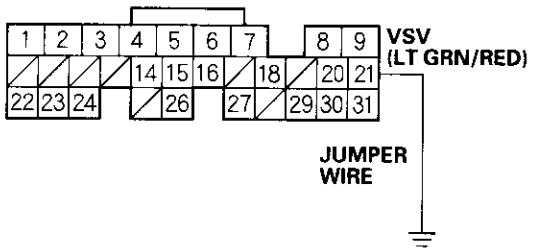
EVAP Canister Vent Shut Valve Test

18. Disconnect the vacuum hose from the EVAP canister vent filter (A), and connect a vacuum pump to the hose.



19. Turn the EVAP canister vent shut valve on with the Honda PGM Tester, or connect ECM connector terminal E21 to body ground with a jumper wire.

ECM CONNECTOR E (31P)



Wire side of female terminals

20. Turn the ignition switch ON (II)

21. Apply vacuum to the hose.

Does the valve hold vacuum?

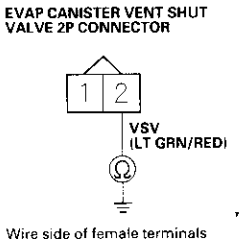
YES—The EVAP canister vent shut valve is OK. Go to step 27.

NO—Go to step 22.

22. Turn the ignition switch OFF.

23. Disconnect the EVAP canister vent shut valve 2P connector.

24. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.



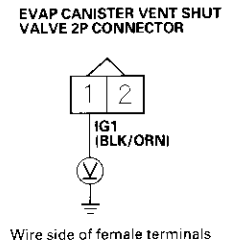
Is there continuity?

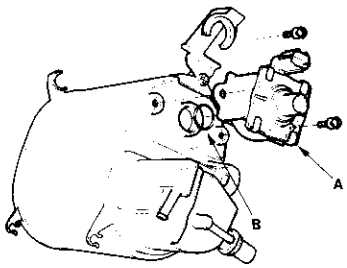
YES—Go to step 25.

NO—Repair open in the wire between the EVAP canister vent shut valve and the ECM (E21).■

25. Turn the ignition switch ON (II).

26. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 1 and body ground.





Is there battery voltage?

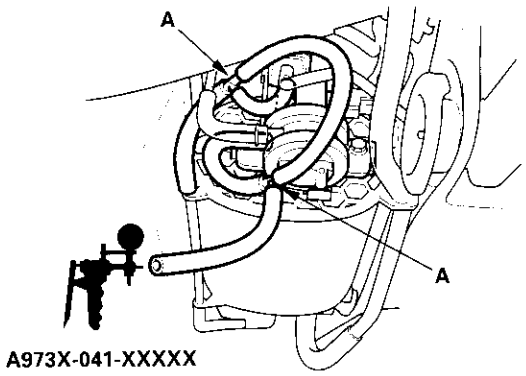
YES—Replace the EVAP canister vent shut valve (A) and the o-ring (B).■

NO—Repair open in the wire between the EVAP canister vent shut valve and the No. 4 ACG (10A) fuse.■

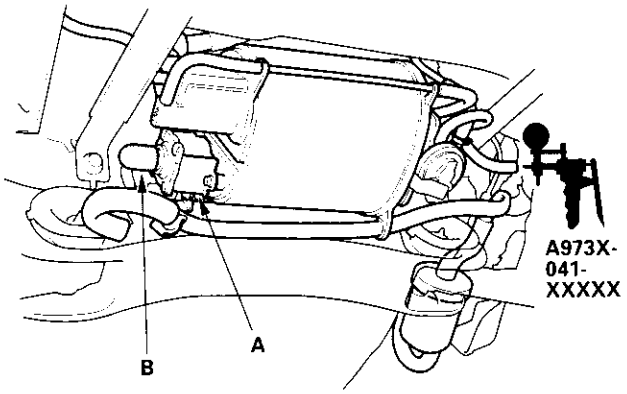
Canister System Leak Test

27. Turn the ignition switch OFF.

28. Connect two, three-way T-fittings (A) into the hose from the EVAP canister to the EVAP two way valve. Connect the FTP sensor to one of the T-fittings and the vacuum pump to the other.



29. Remove the vent hose from the EVAP canister vent shut valve (A), and cap the port (B) to seal the fresh air vent of the EVAP canister.



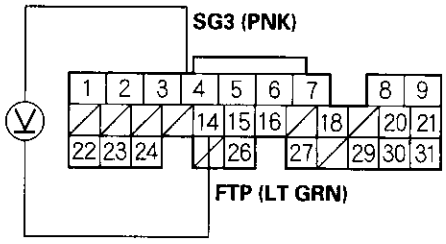
30. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

31. While monitoring FTP sensor voltage with the Honda PGM Tester, or measuring voltage between ECM connector terminals E4 and E14, slowly pump the vacuum pump.

ECM CONNECTOR E (31P)



Wire side of female terminals

32. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure the engine coolant temperature is still above 95°F (35°C) and your vacuum pump has no leak.

33. Monitor the voltage for 20 seconds.

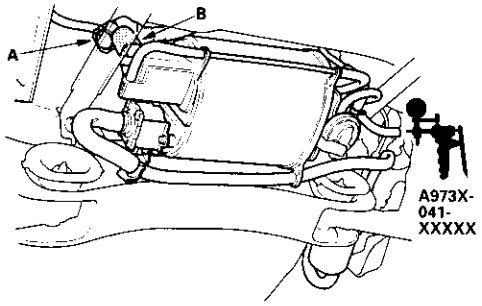
Does the voltage drop 1.5V and hold for at least 20 seconds?

YES—Inspect the EVAP canister vent shut valve line and connections. ■

NO—Go to step 34.

34. Turn the ignition switch OFF.

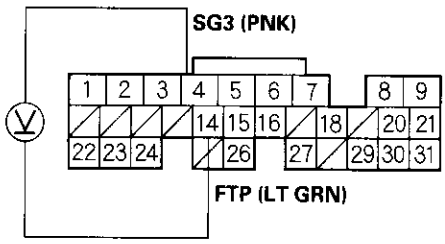
35. Disconnect the quick-connect fitting (A) from the EVAP canister, and plug the canister port (B).



36. Turn the ignition switch ON (II).

37. While monitoring FTP sensor voltage with the Honda PGM Tester, or measuring voltage between ECM connector terminals E4 and E14, slowly pump the vacuum pump.

ECM CONNECTOR E (31P)



Wire side of female terminals

38. Continue to pump vacuum until the voltage drops to about 1.5V. Make sure the engine coolant temperature is still above 95°F (35°C) and your vacuum pump has no leak.

39. Monitor the voltage for 20 seconds.

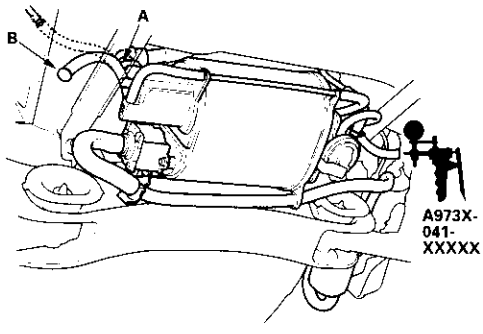
Does the voltage hold for at least 20 seconds?

YES—Inspect the fuel tank vapor control line and connections. ■

NO—Go to step 40.

40. Turn the ignition switch OFF.

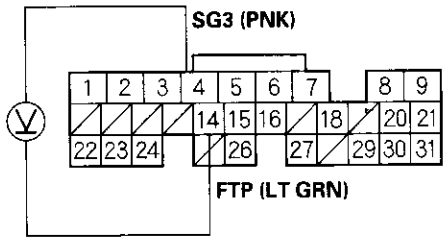
41. Disconnect the purge line hose (A) from the canister at the metal line and plug the hose (B).



42. Turn the ignition switch ON (II).

43. While monitoring FTP sensor voltage with the Honda PGM Tester, or measuring voltage between ECM connector terminals E4 and E14, slowly pump the vacuum pump.

ECM CONNECTOR E (31P)



Wire side of female terminals

44. Continue to pump vacuum until the voltage drops to about 1.5V. Make sure the engine coolant temperature is still above 95°F (35°C) and your vacuum pump has no leak.

45. Monitor the voltage continuously for 20 seconds.

Does the voltage drop to 1.5 V and hold for at least 20 seconds?

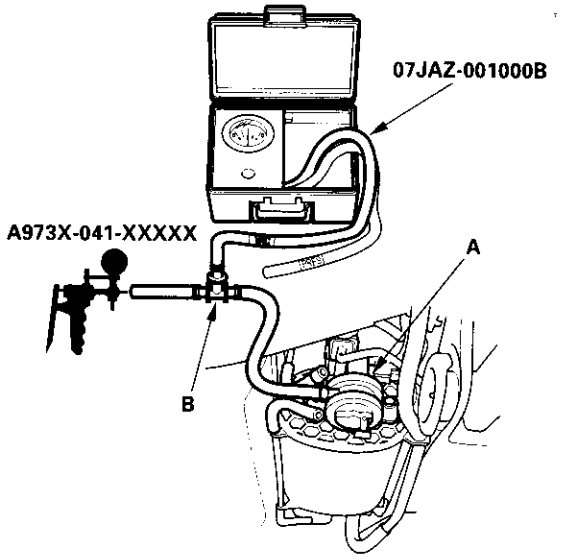
YES—Inspect the EVAP canister purge valve line and connections. If they are OK, perform the EVAP two way valve test (see page 11-186) and the fuel tank vapor control valve test (see page 11-187).■

NO—Replace the EVAP canister (see page 11-189).■

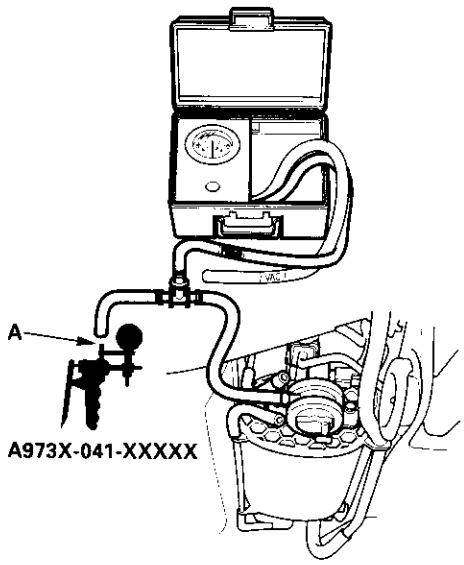
EVAP Two Way Valve Test

Special Tools Required
- Vacuum pump/Gauge, 0—30 in. Hg A973X-041-XXXXX
- Vacuum/Pressure Gauge, 0—4 in. Hg 07JAZ-001000B

1. Remove the fuel fill cap.
2. Disconnect the vapor line from the EVAP two way valve (A). Connect it to a T-fitting (B) from the vacuum gauge and the vacuum pump as shown.



3. Apply vacuum slowly and continuously while watching the gauge. The vacuum should stabilize momentarily at 0.8—2.1 kPa (6—16 mmHg, 0.2—0.6 in.Hg).
   If the vacuum stabilizes (valve opens) below 0.8 kPa (6 mmHg, 0.2 in.Hg) or above 2.1 kPa (16 mmHg, 0.6 in.Hg), install a new valve and retest.
4. Move the vacuum pump hose from the vacuum fitting to the pressure fitting, and move the vacuum gauge hose from the vacuum side to the pressure side (A) as shown.



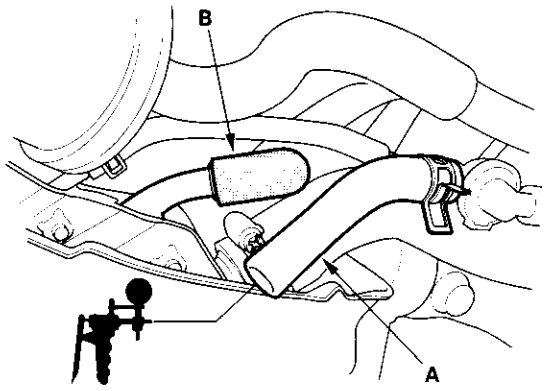
5. Slowly pressurize the vapor line while watching the gauge. The pressure should stabilize momentarily above 1.0 kPa (8 mmHg, 0.3 in.Hg).
   - If the pressure momentarily stabilizes (valve opens) above 1.0 kPa (8 mmHg, 0.3 in.Hg), the valve is OK.
   - If the pressure stabilizes below 1.0 kPa (8 mmHg, 0.3 in.Hg), install a new valve and retest.

Fuel Tank Vapor Control Valve Test

Special Tools Required
Vacuum Pump/Gauge, 0—30 in. Hg A973X-041-XXXXX

Float Test

1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap to relieve fuel tank pressure, then reinstall the cap.
3. Disconnect the fuel tank vapor recirculation tube (A), and connect a vacuum pump to it.

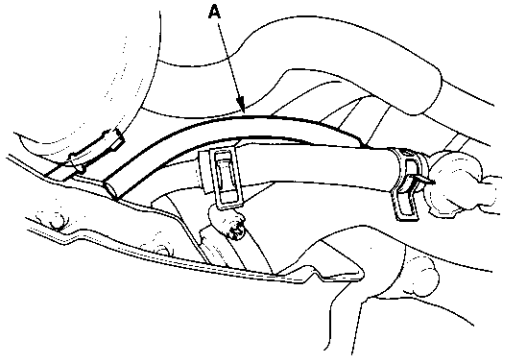


A973X-041-XXXXX

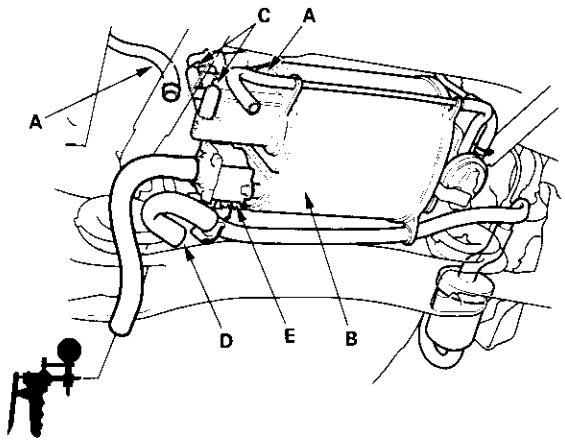
4. Plug the line (B).
5. Apply vacuum to the fuel tank vapor recirculation tube.
   - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-189).
   - If the vacuum does not hold, the float is OK. Do the valve test.

Valve Test

1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap.
3. Disconnect the fuel tank vapor signal tube (A).



4. Disconnect the vacuum hoses (A) from the EVAP canister (B), then plug the ports with plugs (C).



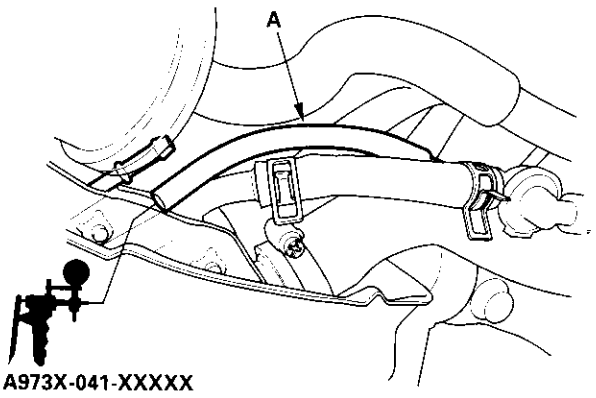
A973X-041-XXXXX

5. Disconnect the vacuum hose (D) from the EVAP canister vent shut valve (E), and connect a vacuum pump to the vacuum hose.
6. Pump the vacuum pump 80 times.
   - If the vacuum holds, go to step 7.
   - If the vacuum does not hold, go to step 10.

(cont'd)

Fuel Tank Vapor Control Valve Test (cont'd)

7. Connect a second vacuum pump to the fuel tank vapor signal tube (A).



A973X-041-XXXXX

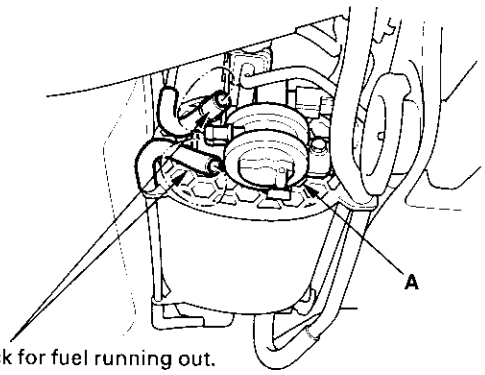
8. Apply vacuum (1 pump) to the fuel tank vapor signal tube (A), then check the vacuum on the pump in step 6.

   - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-189).
   - If the vacuum is released, go to step 9.

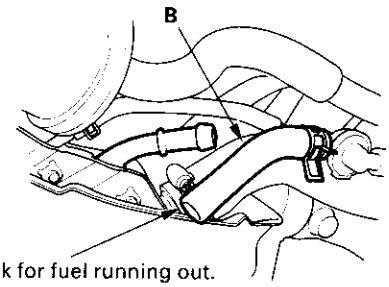
9. Fill the fuel tank with fuel, then check for fuel in the EVAP two way valve (A), and fuel tank vapor recirculation hose (B).

   NOTE: At either location, tiny droplets of fuel are normal.

   - If fuel runs out of the hoses at either location, replace the fuel tank vapor control valve.
   - If the fuel does not run out of the hoses, the fuel tank vapor system function is normal.



Check for fuel running out.



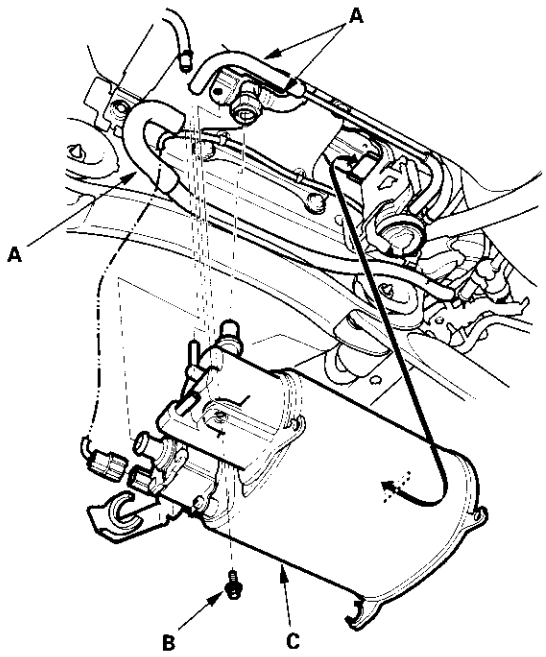
Check for fuel running out.

10. Disconnect the fuel tank vapor quick disconnect from the EVAP canister, then plug the port on the canister. Reapply vacuum (80 pumps).

    - If the vacuum holds, replace the fuel tank control valve (see page 11-189).
    - If the vacuum does not hold, inspect the EVAP canister vent shut valve o-ring. If the o-ring is OK, replace the EVAP canister, and repeat step 4.

EVAP Canister Replacement

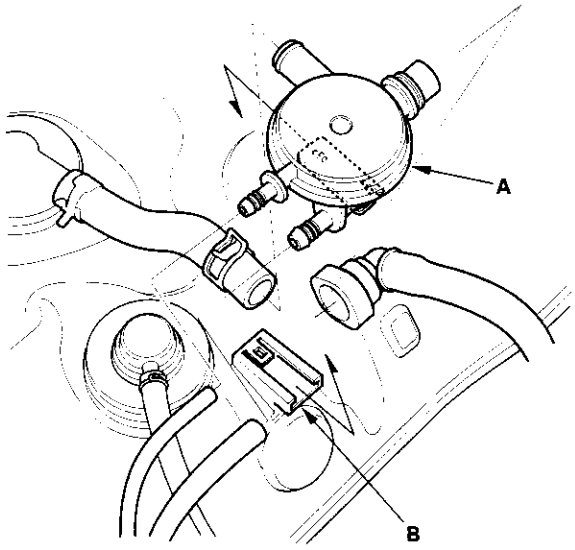
1. Remove the vacuum hoses (A).



2. Remove the bolt (B).
3. Remove the EVAP canister (C).
4. Install in the reverse order of removal.

Fuel Tank Vapor Control Valve Replacement

1. Remove the fuel tank (see page 11-155).
2. Remove the fuel tank vapor control valve (A) from the fuel tank (B).



3. Install the fuel tank vapor control valve.
4. Install the fuel tank (see page 11-155).