

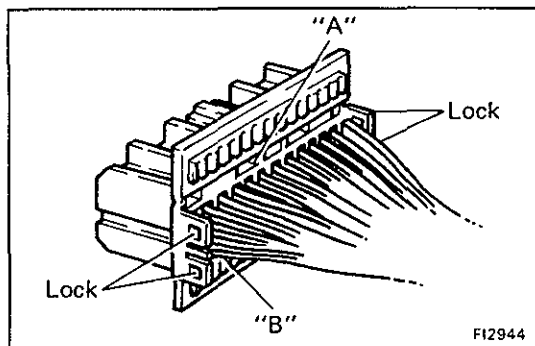
TROUBLESHOOTING W/VOLT, OHMMETER (M/T)

EG27R-01

HINT:

- The following troubleshooting procedures are designed for inspection of each separate system, and therefore the actual procedure may vary somewhat. However, troubleshooting should be performed while referring to the inspection methods described in this manual.
- Before beginning inspection, it is best to first make a simple check of the fuses, H-fuses, fusible links and the condition of the connectors.
- The following troubleshooting procedures are based on the supposition that the trouble lies in either a short or open circuit within the computer.
- If engine trouble occurs even though proper operating voltage is detected in the computer connector, then it can be assumed that the ECU is faulty and should be replaced.

EG



EFI SYSTEM CHECK PROCEDURE

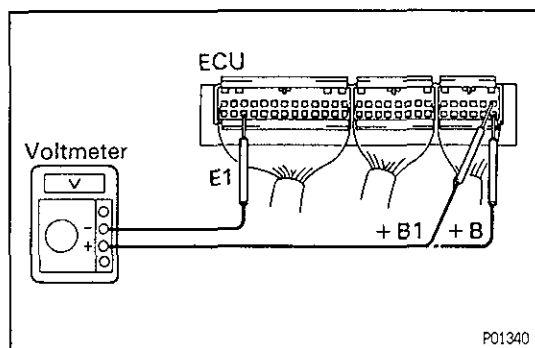
EG27R-01

PREPARATION

- Disconnect the connectors from the ECU.
 - Remove the locks as shown in the illustration so that the tester probe(s) can easily come in.
- NOTICE:** Pay attention to sections "A" and "B" in the illustration which can be easily broken.
- Reconnect the connectors to the ECM.
 - Using a voltmeter with high impedance (10 k Ω /V minimum), measure the voltage at each terminal of the wiring connectors.

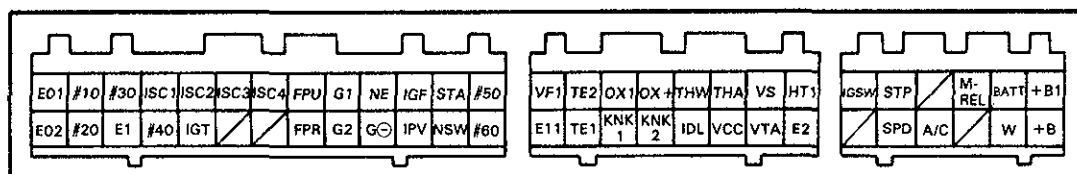
HINT:

- Perform all voltage measurements with the connectors connected.
- Verify that the battery voltage is 11 V or more when the ignition switch is in "ON" position.



Engine ECU Terminals (M/T)

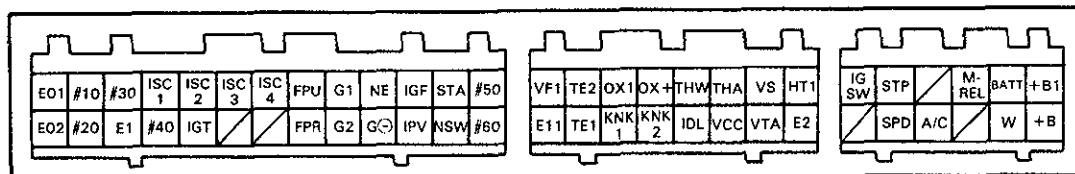
Symbol	Connection	Symbol	Connection	Symbol	Connection
E01	POWER GROUND	NE	DISTRIBUTOR	THA	INTAKE AIR TEMP. SENSOR
E02	POWER GROUND	G⊖	DISTRIBUTOR	VCC	VACUUM SENSOR THROTTLE POSITION SENSOR
#10	INJECTOR	IGF	IGNITER	VS	AIR FLOW METER
#20	INJECTOR	IPV	VSV FOR EVAP	VTA	THROTTLE POSITION SENSOR
#30	INJECTOR	STA	STARTER RELAY	HT1	OXYGEN SENSOR
E1	ENGINE GROUND	NSW	NEUTRAL START SWITCH	E2	SENSOR GROUND
ISC1	ISC VALVE	#50	INJECTOR	IGSW	IGNITION SWITCH
#40	INJECTOR	#60	INJECTOR		—
ISC2	ISC VALVE	VF1	CHECK CONNECTOR	STP	STOP LIGHT SWITCH
IGT	IGNITER	E11	SENSOR GROUND	SPD	SPEED SENSOR
ISC3	ISC VALVE	TE2	CHECK CONNECTOR		—
	—	TE1	CHECK CONNECTOR	AC	A/C AMPLIFIER
ISC4	ISC VALVE	OX1	OXYGEN SENSOR	M-REL	EFI MAIN RELAY
	—	KNK1	No. 1 KNOCK SENSOR		—
FPU	VSV FOR FUEL PRESSURE CONTROL	OX+	OXYGEN SENSOR	BATT	BATTERY
FPR	FUEL PUMP RELAY	KNK2	No. 2 KNOCK SENSOR	W	WARNING LIGHT
G1	DISTRIBUTOR	THW	WATER TEMP. SENSOR	+B1	EFI MAIN RELAY
G2	DISTRIBUTOR	IDL	THROTTLE POSITION SENSOR	+B	EFI MAIN RELAY



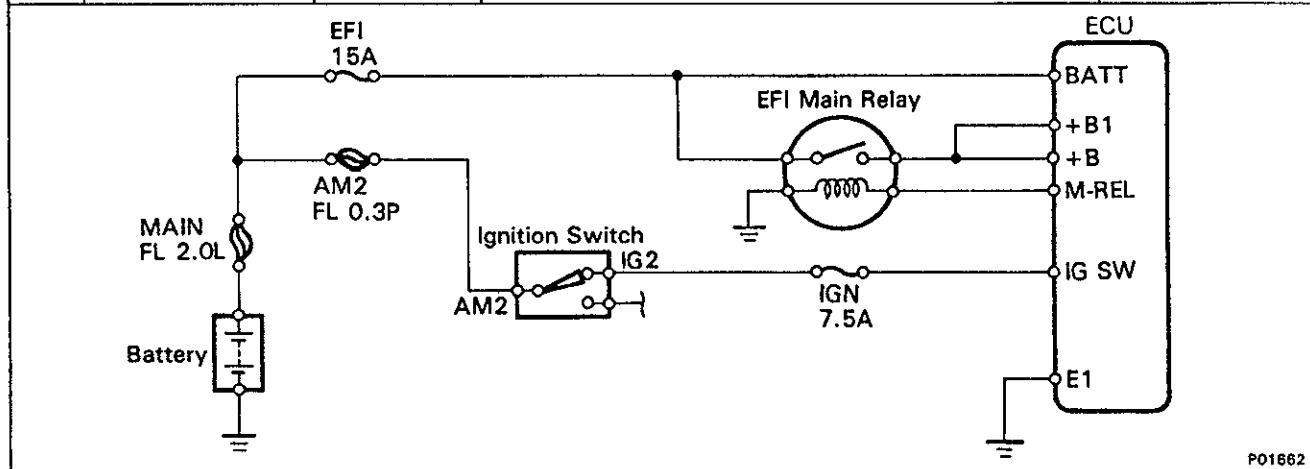
ECU Wiring Connectors Voltage (M/T)

No.	Terminals	Condition		STD voltage (V)	See page
1	BATT — E1	IG SW ON		9 — 14	EG-221
	IG SW — E1				
	M-REL — E1				
	+B +B1 — E1				
2	IDL — E2	IG SW ON	Throttle valve open	9 — 14	EG-224
	VCC — E2		—	4.5 — 5.5	
	VTA — E2		Throttle valve fully closed (Throttle opener must be cancelled first)	0.3 — 0.8	
			Throttle valve fully open	3.2 — 4.9	
3	VCC — E2	IG SW ON	—	4.5 — 5.5	EG-226
	VS — E2		Measuring plate fully closed	3.5 — 4.5	
			Measuring plate fully open	0.2 — 0.5	
			Idling	1.2 — 2.4	
			3,000 rpm	0.8 — 1.3	
4	#10 } — E01 #60 — E02	IG SW ON		9 — 14	EG-227
5	THA — E2	IG SW ON	Intake air temp. 20°C (68°F)	0.5 — 3.4	EG-228
6	THW — E2		Engine coolant temp. 80°C (176°F)	0.2 — 1.0	EG-229
7	STA — E1	Cranking		6 or more	EG-230
8	IGT — E1	Idling		Pulse generation	EG-231
9	ISC1 } — E1 ISC4	IG SW ON		9 — 14	EG-232
10	W — E1	No trouble (malfunction indicator lamp light off) and engine running		9 — 14	EG-233

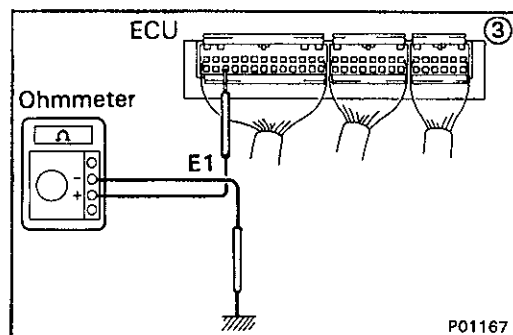
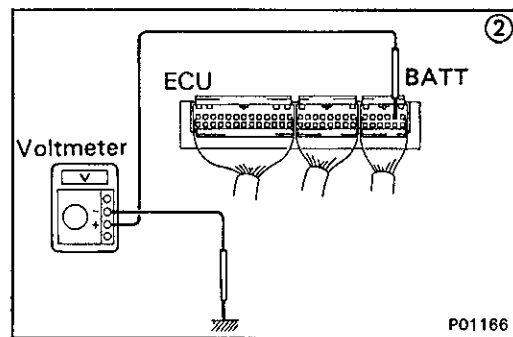
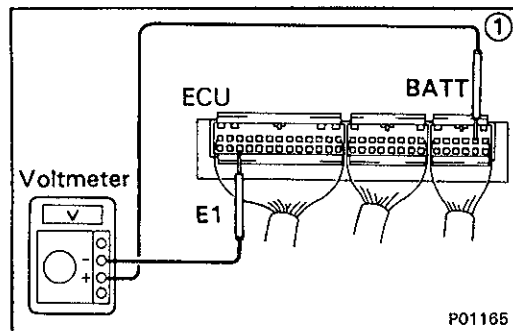
ECM Terminals



No.	Terminals	Trouble	Condition	STD voltage
1	BATT — E1	No voltage	—	9 — 14 V
	IG SW — E1	No voltage	IG SW ON	9 — 14 V
	M-REL — E1			
	+B (+B1) — E1			



EG



• BATT — E1

① There is no voltage between ECU terminals BATT and E1.

② Check that there is voltage between ECU terminal BATT and body ground.

NO

OK

③ Check wiring between ECU terminal E1 and body ground.

OK

BAD

Try another ECU

Repair or replace.

Check fuse and fusible link.

BAD

Replace.

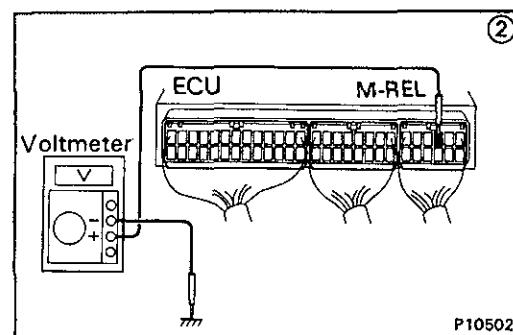
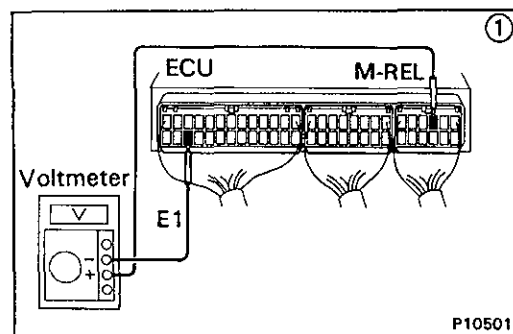
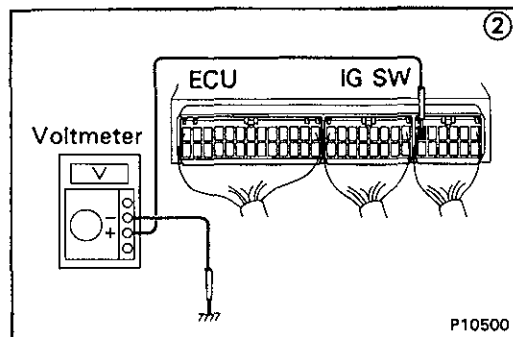
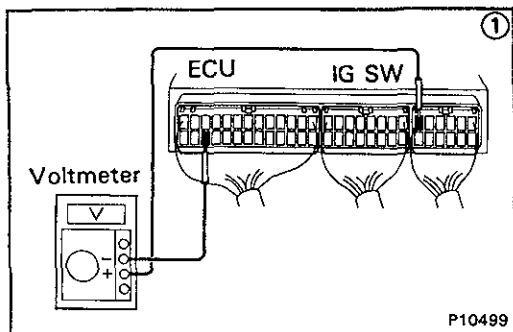
OK

Check wiring between ECU terminal and battery.

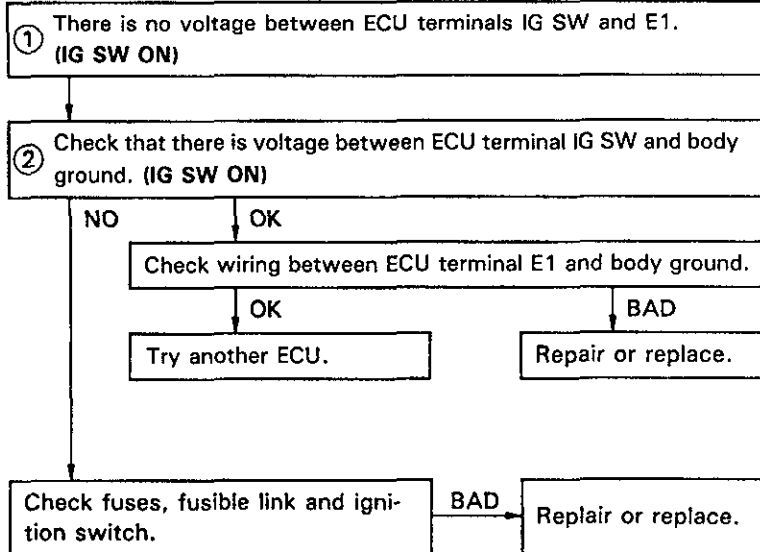
BAD

Repair or replace.

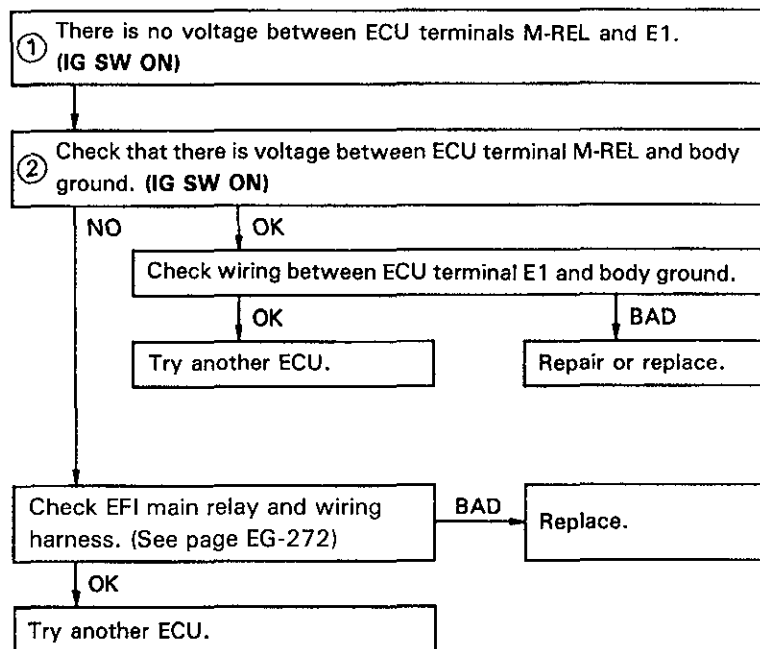
EG

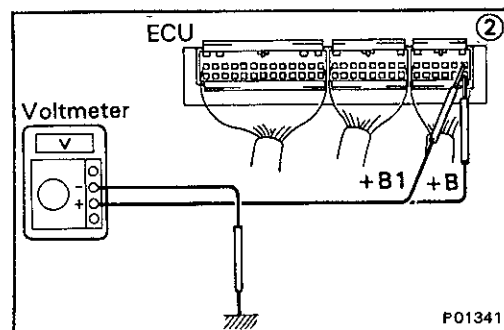
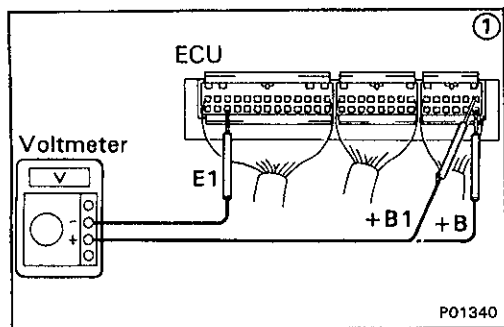


• IG SW — E1



• M-REL — E1





• +B (+B1) — E1

① There is no voltage between ECU terminals +B (+B1) and E1. (IG SW ON)

② Check that there is voltage between ECU terminal +B (+B1) and body ground. (IG SW ON)

NO

OK

Check wiring between ECU terminal E1 and body ground.

OK

BAD

Try another ECU.

Repair or replace.

Check fuse, fusible link and wiring harness.

BAD

Repair or replace.

OK

Check EFI main relay.
(See page EG-272)

BAD

Replace.

OK

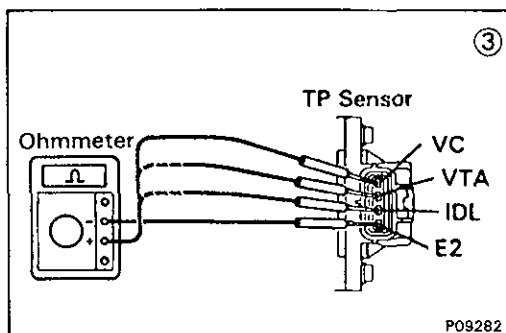
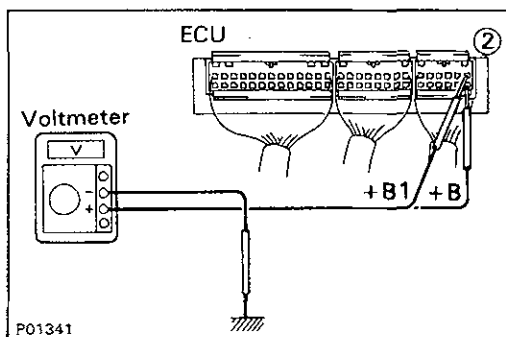
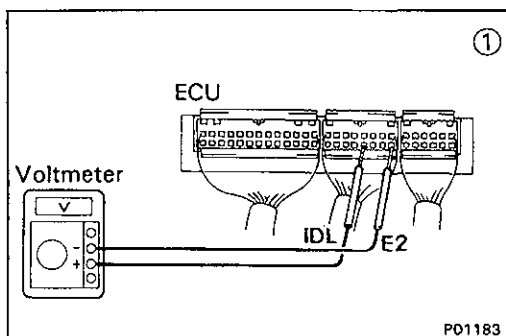
Refer to M-REL — E1 trouble section.

EG

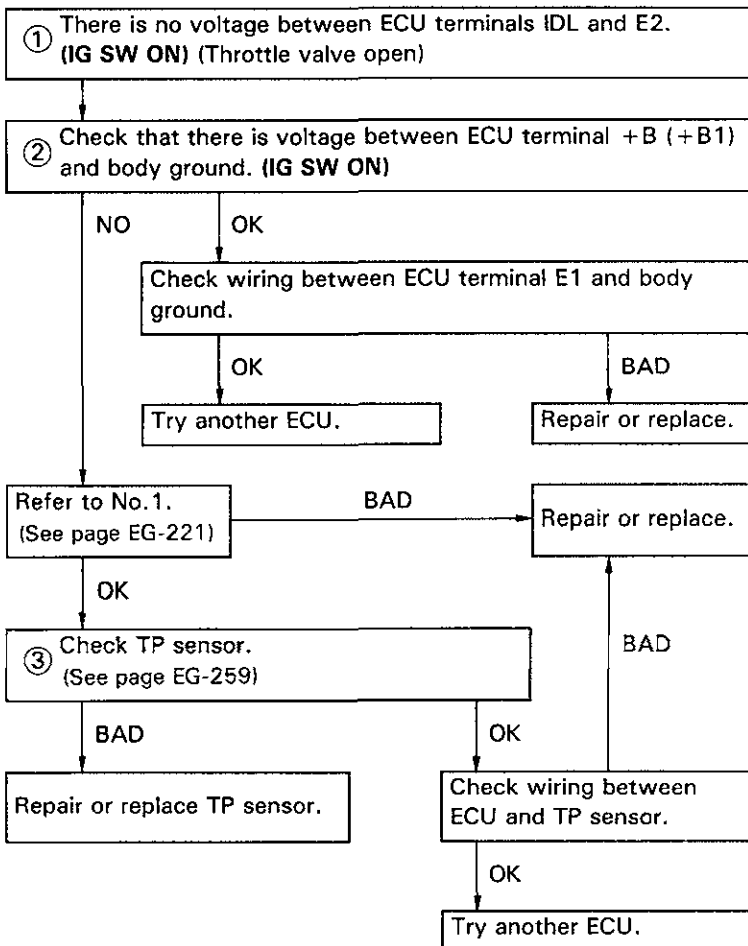
No.	Terminals	Trouble	Condition	STD voltage	
2	IDL — E2	No voltage	IG SW ON	Throttle valve open	9 — 14 V
	VCC — E2			—	4.5 — 5.5 V
	VTA — E2			Throttle valve fully closed (Throttle opener must be cancelled first)	0.3 — 0.8 V
				Throttle valve fully open	3.2 — 4.9 V

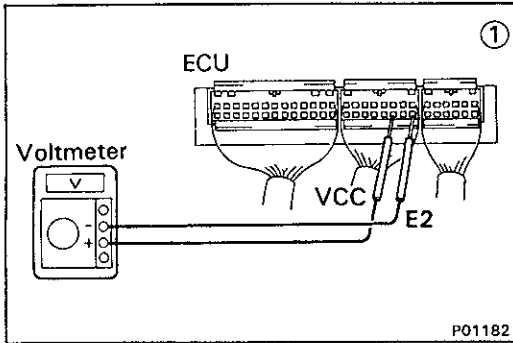
The diagram illustrates the electrical connection between a Throttle Position (TP) Sensor and the Engine Control Unit (ECU). The TP Sensor, represented by a hexagonal symbol, has four terminals: E2, IDL, VTA, and VC. The ECU, represented by a rectangular box, has six terminals: +B (+B1), E2 (E21), IDL, VTA, VCC, and E1. The wiring is as follows: E2 is connected to E2 (E21), IDL is connected to IDL, VTA is connected to VTA, and VC is connected to E1. The ECU is grounded at the bottom.

P01419



• IDL - E2





• VCC - E2

① There is no voltage between ECU terminals VCC and E2. (IG SW ON)

Check that there is voltage between ECU terminal +B (+B1) and body ground. (IG SW ON)

OK

NO

② Check TP sensor. (See page EG-259)

Refer to No.1. (See page EG-221)

BAD

OK

Repair or replace.

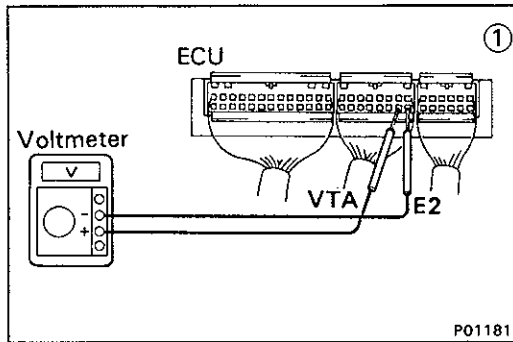
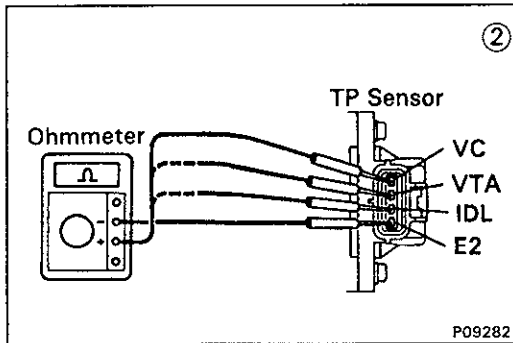
Check wiring between ECU and TP sensor.

OK

BAD

Try another ECU.

Repair or replace wiring.



• VTA - E2

① There is no specified voltage at ECU terminals VTA and E2. (IG SW ON)

② Check that there is voltage between ECU terminals VCC and E2. (IG SW ON)

NO

OK

Refer to VCC — E2 trouble section.

OK

③ Check TP sensor. (See page EG-259)

BAD

Repair or replace.

OK

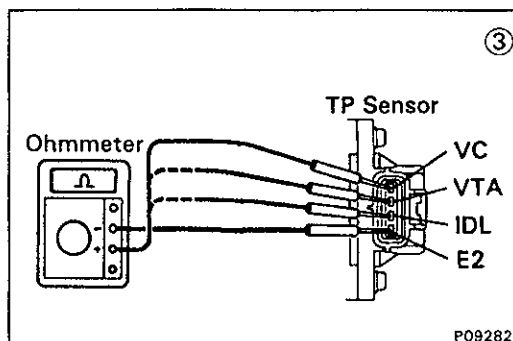
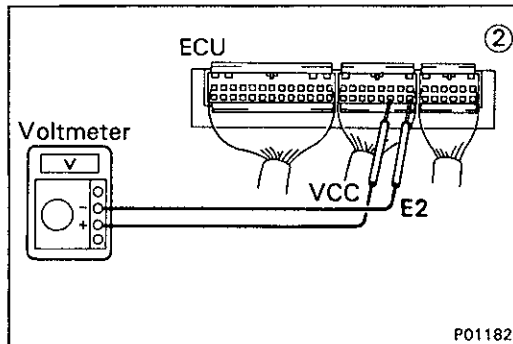
Check wiring between ECU and TP sensor.

BAD

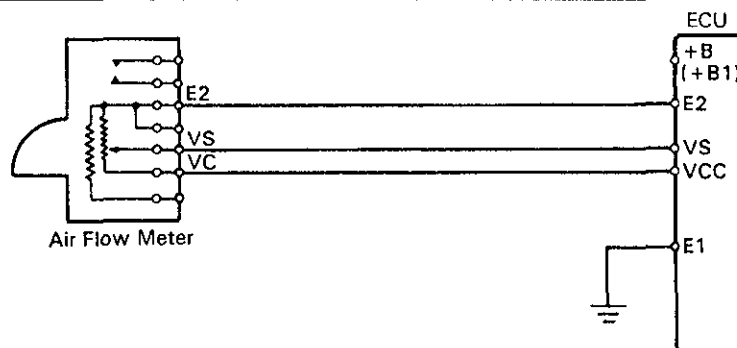
Repair or replace.

OK

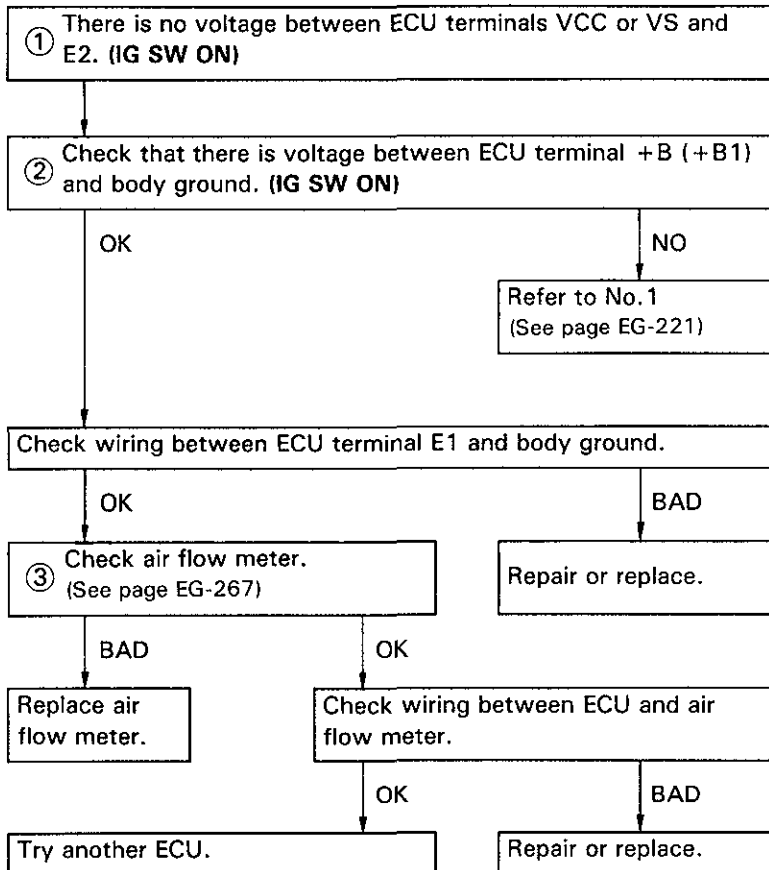
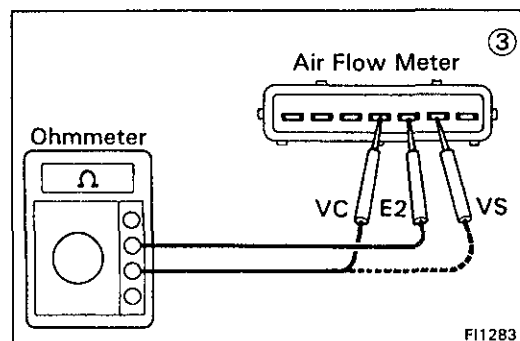
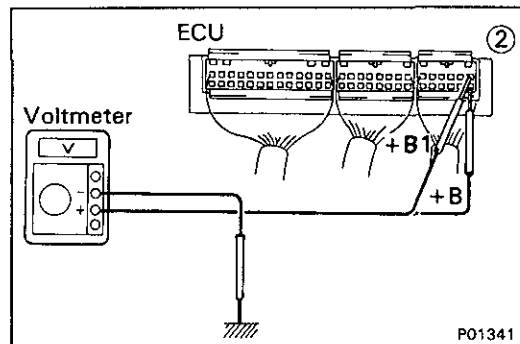
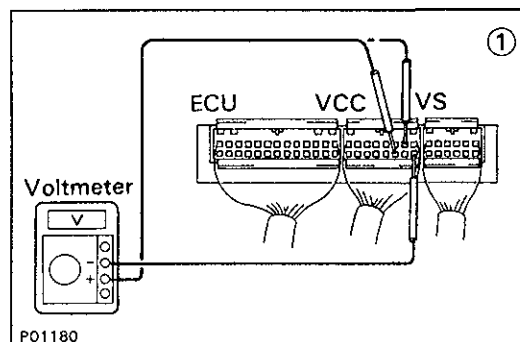
Try another ECU.

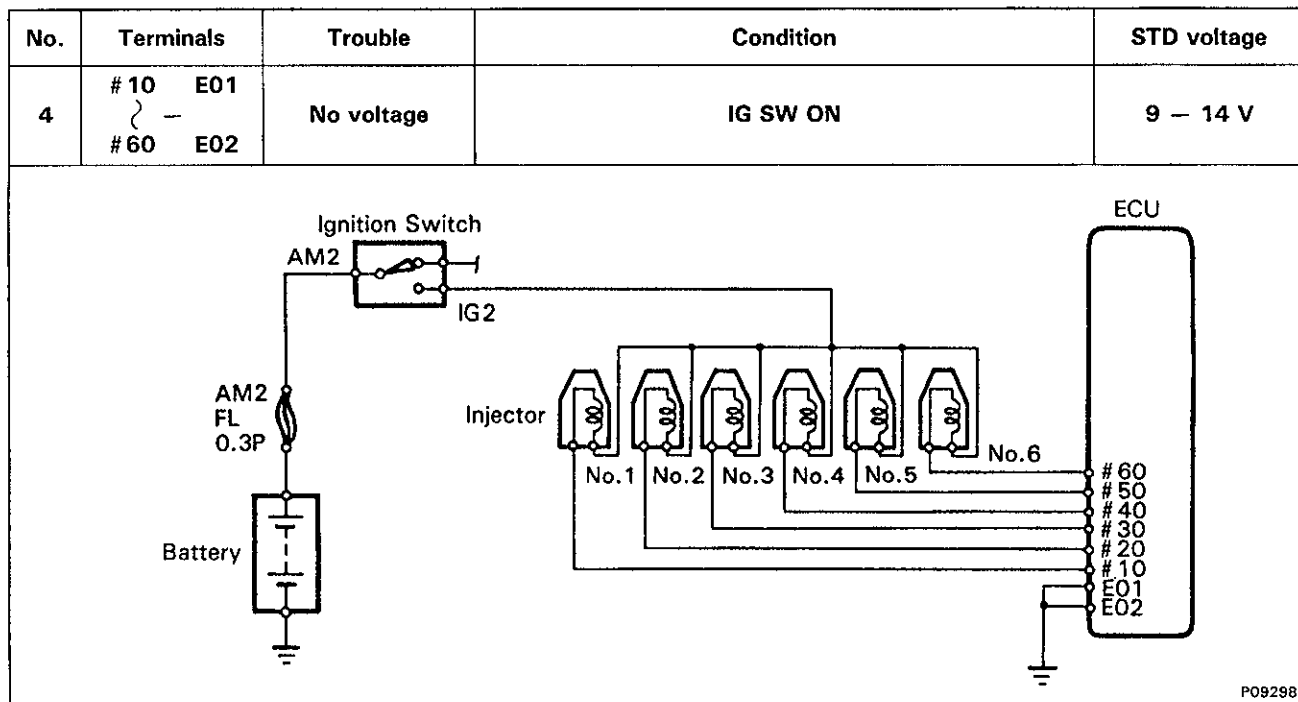


No.	Terminals	Trouble	Condition		STD voltage
3	VCC — E2	No voltage	IG SW ON	—	4.5 — 5.5 V
	VS — E2			Measuring plate fully closed	3.5 — 4.5 V
	VS — E2			Measuring plate fully open	0.2 — 0.5 V
	VS — E2		Idling		1.2 — 2.4 V
	VS — E2		3,000 rpm		0.8 — 1.3 V

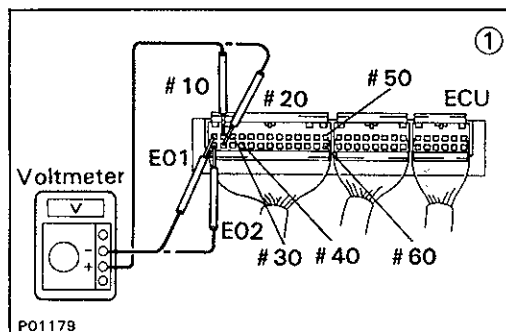


FI6032





EG



① There is no voltage between ECU terminals # 10 ~ # 60 and E01 and/or E02. (IG SW ON)

② Check that there is voltage between ECU terminal # 10 ~ # 60 and body ground.

NO OK

Check wiring between ECU terminal E01 and/or E02 and body ground.

OK BAD

Try another ECU.

Repair or replace.

Check fusible link and ignition switch.

BAD

Repair or replace.

OK

③ Check resistance of each injector.
STD resistance: Approx. 13.8 Ω

OK

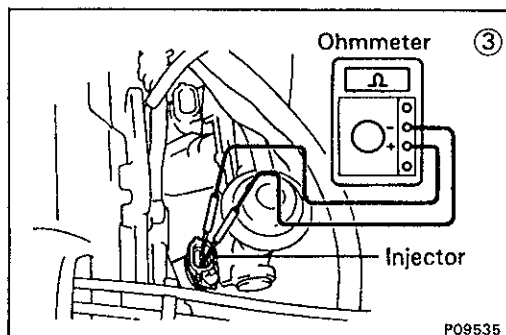
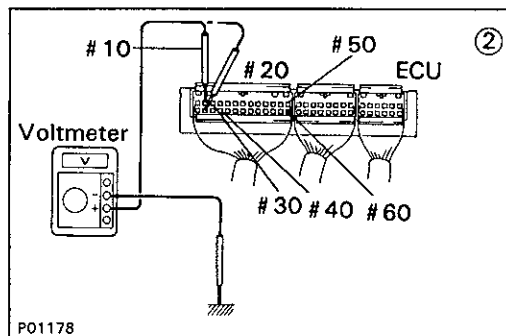
BAD

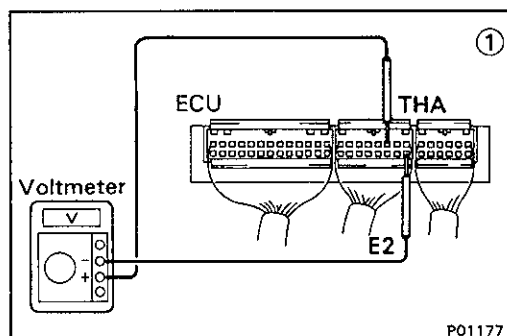
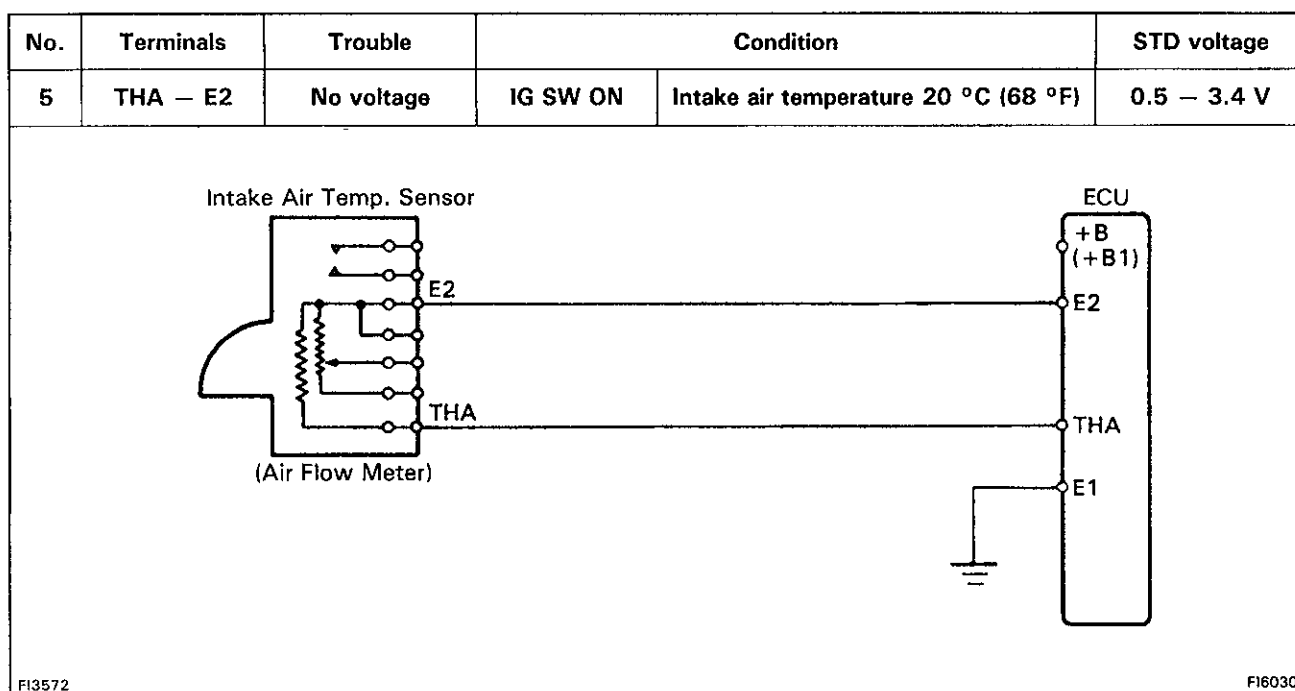
Replace injector.

Check wiring between ECU terminal # 10 ~ # 60 and battery.

BAD

Repair or replace.





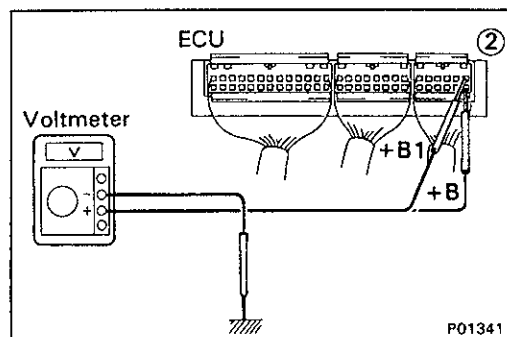
① There is no voltage between ECU terminals THA and E2. (IG SW ON)

2 Check that there is voltage between ECU terminal +B (+B1) and body ground. (IG SW ON)

OK

NO

Refer to No.1
(See page EG-221)



Check wiring between ECU terminal E1 and body ground.

OK

BAD

③ Check Intake air temp. sensor.
(See page EG-268)

Repair or replace.

BAD

OK

Replace air flow meter.

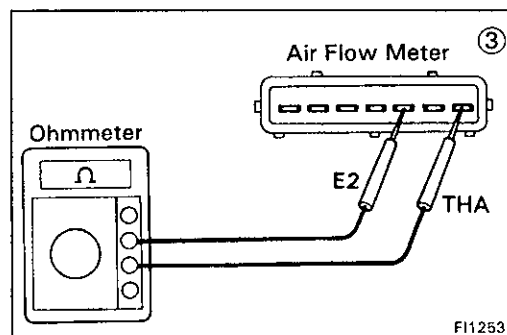
Check wiring between ECU and Intake air temp. sensor.

OK

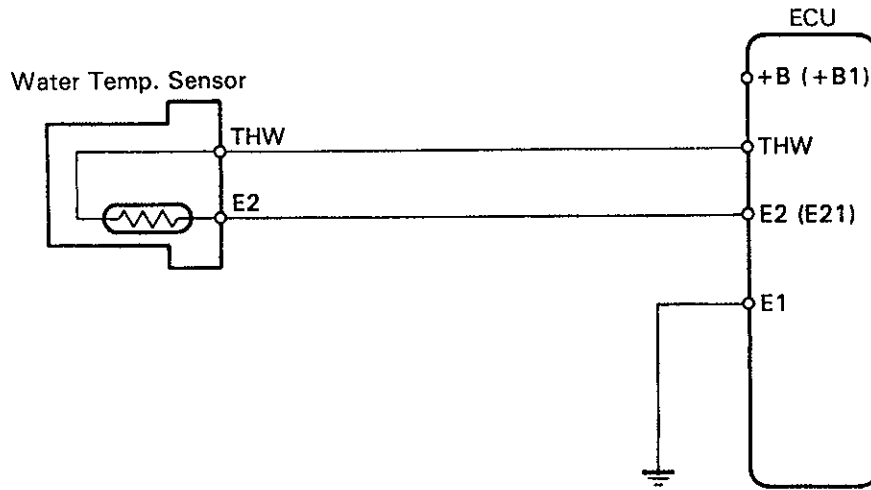
BAD

Try another ECU.

Repair or replace.

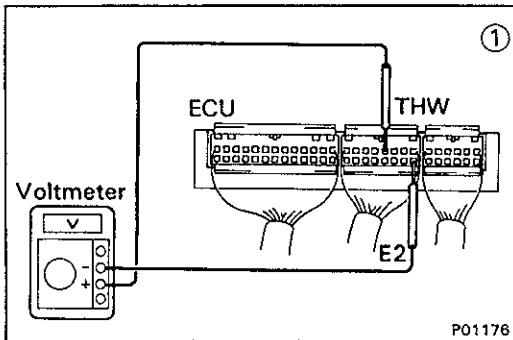


No.	Terminals	Trouble	Condition		STD voltage
6	THW — E2	No voltage	IG SW ON	Engine coolant temperature 80 °C (176 °F)	0.2 — 1.0 V



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EG



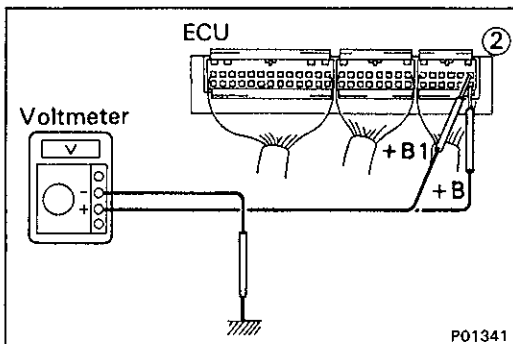
① There is no voltage between ECU terminals THW and E2. (IG SW ON)

② Check that there is voltage between ECU terminal +B (+B1) and body ground. (IG SW ON)

OK

NO

Refer to No. 1
(See page EG-221)



Check wiring between ECU terminal E1 and body ground.

OK

BAD

③ Check water temp. sensor.
(See page EG-275)

Repair or replace.

BAD

OK

Replace water temp.
sensor.

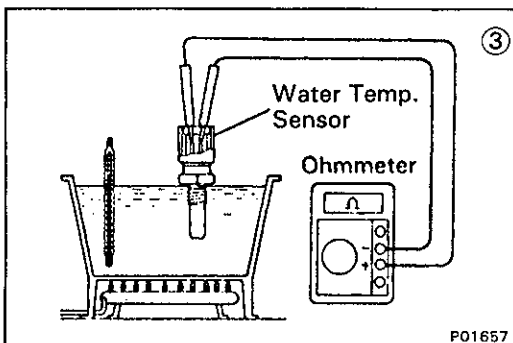
Check wiring between ECU
and ECT sensor.

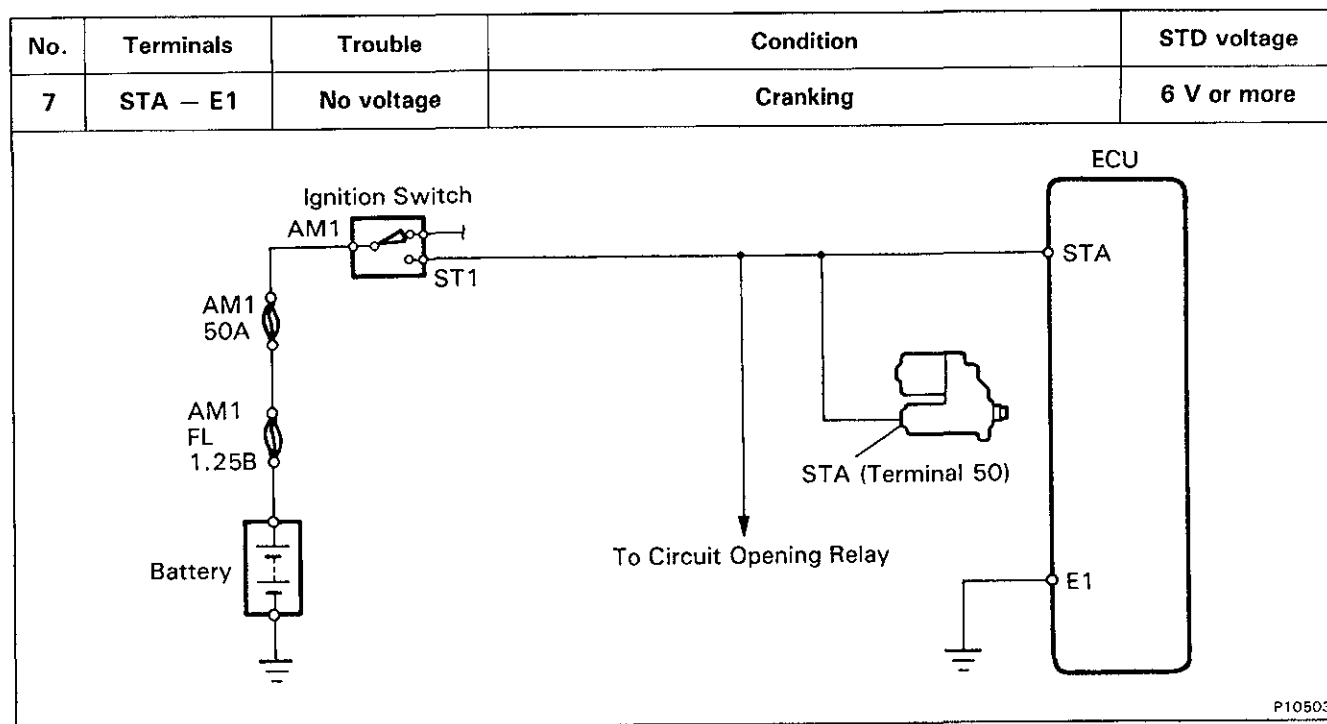
OK

BAD

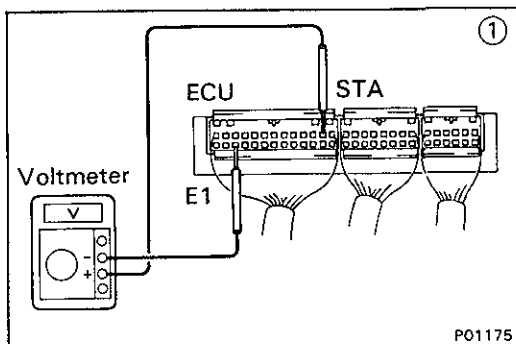
Try another ECU.

Repair or replace.

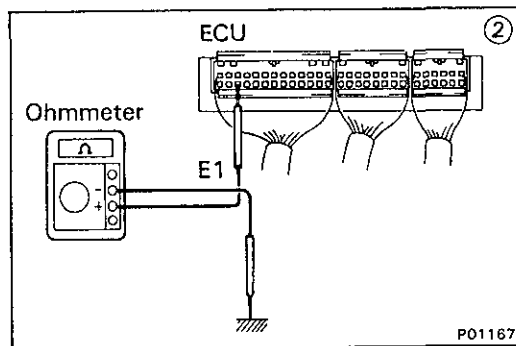




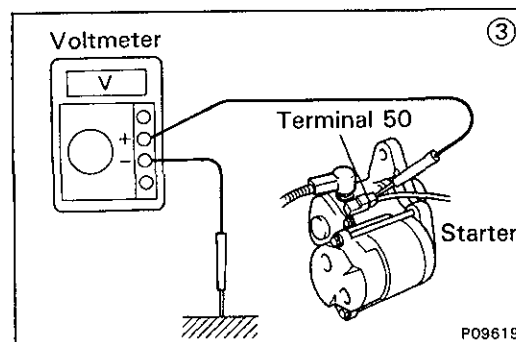
P10503



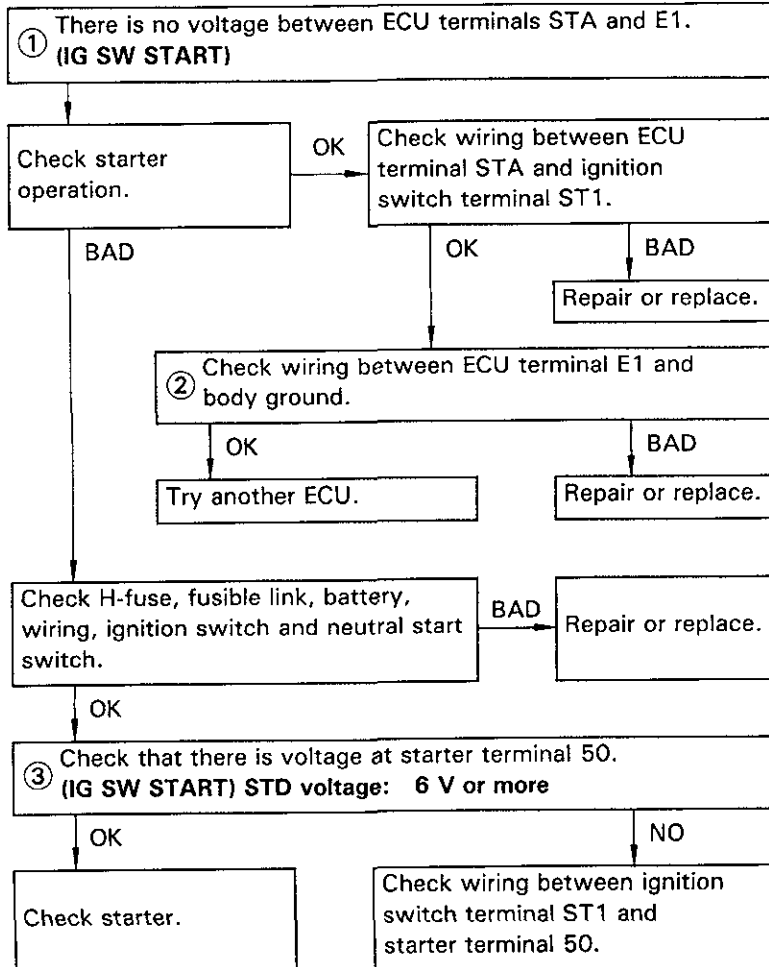
P01175



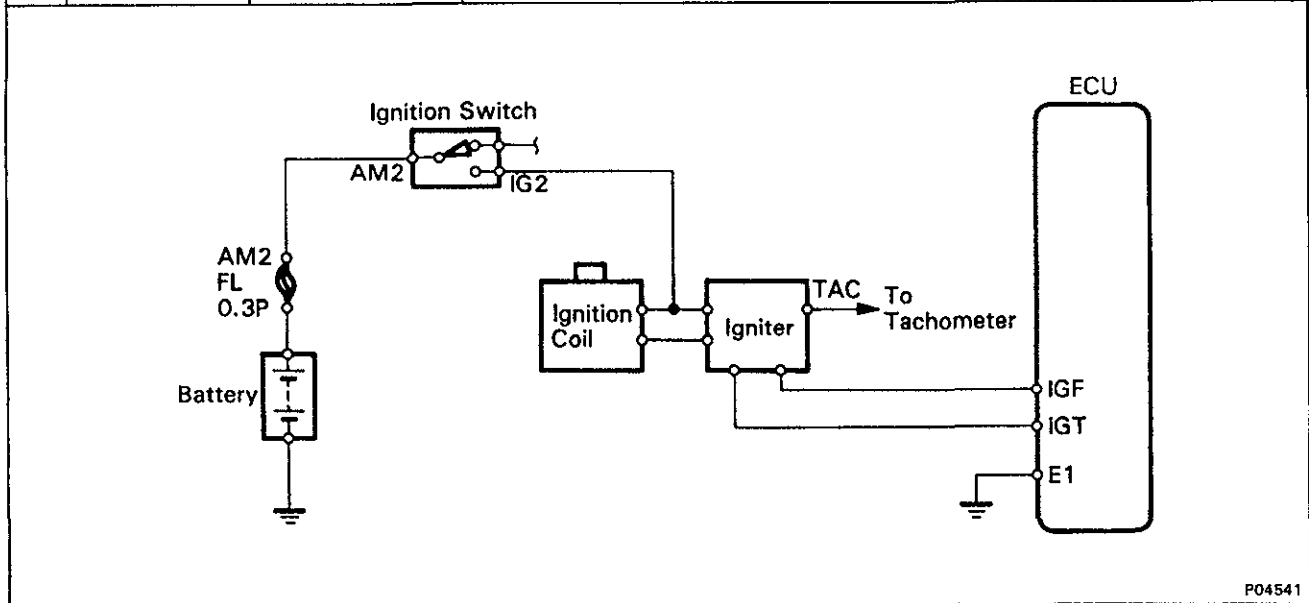
P01167



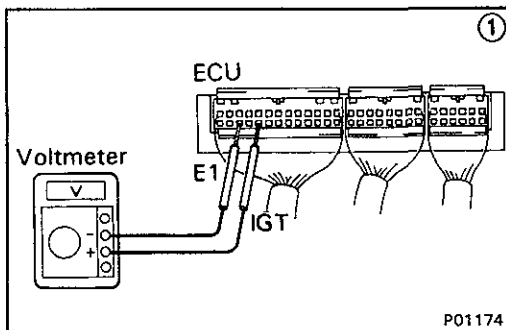
P09619



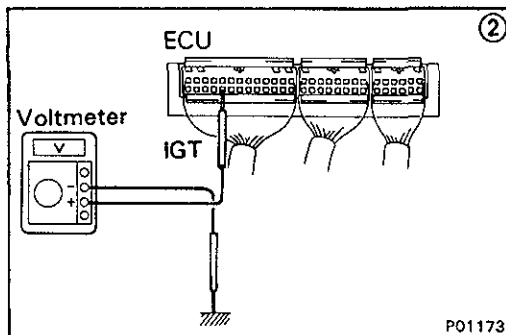
No.	Terminals	Trouble	Condition	STD voltage
8	IGT — E1	No voltage	Idling	Pulse generation



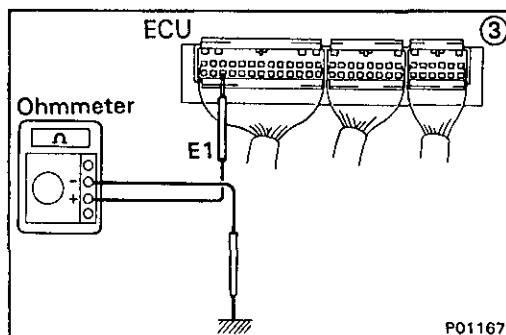
P04541



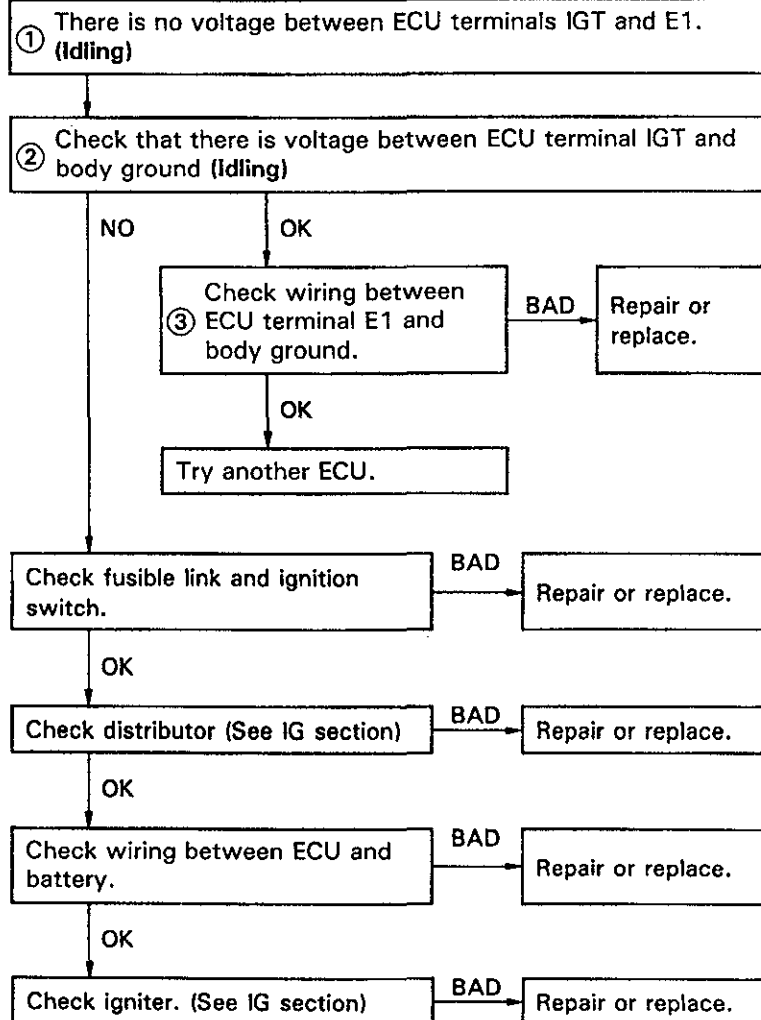
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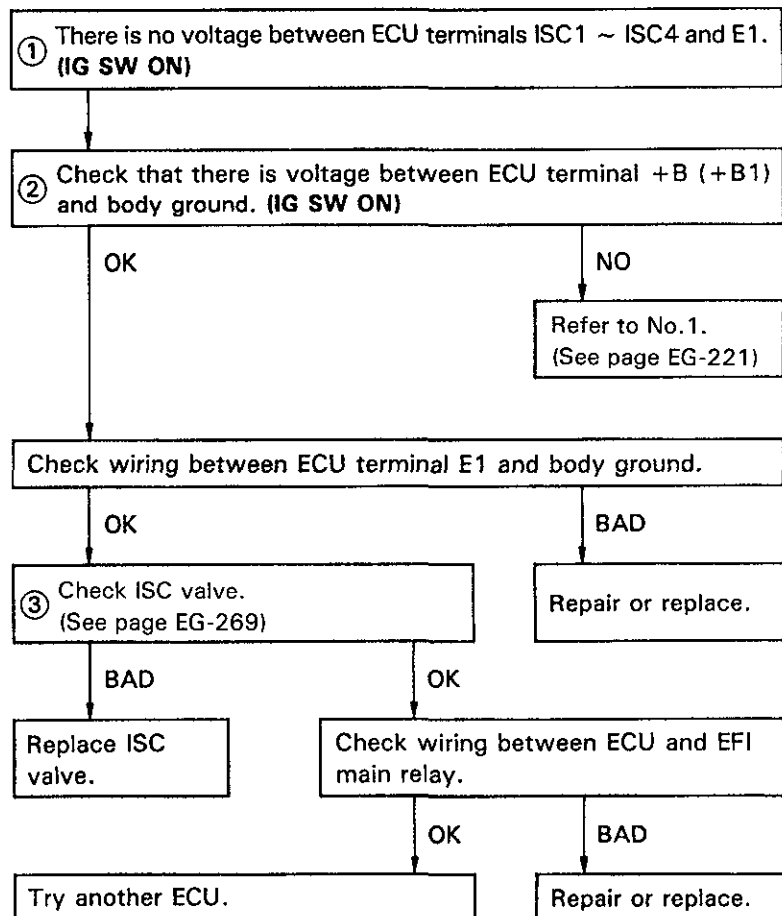
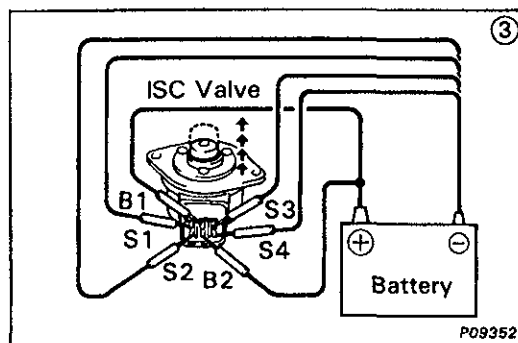
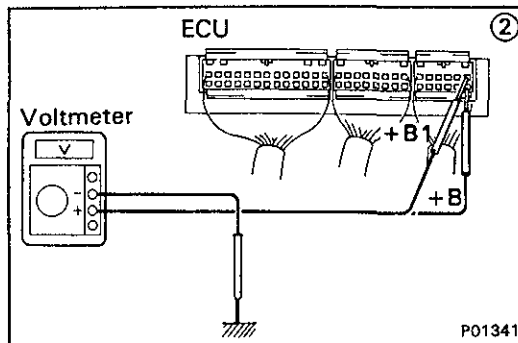
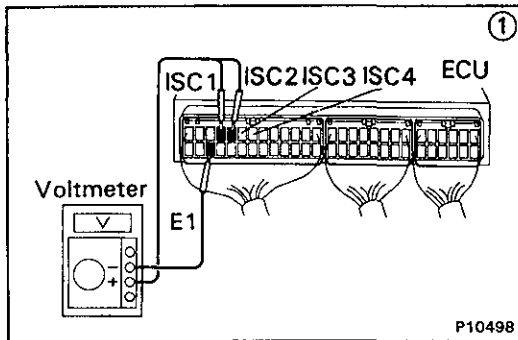
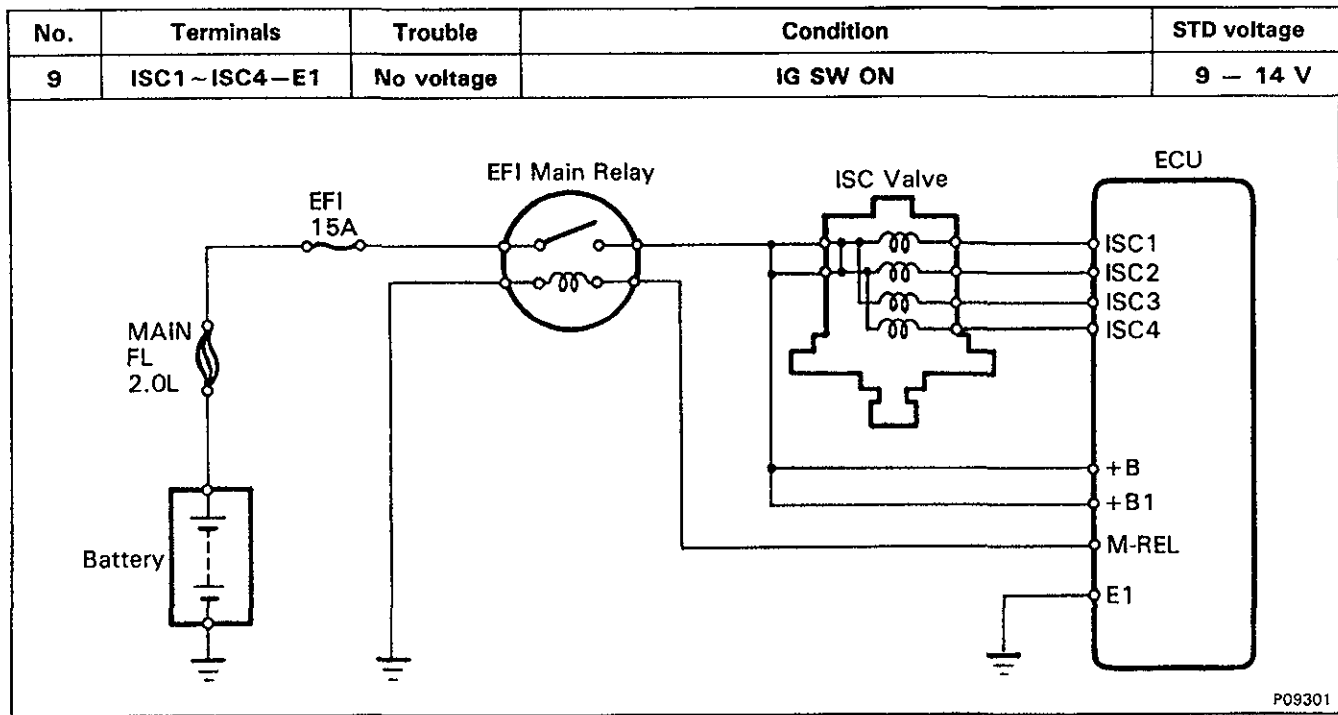


P01173

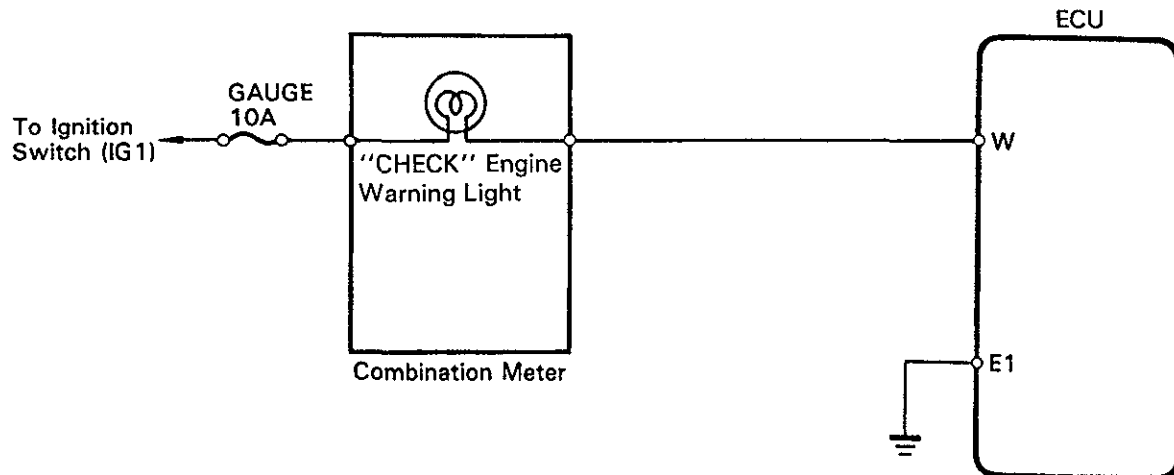


P01167

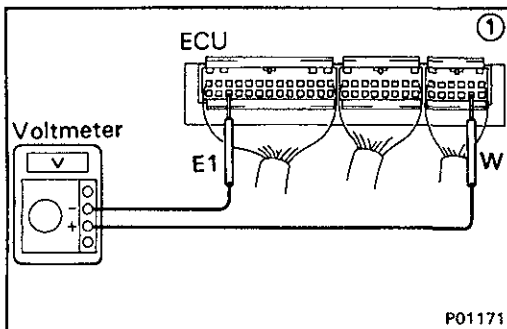




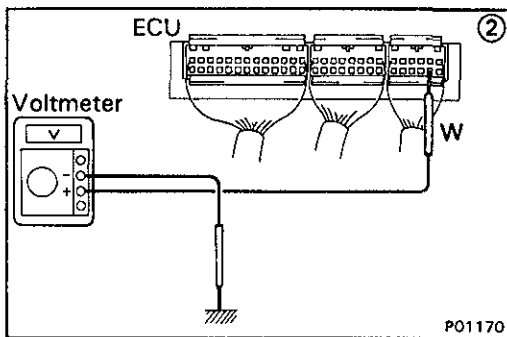
No.	Terminals	Trouble	Condition	STD voltage
10	W — E1	No voltage	No trouble (malfunction indicator lamp light off) and engine running.	9 — 14 V



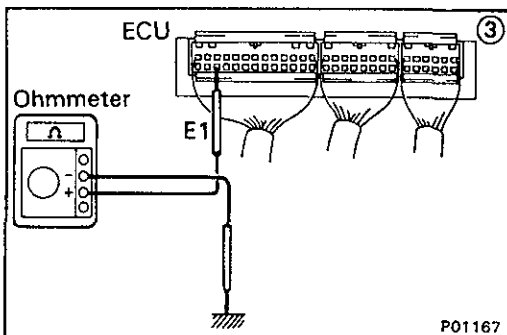
FI0728



P01171



P01170



P01167

① There is no voltage between ECU terminals W and E1. (Idling)

② Check that there is voltage between ECU terminal W and body ground.

NO

OK

③ Check wiring between ECU terminal E1 and body ground.

OK

BAD

Try another ECU.

Repair or replace.

Check GAUGE fuse (10A) and malfunction indicator lamp.

OK

BAD

Repair or replace.

Fuse blows again

Check wiring between ECU terminal W and fuse.

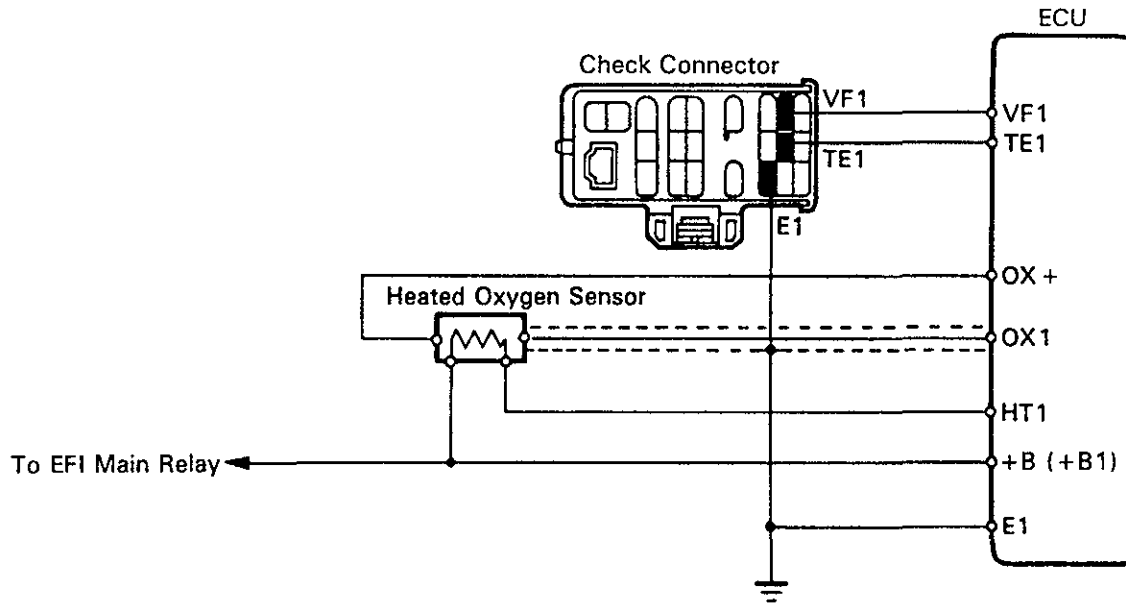
BAD

Repair or replace.

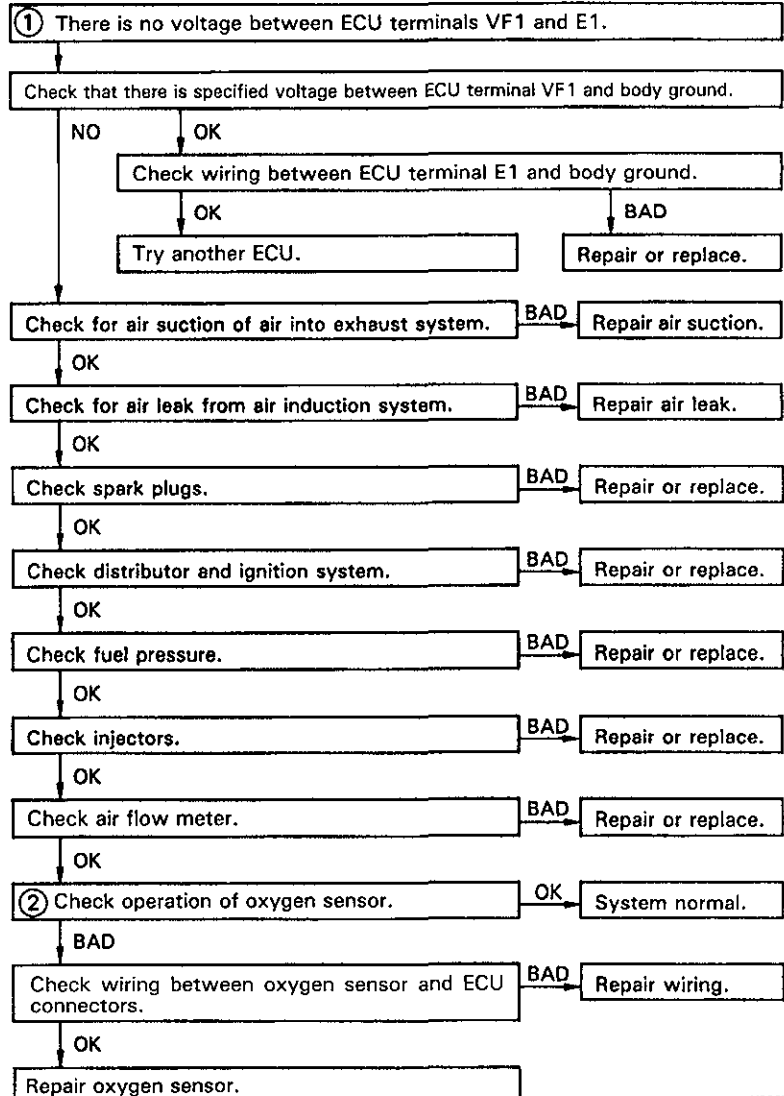
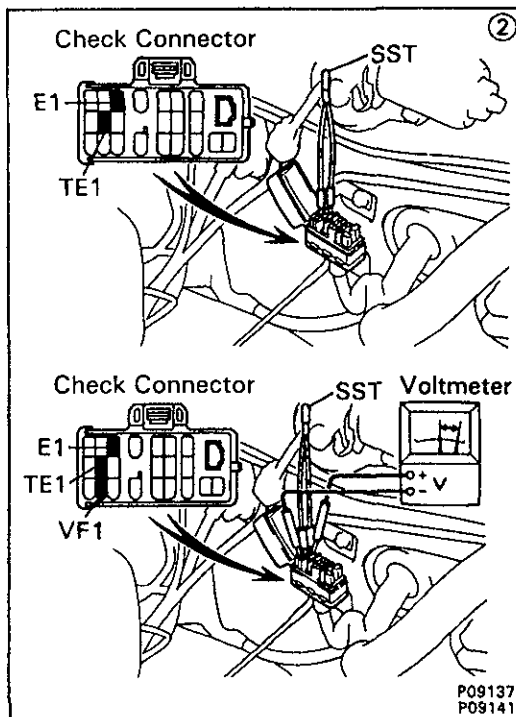
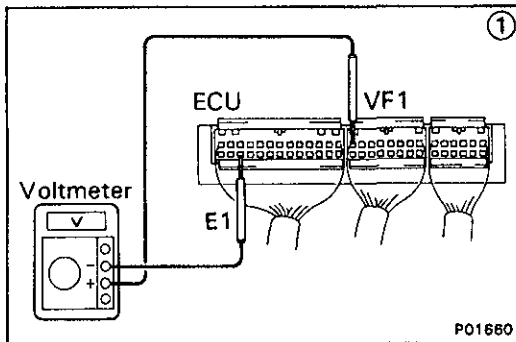
EG

EG

Oxygen Sensor



P09365



V02850