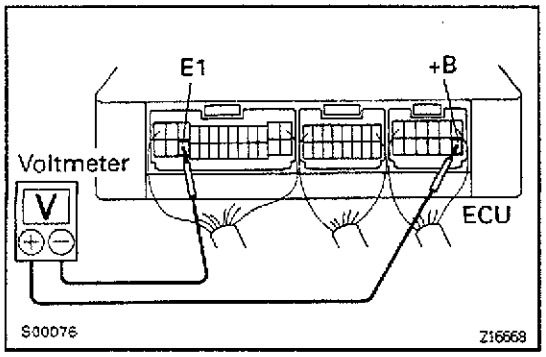
EG

TROUBLESHOOTING w/ VOLT, OHMMETER

EG129-09

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 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

PREPARATION

Disconnect the ECU from the vehicle body.
(See engine ECU)
HINT:

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

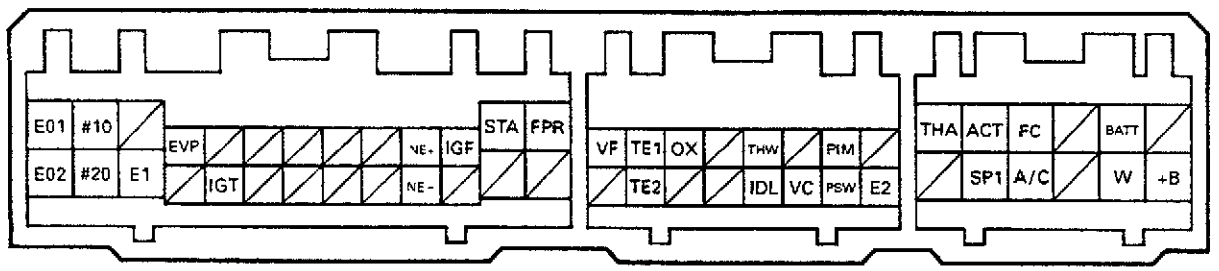
Using a voltmeter with high impedance (10 kΩ/V minimum), measure the voltage at each terminal of the wiring connectors.

EG

Engine ECU Terminals

Symbol	Terminal	Symbol	Terminal name	Symbol	Terminal name
E01	POWER GROUND	NE+	DISTRIBUTOR (IIA)		–
E02	POWER GROUND	NE–	DISTRIBUTOR (IIA)	VC	VACUUM SENSOR THROTTLE POSITION SENSOR
#10	INJECTOR (No.1, No.3)	IGF	IGNITER (IIA)	PIM	VACUUM SENSOR
#20	INJECTOR (No.2, No.4)		–	PSW	THROTTLE POSITION SENSOR
	–	STA	STARTER SWITCH		–
E1	ENGINE GROUND		–	E2	SENSOR GROUND
EVP	VSV FOR EVAP	FPR	FUEL PUMP RELAY	THA	INTAKE AIR TEMPERATURE SENSOR
	–		–		–
	–	VF	CHECK CONNECTOR	ACT	A/C AMPLIFIER
IGF	IGNITER (IIA)		–	SP1	SPEED SENSOR
	–	TE1	CHECK CONNECTOR	FC	CIRCUIT OPENING RELAY
	–	TE2	CHECK CONNECTOR	A/C	A/C MAGNET SWITCH
	–	OX	OXYGEN SENSOR		–
	–		–		–
	–		–	BATT	BATTERY
	–		–	W	CHECK ENGINE WARNING LIGHT
	–	THW	WATER TEMPERATURE SENSOR		–
	–	IDL	THROTTLE POSITION SENSOR	+B	EFI MAIN RELAY

Engine ECU Terminals



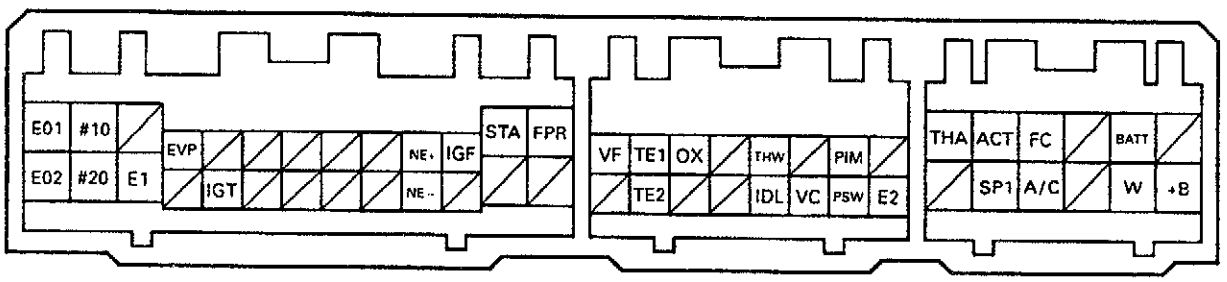
EG

Engine ECU Wiring Connectors Voltage

E0570-03

No.	Terminals	Condition		STD voltage	See page
1	+B – E1	IG SW ON		9 – 14 V	EG-93
2	BATT – E1	–		9 –14 V	EG-94
3	IDL – E1	IG SW ON	Throttle valve open	9 – 14 V	EG-95
	PSW – E1		Throttle valve fully closed	4.5 – 5.5 V	
4	PIM – E2	IG SW ON		3.3 – 3.9 V	EG-96
	VC – E2			4.5 – 5.5 V	
5	#10 – E01 #20 – E02	IG SW ON		9 – 14 V	EG-97
		Idling		Pulse generation	
6	THA – E2	IG SW ON	Intake air temperature 20°C (68°F)	0.5 – 3.4 V	EG-98
7	THW – E2	IG SW ON	Coolant temperature 80°C (176°F)	0.2 – 1.0 V	EG-99
8	STA – E1	Cranking		6 V or more	EG-100
9	IGT – E1	IG SW ON		1.5 V or less	EG-101
		Idling		Pulse generation	
10	W – E1	No trouble (Check engine warning light off) and engine running		9 – 14 V	EG-102

Engine ECU Terminals

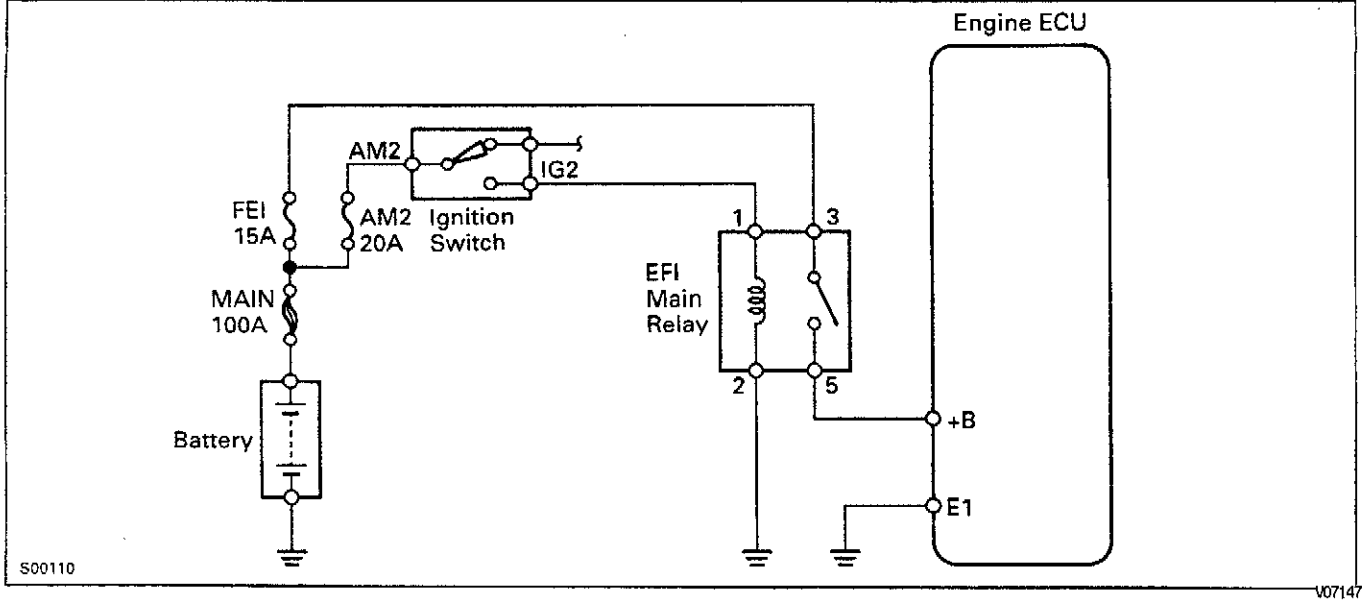


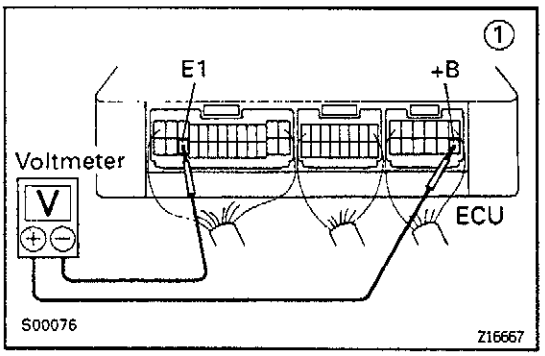
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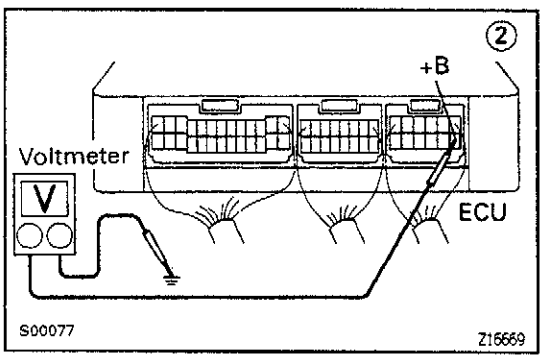
V07153

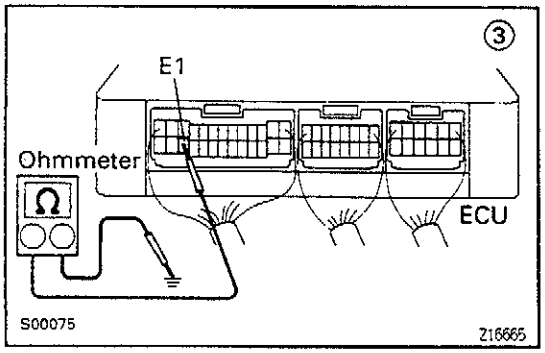
EG0RS-01

No.	Terminals	Trouble	Condition	STD voltage
1	+B – E1	No voltage	IG SW ON	9 – 14 V









• +B – E1

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

↓

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

NO ↓ OK

③ Check Wiring between ECU terminal E1 and body ground.

OK ↓ Try another ECU.

BAD → Repair or replace.

↓

Check fuses, H-fuse and ignition switch. → BAD → Repair or replace.

↓ OK

Check EFI main relay. (See page EG-124) → BAD → Replace.

↓ OK

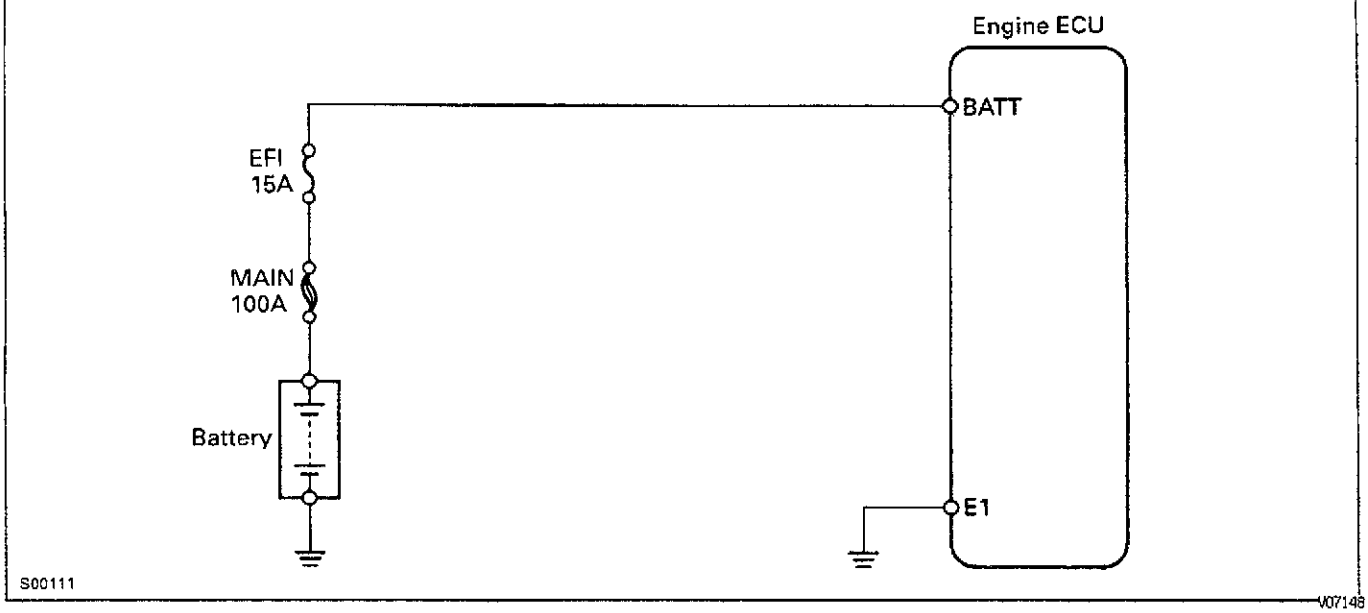
Check wiring between EFI main relay and battery. → BAD → Repair or replace.

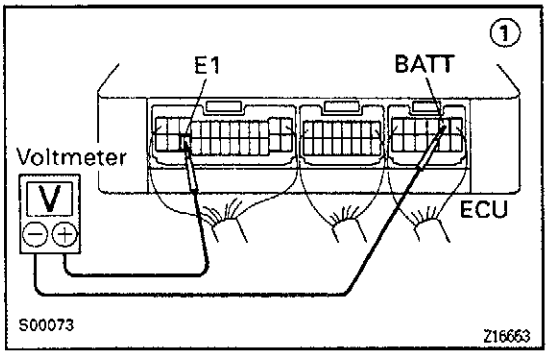
V07106

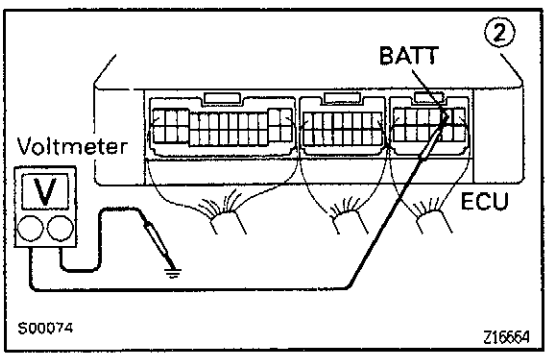
EG

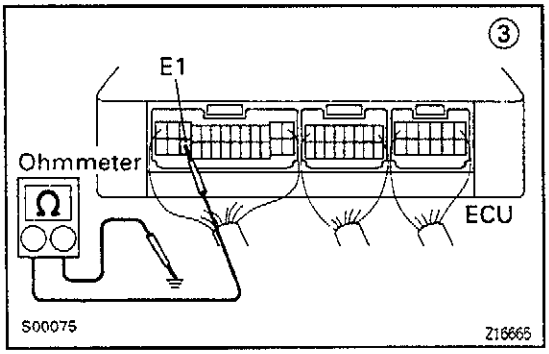
EG

No.	Terminals	Trouble	Condition	STD voltage
2	BATT – E1	No voltage	–	9 – 14 V

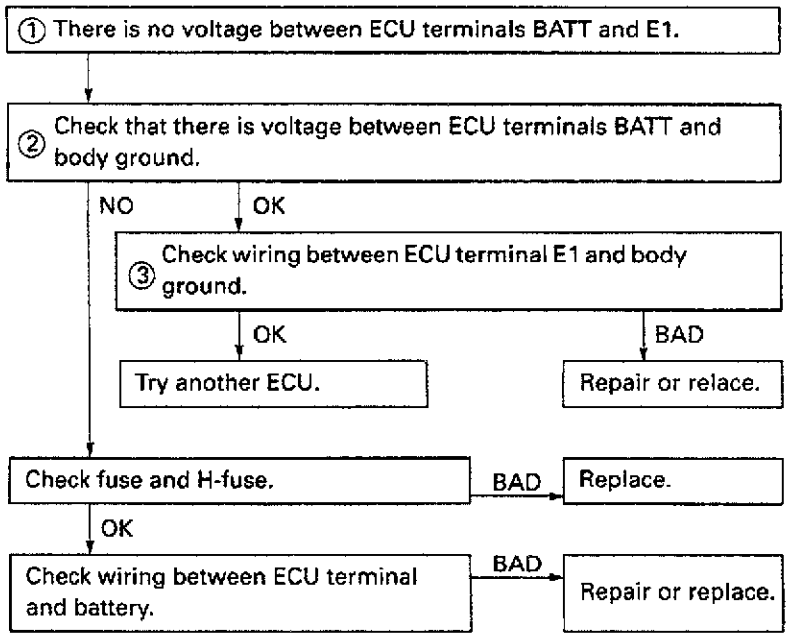






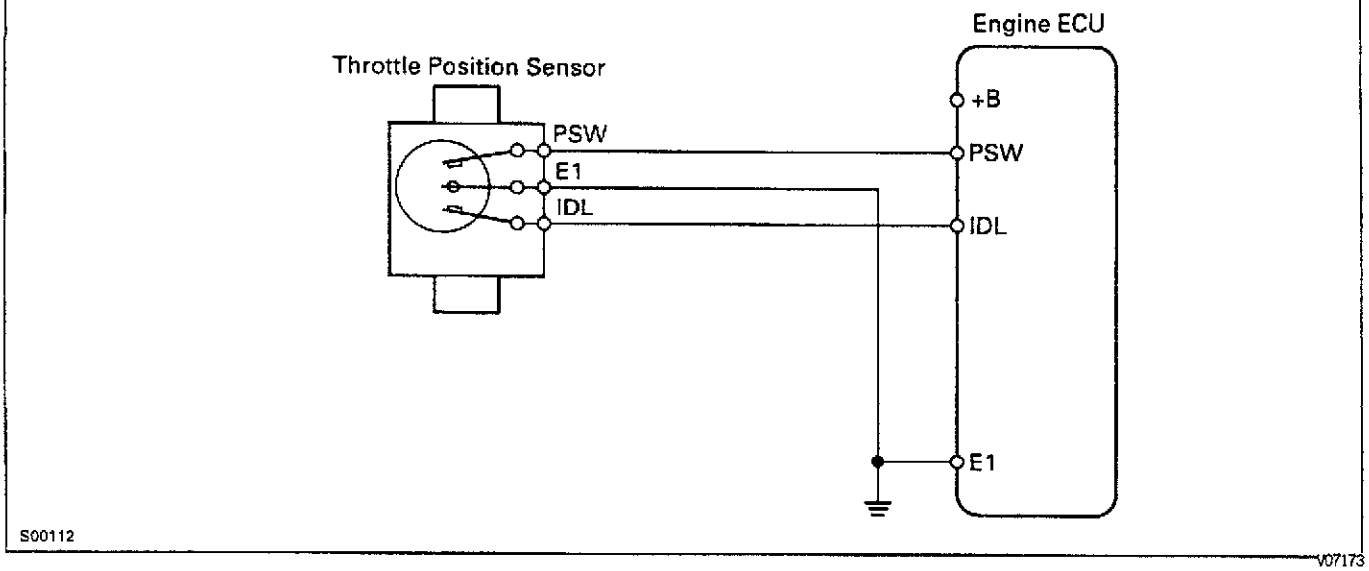


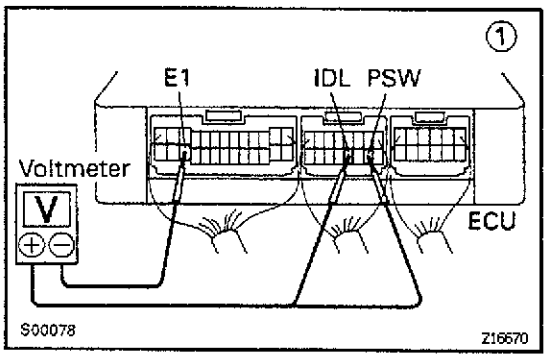
- **BATT – E1**

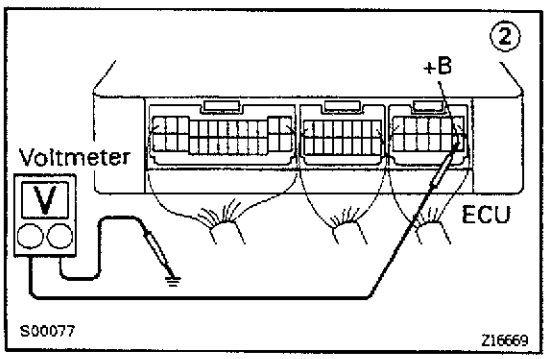


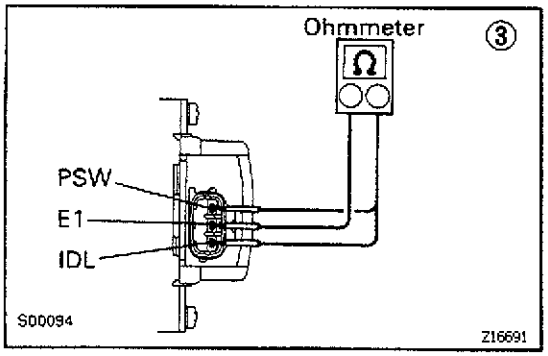
V07107

No.	Terminals	Trouble	Condition		STD voltage
3	IDL – E1	No voltage	IG SW ON	Throttle valve open	9 – 14 V
	PSW – E1			Throttle valve fully closed	4.5 – 5.5 V









• IDL, PSW – E1

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

② Check that there is voltage between ECU terminal +B 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 +B – E1 trouble section (No.1). (See page EG-93)

BAD → Repair or replace.

OK

③ Check throttle position sensor. (See page EG-119)

BAD → Repair or replace throttle position sensor.

OK → Check wiring between ECU and throttle position sensor.

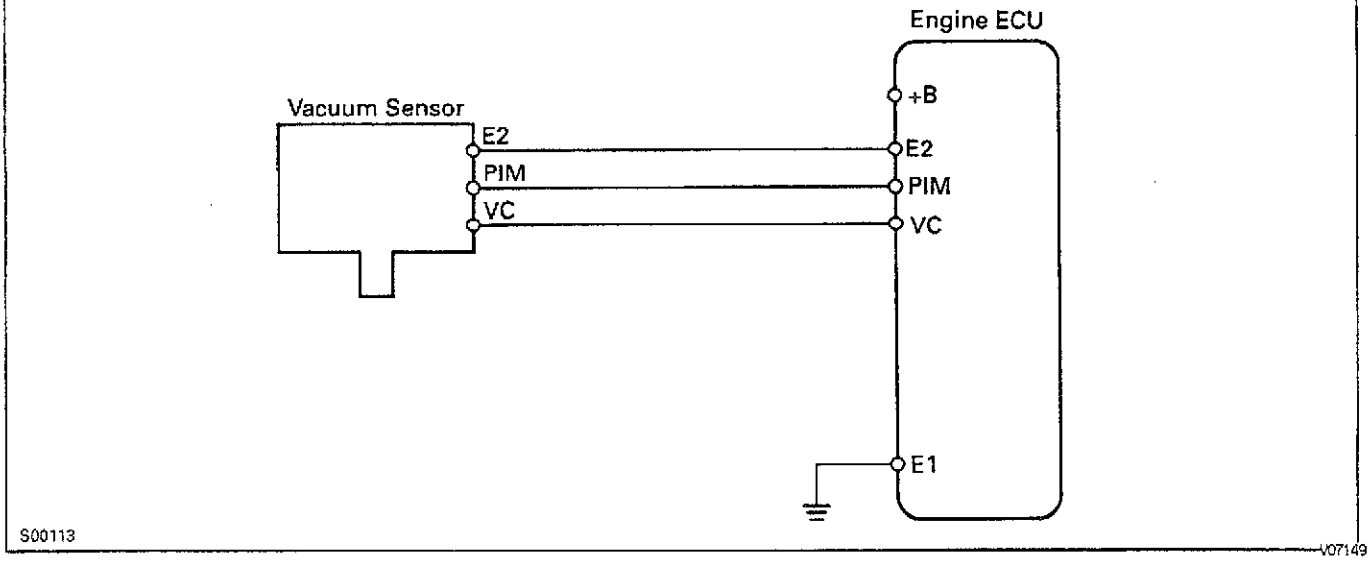
BAD

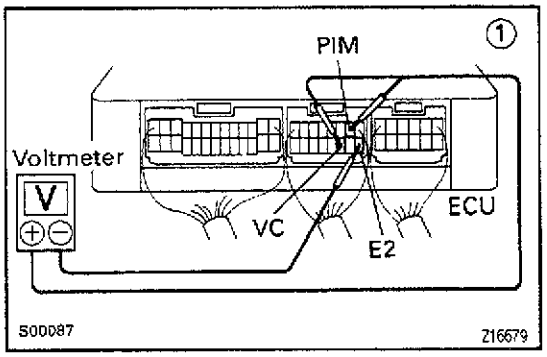
OK → Try another ECU.

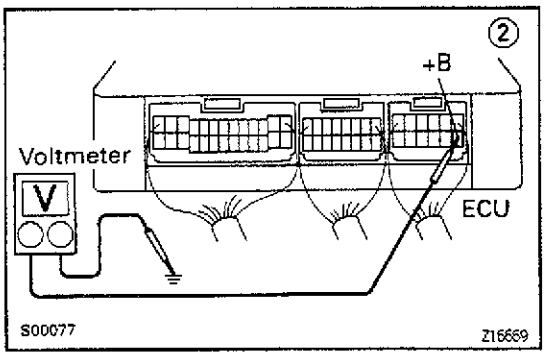
V07108

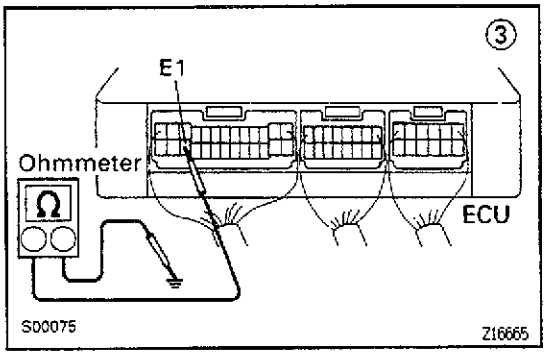
EG

No.	Terminals	Trouble	Condition	STD voltage
4	PIM – E2	No voltage	IG SW ON	3.3 – 3.9 V
	VC – E2			4.5 – 5.5 V









• PIM, VC – E2

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

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

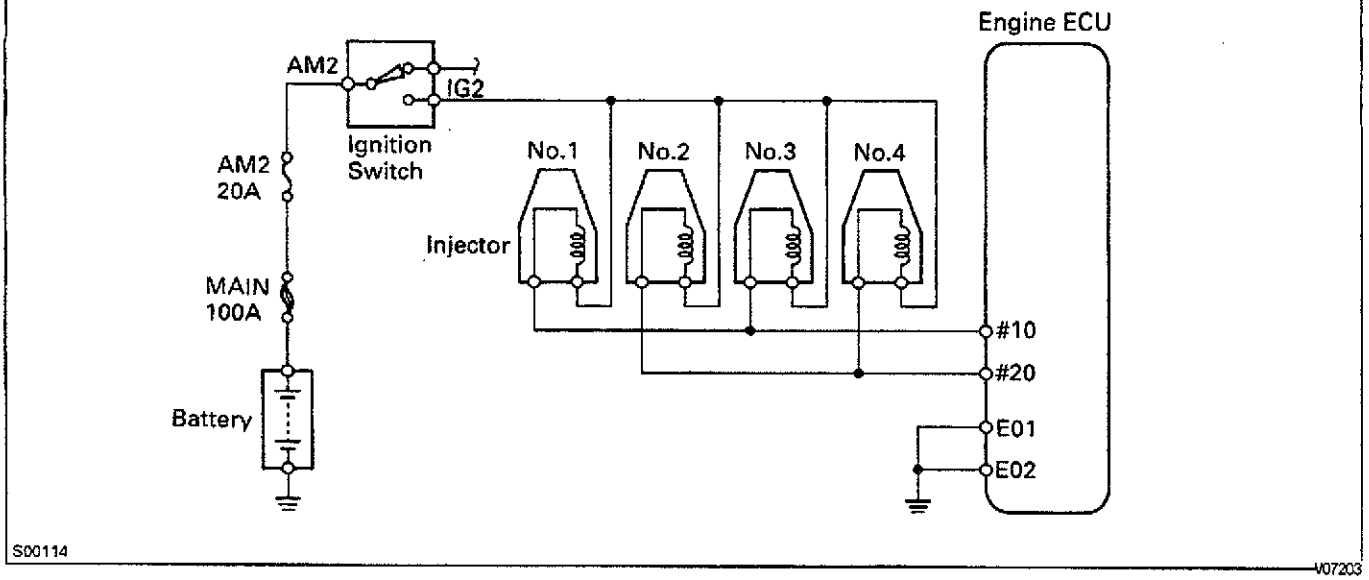
- NO → Refer to +B – E1 trouble section (No.1). (See page EG-93)
- OK →

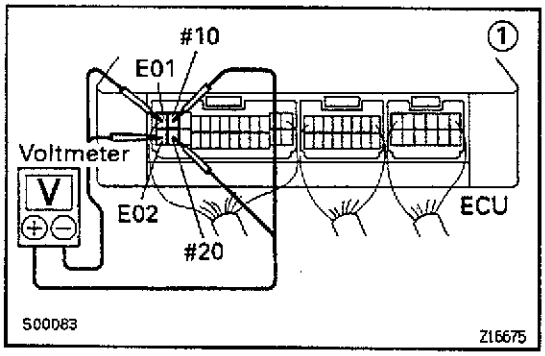
③ Check wiring between ECU terminal E1 and body ground.

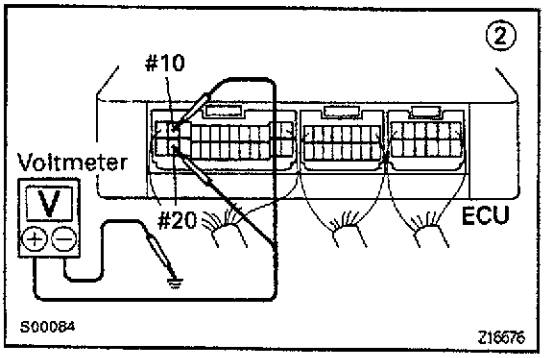
- BAD → Repair or replace.
- OK → Check vacuum sensor. (See page EG-133)
  - BAD → Replace vacuum sensor.
  - OK → Check wiring between ECU and vacuum sensor.
    - BAD → Repair or replace.
    - OK → Try another ECU.

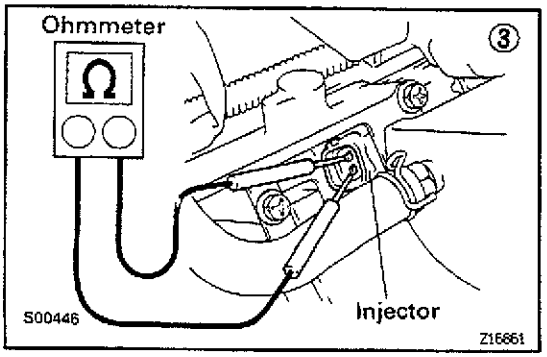
V07109

No.	Terminals	Trouble	Condition	STD voltage
5	#10 – E01 #20 – E02	No voltage	IG SW ON	9 – 14 V
			Idling	Pulse generation









• #10, #20 – E01, E02

① There is no voltage between ECU terminals #10 and/or #20 and E01 and/or E02. **(IG SW ON)**

② Check that there is voltage between ECU terminal #10 and/or #20 and body ground.

NO → Check wiring between ECU terminal E01 and/or E02 and body ground.
- OK → Try another ECU.
- BAD → Repair or replace.

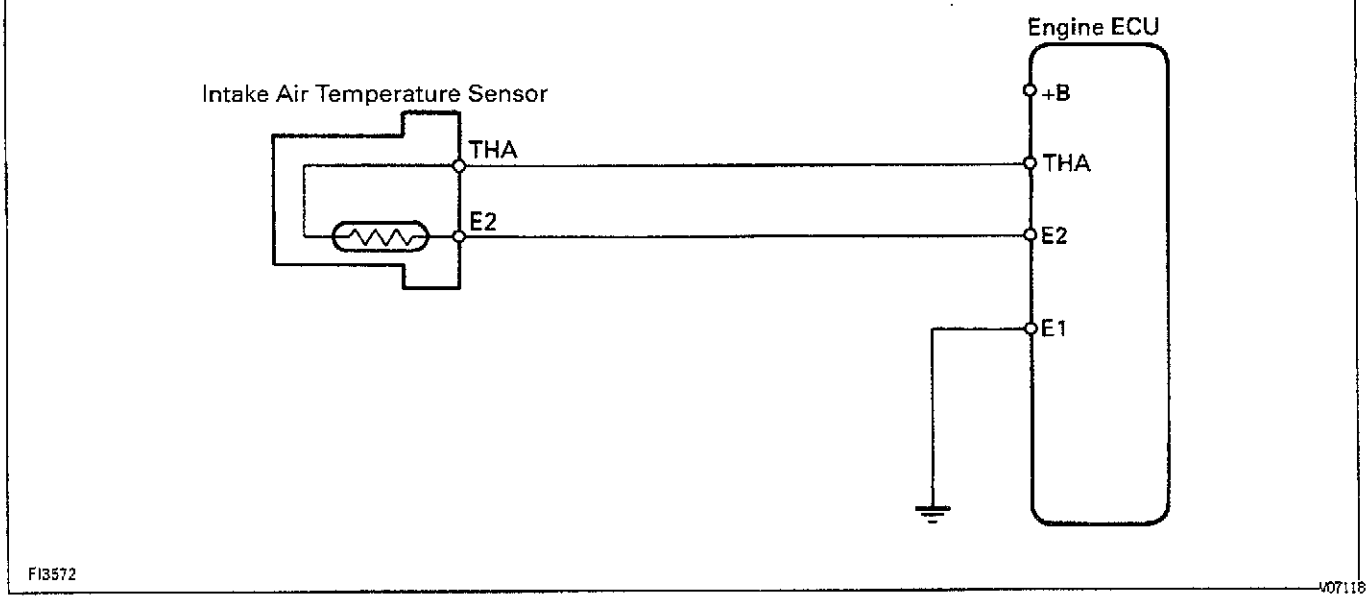
OK → Check fuse, H-fuse and ignition switch.
- BAD → Repair or replace.

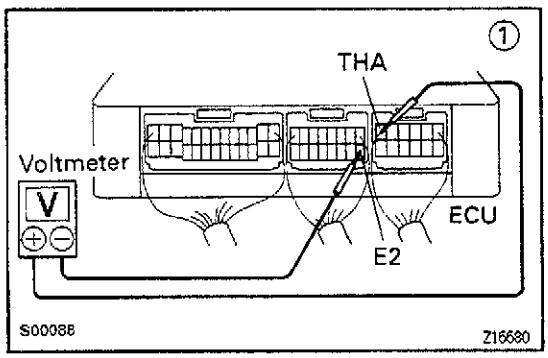
OK → ③ Check resistance of each injector.
STD resistance: 13.4 – 14.2 Ω
- BAD → Replace injector.

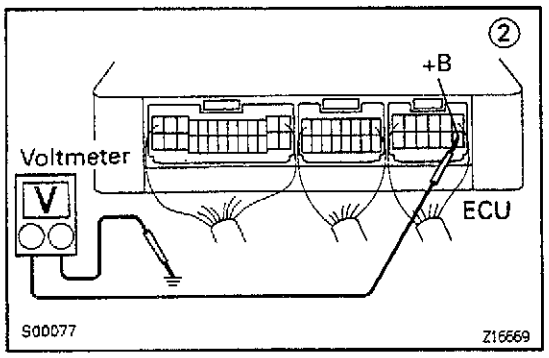
OK → Check wiring between ECU terminal #10 and/or #20 and battery.
- BAD → Repair or replace.

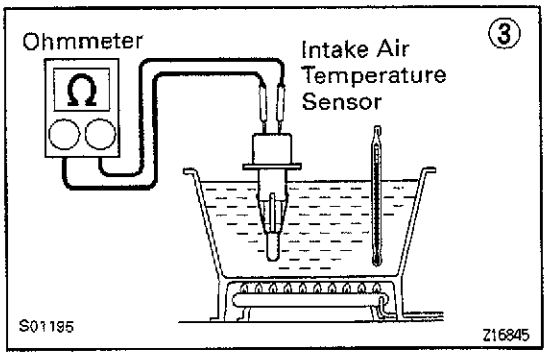
V07110

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









• THA – E2

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

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

- NO → Refer to +B – E1 trouble section (No.1). (See page EG-93)
- OK →

Check wiring between ECU terminal E1 and body ground.

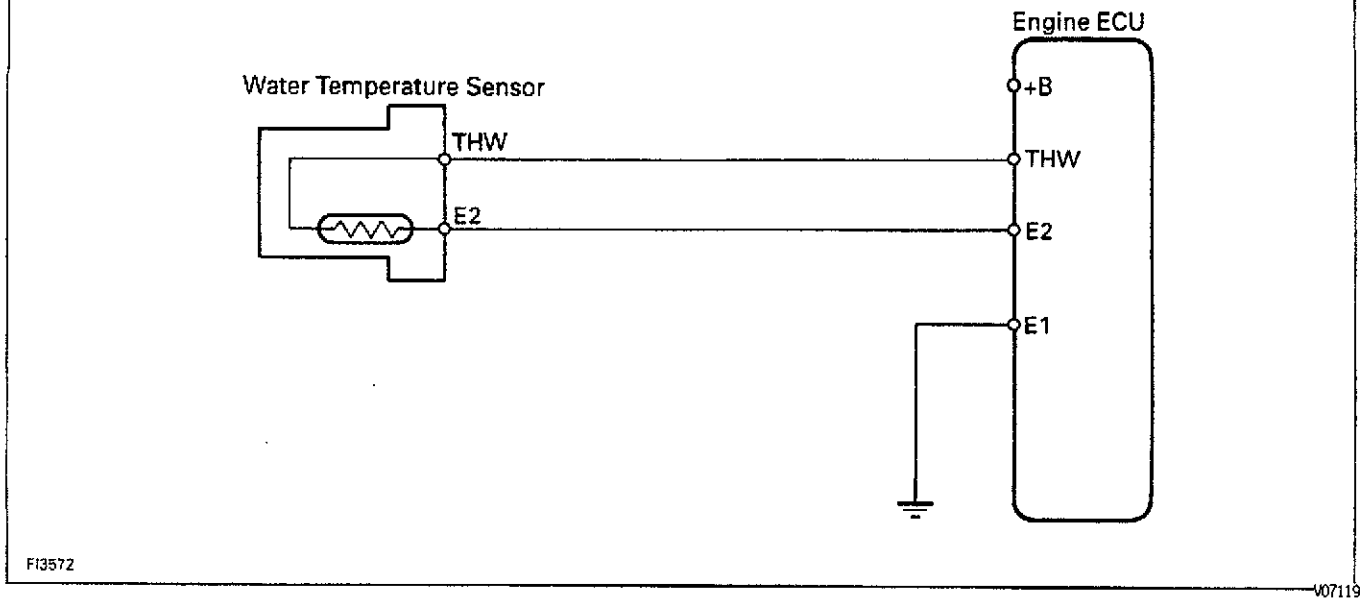
- BAD → Repair or replace.
- OK →

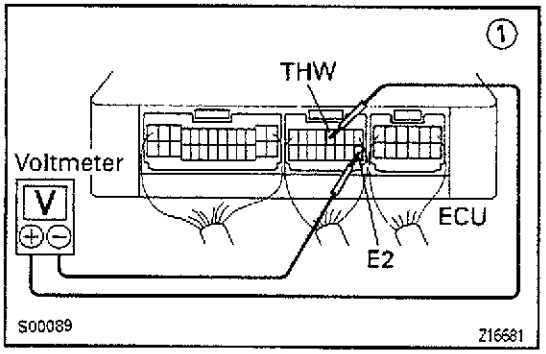
③ Check air temperature sensor. (See page EG-132)

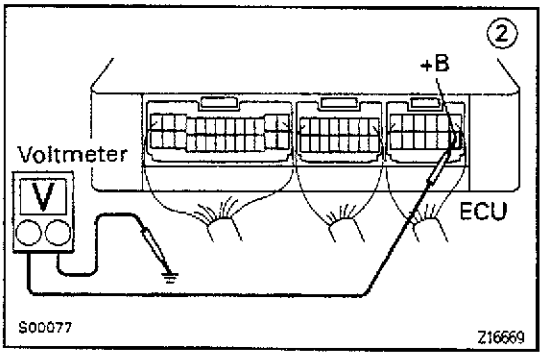
- BAD → Replace air temperature sensor.
- OK → Check wiring between ECU and air temperature sensor.
  - BAD → Repair or replace.
  - OK → Try another ECU.

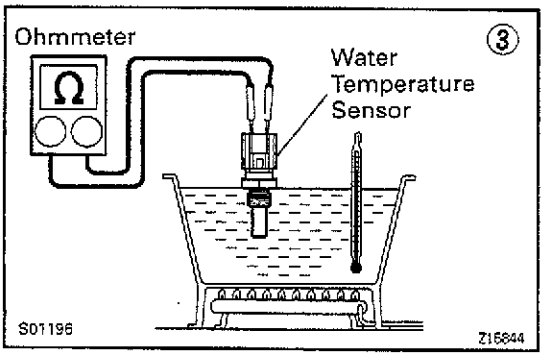
V07111

No.	Terminals	Trouble	Condition		STD voltage
7	THW – E2	No voltage	IG SW ON	Coolant temperature 80°C (176°F)	0.2 – 1.0 V









• THW – E2

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

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

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

NO → Refer to +B – E1 trouble section (No.1). (See page EG-93)

Check wiring between ECU terminal E1 and body ground.

OK → ③ Check water temperature sensor. (See page EG-131)

BAD → Repair or replace.

③ Check water temperature sensor. (See page EG-131)

BAD → Replace water temperature sensor.

OK → Check wiring between ECU and water temperature sensor.

Check wiring between ECU and water temperature sensor.

OK → Try another ECU.

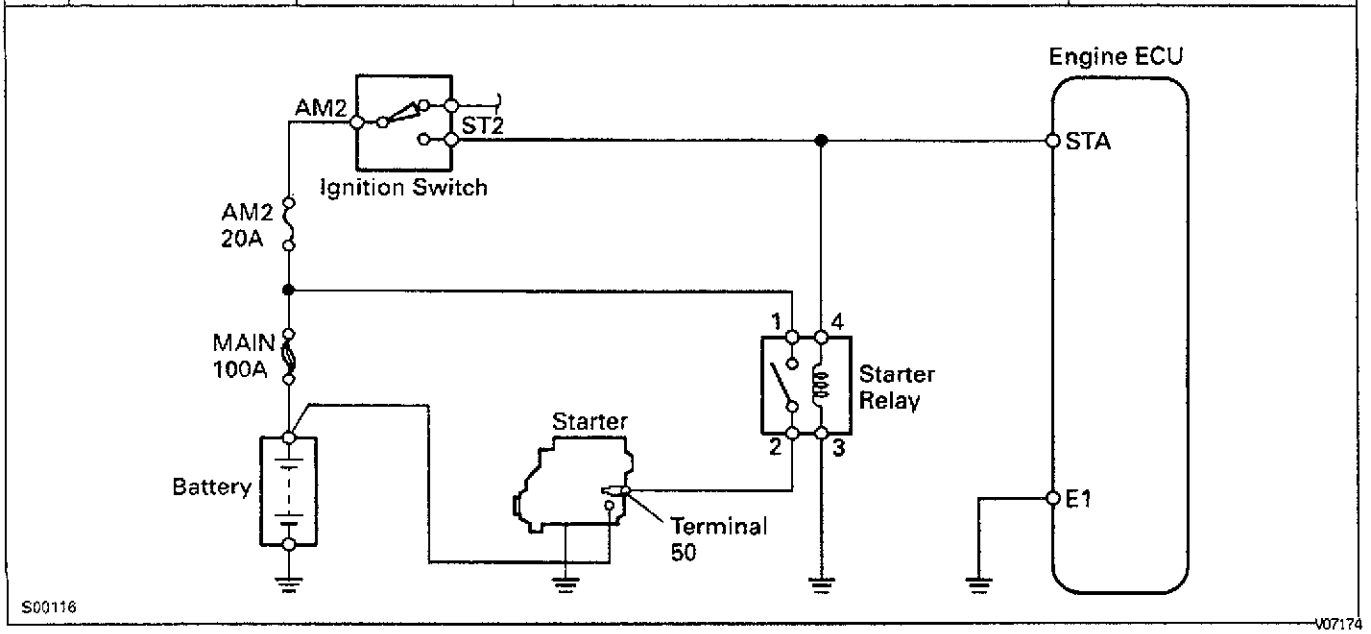
BAD → Repair or replace.

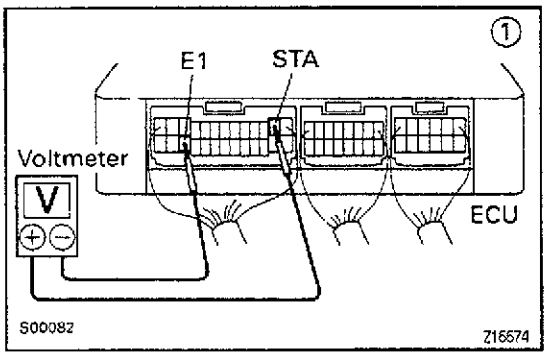
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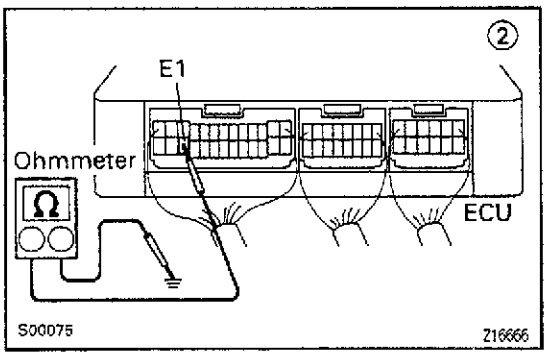
EG

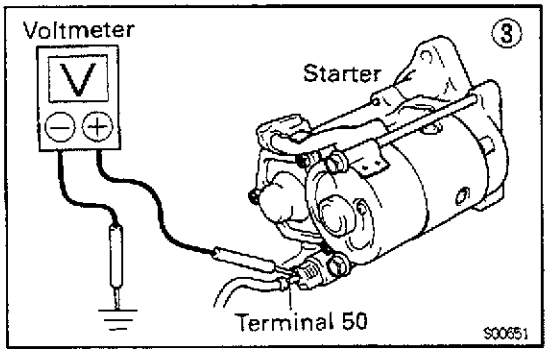
EG

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









• STA – E1

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 ST2.

Check starter operation. — BAD → ② Check wiring between ECU terminal E1 and body ground.

Check wiring between ECU terminal STA and ignition switch terminal ST2. — OK → ② Check wiring between ECU terminal E1 and body ground.

Check wiring between ECU terminal STA and ignition switch terminal ST2. — BAD → Repair or replace.

② Check wiring between ECU terminal E1 and body ground. — OK → Try another ECU.

② Check wiring between ECU terminal E1 and body ground. — BAD → Repair or replace.

Check fuse, H-fuse, battery, wiring and ignition switch. — BAD → Repair or replace

Check fuse, H-fuse, battery, wiring and ignition switch. — OK →

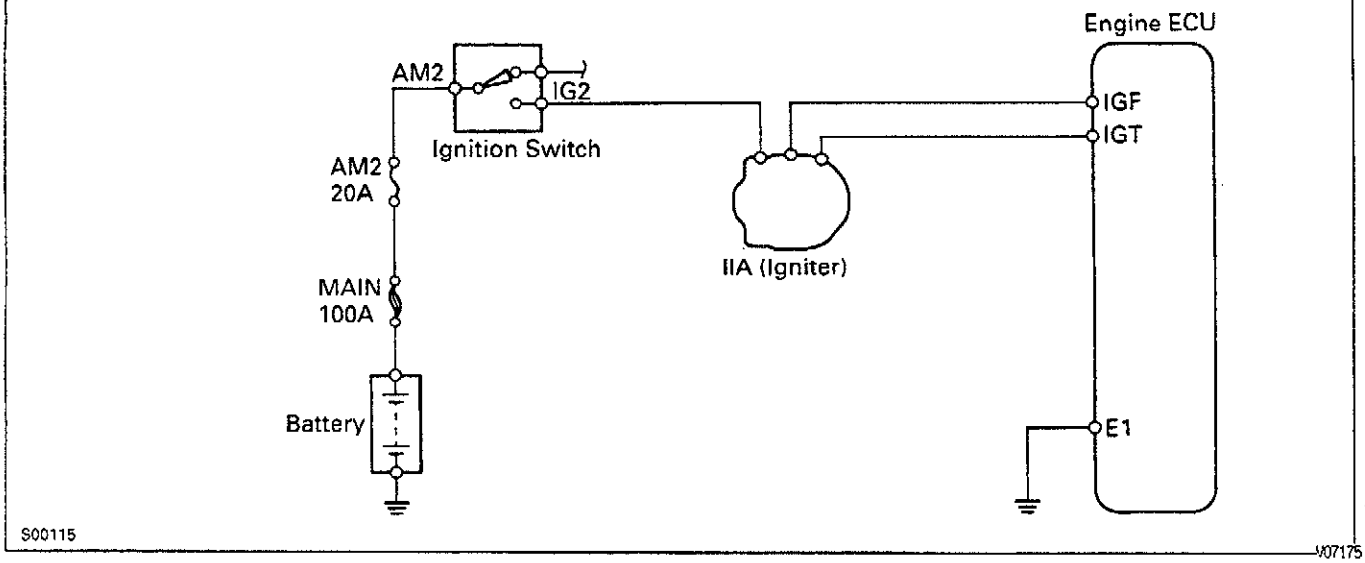
③ Check that there is voltage at terminal 50 of starter. **(IG SW START) STD voltage: 6 – 14 V**

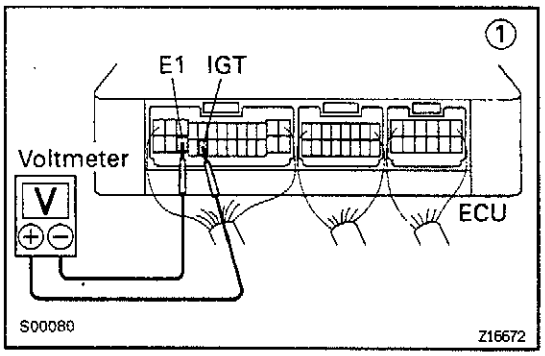
③ — OK → Check starter.

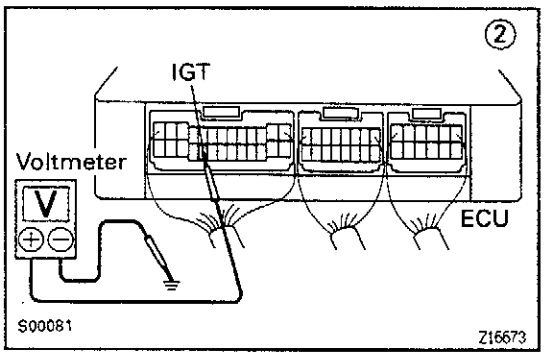
③ — NO → Check wiring between ignition switch terminal ST2 and starter terminal 50.

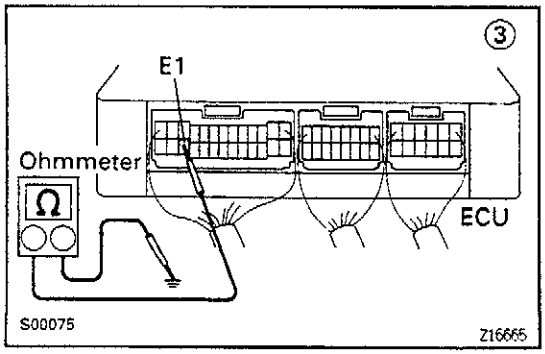
V07113

No.	Terminals	Trouble	Condition	STD voltage
9	IGT – E1	No voltage	IG SW ON	1.5 V or less
			Idling	Pulse generation









• IGT – E1

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

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

NO → ③ Check wiring between ECU terminal E1 and body ground. BAD → Repair or replace.

③ OK → Try another ECU.

② OK → Check fuse, H-fuse and ignition switch. BAD → Repair or replace.

OK → Check ignition coil. (See page IG-6) BAD → Repair or replace.

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

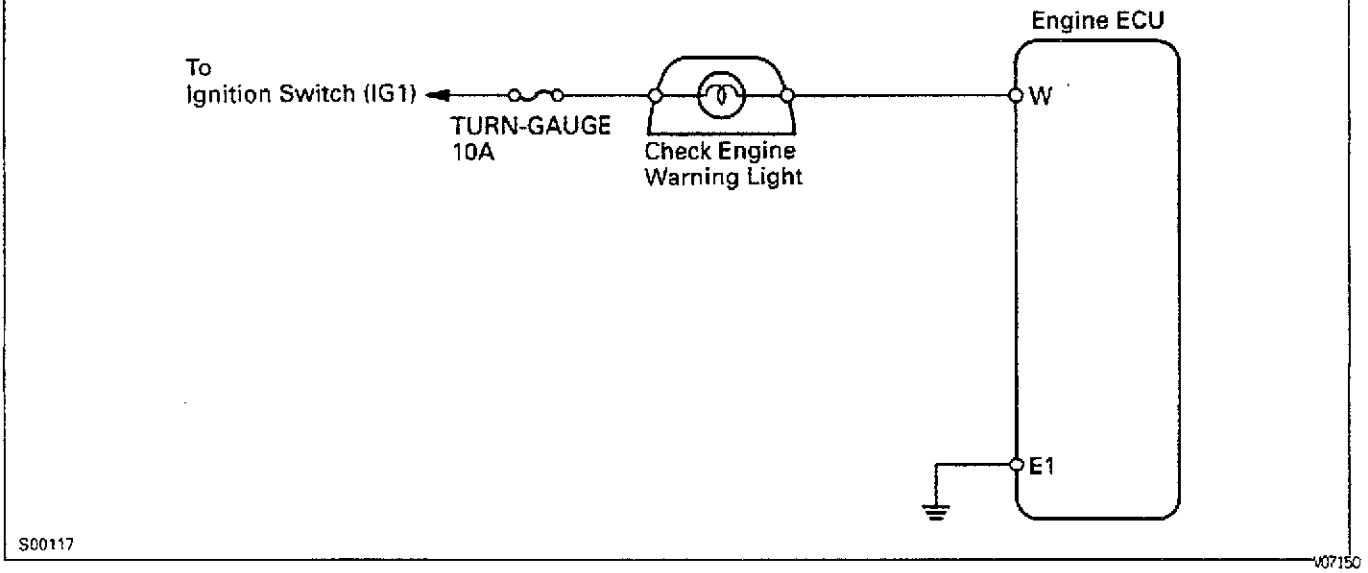
OK → Check igniter. (See page IG-6) BAD → Repair or replace.

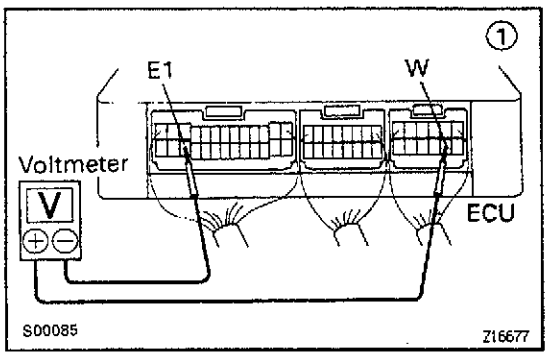
V07114

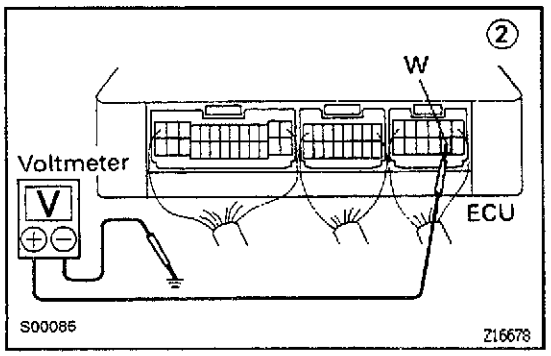
EG

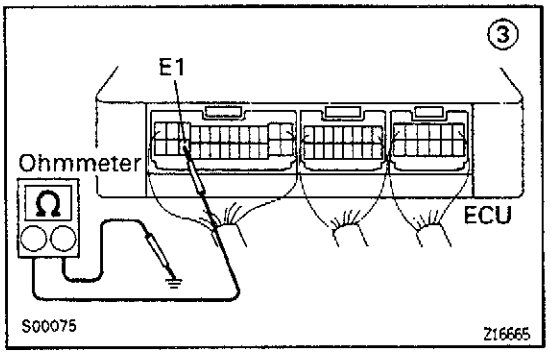
EG

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









- **W – E1**

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 ↓ Try another ECU.

BAD → Repair or replace.

↓

Check fuse and check engine warning light.

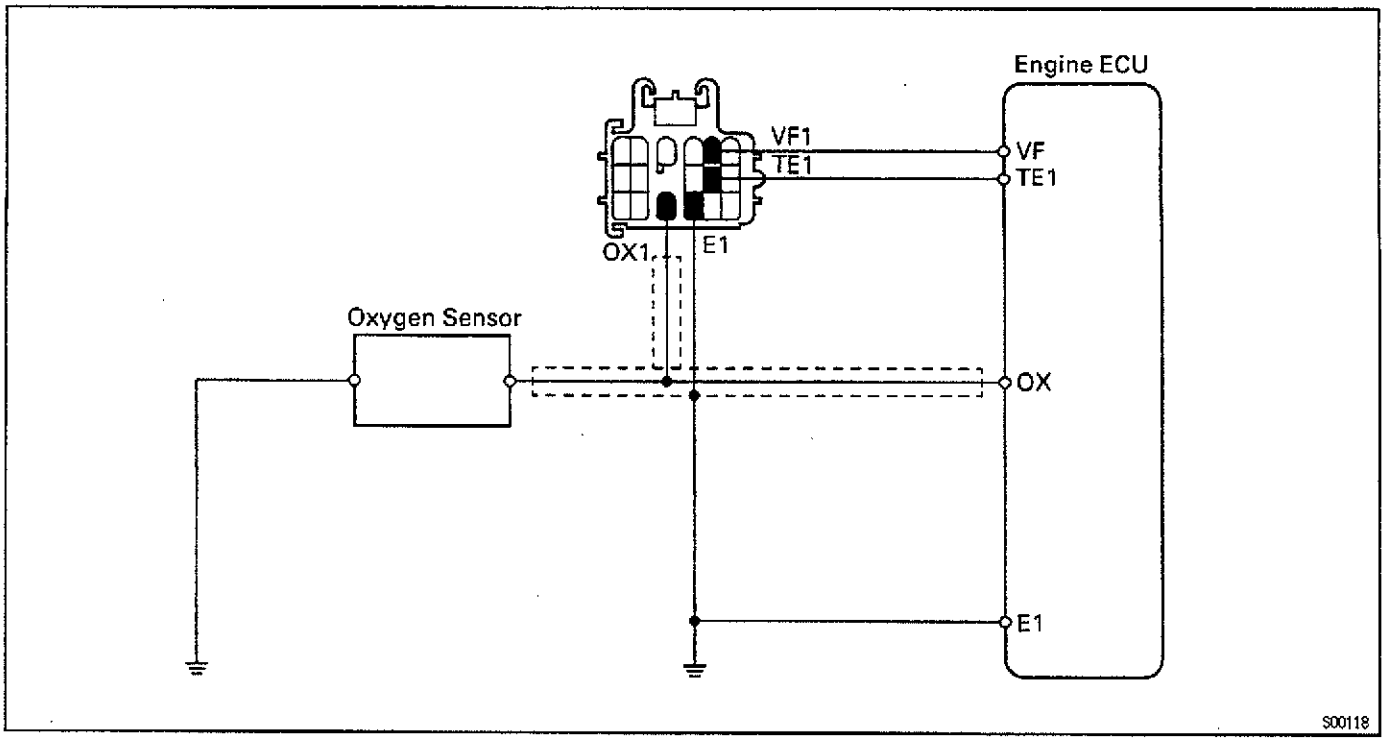
OK ↓ / BAD → Repair or replace.

Fuse blows again ↓

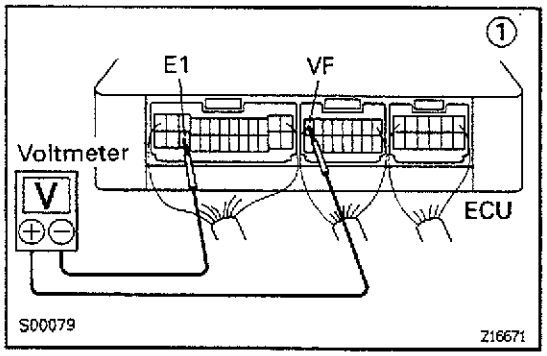
Check wiring between ECU terminal W and fuse.

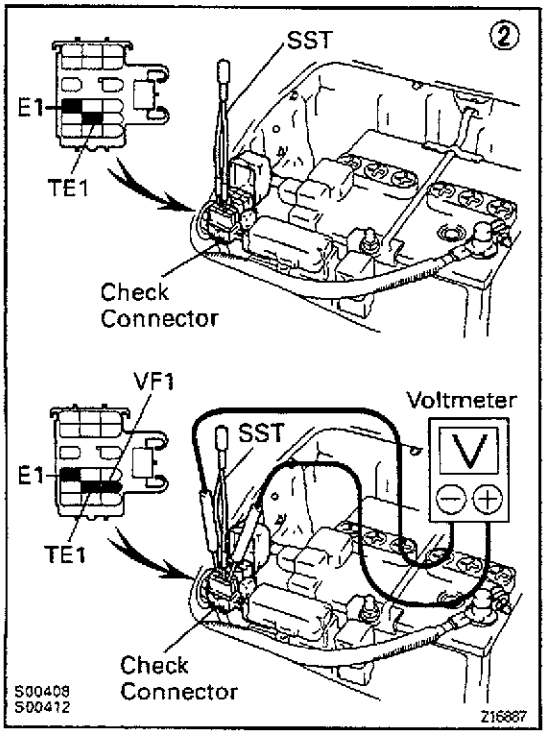
BAD → Repair or replace.

V07115



EG





• VF – E1

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

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

NO → OK: Check wiring between ECU terminal E1 and body ground.

OK → Try another ECU. BAD → Repair or replace.

BAD → Repair or replace.

Check for suction of air into exhaust system. BAD → Repair air suction.

OK ↓

Check for air leak from air intake system. BAD → Repair air leak.

OK ↓

Check spark plugs. BAD → Repair or replace.

OK ↓

Check ignition system. BAD → Repair or replace.

OK ↓

Check fuel pressure. BAD → Repair or replace.

OK ↓

Check injectors. BAD → Repair or replace.

OK ↓

Check vacuum sensor. BAD → Repair or replace.

OK ↓

② Check operation of oxygen sensor. OK → System normal.

BAD ↓

Check wiring between oxygen sensor and ECU. BAD → Repair wiring.

OK ↓

Replace oxygen sensor.

V07117