

# TROUBLESHOOTING

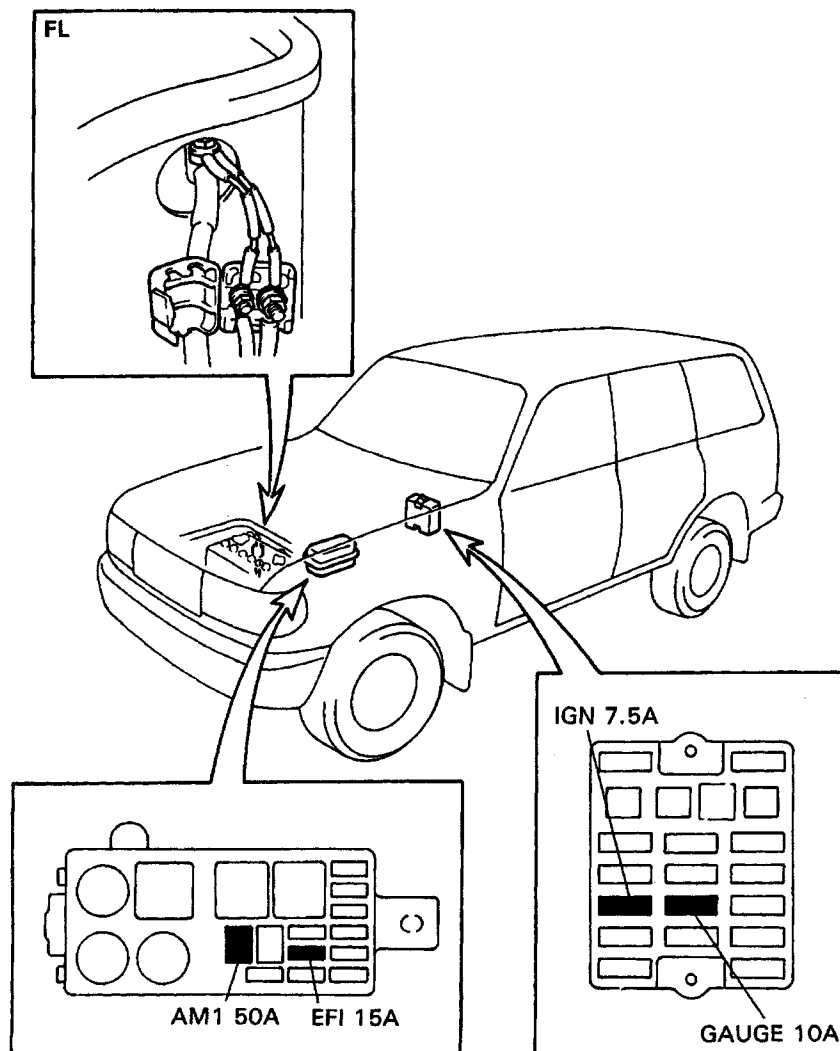
- **HINT:**

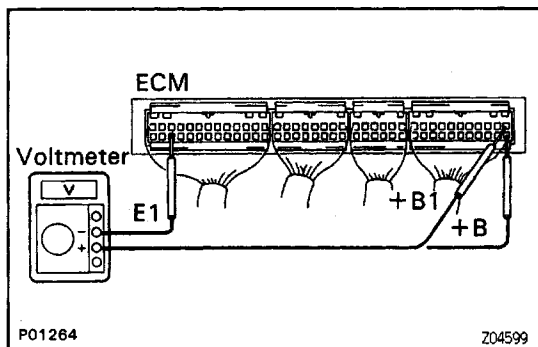
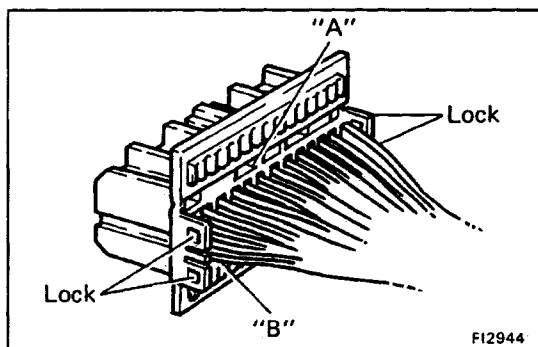
EG008-02

The following troubleshooting procedures are designed for inspection of each separate system, and therefore the actual procedure may vary somewhat. However, troubleshooting should be performed while referring to the inspection methods described in this manual.

- Before beginning inspection, it is best to first make a simple check of the fuses, H-fuses, fusible links and the condition of the connectors.
- The following troubleshooting procedures are based on the supposition that the trouble lies in either a short or open circuit within the computer.
- If engine trouble occurs even though proper operating voltage is detected in the computer connector, then it can be assumed that the ECM is faulty and should be replaced.

## FUSES AND FUSIBLE LINKS LOCATION





## SF1 SYSTEM CHECK PROCEDURE

EG00A-02

### PREPARATION

- (a) Disconnect the connectors from the ECM.
- (b) Remove the locks 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.
- (d) Using a voltmeter with high impedance (10 k $\Omega$ /V minimum), measure the voltage at each terminal of the wiring connectors.

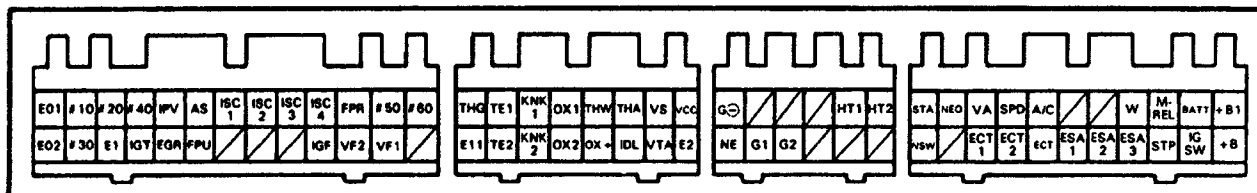
### HINT:

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

## ECM Terminals

Symbol	Terminal Name	Symbol	Terminal Name	Symbol	Terminal Name
E01	POWER GROUND	THG	EGR GAS TEMP. SENSOR	HT2	N0.2 HEATED OXYGEN SENSOR
E02	POWER GROUND	E11	ECM GROUND	/	—
# 10	INJECTOR (No.1)	TE1	DLC1	STA	PNP SWITCH
# 30	INJECTOR (No.3)	TE2	DLC 1	NSW	IGNITION SWITCH
# 20	INJECTOR (No.2)	KNK 1	NO.1 KNOCK SENSOR	NEO	TCM
E1	ECM GROUND	KNK2	NO.2 KNOCK SENSOR	/	—
# 40	INJECTOR (No.4)	OX1	N0.1 HEATED OXYGEN SENSOR	VA	TCM
IGT	IGNITER	OX2	N0.2 HEATED OXYGEN SENSOR	ECT1	TCM
IPV	VSV FOR EVAP	THW	ECT SENSOR	SPD	VEHICLE SPEED SENSOR
EGR	VSV FOR EGR	OX +	HEATED OXYGEN SENSORS	ECT2	TCM
AS	VSV FOR PAIR	THA	VAF METER	A/C	A/C AMPLIFIER
FPU	VSV FOR FUEL PRESSURE CONTROL	IDL	TP SENSOR	ECT	TCM
ISC1	IAC VALVE (No.1 Motor Coil)	VS	VAF METER	/	—
/		VTA	TP SENSOR	ESA1	TCM
ISC2	IAC VALV E (No.2 Motor Coil)	VCC	TP SENSOR	/	—
/	—	E2	SENSOR GROUND	ESA2	TCM
ISC3	IAC VALVE (No.3 Motor Coil)	G(-)	DISTRIBUTOR	W	MALFUNCTION INDICATOR LAMP
/	—	NE	DISTRIBUTOR	ESA3	TCM
ISC4	IAC VALVE (No.4 Motor Coil)	/	—	M-REL	EFI MAIN RELAY (COIL)
IGF	IGNITER	G1	DISTRIBUTOR	STP	STOP LIGHT SWITCH
FPR	FUEL PUMP RELAY	/	—	BATT	BATTERY B +
VF2	DLC 1	G2	DISTRIBUTOR	IGSW	IGNITION SWITCH
# 50	INJECTOR (No.5)	/	—	+B1	EFI MAIN RELAY
VF1	DLC 1	/	—	+B	EFI MAIN RELAY
#60	INJECTOR (No.6)	HT1	N0.1 HEATED OXYGEN SENSOR		
/	—	/	—		

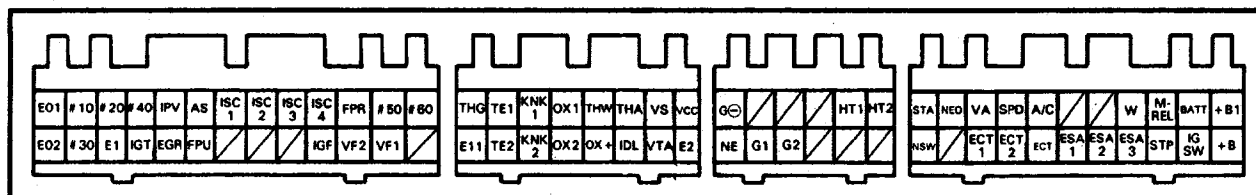
## ECM Terminals

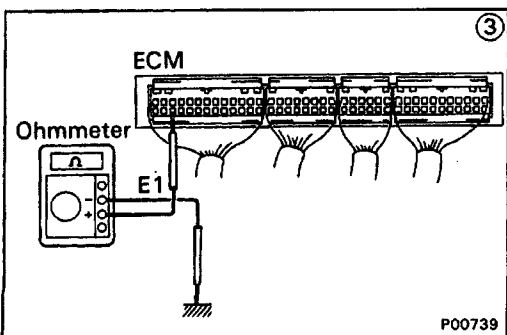
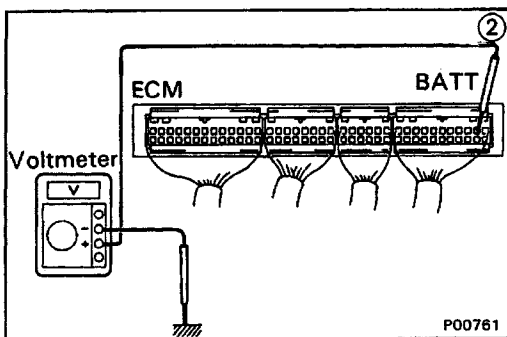
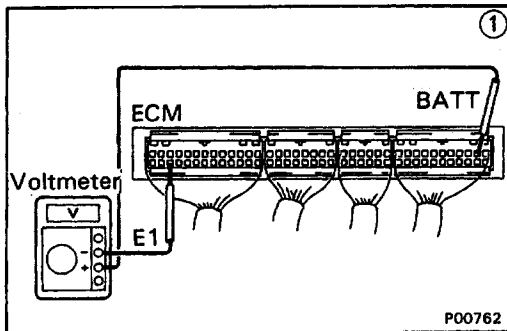
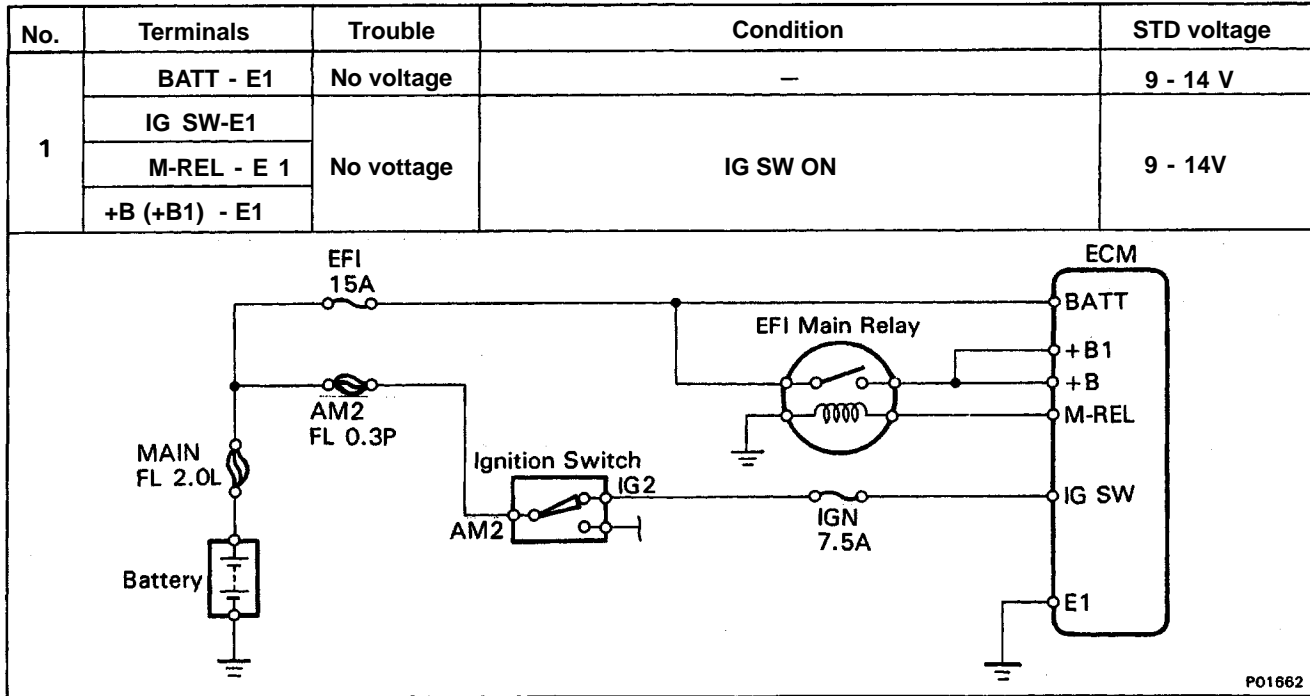


# ECM Wiring Connectors Voltage

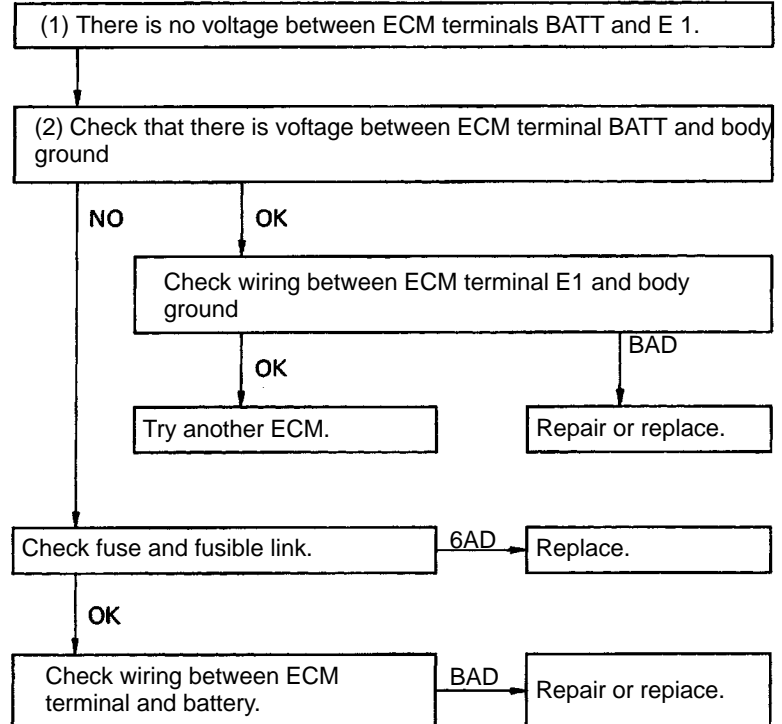
No.	Terminals	Condition		STD voltage (V)	See page	
1	BATT-E1	iG SW ON		9- 14	EG-235	
	IG SW - E 1					
	M-REL - E 1					
	+B +B1 — E1					
2	IDL - E2	IG SW ON	Throttle valve open	9 - 14	EG-283	
	VCC - E2		—	4.5 - 5.5		
	VTA - E2		Throttle valve fully closed (Throttle opener must be cancelled first)	0.3 - 0.8		
			Throttle valve fully open	3.2 - 4.9		
3	VCC - E2		VS - E2	—	4.5 - 5.5	EG-240
				Measuring plate fully closed	3.5-4.5	
				Measuring plate fully open	0.2 - 0.5	
				Idling	1.2 - 2.4	
	3,000 rpm	0.8 - 1.3				
4	#10 } — E01 #60 E02	IG SW ON		9- 14	EG-241	
5	THA - E2	IG SW ON	Intake air temp. 20°C (68°F)	0.5 - 3.4	EG-242	
6	THW - E2		Engine coolant temp. 80°C (1 760F)	0.2 - 1.0	EG-243	
7	STA-E1	Cranking		6 or more	EG-244	
8	IGT-E1	Idling		Pulse generation	EG-245	
9	ISC1 } — E1 ISC4	iG SW ON		9- 14	EG-246	
10	W - E1	No trouble (malfunction indicator lamp light off) and engine running		9 - 14	EG-247	

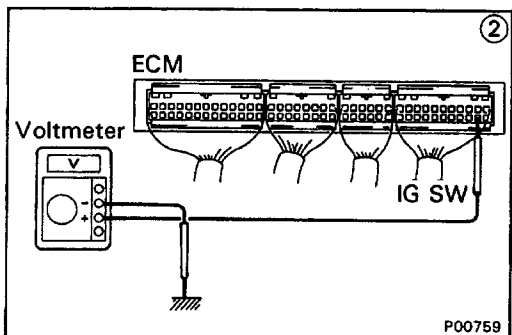
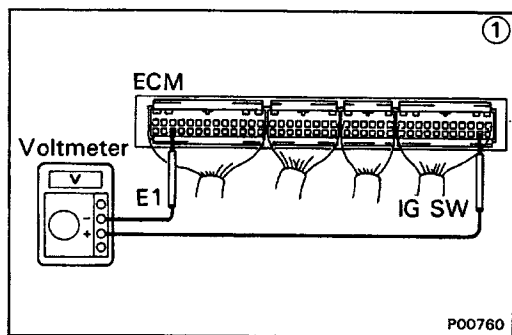
## ECM Terminals



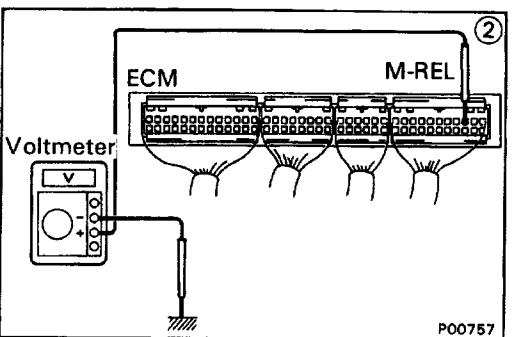
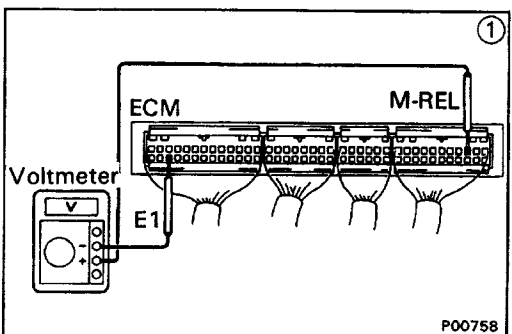
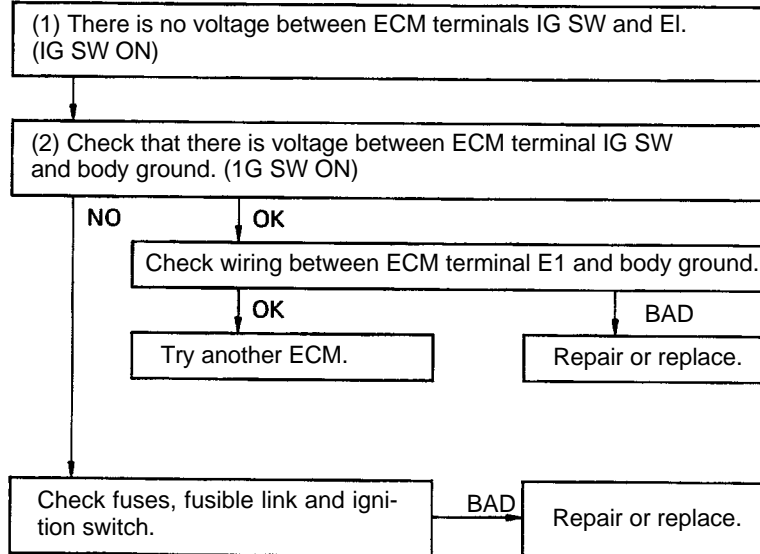


### • BATT - E 1

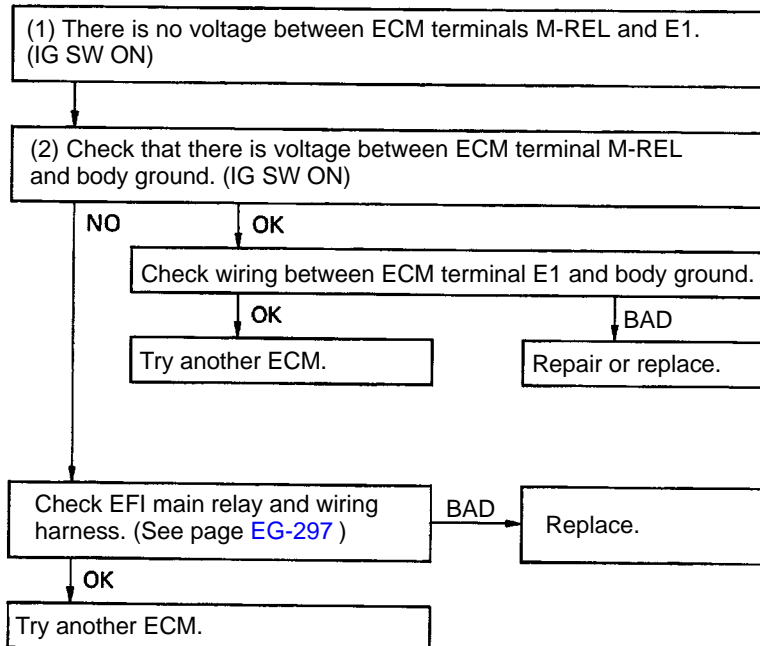


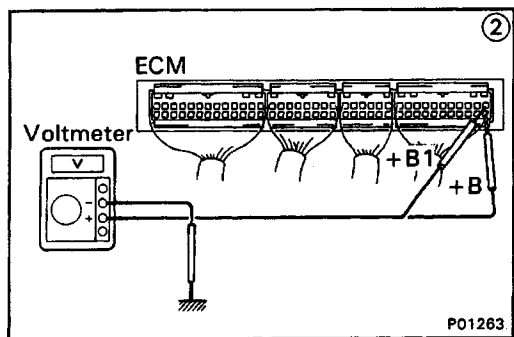
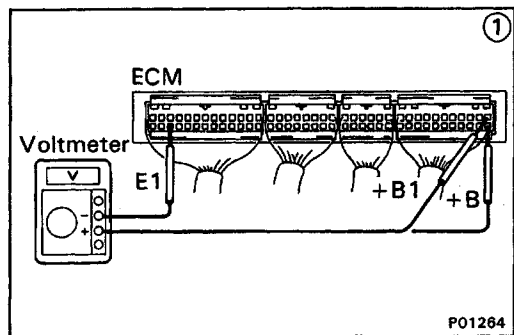


### • IG SW - E 1



### • M-REL - E 1





• +B (+B1) - E1

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

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

NO

OK

Check wiring between ECM terminal E1 and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Check fuse, fusible link and wiring harness.

BAD

Repair or replace.

OK

Check EFI main relay.  
(See page EG-297)

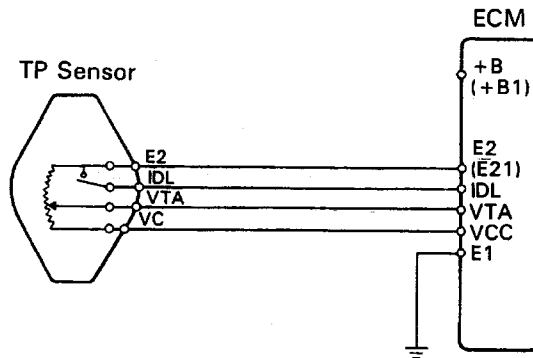
BAD

Repiace.

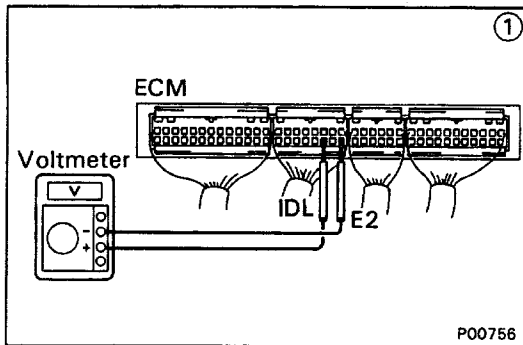
OK

Refer to M-REL - E 1 trouble section.

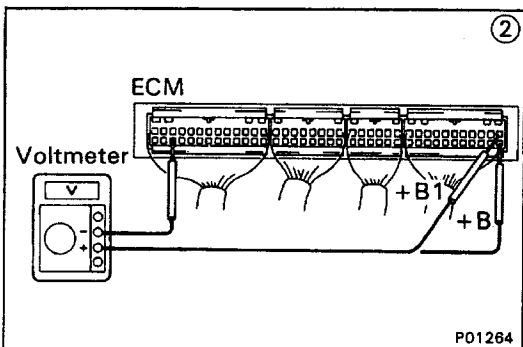
No.	Terminals	Trouble	Condition		STD voltage
2	IDL - E2	No voltage	IG SW ON	Throttle valve open	9 - 14V
	VCC- E2			—	4.5 - 5.5 V
	VTA - E2			Throttle valve fully closed (Throttle opener must be cancelled first)	0.3 - 0.8 V
				Throttle valve fully open	3.2 - 4.9 V



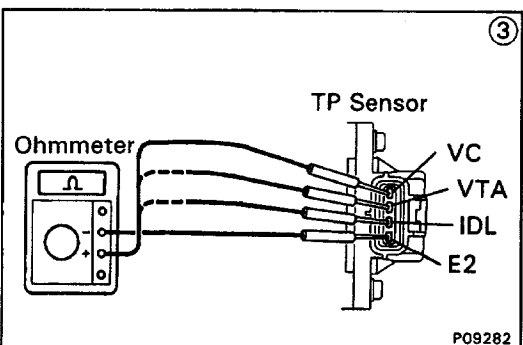
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### • IDL-E2

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

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

NO

OK

Check wiring between ECM terminal E 1 and body  
ground.

OK

BAD

Try another ECM.

Repair or replace.

Refer- to No. 1.  
(See page EG-235)

BAD

Repair or replace.

OK

(3) Check TP sensor.  
(See page EG-281)

BAD

Repair or replace TP sensor.

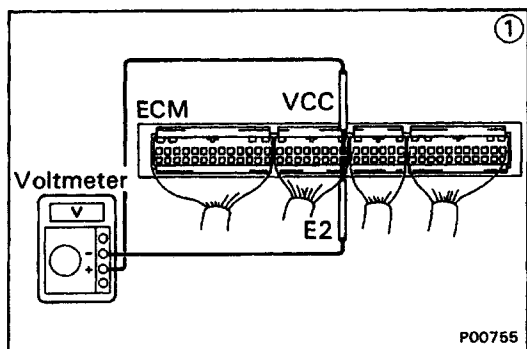
OK

Check wiring between  
ECM and TP sensor.

OK

Try another ECM.





### • VCC - E2

There is no voltage between ECM terminals VCC and E2  
(IG SW ON)

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

OK

Check TP sensor.  
(See page EG-281 )

BAD

Repair or replace.

OK

Check wiring between ECM and TP sensor.

OK

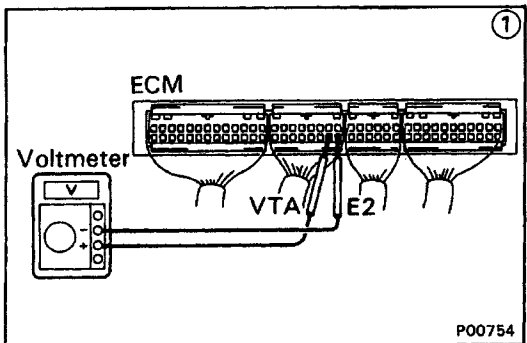
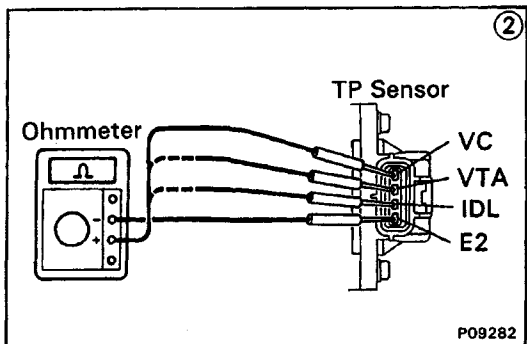
Try another ECM.

NO

Refer to No. 1.  
(See page EG-235 )

BAD

Repair or replace  
wiring.



### • VTA-E2

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

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

NO

Refer to VCC - E2  
trouble section.

OK

OK

(3) Check TP sensor. (See  
page EG-281 )

BAD

Repair or replace.

OK

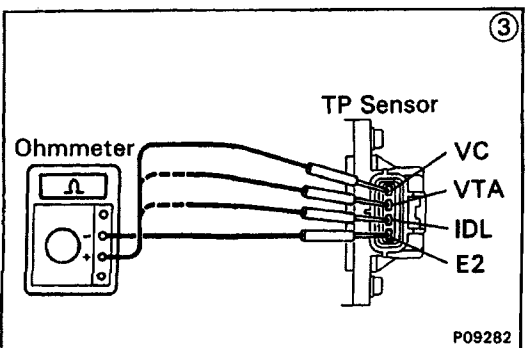
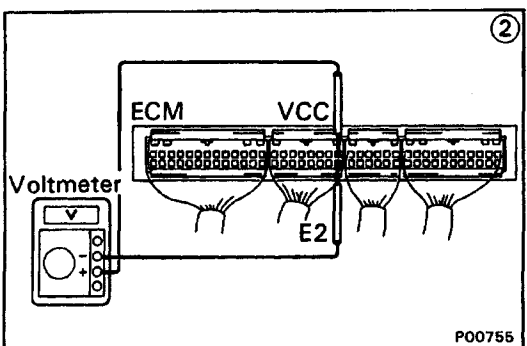
Check wiring between ECM and  
TP sensor.

BAD

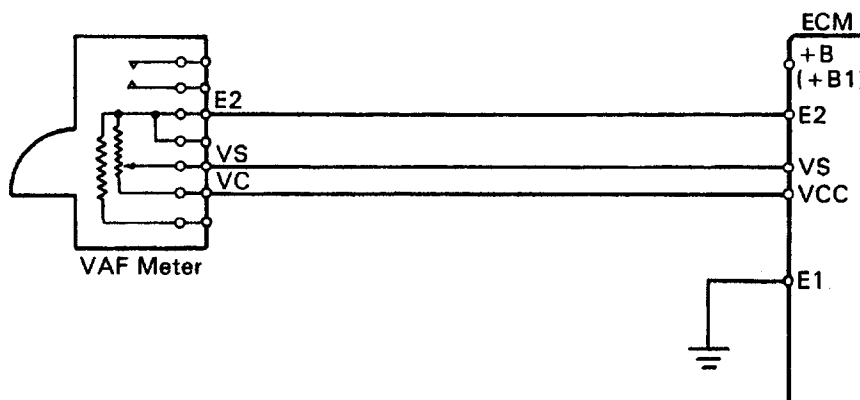
Repair or replace.

OK

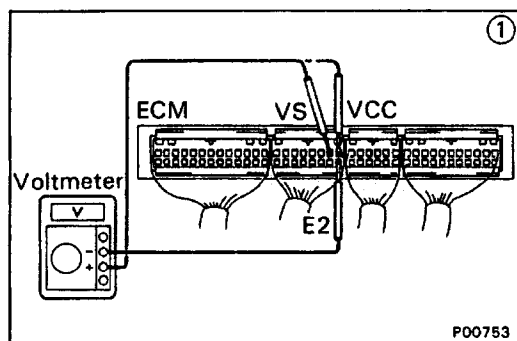
Try another ECM.



No.	Terminals	Trouble	Condition		STD voltage
3	VCC -E2	No voltage	IG SW ON	—	4.s - s.s v
	VS -E2			Measuring plate fully closed	3.5 - 4.5 V
	VS -E2			Measuring plate fully open	0.2 - 0.5 V
	VS -E2		Idling	1.2 - 2.4 V	
	VS -E2		3,000 rpm	0.8 - 1.3 v	



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(1) There is no voltage between ECM terminals VCC or VS 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 EG-235)

Check wiring between ECM terminal E1 and body ground.

OK

BAD

Check VAF meter.  
(See page EG-290)

Repair or replace.

BAD

OK

Replace VAF meter.

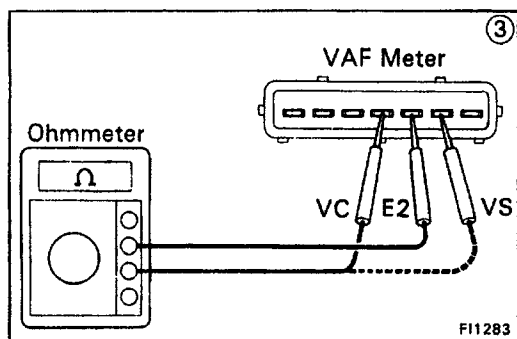
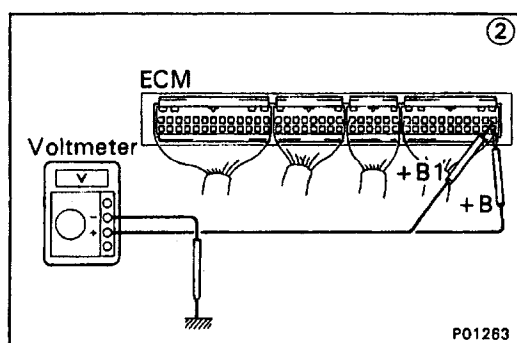
Check wiring between ECM and VAF meter.

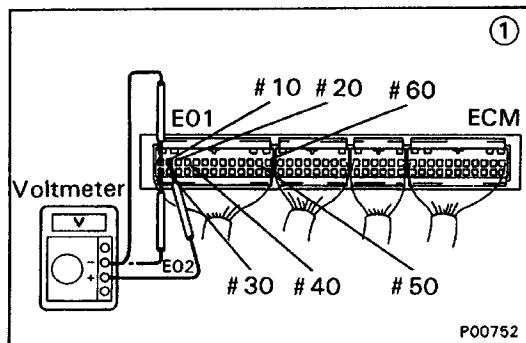
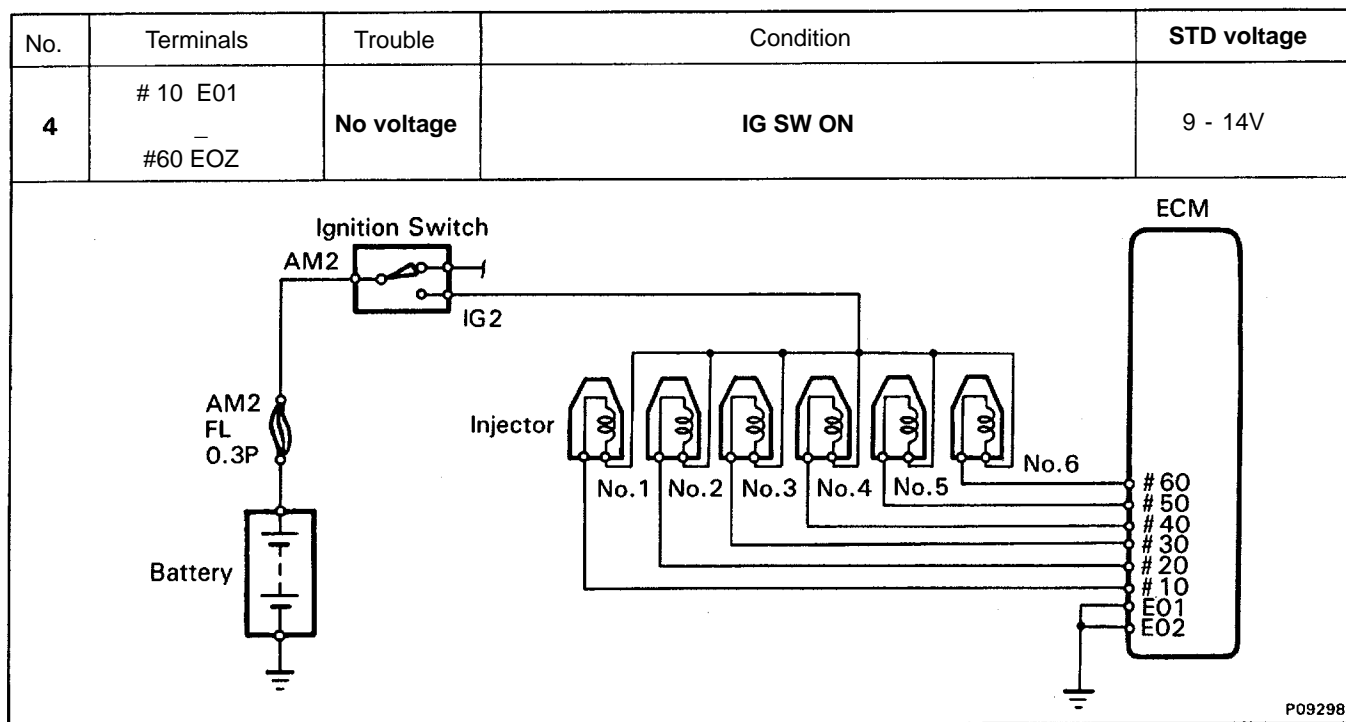
OK

BAD

Try another ECM.

Repair or replace.





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

(2) Check that there is voltage between ECM terminal # 10 - # 60 and body ground.

NO

OK

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

OK

BAD

Try another ECM.

Repair or replace.

Check fusible link and ignition switch.

BAD

Repair or replace.

OK

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

OK

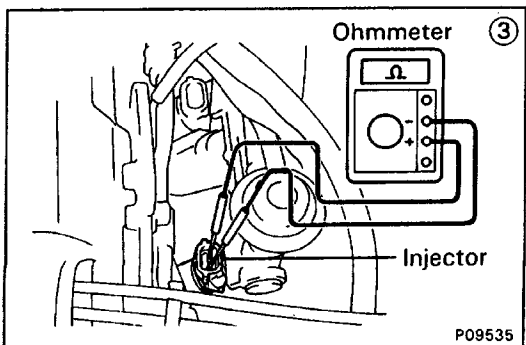
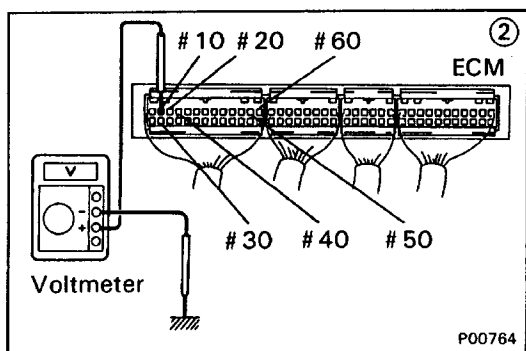
BAD

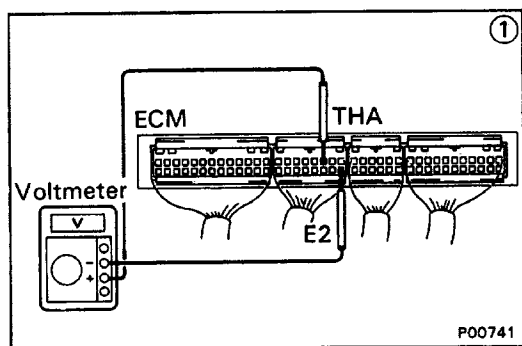
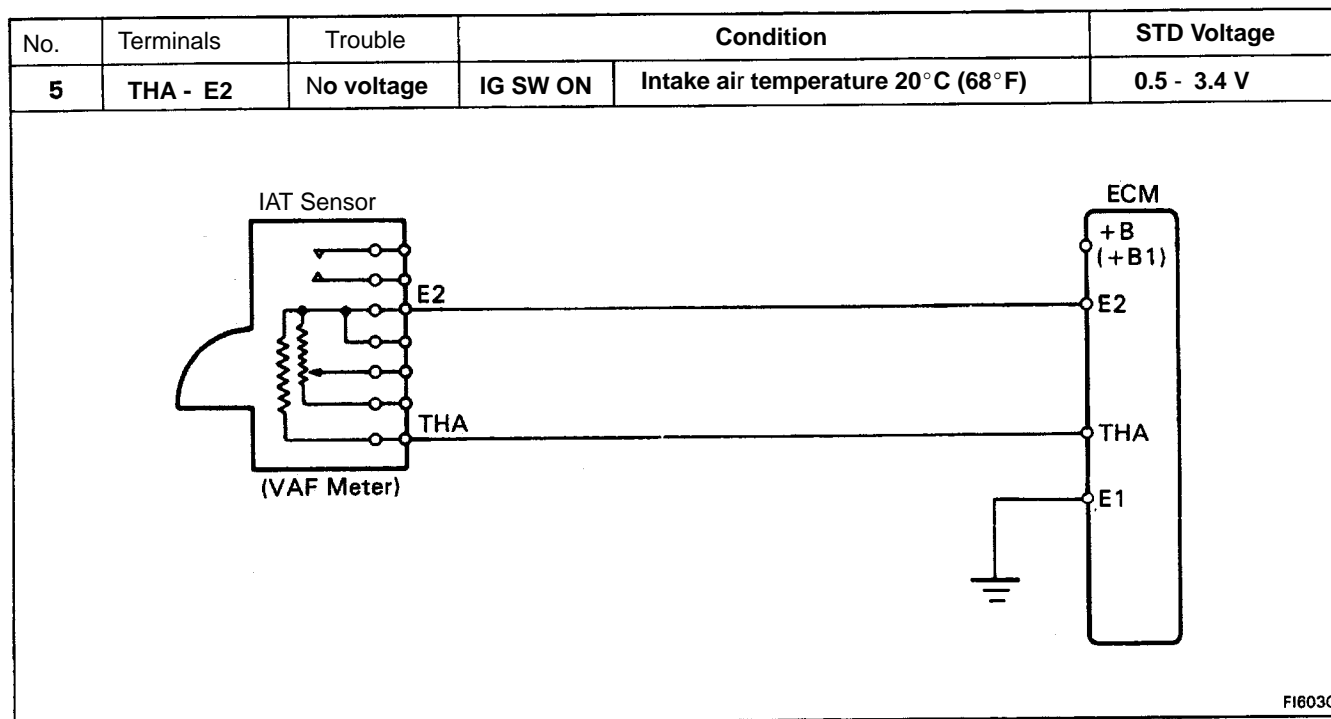
Replace injector.

Check wiring between ECM terminal # 10 - # 60 and battery.

BAD

Repair or replace.





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

(2) Check that there is voltage between ECM terminal +B  
(+ B 1) and body ground. (IG SW ON)

OK

NO

Refer to No. 1  
(See page EG-235)

Check wiring between ECM terminal E 1 and body ground.

OK

BAD

Repair or replace.

(3) Check IAT sensor.  
(See page EG-290)

BAD

Replace VAF meter.

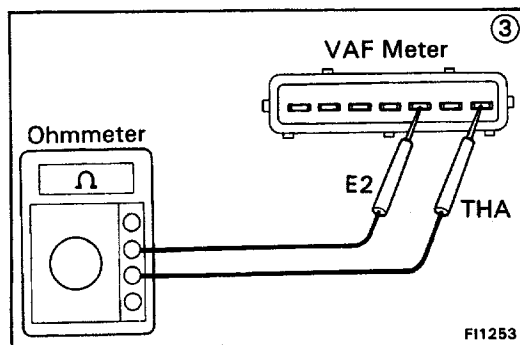
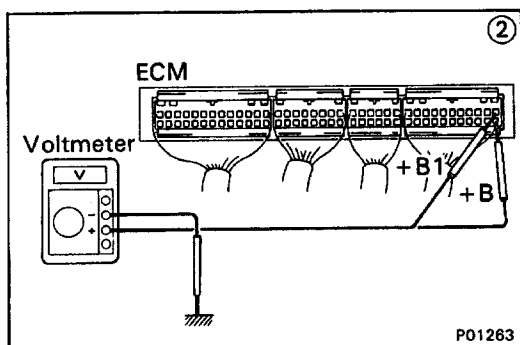
Check wiring between ECM and  
IAT sensor.

OK

BAD

Try another ECM.

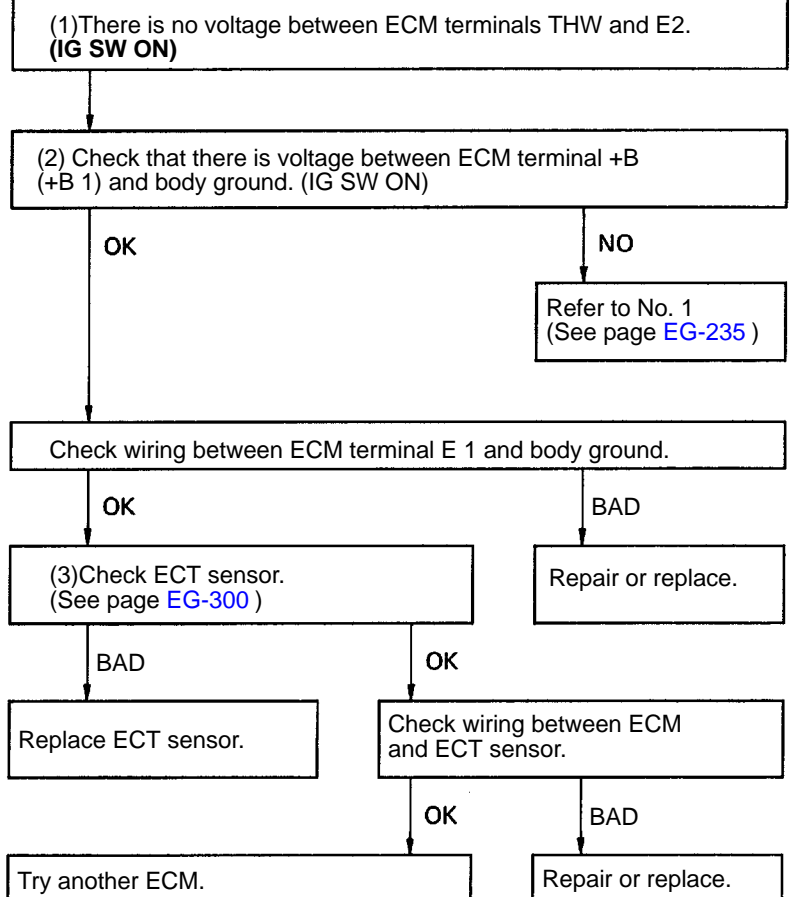
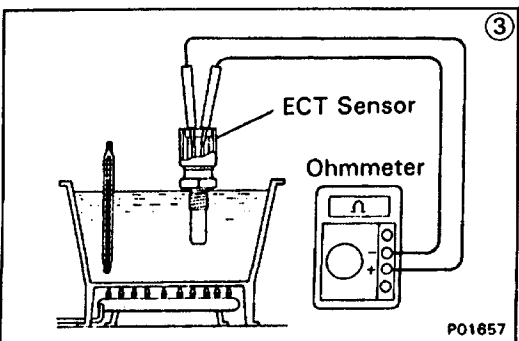
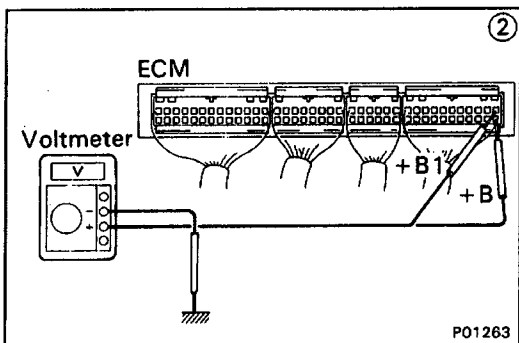
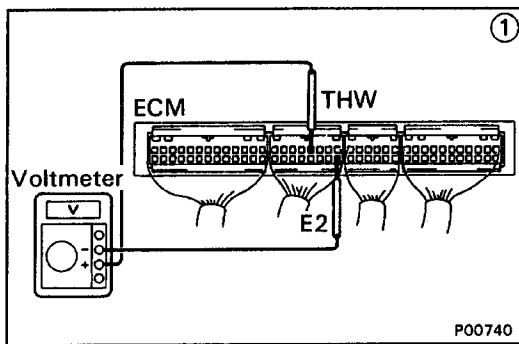
Repair or replace.

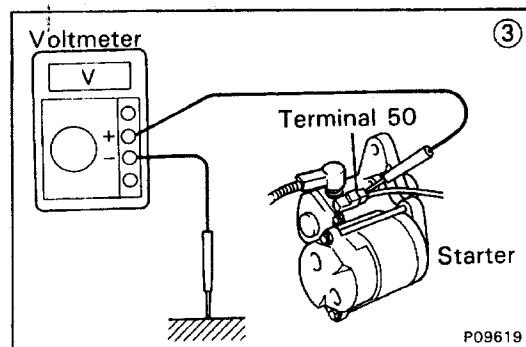
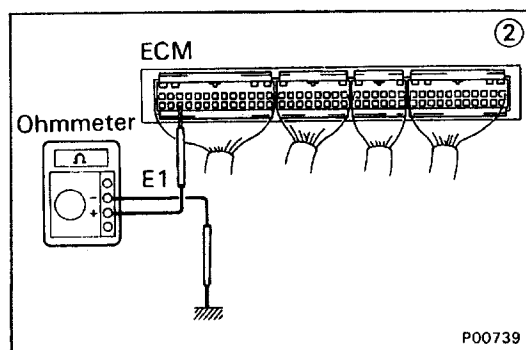
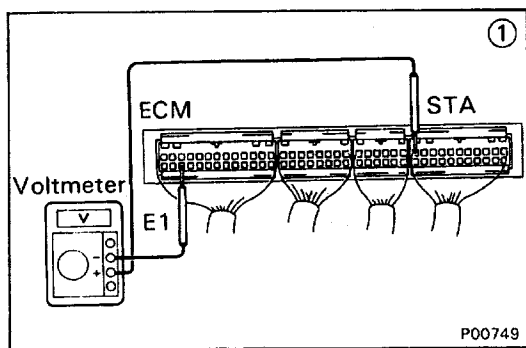
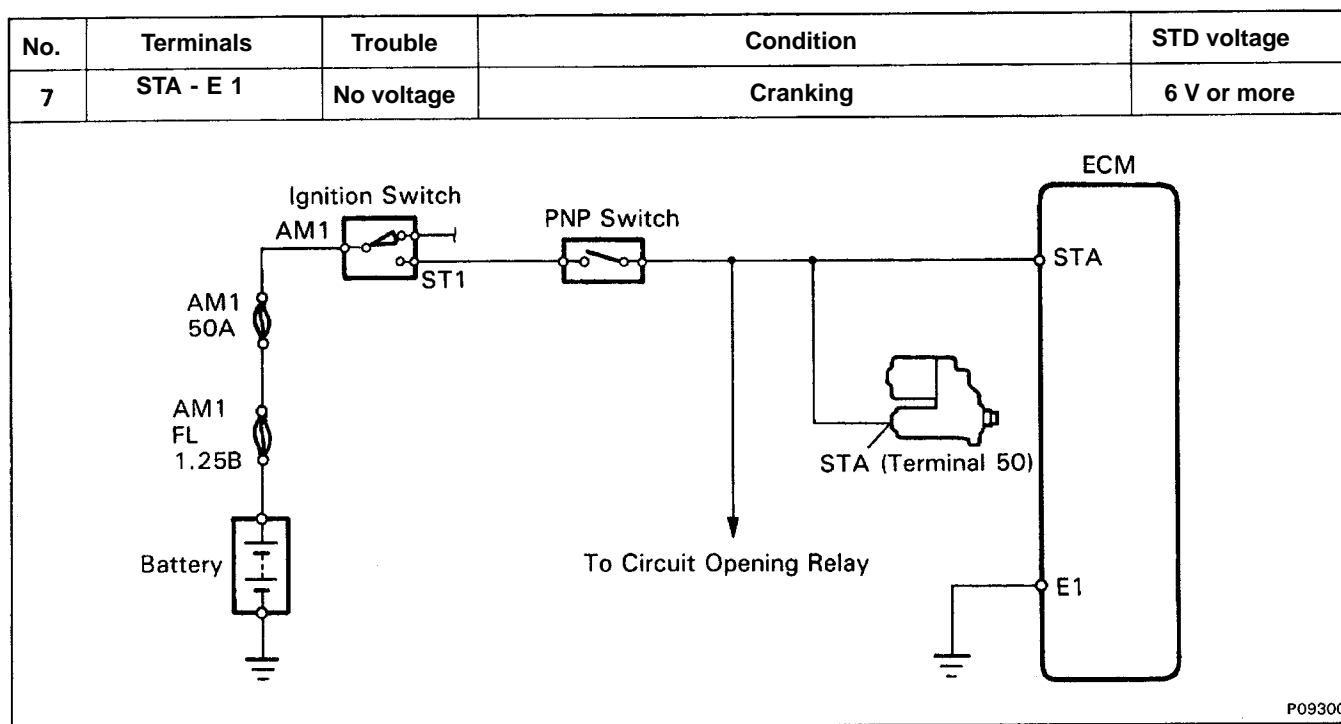


No.	Terminals	Trouble	Condition		STD Voltage
6	THW - E2	No voltage	IG SW ON	Engine coolant temperature 80 ° C (176 ° F)	0.2 - 1.0 v

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

Check starter operation.

BAD

OK

Check wiring between ECM terminal STA and ignition switch terminal ST 1.

OK

BAD

Repair or replace.

(2) Check wiring between ECM terminal E 1 and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Check H-fuse, fusible link, battery, wiring, ignition switch and PNP switch.

BAD

Repair or replace.

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

OK

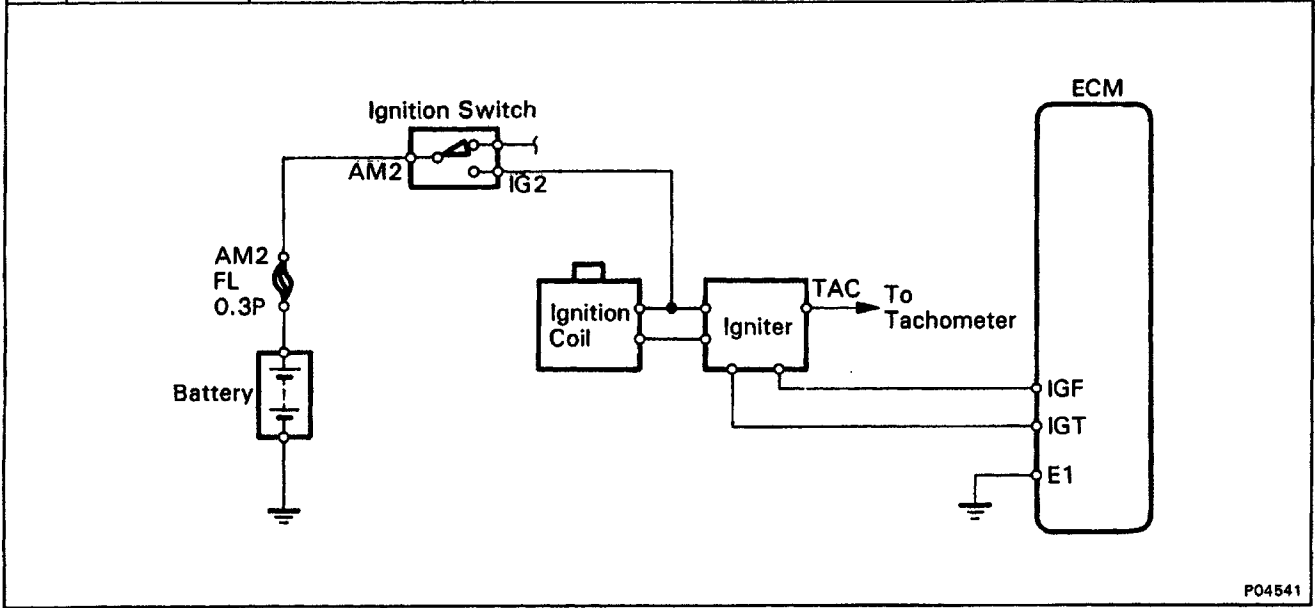
NO

Check starter.

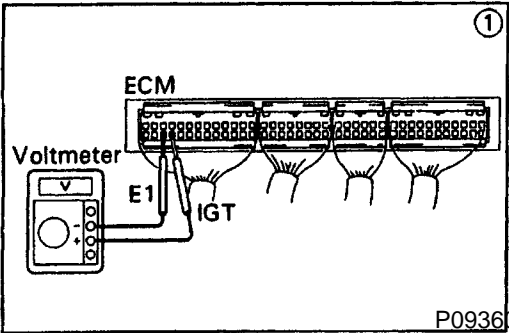
BAD

Check wiring between ignition switch terminal ST 1 and starter terminal 50.

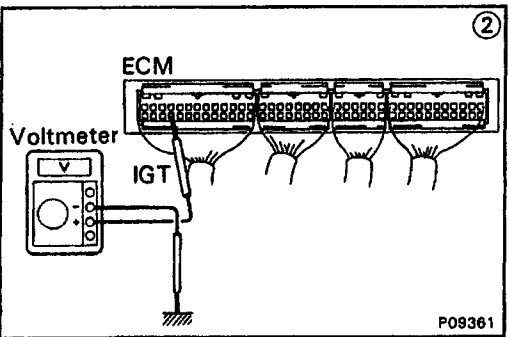
No.	Terminals	Trouble	Condition	STD voltage
8	IGT-E1	No voltage	Idling	Pulse generation



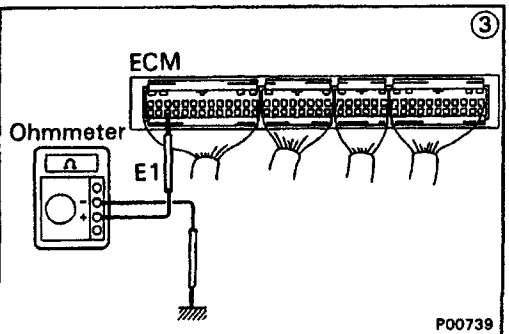
P04541



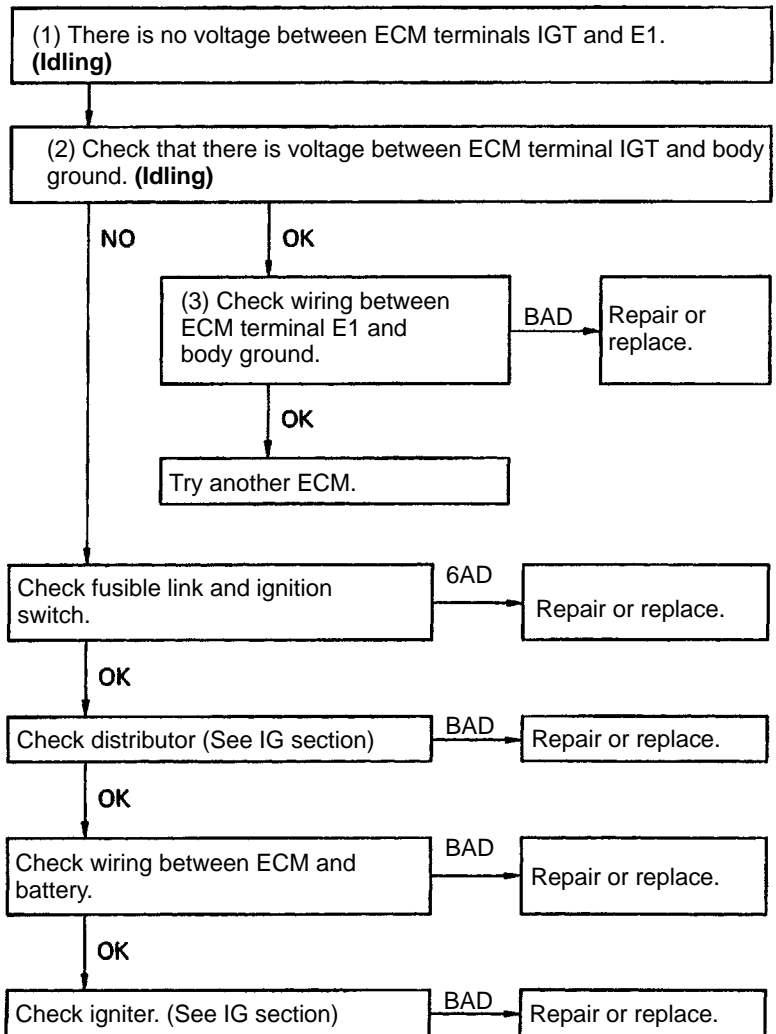
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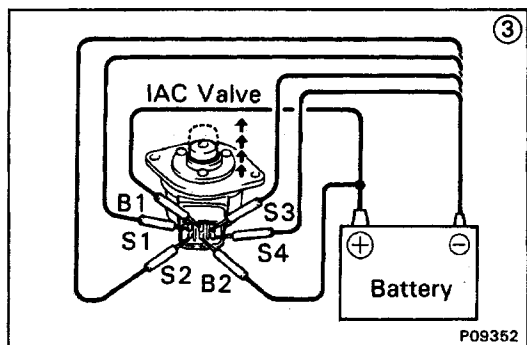
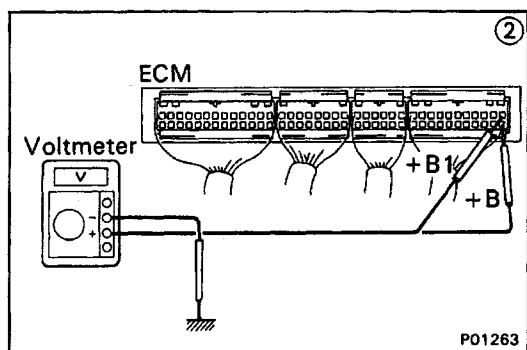
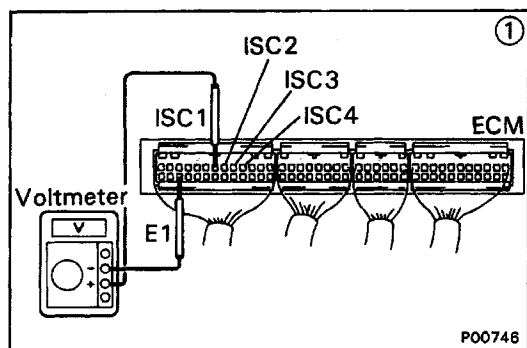
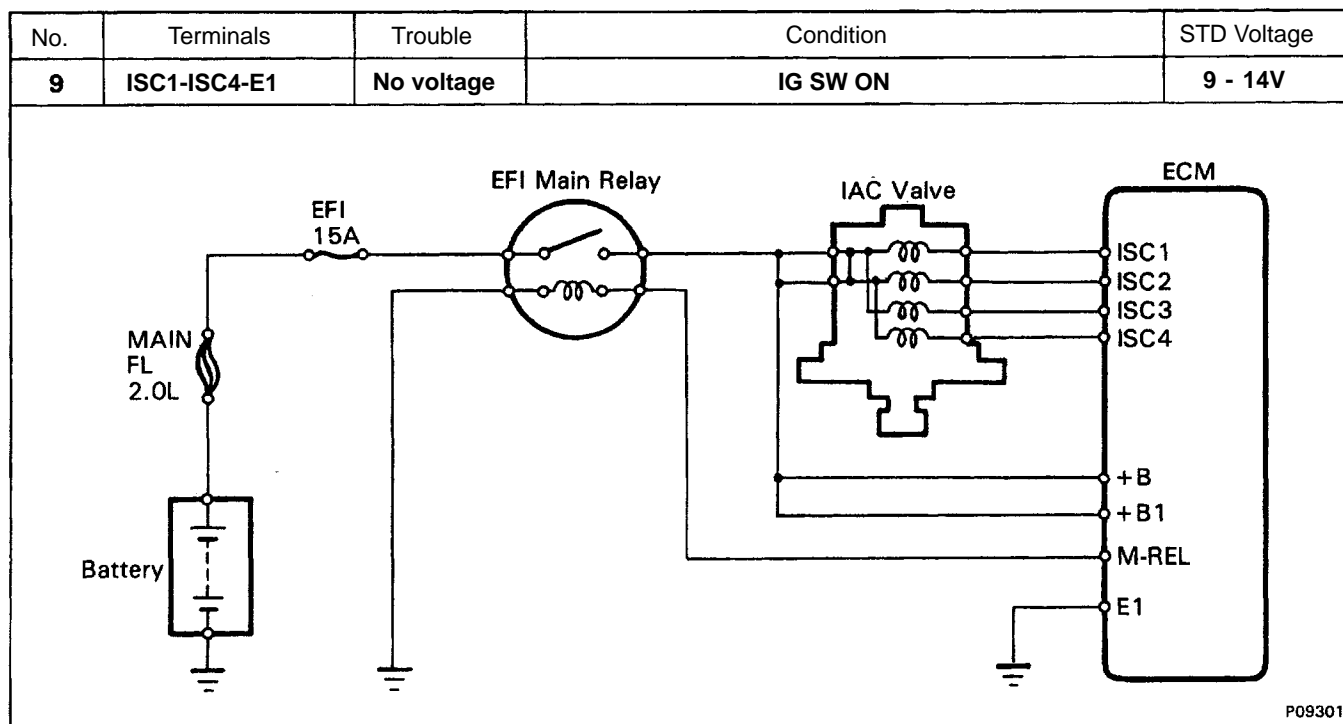


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P00739





(1) There is no voltage between ECM terminals ISC 1 - ISC4 and E 1. (IG SW ON)

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

OK

NO

Refer to No. 1  
(See page [EG-235](#))

Check wiring between ECM terminal E 1 and body ground.

OK

BAD

(3) Check IAC valve.  
(See page [EG-295](#))

Repair or replace.

BAD

OK

Replace IAC valve.

Check wiring between ECM and EFI main relay.

OK

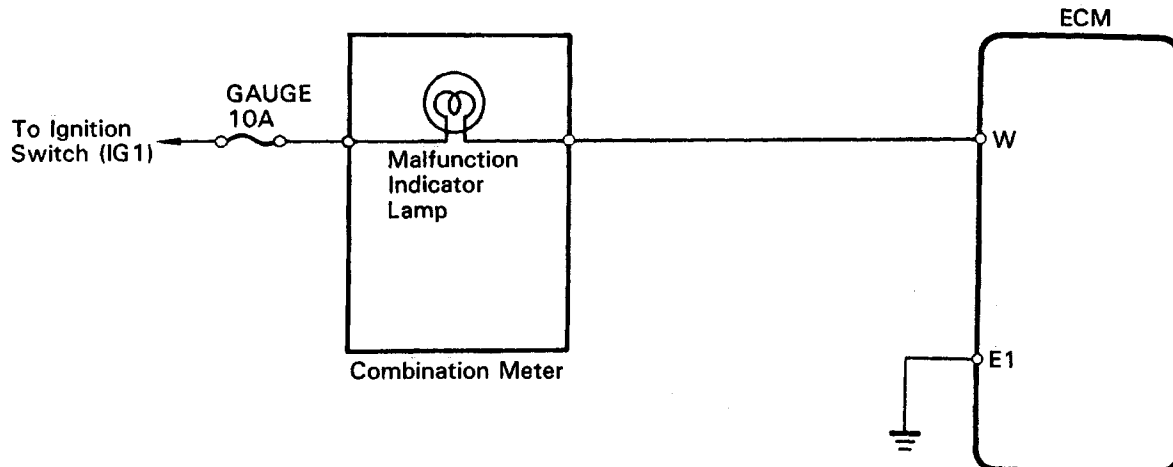
BAD

Try another ECM.

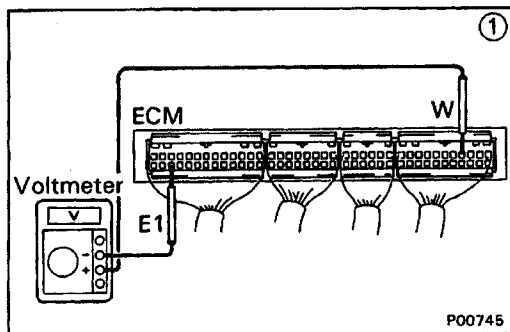
Repair or replace.



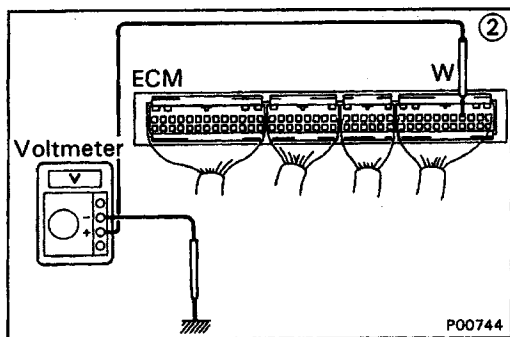
No.	Terminals	Trouble	Condition	STD voltage
10	W - E1	No voltage	No trouble (malfunction indicator lamp light off) and engine running.	9 - 14 V



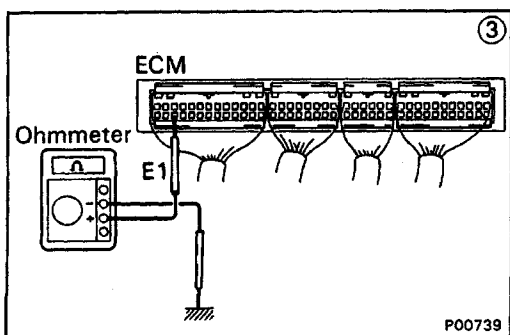
FI0728



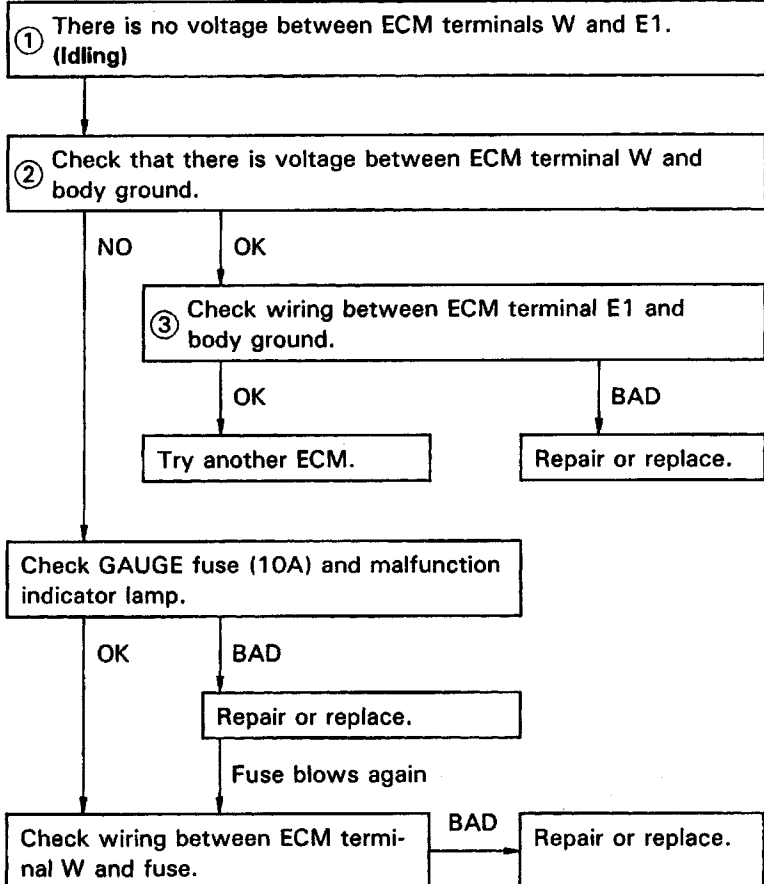
P00745



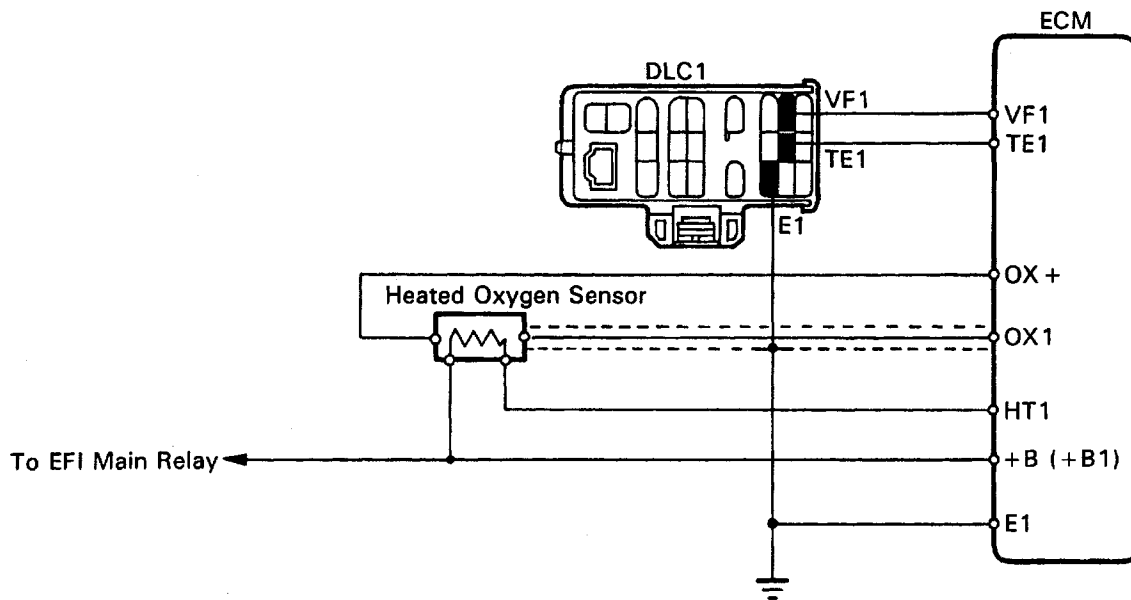
P00744



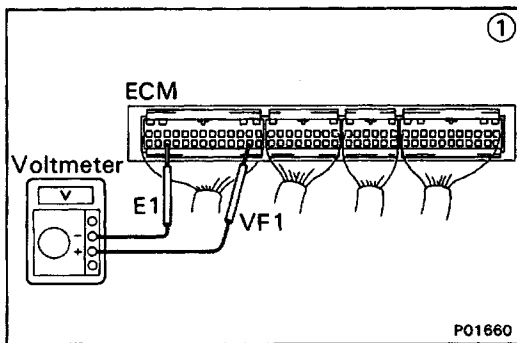
P00739



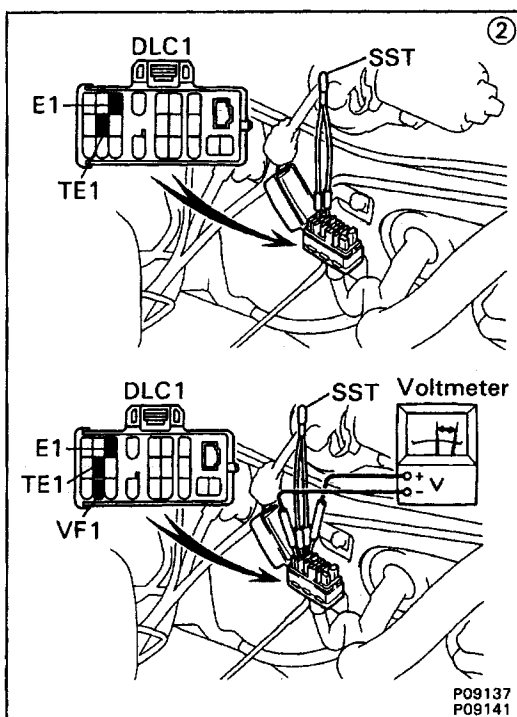
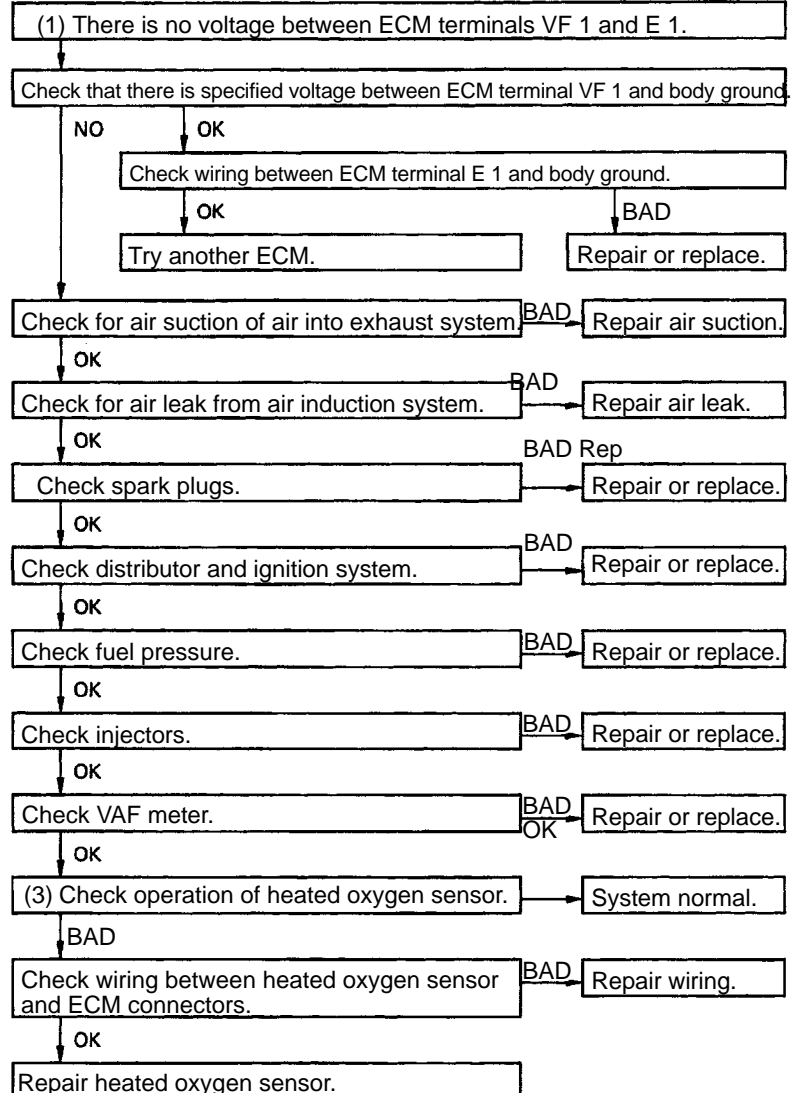
## No. 1 Heated Oxygen Sensor



P09365

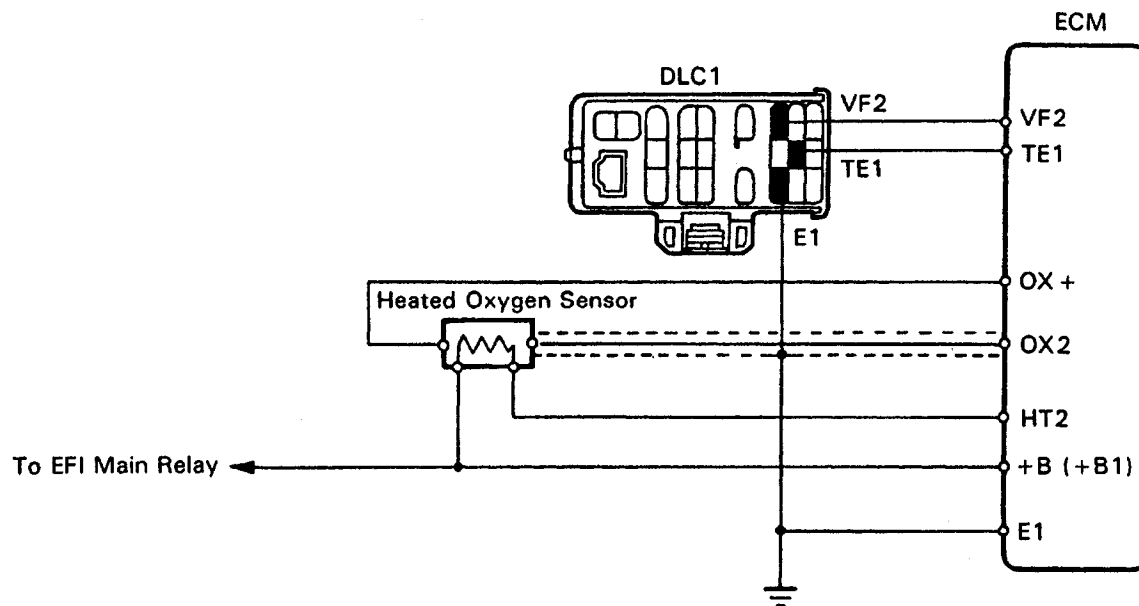


P01660

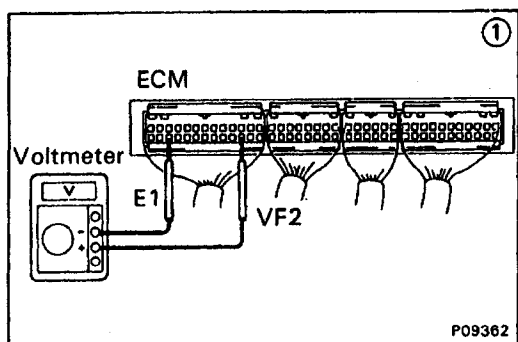
P09137  
P09141

W01941

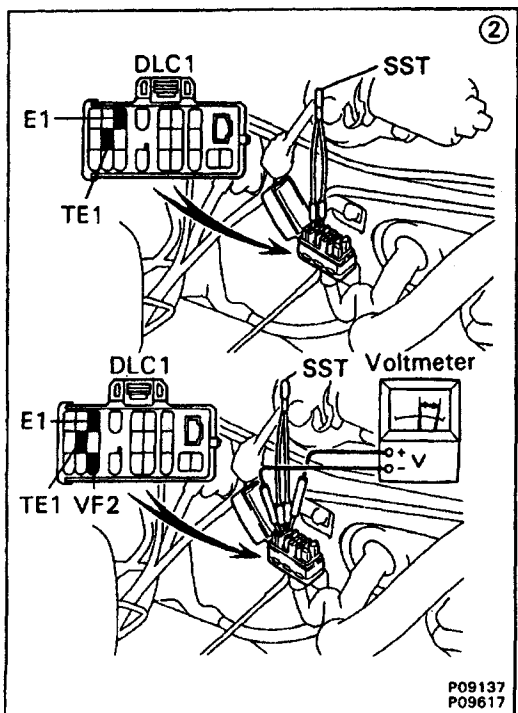
## No.2 Heated Oxygen Sensor



P09413



P09362

P09137  
P09617