

D15Z6 engines, D15Z7, D16Y5, D16Y6, D16Y7, D16Y8, B16A2, B16A4, B16A5 and B16A6

Special Tools	11-A-2
Localizing Components	
Index	11-B-2
System Description	
Vacuum Connections.....	11-B-6
Electrical connections.....	11-B-13
Troubleshooting Location	
FaultY Location Guide.....	11-B-16
Self-diagnosis procedures	11-B-18
Dismantling the ECM/PCM	11-B-21
Configuration of module terminals	
power train control and motor control	
module	11-B-23
How to interpret flow schemes	11-A-21
PGM-FI System	
System Description	11-B-27
Fault-tracking scheme	
ECONO indicator (fuel saving system)...	11-B-30
Power train control module and	
motor control module	11-B-32
Oxygen Sensor	11-B-36
Heated oxygen sensor	11-B-38
Heated oxygen sensor heater	11-B-40
Absolute pressure sensor collector	11-B-43
TDC/CKP/CYP Sensor	11-B-45
Refrigerant temperature sensor	11-B-47
Butterfly Position Sensor.....	11-B-49
Air temperature sensor	
of admission	11-B-52
Regulatory of idling mixing	11-B-54
Ignition output signal	11-B-56
Vehicle Speed Sensor.....	11-B-57
Lock-up Control Solenoid Valve.....	11-B-58
Electrical Charge Detector	11-B-59
Impact sensor	11-B-61
A/B FI A/T Signals	11-B-63
SENSOR CKF	11-B-64
Idling control system	
Guide to Troubleshooting	11-B-66
Description of the System	11-B-67
Troubleshooting	
Idle Air Control Valve	11-B-69
Air Conditioning Signal	11-B-72
Alternator SIGNAL	11-B-74
Brake switch signal	11-B-75
starter engine switch Signal	
11-B-76	
pressure switch power	
steering	11-B-77
A/T Change Position Signal	11-B-79
Idle Speed Thermal Valve.....	11-B-81
Adjustment of idling speed	11-B-82
Fuel supply system	
Guide to Troubleshooting	11-B-85
Fuel Lines	11-B-86
Fuel pipe and fast connection joints	11-A-67
System Description	11-A-70
Fuel Pressure	11-B-88
Fuel Injectors	11-B-89
Fuel Pressure Regulator	11-B-92
Fuel Filter	11-B-93
Fuel Pump	11-A-77
Inertia Switch	11-A-78
PgM-FI Relay	11-B-93
Fuel tank	11-A-81

Intake air system

Guide to Troubleshooting	11-B-96
System Description	11-B-97
Air Filter	11-B-98
Butterfly Cable	11-B-98
Butterfly Body	11-B-100

Emissions Control System

Guide to Troubleshooting	11-B-104
Description of the system	11-B-105
Exhaust pipe emissions	11-B-105
Three-way catalytic converter	11-B-105
System Recirculating exhaust gases	11-B-106
Crankcase ventilation system positive	11-B-111
Emissions controls evaporation	11-B-112

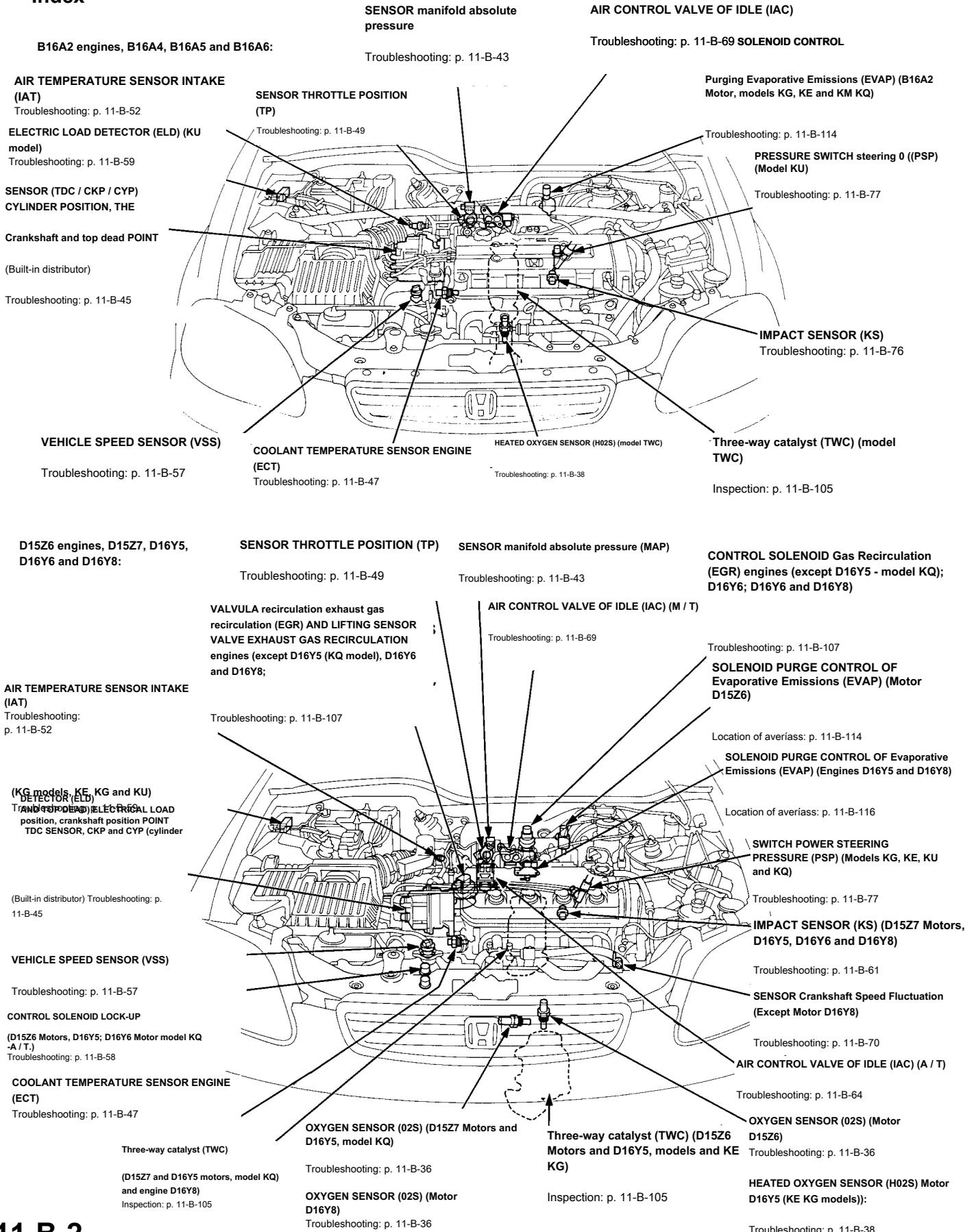
GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION

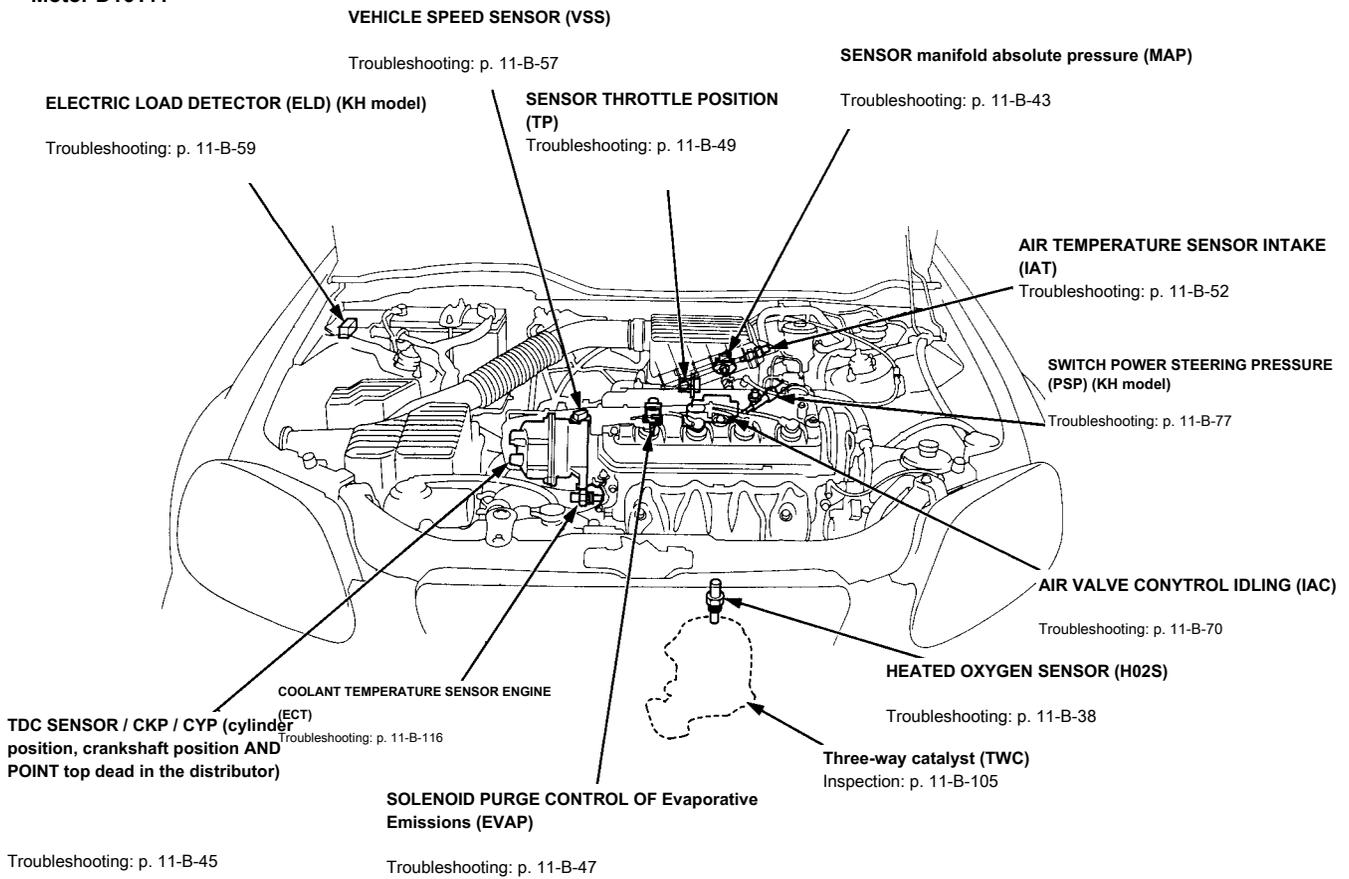
Locating components

Index

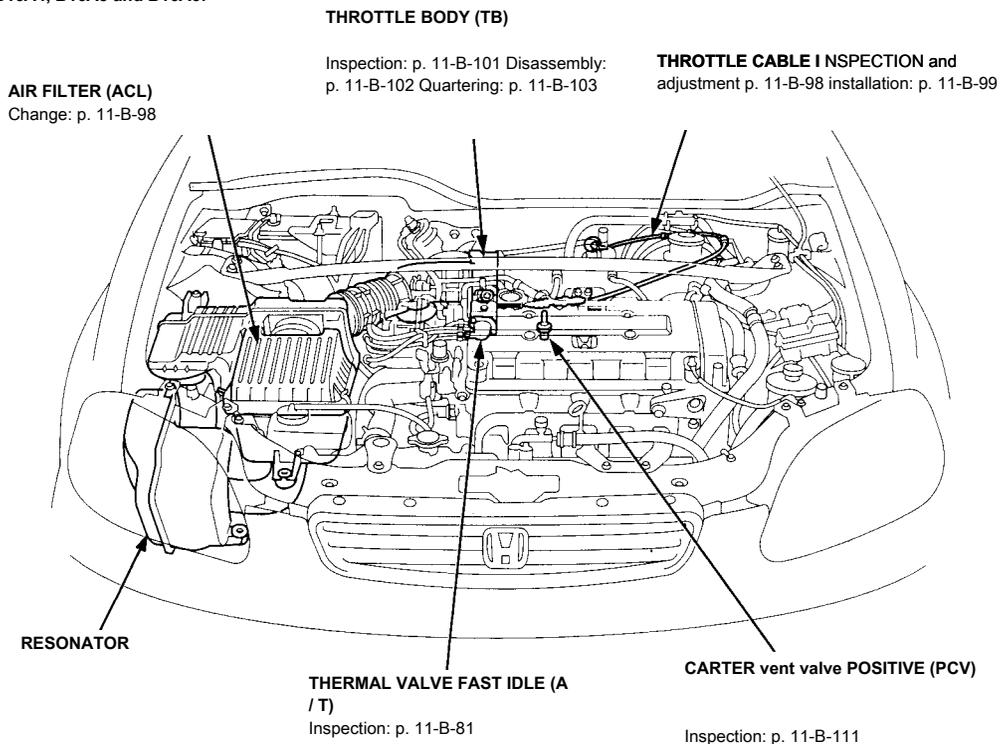




Motor D16Y7:



B16A2 engines, B16A4, B16A5 and B16A6:

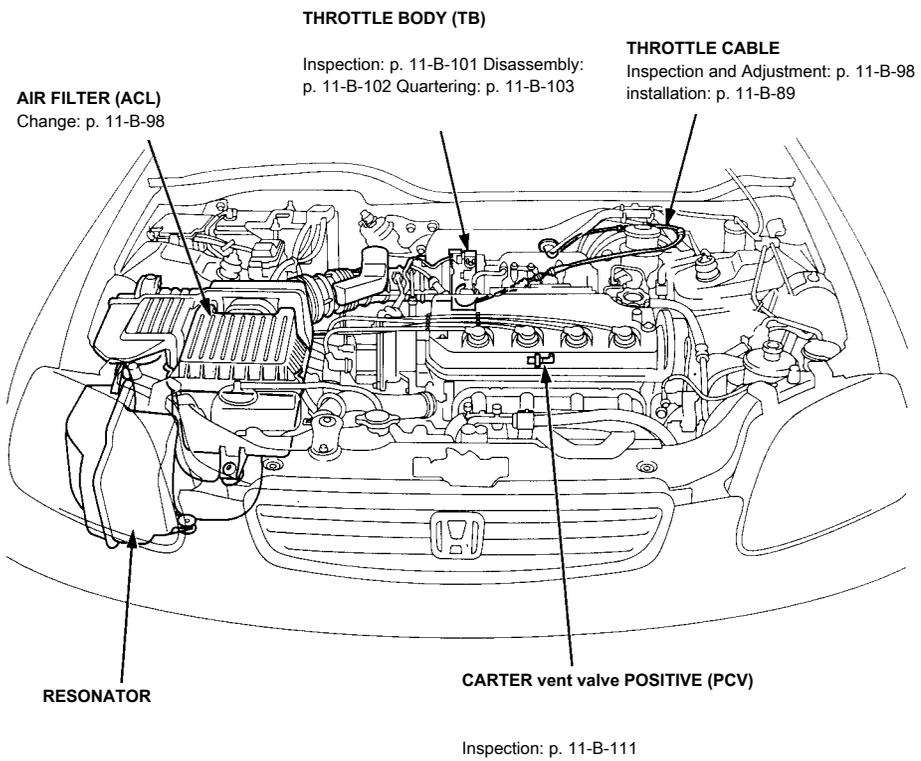


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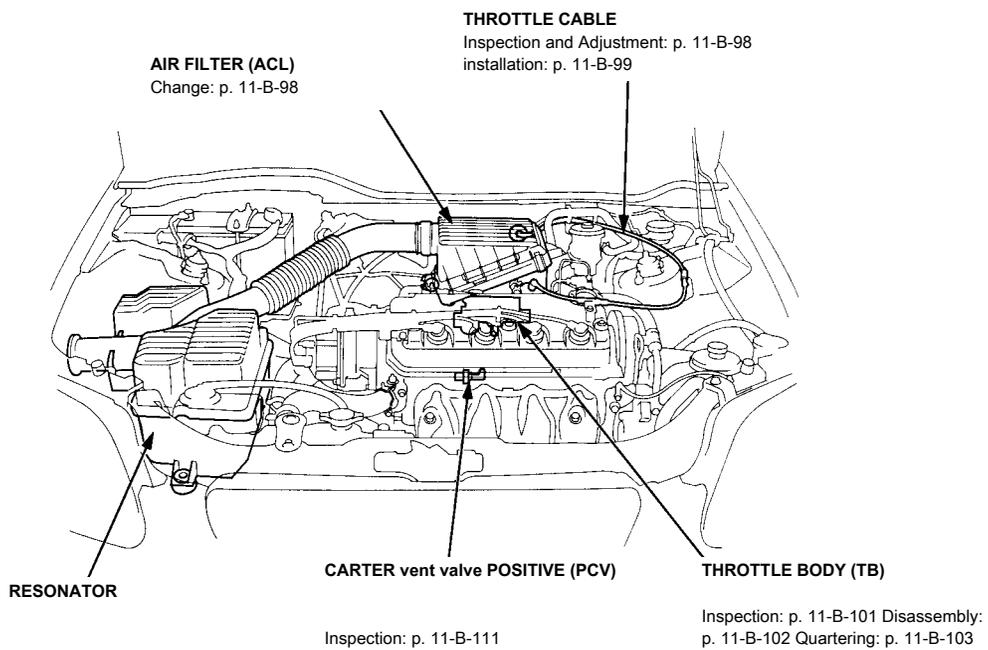
Locating components

Table (cont.)

D15Z6 engines, D15Z7, D16Y5, D16Y6 and D16Y8:



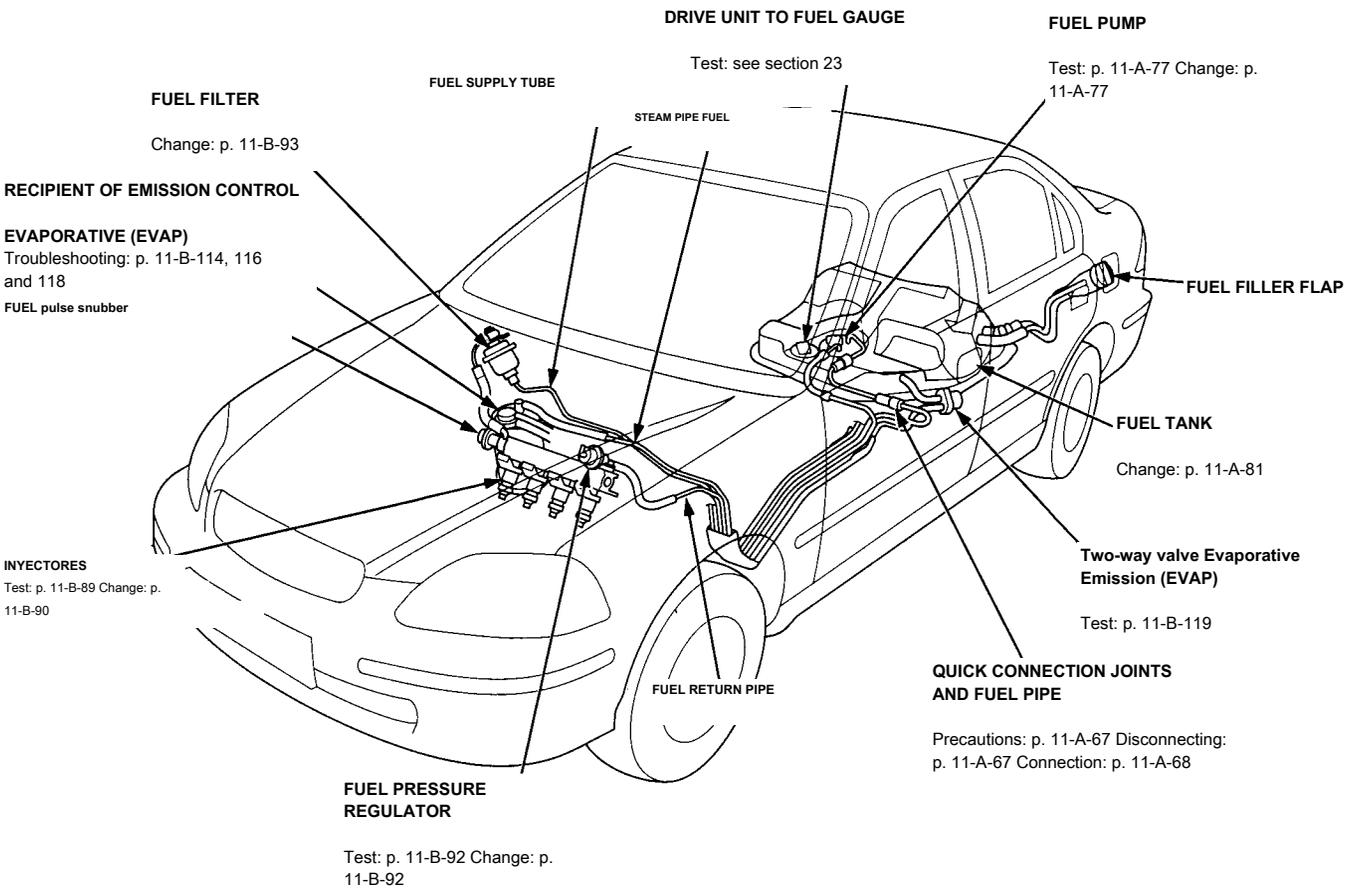
Motor D16Y7:



GENERAL INDEX

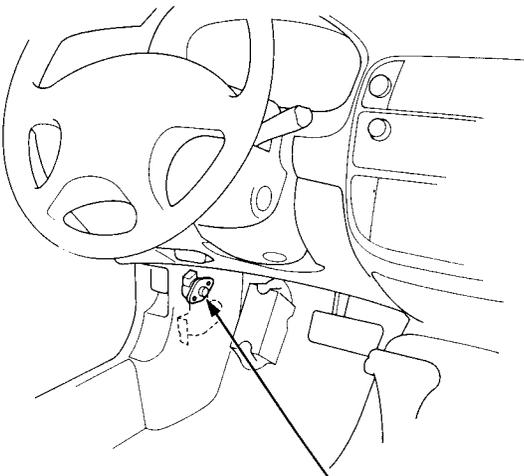
MANUAL INDEX

CONTENTS SECTION



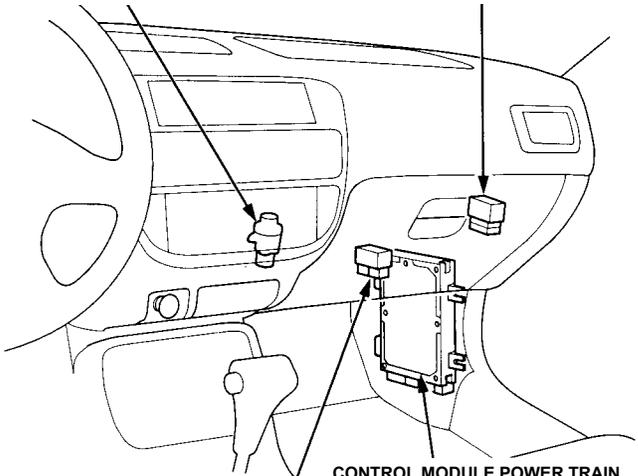
INERTIA SWITCH (KG models, KE and KS)
Description: p. 11-A-78
Troubleshooting: p. 11-A-93

PGM-FI MAIN RELAY
Relay test: p. 11-B-93 Troubleshooting: p. 11-B-94



REGULATOR MIXTURE OF IDLE (IMA) (model without TWC)
Troubleshooting: p. 11-B-54

The illustration shows LHD model. The RHD version is symmetrical.



CONNECTOR SERVICE
Autodiagnosis procedures: p. 11-B-18

CONTROL MODULE POWER TRAIN (PCM) AND ENGINE CONTROL MODULE (ECM)
Troubleshooting: p. 11-B-32

The illustration shows LHD model. The RHD version is symmetrical.

GENERAL
INDEX

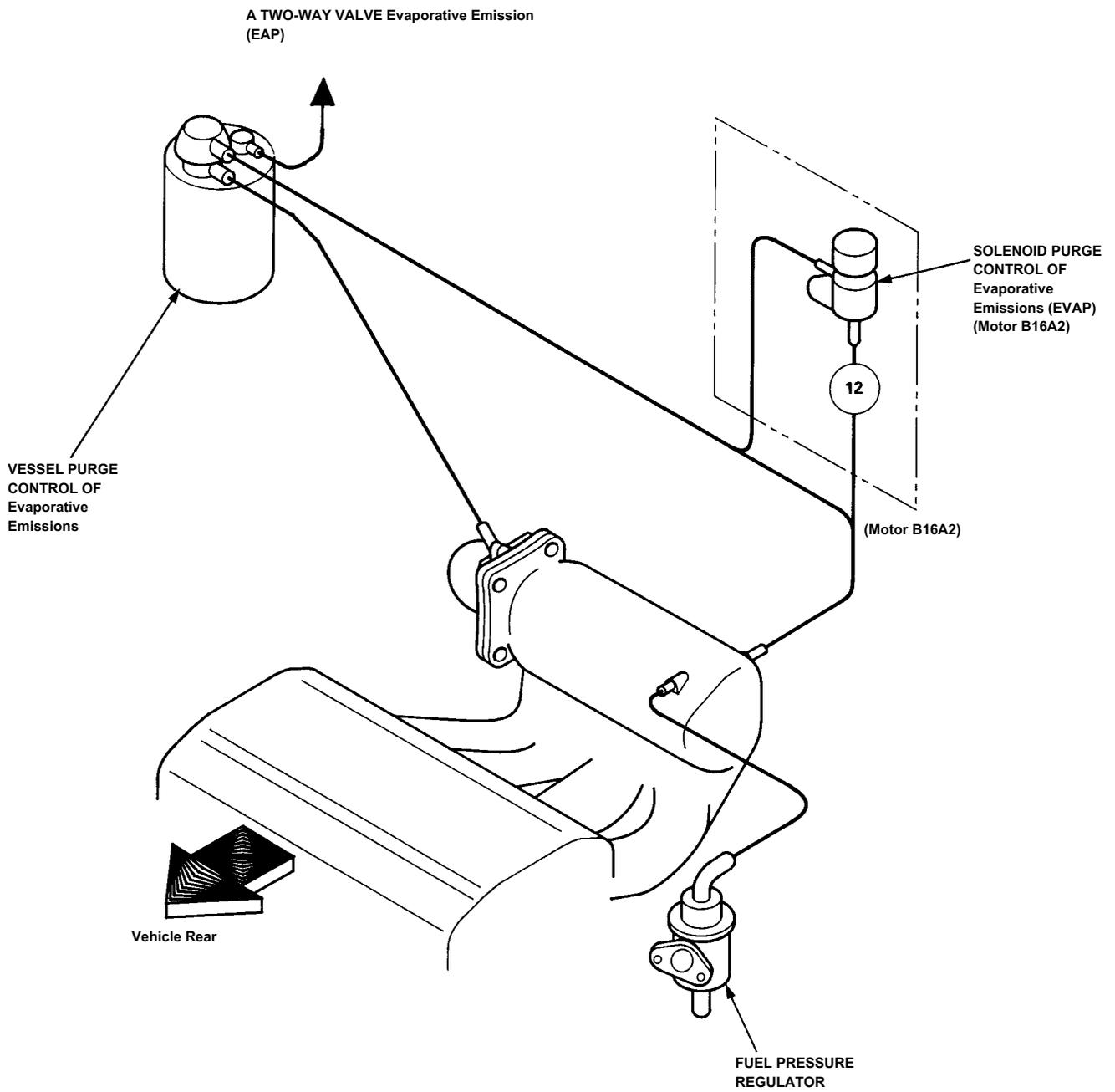
MANUAL
INDEX

CONTENTS
SECTION

System Overview

Vacuum connections

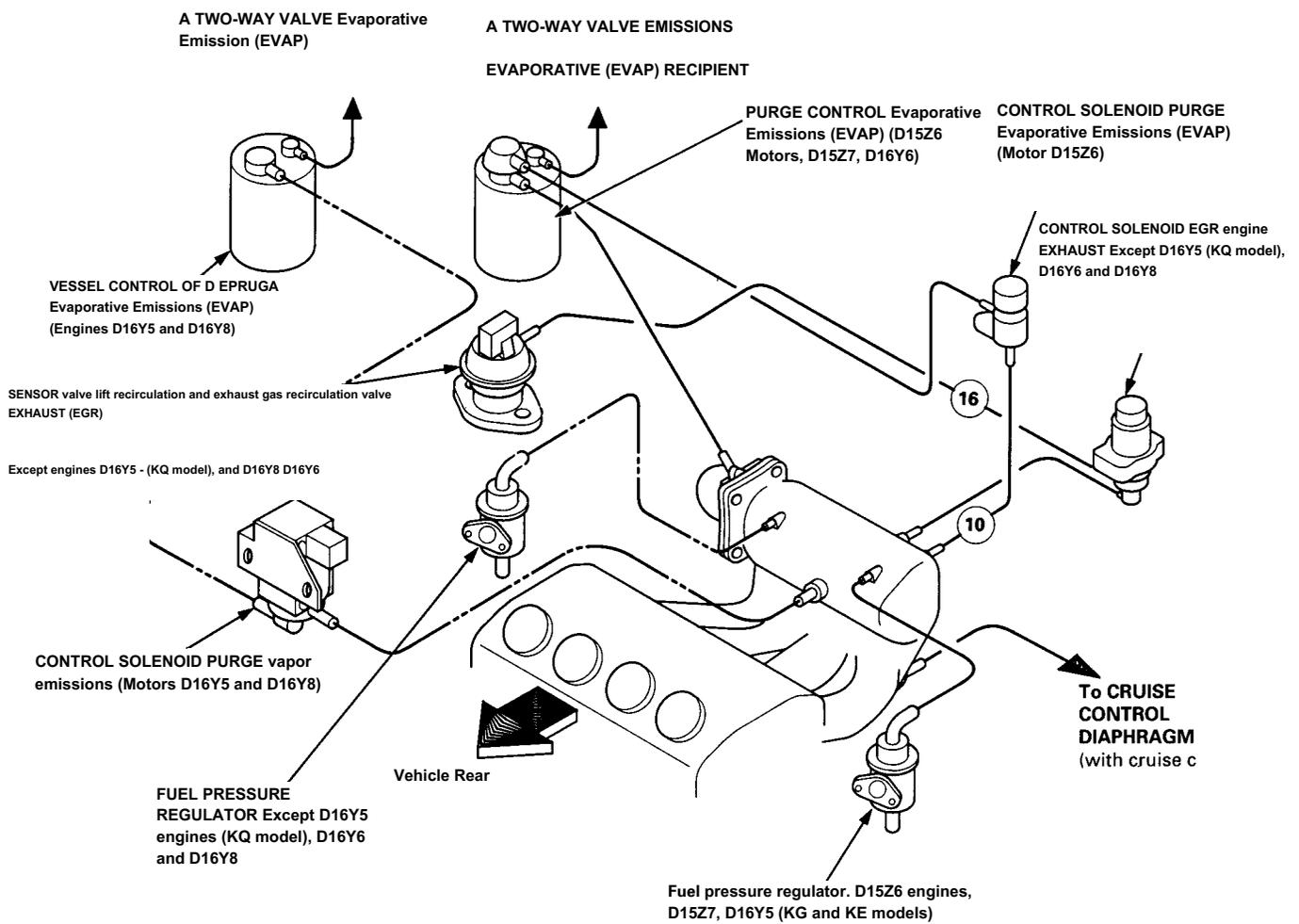
B16A2 engines, B16A4, B16A5 and B16A6:



. the vacuum
hose



D15Z6 engines, D15Z7, D16Y5, D16Y6 and D16Y8:

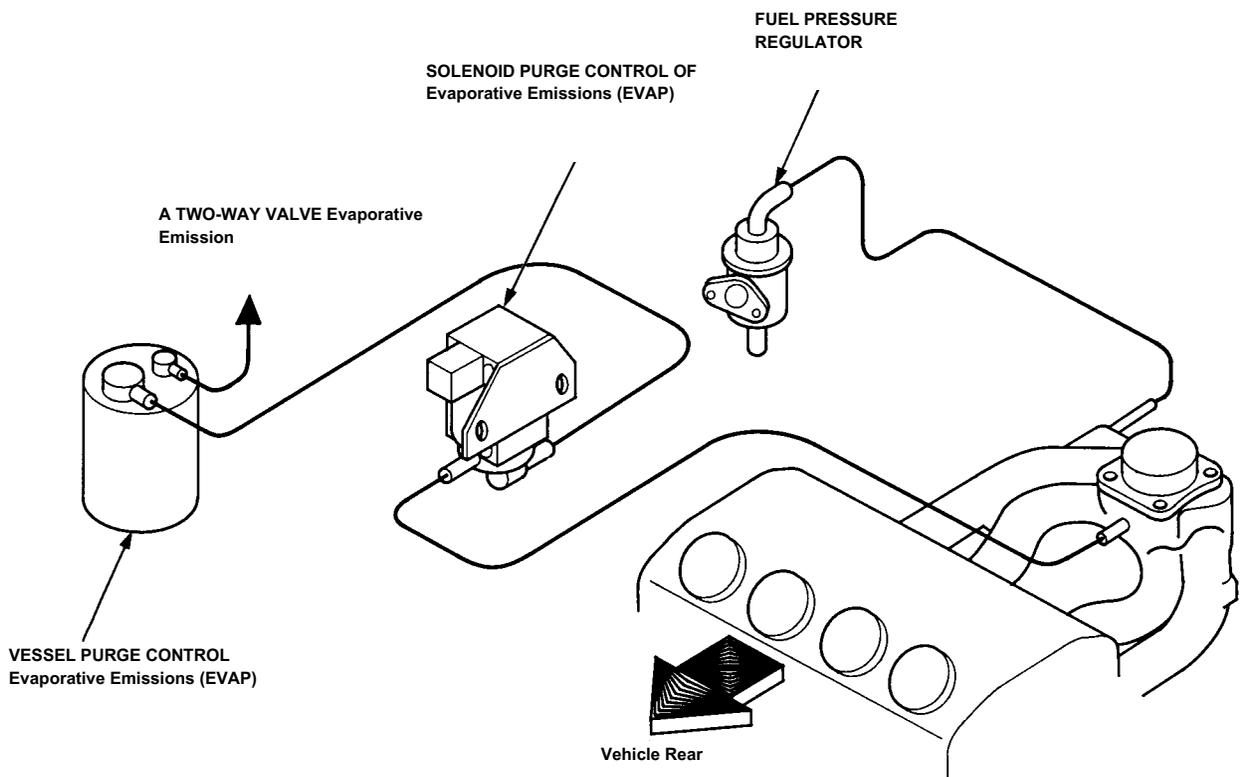


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System Overview

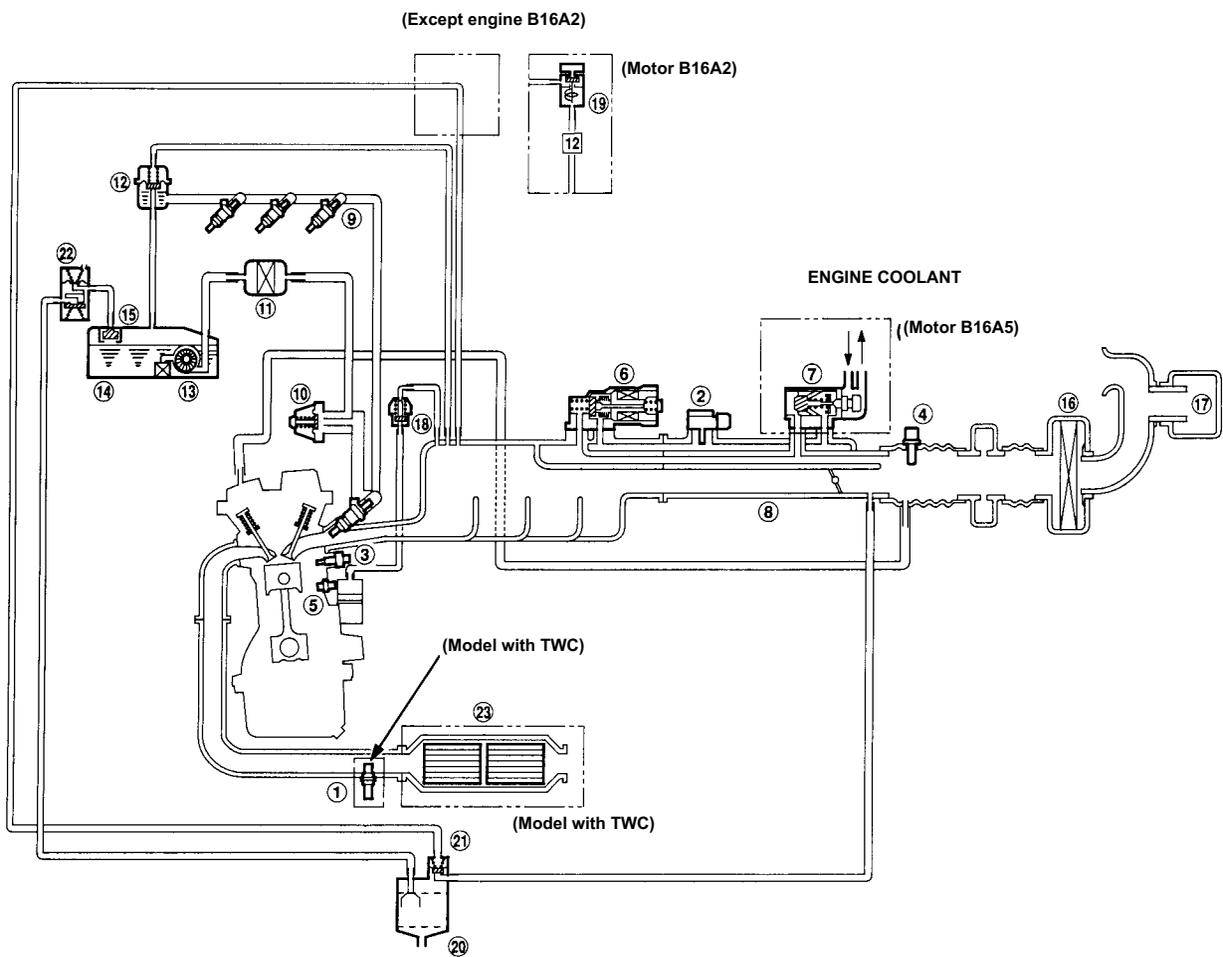
Vacuum connections (cont.)

Motor D16Y7:





B16A2 engines, B16A4, B16A5 and B16A6:



□: . the vacuum hose

- ① HEATED OXYGEN SENSOR (HO2S) SENSOR manifold absolute pressure
- ② (MAP) SENSOR COOLANT TEMPERATURE (ECT) SENSOR INTAKE AIR
- ③ TEMPERATURE (IAT) SENSOR IMPACT (KS)
- ④
- ⑤
- ⑥ AIR CONTROL VALVE OF IDLE (IAC) VALVE THERMAL IDLE FAST
- ⑦ THROTTLE BODY (TB) FUEL INJECTOR
- ⑧
- ⑨
- ⑩ Pulsation damping FUEL FILTER FUEL
- ⑪ FUEL PRESSURE REGULATOR FUEL PUMP (FP) FUEL TANK
- ⑫
- ⑬
- ⑭

- ⑮ VALVE TANK Evaporative Emissions (EVAP) AIR CLEANER RESONATOR
- ⑯
- ⑰
- ⑱ VALVULA crankcase ventilation POSITIVE (PCV) SOLENOID PURGE CONTROL OF Evaporative Emissions (EVAP) VESSEL CONTROL Evaporative Emissions (EVAP) VALVE DIAGFRAGMA PURGE CONTROL OF Evaporative Emissions (EVAP) Valve Two
- ⑳ Way Evaporative Emissions (EVAP) three-way catalyst (TWC)
- ㉑
- ㉒
- ㉓

(Cont.)

GENERAL
INDEX

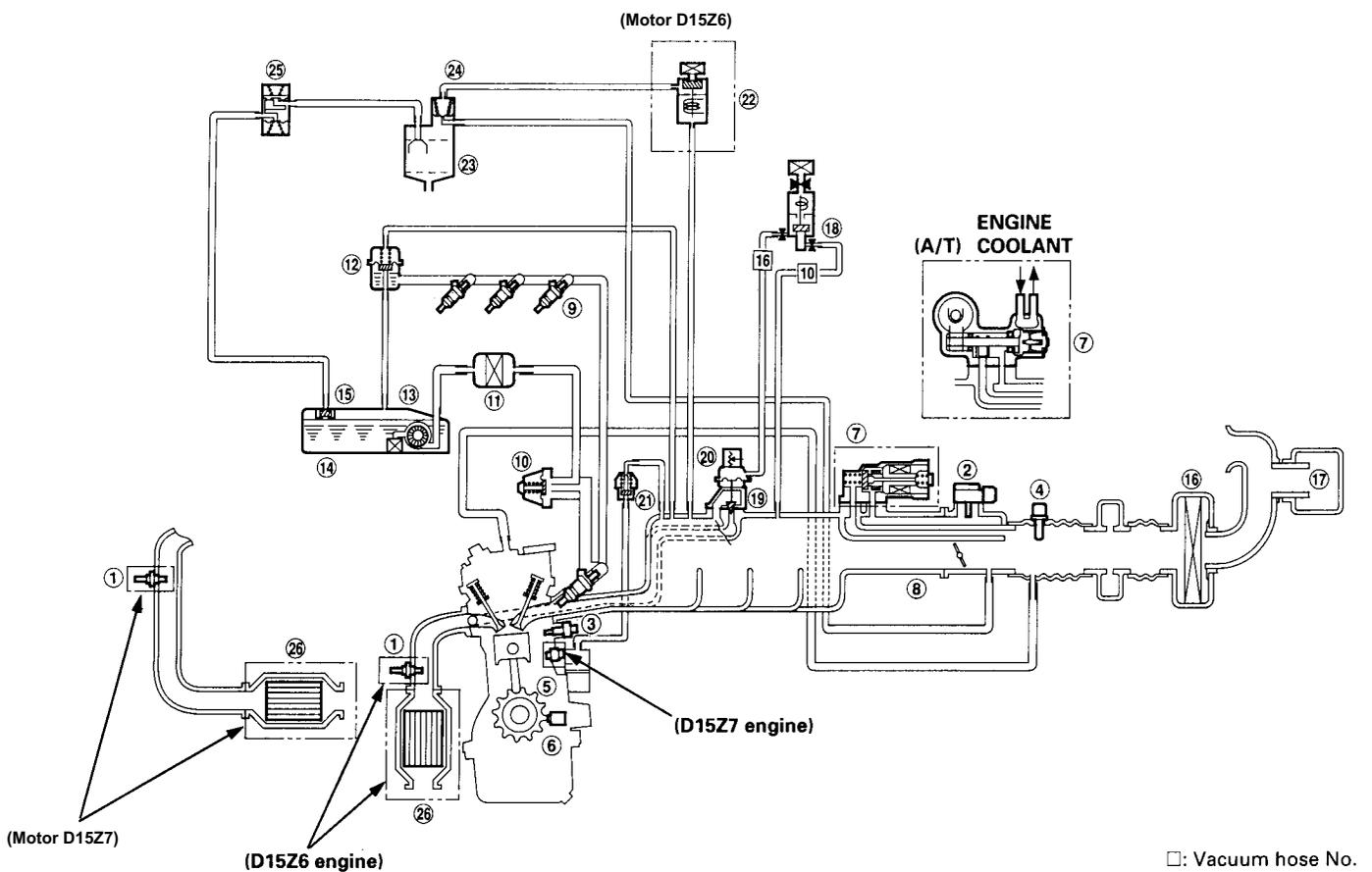
MANUAL
INDEX

CONTENTS
SECTION

System Overview

System connections (cont.)

D15Z6 and D15Z7 engines:

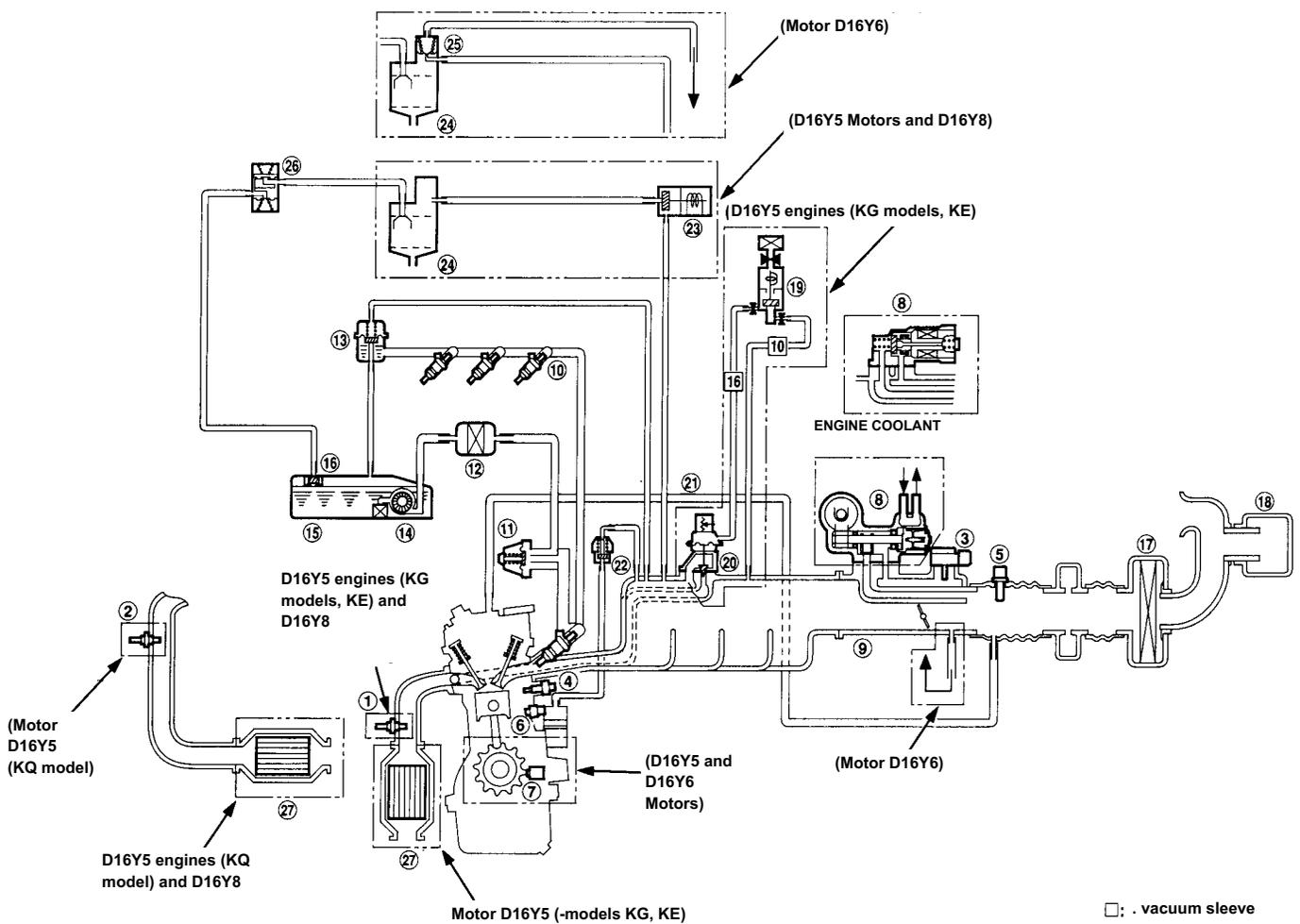


- ① OXYGEN SENSOR (O2S)
- ② MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
- ③ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
- ④ INTAKE AIR TEMPERATURE (IAT) SENSOR
- ⑤ KNOCK SENSOR (KS)
- ⑥ CRANKSHAFT SPEED FLUCTUATION (CKF) SENSOR
- ⑦ IDLE AIR CONTROL (IAC) VALVE
- ⑧ THROTTLE BODY (TB)
- ⑨ FUEL INJECTOR
- ⑩ FUEL PULSATION DAMPER
- ⑪ FUEL FILTER
- ⑫ FUEL PRESSURE REGULATOR
- ⑬ FUEL PUMP (FP)
- ⑭ FUEL TANK
- ⑮ FUEL TANK EVAPORATIVE EMISSION (EVAP) VALVE
- ⑯ AIR CLEANER
- ⑰ RESONATOR

- ⑱ EXHAUST GAS RECIRCULATION (EGR) CONTROL SOLENOID VALVE
- ⑲ EXHAUST GAS RECIRCULATION (EGR) VALVE
- ⑳ EXHAUST GAS RECIRCULATION (EGR) VALVE LIFT SENSOR
- ㉑ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
- ㉒ EVAPORATIVE EMISSION (EVAP) PURGE CONTROL SOLENOID VALVE
- ㉓ EVAPORATIVE EMISSION (EVAP) CONTROL CANISTER
- ㉔ EVAPORATIVE EMISSION (EVAP) CONTROL PURGE DIAPHRAGM VALVE
- ㉕ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
- ㉖ THREE WAY CATALYTIC CONVERTER (TWC)



D16Y5 engines, D16Y6 and D16Y8:



- ① HEATED OXYGEN SENSOR (HO2S)
- ② OXYGEN SENSOR (O2S)
- ③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
- ④ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
- ⑤ INTAKE AIR TEMPERATURE (IAT) SENSOR
- ⑥ KNOCK SENSOR (KS)
- ⑦ CRANKSHAFT SPEED FLUCTUATION (CKF) SENSOR
- ⑧ IDLE AIR CONTROL (IAC) VALVE
- ⑨ THROTTLE BODY (TB)
- ⑩ FUEL INJECTOR
- ⑪ FUEL PULSATION DAMPER
- ⑫ FUEL FILTER
- ⑬ FUEL PRESSURE REGULATOR
- ⑭ FUEL PUMP (FP)
- ⑮ FUEL TANK
- ⑯ FUEL TANK EVAPORATIVE EMISSION (EVAP) VALVE
- ⑰ AIR CLEANER
- ⑱ RESONATOR

- ⑲ EXHAUST GAS RECIRCULATION (EGR) CONTROL SOLENOID VALVE
- ⑳ EXHAUST GAS RECIRCULATION (EGR) VALVE
- ㉑ EXHAUST GAS RECIRCULATION (EGR) VALVE LIFT SENSOR
- ㉒ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
- ㉓ EVAPORATIVE EMISSION (EVAP) PURGE CONTROL SOLENOID VALVE
- ㉔ EVAPORATIVE EMISSION (EVAP) CONTROL CANISTER
- ㉕ EVAPORATIVE EMISSION (EVAP) CONTROL PURGE DIAPHRAGM VALVE
- ㉖ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
- ㉗ THREE WAY CATALYTIC CONVERTER (TWC)

(Cont.)

GENERAL
INDEX

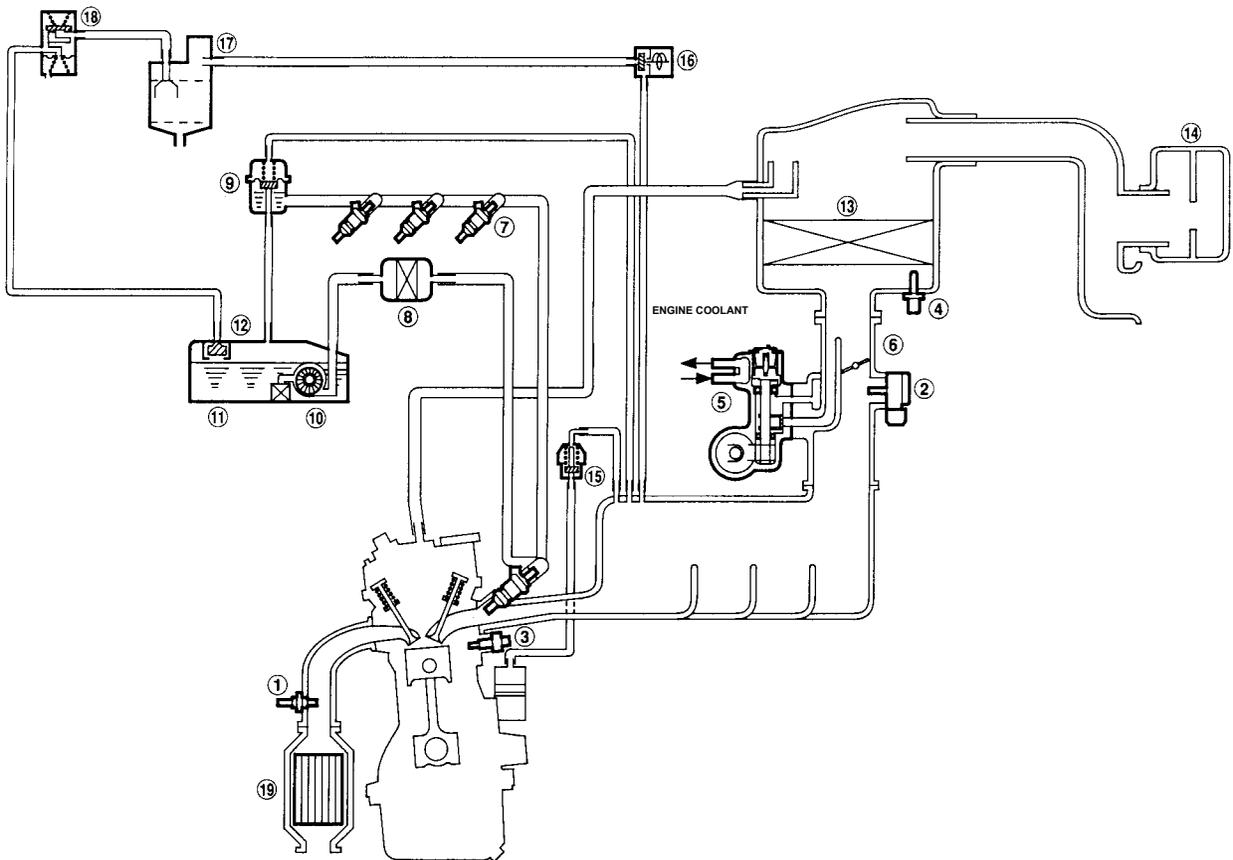
MANUAL
INDEX

CONTENTS
SECTION

System Overview

Vacuum connections (cont.)

D16Y7 engines:

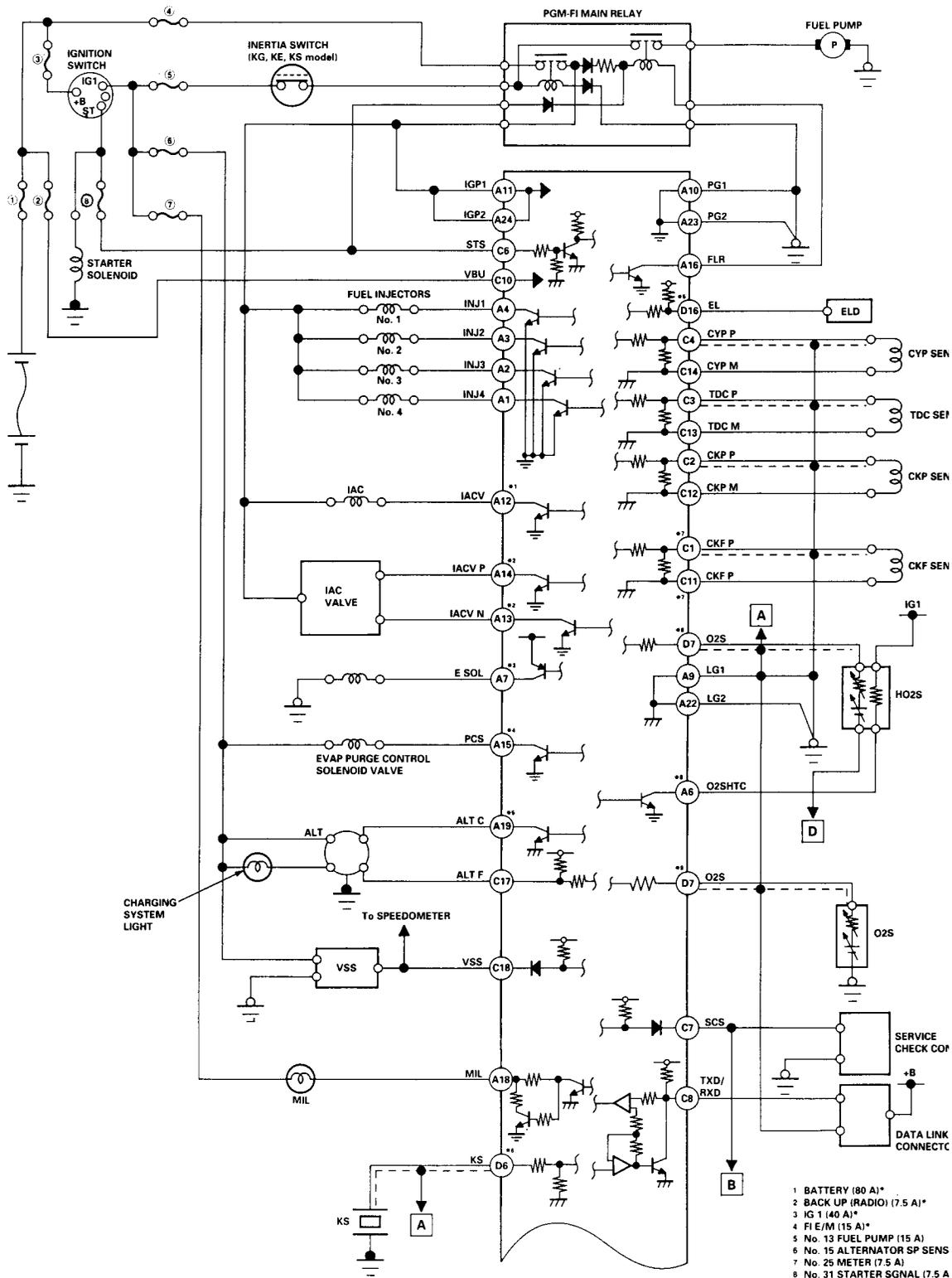


- ① SENSOR HEATED OXYGEN (H02S) SENSOR ABSOLUTE PRESSURE COLLECTOR
- ② (MAP) SENSOR COOLANT TEMPERATURE (ECT) SENSOR TEMPERATURE ENGINE
- ③ COOLANT TEMPERATURE SENSOR INTAKE AIR CONTROL VALVE AIR IDLE (IAC)
- ④ BODY BUTTERFLY (TB) Injectors FUEL FILTER FUEL PUMP (FP)
- ⑤
- ⑥
- ⑦
- ⑧
- ⑨
- ⑩

- ⑪ FUEL TANK
- ⑫ VALVE TANK Evaporative Emissions (EVAP) AIR CLEANER RESONATOR
- ⑬
- ⑭
- ⑮ CARTER vent valve POSITIVE (EVAP) CONTROL SOLENOID Pruga Evaporative Emissions (EVAP)
- ⑯
- ⑰ VESSEL CONTROL Evaporative Emissions (EVAP) two-way valve Evaporative Emissions (EVAP) three-way catalyst
- ⑱



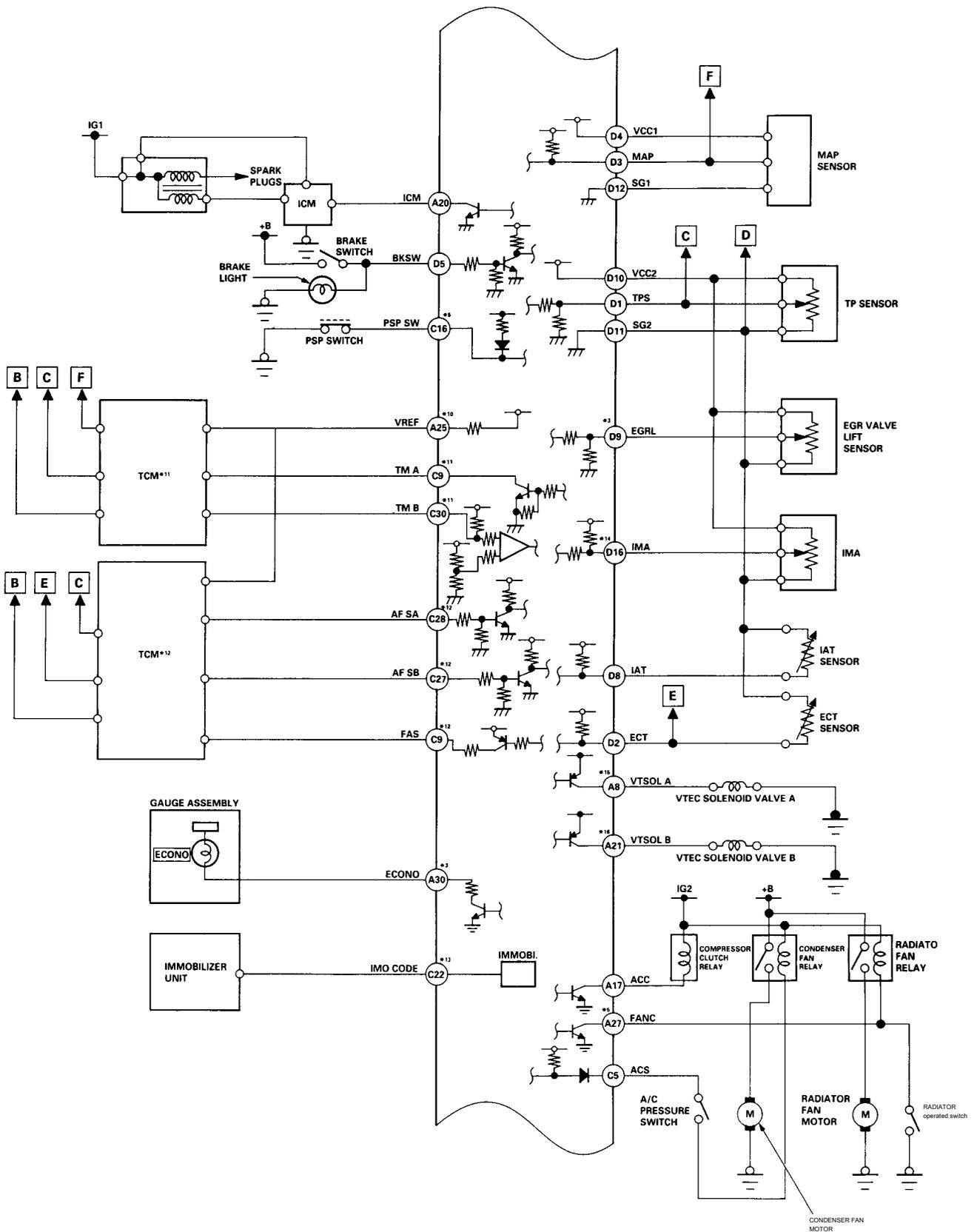
Electric connections



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System Overview

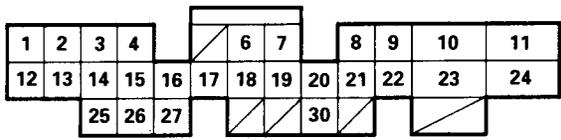
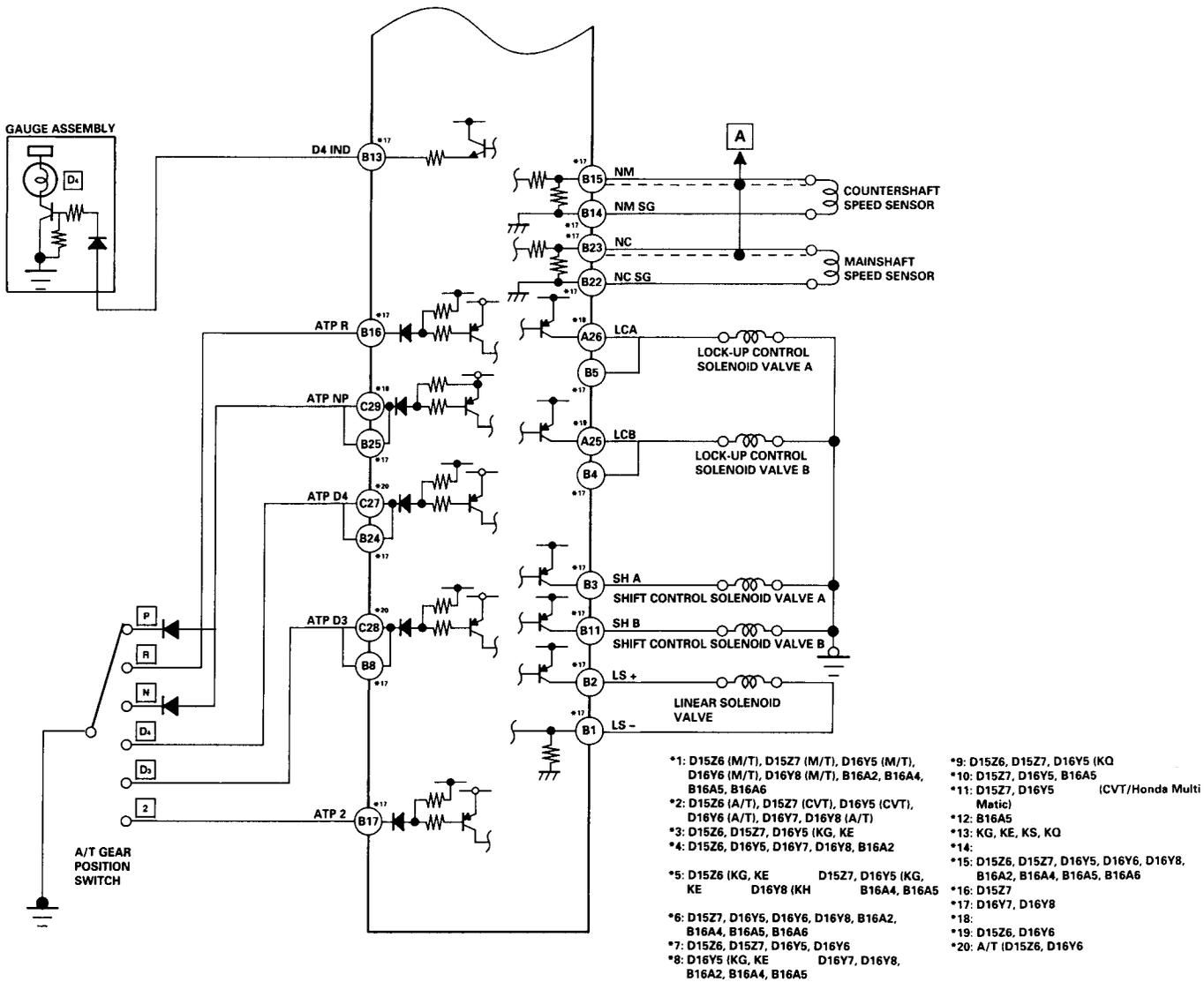
Electrical connections (cont.)



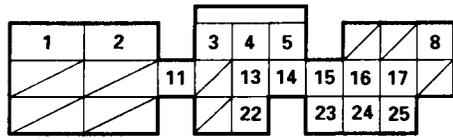
GENERAL INDEX

MANUAL INDEX

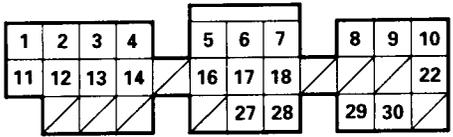
CONTENTS SECTION



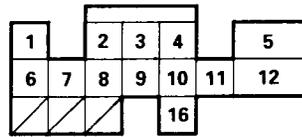
ECM/PCM-C



PCM-B

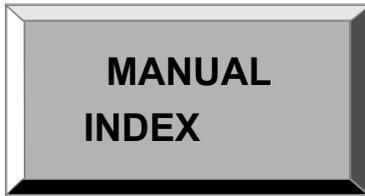


ECM/PCM-A



ECM/PCM-D

LOCATION OF TERMINALS



Troubleshooting

Guide to Troubleshooting

NOTE:

- Each line of the graph shows the systems that could cause the symptom, lined up in the order they should be inspected, starting with 1. Locate the symptom in the left column, read to the nearest cause and see the page indicated in Part top of the column. If the inspection shows that the system operates correctly, then look at the next system 2, and so on.
- Except D16Y7, D16Y8 (A / T) engines, use a motor control module (ECM). In D16Y7 and D16Y8 engines use a train control module and power (PCM), which also controls the operations of the transmission. By working in engines and D16Y8 D16Y7 (A / T), note that all references to the ECM of this section refer in fact to the PCM.

PAGE	SYSTEM	PGM-FI									
		ENGINE CONTROL MODULE	OXYGEN SENSOR *1	HEATED OXYGEN SENSOR *2	MANIFOLD ABSOLUTE PRESSURE SENSOR	TOP DEAD CENTER/ CRANKSHAFT POSITION/ CYLINDER POSITION SENSOR	ENGINE COOLANT TEMPERATURE SENSOR	THROTTLE ANGLE SENSOR	INTAKE AIR TEMPERATURE SENSOR	IDLE MIXTURE ADJUSTER *3	IGNITION OUTPUT SIGNAL
SYMPTOM		11-B-32	11-B-36	11-B-38	11-B-43	11-B-45	11-B-47	11-B-49	11-B-52	11-B-54	11-B-56
	MALFUNCTION INDICATOR LAMP (MIL)** TURNS ON										
	MALFUNCTION INDICATOR LAMP (MIL)** BLINKS										
	ENGINE WON'T START	①				③					③
	DIFFICULT TO START ENGINE WHEN COLD	Ⓚ			③	③	①				
IRREGULAR IDLING	WHEN COLD FAST IDLE OUT OF SPEC	Ⓚ					③				
	ROUGH IDLE	Ⓚ			③						
	WHEN WARM ENGINE SPEED TOO HIGH	Ⓚ					③				
	WHEN WARM ENGINE SPEED TOO LOW	Ⓚ									
FREQUENT STALLING	WHILE WARMING UP	Ⓚ					③				
	AFTER WARMING UP	Ⓚ									
POOR PERFORMANCE	MISFIRE OR ROUGH RUNNING	Ⓚ			②	③					
	FAILS EMISSION TEST	Ⓚ	③	③	②						
	LOSS OF POWER	Ⓚ			③			②			

* If codes other than those listed above are indicated, count the number of blinks again. If the MIL is in fact blinking these codes, replace the ECM/PCM.

Ⓚ If the MIL is on while the engine is running, connect the SCS short connector to the service check connector. If no code is displayed (MIL stays on steady), the back-up system is in operation.

Substitute a known-good ECM/PCM and recheck. If the indication goes away, replace the original ECM/PCM.

*1: D15Z6, D15Z7, D16Y5 (KQ model) engine

*2: D16Y5 (KG, KE model), D16Y7, D16Y8, B16A2, B16A4, B16A5 engine

*3: without TWC model

*4: D15Z6, D16Y6 engine

*5: D15Z6 (KG, KE model), D15Z7, D16Y5 (KG, KE model), D16Y8 (KH model), B16A4, B16A5 engine

*6: D15Z6, D15Z7, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5, B16A6 engine

*7: D15Z7 engine

*8: D15Z7, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5, B16A6 engine

*9: B16A5 engine

*10: D15Z6, D15Z7, D16Y5 (KG, KE model)

**GENERAL
INDEX**

**MANUAL
INDEX**

**CONTENTS
SECTION**

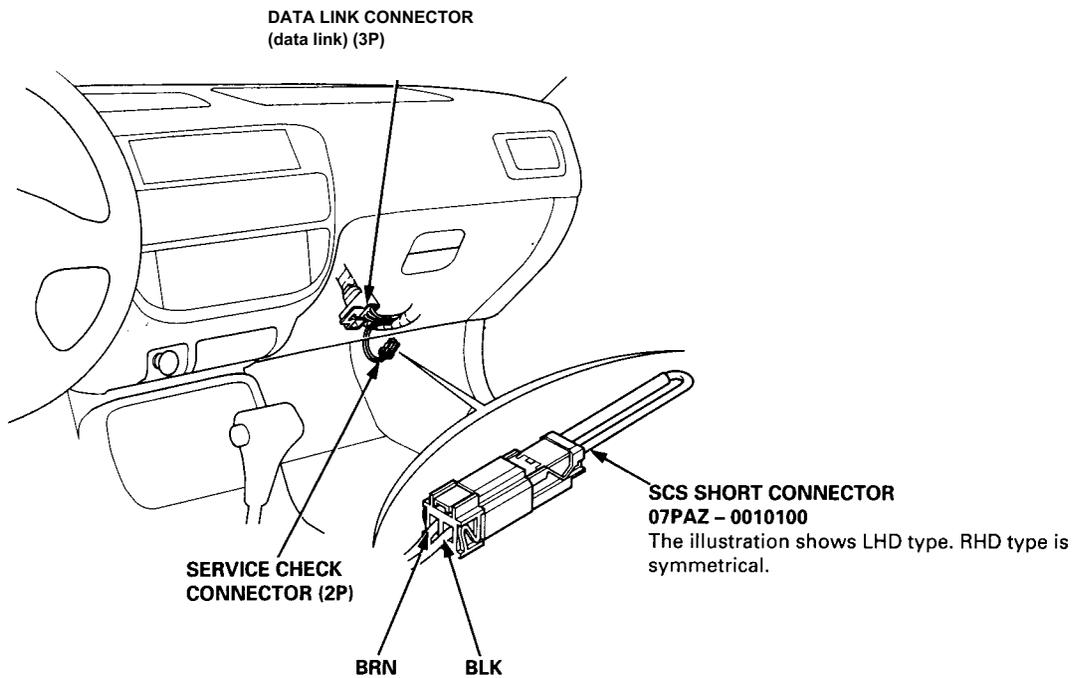


PGM-FI							IDLE CONTROL		FUEL SUPPLY		INTAKE AIR	EMISSION CONTROL	
VEHICLE SPEED SENSOR	LOCK-UP CONTROL SOLENOID VALVE A/B**4	ELECTRICAL LOAD DETECTOR**5	VTEC SOLENOID VALVE A/B	KNOCK SENSOR**8	AT FI SIGNAL A/B**9	CRANKSHAFT SPEED FLUCTUATION SENSOR**2	IDLE AIR CONTROL VALVE	OTHER IDLE CONTROLS	FUEL INJECTOR	OTHER FUEL SUPPLY		EXHAUST GAS RECIRCULATION (EGR) CONTROL SYSTEM**10	OTHER EMISSION CONTROL SYSTEM
11-B-57	11-B-58	11-B-59	6-5, 7, 59	11-B-61	11-B-63	11-B-64	11-B-69	11-B-66	11-B-89	11-B-85	11-B-96	11-B-107	11-B-104
										②			
										②			
							①	②					
							①	②	②			③	
							①	②					
		③					①	②	②				
							①	②		③			
							③			①		②	
									①			③	
													①
									③	①	③		③

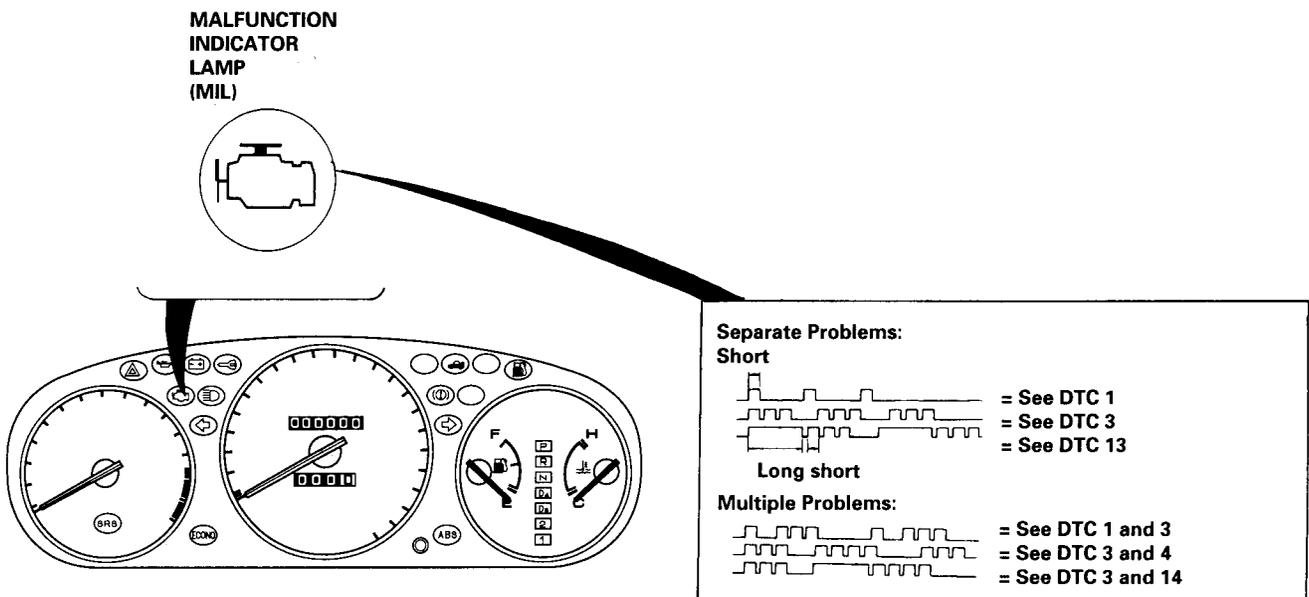
Troubleshooting

Procedures autodiagnostic

- i. When the pilot indicated fault is lit, perform the following operations:
 1. Connect the SCS short connector as service indicated (service connector 2P is sitaudo under the right side of the dashboard). Turn the ignition (II)



2. Note the diagnosis code (DTC): The MIL indicates a code by the length and number of flashes. The MIL puede indicate multiple problems by flashing separate codes one after another. Codes 1 to 9 are indicated by short individual flashes. Codes 10-54 are indicated by a series of long and short flashes. The number of long flashes equals the first digit, and the number of short flashes, the second digit. In some cases, the first flicker difficult to observe; flickers always have at least twice to verify the code.



**GENERAL
INDEX**

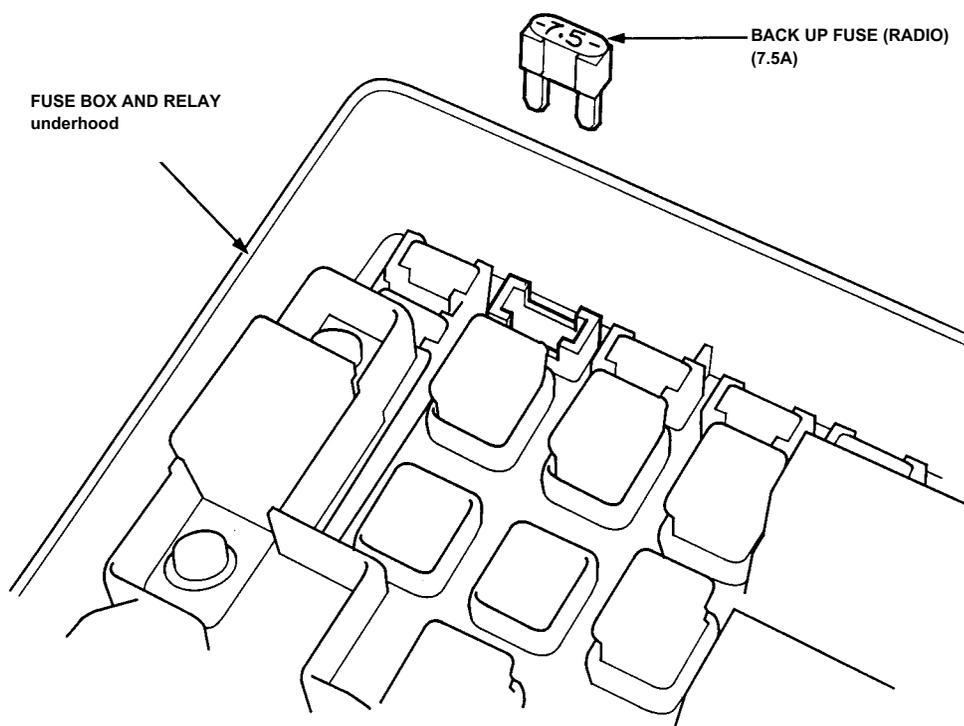
**MANUAL
INDEX**

**CONTENTS
SECTION**



II. Procedure tuning engine control module (ECM) and the control module power train (PCM).

1. Remove contact.
2. Remove the fuse BACK UP (RADIO) (7.5A) of the fuse box and relays under the hood for 10 seconds to tune the ECM.



III. end procedure (this procedure must be performed after performing troubleshooting).

1. Remove the SCS short connector.

NOTE: If the SCS short connector is connected and no DTCs stored in the ECM / PCM, the MIL will remain on.

2. Key out the method of tuning the ECM / PCM.

IV. By changing the ECM / PCM by one in good condition and vover check (KG models, KE, KS and KQ):

The ECM / PCM has a locking system. The ECM / PCM in good condition has a different code stored; the code must be reprogrammed with the Honda PGM tester. Failure to do so, the engine would not go.

(Cont.)

**GENERAL
INDEX**

**MANUAL
INDEX**

**CONTENTS
SECTION**

Troubleshooting

Autodiagnosis procedures (cont.)

DIAGNOSTIC TROUBLE CODE (DTC)	SYSTEM INDICATED	Page
0	ENGINE CONTROL MODULE (ECM)/POWERTRAIN CONTROL MODULE (PCM)	11-B-32
1	HEATED OXYGEN SENSOR (HO2S)*2, OXYGEN SENSOR (O2S)*1	11-B-36, 38
3	MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR	11-B-43
4	CRANKSHAFT POSITION (CKP) SENSOR	11-B-45
6	ENGINE COOLANT TEMPERATURE (ECT) SENSOR	11-B-47
7	THROTTLE POSITION (TP) SENSOR	11-B-49
8	TOP DEAD CENTER POSITION (TDC) SENSOR	11-B-45
9	No. 1 CYLINDER POSITION (CYP) SENSOR	11-B-45
10	INTAKE AIR TEMPERATURE (IAT) SENSOR	11-B-52
11	IDLE MIXTURE ADJUSTER (IMA)*3	11-B-54
12	EXHAUST GAS RECIRCULATION (EGR) VALVE LIFT SENSOR*11	11-B-107
14	IDLE AIR CONTROL (IAC) VALVE	11-B-69
15	IGNITION OUTPUT SIGNAL	11-B-56
17	VEHICLE SPEED SENSOR (VSS)	11-B-57
19	LOCK-UP CONTROL SOLENOID VALVE*4	11-B-58
20	ELECTRICAL LOAD DETECTOR (ELD)*5	11-B-59
21	VTEC SOLENOID VALVE A	6-5*6
		6-7*7
		6-59*8
23	KNOCK SENSOR*9	11-B-61
30	A/T FI SIGNAL A*10	11-B-63
31	A/T FI SIGNAL B*10	11-B-63
38	VTEC SOLENOID VALVE B*7	6-9
41	HEATED OXYGEN SENSOR (HO2S) HEATER*2	11-B-40
54	CRANKSHAFT SPEED FLUCTUATION (CKF) SENSOR*2	11-B-64

* 1: Engines D15Z6, D15Z7 And D16Y5 (KQ model)

* 2: Engines D16Y5 (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5

* 3: Model without TWC

* 4: Engines D15Z6 and D16Y6

* 5: Engines D15Z6 (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5

* 6: Engines D15Z6, D16Y5, D16Y6 and D16Y8

* 7: Motor D15Z7

* 8: Engines B16A2, B16A4, B16A5 and B16A6

* 9: Engines D15Z7, D16Y5, D16Y6, D16Y8, B16A2 and B16A4 and B16A6.

* 10: Motor B16A5

* 11: Engines D15Z6, D15Z7, D16Y5 (KG, KE model)

- If different codes are indicated those listed above, check the code. If the code does not appear outlined indicated in the listing above, change the ECM / PCM (see p. 11-B-21).
- The MIL may light indicating a problem in the system when, in fact, the electrical connections are poor or intermittent. First check the electrical connections and clean or repair them, if necessary.
- The MIL indicator and pilot D4 or D can be turned on simultaneously when codes are indicated autodiagnostic (DTC) 6, 7 or 17. Check the PGM-FI system according to the location corresponding faults and recheck after the pilot indicator D4 or D. If it lights up, see section 14.
- The MIL does not illuminate if there is a fault in the circuitry of the signal A / T FI detector or electric charge (ELD). However, the pilot indicates these codes when the service plug is bypassed.

**GENERAL
INDEX**

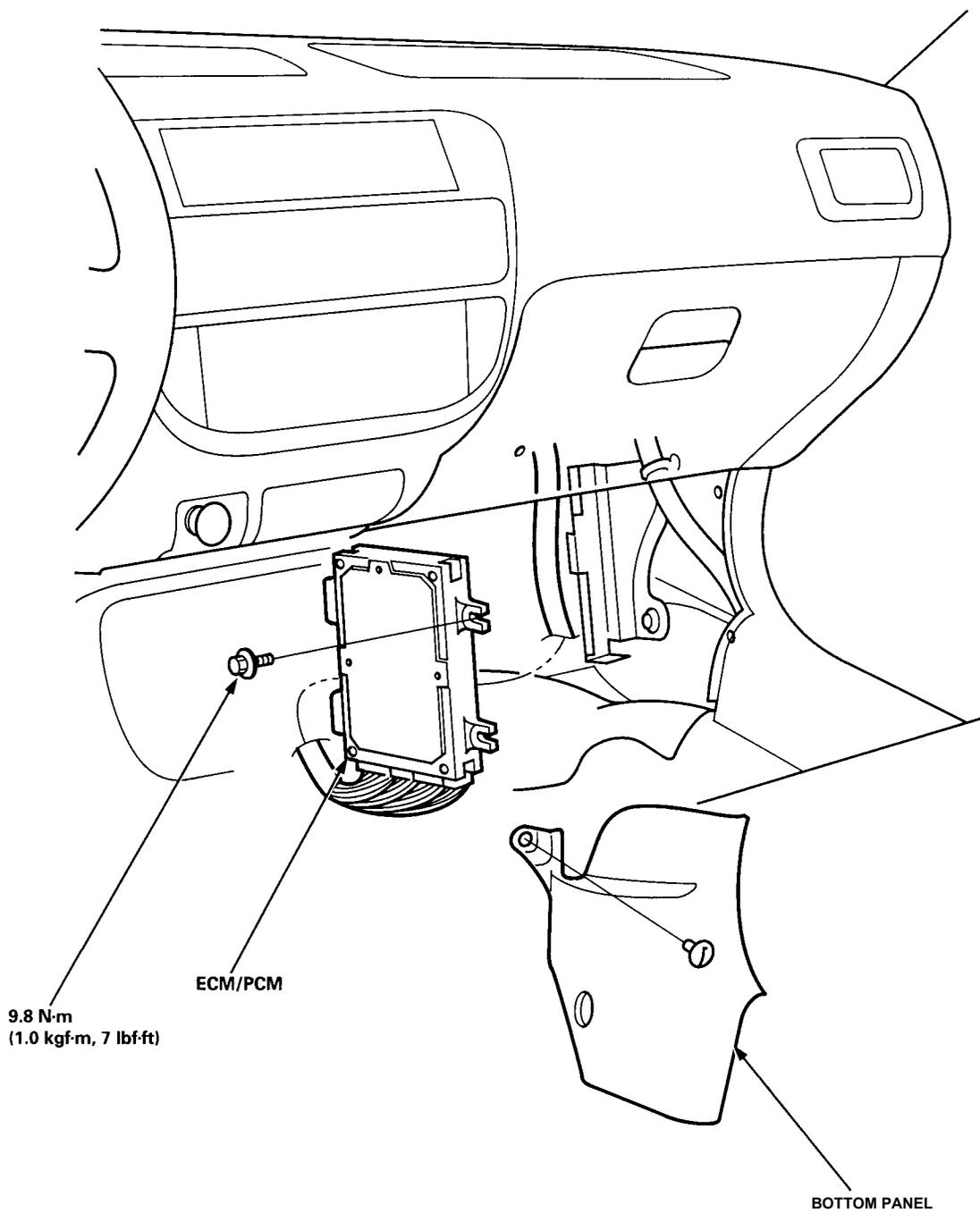
**MANUAL
INDEX**

**CONTENTS
SECTION**



Disassembling the ECM / PCM

If inspection of a particular code requires voltage or resistance checks in connectors ECM / PCM, remove the lower panel. Remove the carpet to expose the ECM / PCM. Remove the screw ECM / PCM.



The illustration shows the model LHD; RHD is symmetrical version.

(Cont.)

GENERAL
INDEX

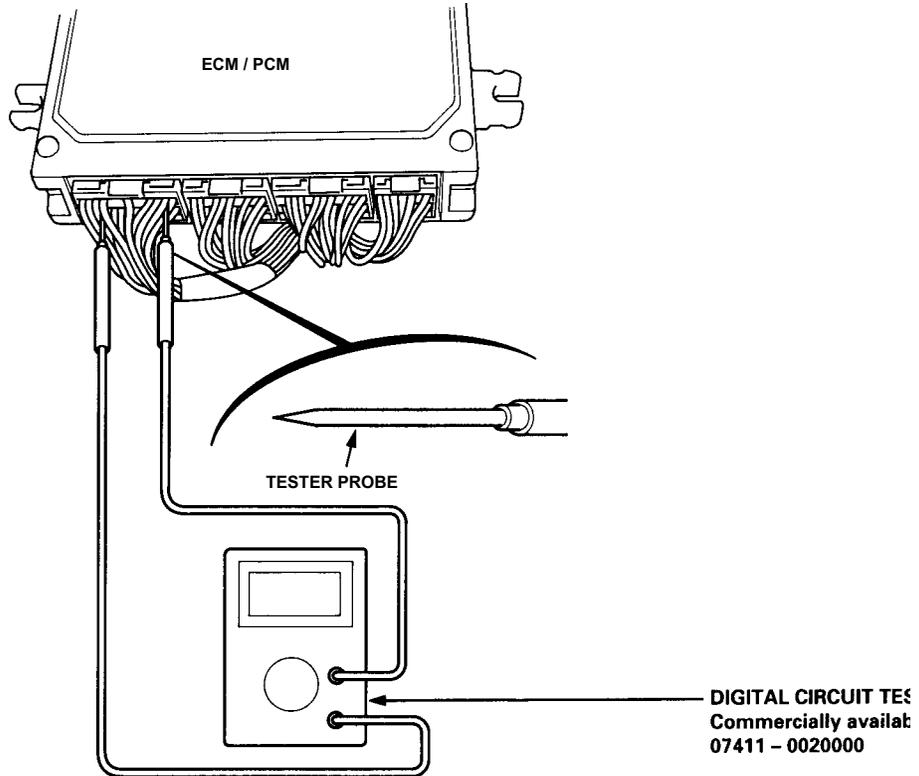
MANUAL
INDEX

CONTENTS
SECTION

Troubleshooting

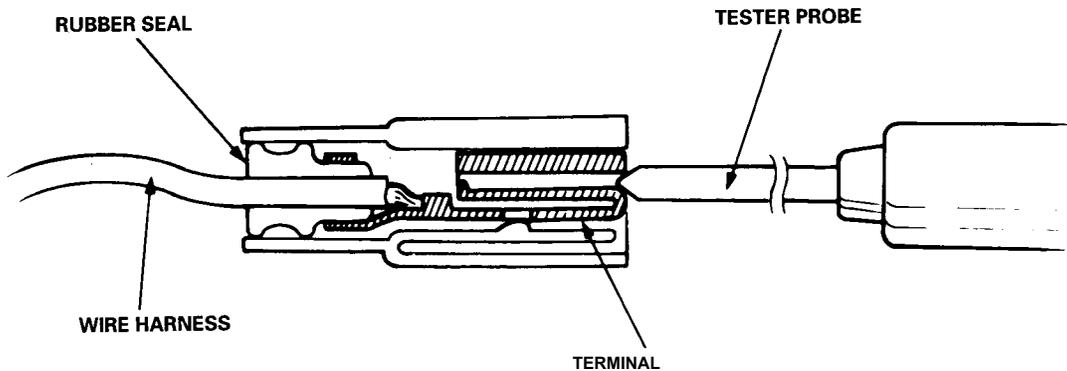
Autodiagnosis procedures (cont.)

The check connector terminals ECM / PCM carefully pass the sharp probe tester from the cable side to the connector until it contacts the terminal end of the cable.



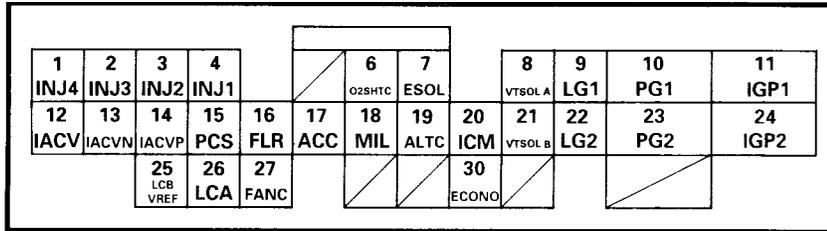
WATCH OUT:

- Piercing wire insulation can cause poor or intermittent connections.
- To test different test wiring connectors, please contact probe tester with side connector terminal connector wiring engine compartment. For sockets, lightly touch with the probe tester, without actually insert.





Terminal Configuration Control Module power train and engine control module



TERMINAL SIDE OF MALE TERMINALS

ECM/PCM CONNECTOR A (32P)

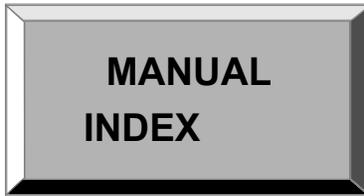
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL	INJ4 (No. 4 FUEL INJECTOR)	Drives No. 4 fuel injector.	With engine running: pulses
2	BLU	INJ3 (No. 3 FUEL INJECTOR)	Drives No. 3 fuel injector.	
3	RED	INJ2 (No. 2 FUEL INJECTOR)	Drives No. 2 fuel injector.	
4	BRN	INJ1 (No. 1 FUEL INJECTOR)	Drives No. 1 fuel injector.	
6*8	BLK/WHT	O2SHTC (HEATED OXYGEN SENSOR HEATER CONTROL)	Drives heated oxygen sensor heater.	With ignition switch ON (III): battery voltage With fully warmed up engine running: duty controlled
7*3	RED	ESOL (EGR CONTROL SOLENOID VALVE)	Drives EGR control solenoid valve.	With EGR operating during driving with fully warmed up engine: duty controlled With EGR not operating: 0 V
8**5	GRN/YEL	VTSOL A (VTEC SOLENOID VALVE A)	Drives VTEC solenoid valve A.	With engine at low engine speed: 0 V With engine at high engine speed: battery voltage
9	BRN/BLK	LG1 (LOGIC GROUND)	Ground for the ECM/PCM control circuit.	Less than 1.0 V at all times
10	BLK	PG1 (POWER GROUND)	Ground for the ECM/PCM power circuit.	
11	YEL/BLK	IGP1 (POWER SOURCE)	Power source for the ECM/PCM control circuit.	With ignition switch ON (III): battery voltage With ignition switch OFF: 0 V
12*1	BLK/BLU	IACV (IDLE AIR CONTROL VALVE)	Drives IACV.	With engine running: pulses
13*2	ORN	IACV N (IDLE AIR CONTROL VALVE NEGATIVE SIDE)	Drives IACV (negative side).	
14*2	BLK/BLU	IACV P (IDLE AIR CONTROL VALVE POSITIVE SIDE)	Drives IACV (position side).	
15	RED/YEL**20	PCS (EVAP PURGE CONTROL SOLENOID VALVE)	Drives EVAP purge control solenoid valve.	With engine running, engine coolant below 154°F (68°C): battery voltage With engine running, engine coolant above 154°F (68°C): 0 V
	RED*4	PCS (EVAP PURGE CONTROL SOLENOID VALVE)	Drives EVAP purge control solenoid valve.	With engine running, engine coolant below 154°F (68°C): 0 V With engine running, engine coolant above 154°F (68°C): battery voltage
16	GRN/YEL	FLR (FUEL PUMP RELAY)	Drives fuel pump relay.	0 V for two seconds after turning ignition switch ON (III), then battery voltage
17	BLK/RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay.	With compressor ON: 0 V With compressor OFF: battery voltage
18	GRN/ORN	MIL (MALFUNCTION INDICATOR LAMP)	Drives MIL.	With MIL turned ON: 0 V With MIL turned OFF: battery voltage
19*9	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal.	With fully warmed-up engine running: battery voltage During driving with small electrical load: 0 V
20	YEL/GRN	ICM (IGNITION CONTROL MODULE)	Sends ignition pulse.	With ignition switch ON: battery voltage With engine running: about 10 V (depending on engine speed)
21**16	RED	VTSOL B (VTEC SOLENOID VALVE B)	Drives VTEC solenoid valve B	With engine at low engine speed: 0 V With engine at high engine speed: battery voltage
22	BRN/BLK	LG2 (LOGIC GROUND)	Ground for the ECM/PCM control circuit.	Less than 1.0 V at all times
23	BLK	PG2 (POWER GROUND)	Ground for the ECM/PCM power circuit.	
24	YEL/BLK	IGP2 (POWER SOURCE)	Power source for the ECM/PCM control circuit.	With ignition switch ON: battery voltage With ignition switch OFF: 0 V
25	GRN/BLK**19	LC B (LOCK-UP CONTROL SOLENOID VALVE B)	Drives lock-up control solenoid valve B.	With lock-up ON: battery voltage With lock-up OFF: 0 V
	WHT/RED**10	VREF (REFERENCE VOLTAGE)	Provides reference voltage to other control unit.	With ignition switch ON: about 5 V With ignition switch OFF: 0 V
26**9	YEL	LC A (LOCK-UP CONTROL SOLENOID VALVE A)	Drives lock-up control solenoid valve A.	With lock-up ON: battery voltage With lock-up OFF: 0 V
27*5	GRN	FANC (RADIATOR FAN CONTROL)	Drives radiator fan relay.	With radiator fan running: 0 V With radiator fan stopped: battery voltage
30*3	WHT/RED	ECONO (ECONO INDICATOR LAMP)	Drives ECONO indicator lamp.	With ECONO turned ON: 0 V With ECONO turned OFF: battery voltage

* one: D15Z6 motors (M / T), D15Z7 (M / T), D16Y5 (M / T), D16Y6 (M / T), D16Y8, B16A2, B16A4, B16A5 and B16A6.
 * two: D15Z6 motors (A / T), D15Z7 (CVT), D16Y5 (CVT), D16Y6 (A / T), and D16Y8 D16Y7 (A / T).
 * 3: D15Z6 engines, D15Z7 and D16Y5 (KG and KE models).
 * 4: D15Z6 and B16A2 engines.
 * 5: D15Z6 engines (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5.
 * 6: D15Z7 engines, D16Y5, D16Y8, B16A2, B16A4, B16A5 and B16A6.
 * 7: D15Z6 engines, D15Z7, D16Y5 and D16Y6.
 * 8: D16Y5 engines (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5.
 * 9: D15Z6 engines, D15Z7, D16Y5, D16Y7, D16Y8, B16A2, B16A4 and B16A5.
 * 10: Engines D15Z7, D16Y5 and B16A5 (A / T).

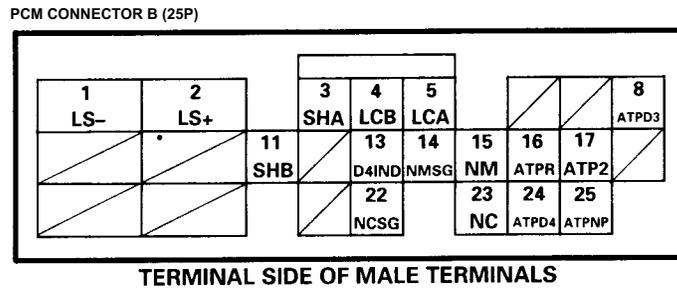
* eleven: D15Z7 and D16Y5 engines (Honda Multi Matic CVT).
 * 12: Motor B16A5.
 * 13: Models KG, KE, KS and KQ.
 * 14: Model without TWC.
 * fifteen: D15Z6 engines, D15Z7, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6.
 * 16: Motor D15Z7.
 * 17: D16Y7 engines and D16Y8 (A / T)
 * 18: TWC model.
 * 19: D15Z6 and D16Y6 engines.
 * twenty: D16Y5 engines, D16Y7 and B16Y8.
 * twenty-one: A / T (D15Z6 Motors and D16Y6)

(Cont.)



Troubleshooting

Terminal Configuration Control Module power train and engine control module (cont.)



PCM CONNECTOR B (25P)

NOTE: Standard battery voltage is 12 V.

Terminal number	Cable color	Designation terminal	Description	Signal
1 ^{*17}	WHT	LS (NEXT TO THE SOLENOID LINEAR)		With the ignition (II): cycles 0 V - battery voltage
2 ^{*17}	RED	LS (NEXT TO THE SOLENOID LINEAR)	solenoid valve change Mass linear solenoid valve for	With the ignition (II): cycles 0 V - battery voltage
3 ^{*17}	BLU/YEL	SH A (solenoid valves EXCHANGE CONTROL)	A solenoid activated control valve activates the linear	With the engine 2a. and 3a.: battery voltage With the engine 1a. and 4a.: around 0 V
4 ^{*17}	GRN/BLK	LC B (B SOLENOID VALVE CONTROL LOCK-UP)	B activates solenoid control valve lock-up	With the lock-up ON: battery voltage With the lock-up off: 0 V
5 ^{*17}	YEL	LC A (solenoid valve CONTROL LOCK-UP)	Activates the control solenoid valve A lock-up	With the lock-up ON: battery voltage With the lock-up off: 0 V
8 ^{*17}	PNK	ATPD3 (SWITCH POSITION CHANGE A / T).	Switch signal detects shift position A / T	D3 position: 0 V In any other position: battery voltage
11 ^{*17}	GRN/WHT	SH B (SOLENOID VALVE B EXCHANGE CONTROL)		With the engine 1a. and 2a.: battery voltage With engine 3A. and 4a.: about 0 V
13 ^{*17}	GRN/BLK	D4 IND (PILOT INDICATOR D4)		D4 with the indicator light on: the battery indicator light D4 off: 0 V
14 ^{*17}	WHT	NMSG (GROUND SPEED SENSOR SHAFT PRIMARY)	Detects the signal of the primary shaft Active speed sensor	
15 ^{*17}	RED	NM (SENSOR input shaft speed)	Detects the signal of the primary shaft Active speed sensor	With the engine running: pulses
16 ^{*17}	WHT	ATPR (SWITCH POSITION CHANGE A / T)	Switch signal detects shift position A / T Activates B solenoid	In position R: 0 V In any other position: battery voltage
17 ^{*17}	BLU	ATP2 (SWITCH POSITION CHANGE A / T)	Switch signal detects shift position A / T	In position 2: 0 V In any other position: battery voltage
22 ^{*17}	GRN	NCSG (GROUND SPEED SENSOR SHAFT INTERMEDIATE)	Detects the signal of the intermediate shaft speed sensor mass	
23 ^{*17}	BLU	NC (SPEED SENSOR SHAFT INTERMEDIATE)	Detects the signal of the intermediate shaft speed sensor mass	With the ignition (II) and front wheels rotating: pulses
24 ^{*17}	YEL	ATPD4 (SWITCH POSITION CHANGE A / T)	Switch signal detects shift position A / T	D4 position: 0 V In any other position: 5V
25 ^{*17}	LT GRN	ATPNO (SWITCH POSITION CHANGE A / T)	Switch signal detects shift position A / T	In position N or P: 0 V In any other position: battery voltage

- * one: D1526 motors (M / T), D15Z7 (M / T), D16Y5 (M / T), D16Y6 (M / T), D16Y8, B16A2, B16A4, B16A5 and B16A6.
 * two: D1526 motors (A / T), D15Z7 (CVT), D16Y5 (CVT), D16Y6 (A / T), and D16Y8 D16Y7 (A / T).
 * 3: D1526 engines, D15Z7 and D16Y5 (KG and KE models).
 * 4: D1526 and B16A2 engines.
 * 5: D1526 engines (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5.
 * 6: D15Z7 engines, D16Y5, D16Y8, B16A2, B16A4, B16A5 and B16A6.
 * 7: D1526 engines, D15Z7, D16Y5 and D16Y6.
 * 8: D16Y5 engines (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5.
 * 9: D1526 engines, D15Z7, D16Y5, D16Y7, D16Y8, B16A2, B16A4 and B16A5.
 * 10: Engines D15Z7, D16Y5 and B16A5 (A / T).

- * eleven: D15Z7 and D16Y5 engines (Honda Multi Matic CVT).
 * 12: Motor B16A5.
 * 13: Models KG, KE, KS and KQ.
 * 14: Model without TWC.
 * fifteen: D1526 engines, D15Z7, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6.
 * 16: Motor D15Z7.
 * 17: D16Y7 engines and D16Y8 (A / T).
 * 18: TWC model
 * 19: D1526 and D16Y6 engines.
 * twenty: D16Y5 engines, D16Y7 and B16Y8.
 * twenty-one: A / T (D15Z6 Motors and D16Y6)

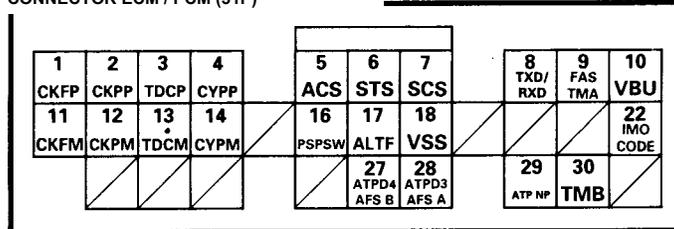
GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION



CONNECTOR ECM / PCM (31P)



TERMINAL SIDE OF MALE TERMINALS

ECM/PCM CONNECTOR C (31P)

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1 ^{*7}	BLU/RED	CKF P (CKF SENSOR P SIDE)	Detects CKF sensor.	With engine running: pulses
2	BLU	CKP P (CKP SENSOR P SIDE)	Detects CKP sensor.	With engine running: pulses
3	GRN	TDCP (TDC SENSOR P SIDE)	Detects TDC sensor.	With engine running: pulses
4	YEL	CYPP (CYP SENSOR P SIDE)	Detects CYP sensor.	With engine running: pulses
5	BLU/RED	ACS (A/C SWITCH SIGNAL)	Detects A/C switch signal.	With A/C switch ON: 0 V With A/C switch OFF: battery voltage
6	BLU/ORN	STS (STARTER SWITCH SIGNAL)	Detects starter switch signal.	With starter switch ON (III): battery voltage With starter switch OFF: 0 V
7	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check connector signal (the signal causing a DTC indication)	With the connector connected: 0 V With the connector disconnected: 5 V
8	LT BLU	TXD/RXD (DLC)	Sends and receives Honda PGM-Tester signal.	With ignition switch ON (II): about 5 V
9	YEL ^{*12}	FAS (FEEDBACK AT SIGNAL)	Sends feedback signal for the TCM.	At idle: about 5 V During shifting: momentary change to 0 V
	GRY ^{*11}	TMA	Data communication with TCM: ECM control data output	With ignition switch ON (II): pulses
10	WHT/BLU	VBU (VOLTAGE BACK UP)	Power source for the ECM/PCM control circuit. Power source for the DTC memory.	Battery voltage at all times
11 ^{*7}	WHT/RED	CKF M (CKF SENSOR M SIDE)	Ground for CKF sensor signal.	
12	WHT	CKP M (CKP SENSOR M SIDE)	Ground for CKP sensor signal.	
13	RED	TDCM (TDCM SENSOR M SIDE)	Ground for TDC sensor signal.	
14	BLK	CYPM (CYP SENSOR M SIDE)	Ground for CYP sensor signal.	
16 ^{*5}	GRN	PSPSW (P/S PRESSURE SWITCH)	Detects PSP switch signal.	At idle with steering wheel in straight ahead position: 0 V At idle with steering wheel rotated: battery voltage
17	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal.	With fully warmed up engine running: 0 V – battery voltage (depending on electrical load)
18	BLU/WHT	VSS (VEHICLE SPEED SENSOR)	Detects VSS signal.	With ignition switch ON (III) and front wheels rotating: cycles 0 V – 5 V
22 ^{*13}	RED	IMO CODE (IMMOBILIZER CODE)	Detects immobilizer signal.	
27	YEL ^{*21}	ATPD4 (A/T GEAR POSITION SWITCH)	Detects A/T gear position switch signal.	In <input type="checkbox"/> position: 0 V In any other position: battery voltage
	GRN/BLK ^{*12}	AFSB (A/T FI SIGNAL B)	Detects retard signal from the TCM.	During idling: about 5 V During shifting: momentary change to 0 V
28	PNK ^{*21}	ATPD3 (A/T GEAR POSITION SWITCH)	Detects A/T gear position switch signal.	In <input type="checkbox"/> position: 0 V In any other position: battery voltage
	WHT/RED ^{*12}	AFSA (A/T FI SIGNAL A)	Detects retard signal fro the TCM.	During idling: about 5 V During shifting: momentary change to 0 V
29 ^{*18}	LT GRN	ATPNP (A/T GEAR POSITION SWITCH)	Detects A/T gear position switch signal.	In <input type="checkbox"/> or <input type="checkbox"/> position: 0 V In any other position: battery voltage
30	PNK ^{*11}	TMB	Data communication with TCM: TCM control data input	With ignition switch ON (II): pulses

*one: D1526 motors (M / T), D1527 (M / T), D16Y5 (M / T), D16Y6 (M / T), D16Y8, B16A2, B16A4, B16A5 and B16A6.

*two: D1526 motors (A / T), D1527 (CVT), D16Y5 (CVT), D16Y6 (A / T), and D16Y8 D16Y7 (A / T).

*3: D1526 engines, D1527 and D16Y5 (KG and KE models).

*4: D1526 and B16A2 engines.

*5: D1526 engines (KG and KE models), D1527, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5.

*6: D1527 engines, D16Y5, D16Y8, B16A2, B16A4, B16A5 and B16A6.

*7: D1526 engines, D1527, D16Y5 and D16Y6.

*8: D16Y5 engines (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5.

*eleven: D1527 and D16Y5 engines (Honda Multi Matic CVT).

*12: Motor B16A5.

*13: Models KG, KE, KS and KQ.

*14: Model without TWC.

*fifteen: D1526 engines, D1527, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6.

*16: Motor D1527.

*17: D16Y7 engines and D16Y8 (A / T).

*18: TWC model.

*19: D1526 and D16Y6 engines.

*twenty: D16Y5 engines, D16Y7 and B16Y8.

*twenty-one: A / T (D1526 Motors and D16Y6)

*9: D1526 engines, D1527, D16Y5, D16Y7, D16Y8, B16A2, B16A4 and B16A5.

*10: Engines D1527, D16Y5 and B16A5 (A / T).

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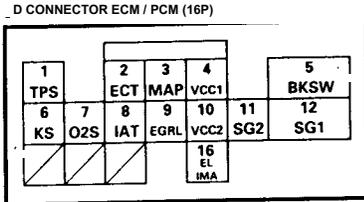
GENERAL
INDEX

MANUAL
INDEX

CONTENTS
SECTION

Troubleshooting

Terminal Configuration Control Module y powertrain control module engine (cont.)



ECM/PCM CONNECTOR D (16P)

TERMINAL SIDE OF MALE TERMINALS

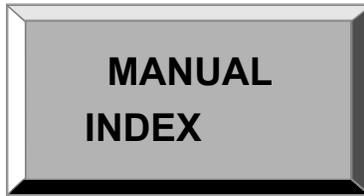
NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	RED/BLK	TPS (THROTTLE POSITION SENSOR)	Detects TP sensor signal.	With throttle fully open: about 4.8 V With throttle fully closed: about 0.05 V
2	RED/WHT	ECT (ENGINE COOLANT TEMPERATURE SENSOR)	Detects ECT sensor signal.	With ignition switch ON (II): about 0.1 – 4.8 V (depending on engine coolant temperature)
3	RED/GRN	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)
4	YEL/RED	VCC1 (SENSOR VOLTAGE)	Power source for MAP sensor.	With ignition switch ON (III): about 5 V With ignition switch OFF: 0 V
5	GRN/WHT	BKSW (BRAKE SWITCH)	Detects brake switch signal.	With brake pedal released: 0 V With brake pedal depressed: battery voltage
6 ^{*6}	RED/BLU	KS (KNOCK SENSOR)	Detects KS signal.	With engine knocking: pulses
7 ^{*9}	WHT	O2S (OXYGEN SENSOR)	Detects oxygen sensor signal.	With throttle fully opened from idle with fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
8	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)
9	WHT/BLK	EGRL (EGR VALVE LIFT SENSOR)	Detects EGR valve lift sensor signal.	At idle without vacuum: about 1.2 V With 27 kPa (200 mm Hg, 8 in.Hg): about 4.3 V
10	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage.	With ignition switch ON (III): about 5 V With ignition switch OFF: 0 V
11	GRN/BLK	SG2 (SENSOR GROUND)	Sensor ground.	Less than 1.0 V at all times
12	GRN/WHT	SG1 (SENSOR GROUND)	Ground for MAP sensor.	Less than 1.0 V at all times
16	GRN/RED ^{*5}	EL (ELD)	Detects ELD signal.	With parking lights turned at idle on: about 2.5 – 3.5 V With low beam headlights turned at idle on: about 1.5 – 2.5V
	GRN/RED ^{*14}	IMA (IDLE MIXTURE ADJUSTER)	Detects IMA signal.	With ignition switch ON (II): about 0.5 – 4.5 V (depending on idle mixture)

*one: D1526 motors (M / T), D1527 (M / T), D16Y5 (M / T), D16Y6 (M / T), D16Y8, B16A2, B16A4, B16A5 and B16A6.
*two: D1526 motors (A / T), D1527 (CVT), D16Y5 (CVT), D16Y6 (A / T), and D16Y8 D16Y7 (A / T).

*3: D1526 engines, D1527 and D16Y5 (KG and KE models).
*4: D1526 and B16A2 engines.
*5: D1526 engines (KG and KE models), D1527, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5.
*6: D1527 engines, D16Y5, D16Y8, B16A2, B16A4, B16A5 and B16A6.
*7: D1526 engines, D1527, D16Y5 and D16Y6.
*8: D16Y5 engines (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5.
*9: D1526 engines, D1527, D16Y5, D16Y7, D16Y8, B16A2, B16A4 and B16A5.
*10: Engines D1527, D16Y5 and B16A5 (A / T).

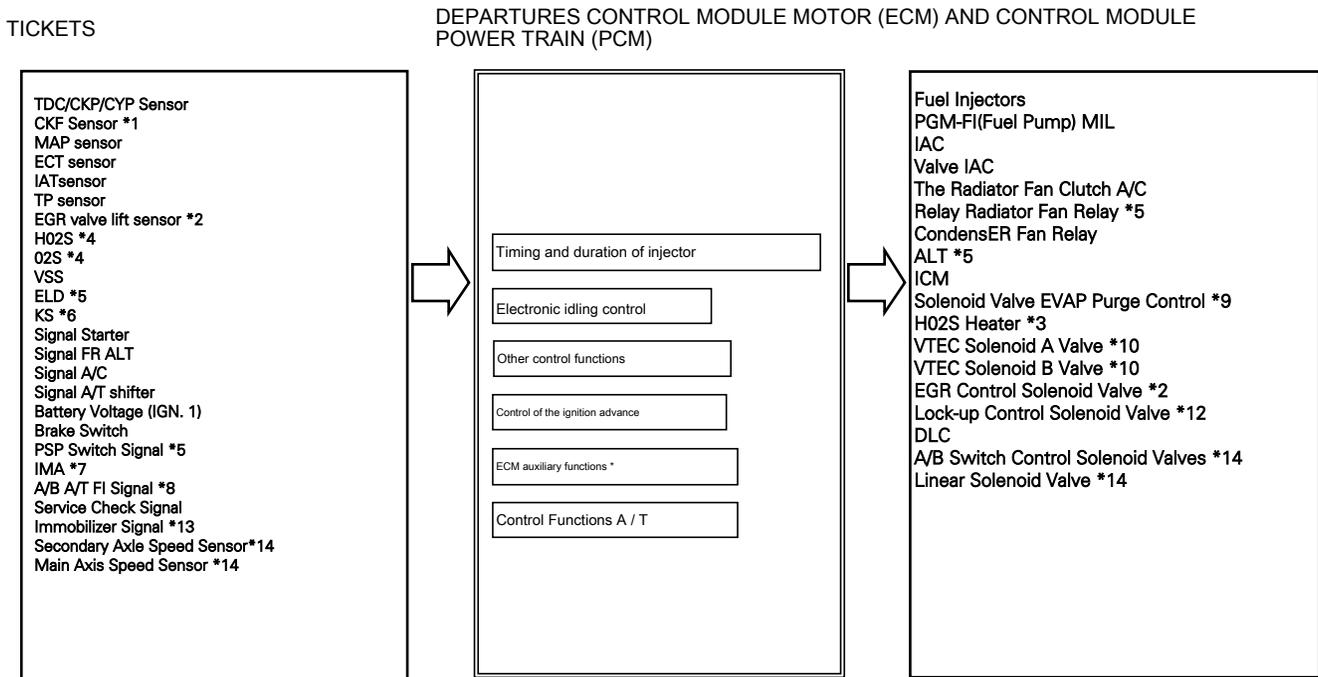
*eleven: D1527 and D16Y5 engines (Honda Multi Matic CVT).
*12: Motor B16A5.
*13: Models KG, KE, KS and KQ.
*14: Model without TWC.
*fifteen: D1526 engines, D1527, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6.
*16: Motor D1527.
*17: D16Y7 engines and D16Y8 (A / T).
*18: TWC model
*19: D1526 and D16Y6 engines.
*twenty: D16Y5 engines, D16Y7 and B16Y8.
*twenty-one: A / T (D1526 Motors and D16Y6)



PGM-FI system



System Overview



- * 1: Engines D15Z6, D15Z7, D16Y5 and D16Y6
- * 2: Engines D15Z6, D15Z7 and D16Y5 (KG and KE models)
- * 3: Engines D16Y5 (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5
- * 4: Engines D15Z6, D15Z7 and D16Y5 (KQ model)
- * 5: Engines D15Z6 (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5
- * 6: Engines D15Z7, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6
- * 7: Model without TWC
- * 8: Motor B16A5
- * 9: Engines D15Z6, D16Y5, D16Y7, D16Y8 and B16A2
- * 10: Engines D15Z6, D15Z7, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6
- * 11: Motor D15Z7
- * 12: D15Z6 Motors and D16Y6
- * 13: Models KG, KE KS and KQ
- * 14: Engines D16Y7 and D16Y8 (A / T)

PGM-FI system

The PGM-FI system of this model is a multi-input sequential injection system.

Timing and duration of fuel injector

The ECM / PCM incorporates memories basic discharge durations at various speeds and engine manifold pressure. The basic discharge duration, after reading from memory, is modified by signals received from the sensors, to obtain a final discharge duration.

Idle Air Control

Control valve Idle air (IAC valve)

When the engine is cold, the compressor A / C is on, the transmission is in gear (Just / T), the brake pedal is depressed, the P / S load is high * 5, or the alternator is charging, the ECM / PCM controls the current transmitted to the IAC valve to maintain idle speed appropriate.

Control ignition advance

The ECM / PCM contains memories of basic advances on various engine speeds and manifold pressures. Spark advance is also adjusted according to the temperature of refrigerante. Se has adopted a control system provides the ideal impact spark advance for octane gasoline employed * 6.

Other control functions

- one. Boot Control
When the engine starts, the ECM provides a rich mixture by increasing the duration of the fuel injector.
- two. Control of the fuel pump
 - When the contact (II) is set, the ECM / PCM mass supplied to the main relay PGM-FI, sending current to the fuel pump for two seconds to pressurize the fuel system.
 - When the engine is running, the ECM / PCM supplies ground to the PGM-FI main relay that sends power to the fuel pump.
 - When the engine is not running and the ignition is (II), the ECM / PCM cuts the dough to the main relay PGM- FI, canceling the current to the fuel pump.

**GENERAL
INDEX**

**MANUAL
INDEX**

**CONTENTS
SECTION**

PGM-FI system

System description (cont.)

3. Control of fuel cut

- During deceleration with the valve closed throttle, the current fuel injectors is cut to save fuel at higher than 910 speed (min-1) (engines D16Y7 (KH model), D16Y8 (KH T models, A /) ; 920 rpm (min-1): D16Y5 (KG models KE), D16Y8 (KH model M / T) engines; 950 rpm (min-1): D15Z6 engine (KG KE models); 990 rpm (min- 1): engines D16Y7 (KK and KM models), D16Y8 (KK and KM A / T), B16A2, B16A4, B16A5 and B16A6 models; 1000 rpm (min-1): D16Y5 (KQ model), D16Y6, D16Y8 (motors model KK, M / T), 1032 rpm (min-1): D15Z6 engine (KS model), 1200 rpm (min-1): engine D15Z7).
- The cutting action of the fuel takes place when the engine speed exceeds 6900 rpm (min-1): (engines D16Y5, D16Y6, D16Y7 and D15Z6; 7000 rpm (min-1: engine D16Y8; 7,300 rpm (min-1) : D15Z7 engine; 8,100 rpm (min-1): motoress D16A2, B16A4, B16A5 and B16A6.

4. Relay compressor clutch A / C

When the ECM / PCM receives the air conditioning system cooling the order, delays the activation of the compressor and enriches the mixture to ensure a smooth transition to the A / C mode.

5. Solenoid purge control of evaporative emissions (EVAP) * 9

- When the engine coolant temperature is below 68 ° C, the ECM / PCM mass supplied to the solenoid valve purge control EVAP cutting the vacuum to the container purge control (D15Z6 engines and B16A2).
- When the engine coolant temperature is below 68 ° C, the ECM / PCM mass supplied to the solenoid valve purge control EVAP cutting the vacuum to the container purge control (D16Y5 engines, D16Y7 and D16Y8).

6. Solenoid valve control exhaust gas recirculation (EGR) * 2

When it is required that the EGR control emissions of nitrogen oxides (NOx), the ECM / PCM controls the solenoid valve supplying regulated vacuum to the EGR valve.

7. Alternator Control * 5

The system controls the voltage generated in the alternator based on the electric charge and drive mode, thereby reducing engine load to optimize fuel economy.

Auxiliary and safety functions ECM / PCM

one. Safety function

When an abnormality occurs in a signal proedente of a sensor, the ECM / PCM ignore this signal and assumes a pre-programmed value for that sensor, which allows the engine to continue running.

two. auxiliary function

When an abnormality occurs in the ECM / PCM, the fuel injectors are controlled by an independent auxiliary circuit system, to allow basic driving functions.

3. Self-diagnosis function (fault indicator light MIL)

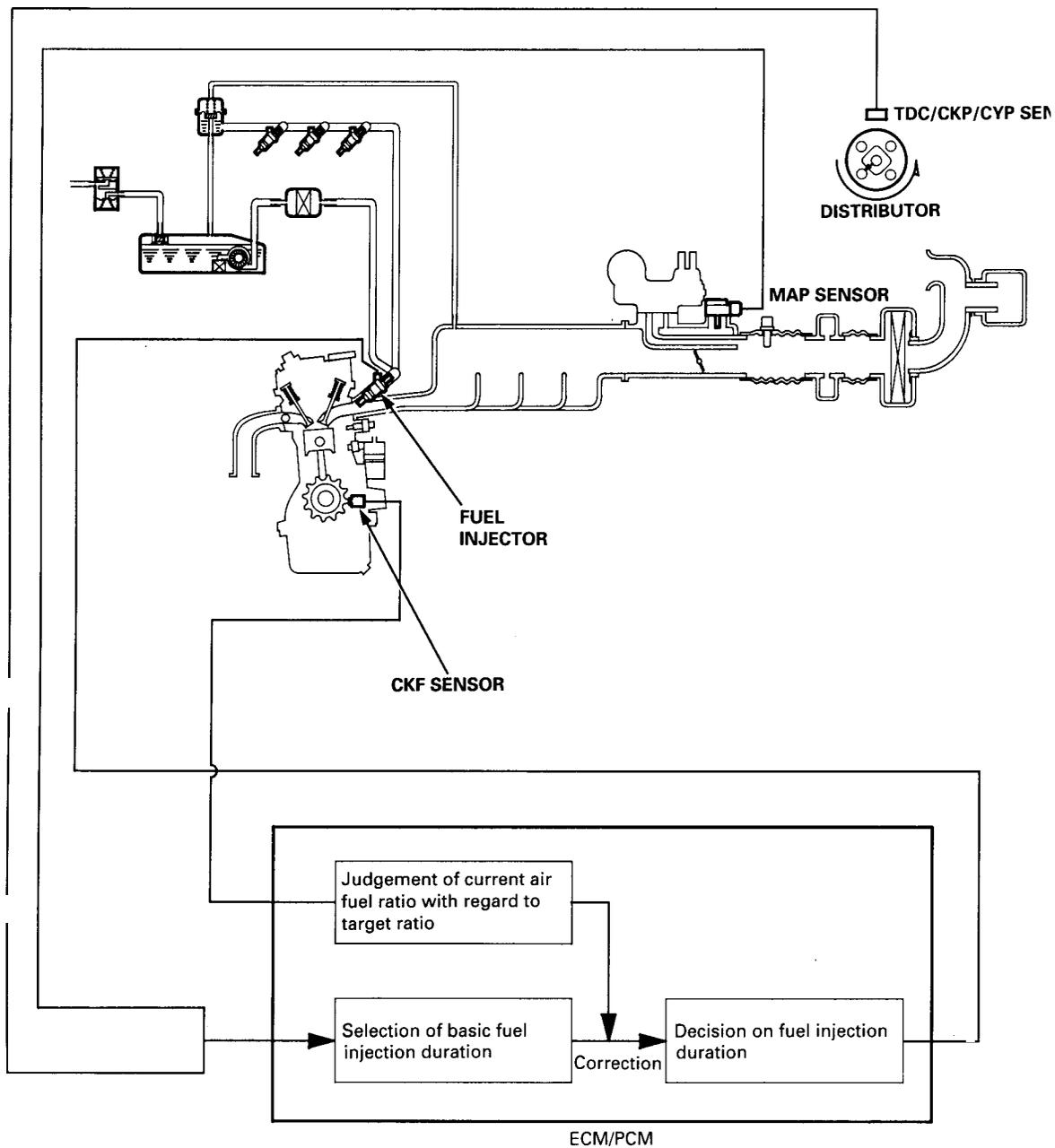
When an abnormality occurs in the signal from a sensor, the ECM supplies mass to MIL and stores the code in memory erasable. When the first contact sets, the ECM / PCM mass supplied to MIL for two seconds to check the status of the bulb MIL.

4. Method two-step detector

To avoid erroneous indications, the detectos two-step method for diagnostic functions of EGR systems, the HO2S and O2S * 3 * 4 is used. When an abnormality occurs, the ECM / PCM stores it appears in its memory. When the same problem appears again after you remove and put back contact (II), the ECM / PCM informs the driver by illuminating the MIL. However, to facilitate troubleshooting, this function is canceled by cutting the service connector. The MIL flashes immediately when an anomaly appears.



Control lean (Motors D15Z6, D15Z7, D16Y5 and D16Y6)



It has adopted a system for controlling lean mixture whose function is based on characteristic tico increase the angular acceleration of the crankshaft and which is activated when the air-fuel ratio becomes poor. The CKF sensor, integrated into the crankshaft, the engine speed registers. If the angular acceleration of the crankshaft decreases to a certain level (specified air-fuel ratio level), the fuel injection quantity is reduced.

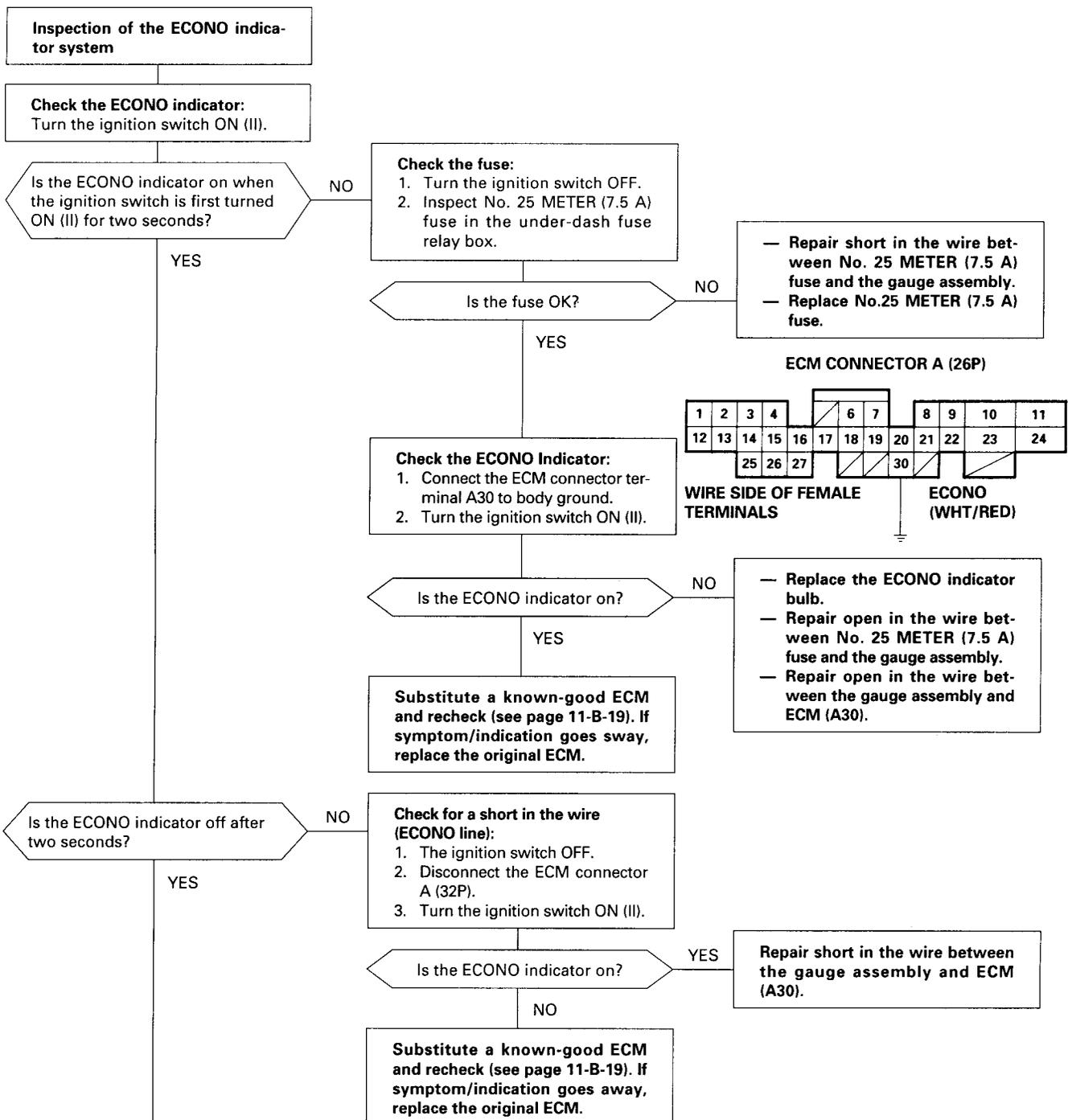
If the angular acceleration of the crankshaft exceeds this level, the amount of fuel injected is increased.

This system optimizes fuel economy and maneuverability controlling the amount of fuel injected at the rate of lean immediately after combustion begins to deteriorate.

PGM-FI system

ECONO indicator. D15Z6 engines, D15Z7 and D16Y5 (KG models and KE)

The purpose of ECONO indicator is to improve fuel efficiency, lighting to report on driving operations that may be cheaper.



(A p. 11-B-31)

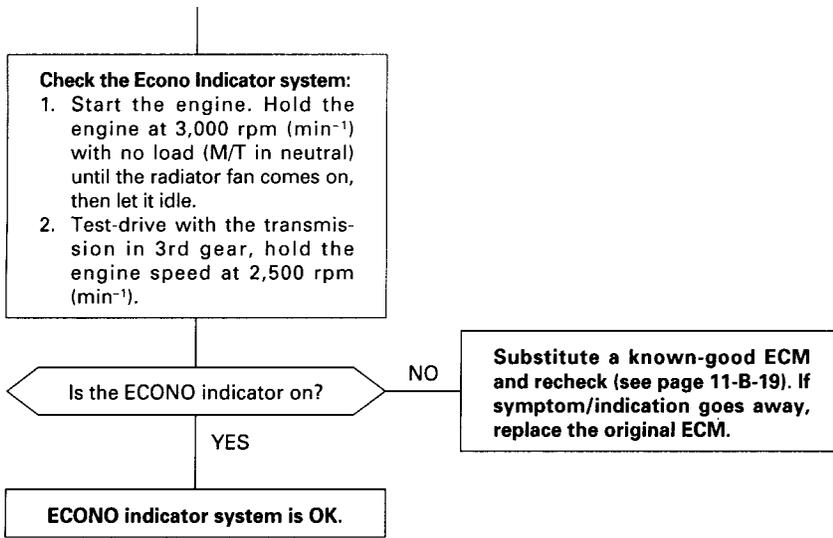
**GENERAL
INDEX**

**MANUAL
INDEX**

**CONTENTS
SECTION**



(P. 11-B-30)



PGM-FI system

Engine control module (ECM * 1)

The Malfunction Indicator Lamp (MIL) never comes on (even for two seconds) after ignition is turned on.

Check the fuse:
Turn the ignition switch ON (II).

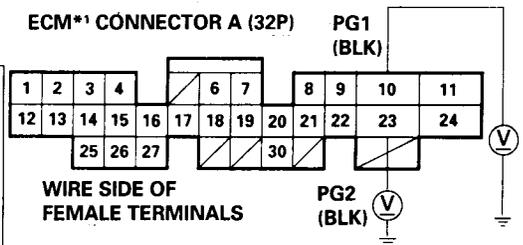
Is the low oil pressure light on?
YES
NO

— Repair short in the wire between No. 25 METER (7.5 A) fuse and gauge assembly.
— Replace No. 25 METER (7.5 A) fuse.

Check the engine starting:
Try to start the engine.

Does the engine start?
YES
NO

Check for an open in the wires (PG1, PG2 lines):
1. Turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Measure voltage between body ground and ECM*1 connector terminals A10, A23.



Is there less than 1.0 V?
YES
NO

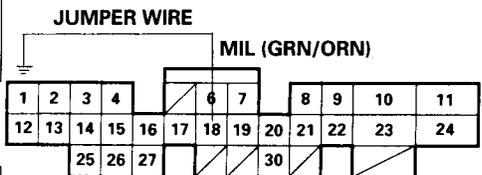
Repair open in the wire(s) between ECM*1 (A10, A23) and G101 that had more than 1.0 V.

Check the MIL:
1. Turn the ignition switch OFF.
2. Connect the ECM*1 connector terminal A18 to body ground.
3. Turn the ignition switch ON (II).

Substitute a known-good ECM*1 and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM*1.

Is the MIL on?
YES
NO

— Replace the MIL bulb.
— Repair open wire between the ECM*1 (A18) and the gauge assembly.



Substitute a known-good ECM*1 and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM*1.

NOTE: If this symptom is intermittent, check for a loose No. 25 METER (7.5 A) fuse in the under-dash fuse/relay box, a poor connection at ECM*1 terminal A18, or an intermittent open in the GRN/ORN wire between the ECM*1 (A18) and the gauge assembly.

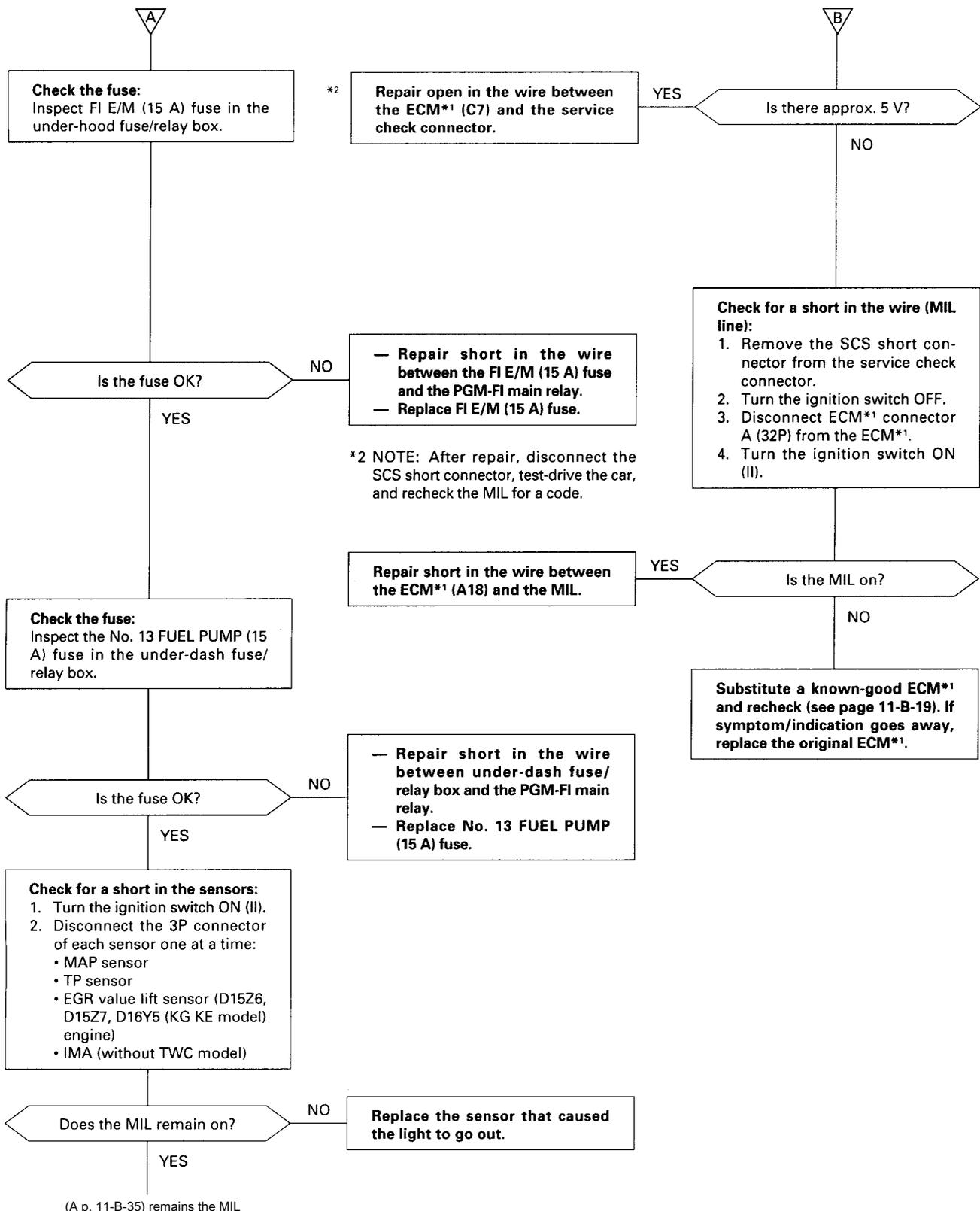
*1 Except D16Y7, D16Y8 engine (A/T) use an Engine Control Module (ECM). D16Y7, D16Y8 engine (A/T) use a Powertrain Control Module (PCM), which also controls transmission functions. When working on D16Y7, D16Y8 engine (A/T), all references to ECM in this section actually refer to the PCM.

PGM-FI system

Engine control module (ECM * 1) (cont.)

(P. 11-B-33)

(P. 11-B-33)



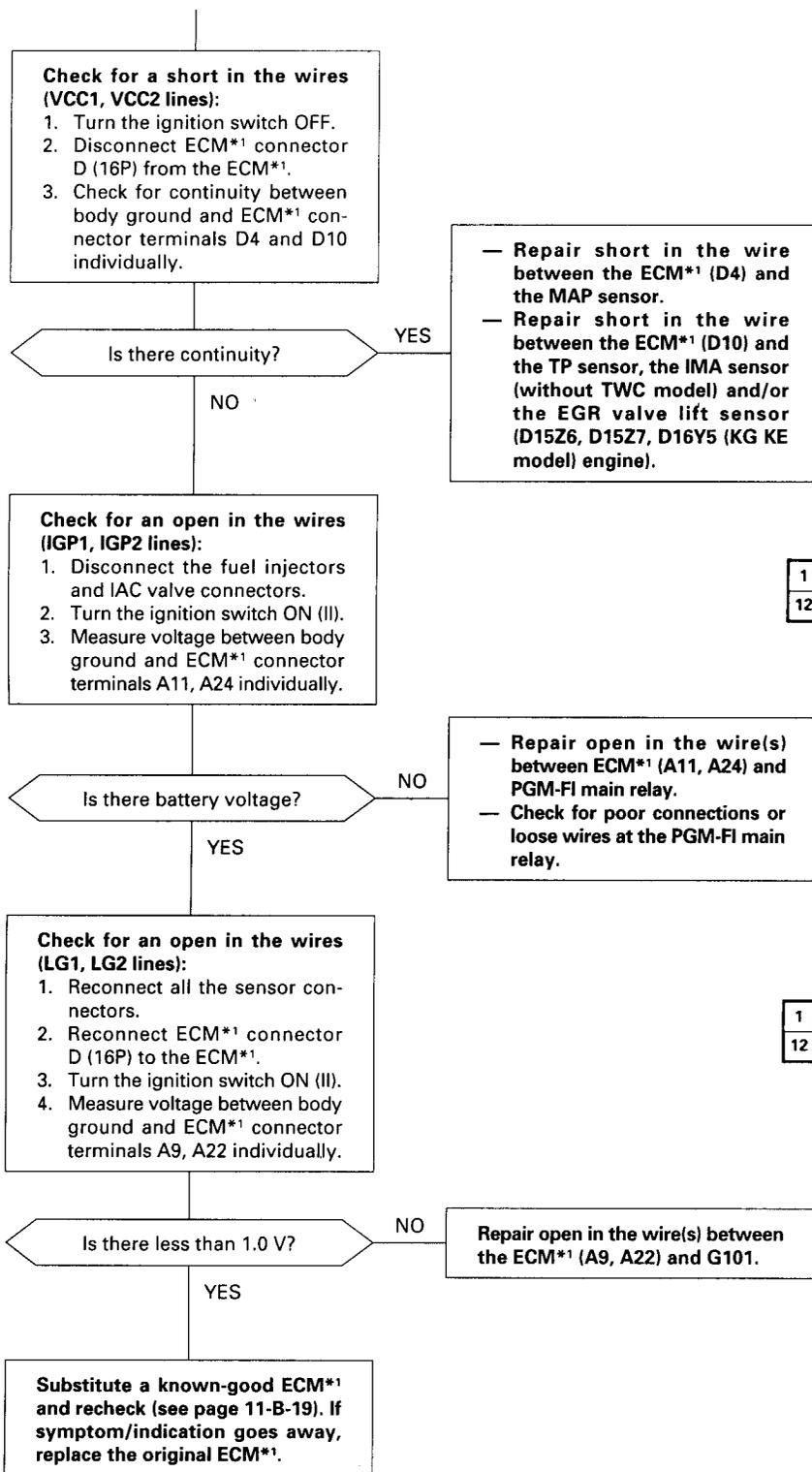
GENERAL INDEX

MANUAL INDEX

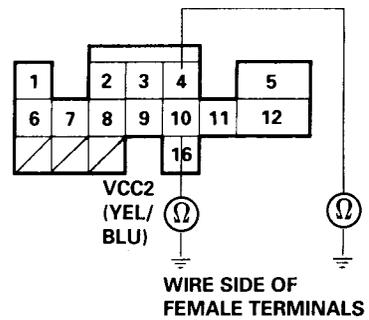
CONTENTS SECTION



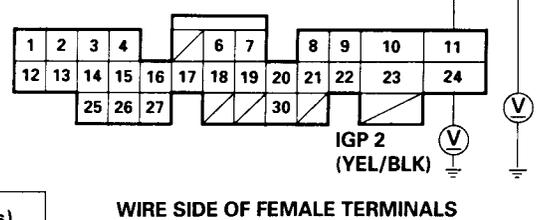
(P. 11-B-34)



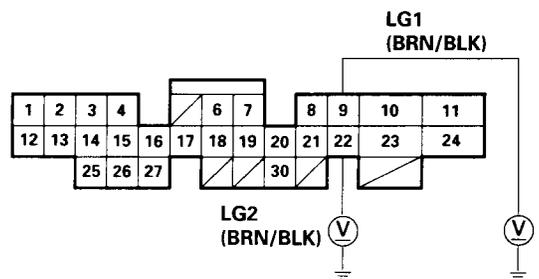
ECM CONNECTOR D * 1 (16P) VCC1 (YEL / RED)



ECM*1 CONNECTOR A (32P) IGP 1 (YEL/BLK)



WIRE SIDE OF FEMALE TERMINALS

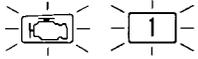


LG1 (BRN/BLK)

LG2 (BRN/BLK)

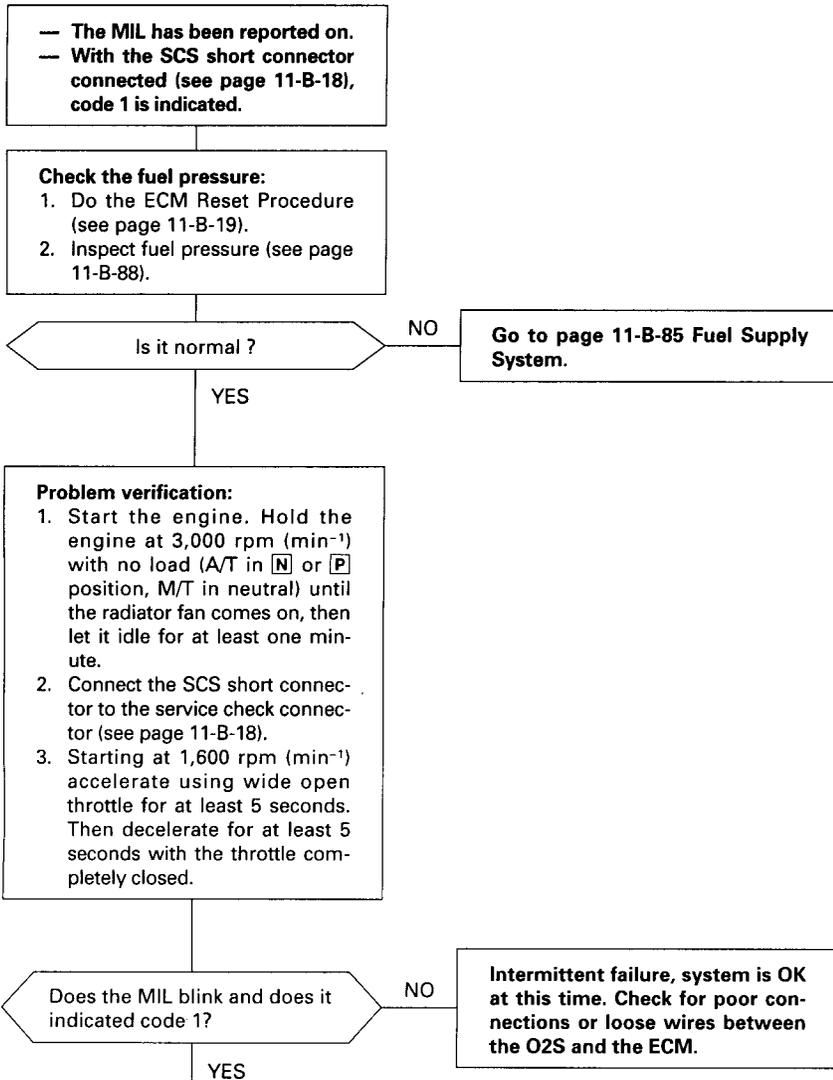
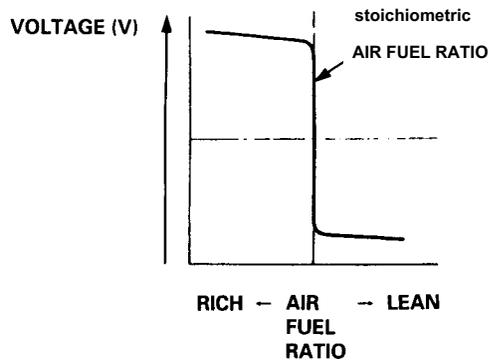
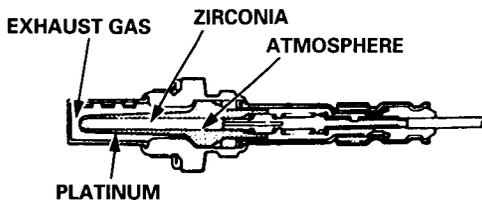
PGM-FI system

Oxygen sensor (O2S). D15Z6 engines, D15Z7 and D16Y5 (KQ model)



The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 1: Oxygen Sensor (O2S) circuit.

The oxygen sensor (O2S0) detects the oxygen content of the exhaust gas and transmits it to the ECM. When running, the ECM receives signals from the sensor and varies the duration which is injected the fuel. Its sensor is installed in the collector exhaust.



(A p. 11-B-37)

GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION

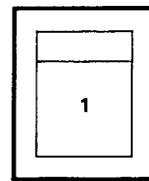


(P. 11-B-36)

Check the O2S:

1. Turn the ignition switch OFF.
2. Disconnect the O2S connector.
3. Restart the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle for at least one minute.
4. Open the throttle wide open, then quickly release it.
5. At the O2S harness, measure voltage between O2S connector terminal No. 1 and body ground.

O2S CONNECTOR



TERMINAL SIDE OF MALE TERMINALS

Is voltage above 0.6 V at wide open throttle and below 0.4 V when the throttle is quickly released?

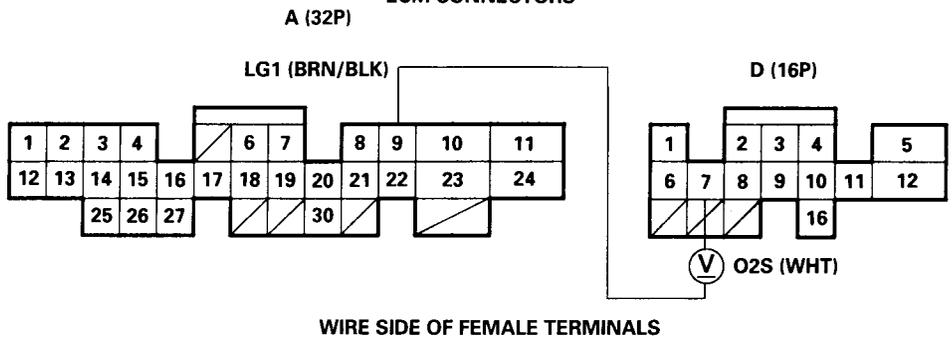
NO → **Replace the O2S.**

YES

Check for short or open in the wire (O2S line):

1. Turn the ignition switch OFF.
2. Reconnect the O2S connector.
3. Restart the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle for at least one minute.
4. Measure voltage between ECM connector terminals D7 and A9.

ECM CONNECTORS



WIRE SIDE OF FEMALE TERMINALS

Is voltage above 0.6 V at wide open throttle and below 0.4 V when the throttle is quickly released?

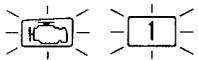
NO → **Repair short or open in the wire between the O2S and ECM (D7).**

YES

Substitute a known-good ECM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM.

PGM-FI system

Heated oxygen sensor (HO2S). D16Y5 engines (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5



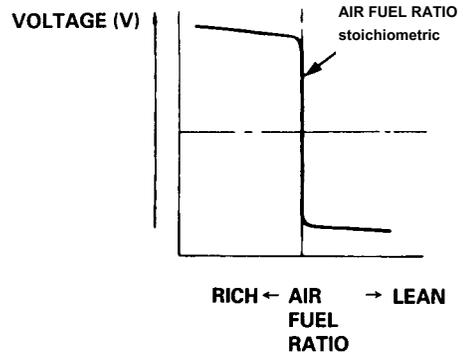
The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 1: A problem Heated Oxygen Sensor (HO2S) circuit.

The heated oxygen sensor (HO2S) detects the oxygen content of the exhaust gas and transmits it to the ECM. When operating, the ECM receives signals from the sensor and varies the duration for which the fuel is injected. Its sensor is installed on the exhaust manifold. To stabilize the sensor output, it has an internal heater. The HO2S is installed in the exhaust manifold (B16A2 engines, B16A4 and B16A5: in tube A exhaust).

ZIRCONIA
ELEMENT

HEATER

HEATER
TERMINALS



- The MIL has been reported on.
- With the SCS short connector connected (see page 11-B-18), code 1 is indicated.

Check the fuel pressure:

1. Inspect fuel pressure (see page 11-B-88).

Is it normal ?

NO

Go to page 11-B-85 Fuel Supply System.

YES

Problem verification:

1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle for at least one minute before test-driving.
3. Connect the SCS short connector to the service check connector (see page 11-B-18).
4. Test-drive A/T in **2** position, M/T in 4th gear. Starting at 1,600 rpm (min^{-1}), accelerate using wide open throttle for at least 5 seconds. Then decelerate for at least 5 seconds with the throttle completely closed.

Does the MIL blink and does it indicate code 1?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the HO2S and the ECM/PCM.

YES

(A p. 11-B-39)

GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION

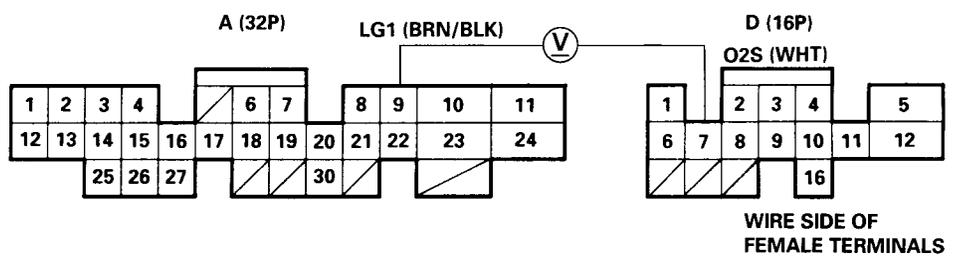


(P. 11-B-38)

Check the ECM/PCM input voltage:

1. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle for at least one minute before test-driving.
2. Measure voltage between ECM/PCM connector terminals D7 and A9.
3. Open the throttle wide open, then quickly release it.

ECM/PCM CONNECTORS



Is the voltage above 0.6 V at wide open throttle to 4,500 rpm (min^{-1}) and below 0.4 V when the throttle is quickly released from 4,500 rpm (min^{-1})?

YES

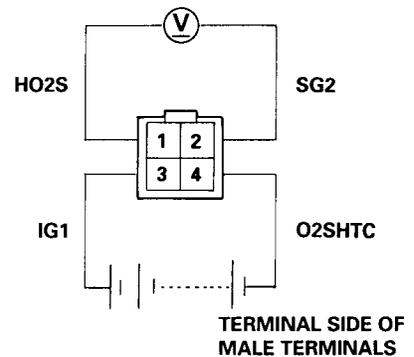
Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

NO

Check the HO2S:

1. Turn the ignition switch OFF.
2. Disconnect the 4P connector from the HO2S.
3. At the HO2S harness side, connect the battery positive terminal to terminal No. 3 and battery negative terminal to terminal No. 4.
4. Start the engine.
5. After two minutes, measure voltage between HO2S 4P connector terminals No. 1 and No. 2.

HO2S 4P CONNECTOR



Is the voltage above 0.6 V at wide open throttle to 4,500 rpm (min^{-1}) and below 0.4 V when the throttle is quickly released from 4,500 rpm (min^{-1})?

NO

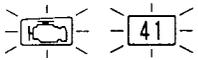
Replace the HO2S.

YES

Repair open or short in the wire ECM/PCM (D7) and the HO2S.

PGM-FI system

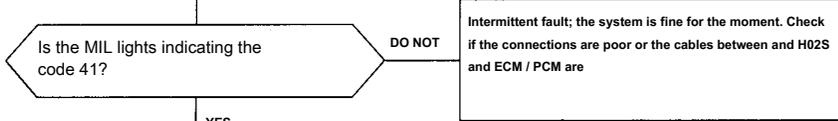
Heated oxygen sensor (H02s). D16Y5 engines (KG and KE models), D16Y7, D16Y8, B16A2, B16A4 and B16A5



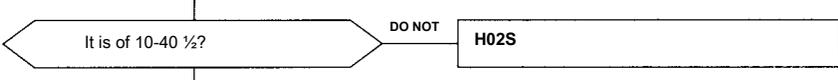
The malfunction indicator light (MIL) indicates pilot autodiagnostic code (DTC) 41: Problem in the heater circuit of the heated oxygen sensor.

- MIL on
- With the SCS short connector connected (see page 11-B-18), is indicated code 41

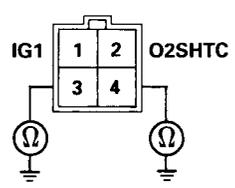
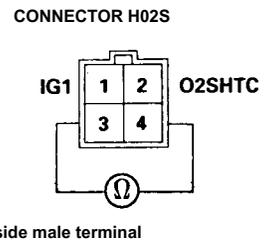
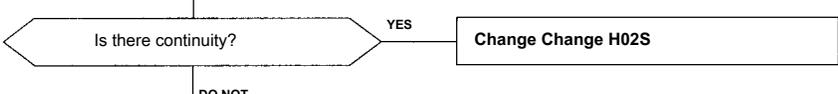
Verification of the problem:
1. Set the ECM / PCM (see page 11-B-19).
2. Start the engine



Check for open or short in the H02S:
1. Remove contact.
2. Disconnect the 4P connector H02S.
3. On the side of H02S, measure the resistance between the numbers 3 and 4 terminals 4P connector H02S



Check continuity between ground and terminal numbers 3 and 4 individually 4P connector H02S



(A p. 11-B-41)

GENERAL INDEX

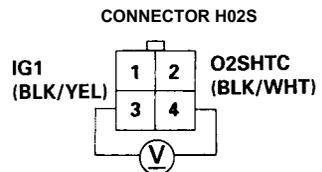
MANUAL INDEX

CONTENTS SECTION



(P. 11-B-40)

Check for open or short in the wires (line O2SHTC):
 1. Place the contact (II).
 2. Measure the voltage between the numbers 3 and 4 terminals 4P connector H02S



SIDE CABLE TERMINALS FEMALE

Is there battery voltage?

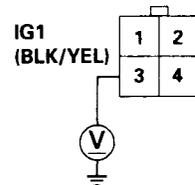
YES



(A p. 11-B-42)

DO NOT

Check for open wires (IG1 line):
 Measure the voltage between ground and the terminal number. 3 4P connector H02S



Is there battery voltage?

DO NOT



YES

Check for open wires (line O2SHTC):
 1. Remove contact.
 2. Reconnect connector H02S.
 3. Turn the ignition.
 4. Measure the voltage between A6 and A10 ECM connector terminals.

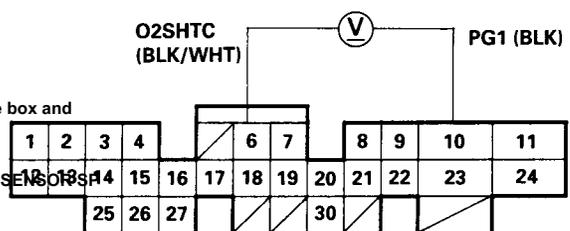
CONNECTOR ECM / PCM (32P)

relays on the board

ALTERNATOR (7.5A) in the fuse box and

between HO2S and fuse NO. 15 SENSORS

PCM (A6) and HO2S Repair open in the wire



SIDE CABLE TERMINALS HE, BRA

Is 0.1 V or less?

YES

Repair open in the wire between the ECM /

DO NOT

Change the ECM / PCM by one in good condition and check again (see page 11-B-19). If the symptom or indication disappear, replace the original ECM

(Cont.)

**GENERAL
INDEX**

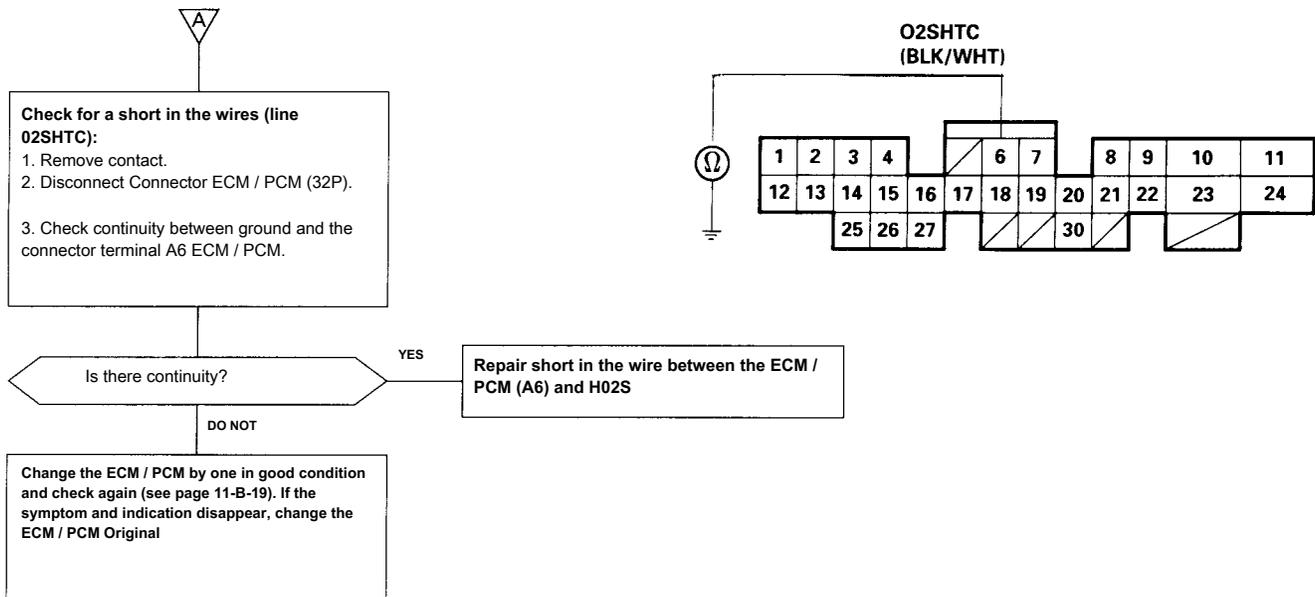
**MANUAL
INDEX**

**CONTENTS
SECTION**

PGM-FI system

Heated oxygen sensor (H02S), heater (KG KE models). D16Y7 engines, D16Y8, B16A2, B16A4, B16A5 (cont.)

(P. 11-B-41)





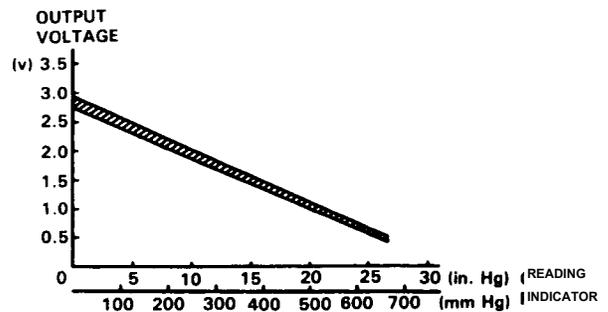
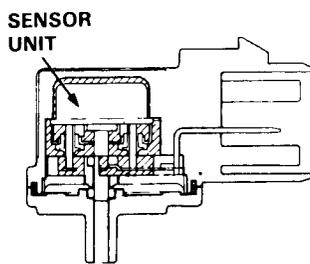
Sensor manifold absolute pressure (MAP)



The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 3: An electrical problem in the Manifold Absolute Pressure (MAP) Sensor circuit.

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

- The MIL has been reported on.
- With the SCS short connector connected (see page 11-B-18), code 3 is indicated.



- Problem verification:**
1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
 2. Start the engine and allow it to idle.

Is the MIL on and does it indicate code 3?

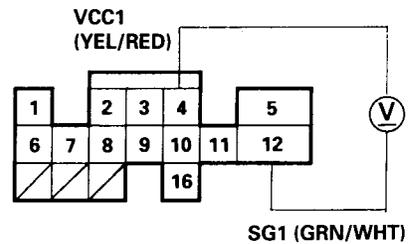
NO: Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the MAP sensor and the ECM/PCM.

- YES: **Check the ECM/PCM output voltage (VCC1 line):**
1. Turn the ignition switch OFF.
 2. Turn the ignition switch ON (II).
 3. Measure voltage between ECM/PCM connector terminals D4 and D12.

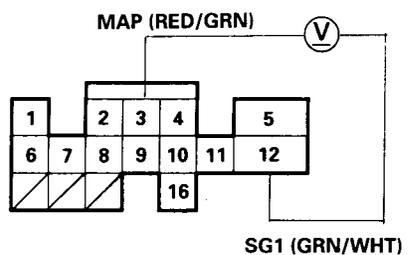
Is there approx. 5 V?

NO: Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

ECM/PCM CONNECTOR D (16P)



WIRE SIDE OF FEMALE TERMINALS

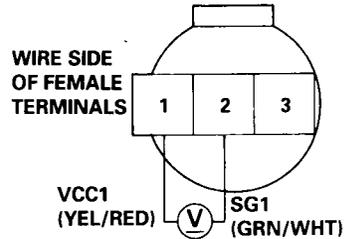


- YES: **Check the ECM/PCM output voltage (MAP line):** Measure voltage between ECM/PCM connector terminals D3 and D12.

Is there approx. 3 V?

YES: Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

MAP SENSOR 3P CONNECTOR



NO: **Check for an open in the wire (SG1 line):**

1. Turn the ignition switch OFF.
2. Disconnect 3P connector from the MAP sensor.
3. Turn the ignition switch ON (II).
4. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 2.

Is there approx. 5 V?

NO: Repair open in the wire between the ECM/PCM (D12) and the MAP sensor.



(A p. 11-B-44)

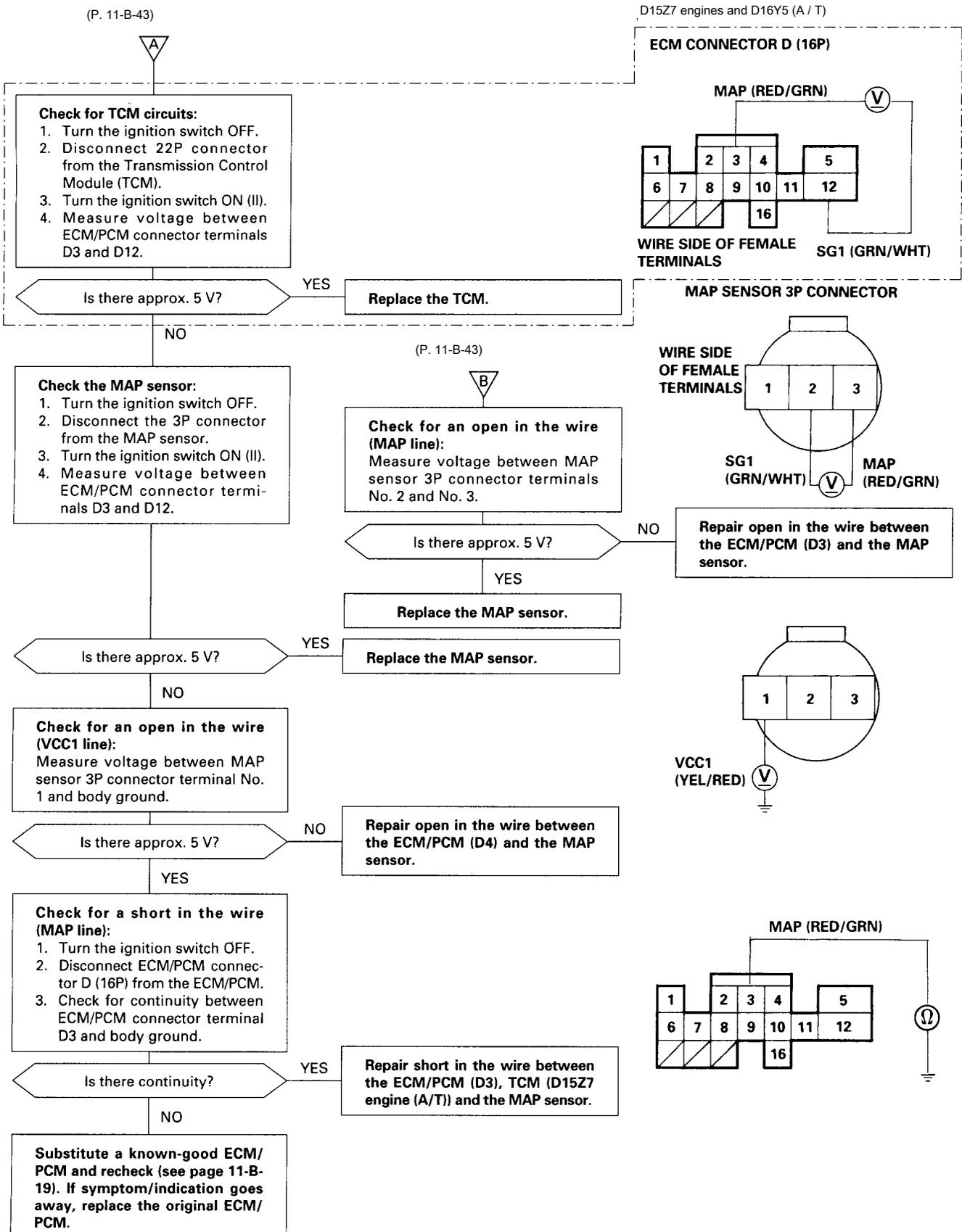


(A p. 11-B-44)

(Cont.)

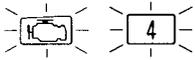
PGM-FI system

Sensor manifold absolute pressure (MAP) (cont.)

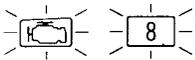




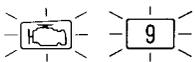
Sensor TDC / CKP / CYP



The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 4: A problem in the Crankshaft Position (CKP) Sensor circuit.



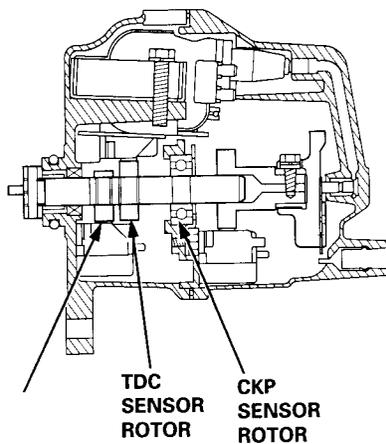
The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 8: A problem in the Top Dead Center (TDC) Sensor circuit.



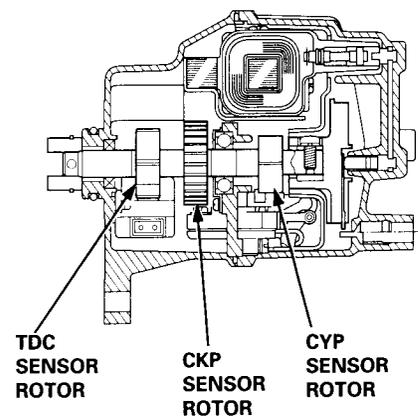
The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 9: A problem in the Cylinder Position (CYP) Sensor circuit.

The CKP Sensor determines timing for fuel injection and ignition of each cylinder and also detects engine speed. The TDC Sensor determines ignition timing at start-up (cranking) and when crank angle is abnormal. The CYP Sensor detects the position of No. 1 cylinder for sequential fuel injection to each cylinder. The TDC/CKP/CYP Sensor is built into the distributor.

D16Y5, D16Y6 engine:



Except D16Y5, D16Y6 engine:



— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 4, 8, and/or 9 are indicated.

Problem verification:
1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Start the engine.

Is the MIL on and does it indicate code 4, 8 and/or 9?

NO
Intermittent failure, system is OK at this time (test-drive may be necessary).
Check for poor connections or loose wires between the distributor and the ECM/PCM.

YES

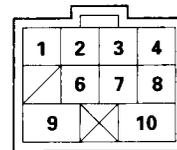
Check the sensor resistance:
1. Turn the ignition switch OFF.
2. Disconnect the distributor 10P connector.
3. Measure resistance between terminals of the indicated sensor.
*see table

Is there 350 – 700 Ω?

NO
Replace the distributor ignition housing (see section 23).

YES

DISTRIBUTOR 10P CONNECTOR



TERMINAL SIDE OF MALE TERMINALS

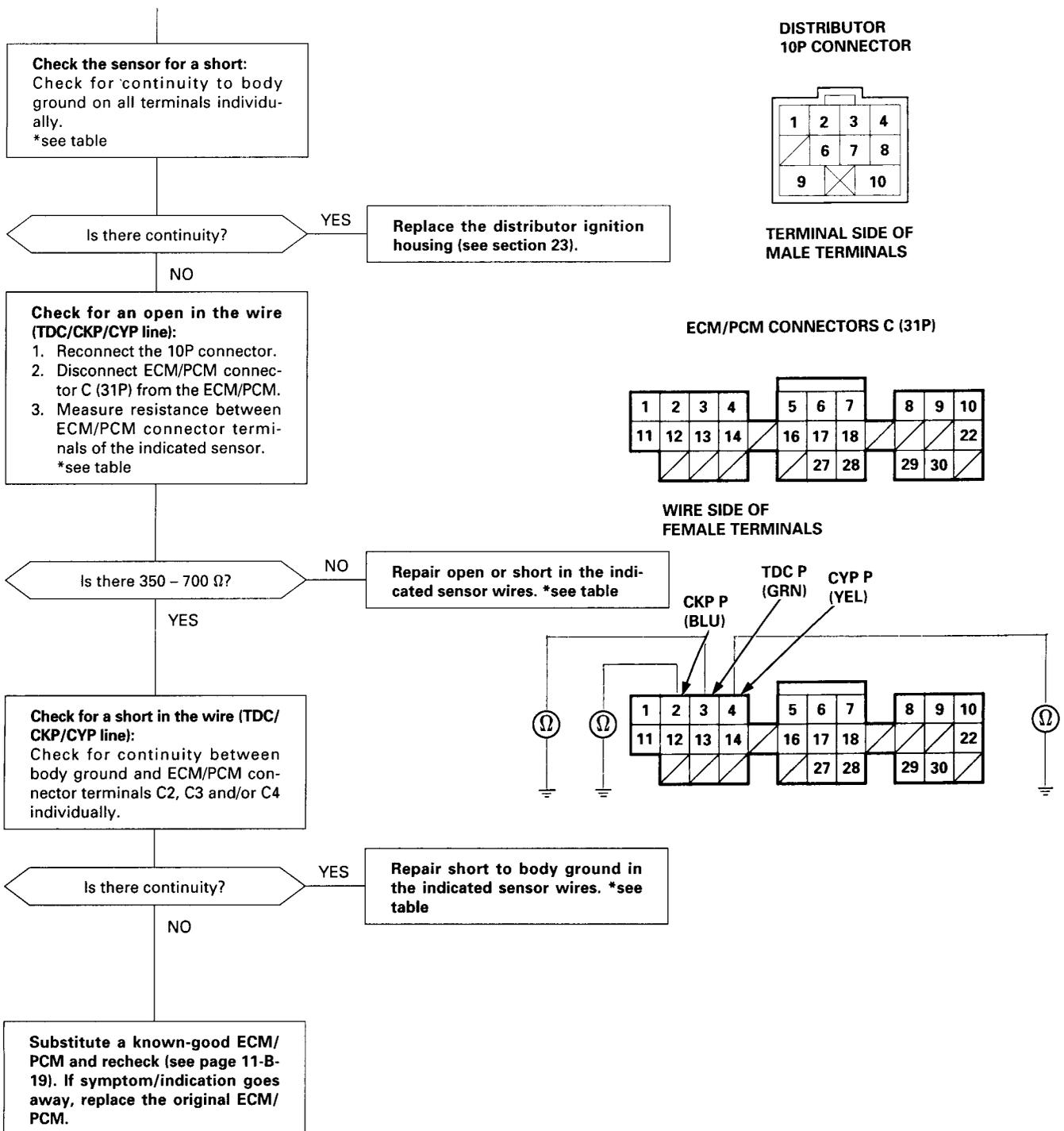
•:

SENSOR	DTC	SENSOR TERMINAL	ECM/PCM TERMINAL	WIRE COLOR
CKP	4	2	C2	BLU
		6	C12	WHT
TDC	8	3	C3	GRN
		7	C13	RED
CYP	9	4	C4	YEL
		8	C14	BLK

PGM-FI system

TDC sensor / CKP / CYP (cont.)

(P. 11-B-45)





Temperature sensor engine coolant (ECT)



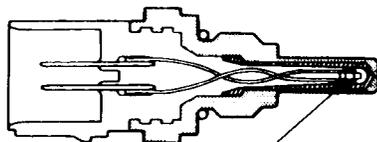
The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 6: A problem in the Engine Coolant Temperature (ECT) Sensor circuit.

The ECT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the engine coolant temperature increases as shown below.

— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 6 is indicated.

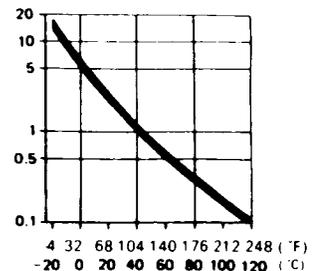
Problem verification:
1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Turn the ignition switch ON (II).

Is the MIL on and does it indicate code 6?



THERMISTOR

RESISTANCE (kΩ)



ENGINE COOLANT TEMPERATURE

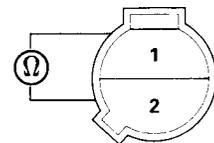
Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the ECT sensor, the ECM/PCM and the TCM (B16A5 engine).

Check the sensor resistance:
1. Start the engine. Hold the engine at 3,000 rpm (min⁻¹) with no load (A/T in N or P position, M/T in neutral) until the radiator fan comes on, then let it idle.
2. Turn the ignition switch OFF.
3. Disconnect the 2P connector from the ECT sensor.
4. Measure resistance between the 2 terminals on the ECT sensor.

Is there 200 – 400 Ω?

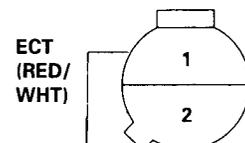
Replace the ECT sensor.

ECT SENSOR 2P CONNECTOR



TERMINAL SIDE OF MALE TERMINALS

ECT SENSOR 2P CONNECTOR

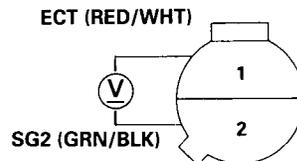


WIRE SIDE OF FEMALE TERMINALS

Check the ECM/PCM output voltage (ECT line):
1. Turn the ignition switch ON (II).
2. At the engine harness side, measure voltage between the ECT sensor 2P connector terminal No. 1 and body ground.

Is there approx. 5 V?

Check for an open in the wire (SG2 line):
Measure voltage between the ECT sensor 2P connector terminals No. 1 and No. 2.



Is there approx. 5 V?

Repair open in the wire between the ECM/PCM (D11) and ECT sensor.

Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

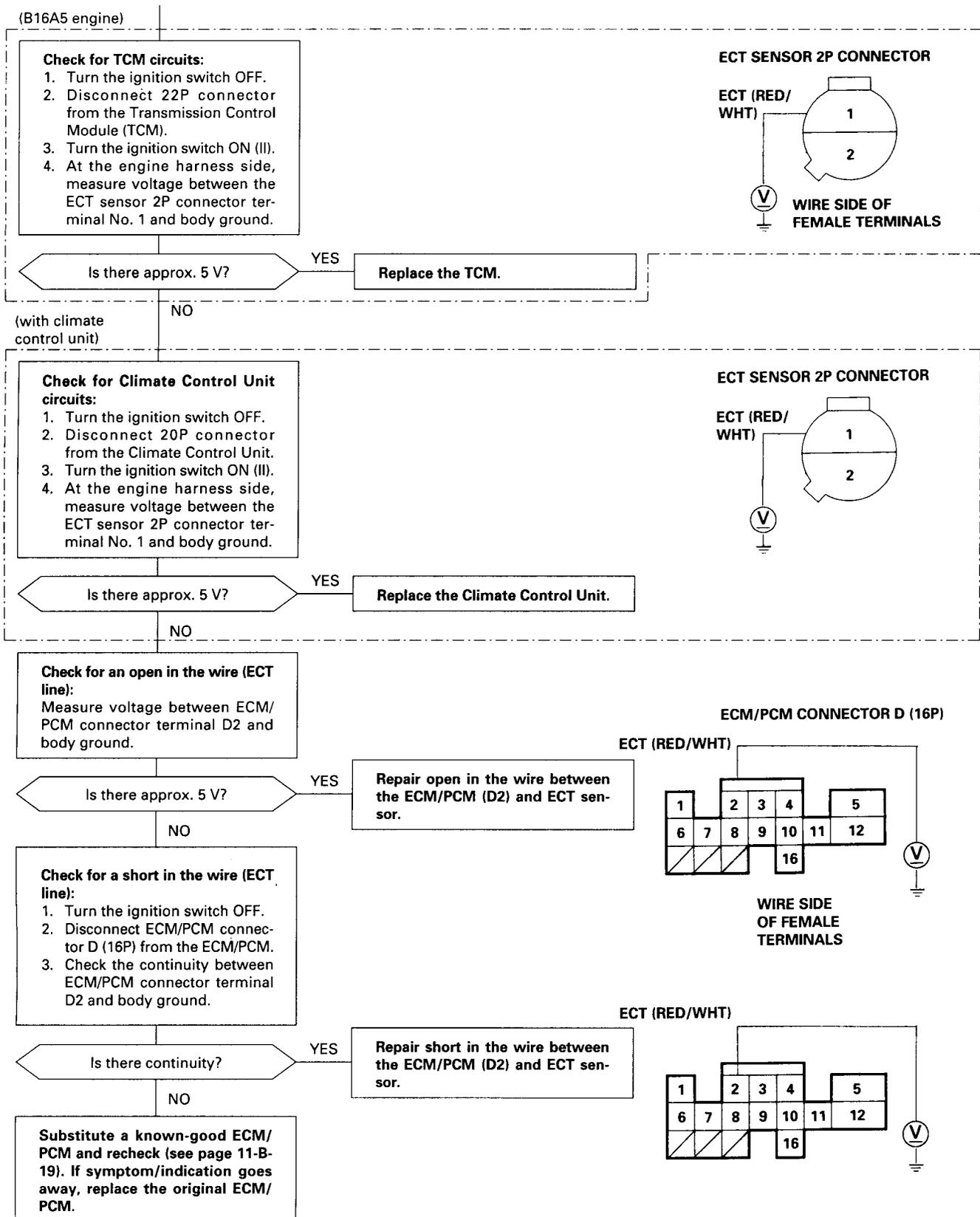
(A p. 11-B-48)

(cont'd)

PGM-FI system

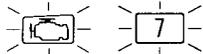
Sensor coolant temperature (ECT) (cont.)

(P. 11-B-47)





Sensor throttle position (TP)



The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 7: A problem in the Throttle Position (TP) Sensor circuit.

The TP sensor is a potentiometer. It is connected to the throttle valve shaft. As the throttle position changes, the throttle position sensor varies the voltage signal to the ECM/PCM.

— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 7 is indicated.

Problem verification:
1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Start the engine.

Is the MIL on and does it indicate code 7?

NO

Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the TP sensor, the ECM/PCM and the TCM (D15Z7, D16V5 (KG, KE model), B16A5 engine (A/T)).

YES

Check the sensor output voltage:
1. Turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Measure voltage between ECM/PCM connector terminals D1 and D11.

Is the voltage approx. 0.5 V at full close throttle, and approx. 4.5 V at full open throttle?
NOTE: There should be a smooth transition as the throttle is depressed.

YES

Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

NO

Check the TP circuit:
1. Turn the ignition switch OFF.
2. Disconnect 3P connector from the TP sensor.
3. Turn the ignition switch ON (II).
4. At the engine harness side, measure voltage between the TP sensor 3P connector terminal No. 3 and body ground.

Is there approx. 5 V?

NO

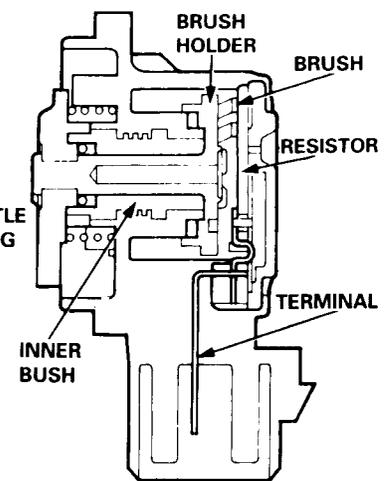
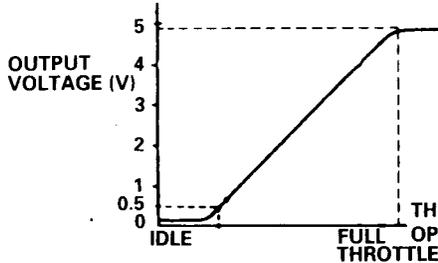
YES



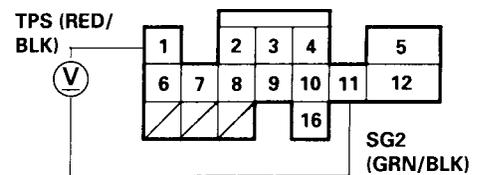
(A p. 11-B-50) is approx. 5 V?



(A p. 11-b-50)

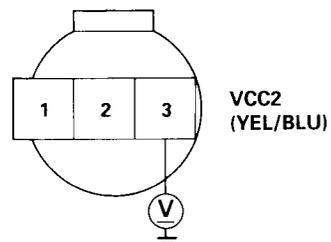


ECM/PCM CONNECTOR D (16P)



WIRE SIDE OF FEMALE TERMINALS

TP SENSOR 3P CONNECTOR

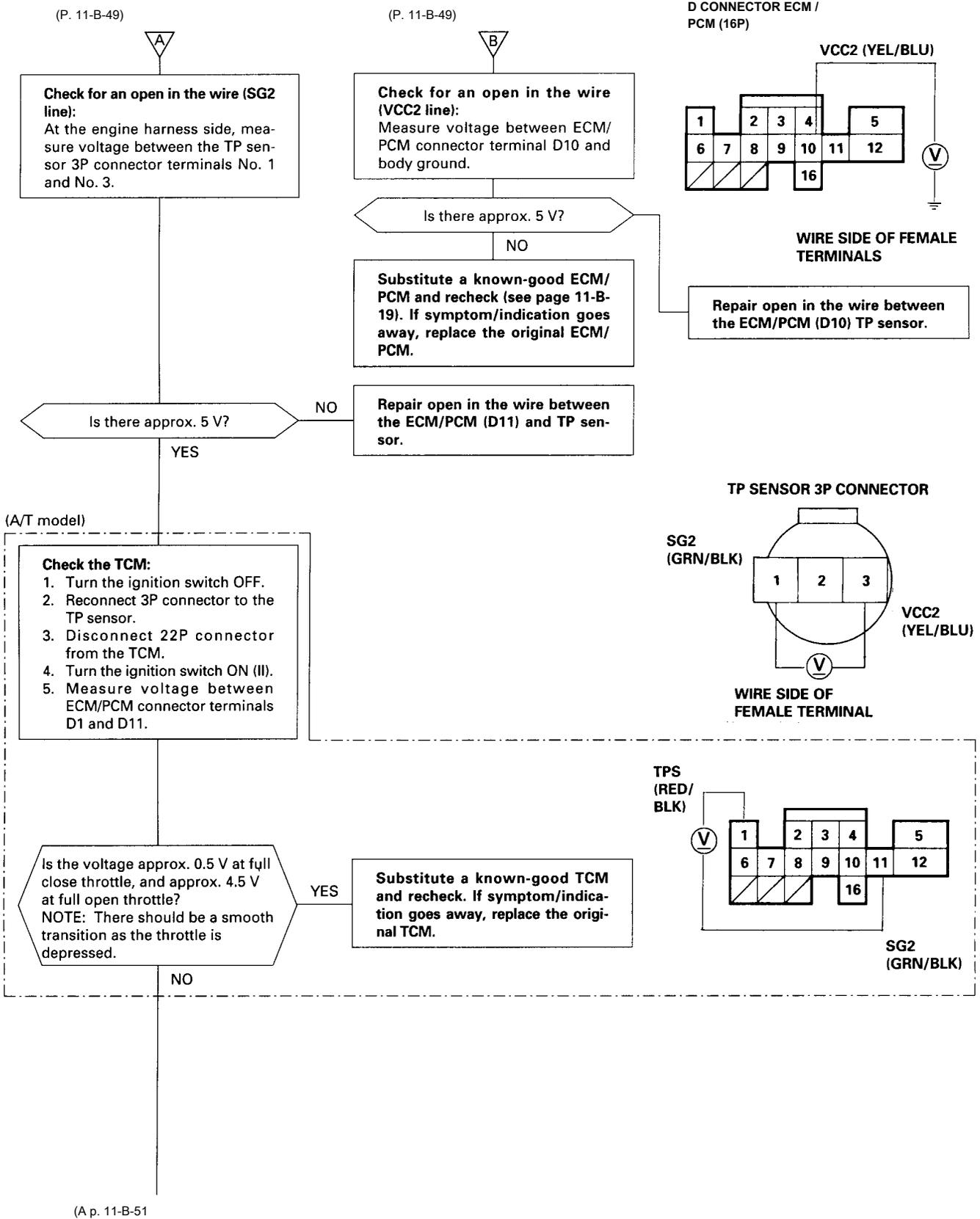


WIRE SIDE OF FEMALE TERMINALS

(cont'd)

PGM-FI system

Sensor throttle position (TP) (cont.)



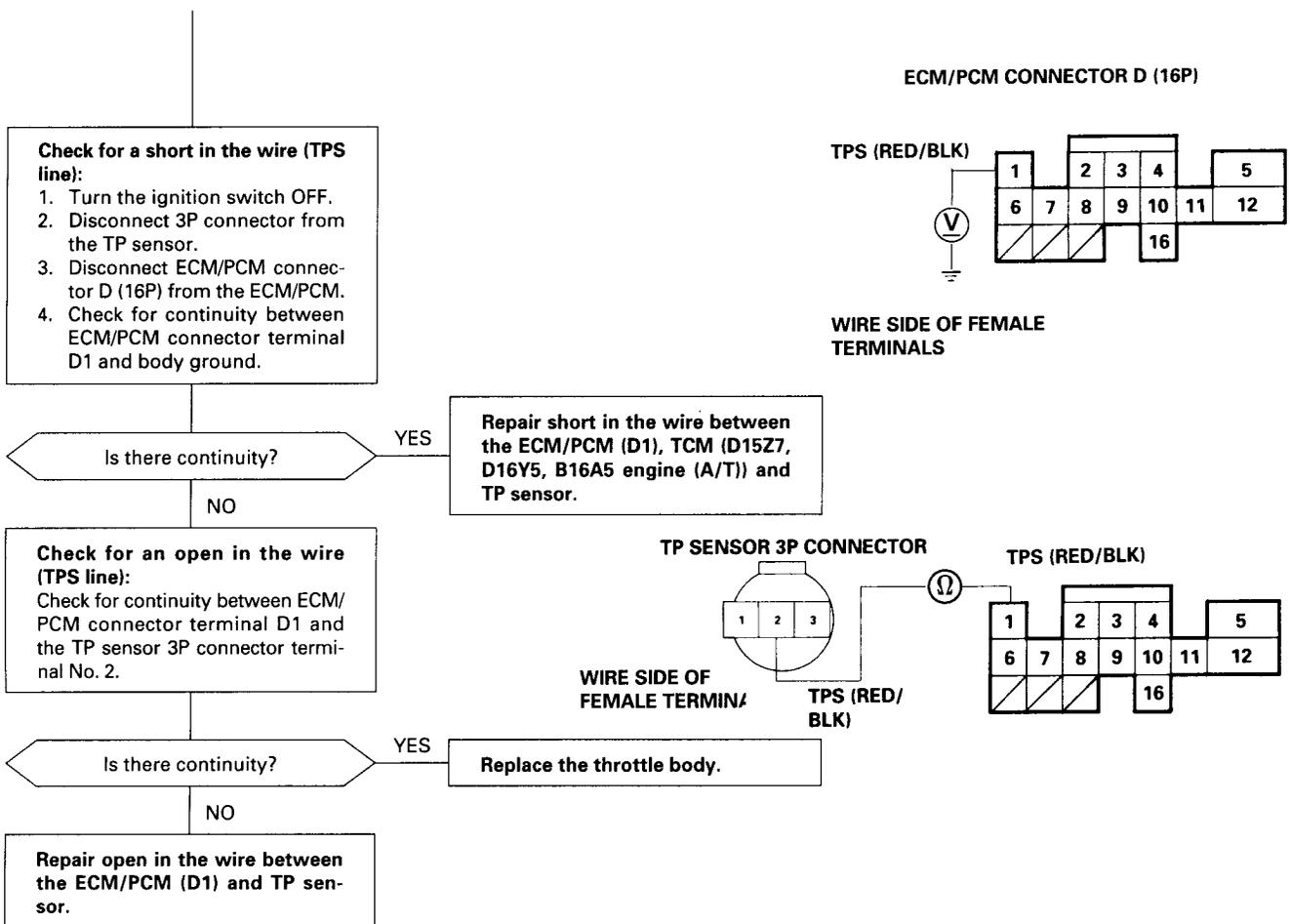
GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION

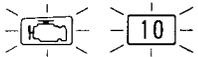


(P. 11-B-50)



PGM-FI system

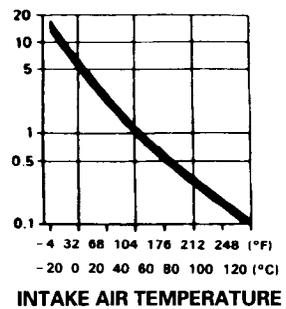
Temperature sensor intake air (IAT)



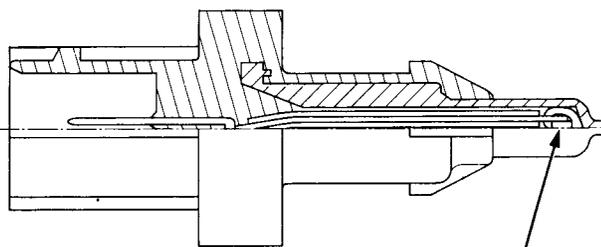
The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 10: A problem in the Intake Air Temperature (IAT) Sensor circuit.

The IAT sensor is a temperature dependant resistor (thermistor). The resistance of the thermister decreases as the air temperature increases as shown below.

RESISTANCE (kΩ)



— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 10 is indicated.



THERMISTOR

Problem verification:
1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Turn the ignition switch ON (II).

Is the MIL on and does it indicate code 10?

NO
Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the IAT sensor and the ECM/PCM.

YES

Check the sensor resistance:
1. Turn the ignition switch OFF.
2. Disconnect 2P connector from the IAT sensor.
3. Measure resistance between the 2 terminals on the IAT sensor.

Is there 0.4 – 4.0 kΩ?

NO
Replace the IAT sensor.

YES

Check the ECM/PCM output voltage (IAT line):
1. Turn the ignition switch ON (III).
2. At the main wire harness side, measure voltage between IAT sensor 2P connector terminal No. 2 and body ground.

Is there approx. 5 V?

YES
Check for an open in the wire (SG2 line):
Measure voltage between the IAT sensor 2P connector terminal No. 1 and No. 2.

NO

Check for an open in the wire (IAT line):
Measure voltage between ECM/PCM connector terminal D8 and body ground.

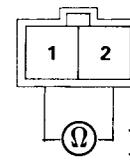
NO
Repair open in the wire between the ECM/PCM (D11) and IAT sensor.

YES

Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

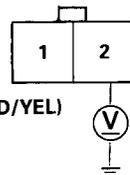
(A p. 11-B-53)

IAT SENSOR 2P CONNECTOR

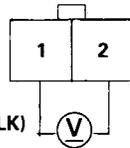


TERMINAL SIDE OF MALE TERMINALS

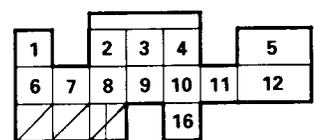
IAT SENSOR 2P CONNECTOR



IAT (RED/YEL) WIRE SIDE OF FEMALE TERMINALS



SG2 (GRN/BLK) IAT (RED/YEL)



IAT (RED/YEL)

WIRE SIDE FEMALE TERMINALS

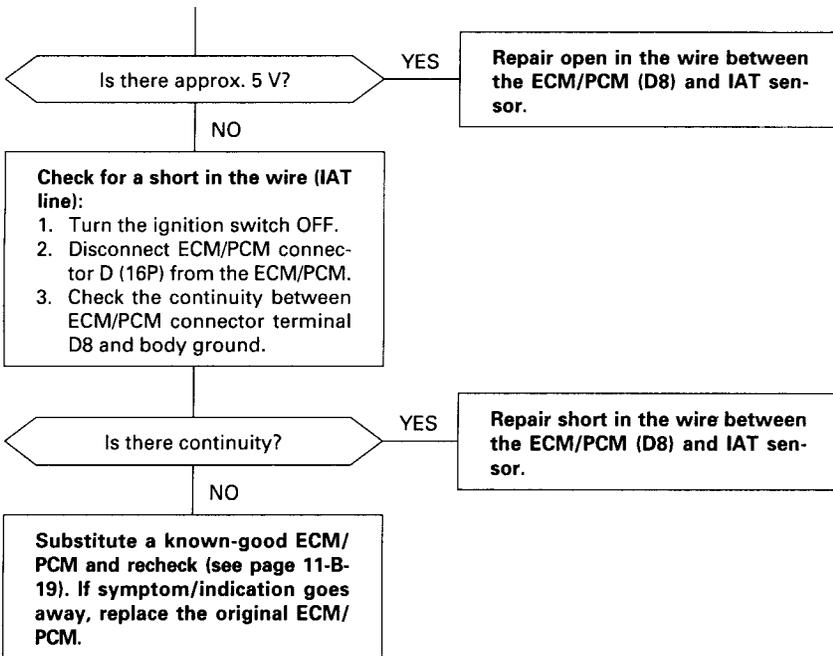
GENERAL INDEX

MANUAL INDEX

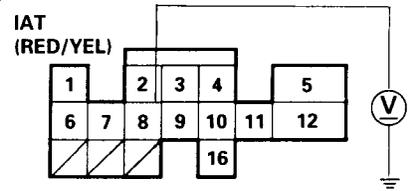
CONTENTS SECTION



(P. 11-B-52)



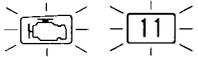
ECM/PCM CONNECTOR D (16P)



WIRE SIDE OF FEMALE TERMINALS

PGM-FI system

Regulator idle mixture (model without TWC)

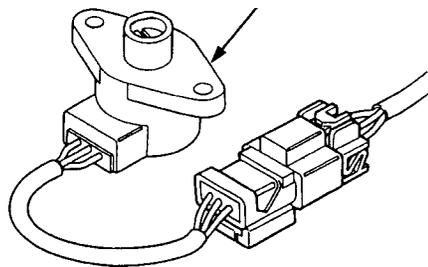


Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 11: A problem in the Idle Mixture Adjuster (IMA) circuit.

The Idle Mixture Adjuster (IMA) is selected resistance device used to control idle mixture.

— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 11 is indicated.

Problem verification:
1. Do the ECM Reset Procedure (see page 11-B-19).
2. Turn the ignition switch ON (II).



Is the MIL on and does it indicate code 11?

NO

Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the IMA and the ECM.

YES

Check the ECM output voltage (VCC2 line):
1. Turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Measure voltage between ECM connector terminals D10 and D11.

Is there approx. 5 V?

NO

Substitute a known-good ECM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM.

YES

Check the ECM output voltage (IMA line):
Measure voltage between ECM connector terminals D11 and D16.

Is there approx. 0.5 – 4.5 V?

YES

Substitute a known-good ECM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM.

NO

Is there approx. 5 V?

YES

Check for an open in the wire (SG2 line):
1. Turn the ignition switch OFF.
2. Disconnect 3P connector from the IMA sensor.
3. Turn the ignition switch ON (II).
4. Measure voltage between IMA 3P connector terminals No. 1 and No. 3.

NO

Is there approx. 5 V?

YES

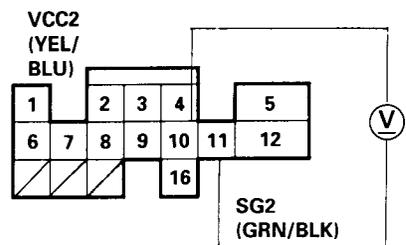


(A p. 11-B-55)

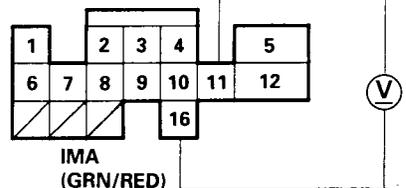


(A p. 11-B-55)

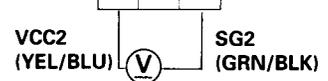
ECM CONNECTOR D (16P)



WIRE SIDE OF FEMALE TERMINALS



WIRE SIDE OF FEMALE TERMINALS

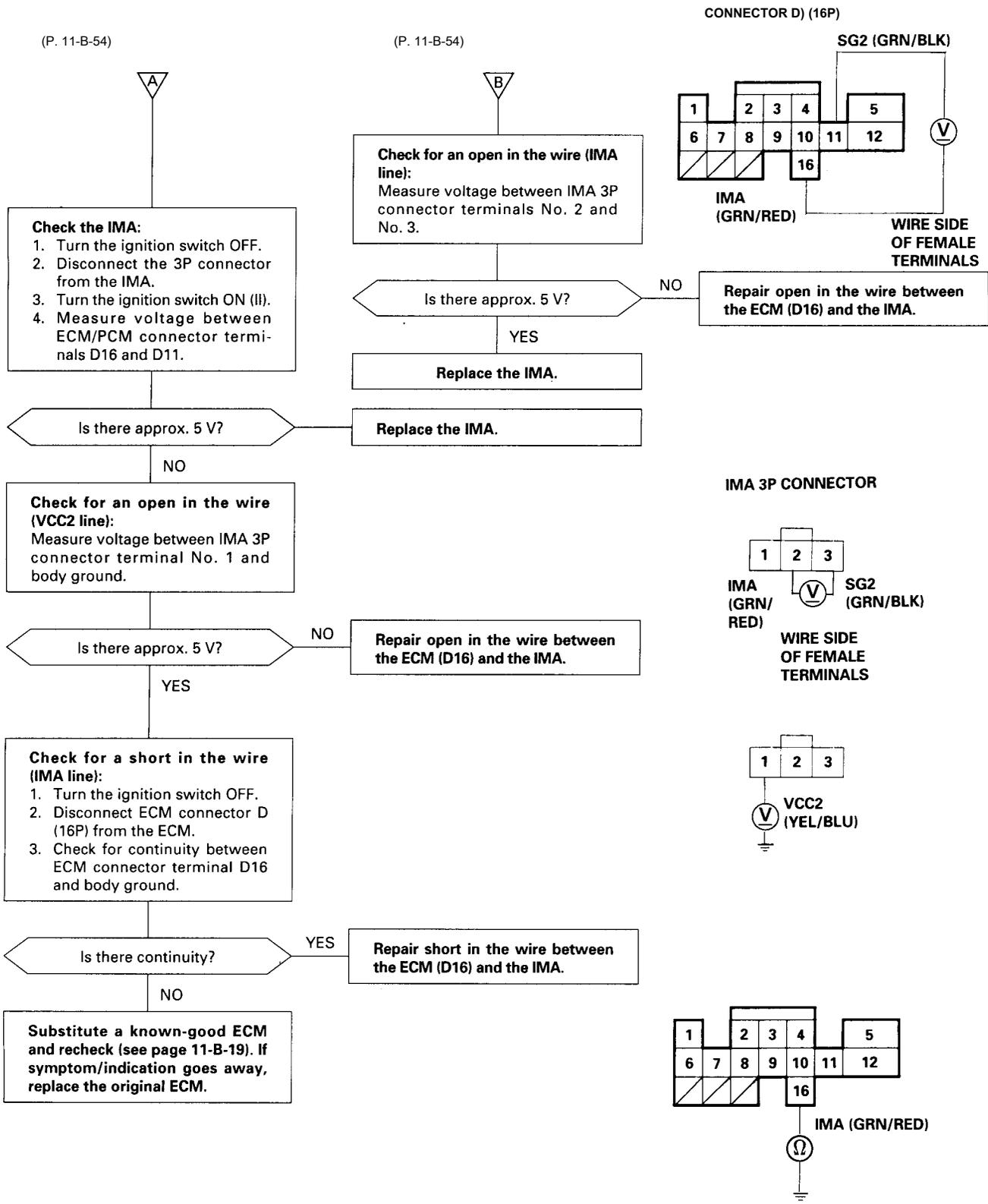


Repair open in the wire between the ECM (D11) and the IMA.

GENERAL INDEX

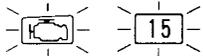
MANUAL INDEX

CONTENTS SECTION



PGM-FI system

Output signal power



The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 15: A problem in the Ignition Output Signal circuit.

— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 15 is indicated.

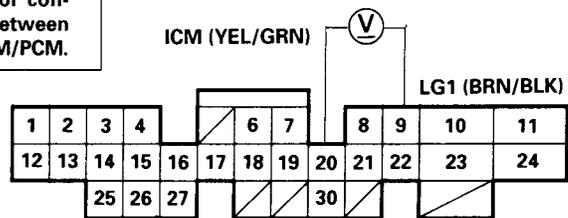
Problem verification:
1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Start the engine.

Is the MIL on and does it indicate code 15?
YES

NO
Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the distributor and the ECM/PCM.

Check the ICM output voltage:
1. Turn the ignition switch OFF.
2. Turn the ignition switch ON (II).
3. Measure voltage between ECM/PCM connector terminals A20 and A9.

ECM/PCM CONNECTOR A (32P)

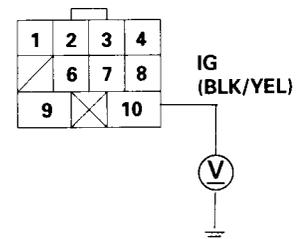


Is there battery voltage?
YES

NO
Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

Check the ICM input voltage:
1. Turn the ignition switch OFF.
2. Disconnect 10P connector from the distributor.
3. Turn the ignition switch ON (II).
4. Measure voltage between the distributor 10P connector terminal No. 10 and body ground.

DISTRIBUTOR 10P CONNECTOR



Is there battery voltage?
YES

NO
Repair open in the wire between the distributor and the ignition switch.

— Replace the ICM.
— Repair open or short in the wire between the ICM and the ECM/PCM (A20).
NOTE: If the YEL/GRN wire was shorted, the ICM may be damaged.

WIRE SIDE OF FEMALE TERMINALS



Vehicle speed sensor (VSS)



The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 17: A problem in the Vehicle Speed Sensor (VSS) circuit.

The VSS generates a pulsing signal when the front wheels turn.

- The MIL has been reported on.
- With the SCS short connector connected (see page 11-B-18), code 17 is indicated.

Problem verification:

1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Test-drive M/T in neutral, A/T in [2] position, accelerate to 4,000 rpm (min⁻¹), then decelerate to 1,500 rpm (min⁻¹) with throttle fully closed for at least 5 seconds.

Is the MIL on and does it indicate code 17?

NO

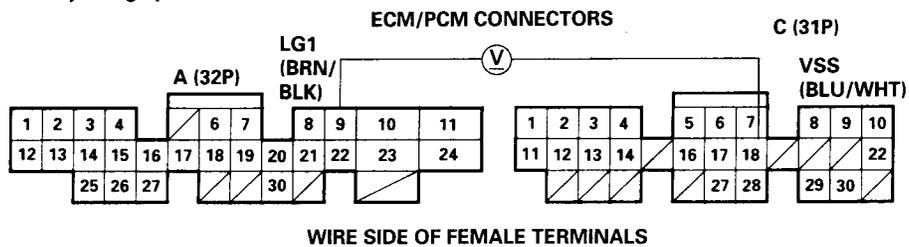
Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the VSS, the ECM/PCM and the TCM (D15Z6, D16Y5, B16A5 engine (A/T)).

YES

Check the ECM/PCM input voltage:

1. Turn the ignition switch OFF.
2. Block rear wheels and set the parking brake. Jack up the front of the car and support with safety stands.
3. Turn the ignition switch ON (II).
4. Block the right front wheel and slowly rotate left front wheel and measure voltage between ECM/PCM connector terminal C18 and A9.

WARNING Block rear wheels before jacking up front of car.



Does voltage pulse 0 V and approx. 5 V?

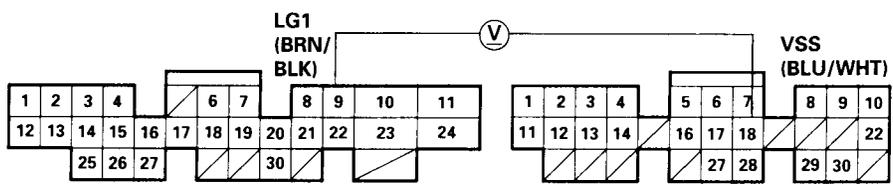
YES

Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

NO

Check the circuit (VSS line):

1. Turn the ignition switch OFF.
2. Disconnect ECM/PCM connector C (31P) from the ECM/PCM.
3. Turn the ignition switch ON (II).
4. Block the right front wheel and slowly rotate left front wheel and measure voltage between ECM/PCM connector terminals C18 and A9.



Does voltage pulse 0 V and approx. 5 V?

NO

- Repair short in the wire between the ECM/PCM (C18) and the VSS (D15Z6, D16Y5, B16A5 engine (A/T); the TCM).
- Repair open in the wire between ECM/PCM (C18) and the VSS.
- If wire is OK, test the VSS (see section 23).

YES

Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

PGM-FI system

Control solenoid valve lock-up. D15Z6 engines and D16Y6 (A / T)

  The malfunction indicator light (MIL) indicates pilot diagnosis code (DTC) 19: Problem valves A and / or B control solenoids lock-up.

- MIL on.
- In short SCS connector connected (see p. 11-B-18), is indicated code 19

Verification of the problem:
1. Set the ECM (see p. 11-B-19).
2. It is necessary to carry out a road test.
Drive the vehicle for several kilometers so that the transmission from shifting up and down gears several times

Is the MIL lights indicating the code 19?
DO NOT: Intermittent fault; the system is fine for the moment. Check if the connections are poor or the wires between the valve A / B solenoid lock-up control and the ECM / PCM looseness.

Check for a short in the cable (LC line A and / or B LC *):
1. Remove contact.
2. Disconnect the connector A (32P) of the ECM, the ECM.
3. Disconnect the 2P valve connector A / B control solenoid lock-up.
4. Check continuity between ground and terminal A26 and / or A25 * ECM connector individually.

Is there continuity?
YES: Repair short in the wire between the valve A / B control solenoid lock-up and the ECM (A26 and A25 *)

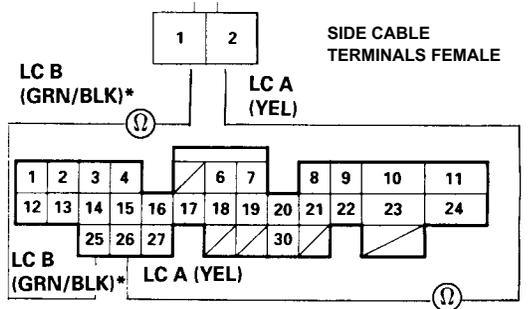
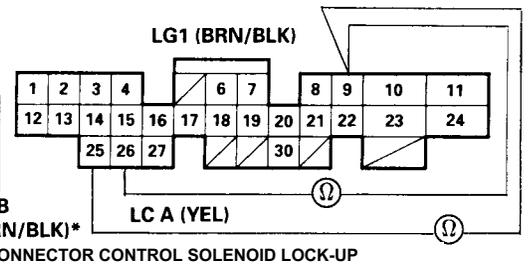
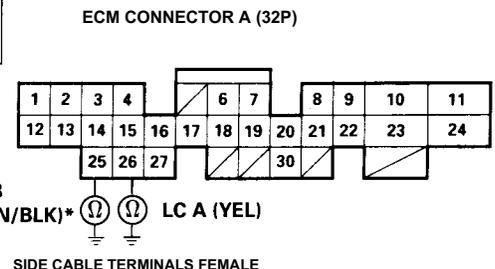
Check valve A / B control solenoid lock-up:
1. Re connectare 2P connector.
2. Measure the resistance between terminals A26 and A9 and / or A25 * and A9 *

It is from 10 to 22 ½?
DO NOT: Check open in the wire (LC line A and / or B line LC *): Check continuity between the terminal number. 2P connector 2 solenoid valve for lock-up control and A26 of the ECM connector terminal (terminal no. 1 2P connector solenoid valve control lock-up and terminal A25 ECM connector) *.

Change one ECM in good condition and recheck (see p. 11-B-19). If the symptom and indication disappear, replace the original ECM

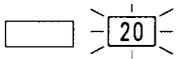
Is there continuity?
YES: Change the solenoid control valve lock-up (see section 14)

DO NOT: Repair open in the wire between the valve A / B control solenoid lock-up and the ECM (A26, A25 *).





Electrical Load Detector (ELD). D15Z6 engines (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5



The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 20: A problem in the Electrical Load Detector (ELD) circuit.

With the SCS short connector connected (see page 11-B-18), code 20 is indicated.

Problem verification:

1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Start the engine and keep engine speed at idle.
3. Turn the headlights on.

Does the MIL indicate code 20?

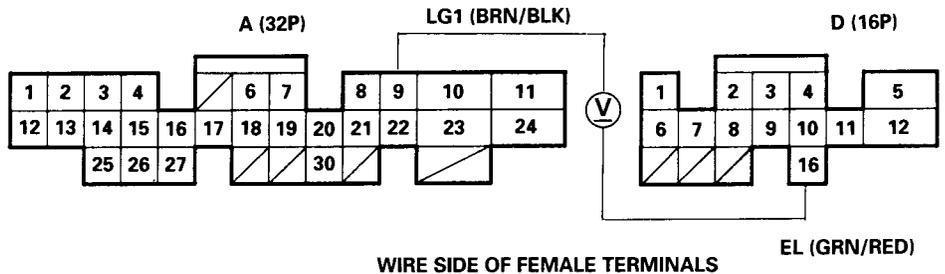
NO

Intermittent failure, system is OK at this time (test-drive may be necessary).
Check for poor connections or loose wires between the ELD and the ECM/PCM.

YES

Check the ECM/PCM input signal:

1. Turn the ignition switch OFF.
2. Start the engine and allow it to idle.
3. Measure voltage between ECM/PCM connector terminals D16 and A9.
4. While measuring voltage between ECM/PCM connector terminals D16 and A9 terminal, turn the headlights on (low).



WIRE SIDE OF FEMALE TERMINALS

EL (GRN/RED)

Does the voltage drop when the headlights are turned on?

YES

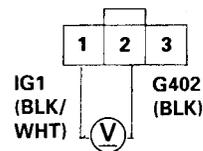
Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

NO

Check the ELD circuit:

1. Turn the ignition switch and headlights OFF.
2. Disconnect 3P connector from the ELD.
3. Turn the ignition switch ON (II).
4. Measure voltage between the ELD 3P connector terminal No. 1 and No. 2.

ELD 3P CONNECTOR



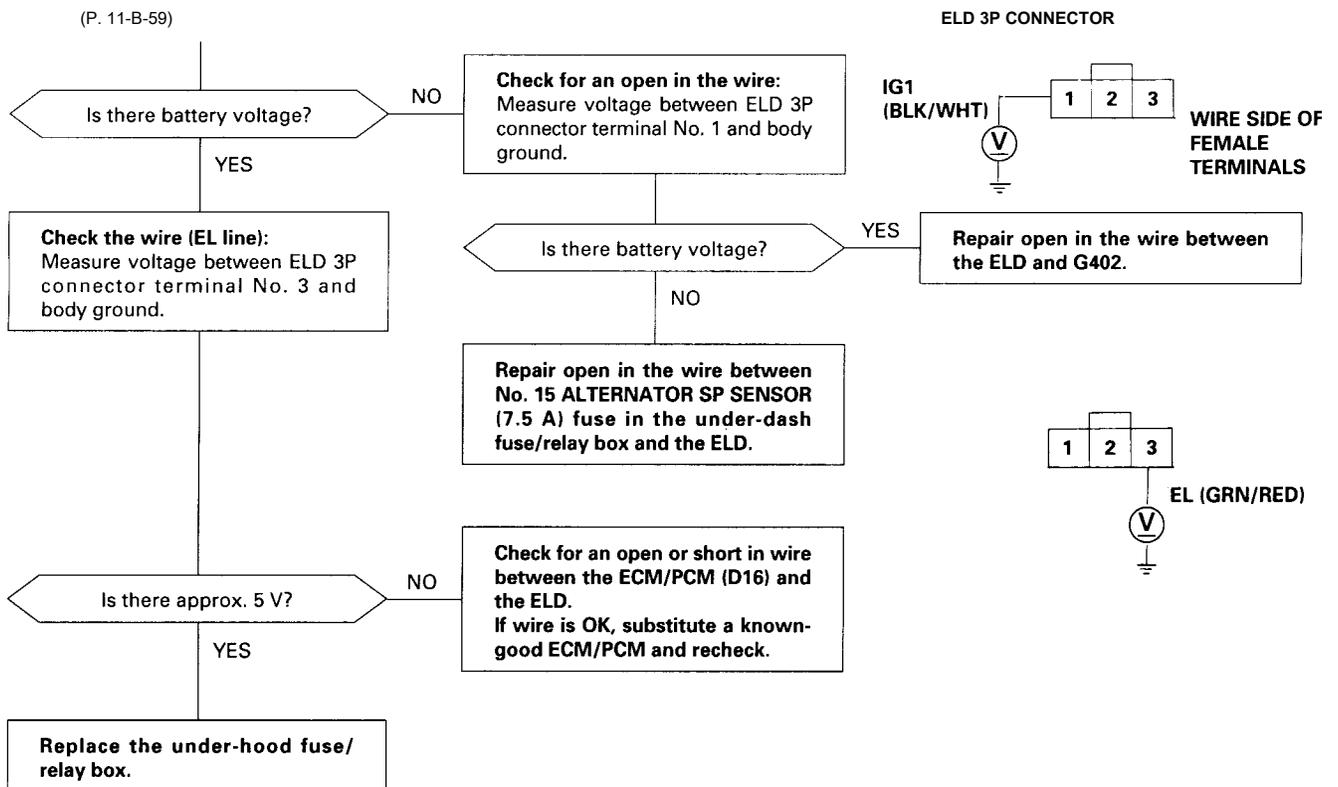
WIRE SIDE OF FEMALE TERMINALS

(A.p. 11-B-60)

(Cont.)

PGM-FI system

Electrical Load Detector (ELD). D15Z6 engines (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16A5 (cont.)





Impact sensor (D15Z7 Motors, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6)



23

The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 23: A problem in the Front Knock Sensor (Front KS) circuit.

A knock control system was adopted which sets the ideal ignition timing for the octane number of the gasoline used.

— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 23 is indicated.

Problem verification:

1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Start the engine. Hold the engine at 3,000 rpm (min⁻¹) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle.
3. Hold engine at 3,000 – 4,000 rpm (min⁻¹) for 10 seconds A/T in **N** or **P** position, M/T in neutral.

Is the MIL on and does it indicate code 23?

NO
Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the KS and the ECM/PCM.

YES

Check for a short in the wire (KS line):

1. Turn the ignition switch OFF.
2. Disconnect the KS connector.
3. Disconnect the ECM/PCM connector D (16P).
4. Check for continuity between ECM/PCM connector terminal D6 and body ground.

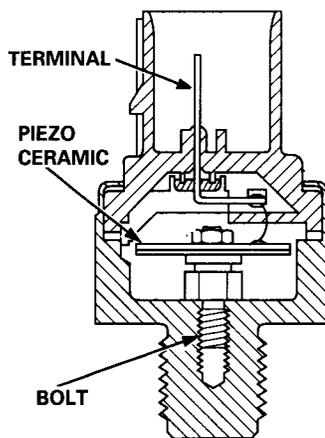
Is there continuity?

YES
Repair short in the wire between ECM/PCM (D6) and KS.

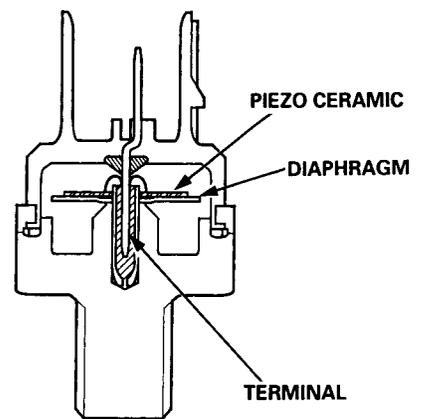
NO

Check for an open in the wire (KS line):
Check for continuity between ECM/PCM connector terminal D6 and the KS 2P connector terminal No. 1.

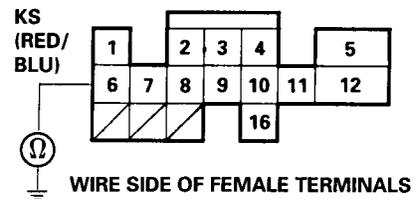
D15Z7 engine



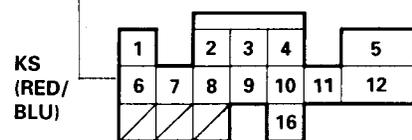
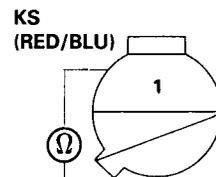
Except D15Z7 engine



ECM/PCM CONNECTOR D (16P)

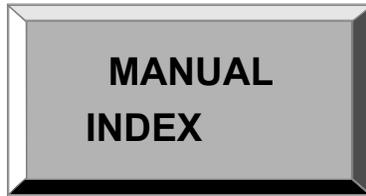


KS 2P CONNECTOR



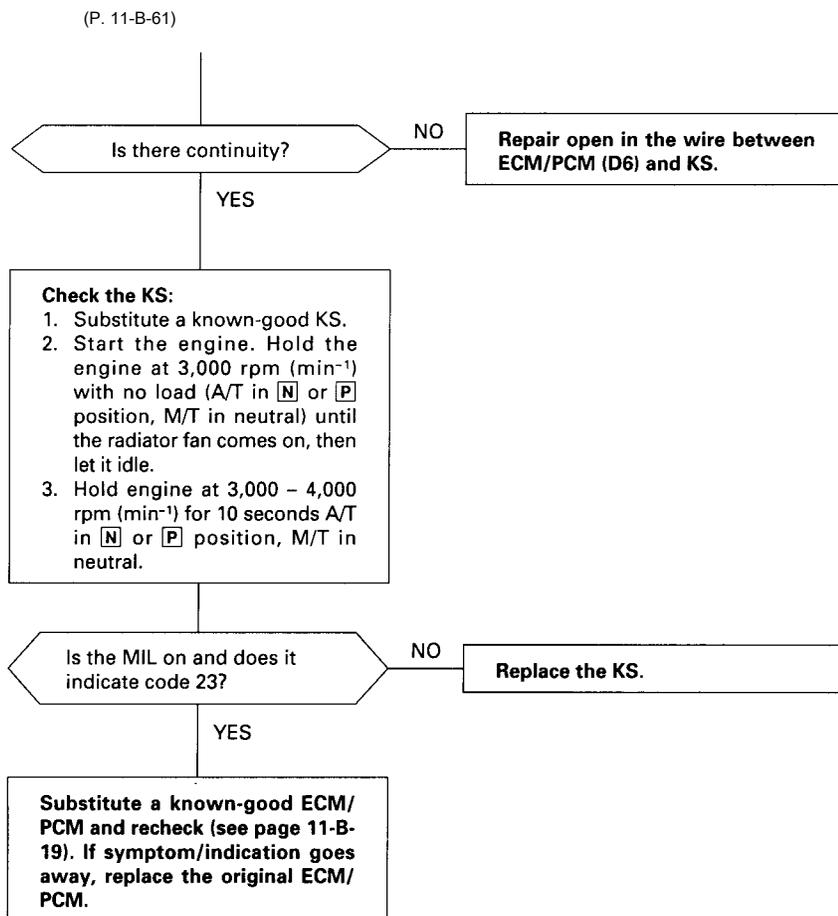
(A p. 11-B-62)

(Cont.)



PGM-FI system

Knock Sensor (D15Z7 Motors, D16Y5, D16Y6, D16Y8, B16A2, B16A4, B16A5 and B16A6) (cont.)





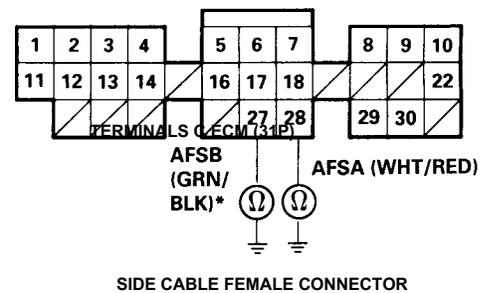
Signal A / B A / T FI (Motor B16A5)

The malfunction indicator light (MIL) indicates pilot diagnosis code (DTC) 30: Problem circuit signal A / T FI, between the module control transmission (TCM) and ECM.

The malfunction indicator light (MIL) indicates pilot diagnosis code (DTC) 31: Problem in the circuit of the B signal A / T FI, between the module control transmission (TCM) and ECM.

In short SCS connector connected (see p. 11-B-18), are indicated 30 and codes / 0 31

Verification of the problem:
1. Set the ECM (see p. 11-B-19).
2. It is necessary to carry out a road test. Drive the vehicle along several kilometers so that the transmission from shifting up and down gears several times



SIDE CABLE FEMALE CONNECTOR

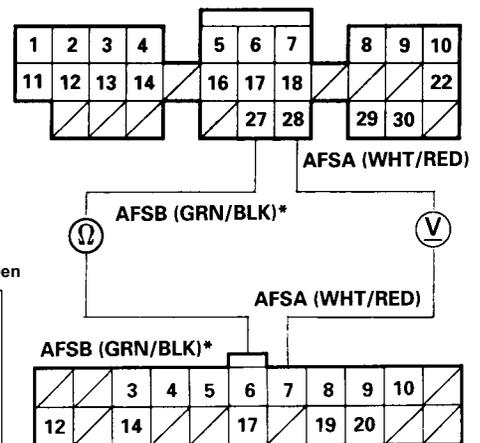
Is the MIL lights indicating codes 30 and / or 31 ?

DO NOT
Intermittent fault; the system is fine for the moment. Check if the connections are poor or cables between TCM and ECM are loose.

YES

Check for a short in the wires (AFSA lines, AFSB):
1. Remove contact.
2. Disconnect the connector C (31P) of the ECM.
3. Disconnect the TCM connector 22P.
4. Check continuity between the terminals C28 and / or C27 * ECM connector and ground.

*: Code 31 (Signal BA / T FI)



TCM CONNECTOR 22P check open

Is there continuity?

DO NOT
wires (AFSA and AFSB lines):
Check continuity between the terminals C28 and / or C27 * ECM connector and terminal numbers 7 and / or * 6 TCM connector 22P

YES

Repair short in the wire between the ECM (C28, C27 *) and TCM

Is there continuity?

DO NOT
TERMINALS FEMALE (C28 and C27 *) and the cable side TCM
Repair open in the wire between the ECM

YES

Change the ECM by one in good condition and recheck. If the symptom and indication disappear, replace the original ECM.

PGM-FI system

CKF sensor (D15Z6 Motors, D15Z7, D16Y5 and D16Y6)

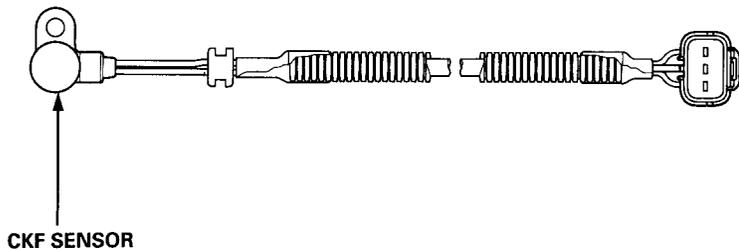


The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 54: A problem in the Crankshaft Speed Fluctuation Sensor circuit.

The diagnostic system has a pulser rotor on the crankshaft and a pulse pick-up sensor on the engine block. The ECM/PCM monitors the crankshaft speed fluctuation based on the CKF sensor signal, and judges that the air-fuel ratio.

— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 54 is indicated.

Problem verification:
1. Do the ECM/PCM Reset Procedure (see page 11-B-19).
2. Start the engine.



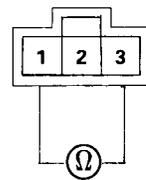
Is the MIL on and does it indicate code 54?

NO
Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the CKF sensor and the ECM/PCM.

YES

Check the sensor resistance:
1. Turn the ignition switch OFF.
2. Disconnect the CKF sensor 3P connector.
3. Measure resistance between the CKF sensor 3P connector terminals No. 1 and No. 3.

CKF SENSOR 3P CONNECTOR



TERMINAL SIDE OF MALE TERMINALS

Is there 1.6 – 3.2 kΩ?

NO
Replace the CKF sensor.

YES

(A p. 11-B-65)

GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION



(P. 11-B-64)

Check the sensor for a short:
Check for continuity to body ground on the CKF sensor 3P connector terminals No. 1 and No. 3 individually.

Is there continuity?

YES

Replace the CKF sensor (see page 6-30).

NO

Check for an open in the wire:
1. Reconnect the 3P connector.
2. Disconnect ECM/PCM connector C (31P) from the ECM/PCM.
3. Measure resistance between ECM/PCM connector terminals C1 and C11.

Is there 1.6 – 3.2 k Ω ?

NO

— Repair open in the wire between ECM/PCM (C1) and CKF sensor.
— Repair open in the wire between ECM/PCM (C11) and CKF sensor.

YES

Check for a short in the wire (CKF line):
Check for continuity between body ground and ECM/PCM connector terminal C1.

Is there continuity?

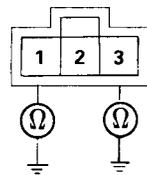
YES

Repair short in the wire between ECM/PCM (C1) and CKF sensor.

NO

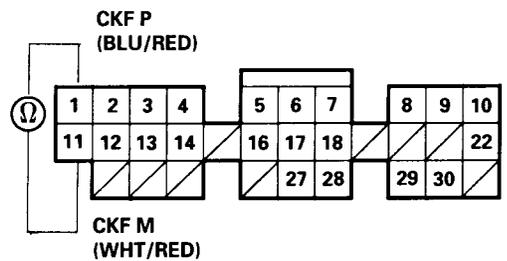
Substitute a known-good ECM/PCM and recheck (see page 11-B-19). If symptom/indication goes away, replace the original ECM/PCM.

CKF SENSOR 3P CONNECTOR

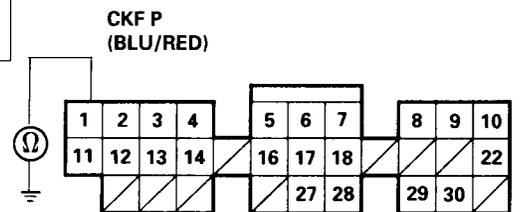


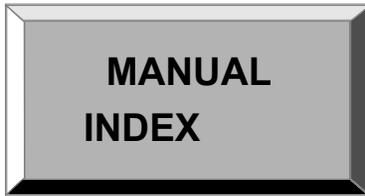
TERMINAL SIDE OF MALE TERMINALS

ECM/PCM CONNECTOR C (31P)



WIRE SIDE OF FEMALE TERMINALS





Idle Control System

Guide for troubleshooting system

NOTE:

- Each line of the graph shows the systems that could cause the symptom, lined up in the order they should be inspected, starting with 1. Locate the symptom in the left column, read to the nearest cause and see the page indicated in Part top of the column. If the inspection shows that the system works properly, then look at the next system 2, and so on.
- If the idle speed is out of the specifications and the malfunction indicator (MIL) driver does not indicate the DTC 14, inspect as directed p. 11-B-68.

PAGE	SUB-SYSTEM	IDLE ADJUSTING SCREW	IDLE AIR CONTROL VALVE	AIR CONDITIONING SIGNAL	ALTERNATOR FR SIGNAL	BRAKE SWITCH SIGNAL	STARTER SWITCH SIGNAL	POWER STEERING PRESSURE SWITCH SIGNAL*2	AUTOMATIC TRANSAXLE GEAR POSITION SIGNAL*1	FAST IDLE THERMO VALVE*3	HOSES AND CONNECTIONS
SYMPTOM		11-B-82	11-B-69	11-B-72	11-B-74	11-B-75	11-B-76	11-B-77	11-B-79	11-B-81	—
	DIFFICULT TO START ENGINE WHEN COLD						②			①	
	WHEN COLD FAST IDLE OUT OF SPEC (1,000 – 2,000 rpm (min ⁻¹))	③	②							①	
	ROUGH IDLE		②								①
	WHEN WARM ENGINE SPEED TOO HIGH	③	①					③		②	③
WHEN WARM RPM TOO LOW	Idle speed is below specified rpm (no load)	②	①								
	Idle speed does not increase after initial start up.		①								
	On models with automatic transmission, the idle speed drops in gear		②						①		
	Idle speeds drops when air conditioner in ON		②	①							
	Idle speed drops when steering wheel is turning		②					①			
	Idle speed fluctuates with electrical load		②			③					①
FRE-QUENT STALLING	WHILE WARMING UP	②	①								
	AFTER WARMING UP	①	②								
	FAILS EMISSION TEST										①

* 1: A / T (Except D16Y7 engines and D16Y8).

* 2: Engines D15Z6 (KG and KE models), D15Z7, D16Y5 (KG models KE), D16Y8 (KH models), and B16A5 B16A4.

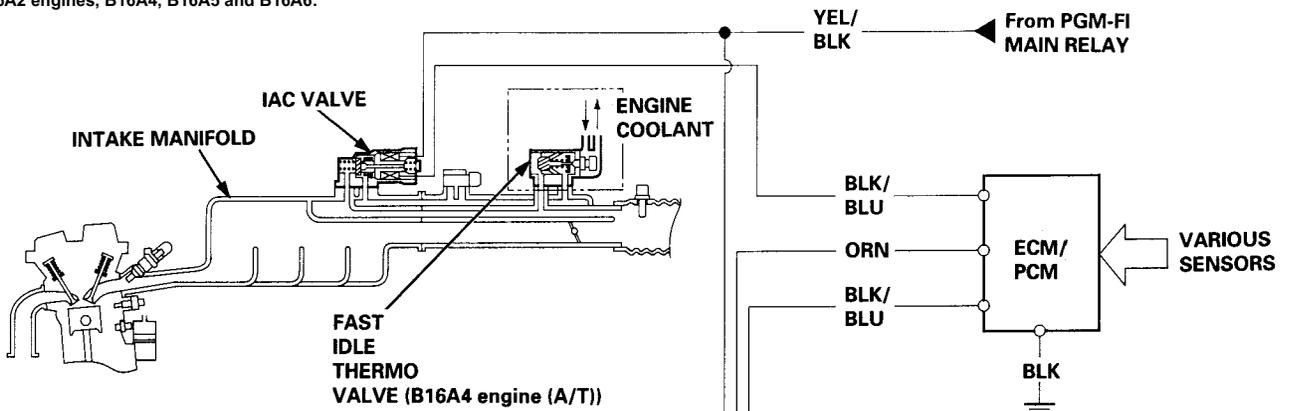
* 3: Motor B16A5.



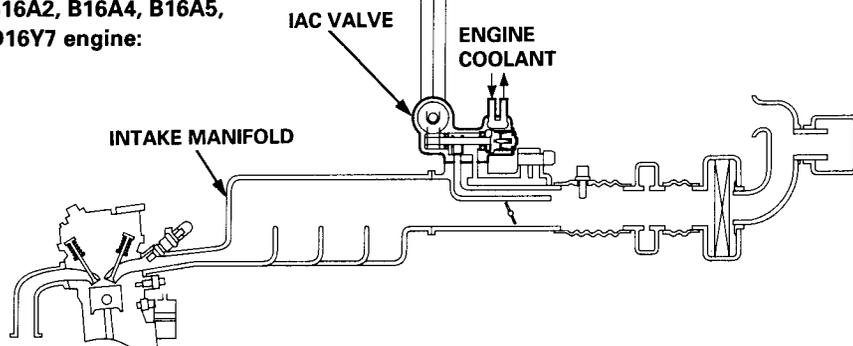
System Overview

Idle speed is controlled by the control valve Idle air (IAC). The valve varies the amount of air transmitted to the intake manifold in response to electric current controlled by the ECM / PCM. When the IAC valve is activated, the valve is opened to maintain the proper idle speeds ity.

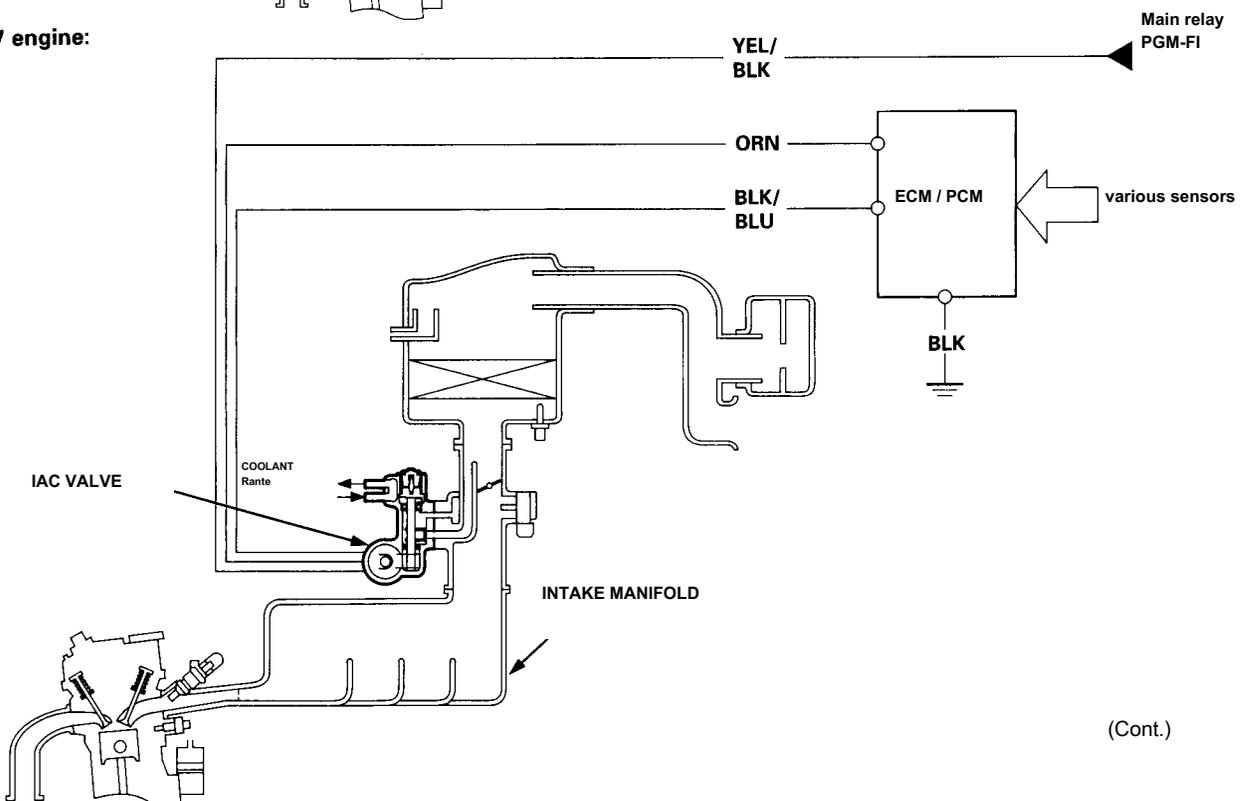
B16A2 engines, B16A4, B16A5 and B16A6:



Except B16A2, B16A4, B16A5, B16A6, D16Y7 engine:



D16Y7 engine:



(Cont.)

**GENERAL
INDEX**

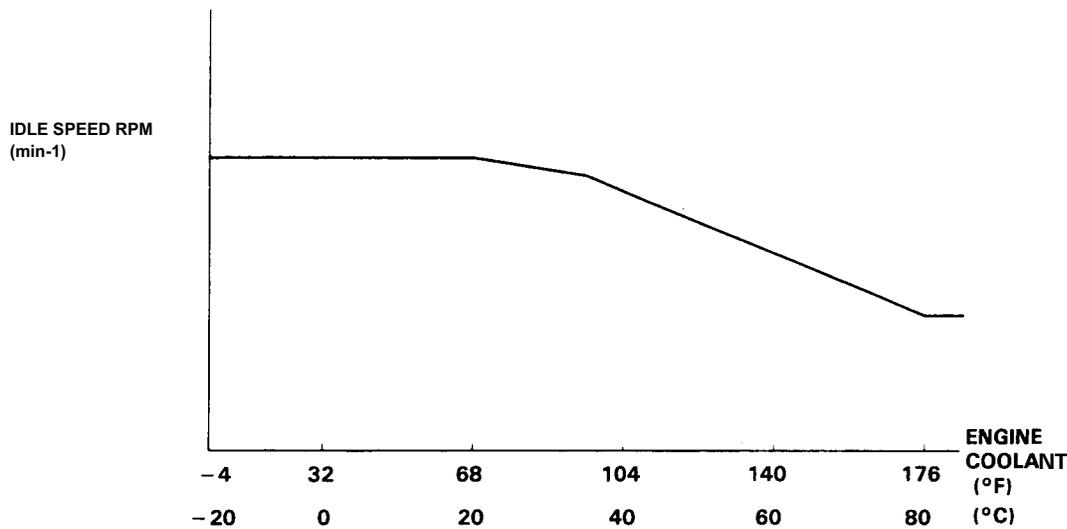
**MANUAL
INDEX**

**CONTENTS
SECTION**

Idle Control System

System description (cont.)

1. When the engine starts, the IAC valve opens momentarily. The amount of air increased to raise the idle speed to about 150-300 rpm (min-1).
2. When the coolant temperature is low, the IAC valve opens for proper idling speed. The amount of transmitted air is controlled based on the temperature of the engine coolant.



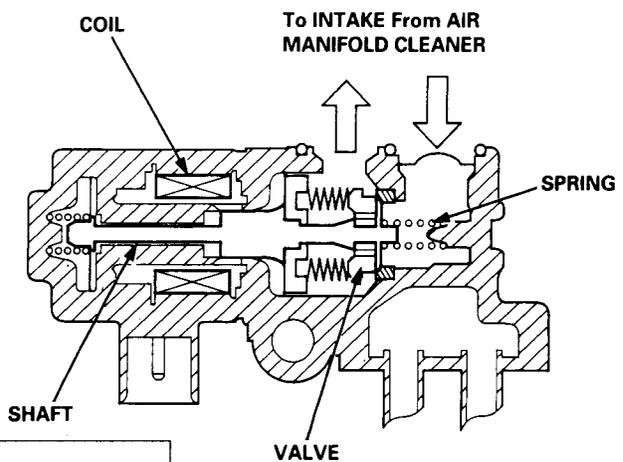
1. When the idle speed is out of specification and the malfunction indicator (MIL) does not flash the DTC pilot 14, check the following items:
 - Adjust the idle speed (see page 11-B-82).
 - Air conditioning signal (see page 11-B-72).
 - Alternator FR signal ((see page 11-B-79).
 - Switch signal brakes (see page 11-B-75).
 - Switch signal starter (see page 11-B-76).
 - PSP switch signal (see page 11-B-77).
 - Shift position signal A / T (see section 14. A / T, except D16Y7 and D16Y8 engines: page 11-B-79).
 - Thermal valve fast idle (see page 11-B-81).
 - Hoses and connections.
 - IAC valve and mounting rings.
2. If all items listed above are correct, change by IAC valve in good condition and reset the idle speed (see page 11-B-82).
 - After changing the valve, if the idle speed can not yet be adjusted according to the specifications (MIL not flash and code 14), change the ECM / PCM by one in good condition and check again (see page 11-B-19). If the symptom disappears, replace the ECM / PCM Original.



Air control valve idling (IAC). D15Z6 engines, D15Z7, D16Y5, D16Y6, D16Y8 (M / T) and B16A2, B16A4, B16A5 and B16A6.

  The Malfunction Indicator Lamp (MIL) indicates Diagnostic Trouble Code (DTC) 14: A problem in the Idle Air Control (IAC) Valve circuit.

The IAC Valve changes the amount of air bypassing the throttle body in response to a current signal from the ECM in order to maintain the proper idle speed.



— The MIL has been reported on.
— With the SCS short connector connected (see page 11-B-18), code 14 is indicated.

Problem verification:
1. Do the ECM Reset Procedure (see page 11-B-19).
2. Start the engine.

Is the MIL on and does it indicate code 14?

YES

Check for an open in the wire (IGP line):
1. Turn the ignition switch OFF.
2. Disconnect the 2P connector from the IAC valve.
3. Turn the ignition switch ON (II).
4. At the engine wire harness measure voltage between the IAC valve 2P connector terminal No. 2 and body ground.

Is there battery voltage?

YES

Check the circuit:
1. Turn the ignition switch OFF and reconnect the 2P connector to the IAC valve.
2. Disconnect ECM connector A (32P) from the ECM.
3. Turn the ignition switch ON (II).
4. Momentarily connect ECM connector terminals A12 to A10 several times.

Does the IAC valve click?

NO

Check for an open or short in the wire between the ECM (A12) and the IAC valve. If wire is OK, replace the IAC valve.

NO

Check the IAC valve:
1. Hold the engine at 3,000 rpm (min^{-1}) with no load (M/T in neutral, A/T in **N** or **P** position) until the radiator fan comes on, then let it idle.
2. With the engine running and the accelerator pedal released, disconnect the 2P connector from the IAC valve.

Is there a reduction in engine rpm?

NO

Substitute a known-good IAC valve and retest. If symptom goes away, replace the original IAC valve.

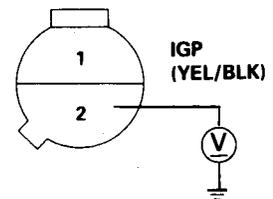
Repair open in the wire between the IAC valve and the PGM-FI main relay.

YES

Substitute a known-good ECM and retest (see page 11-B-19). If symptom/indication goes away, replace the original ECM.

Intermittent failure, system is OK at this time (test-drive may be necessary). Check for poor connections or loose wires between the IAC valve and the ECM.

IAC VALVE 2P CONNECTOR



WIRE SIDE OF FEMALE TERMINALS

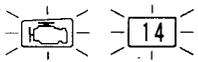
ECM CONNECTOR A (32P)



WIRE SIDE OF FEMALE TERMINALS

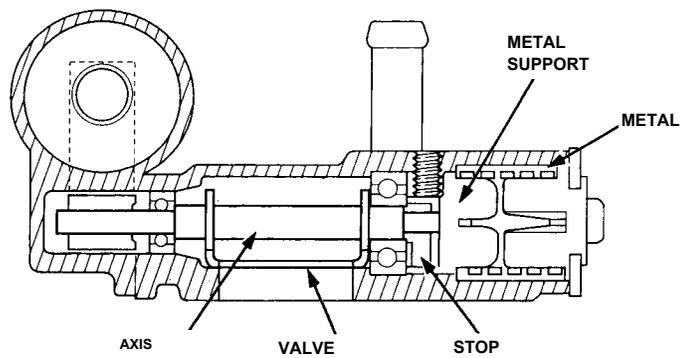
Idle Control System

Air control valve idling (IAC). D15Z6 motors (A / T), D15Z7 (CVT), D16Y5 (CVT), D16Y6 (A / T), and D16Y8 D16Y7 (A / T)



The malfunction indicator lamp indicates diagnosis code (DTC) 14: Problem in air control valve idle.

IAC valve varies the amount of air transmitted to the throttle body in response to the signal procedente ECM / PCM to maintain proper idling speed.



- MIL on.
- In short SCs connected connector (see p. 11-B-18) is indicated code 14).

Verification of the problem:
1. Set the ECM / PCM (see p. 11-B-19).
2. Place the contact (II).

Is the MIL lights indicating the code 14?

DO NOT
Intermittent fault; the system is fine for the moment. Check if the connections are poor or cables between the IAC valve and the ECM / PCM looseness

YES

Check the input voltage of the ECM:
Measure the voltage between ground and the terminals A14 and A13 * ECM connector / PCM individually

Is there battery voltage?

DO NOT
A (A p. 11-B-71) (

YES

Check valve IAC:
1. Remove contact.
2. Disconnect the connector 3P IAC valve.
3. Measure the resistance between the terminal numbers 1 and 3 of connector 3P IAC valve.

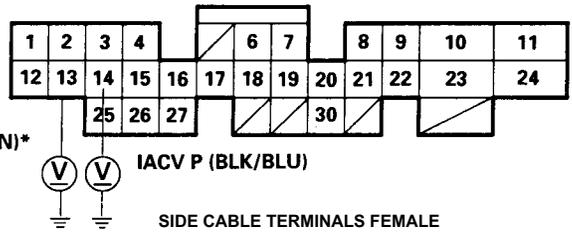
Is it from 16 to 28 ½?

DO NOT
Change valve IAC.

YES

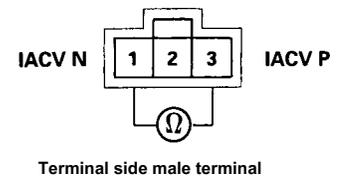
Change the ECM / PCM by one in good condition and check again (see page 11-B-19). If the symptom and indication disappear, change the ECM / PCM Original

CONNECTOR ECM / PCM (32P)



SIDE CABLE TERMINALS FEMALE

CONNECTOR 3P IAC VALVE



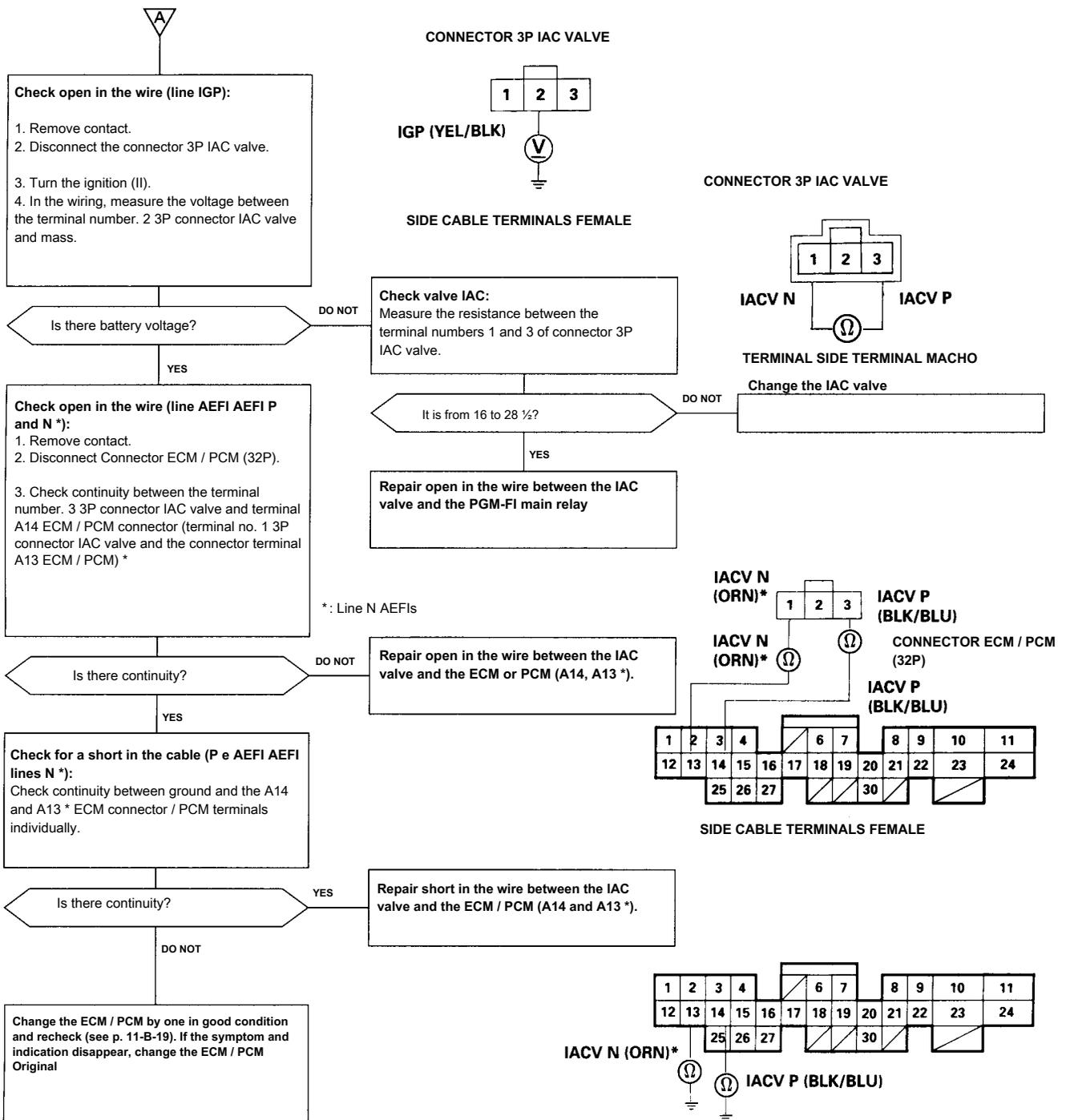
GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION



(From p .. 11-B-70)



Idle Control System

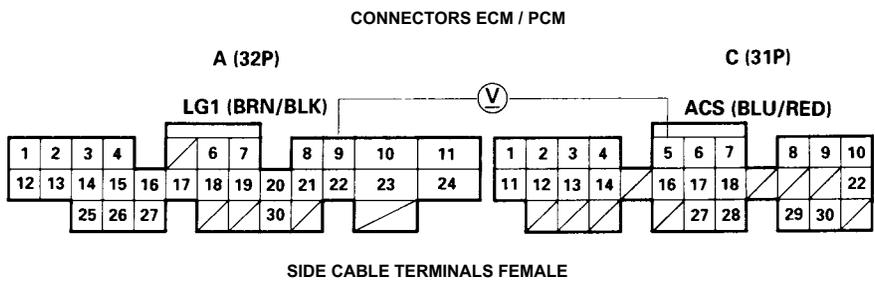
Air conditioning signal

Transmits information to the ECM / PCM when the air conditioning system must be refrigerated.

Inspection of air conditioning signal

Check for a short in the cable (ACS line):

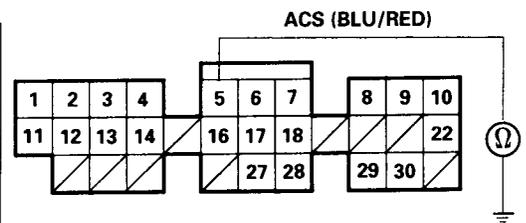
1. Remove contact.
2. Disconnect the pressure switch A / C.
3. Turn the ignition (II).
4. Measure the voltage between C5 and A9 ECM connector / PCM terminals.



It is approx. 5V?

Check for a short in the cable (ACS line):

1. Remove contact.
2. Disconnect the connector C ECM / PCM (31P).
3. Check continuity between ground and the terminal connector C5 ECM / PCM.



Is there continuity ?

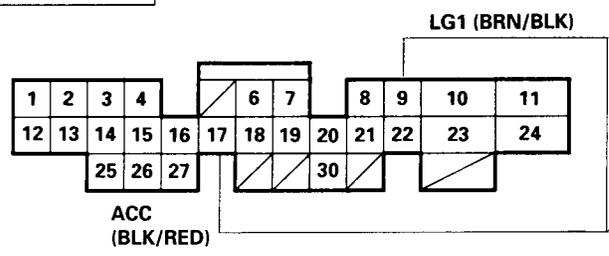
Repair short in the wire between the ECM / PCM (C5) and the pressure switch A / C

Check open in the wire (ACC line):

1. Remove contact.
2. Reconnect the pressure switch A / C.
3. Turn the ignition (II).
4. Connect momentarily A9 and A17 of connector terminals ECM / PCM terminals via a bridge several times

- Change the ECM / PCM by one in good condition and recheck (see page 11-B-19). If the specified voltage is not obtained, replace the ECM / PCM Original.

- See section inspection of air conditioning (see section 22)



(A p. 11-B-73)

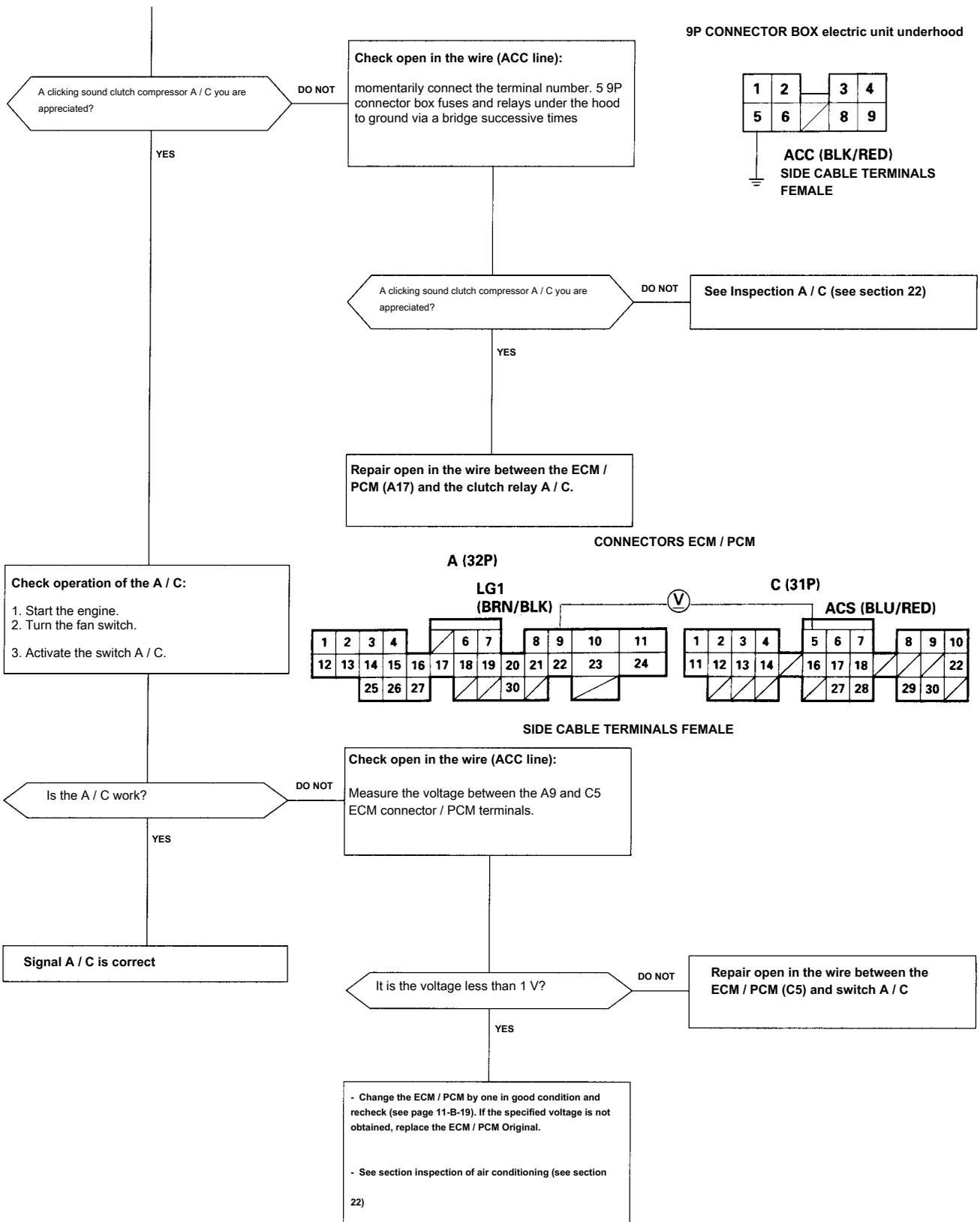
GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION



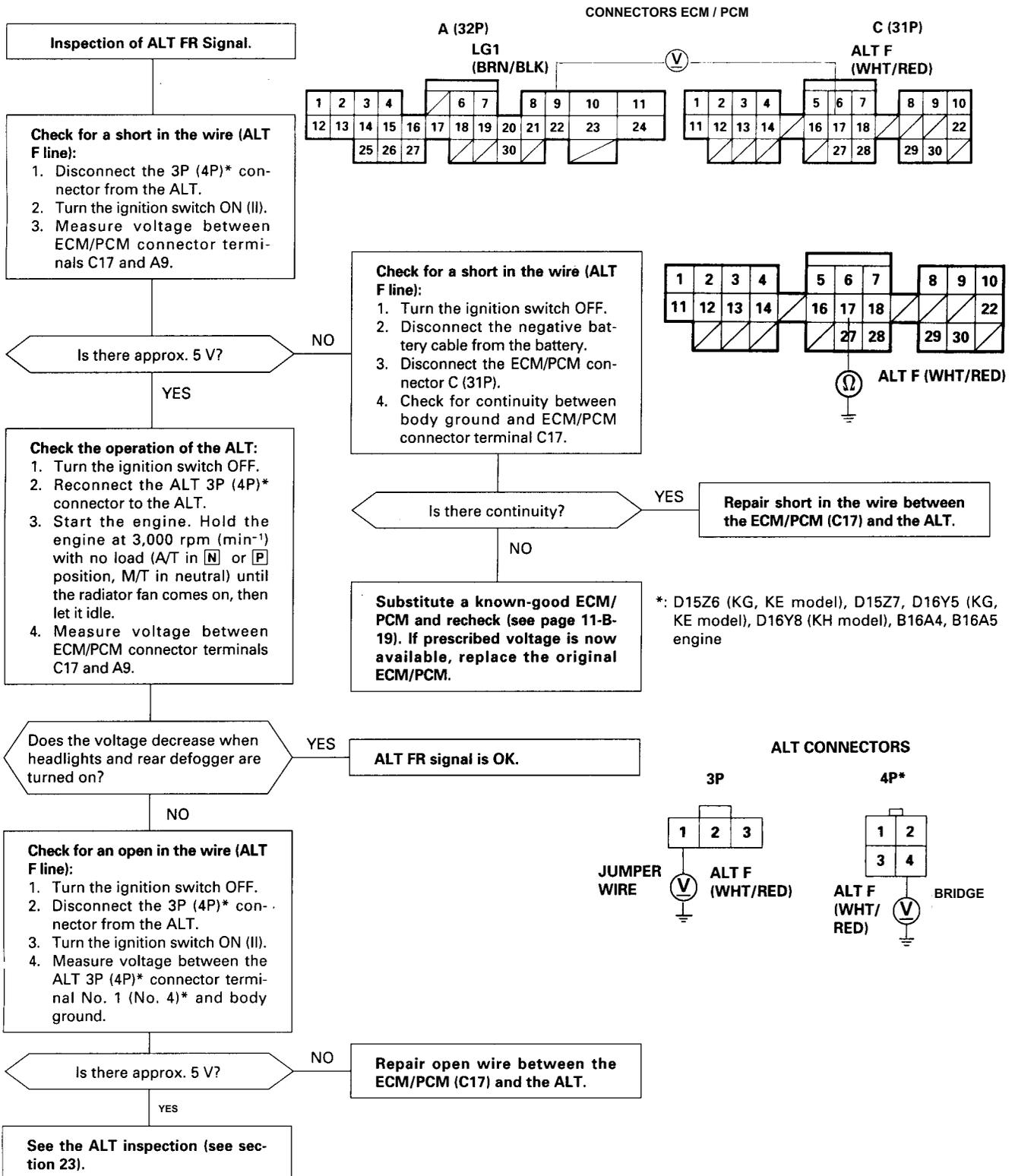
(P. 11-B-72)



Idle Control System

Alternator FR Signal (ALT)

Sends signals to the ECM / PCM when the alternator (ALT) is charging.

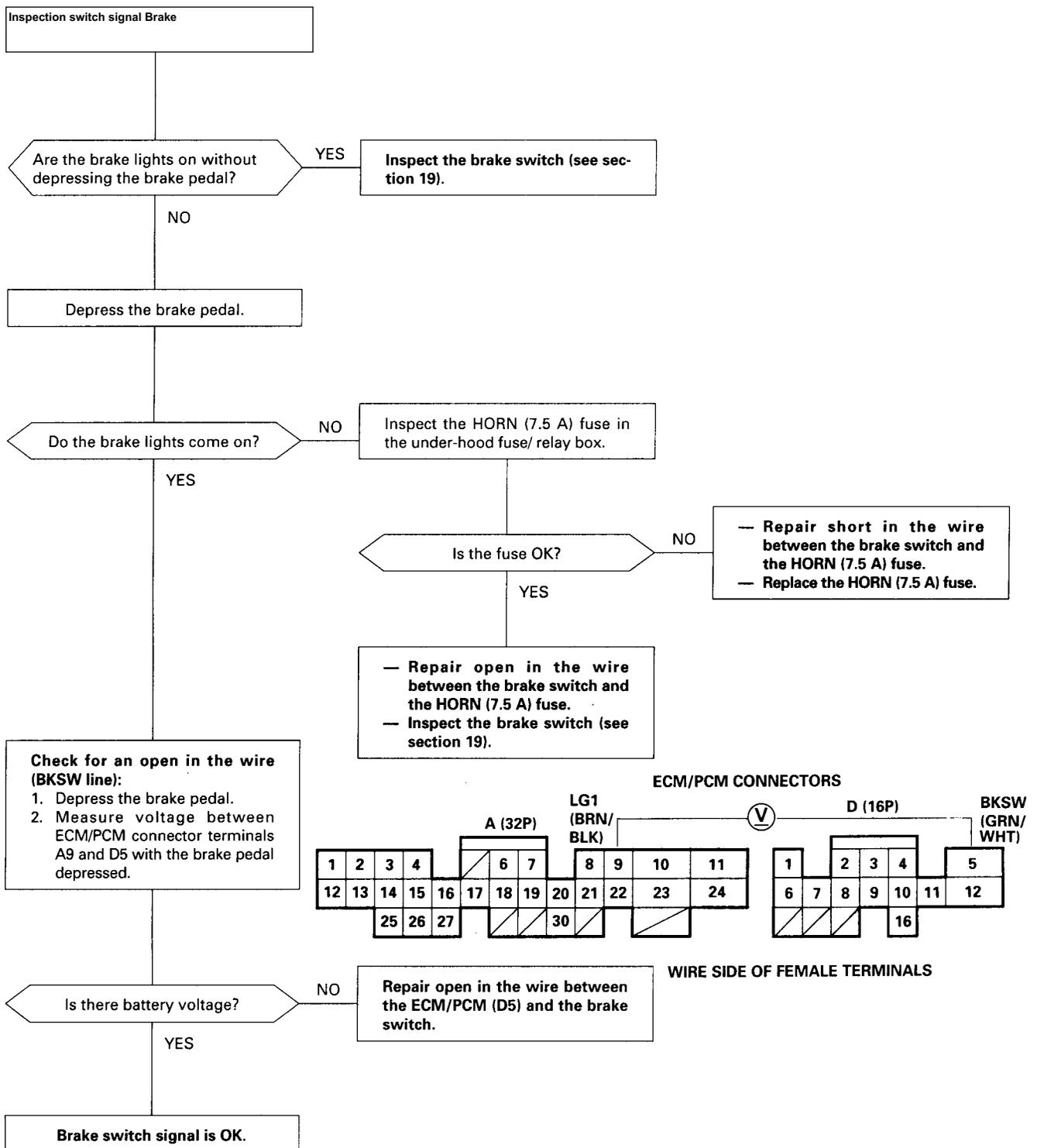


(Cont.)



Switch signal Brake

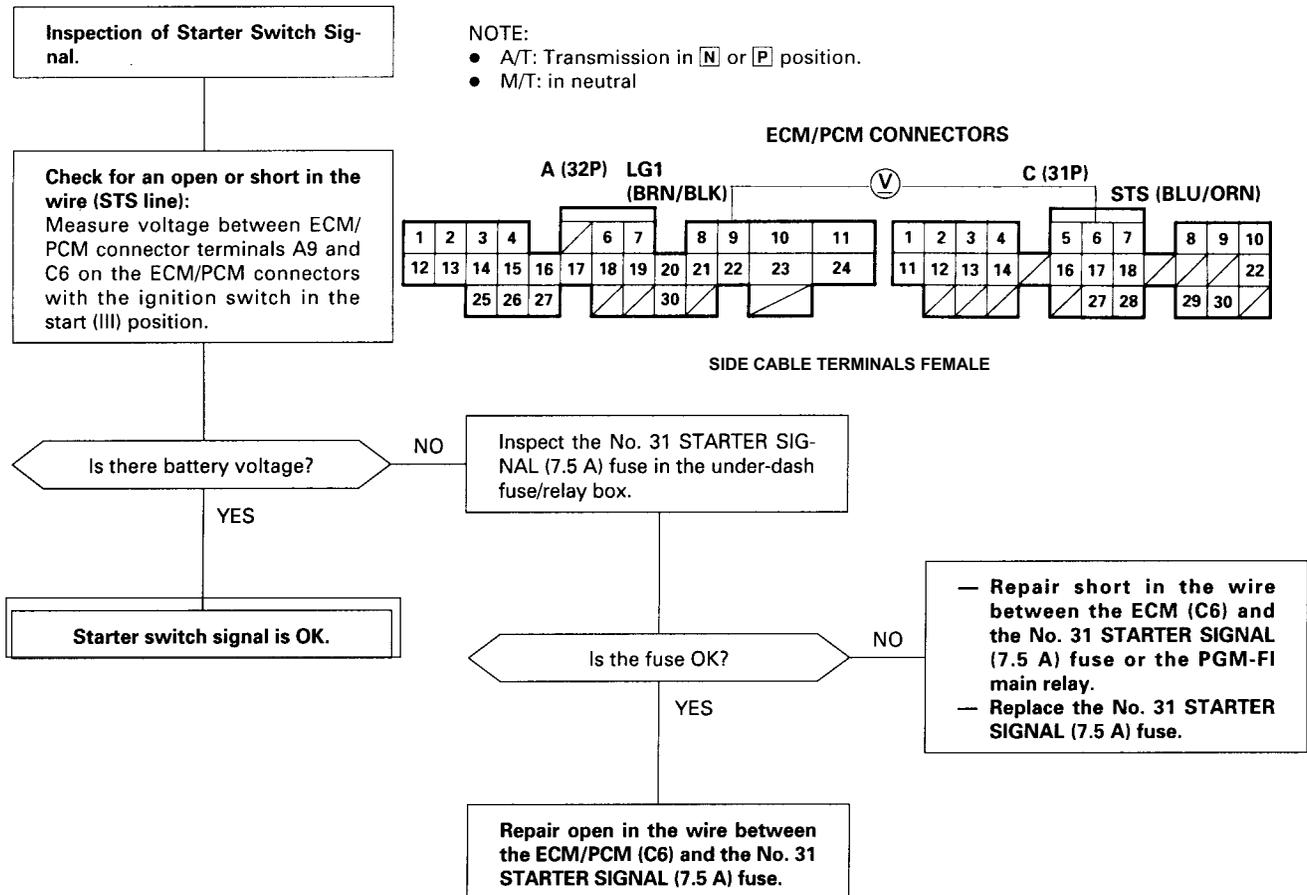
Sends signals to ECM6PCM when the brake pedal is depressed.



Idle Control System

Switch signal starter

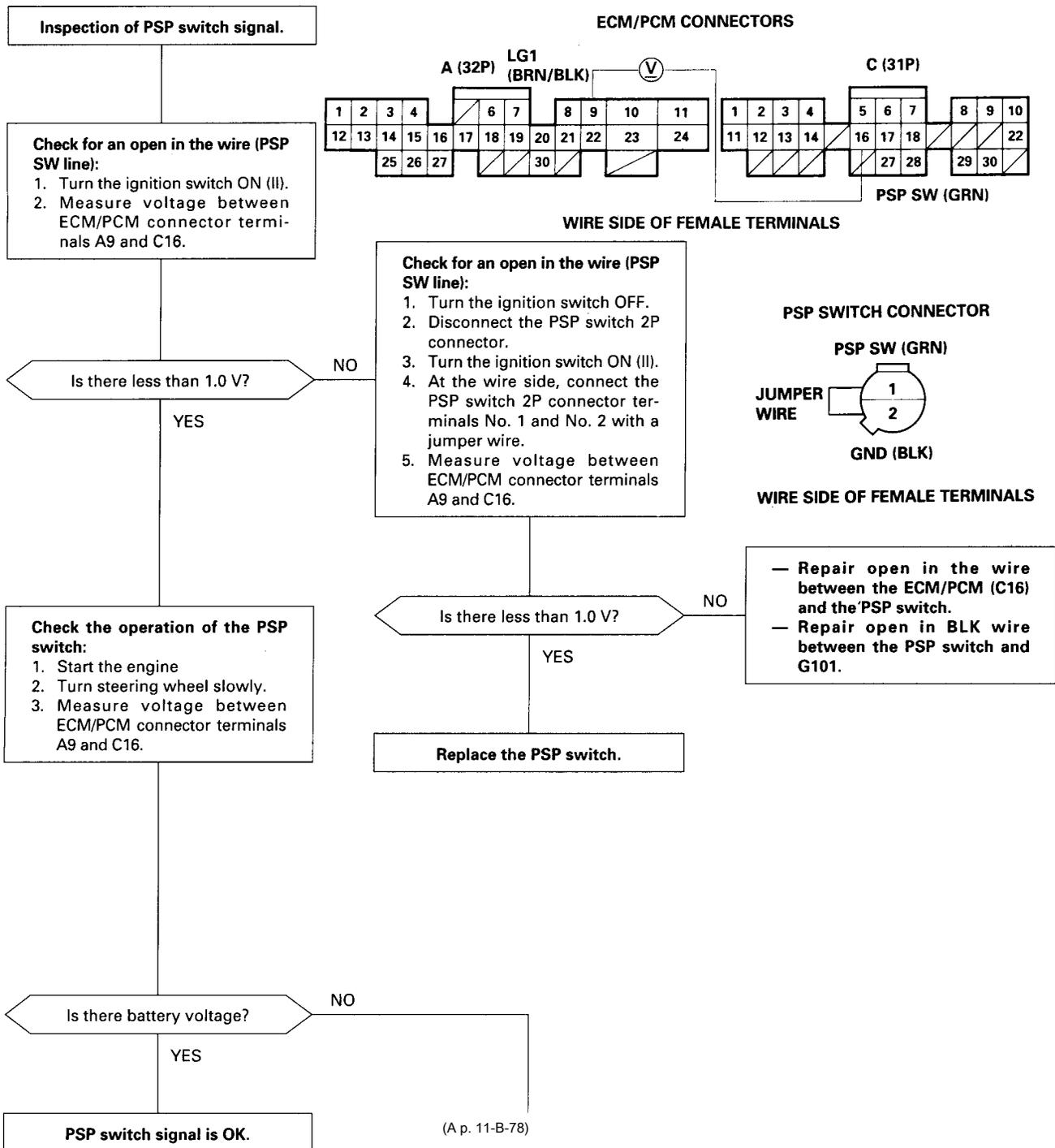
Sends signals to the ECM / PCM when the engine is cranking.





Switch signal power steering pressure (PSP). D15Z6 engines (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16Y5.

Sends signals to the ECM / PCM when the load of the power steering.

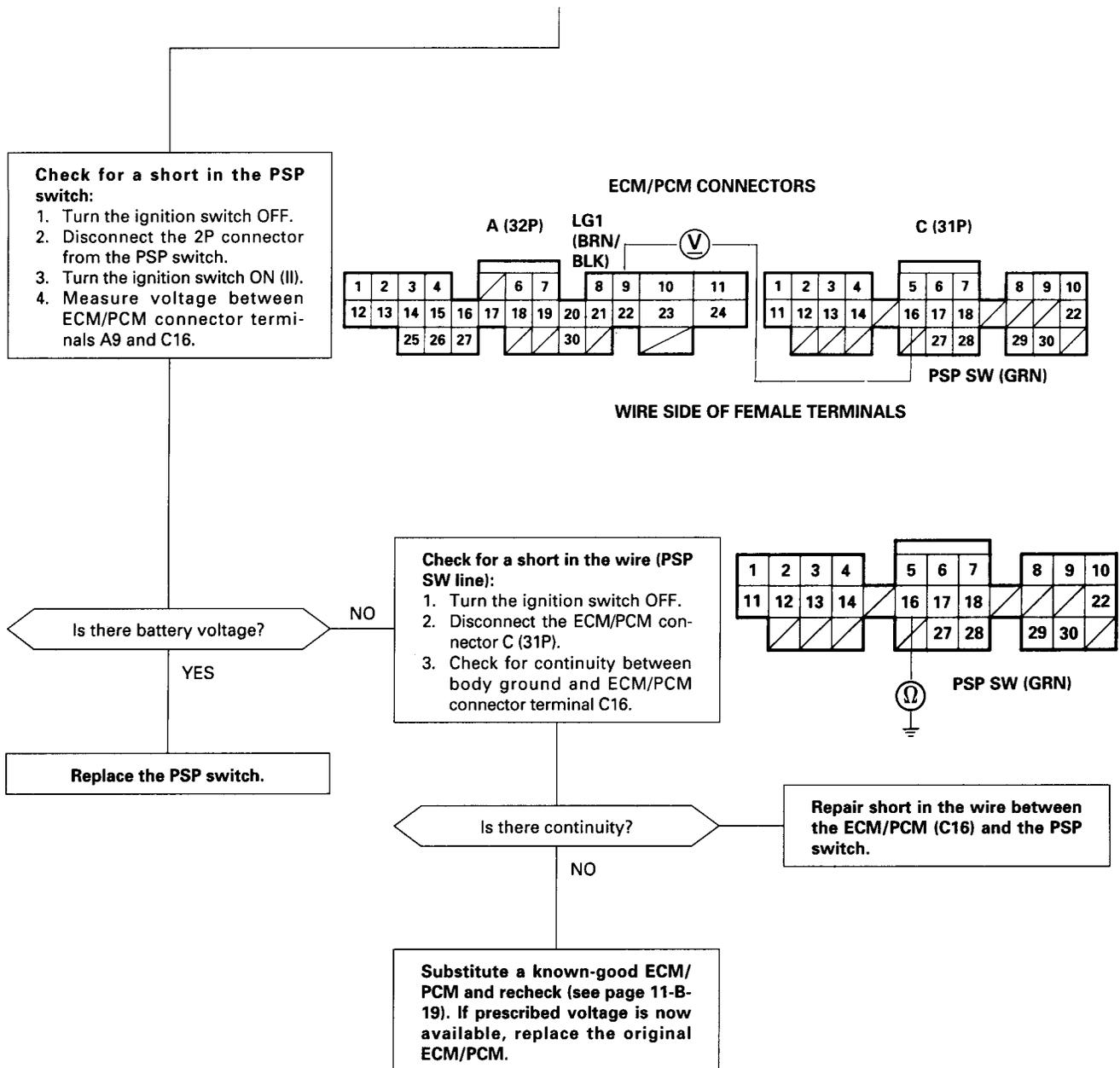


(Cont.)

Idle Control System

Switch signal power steering pressure (PSP). D15Z6 engines (KG and KE models), D15Z7, D16Y5 (KG and KE models), D16Y8 (KH model), B16A4 and B16Y5 (cont.)

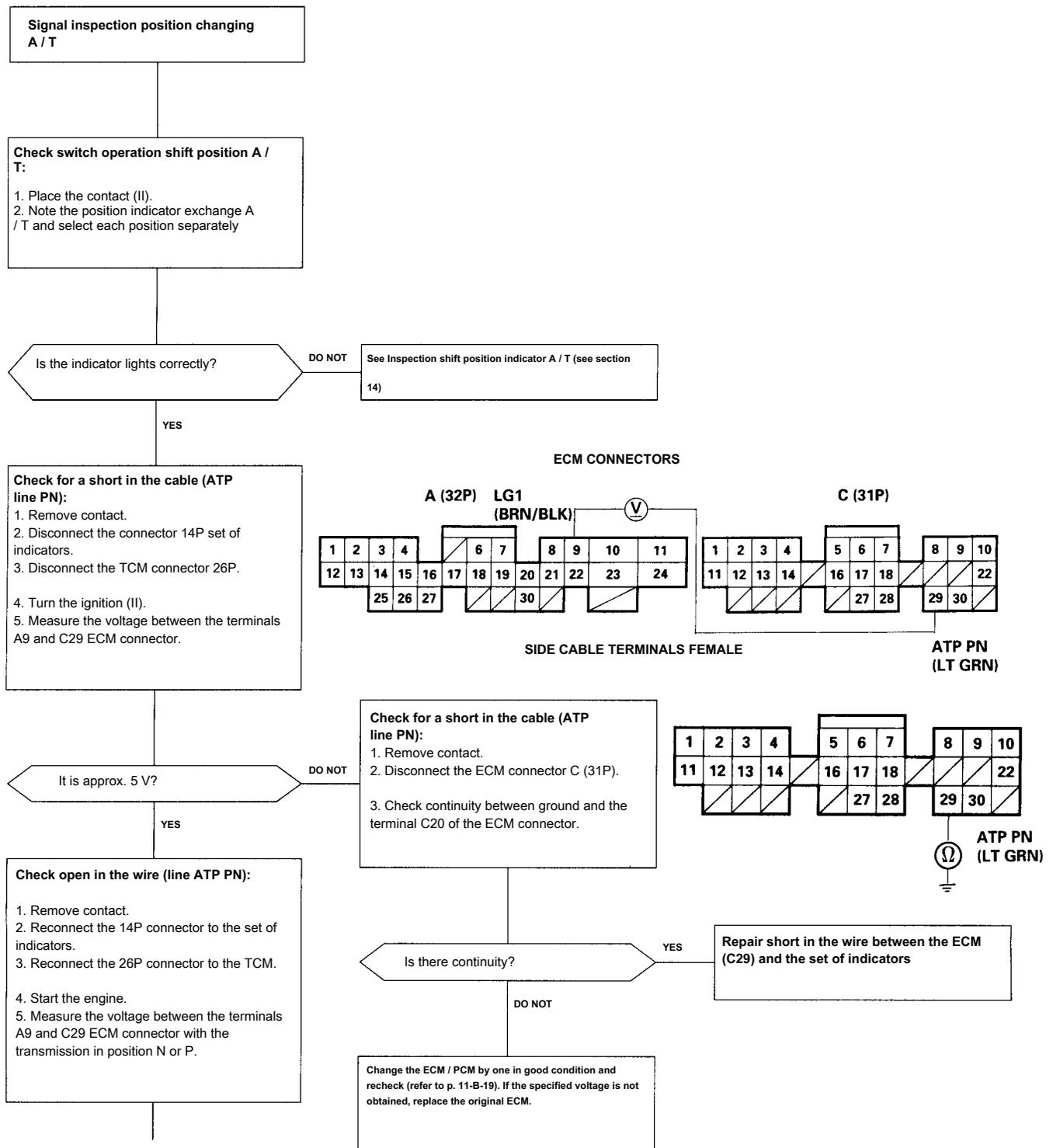
(P. 11-B-77)





Position signal of the automatic transmission (A / T). A / T (except D16Y7 and D16Y8 engines)

Signals the ECM when the transmission is in positions N or P.

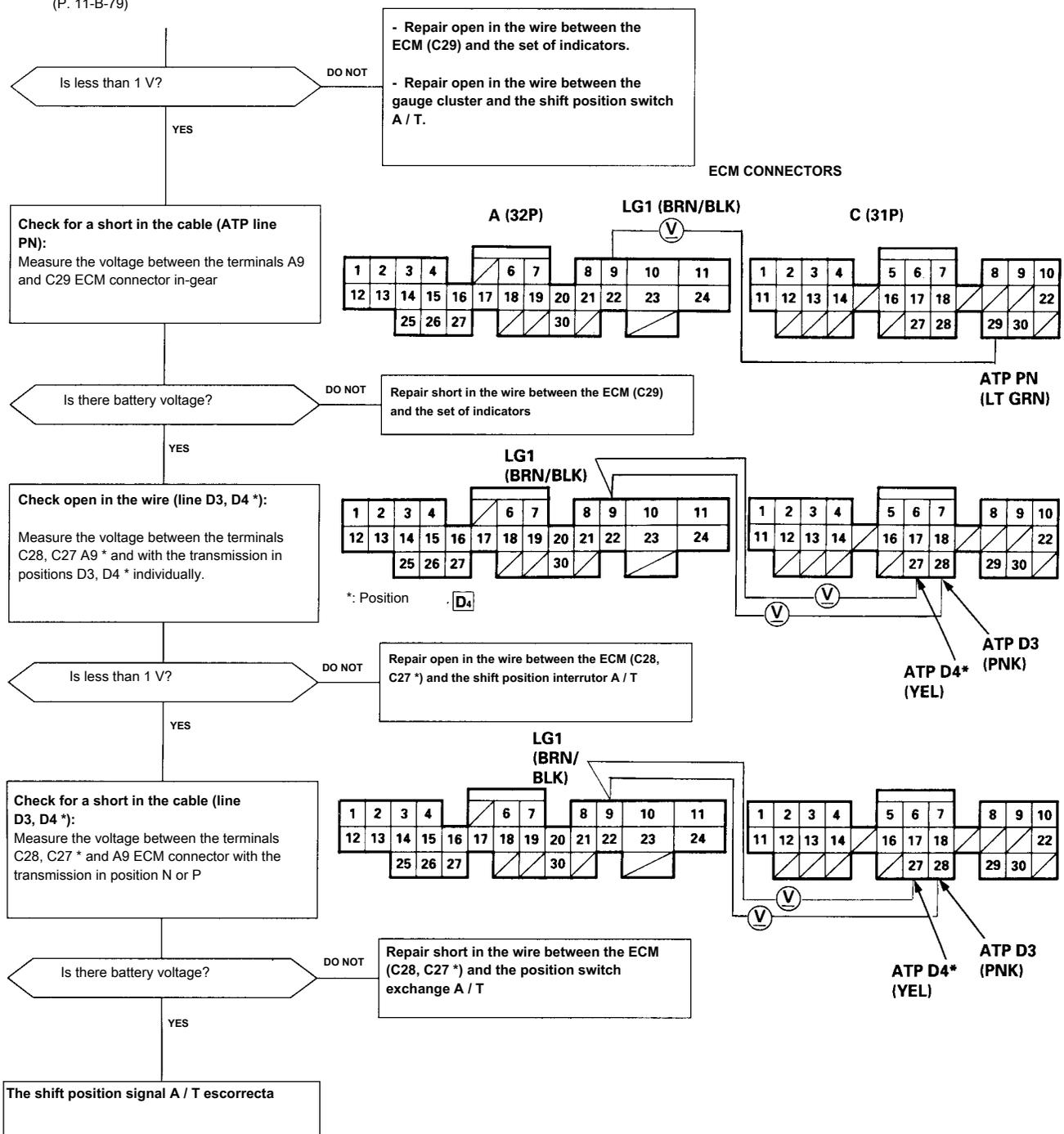


(Cont.)

Idle Control System

Position signal of the automatic transmission (A / T). A / T (except D16Y7 and D16Y8 engines) (cont.)

(P. 11-B-79)

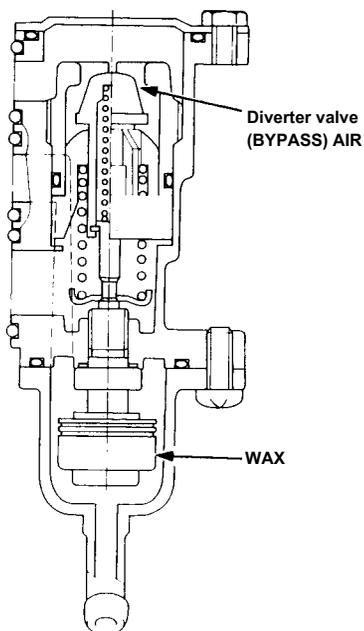
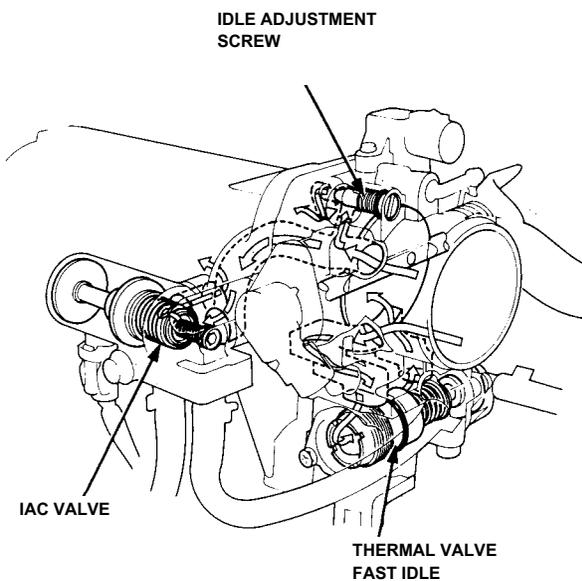




Thermal valve idle speed (engine B16A5)

Description

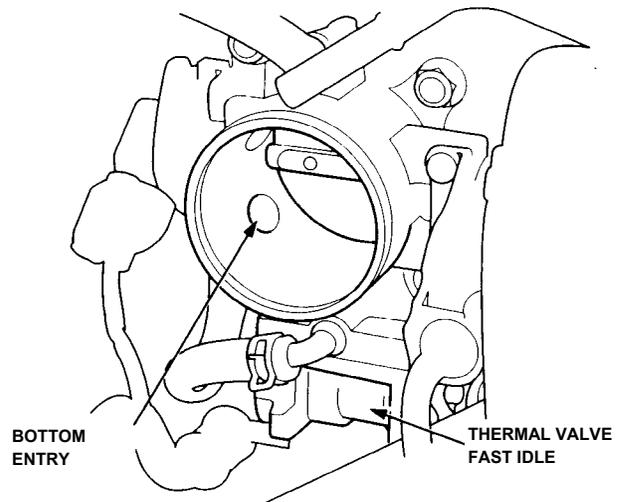
To avoid wrong turns when the engine is warming, it is necessary to increase the idle speed. Thermal fast idle valve is controlled by an injector wax. When the engine is cold, the coolant around the wax causes the injector to contract, permitting the additional transfer of air into the intake manifold, possibly allowing the engine to start more slowly. When the engine reaches normal operating temperature, the valve is closed, reducing the amount of air transmitted into the intake manifold.



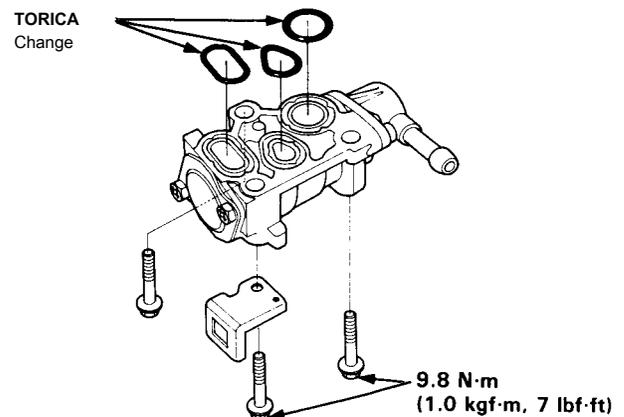
Inspection

NOTE: Thermal fast idle valve is factory set and therefore should not be disassembled.

1. Remove the air duct intake throttle body.
2. Start the engine.
3. Place your finger on the bottom inlet throttle body and check that airflow the engine is cold (coolant temperature below 30 ° C engine).



- Otherwise, change the thermal fast idle valve and recheck.



- Four. Start the engine. Keep the engine at 3,000 rpm (min-1) no load (N or P position), until the radiator fan is started. then keep it idling.
5. Check that the valve is fully closed. If the valve leaks, idle speed could drop to cover the lower entrance. Check level of engine coolant and for air in the system engine cooling (see Section 10). If everything is correct, change the thermal fast idle valve and recheck.

Idle Control System

Adjusting the idle speed

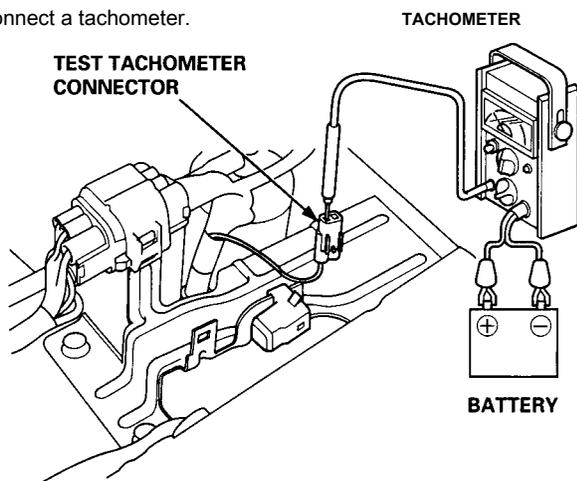
Inspection and Adjustment

D15Z6 motors (M / T), D15Z7 (M / T), D16Y5 (M / T), D16Y6 (M / T), D16Y8 (M / T), B16A2, B16A4, B16A5 and B16A6:

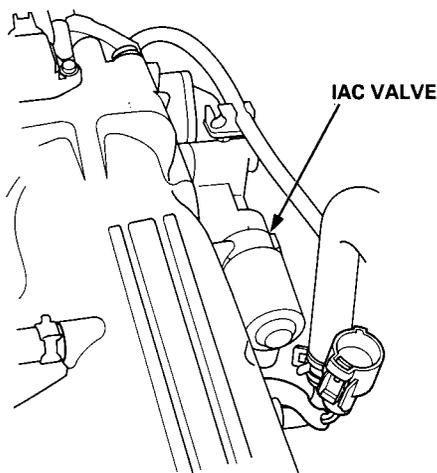
NOTE: Before adjusting the idle speed, check the following points:

- MIL illuminated.
- Ignition advance
- Plugs
- Air filter
- PCV system

1. Connect a tachometer.



2. Start the engine. Hold the engine at 3,000 rpm (min⁻¹) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle.
3. Disconnect the 2P connector from the Idle Air Control (IAC) valve.



4. Start the engine with the accelerator pedal slightly depressed. Stabilize the speed at 1000 rpm (min⁻¹). Then slowly release the pedal until the engine remains at idle.

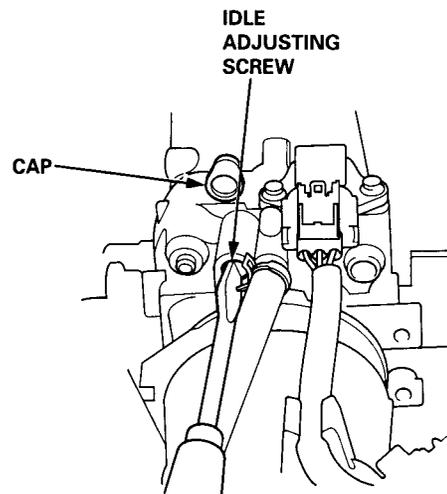
5. Check the idle unladen: lights, fan, rear demister, radiator fan and air conditioning off. NOTE: (KS model). Disconnect fuse #. 18 (7.5A) in the fuse box under the dashboard and check lights and side turn off.

Idle speed must be:

M/T	450 ± 50 rpm (min ⁻¹)
A/T	450 ± 50 rpm (min ⁻¹)

Adjust the idle speed, if necessary, by turning the idle adjusting screw.

NOTE: After adjusting the idle speed in this step, check the ignition timing (see section 23). If it is out of spec, go back to step 4.



6. Remove the contact.
7. Reconnect 2P connector IAC valve and remove fuse BACK UP * (RADIO), in the fuse box and relays under the hood for 10 seconds to reprogram the ECM / PCM.



8. Start the engine again and keep it idling unloaded for one minute. Then check the idling speed.

NOTE: (KS model). Disconnect fuse #. 18 (7.5A) in the fuse box under the dashboard and check lights and side turn off.

Idle speed must be:

Motor D15Z7:

M/T	650 ± 50 rpm (min ⁻¹)
-----	-----------------------------------

D16Y8 (KH model) engine:

M/T	670 ± 50 rpm (min ⁻¹)
-----	-----------------------------------

D15Z6 (Except KS model), B16A4, B16A5 engine:

M/T	700 ± 50 rpm (min ⁻¹)
A/T	700 ± 50 rpm (min ⁻¹) (in N or P position)

D15Z6 (KS model), D16Y5, D16Y6, D16Y8 (Except KH model), B16A2, B16A6 engine:

M/T	750 ± 50 rpm (min ⁻¹)
A/T	750 ± 50 rpm (min ⁻¹) (in N or P position)

Idle the engine for one minute with headlights (Low) ON and check the idle speed.

Idle speed should be (All engines):

M/T	750 ± 50 rpm (min ⁻¹)
A/T	750 ± 50 rpm (min ⁻¹) (in N or P position)

Turn the headlights off.

Idle the engine for one minute with heater fan switch at HI and air conditioner on, then check the idle speed.

Idle speed should be:

Except B16A5 engine:

M/T	810 ± 50 rpm (min ⁻¹)
A/T	810 ± 50 rpm (min ⁻¹) (in N or P position)

B16A5 engine:

A/T	830 ± 50 rpm (min ⁻¹) (in N or P position)
-----	--

NOTE: If the idle speed is not specified, refer to the troubleshooting guide system on page 11-B-66.

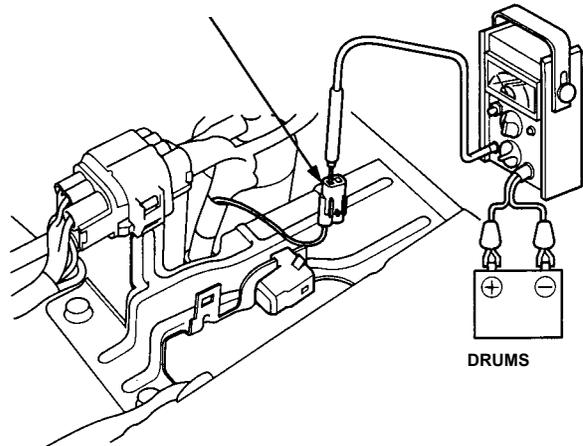
D15Z6 motors (A / T), D15Z7 (CVT), D16Y5 (CVT), D16Y6 (A / T), and D16Y8 D16Y7 (A / T):

Adjust the idle speed by a Honda PGM tester. Check the following points:

- MIL illuminated.
- Ignition advance
- Plugs
- Air filter
- PCV system

1. Connect a tachometer.

CONNECTOR
TACH TACH TEST



2. Start the engine. Hold at 3000 rpm (min⁻¹) no load (A / T in position N or P; M / T in neutral)., Until the radiator fan is started. then keep it idling.

3. Check the idle unladen: lights, fan, rear demister, radiator fan and air conditioning off.

Motor D16Y7 (KH model M / T):

M/T	670 ± 50 rpm. (Min-1)
-----	-----------------------

D15Z6 motors (A / T), D15Z7 (CVT), D16Y5 models KE and KG), D16Y7 (model KH A / T):

A/T	700 ± 50 rpm. (Min-1) (N or P position)
-----	---

D16Y5 motors (KQ model), D16Y6, D16Y7 (KK and KM models):

M/T	750 ± 50 rpm (min-1) 750 ± 50 rpm (min-1) (N positions'OP)
A/T	

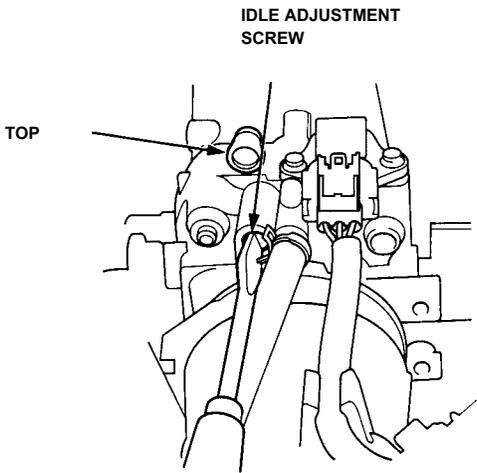
(Cont.)

Idle Control System

Adjusting the idle speed (cont.)

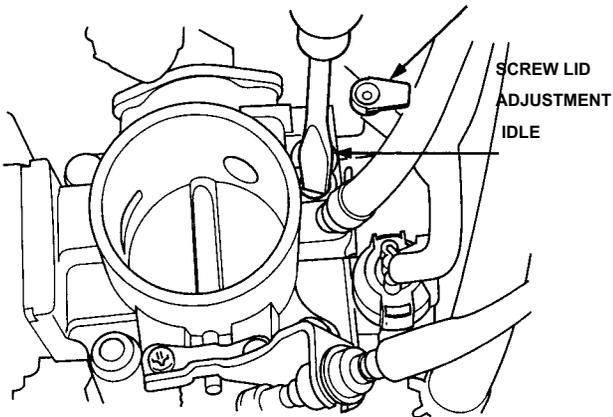
4. Adjust the idle speed, if necessary, by turning the adjustment screw idle swing in clockwise or counter-clockwise.

D16Y7 engine except:



Motor D16Y7:

NOTE: If you remove the air filter housing, do not disconnect the connector of the IAT sensor.



5. After adjusting screw swing idle speed adjustment, recheck speed. If not specified, turn back the adjustment screw half turn. NOTE: Do not turn the adjusting screw turned over without checking the idle speed.

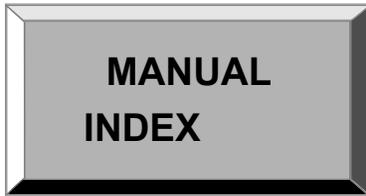
6. Allow the engine to idle for one minute with the heater fan switch in position HI and the activated air conditioning. Check after idle speed.

The idle speed should be (all engines):

M/T	810 ± 50 rpm. (Min-1) 810 ± 50 rpm. (Min-1) (N or P position)
A/T	

NOTE:

- Do not turn the adjusting screw idling with the air conditioning on.
- If the idle speed is not the specification given, see the guide for troubleshooting system page 11-B-66.



Fuel supply system



Guide to Troubleshooting

NOTE: Each line of the graph shows the subsystems that could cause the symptom, lined up in the order they should be inspected, starting with 1. Locate the symptom in the left column, read to the nearest cause and refer to the page in the top of the column. If the inspection shows that the system operates correctly, try again with the next system 2, and so on.

PAGE	SUB-SYSTEM	FUEL LINES	FUEL INJECTOR	FUEL PRESSURE REGULATOR	FUEL FILTER	FUEL PUMP	PGM-FI MAIN RELAY	CONTAMINATED FUEL
SYMPTOM		11-B-86	11-B-89	11-B-92	11-B-93	11-A-77	11-B-93	—
ENGINE WON'T START			③		③	①	②	
DIFRICULT TO START ENGINE WHEN COLD OR HOT					①	②		
ROUGH IDLE			①					②
POOR PERFOR- MANCE	MISFIRE OR ROUGH RUNNING		①	②				②
	FAILS EMISSION TEST		②	①				
	LOSS OF POWER		③		②	①		
FREQUENT STALLING	WHILE WARMING UP			①				
	AFTER WARMING UP			①				

**GENERAL
INDEX**

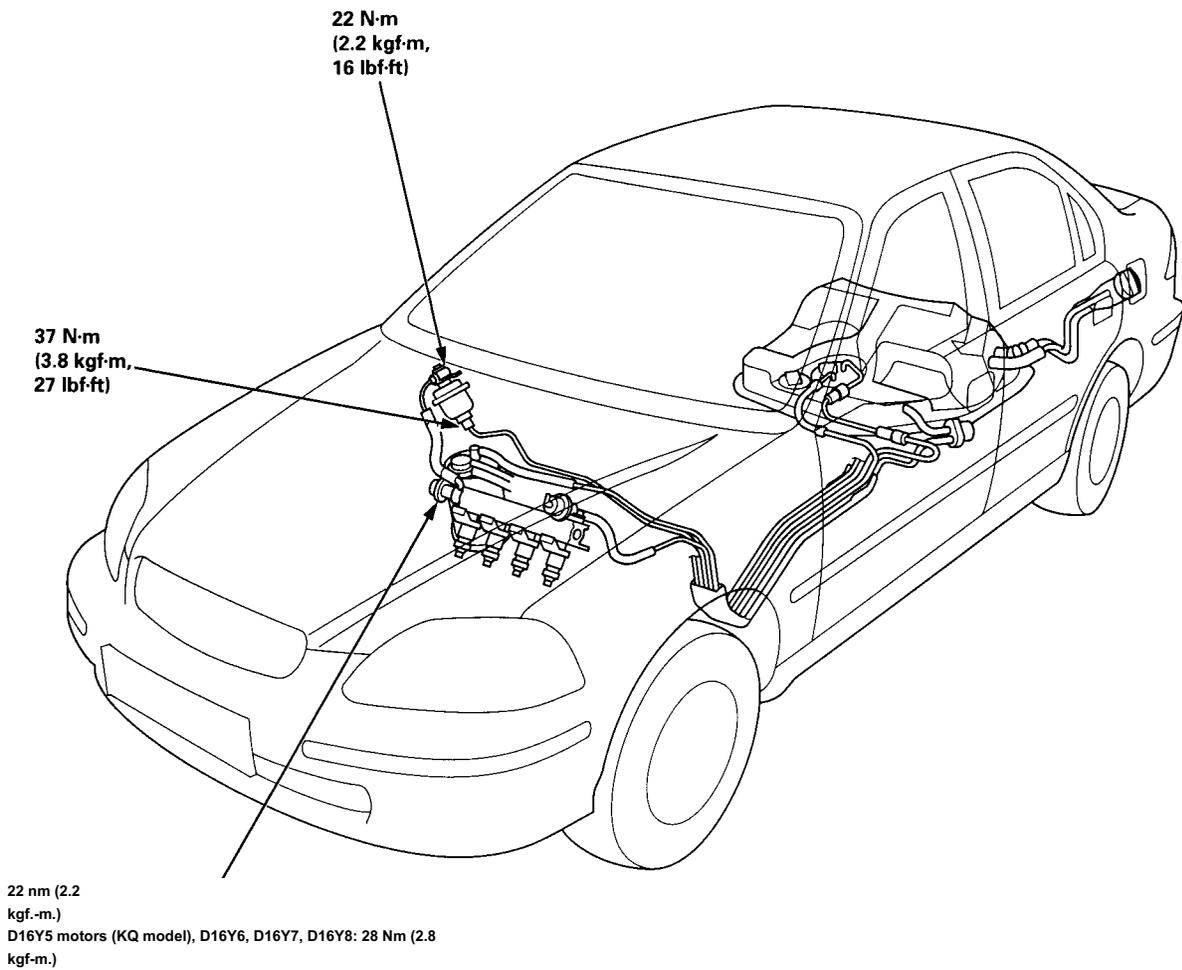
**MANUAL
INDEX**

**CONTENTS
SECTION**

Fuel supply system

Fuel lines

NOTE: Check lines, hoses or fuel filter are damaged, leaking or are damaged and replace, if necessary.



(Cont.)

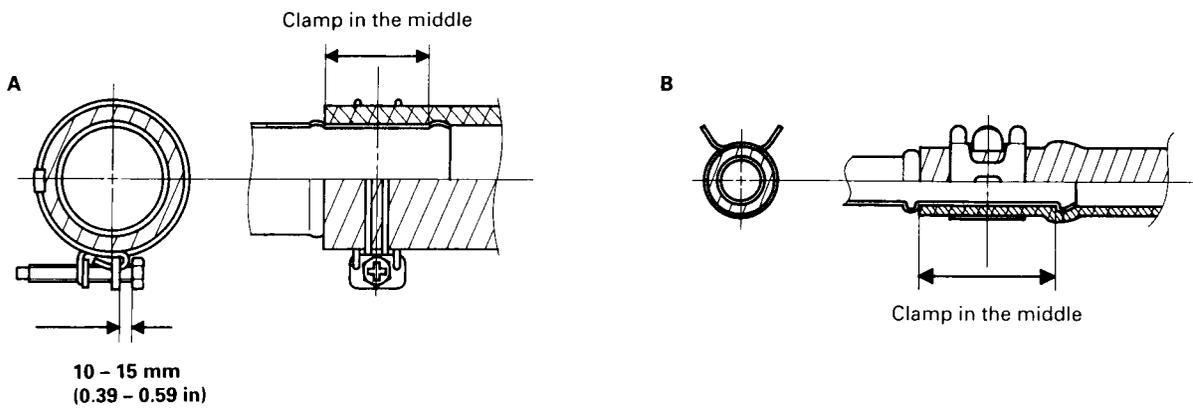
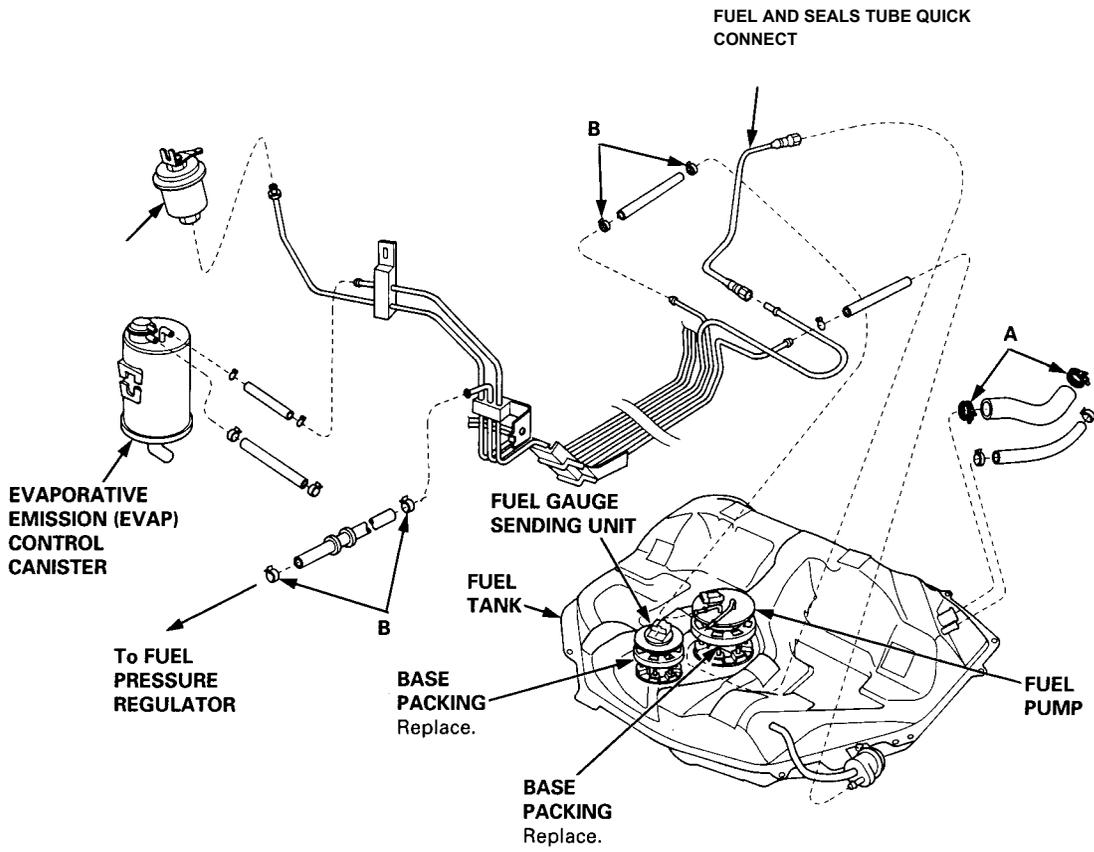
**GENERAL
INDEX**

**MANUAL
INDEX**

**CONTENTS
SECTION**



NOTE: Check all hoses clamps and retighten, if necessary.



Fuel supply system

Fuel Pressure

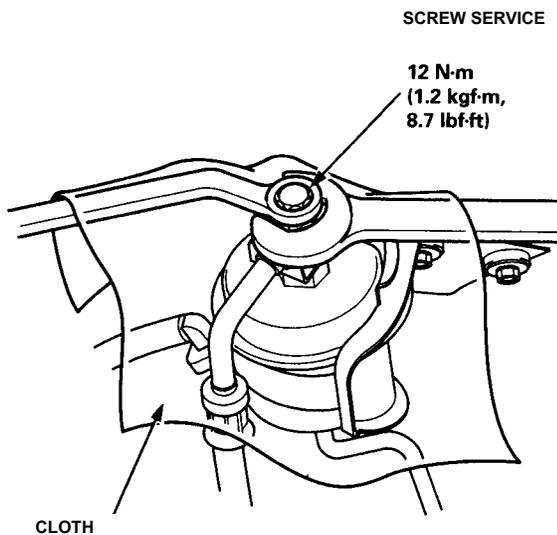
Relief

Before disconnecting the fuel pipes or sleeves, pressurize the system do by loosening screw service filter base fuel.

ATTENTION:

- Do not smoke while working on the fuel system. Avoid contact of flames in the work area.
- Be sure to depressurize the fuel line with the ignition off.

1. Disconnect the negative cable from the negative terminal of the battery.
- 1- Remove the filling trap from the fuel filter.
- 2- Use a spanner in the service screw fuel filter while holding the special screw with a spanner.
4. Place a rag over the service screw.
5. Slowly loosen screw service a full turn.

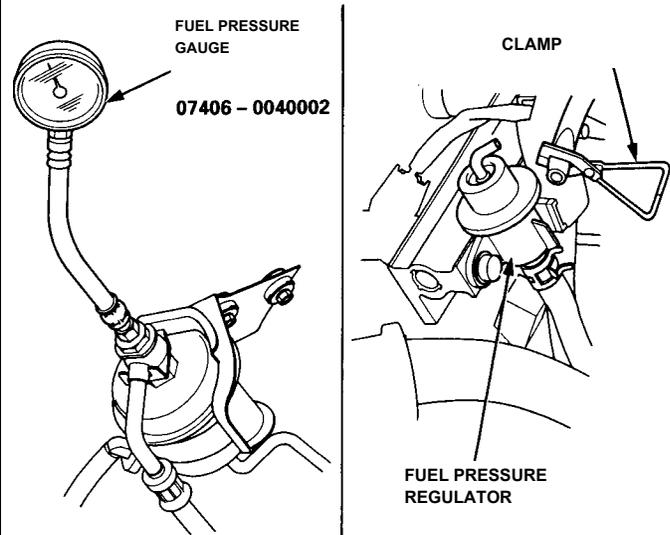


NOTE:

- You can install a fuel pressure gauge into the screw hole service.
- Always replace the washer between the screw service and special screw to loosen the service.
- Replace all washers by changing the screws.

Inspection

1. Relieve pressure fuel.
2. Remove the service screw tible filter while holding combustible special screw with the other key. Install special tool.



3. Start the engine *. Measure the pressure with the engine at idle and sleeve vacuum pressure regulator disconnected from regulator and throttled.

The pressure should be: Engines D15Z6 and D15Z7: 226-275 kPa (2.3 to 2.8 kgf / cm² 33 - 40 psi) D16Y7 motors, D16Y6, D16Y5 and D16Y8: 265-314 kPa (2.7 to 3, 2 kgf / cm² 38 - 46 psi) B16A2 motors, B16A4, B16A5 and B16A6: 275-324 kPa (2.8 to 3.3 kgf / cm² 40 - 47 psi)

4. Reconnect the cuff to the pressure regulator.

The pressure should be: Engines D15Z6 and D15Z7: 162-211 kPa (1.65 to 2.15 kgf / cm² 23-31 psi) D16Y7 motors, D16Y6, D16Y5 and D16Y8: 196-245 kPa (2 to 2.5 kgf / cm² 28 - 36 psi) B16A2 motors, B16A4, B16A5 and B16A6: 211-260 kPa (2.15 to 2.65 kgf / cm² 31 - 38 psi)

* If the engine does not start, switch on the ignition (II)

wait for two seconds and turn it off. Check again and take the pressure reading.

- If the pressure is not specified, check first pump combustible (see p. 11-A-77). If the pump is OK, check the following:
 - If the pressure is higher than specified, inspect:
 - Sleeve or return line strangulation fuel gulado or blocked (see page 11-B-92).
 - Defective pressure regulator (see page 11-B-92).
 - If the pressure is lower than specified, inspect:
 - Clogged fuel filter.
 - Defective pressure regulator (see page 11-B-92).
 - Leaking fuel line.



Injectors

Test

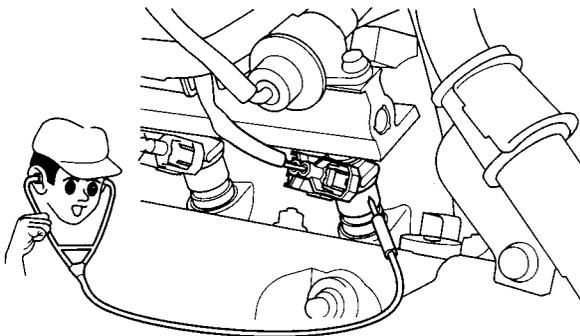
NOTE: Before testing, check the following items: idle speed, spark advance and percentage of carbon dioxide (CO).

If the engine is running:

1. With the engine idling, disconnect each connector from the injectors individually and inspect the idling speed change.

- If the speed drops by the same ratio for each cylinder, the injectors operate normally.
- If the idling speed or quality is maintained when you disconnect a particular injector, change the injector and check again.

2. With the engine idling, check for a click sound on each injector using a stethoscope.



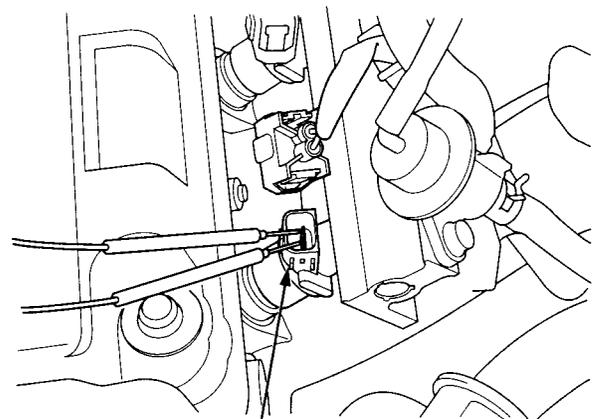
- If any of the injectors does not emit the characteristic sound of click, check sound again after changing the injector.
- If you still click sound is not appreciated, check the following items:
 - If there is a short circuit, wire breakage or poor connection in the YEL / BLK wire between the PGM-FI main relay and injector resistance.
 - If the resistance of the injector is corroded.
 - If there is a short circuit, wire breakage or poor connection in the RED / BLK cable between injector resistance and the fuel injector.
- If there is a short circuit, wire breakage or poor connection in the cable between the fuel injector and the ECM / PCM.

If everything is OK, check the ECM / PCM (see page 11-B-32) and the main relay PGM-FI (see page 11-B-93).

If the engine can not be started:

1. Disconnect the injector and measure the resistance between the two terminals of the injector.

The resistance should be: 10 - 13 ½



FUEL INJECTOR

- * If the resistance is not specified, replace the fuel injector.
- If the resistance is the especificada, check the fuel pressure (see page 11-B-88).
- If the pressure is specified, check the following points:
 - If there is a short circuit, wire breakage or poor connection in the YEL / BLK wire between the PGM-FI main relay and injector resistance.
 - If the resistance of the injector is corroded.
 - If there is a short circuit, wire breakage or poor connection in the RED / BLK cable between injector resistance and the fuel injector.
- If there is a short circuit, wire breakage or poor connection in the cable between the fuel injector and the ECM / PCM. If everything is OK, check the ECM / PCM (see page 11-B-32).

Fuel supply system

Fuel injectors (cont.)

Change

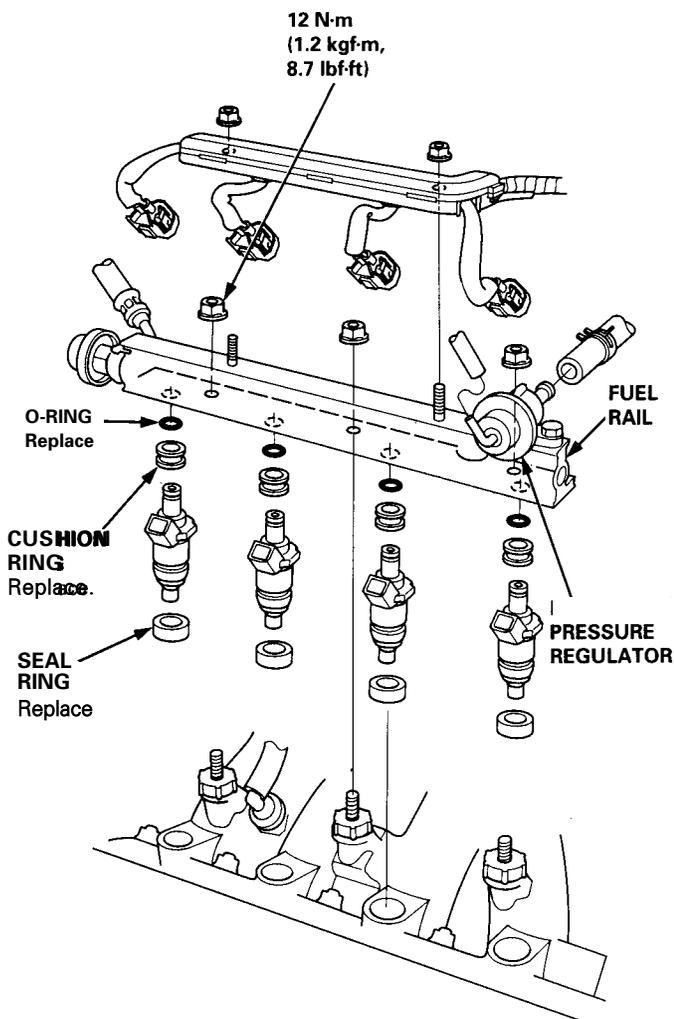
CAUTION: DO NOT smoke while working on the fuel system. Avoid contact of flames in the work area.

1. Relieve pressure fuel (see page 11-B-88).
2. Disconnect the injector connectors (D16Y7 engine: Remove the air filter).
3. Disconnect the vacuum hoses and fuel return hose pressure regulator (D16Y5 engines and D16Y8: disconnect the vacuum hoses and connector 2P solenoid valve purge control EVAP).

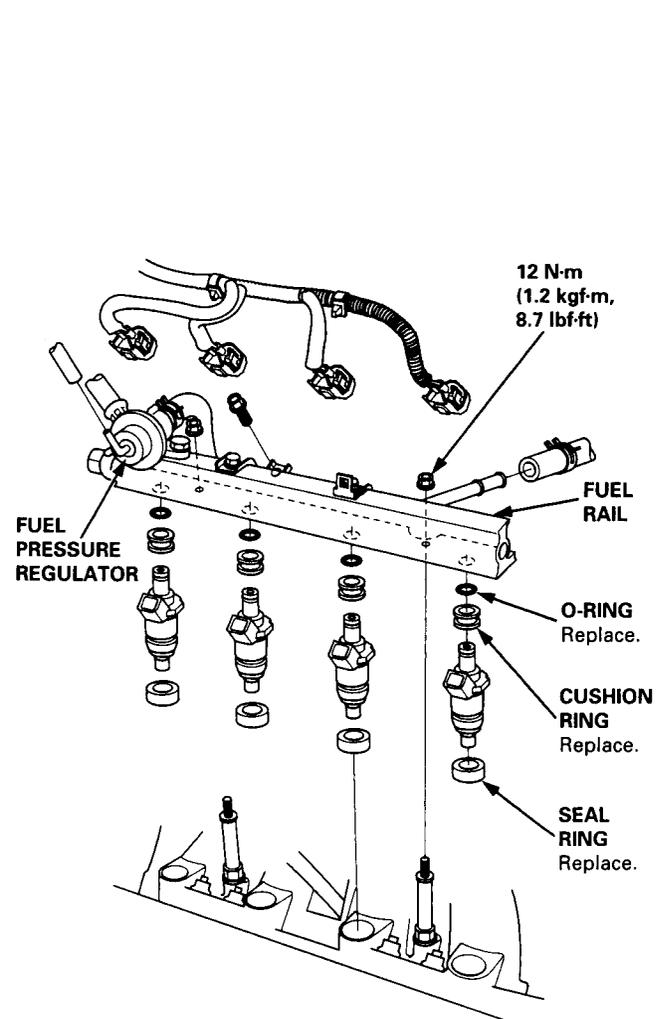
NOTE: Place a rag over the sleeves before disconnecting.

4. Loosen the bitter gourd retainer fuel channel.
5. Disconnect the fuel channel.
6. Remove the intake manifold injectors.

All Engines EXCEPT D16Y7



Motor D16Y7:



7. Slide the new shock absorbers on the injectors.
8. Cover with new clean engine oil and install injectors rings.
9. First insert the injectors in the fuel channel.
10. Cover new seals with clean engine oil and insert them into the intake manifold.

GENERAL
INDEX

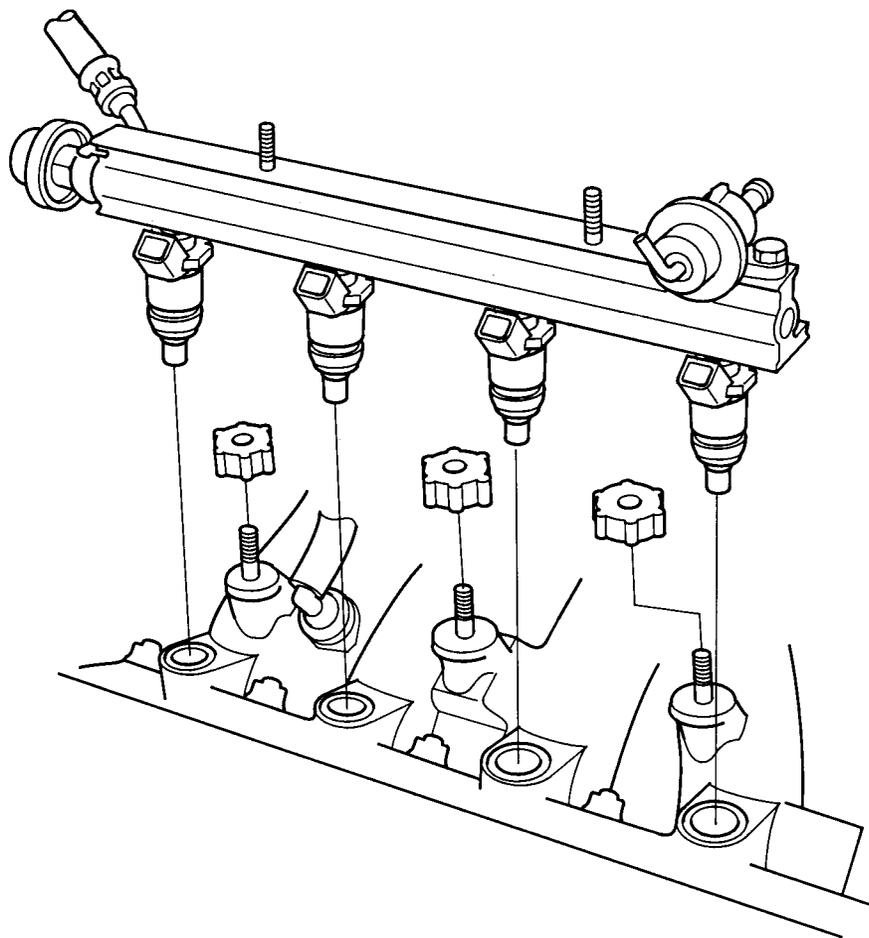
MANUAL
INDEX

CONTENTS
SECTION



eleven. Install the nozzles and the whole fuel channel in the intake manifold.

CAUTION: To prevent damage toric install the nozzles in the first fuel channel and install later in the intake manifold.



12. Install and tighten nuts detent.

13. Connect the vacuum hoses and the return hose to the pressure regulator (D16Y5 engines and D16Y8: connect the vacuum hoses and 2P connector to the solenoid valve purge control EVAP).

14. Install connectors injectors (D16Y7 engine: install the air filter).

15. Turn the ignition (II), but do not activate the starter. When the pump has acted for about two seconds, the line pressure will be increased. Repeat two or three times and check for fuel leaks.

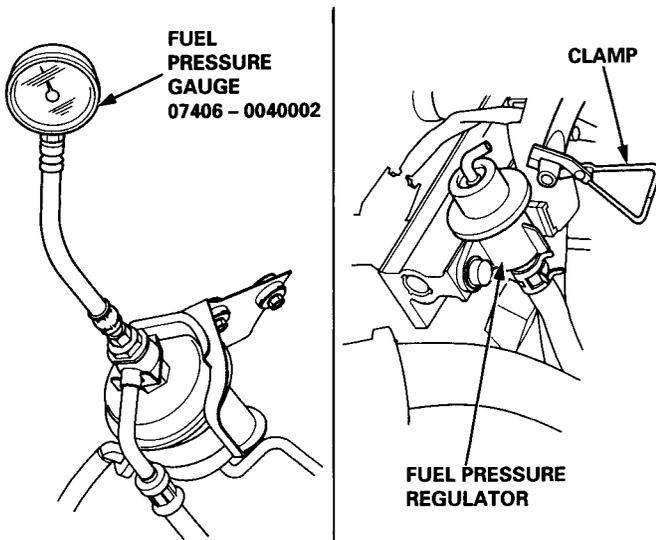
Fuel supply system

Fuel pressure regulator

Test

ATTENTION: Do not smoke during the course of the test. Avoid contact of flames in the work area.

1. Attach the pressure gauge to the service entrance fuel filter (see page 11-B-88).



The pressure should be:

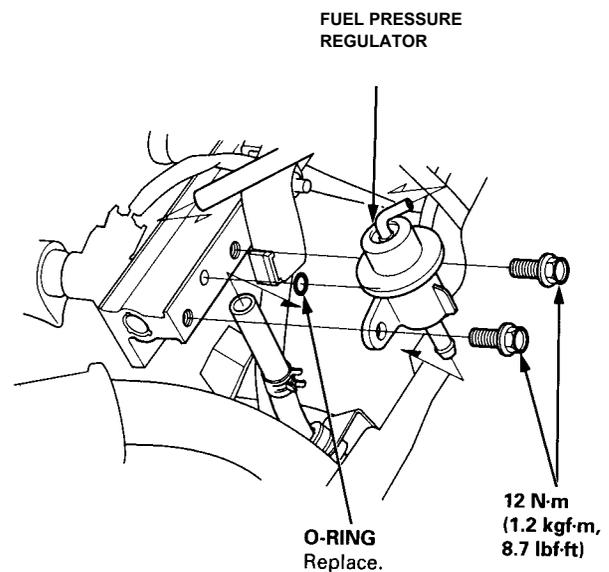
D15Z6 and D15Z7 engines:
226-275 kPa (2.3 to 2.8 kgf / cm² 33 - 40 psi) D16Y7
motors, D16Y6, D16Y5 and D16Y8: 265-314 kPa (2.7 to 3.2
kgf / cm² 38 - 46 psi) Engines B16A2, B16A4, B16A5 and
B16A6: 275-324 kPa (2.8 to 3.3 kgf / cm² 40 - 47 psi) (with
vacuum manifold disconnected pressure regulator and
throttled).

2. Reconnect the vacuum hose to the fuel pressure regulator.
3. Ensure that the fuel pressure increases again to disconnect the vacuum hose of the pressure regulator.
 - If the fuel pressure does not increase, change the pressure regulator.

Change

ATTENTION: Do not smoke while working on the fuel system. Avoid contact of flames in the work area.

1. Place a cloth under pressure regulator and relieve after the fuel pressure (see page 11-B-88).
2. Disconnect the vacuum hose and the fuel return hose.
3. Remove the two retaining screws 6 mm.



NOTE:

- Replace the O.
- When installing the pressure regulator, apply clean engine oil to the O-ring and install it in its proper location, avoiding damage the O.



Fuel filter

ATTENTION

change

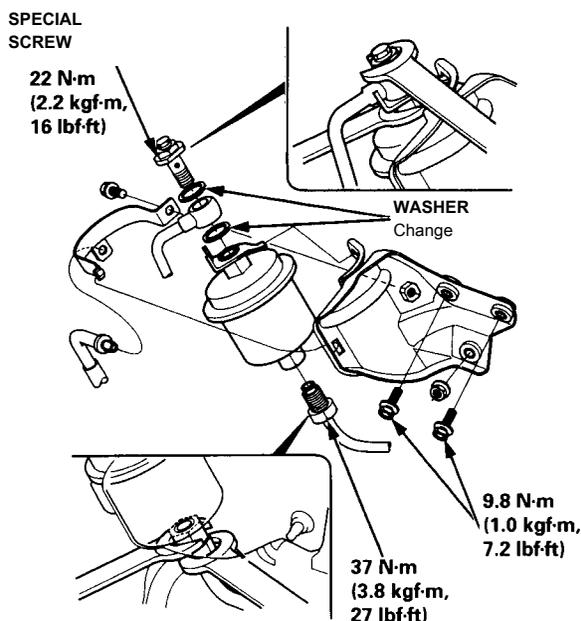
- Do not smoke while working on the fuel system. Avoid direct contact of the flames in the work area.
- By changing the fuel filter, keep a safe distance between battery terminals and the tools.

The fuel filter should be changed whenever the fuel pressure is lower than the specified value (with the pressure regulator's vacuum sleeve disconnected and throttled), after verifying that the pump and pressure regulator operate correctly:

- D15Z6 engines and D15Z7: 226-275 kPa (2.3 - 2.8 kgf / cm² 33 - 40 psi)
- D16Y7 engines, D16Y6, D16Y5 and D16Y8: 265-314 kPa (2.7 to 3.2 kgf / cm² 38 - 46 psi)
- B16A2 engines, B16A4, B16A5 and B16A6: 275-324 kPa (2.8 to 3.3 kgf / cm² 40 - 47 psi).

1. Disconnect the negative cable from the negative terminal of the battery.
2. Place a cloth beneath and around the filter.
3. Relieve the fuel pressure (see page 11-B-88).
4. Remove the special screw and remove the filter feed tube, while holding the other key, as illustrated.
5. Remove the filter clamp and filter.
6. When installing, use new washers, as indicated.

NOTE: Clean the gasket of the high-pressure sleeves thoroughly before disconnecting them.



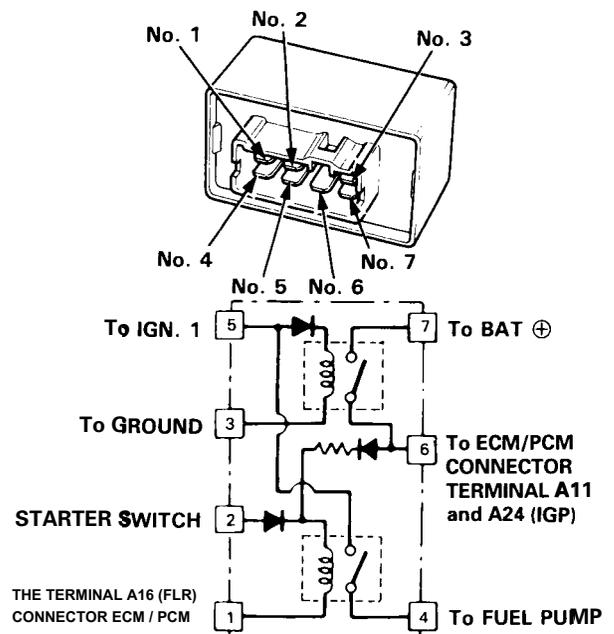
Main relay PGM-FI

Relay test

NOTE: If the vehicle starts and stays in place, the main relay PGM-FI is fine.

1. Remove the main relay PGM-FI.
2. Connect the positive battery terminal to no.2 terminal and the negative terminal, the terminal number. 1 PGM-FI main relay. then check the continuity between terminal numbers 5 and 4 main relay PGM-FI.

- If there is continuity, go to step 3.
- If there is no continuity, replace the main relay PGM-FI and recheck.



3. Connect the positive battery terminal to No.5 terminal and the negative terminal of the battery to terminal no. 3 PGM-FI main relay. Then check continuity between terminal numbers 7 and 6 main relay PGM-FI.

- If there is continuity, go to step 4.
- If there is no continuity, replace the main relay PGM-FI and recheck.

4. Connect the positive battery terminal to n°6 terminal and the negative terminal of the battery to terminal no. 1 PGM-FI main relay. Then check continuity between terminal numbers 5 and 4 main relay PGM-FI.

- If there is continuity, the main relay PGM-FI is fine.
- If there is no continuity, replace the main relay PGM-FI and recheck.

(Cont.)

Fuel supply system

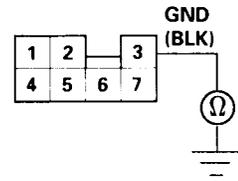
PMG-FI main relay (cont.)

Troubleshooting

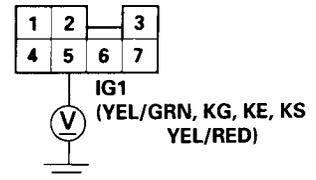
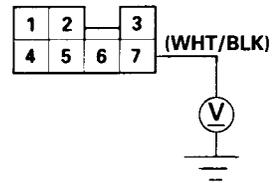
- The motor does not start.
- Inspection of wiring and PGM-FI main relay.

NOTE: The inertia switch should be tuned down command.

CONNECTOR PGM-FI main relay



SIDE CABLE TERMINALS FEMALE



Check open in the wire (ground line):
1. Remove contact.
2. Disconnect the main relay PGM-FI.
3. Check continuity between the terminal number. 3 7P main relay connector PGM-FI and mass.

Is there continuity?

DO NOT
Repair open in the wire between the main relay PGM-FI and G101

Check for open or Coreto in the cable (battery line):
Measure the voltage between the terminal number. 7 7P relay connector and mass

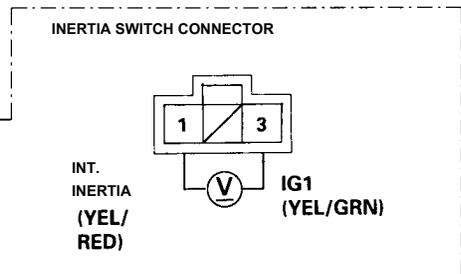
Is there battery voltage?

DO NOT
- Replace the fuse FI E / M (15A) in the fuse box and relays under the hood.
- Repair open or short in the wire between PGM-FI main relay and fuse FI E / M (15A).

Check for open or short in the cable (IG1 line):
1. Place the contact (II).
2. Measure the voltage between the terminal number. 5 7P main relay connector PGM-FI and mass.

Is there battery voltage?

DO NOT
) Models KG, KE and KS)
Check the inertia switch:
1. Remove contact.
2. Disconnect the 3P connector inertia switch.
3. Turn the ignition (II).
4. Measure the voltage between the terminals 1 and 3 of connector 3P inertial switch

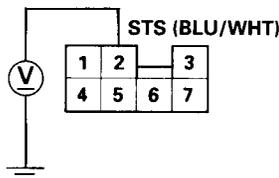


Check for open or short in the cable (STS line):
1. Turn the ignition START (III) position.
NOTE: M / T in neutral; A / T in position N or P.
2. Measure the voltage between the terminal number. 2 7P main relay connector PGM-FI and mass.

Is there battery voltage?

DO NOT
- Replace fuse #. 13 FUEL PUMP (15 A), in the fuse box and relays on the board.
- Repair open or short in the wire between PGM-FI main relay and fuse #. 13 FUEL PUMP (15A) (except KG, KE and KS models).
- Repair open in the wire between the inertia switch and fuse #. 13 FUEL PUMP (15A) (KG models, KE and KS).
- Repair open in the wire between PGM-FI main relay and inertia switch (KG, KE and KS models).

Change the inertia switch

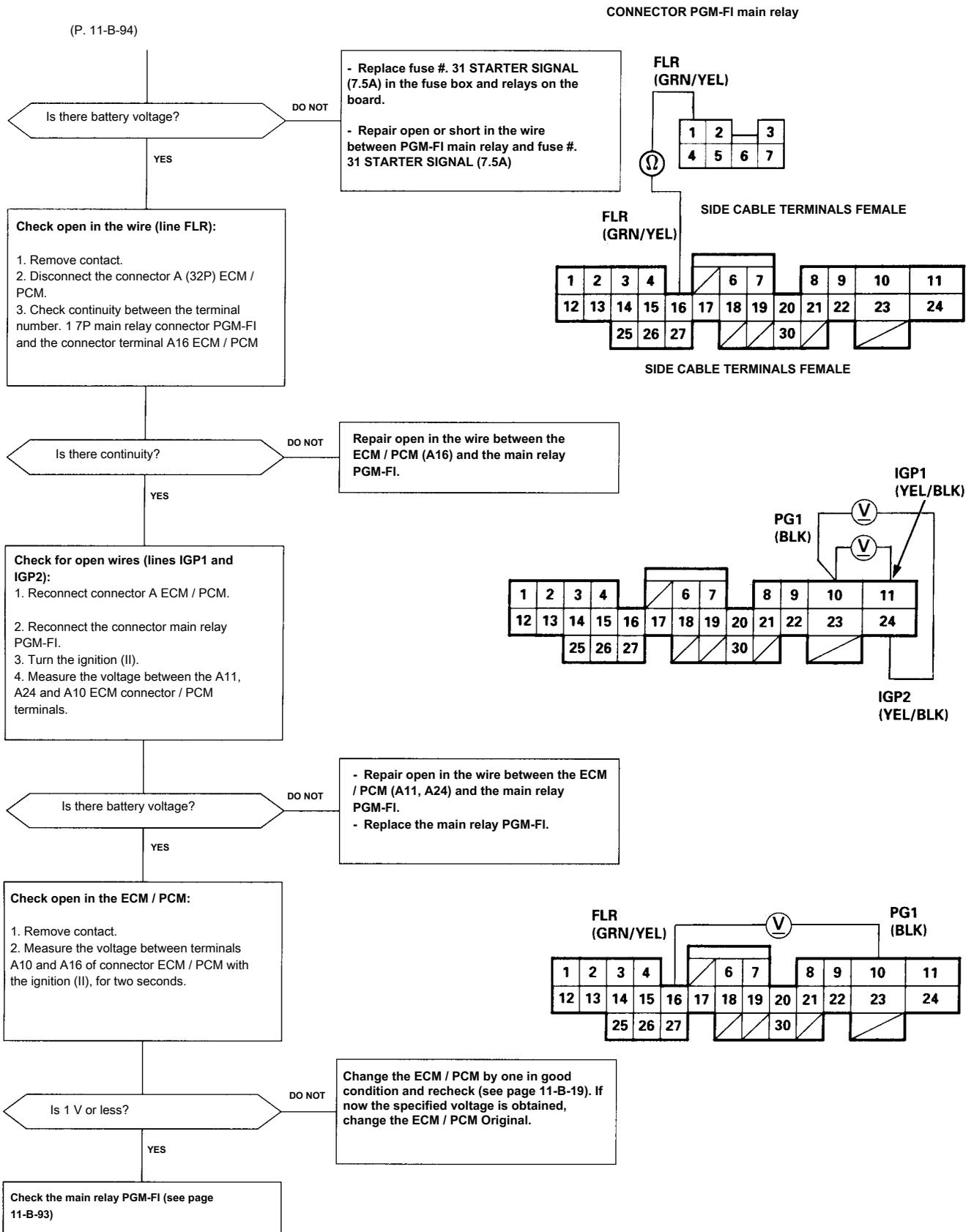


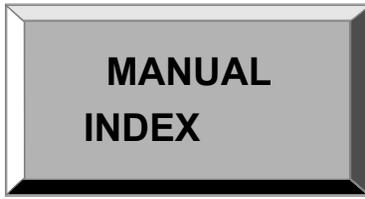
(A p. 11-B-95)

GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION





Intake air system

Troubleshooting Guide

NOTE: Each line of the graph shows the subsystems that could cause the symptom, lined up in the order they should be inspected, starting with 1. Locate the symptom in the left column, read to the nearest cause and refer to the page in the top of the column. If the inspection indicates that the system operates correctly, then look for the nearest system 2, and so on.

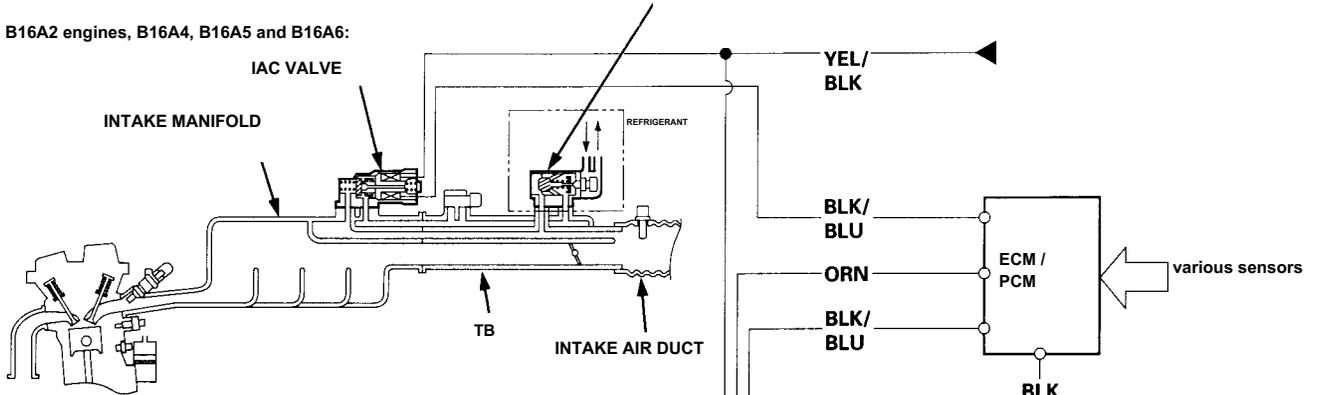
PAGE	SUBSYSTEM	AIR FILTER INTAKE AIR DUCT	THROTTLE CABLE	THROTTLE BODY
		11-B-98	11-B-98	11-B-100
	IDLE COLD OUT OF SPECIFICATION			①
	HOT IDLE SPEED TOO HIGH		②	①
	POWER LOSS	②	①	①



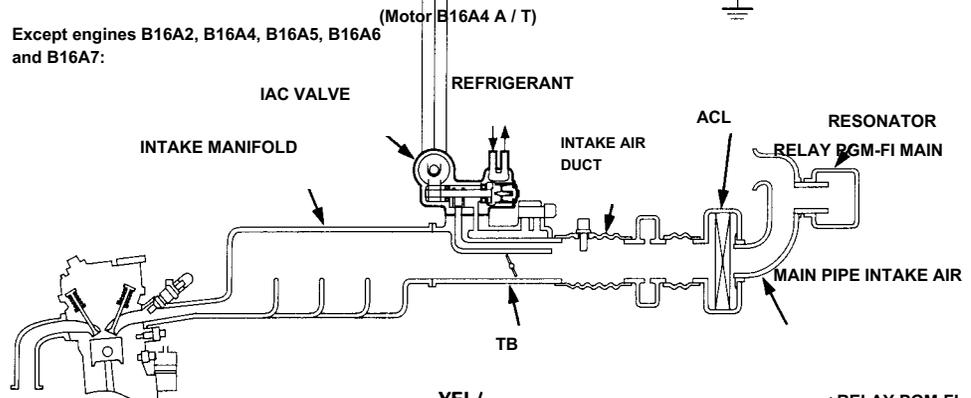
System Overview

This system supplies air whenever the engine needs. It comprises a tube intake air, a filter d air (ACL), a duct of the intake air, the throttle body (TB) of the control valve Idle air (IAC) thermal valve fast idle and intake manifold.

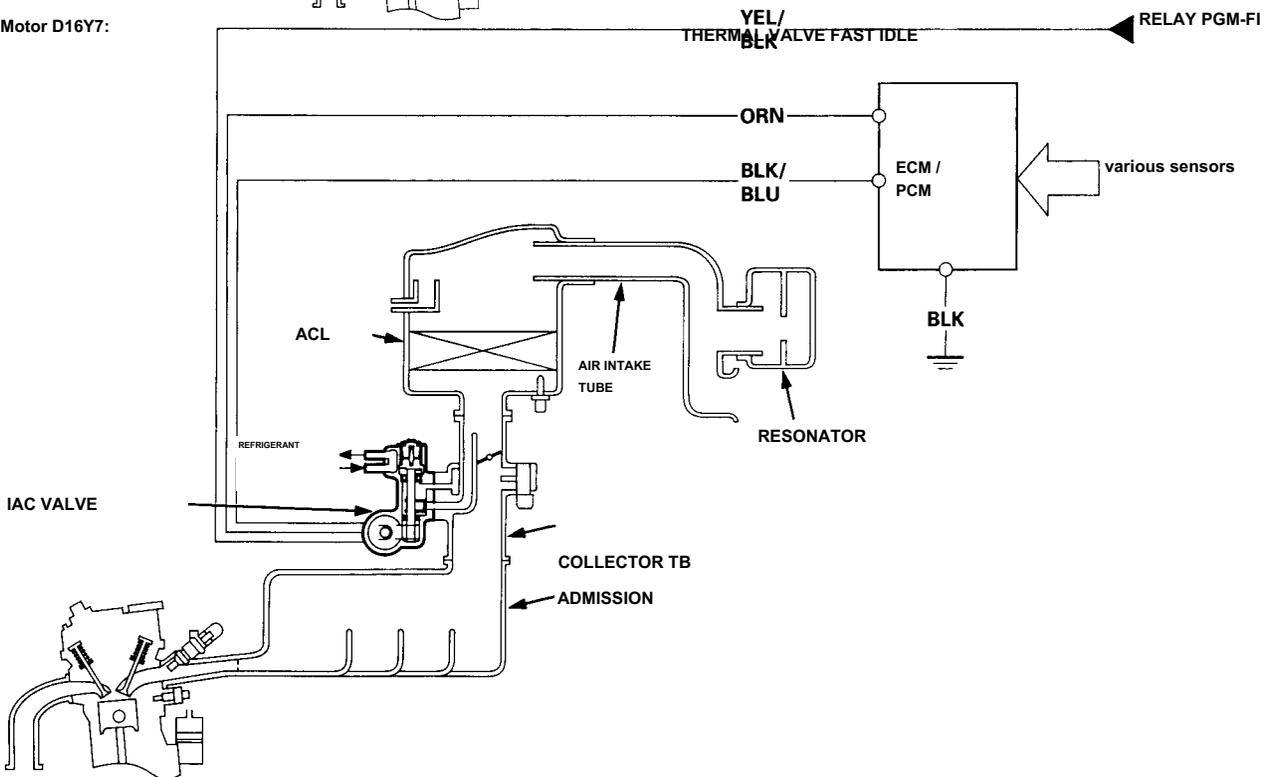
B16A2 engines, B16A4, B16A5 and B16A6:



Except engines B16A2, B16A4, B16A5, B16A6 and B16A7:



Motor D16Y7:



Intake air system

Air filter (ACL)

Changing the air filter (ACL)

NOTE: Do not blow compressed air ACL (except KY, KB and KV models).

D16Y7 engine except:

The illustration shows the B16A2, B16A4 and B16A6 engines.

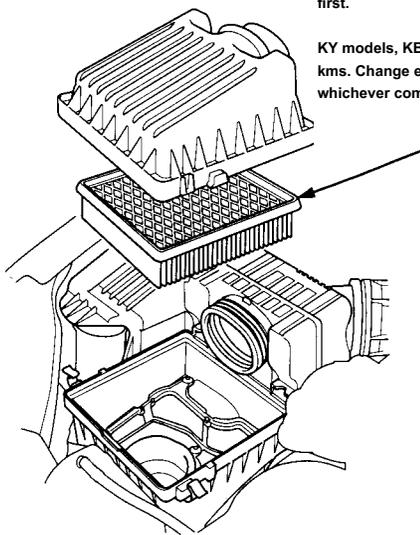
Models KG, KE and KQ:

Normal conditions: Replace every 40,000 kms. or 2 years, whichever comes first.

In extreme Working conditions (implement the program except for normal driving on dusty roads): change every 20,000 kms. or one year, whichever comes first

KU models, KH, KM and KK: Replace every 20,000 kms. or one year, whichever comes first.

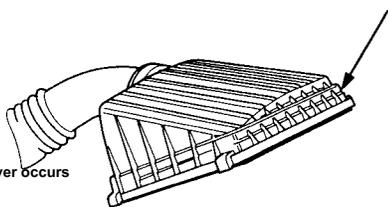
KY models, KB and KV: Clean every 10,000 kms. Change every 20,000km or one year, whichever comes first.



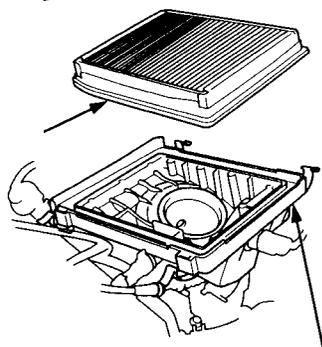
ACL housing cover

first place Motor D16Y7:

20,000 kms. or 1 year, whichever occurs



KH models, KM and KK: Replace every



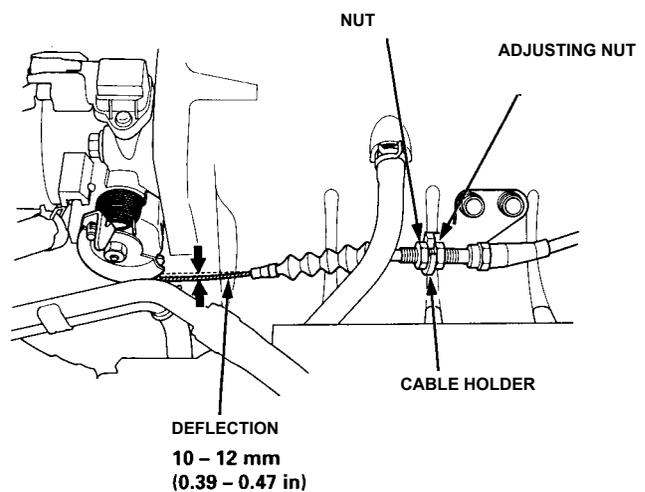
HOUSING ACL

Butterfly Cable

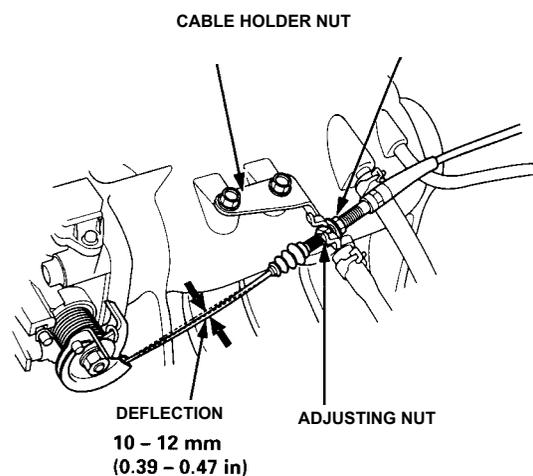
Inspection and Adjustment

1. Start the engine. Keep your speed at 3,000 rpm. (Min-1) (A / T in position N or P; M / T in neutral) until the radiator fan is started. then keep it idling.
2. Make sure the cable butterfly operate smoothly (which is not twisted or jammed). Repair it, if necessary.
3. Check cable free play in articulating butterfly. The deflection of the wire must be 10 to 12 mm.

B16A2 engines, B16A4, B16A5 and B16A6:

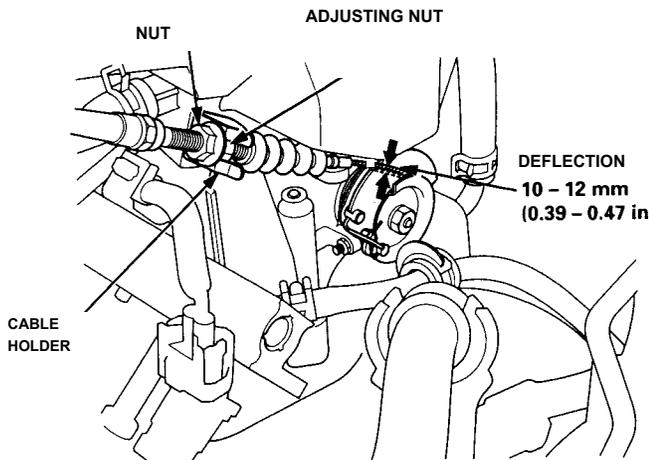


Except engines D16Y7, B16A2, B16A4, B16A5 and B16A6:





Except engines B16A2, B16A4, B16A5 and B16A6:



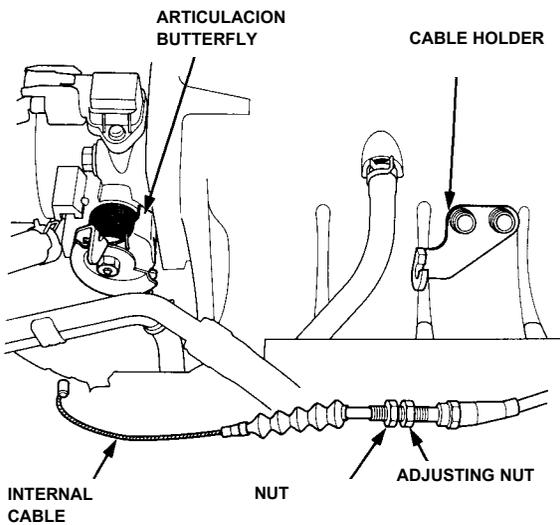
Four. If the deflection is not specified, loosen the nut, turn the adjusting nut until the deflection is specified and retighten the nut.

5. With correctly adjusted cable, check the throttle valve to verify that is fully open to the accelerator pedal dor to the bottom. Also check the throttle valve to verify returning to the idle position when the accelerator pedal is released.

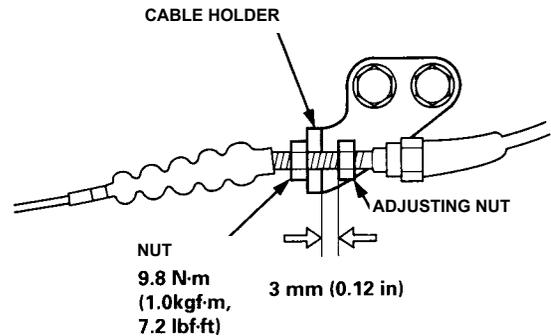
Installation

B16A2 engines, B16A4, B16A5 and B16A6:

- one. fully open the throttle valve and install the cable in the joint. then install the housing on the cable holder.
- two. Start the engine without load. Keep your speed at 3,000 rpm. (Min-1) (A / T in position N or P; M / T in neutral), until the fan is started. then keep it idling.

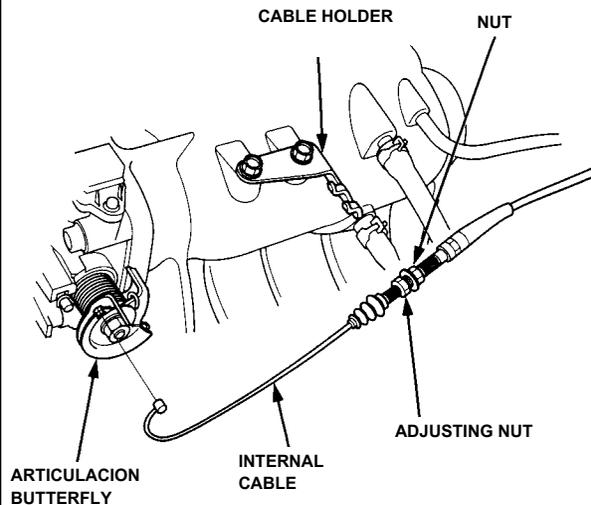


- 3. Attach the cable cover and straighten.
- 4. Turn the adjusting nut until it is 3 mm. the cable holder.
- 5. Tighten the nut. Cable deflection now should be 10 to 12 mm. Otherwise, see inspection and adjustment.



Excepting engines B16A2, B16A4, B16A5 and B16A6:

- 1. Fully open the throttle valve and install the cable in the joint. Install the housing and the cable bracket.

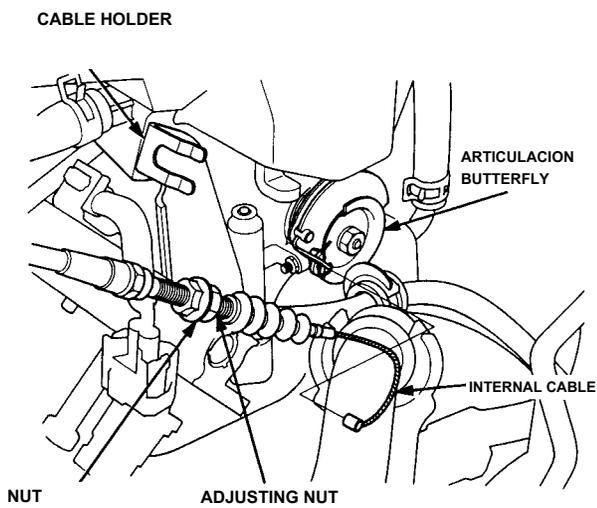


(Cont.)

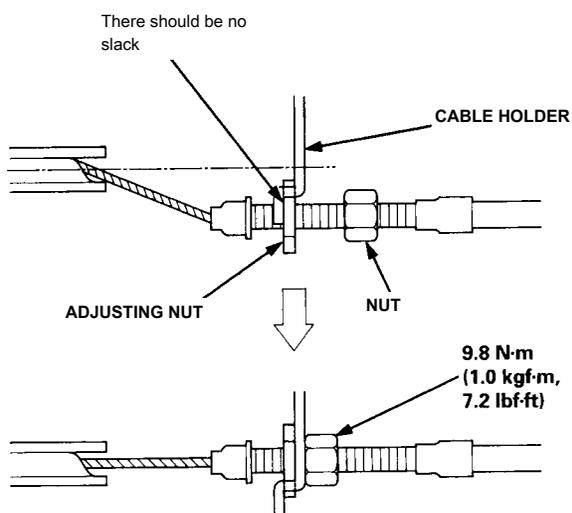
Intake air system

Butterfly Cable (cont.)

Motor D16Y7:



2. Start the engine. Maintain speed at 3,000 rpm (min-1) no load (A / T in position N or P; M / T in neutral), until the fan is started. then keep it idling.
3. Attach the cable cover and straighten.
- Four. Install the protector support adjustment butterfly. Tighten the nut so that the free play is 0 mm.
5. Remove the cable protector bracket butterfly. Replace the adjusting nut and tighten the nut.

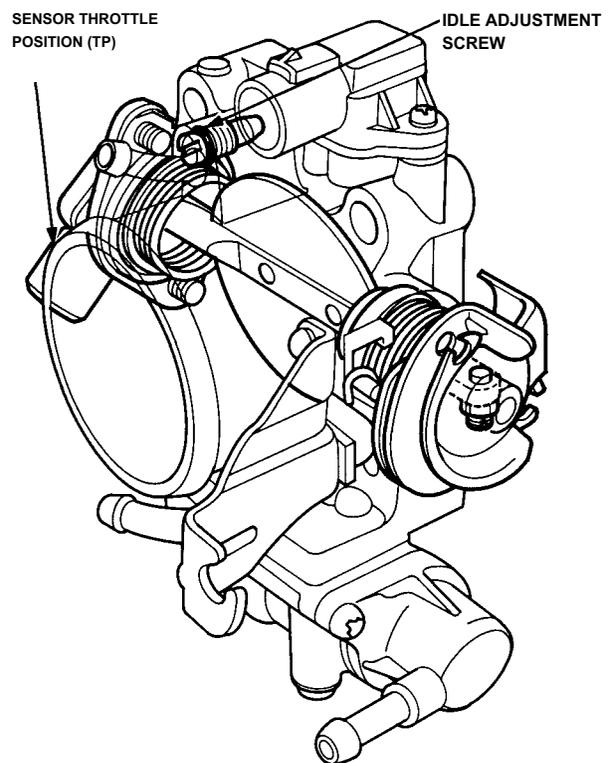


Butterfly Body

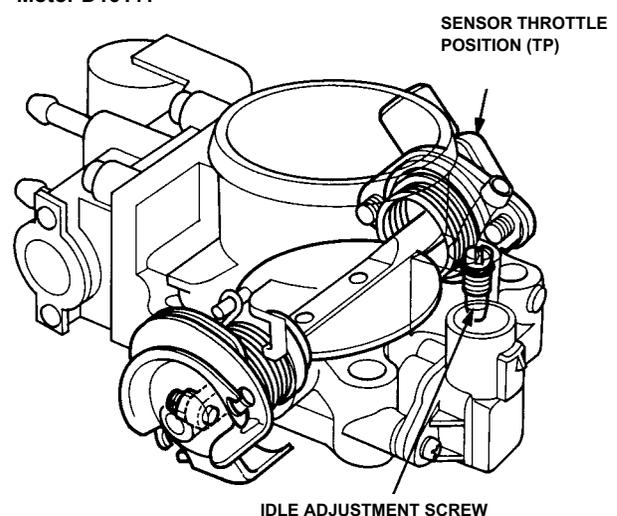
Description

The throttle bodies consist of a single body suction side (except D16Y7 motor) and lower (D16Y7 motor). The lower section of the throttle valve of the refrigerant receives heat from the cylinder head. The adjusting screw idle, increasing and decreasing the transmitted air, and the hole evaporative emission control (EVAP) (engines D16Y6 B16A2, B16A4, B16A5 and B16A6) are if tuados in super ior body Butterfly .

The illustration shows the B16A2, B16A4 and B16A6 engines:



Motor D16Y7:



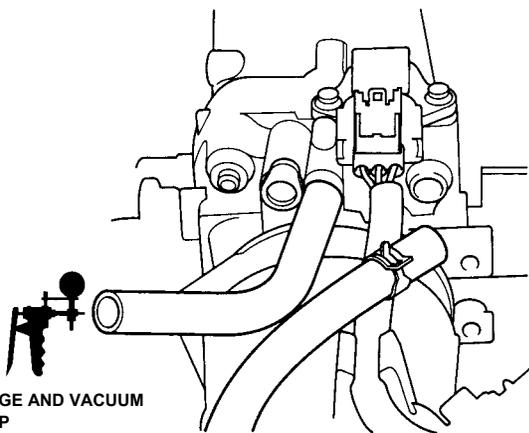


Inspection

D16Y7 engine except:

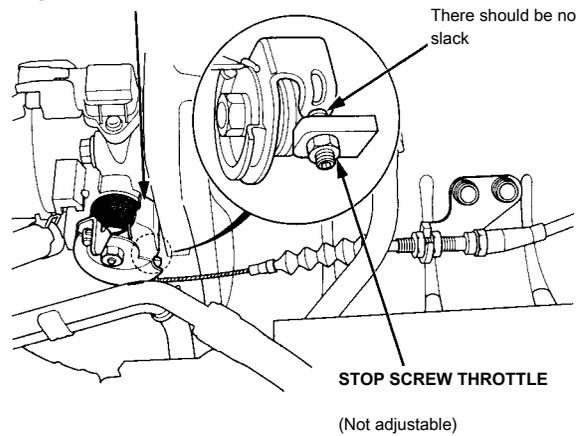
CAUTION: Do not adjust the stop screw butterfly, since it is factory set.

1. Start the engine. Keep the veil Ciudad at 3,000 rpm. (Min-1) (A / T in position N or P; M / T in neutral), until the fan is started. then keep it idling.
2. Disconnect the vacuum hose (EVAP filter control) from the top of the throttle body; connecting a vacuum gauge to the throttle body.



3. Allow the engine to idle and check that the meter does not indicate empty.
 - If no vacuum, check the cable butterfly (see page 11-B-98).
4. Check the meter to indicate empty when the throttle is slightly opened from idle.
 - If the meter does not indicate empty, check the input throttle body. If the hole in the throttle body is clogged, clean it with carburetor cleaner.
5. Stop the engine and check that the cable butterfly operate smoothly (which is not bent or jammed).
 - If anomalies appear in the following steps, check the following:
 - Excessive wear or play in the axle of the throttle valve.
 - Lever jammed or bent into the fully closed position butterfly.
 - Clearance between the stop screw and the throttle lever in the fully closed position.

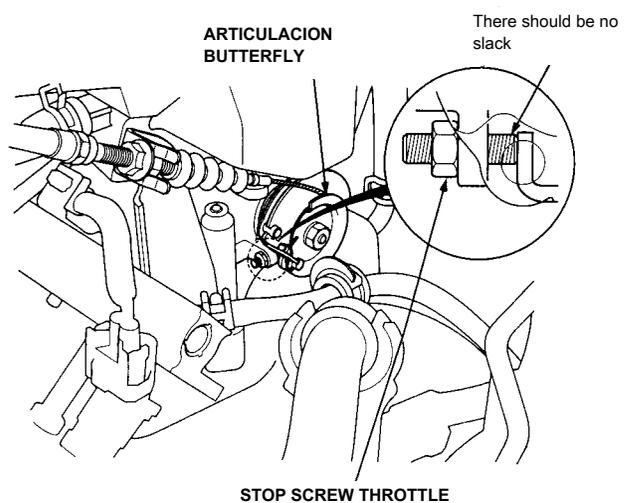
ARTICULACION BUTTERFLY



Change the throttle body if excessive play in the axis of the throttle valve shaft or bent or jammed.

Motor D16Y7:

1. Make sure the cable butterfly operate smoothly (which is not bent or jammed).
 - If anomalies appear in the following steps, check the following:
 - Excessive wear or play in the axle of the throttle valve.
 - Lever or dobalada stuck in the fully closed position butterfly.
 - Clearance between the stop screw and the throttle lever in the fully closed position.



Change the throttle body if excessive play in the axis of the throttle valve shaft or bent or jammed.

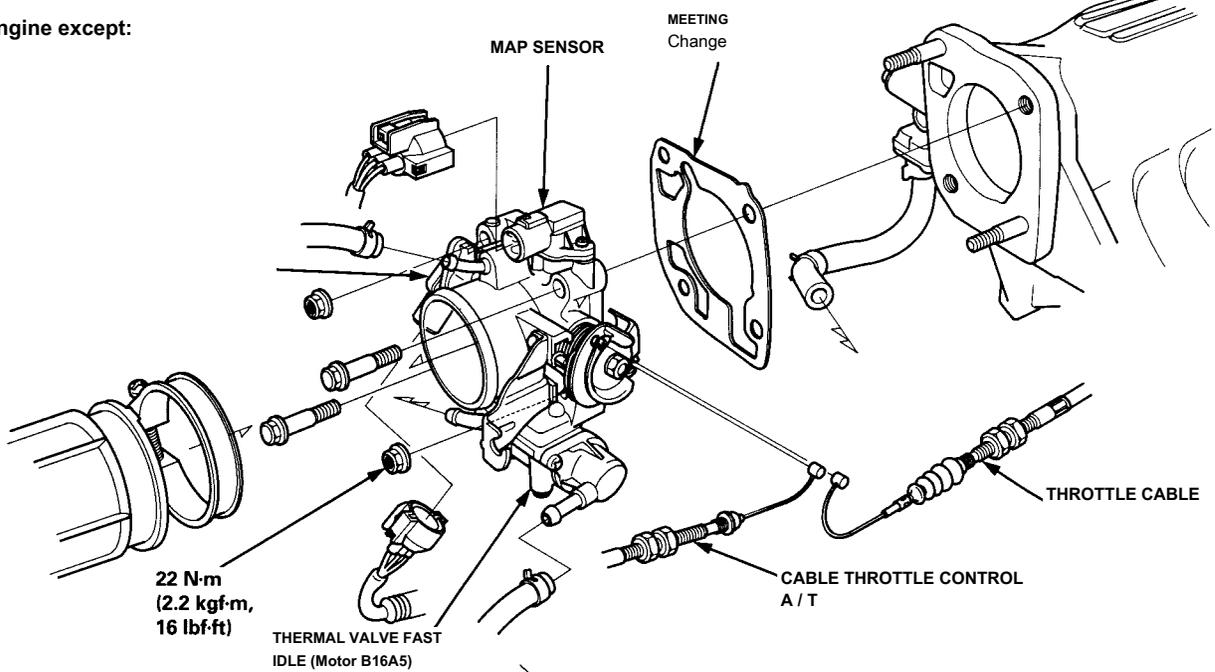
(Cont.)

Intake air system

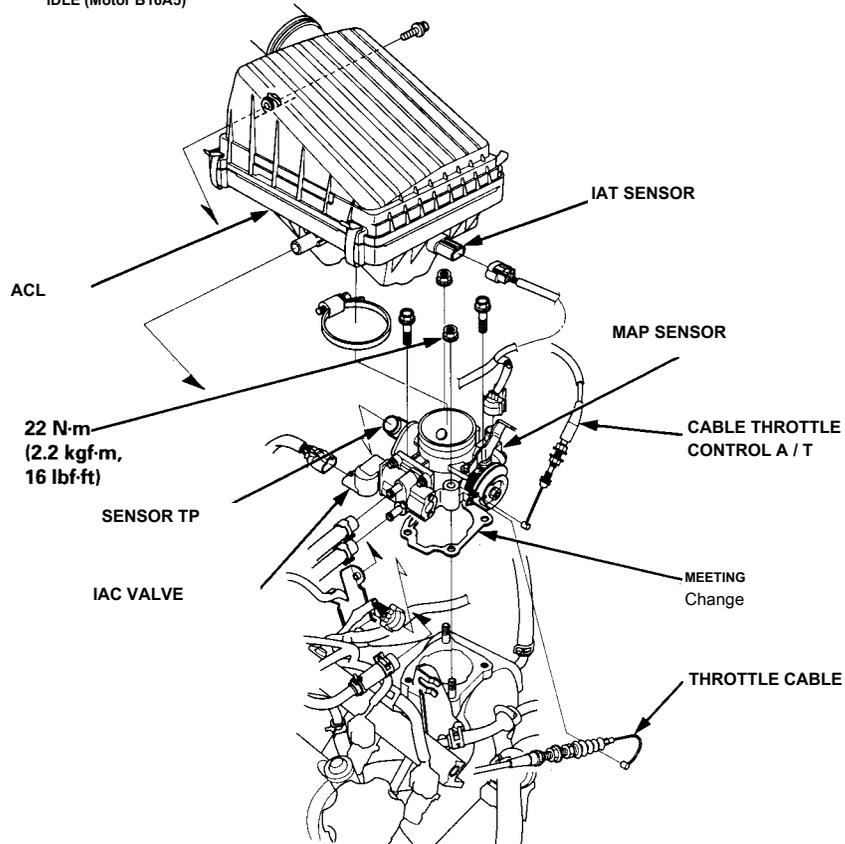
Throttle body (cont.)

dismantling

D16Y7 engine except:



Motor D16Y7:



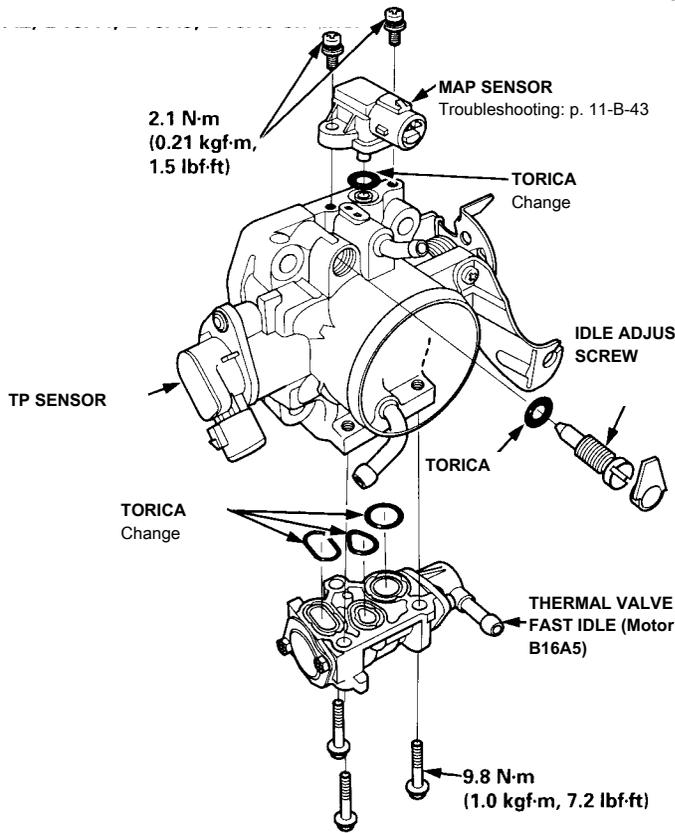
OUT:

- The stop screw butterfly is not adjustable.
- After reinstalling, cable adjustment butterfly (see page 11-B-98) and the control cable Butterfly A / T (see section 14).
- The TP sensor is not removable. WATCH

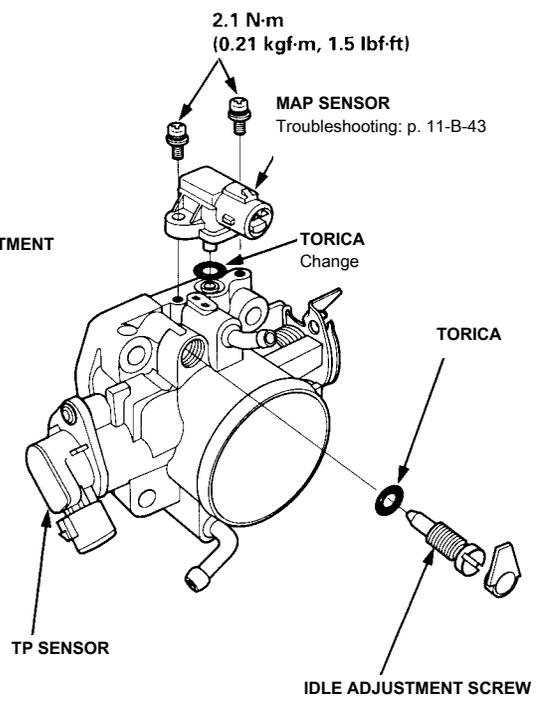


dismantling

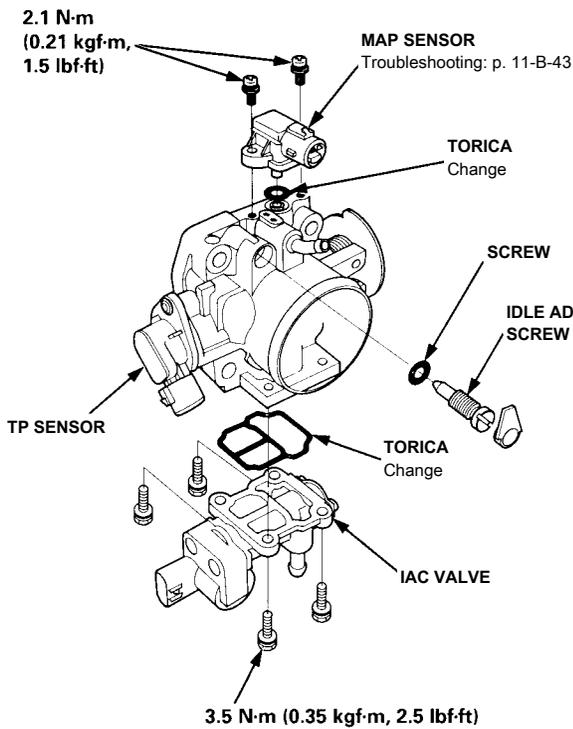
B16A2 engines, B16A4, B16A5 and B16A6:



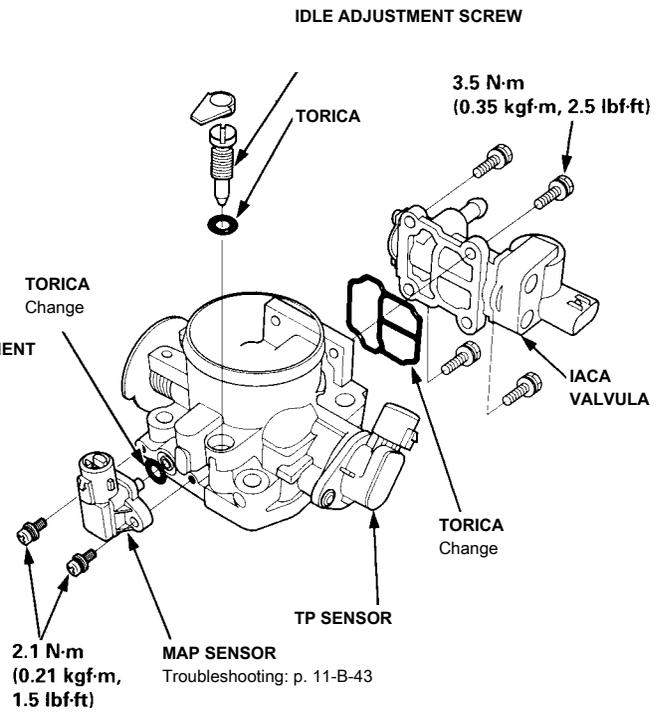
D15Z6 engines, D15Z7, D16Y5, D16Y6 and D16Y8 (M / T):

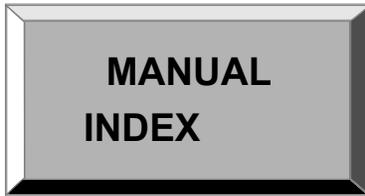


D15Z6 engines, D15Z7, D16Y5, D16Y6 and D16Y8 (A / T):



Motor D16Y7:





Emission Control System

Guide for troubleshooting system

NOTE: Each line of the graph shows the subsystems that could cause the symptom, lined up in the order they should be inspected, starting with 1. Locate the symptom in the left column, read to the nearest cause and refer to the page in the top of the column. If the inspection indicates that the system operates correctly, then look for the nearest system 2, and so on.

PAGE	SUBSYSTEM	THREE-WAY CATALYST <small>*one</small>	Recirculation System EXHAUST * 2	CARTER ventilation system POSITIVE	EVAPORATIVE EMISSION CONTROLS
SYMPTOM		11-B-105	11-B-106	11-B-111	11-B-112
BRUSGO			①	②	
IDLE			①		
STALL FREQ			①		
LOW PERFORMANCE	heating	①			②
	emissions test after				
	FAILURE POWER LOSS	①			

* one: TWC model

* two: D1526 engines, D1527, D16Y5 (KG and KE models)



System Overview

The control system includes a catalyst emissions three way (TWC) * 1, the system of recirculation of exhaust gases (EGR) * 2, the ventilation system of the positive crankcase (PCV) system and control of evaporative emissions (EVAP).

* 1: Models with TWC

* 2: Engines D15Z6, D15Z7, and D16Y5 (KG and KE models).

Tailpipe emissions

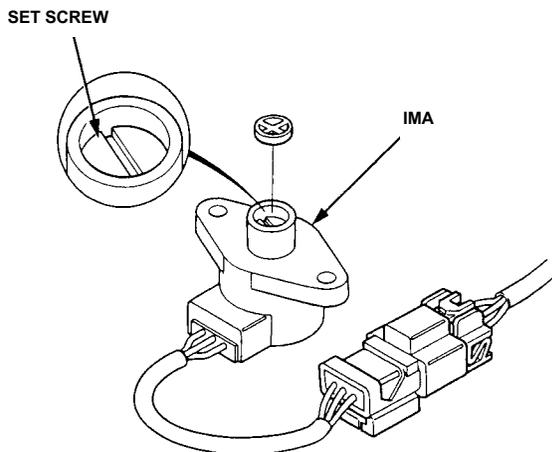
Inspection

ATTENTION: Do not smoke while performing this procedure. Avoid contact of flames in the work area.

1. Connect a tachometer.
2. Start the engine. Keep your speed at 3,000 rpm. (Min-1) (A / T at positions P or N nes; M / T in neutral), until the fan is started. then keep it idling.
3. Check idle speed and adjust, if necessary (see page 11-B-82).
4. Heat engine and calibrate the meter carbon monoxide (CO) according to the manufacturer's instructions.
5. Check the idle CO with headlights, the heater fan, demisting of the rear window, the cooling fan and the air conditioner off.

CO ratio specified: For vehicles with TWC: 0.1% maximum for vehicle without TWC: $1 \pm 1\%$

- If it is not possible to obtain this reading: In the model with TWC, Consulte guide for troubleshooting ECM / PCM (11- page B-32). In the model without TWC, adjust by turning the adjustment screw IMA.



- If it is not possible to obtain this percentage specified CO, check the engine.

Three-way catalyst (TWC) (model TWC)

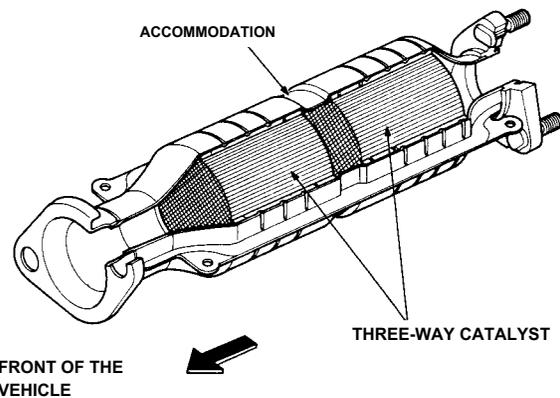
Description

The three-way catalyst (TWC) is used to convert hydrocarbons (HC), carbon monoxide (CO) and nitrogen oxides (NOx) from exhaust gases dioxide (CO₂), dinitrogen (N₂) and water vapor.

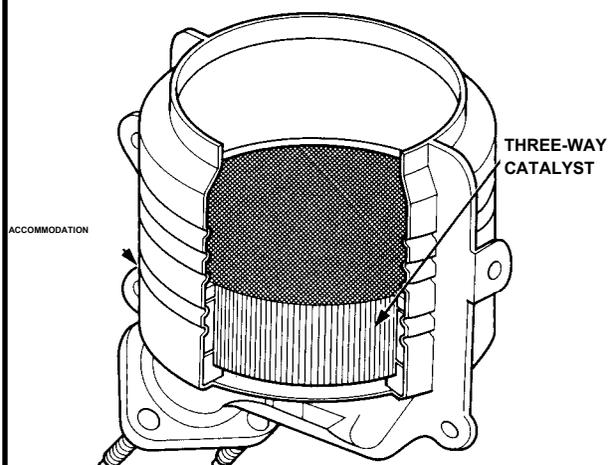
Inspection

If it is suspected that the back pressure of the exhaust system is excessive, remove the TWC vehicle and visually checking if the catalyst is plugged, molten or broken. Change the TWC if any portion of the visible area is damaged or clogged.

Removing and installing (see Section 9) Engines D15Z7, D16Y5 (KQ model), D16Y8, B16A2, B16A4 and B16A5:



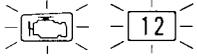
D15Z6 engines, D16Y5 (KG and KE models) and D16Y7:



Emission Control System

Recirculation system of exhaust gases (EGR). D15Z6 engines, D15Z7, D16Y5 (KG and KE models).

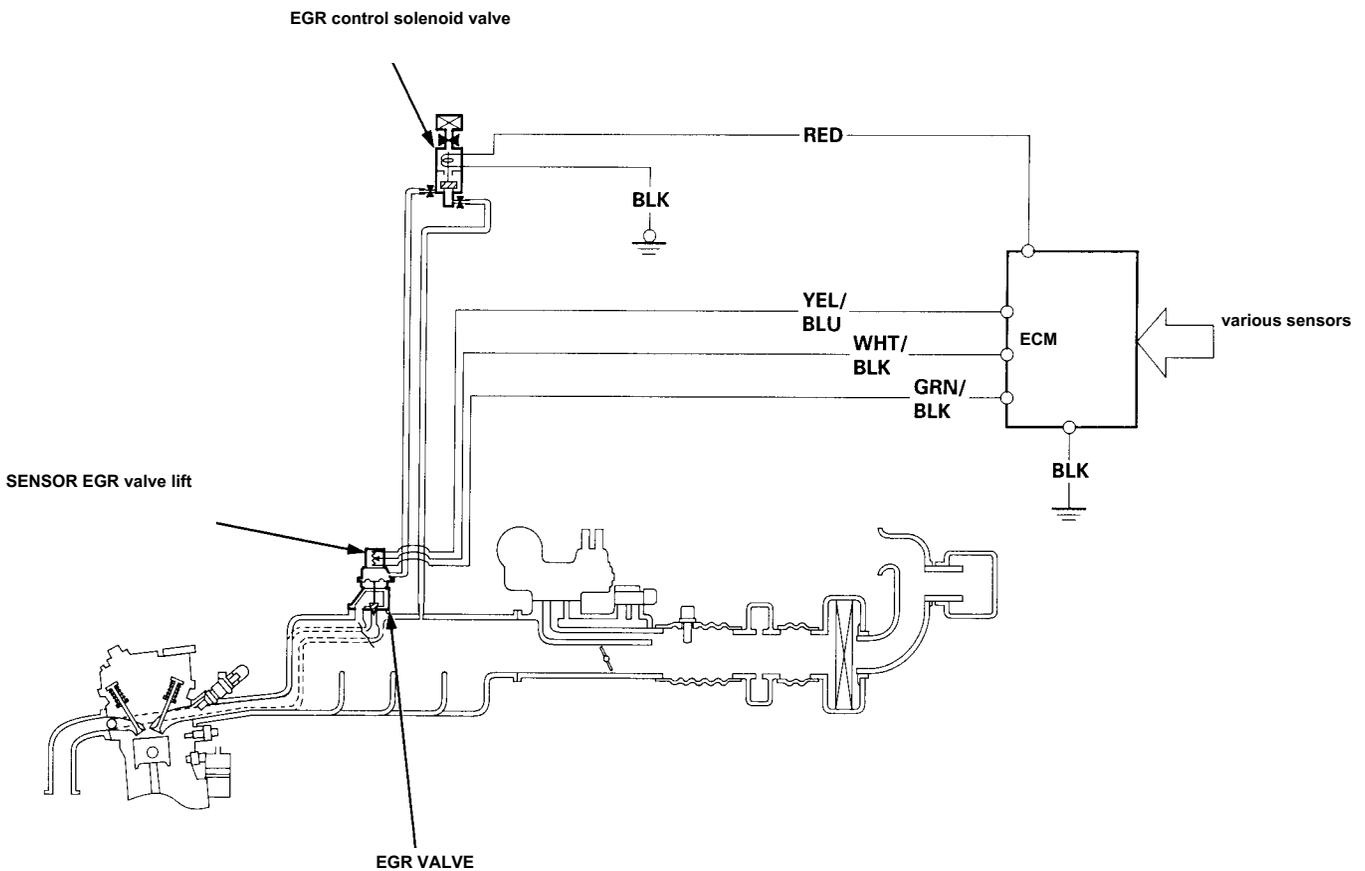
Scheme troubleshooting

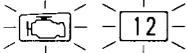


The malfunction indicator light (MIL) indicates pilot código diagnosis (DTC) 12: Problem in the recirculation system of exhaust gas (EGR).

The EGR system is designed to reduce emissions of nitrogen oxide (NOX) by recirculating exhaust gas through the EGR valve and the intake manifold, toward the bottom of the combustion chambers. It consists of the EGR valve, the control valve EGR vacuum, the EGR control valve solenoid, the ECM and various sensors.

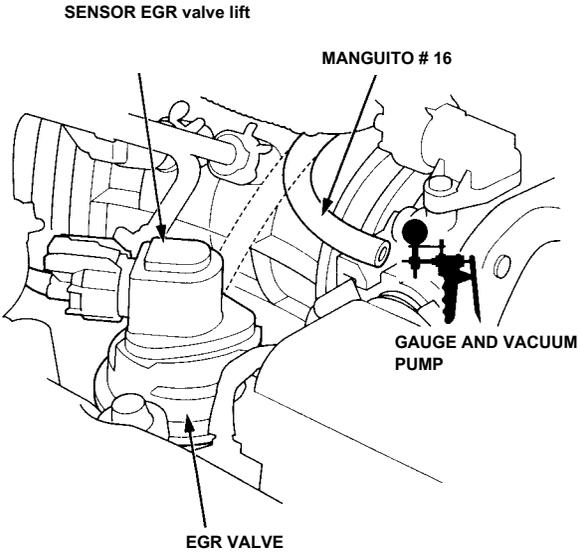
The ECM contains memories optimal EGR valve lifts for various conditional operation. The lift sensor detects the valve lift degree and sends the information to the ECM. The ECM compared with the correct elevation determined by the signals from other sensors. If it detects any difference between the two, the ECM cancels the current supply to solenoid EGR control valve to reduce the vacuum applied to the EGR valve.





- MIL on.
- In short SCS connector connected (see p. 11-B-18), is indicated code 12

Verification of the problem:
1. Set the ECM (see page 11-B-19).
2. Connect the short SCS service connector (see page 11-B-18).
3. It is necessary to carry out a road test: start the engine. Maintain speed at 3,000 rpm (min-1) no load (A / T in position N/P; M / T in neutral) until the radiator fan is started, then keep it idling. Road drive the vehicle for approximately 10 minutes. Try to keep the speed between 1,700 and 2,500 rpm (min-1).



¿Flashes the MIL indicating code 12?

DO NOT
Intermittent fault; the system is fine for the moment. Check if the connections are poor or cables between the lift sensor EGR valve, the EGR control valve solenoid and the ECM looseness

YES

Check the vacuum:
With the engine at idle, remove the sleeve # 16 EGR valve and connecting a vacuum pump and gauge the sleeve

Are there empty?

YES
Check the vacuum:
1. Disconnect the 2P connector EGR solenoid valve control.
2. Check cuff # 16 again if empty.

DO NOT

Are there empty?

YES
Check the stroke of the vacuum hose of the entire system. If the stroke of the sleeve is, replace the solenoid EGR control valve

DO NOT

Change the ECM by one in good condition and recheck (see page 11-B-19). If the symptom and indication disappear, replace the original ECM

(A p. 11-B-108)

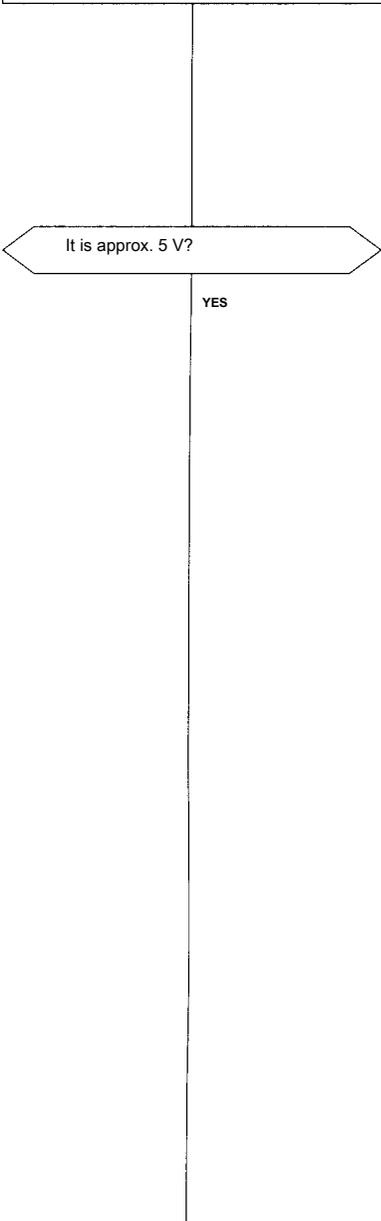
(Cont.)

Emission Control System

Recirculation system of exhaust gases (EGR). D15Z6 engines, D15Z7, D16Y5 (KE KG Models) (cont.)

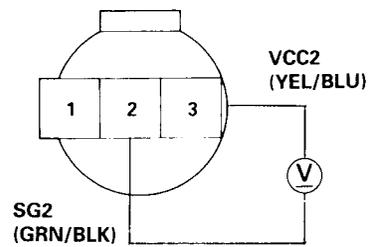
(P. 11-B-107)

Check the output voltage of the ECM (line VCC2):
 1. Remove contact.
 2. Disconnect the 3P connector lift sensor EGR valve.
 3. Turn the ignition (II).
 4. In the wiring side, measure the voltage between terminals 3 and 2 3P connector lift sensor EGR valve



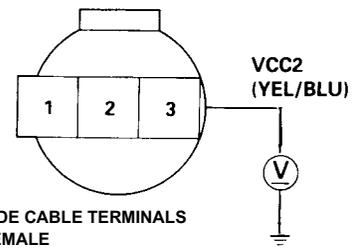
(A p. 11-B-109)

3P CONNECTOR SENSOR EGR valve lift



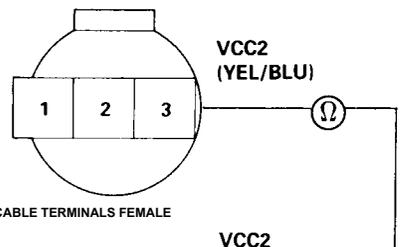
SIDE CABLE TERMINALS FEMALE

3P CONNECTOR SENSOR EGR valve lift



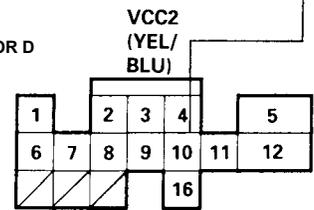
SIDE CABLE TERMINALS FEMALE

3P CONNECTOR SENSOR EGR valve lift



SIDE CABLE TERMINALS FEMALE

ECM CONNECTOR D (16P)



SIDE CABLE TERMINALS FEMALE

Repair open in the wire between the lift sensor EGR valve and the ECM (D10)

GENERAL INDEX

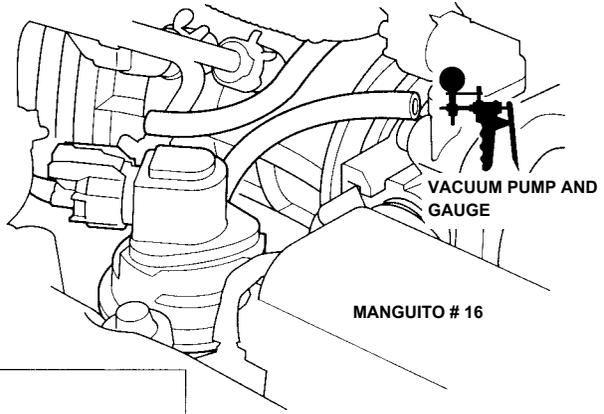
MANUAL INDEX

CONTENTS SECTION



(P. 11-B-108)

Check EGR valve:
 1. Change the meter and the vacuum pump to the EGR valve.
 2. Start the engine.
 3. With the engine at idle, apply 27 kPa (200 mmHg) vacuum to the EGR valve.



Does the engine stall or operates abruptly and keeps the EGR valve vacuum?

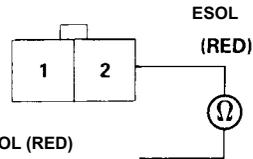
DO NOT

Change the EGR valve

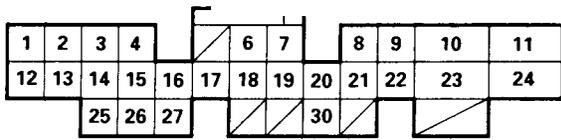
CONNECTOR 2P EGR control solenoid valve

Check open in the wire (line E SOL):
 1. Remove contact.
 2. Disconnect the 2P connector EGR solenoid valve control.
 3. Disconnect the connector A (32P) of the ECM.
 4. Check continuity between the connector terminal A7 ECM and terminal number. 2 2P connector solenoid EGR control valve.

SIDE CABLE TERMINALS FEMALE



ECM CONNECTOR A (32P)



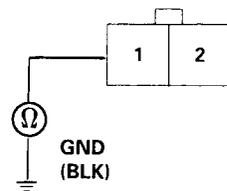
SIDE CABLE TERMINALS FEMALE

Is there continuity?

DO NOT

Repair open in the wire between the solenoid EGR control valve and the ECM (A7)

Check open in the wire (GND line):
 Check continuity between the terminal number. 1 2P connector solenoid valve control and EGR mass



Is there continuity?

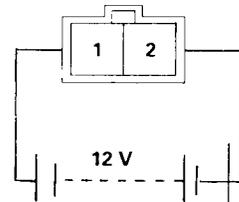
DO NOT

Repair open in the wire between the solenoid EGR control valve and G101

CONNECTOR 2P EGR control solenoid valve

Check vacuum line:
 1. Reconnect the meter and the vacuum pump to the sleeve # 16.
 2. Reconnect connector A (32P) to the ECM.
 3. Start the engine and keep it idle.
 4. solenoid EGR control valve, connect the positive battery terminal to terminal no. 2 2P connector. While controlling the vacuum gauge, connect the negative battery terminal to terminal no. one.

Terminal side male terminal



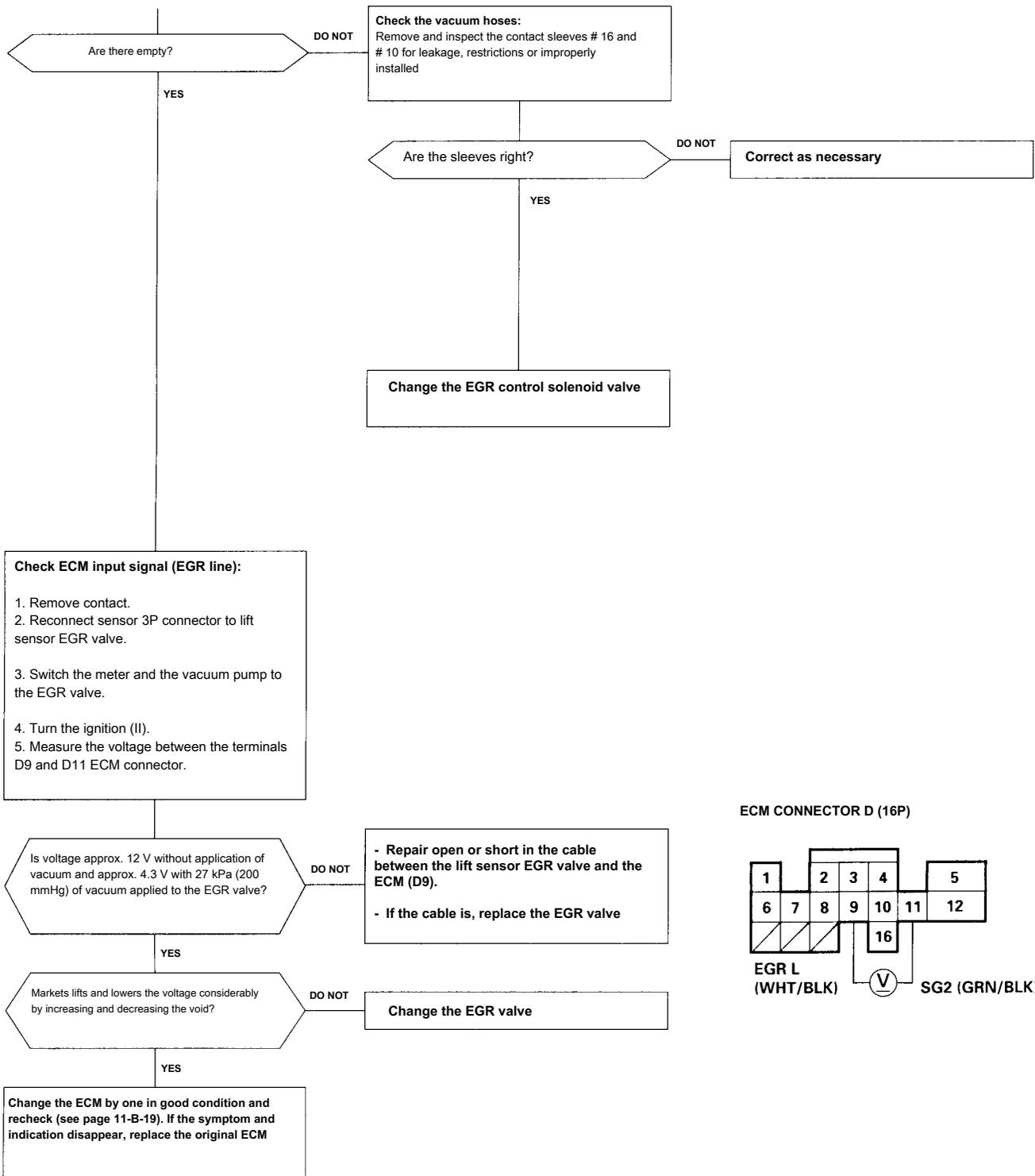
(A p. 11-B-110)

(Cont.)

Emission Control System

Recirculation system of exhaust gases (EGR). D15Z6 engines, D15Z7, D16Y5 (KE KG Models) (cont.)

(P. 11-B-109)



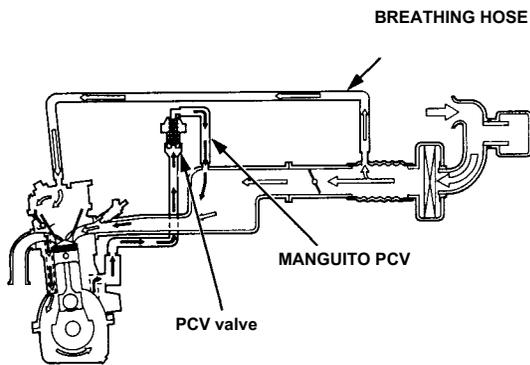


Ventilation system positive crankcase

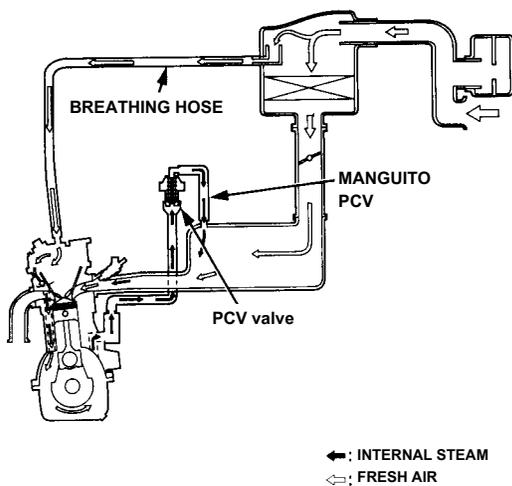
Description

The ventilation system of positive crankcase is designed to prevent expansion of the gases of internal circulation of the atmosphere. The PCV valve plunger controls the amount of fresh air that enters the crankcase. When the engine starts, the piston PCV valve rises in proportion to manifold vacuum admission and gas is withdrawn directly to the intake manifold.

D16Y7 engine except:



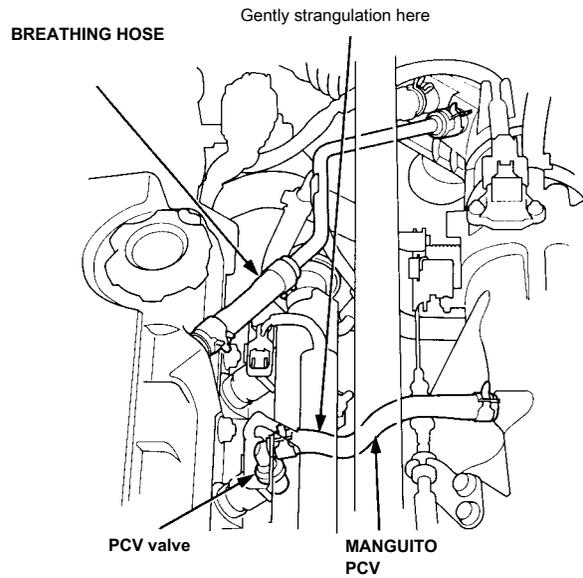
Motor D16Y7:



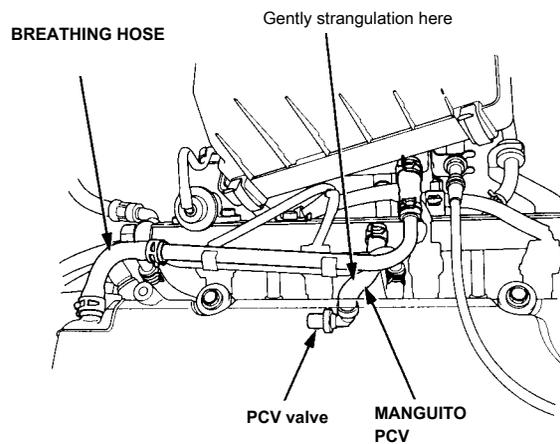
Inspection

1. Check the PCV hoses and connections for leaks or clogged.
2. At idle verify that a clicking sound from the PCV valve shown when the sleeve between the valve and the intake manifold is throttled lightly with fingers or pliers.

D16Y7 engine except:



Motor D16Y7:



- If the clicking sound is not appreciated, check for damage to the insulation of the valve. If it is, replace the PCV valve and recheck.

Emission Control System

Controls evaporative emissions (EVAP)

Description

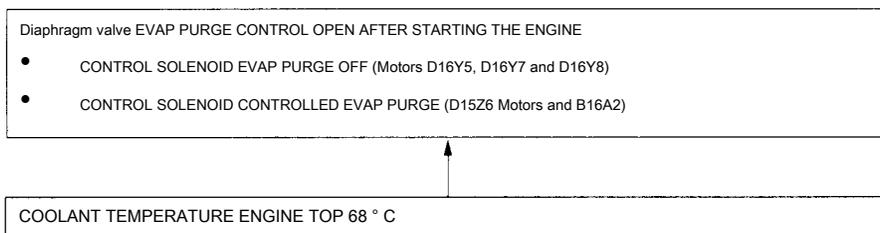
Controls evaporative emissions are designed to minimize the expansion of fuel vapor in the atmosphere. The system consists of the following elements:

A. Container control evaporative emissions (EVAP)

The container EVAP control is used to temporarily store fuel vapor until it can be purged into the engine and burned later.

B. Control System Vapor Purge

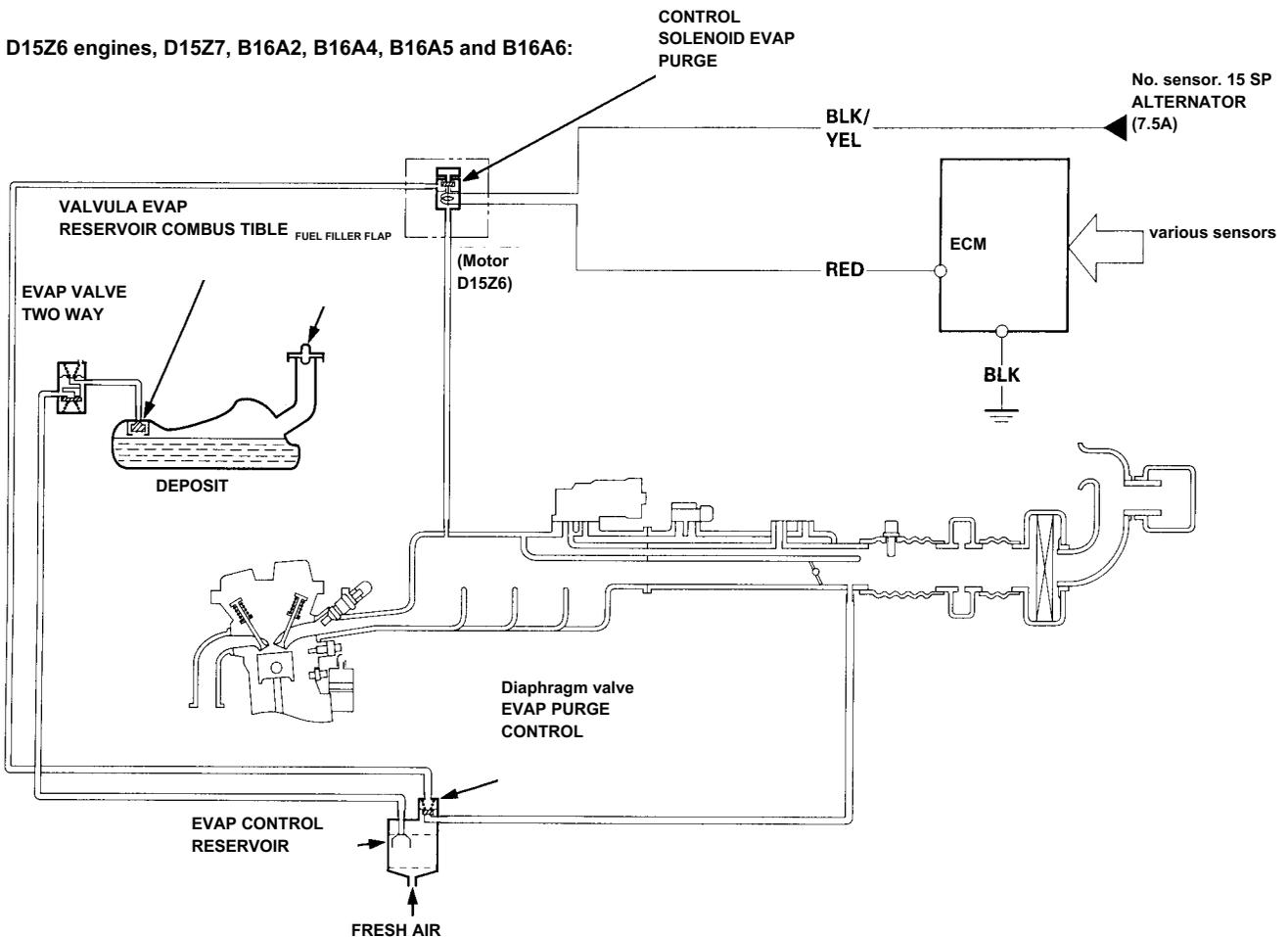
The EVAP canister purge is effected by the circulation of fresh air through the filter EVAP control and the inlet port of the throttle body. The purging vacuum is controlled by the valve diaphragm EVAP purge control solenoid valve and purge control EVAP (D15Z6 engines only, D16Y5, D16Y7 and D16Y8).



C. Vapor control system of the fuel tank

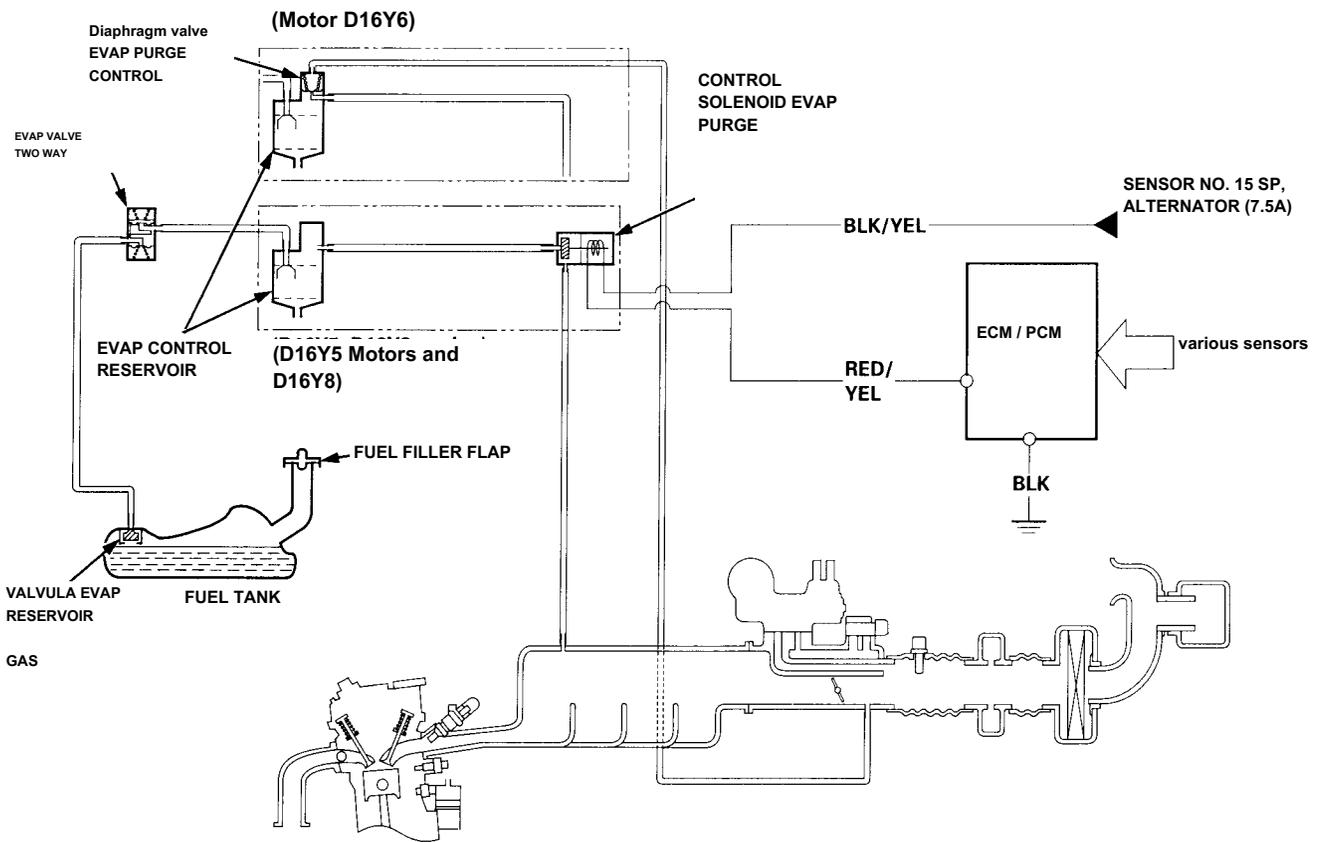
When the vapor pressure of the fuel tank is greater than the preset value of the EVAP two-way valve, the valve opens and regulates the flow of fuel vapor container EVAP control.

D15Z6 engines, D15Z7, B16A2, B16A4, B16A5 and B16A6:

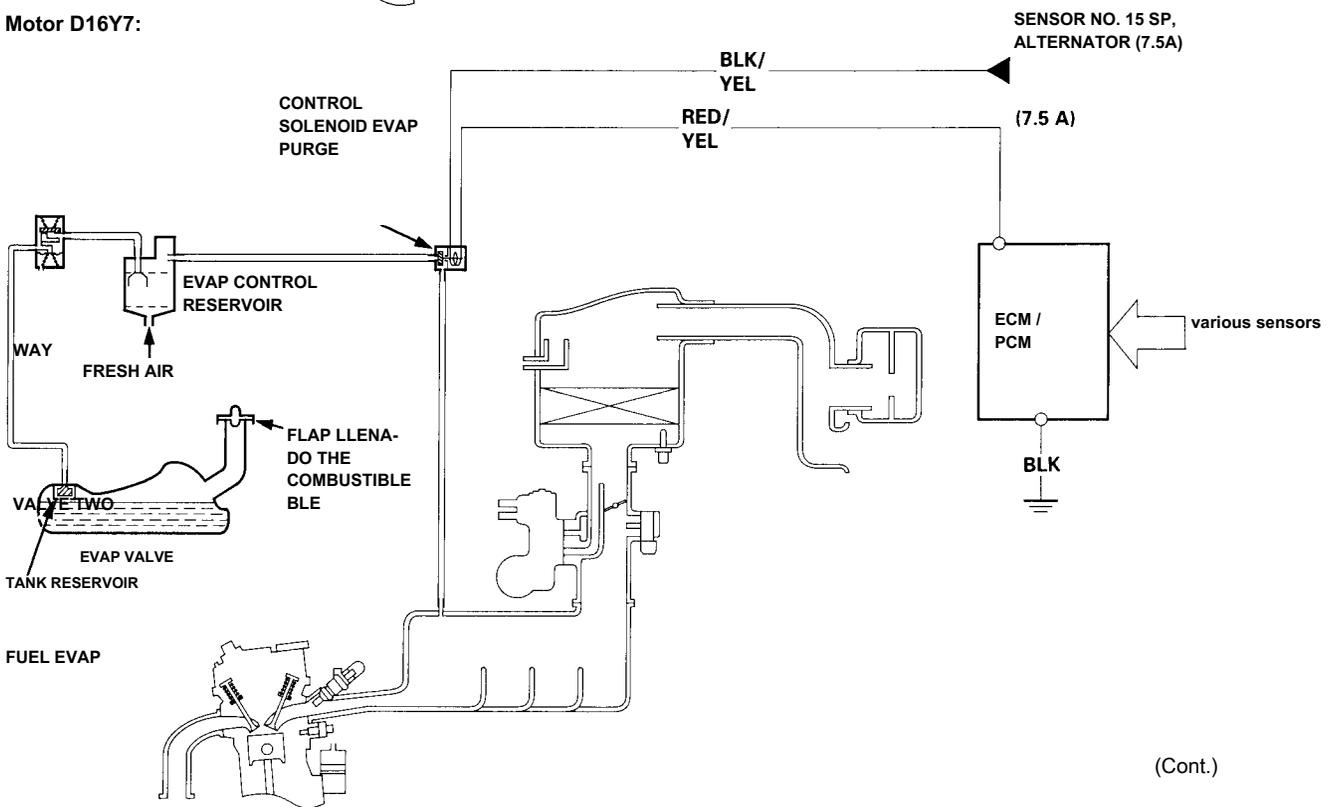




D16Y5 engines, D16Y6 and D16Y8:



Motor D16Y7:



(Cont.)

Emission Control System

Controls evaporative emissions (EVAP) (cont.)

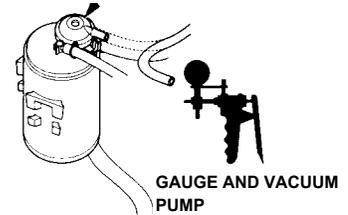
Diaphragm valve EVAP
PURGE CONTROL

Troubleshooting. D15Z6 engines and B16A2 (KG models, KE, KQ and KM)

Inspection controls evaporative emissions

Check the vacuum cold:
1. Disconnect the vacuum hose vessel purge control EVAP and connecting a vacuum gauge to the sleeve.

2. Start the engine and keep it idle. NOTE: The engine coolant temperature must be below 68 ° C.



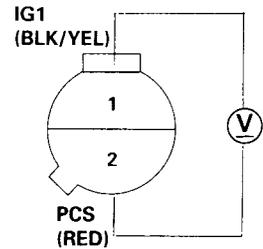
2P CONNECTOR SOLENOID EVAP PURGE CONTROL

Are there empty?

YES

Check valve purge control EVAP:
1. Remove contact.
2. Disconnect the connector 2P solenoid valve EVAP purge control.

3. Start the engine.
4. In the wiring side, measure the voltage between the terminal numbers 1 and 2 of connector 2P solenoid valve EVAP purge control.



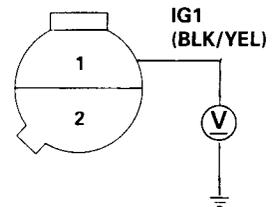
SIDE CABLE TERMINALS FEMALE travel
Inspect the vacuum hose. If OK, change the control solenoid valve purge EVAP

2P CONNECTOR SOLENOID EVAP
PURGE CONTROL

Is there battery voltage?

YES

Check open in the wire (IG1 line):
In the wiring side, measure the voltage between the terminal number. 1 connector 2P control solenoid valve and EVAP purge mass.



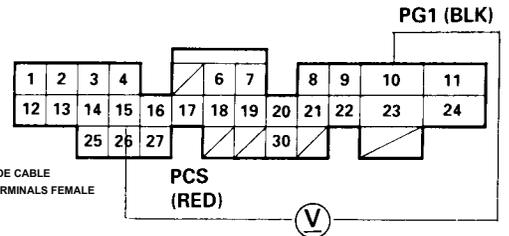
Is there battery voltage?

DO NOT

Check open in the wire (line PCS):
1. Remove contact.
2. Reconnect 2P connector solenoid valve EVAP purge control.

3. Turn the ignition (II).
4. Measure the voltage between A10 and A15 ECM connector terminals.

(7.5A) SIDE CABLE TERMINALS FEMALE control EVAP fuse no. 15 ALTERNATOR SP the wire between the solenoid valve and purge CONNECTOR ECM (32P) Repair open in



Is there battery voltage?

DO NOT

Repair open in the wire between the solenoid control valve and purge EVAP ECM (A15)

Change the ECM by one in good condition and recheck (see page 11-B-19). If the symptom and indication disappear, replace the original ECM

(A p. 11-B-115)

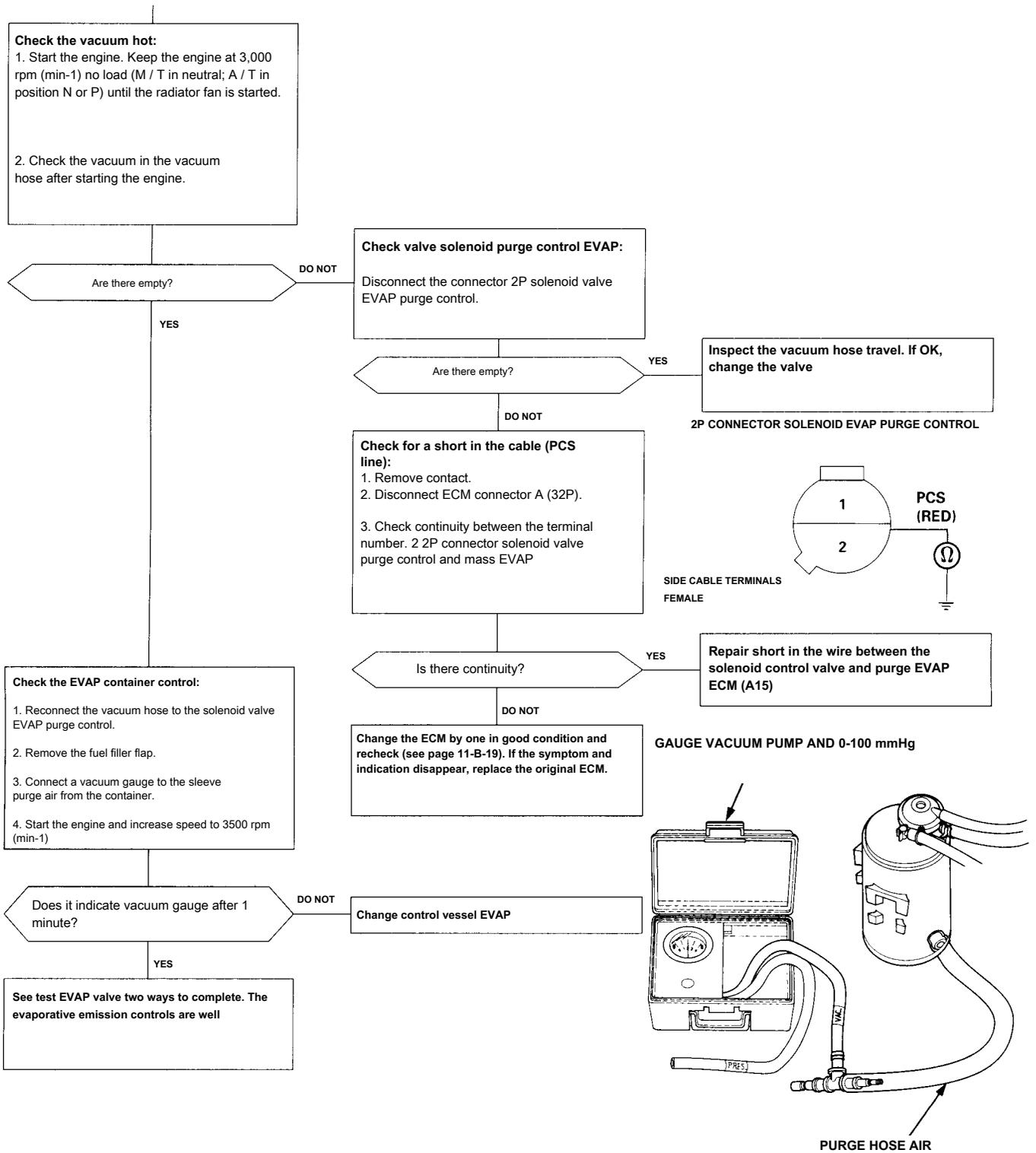
GENERAL INDEX

MANUAL INDEX

CONTENTS SECTION



(P. 11-B-114)



(Cont.)

Emission Control System

Controls evaporative emissions (EVAP) (cont.)

Troubleshooting (D16Y5 engines, D16Y7 and D16Y8)

Inspection controls evaporative emissions

Check the vacuum cold:

1. Disconnect the vacuum hose vessel purge control EVAP and connecting a vacuum gauge to the sleeve.

2. Start the engine and keep it idle. NOTE: The engine coolant temperature must be below 68 ° C.

rapidly increase speed to 3000 rpm (min-1).

Are there empty?

YES

DO NOT

Check valve solenoid purge control EVAP:

1. Disconnect the connector 2P solenoid valve EVAP purge control.
2. Increase the motor speed quickly to 3,000 rpm. (Min-1)

Are there empty?

YES

DO NOT

Inspect the vacuum hose travel. If OK, change the control solenoid valve purge EVAP CONNECTOR 2P SOLENOID EVAP PURGE CONTROL

Check for a short in the cable (PCS line):

1. Remove contact.
2. Disconnect ECM connector A (32P).
3. Check continuity between the terminal number. 2 2P connector solenoid valve purge control and mass EVAP

Is there continuity?

YES

DO NOT

Repair short in the wire between the solenoid valve purge control EVAP and ECM / PCM (A15)

Change the ECM by one in good condition and recheck (see page 11-B-19). If the symptom and indication disappear, replace the original ECM.

Check valve purge control EVAP:

1. Remove contact.
2. Disconnect the connector 2P solenoid valve EVAP purge control.
3. Start the engine.
4. In the wiring side, measure the voltage between the terminal numbers 1 and 2 of connector 2P solenoid valve EVAP purge control.

voltage?

YES

DO NOT

Inspect the vacuum hose travel. If OK, change the control solenoid valve purge EVAP

Check the vacuum hot:

1. Put up the engine. Keep the engine at 3,000 rpm (min-1) no load (M / T in neutral; A / T in position N or P) until the radiator fan is started. then keep it idling.

2. Check the vacuum in the vacuum hose after starting the engine.

3. Increase the speed quickly at 3,000 rpm (min-1).

Are there empty?

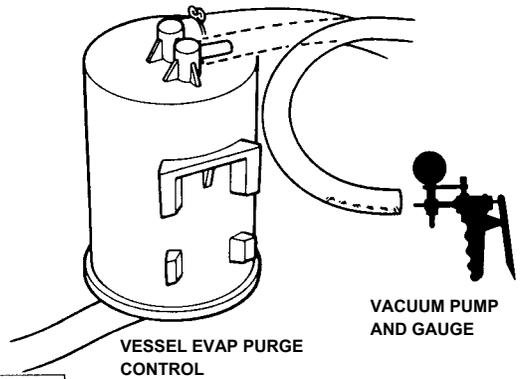
YES



(A p. 11-B-1170)

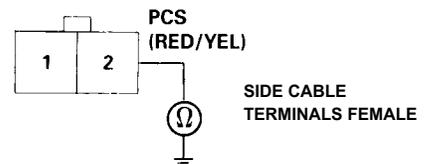


(A p. 11-B-117) Is there battery

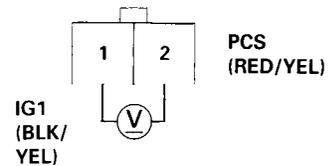


VESSEL EVAP PURGE CONTROL

VACUUM PUMP AND GAUGE



SIDE CABLE TERMINALS FEMALE



IG1 (BLK/YEL)

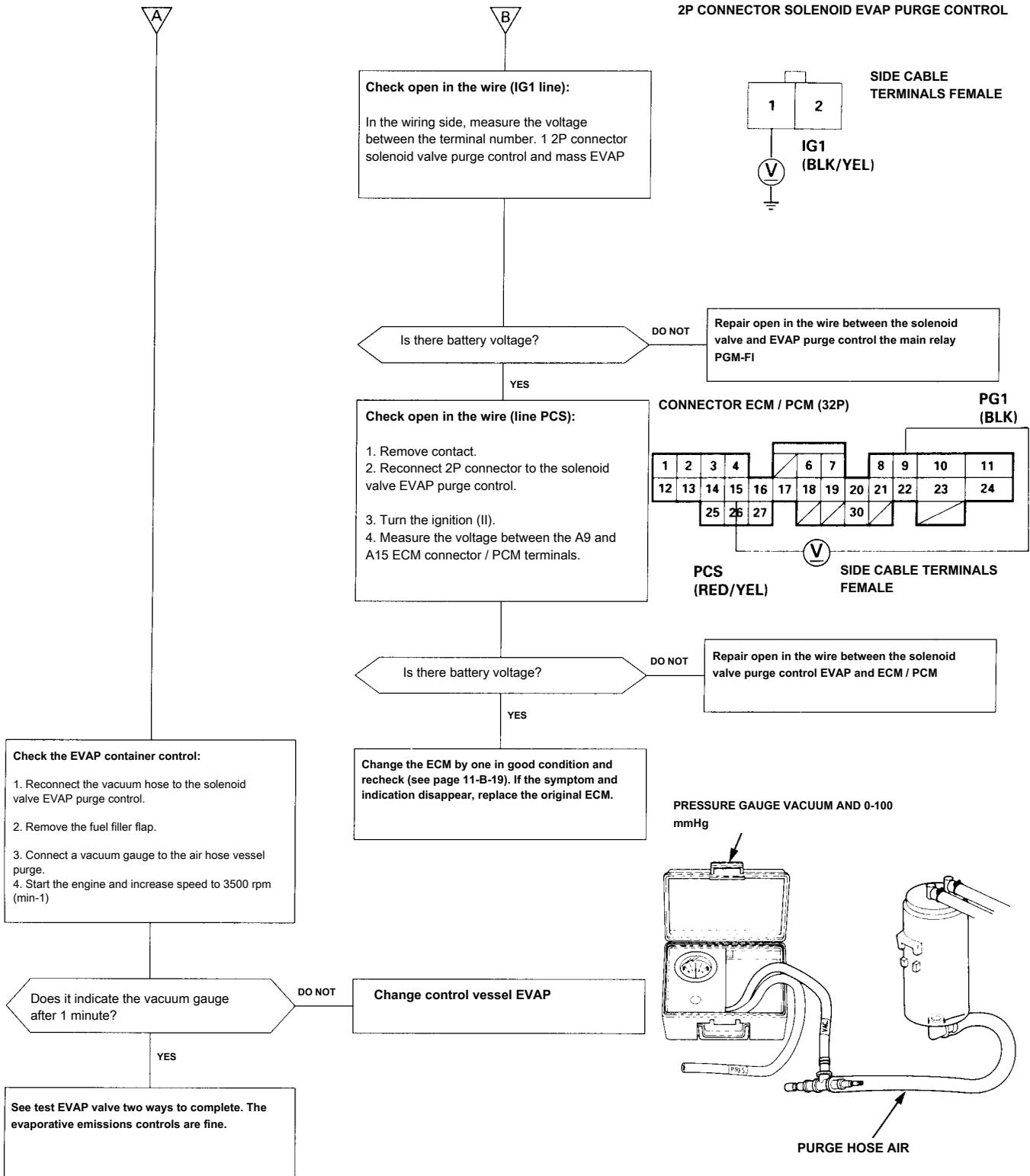
PCS (RED/YEL)



(P. 11-B-116)

(P. 11-B-116)

2P CONNECTOR SOLENOID EVAP PURGE CONTROL



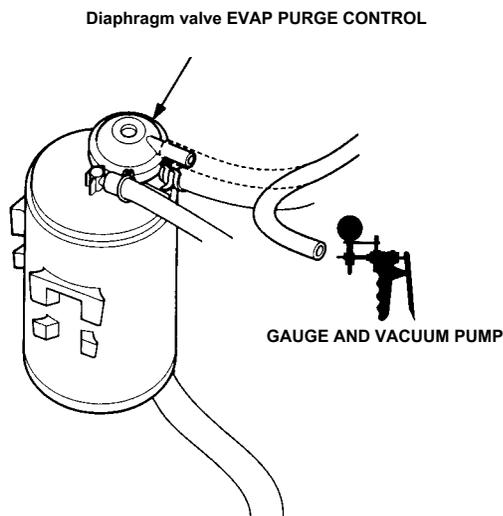
(Cont.)

Emission Control System

Controls evaporative emissions (EVAP) (cont.)

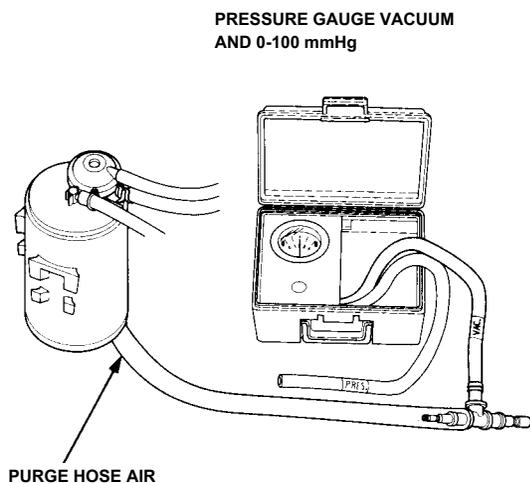
Test (D15Z7 engines, D16Y6, B16A4, B16A5 and B16A6:

1. Remove the fuel filler flap.
2. Start the engine and keep it idle.
3. Disconnect the cuff vacuum valve diaphragm purge control EVAP (EVAP in the container control) and connecting a vacuum gauge to the sleeve.



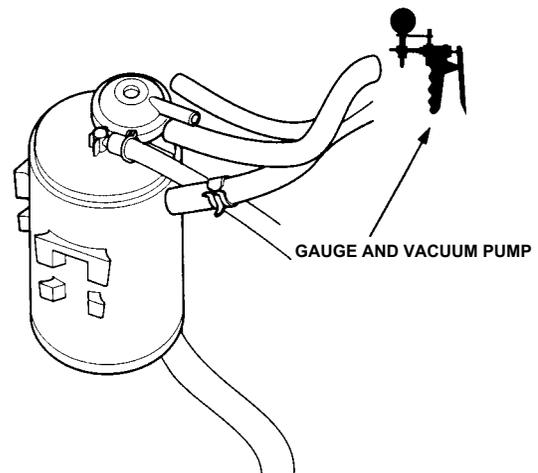
- If no empty, check the cuff when locked, is broken or disconnected, and if the vacuum port is blocked.

- Four. Disconnect the vacuum gauge and reconnect the sleeve.
5. Connect a vacuum gauge to the air hose vessel purge EVAP control.



6. Increase the engine speed to 3500 rpm. (Min-1). The meter should vacuum after 1 minute.
 - If the gauge indicates vacuum after 1 minute, remove the meter: the test is complete.
 - If there is no vacuum, disconnect the meter and reinstall the fuel filler flap.
7. Remove the EVAP container control if it is damaged or defective.
 - If you are DEFECTIVE, change the container control.
8. Stop the engine. Disconnect the upper vacuum hose diaphragm valve EVAP purge control. Connecting a vacuum pump to reduce the gap, as shown. After vacuum applied.

The vacuum must be established



- If the vacuum decreases, change the vessel EVAP control and recheck.
9. Re-start the engine. Reconnect the sleeve over the valve diaphragm purge control EVAP vacuum.

The vacuum must be lowered to zero (lower side of the vacuum hose).

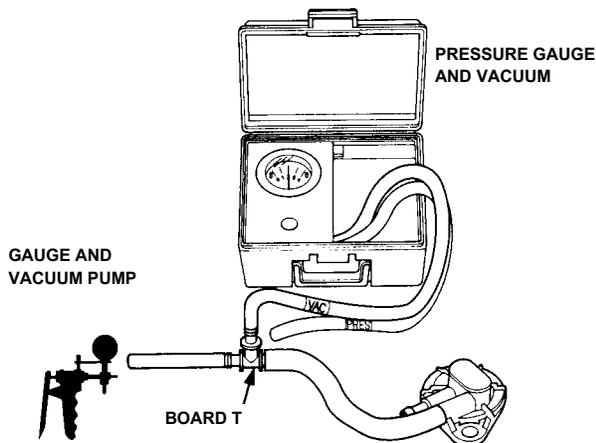
- If the vacuum does not drop to zero, change the vessel EVAP control and recheck.



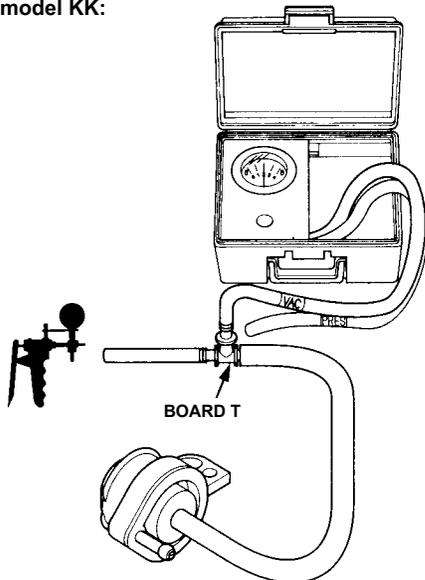
Test two-way valve evaporative emission (EVAP)

1. Remove the fuel filler flap.
2. Remove the steam line of the two-way valve in the fuel tank and connected to the T-joint meter and the vacuum pump, as shown.

Model KK:



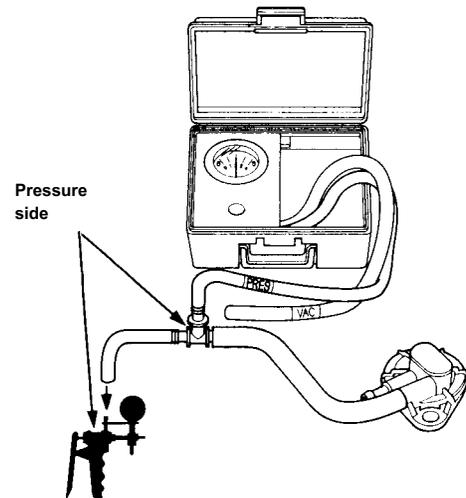
Except model KK:



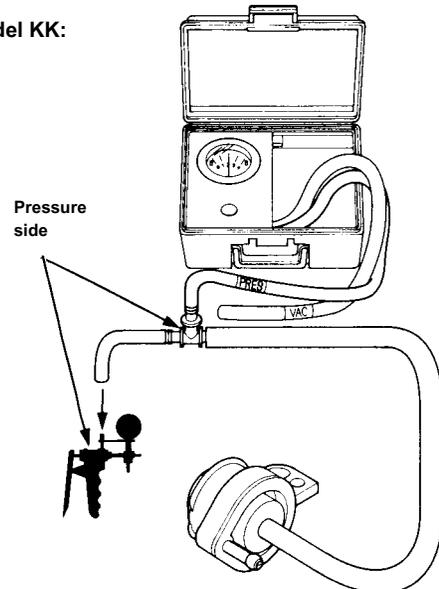
3. Apply vacuum slowly and continuously while controlling the meter.
The vacuum should stabilize momentarily to 0.7 to 2 kPa (5 to 15 mmHg).
 - If vacuum is stabilized (the valve opens) below 0.7 kPa (5 mmHg) or above 2 kPa (15 mmHg), install a new valve and recheck.

4. Move the pump sleeve from vacuum to pressure seal. Then place it on the pressure side, as indicated.

Model KK:



Except model KK:



5. Slowly pressurize the vapor line while controlling the meter.

The pressure should stabilize momentarily to 1.3 to 4.7 kPa (10-35 mmHg).

- If the pressure stabilizes (valve open) to 1.3 to 4.7 kPa (10-35 mmHg), the valve well.
- If the pressure stabilizes below 1.3 kPa (10 mmHg) or above 4.7 kPa (35 mmHg), install a new valve and recheck.