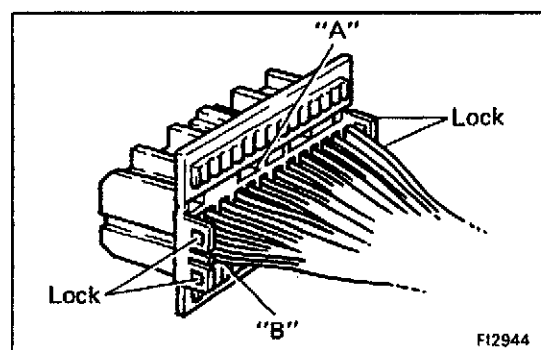


## TROUBLESHOOTING w/ VOLT, OHMMETER (Hardtop)

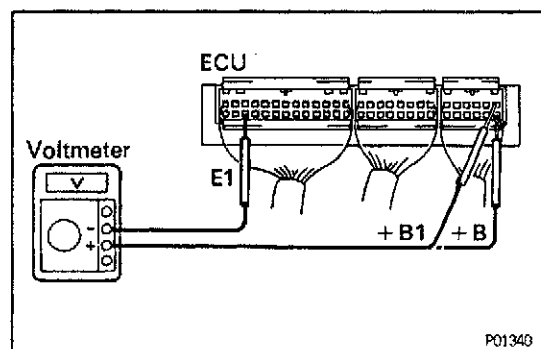
EG27R-02

### 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.



F12944



P01340

## EFI SYSTEM CHECK PROCEDURE

EG27R-02

### 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 ECU.
- Using a voltmeter with high impedance (10 k $\Omega$ /V minimum), measure the voltage at each terminal of the wiring connectors.

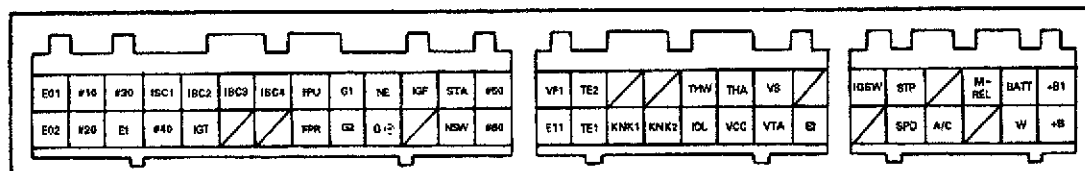
### HINT:

- 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

| Symbol | Connection                       | Symbol | Connection                  | Symbol | Connection                                   |
|--------|----------------------------------|--------|-----------------------------|--------|----------------------------------------------|
| E01    | POWER GROUND                     | NE     | DISTRIBUTOR                 | THA    | INTAKE AIR TEMP. SENSOR                      |
| E02    | POWER GROUND                     | G ⊖    | DISTRIBUTOR                 | VCC    | VACUUM SENSOR<br>THROTTLE POSITION<br>SENSOR |
| #10    | INJECTOR                         | IGF    | IGNITER                     | VS     | AIR FLOW METER                               |
| #20    | INJECTOR                         | /      | -                           | VTA    | THROTTLE POSITION<br>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<br>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<br>SENSOR | +B     | EFI MAIN RELAY                               |

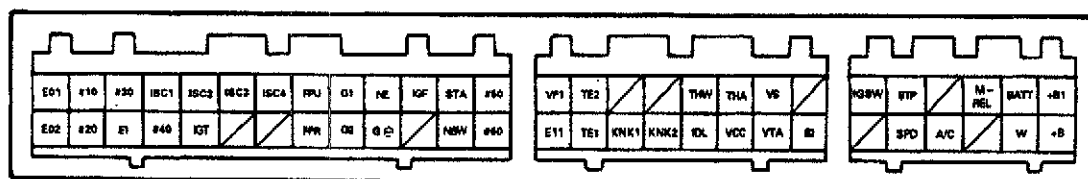
## ECU Terminals



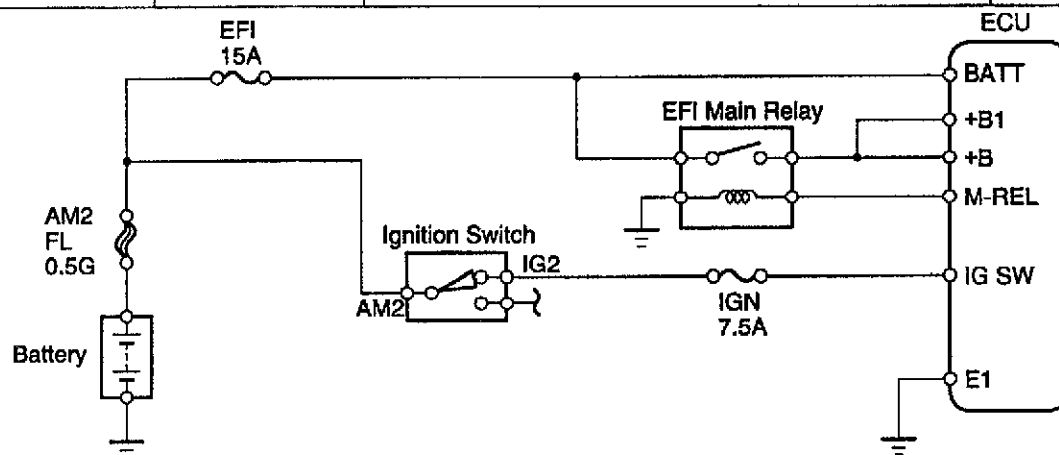
## ECU Wiring Connectors Voltage

| 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<br>+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<br>(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-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<br>} – E01<br>#60 } – E02                                            | IG SW ON         |          |
| 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<br>} – E1<br>ISC4 | IG SW ON                                                         |                                                                          | 9 – 14           | EG-51    |
| 10  | W – E1                 | No trouble ("CHECK" engine warning light off) and engine running |                                                                          | 9 – 14           | EG-52    |

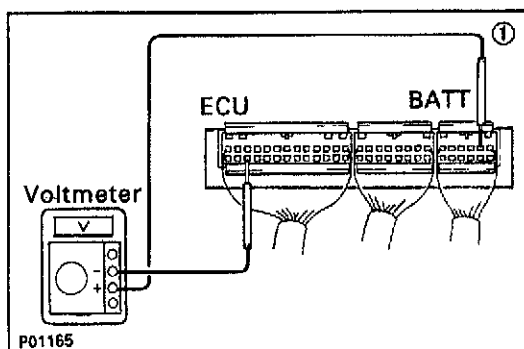
## ECU Terminals



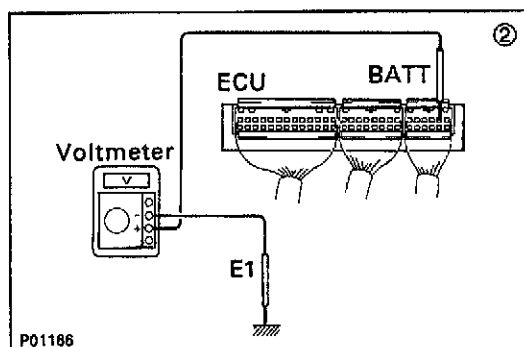
| No. | Terminals     | Trouble    | Condition | STD voltage |
|-----|---------------|------------|-----------|-------------|
| 1   | BATT – E1     | No voltage | –         | 9 – 14 V    |
|     | IG SW – E1    | No voltage | IG SW ON  | 9 – 14 V    |
|     | M-REL – E1    |            |           |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



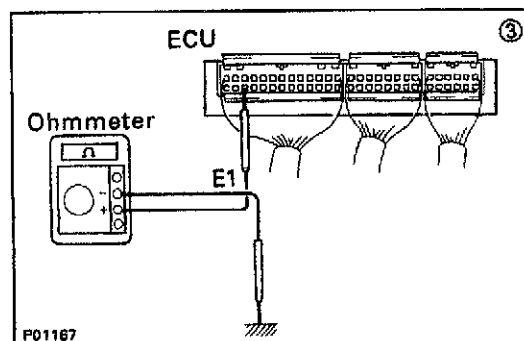
P23342



P01165

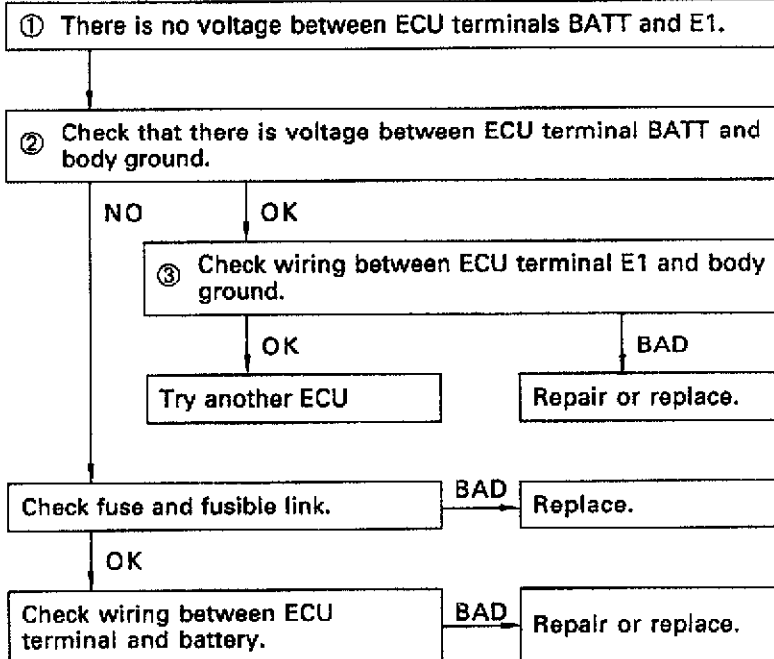


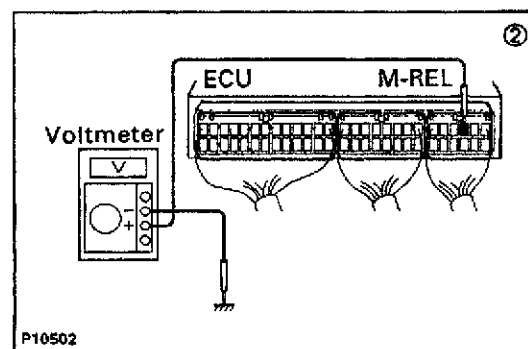
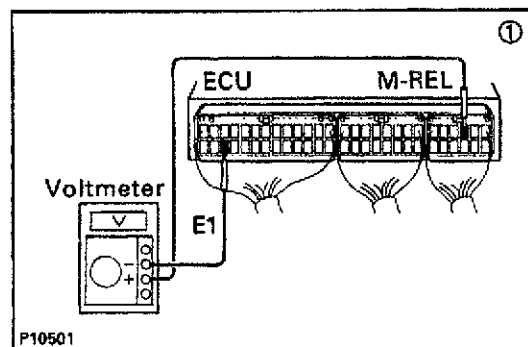
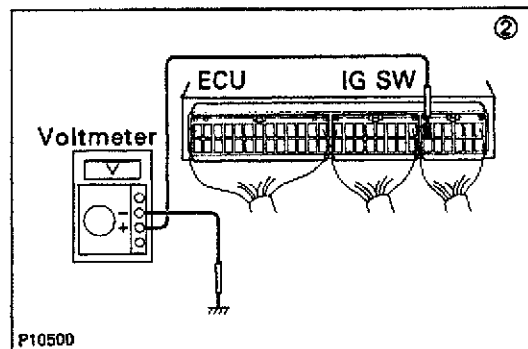
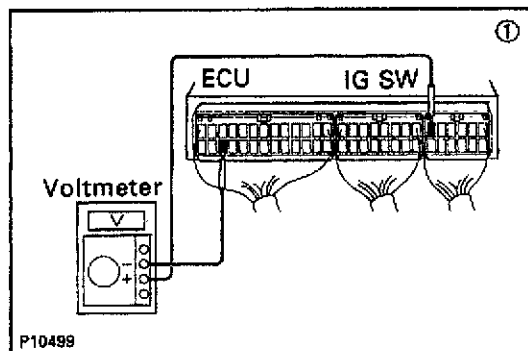
P01166



P01167

### • BATT – E1





### • 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

BAD

Try another ECU.

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

BAD

Try another ECU.

Repair or replace.

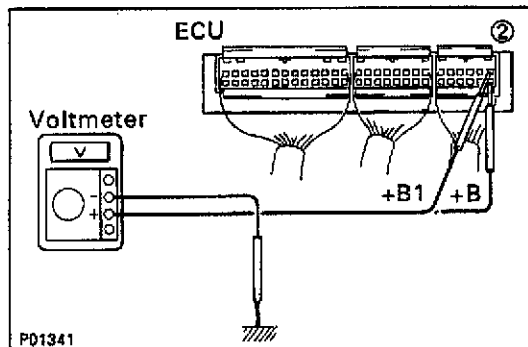
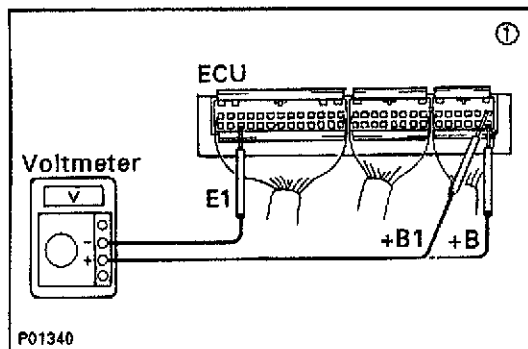
Check EFI main relay and wiring harness. (See page EG-56)

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

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-56)

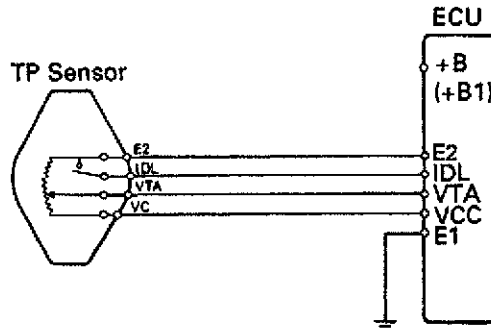
BAD

Replace.

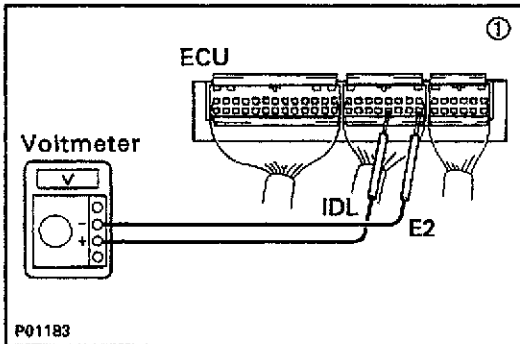
OK

Refer to M-REL - E1 trouble section.

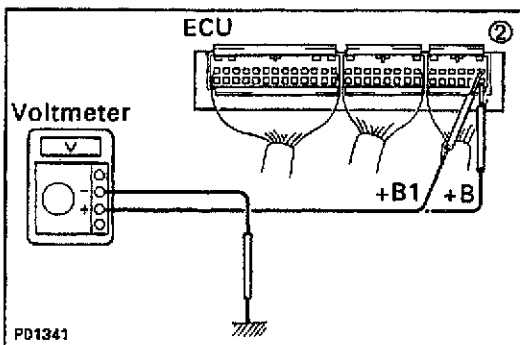
| No. | Terminals | Trouble    | Condition |                                                                          | STD voltage |
|-----|-----------|------------|-----------|--------------------------------------------------------------------------|-------------|
| 2   | IDL - E2  | No voltage |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



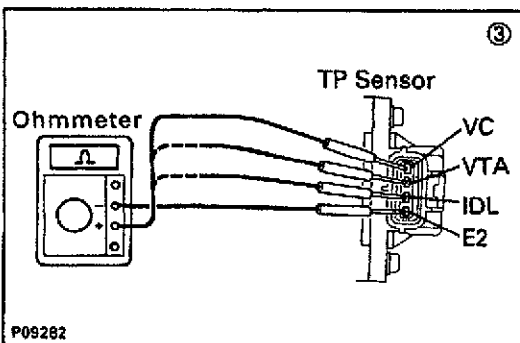
PD1419



PD1183



PD1341



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

BAD

Try another ECU.

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.

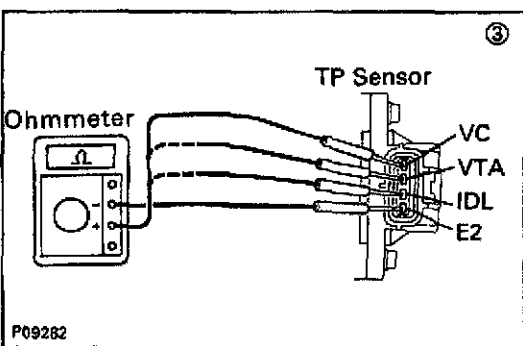
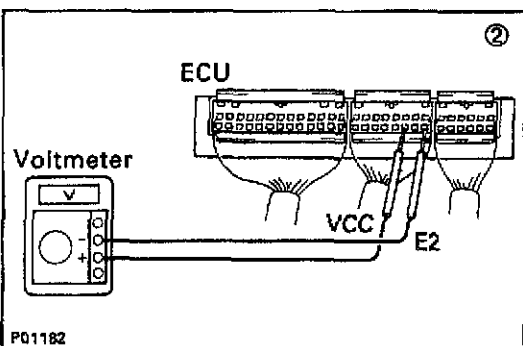
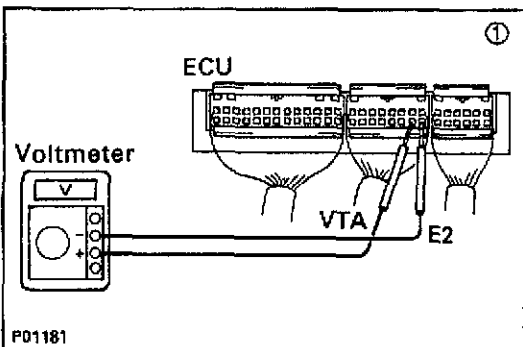
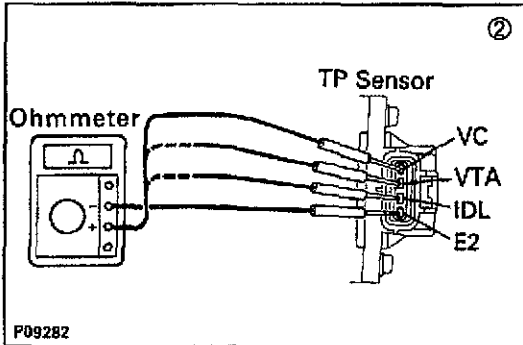
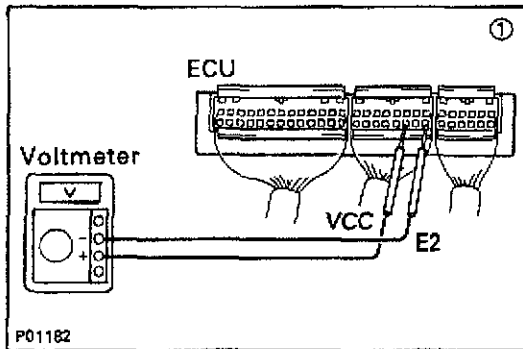
BAD

OK

Check wiring between  
ECU and TP sensor.

OK

Try another ECU.



### • 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.

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

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.

BAD

Repair or replace.

OK

Check wiring between ECU and TP sensor.

BAD

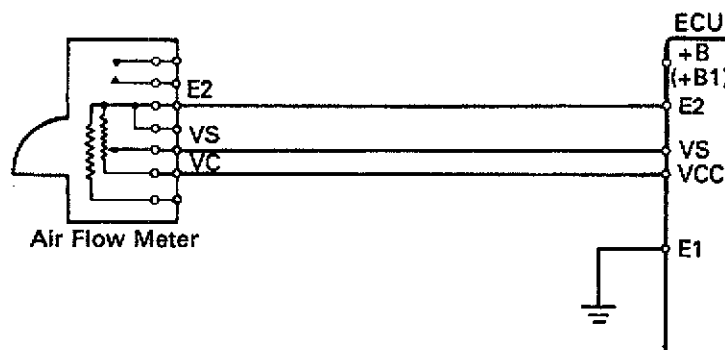
Repair or replace.

OK

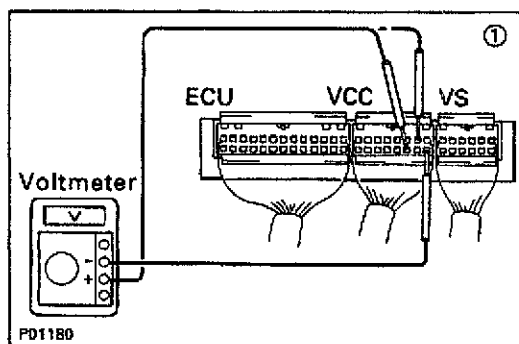
Try another ECU.



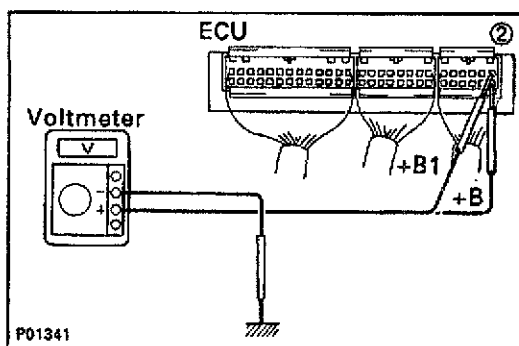
| No. | Terminals | Trouble    | Condition |                              | STD voltage |
|-----|-----------|------------|-----------|------------------------------|-------------|
| 3   | VCC – E2  | No voltage | IG SW ON  | –                            | 4.5 – 5.5 V |
|     | VS – E2   |            |           | 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 |



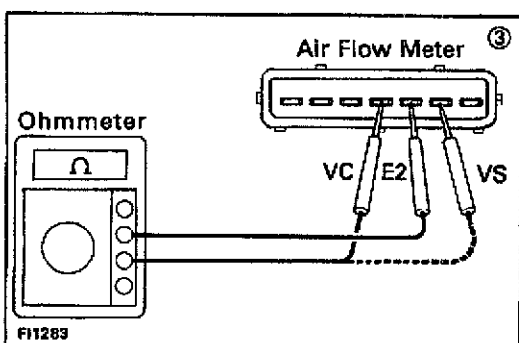
FI6032



P01180



P01341



FI1283

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

NO

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

Check wiring between ECU terminal E1 and body ground.

OK

BAD

③ Check air flow meter.

Repair or replace.

BAD

Replace air flow meter.

OK

Check wiring between ECU and air flow meter.

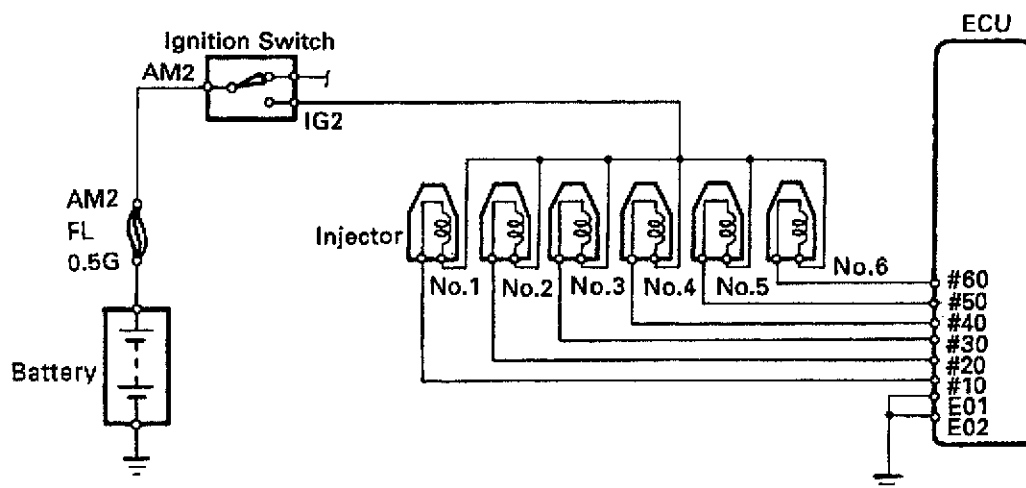
OK

BAD

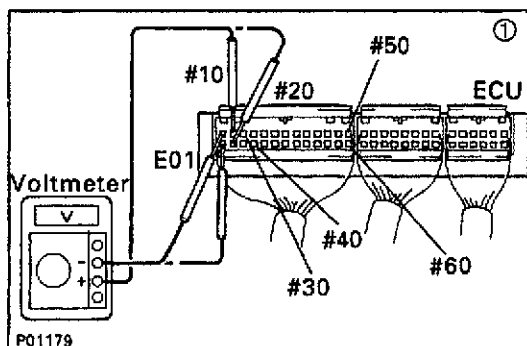
Try another ECU.

Repair or replace.

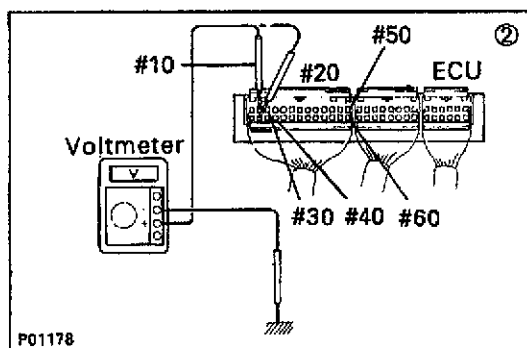
| No. | Terminals          | Trouble    | Condition | STD voltage |
|-----|--------------------|------------|-----------|-------------|
| 4   | #10 E01<br>#60 E02 | No voltage | IG SW ON  | 9 - 14 V    |



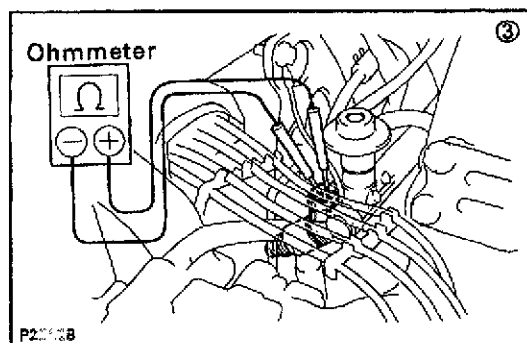
P09298



P01179



P01178



P20008

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

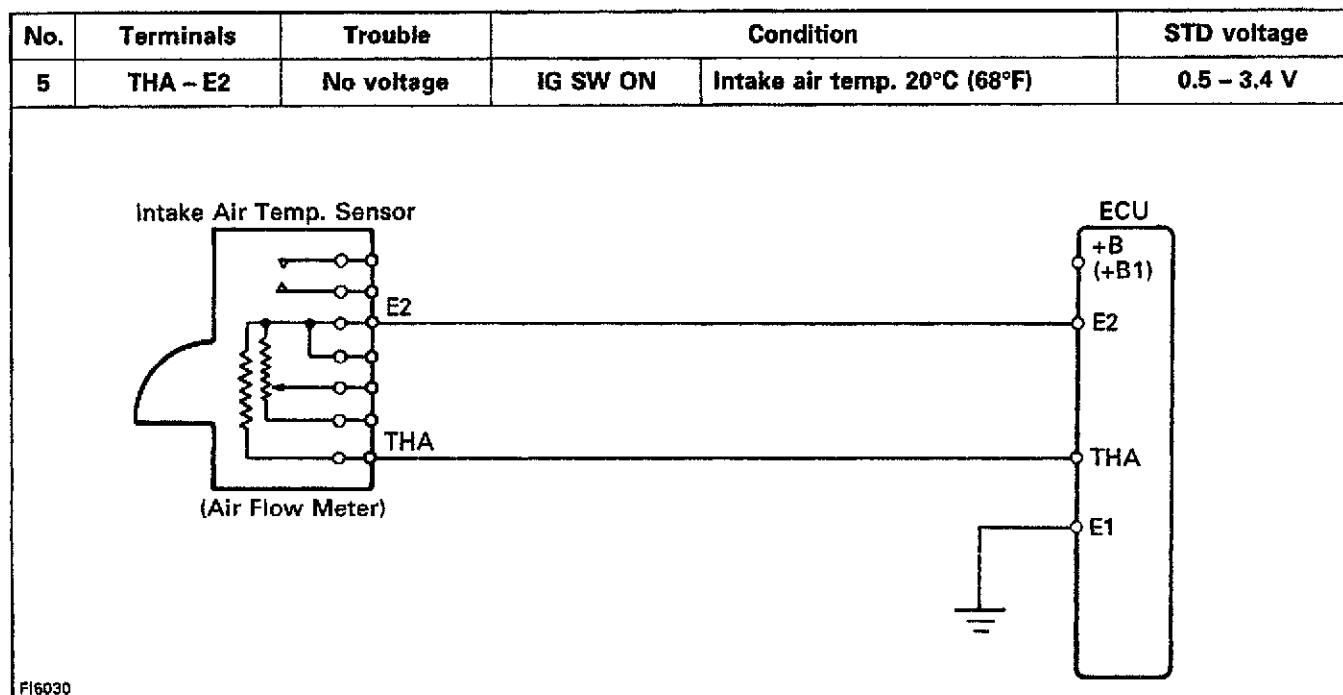
BAD

Repair or replace.

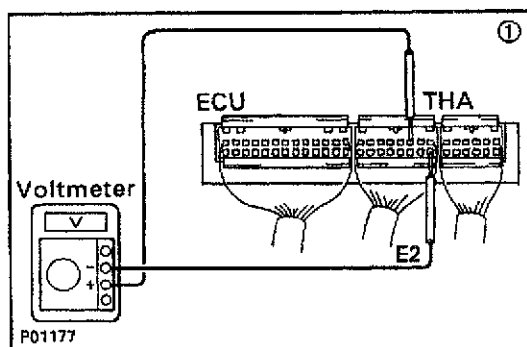
Check wiring between ECU terminal #10 ~ #60 and battery.

BAD

Repair or replace.



EG



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

③ Check intake air temp. sensor.

Repair or replace.

BAD

Replace air flow meter.

OK

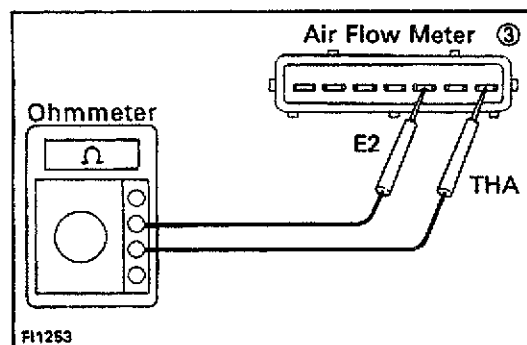
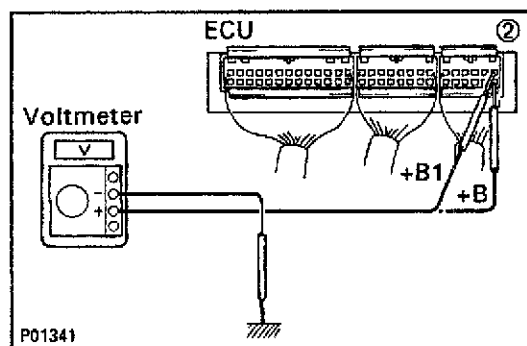
Check wiring between ECU and intake air temp. sensor.

OK

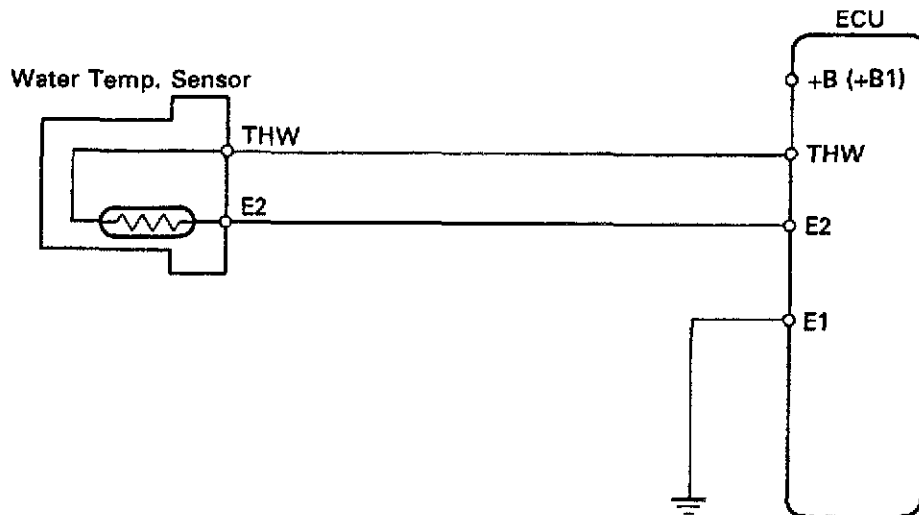
BAD

Try another ECU.

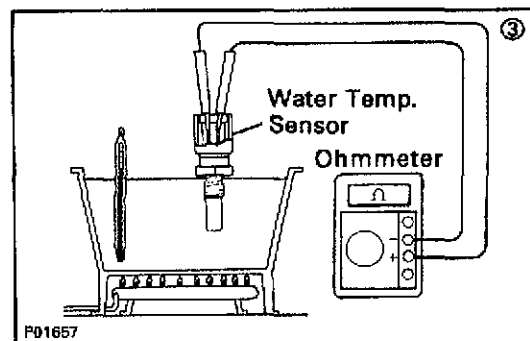
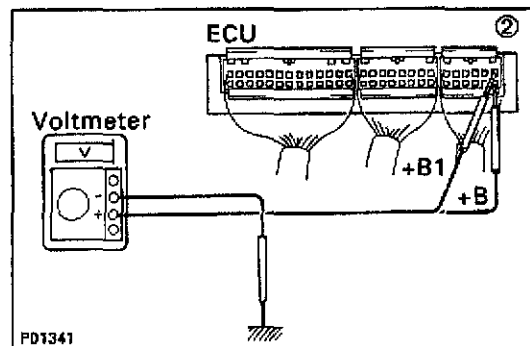
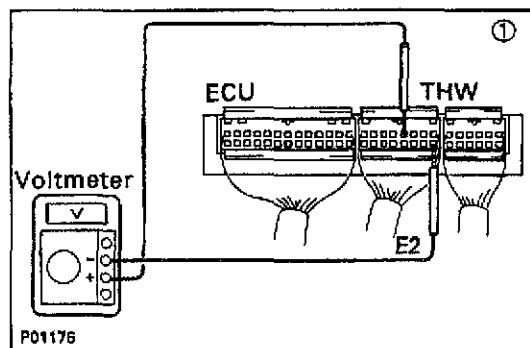
Repair or replace.



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



FI3572



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-40)

Check wiring between ECU terminal E1 and body ground.

OK

BAD

③ Check water temp. sensor.

Repair or replace.

BAD

OK

Replace water temp. sensor.

Check wiring between ECU and ECT sensor.

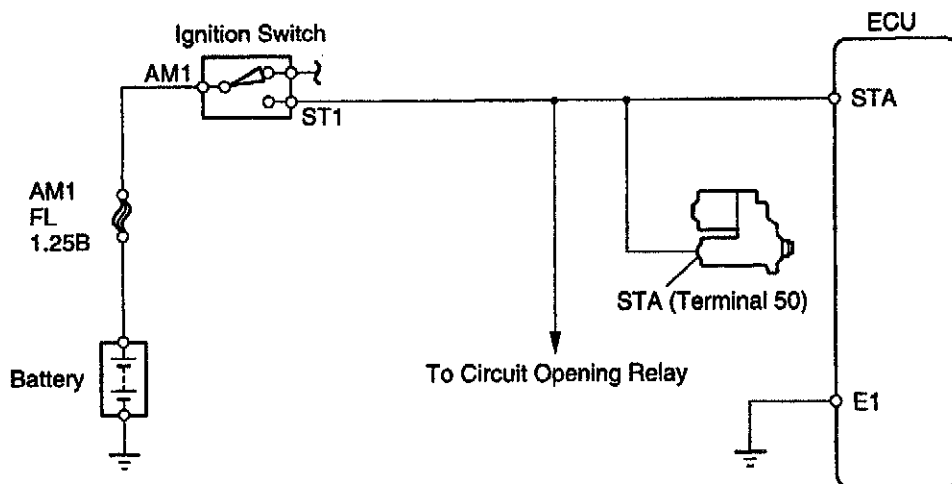
OK

BAD

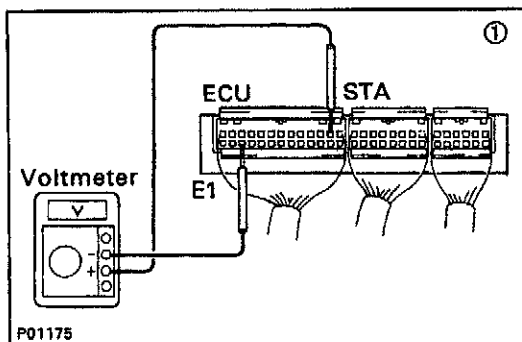
Try another ECU.

Repair or replace.

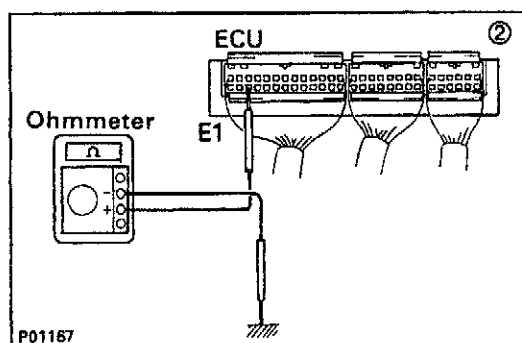
| No. | Terminals | Trouble    | Condition | STD voltage |
|-----|-----------|------------|-----------|-------------|
| 7   | STA - E1  | No voltage | Cranking  | 6 V or more |



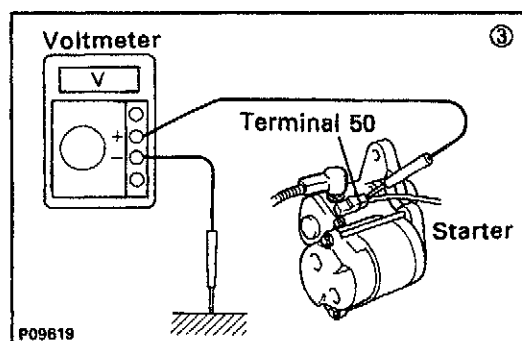
P23343



P01175



P01187



P09619

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.

OK

BAD

Repair or replace.

BAD

② Check wiring between ECU terminal E1 and body  
ground.

OK

BAD

Try another ECU.

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.

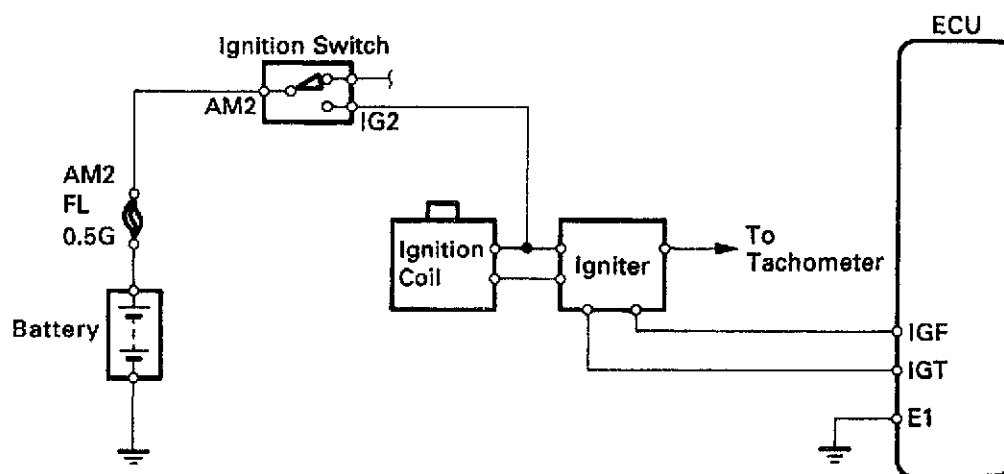
OK

Check starter.

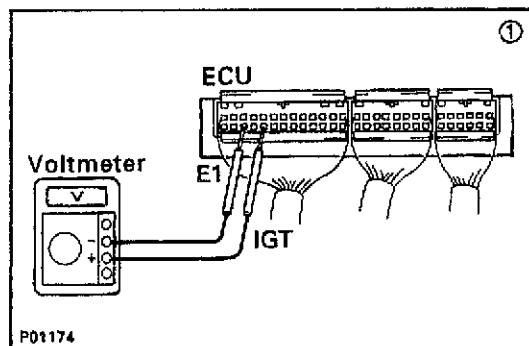
NO

Check wiring between ignition  
switch terminal ST1 and starter  
terminal 50.

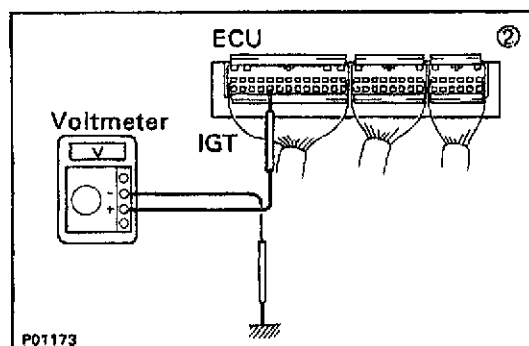
| No. | Terminals | Trouble    | Condition | STD voltage      |
|-----|-----------|------------|-----------|------------------|
| 8   | IGT - E1  | No voltage | Idling    | Pulse generation |



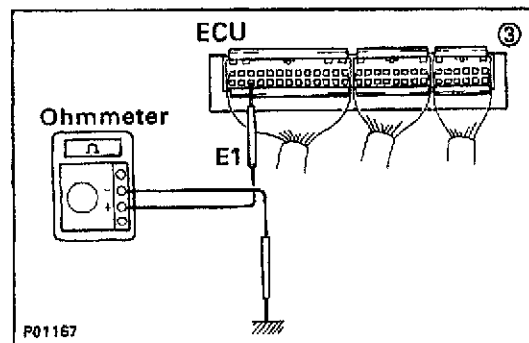
P04541



P01174



P01173



P01167

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

OK

③ Check wiring between ECU terminal E1 and body ground.

BAD

Repair or replace.

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.

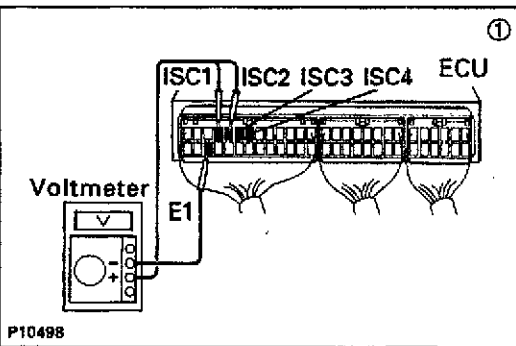
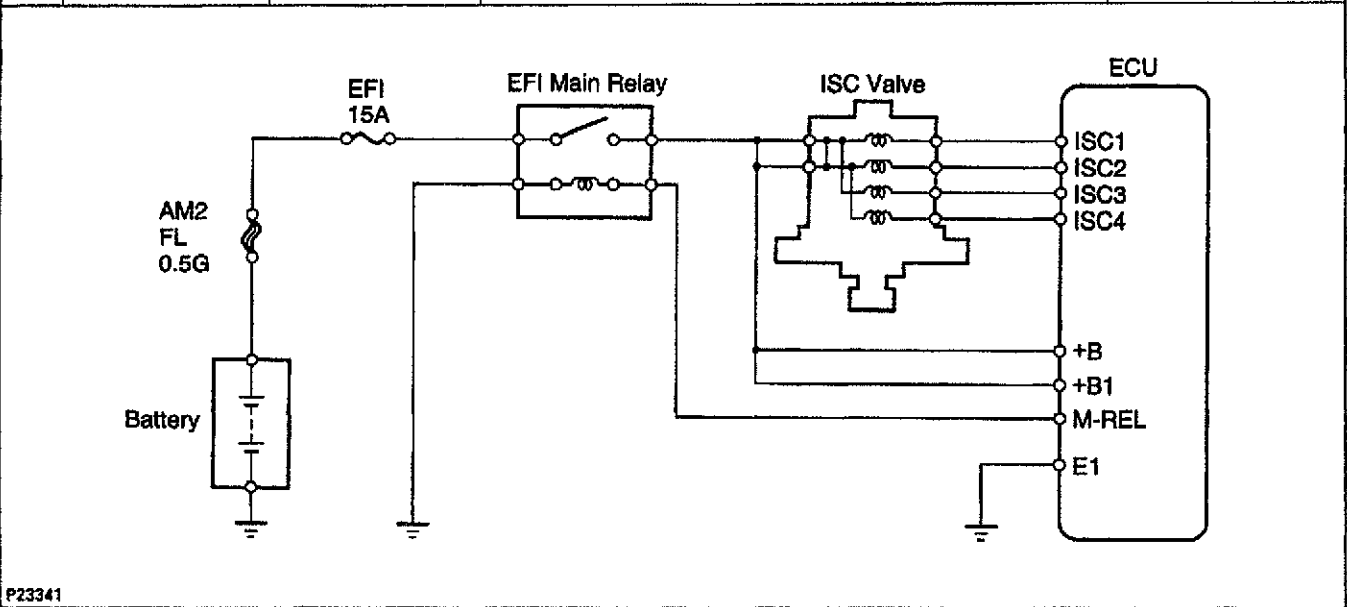
OK

Check igniter.

BAD

Repair or replace.

| 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

③ Check ISC valve.

Repair or replace.

BAD

Replace ISC valve.

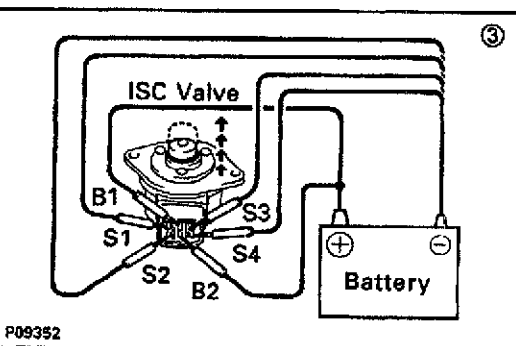
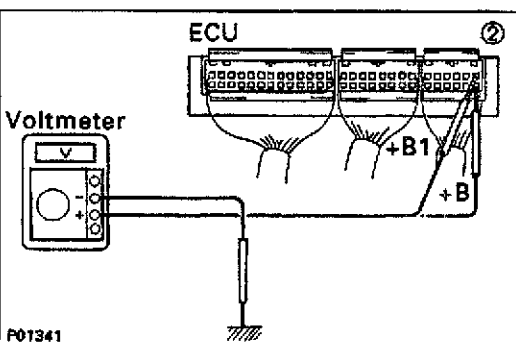
Check wiring between ECU and EFI main relay.

OK

BAD

Try another ECU.

Repair or replace.



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

F10728

