2007-2008 ENGINE PERFORMANCE

Fuel and Emissions Systems - Element

SPECIAL TOOLS

Ref. No.	Tool Number	Description	Qty
①	07AAA-S0XA100	Fuel Sender Wrench	1
②	07AAJ-S6MA150	Fuel Pressure Gauge Attachment Set	1
③	07JAZ-001000B	Vacuum/Pressure Gauge, 0—4 in.Hg	1
④	07NAJ-P07010A	Pressure Gauge Adapter	1
⑤	07ZAJ-S5AA200	Oil Pressure Hose	1
⑥-1	07406-0020201	A/T Pressure Hose	1
⑥-2	07406-0070301	A/T Low Pressure Gauge W/Panel	1
⑥-3	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	1
⑥-4	07MAJ-PY40120	A/T Pressure Hose, Adapter	1
⑦	07406-004000B	Fuel Pressure Gauge	1
⑧	07SAZ-001000A	Backprobe Set	1

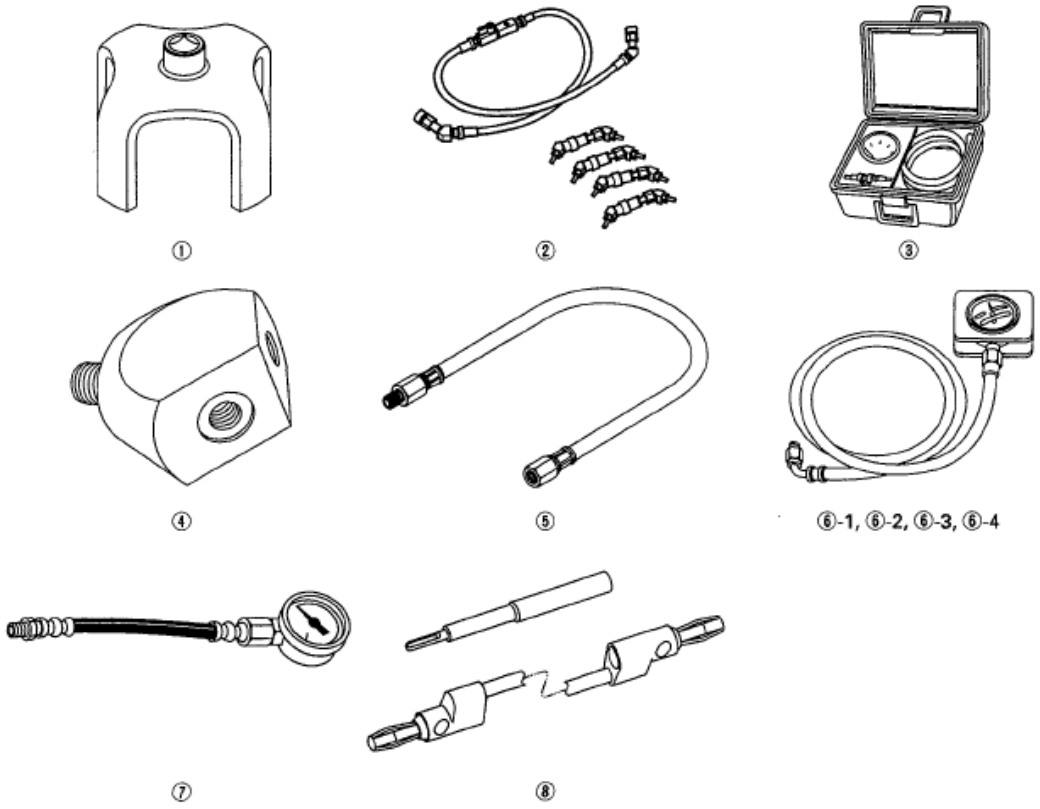


Fig. 1: Identifying Special Tools
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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. If the MIL was on but then went out, the original problem may have been intermittent.

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 or PCMs) this can sometimes mean something works, but not the way it's supposed to.

HOW TO USE THE HDS (HONDA DIAGNOSTIC SYSTEM)

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 stays on for 15-20 seconds (see MALFUNCTION INDICATOR LAMP (MIL) INDICATION (IN RELATION TO READINESS CODES)).

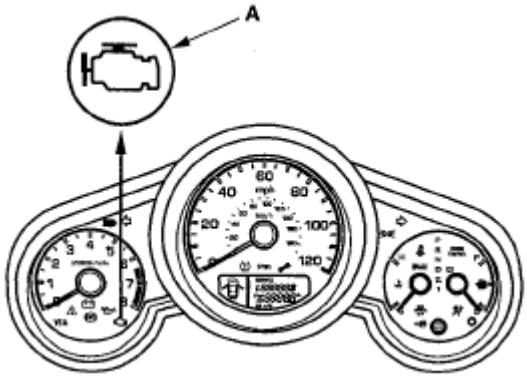


Fig. 2: Identifying MIL
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. If the MIL stays on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

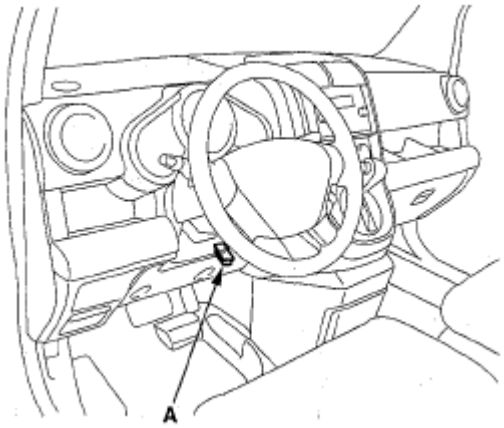


Fig. 3: Identifying Data Link Connector (DLC)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the ECM/PCM and other vehicle system. If it doesn't go to the DLC circuit troubleshooting (see **DLC CIRCUIT TROUBLESHOOTING**).
5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data and/or on-board snapshot data, and download any data found. Then refer to the indicated **DTC'S TROUBLESHOOTING**, and begin the appropriate troubleshooting procedure.

NOTE:

- **Freeze data indicates the engine conditions when the first malfunction, misfire, or fuel trim malfunction was detected.**
- **The HDS can read the DTC, freeze data, on-board snapshot, current data, and other engine control module (ECM) or powertrain control module (PCM) data.**
- **For specific operations, refer to the user's manual that came with the HDS.**

6. If no DTCs are found, go to MIL troubleshooting (see **MIL CIRCUIT TROUBLESHOOTING**).

If the MIL did not stay on

If the MIL did not stay on but there is a driveability problem, do the symptom troubleshooting.

If you can't duplicate the DTC

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

HDS CLEAR COMMAND

The ECM/PCM stores various specific data to correct the system even if there is no electrical power such as

when the battery negative terminal or No. 6 Fl ECU (15 A) fuse are disconnected. Stored data based on failed parts should be cleared by using the "CLEAR COMMAND" of the HDS, if parts are replaced.

The HDS has three kinds of clear commands to meet this purpose. They are DTC clear, ECM/PCM reset, and crank (CKP) pattern clear. DTC clear command erases all stored DTC codes, freeze data, on-board snapshot, and readiness codes. This must be done with the HDS after reproducing the DTC during troubleshooting. The ECM/PCM reset command erases all stored DTC codes, freeze data, on-board snapshot, readiness codes, and all specific data to correct the system except crank (CKP) pattern. If the crank (CKP) pattern data in the ECM/PCM was cleared, you must do the crank (CKP) pattern learn procedure. The crank (CKP) pattern clear command erases only crank (CKP) pattern data. This command is for repair of a misfire or the CKP sensor.

SCAN TOOL CLEAR COMMAND

If you are using a generic scan tool to clear commands, be aware that there is only one setting for clearing the ECM/PCM, and it clears all commands at the same time crank (CKP) pattern learn, idle learn, readiness codes, freeze data, on-board snapshot, and DTCs. After you clear all commands, you then need to do these procedures, in this order: ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**); crank (CKP) pattern learn procedure; Test-drive to set readiness codes to complete (see **HOW TO SET READINESS CODES**).

DTC CLEAR

1. Clear the DTC with the HDS while the engine is stopped.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II), and wait 30 seconds.
4. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

ECM/PCM RESET

1. Reset the ECM/PCM with the HDS while the engine is stopped.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II), and wait 30 seconds.
4. Turn the ignition switch OFF, and disconnect the HDS from the DLC.
5. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).

CRANK (CKP) PATTERN CLEAR/CRANK (CKP) PATTERN LEARN

Clear/Learn Procedure (with the HDS)

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

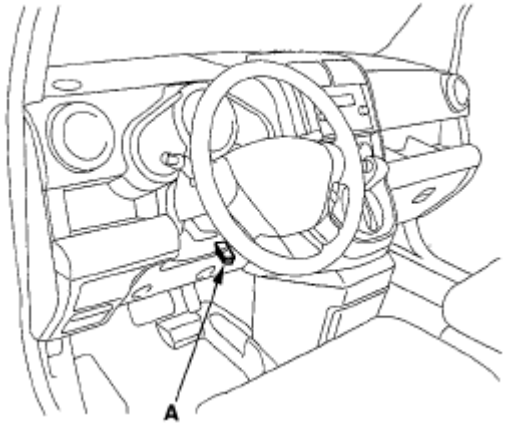


Fig. 4: Identifying Data Link Connector (DLC)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle system. If it doesn't, go to the DLC circuit troubleshooting (see **DLC CIRCUIT TROUBLESHOOTING**).
4. Select CRANK PATTERN in the ADJUSTMENT MENU with the HDS.
5. Select CRANK PATTERN LEARNING with the HDS, and follow the screen prompts.

Learn Procedure (without the HDS)

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on.
2. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 2,500 rpm down to 1,000 rpm with the A/T in 2 position, or M/T in 1st gear.
3. Repeat step 2 several times.
4. Turn the ignition switch OFF.
5. Turn the ignition switch ON (II), and wait 30 seconds. The crank (CKP) pattern learn procedure is complete.

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

1. Reset the ECM/PCM with the HDS.
2. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
3. Turn the ignition switch OFF.
4. Disconnect the HDS from the DLC.

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

HOW TO TROUBLESHOOT CIRCUITS AT THE ECM/PCM CONNECTORS

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).

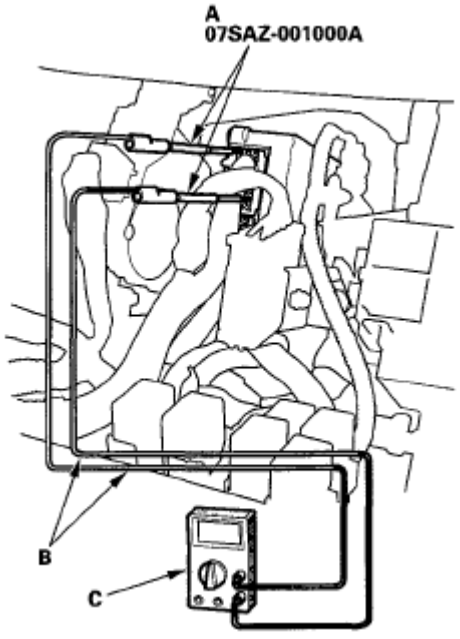


Fig. 5: Connecting Backprobe Adapters To Stacking Patch Cords
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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.

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

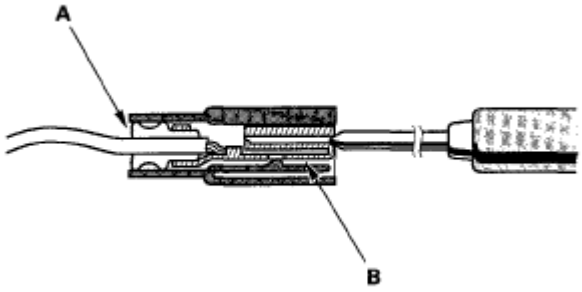


Fig. 6: Identifying Sealed And Terminals
Courtesy of AMERICAN HONDA MOTOR CO., INC.

UPDATING THE ECM/PCM

Special Tools Required

- Honda diagnostic system (HDS) tablet tester
- Honda interface module (HIM) and an iN workstation with HDS and CM update software
- HDS pocket tester
- GNA 600 and an iN workstation with HDS and CM update software

NOTE:

- **Use this procedure when you need to update the ECM/PCM during troubleshooting procedures.**
- **Make sure the HDS/HIM has the latest software version down loaded from the iN (interactive network).**
- **Before you update the ECM/PCM, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.**
- **Never turn the ignition switch OFF during the update. If there is a problem with the update, leave the ignition switch ON.**
- **To prevent ECM/PCM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.**
- **To ensure the latest program is installed, do an ECM/PCM update whenever the ECM/PCM is substituted or replaced.**
- **You cannot update an ECM/PCM with a program it already has. It will only accept a new program.**
- **If you need to diagnose the Honda interface module (HIM) because the HIM's red (# 3) light came on or was flashed during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent ECM/PCM damage.**

1. Turn the ignition switch ON (II), but do not start the engine.

2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

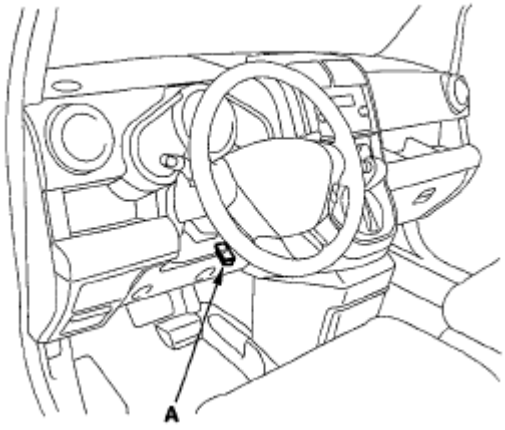


Fig. 7: Identifying Data Link Connector (DLC)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Make sure the HDS communicates with the ECM/PCM and other vehicle system. If it doesn't, go to the DLC circuit troubleshooting (see **DLC CIRCUIT TROUBLESHOOTING**). If you are returning from the DLC circuit troubleshooting, skip step 4 and 5, then clean the throttle body after updating the ECM/PCM (see **THROTTLE BODY CLEANING**).
4. Select the INSPECTION MENU with the HDS.
5. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts with the HDS.

NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.

6. Exit the HDS diagnostic system, then select the update mode, and follow the screen prompts to update the ECM/PCM.
7. If the software in the ECM/PCM is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the ECM/PCM is not the latest, follow the instructions on the screen. If prompted to' choose the PGM-FI system or the A/T system, make sure you update both.

NOTE: If the ECM/PCM update system requires you to cool the ECM/PCM, follow the instructions on screen. If you run into a problem (programming takes over 15 minutes, status bar goes over 100 %, D or immobilizer indicator flashes, HDS tablet freezes, etc.) during the update procedure, follow these steps to minimize the chance of damaging the ECM/PCM:

- **Leave the ignition switch in the "ON (II)" position.**
- **Connect a jumper battery (do not connect a battery charger).**
- **Shut down the HDS.**
- **Disconnect the HDS from the DLC.**

- **Reboot the HDS.**
- **Reconnect the HDS to the DLC, and try the update procedure again.**

8. If the TP POSITION CHECK failed in step 5, clean the throttle body (see **THROTTLE BODY CLEANING**).
9. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
10. Do the crank (CKP) pattern learn procedure.

SUBSTITUTING THE ECM/PCM

Special Tools Required

- Honda diagnostic system (HDS) tablet tester
- Honda interface module (HIM) and an iN workstation with HDS and CM update software
- HDS pocket tester
- GNA 600 and an iN workstation with HDS and CM update software

NOTE: Use this procedure when you need to substitute a known-good ECM/PCM during troubleshooting procedures.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

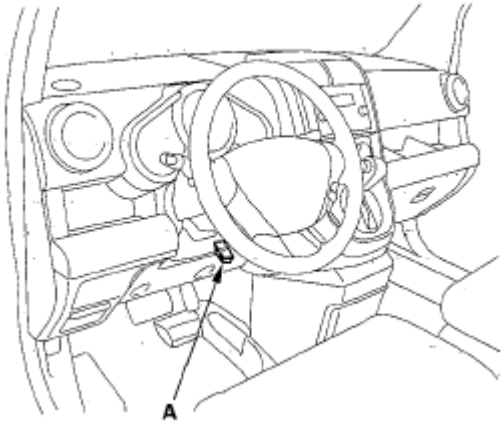


Fig. 8: Identifying Data Link Connector (DLC)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting (see **DLC CIRCUIT TROUBLESHOOTING**). If you are returning from DLC circuit troubleshooting, skip steps 4 thru 14, then clean the throttle body after substituting the ECM/PCM (see **THROTTLE BODY CLEANING**).
4. Select the INSPECTION MENU with the HDS.

5. Select the ETCS TEST, then select the TP POSITION CHECK and follow the screen prompts.

NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.

6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Remove the passenger's dashboard under cover (see **GLOVE BOX REMOVAL/INSTALLATION**), the passenger's kick panel (see **TRIM REMOVAL/INSTALLATION - DOOR AREAS**), and the glove box (see **GLOVE BOX REMOVAL/INSTALLATION**).
9. Cut the plastic cross brace in the glove box opening with diagonal cutters in the area shown, and discard it.

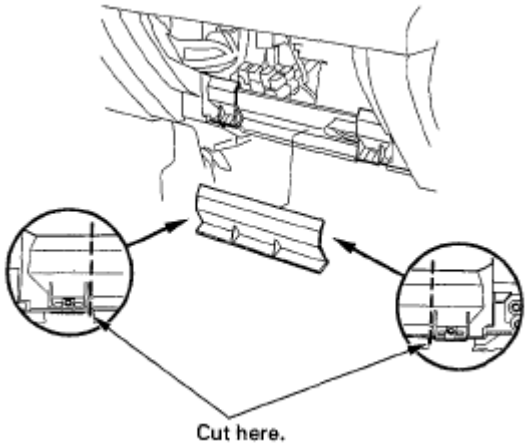


Fig. 9: Cutting Plastic Cross Brace In Glove Box Opening
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Remove the relays (A), then remove the bolts (B) and the glove box frame (C).

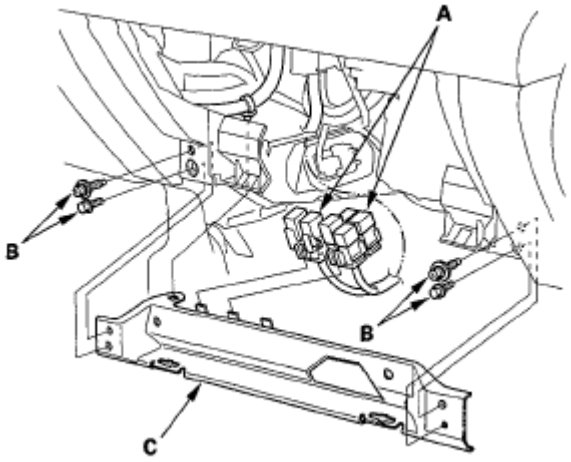


Fig. 10: Identifying Relays, Bolts And Glove Box Frame

Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Remove the gray 20P ECM/PCM wire harness connector (A) from the ECM/PCM mounting bracket.

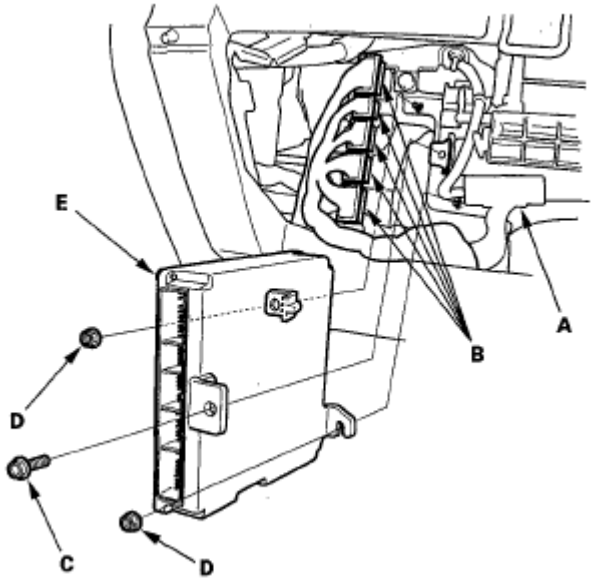


Fig. 11: Identifying ECM/PCM And Wire Harness Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Disconnect the ECM/PCM connectors (B).
13. Remove the ECM/PCM mounting bolt (C) and the bracket.
14. Remove the nuts (D), then remove the ECM/PCM (E).
15. Install the parts in the reverse order of removal.
16. Open the SCS line with the HDS.
17. Turn the ignition switch ON (II).

NOTE: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.

18. Manually input the VIN to the ECM/PCM with the HDS.
19. Update the ECM/PCM if it does not have the latest software.
20. Select the IMMOBI SYSTEM with the HDS.
21. Enter the immobilizer code using the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
22. Reset the ECM/PCM with the HDS.
23. If the TP POSITION CHECK failed in step 5, clean the throttle body (see **THROTTLE BODY CLEANING**).
24. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).

25. Do the crank (CKP) pattern learn procedure.

OBD STATUS

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- PASSED: The on board diagnosis is successfully finished.
- FAILED: The on board diagnosis has finished but failed.
- EXECUTING: The vehicle is in enable criteria conditions for the DTC and the on board diagnosis is running.
- NOT COMPLETED: The on board diagnosis was running but is out of the enable conditions of the DTC.
- OUT OF CONDITION: The vehicle has stayed out of the enable conditions for the DTC.

DTC TROUBLESHOOTING INDEX

DTC TROUBLESHOOTING CHART

DTC (MIL indication [1])	Two Drive Cycle Detection	Detection Item	MIL
P0010 (56)	--	Variable Valve Timing Control (VTC) Oil Control Solenoid Valve Malfunction	ON
P0011 (56)	o	Variable Valve Timing Control (VTC) System Malfunction	ON
P0101 (50)	o	Mass Air Flow (MAF) Sensor Circuit Range/Performance Problem	ON
P0102 (50)	--	Mass Air Flow (MAF) Sensor Circuit Low Voltage	ON
P0103 (50)	--	Mass Air Flow (MAF) Sensor Circuit High Voltage	ON
P0107 (3)	--	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage	ON
P0108 (3)	--	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage	ON
P0111 (10)	o	Intake Air Temperature (IAT) Sensor Circuit	ON

		Range/Performance Problem	
P0112 (10)	--	Intake Air Temperature (IAT) Sensor Circuit Low Voltage	ON
P0113 (10)	--	Intake Air Temperature (IAT) Sensor Circuit High Voltage	ON
P0116 (86)	o	Engine Coolant Temperature (ECT) Sensor 1 Circuit Range/Performance Problem	ON
P0117 (6)	--	Engine Coolant Temperature (ECT) Sensor 1 Circuit Low Voltage	ON
P0118 (6)	--	Engine Coolant Temperature (ECT) Sensor 1 Circuit High Voltage	ON
P0122 (7)	--	Throttle Position (TP) Sensor A Circuit Low Voltage	ON
P0123 (7)	--	Throttle Position (TP) Sensor A Circuit High Voltage	ON
P0125 (86)	o	Engine Coolant Temperature (ECT) Sensor 1 Malfunction/Slow Response	ON
P0128 (87)	o	Cooling System Malfunction	ON
P0133 (61)	o	Air Fuel Ratio (A/F) Sensor (Sensor 1) Malfunction/Slow Response	ON
P0134 (41)	o	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater System Malfunction	ON
P0135 (41)	--	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater Circuit Malfunction	ON
P0137 (63)	o	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Low Voltage	ON

P0138 (63)	o	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit High Voltage	ON
P0139 (63)	o	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Slow Response	ON
P0141 (65)	--	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Heater Circuit Malfunction	ON
P0171 (45)	o	Fuel System Too Lean	ON
P0172 (45)	o	Fuel System Too Rich	ON
P0222 (7)	--	Throttle Position (TP) Sensor B Circuit Low Voltage	ON
P0223 (7)	--	Throttle Position (TP) Sensor B Circuit High Voltage	ON
P0300 (75) any combination of the following **P0301** (71) **P0302** (72) **P0303** (73) **P0304** (74)	o	Random Misfire Detected	ON
P0301 (71)	o	No. 1 Cylinder Misfire Detected	ON
P0302 (72)	o	No. 2 Cylinder Misfire Detected	ON
P0303 (73)	o	No. 3 Cylinder Misfire Detected	ON
P0304 (74)	o	No. 4 Cylinder Misfire Detected	ON
P0325 (23)	--	Knock Sensor Circuit Malfunction	ON
P0335 (4)	--	Crankshaft Position (CKP) Sensor No Signal	ON
P0339 (4)	--	Crankshaft Position (CKP) Sensor Circuit Intermittent Interruption	ON
P0340 (57)	--	Camshaft Position (CMP) Sensor A No Signal	ON
P0341 (57)	--	Camshaft Position (CMP) Sensor A and Crankshaft	ON

		Position (CKP) Sensor Incorrect Phase Detected	
P0344 (57)	--	Camshaft Position (CMP) Sensor A Intermittent Interruption	ON
P0365 (8)	--	Camshaft Position (CMP) Sensor B No Signal	ON
P0369 (8)	--	Camshaft Position (CMP) Sensor B Circuit Intermittent Interruption	ON
P0420 (67)	o	Catalyst System Efficiency Below Threshold	ON
P0443 (92)	--	Evaporative Emission (EVAP) Canister Purge Valve Circuit Malfunction	ON
P0451 (91)	o	Fuel Tank Pressure (FTP) Sensor Circuit Range/Performance Problem	ON
P0452 (91)	o	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	ON
P0453 (91)	o	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	ON
P0455 (90)	o	Evaporative Emission (EVAP) System Large Leak Detected	ON
P0456 (90)	o	Evaporative Emission (EVAP) System Very Small Leak Detected	ON
P0457 (90)	--	Evaporative Emission (EVAP) System Leak Detected/Fuel Fill Cap Loose or Missing	OFF
P0461 (121)	--	Fuel Level Sensor (Fuel Gauge Sending Unit) Range/Performance Problem	OFF
P0462 (121)	--	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage	OFF
P0463 (121)	--	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage	OFF

P0496 (92)	o	Evaporative Emission (EVAP) System High Purge Flow Detected	ON
P0497 (90)	o	Evaporative Emission (EVAP) System Low Purge Flow Detected	ON
P0498 (117)	--	Evaporative Emission (EVAP) Canister Vent Shut Valve Circuit Low Voltage	ON
P0499 (117)	--	Evaporative Emission (EVAP) Canister Vent Shut Valve Circuit High Voltage	ON
P0506 (14)	o	Idle Control System RPM Lower Than Expected	ON
P0507 (14)	o	Idle Control System RPM Higher Than Expected	ON
P050A (167)	o	Cold Start Idle Air Control System Performance Problem	ON
P050B (167)	o	Cold Start Ignition Timing Control System Performance Problem	ON
P0562 (34)	--	Charging System Low Voltage	OFF
P0563 (34)	--	Engine Control Module (ECM)/Powertrain Control Module (PCM) Power Source Circuit Unexpected Voltage	OFF
P0602 (196)	--	Engine Control Module (ECM)/Powertrain Control Module (PCM) Programming Error	ON
P0603 (131)	--	Engine Control Module (ECM)/Powertrain Control Module (PCM) Internal Control Module Keep Alive Memory (KAM) Error	ON
P0606 (0)	--	Engine Control Module (ECM)/Powertrain Control Module (PCM) Processor Malfunction	ON

P0630 (139)	--	VIN Not Programmed or Mismatch	ON
P0685 (135)	o	Engine Control Module (ECM)/Powertrain Control Module (PCM) Power Control Circuit Internal Circuit Malfunction	ON
P0720 (122)(2)	--	Output Shaft (Countershaft) Speed Sensor Circuit Malfunction	ON
P1009 (56)	--	Variable Valve Timing Control (VTC) Advance Malfunction	ON
P1109 (13)	--	Barometric Pressure (BARO) Sensor Circuit Out of Range High	ON
P1116 (86)	o	Engine Coolant Temperature (ECT) Sensor 1 Performance Problem	ON
P1128 (5)	o	Manifold Absolute Pressure (MAP) Sensor Signal Lower Than Expected	ON
P1129 (5)	o	Manifold Absolute Pressure (MAP) Sensor Signal Higher Than Expected	ON
P1157 (48)	--	Air Fuel Ratio (A/F) Sensor (Sensor 1) Circuit Malfunction	ON
P1172 (61)	o	Air Fuel Ratio (A/F) Sensor (Sensor 1) Circuit Out of Range High	ON
P1297 (20)	--	Electrical Load Detector (ELD) Circuit Low Voltage	OFF
P1298 (20)	--	Electrical Load Detector (ELD) Circuit High Voltage	OFF
P1454 (91)	o	Fuel Tank Pressure (FTP) Sensor Range/Performance Problem	ON
P145C (90)	o	Evaporative Emission (EVAP) System Purge Flow Malfunction	ON

P1549 (34)	--	Charging System High Voltage	OFF
P1683 (40)	--	Throttle Valve Default Position Spring Performance Problem	ON
P1684 (40)	--	Throttle Valve Return Spring Performance Problem	ON
P16BB (116)	--	Alternator B Terminal Circuit Low Voltage	OFF
P16BC (116)	--	Alternator FR Terminal Circuit/IGP Circuit Low Voltage	OFF
P2101 (40)	--	Throttle Actuator System Malfunction	ON
P2108 (40)	--	Throttle Actuator Control Module Problem	ON
P2118 (40)	--	Throttle Actuator Current Range/Performance Problem	ON
P2122 (37)	--	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit Low Voltage	ON
P2123 (37)	--	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit High Voltage	ON
P2127 (37)	--	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit Low Voltage	ON
P2128 (37)	--	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit High Voltage	ON
P2135 (7)	--	Throttle Position (TP) Sensor A/B Voltage Incorrect Correlation	ON
P2138 (37)	--	Accelerator Pedal Position (APP) Sensor A/B (Throttle Position (TP) Sensor D/E) Incorrect Voltage Correlation	ON
P2176 (40)	--	Throttle Actuator Control	ON

		System Idle Position Not Learned	
P2183 (192)	o	Engine Coolant Temperature (ECT) Sensor 2 Range/Performance Problem	ON
P2184 (192)	--	Engine Coolant Temperature (ECT) Sensor 2 Circuit Low Voltage	ON
P2185 (192)	--	Engine Coolant Temperature (ECT) Sensor 2 Circuit High Voltage	ON
P2195 (48)	o	Air Fuel Ratio (A/F) Sensor (Sensor 1) Signal Stuck Lean	ON
P2227 (13)	o	Barometric Pressure (BARO) Sensor Range/Performance Problem	ON
P2228 (13)	--	Barometric Pressure (BARO) Sensor Circuit Low Voltage	ON
P2229 (13)	--	Barometric Pressure (BARO) Sensor Circuit High Voltage	ON
P2238 (48)	--	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS+ Circuit Low Voltage	ON
P2252 (48)	--	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS- Circuit Low Voltage	ON
P2270 (63)	o	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Signal Stuck Lean	ON
P2271 (63)	o	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Signal Stuck Rich	ON
P2422 (117)	o	Evaporative Emission (EVAP) Canister Vent Shut Valve Stuck Closed Malfunction	ON
P2552 (40)	--	Throttle Actuator Control Module Relay Malfunction	ON

P2610 (132)	--	Engine Control Module (ECM)/Powertrain Control Module (PCM) Ignition Off Internal Timer Performance Problem	ON
P2646 (22)	--	Rocker Arm Oil Pressure Switch Circuit Low Voltage	ON
P2647 (22)	--	Rocker Arm Oil Pressure Switch Circuit High Voltage	ON
P2648 (21)	--	Rocker Arm Oil Control Solenoid Circuit Low Voltage	ON
P2649 (21)	--	Rocker Arm Oil Control Solenoid Circuit High Voltage	ON
P2A00 (61)	o	Air Fuel Ratio (A/F) Sensor (Sensor 1) Circuit Range/Performance Problem	ON
U0028 (126)	--	F-CAN Malfunction (BUS-OFF)	ON
U0107 (30)	--	Lost Communication With Throttle Actuator Control Module	ON
U0122 (126)	--	F-CAN Malfunction (Engine Control Module (ECM/Powertrain Control Module (PCM)-VSA modulator-control unit)	OFF
U0155 (126)	--	F-CAN Malfunction (Engine Control Module (ECM/Powertrain Control Module (PCM)-Gauge Control Module)	ON

NOTE:

The above DTCs are indicated when the PGM-FI system is selected in the HDS. Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

(1) These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.

(2) M/T.

SYMPTOM TROUBLESHOOTING INDEX

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

SYMPTOM TROUBLESHOOTING CHART

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1. Test the battery (see **CLUTCH INTERLOCK SWITCH TEST**). 2. Test the starter (see **CLUTCH INTERLOCK SWITCH TEST**). 3. Check the fuel pressure (see **FUEL PRESSURE TEST**). 4. Troubleshoot the fuel pump circuit (see **FUEL PUMP CIRCUIT TROUBLESHOOTING**).	• Low compression • No ignition spark • Intake air leaks • Locked up engine • Broken cam chain • Contaminated fuel
Engine will not start (MIL comes on and stays on, or never comes on at all, no DTCs set)	Troubleshoot the DLC circuit (see **DLC CIRCUIT TROUBLESHOOTING**).	
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit (see **MIL CIRCUIT TROUBLESHOOTING**).	
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine is hard to start (MIL works OK, no DTCs set)	1. Test the battery (see **CLUTCH INTERLOCK SWITCH TEST**). 2. Check the fuel pressure (see **FUEL PRESSURE TEST**). 3. Clean the throttle body (see **THROTTLE BODY CLEANING**).	• Low compression • Intake air leaks • Contaminated fuel • Weak spark
Cold fast idle too low (MIL works OK, no	1. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**). 2. Check the idle speed (see **IDLE SPEED INSPECTION**).	

DTCs set)	3. Clean the throttle body (see **THROTTLE BODY CLEANING**).	
Cold fast idle too high (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**). 2. Check the idle speed (see **IDLE SPEED INSPECTION**). 3. Do the throttle position learning check (see **THROTTLE BODY TEST**).	
Idle speed fluctuates (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**). 2. Check the idle speed (see **IDLE SPEED INSPECTION**). 3. Do the carbon accumulation check (see **THROTTLE BODY TEST**). 4. Troubleshoot the A/C signal circuit (see **A/C SIGNAL CIRCUIT TROUBLESHOOTING**).	Intake vacuum leaks
After warming up, idle speed is below specification without load (MIL works OK, no DTCs set)	1. Troubleshoot the alternator FR signal circuit (see **ALTERNATOR FR SIGNAL CIRCUIT TROUBLESHOOTING**). 2. Do the carbon accumulation check (see **THROTTLE BODY TEST**).	
After warming up, idle speed is above specification without load (MIL works OK, no DTCs set)	1. Troubleshoot the alternator FR signal circuit (see **ALTERNATOR FR SIGNAL CIRCUIT TROUBLESHOOTING**). 2. Inspect the APP sensor (see **APP SENSOR SIGNAL INSPECTION**).	
After warming up, idle speed drops when steering wheel is turning (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**). 2. Troubleshoot the PSP switch signal circuit (see **PSP SWITCH SIGNAL CIRCUIT TROUBLESHOOTING**). 3. Test the throttle body (see **THROTTLE BODY TEST**).	Power steering system problems
Low power (MIL works OK, no DTCs set)	Check the fuel pressure (see **FUEL PRESSURE TEST**).	• Low compression • Incorrect camshaft timing • Incorrect engine oil level
	1. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).	

Engine stalls (MIL works OK, no DTCs set)	2. Check the fuel pressure (see **FUEL PRESSURE TEST**). 3. Check the idle speed (see **IDLE SPEED INSPECTION**). 4. Troubleshoot the brake pedal position switch signal circuit (see **BRAKE PEDAL POSITION SWITCH SIGNAL CIRCUIT TROUBLESHOOTING**).	• Intake air leaks • Faulty harness and sensor connections
Difficult to refuel (MIL works OK, no DTCs set)	1. Check the fuel vent tube between the EVAP canister and the fuel tank. 2. Check the fuel tank vapor recirculation tube between the fuel pipe and the fuel tank. 3. Replace the fuel tank unit (see **FUEL TANK UNIT REMOVAL/INSTALLATION**). 4. Replace the fuel tank (see **FUEL TANK REPLACEMENT**).	Malfunctioning gas station filling nozzle.
Fuel overflows during refueling (No DTCs set)	1. Replace the fuel tank unit (see **FUEL TANK UNIT REMOVAL/INSTALLATION**). 2. Replace the fuel tank (see **FUEL TANK REPLACEMENT**).	Malfunctioning gas station filling nozzle.
HDS does not communicate with the ECM/PCM or the vehicle	Troubleshoot the DLC circuit (see **DLC CIRCUIT TROUBLESHOOTING**).	
Fuel cap warning message comes on and stays on (MIL works OK, no DTCs set)	Troubleshoot the fuel cap warning message system (see **FUEL CAP WARNING MESSAGE SYSTEM TROUBLESHOOTING**).	

SYSTEM DESCRIPTION

ELECTRONIC CONTROL SYSTEM

The functions of the fuel and emission control systems are managed by the engine control module (ECM) on vehicles with manual transmissions or the powertrain control module (PCM) on vehicles with automatic transmissions.

Self-diagnosis

The ECM/PCM detects a failure of a signal from a sensor or another control unit and stores a Temporary DTC or a DTC. Depending on the failure, a DTC is stored in either the first or the second drive cycle. When a DTC is stored, the ECM/PCM turns on the malfunction indicator lamp (MIL) by sending a command to the gauge control module.

- **One Drive Cycle Detection Method**

  When an abnormality occurs in the signal from a sensor or another control unit, the ECM/PCM stores a DTC for the failure and turns on the MIL immediately.

- **Two Drive Cycle Detection Method**

  When an abnormality occurs in the signal from a sensor or another control unit in the first drive cycle, the ECM/PCM stores a Temporary DTC for the failure. The MIL does not come on at this time. If the failure continues in the second drive cycle, the ECM/PCM stores a DTC in erasable memory and turns on the MIL.

Fail-safe Function

When an abnormality occurs in the signal from a sensor or another control unit, the ECM/PCM ignores that signal and substitutes a pre-programmed value that allows the engine to continue running. This causes a DTC to be stored and the MIL to come on.

MIL Bulb Check and Readiness Code Condition

When the ignition switch is turned ON (II), the ECM/PCM supplies ground to the MIL circuit for about 15 to 20 seconds to check the bulb condition. If any readiness codes are not set to complete, the MIL flashes five times. If all readiness codes are set to complete, the MIL goes off.

Self Shut Down (SSD) Mode

After the ignition switch is turned OFF, the ECM/PCM stays on (up to 25 minutes). If the ECM/PCM connector is disconnected during this time, the ECM/PCM may be damaged. To cancel this mode, disconnect the negative cable from the battery or jump the SCS line with the HDS after the ignition switch is turned OFF.

ECM/PCM Electrical Connections

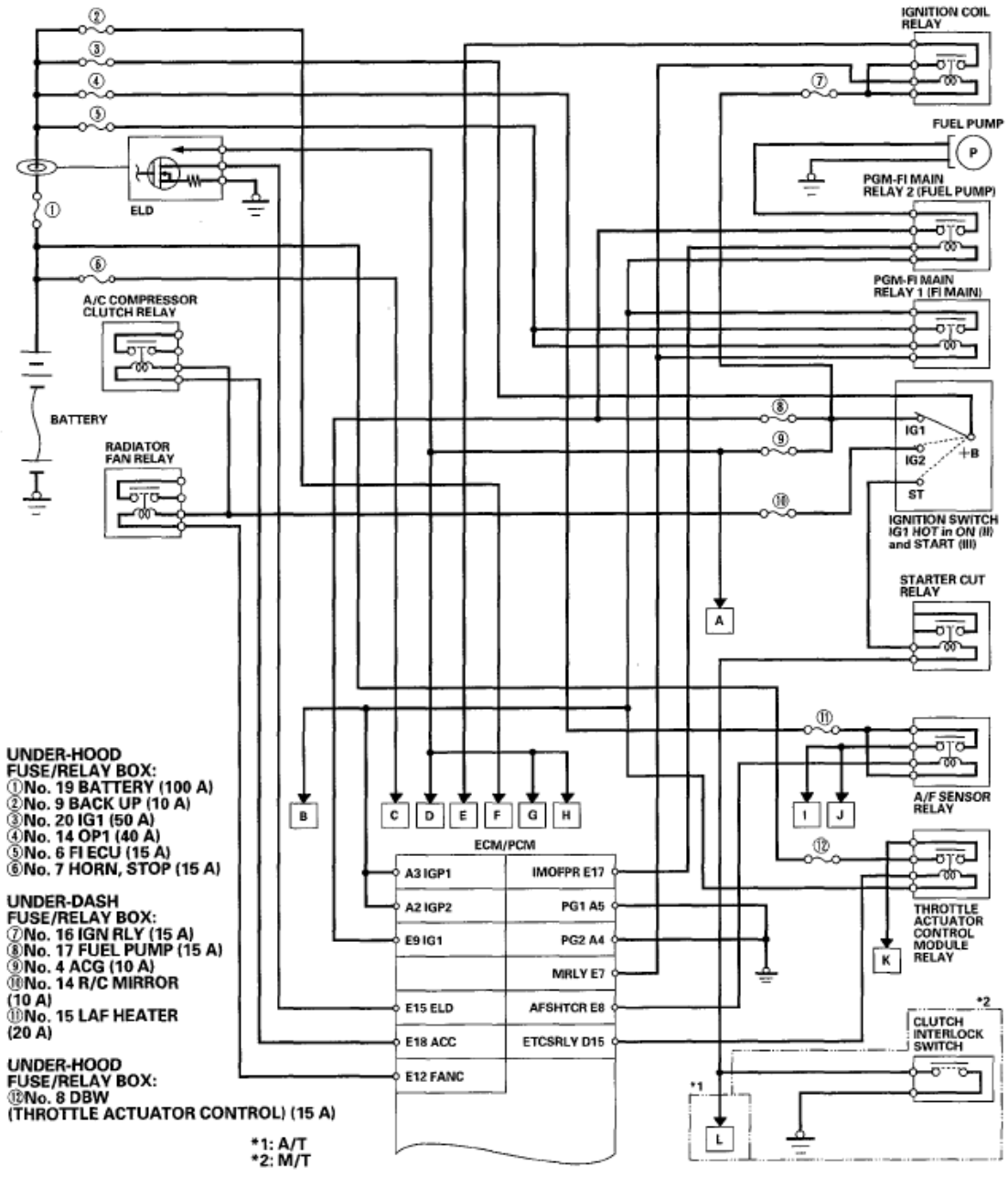


Fig. 12: ECM/PCM Electrical Connections Diagram (1 Of 6)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

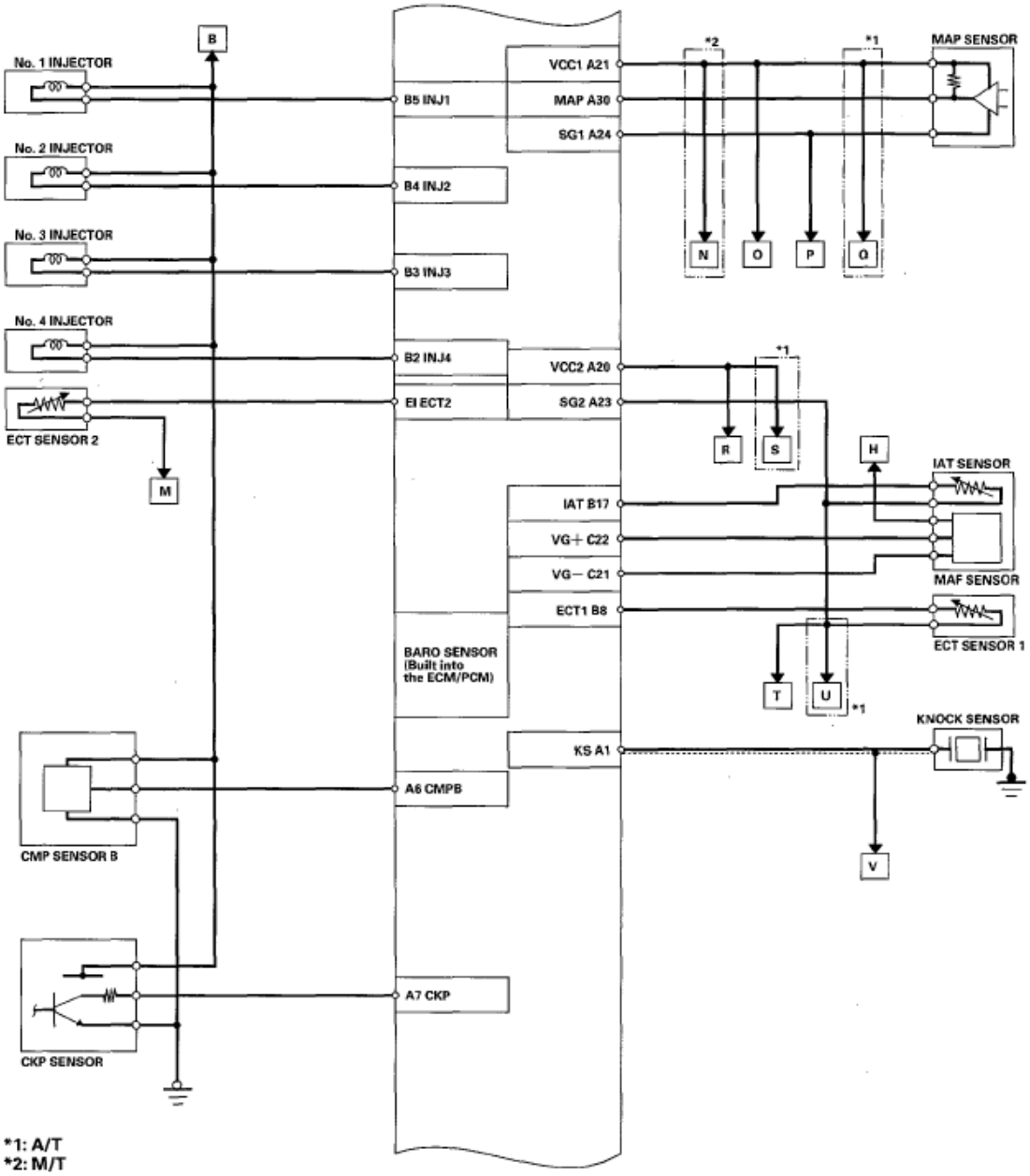


Fig. 13: ECM/PCM Electrical Connections Diagram (2 Of 6)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

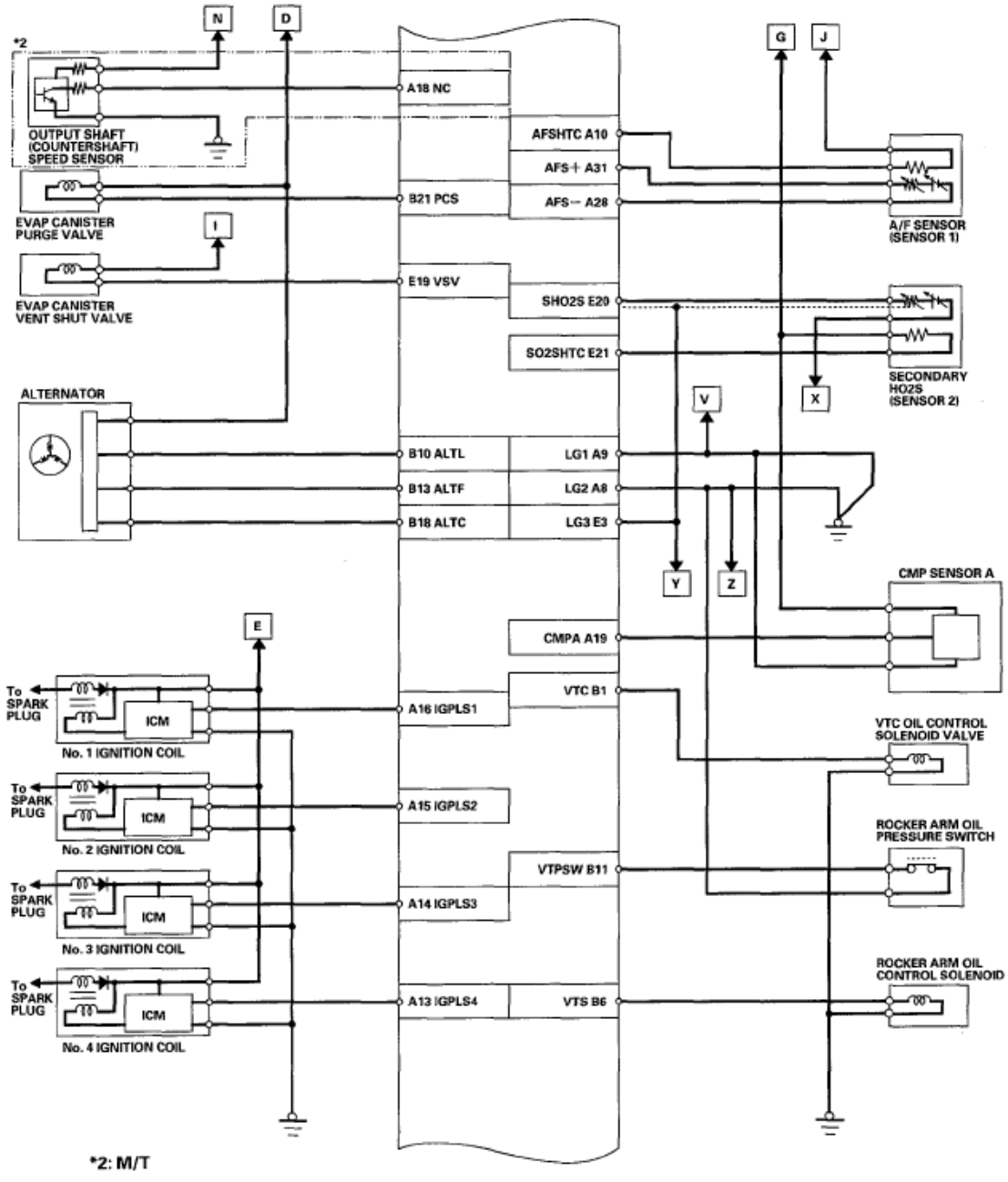


Fig. 14: ECM/PCM Electrical Connections Diagram (3 Of 6)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

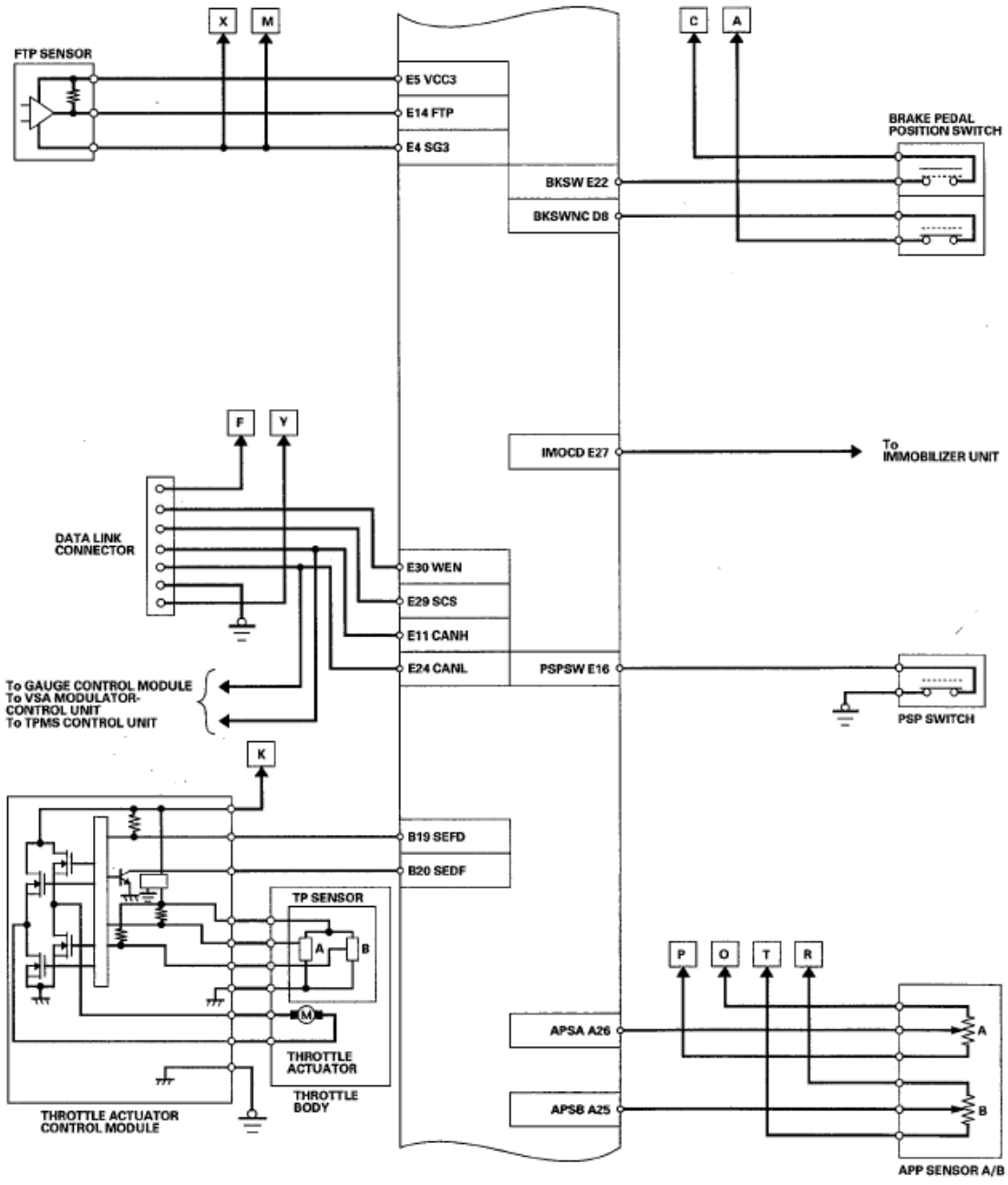


Fig. 15: ECM/PCM Electrical Connections Diagram (4 Of 6)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

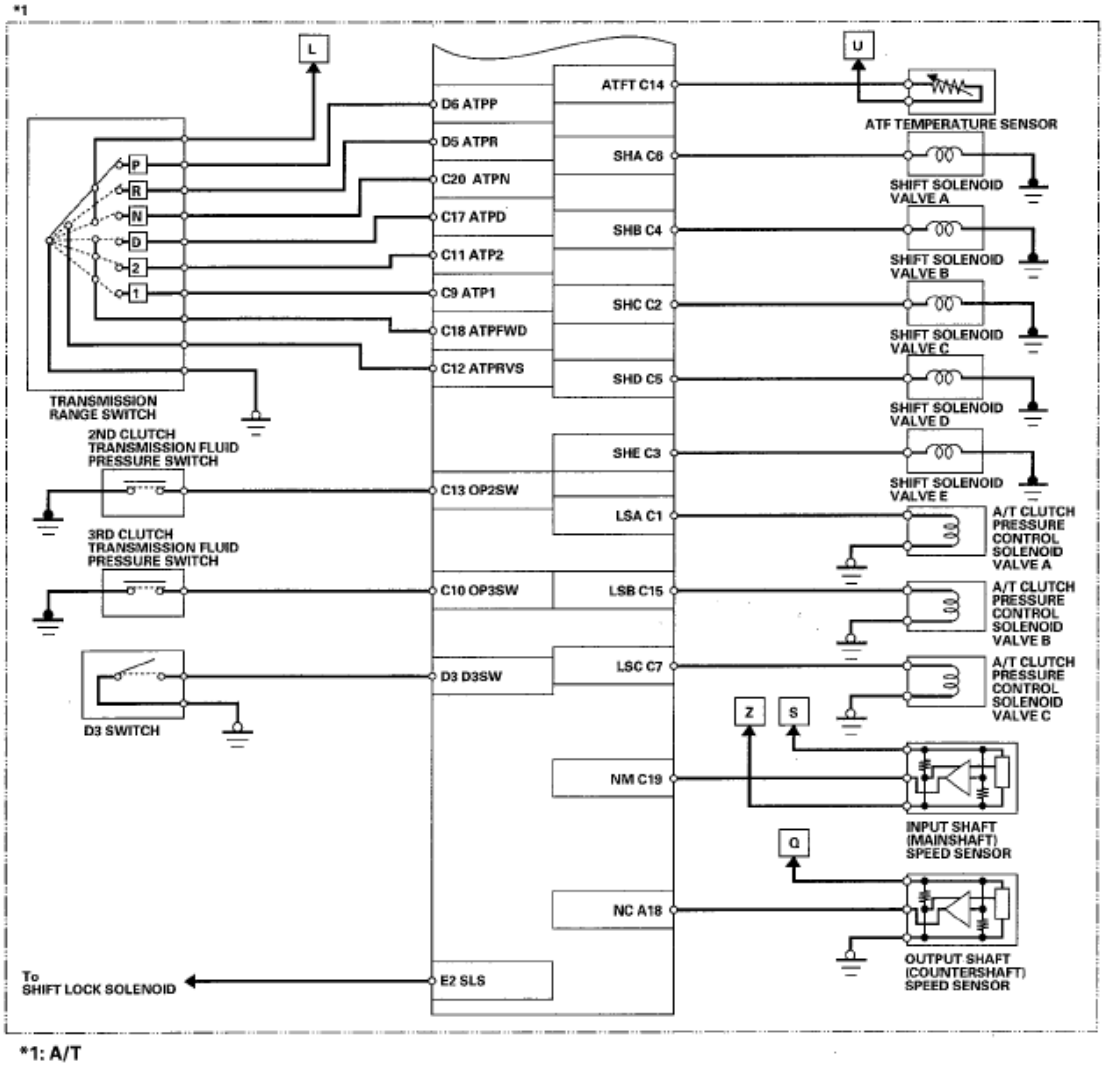


Fig. 16: ECM/PCM Electrical Connections Diagram (5 Of 6)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

*1:A/T

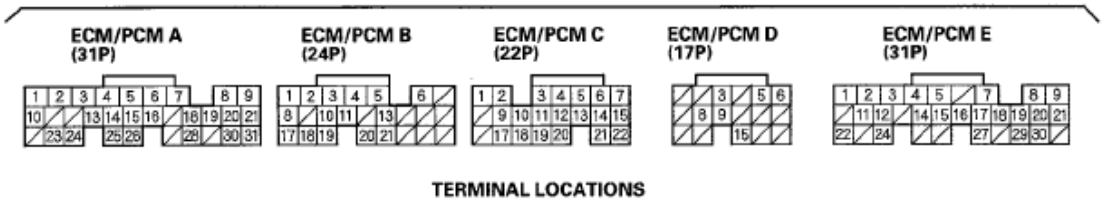


Fig. 17: ECM/PCM Electrical Connections Diagram (6 Of 6)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VACUUM HOSE ROUTING

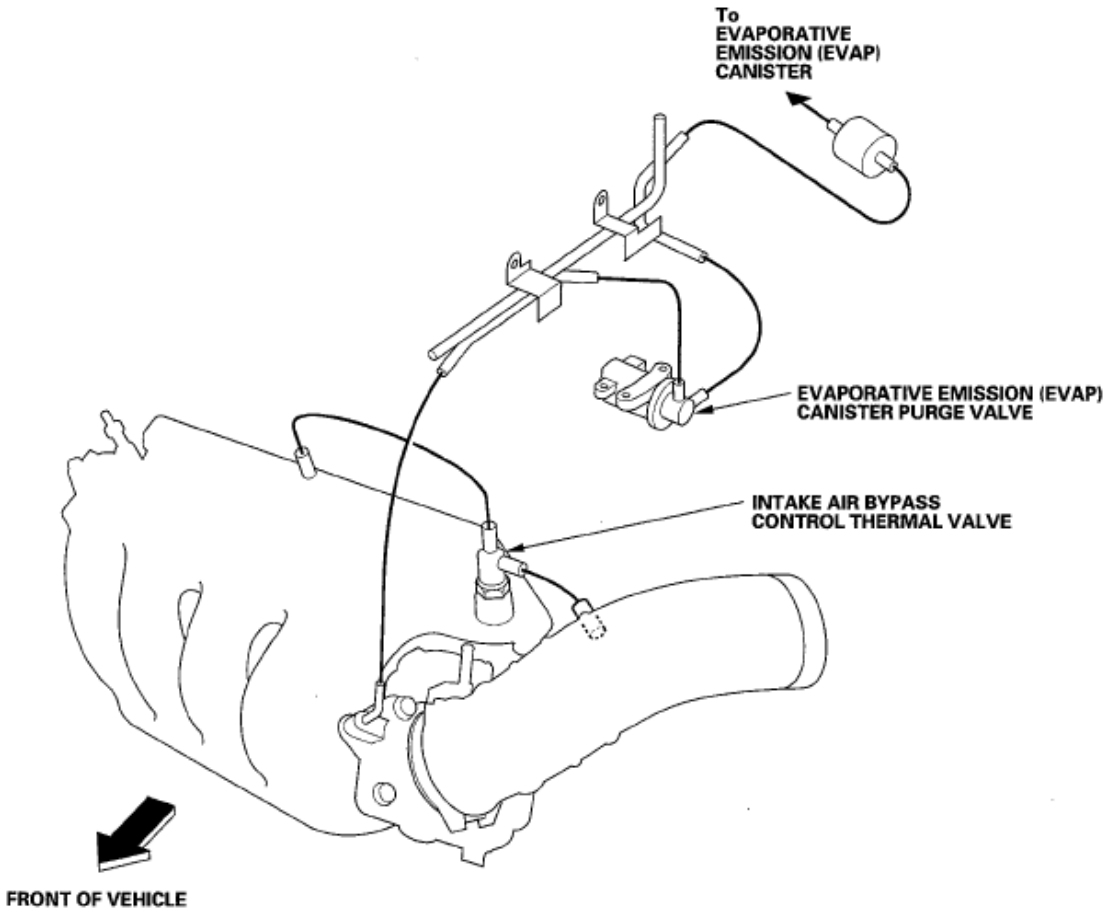
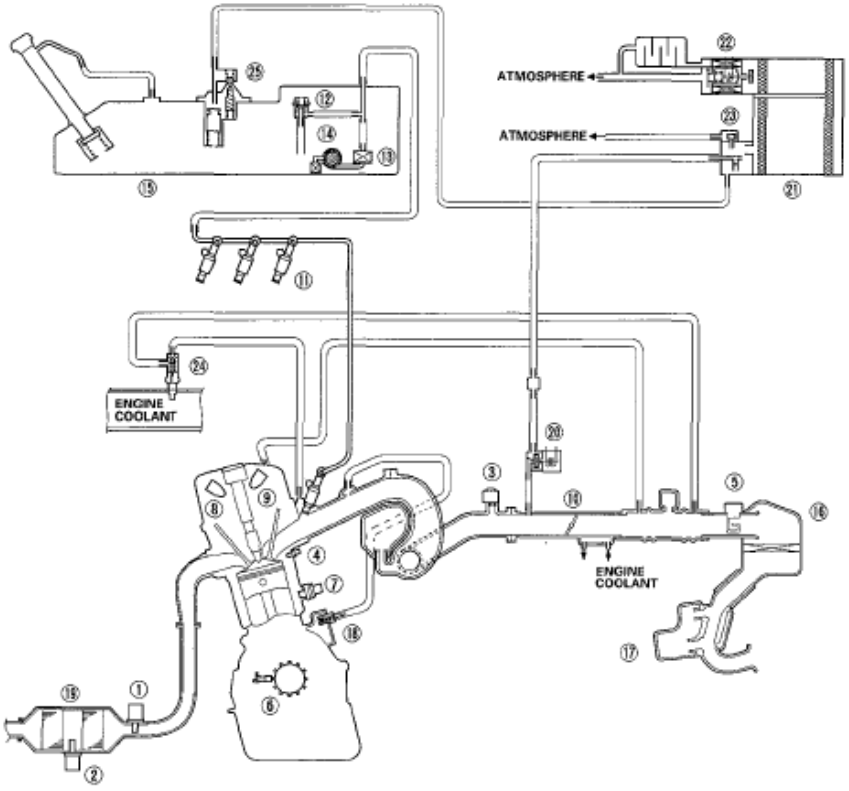


Fig. 18: Vacuum Hose Routing Diagram
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VACUUM DISTRIBUTION



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 1
⑤ MASS AIR FLOW (MAF) SENSOR/ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑥ CRANKSHAFT POSITION (CKP) SENSOR
⑦ KNOCK SENSOR
⑧ CAMSHAFT POSITION (CMP) SENSOR B
⑨ CAMSHAFT POSITION (CMP) SENSOR A
⑩ THROTTLE BODY
⑪ INJECTOR
⑫ FUEL PRESSURE REGULATOR
⑬ FUEL FILTER
⑭ FUEL PUMP
⑮ FUEL TANK
⑯ AIR CLEANER
⑰ RESONATOR
⑱ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
⑲ THREE WAY CATALYTIC CONVERTER
⑳ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉑ EVAPORATIVE EMISSION (EVAP) CANISTER
㉒ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉓ FUEL TANK PRESSURE (FTP) SENSOR
㉔ INTAKE AIR BYPASS CONTROL THERMAL VALVE
㉕ FUEL TANK VAPOR CONTROL VALVE

Fig. 19: Vacuum Distribution Diagram
Courtesy of AMERICAN HONDA MOTOR CO., INC.

ECM/PCM INPUTS AND OUTPUTS AT CONNECTOR A (31P)

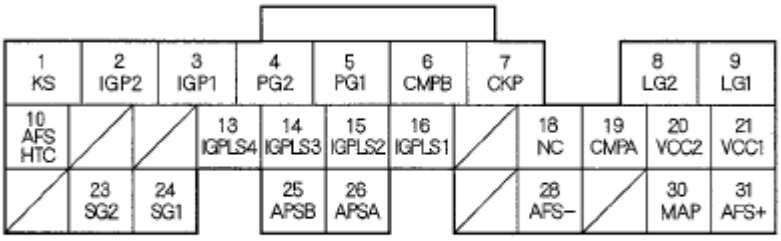


Fig. 20: Identifying ECM/PCM Connector A (31P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR A REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
1	WHT	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
2	YEL/BLK	IGP2 (POWER SOURCE)	Power source for ECM/PCM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
3	YEL/BLK	IGP1 (POWER SOURCE)	Power source for ECM/PCM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
4	BLK	PG2 (POWER GROUND)	Ground circuit for ECM/PCM	Less than 1.0 V at all times
5	BLK	PG1 (POWER GROUND)	Ground circuit for ECM/PCM	Less than 1.0 V at all times
6	GRN	CMPB (CAMSHAFT POSITION SENSOR B)	Detects CMP sensor B signal	With engine running: pulses With ignition switch ON (II): about 5.0 V
7	YEL	CKP (CRANKSHAFT POSITION SENSOR)	Detects CKP sensor signal	With engine running: pulses With ignition switch ON (II): about 5.0 V
8	BRN/YEL	LG2 (LOGIC GROUND)	Ground circuit for ECM/PCM	Less than 1.0 V at all times
9	BRN/YEL	LG1 (LOGIC GROUND)	Ground circuit for ECM/PCM	Less than 1.0 V at all times

10	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: about 0 V
13	BRN	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
14	WHT/BLU	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
15	BLU/RED	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
16	YEL/GRN	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	
18	BLU	NC (COUNTERSHAFT SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V While driving: about 2.5 V
19	BLU/WHT	CMPA (CAMSHAFT POSITION SENSOR A)	Detects CMP sensor A signal	With engine running: pulses With ignition switch ON (II): about 5.0 V

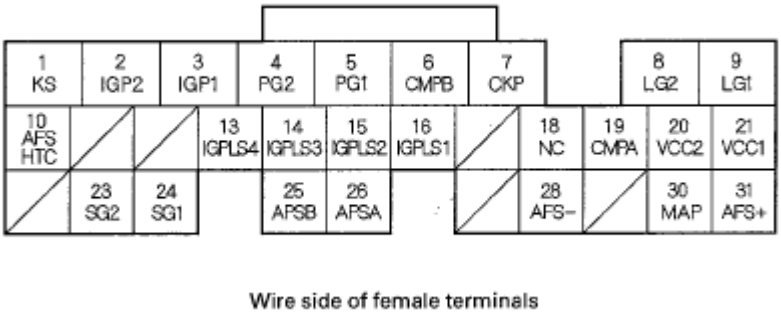


Fig. 21: Identifying ECM/PCM Connector A (31P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR A REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
20	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V With ignition switch OFF: about 0 V

21	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V With ignition switch OFF: about 0 V
23	GRN/BLK	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 Vat all times
24	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
25	RED/YEL	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.2 V
26	RED/BLU	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V
28	BLU	AFS- (AIR FUEL RATIO (A/F) SENSOR, SENSOR 1-SIDE)	Detects A/F sensor (sensor 1) signal	
30	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
31	RED	AFS+ (AIR FUEL RATIO (A/F) SENSOR, SENSOR 1 +SIDE)	Detects A/F sensor (sensor 1) signal	

ECM/PCM INPUTS AND OUTPUTS AT CONNECTOR B (24P)

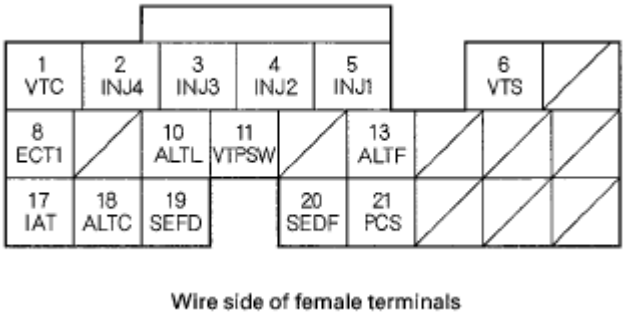


Fig. 22: Identifying ECM/PCM Connector B (24P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR B REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
1	BLU/WHT	VTC (VTC OIL CONTROL SOLENOID VALVE)	Drives VTC oil control solenoid valve	With ignition switch ON (II): about 0 V
2	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	At idle: duty controlled With ignition switch ON (II): battery voltage
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/YEL	VTS (ROCKER ARM OIL CONTROL SOLENOID)	Drives rocker arm oil control solenoid	At idle: about 0 V
8	RED/WHT	ECT1 (ENGINE COOLANT TEMPERATURE SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1- 4.8 V (depending on engine coolant temperature) With fully warmed up engine: about 0.5-0.7 V
10	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
11	BLU/BLK	VTPSW (ROCKER ARM OIL PRESSURE SWITCH)	Detects rocker arm oil pressure switch signal	At low engine speed: about 0 V At high engine speed: battery voltage
13	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 0-5.0 V (depending on electrical load)
17	RED/YEL	IAT (INTAKE AIR TEMPERATURE SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1-4.8 V (depending on intake air temperature)
18	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running: about 8.0 V
19	GRN	SEFD (THROTTLE ACTUATOR CONTROL SERIAL SIGNAL)	Sends throttle actuator control serial signal	
20	BLU	SEDF (THROTTLE ACTUATOR CONTROL SERIAL SIGNAL)	Detects throttle actuator control serial signal	
				With engine running, engine

21	YEL/GRN	PCS (EVAPORATIVE EMISSION CANISTER PURGE VALVE)	Drives EVAP canister purge valve	coolant below 131°F (55°C): battery voltage With engine running, engine coolant above 131°F (55°C): duty controlled

ECM/PCM INPUTS AND OUTPUTS AT CONNECTOR C (22P)

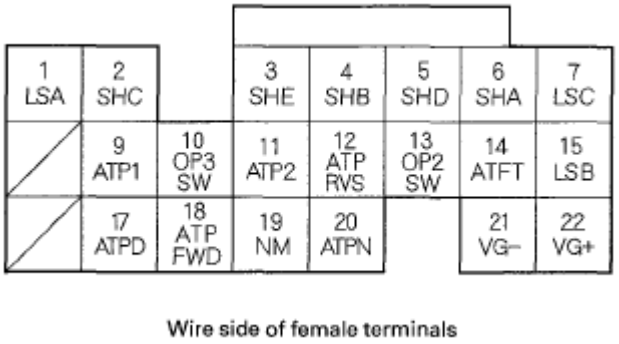


Fig. 23: Identifying ECM/PCM Connector C (22P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR C REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
1(1)	BLK/BLU	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): current control
2(1)	GRN	SHC (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	With engine running in N and 1 position, or in D position (in 1st, 3rd, and 5th gears): battery voltage With engine running in P, R, 2, or D position (in 2nd, 4th gears): about 0 V
3(1)	YEL	SHE (SHIFT SOLENOID VALVE E)	Drives shift solenoid valve E	With engine running in P, R position: battery voltage With engine running in N, D, 2, or 1 position: about 0V
4(1)	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in P, R, N, 2, and 1 position, or D position (in 1st, 2nd gears): battery voltage

				With engine running in D position (in 3rd, 4th, 5th gears):about 0 V
5(1)	GRN/RED	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in 2 or D position (in 2nd, 5th gears): battery voltage With engine running in P, R, N, 1 position, or D position (in 1st, 3rd, 4th gears): about 0V
6(1)	BLU/BLK	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in R and 1 position, or D position (in 1st, 4th, 5th gears): battery voltage With engine running in P, N and 2 position, or D position (in 2nd, 3rd gears): about 0 V
7(1)	BLU/YEL	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drivers A/T clutch pressure control solenoid valve C	With ignition switch ON (II): current control
9(1)	BRN	ATP1 (TRANSMISSION RANGE SWITCH 1 POSITION)	Detects transmission range switch 1 position signal input	In 1 position: about 0 V In any position other than 1 position: battery voltage
10(1)	BLU/WHT	OP3SW (3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 3rd clutch transmission fluid pressure switch signal input	With ignition switch ON (II): about 5.0 V With 3rd clutch pressure: 0 V
11(1)	BLU	ATP2 (TRANSMISSION RANGE SWITCH 2 POSITION)	Detects transmission range switch 2 position signal input	In 2 position: about 0V In any position other than 2 position: battery voltage
12(1)	RED/WHT	ATPRVS (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position signal input	In R position: about 0 V In any position other than R position: battery voltage

(1) A/T

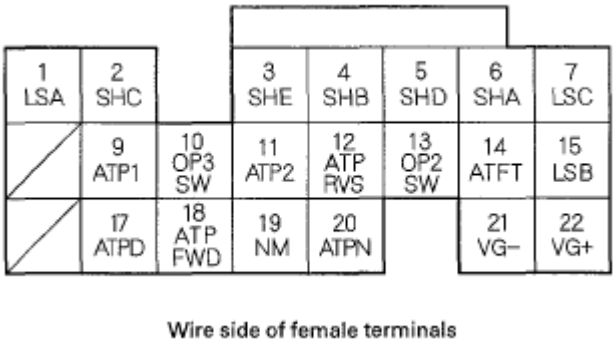


Fig. 24: Identifying ECM/PCM Connector C (22P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR C REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
13(1)	BLU/RED	OP2SW (2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 2nd clutch transmission fluid pressure switch signal input	With ignition switch ON (II): about 5.0 V With 2nd clutch pressure: 0 V
14(1)	RED/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature sensor signal input	With ignition switch ON (II): about 0.2-4.8 V (depending on ATF temperature)
15(1)	BRN/WHT	LSB (AH" CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With the ignition switch ON (II): current control
17(1)	YEL/GRN	ATPD (TRANSMISSION RANGE SWITCH D POSITION)	Detects transmission range switch D position signal	In D position: about 0 V In any position other than D position: battery voltage
18(1)	YEL/RED	ATPFWD (TRANSMISSION RANGE SWITCH D/2/1 POSITION)	Detects transmission range switch D, 2, or 1 position signal	In D, 2, or 1 position: about 0 V In P, R, N position: battery voltage
19(1)	WHT/RED	NM (MAINSHAFT SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V With engine running in N position: about 2.5 V
20(1)	RED/BLK	ATPN (TRANSMISSION RANGE SWITCH N POSITION)	Detects transmission range switch N position signal	In N position: about 0 V In any position other than N position: battery

				voltage
21	BLK/RED	VG- (MASS AIR FLOW) (MAF) SENSOR - SIDE)	Ground for MAF sensor signal	
22	RED/GRN	VG+ (MASS AIR FLOW) (MAF) SENSOR +SIDE)	Detects MAF sensor signal	At idle: about 1.1-1.6V (between VG+ terminal and VG- terminal)
(1) A/T				

ECM/PCM INPUTS AND OUTPUTS AT CONNECTOR D (17P)

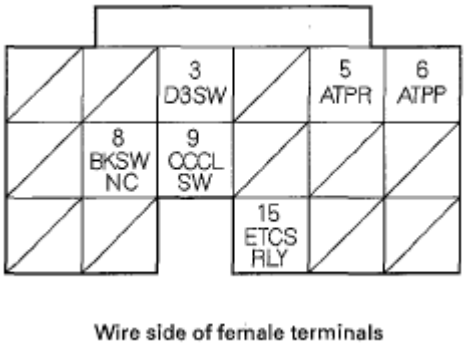


Fig. 25: Identifying ECM/PCM Connector D (17P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR D REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
3(1)	GRN	D3SW (D3 SWITCH)	Detects D3 switch signal	With ignition switch ON (II), D3 switch pushed: about 0 V With ignition switch ON (II), D3 switch released: battery voltage
5(1)	WHT	ATPR (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position signal	In R position: about 0 V In any position other than R position: battery voltage
6(1)	BLK/BLU	ATPP (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position signal	In P position: about 0 V In any position other than P position: battery voltage
				With ignition switch ON (II), brake pedal

8	BLU	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	released: battery voltage With ignition switch ON (II), brake pedal pressed: about 0 V
9(2)	YEL/GRN	CCCLSW (CRUISE CONTROL CLUTCH SWITCH)	Detects cruise clutch pedal position switch signal	With ignition switch ON (II) and clutch pedal released: about 0 V With ignition switch ON (II) and clutch pedal pressed: battery voltage
15	BRN	ETCSRLY (THROTTLE ACTUATOR CONTROL MODULE RELAY)	Drives throttle actuator control module relay	With ignition switch ON (II): about 0 V
(1) A/T (2) M/T				

ECM/PCM INPUTS AND OUTPUTS AT CONNECTOR E (31P)

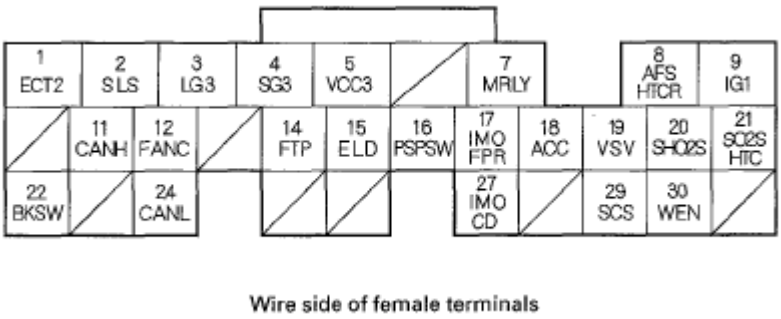


Fig. 26: Identifying ECM/PCM Connector E (31P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR E REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
1	GRN	ECT2 (ENGINE COOLANT TEMPERATURE SENSOR 2)	Detects ECT sensor 2 signal	With ignition switch ON (II): about 0.1- 4.9 V (depending on engine coolant temperature)
2(1)	WHT/BLU	SLS (SHIFT LOCK SOLENOID)	Drives shift lock solenoid	With ignition switch ON (II), in P position, brake pedal pressed, and accelerator released: about 0 V

3	BRN/YEL	LG3 (LOGIC GROUND)	Ground for ECM/PCM control circuit	Less than 1.0 V at all times
4	WHT/GRN	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 5.0 V With ignition switch OFF: about 0 V
7	RED/YEL	MRLY (PGM-FI MAIN RELAY)	Drives PGM-FI main relay 1 (Fl MAIN) Power source for 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 A/F sensor heater relay	With ignition switch ON (II): about 0 V
9	BLK/YEL	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
11	WHT	CANH (CAN COMMUNICATION SIGNAL HIGH)	Sends communication signal	With ignition switch ON (II): pulses
12	GRN/WHT	FANC (RADIATOR FAN CONTROL)	Drives radiator fan relay	With radiator fan running: about 0 V With radiator fan stopped: battery voltage
14	LT GRN	FTP (FUEL TANK PRESSURE (FTP) SENSOR)	Detects FTP sensor signal	With ignition switch ON (II) and fuel fill cap removed: about 2.5 V
15	GRN/BLK	ELD (ELECTRICAL LOAD DETECTOR)	Detects ELD signal	With ignition switch ON (II): about 0.1-4.8 V (depending on electrical load)
16	LT GRN/BLK	PSPSW (POWER STEERING PRESSURE SWITCH SIGNAL)	Detects PSP switch signal	At idle with steering wheel straight ahead: about 0 V At idle with steering wheel at full lock: battery voltage
17	GRN/YEL	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2 (FUEL PUMP)	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
				With compressor ON:

18	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	about 0 V With compressor OFF: battery voltage
19	LT GRN/RED	VSV (EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
(1) A/T				

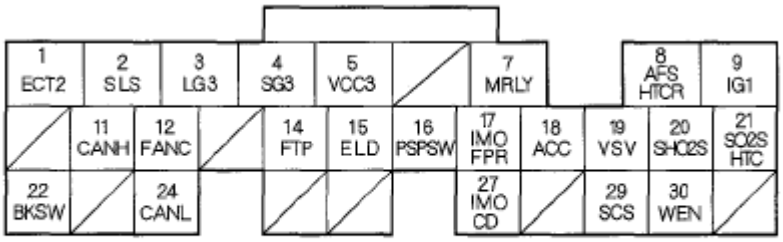


Fig. 27: Identifying ECM/PCM Connector E (31P)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Standard battery voltage is about 12 V.

ECM/PCM CONNECTOR E REFERENCE

Terminal number	Wire color	Terminal name	Description	Signal
20	WHT/RED	SHO2S (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S), SENSOR 2)	Detects secondary HO2S (sensor 2) signal	With throttle fully closed at idle and fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
21	GRN/RED	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
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
24	RED	CANL (CAN COMMUNICATION SIGNAL LOW)	Sends communication signal	With ignition switch ON (II): pulses
27	WHT	IMOCD (IMMOBILIZER CODE)	Detects immobilizer signal	

29	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With service check signal shorted using HDS: about 0 V With service check signal open: about 5.0 V
30	RED/WHT	WEN (WRITE ENABLE SIGNAL)	Detects write enable signal	With ignition switch ON (II): about 0 V

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

Air Fuel Ratio (A/F) Sensor

The A/F sensor operates over a wide air/fuel range. The A/F sensor is installed upstream of the three way catalytic converter (TWO. It sends signals to the ECM/PCM which varies the duration of fuel injection accordingly.

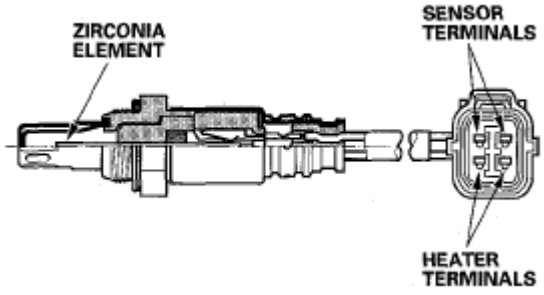


Fig. 28: Sectional View Of Air Fuel Ratio (A/F) Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Barometric Pressure (BARO) Sensor

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

Camshaft Position (CMP) Sensor B

CMP sensor B detects the position of the No. 1 cylinder as a reference for sequential fuel injection to each cylinder.

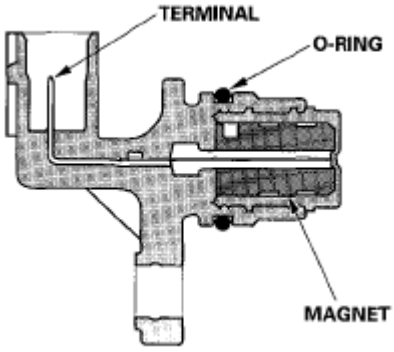


Fig. 29: Sectional View Of Camshaft Position (CMP) Sensor B
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Crankshaft Position (CKP) Sensor

The CKP sensor detects crankshaft speed and is used by the ECM/PCM to determine ignition timing and timing for fuel injection of each cylinder as well as detecting engine misfire.

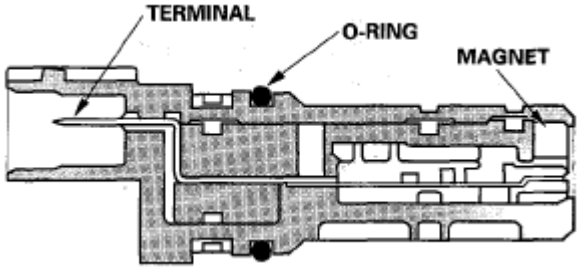


Fig. 30: Sectional View Of Crankshaft Position (CKP) Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Engine Coolant Temperature (ECT) Sensors 1 and 2

ECT sensors 1 and 2 are temperature dependent resistors (thermistors). The resistance decreases as the engine coolant temperature increases.

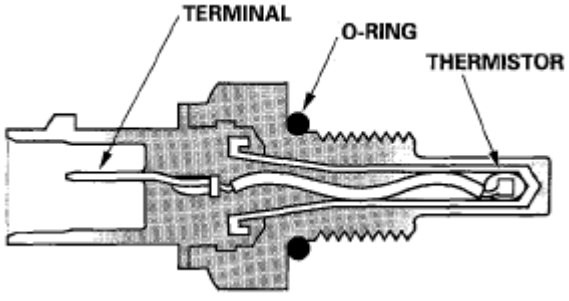


Fig. 31: Sectional View Of Engine Coolant Temperature (ECT) Sensors 1 And 2
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Ignition Timing Control

The ECM/PCM contains the memory for basic ignition timing at various engine speeds and manifold absolute pressures. It also adjusts the timing according to engine coolant temperature and intake air temperature.

Injector Timing and Duration

The ECM/PCM 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/PCM detects long term malfunctions in the fuel system and sets a diagnostic trouble code (DTC).

Knock Sensor

The knock sensor adjusts the ignition timing to minimize knock.

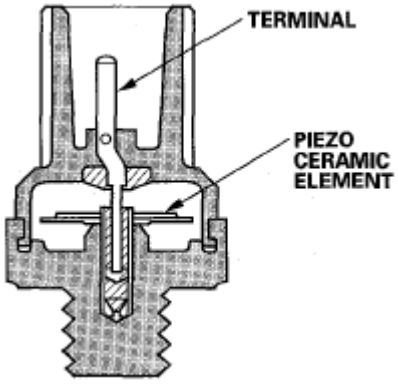


Fig. 32: Sectional View Of Knock Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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/PCM has been reset, these codes are reset. 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, or 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 complete. If it flashes five times, one or more readiness codes are not complete. To set each code, drive the vehicle or run the engine as described in the procedures (see **HOW TO SET READINESS CODES**).

Manifold Absolute Pressure (MAP) Sensor

The MAP sensor converts manifold absolute pressure into electrical signals to the ECM/PCM.

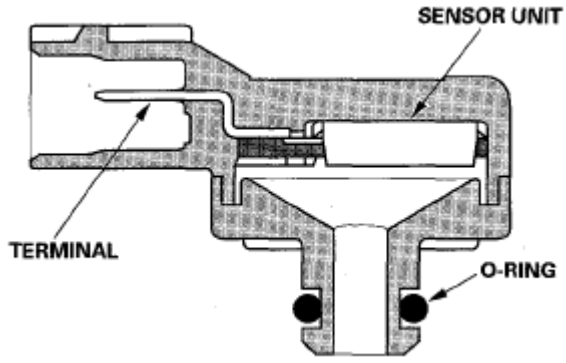


Fig. 33: Sectional View Of Manifold Absolute Pressure (MAP) Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Mass Air Flow (MAF) Sensor/Intake Air Temperature (IAT) Sensor

The mass airflow (MAF) sensor/intake air temperature (IAT) sensor contains a hot wire and a thermistor. It is located in the intake air passage. The resistance of the hot wire and thermistor change due to intake air temperature and air flow. The control circuit in the MAF sensor controls the current to keep the hot wire at a set temperature. The current is converted to voltage in the control circuit, then output to the ECM/PCM.

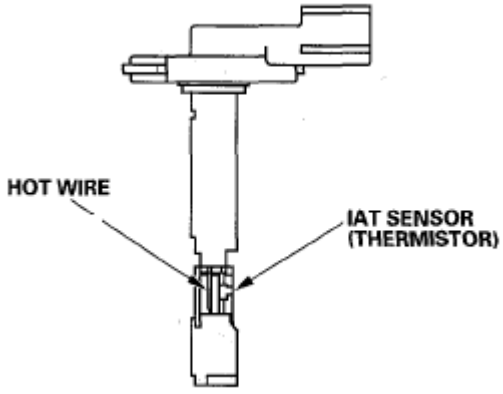


Fig. 34: Sectional View Of Mass Air Flow (MAF) Sensor/Intake Air Temperature (IAT) Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Output Shaft (Countershaft) Speed Sensor

This sensor detects output shaft (countershaft) speed.

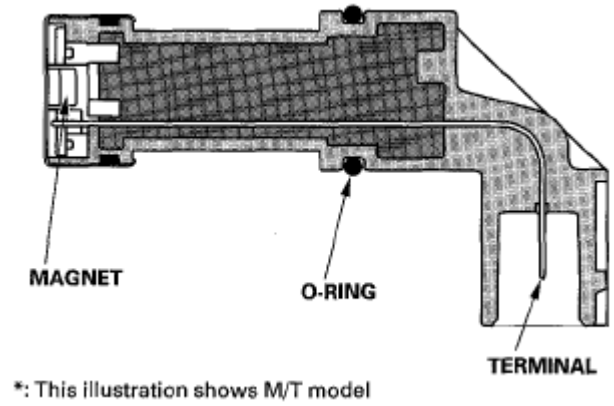


Fig. 35: Sectional View Of Output Shaft (Countershaft) Speed Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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/PCM which varies the duration of fuel injection accordingly. To stabilize its output, the sensor has an internal heater. The ECM/PCM compares the HO2S output with the A/F sensor output to determine catalyst efficiency. The secondary HO2S is located on the TWC.

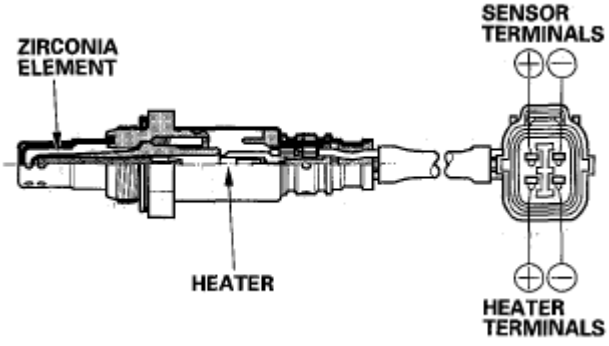


Fig. 36: Sectional View Of Secondary Heated Oxygen Sensor (Secondary HO2S)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

ELECTRONIC THROTTLE CONTROL SYSTEM

The throttle is electronically controlled by the electronic throttle control system. Refer to the **SYSTEM DIAGRAM** to see a functional layout of the system.

Idle control: When the engine is idling, the ECM/PCM controls the throttle actuator to maintain the proper idle speed according to engine loads.

Acceleration control: When the accelerator pedal is pressed, the ECM/PCM opens the throttle valve depending on the accelerator pedal position (APP) sensor signal.

Cruise control: The ECM/PCM controls the throttle actuator to maintain set speed when the cruise control is operating. The throttle actuator takes the place of the cruise control actuator.

Accelerator Pedal Position (APP) Sensor

As the accelerator pedal position changes, the sensor varies the signal voltage to the ECM/PCM.

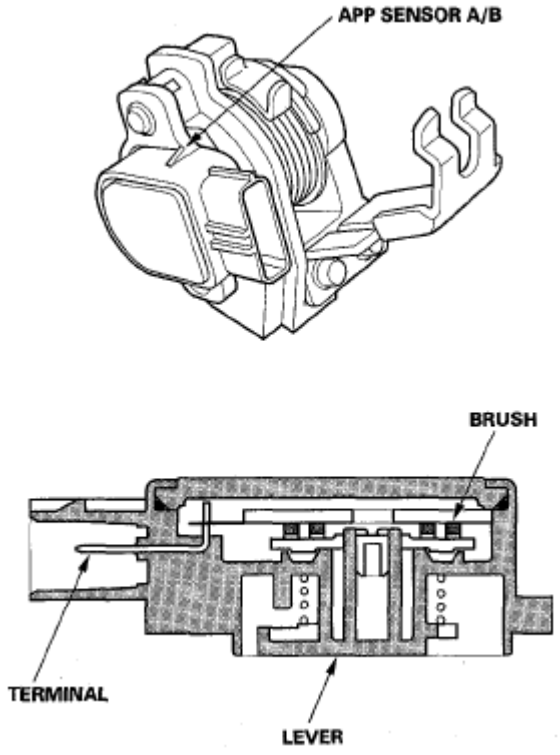


Fig. 37: Sectional View Of Accelerator Pedal Position (APP) Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Throttle Body

The throttle body is a single-barrel side draft type. The lower portion of the throttle valve is heated by engine coolant from the cylinder head to prevent icing of the throttle plate.

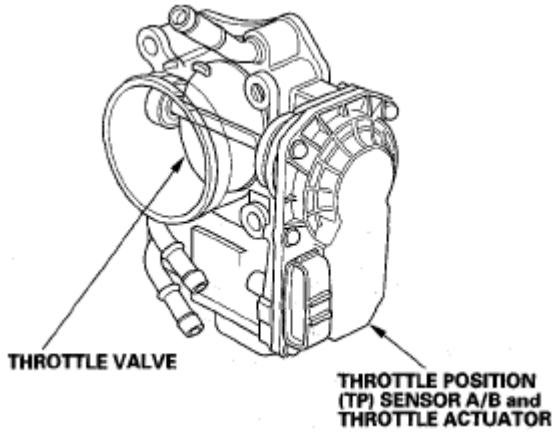


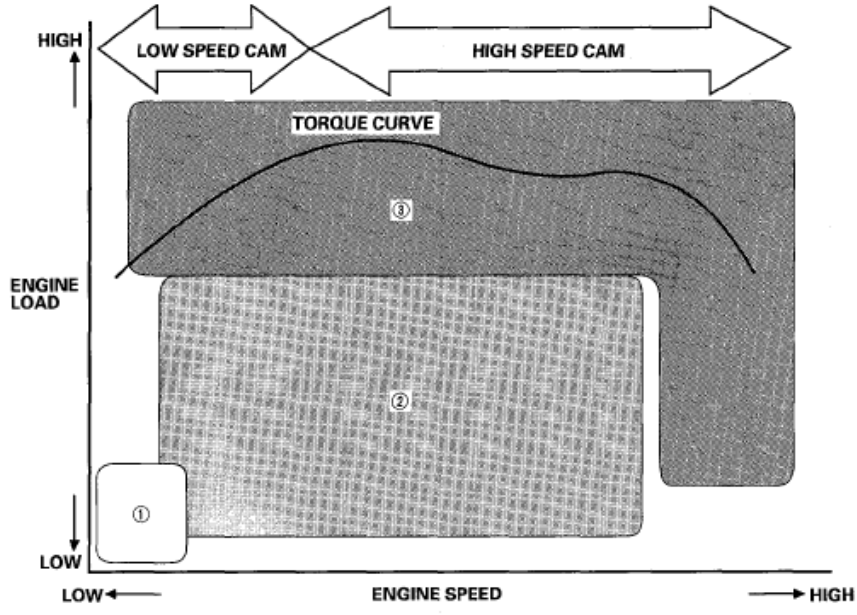
Fig. 38: Identifying Throttle Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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.
② Medium/high-load	Advance Control	To reduce 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.

Fig. 39: Driving Condition Graph
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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 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.
- The system reduces the cam advance at idle, stabilizes 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.

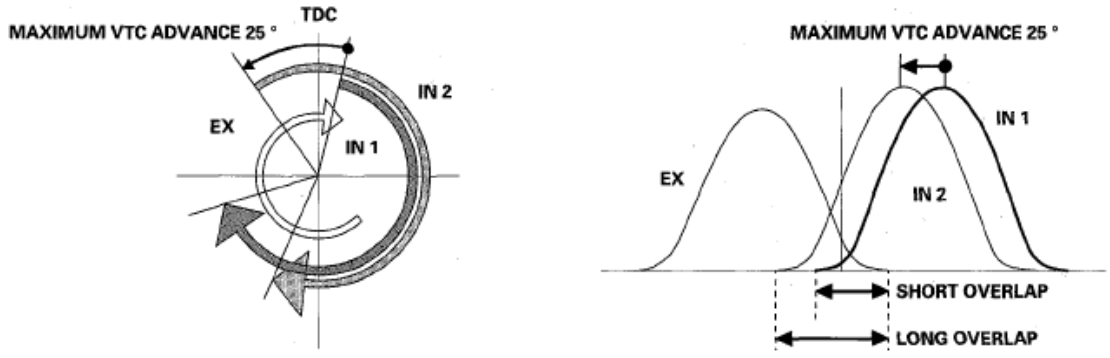


Fig. 40: VTC System Waveform Graph
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VTEC System

- The VTEC system changes the cam profile to correspond to the 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.

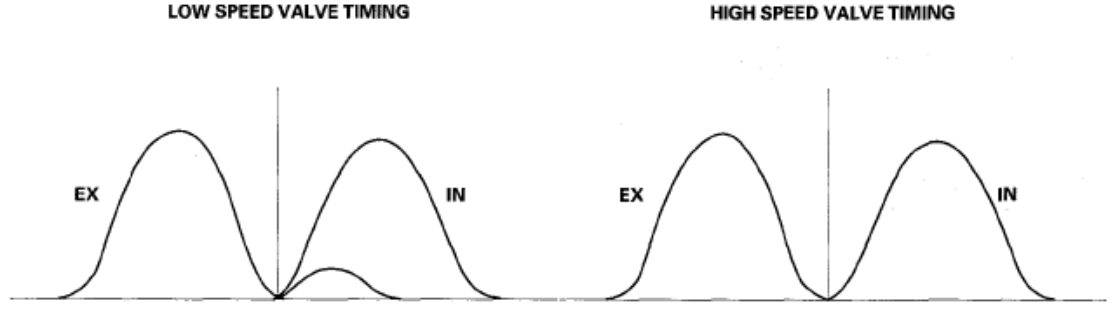


Fig. 41: VTEC System Waveform Graph
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VTEC/VTC

System Diagram

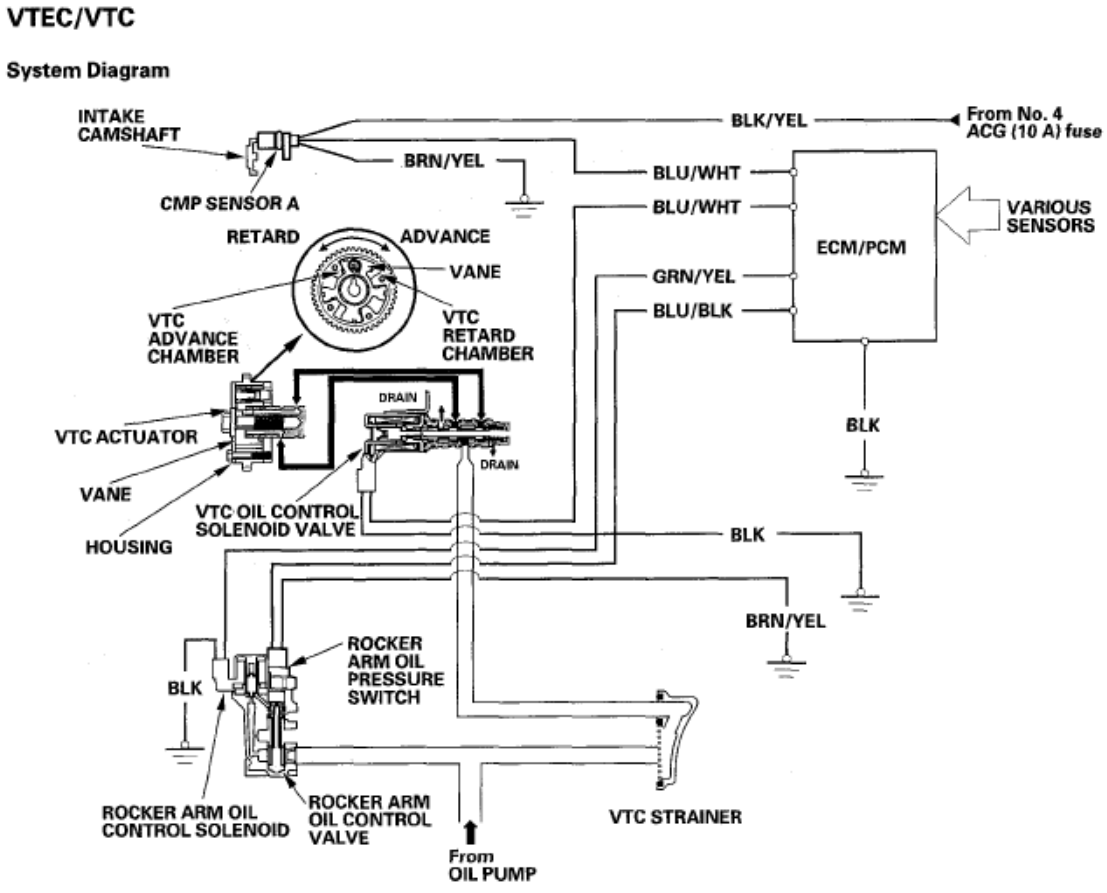


Fig. 42: VTEC/VTC System Diagram
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Camshaft Position (CMP) Sensor A

This sensor detects camshaft angle position for the VTC system.

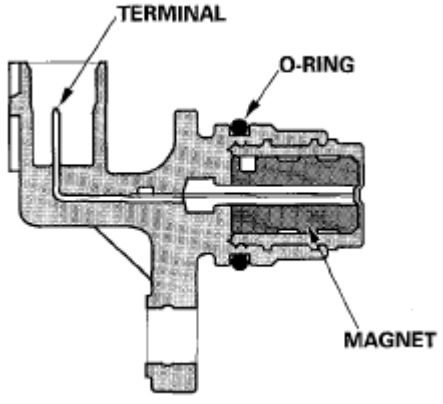


Fig. 43: Sectional View Of Camshaft Position (CMP) Sensor A
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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/PCM controls the throttle position to maintain the correct idle speed. Refer to the **SYSTEM DIAGRAM** to see a functional layout of the system.

Brake Pedal Position Switch

The brake pedal position switch signals the ECM/PCM when the brake pedal is pressed.

Power Steering Pressure (PSP) Switch

The PSP switch signals the ECM/PCM when the power steering load is high.

FUEL SUPPLY SYSTEM

Fuel Cutoff Control

During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 1,000 rpm. Fuel cutoff control also occurs when the engine speed exceeds 6,700 rpm, regardless of the position of the throttle valve, to protect the engine from over-revving. When the vehicle is stopped, the ECM/PCM cuts the fuel at engine speeds over 5,000 rpm (M/T: 6,700 rpm). Fuel cutoff rpm is lower on a cold engine.

Fuel Pump Control

When the ignition is turned on, the ECM/PCM grounds PGM-FI main relay 2 (FUEL PUMP) which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM/PCM grounds PGM-FI main relay 2 (FUEL PUMP) and feeds current to the fuel pump. When the engine is not running and the ignition is on, the ECM/PCM cuts ground to PGM-FI main relay 2 (FUEL PUMP) which cuts current to the fuel pump.

PGM-FI Main Relay land 2

PGM-FI main relay 1 (Fl MAIN) is energized whenever the ignition switch is ON (II) to supply battery voltage to the ECM/PCM, power to the injectors, and power for PGM-FI main relay 2 (FUEL PUMP). PGM-FI main relay 2 (FUEL PUMP) 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 cranking or running.

INTAKE AIR SYSTEM

The system supplies air for engine needs.

Intake Air Bypass Control Thermal Valve

When the engine is cold, the intake air bypass control thermal valve sends air to the injector.

The amount of air is regulated by engine coolant temperature. Once the engine is hot, the intake air bypass

control thermal valve closes, stopping air to the injector.

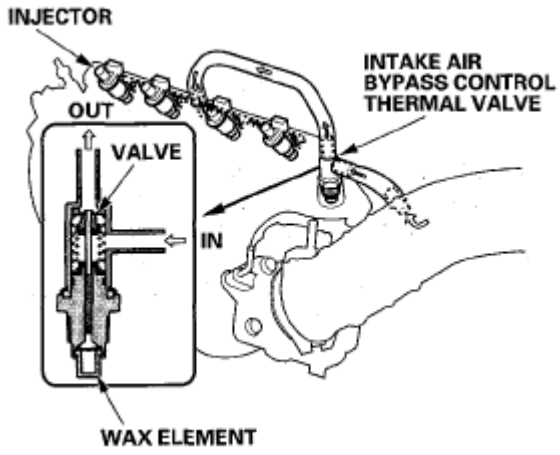


Fig. 44: Identifying Intake Air Bypass Control Thermal Valve
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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 (CO_2), nitrogen (N_2), and water vapor.

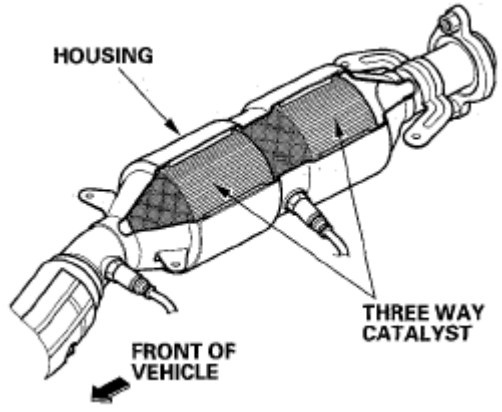


Fig. 45: Identifying Three Way Catalytic Converter (TWC)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Positive Crankcase Ventilation (PCV) System

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

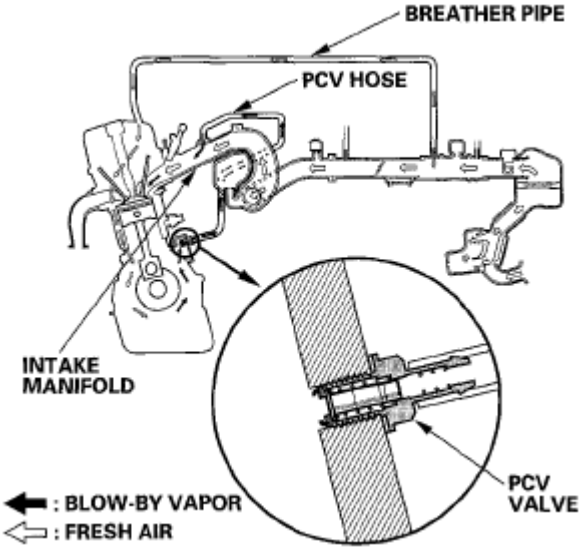


Fig. 46: Identifying Positive Crankcase Ventilation (PCV) System
Courtesy of AMERICAN HONDA MOTOR CO., INC.

EVAPORATIVE EMISSION (EVAP) CONTROL SYSTEM

Refer to the **SYSTEM DIAGRAM** to see a functional layout of the system.

EVAP Canister

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

EVAP Canister Purge Valve

When the engine coolant temperature is below 131°F (55°C), the ECM/PCM 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/PCM.

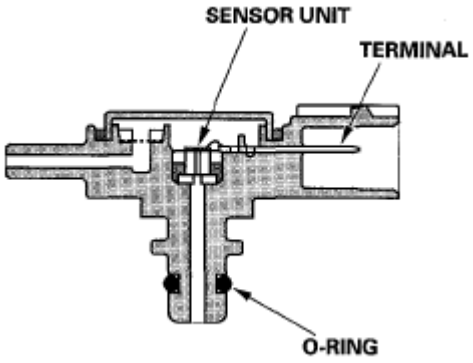


Fig. 47: Identifying Fuel Tank Pressure (FTP) Sensor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

EVAP Canister Vent Shut Valve

The EVAP canister vent shut valve is on the EVAP canister.

This valve controls the venting of the EVAP canister.

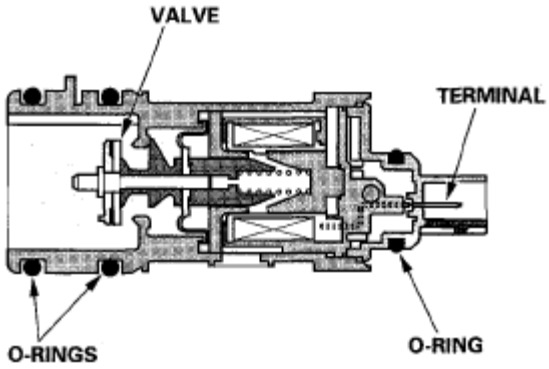


Fig. 48: Identifying EVAP Canister Vent Shut Valve
Courtesy of AMERICAN HONDA MOTOR CO., INC.

FUEL CAP WARNING MESSAGE

The ECM/PCM will detect a loose or missing fuel fill cap as an evaporative system leak and alerts the driver by showing a warning message in the odo/trip meter display.

First drive cycle

The first time a leak is detected a "CHECK FUEL CAP" message in the odo/trip meter display (A). To scroll to another message, press the select/reset button. The "CHECK FUEL CAP" message will appear each time you restart the engine unit the system turns the message off. Turn the engine off, then replace or tighten the fuel fill cap until it clicks at least once. The message should go off after several days of normal driving after the fuel fill cap has been tightened or replaced.

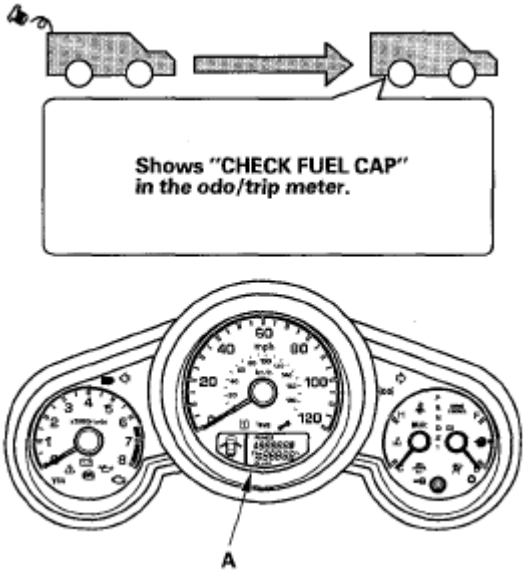


Fig. 49: Identifying Odo/Trip Meter Display
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TO MAKE THE MESSAGE GO OFF (WITH THE HDS)

Procedure

1. Tighten the fuel fill cap until it clicks.
2. Clear the Temporary DTC with the HDS.
3. Verify there is no leak by doing the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

TO MAKE THE MESSAGE GO OFF (WITHOUT THE HDS)

Procedure

1. Tighten the fuel fill cap until it clicks.
2. Turn the ignition switch ON (II), then turn the ignition switch OFF.
3. Do this procedure three times in all.

ELECTRONIC THROTTLE CONTROL SYSTEM DIAGRAM

The electronic throttle control system consists of the throttle actuator, throttle position (TP) sensor A/B, accelerator pedal position (APP) sensor A/B, throttle actuator control module, throttle actuator control module relay, and the ECM/PCM.

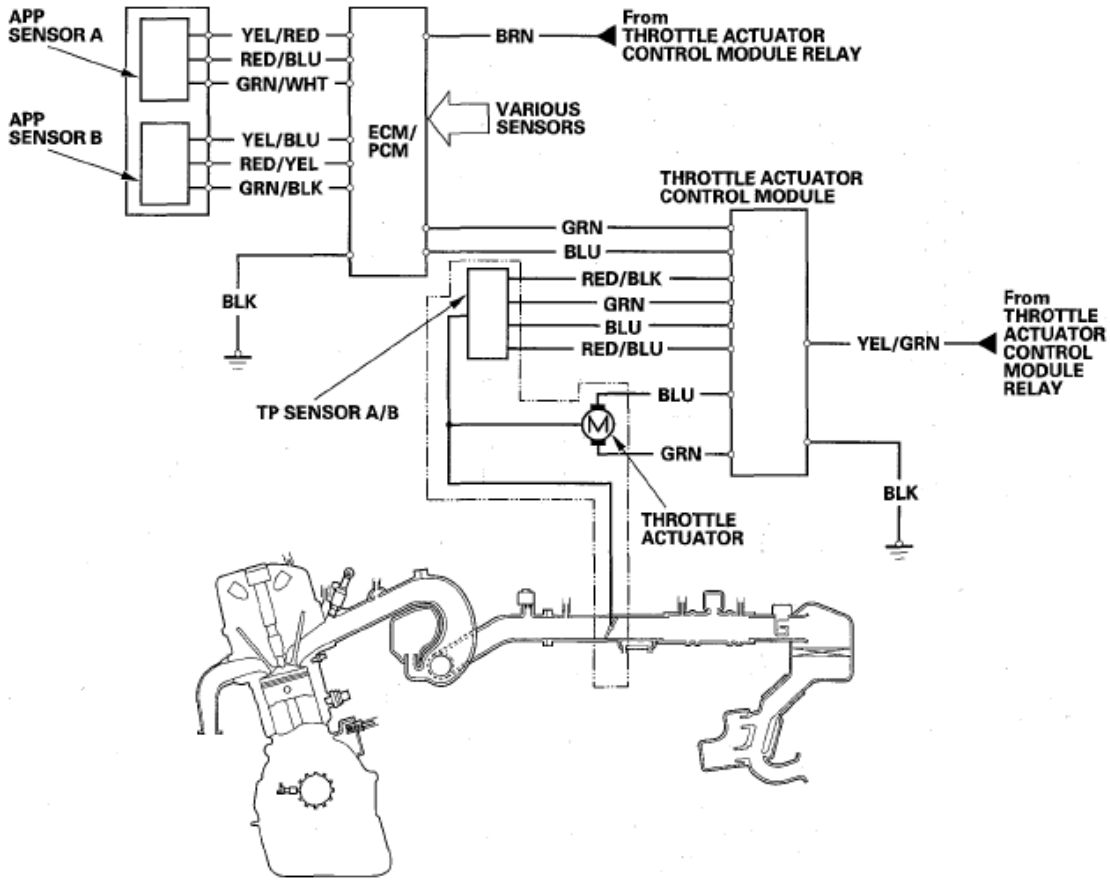


Fig. 50: Electronic Throttle Control System Diagram
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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 the engine coolant temperature is above 131°F (55°C).

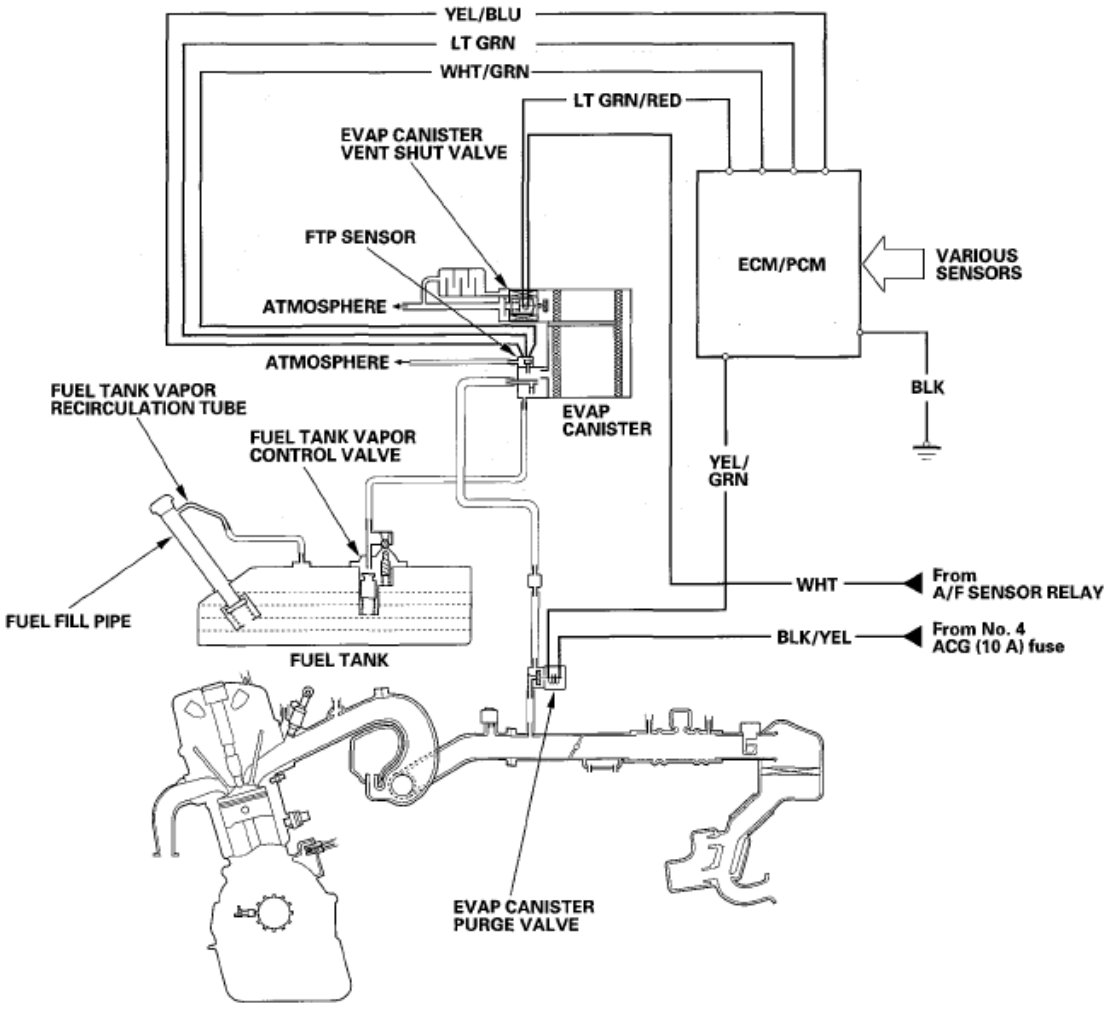


Fig. 51: Evaporative Emission (EVAP) Control Diagram
Courtesy of AMERICAN HONDA MOTOR CO., INC.

ECM/PCM Circuit Diagram

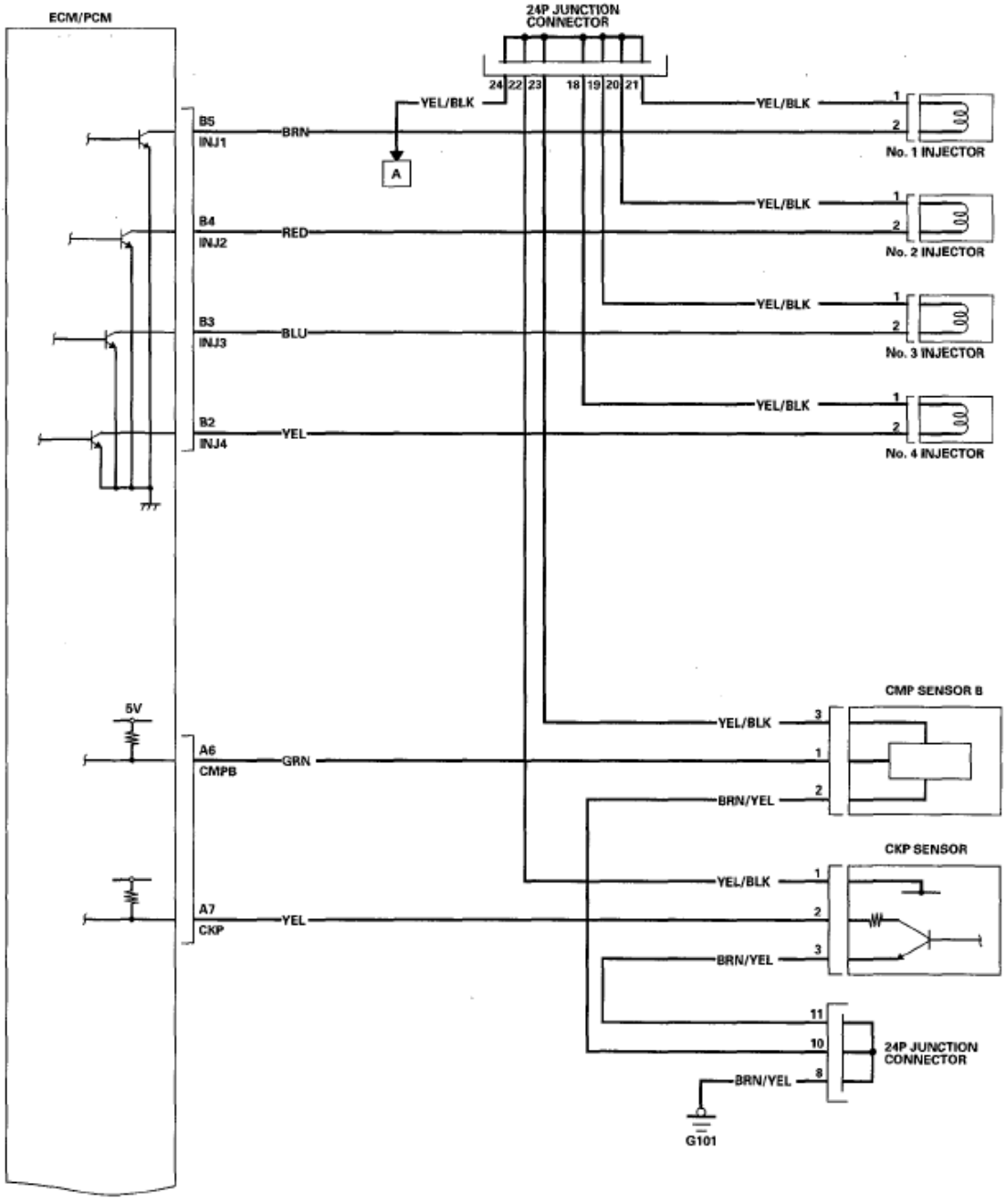


Fig. 52: ECM/PCM Circuit Diagram (1 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

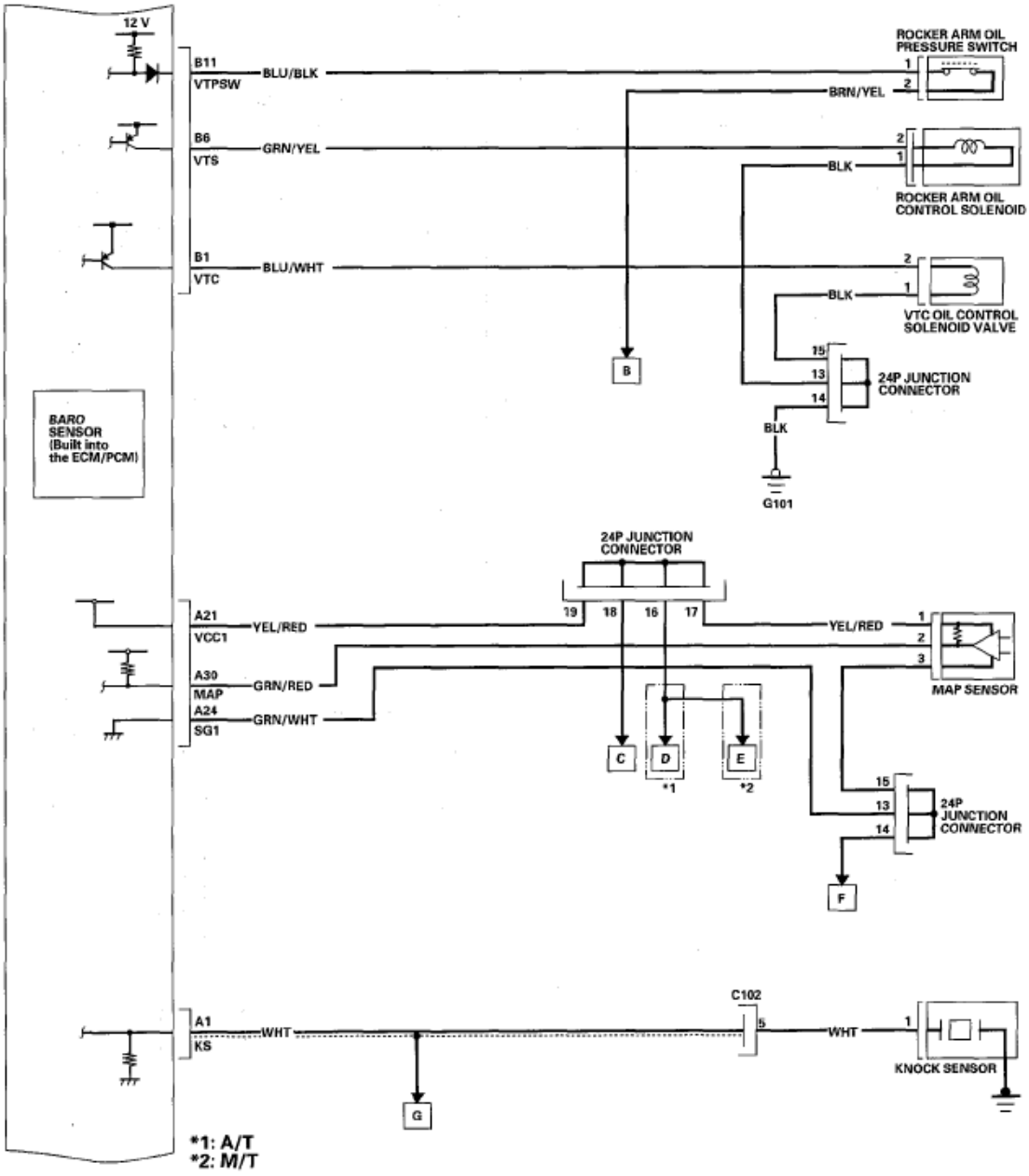


Fig. 53: ECM/PCM Circuit Diagram (2 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

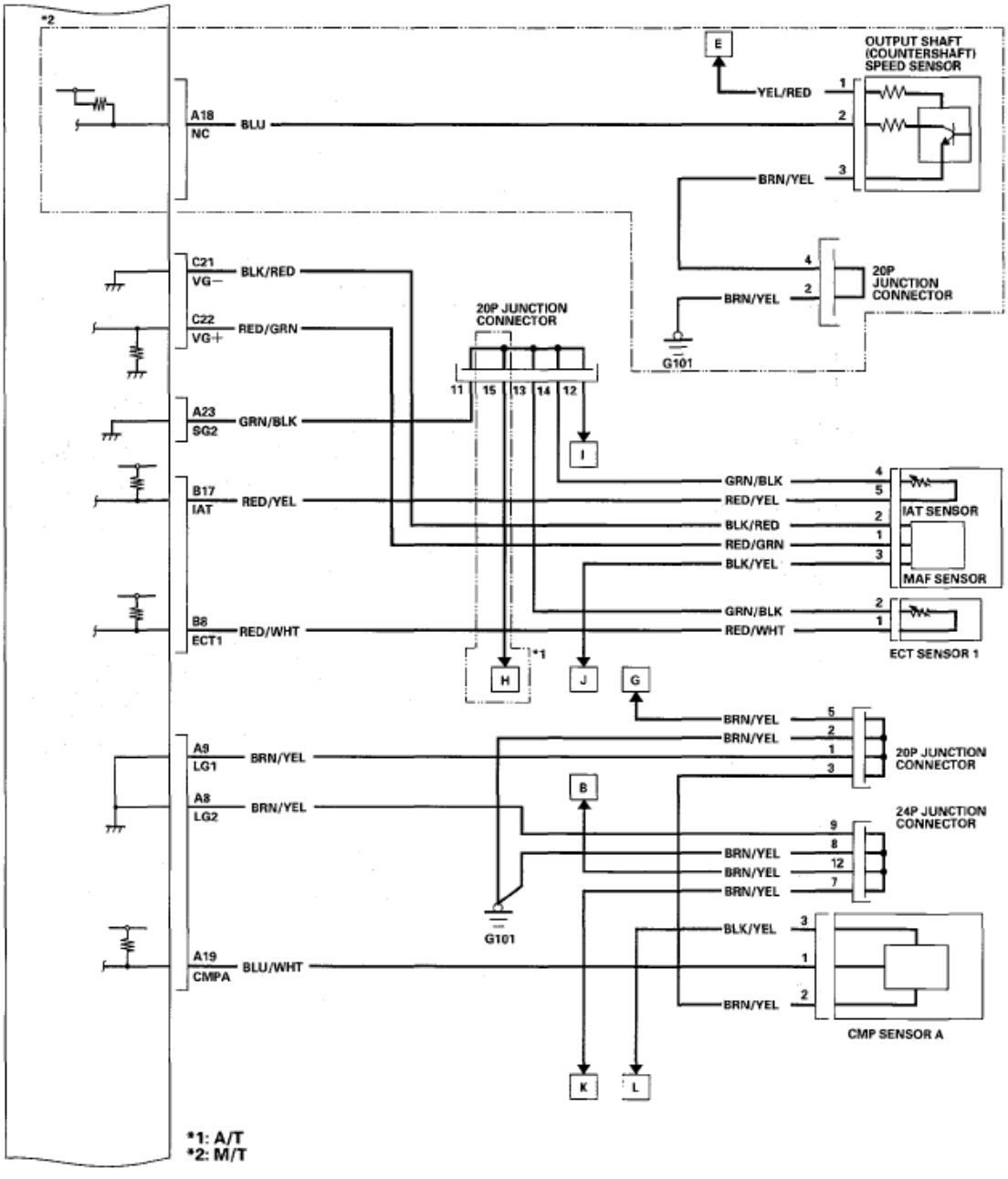


Fig. 54: ECM/PCM Circuit Diagram (3 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

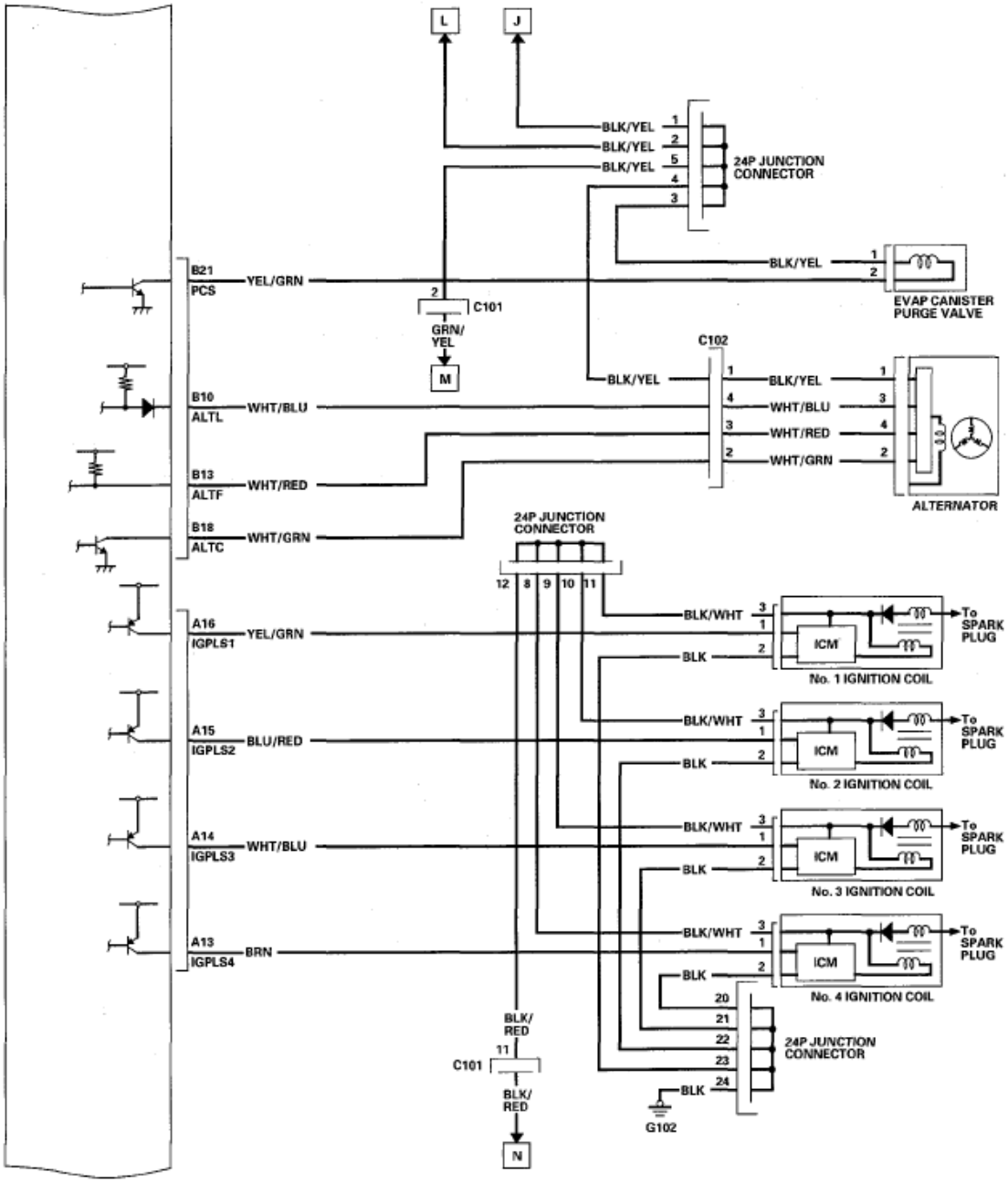


Fig. 55: ECM/PCM Circuit Diagram (4 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

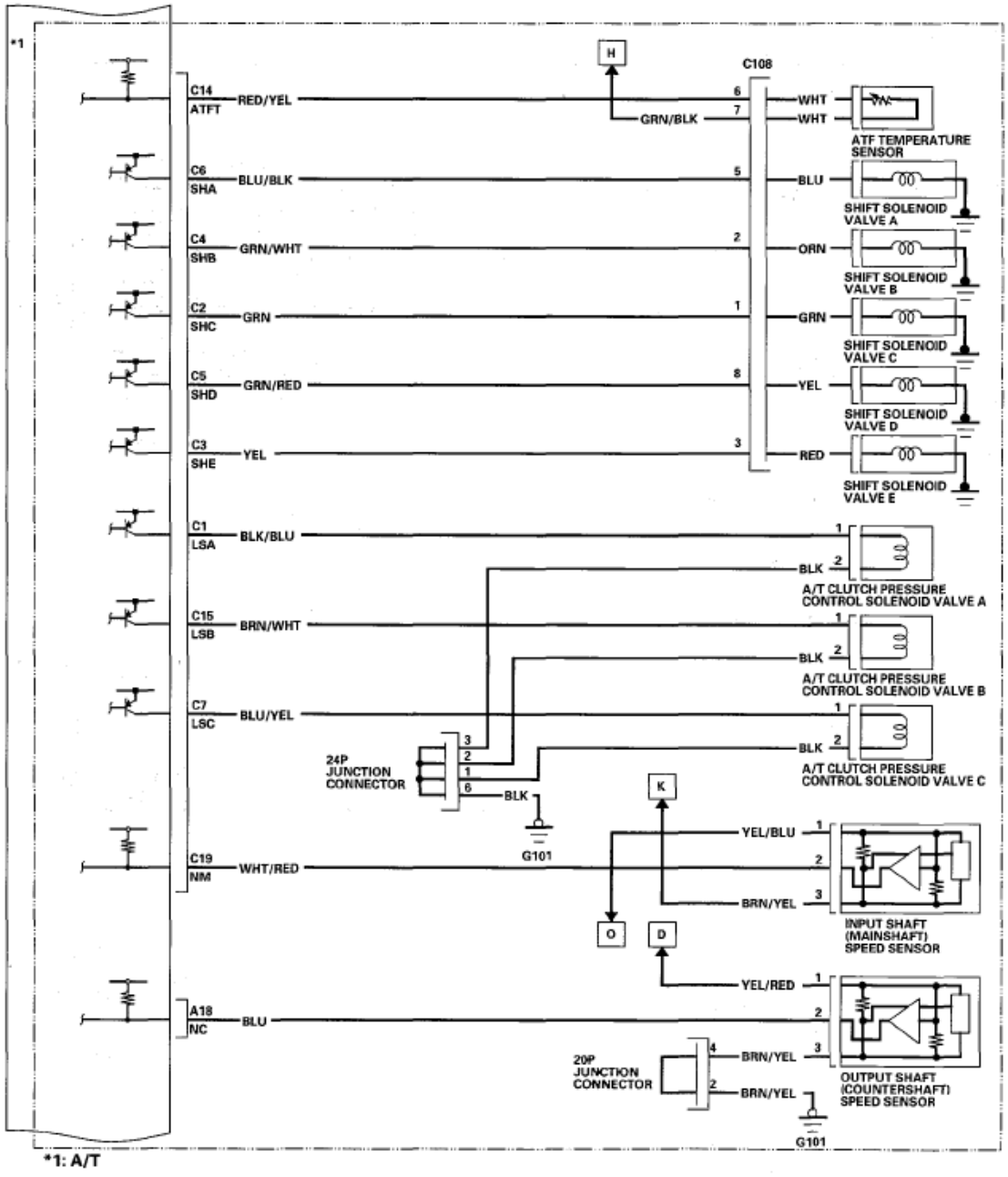


Fig. 56: ECM/PCM Circuit Diagram (5 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

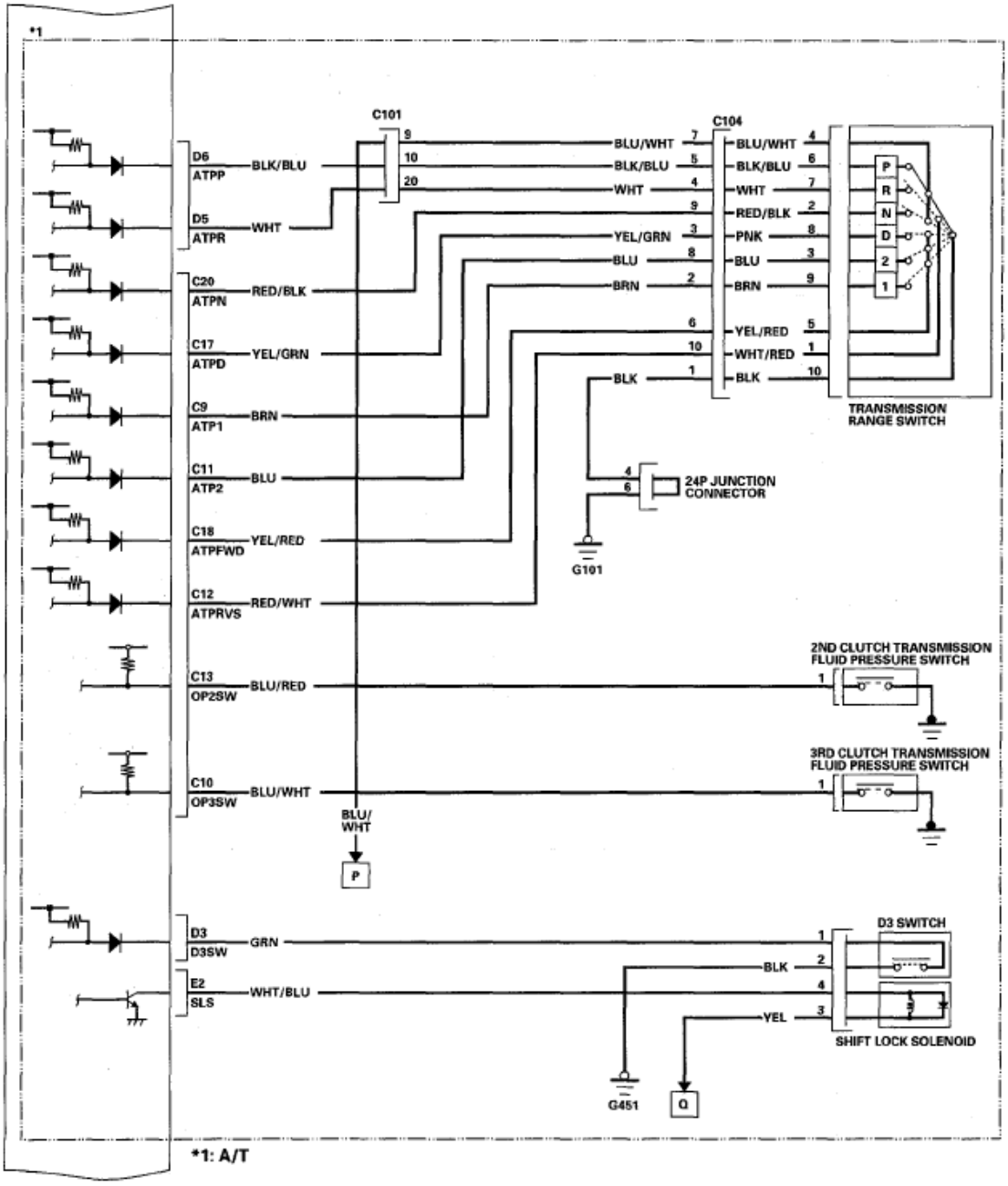


Fig. 57: ECM/PCM Circuit Diagram (6 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

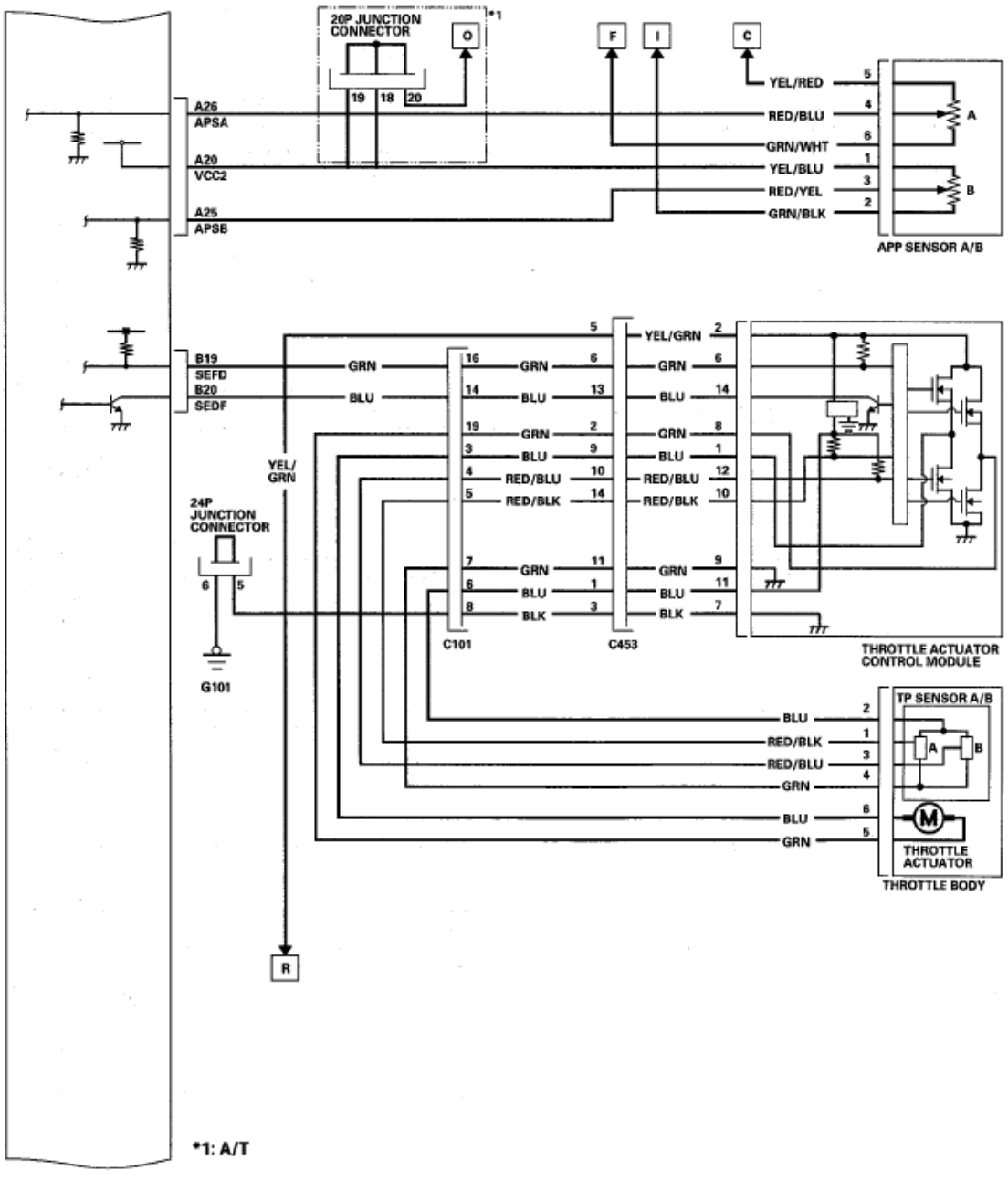


Fig. 58: ECM/PCM Circuit Diagram (7 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

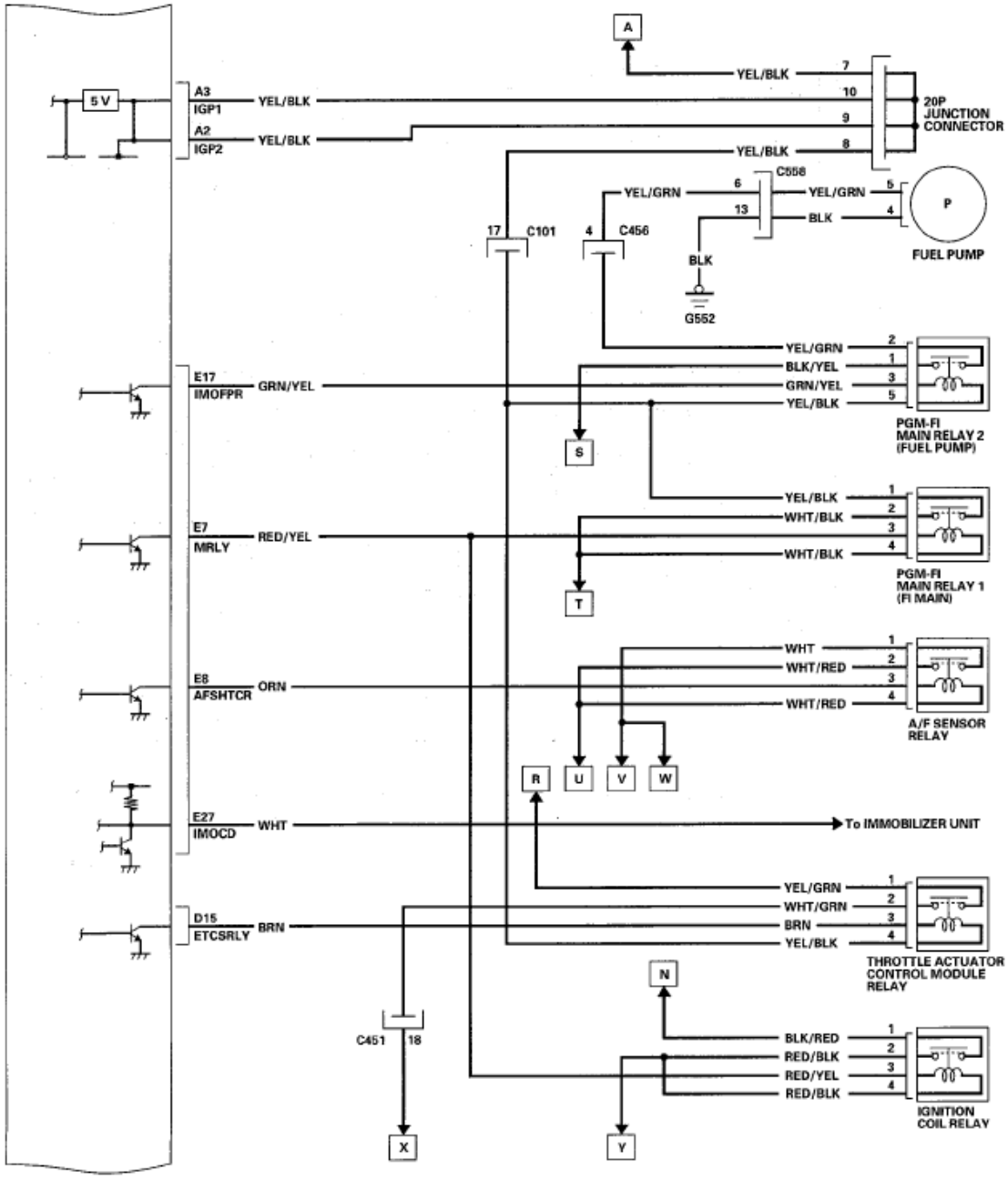


Fig. 59: ECM/PCM Circuit Diagram (8 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

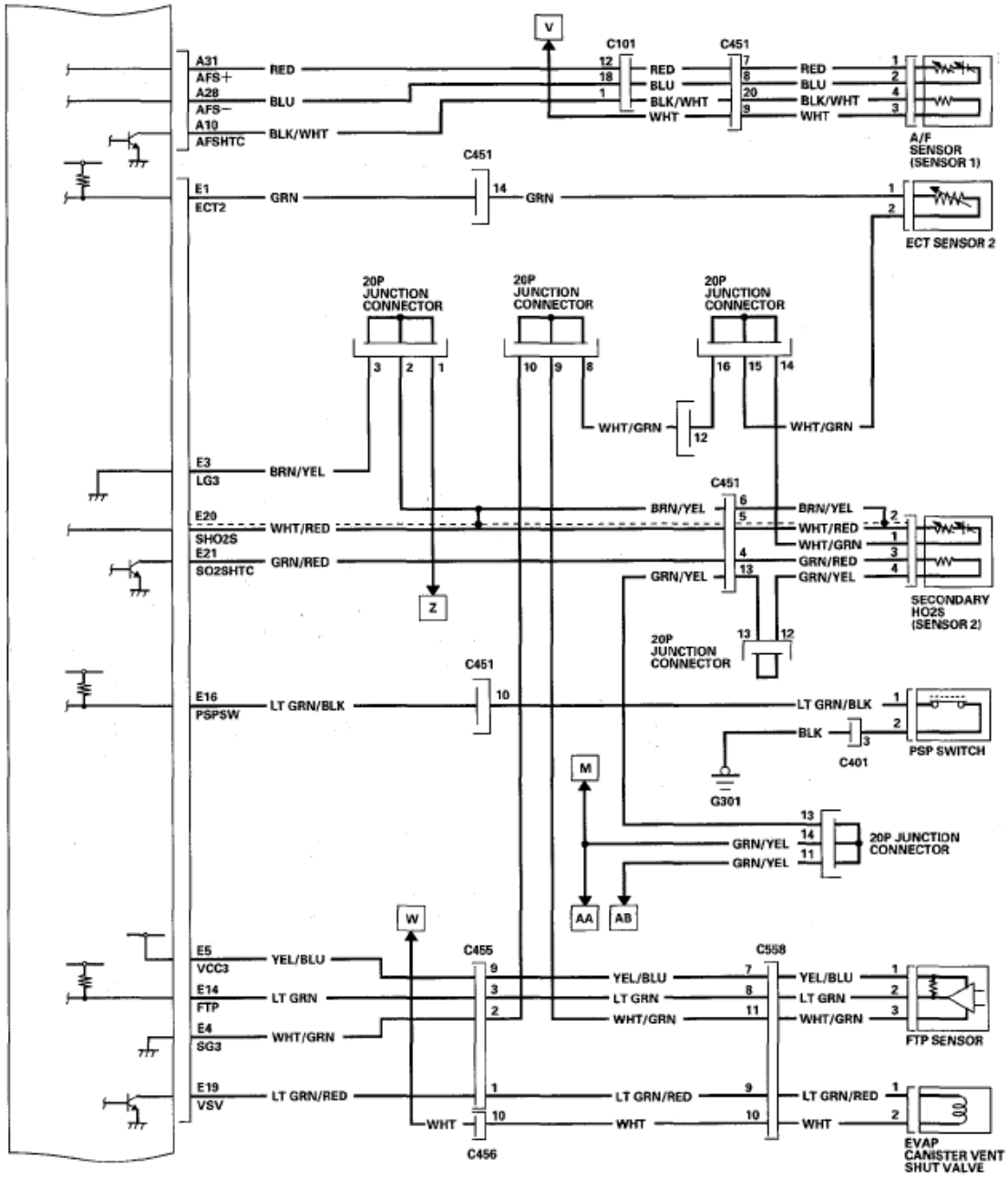


Fig. 60: ECM/PCM Circuit Diagram (9 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

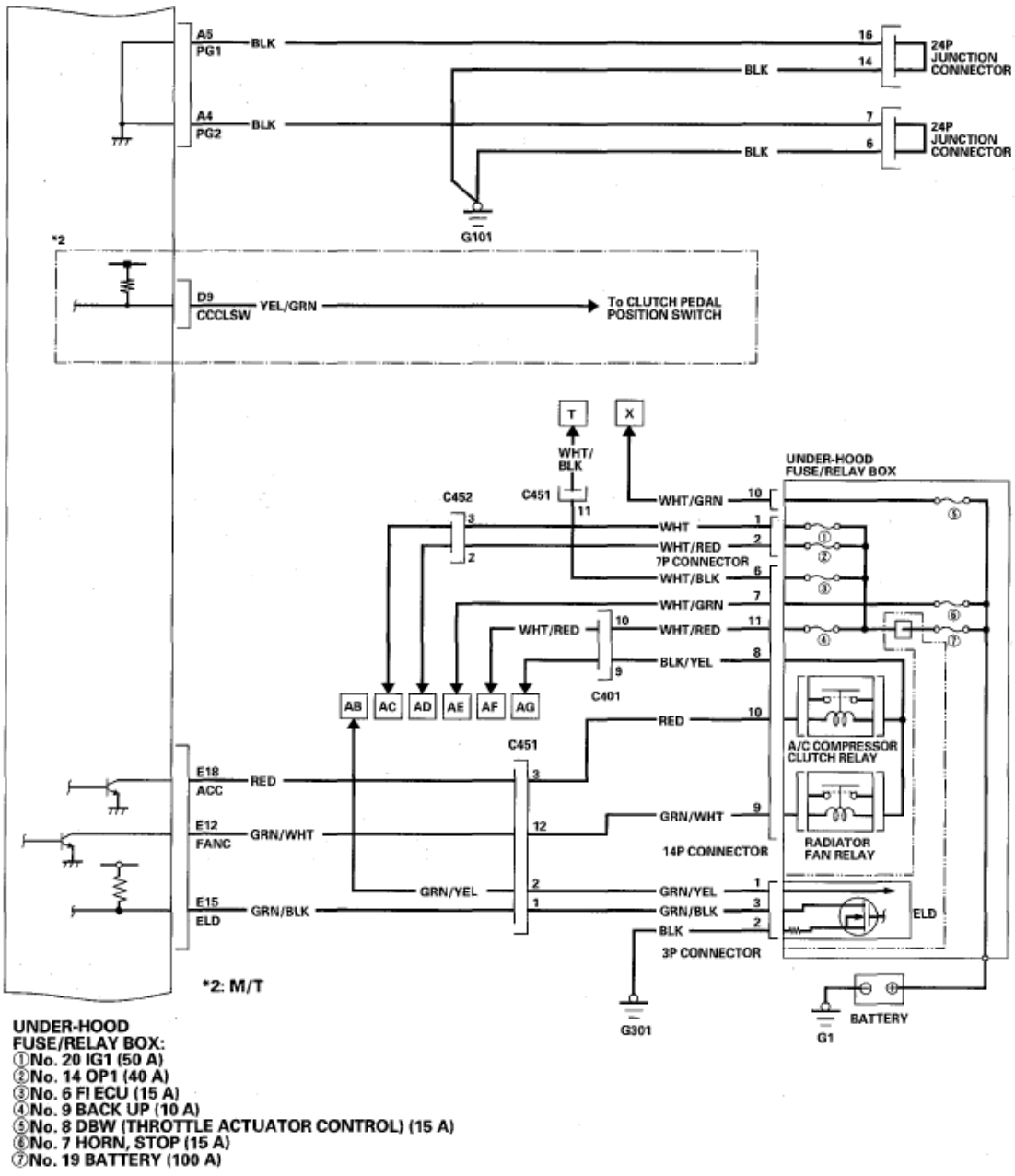


Fig. 61: ECM/PCM Circuit Diagram (10 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

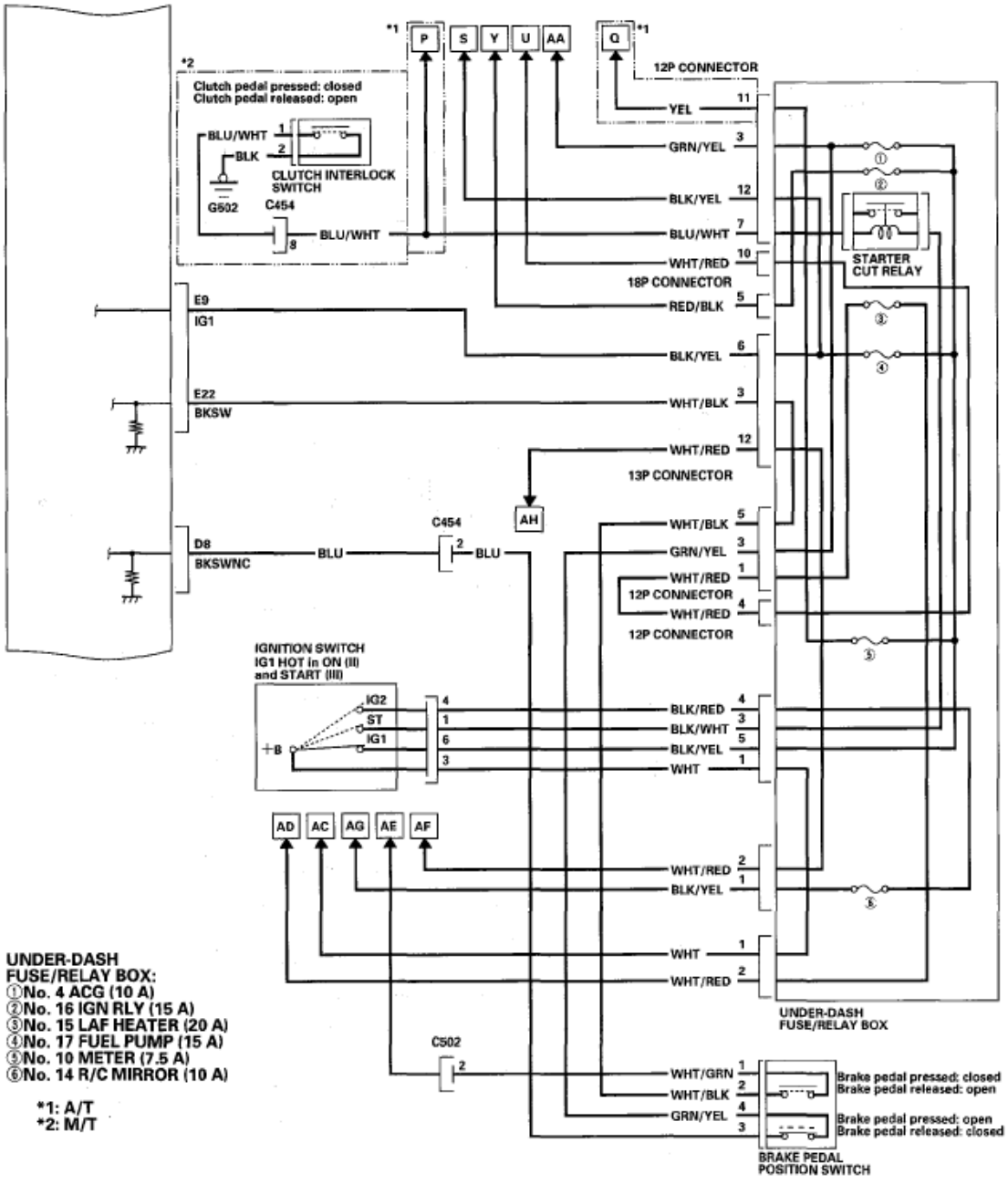


Fig. 62: ECM/PCM Circuit Diagram (11 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

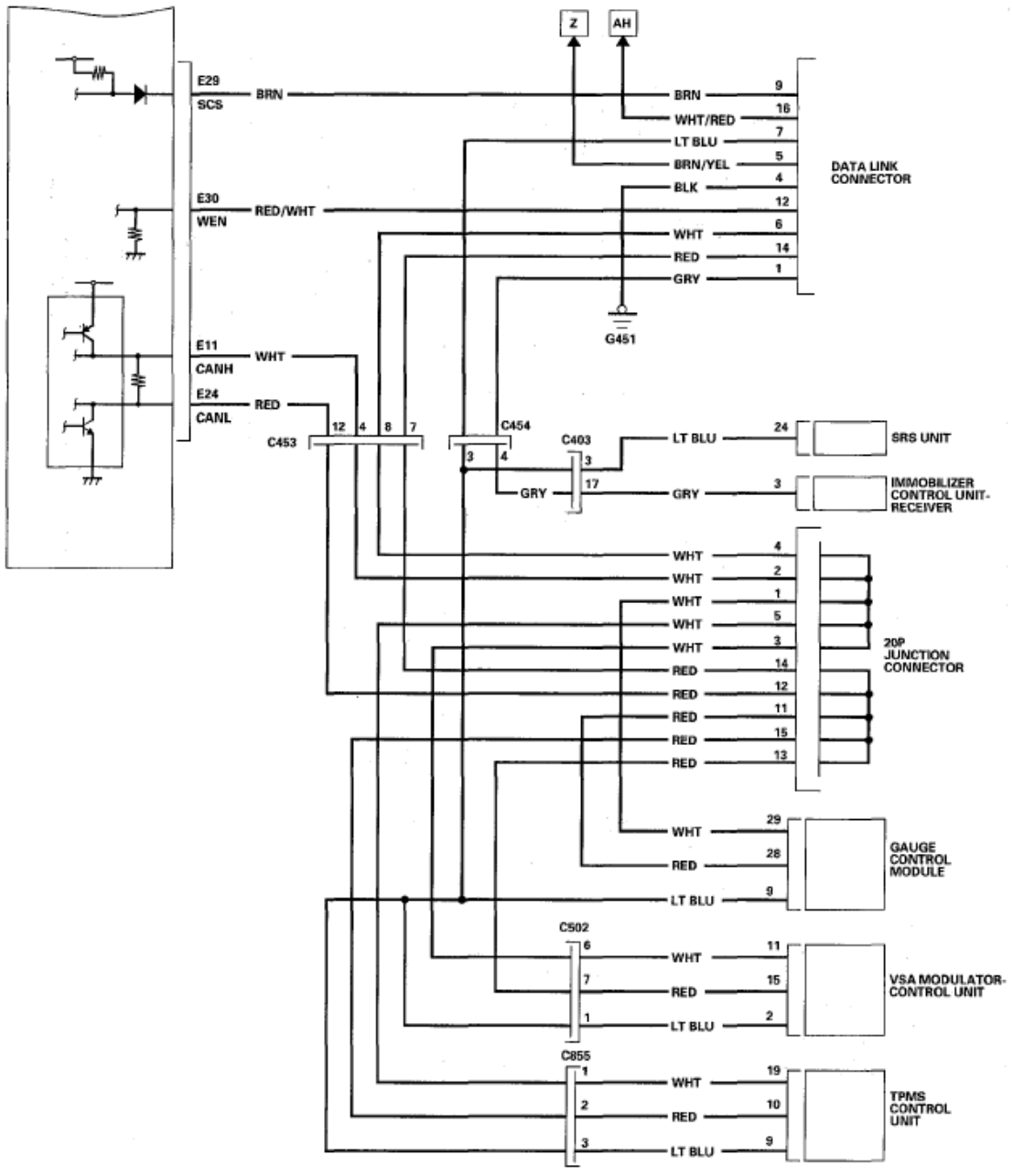


Fig. 63: ECM/PCM Circuit Diagram (12 Of 12)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

HOW TO SET READINESS CODES

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/PCM

has been reset, these readiness codes are reset 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 emission test, or 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 flashes five times, one or more readiness codes are not set to complete. To set readiness codes from incomplete to complete, do the procedure for the appropriate code.

To check the status of a specific DTC system, check the OBD status in the DTC MENU with the HDS (see **OBD STATUS**). This screen displays the code, the current data list of the enable criteria, and the status of the readiness testing.

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, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.**
- **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 SENSOR 1 at 158°F (70°C) or more.
- Intake air temperature (IAT) at 20°F (-7°C) or more.
- Vehicle speed sensor (VSS) above 25 mph (40 km/h).

Procedure

1. Connect the HDS to the vehicle's data link connector (DLC), and bring up the READINESS CODEs screen for Catalyst in the DTCs MENU.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (8 km), the readiness code should switch to complete.
4. If the readiness code is still not set to complete, check for a Temporary DTC with the HDS. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

EVAPORATIVE EMISSION (EVAP) CONTROL SYSTEM MONITOR AND READINESS CODE

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.

Enable Criteria

- Battery voltage is more than 10.5 V.
- Engine at idle.
- ECT sensor 1 and 2 between 176°F (80°C) and 212°F (100°C).
- MAP sensor less than 46.6 kPa (14 in.Hg, 350 mmHg).
- Vehicle speed 0 mph (0 km/h).
- IAT sensor between 32°F (0°C) and 212°F (100°C).

Procedure

1. Connect the HDS to the DLC.
2. Start the engine.
3. Select EVAP TEST in the INSPECTION MENU with the HDS, then select the FUNCTION TEST in the EVAP TEST MENU.
    - If the result is normal, readiness is complete.
    - If the result is not normal, go to the next step.
4. 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, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.**

Enable Criteria

ECT SENSOR 1 at 140°F (60°C) or more.

Procedure

1. Start the engine.
2. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (with the throttle fully closed) for 5 seconds. After about 3.5 miles (5.6 km), the readiness code should switch from incomplete to complete.
3. Check the readiness codes screen for the AIR FUEL RATIO (A/F) SENSOR in the DTCs MENU with the HDS.
    - If the screen shows complete, readiness is complete.

- If the screen shows not complete, go to the next step.

4. Check for a Temporary DTC. If there is no DTC, the enable criteria was probably not met. Select the DATA LIST MENU. Check the ECT in the ALL DATA LIST with the HDS. If the ECT is less than 140° F (60°C), run the engine until it is more than 140°F (60°C), then repeat the procedure.

AIR FUEL RATIO (A/F) SENSOR HEATER MONITOR READINESS CODE

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.

Procedure

1. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.
2. If the readiness code is still not set to complete, check for a Temporary DTC. If there is no DTC, repeat the procedure.

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.