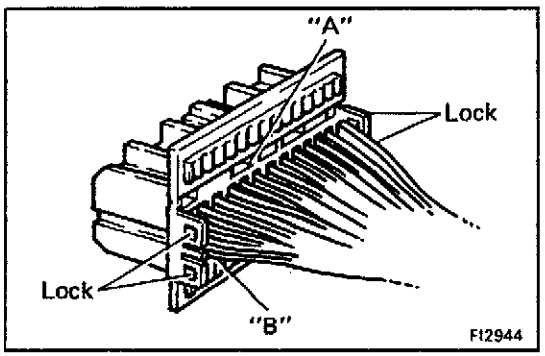
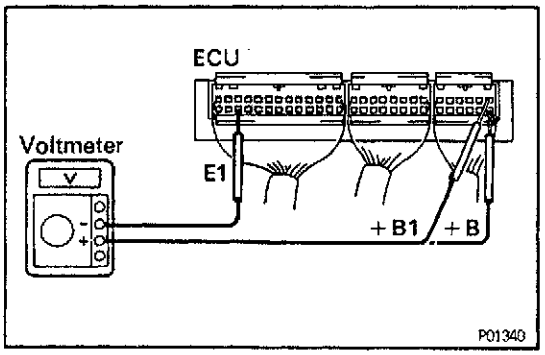
TROUBLESHOOTING w/ VOLT, OHMMETER (Hardtop)

E027R-02

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.





EFI SYSTEM CHECK PROCEDURE

E027S-02

PREPARATION

(a) Disconnect the connectors from the ECU.

(b) 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.

(c) Reconnect the connectors to the ECU.

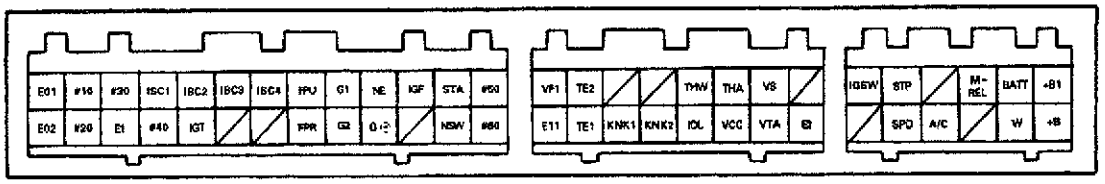
(d) Using a voltmeter with high impedance (10 kΩ/V minimum), measure the voltage at each terminal of the wiring connectors.
HINT:
- Perform all voltage measurements with the connectors connected.
- Verify that the battery voltage is 11 V or more when the ignition switch is in "ON" position.

EG27T-03

Engine ECU Terminals

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		–	VTA	THROTTLE POSITION SENSOR
#30	INJECTOR	STA	STARTER RELAY		–
E1	ENGINE GROUND	NSW	IGNITION 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	A/C	A/C AMPLIFIER
ISC4	ISC VALVE		–	M-REL	EFI MAIN RELAY
	–	KNK1	No. 1 KNOCK SENSOR		–
FPU	VSV FOR FUEL PRESSURE CONTROL		–	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 Terminals



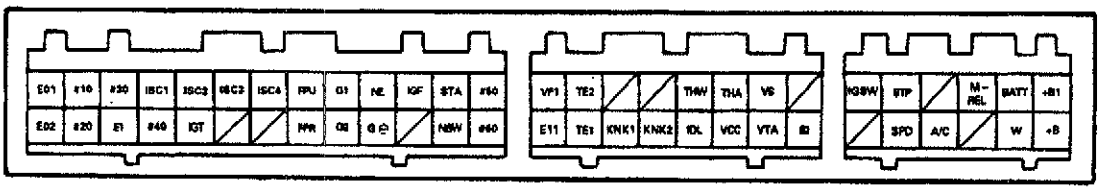
P01821

V06521

ECU Wiring Connectors Voltage

No.	Terminals	Condition		STD voltage (V)	See page
1	BATT – E1	–		9 – 14	EG-40
	IG SW – E1	IG SW ON			
	M-RL – E1				
	+B +B1 – E1				
2	IDL – E2	IG SW ON	Throttle valve open	9 – 14	EG-43
	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		–	4.5 – 5.5	EG-45
	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 #60 – E01 E02	IG SW ON		9 – 14	EG-46
5	THA – E2	IG SW ON	Intake air temp. 20°C (68°F)	0.5 – 3.4	EG-47
6	THW – E2		Engine coolant temp. 80°C (176°F)	0.2 – 1.0	EG-48
7	STA – E1	Cranking		6 or more	EG-49
8	IGT – E1	Idling		Pulse generation	EG-50
9	ISC1 ISC4 – E1	IG SW ON		9 – 14	EG-51
10	W – E1	No trouble ("CHECK" engine warning light off) and engine running		9 – 14	EG-52

ECU Terminals

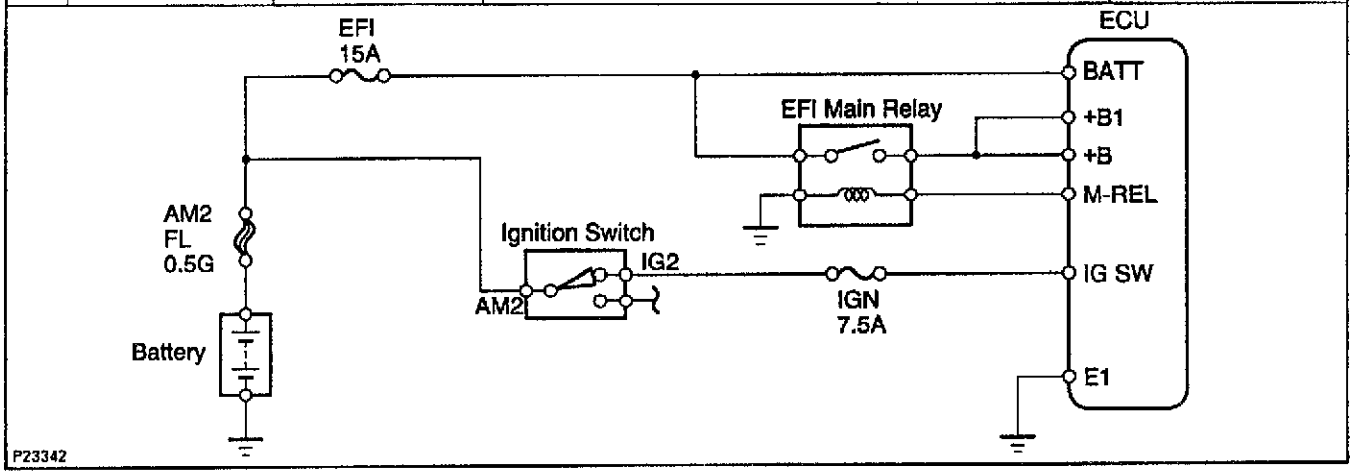


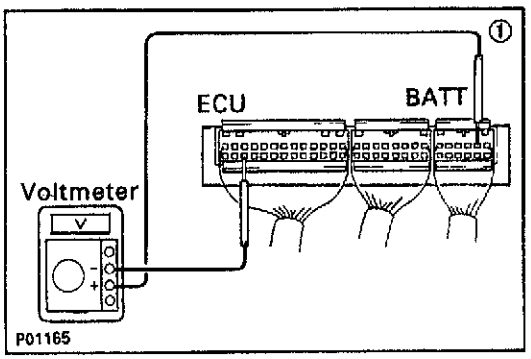
P01821

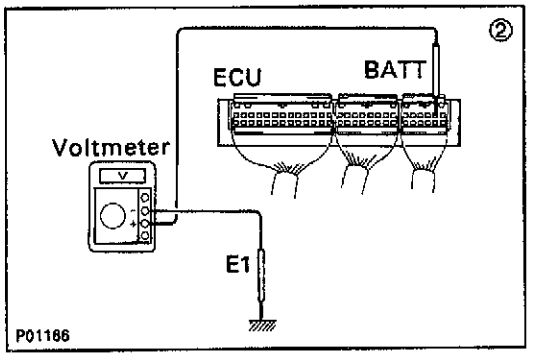
V06522

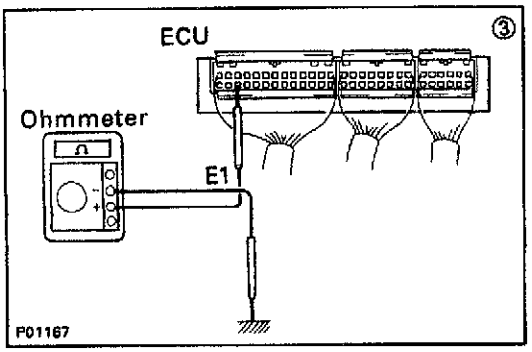
EGBM3–01

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			









• **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 → Try another ECU

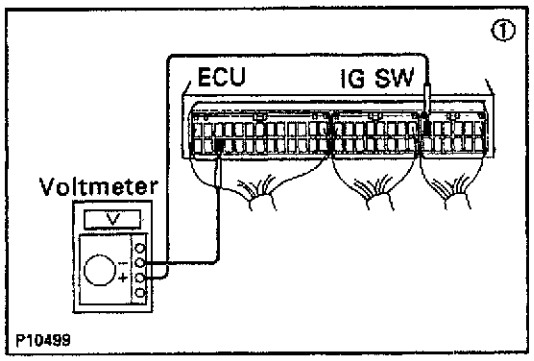
BAD → Repair or replace.

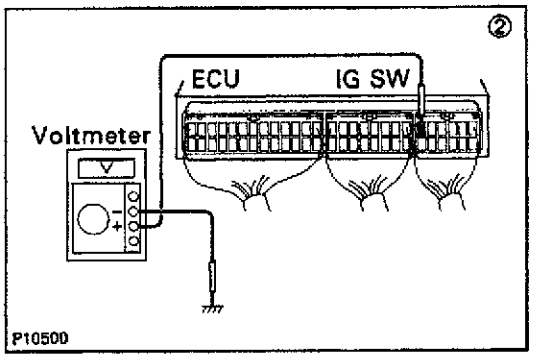
Check fuse and fusible link. BAD → Replace.

OK

Check wiring between ECU terminal and battery. BAD → Repair or replace.

V06533





• **IG SW – E1**

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

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

NO

OK

Check wiring between ECU terminal E1 and body ground.

OK

Try another ECU.

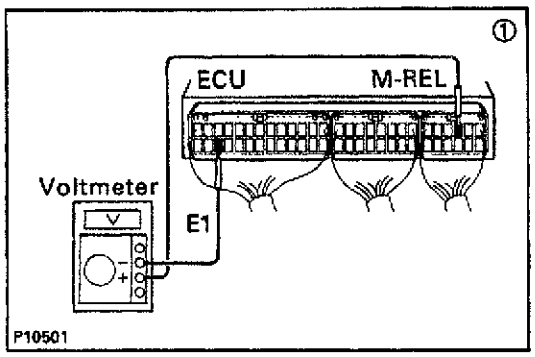
BAD

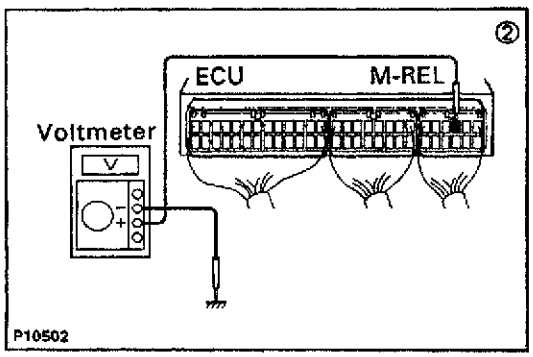
Repair or replace.

Check fuses, fusible link and ignition switch.

BAD

Repair or replace.





• **M-REL – E1**

① There is no voltage between ECU terminals M-REL and E1. **(IG SW ON)**

② Check that there is voltage between ECU terminals M-REL and body ground. **(IG SW ON)**

NO

OK

Check wiring between ECU terminal E1 and body ground.

OK

Try another ECU.

BAD

Repair or replace.

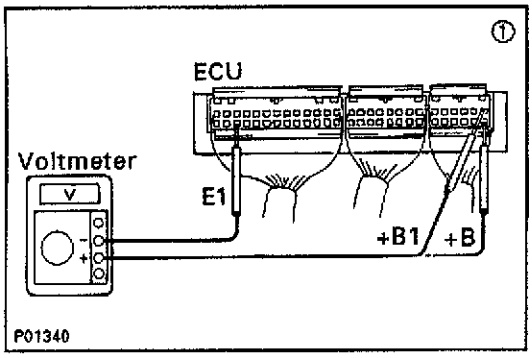
Check EFI main relay and wiring harness. (See page EG-56)

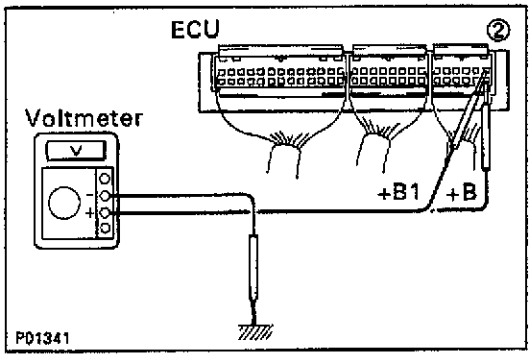
BAD

Replace.

OK

Try another ECU.





• **+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 → **Try another ECU.**

BAD → **Repair or replace.**

Check fuse, fusible link and wiring harness. BAD → **Repair or replace.**

OK

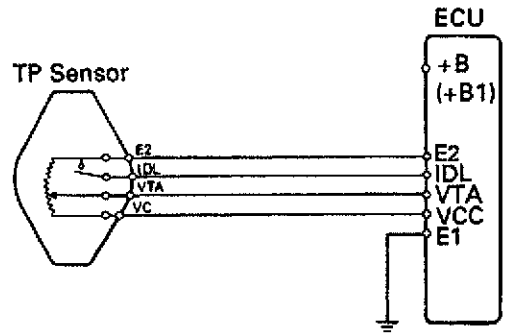
Check EFI main relay. (See page EG-56) BAD → **Replace.**

OK

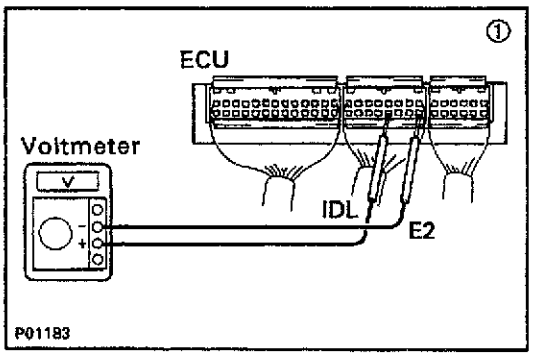
Refer to M-REL – E1 trouble section.

V06535

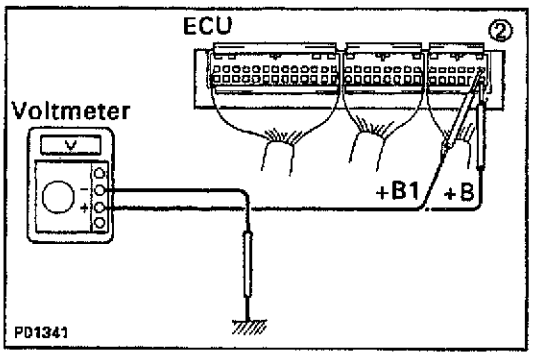
No.	Terminals	Trouble	Condition		STD voltage
2	IDL – E2	No voltage	IG SW ON	Throttle valve open	9 – 14 V
	VCC – E2			–	4.5 – 5.5 V
	VTA – E2			Throttle valve fully closed (Throttle opener must be cancelled first)	0.3 – 0.8 V
				Throttle valve fully open	3.2 – 4.9 V



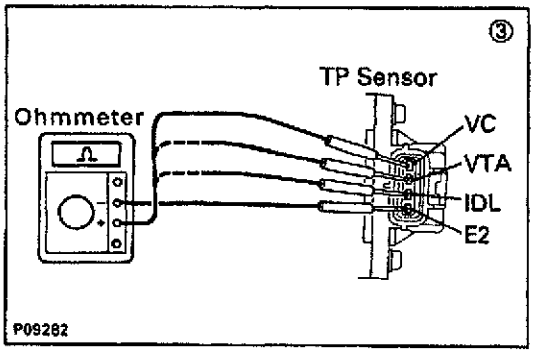
P01419



P01183



P01341



P09282

• IDL – E2

① There is no voltage between ECU terminals IDL and E2. **(IG SW ON)** (Throttle valve open)

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 → Try another ECU.

BAD → Repair or replace.

Refer to No.1. (See page EG-40)

BAD → Repair or replace.

OK

③ Check TP sensor.

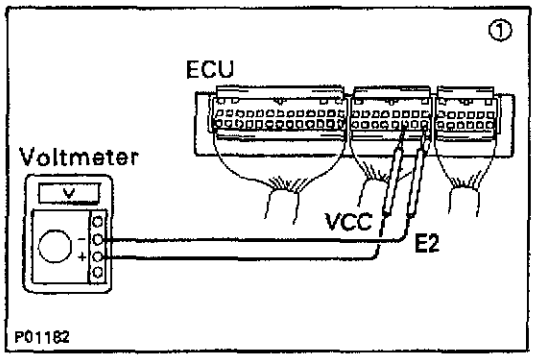
BAD → Repair or replace TP sensor.

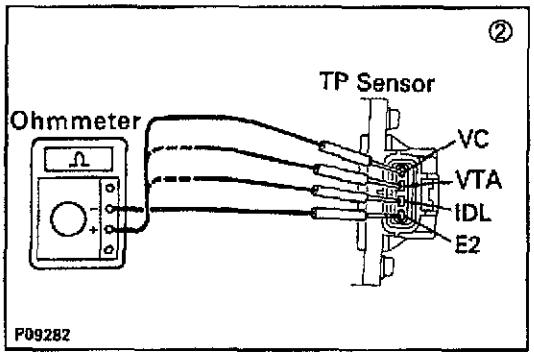
OK → Check wiring between ECU and TP sensor.

OK → Try another ECU.

BAD

V06524





• **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 → ② Check TP sensor.

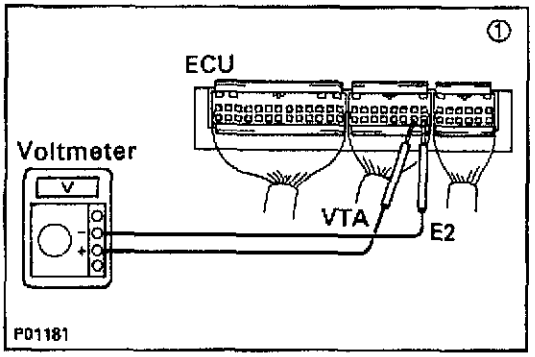
↓ BAD → Repair or replace.

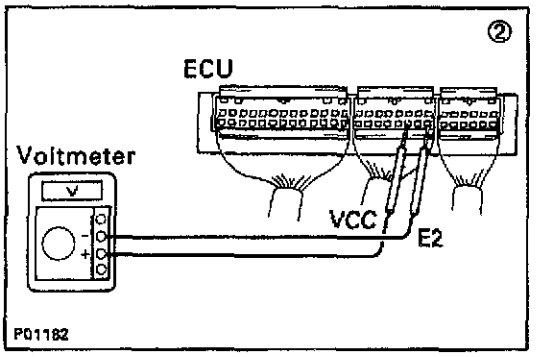
↓ OK → Check wiring between ECU and TP sensor.

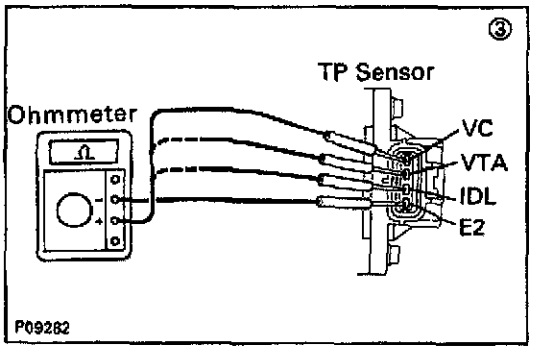
↓ OK → Try another ECU.

↓ BAD → Repair or replace wiring.

NO → Refer to No.1. (See page EG-40)







• **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 → Refer to VCC – E2 trouble section.

↓ OK

OK →

↓

③ Check TP sensor. → BAD → Repair or replace.

↓ OK

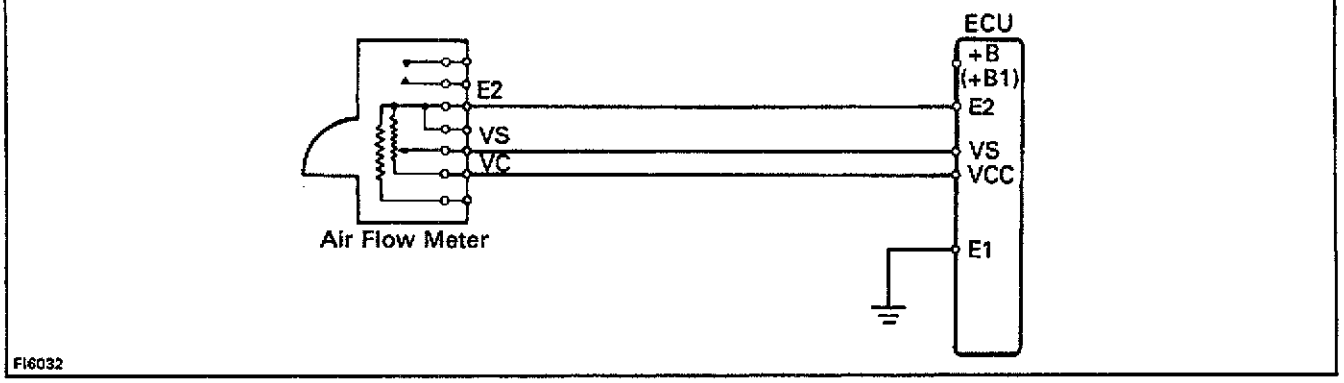
Check wiring between ECU and TP sensor. → BAD → Repair or replace.

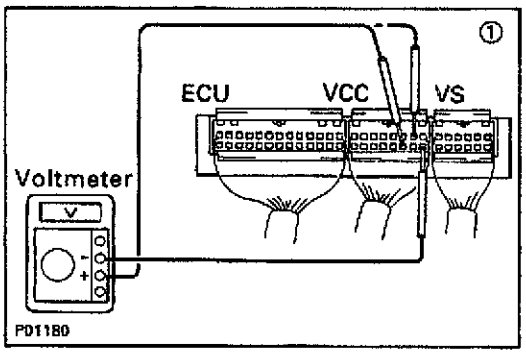
↓ OK

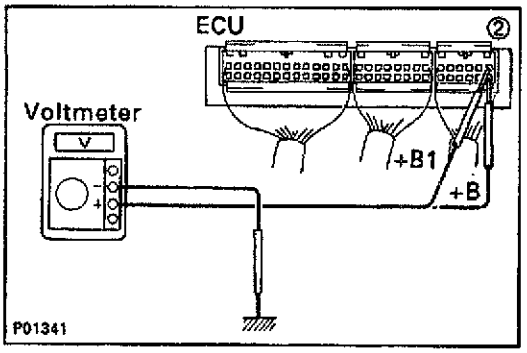
Try another ECU.

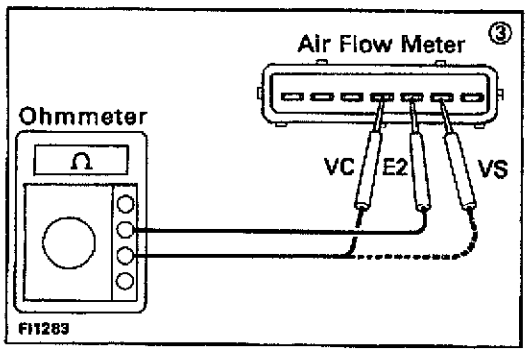
V06525

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









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

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

OK → Check wiring between ECU terminal E1 and body ground.

NO → Refer to No.1. (See page EG-40)

OK → ③ Check air flow meter.

BAD → Repair or replace.

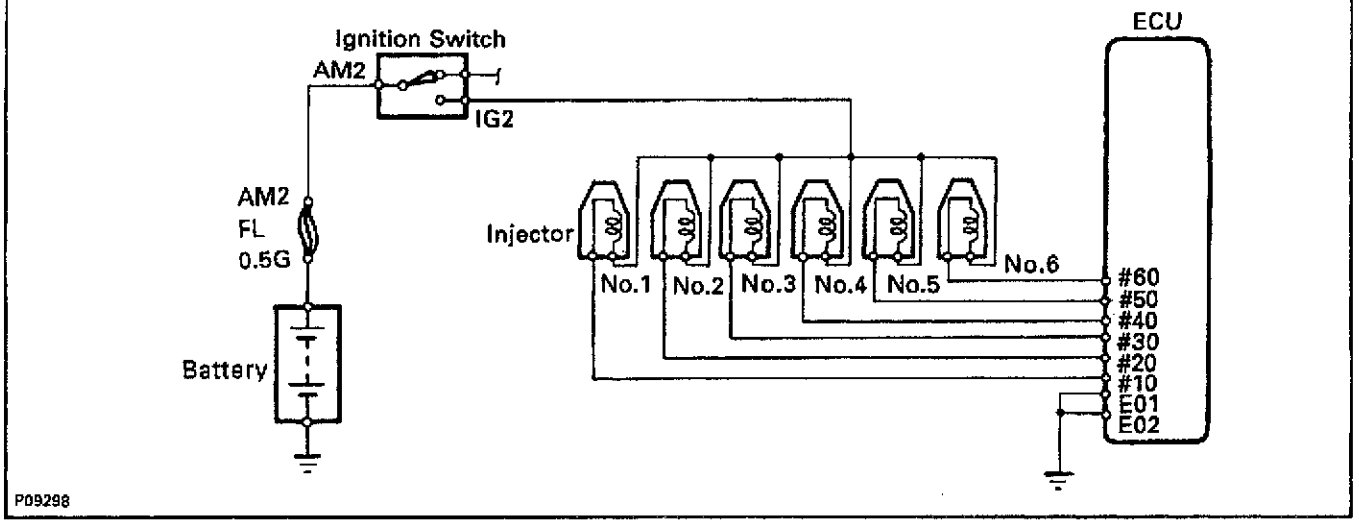
BAD → Replace air flow meter.

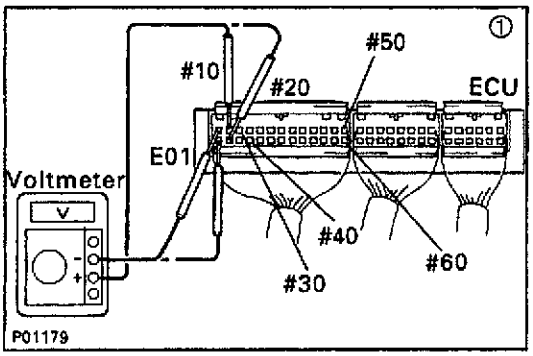
OK → Check wiring between ECU and air flow meter.

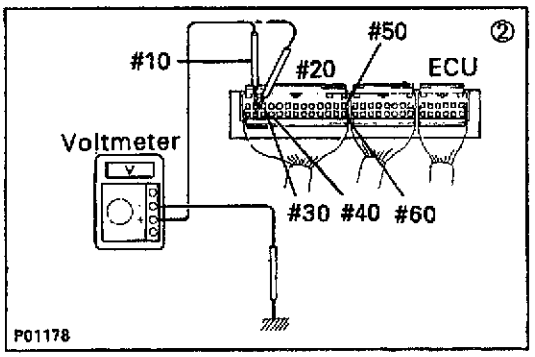
OK → Try another ECU.

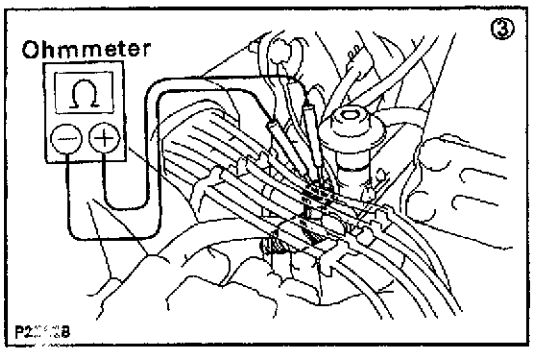
BAD → Repair or replace.

No.	Terminals	Trouble	Condition	STD voltage
4	#10 E01 〉 – #60 E02	No voltage	IG SW ON	9 – 14 V









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 → Try another ECU.

BAD → 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

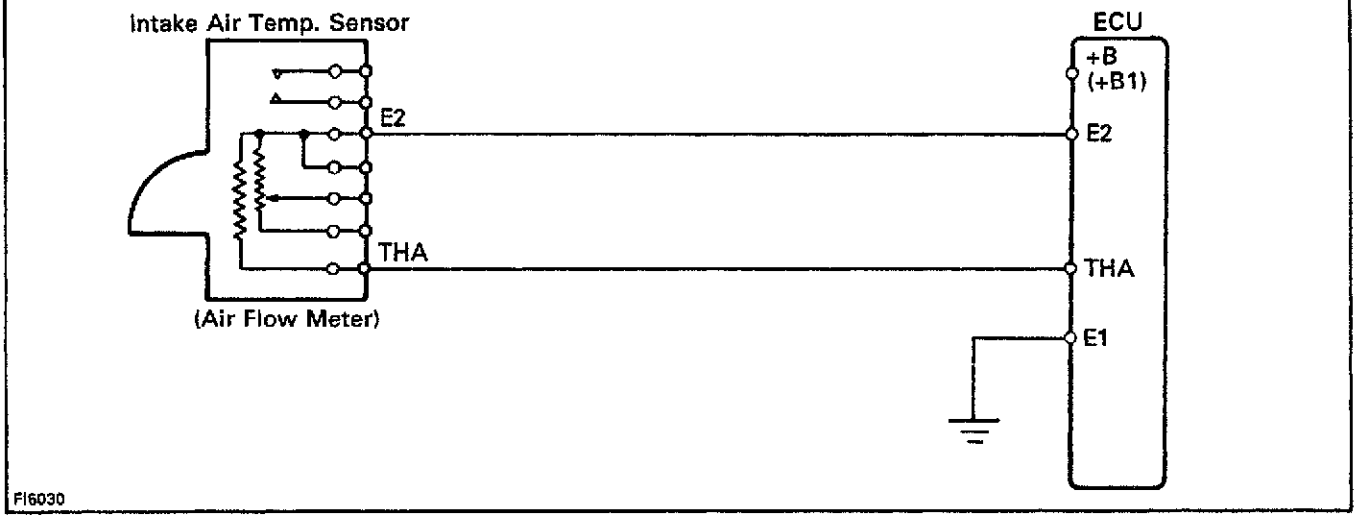
BAD → Repair or replace.

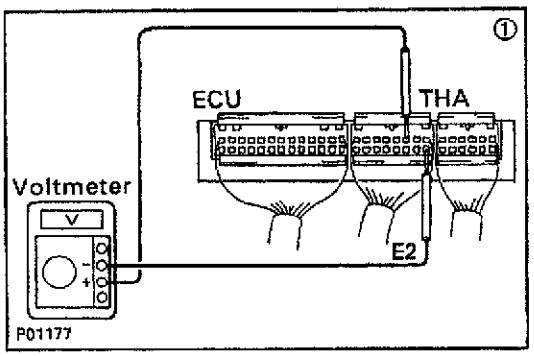
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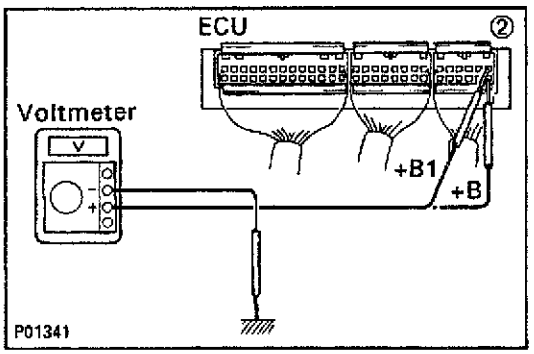
Check wiring between ECU terminal #10 ~ #60 and battery. → BAD → Repair or replace.

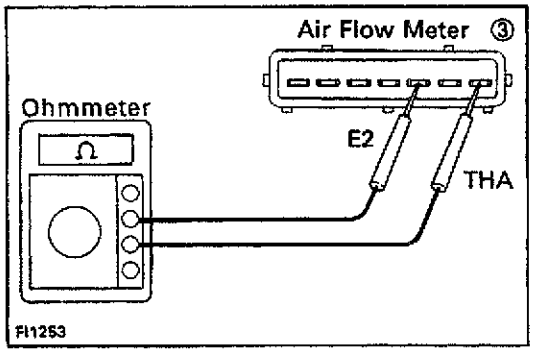
V06527

No.	Terminals	Trouble	Condition		STD voltage
5	THA – E2	No voltage	IG SW ON	Intake air temp. 20°C (68°F)	0.5 – 3.4 V









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-40)

↓

Check wiring between ECU terminal E1 and body ground.

OK → ↓

BAD → Repair or replace.

↓

③ Check intake air temp. sensor.

BAD → Replace air flow meter.

OK → ↓

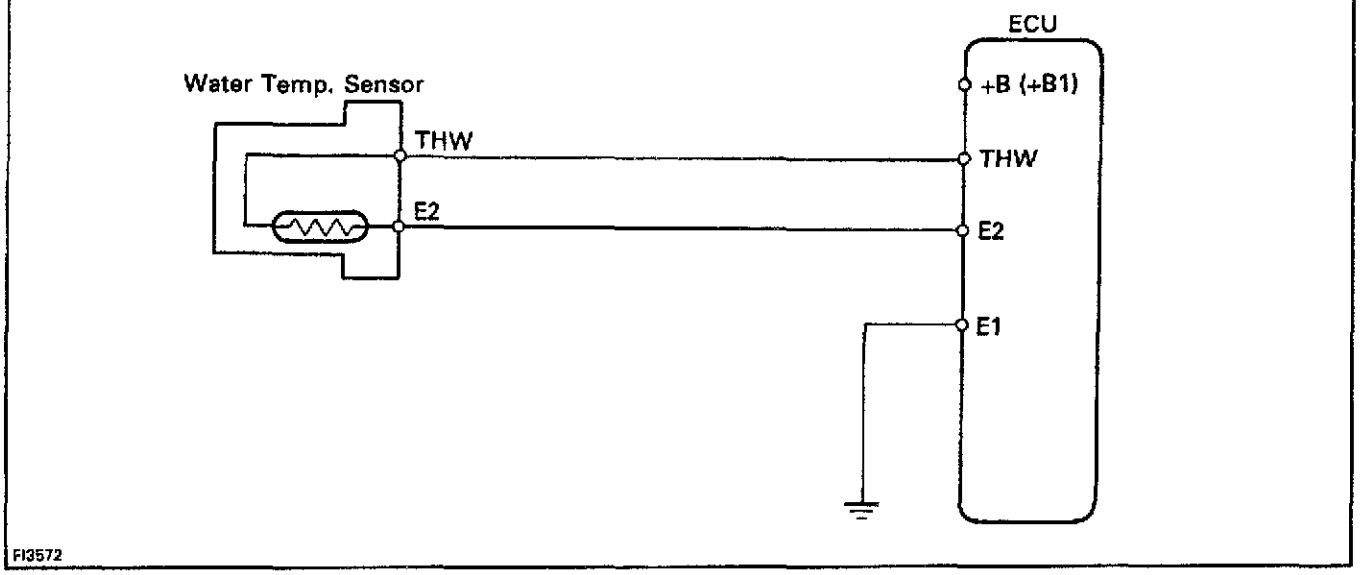
Check wiring between ECU and intake air temp. sensor.

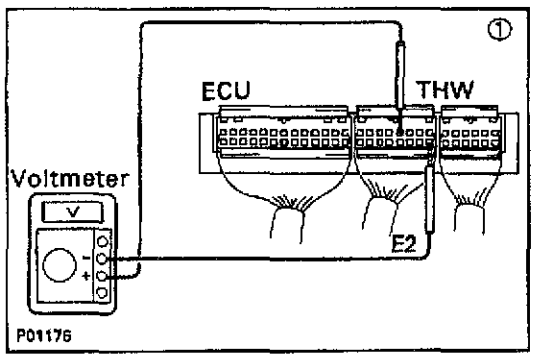
OK → ↓

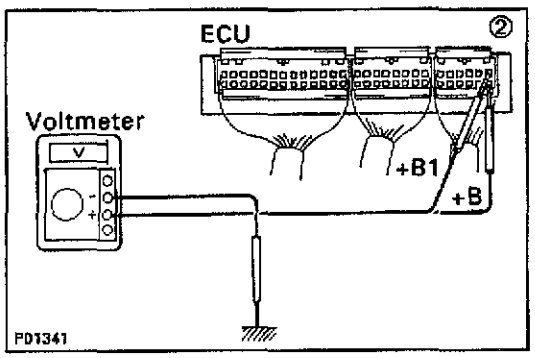
BAD → Repair or replace.

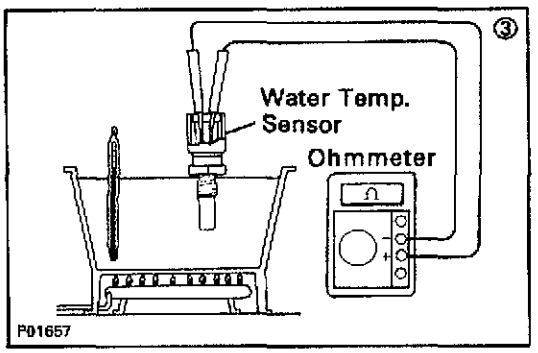
Try another ECU.

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









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 → Check wiring between ECU terminal E1 and body ground.

NO → Refer to No.1. (See page EG-40)

OK → ③ Check water temp. sensor.

BAD → Repair or replace.

BAD → Replace water temp. sensor.

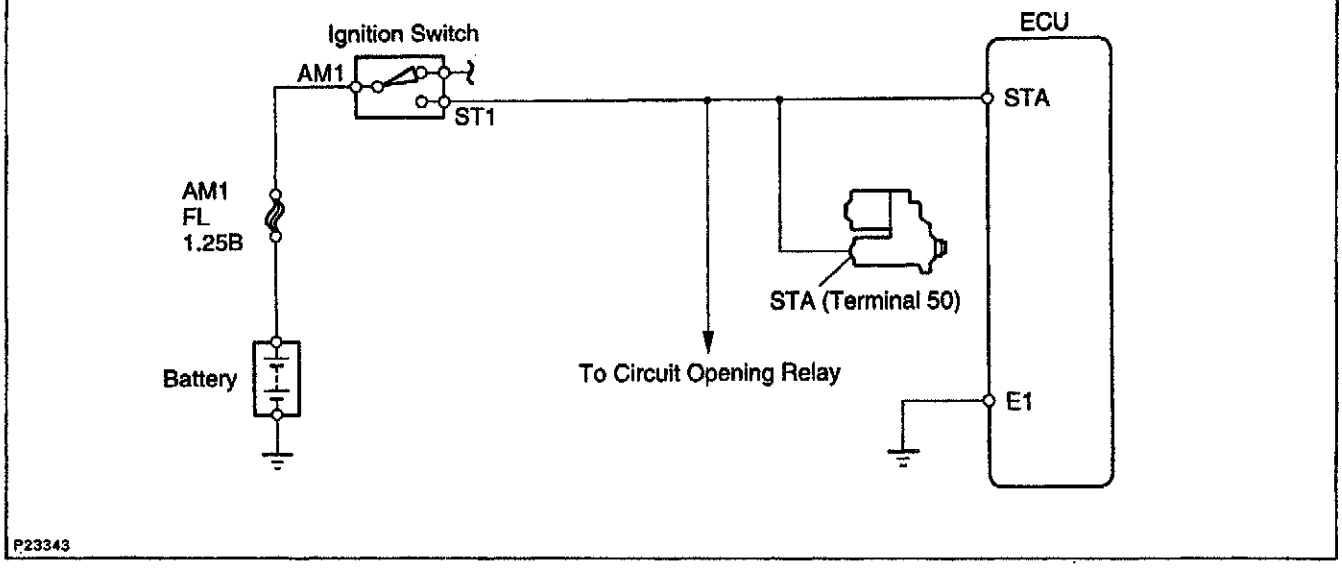
OK → Check wiring between ECU and ECT sensor.

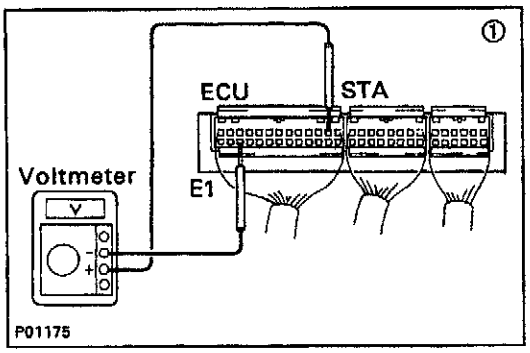
OK → Try another ECU.

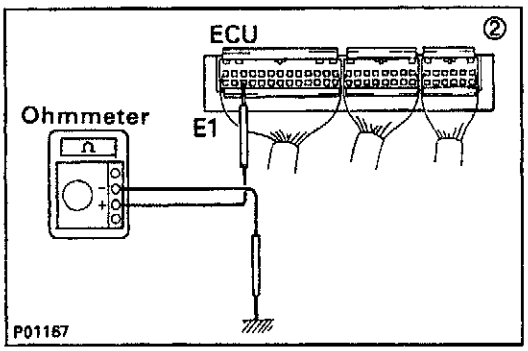
BAD → Repair or replace.

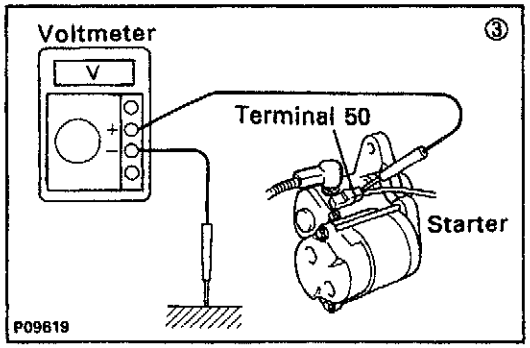
V06529

No.	Terminals	Trouble	Condition	STD voltage
7	STA – E1	No voltage	Cranking	6 V or more









① There is no voltage between ECU terminals STA and E1. **(IG SW START)**

Check starter operation. → OK → Check wiring between ECU terminal STA and ignition switch terminal ST1.

BAD

OK → BAD → Repair or replace.

② Check wiring between ECU terminal E1 and body ground.

OK → Try another ECU.

BAD → Repair or replace.

Check fusible link, battery, wiring, ignition switch and neutral start switch. → BAD → Repair or replace.

OK

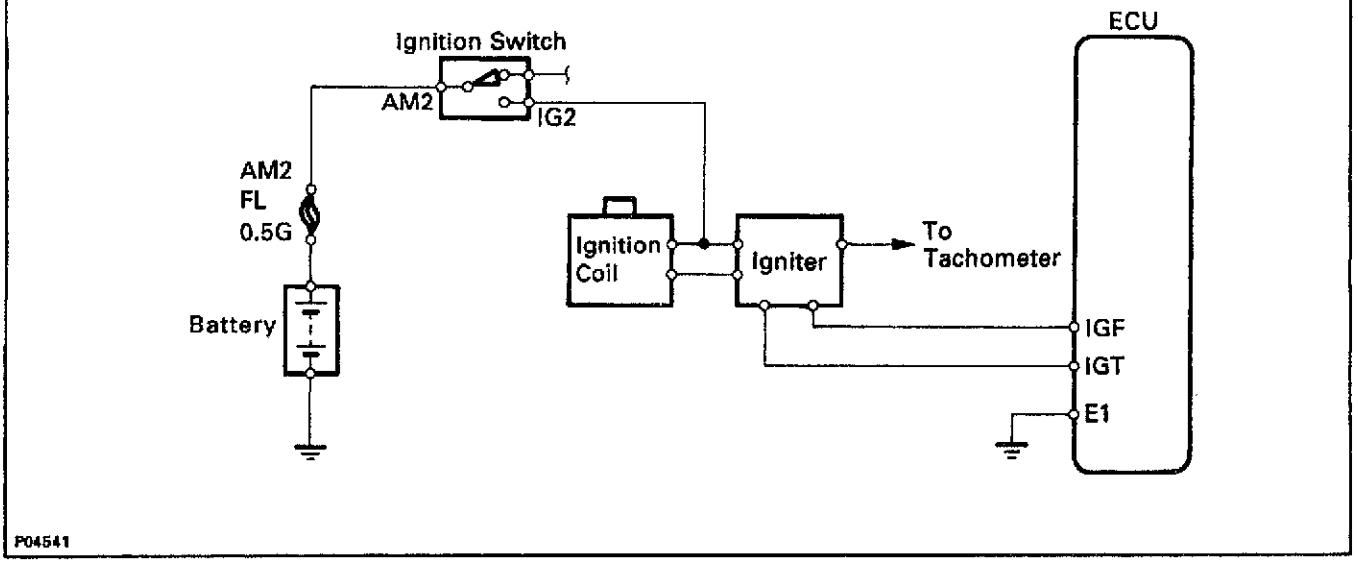
③ Check that there is voltage at starter terminal 50. **(IG SW START) STD voltage: 6 V or more.**

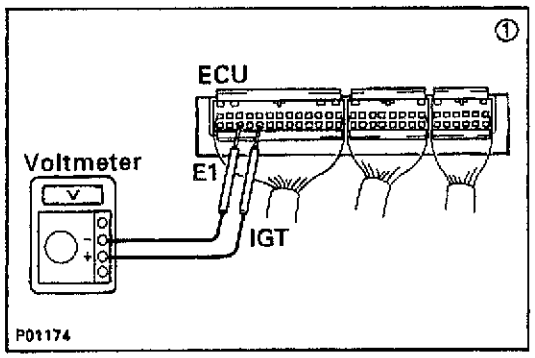
OK → Check starter.

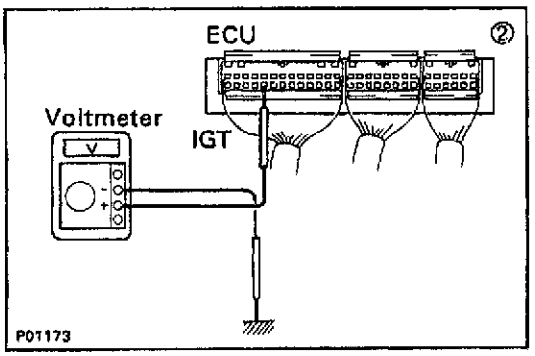
NO → Check wiring between ignition switch terminal ST1 and starter terminal 50.

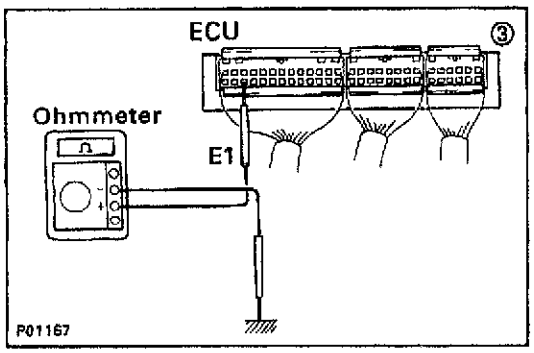
V06530

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









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

↓

② Check that there is voltage between ECU terminal IGT and body ground **(Idling)**

NO ← ② → OK

OK → ③ Check wiring between ECU terminal E1 and body ground. → BAD → Repair or replace.

③ → OK → Try another ECU.

↓

Check fusible link and ignition switch. → BAD → Repair or replace.

OK ↓

Check distributor. → BAD → Repair or replace.

OK ↓

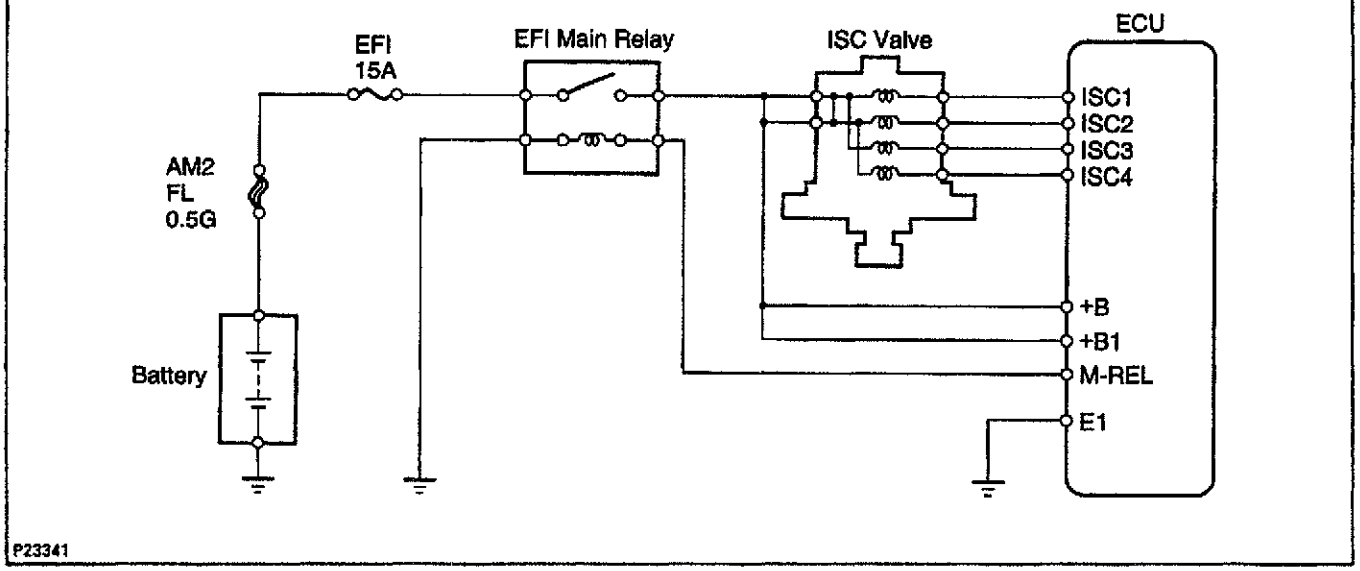
Check wiring between ECU and battery. → BAD → Repair or replace.

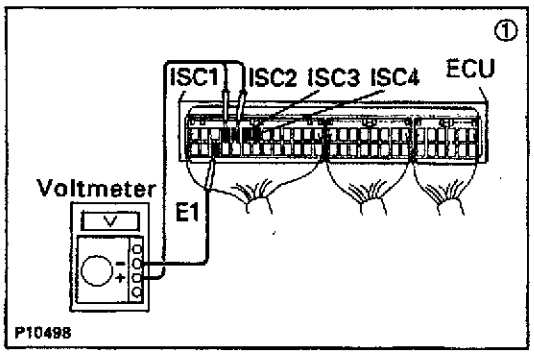
OK ↓

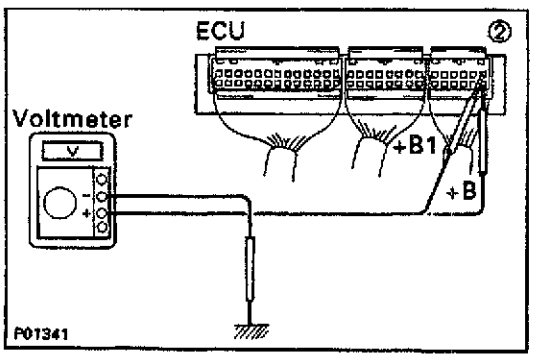
Check igniter. → BAD → Repair or replace.

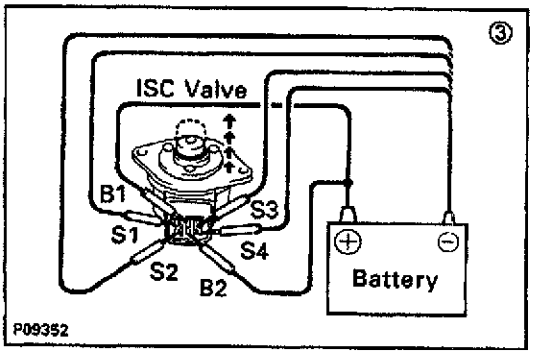
V06531

No.	Terminals	Trouble	Condition	STD voltage
9	ISC1 ~ ISC4 – E1	No voltage	IG SW ON	9 – 14 V









① There is no voltage between ECU terminals ISC1 ~ ISC4 and E1. **(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-40)

↓

Check wiring between ECU terminal E1 and body ground.

OK ↓

BAD → Repair or replace.

↓

③ Check ISC valve.

BAD ↓

Replace ISC valve.

OK →

Check wiring between ECU and EFI main relay.

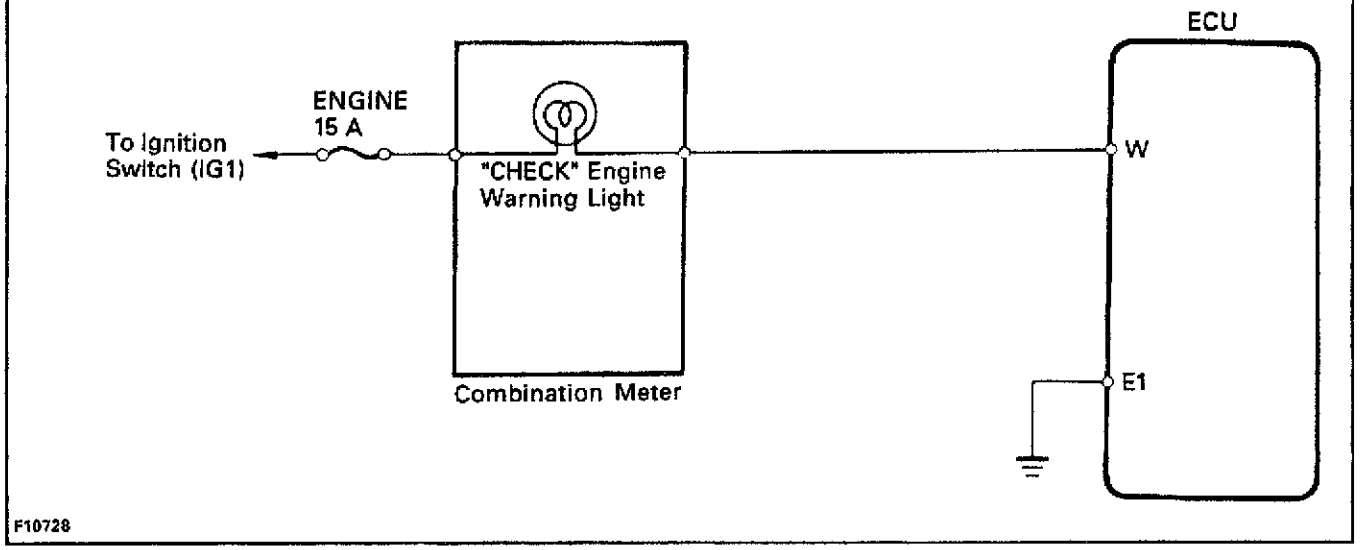
OK ↓

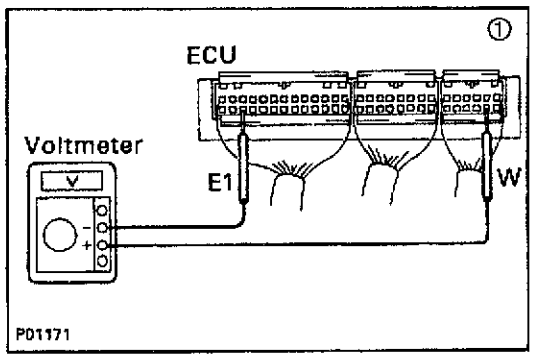
BAD → Repair or replace.

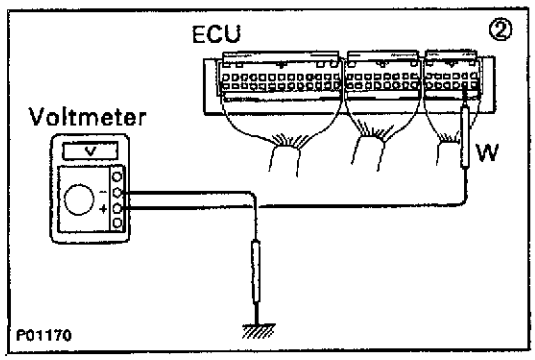
↓

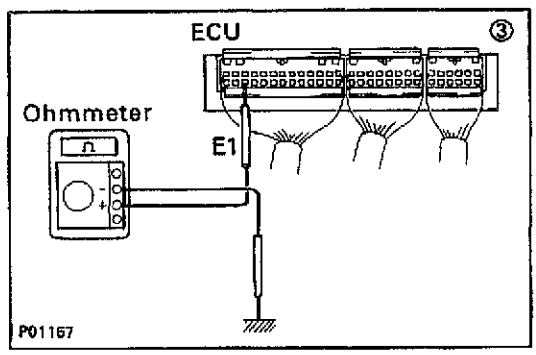
Try another ECU.

No.	Terminals	Trouble	Condition	STD voltage
10	W – E1	No voltage	No trouble ("CHECK" engine warning light off) and engine running.	9 – 14 V









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

OK → ③ Check wiring between ECU terminal E1 and body ground.

OK → Try another ECU.

BAD → Repair or replace.

↓

Check ENGINE fuse (15 A) and "CHECK" engine warning light.

OK

BAD → Repair or replace.

Fuse blows again

↓

Check wiring between ECU terminal W and fuse.

BAD → Repair or replace.

V06523