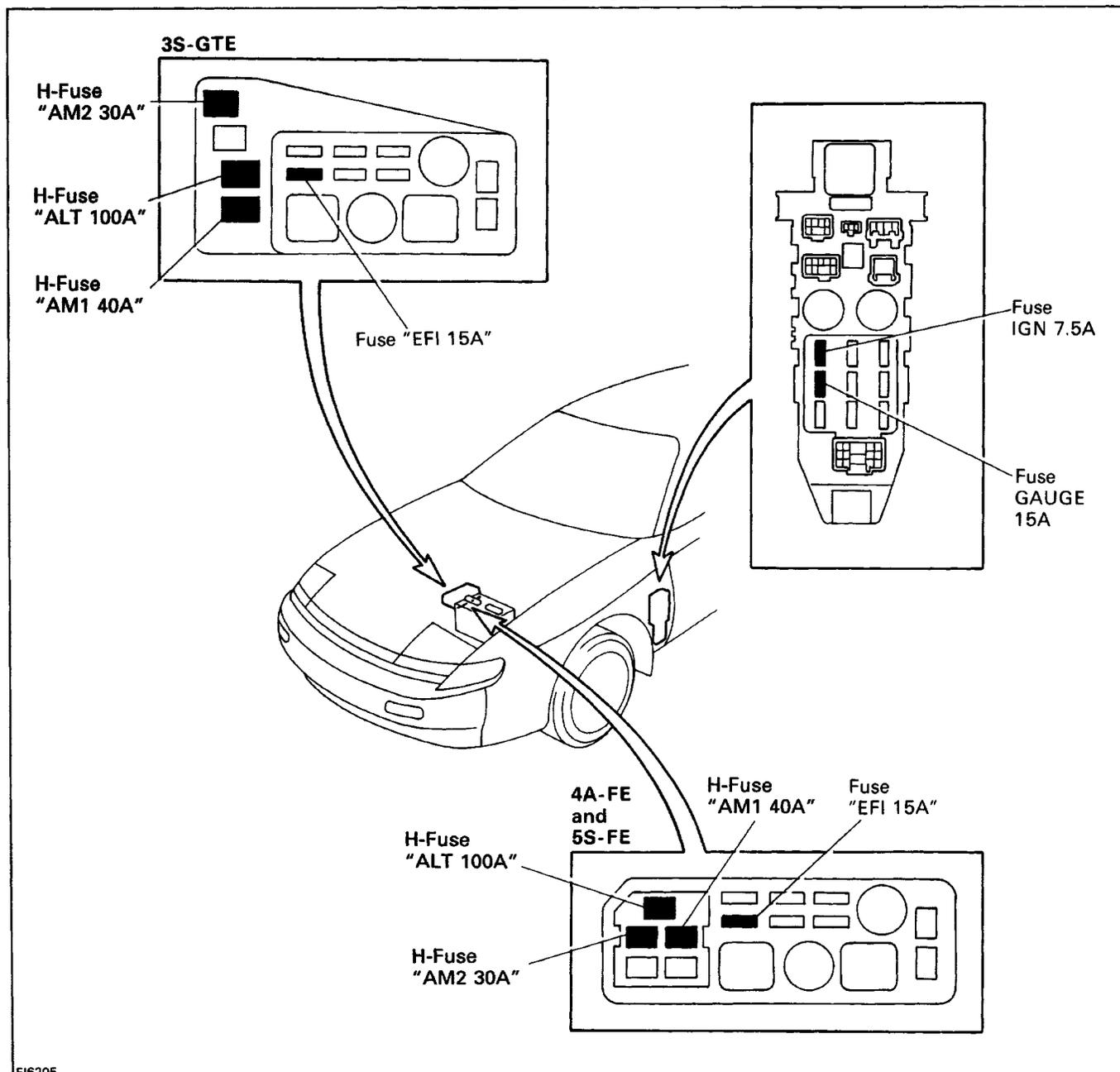


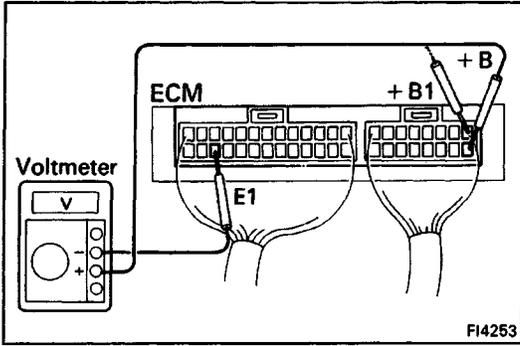
TROUBLESHOOTING WITH VOLT/OHMMETER

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, 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 ECM is faulty and should be replaced.

LOCATION OF FUSES AND FUSIBLE LINKS





MFI SYSTEM CHECK PROCEDURE (4A-FE)

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.

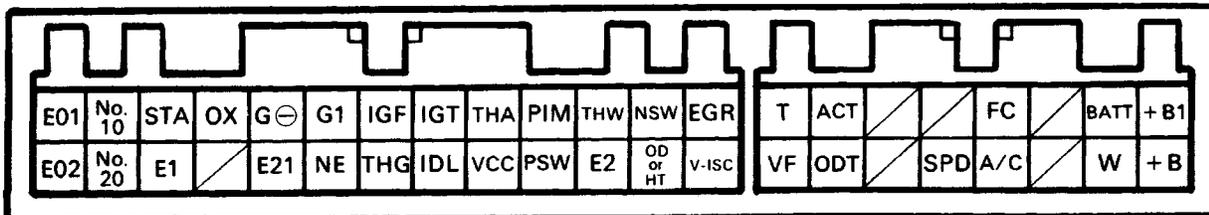
Using a voltmeter with high impedance (10 kΩ/V minimum), measure the voltage at each terminal of the wiring connectors.

Terminals of Engine ECM (4A-FE)

Symbol	Terminal Name	Symbol	Terminal Name	Symbol	Terminal Name
E01	POWER GROUND	IGT	IGNITER	ACT	A/C AMPLIFIER
E02	POWER GROUND	IDL	THROTTLE POSITION SENSOR	*2ODT	O/D SOLENOID
No.10	INJECTOR	THA	INTAKE AIR TEMP. SENSOR	/	-
No.20	INJECTOR	VCC	VACUUM SENSOR	/	
STA	STARTER SWITCH	PIM	VACUUM SENSOR	/	
E1	ENGINE GROUND	PSW	THROTTLE POSITION SENSOR	SPD	SPEED SENSOR
OX	OXYGEN SENSOR	THW	ENGINE COOLANT TEMP. SENSOR	FC	CIRCUIT OPENING RELAY
/	-	E2	SENSOR GROUND	A/C	A/C COMPRESSOR
G ⊖	DISTRIBUTOR GROUND	N SW	PARK/NEUTRAL POSITION SWITCH	/	-
E21	SENSOR GROUND	*1 OD *2 H T	O/D SOLENOID OXYGEN SENSOR HEATER	/	
G1	DISTRIBUTOR	EGR	EGR VSV	BATT	BATTERY
NE	DISTRIBUTOR	V-ISC	ACV VSV	W	MALFUNCTION INDICATOR LAMP
IGF	IGNITER	T	DATA LINK CONNECTOR 1	+B1	MFI MAIN RELAY
* THG	EGR GAS TEMP. SENSOR	VF	DATA LINK CONNECTOR 1	B	MFI MAIN RELAY

ECM Terminals

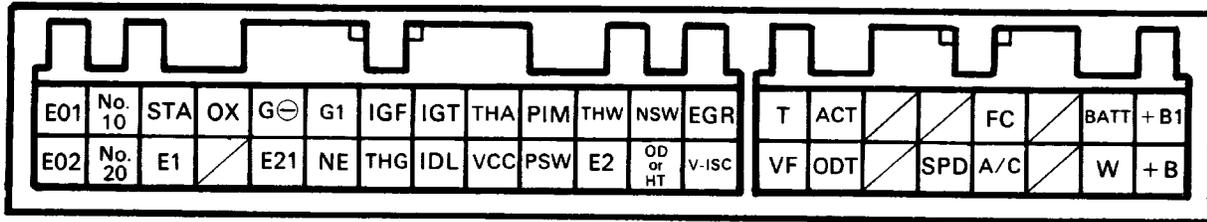
*1 CALIF. only
*2 Ex. CALIF.

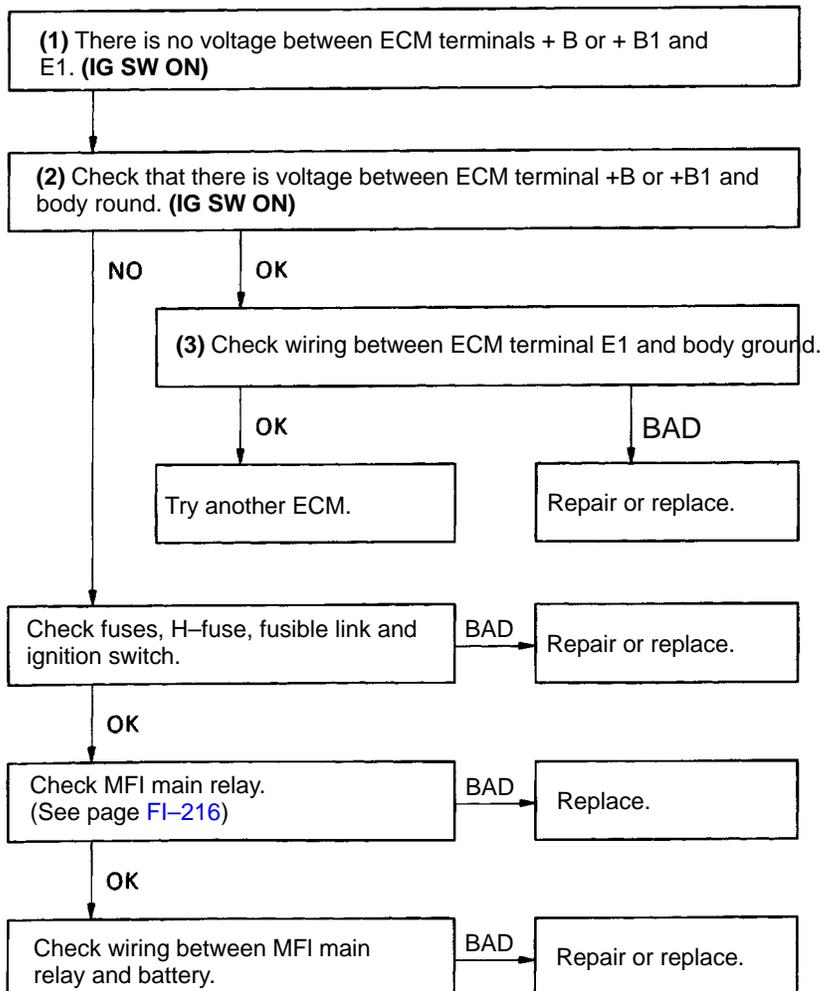
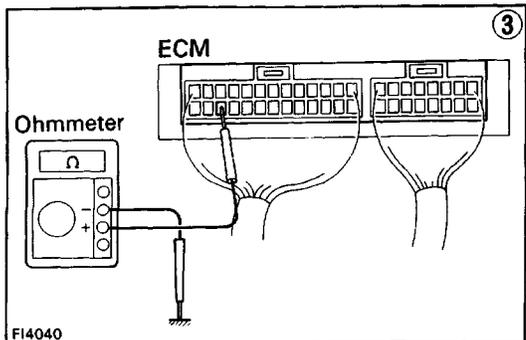
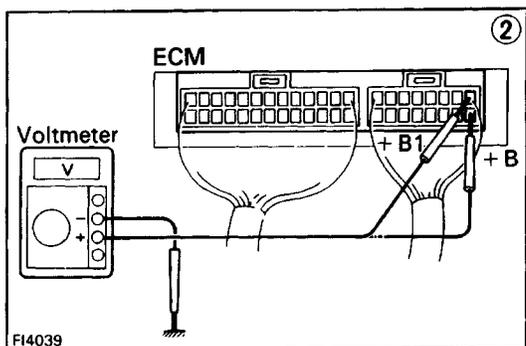
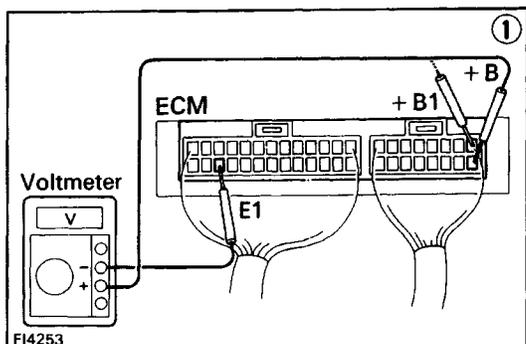
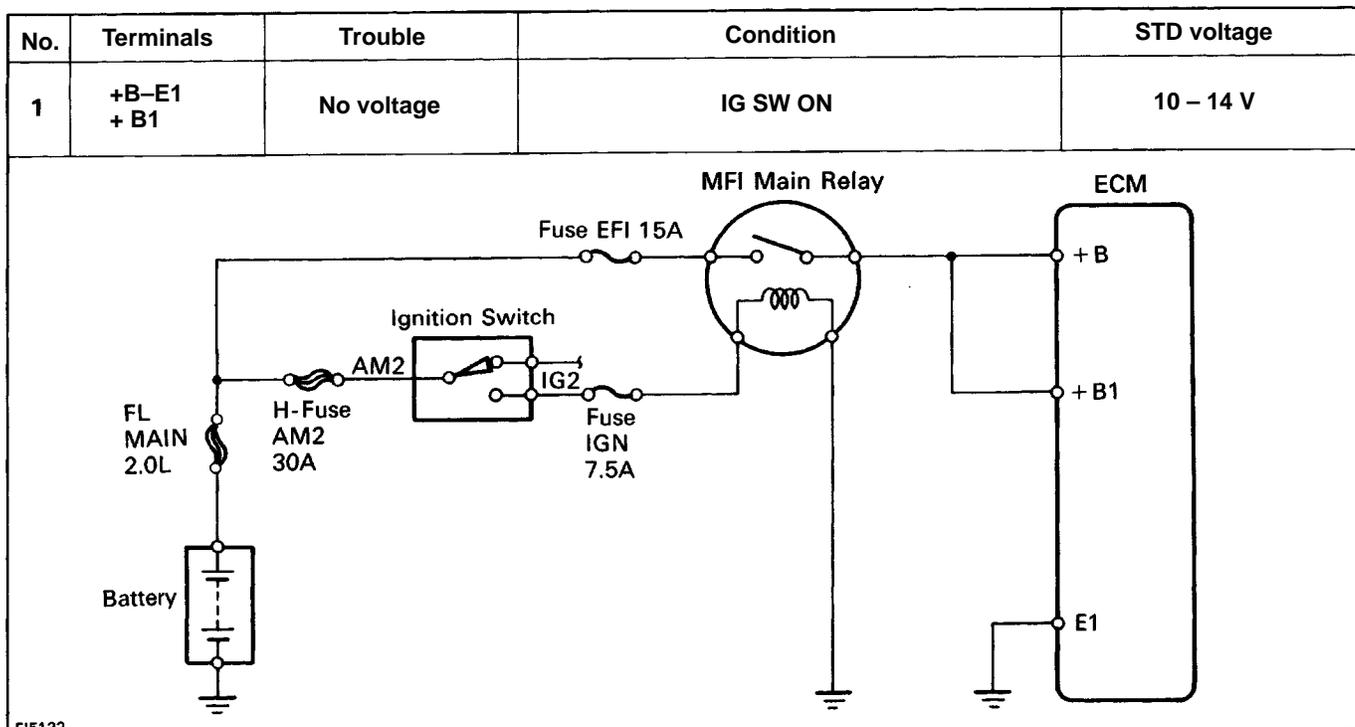


Voltage at ECM Wiring Connectors (4A-FE) (4A-FE)

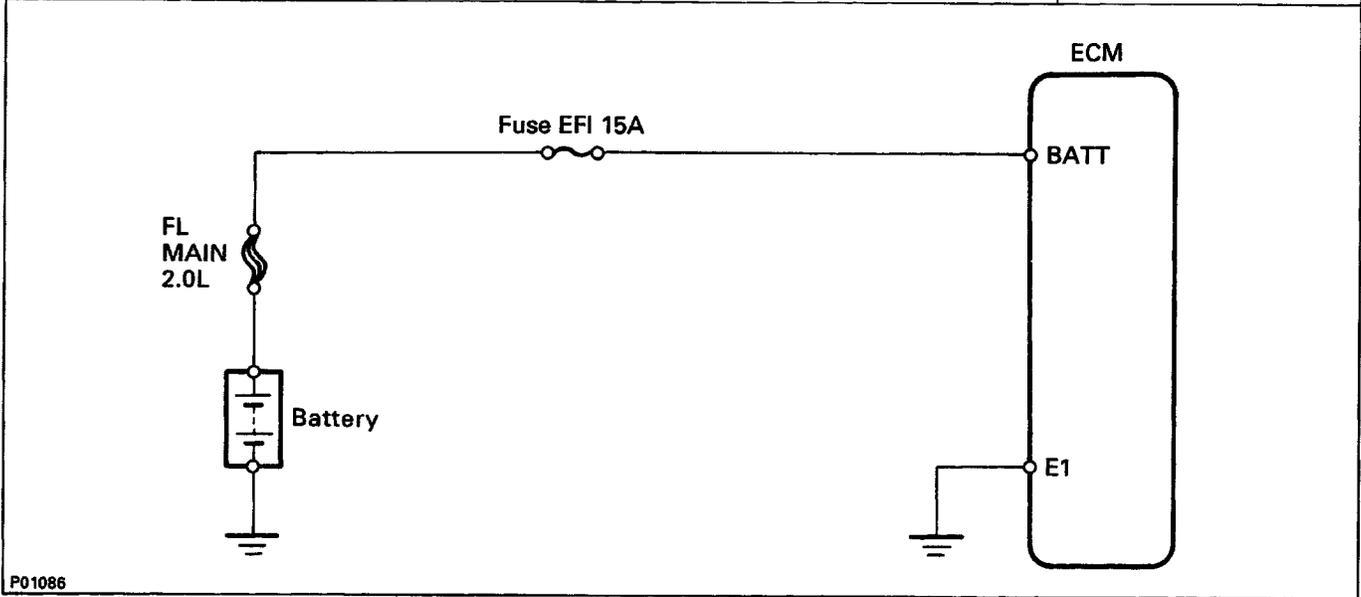
No.	Terminals	Condition		STD voltage (V)	See page
1	+B-E1 + B1	IG SW ON		10-14	FI-61
2	BATT - E 1	-		10-14	FI-62
3	IDL - E2	IG SW ON	Throttle valve open	10-14	FI-63
	PSW - E2		Throttle valve fully closed	10-14	
4	PIM - E2	IG SW ON		3.3-3.9	FI-64
	VCC - E2			4.5-5.5	
5	No. 10 E01 No. 20 E02				
6	THA - E2	IG SW ON	Intake air temp. 20°C (68°F)	1-3	FI-66
7	THW - E2		Engine coolant temp. 80°C (176°F)	2.0-2.8	FI-67
8	STA - E1	Cranking		6-14	FI-68
9	IGT - E1	Cranking or idling		0.7-1.0	FI-69
10	W - E1	No trouble (malfunction indicator lamp off) and engine running		10-14	FI-70
11	A/C - E1	IG SW ON	Air conditioning ON	8-14	FI-71

ECM Terminals

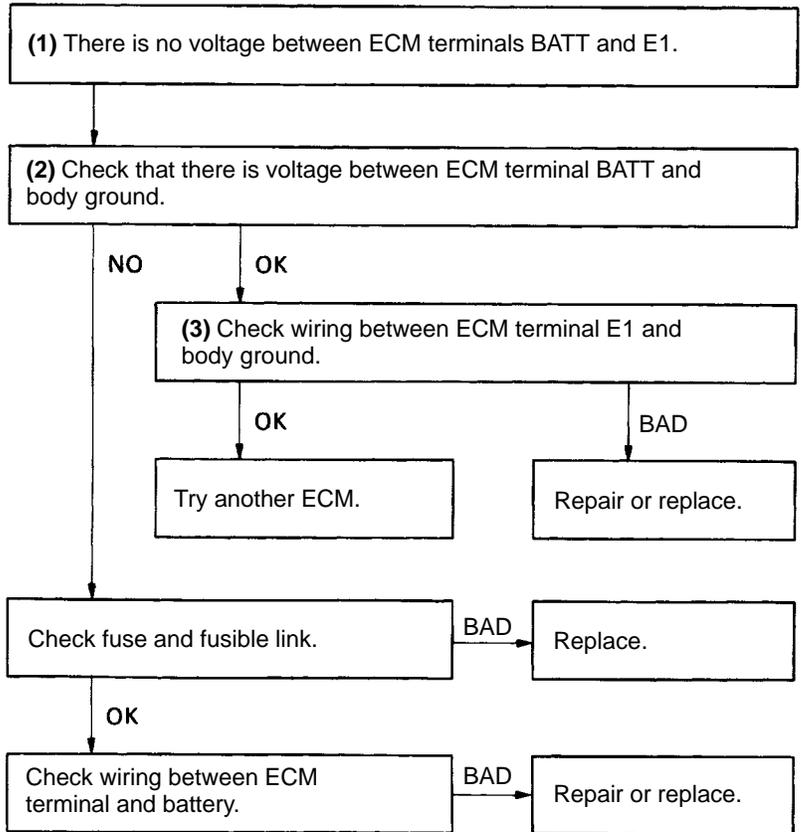
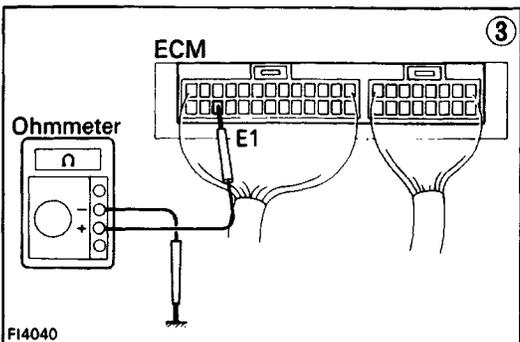
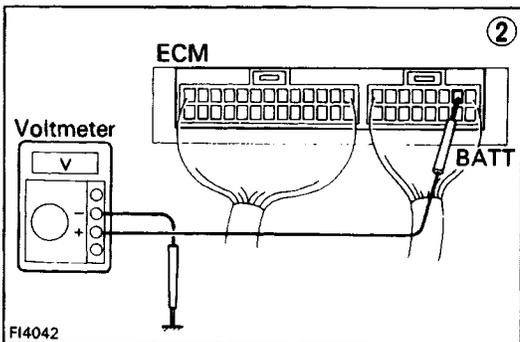
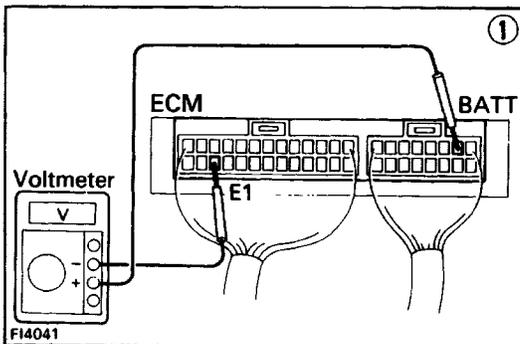




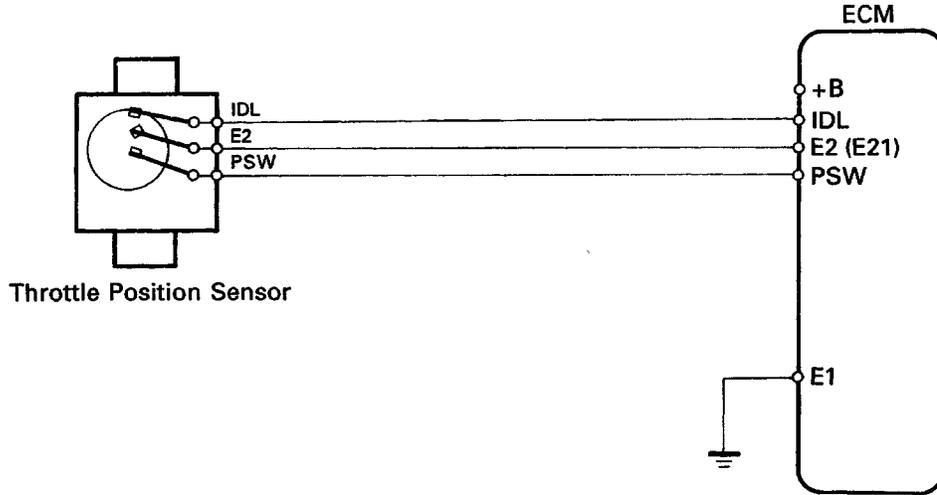
No.	Terminals	Trouble	Condition	STD voltage
2	+B +B1	No voltage	-	10 - 14 V



P01086

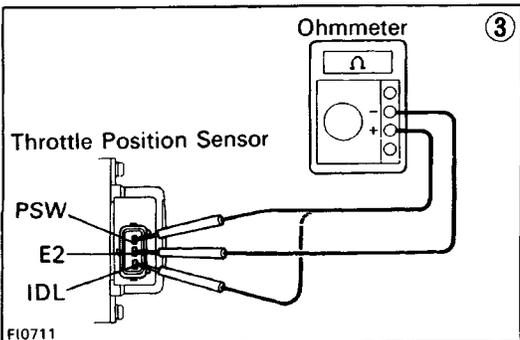
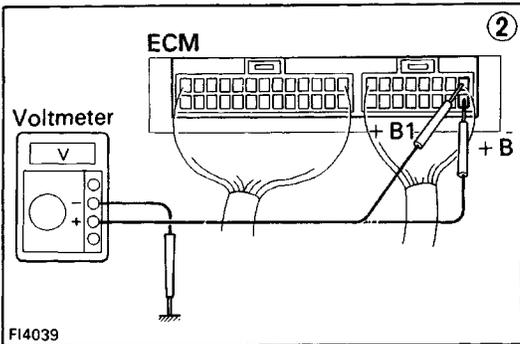
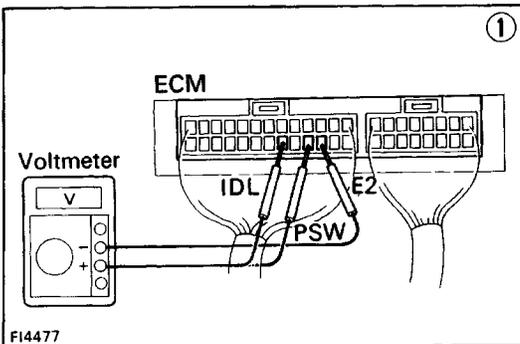


No.	Terminals	Trouble	Condition		STD voltage
3	IDL - E2	No voltage	IG SW ON	Throttle valve open	10 - 14 V
	PSW - E2			Throttle valve fully closed	10 - 14 V



P02927

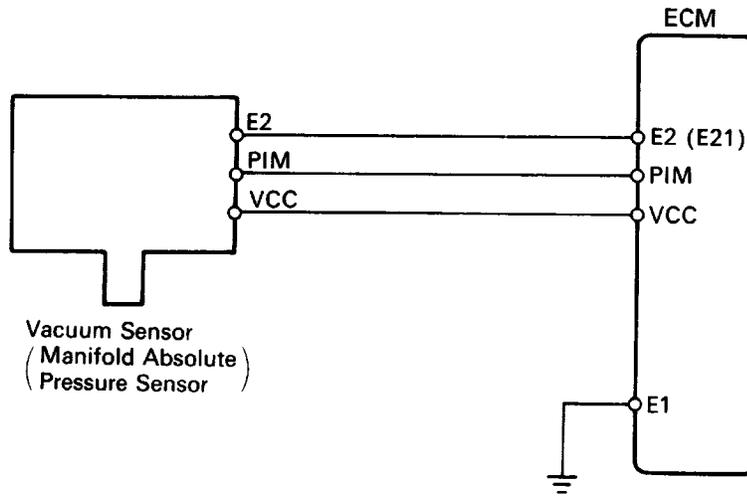
• IDL-E2, PSW-E2



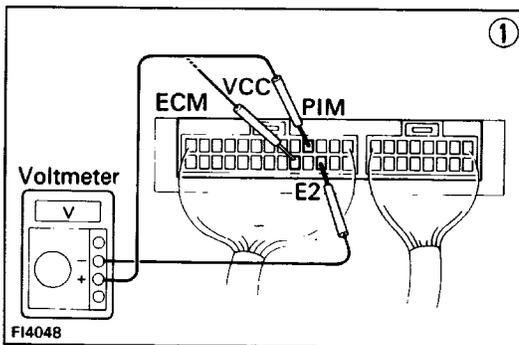
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    graph TD
      A["(1) There is no voltage between ECM terminals IDL or PSW and E2. (IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminal +B or +B1 and body ground. (IG SW ON)"]
      B -- NO --> C["Refer to No.1. 1See page FI-61 j"]
      B -- OK --> D["Check wiring between ECM terminal E1 and body ground."]
      D -- OK --> E["Try another ECM."]
      D -- BAD --> F["Repair or replace."]
      C -- BAD --> F
      C -- OK --> G["(3) Check throttle position sensor.(See page FI-185)"]
      G -- BAD --> H["Replace or repair throttle position sensor."]
      G -- OK --> I["Check wiring between ECM and throttle position sensor."]
      I -- OK --> J["Try another ECM."]
  
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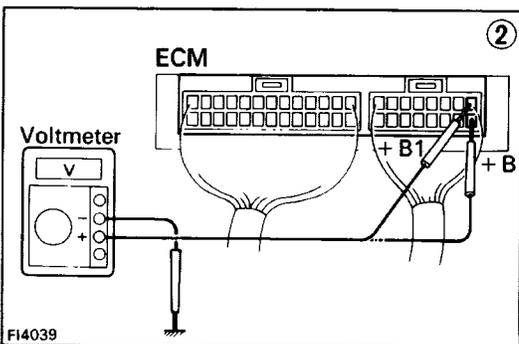
No.	Terminals	Trouble	Condition	STD voltage
4	PIM - E2	No voltage	IG SW ON	3.3 - 3.9 V
	VCC-E2			4.5 - 5.5 V



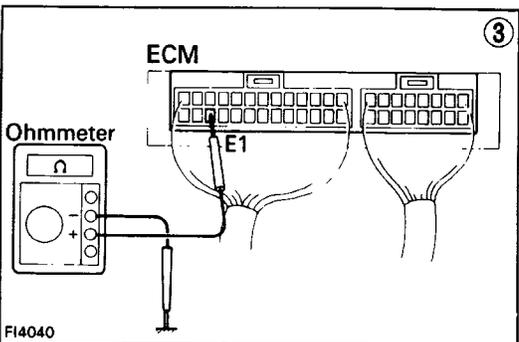
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FI4048

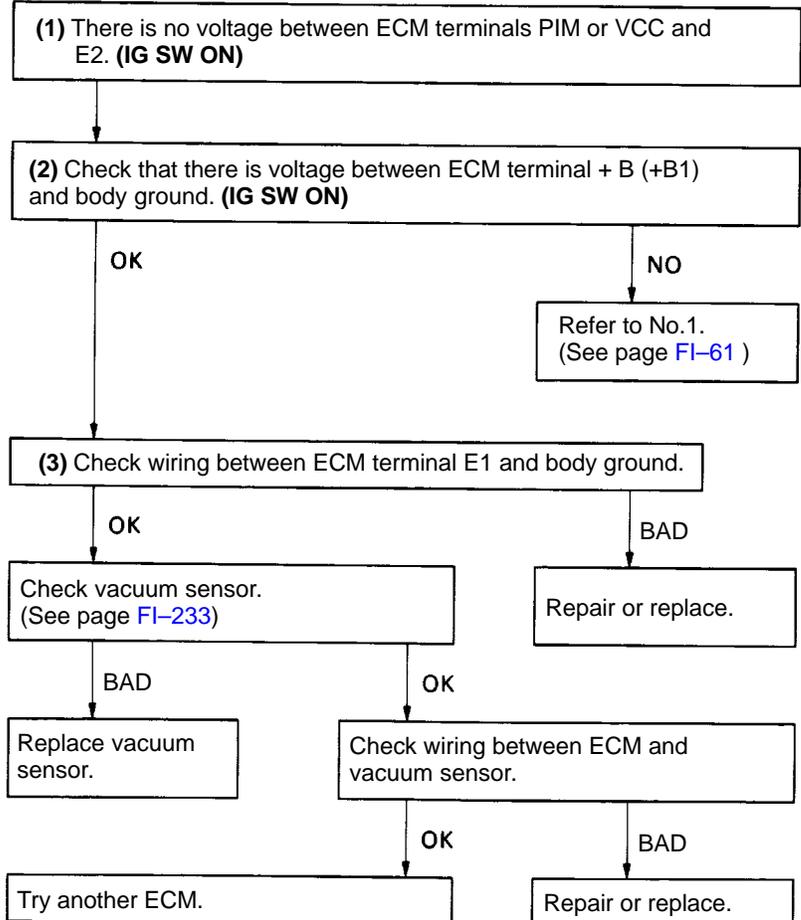


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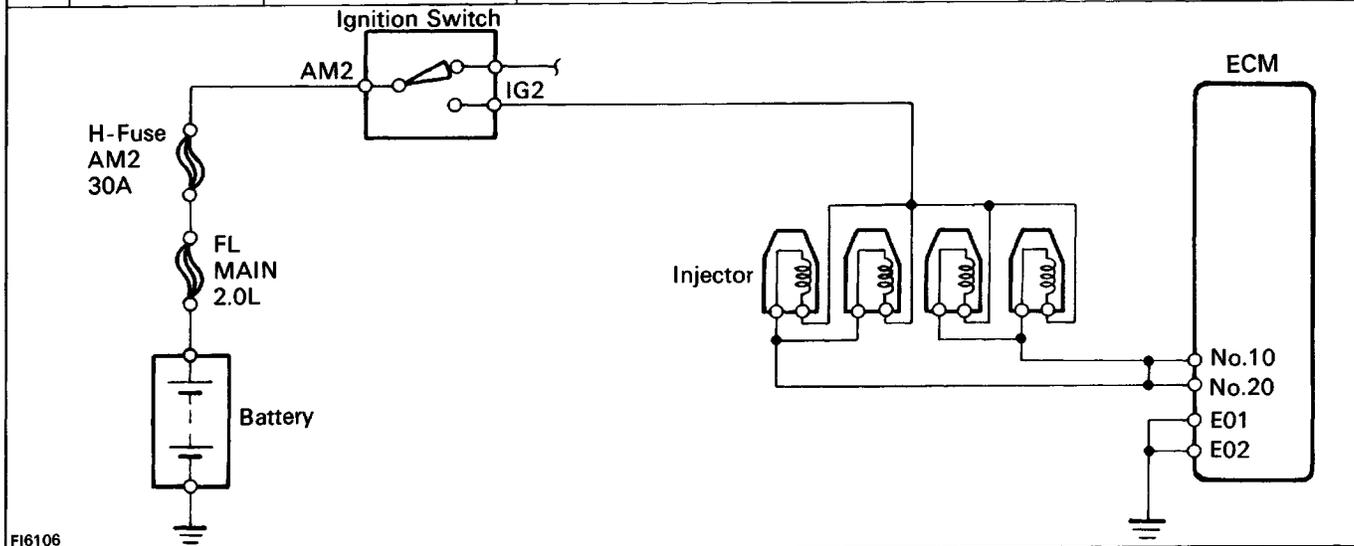


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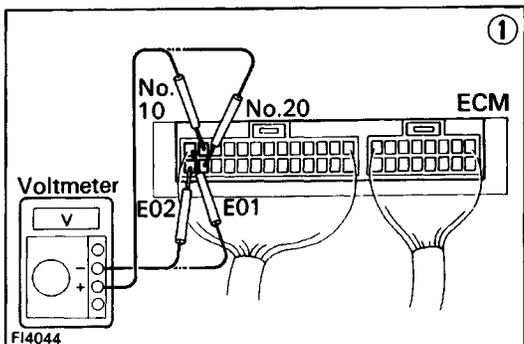
• PIM - E2, VCC - E2



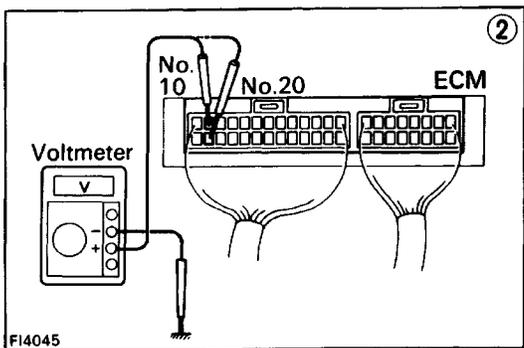
No.	Terminals	Trouble	Condition	STD voltage
5	No.10 - E01 No.20 - E02	No voltage	IG SW ON	10 - 14 V



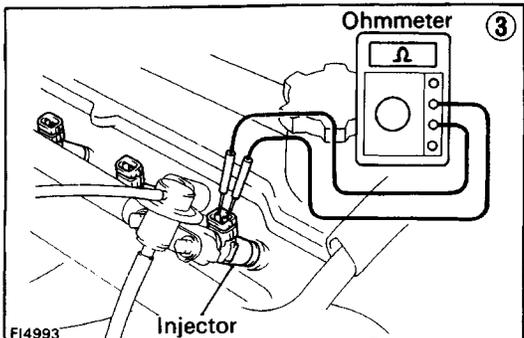
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FI4044



FI4045

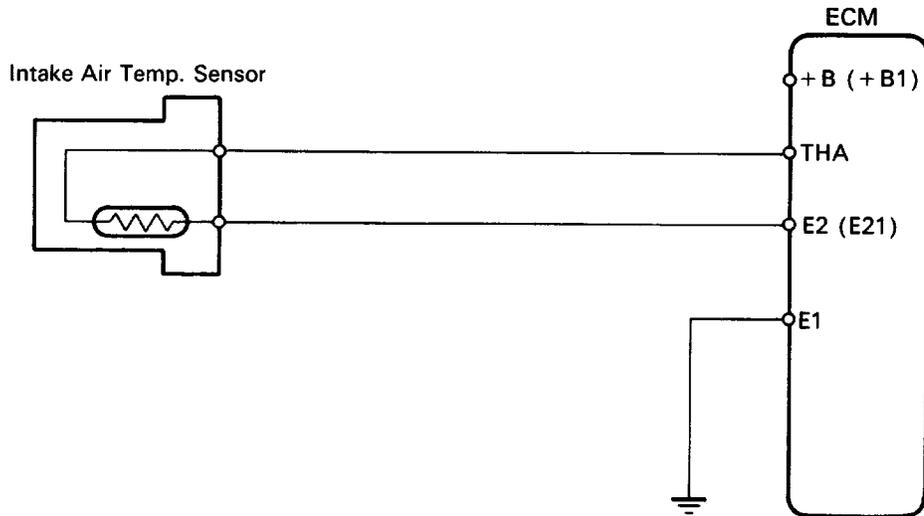


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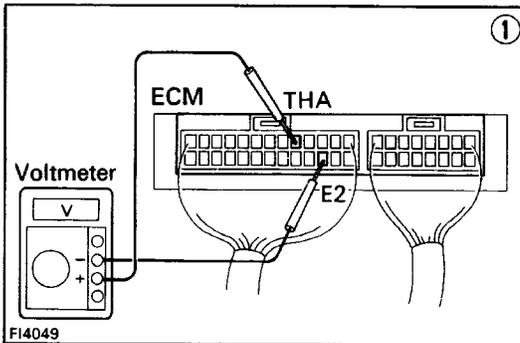
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    graph TD
      Step1["(1) There is no voltage between ECM terminals No.10 and / or No.20 and E01 and / or E02. (IG SW ON)"]
      Step2["(2) Check that there is voltage between ECM terminal No.10 and / or No. 20 and body ground."]
      Step3["(3) Check resistance of each injector. STD resistance. Approx. 13.8Ω"]
      
      Step1 --> Step2
      Step2 -- NO --> Fuse["Check H-fuse, fusible link and ignition switch."]
      Step2 -- OK --> Step3
      
      Fuse -- BAD --> FuseFix["Repair or replace."]
      Fuse -- OK --> Step3
      
      Step3 -- BAD --> InjectorFix["Replace injector."]
      Step3 -- OK --> Wiring["Check wiring between ECM terminal No-10 and / or No.20 and battery."]
      
      Wiring -- BAD --> WiringFix["Repair or replace."]
      Wiring -- OK --> End
      
      Step2 --> E01["Check wiring between ECM terminal E01 and I or E02 and body ground."]
      E01 -- OK --> TryECM["Try another ECM."]
      E01 -- BAD --> E01Fix["Repair or replace."]
  
```

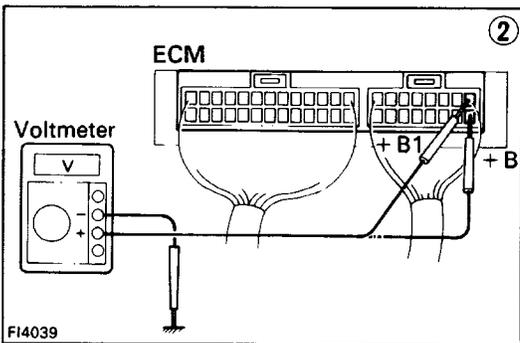
No.	Terminals	Trouble	Condition		STD voltage
6	THA-E2	No voltage	IG SW ON	Intake air temperature 20°C (68°F)	1 - 3 V



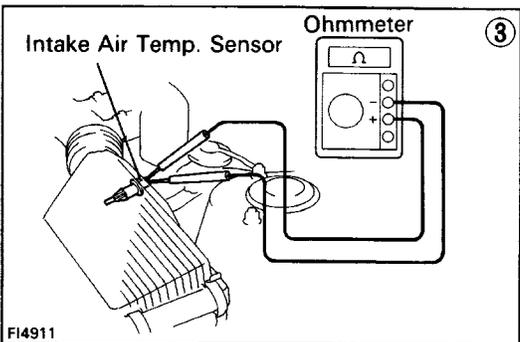
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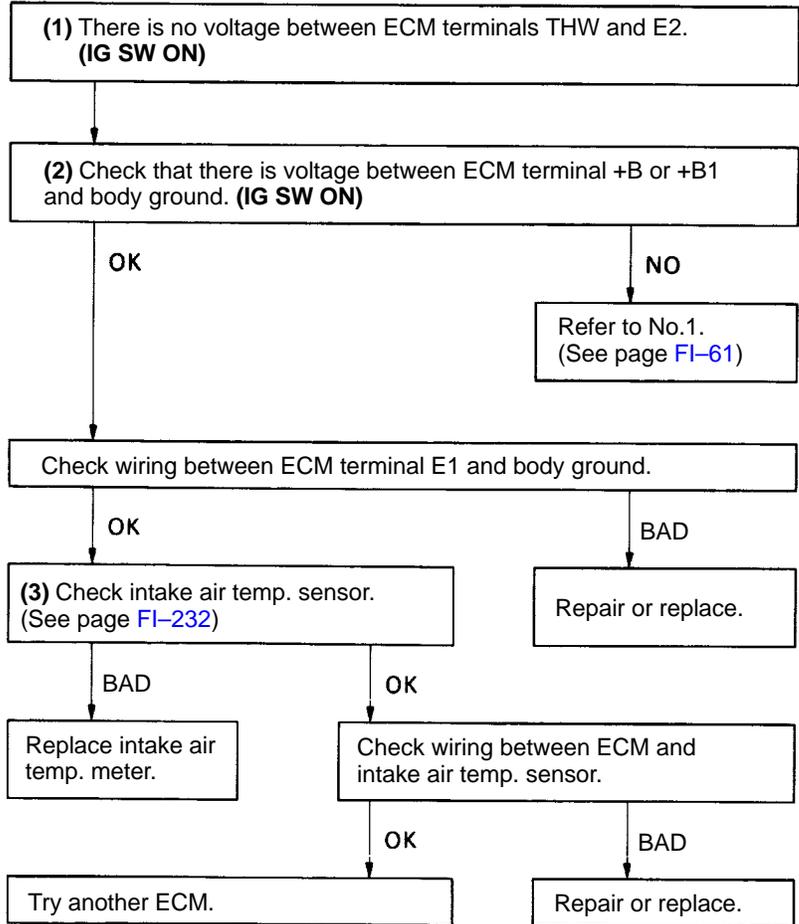
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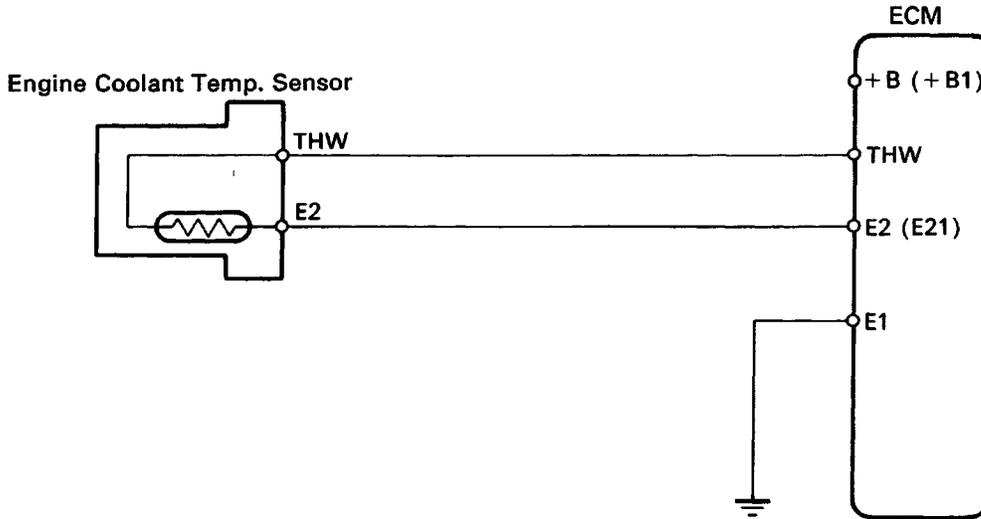
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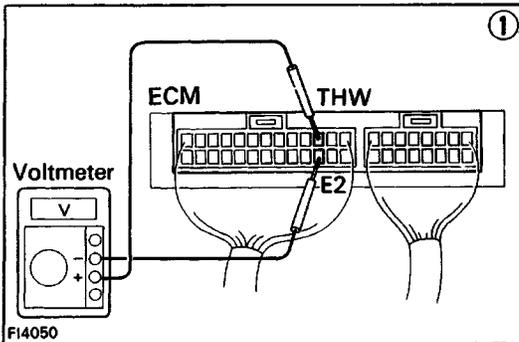
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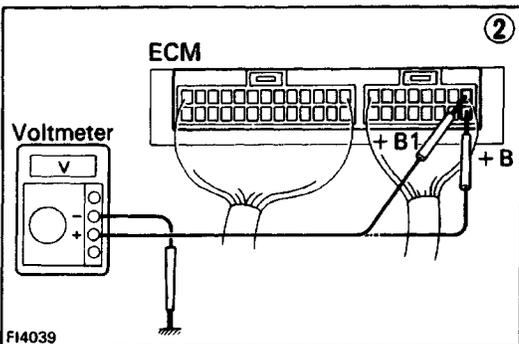
No.	Terminals	Trouble	Condition		STD voltage
7	THW- E2	No voltage	IG SW ON	Engine coolant temperature 80°C (176°F)	0.1 - 1.0 V



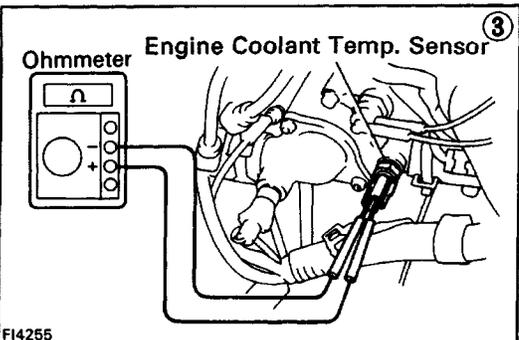
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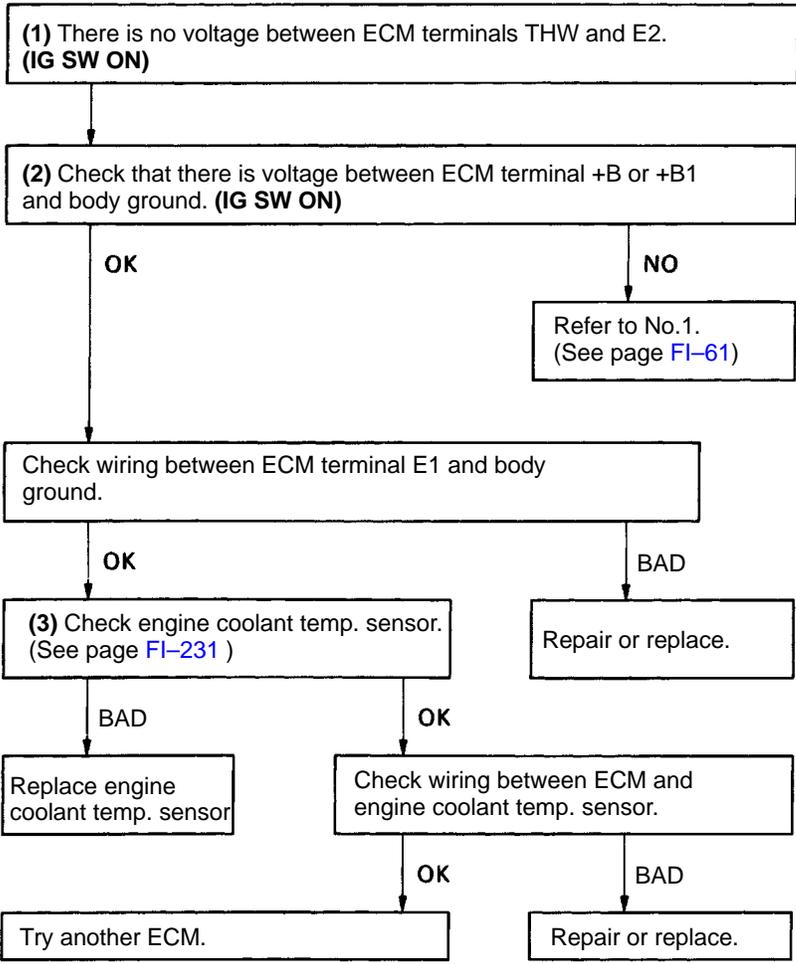
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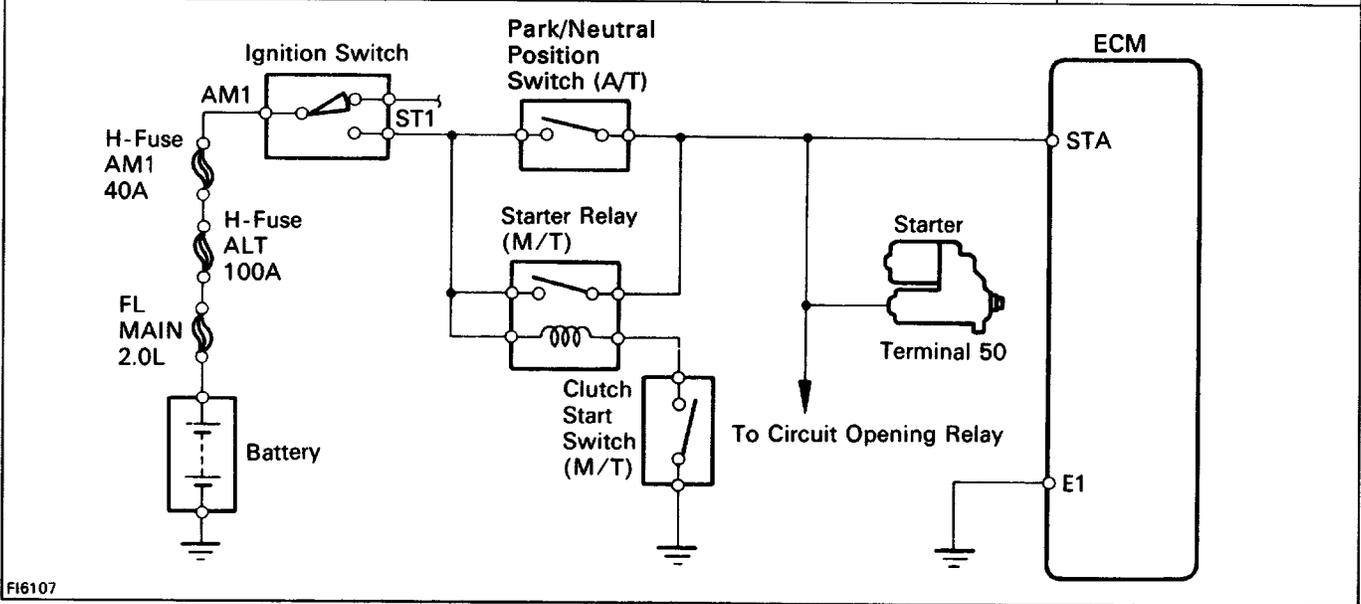
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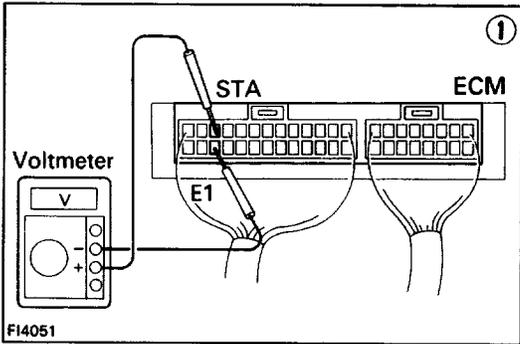
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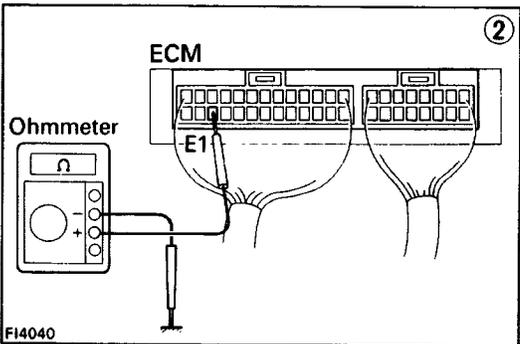
No.	Terminals	Trouble	Condition	STD voltage
8	STA - E1	No voltage	Cranking	6 - 14V



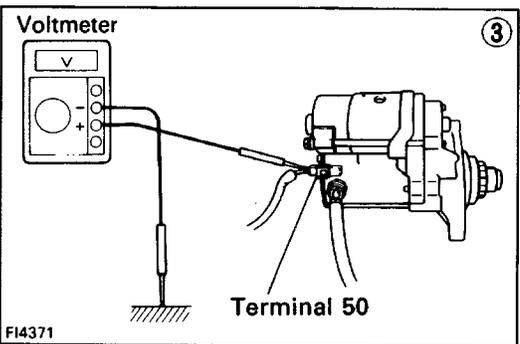
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FI4051



FI4040

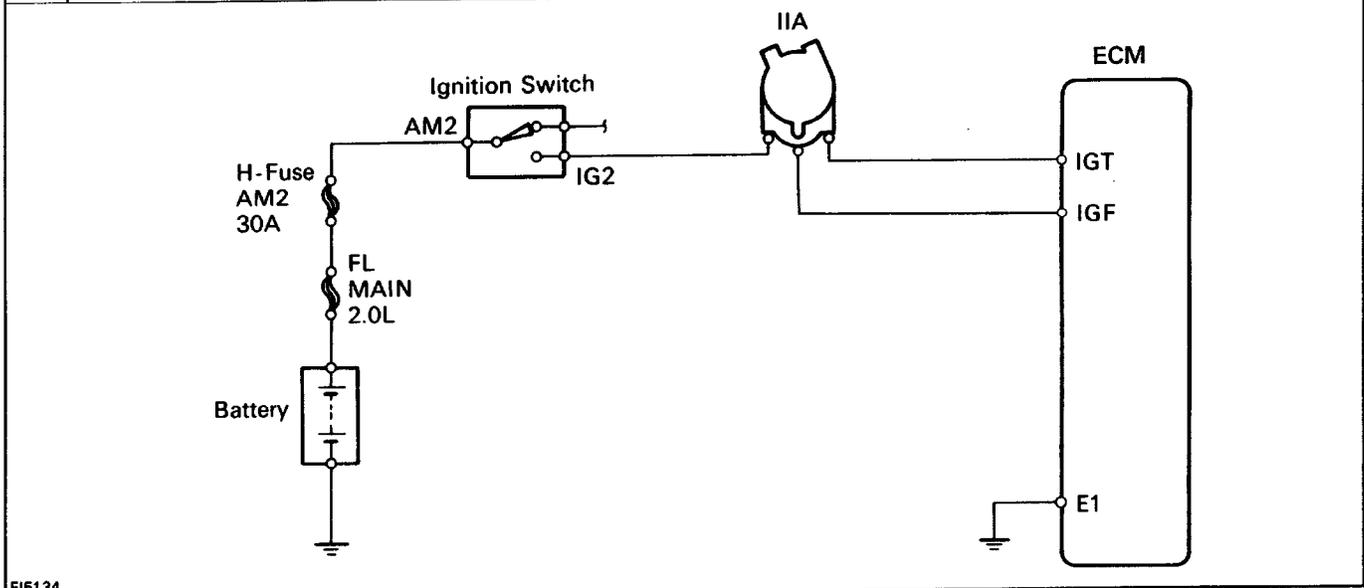


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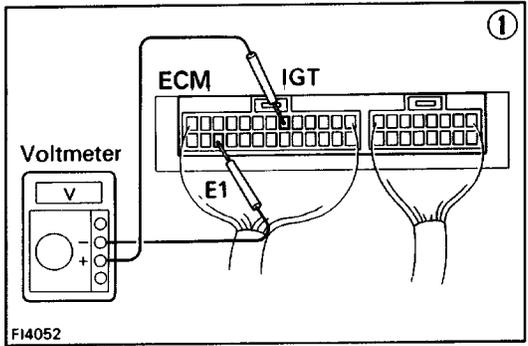
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    graph TD
      Start["(1) There is no voltage between ECM terminals STA and E1.  
(IG SW START)"] --> CheckStarter["Check starter operation."]
      CheckStarter -- OK --> CheckWiring["Check wiring between ECM terminal STA  
and ignition switch terminal ST1."]
      CheckStarter -- BAD --> CheckFuses["Check H-fuses fusible link, battery, wiring,  
ignition switch, clutch start switch, starter  
relay and Park/Neutral Position switch."]
      CheckWiring -- OK --> CheckGround["(2) Check wiring between ECM terminal E1  
and body ground."]
      CheckWiring -- BAD --> Repair1["Repair or replace."]
      CheckGround -- OK --> TryECM["Try another ECM."]
      CheckGround -- BAD --> Repair2["Repair or replace."]
      CheckFuses -- BAD --> Repair3["Repair or replace."]
      CheckFuses -- OK --> CheckVoltage["(3) Check that there is voltage at starter terminal 50.  
(IG SW START) STD voltage: 6 - 14 V"]
      CheckVoltage -- OK --> CheckStarter2["Check starter."]
      CheckVoltage -- NO --> CheckWiring2["Check wiring between ignition switch  
terminal ST1 and starter terminal 50."]
    
```

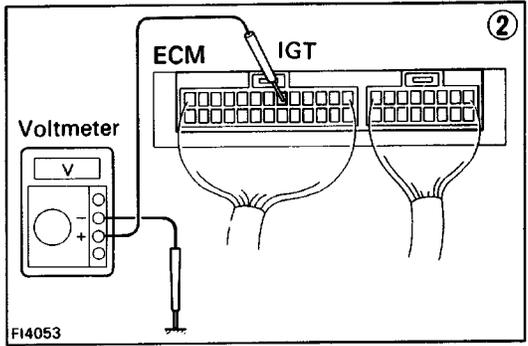
No.	Terminals	Trouble	Condition	STD voltage
9	IGT - E1	No voltage	Idling	0.7 - 1.0 V



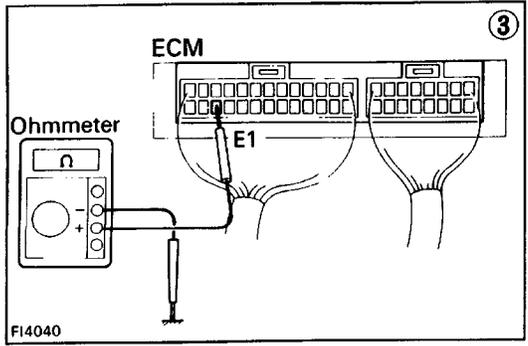
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FI4053

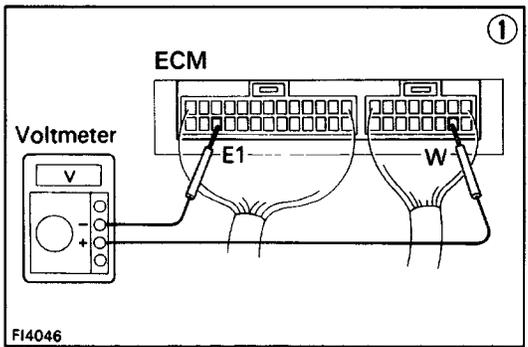
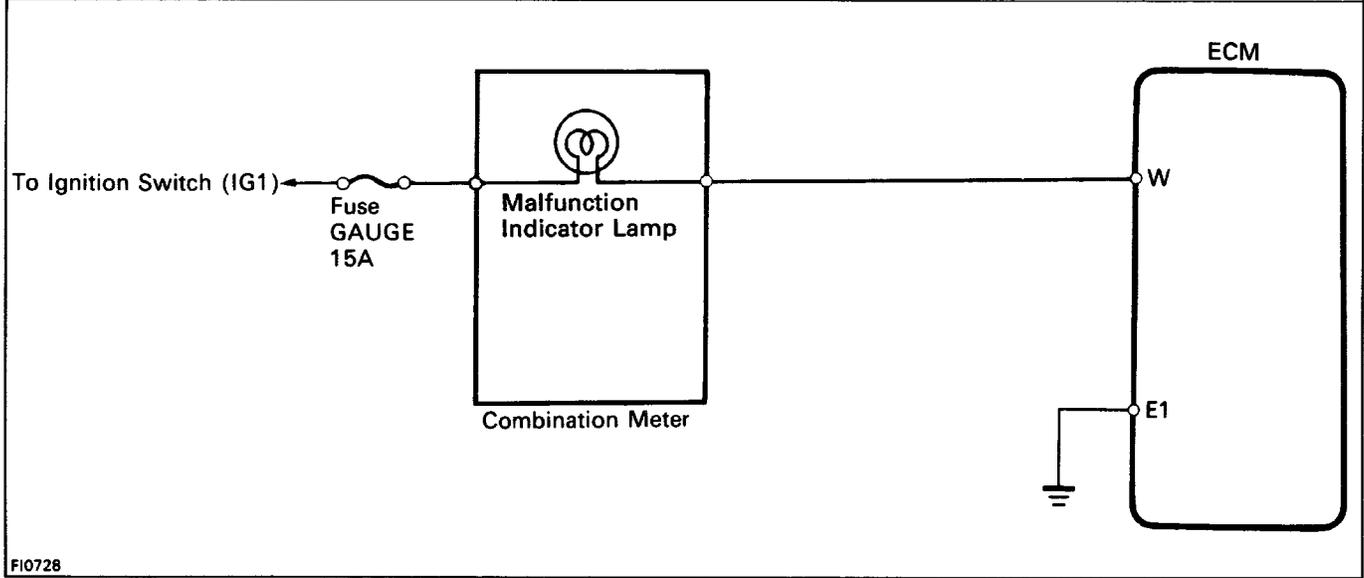


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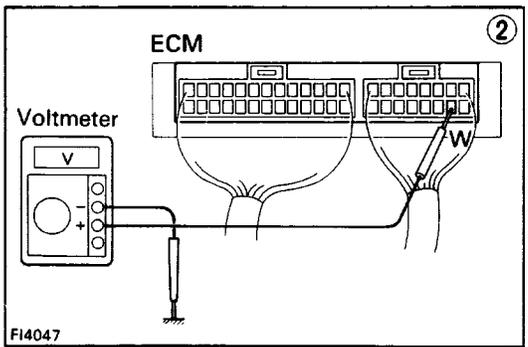
    graph TD
      A["(1) There is no voltage between ECM terminals IGT and E1.  
(Idling)"] --> B["(2) Check that there is voltage between ECM terminal IGT and body ground.  
(Idling)"]
      B -- NO --> C["Check H-fuse, fusible link and ignition switch."]
      B -- OK --> D["Check IIA.(See page IG-8)"]
      C -- BAD --> C1["Repair or replace."]
      C -- OK --> D
      D -- BAD --> D1["Repair or replace."]
      D -- OK --> E["Check wiring between ECM and battery."]
      E -- BAD --> E1["Repair or replace."]
      E -- OK --> F["Check igniter.(See page IG-9)"]
      F -- BAD --> F1["Repair or replace."]
      F -- OK --> G["In another ECM."]
      G --> B
  
```

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



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

(2) Check that there is voltage between ECM terminal W and body ground.

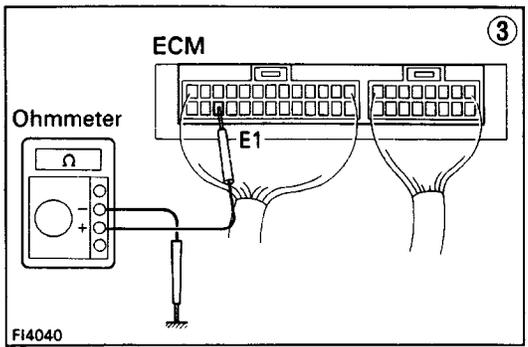


NO → Check GAUGE fuse (15A) and malfunction indicator lamp.
 OK → Check wiring between ECM terminal W and fuse. → Repair or replace

OK → In another ECM.
 BAD → Repair or replace.

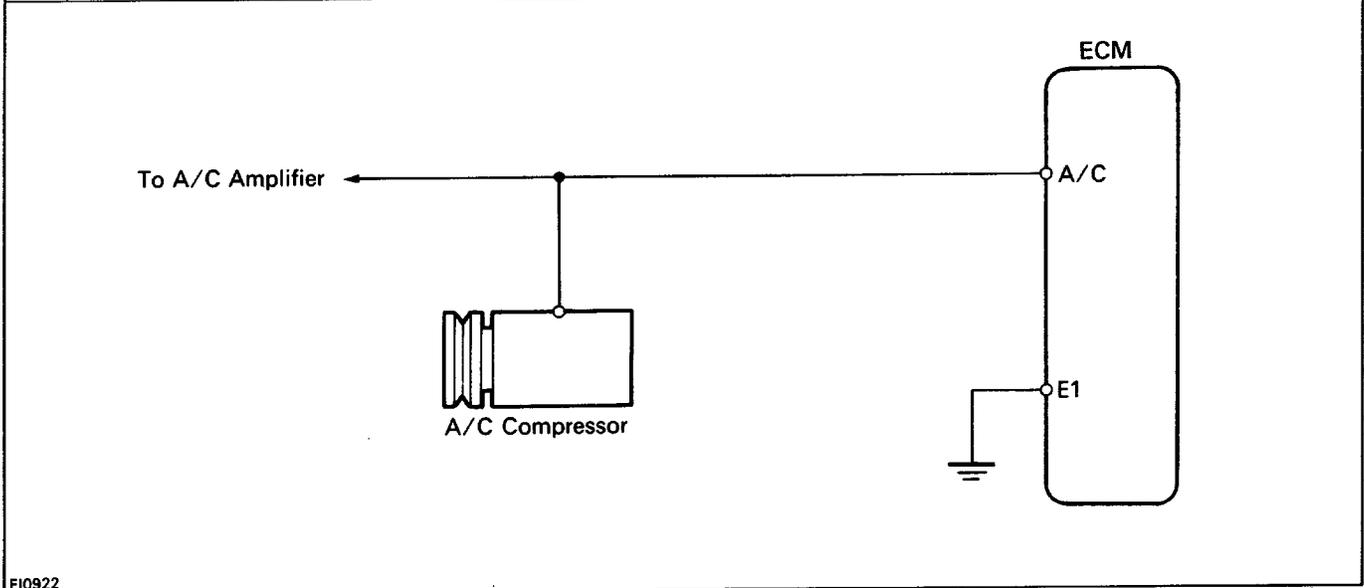
Check GAUGE fuse (15A) and malfunction indicator lamp.

OK → Check wiring between ECM terminal W and fuse. → Repair or replace
 BAD → Repair or replace.
 Fuse blows again → Check wiring between ECM terminal W and fuse. → Repair or replace

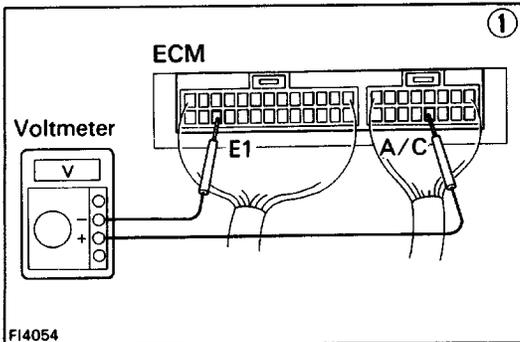


Check wiring between ECM terminal W and fuse. → Repair or replace

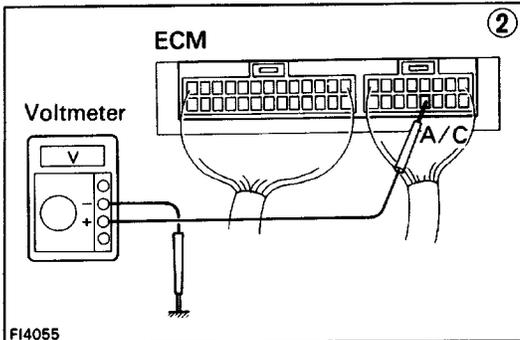
No.	Terminals	Trouble	Condition	STD voltage
11	A/C - E 1	No voltage	Air conditioning ON	8-14 V



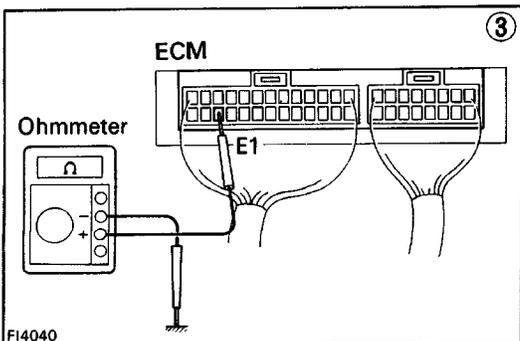
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FI4054



FI4055

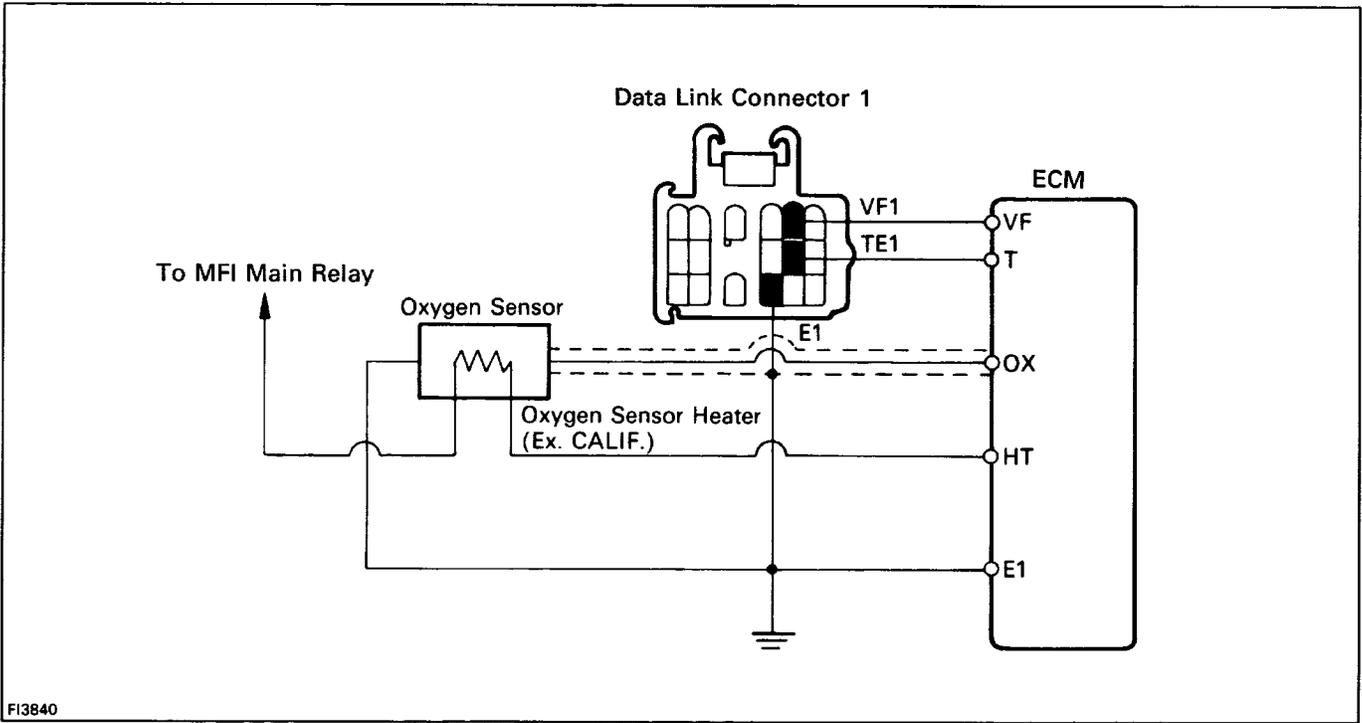


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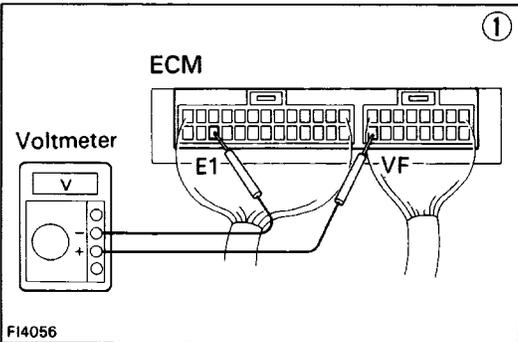
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    graph TD
      Step1["(1) There is no voltage between ECM terminals A/C and E1.  
(Air conditioning on)"]
      Step2["(2) Check that there is voltage between ECM terminal A/C and body ground."]
      Step3["(3) Check wiring between ECM terminal E1 and body ground."]
      CheckComp["Check compressor running."]
      CheckAmp["Check wiring between ECM terminal A/C and amplifier."]
      CheckAmpGnd["Check that there is voltage between amplifier terminal and body ground."]
      CheckAmpECM["Check wiring between amplifier and ECM or compressor."]
      TryECM["Try another ECM."]
      RepairECM["Repair or replace."]
      RepairAmp["Repair or replace."]
      RepairECM2["Repair or replace."]

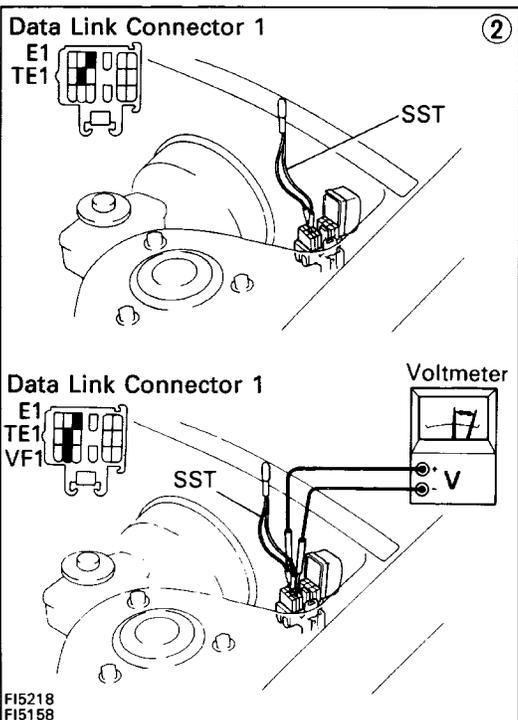
      Step1 --> Step2
      Step2 -- NO --> CheckComp
      Step2 -- OK --> Step3
      Step3 -- OK --> TryECM
      Step3 -- BAD --> RepairECM
      CheckComp -- OK --> CheckAmp
      CheckComp -- BAD --> CheckAmpGnd
      CheckAmp -- OK --> CheckAmpGnd
      CheckAmp -- BAD --> RepairECM2
      CheckAmpGnd -- BAD --> RepairAmp
      CheckAmpECM -- BAD --> RepairECM2
  
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FI3840



FI4056

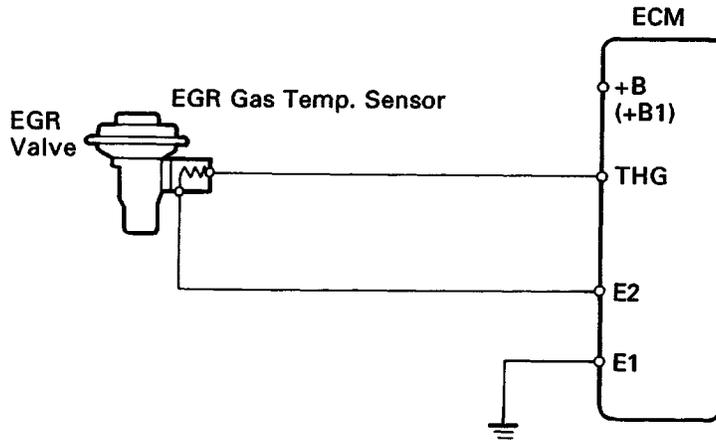


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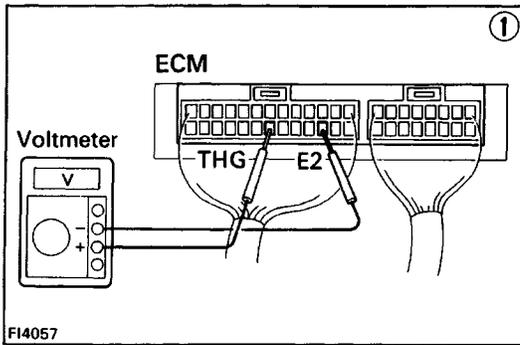
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    graph TD
      A["(1) There is no voltage between ECM terminals VF and E1."] --> B["Check that there is voltage between ECM terminal VF and body ground."]
      B -- NO --> C["Is air leaking into air induction system?"]
      B -- OK --> D["Check wiring between ECM terminal E1 and body ground."]
      D -- OK --> C
      D -- BAD --> E["Repair or replace."]
      C -- YES --> F["Repair air leak."]
      C -- NO --> G["Check spark plugs. (See page IG-7)"]
      G -- BAD --> H["Repair or replace."]
      G -- OK --> I["Check IIA and ignition system. (See page IG-4)"]
      I -- BAD --> H
      I -- OK --> J["Check fuel pressure. (See page FI-125)"]
      J -- BAD --> H
      J -- OK --> K["Check injectors. (See page FI-155)"]
      K -- BAD --> H
      K -- OK --> L["Check vacuum sensor. (See page FI-233)"]
      L -- BAD --> H
      L -- OK --> M["(2) Check operation of oxygen sensor. (See page FI-237)"]
      M -- OK --> N["System Normal"]
      M -- BAD --> O["Check wiring between oxygen sensor and ECM."]
      O -- BAD --> P["Repair wiring."]
      O -- OK --> Q["Replace oxygen sensor."]
    
```

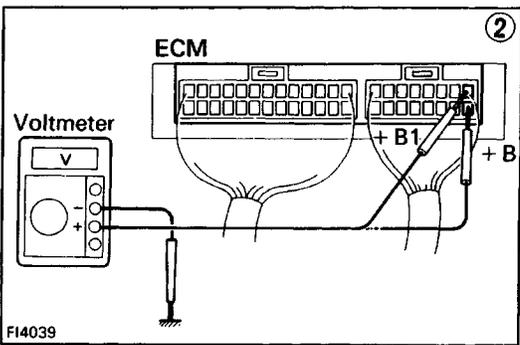
CALIF. only



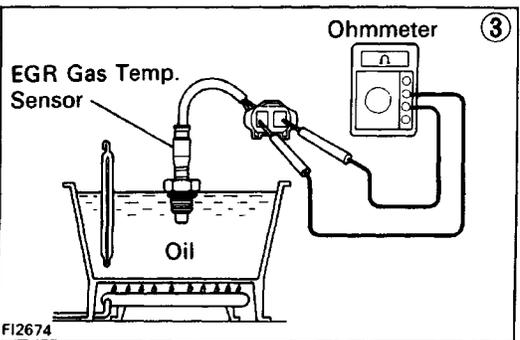
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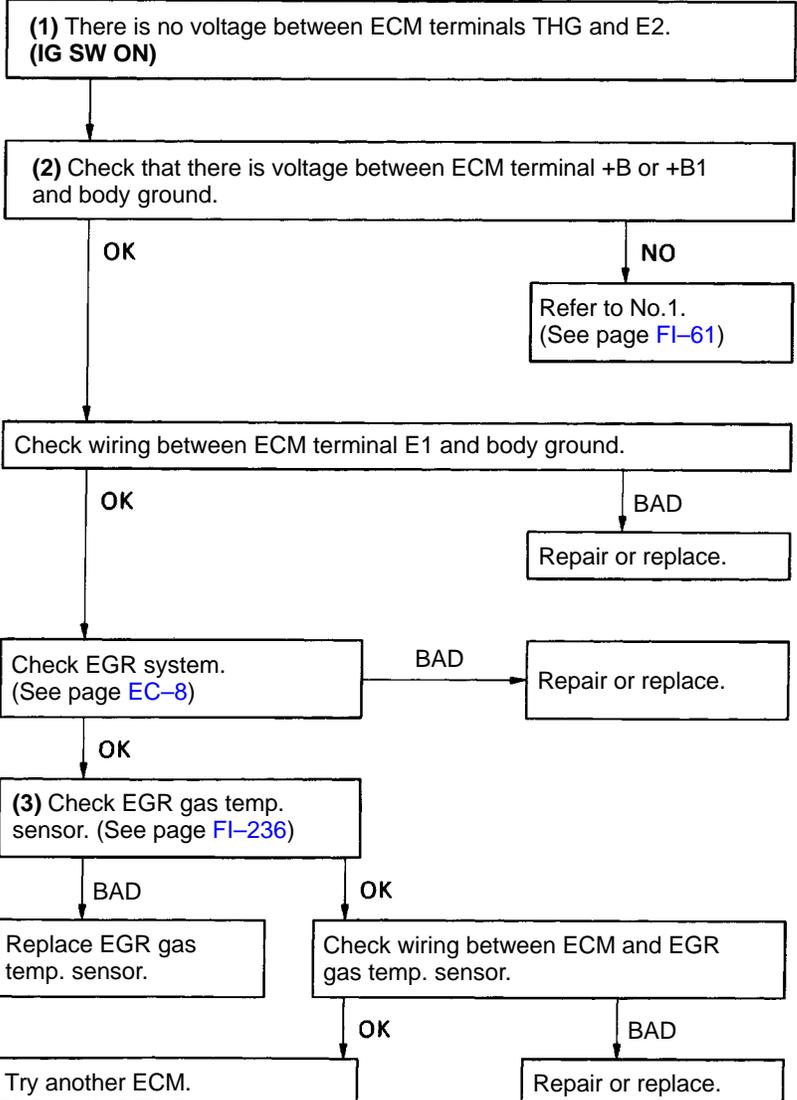
FI4057

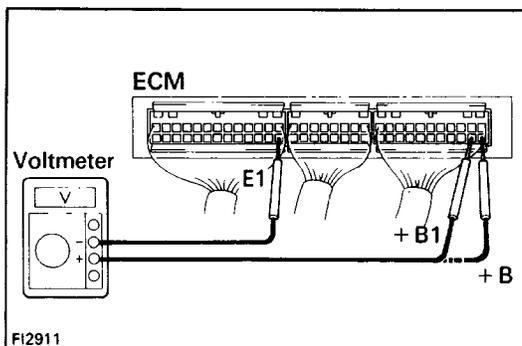


FI4039



FI2674





SFI SYSTEM CHECK PROCEDURE (3S-GTE)

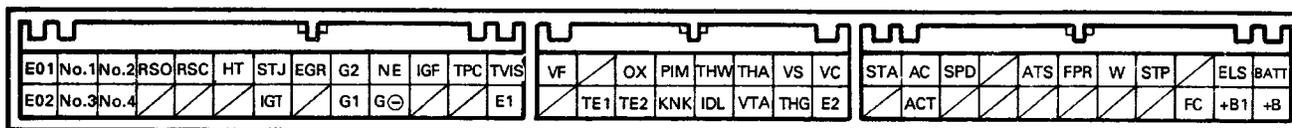
HINT:

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

Terminals of ECM (3S-GTE)

Symbol	Terminal Name	Symbol	Terminal Name	Symbol	Terminal Name
E01	POWER GROUND	TPC	TURBOCHARGING PRESSURE VSV	AC	A/C MAGNET SWITCH
E ₂	POWER GROUND		—	ACT	A/C AMPLIFIER
No.1	INJECTOR (No.1)	T-VIS	T-VIS VSV	SPD	SPEED SENSOR
No.3	INJECTOR (No.3)	E1	ENGINE GROUND		—
No.2	INJECTOR (No.2)	VF	DATA LINK CONNECTOR 1		—
No.4	INJECTOR (No.4)		—		—
RSO	IAC VALVE		—	ATS	A/C AMPLIFIER
	—	TE1	DATA LINK CONNECTOR 1		—
RSC	IAC VALVE	OX	OXYGEN SENSOR	FPR	FUEL PUMP RELAY
	—	TE2	DATA LINK CONNECTOR 1		—
HT	OXYGEN SENSOR HEATER	PI M	TURBOCHARGING PRESSURE SENSOR	W	MALFUNCTION INDICATOR LAMP
	—	KNK	KNOCK SENSOR		—
STJ	COLD START INJECTOR	THW	ENGINE COOLANT TEMP. SENSOR	STP	STOP LIGHT SWITCH
IGT	IGNITER	IDL	THROTTLE POSITION SENSOR		—
EGR	EGR VSV	THA	AIR TEMP. SENSOR		—
	—	VTA	THROTTLE POSITION SENSOR	FC	CIRCUIT OPENING RELAY
G2	DISTRIBUTOR	VS	VOLUME AIR FLOW METER	E LS	HEADLIGHT DEFOGGER
G1	DISTRIBUTOR	*THG	EGR GAS TEMP. SENSOR	+B I	SFI MAIN RELAY
NE	DISTRIBUTOR	VC	SENSOR POWER SOURCE	BATT	BATTERY
G ⊖	DISTRIBUTOR	E2	SENSOR GROUND	+B	SFI MAIN RELAY
IGF	IGNITER	STA	STARTER SWITCH	*CALIF. only	
	—		—		

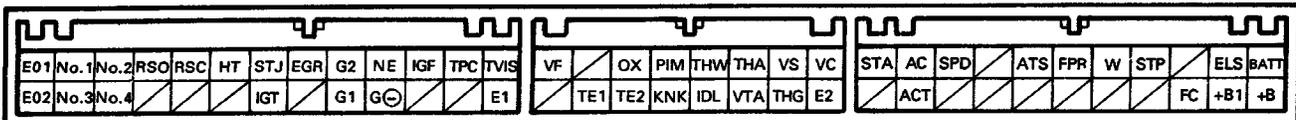
ECM Terminals



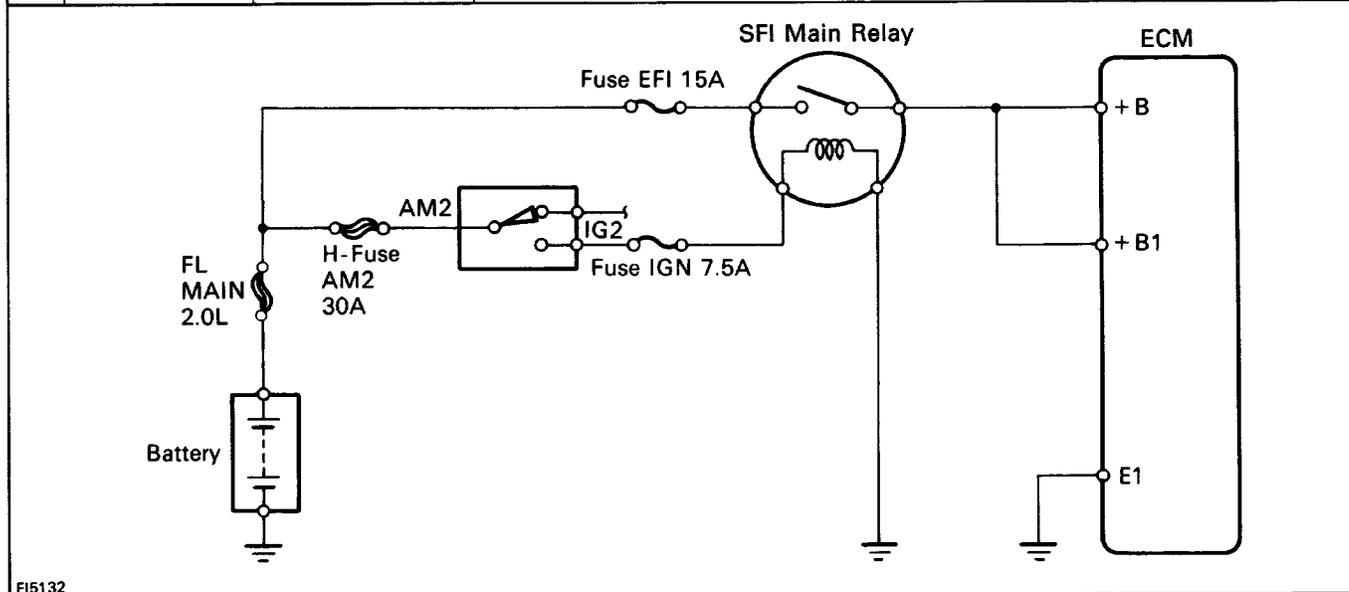
Voltage at ECM Wiring Connectors (3S-GTE)

No.	Terminals	Condition		STD voltage (V)	See page
1	+ B - E1 + B1	IG SW ON		10-14	FI-7s
2	BATT - E1	-		10-14	FI-77
3	ID L - E2	IG SW ON	Throttle valve open	4.5-5.5	FI-7 s
	VC - E2		-	4.5-5.5	
	VTA - E 2		Throttle valve fully closed (Throttle opener must be cancelled first)	0.1 -1.0	
			Throttle valve fully open	3.2-4.2	
4	VC - E2	IG SW ON	-	4.5-5.5	FI-80
	VS - E2		Measuring plate fully closed	3.7-4.3	
			Measuring plate fully open	0.2-0.5	
			Idling	1.6-4.1	
	3,000 rpm		1.0-2.0		
5	No.1 No.2 E01 No.3 E02 No.4	IG SW ON		10-14	FI-81
6	THA - E2	IG SW ON	Intake air temp. 20°C (68°F)	1 -3	FI-82
7	TH W - E2		Engine coolant temp. 80°C (176°F)	0.1 -1.1	FI-83
8	STA - E 1	Cranking		6-14	FI-84
9	IGT - E1	Cranking or idling		0.8-1.2	FI-85
10	RSC - E1 RSO	IG SW ON	ECM connectors disconnected	8-14	FI-85
11	W -E1	No trouble (malfunction indicator lamp off) and engine running		10-14	F1-87
12	PIM - E2	IG SW ON		2.5-4.5	FI-88
	VC - E2			4.5-5.5	
13	AC - E 1	IG SW ON	Air conditioning ON	8-14	FI-89

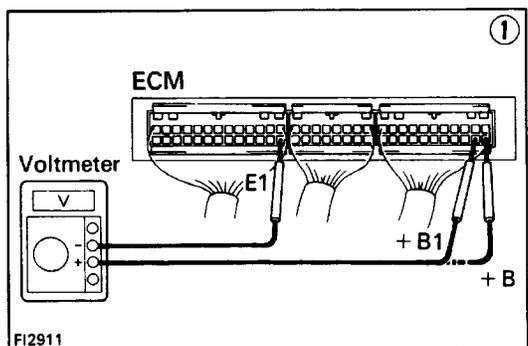
ECM Terminals



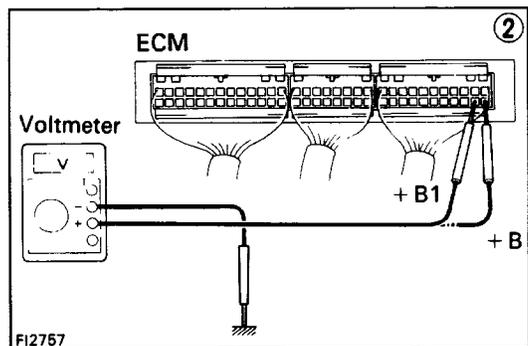
No.	Terminals	Trouble	Condition	STD voltage
1	+ B _ E1 + B1	No voltage	IG SW ON	10 - 14 V



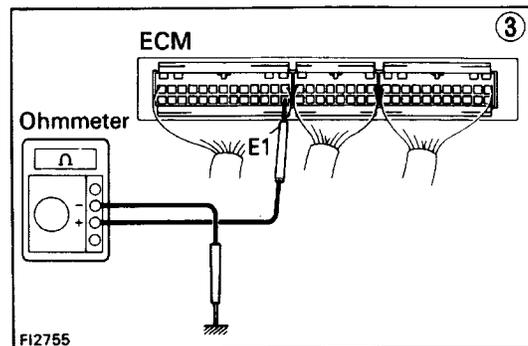
FI5132



FI2911



FI2757

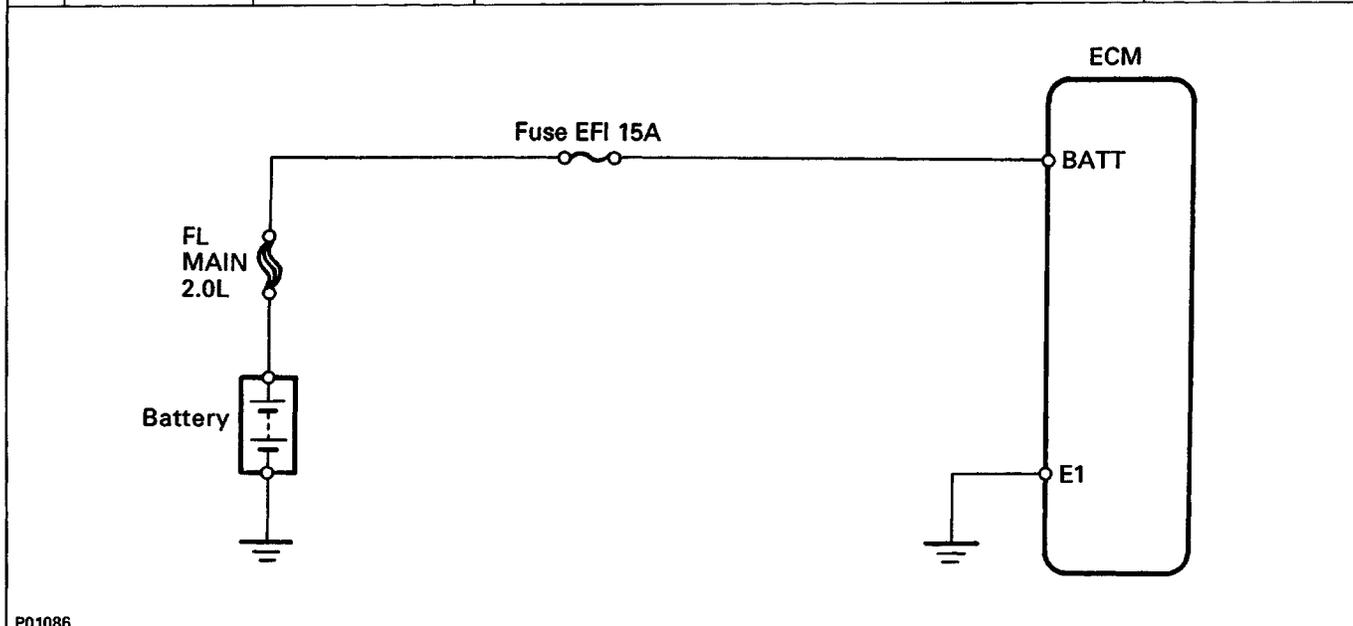


FI2755

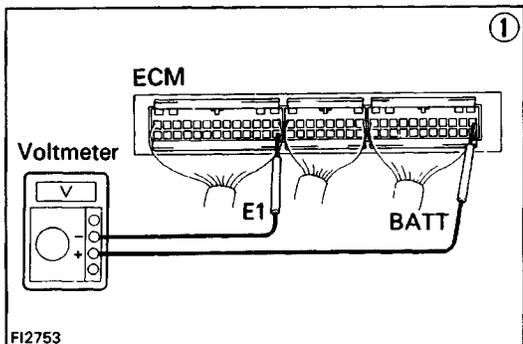
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    graph TD
      Step1["(1) There is no voltage between ECM terminals +B or +B1 and E1. (IG SW ON)"]
      Step2["(2) Check that there is voltage between ECM terminal +B or +B1 and body ground. (IG SW ON)"]
      Step3["(3) Check wiring between ECM terminal E1 and body ground"]
      Step4["Check fuses, H-fuse, fusible link and ignition switch."]
      Step5["Check SFI main relay. (See page FI-216)"]
      Step6["Check wiring between SFI main relay and battery."]
      
      Step1 --> Step2
      Step2 -- NO --> Step4
      Step2 -- OK --> Step3
      Step3 -- OK --> TryECM["Try another ECM."]
      Step3 -- BAD --> RepairECM["Repair or replace."]
      Step4 -- BAD --> RepairFuses["Repair or replace."]
      Step4 -- OK --> Step5
      Step5 -- BAD --> ReplaceRelay["Replace."]
      Step5 -- OK --> Step6
      Step6 -- BAD --> RepairWiring["Repair or replace."]
      Step6 -- OK --> End[" "]
  
```

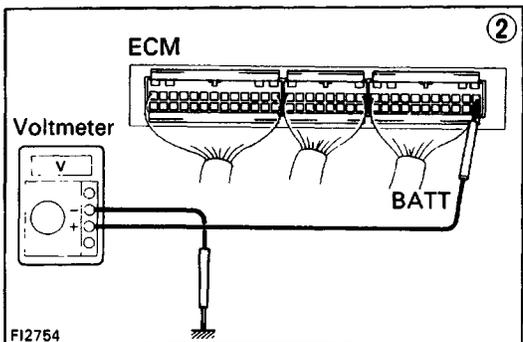
No.	Terminals	Trouble	Condition	STD voltage
2	BATT - E1	No voltage	-	10 - 14 V



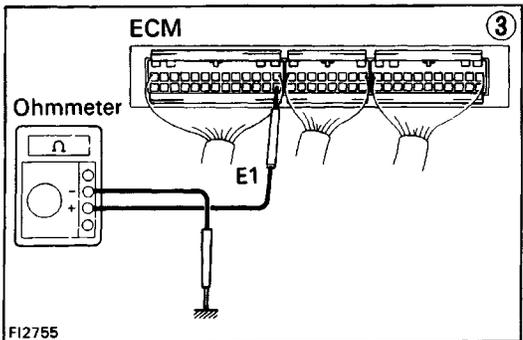
P01086



FI2753



FI2754

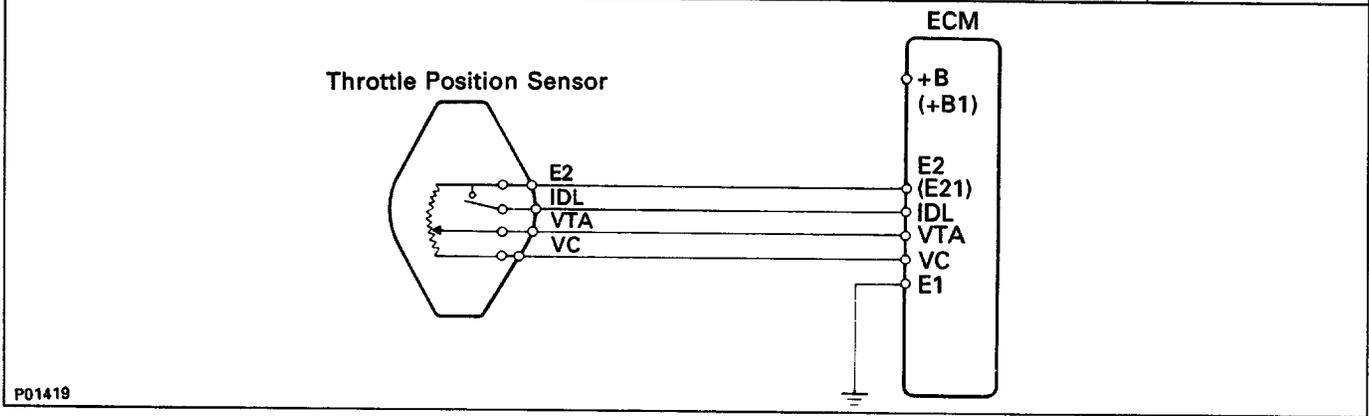


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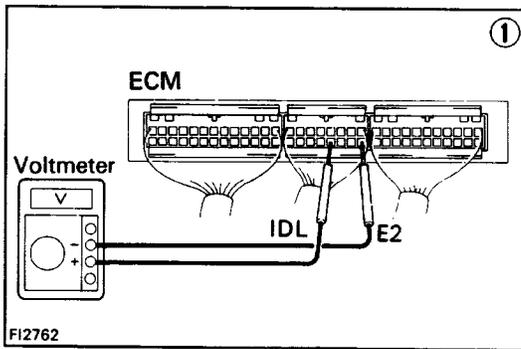
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    graph TD
      Step1["(1) There is no voltage between ECM terminals BATT and E1."] --> Step2["(2) Check that there is voltage between ECM terminal BATT and body ground."]
      Step2 -- NO --> Fuse["Check fuse and fusible link."]
      Step2 -- OK --> Step3["(3) Check wiring between ECM terminal E1 and body ground."]
      Fuse -- BAD --> FuseReplace["Replace."]
      Fuse -- OK --> Step3
      Step3 -- OK --> TryECM["Try another ECM."]
      Step3 -- BAD --> RepairECM["Repair or replace."]
      Step3 --> Step4["Check wiring between ECM terminal and battery."]
      Step4 -- BAD --> RepairWiring["Repair or replace."]
      Step4 -- OK --> End[" "]
  
```

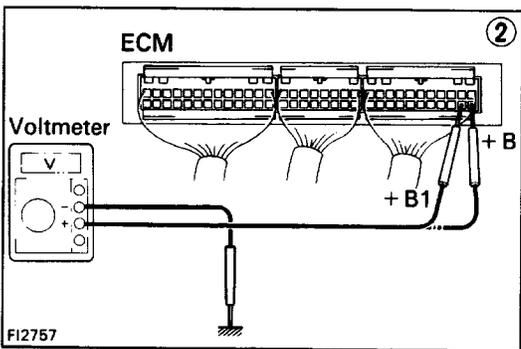
No.	Terminals	Trouble	Condition	STD voltage	
3	IDL - E2	No voltage	IG SW ON	Throttle valve open	4.5 - 5.5 V
	VC - E2			4.5 - 5.5 V	
	VTA - E2			Throttle valve fully closed (Throttle opener must be cancelled first)	0.1 - 1.0 V
				Throttle valve fully open	3.2 - 4.2 V



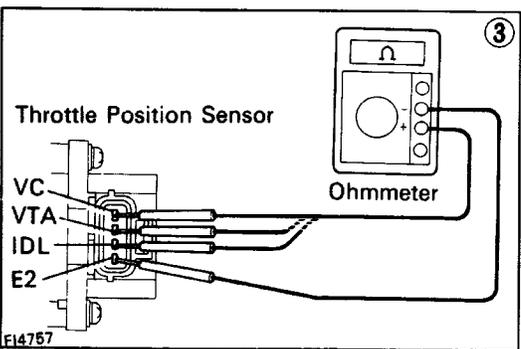
P01419



FI2762



FI2757

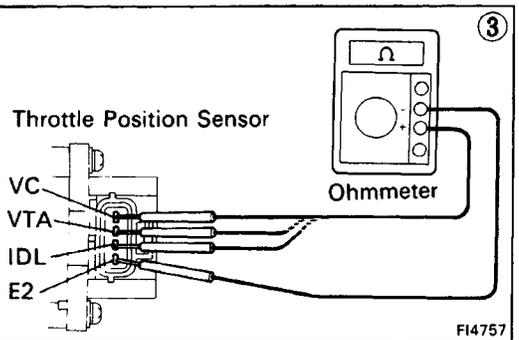
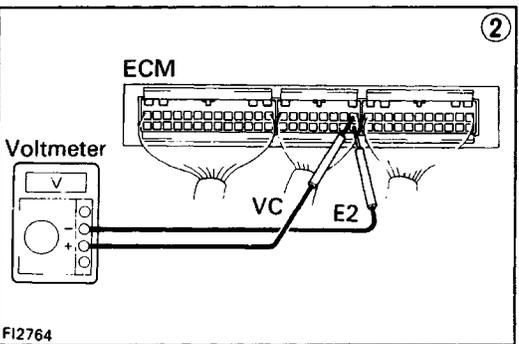
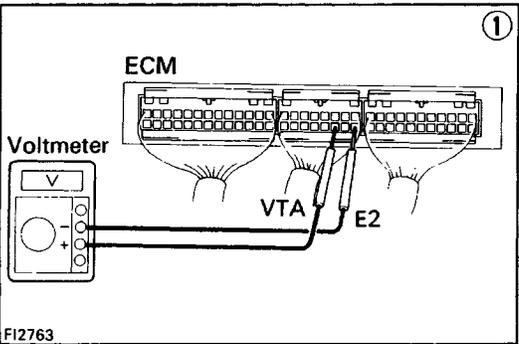
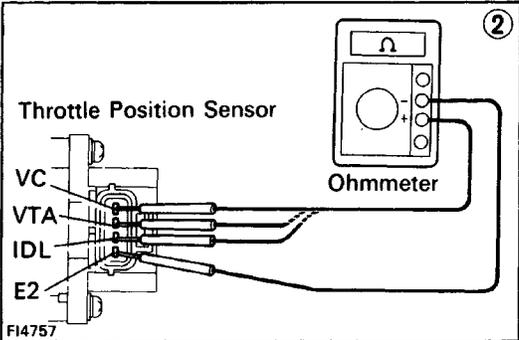
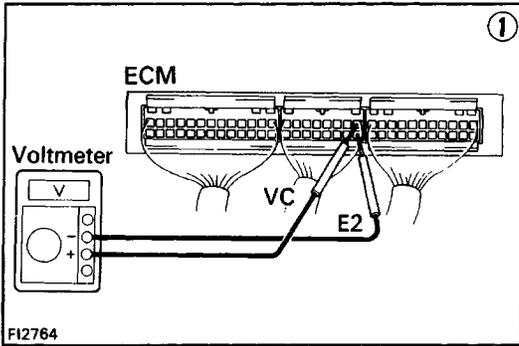


FI4757

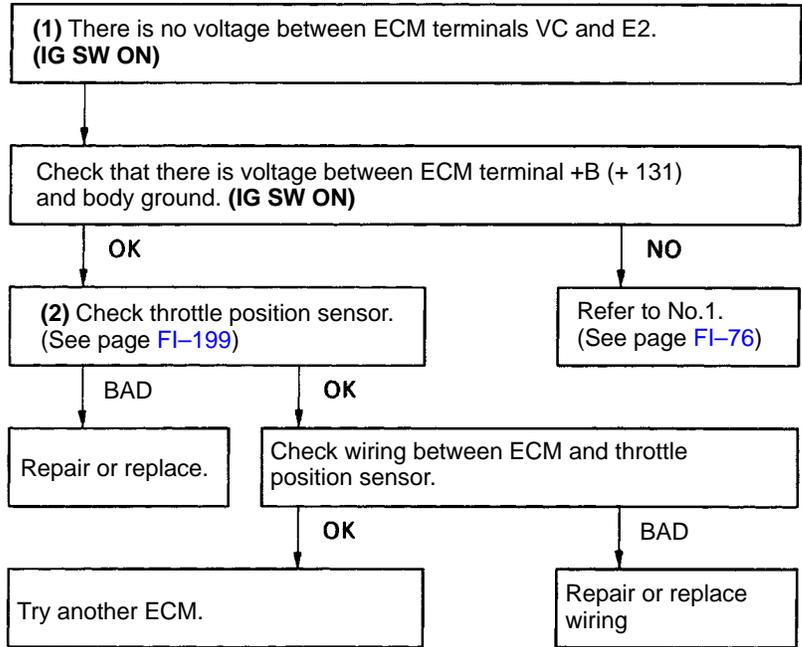
• IDL - E2

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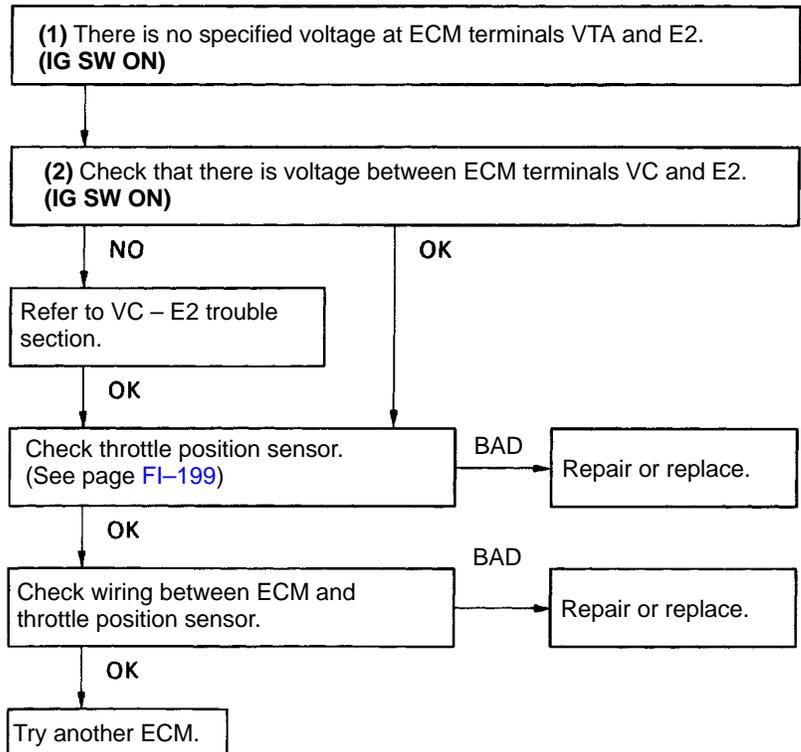
    graph TD
      A["(1) There is no voltage between ECM terminals IDL and E2.  
(IG SW ON) (Throttle valve open)"] --> B["(2) Check that there is voltage between ECM terminal + B (+ 131)  
and body ground. (IG SW ON)"]
      B -- NO --> C["Refer to No.1.  
(See page FI-76)"]
      B -- OK --> D["Check wiring between ECM terminal E1 and body ground."]
      D -- OK --> E["Try another ECM."]
      D -- BAD --> F["Repair or replace."]
      C -- BAD --> F
      C -- OK --> G["(3) Check throttle position sensor.  
(See page FI-199)"]
      G -- BAD --> H["Repair or replace  
throttle position sensor."]
      G -- OK --> I["Check wiring between ECM and  
throttle position sensor."]
      I -- OK --> J["Try another ECM."]
      I -- BAD --> F
  
```



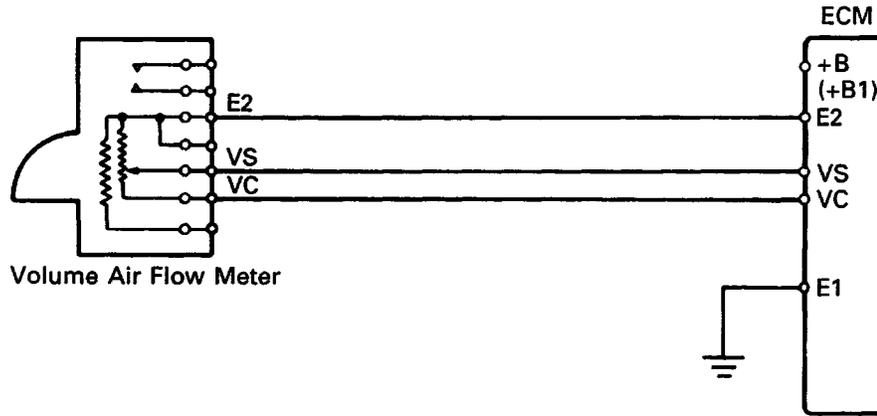
• VC - E2



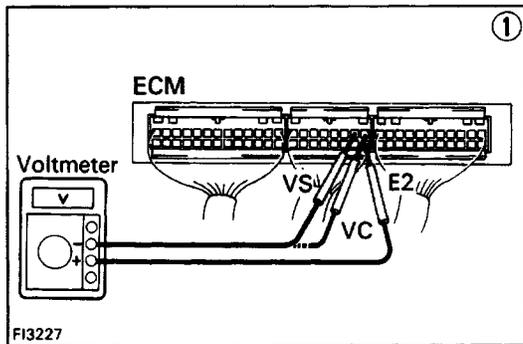
• VTA - E2



No.	Terminals	Trouble	Condition	STD voltage	
4	VC - E2	No voltage	IG SW ON	-	4.5 - 5.5 V
	VS - E2			Measuring plate fully closed	3.7 - 4.3 V
				Measuring plate fully open	0.2 - 0.5 V
	VS - E2		Idle	1.6 - 4.1 V	
			3,000 rpm	1.0 - 2.0 V	



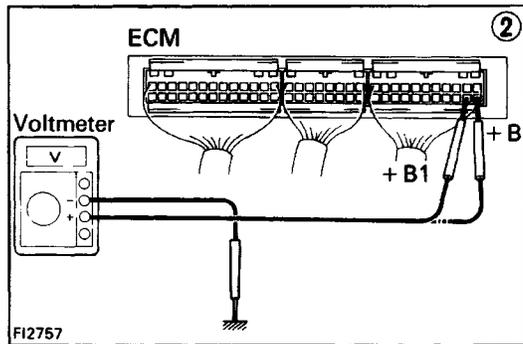
FI6032



FI3227

(1) There is no specified voltage at ECM terminals VC or VS and E2. (IG SW ON)

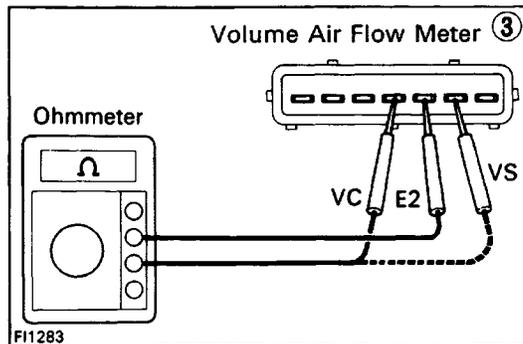
(2) Check that there is voltage between ECM terminal +B (+B1) and body ground. (IG SW ON)



FI2757

Check wiring between ECM terminal E1 and body ground.

(3) Check volume air flow meter. (See page FI-183)



FI1283

Repair or replace volume air flow meter.

Try another ECM.

Check wiring between ECM and volume air flow meter.

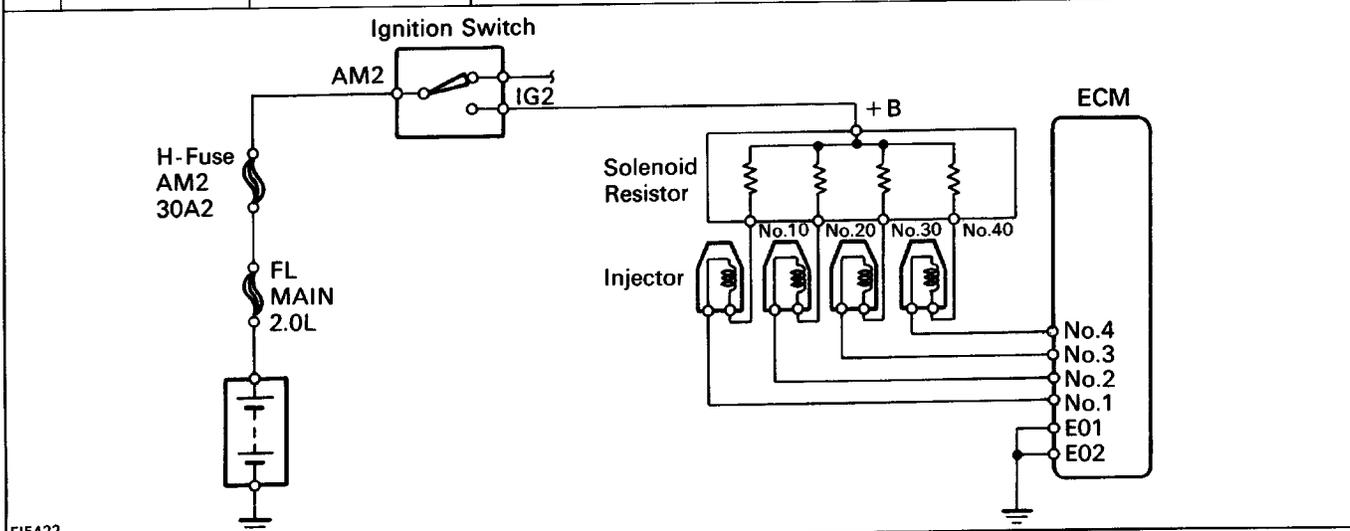
Repair or replace.

Refer to No.1. (See page FI-76)

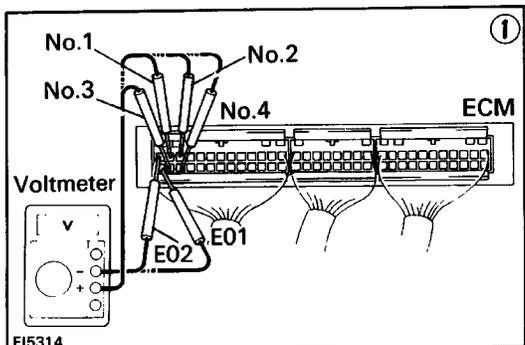
Repair or replace.

Repair or replace.

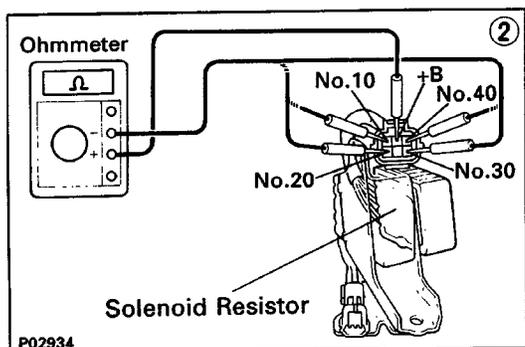
No.	Terminals	Trouble	Condition	STD voltage
5	No. 1 No. 2 - E01 No. 3 - E02 No. 4	No voltage	IG SW ON	10-14V



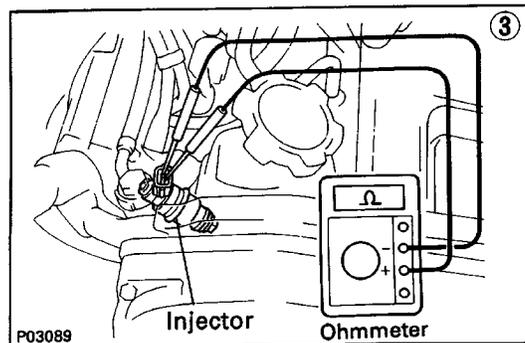
FI5422



FI5314



P02934

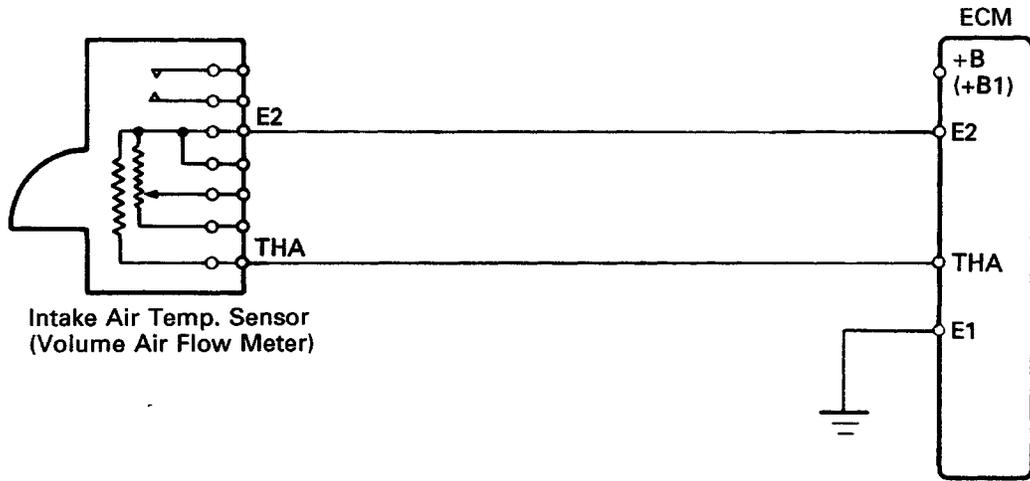


P03089

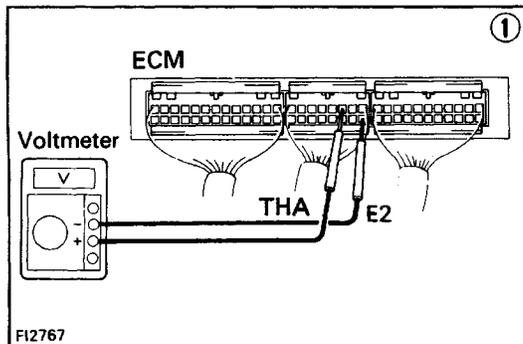
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    graph TD
      A["(1) There is no voltage between ECM terminals No.1, No-2, No.3 and/ or No.4 and E01 and/ or E02. (IG SW ON)"] --> B["Check that there is specified voltage between solenoid resistor terminal +B and body ground. STD voltage: 10 - 14V"]
      B -- OK --> C["(2) Check resistance between +B of solenoid resistor and each other terminal. STD resistance: 4 - 6 Ω"]
      B -- NO --> D["Check H-fuse, fusible link, wiring and ignition switch. BAD -> Repair or replace."]
      C -- OK --> E["(3) Check resistance of each injector. STD resistance: 2 - 4 Ω"]
      C -- NO --> F["Replace resistor."]
      E -- OK --> G["Check wiring between ECM and resistor"]
      E -- BAD --> H["Replace injector."]
      G -- BAD --> I["Repair or replace wiring"]
      G -- OK --> J["Try another ECM."]
    
```

No.	Terminals	Trouble	Condition		STD voltage
6	THA - E2	No voltage	IG SW ON	Intake air temperature 20°C (68°F)	1-3 V



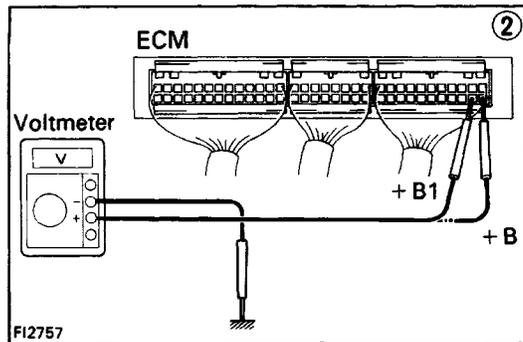
FI6030



FI2767

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

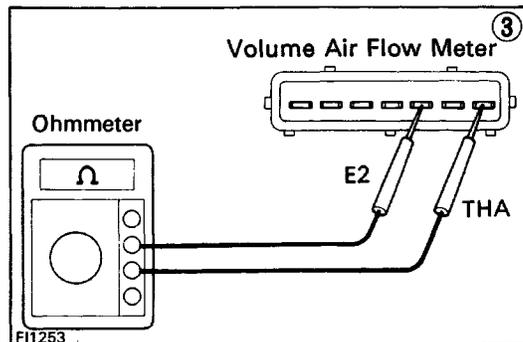
(2) Check that there is voltage between ECM terminal +B (+B1) and body ground. (IG SW ON)



FI2757

Check wiring between ECM terminal E1 and body ground.

(3) Check intake air temp. sensor (See page FI-183)



FI1253

OK

Check wiring between ECM and intake air temp. sensor.

6AD

Replace volume air flow meter-

OK

Try another ECM.

NO

Refer to No.1. (See page FI-76)

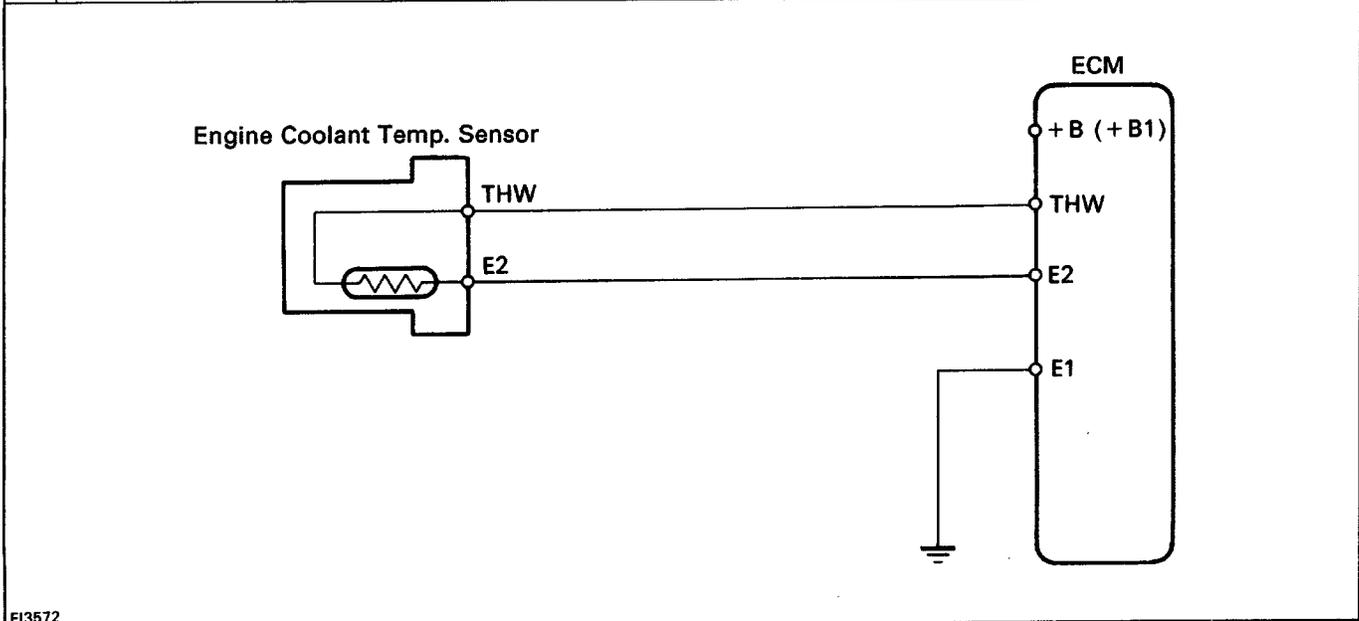
BAD

Repair or replace.

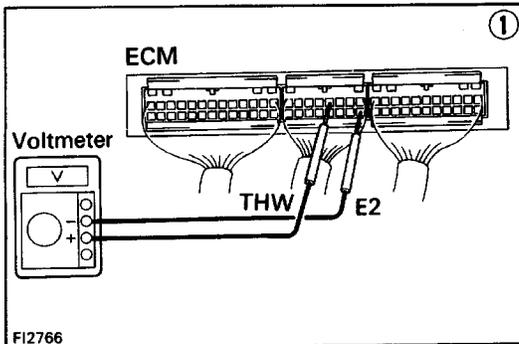
BAD

Repair or replace.

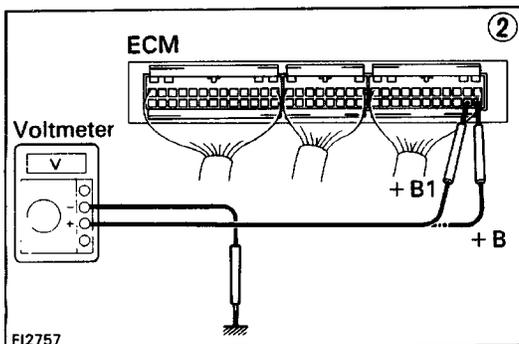
No.	Terminals	Trouble	Condition		STD voltage
7	THW - E2	No voltage	IG SW ON	Engine coolant temperature 80°C (176°F)	0.1 - 1.1 V



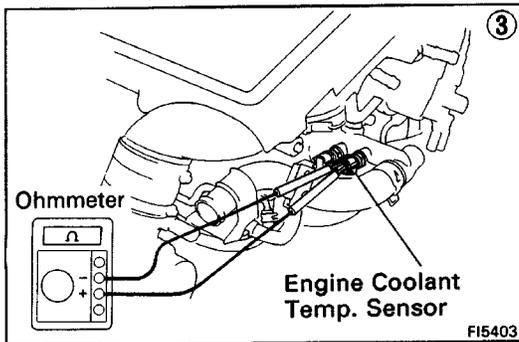
FI3572



FI2766



FI2757

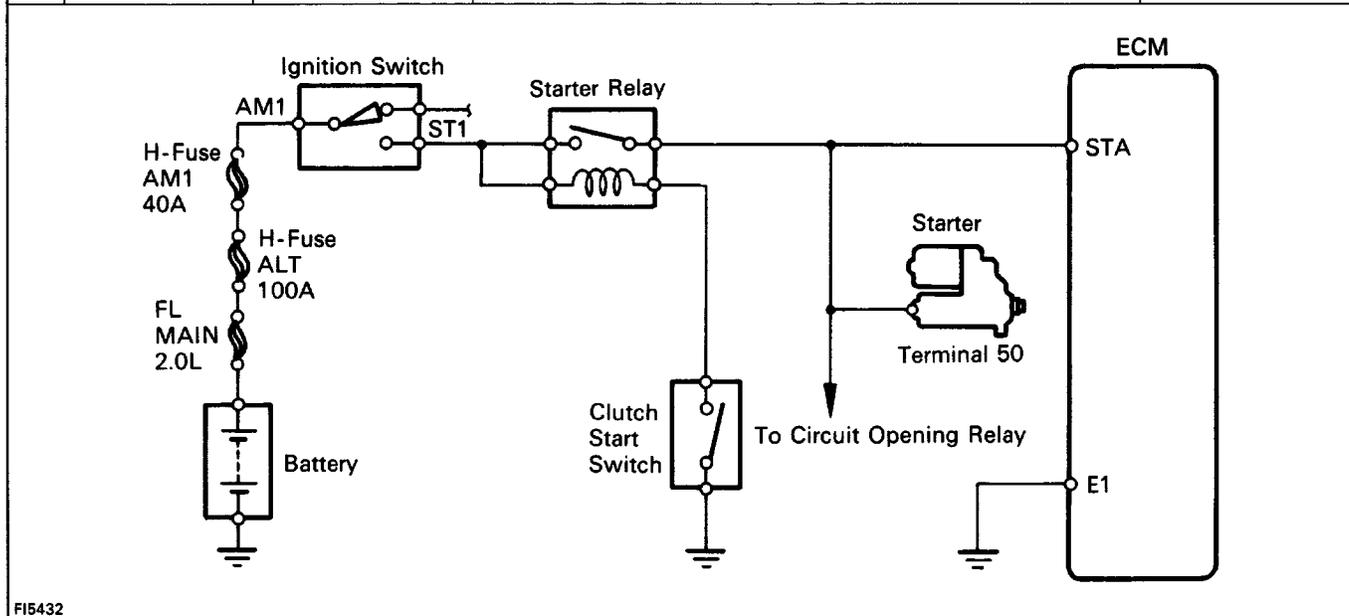


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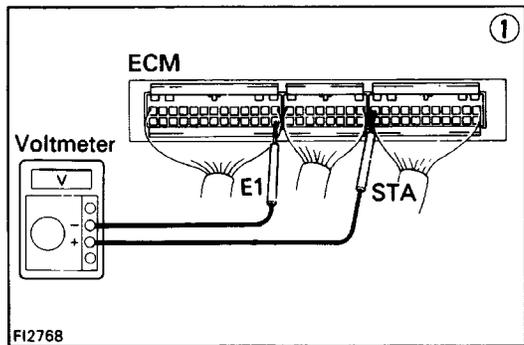
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    graph TD
      A["(1) There is no voltage between ECM terminals THW and E2  
(IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminal + B 1+ B1 and  
body ground.(IG SW ON)"]
      B -- OK --> C["Check wiring between ECM terminal E1 and body ground."]
      B -- NO --> D["Refer to No1.  
(See page FI-76)"]
      C -- OK --> E["Check engine coolant temp.  
sensor. (See page FI-231)"]
      C -- BAD --> F["Repair or replace."]
      E -- BAD --> G["Replace engine  
coolant temp.  
sensor."]
      E -- OK --> H["Check wiring between ECM and  
engine coolant temp. sensor."]
      H -- OK --> I["Try another ECM."]
      H -- BAD --> J["Repair or replace."]
    
```

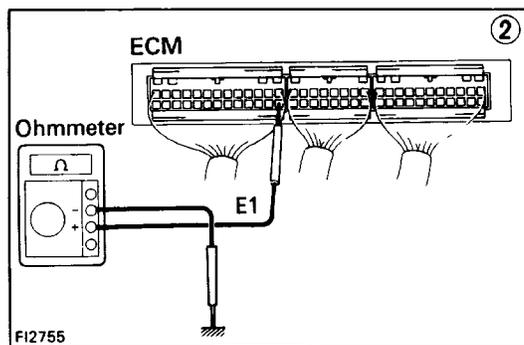
No.	Terminals	Trouble	Condition	STD voltage
8	STA - E1	No voltage	Cranking	6-14V



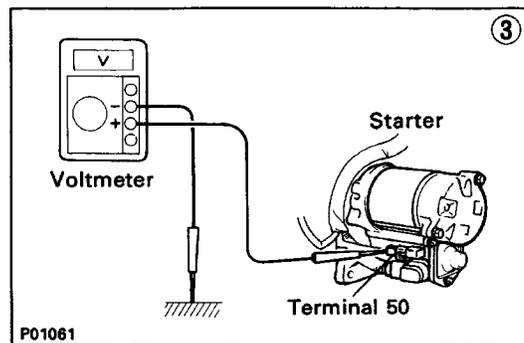
FI5432



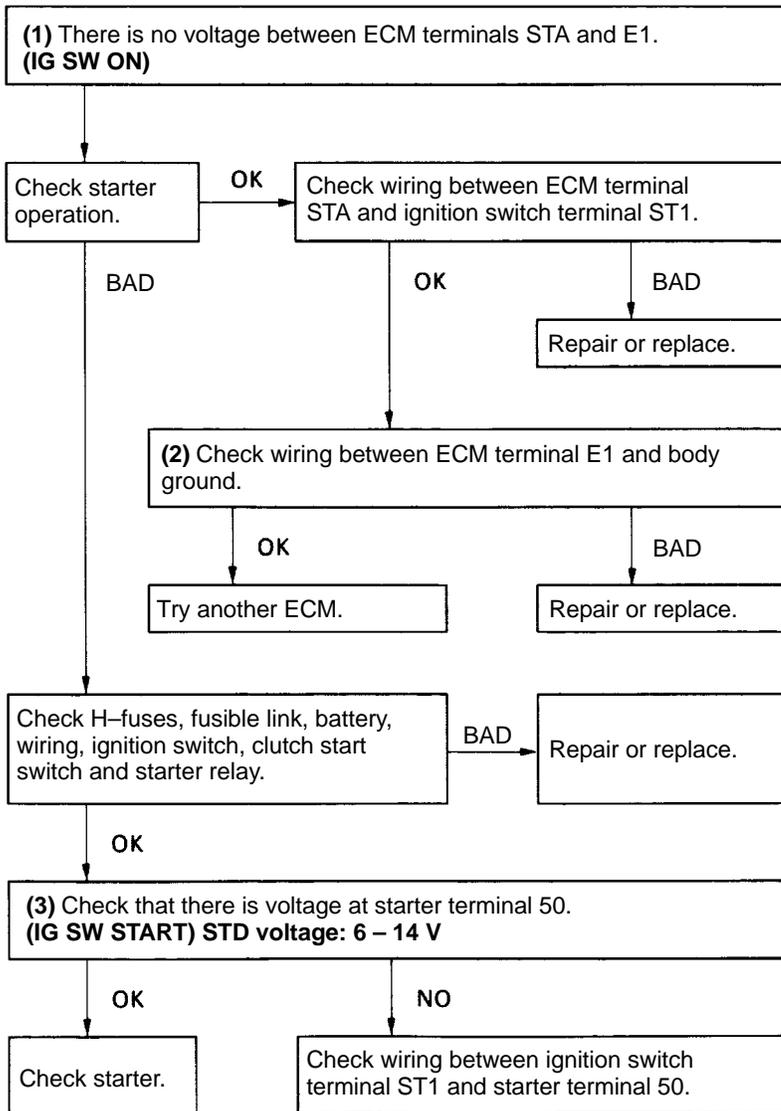
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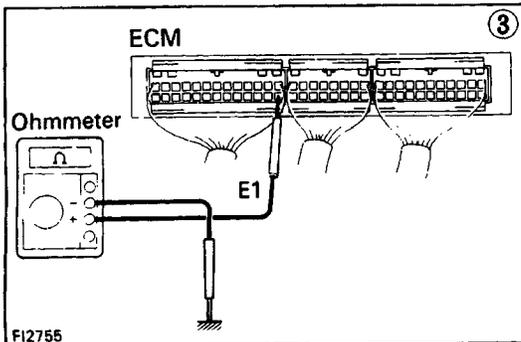
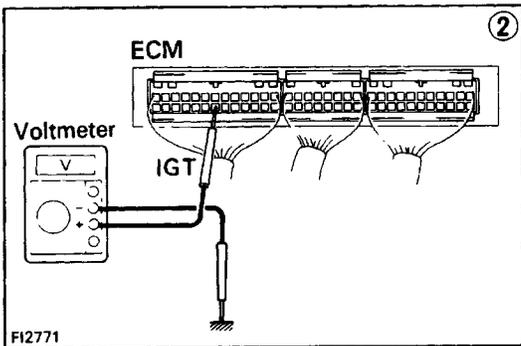
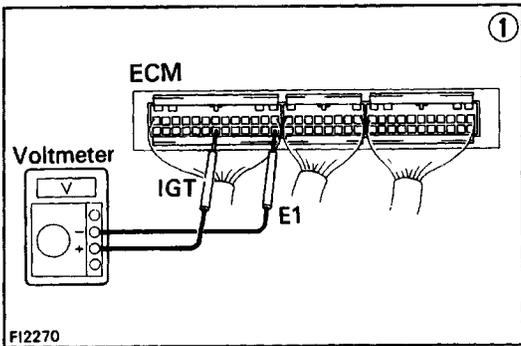
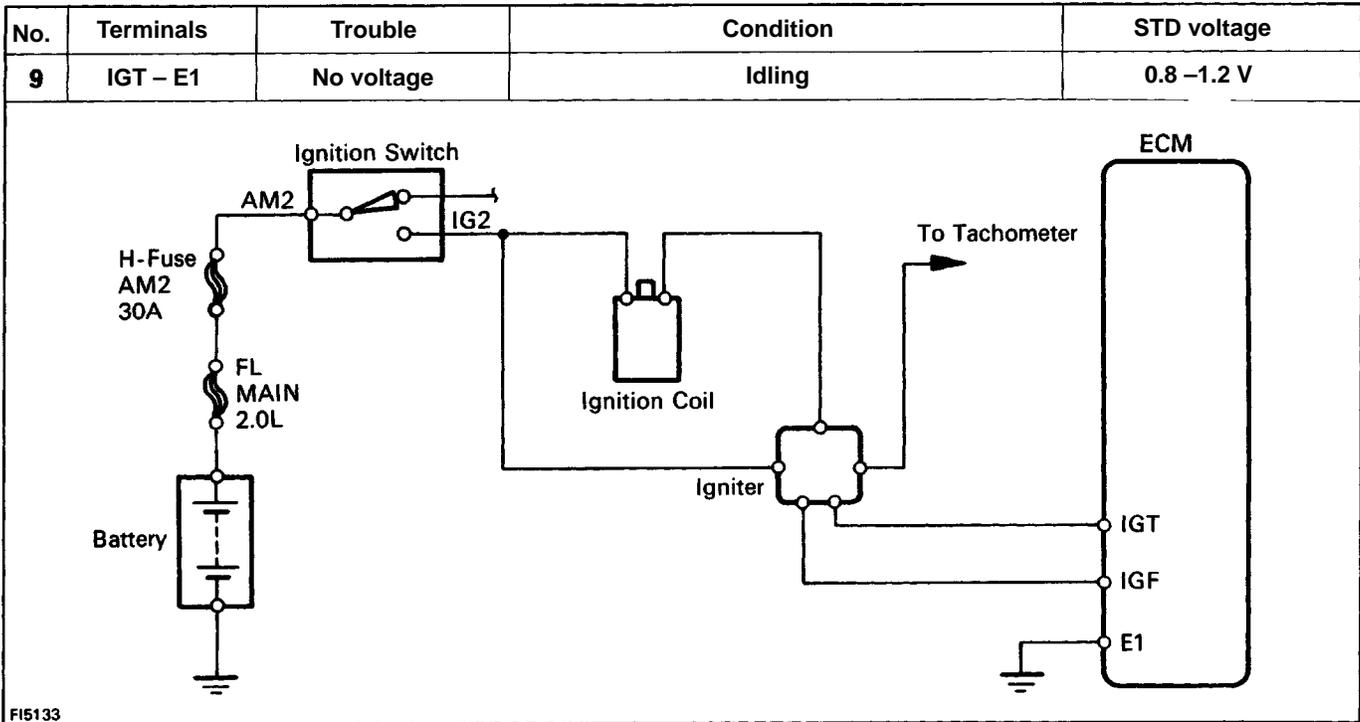


FI2755



P01061

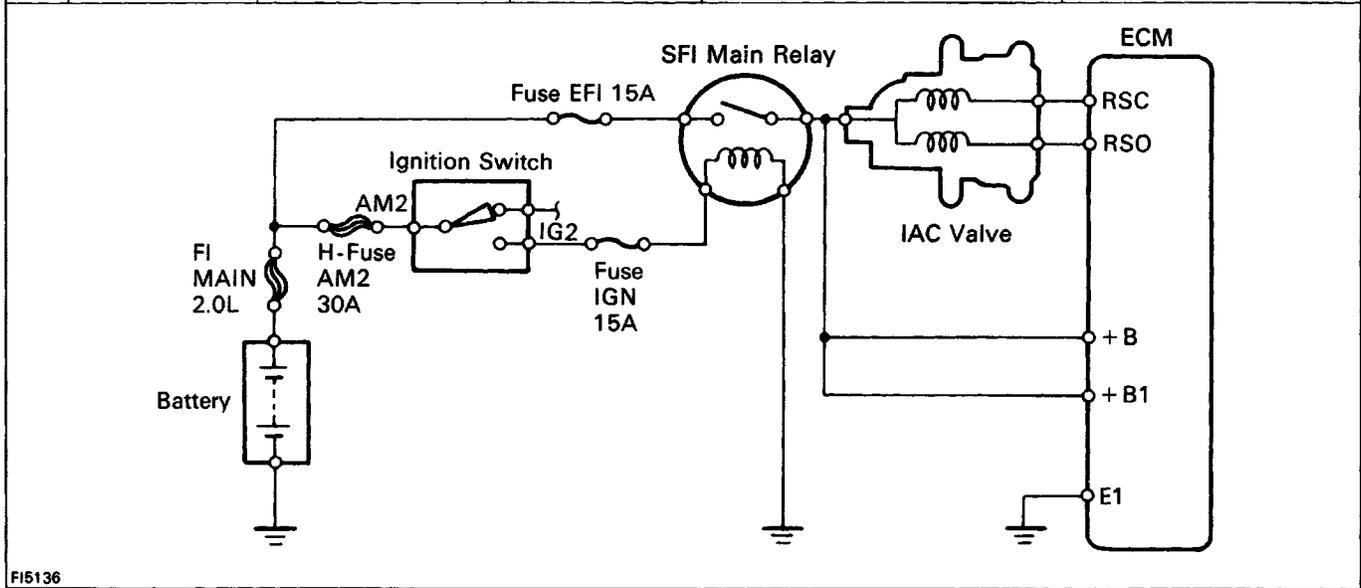




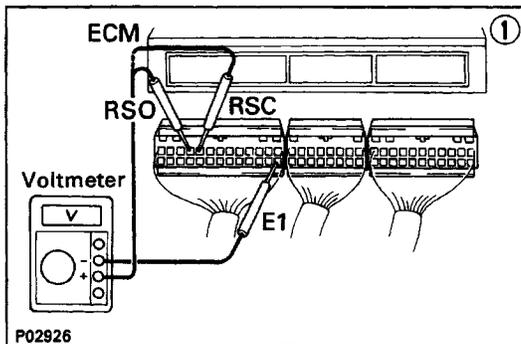
```

    graph TD
      A["(1) There is no voltage between ECM terminals IGT and E1. (idling)"] --> B["(2) Check that there is voltage between ECM terminal IGT and body ground. (idling)"]
      B -- NO --> C["Check H-fuse, fusible link and ignition switch."]
      B -- OK --> D["(3) Check wiring between ECM terminal E1 and body ground."]
      D -- BAD --> E["Repair or Replace."]
      D -- OK --> F["Try another ECM"]
      C -- BAD --> E
      C -- OK --> G["Check distributor. (See page IG-14)"]
      G -- BAD --> E
      G -- OK --> H["Check wiring between ECM and battery."]
      H -- BAD --> E
      H -- OK --> I["Check igniter. (See page IG-14)"]
      I -- BAD --> E
      I -- OK --> End[" "]
  
```

No.	Terminals	Trouble	Condition		STD voltage
10	RSC RSO - E1	No voltage	IG SW ON	Engine ECM connectors disconnected	8 - 14 V



FI5136



P02926

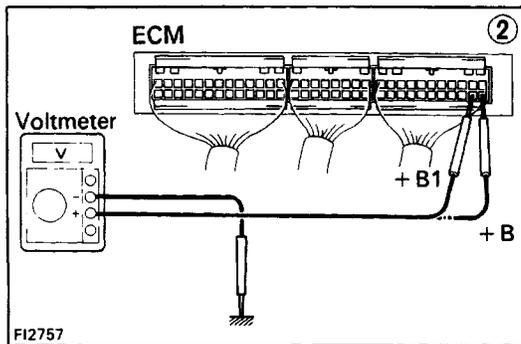
(1) There is no voltage between ECM terminals RSC or RSO and E1. (IG SW ON)

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

OK

NO

Refer to No.1.
(See page FI-76)



FI2757

(3) Check resistance between IAC valve terminals + B and RSC or RSO.
STD resistance: 19.3 - 22.3Ω

BAD

Replace IAC valve.

OK

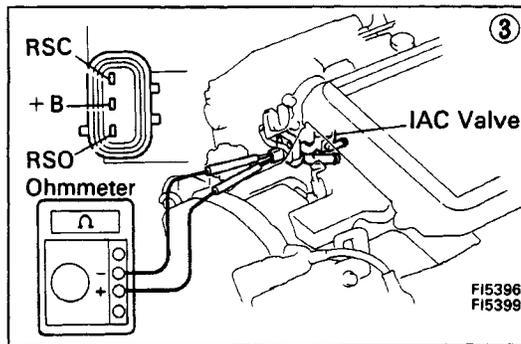
Check wiring between ECM and IAC valve.

BAD

Repair or replace wiring.

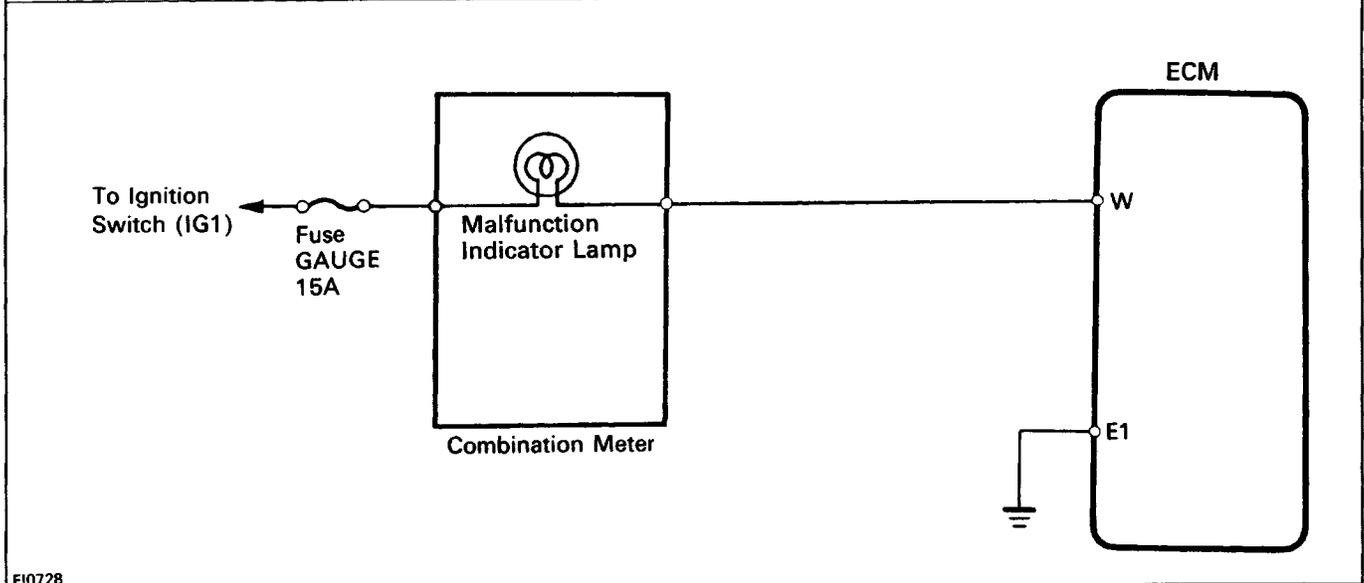
OK

Try another ECM.

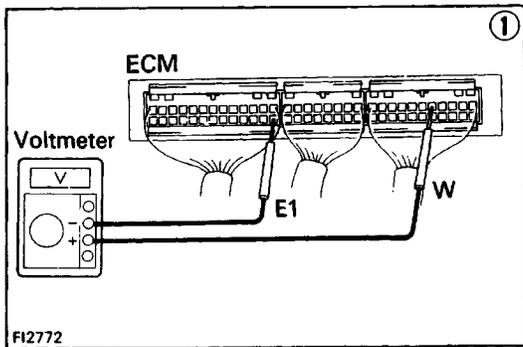


FI5396
FI5399

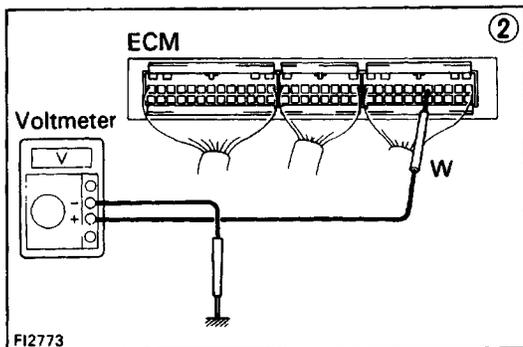
No.	Terminals	Trouble	Condition	STD voltage
11	W - E1	No voltage	No trouble (malfunction indicator lamp off) and engine running.	10-14V



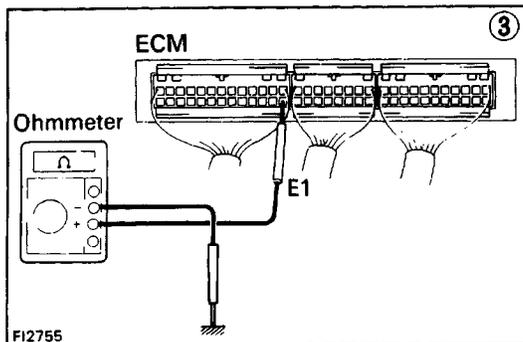
FI0728



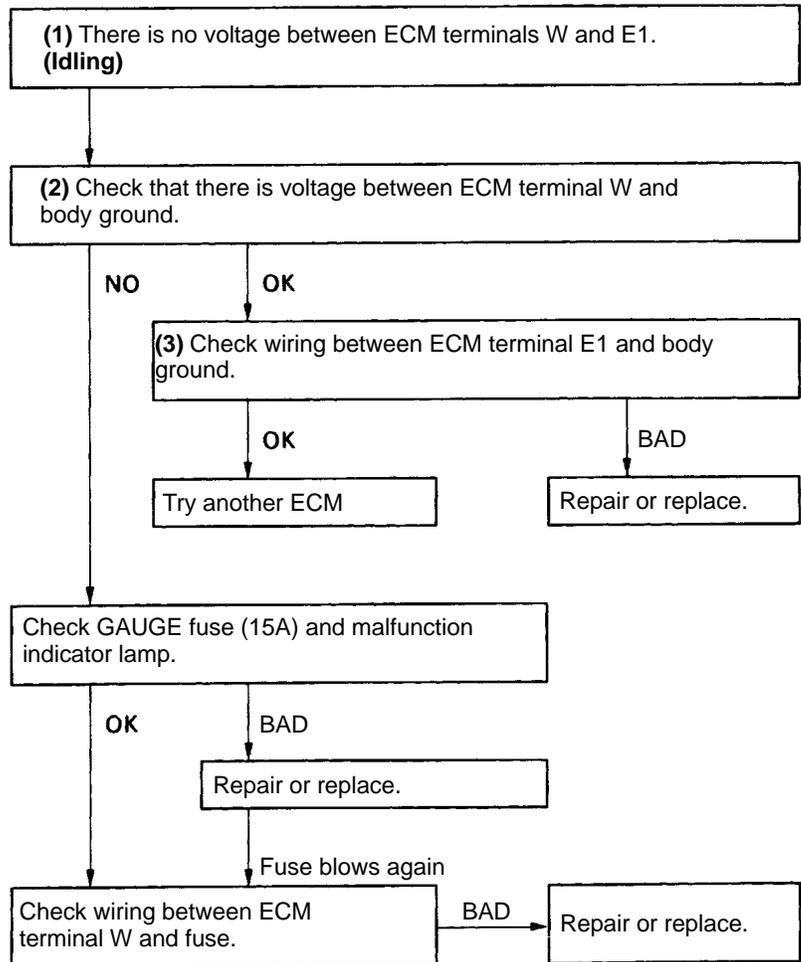
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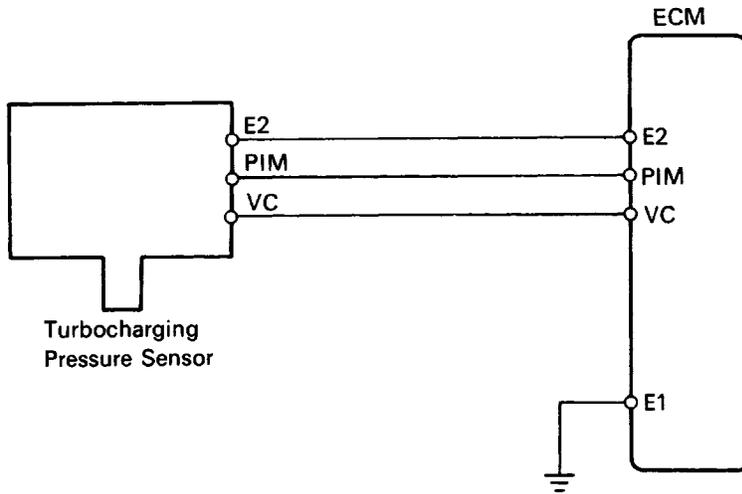
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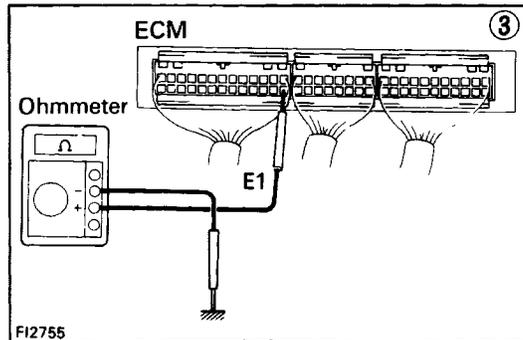
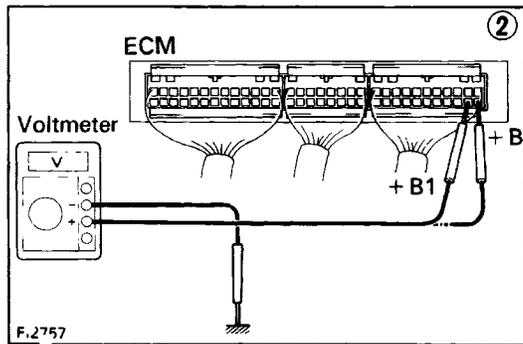
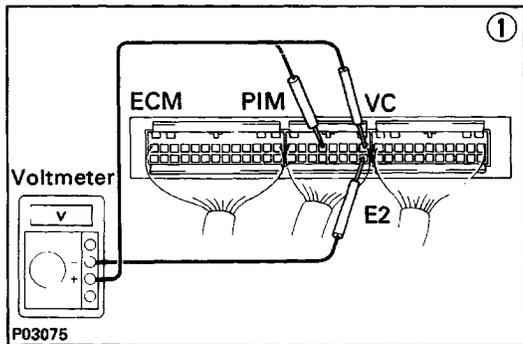
FI2755



No.	Terminals	Trouble	Condition	STD voltage
12	PIM-E2	No voltage	IG SW ON	2.5 - 4.5 V
	VC - E2			4.5 - 5.5 V



FI1226

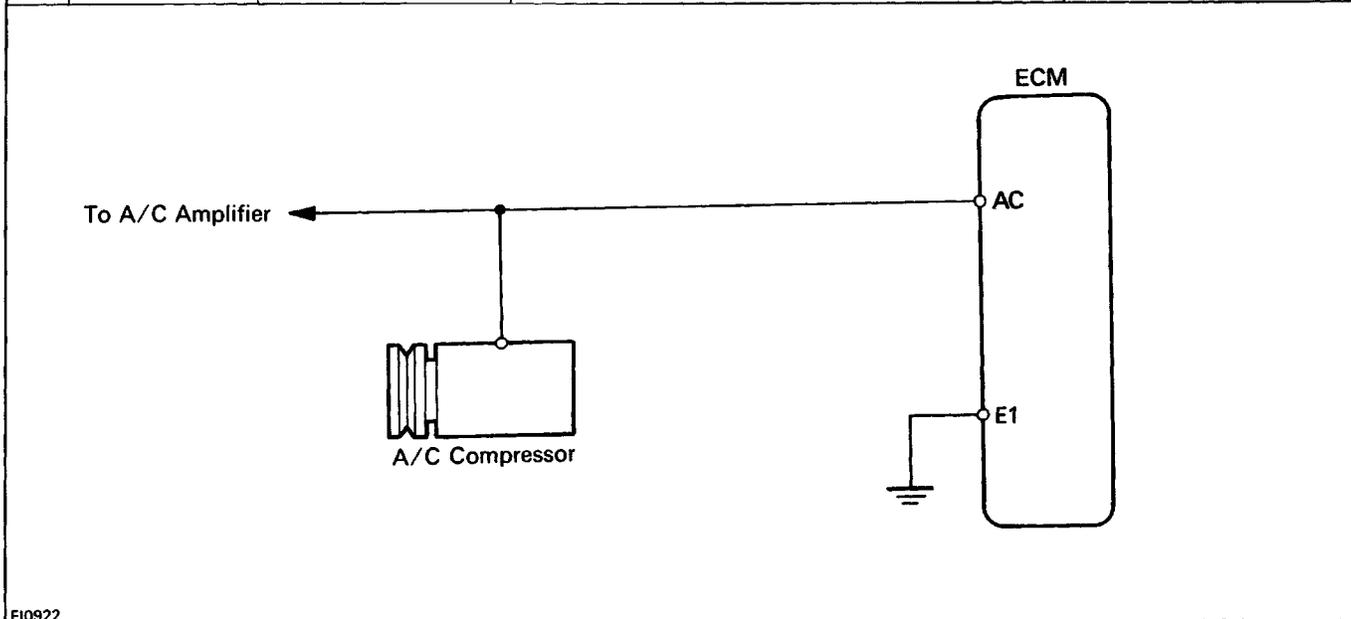


• PIM-E2, VC-E2

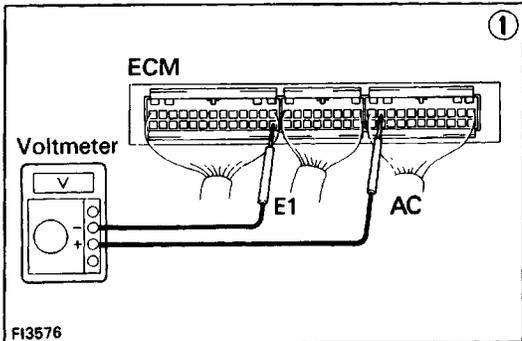
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    graph TD
      A["(1) There is no voltage between ECM terminals PIM or VC and E2. (IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminal + B or + 131 and body ground. (IG SW ON)"]
      B -- NO --> C["Refer to No-1 . (See page FI-76)"]
      B -- OK --> D["(3) Check wiring between ECM terminal E1 and body ground."]
      D -- BAD --> E["Repair or replace."]
      D -- OK --> F["Check turbocharging pressure sensor. (See page FI-235)"]
      F -- BAD --> G["Replace turbocharging pressure sensor."]
      F -- OK --> H["Check wiring between ECM and turbocharging pressure sensor."]
      H -- BAD --> E
      H -- OK --> I["Try another ECM."]
      I --> E
  
```

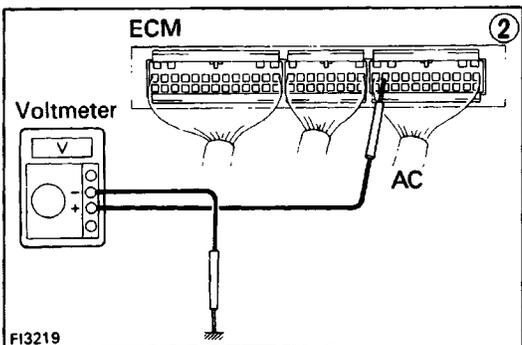
No.	Terminal	Trouble	Condition	STD voltage
13	AC - E1	No voltage	Air conditioning ON	8 - 14V



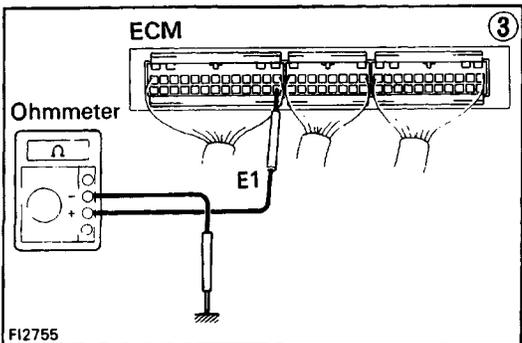
FI0922



FI3576



FI3219

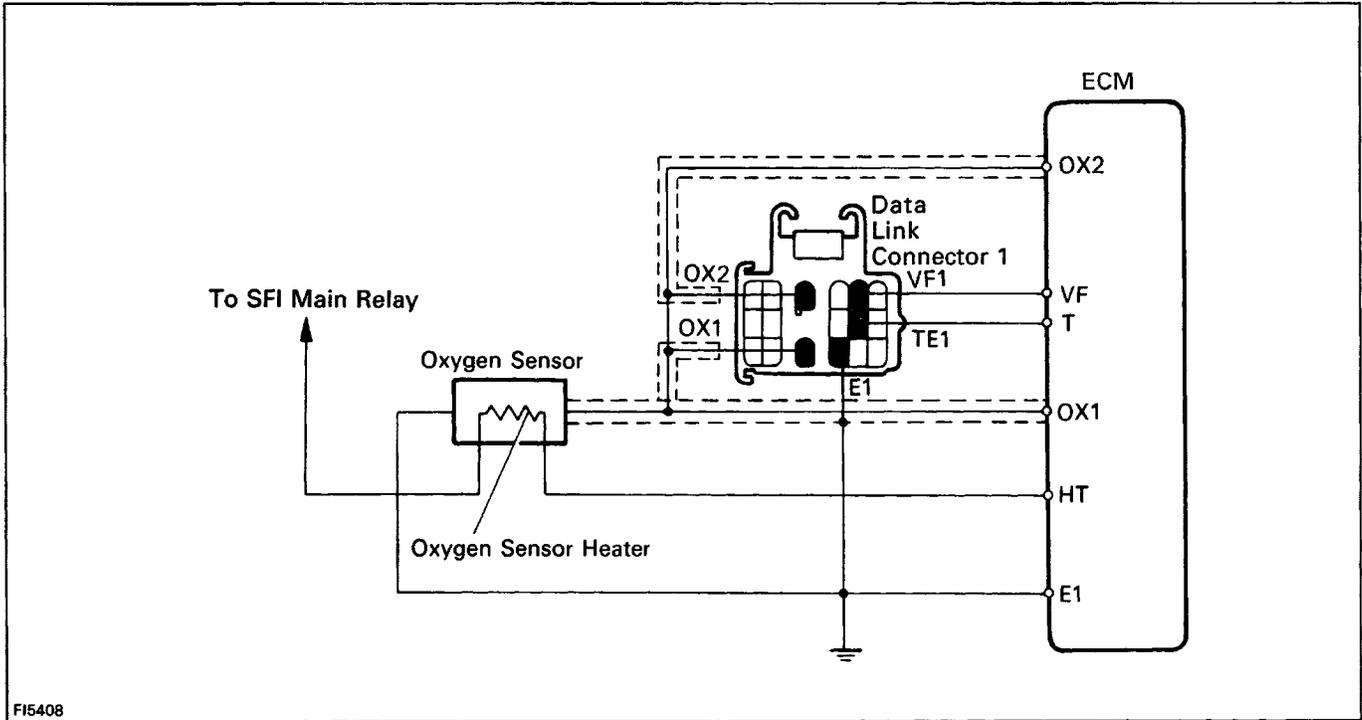


FI2755

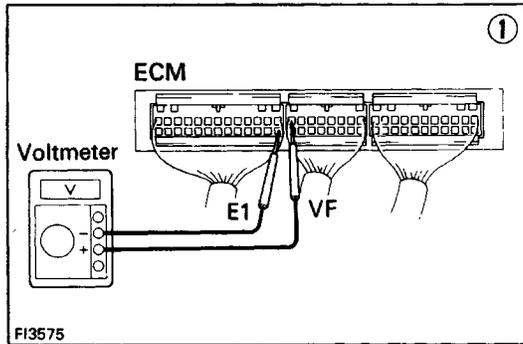
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    graph TD
      Step1["(1) There is no voltage between ECM terminals AC and E1.  
(Air conditioning ON)"]
      Step2["(2) Check that there is voltage between ECM terminal AC and  
body ground."]
      Step3["(3) Check wiring between ECM terminal E1 and body  
ground."]
      Step4["Check compressor running."]
      Step5["Check wiring between ECM  
terminal AC and  
amplifier."]
      Step6["Check that there is voltage between  
amplifier terminal and body ground."]
      Step7["Check wiring between amplified  
and ECM or compressor."]
      Step8["Tn another ECM."]
      Step9["Repair or replace."]
      Step10["Repair or replace."]
      Step11["Repair or replace."]
      Step12["Repair or replace."]

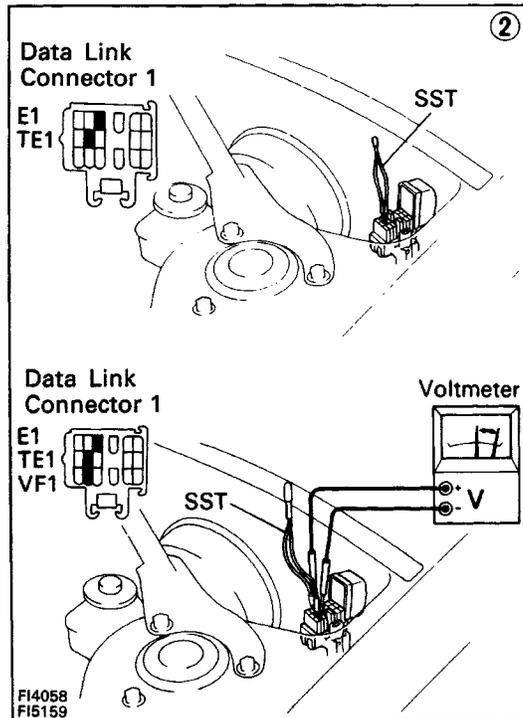
      Step1 --> Step2
      Step2 -- NO --> Step4
      Step2 -- OK --> Step3
      Step3 -- OK --> Step8
      Step3 -- BAD --> Step9
      Step4 -- OK --> Step5
      Step4 -- BAD --> Step6
      Step5 -- OK --> Step6
      Step5 -- BAD --> Step10
      Step6 -- OK --> Step7
      Step6 -- BAD --> Step11
      Step7 -- OK --> End
      Step7 -- BAD --> Step12
  
```



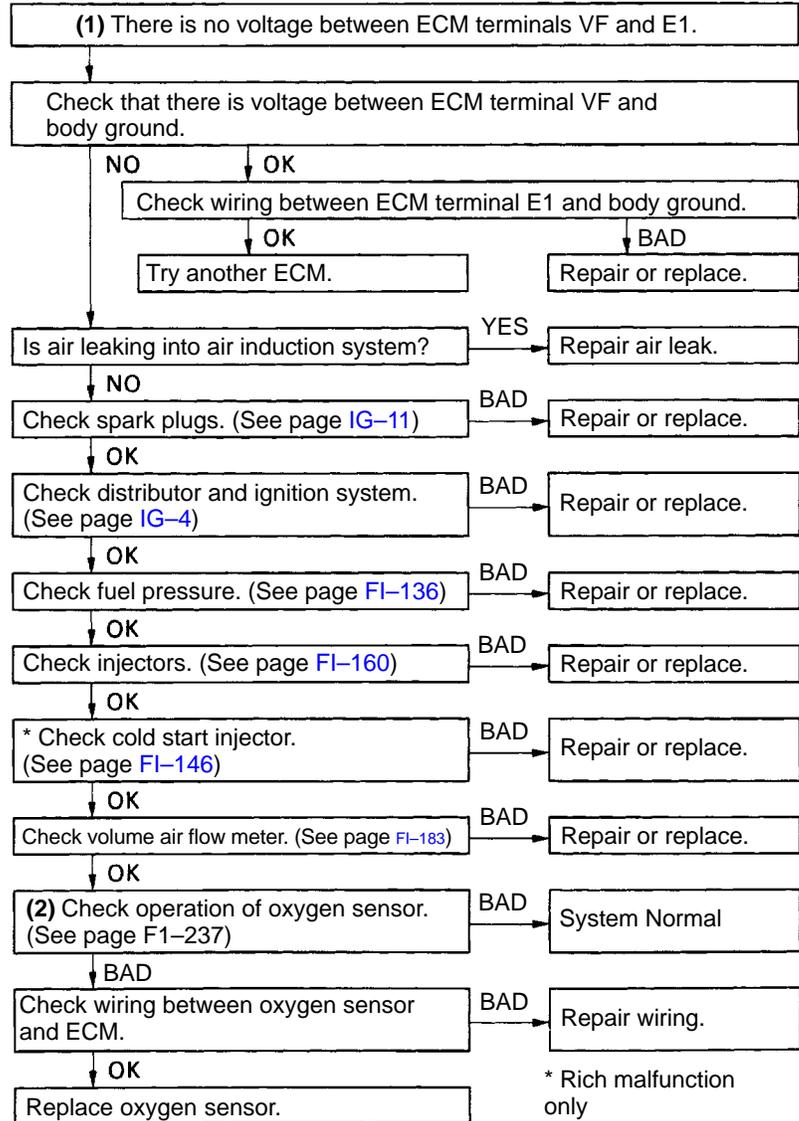
FI5408



FI3575

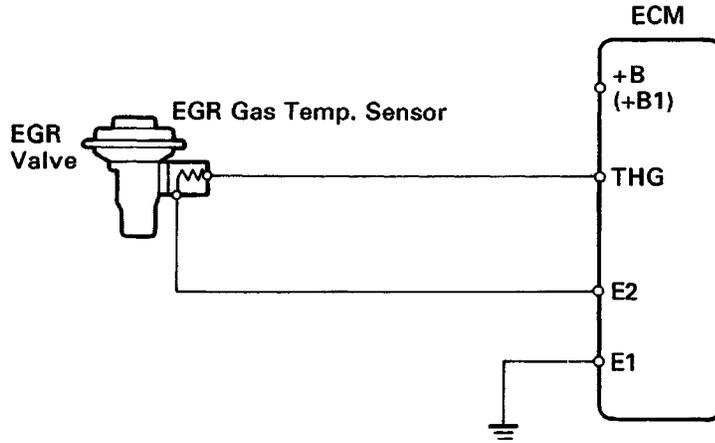


FI4058
FI5159

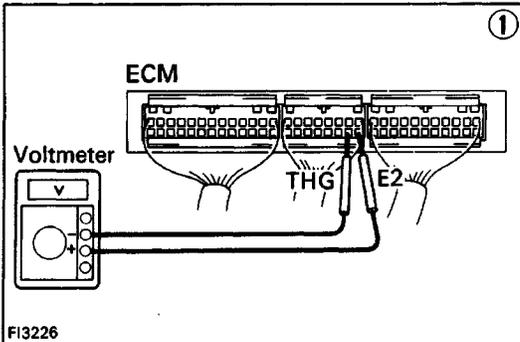


* Rich malfunction only

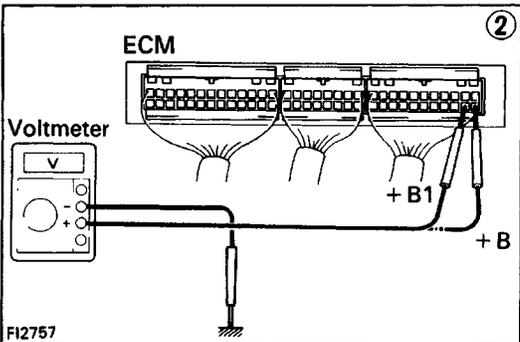
CALIF. only



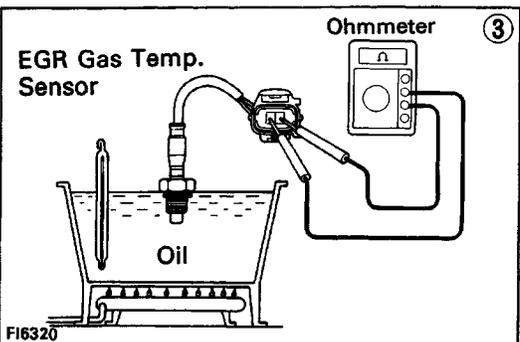
FI2680



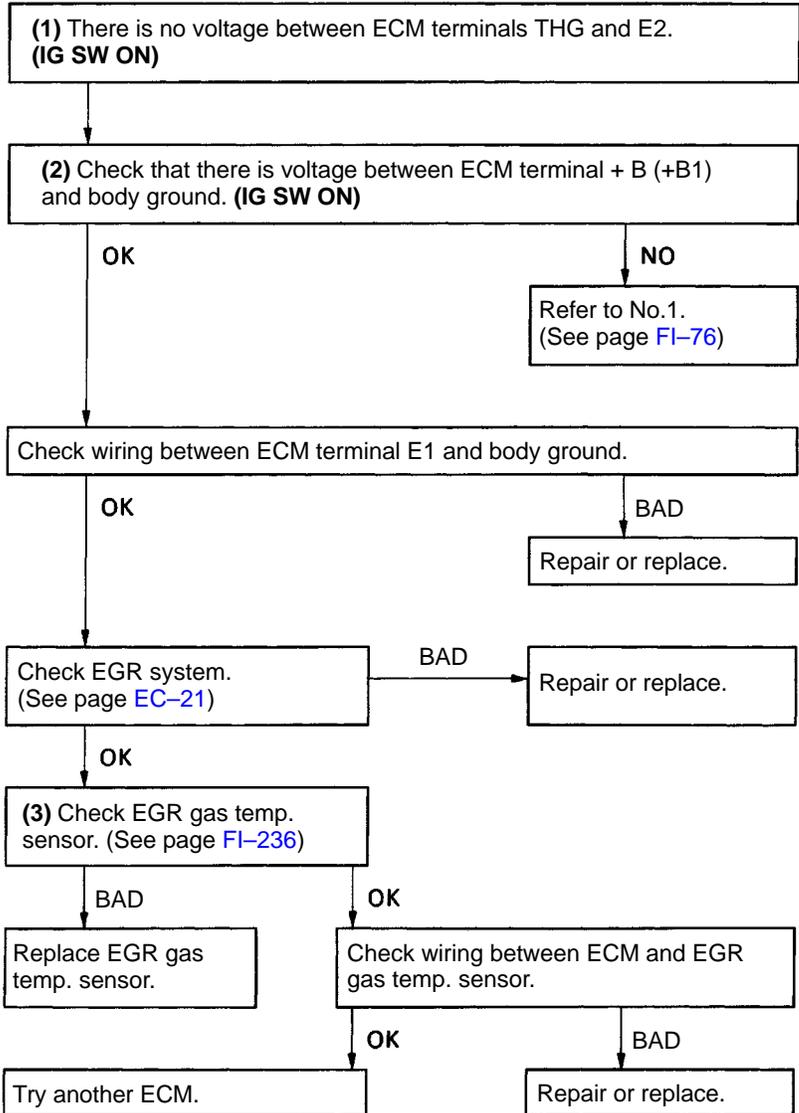
FI3226

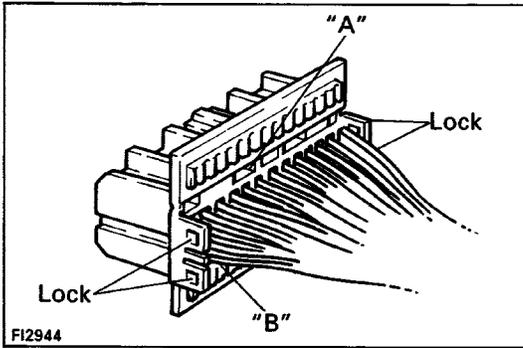


FI2757



FI6320





MFI SYSTEMS CHECK PROCEDURE

(5S-FE MIT)

PREPARATION

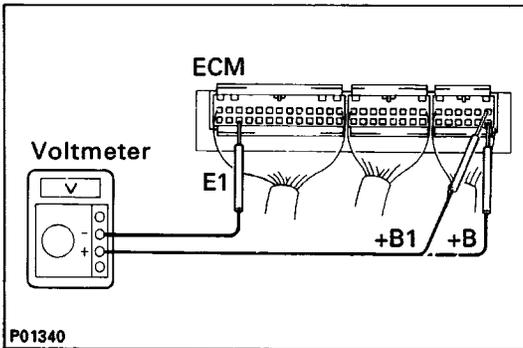
- (a) Disconnect the connectors from the ECM.
- (b) Remove the locks as shown in the illustration so that the tester probe(s) can easily come in.

NOTICE: Pay attention to sections "A" and "B" in the illustration which can be easily broken.

- (c) Reconnect the connectors to the ECM.

HINT:

- Perform all voltage measurements with the connectors disconnected.
- 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 at each terminal of the wiring connectors.

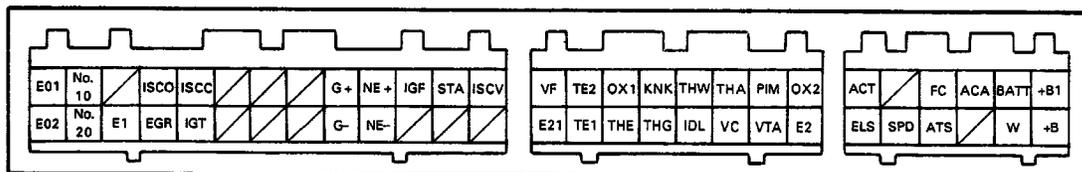


Terminals of ECM (5S-FE M/T)

Symbol	Terminal Name	Symbol	Terminal Name	Symbol	Terminal Name
E01	POWER GROUND	N E+	DISTRIBUTOR	THA	AIR TEMP. SENSOR
E02	POWER GROUND	NE-	DISTRIBUTOR	VC	VACUUM SENSOR THROTTLE POSITION SENSOR
No.10	INJECTOR	IGF	IGNITER	PIM	VACUUM SENSOR
No.20	INJECTOR		—	VTA	THROTTLE POSITION SENSOR
	—	STA	STARTER RELAY	*OX2	SUB-OXYGEN SENSOR
E1	ENGINE GROUND		—	E2	SENSOR GROUND
ISCO	ISV VALVE	SCV	A/C IDLE-UP VSV	ACT	A/C AMPLIFIER
EGR	EGR VSV		—	ELS	HEAD LIGHT AND DEFOGGER
ISCC	ISV VALVE	VF	DATA LINK CONNECTOR 1		—
IGT	IGNITER	E21	SENSOR GROUND	SPD	SPEED SENSOR
	—	TE2	DATA LINK CONNECTOR 1	FC	CIRCUIT OPENING RELAY
	—	TE 1	DATA LINK CONNECTOR 1	ATS	A/C AMPLIFIER
	—	ox i	MAIN OXYGEN SENSOR	ACA	A/C AMPLIFIER
	—	THE	EVAPORATOR TEMP. SENSOR		—
	—	KNK	KNOCK SENSOR	BATT	BATTERY
	—	*THG	EGR GAS TEMP. SENSOR	W	MALFUNCTION INDICATOR LAMP
G +	DISTRIBUTOR	THW	ENGINE COOLANT TEMP. SENSOR	+B1	MFI MAIN RELAY
G -	DISTRIBUTOR	IDL	THROTTLE POSITION SENSOR	+B	MFI MAIN RELAY

ECM Terminals

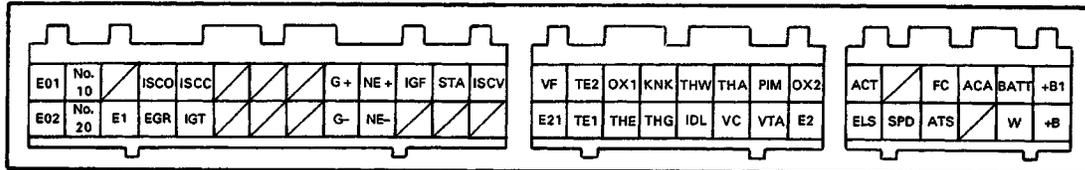
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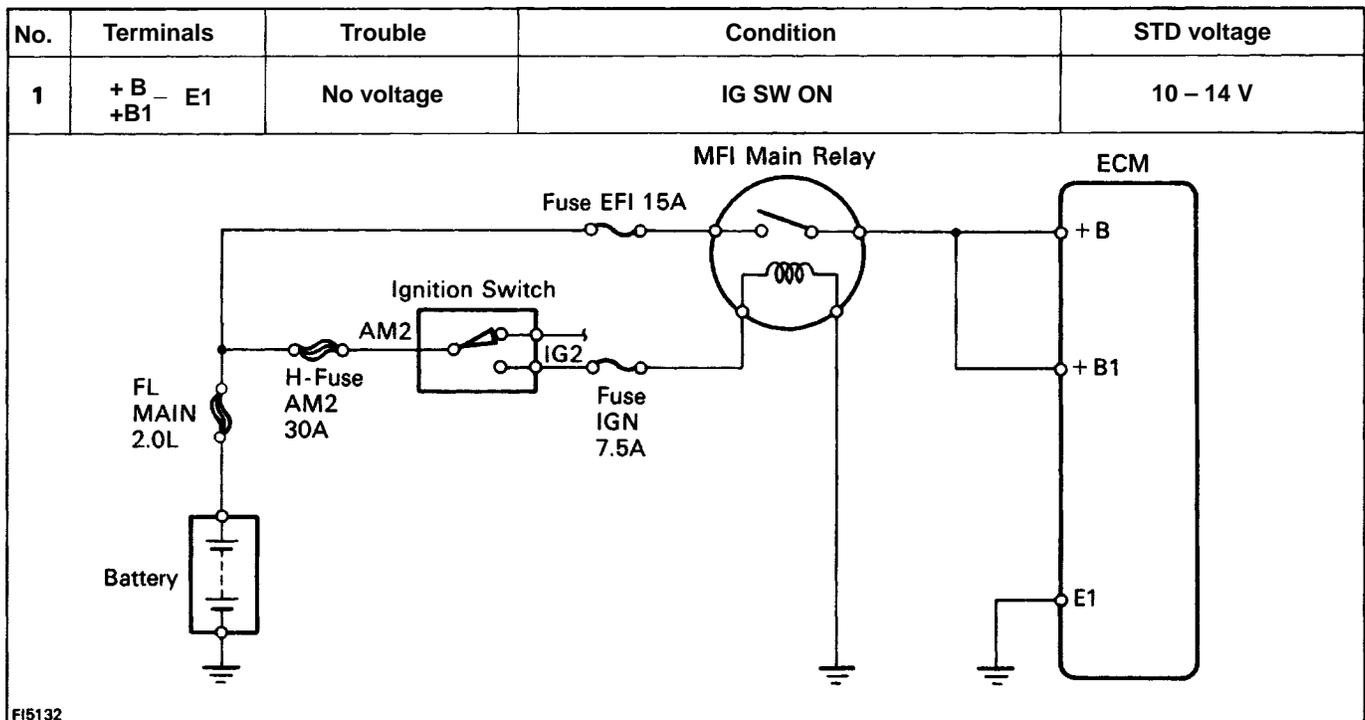


**Voltage at ECM Wiring Connectors
(5S-FE M/T)**

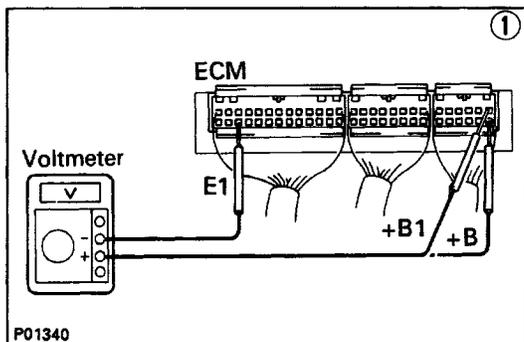
No.	Terminals	Condition		STD voltage (V)	See page
1	+B _ E 1 +B1	IG SW ON		10-14	FI-94
2	BATT - E1			10-14	FI-95
3	IDL - E2	• G SW ON	Throttle valve open	8-14	FI-96
	VC - E2			4.5-5.5	
	VTA - E2		Throttle valve fully closed (Throttle opener must be cancelled first)	0.8-1.2	
			Throttle valve fully open	3.2-4.2	
4	PIM-E2	IG SW ON		3.3-3.9	FI-98
	VC- E2			4.5-5.5	
5	No.10 _ E01 No.20 E02				
6	THA - E2	IG SW ON	Intake air temp. 20°C (168°F)	1.9-2.9	FI-100
7	THW - E2		Engine coolant temp. 80°C (176°F)	0.1-1.1	FI-101
8	STA - E 1	Cranking		6-14	FI-102
9	IGT- E1	Cranking or idling		0.8-1.2	FI-103
10	ISCC - E1 ISCO	IG SW ON	ECM connectors disconnected	8-14	FI-104
11	W-E1	No trouble (malfunction indicator lamp off) and engine running		10-14	FI-105

ECM Terminals

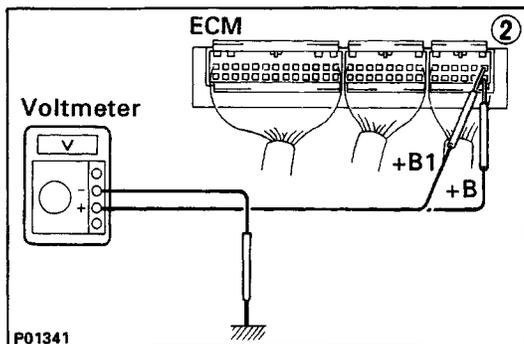




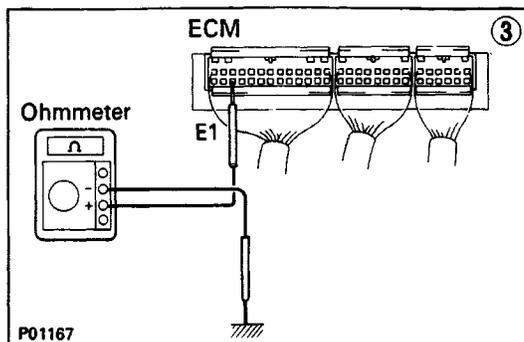
FI5132



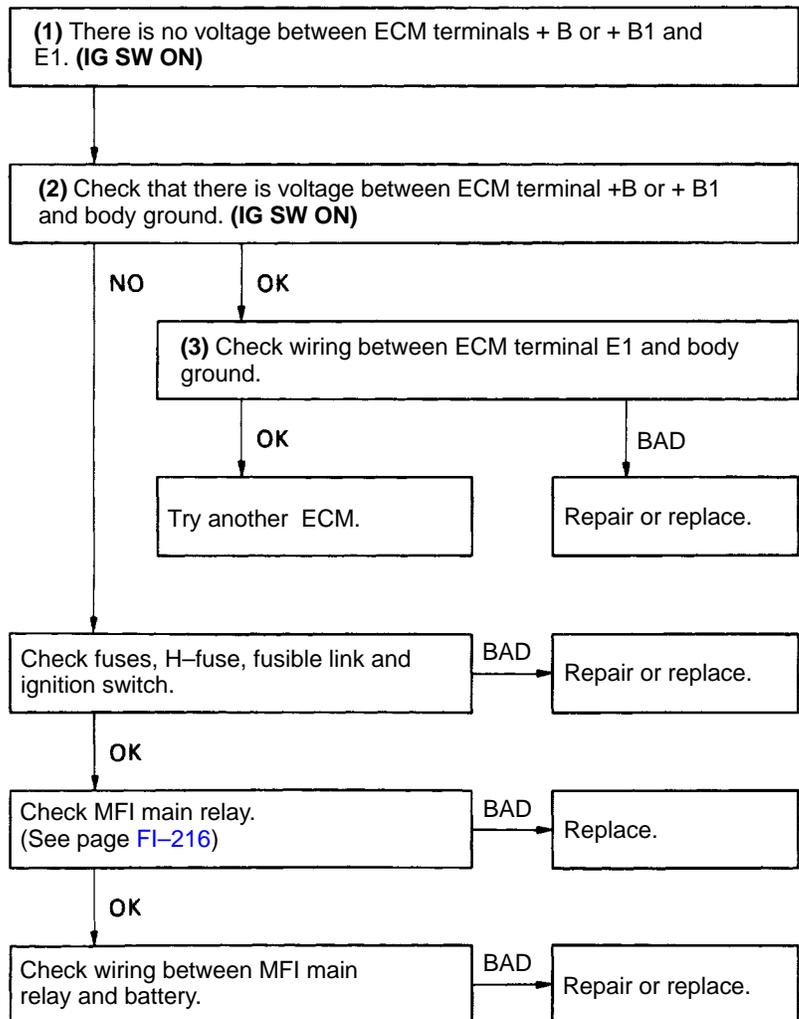
P01340



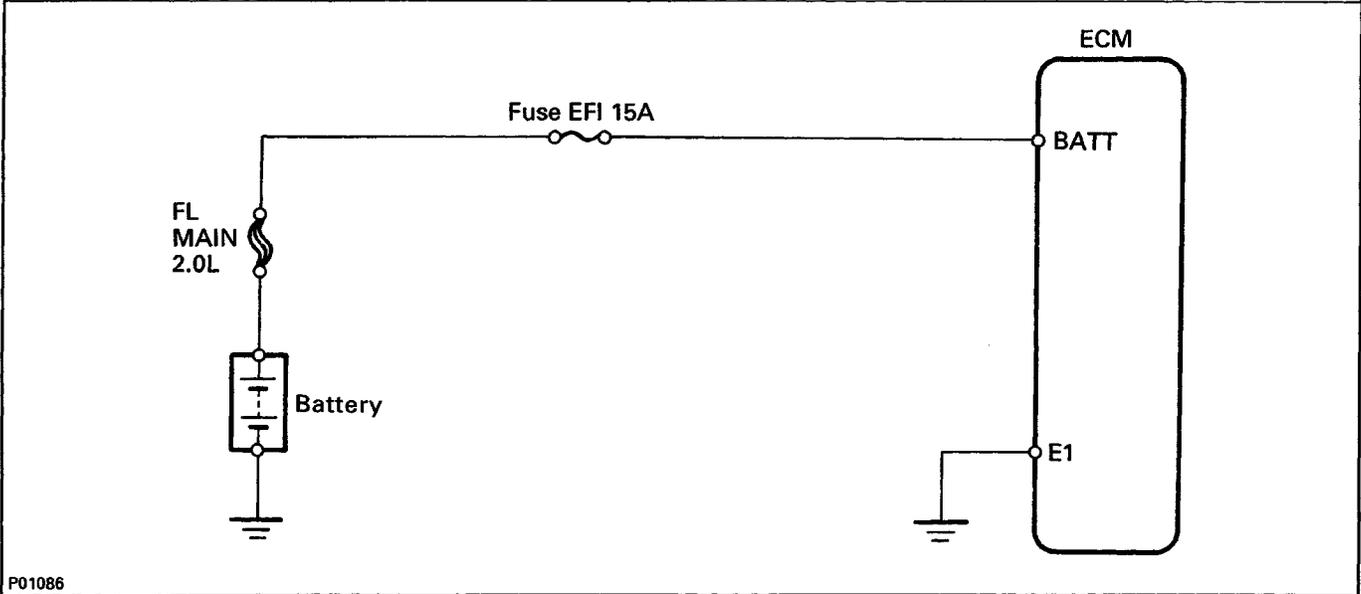
P01341



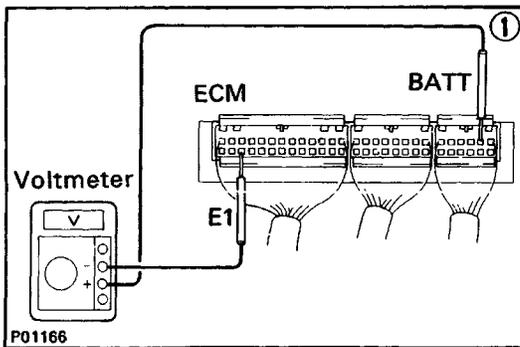
P01167



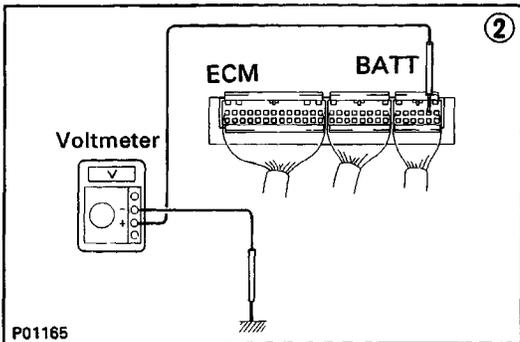
No.	Terminals	Trouble	Condition	STD voltage
2	BATT - E1	No voltage	-	10 - 14 V



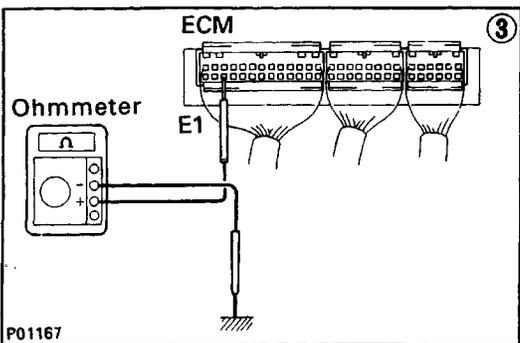
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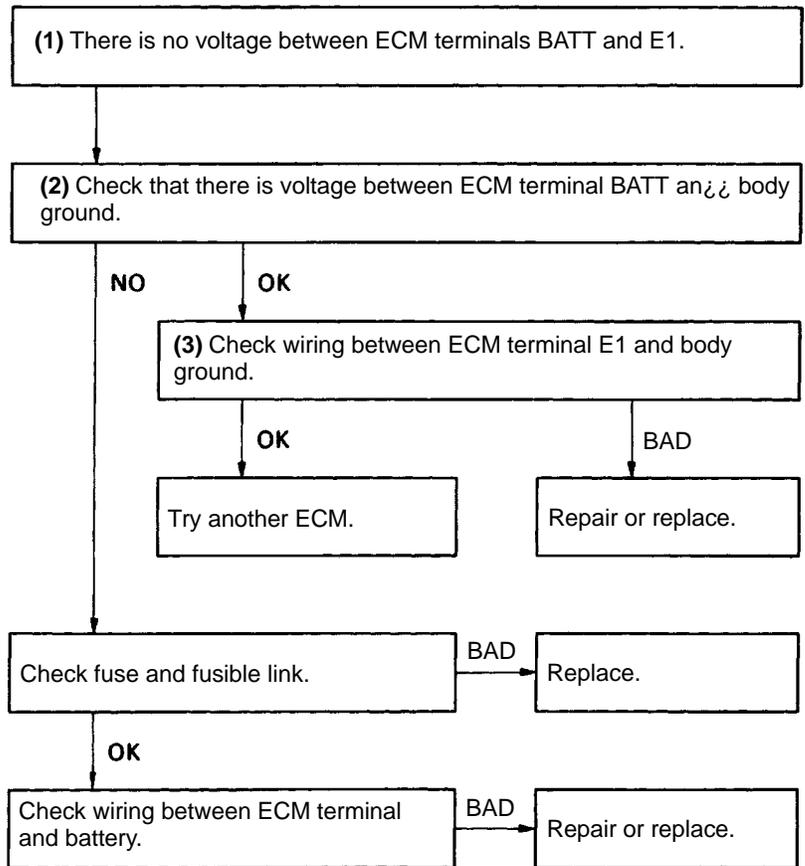
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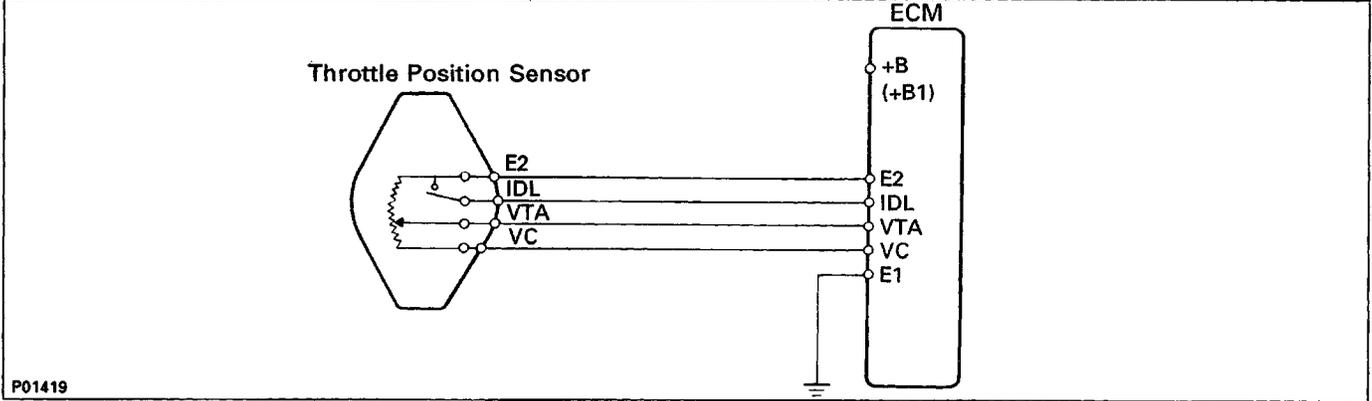
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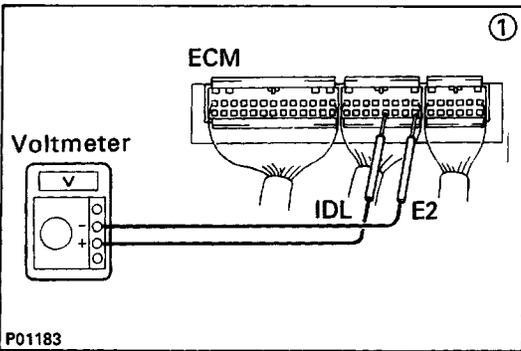
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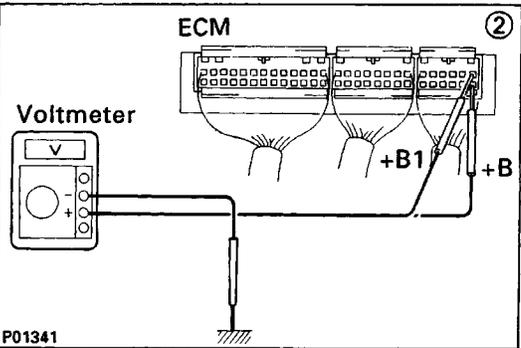
No.	Terminals	Trouble	Condition	STD voltage	
3	IDL - E2	No voltage	IG SW ON	Throttle valve open	s-14v
	VC - E2			4.5 - 5.5 V	
	VTA - E2			Throttle valve fully closed (Throttle opener must be cancelled first)	0.8 - 1.2 V
				Throttle valve fully open	3.2 - 4.2 V



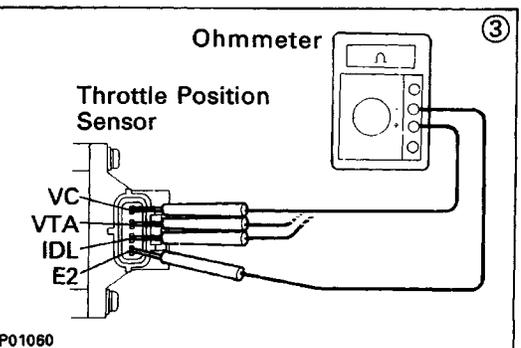
P01419



P01183



P01341

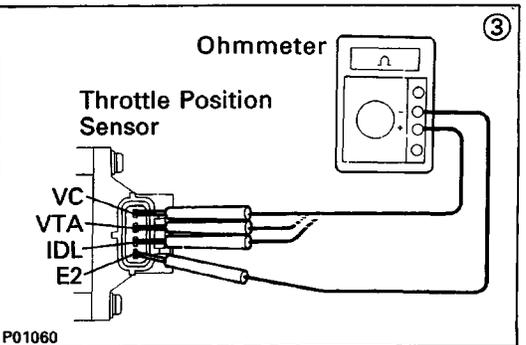
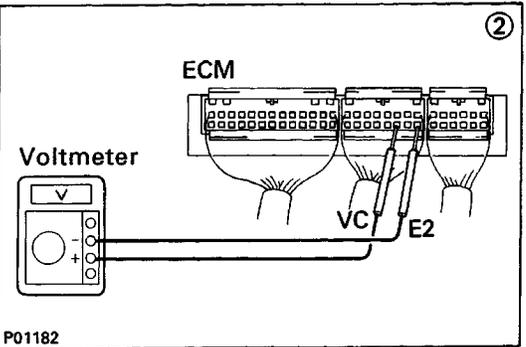
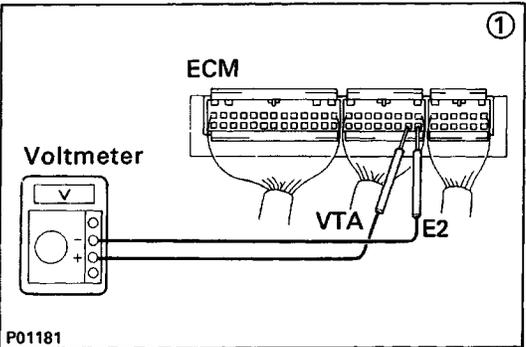
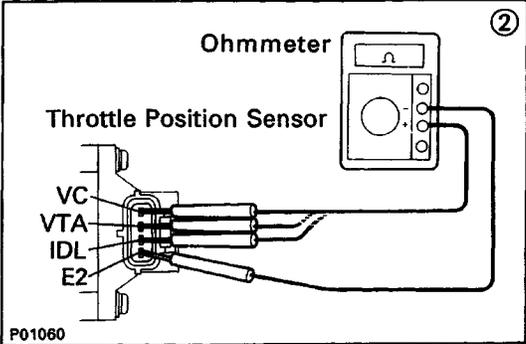
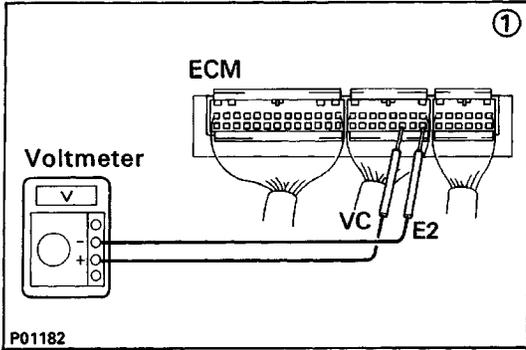


P01060

• 1DL - E2

```

    graph TD
      A["(1) There is no voltage between ECM terminals IDL and E2.  
(IG SW ON) (Throttle valve open)"] --> B["(2) Check that there is voltage between ECM terminal + B (+B1)  
and body ground. (IG SW ON)"]
      B -- NO --> C["Check wiring between ECM terminal E1 and body  
ground."]
      B -- OK --> D["Refer to No.1.  
(See page FI-94)"]
      C -- OK --> E["Try another ECM."]
      C -- BAD --> F["Repair or replace."]
      D -- BAD --> F
      D -- OK --> G["Check throttle position  
sensor. (See page FI-199)"]
      G -- BAD --> H["Repair or replace  
throttle position sensor."]
      G -- OK --> I["Check wiring between ECM and  
throttle position sensor."]
      I -- OK --> J["Try another ECM."]
    
```



• VC-E2

```

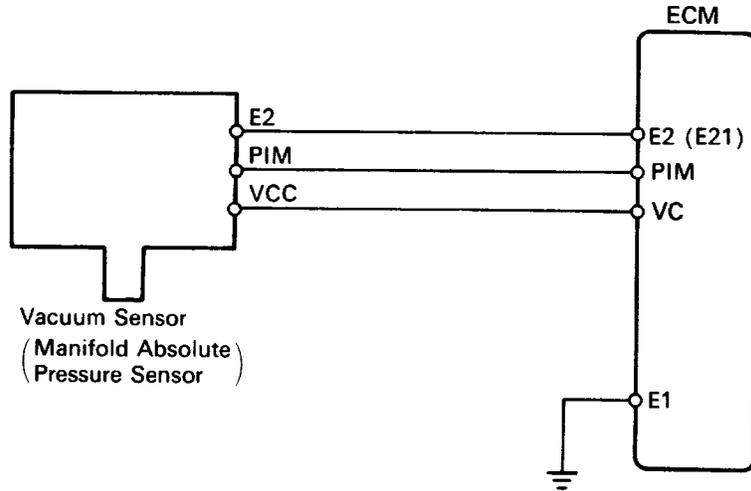
    graph TD
      A["(1) There is no voltage between ECM terminals VC and E2. (IG SW ON)"] --> B["Check that there is voltage between ECM terminal + B (+B1) and body ground. (IG SW ON)"]
      B -- OK --> C["Check throttle position sensor. (See page FI-199)"]
      B -- NO --> D["Refer to No.1. (See page FI-94)"]
      C -- BAD --> E["Repair or replace."]
      C -- OK --> F["Check wiring between ECM and throttle position sensor."]
      F -- OK --> G["Try another ECM."]
      F -- BAD --> H["Repair or replace wiring."]
    
```

• VTA - E2

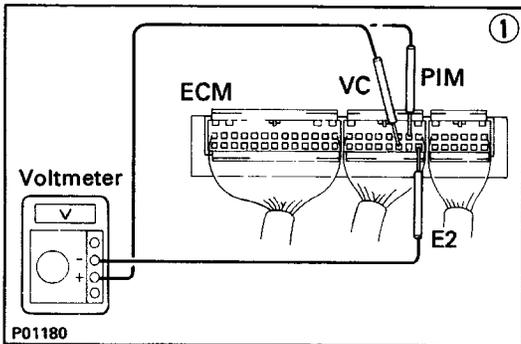
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    graph TD
      A["(1) There is no specified voltage at ECM terminals VTA and E2. (IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminals VC and E2. (IG SW ON)"]
      B -- NO --> C["Refer to VC - E2 trouble section."]
      B -- OK --> D["(3) Check throttle position sensor. (See page FI-199)"]
      D -- BAD --> E["Repair or replace."]
      D -- OK --> F["Check wiring between ECM and throttle position sensor."]
      F -- BAD --> G["Repair or replace."]
      F -- OK --> H["Try another ECM."]
    
```

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



FI1226



• PIM - E2, VC - E2

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

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

OK

NO

Refer to No.1. (See page FI-94)

(3) Check wiring between ECM terminal E1 and body ground.

OK

BAD

Check vacuum sensor. (See page FI-234)

Repair or replace.

BAD

OK

Replace vacuum sensor.

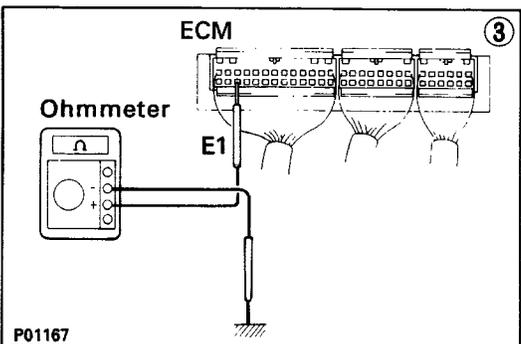
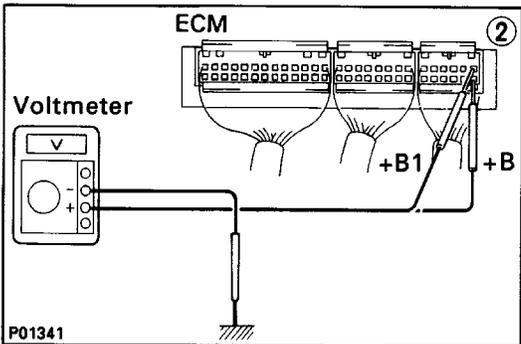
Check wiring between ECM and vacuum sensor.

OK

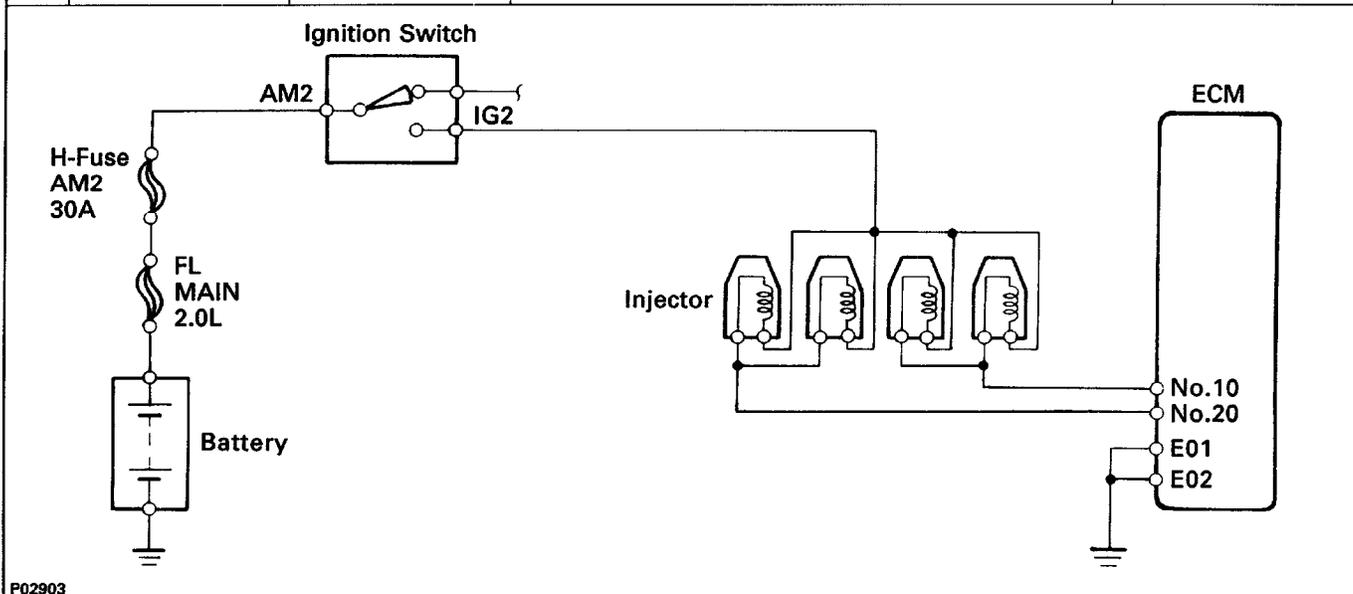
BAD

Try another ECM.

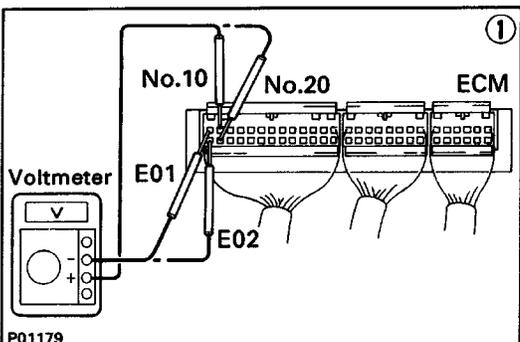
Repair or replace.



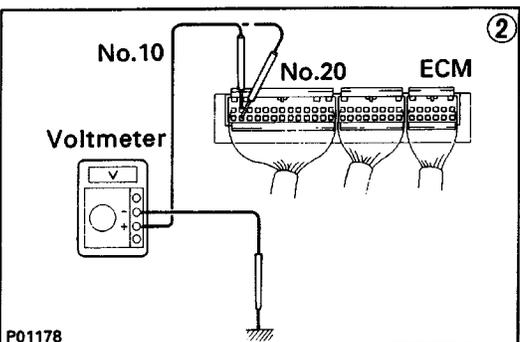
No.	Terminals	Trouble	Condition	STD voltage
5	No. 10 - E01 No. 20 - E02	No voltage	IG SW ON	10 - 14 V



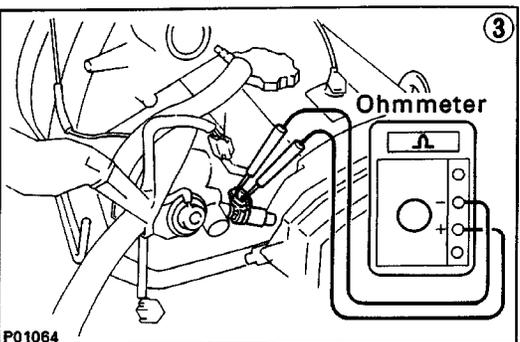
P02903



P01179



P01178

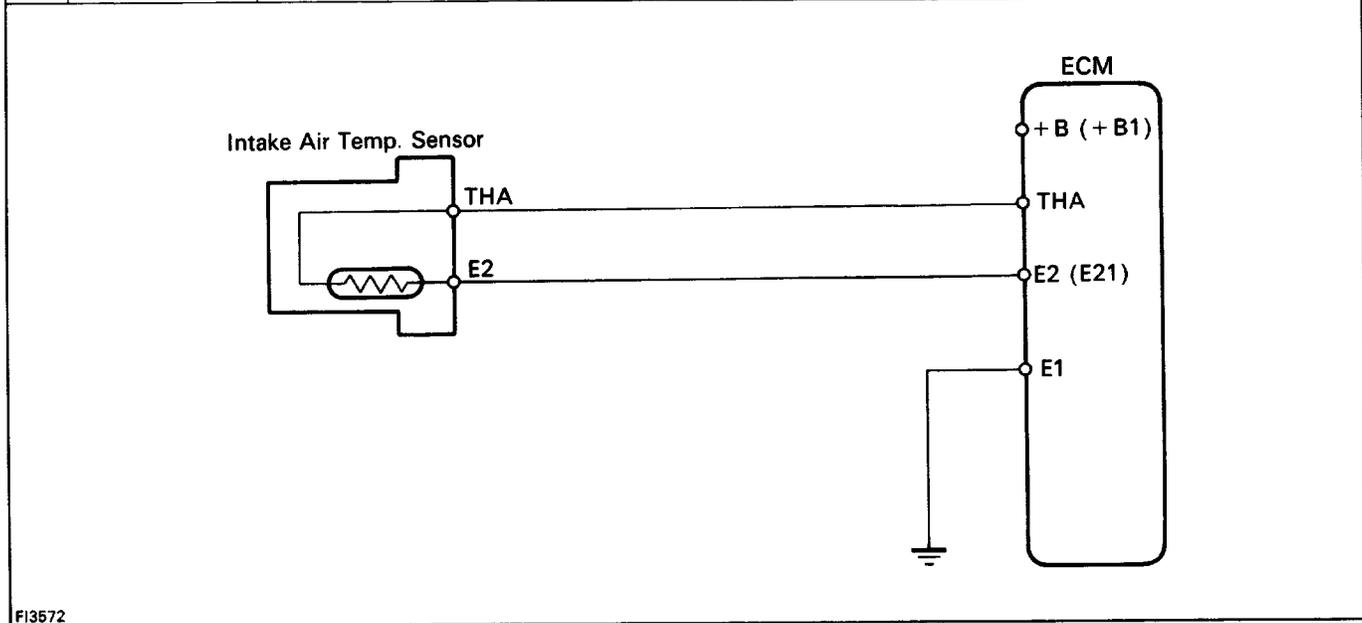


P01064

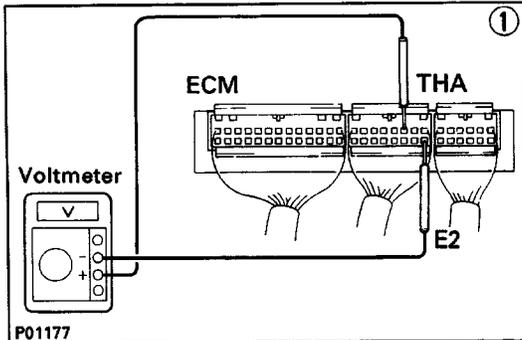
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    graph TD
      A["(1) There is no voltage between ECM terminals No.10 and / or No.20 and E01 and / or E02. (IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminal No.10 and / or No. 20 and body ground."]
      B -- NO --> C["Check H-fuse, fusible link and ignition switch."]
      C -- BAD --> D["Repair or Replace."]
      C -- OK --> E["(3) Check resistance of each injector. STD resistance: Approx. 13.8 Ω"]
      E -- OK --> F["Check wiring between ECM terminal No.10 and / or No.20 and battery."]
      F -- BAD --> G["Repair or replace."]
      B -- OK --> H["Check wiring between ECM terminal E01 and / or E02 and body ground."]
      H -- OK --> I["Try another ECM."]
      H -- BAD --> J["Repair or replace."]
  
```

No.	Terminals	Trouble	Condition		STD voltage
			IG SW ON	Intake air temperature 20°C (68°F)	
6	THA - E2	No voltage	IG SW ON	Intake air temperature 20°C (68°F)	1.9 - 2.9 V



FI3572

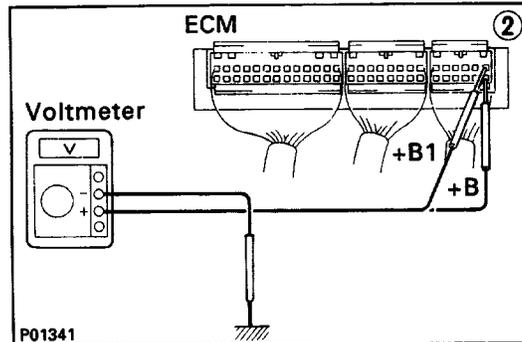


(1) There is no voltage between ECM terminals THA and E2. (IG SW ON)

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

OK

NO



Check wiring between ECM terminal E1 and body ground.

OK

BAD

Check intake air temp. sensor. (See page FI-232)

Repair or replace.

BAD

OK

Replace air temp. sensor.

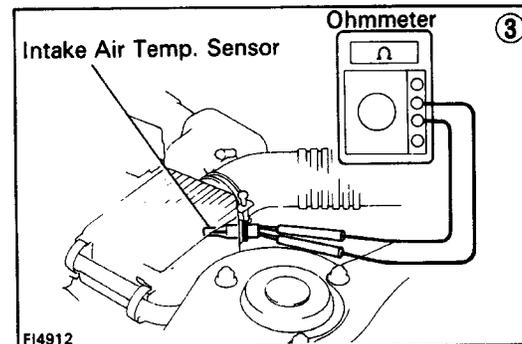
Check wiring between ECM and air temp. sensor.

OK

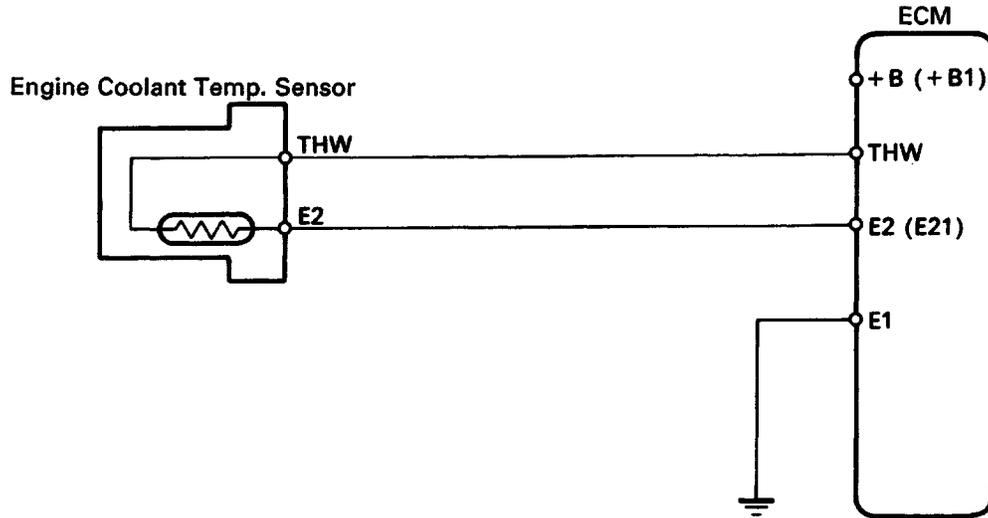
BAD

Try another ECM.

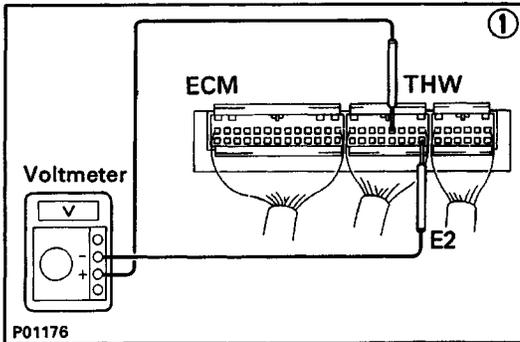
Repair or replace.



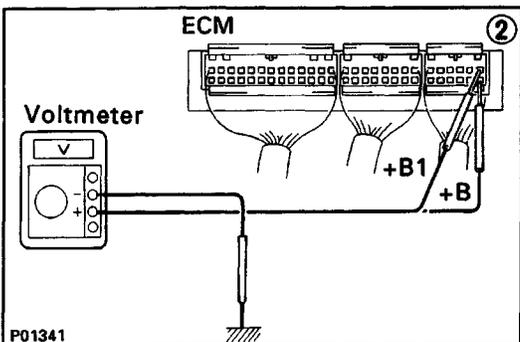
No.	Terminals	Trouble	Condition		STD voltage
7	THW - E2	No voltage	IG SW ON	Engine coolant temperature 80°C (176°F)	0.1 - 1.1 V



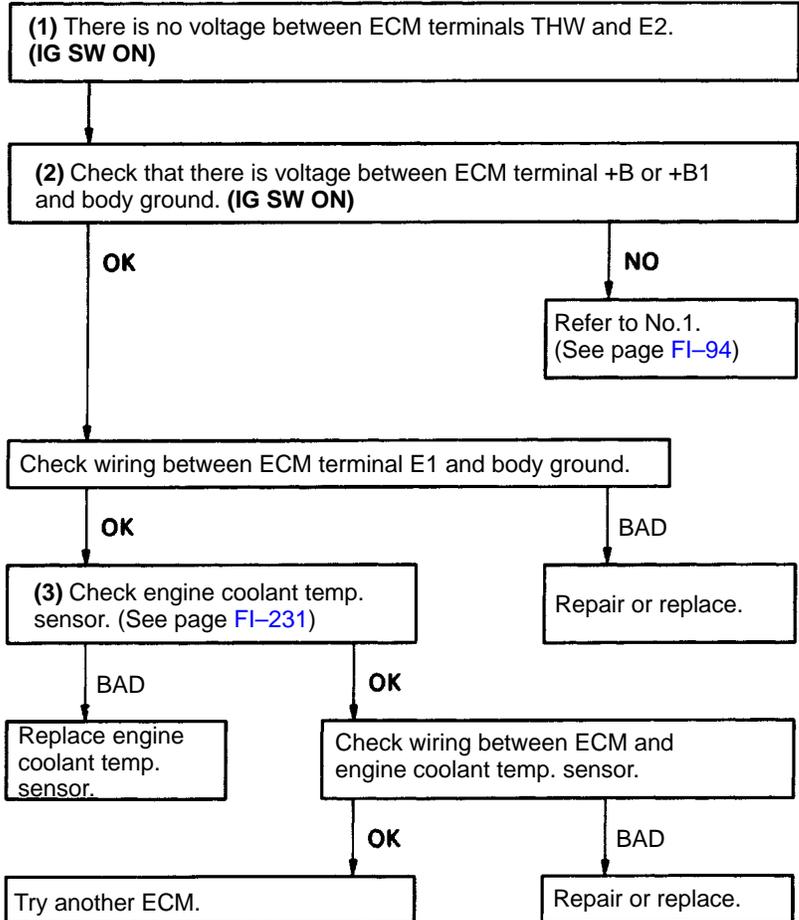
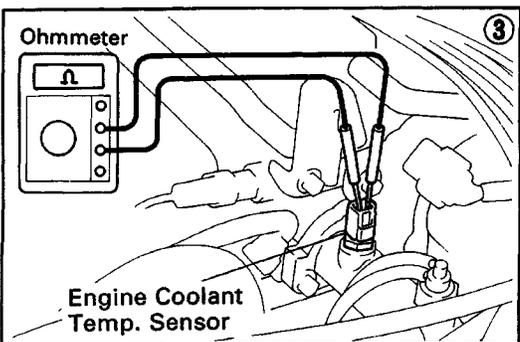
FI3572



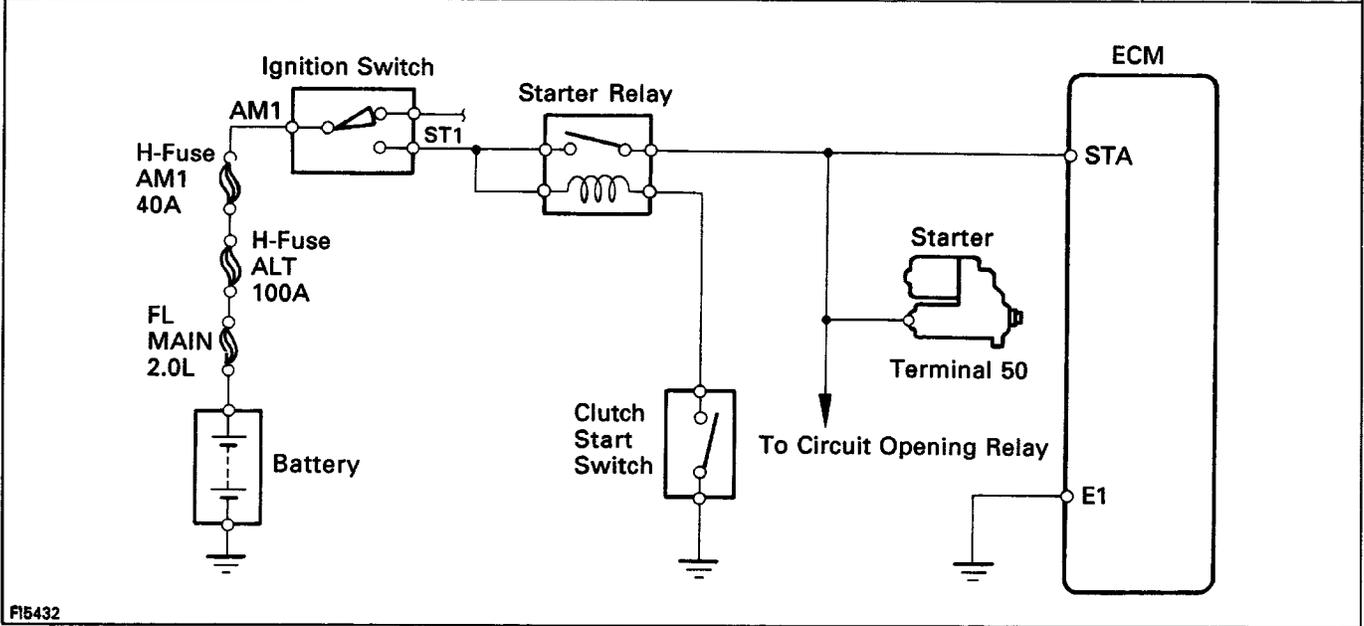
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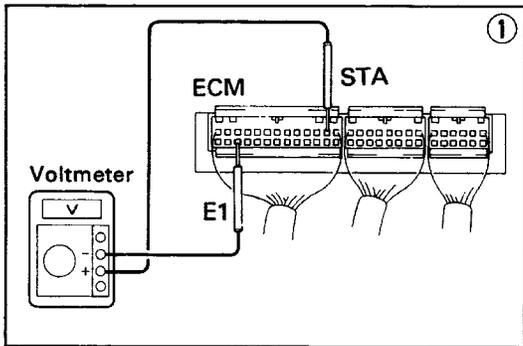
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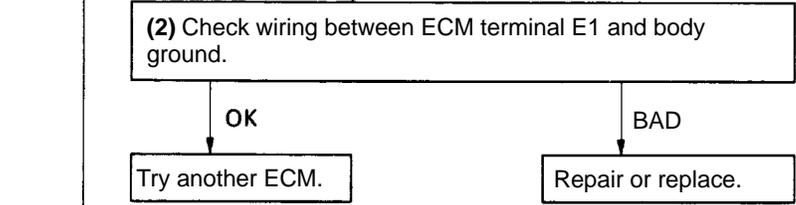
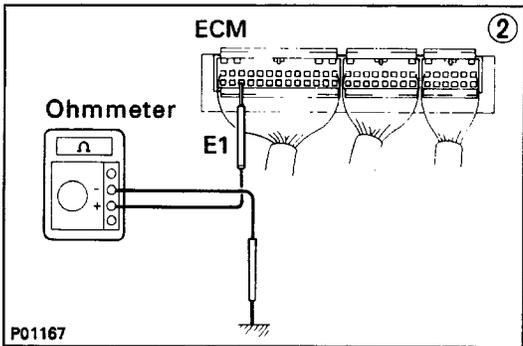
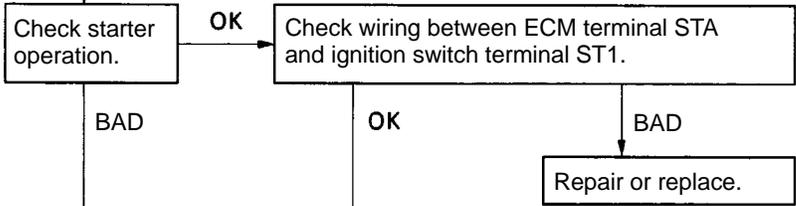
No.	Terminals	Trouble	Condition	STD voltage
8	STA - E1	No voltage	Cranking	6 - 14 V



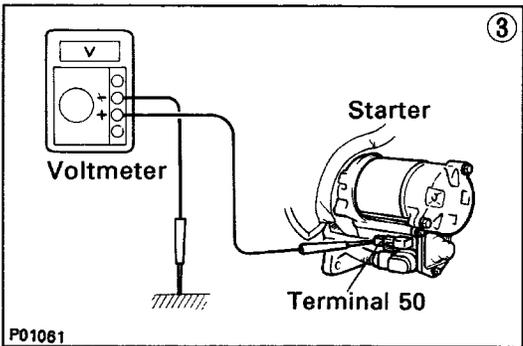
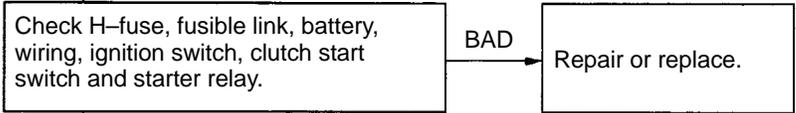
FI5432



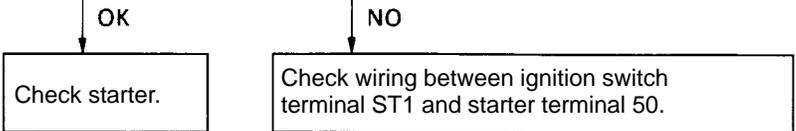
(1) There is no voltage between ECM terminals STA and E1. (IG SW START)



P01167

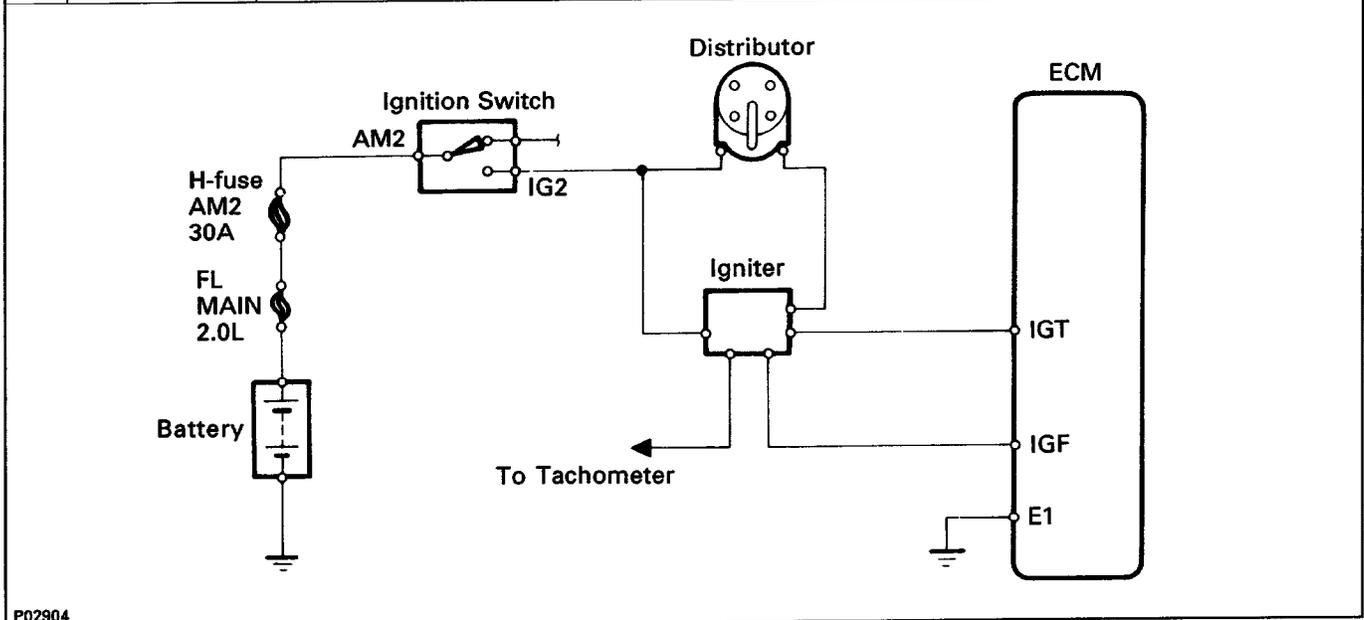


(3) Check that there is voltage at starter terminal 50. (IG SW START) STD voltage: 6 - 14 V

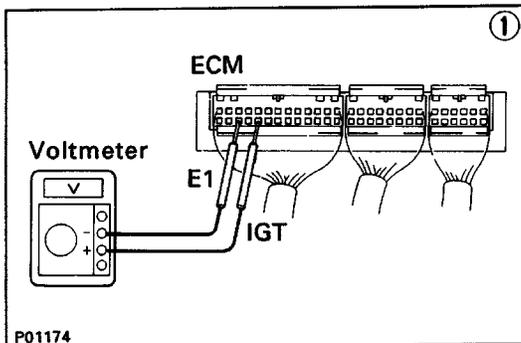


P01061

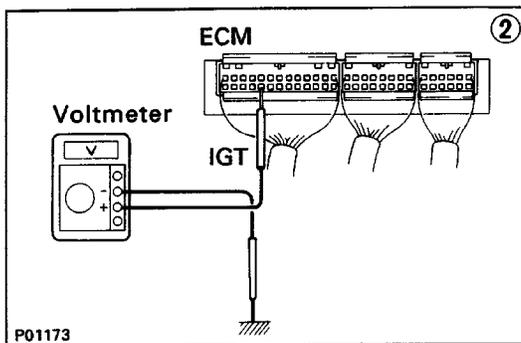
No.	Terminals	Trouble	Condition	STD voltage
9	IGT - E1	No voltage	Idling	0.8 - 1.2 V



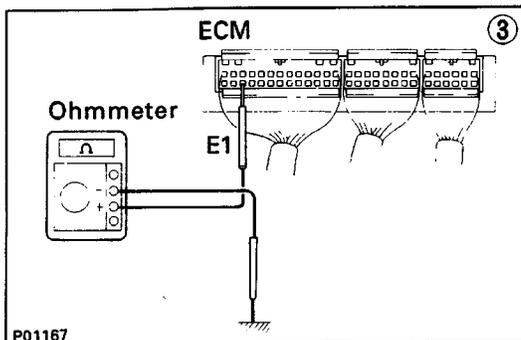
P02904



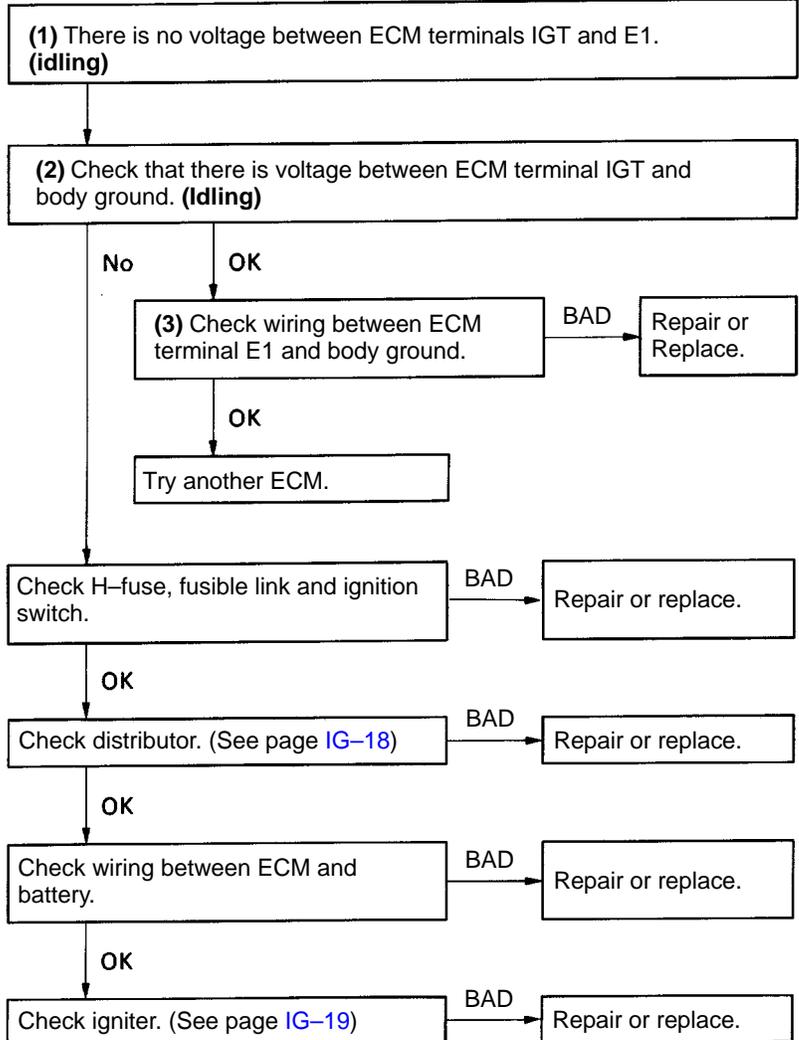
P01174

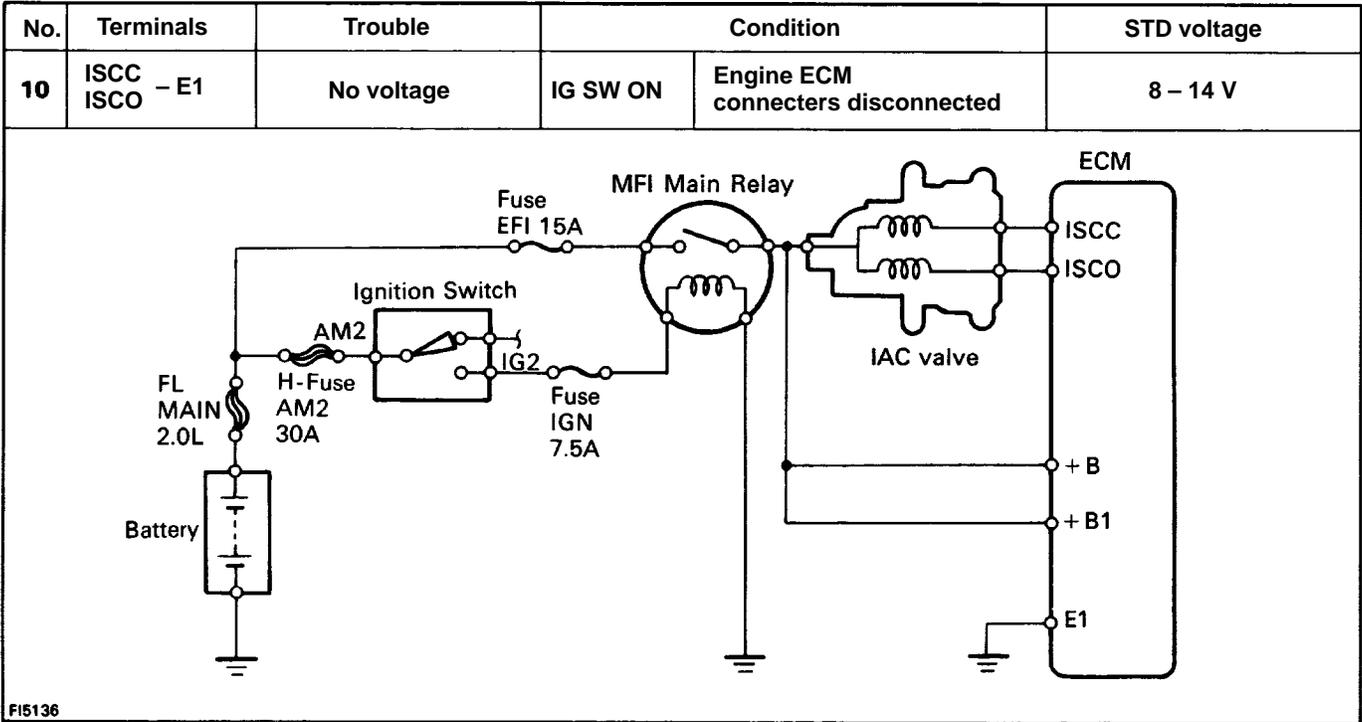


P01173

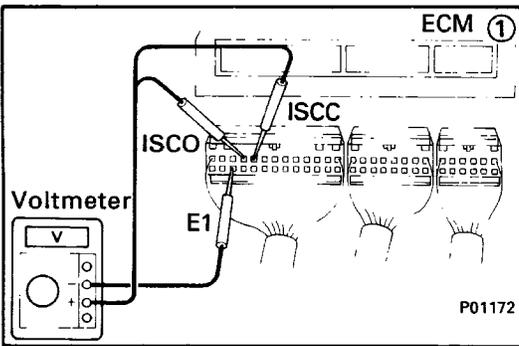


P01167





FI5136



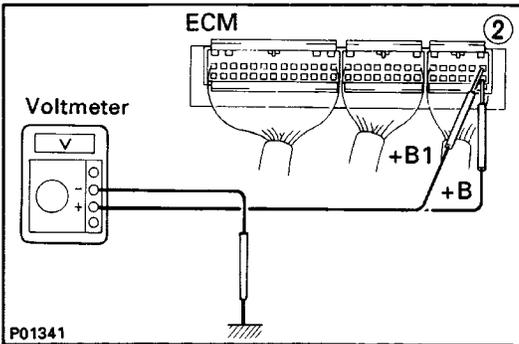
(1) There is no voltage between ECM terminals ISCC or ISCO and E1. (IG SW ON)

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

OK

NO

Refer to No.1. (See page FI-94)



(3) Check resistance between IAC valve terminals +B and ISCC or ISCO. STD resistance: Approx. 19.3 - 22.3Ω

BAD

Replace IAC valve.

OK

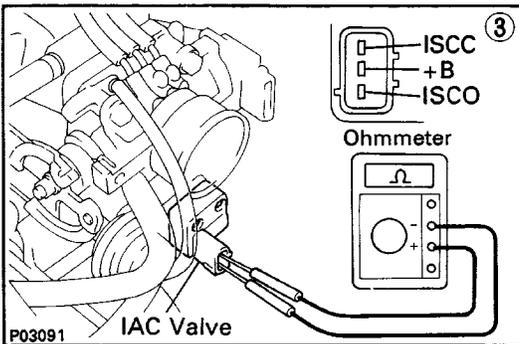
Check wiring between ECM and IAC valve.

BAD

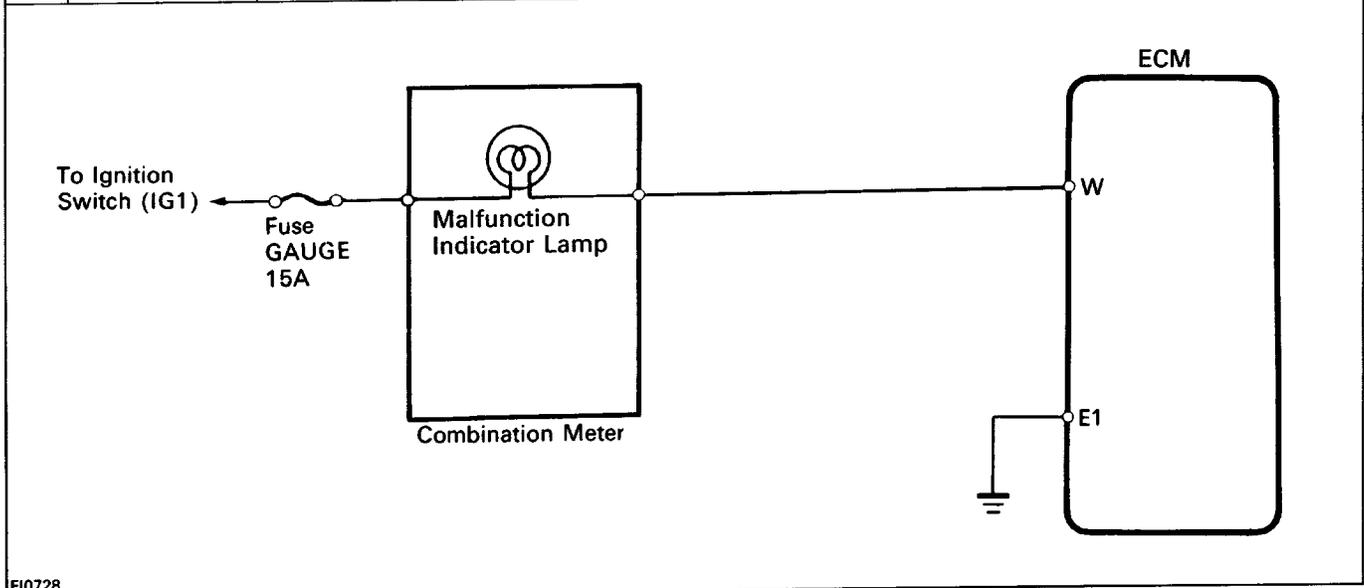
Repair or replace wiring.

OK

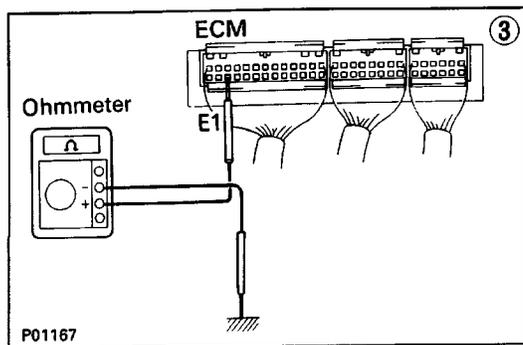
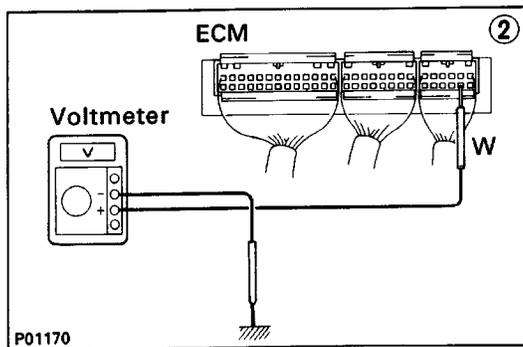
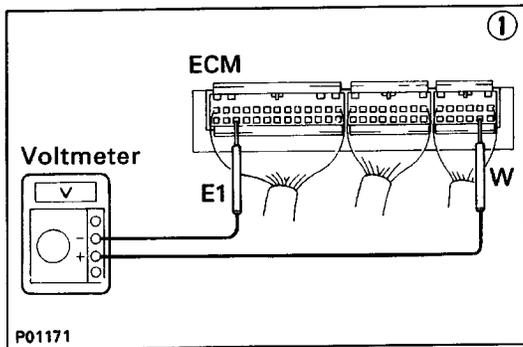
Try another ECM.



No.	Terminals	Trouble	Condition	STD voltage
11	1AI - E 1	No voltage	No trouble (malfunction indicator lamp off) and engine running.	10 - 14 V

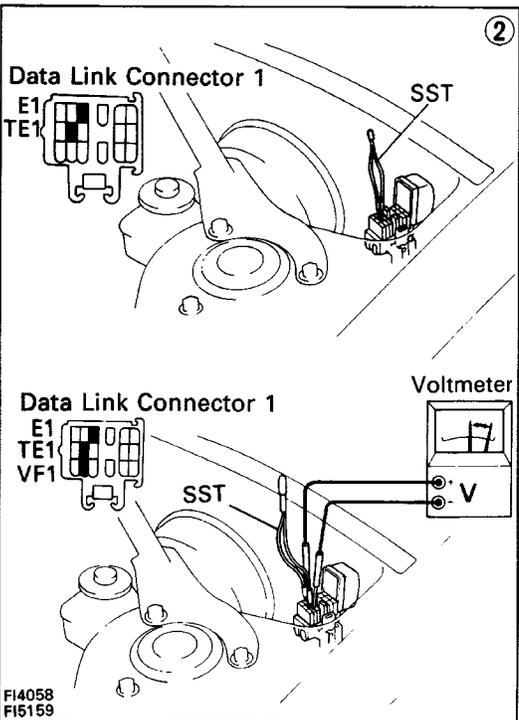
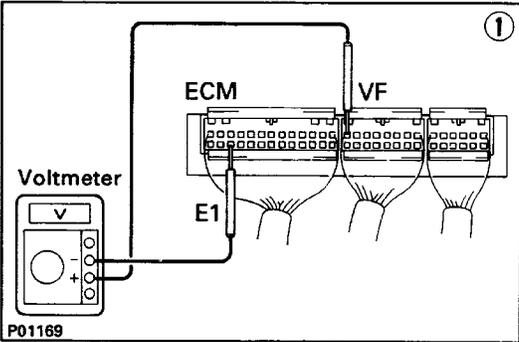
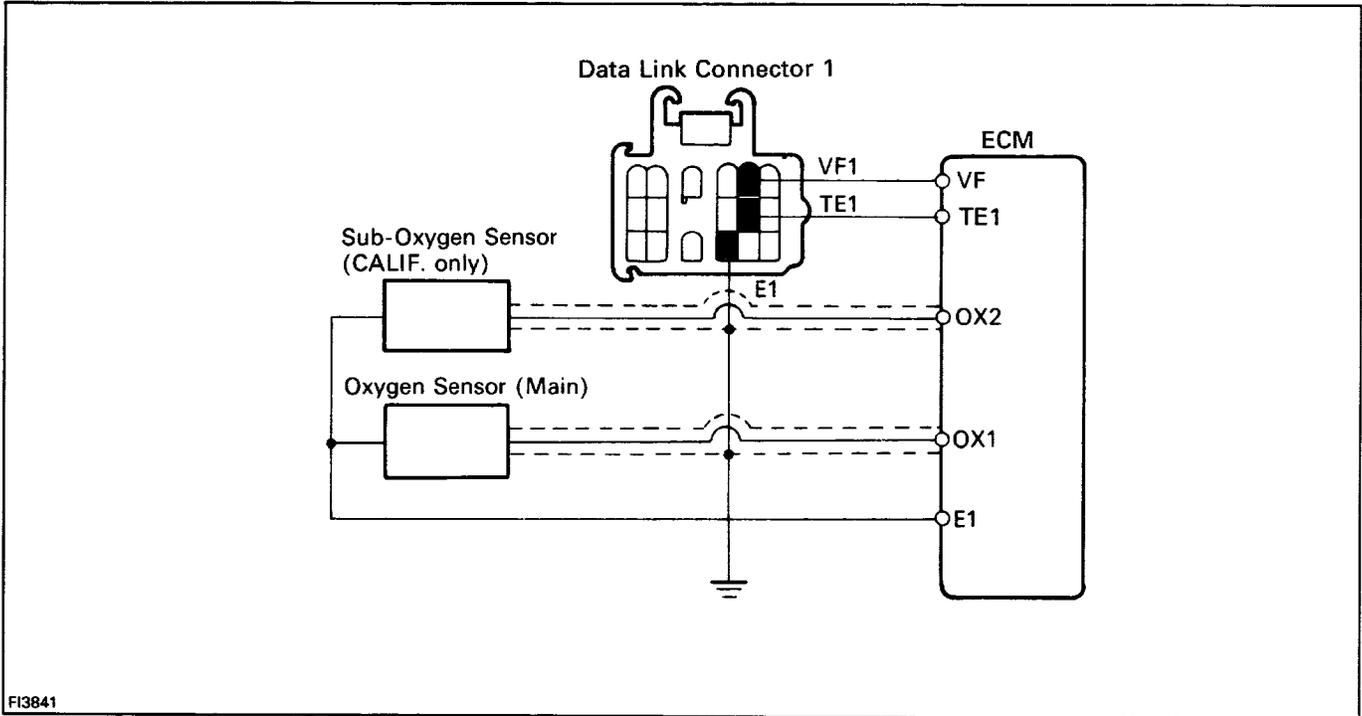


FI0728



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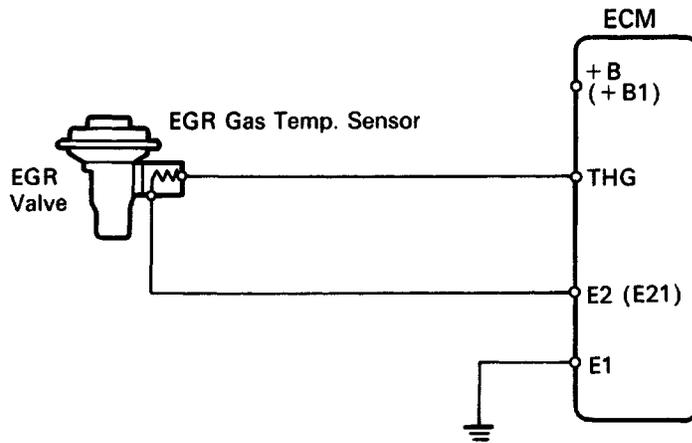
    graph TD
      A["(1) There is no voltage between ECM terminals W and E1. (Idling)"] --> B["(2) Check that there is voltage between ECM terminal W and body ground."]
      B -- NO --> C["(3) Check wiring between ECM terminal E1 and body ground"]
      B -- OK --> D["Check GAUGE fuse (15A) and malfunction indicator lamp."]
      C -- OK --> E["Try another ECM."]
      C -- BAD --> F["Repair or replace."]
      D -- OK --> G["Check wiring between ECM terminal W and fuse."]
      D -- BAD --> H["Repair or replace."]
      G -- Fuse blows again --> H
      G -- BAD --> H
      H --> I["Repair or replace."]
    
```



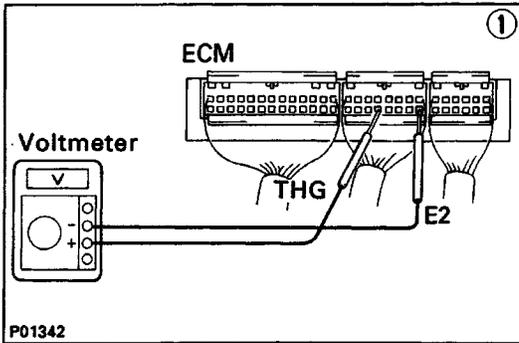
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    graph TD
      A["(1) There is no voltage between ECM terminals VF and E1."] --> B["Check that there is voltage between ECM terminal VF and body ground."]
      B -- NO --> C["Check wiring between ECM terminal E1 and body ground."]
      B -- OK --> D["Is air leaking into air induction system?"]
      C -- OK --> D
      C -- BAD --> E["Repair or replace."]
      D -- YES --> F["Repair or replace."]
      D -- NO --> G["Check spark plugs. (See page IG-16)"]
      G -- BAD --> H["Repair or replace."]
      G -- OK --> I["Check distributor and ignition system. (See page IG-4)"]
      I -- BAD --> H
      I -- OK --> J["Check fuel pressure. (See page FI-128)"]
      J -- BAD --> H
      J -- OK --> K["Check injectors. (See page FI-169)"]
      K -- BAD --> H
      K -- OK --> L["Check vacuum sensor (See page FI-234)"]
      L -- BAD --> H
      L -- OK --> M["(2) Check operation of oxygen sensors. (See pages FI-237 and 239)"]
      M -- OK --> N["System Normal"]
      M -- BAD --> O["Check wiring between oxygen sensor and ECM."]
      O -- BAD --> P["Repair wiring."]
      O -- OK --> Q["Replace oxygen sensors."]
    
```

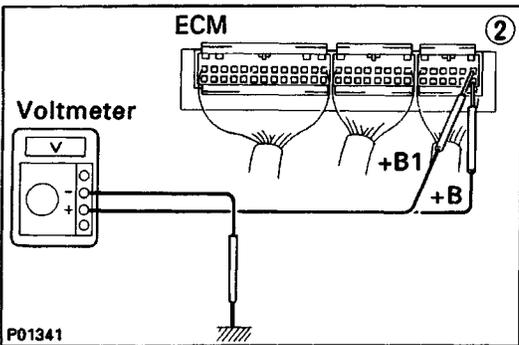
CALIF. only



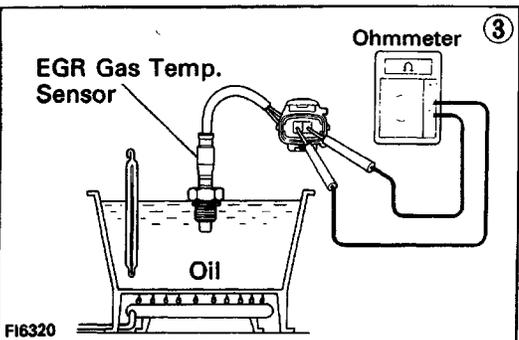
FI2680



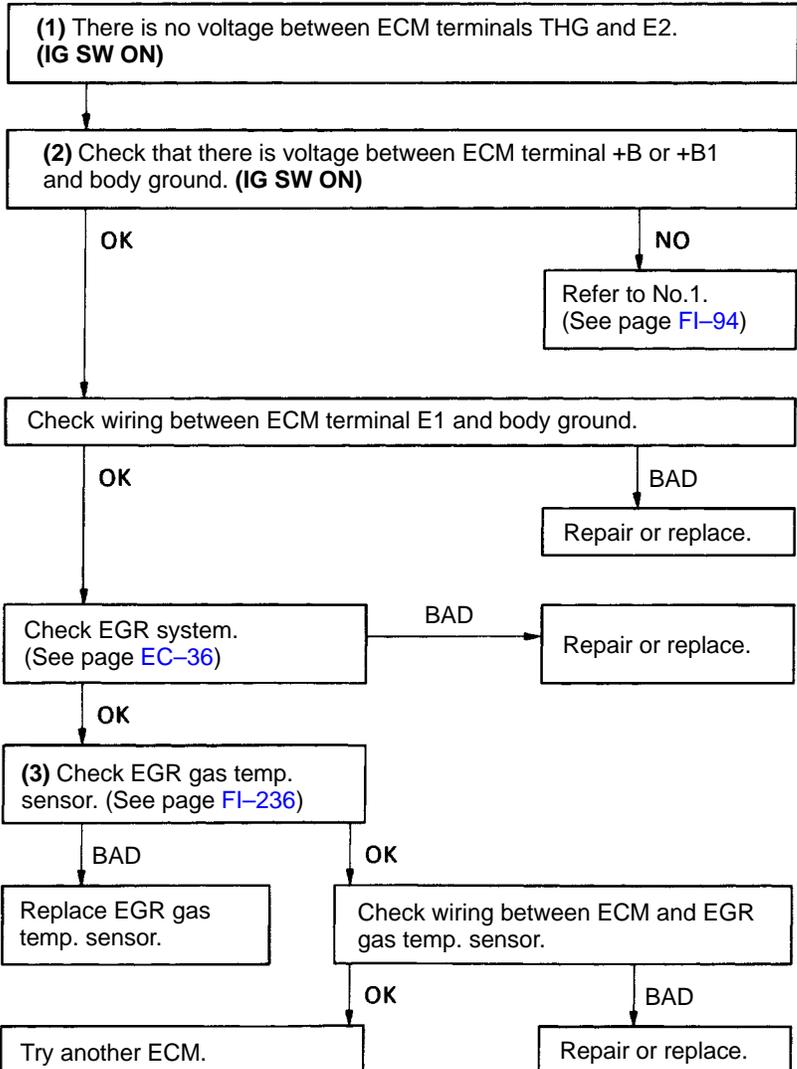
P01342

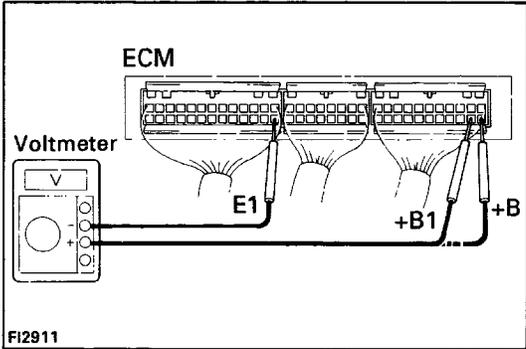
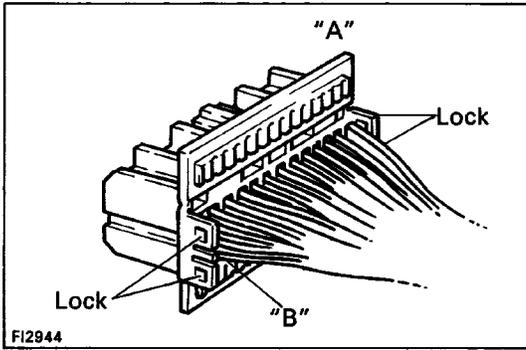


P01341



FI6320





MFI SYSTEM CHECK PROCEDURE (5S-FE A/T) PREPARATION

- (a) Disconnect the connectors from the ECM.
- (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 ECM.

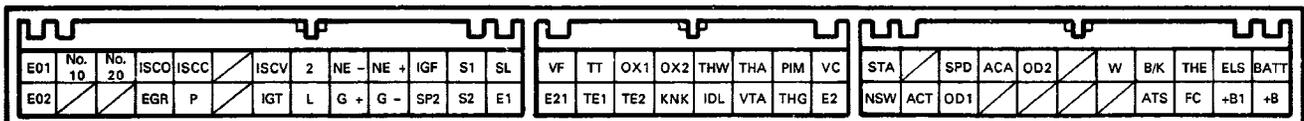
HINT:

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

Terminals of ECM (5S-FE A/T)

Symbol	Terminal Name	Symbol	Terminal Name	Symbol	Terminal Name
E01	POWER GROUND	S1	SOLENOID	/	—
E02	POWER GROUND	S2	SOLENOID	ACT	A/C AMPLIFIER
No.10	INJECTOR	SL	SOLENOID	SP1	SPEED SENSOR
/	—	E1	ENGINE GROUND	OD1	OD OFF SWITCH
No.20	INJECTOR	VF	DATA LINK CONNECTOR 1	ACA	A/C AMPLIFIER
/	—	E21	SENSOR GROUND	/	—
ISCO	IAC VALVE	TT	DATA LINK CONNECTOR 1	OD2	OD MAIN SWITCH
EGR	EGR VSV	TE1	DATA LINK CONNECTOR 1	/	—
ISCC	IAC VALVE	OX1	OXYGEN SENSOR	/	—
P	PATTERN SELECT SWITCH	TE2	DATA LINK CONNECTOR 1	/	—
/	—	*OX2	SUB-OXYGEN SENSOR	W	MALFUNCTION INDICATOR LAMP
/	—	KNK	KNOCK SENSOR	/	—
ISCV	A/C IDLE-UP VSV	THW	ENGINE COOLANT TEMP. SENSOR	BIK	STOP LIGHT SWITCH
IGT	IGNITER	IDL	THROTTLE POSITION SENSOR	ATS	A/C AMPLIFIER
2	PARK/NEUTRAL POSITION SWITCH	THA	AIR TEMP. SENSOR	THE	EVAPORATOR TEMP. SENSOR
L	PARK/NEUTRAL POSITION SWITCH	VTA	THROTTLE POSITION SENSOR	FC	CIRCUIT OPENING RELAY
NE -	DISTRIBUTOR	PI M	VACUUM SENSOR	ELS	HEADLIGHT RELAY DEFOGGER RELAY
G +	DISTRIBUTOR	*THG	EGR GAS TEMP. SENSOR	+B	MFI MAIN RELAY
NE +	DISTRIBUTOR	VC	VACUUM SENSOR, THROTTLE POSITION SENSOR	BA^	BATTERY
G -	DISTRIBUTOR	E2	SENSOR GROUND	+B I	MFI MAIN RELAY
IGF	IGNITER	STA	STARTER SWITCH	*Calif. only	
SP2	SPEED SENSOR	N SW	PARK/NEUTRAL POSITION SWITCH		

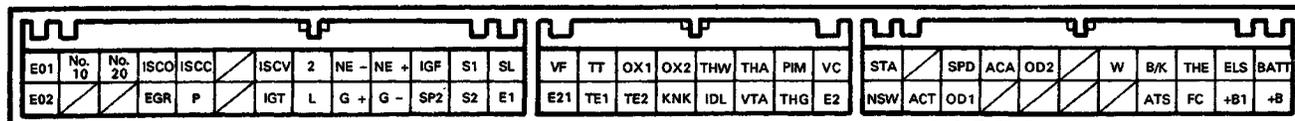
ECM Terminals



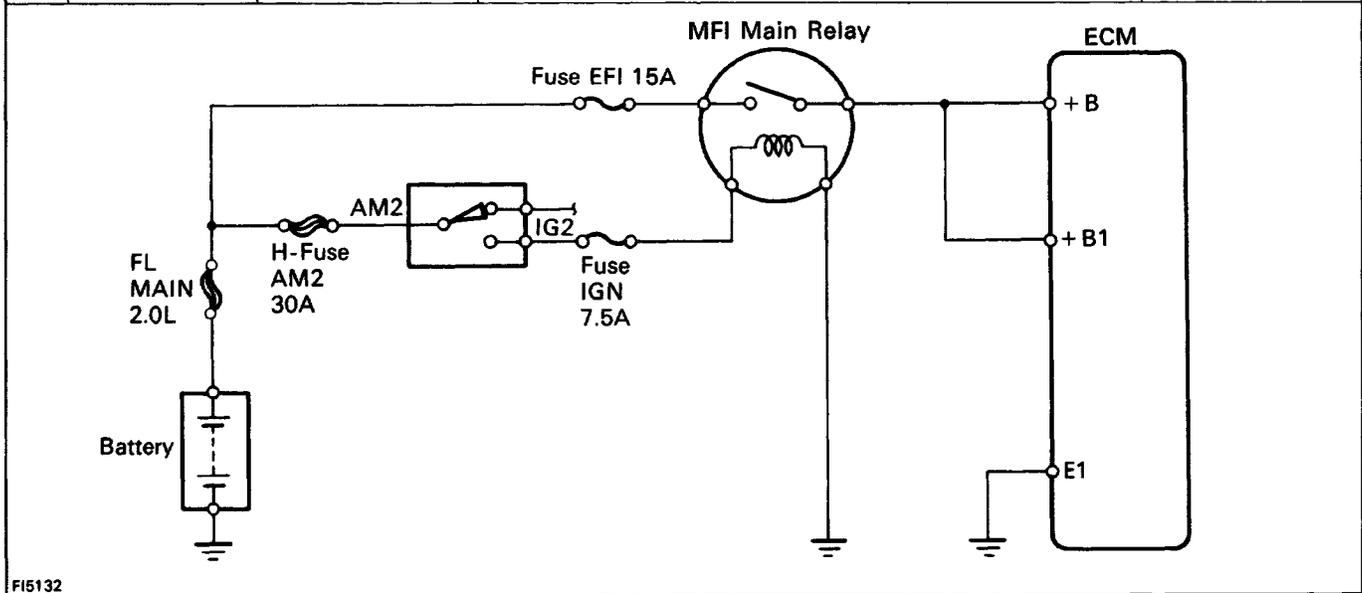
Voltage at ECM Wiring Connectors (5S-EE A/T)

No.	Terminals	Condition		STD voltage (V)	See page
1	+B-E1 + B1	IG SW ON		10-14	FI-110
2	BATT - E 1	—		10-14	F-111
3	IDL - E2	IG SW ON	Throttle valve open	8-14	F-112
	VC - E2		—	4.5-5.5	
	VTA - E2		Throttle valve fully closed (Throttle opener must be cancelled first)	0.8-1.2	
			Throttle valve fully open	3.2-4.2	
4	PIM - E2	IG SW ON		3.3-3.9	FI-114
	VC - E2		4.5-5.5		
5	No. 10 E01 - No. 20 E02			10-14	FI-115
6	THA - E2	IG SW ON	Intake air temp. 20°C (68°F)	1.9-2.9	FI-116
7	THW - E2		Engine coolant temp. 80°C (176°F)	0.1 -1.1	FI-117
8	STA - E 1	Cranking		6-14	FO-118
9	IGT - E1	Cranking or idling		0.8-1.2	FI-119
10	ISCC - EI ISCO	IG SW ON	ECM connectors disconnected	8-14	FI-120
11	W - E1	No trouble (malfunction indicator lamp off) and engine running		10-14	FI-121

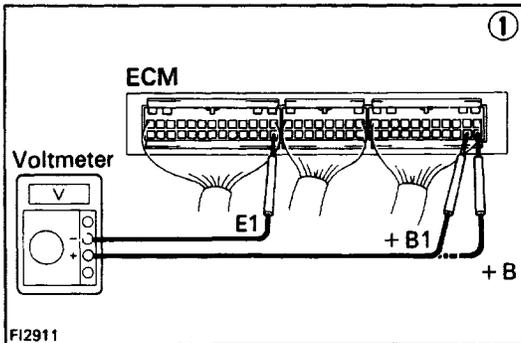
ECM Terminals



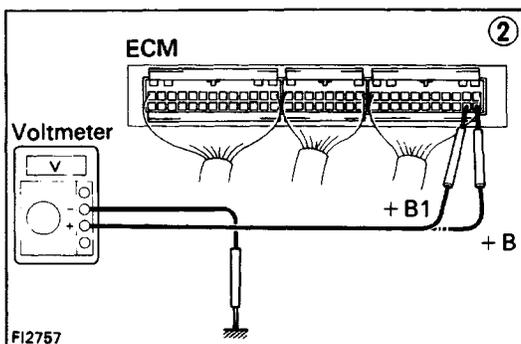
No.	Terminals	Trouble	Condition	STD voltage
1	+B + B1 - E1	No voltage	IG SW ON	10 - 14 V



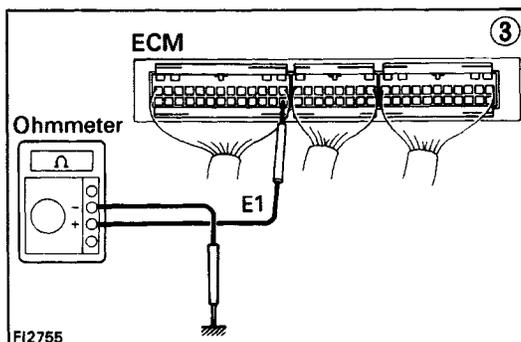
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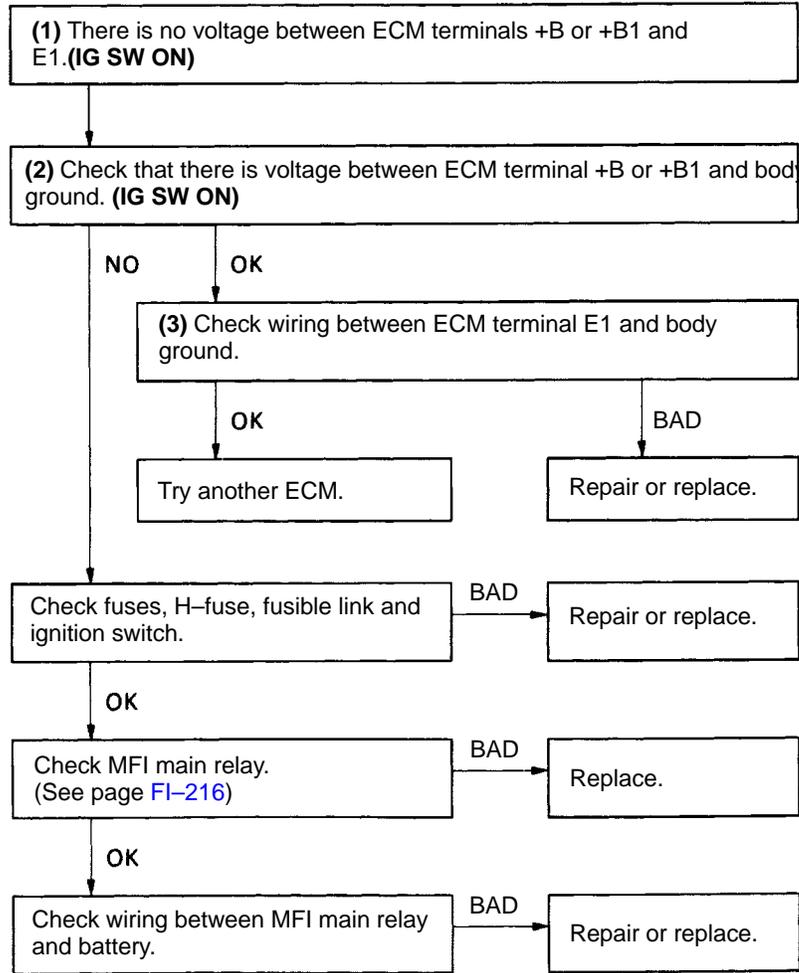
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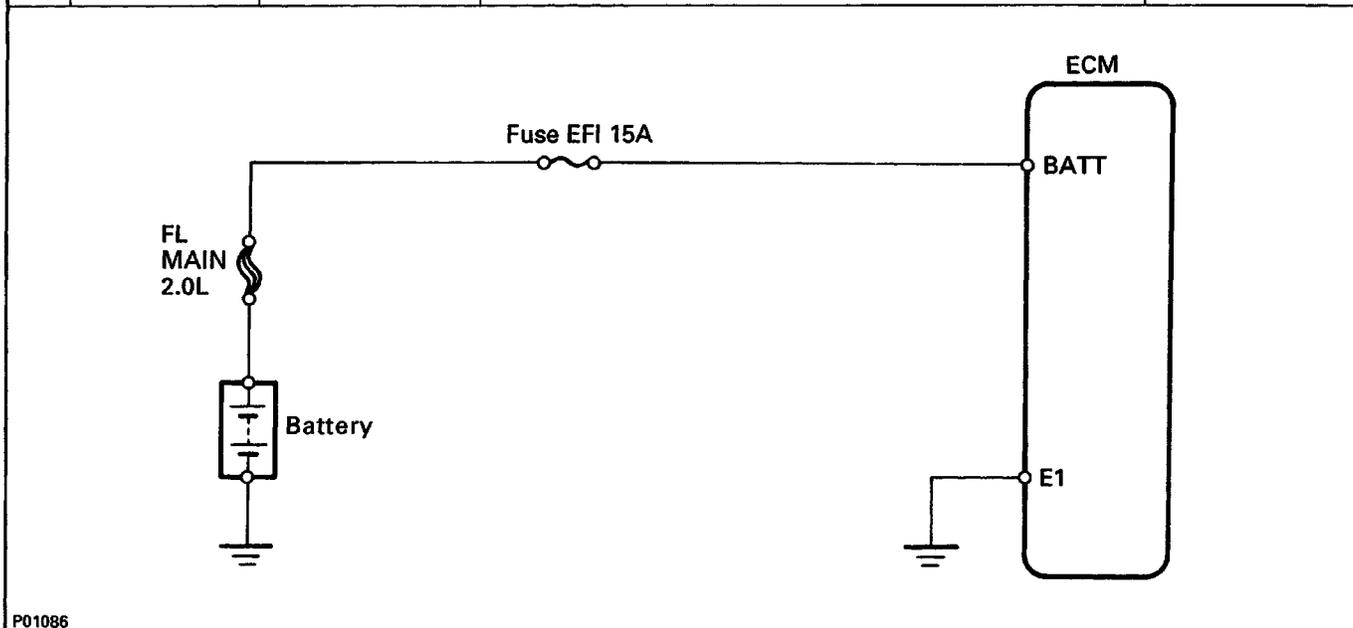
FI2757



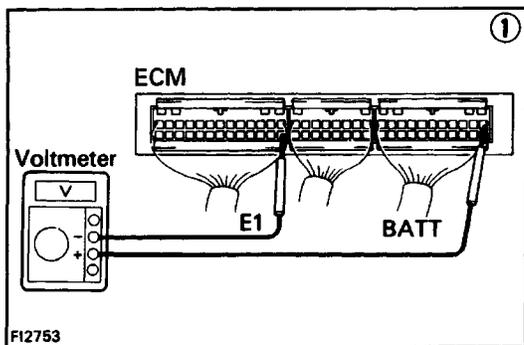
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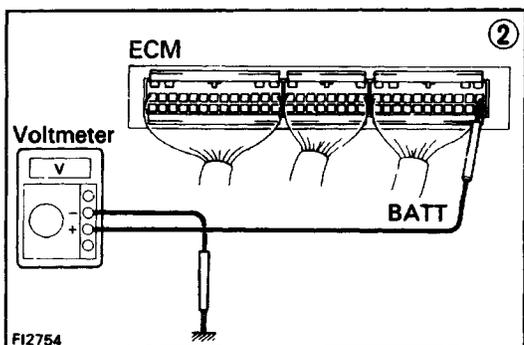
No.	Terminals	Trouble	Condition	STD voltage
2	BATT - E1	No voltage	-	10 - 14V



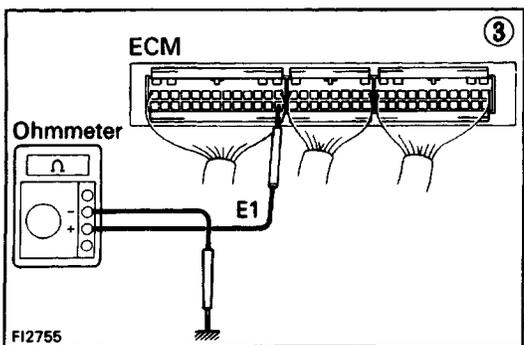
P01086



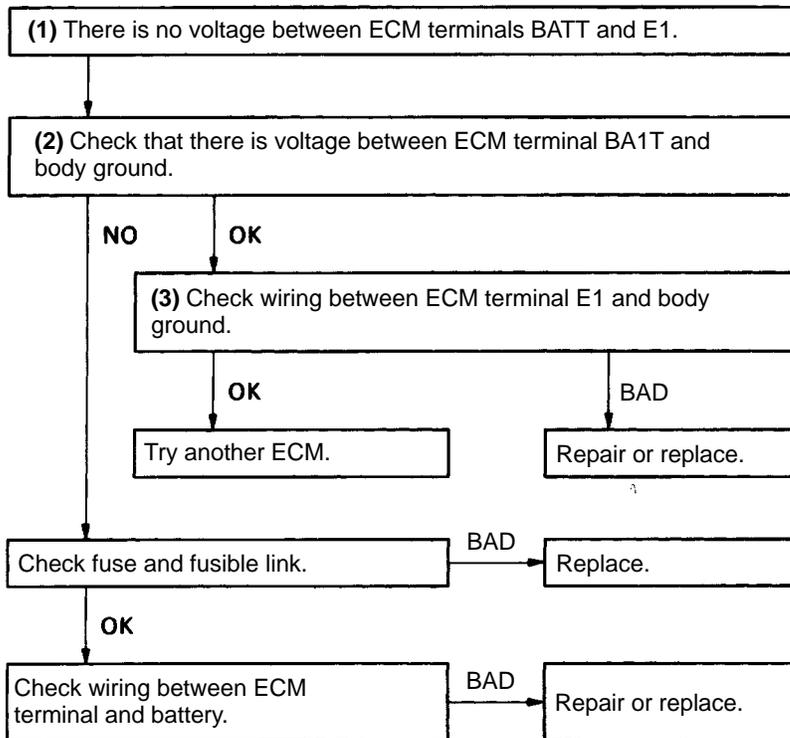
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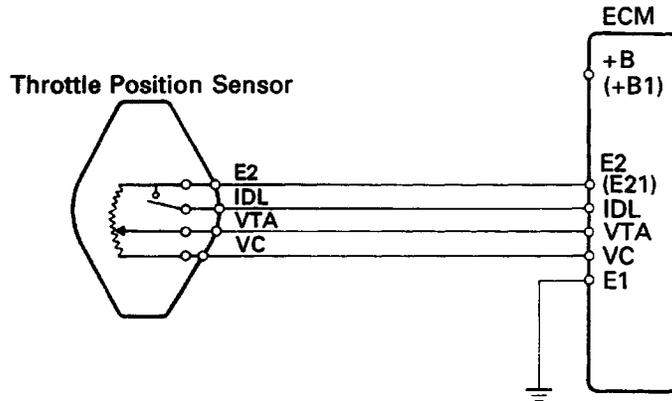
FI2754



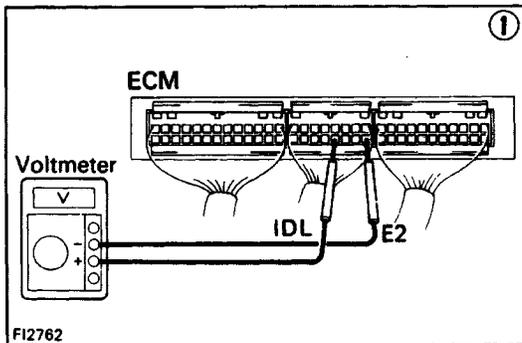
FI2755



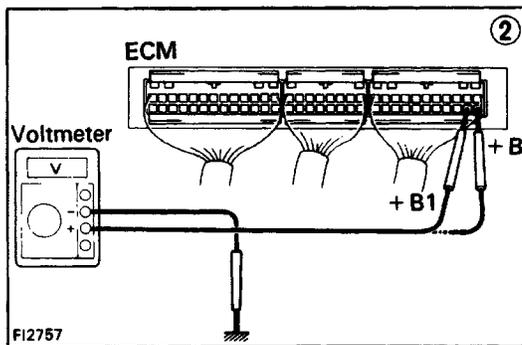
No.	Terminals	Trouble	Condition	STD voltage	
3	IDL - E2	No voltage	IG SW ON	Throttle valve open	8 - 14V
	VC - E2			-	4.5 - 5.5 V
	VTA - E2			Throttle valve fully closed (Throttle opener must be cancelled first)	0.8 - 1.2 V
				Throttle valve fully open	3.2 - 4.2 V



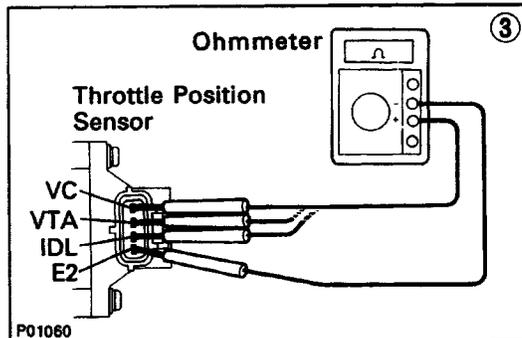
P01419



FI2762



FI2757

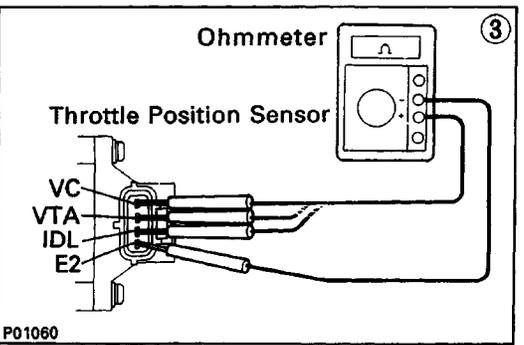
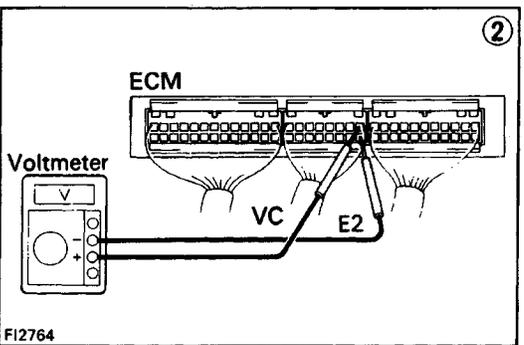
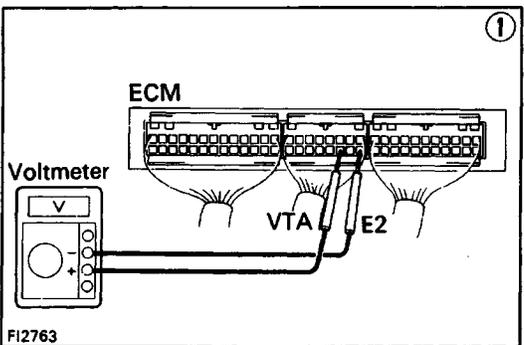
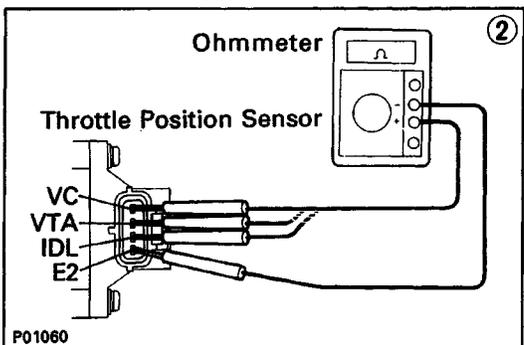
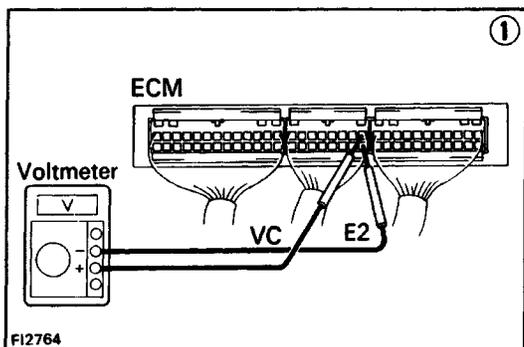


P01060

• IDL - E2

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    graph TD
      Start[IDL - E2] --> Step1["(1) There is no voltage between ECM terminals IDL and E2  
(IG SW ON) (Throttle valve open)"]
      Step1 --> Step2["(2) Check that there is voltage between ECM terminal +B (+B1)  
and body ground. (IG SW ON)"]
      Step2 -- NO --> Refer["Refer to No-1.  
(See page FI-110)"]
      Step2 -- OK --> Step3["(3) Check throttle position sensor.  
(See page FI-199)"]
      Refer -- BAD --> Repair1[Repair or replace.]
      Refer -- OK --> Step3
      Step3 -- BAD --> Repair1
      Step3 -- OK --> Step4["Check wiring between ECM and  
throttle position sensor."]
      Step4 -- OK --> Repair2[Try another ECM.]
      Step4 -- BAD --> Repair1
      Step4 --> Repair1
      Repair1 --> Repair1
      Repair2 --> Repair2
  
```



• VC-E2

```

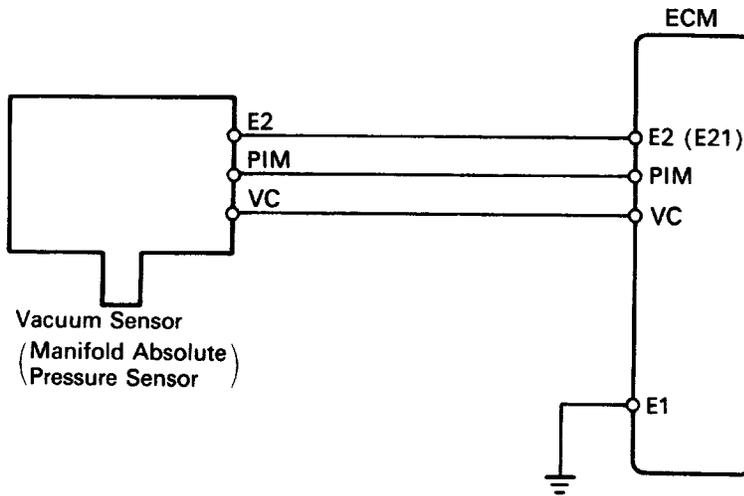
    graph TD
      A["(1) There is no voltage between ECM terminals VC and E2.  
(IG SW ON)"] --> B["Check that there is voltage between ECM terminal +B (+B1) and  
body ground. (IG SW ON)"]
      B -- OK --> C["(2) Check throttle position sensor.  
(See page FI-199)"]
      B -- NO --> D["Refer to No.1.  
(See page FI-110)"]
      C -- BAD --> E["Repair or replace."]
      C -- OK --> F["Check wiring between ECM and throttle  
position sensor."]
      F -- OK --> G["Try another ECM."]
      F -- BAD --> H["Repair or replace  
wiring."]
    
```

• VTA - E2

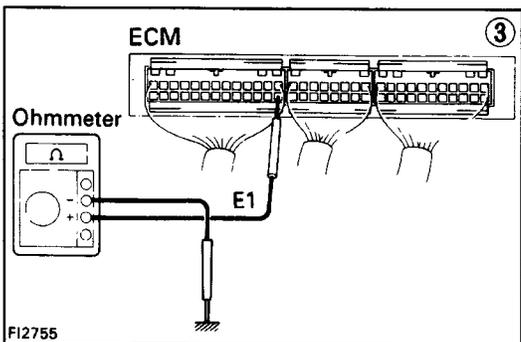
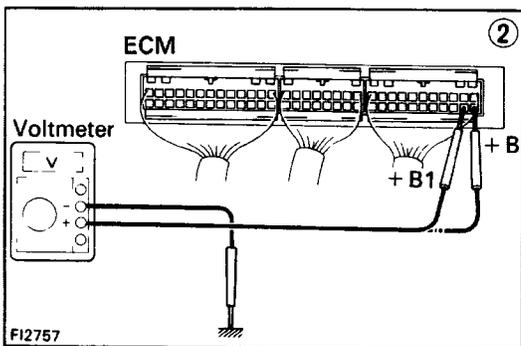
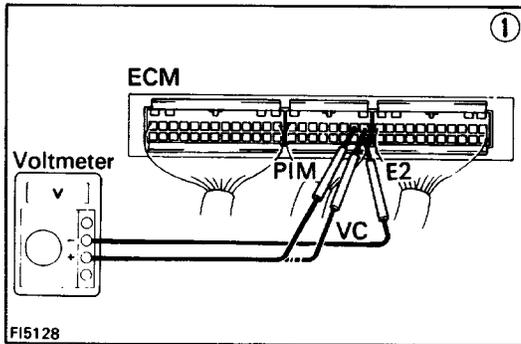
```

    graph TD
      A["(1) There is no specified voltage at ECM terminals VTA and E2.  
(IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminals VC and E2  
(IG SW ON) ."]
      B -- NO --> C["Refer to VC - E2 trouble  
section."]
      B -- OK --> D["(3) Check throttle position sensor.  
(See page FI-199)"]
      D -- BAD --> E["Repair or replace."]
      D -- OK --> F["Check wiring between ECM and  
throttle position sensor."]
      F -- BAD --> G["Repair or replace."]
      F -- OK --> H["Try another ECM."]
    
```

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



FI1226

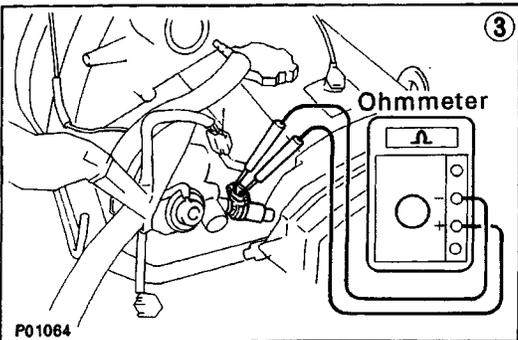
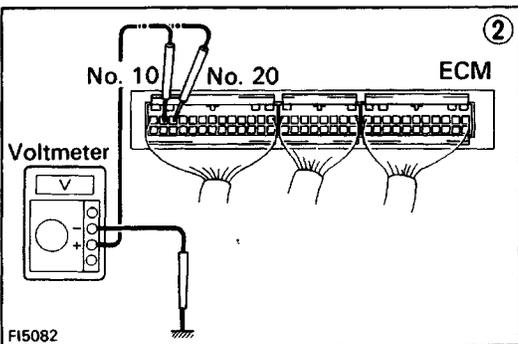
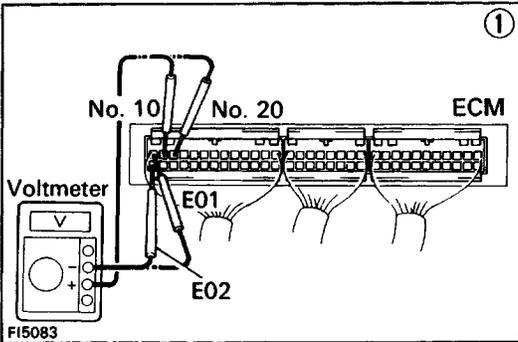
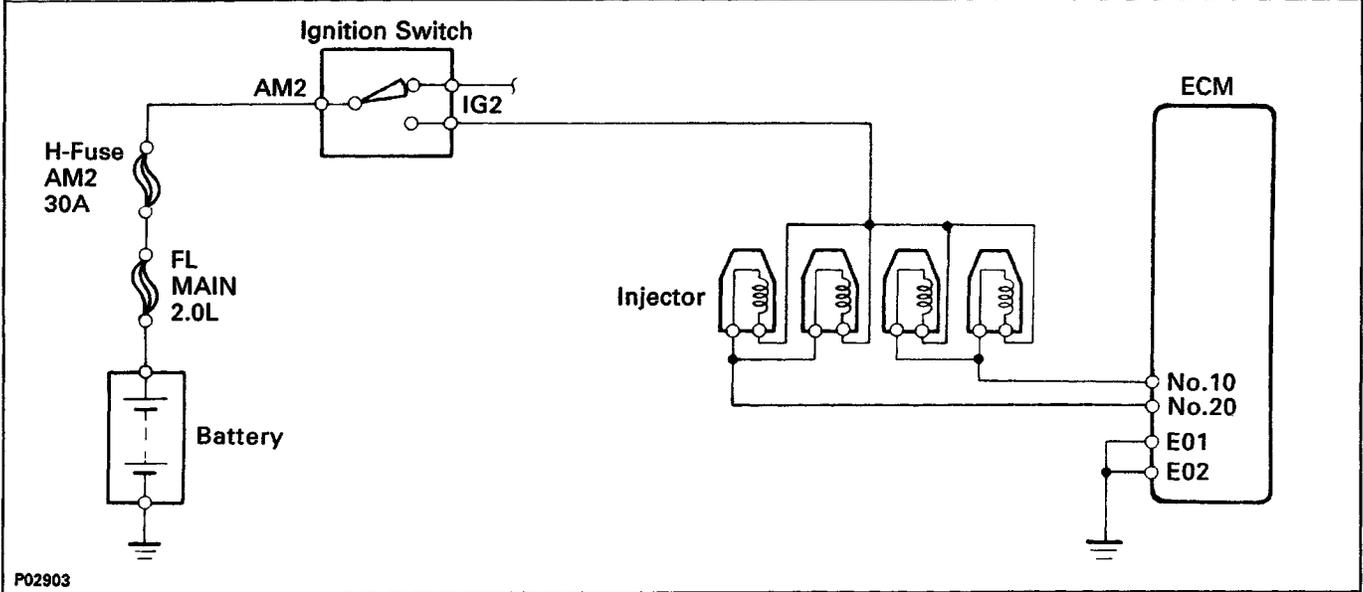


• PIM - E2, VC - E2

```

    graph TD
      A["(1) There is no voltage between ECM terminals PIM or VC and E2. (IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminal +B (+B1) and body ground. (IG SW ON)"]
      B -- NO --> C["Refer to No.1. (See page FI-110)"]
      B -- OK --> D["(3) Check wiring between ECM terminal E1 and body ground."]
      D -- BAD --> E["Repair or replace."]
      D -- OK --> F["Check vacuum sensor. (See page FI-234)"]
      F -- BAD --> G["Replace vacuum sensor."]
      F -- OK --> H["Check wiring between ECM and vacuum sensor."]
      H -- BAD --> E
      H -- OK --> I["Try another ECM."]
    
```

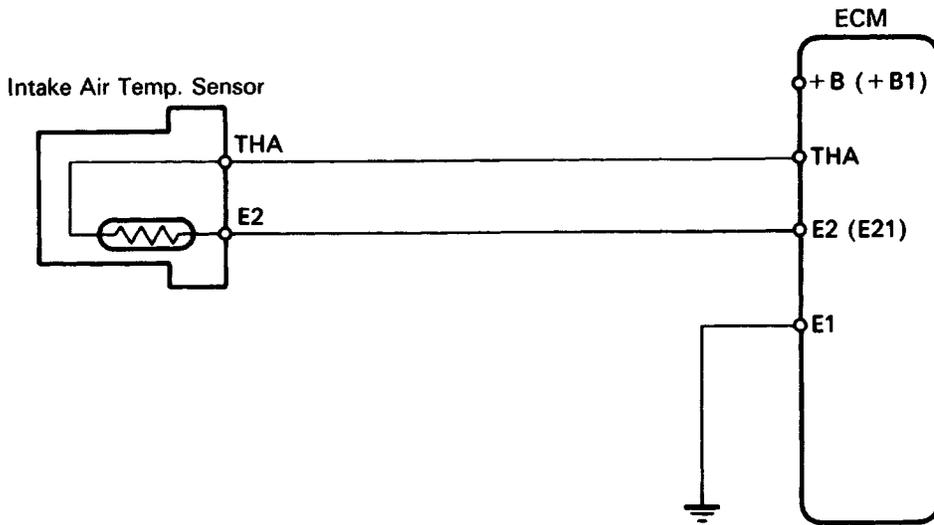
No.	Terminals	Trouble	Condition	STD voltage
5	No.10 - E01 No.20 - E02	No voltage	IG SW ON	10 - 14 V



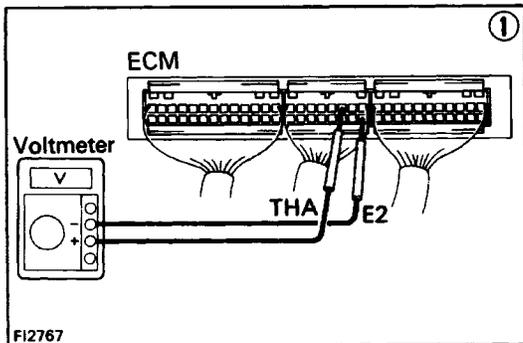
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    graph TD
      Step1["(1) There is no voltage between ECM terminals No.10 and/or No.20 and E01 and/or E02. (IG SW ON)"]
      Step2["(2) Check that there is voltage between ECM terminal No.10 and/or No.20 and body ground."]
      Step3["(3) Check resistance of each injector. STD resistance: Approx. 13.8 Ω"]
      
      Step1 --> Step2
      Step2 -- NO --> Fuse["Check H-fuse, fusible link and ignition switch."]
      Step2 -- OK --> Step3
      
      Fuse -- BAD --> FuseFix["Repair or replace."]
      Fuse -- OK --> Step3
      
      Step3 -- OK --> InjectFix["Replace injector."]
      Step3 -- BAD --> Wiring["Check wiring between ECM terminal No.10 and/or No.20 and battery."]
      Wiring -- BAD --> WiringFix["Repair or replace."]
      Wiring -- OK --> InjectFix
      
      FuseFix --> InECM["Tn another ECM."]
      InECM --> InjectFix
      
      WiringFix --> InjectFix
      
      FuseFix --> RepRep["Repair or replace."]
      WiringFix --> RepRep
      
      InjectFix --> RepRep
  
```

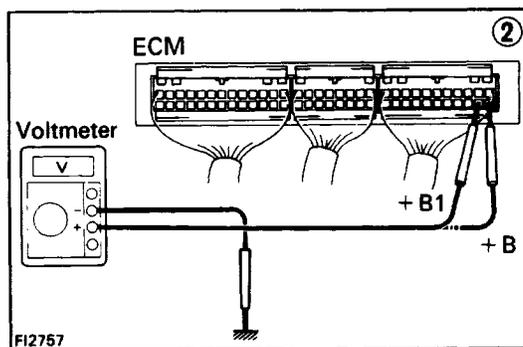
No.	Terminals	Trouble	Condition		STD voltage
			IG SW ON	Intake air temperature 20°C (68°F)	
6	THA - E2	No voltage	IG SW ON	Intake air temperature 20°C (68°F)	1.9 - 2.9 V



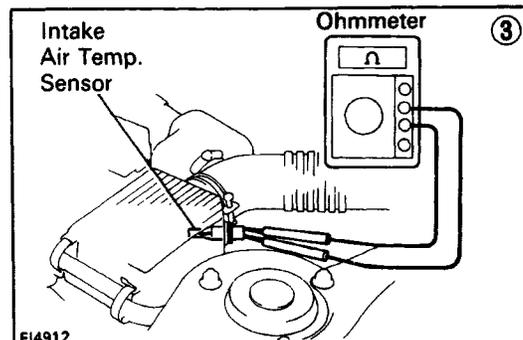
FI3572



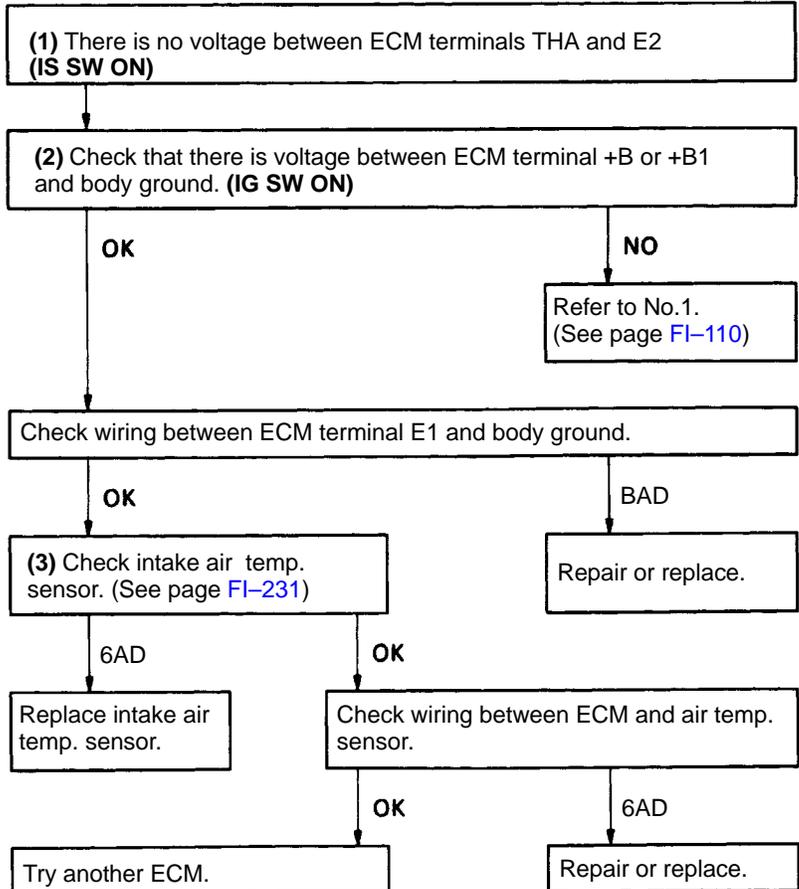
FI2767



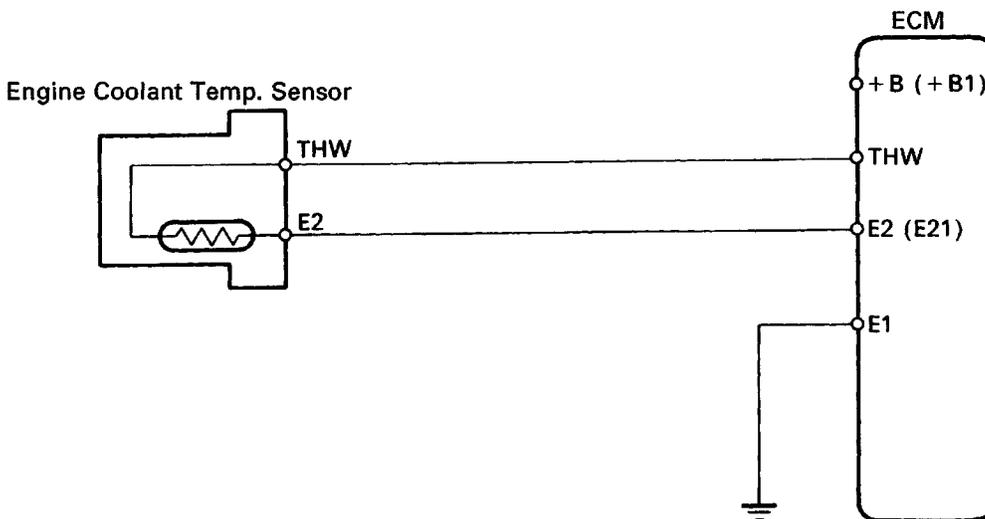
FI2757



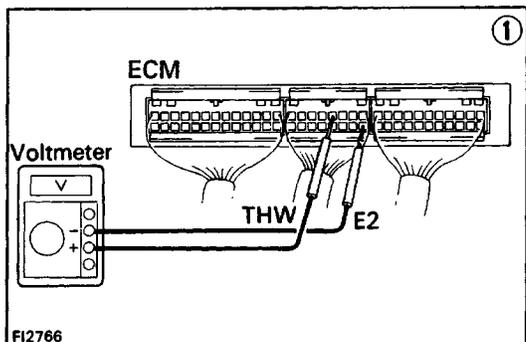
FI4912



No.	Terminals	Trouble	Condition		STD voltage
			IG SW ON	Engine coolant temperature 80°C (176°F)	
7	THW - E2	No voltage	IG SW ON	Engine coolant temperature 80°C (176°F)	0.1 - 1.1 V



FI357



FI2766

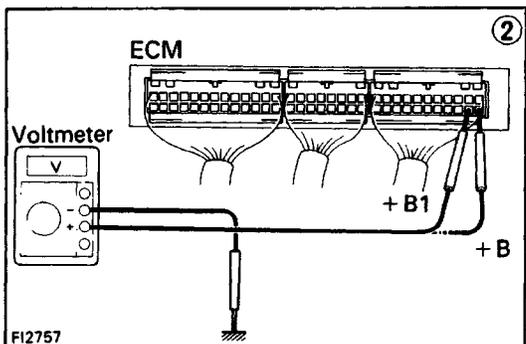
(1) There is no voltage between ECM terminals THW and E2. (IG SW ON)

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

OK

NO

Refer to No.1 (See page FI-110)



FI2757

Check wiring between ECM terminal E1 and body ground.

OK

BAD

(3) Check engine coolant temp. sensor. (See page FI-231)

Repair or replace.

BAD

OK

Replace engine coolant temp. sensor.

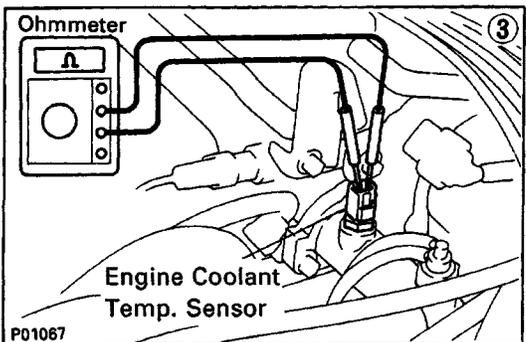
Check wiring between ECM and water temp. sensor.

OK

BAD

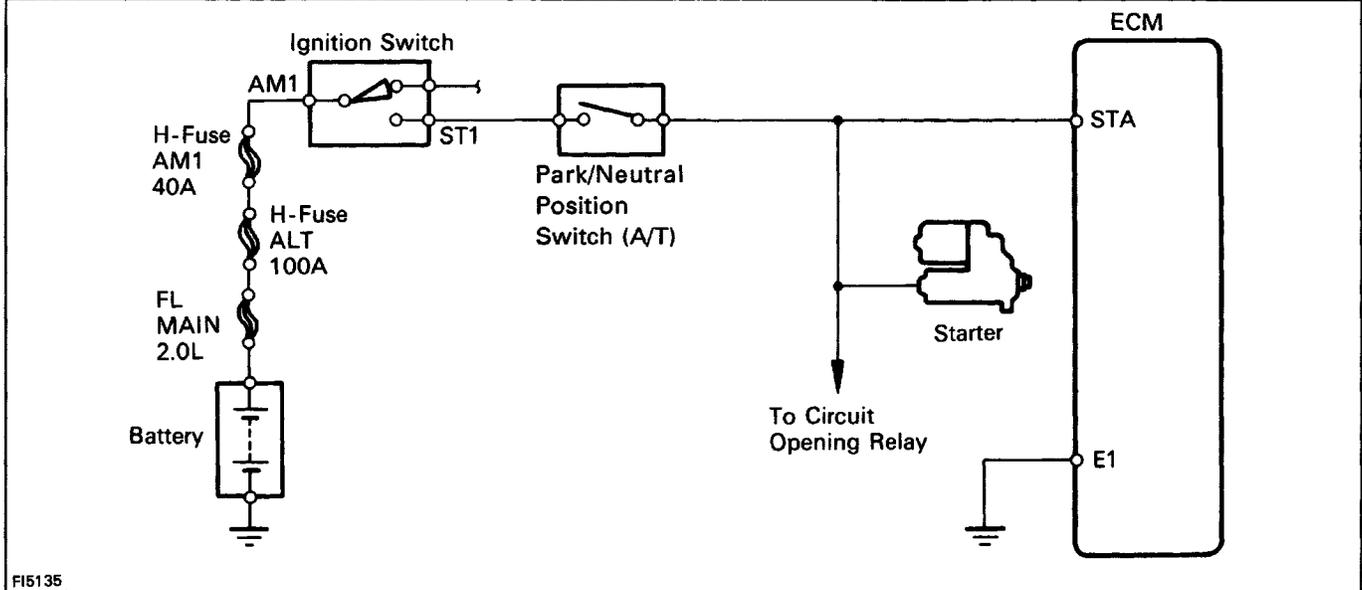
Try another ECM.

Repair or replace.

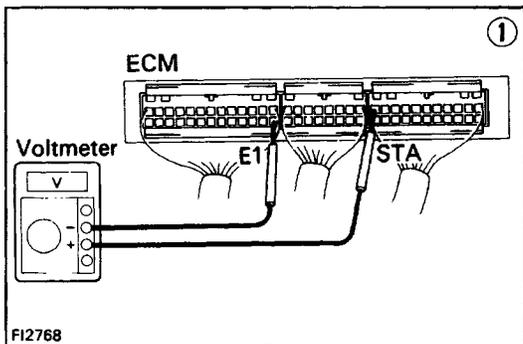


P01067

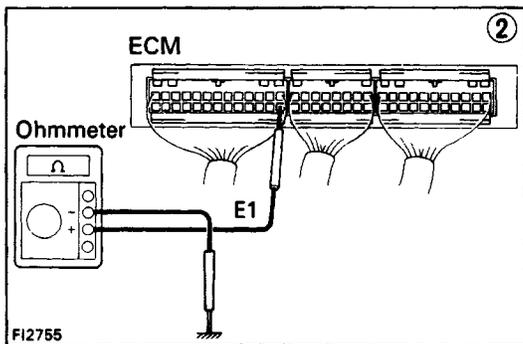
No.	Terminals	Trouble	Condition	STD voltage
8	STA - E1	No voltage	Cranking	6 - 14 V



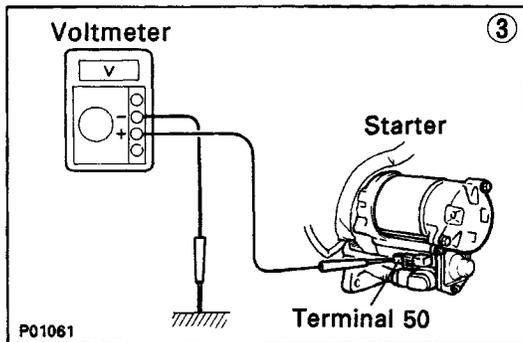
FI5135



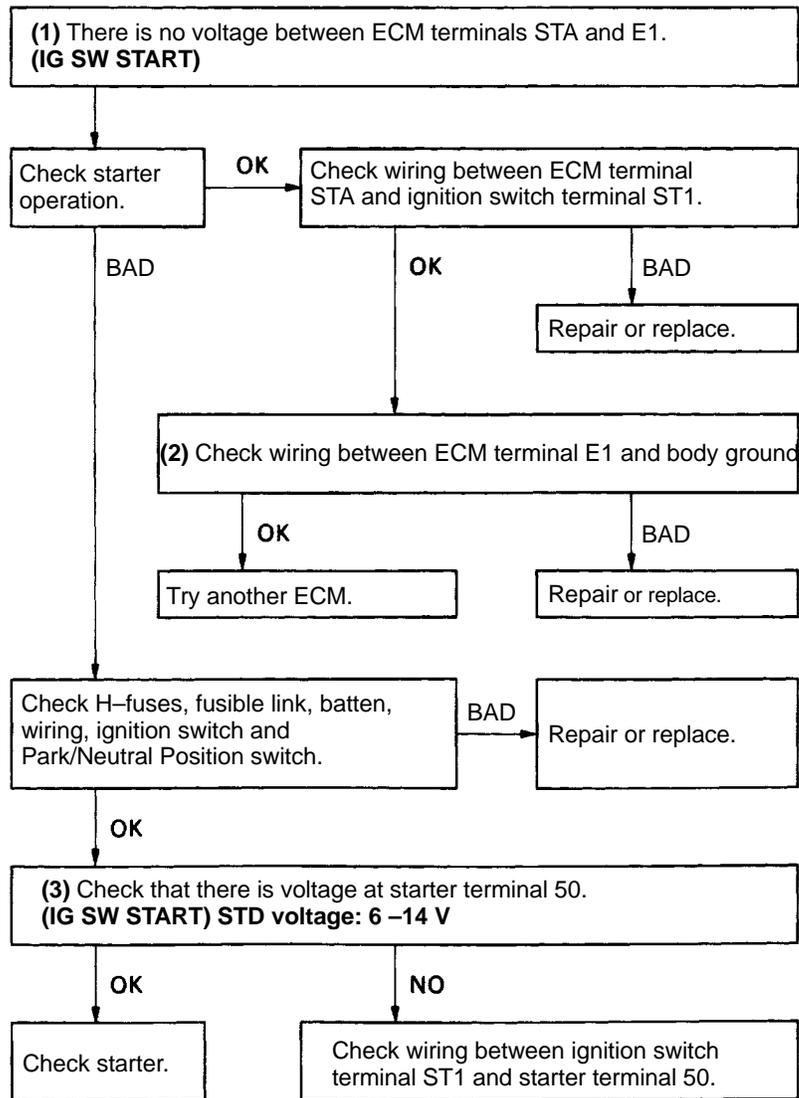
FI2768



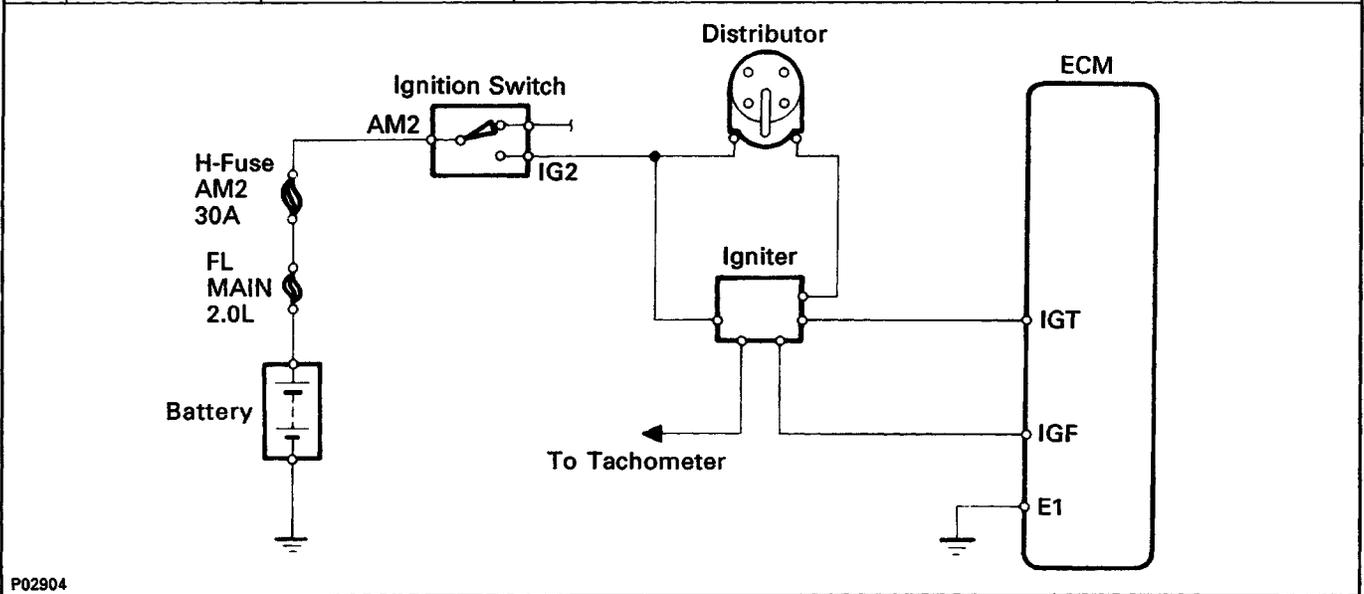
FI2755



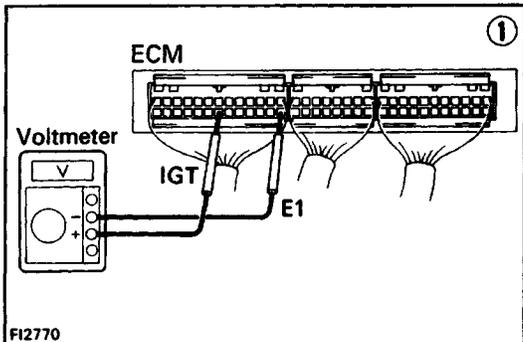
P01061



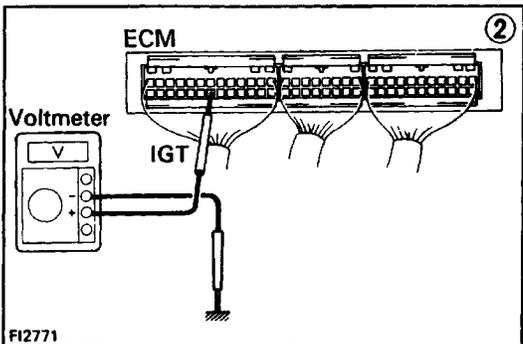
No..	Terminals	Trouble	Condition	STD voltage
9	IGT - E1	No voltage	Idling	0.8 - 1.2 V



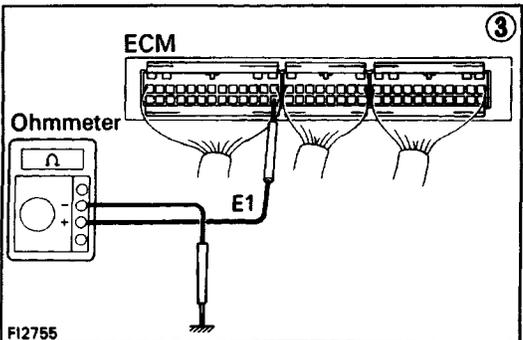
P02904



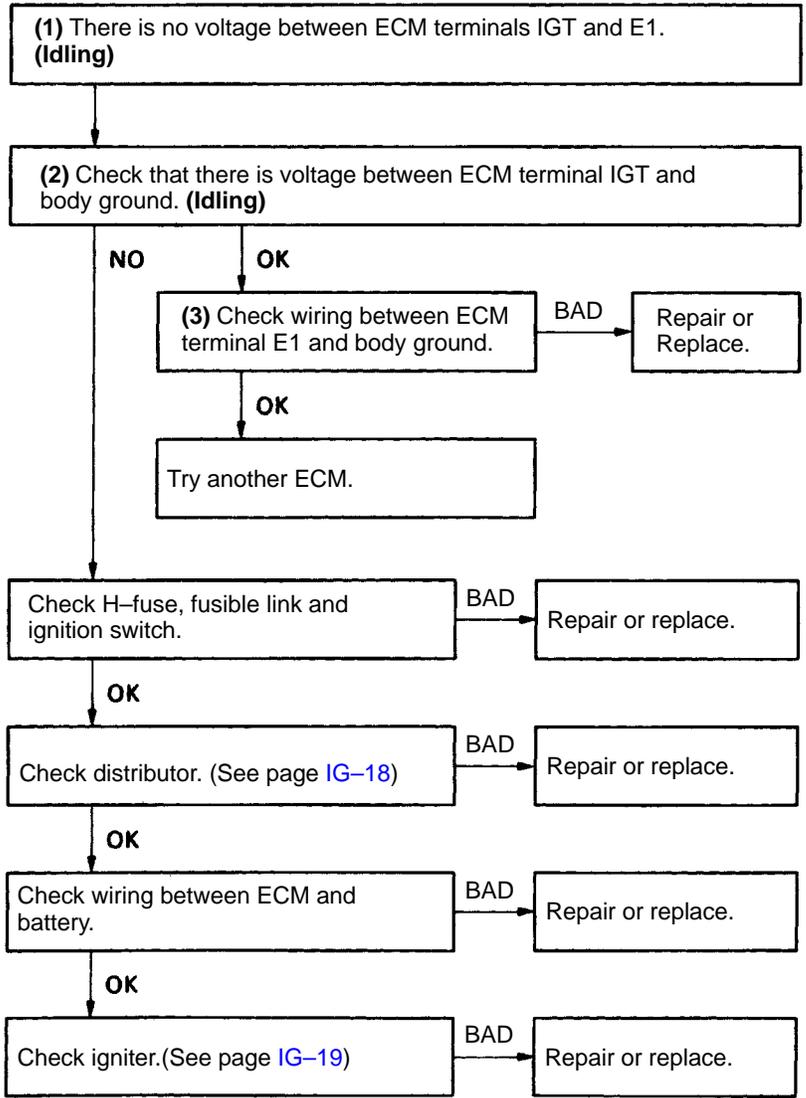
FI2770



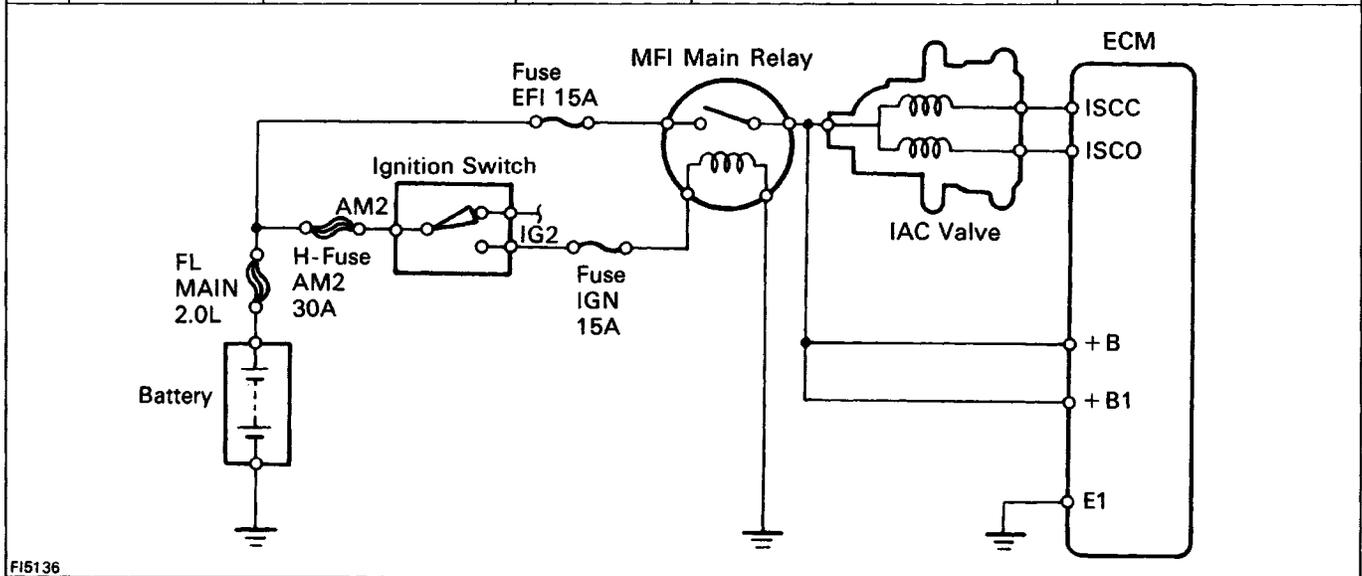
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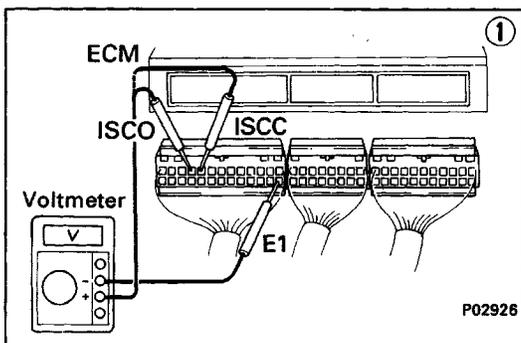
FI2755



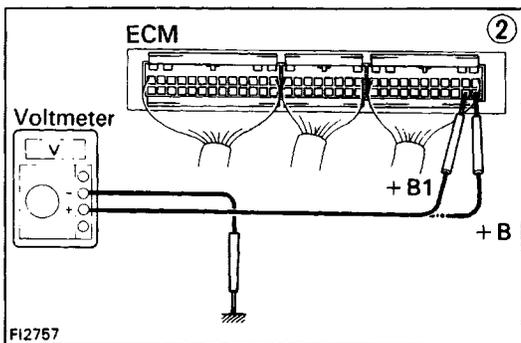
No.	Terminals	Trouble	Condition		STD voltage
10	ISCC - E1 ISCO	No voltage	IG SW ON	ECM connectors disconnected	8 - 14 V



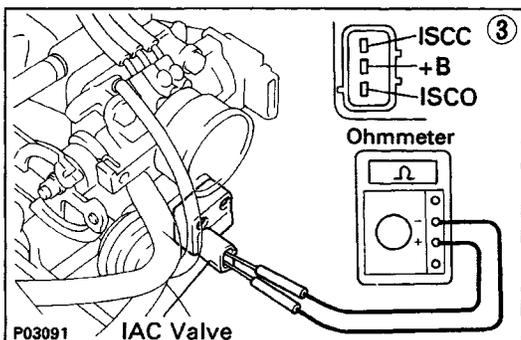
FI5136



P02926



FI2757

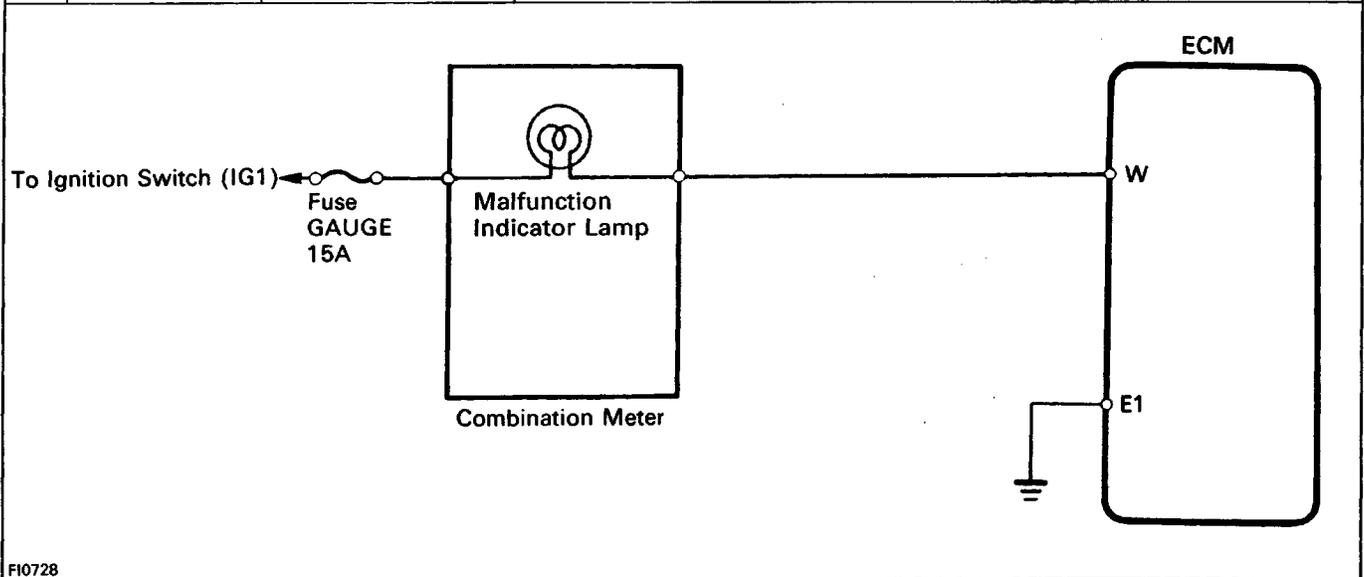


P03091

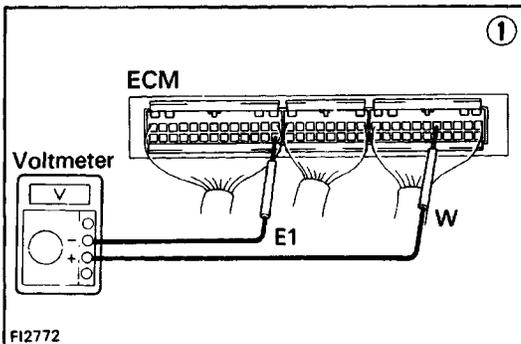
```

    graph TD
      A["(1) There is no voltage between ECM terminals ISCC or ISCO and E1.  
(IG SW ON)"] --> B["(2) Check that there is voltage between ECM terminal +B or +B1  
and body ground. (IG SW ON)"]
      B -- NO --> C["Refer to No.1.  
(See page FI-110)"]
      B -- OK --> D["(3) Check resistance between IAC valve terminals +B and ISCC or ISCO.  
STD resistance: 19.3 - 22.3Ω"]
      D -- BAD --> E["Replace IAC valve."]
      D -- OK --> F["Check wiring between ECM and IAC valve."]
      F -- BAD --> G["Repair or replace wiring."]
      F -- OK --> H["Try another ECM."]
    
```

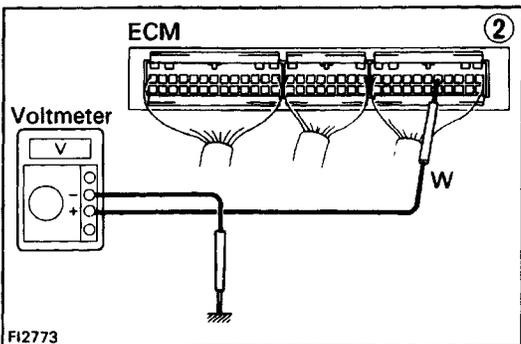
No.	terminals	Trouble	Condition	STD voltage
11	W - E1	No voltage	No trouble (Malfunction indicator lamp off) and engine running.	10 - 14 V



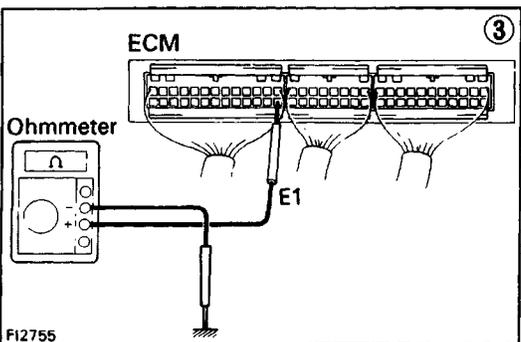
FI0728



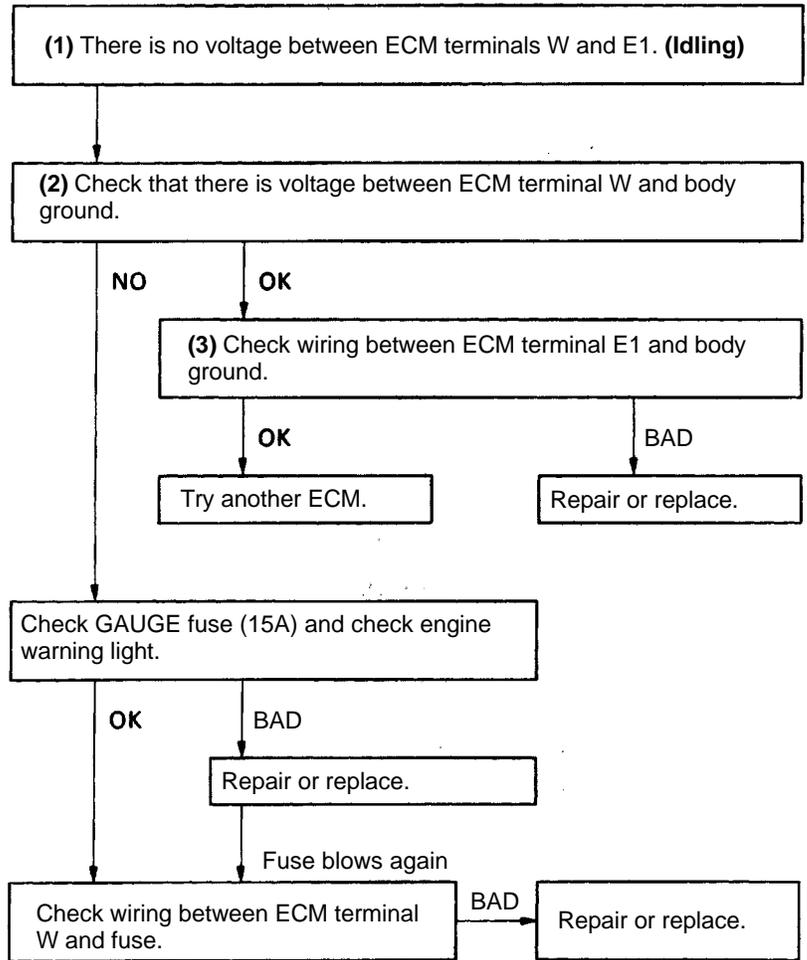
FI2772

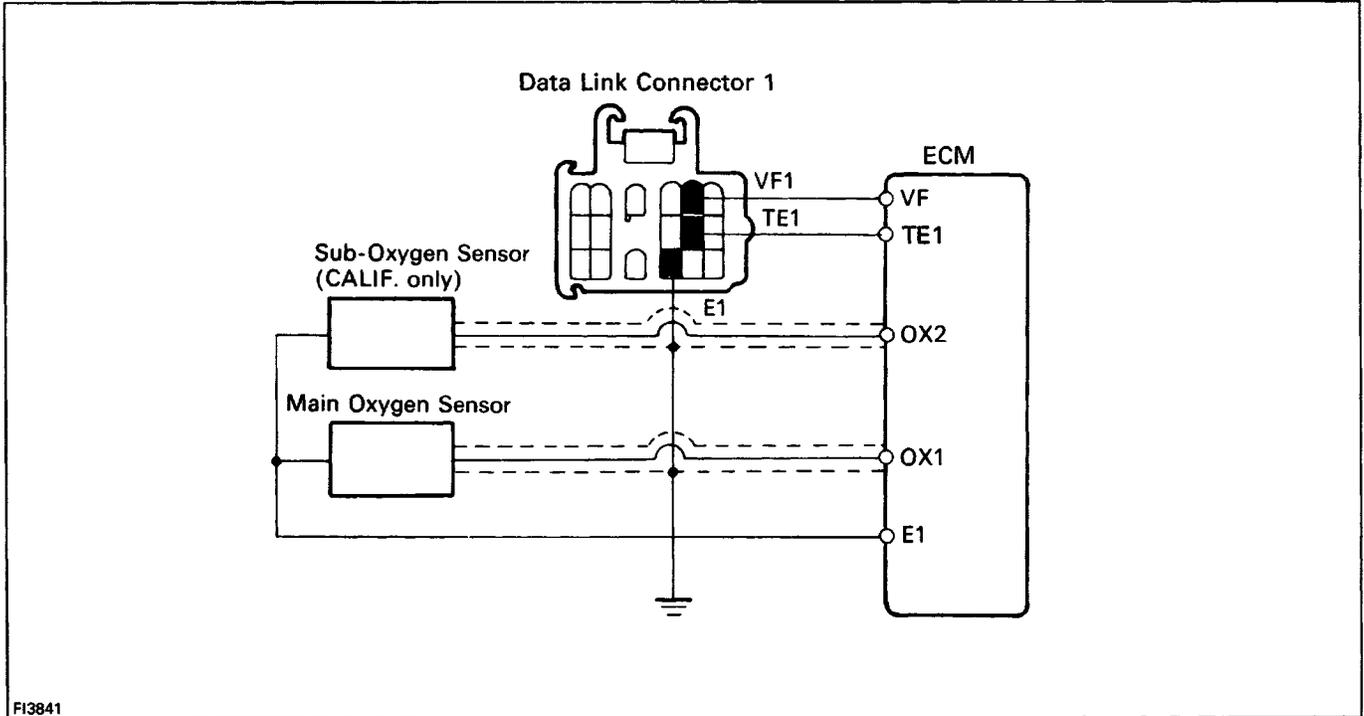


FI2773

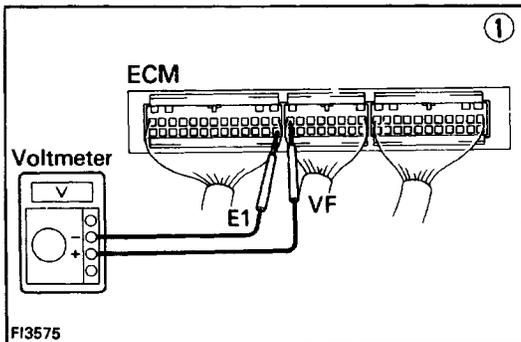


FI2755

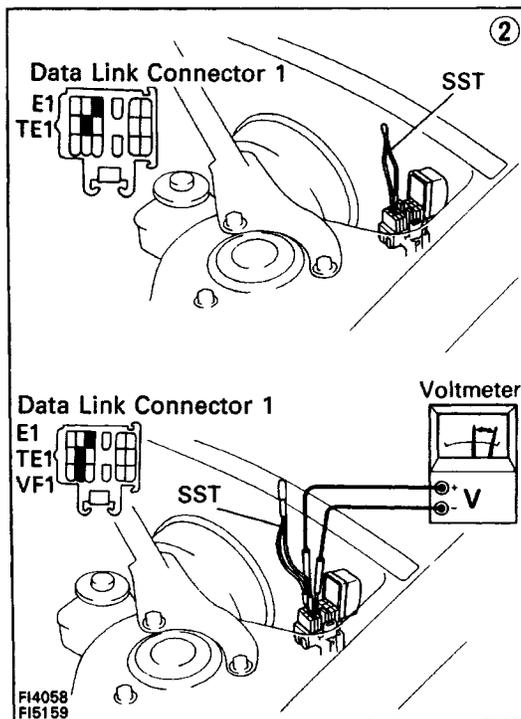




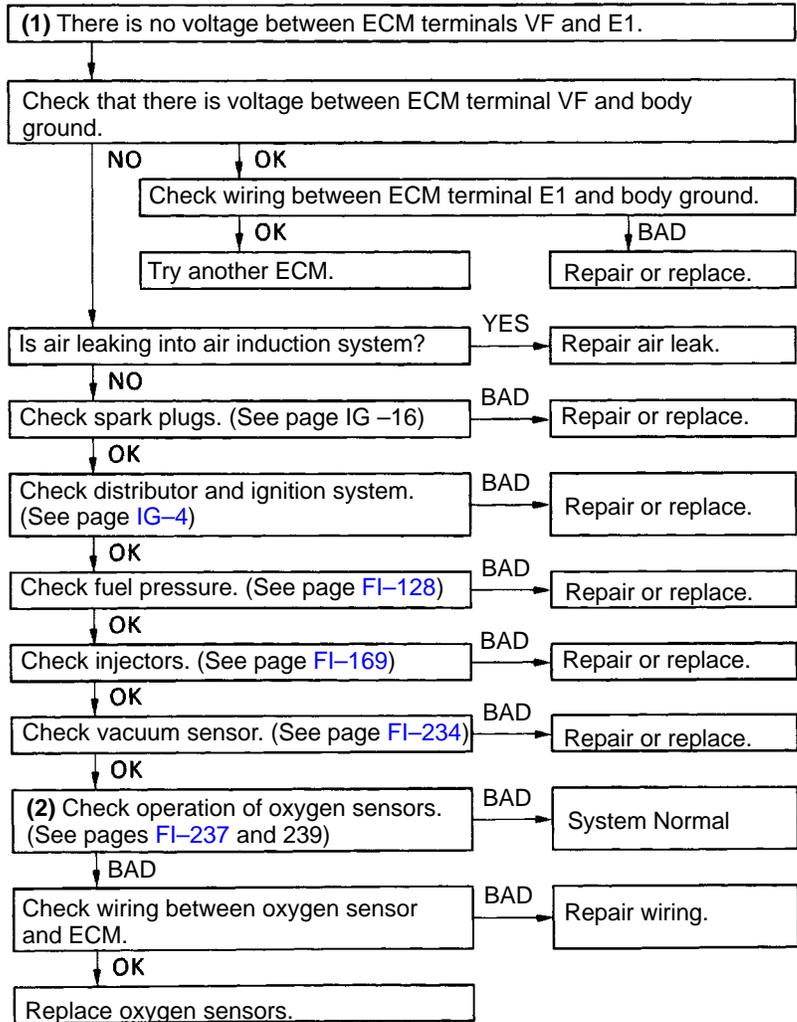
FI3841

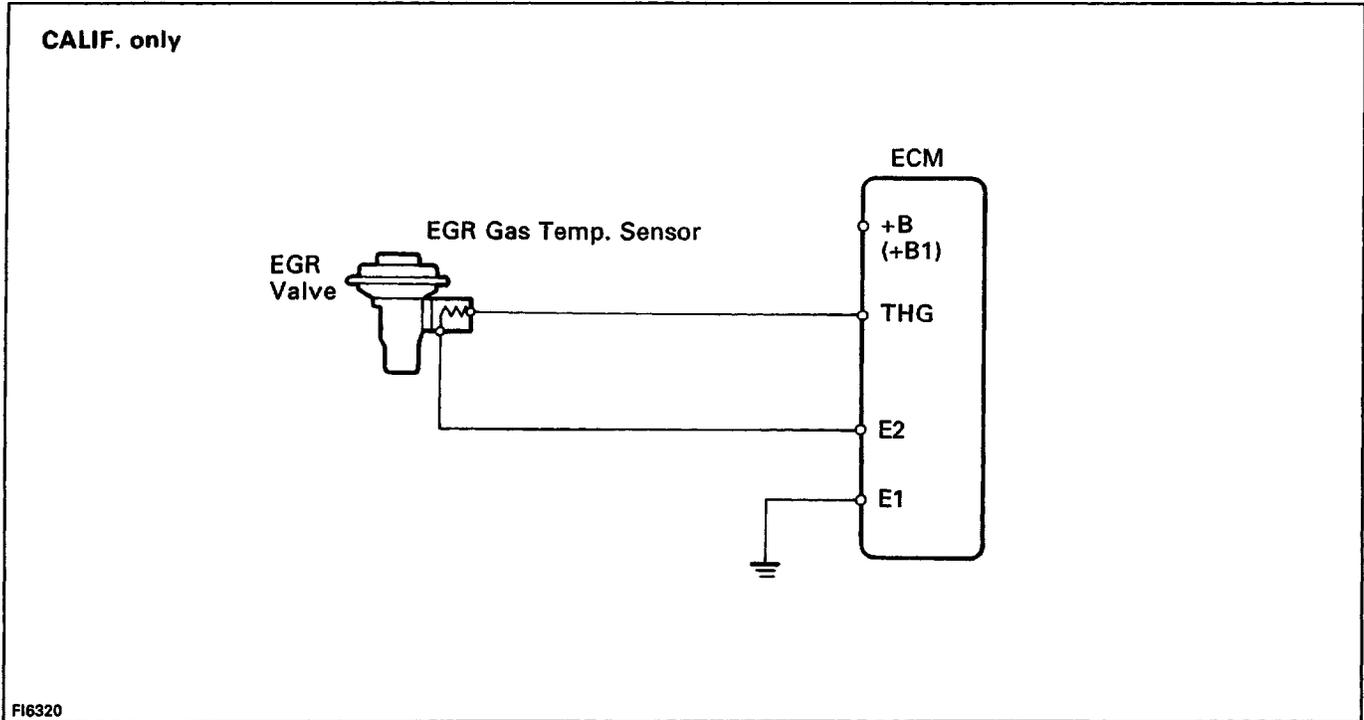


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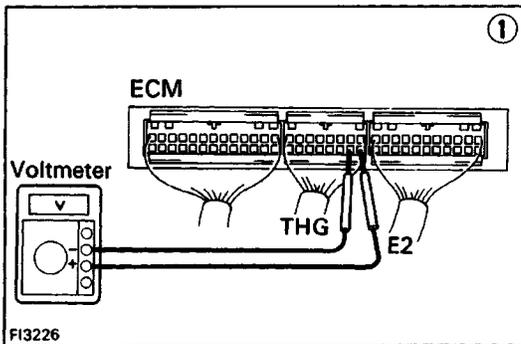


FI4058
FI5159

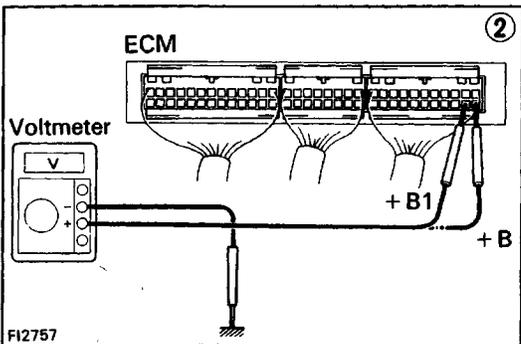




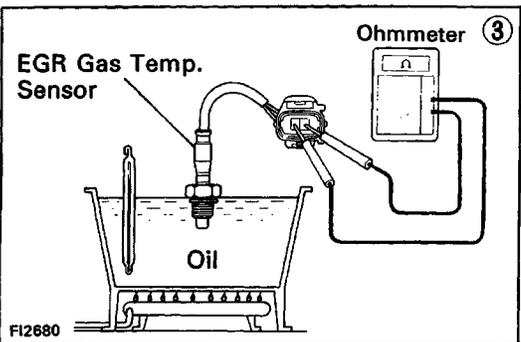
FI6320



FI3226



FI2757



FI2680

