

## TROUBLESHOOTING w VOLT OHMMETER

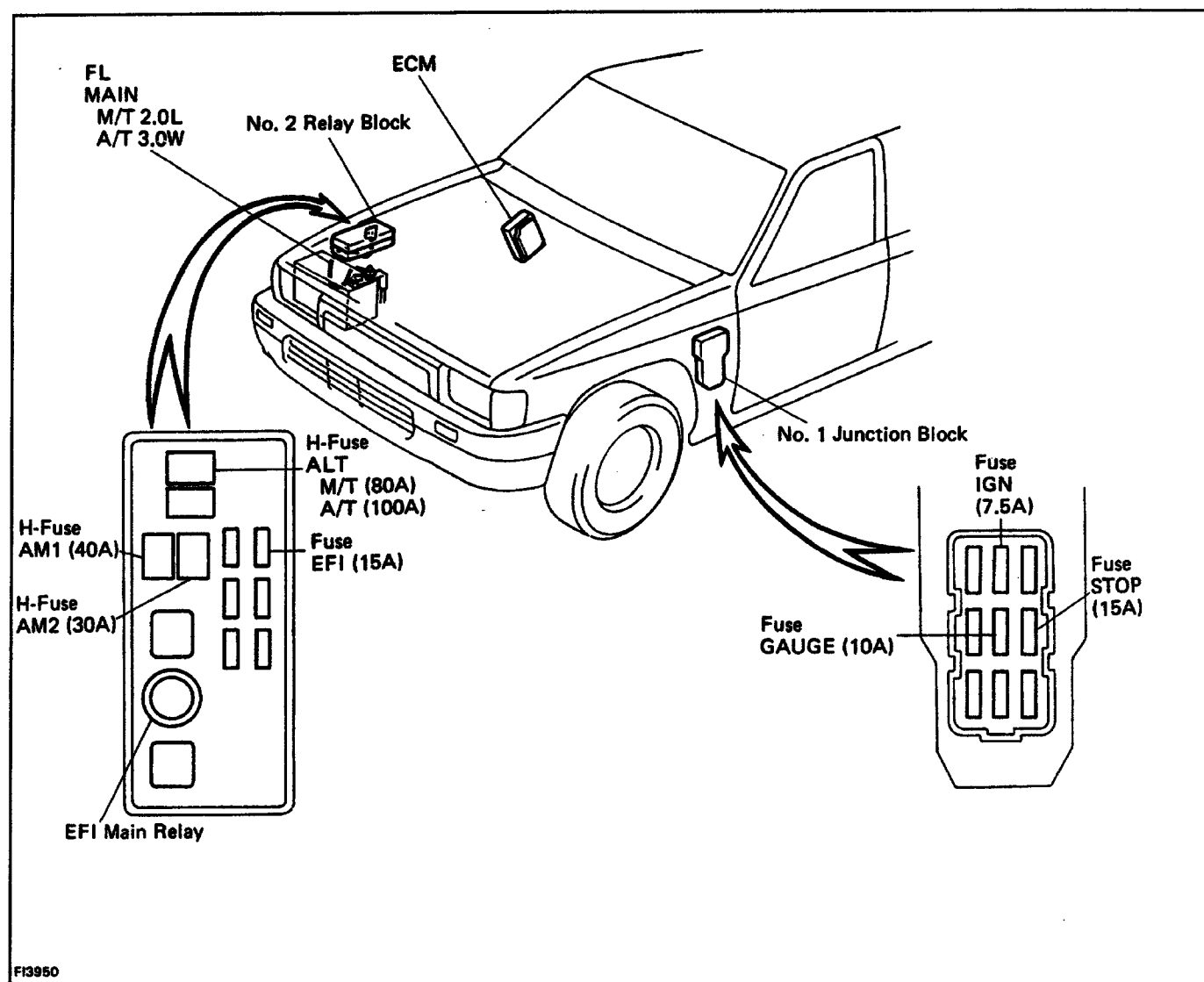
**HINT:** Because the following troubleshooting procedures are designed for inspection of each separate system, the actual troubleshooting procedure may vary somewhat.

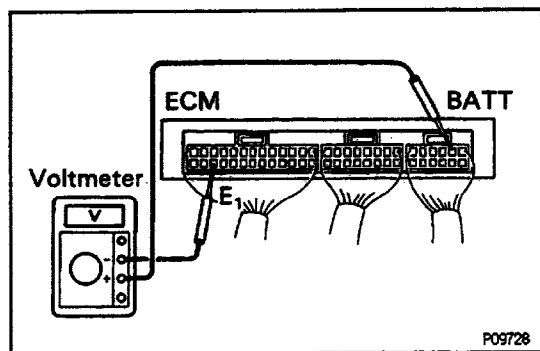
However, please refer to these procedures and troubleshoot, conforming to the inspection methods described.

For example, it is better to first make a simple check of the fuses, fusible links and connecting condition of the connectors before making your inspection according to the procedures listed.

The following troubleshooting procedures are based on the supposition that the trouble lies in either a short or open circuit in a component outside the computer or a short circuit within the computer. If engine trouble occurs even though proper operating voltage is detected in the computer connector, then the ECM is faulty and should be replaced.

## FUSES, H-FUSES AND FUSIBLE LINK LOCATION





## MFI SYSTEM CHECK PROCEDURE (Except 4WD A/T)

### HINT:

Do all voltage measurements with the connectors connected.

Verify that the battery voltage is 11 V or more when the ignition switch is in "ON" position.

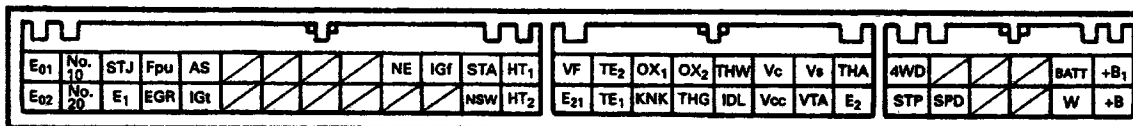
Using a voltmeter with high impedance (10 kΩ/V minimum), measure the voltage at each terminal of the wiring connector.

## ECM Terminals (Except 4WD A/T)

Symbol	Terminals Name	Symbol	Terminal Name
<b>W<sub>01</sub></b>	ENGINE GROUND	<b>Ox<sub>1</sub></b>	OXYGEN SENSOR (MAIN)
<b>E<sub>02</sub></b>	ENGINE GROUND	<b>KNK</b>	KNOCK SENSOR
<b>No.10</b>	INJECTOR	<b>*1Ox<sub>2</sub></b>	OXYGEN SENSOR (SUB)
<b>No.20</b>	INJECTOR	<b>THG</b>	EGR GAS TEMPERATURE SENSOR
<b>STJ</b>	COLD START INJECTOR	<b>THW</b>	ENGINE COOLANT TEMPERATURE SENSOR
<b>E<sub>1</sub></b>	ENGINE GROUND	<b>IDL</b>	THROTTLE POSITION SENSOR
<b>Fpu</b>	FUEL PRESSURE CONTROL VSV	<b>Vc</b>	VOLUME AIR FLOW METER
<b>*1EGR</b>	EGR vsv	<b>Vcc</b>	THROTTLE POSITION SENSOR
<b>AS</b>	AIR VSV	<b>Vs</b>	VOLUME AIR FLOW METER
<b>IGt</b>	IGNITER	<b>VTA</b>	THROTTLE POSITION SENSOR
<b>Ne</b>	DISTRIBUTOR	<b>THA</b>	INTAKE AIR TEMPERATURE SENSOR
<b>IGf</b>	IGNITER	<b>E<sub>2</sub></b>	SENSOR GROUND
<b>STA</b>	STARTER SWITCH	<b>*34WD</b>	4WD SWITCH
<b>*2NSW</b>	PNP SWITCH	<b>STP</b>	STOP LIGHT SWITCH
<b>HT<sub>1</sub></b>	OXYGEN SENSOR HEATER (MAIN)	<b>SPD</b>	SPEED SENSOR
<b>*1HT<sub>2</sub></b>	OXYGEN SENSOR HEATER (SUB)	<b>BATT</b>	BATTERY POSITIVE VOLTAGE
<b>VF</b>	DLC1	<b>W</b>	MALFUNCTION INDICATOR LAMP
<b>E<sub>21</sub></b>	SENSOR GROUND	<b>+B<sub>1</sub></b>	MAIN RELAY
<b>TE<sub>2</sub></b>	DLC1	<b>+B</b>	MAIN RELAY
<b>TE<sub>1</sub></b>	DLC 1		

\*1: California only \*2: A/T only \*3: 4WD only

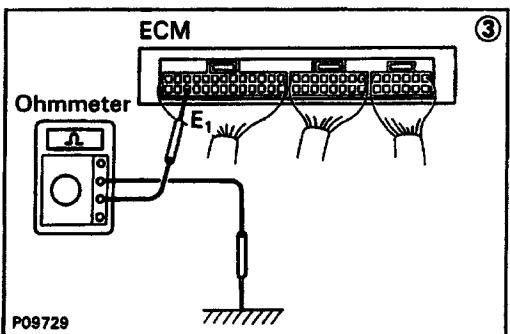
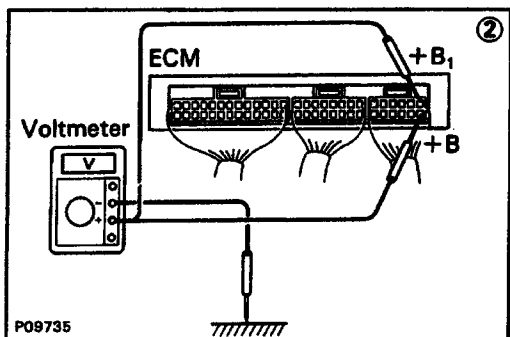
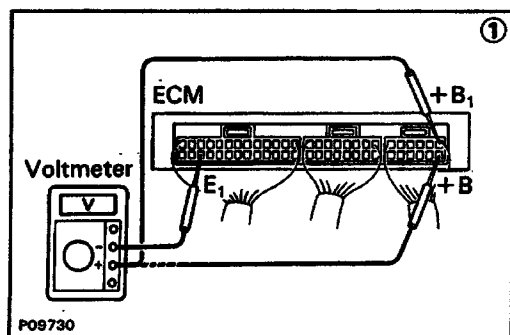
### ECM Terminals



## Voltage at ECM Wiring Connectors (Except 4WD A/T)

No.	Terminals	Condition		STD voltage	See page
1	BATT — E <sub>1</sub>	—		9 — 14	EG1-128
	+B — E <sub>1</sub>	Ignition switch ON			
	+B <sub>1</sub> — E <sub>1</sub>				
2	IDL — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	Throttle valve open	9 — 14	EG1-130
	Vcc — E <sub>2</sub> (E <sub>21</sub> )		—	4.5 — 5.5	
	VTA — E <sub>2</sub> (E <sub>21</sub> )		Throttle valve fully closed	0.3 — 0.8	
			Throttle valve fully open	3.2 — 4.9	
3	Vc — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	—	6—10	EG1-132
	Vs — E <sub>2</sub> (E <sub>21</sub> )		Measuring plate fully closed	0.5—2.5	
			Measuring plate fully open	5—10	
		Idling		2—8	
	THA — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	Intake air temperature 20°C (68°F)	0.5 — 3.4	
4	THW — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	Coolant temperature 80°C (176°F)	0.2 — 1.0	EG1-134
5	STA — E <sub>1</sub>	Ignition switch START position		6—12	EG1-135
6	No. 10 — E <sub>01</sub> No. 20 — E <sub>02</sub>	Ignition switch ON		9 — 14	EG1-136
7	IGt — E <sub>1</sub>	Idling		0.7—1.0	EG1-137
8	W — E <sub>1</sub>	No trouble (MIL off) and engine running		9 — 14	EG1-138
9	STJ — E <sub>1</sub>	Ignition switch START position	Coolant temperature 80°C (176°F)	6—12	EG1-139
10	STP — E <sub>1</sub>	Stop light switch ON		7.5 — 14	EG1-140





### • +B (+B1) - E1

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

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

NO

OK

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

OK

BAD

Try another ECM.

Repair or replace.

Check fuse, fusible link and ignition switch.

BAD

Repair or replace.

OK

Check E F f main relay.

BAD

Replace.

OK

Check wiring between EFI main relay and battery.

BAD

Repair or replace.

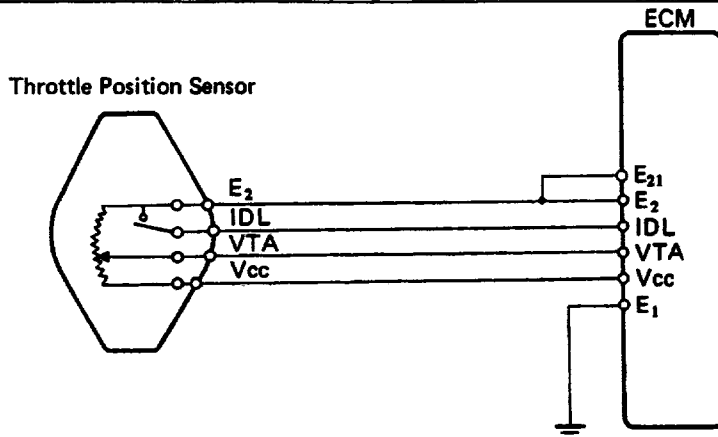
OK

Check wiring between EFI main relay and ECM terminal +B (+B1).

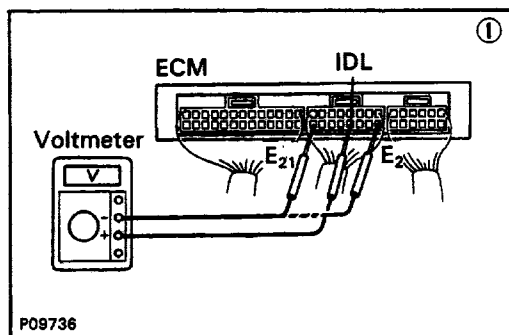
BAD

Repair or replace.

No.	Terminals	Trouble	Condition		STD Voltage
2	IDL – E <sub>2</sub> (E <sub>21</sub> )	No voltage	Ignition switch ON	Throttle valve open	9 – 14 V
	Vcc – E <sub>2</sub> (E <sub>21</sub> )			–	4.5 – 5.5 V
	VTA – E <sub>2</sub> (E <sub>21</sub> )			Throttle valve fully dosed	0.3 – 0.8 V
				Throttle valve fully open	3.2 – 4.9 V



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### o IDL - EZ (E21)

(1) There is no voltage between ECM terminals IDL and E2 (E<sub>2</sub>, ). UG SW ON)(Throttle valve open)

(2) Check that there is voltage between ECM terminal + B (+ B<sub>1</sub>) and body ground. UG SW ON)

NO

Refer to No. 1.

BAD

Replace or repair.

OK

Check wiring between ECM terminal E<sub>2</sub> and body ground.

OK

BAD

Replace or repair.

BAD

(3) Check throttle position sensor.

BAD

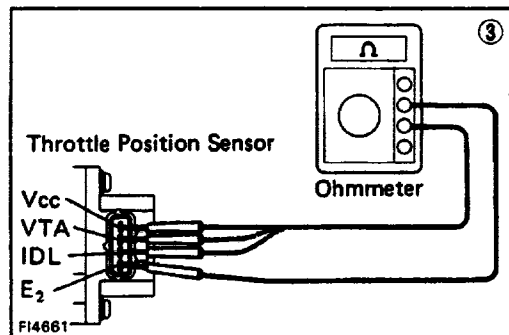
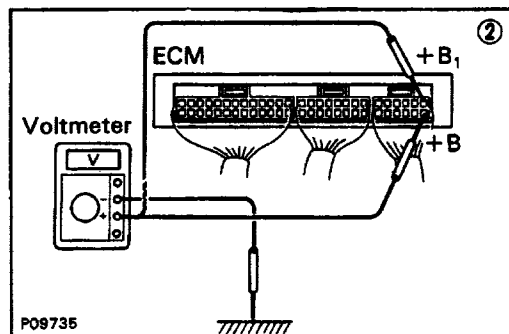
Replace or repair throttle position sensor.

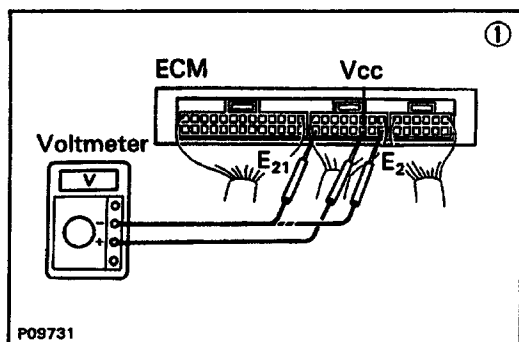
OK

Check wiring between ECM and throttle position sensor.

OK

Try another ECM.





### • Vcc – E2 (E21)

(1) There is no voltage between ECM terminals Vcc and E2 (E21) To (IG SW ON)

Check that there is voltage between ECM terminals + B (+ BI) and EI. UC3 SW ON)

OK

NO

(2) Check throttle position sensor.

Refer to No. t .

BAD

OK

Repair or replace.

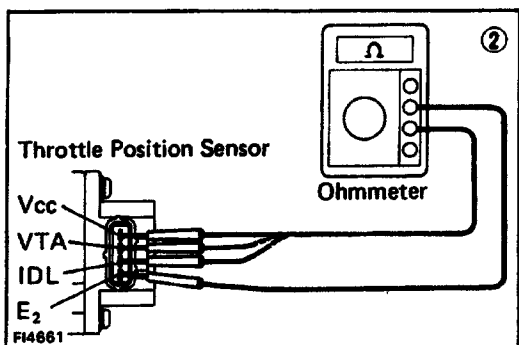
Check wiring between ECM and throttle position sensor.

OK

BAD

Try another ECM.

Repair or replace wiring.



### • VTA – E2 (E21)

(1) There is no specified voltage between ECM terminals VTA and E2 (E21). (IG SW ON)

(2) Check that there is voltage between ECM terminals Vcc and E2 (E21) (IG SW ON)

OK

NO

Perform inspection of Vcc – E2 (E21).

(3) Check throttle position sensor.

BAD

Repair or replace.

OK

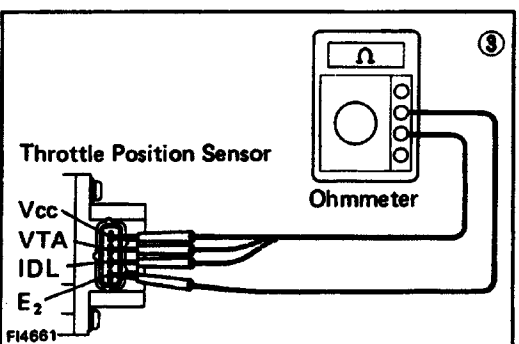
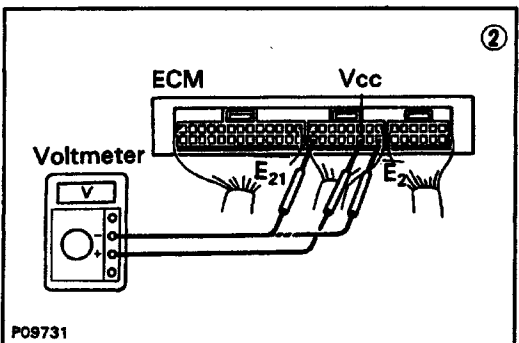
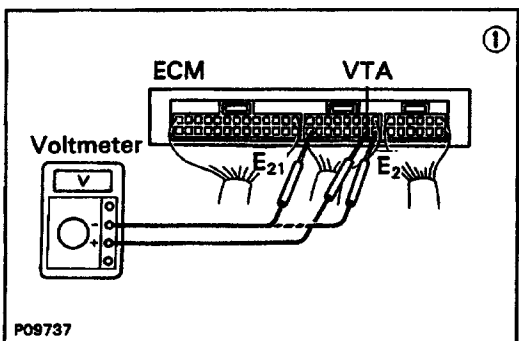
Check wiring between ECM and throttle position sensor.

BAD

Repair or replace.

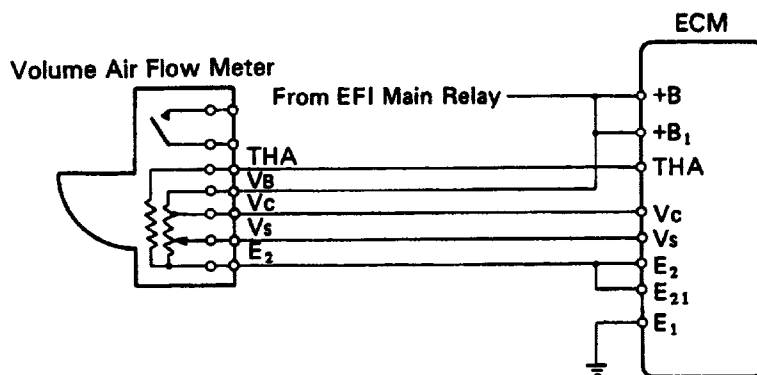
OK

Try another ECM.

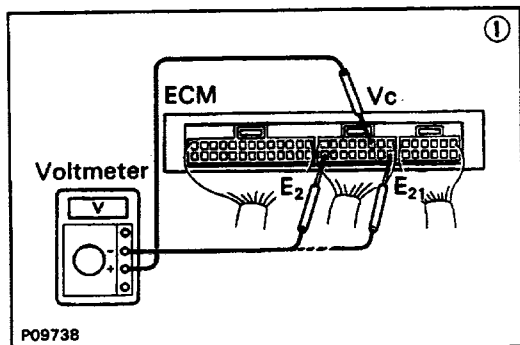


Vc-Et (E21)

VC - ET (E21)					
No.	Terminals	Trouble	Condition		STD Voltage
3	Vc - E <sub>2</sub> (E <sub>21</sub> )	No voltage	Ignition switch ON	-	6 - 10 V
	Measuring plate fully closed			0.5 - 2.5 V	
	Measuring plate fully open			5 - 10 V	
	Idling		2 - 8 V		
	THA - E <sub>2</sub> (E <sub>21</sub> )		ignition switch 4N	Intake air temperature 200° C (68° F)	0.5 - 3.4 V



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## • Vc-E2 (E21)

(1) There is no voltage between ECM terminals Vc and EZ (E20) (IG SW ON)

(2) Check that there is voltage between ECM terminals + B 1 (+ B1) and E1. (IG SW ON)

OK

NO

(3) Check volume air flow meter.

Refer to No. 1.

BAD

OK

Replace or repair volume air flow meter.

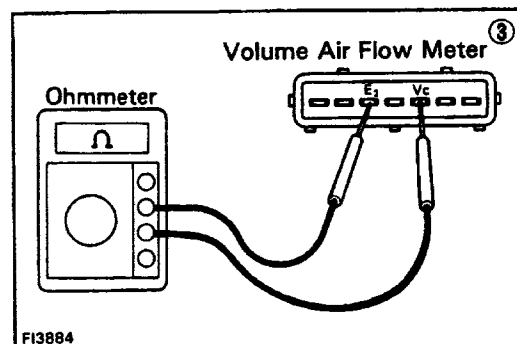
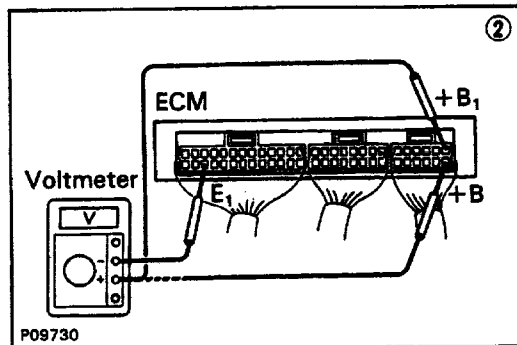
Check wiring between ECM and volume air flow meter.

OK

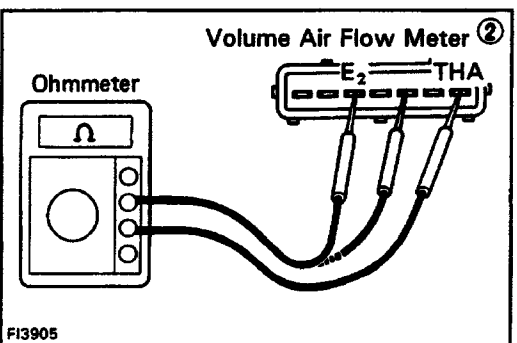
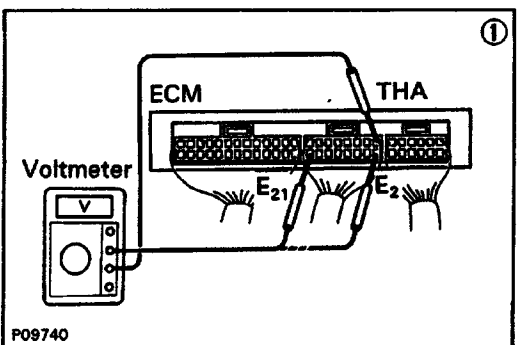
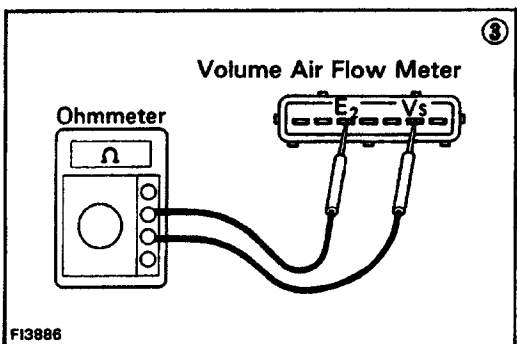
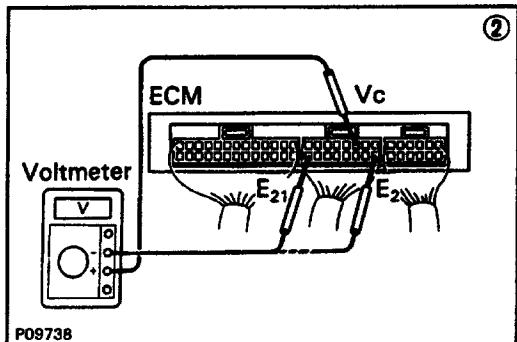
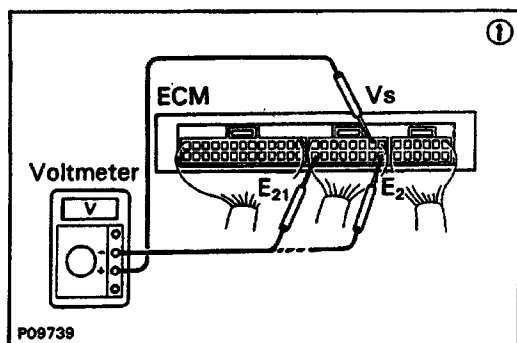
BAD

Try another ECM.

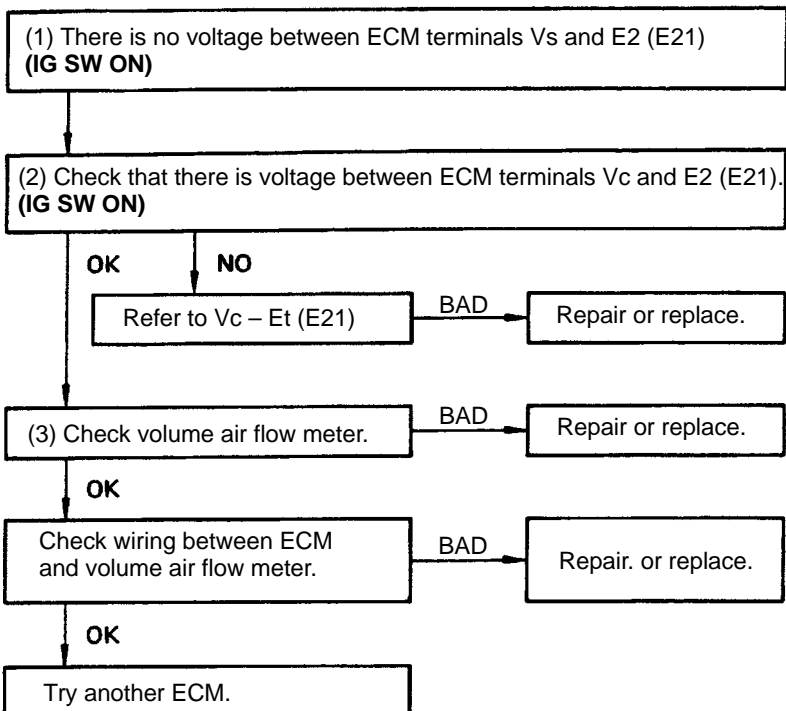
Replace or repair wiring.



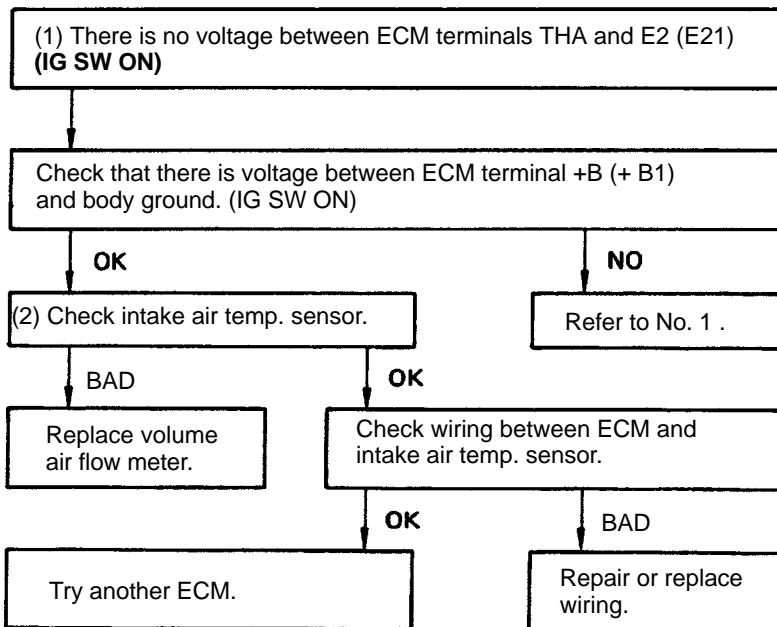




### • Vs - E? (E21)



### • THA - E2 (E21)

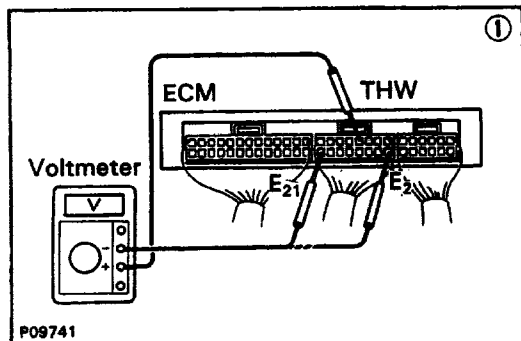


No.	Terminals	Trouble	Condition		STD -Voltage
4	THW - E <sub>2</sub> (E <sub>21</sub> )	No voltage	Ignition switch ON	Coolant temperature 80°C (176°F)	0.2 - 1.0 V

Diagram showing the Engine Coolant Temp. Sensor connected to the ECM. The sensor has two terminals: THW and E<sub>2</sub>. The ECM has terminals THW, E<sub>2</sub>, E<sub>21</sub>, and E<sub>1</sub>. The wiring shows THW connected to THW on the ECM, and E<sub>2</sub> connected to E<sub>2</sub> on the ECM. E<sub>2</sub> and E<sub>21</sub> are connected to a common ground line.

FI5971



P09741

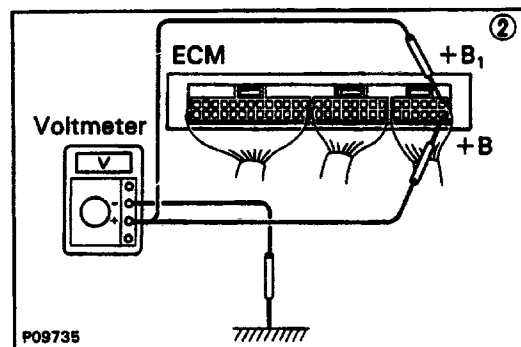
(1) There is no voltage between ECM terminals THW and E<sub>2</sub> (E<sub>20</sub>).  
(IG SW ON)

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

OK

NO

Refer to No. 1 .



P09735

Check wiring between ECM terminal E, and body ground.

OK

BAD

(3) Check engine coolant temp. sensor.

Repair or replace.

BAD

OK

Replace engine coolant temp. sensor.

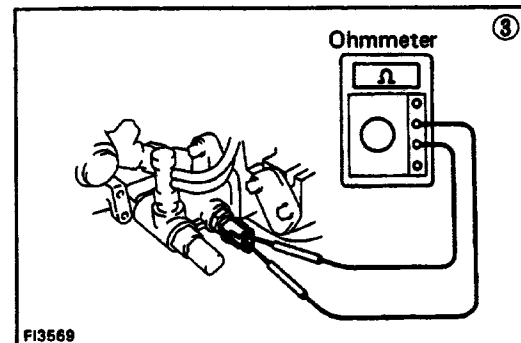
Check wiring between ECM and engine coolant temp. sensor.

OK

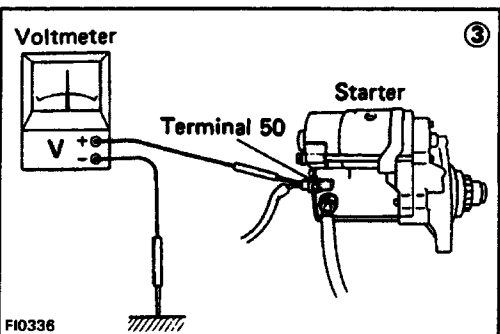
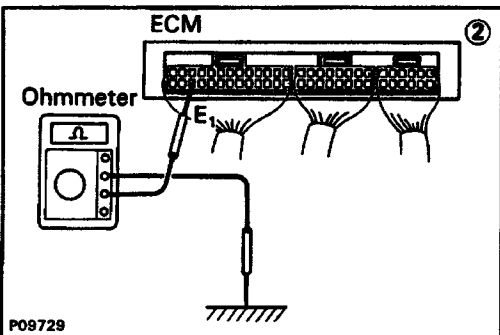
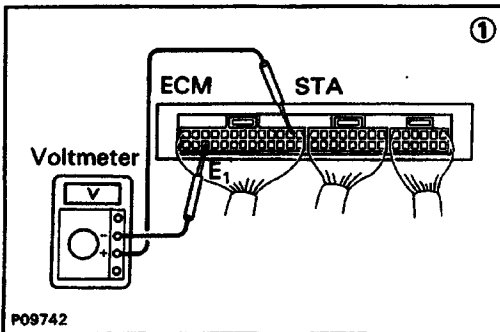
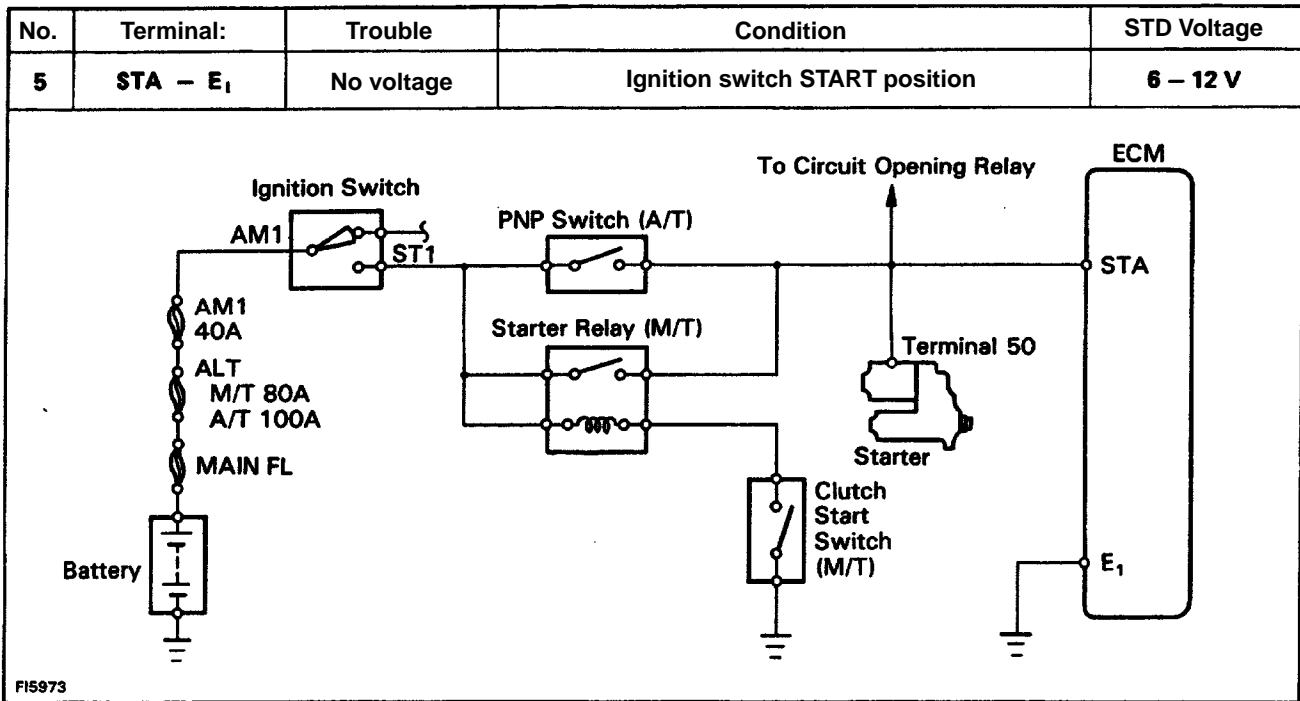
BAD

Try another ECM.

Repair or replace.



FI3569



(1) There is no voltage between ECM terminals STA and E<sub>1</sub>.  
(IG SW START)

Check starter operation.

BAD

OK

Check wiring between ECM and ignition switch terminal ST.

OK

BAD

Repair or replace.

(2) Check wiring between ECM terminal E<sub>1</sub> and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Check fusible link, battery, wiring and ignition switch.

BAD

Repair or replace.

(3) Check that there is voltage at terminal 50 of starter.  
(UG SW START) STD voltage: 6 - 12 V

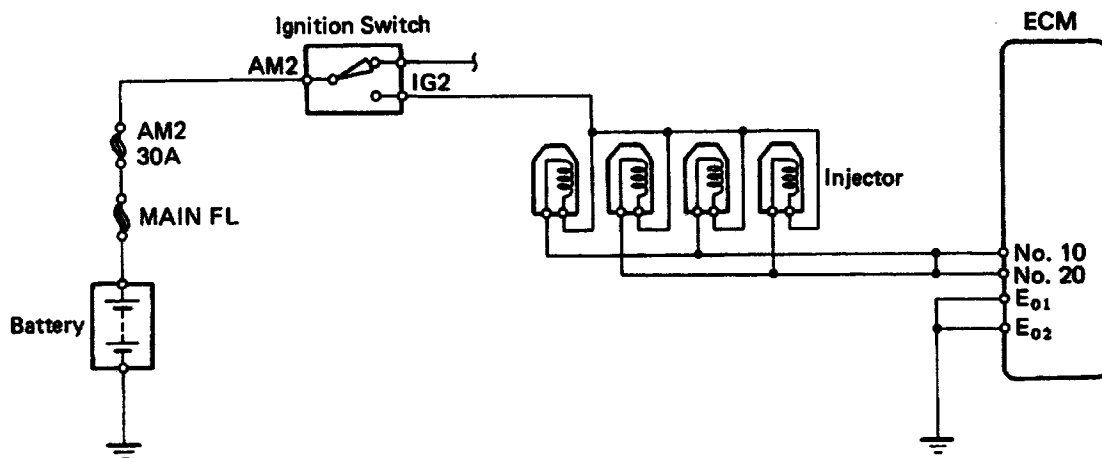
OK

NO

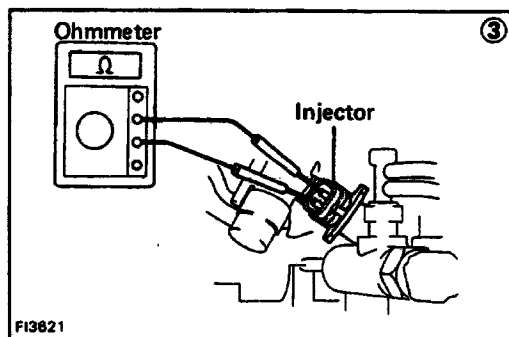
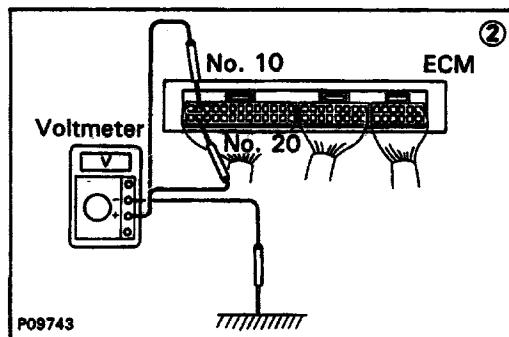
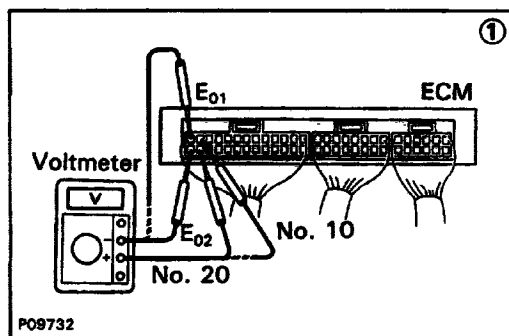
Check starter.  
(See page ST-4)

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

No.	Terminals	Trouble	Condition	STD Voltage
6	No. 10 - E <sub>01</sub> No. 20 - E <sub>02</sub>	No voltage	Ignition switch ON	9 - 14 V



FI5975



(1) There is no voltage between ECM terminals No. 10 and/or No. 20 and E<sub>01</sub> and/or E<sub>02</sub>. (IG SW ON)

(2) Check that there is voltage between ECM terminal No. 10 and/or No. 20 and body ground.

NO

OK

Check wiring between ECM terminal E<sub>01</sub> and/or E<sub>02</sub> 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 magnetic coil in each injector.  
STD resistance: 13.4 - 14.2  $\Omega$

OK

NO

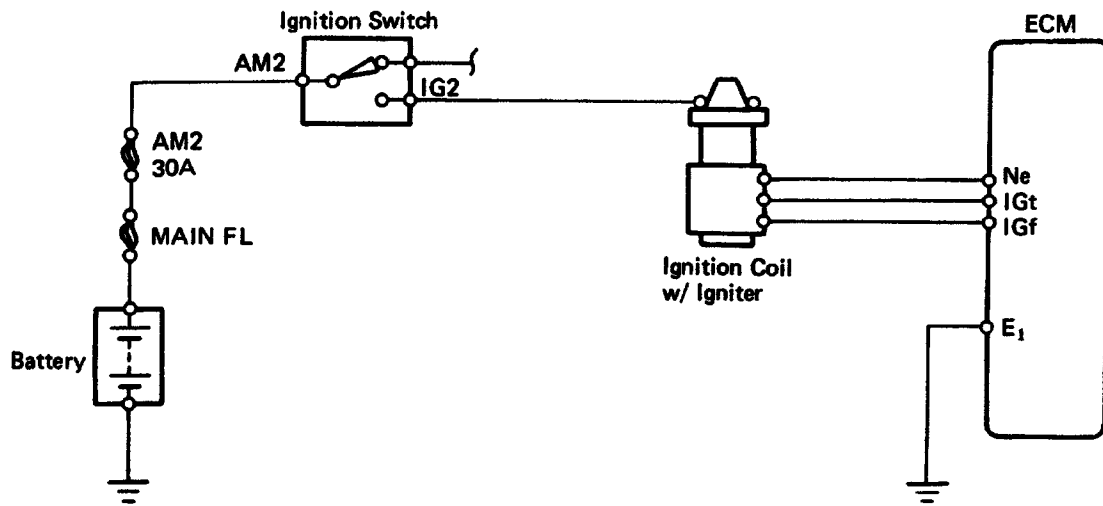
Replace injector.

Check wiring between ECM terminal No. 10 and/or No. 20 and battery.

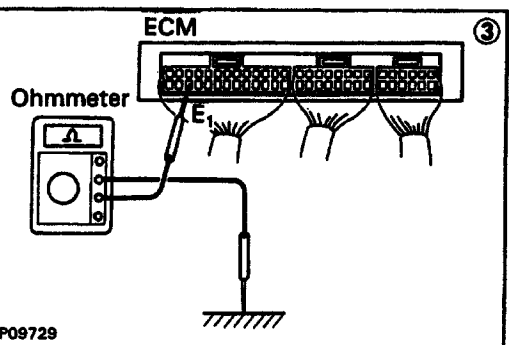
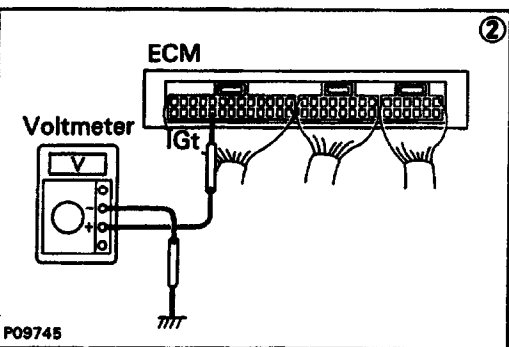
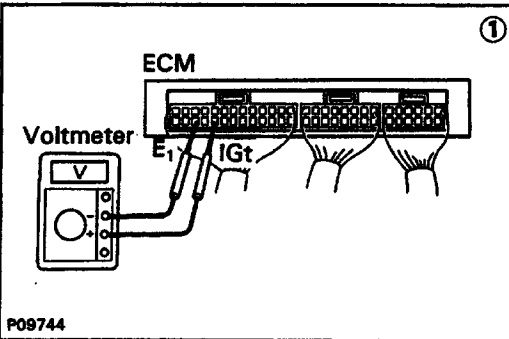
BAD

Repair or replace.

No.	Terminals	Trouble	Condition	STO Voltage
7	IGt - E <sub>1</sub>	No voltage	Idling	0.7 - 1.0 V



FI5977


(1) There is no voltage between ECM terminals IGt and E<sub>1</sub> (Idling)

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

NO

OK

(3) Check wiring between ECM terminal E<sub>1</sub>, and body ground.

BAD

Refer to No. 1.

BAD

Repair or replace.

OK

Check wiring between igniter and distributor.

BAD

Repair or replace.

OK

Check distributor.

BAD

Replace.

OK

Check wiring between ECM and igniter.

BAD

Repair or replace.

OK

Check ignite..

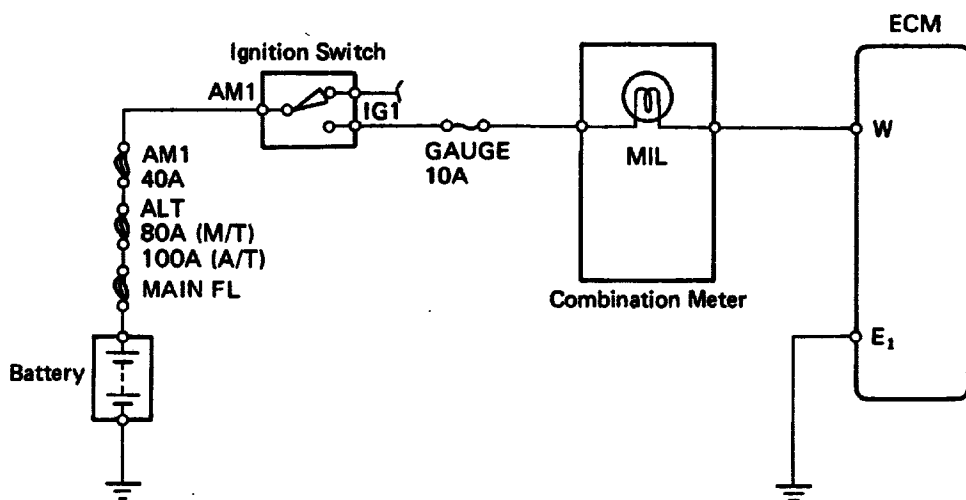
BAD

Repair or replace.

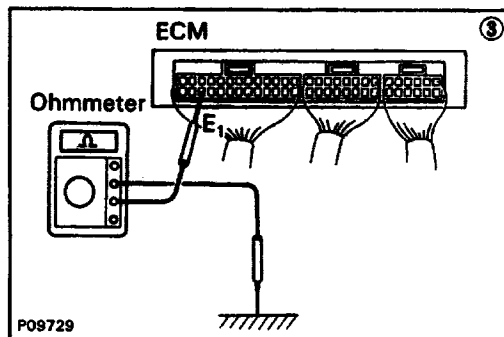
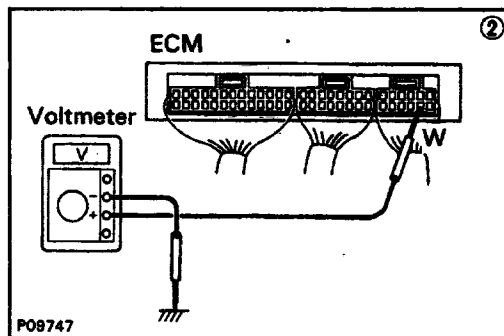
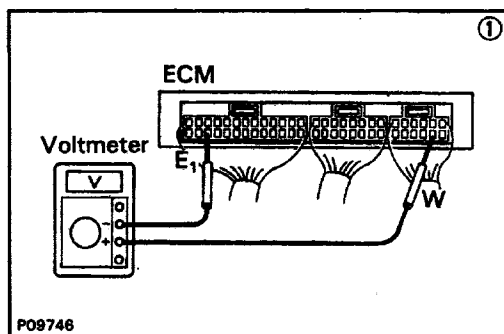
OK

Try another ECM.

No.	Terminals	Trouble	Condition	STD Voltsp
8	W - E <sub>1</sub>	No voltage	No trouble (MIL off) and engine running	9 - 14 V



FI5979



(1) There is no voltage between ECM terminals W and E<sub>1</sub>.  
(Idling)

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

NO

OK

(3) Check wiring between ECM terminal E<sub>1</sub>, and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Check GAUGE fuse (10 Ay and MIL).

OK

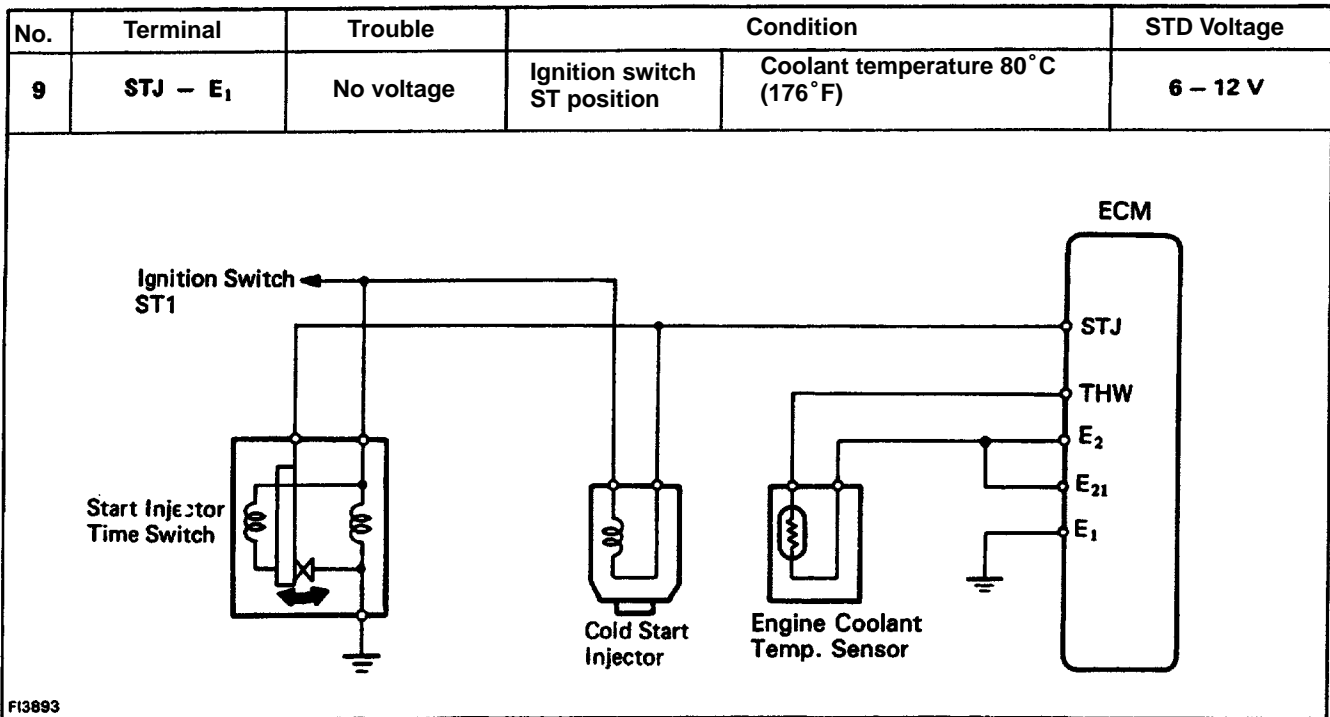
BAD

Repair or replace.

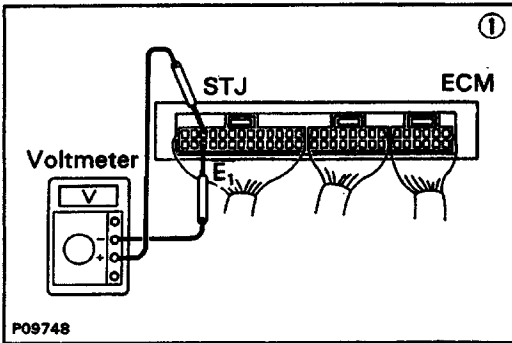
Fuse blows again  
ECM BAD

Check wiring between ECM  
terminal W and fuse.

Repair or replace.



FI3893



P09748

(1) There is no voltage between ECM terminals STJ and E<sub>1</sub>, (IG SW ON)

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

OK

NO

(3) Check cold start injector.

BAD

OK

Replace cold start injector.

Check wiring between ECM and cold start injector.

OK

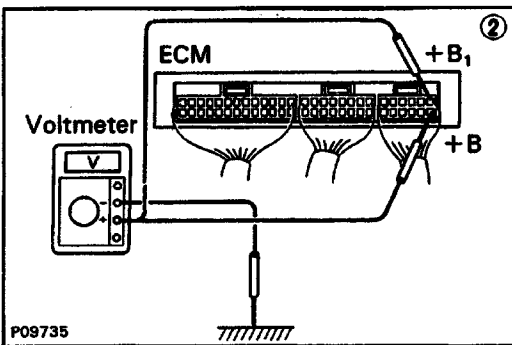
BAD

Check wiring between ECM terminal E, and body ground.

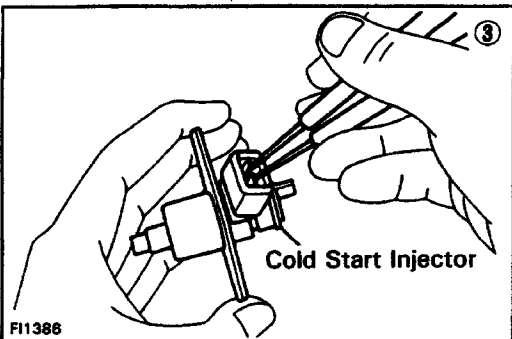
OK

Try another ECM.

Repair or replace wiring.

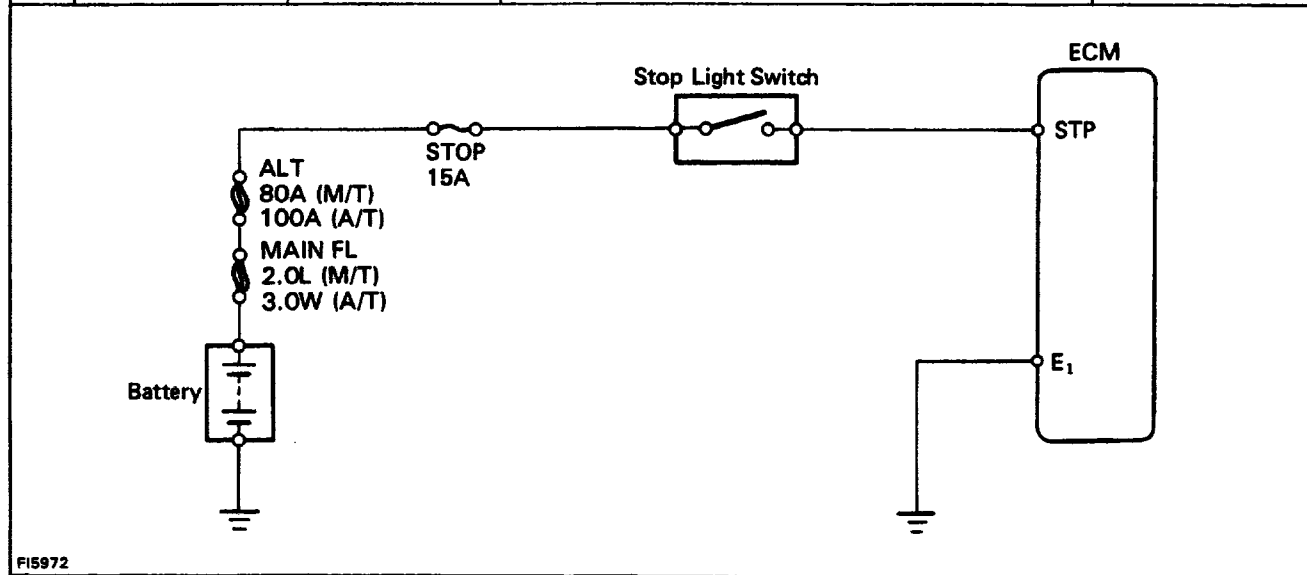


P09735

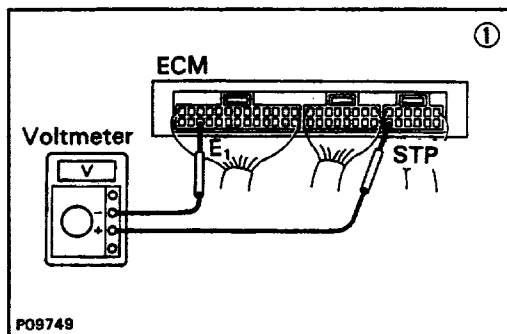


FI1386

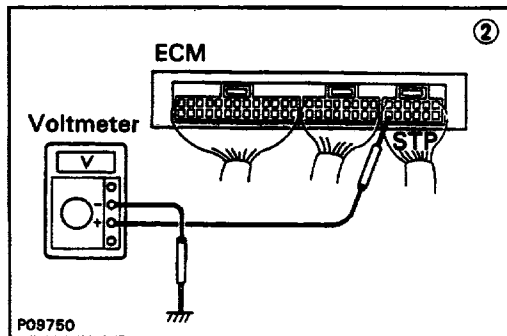
No.	Terminals	Trouble	Condition	STD Voltage
10	STP - E <sub>1</sub>	No voltage	Stop light switch ON	7.5 - 14 V



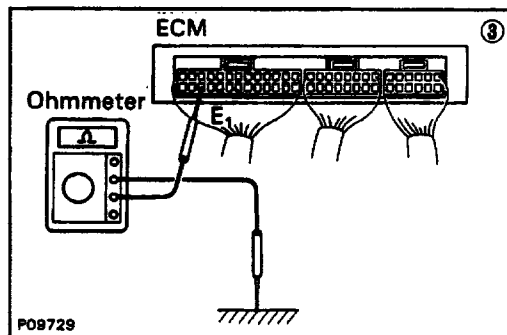
FI5972



P09749



P09750



P09729

(1) There is no voltage between ECM terminals STP and E<sub>1</sub>.

(2) Check that there is voltage between ECM terminal STP and body ground when the brake pedal is depressed.

NO

OK

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

OK

BAD

Try another ECM.

Repair or replace.

Check STOP fuse (15A) and stop light switch.

BAD

Repair or replace.

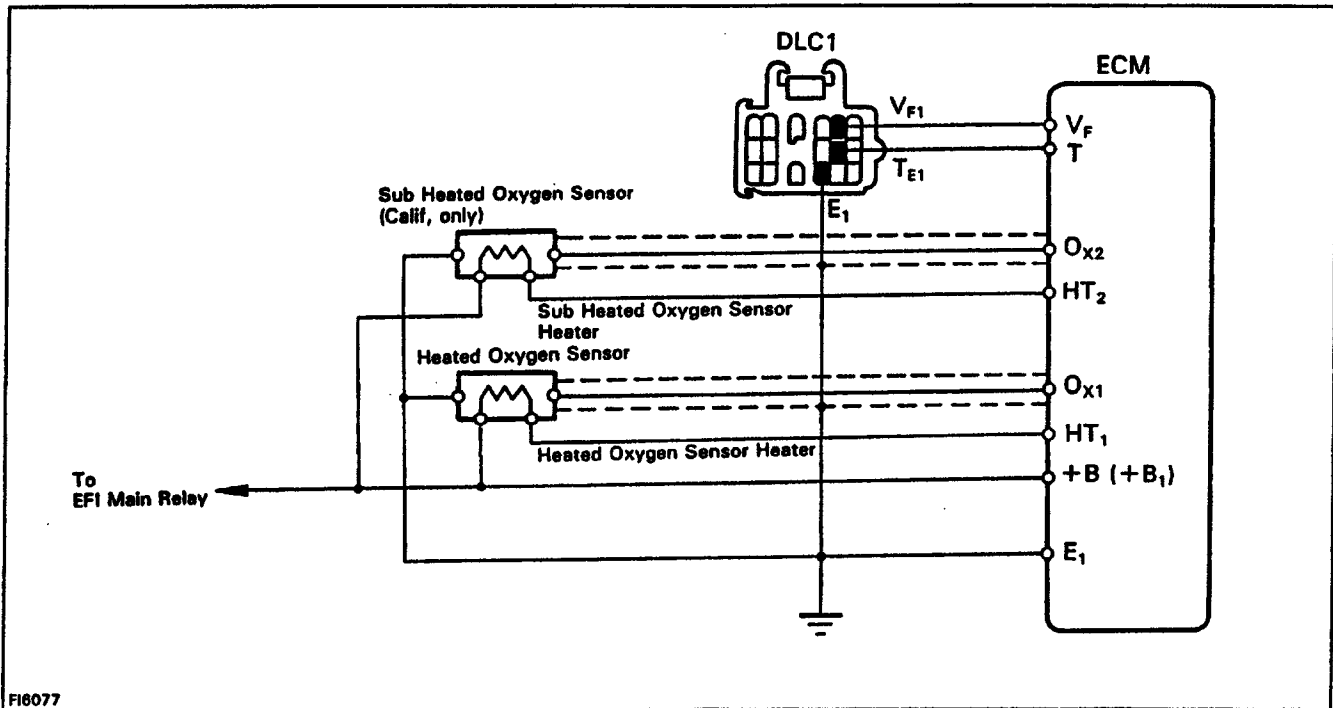
OK

Check wiring between ECM terminal STP and battery.

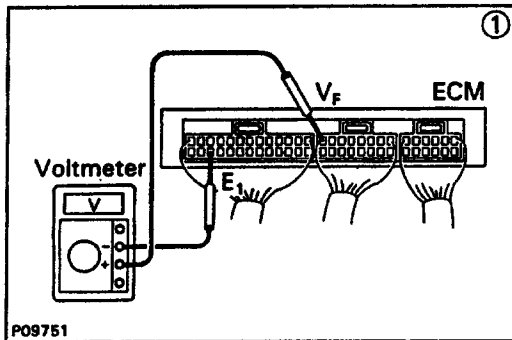
BAD

Repair or replace.





FI6077



P09751

(1) There is no voltage between ECM terminals V\_F and E\_1

Check that there is voltage between ECM terminal V\_F and body ground.

NO

OK

Check wiring between ECM terminal E\_1, and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Is air leaking into air induction system?

YES

Repair air leak.

NO

Check spark plugs.

BAD

Repair or replace.

OK

Check distributor and ignition system.

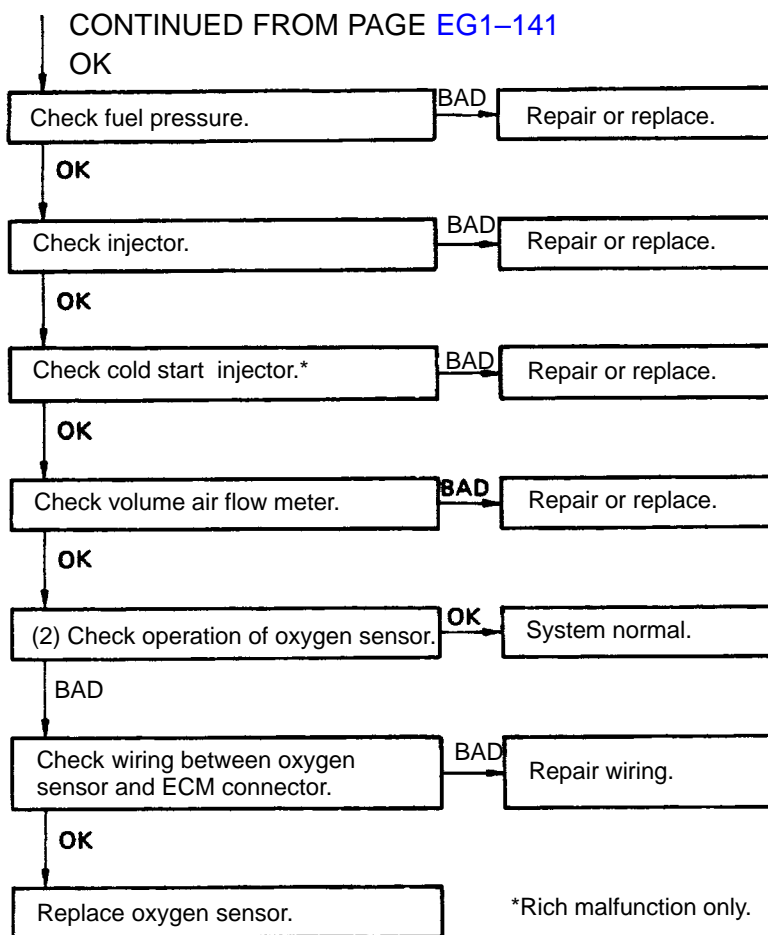
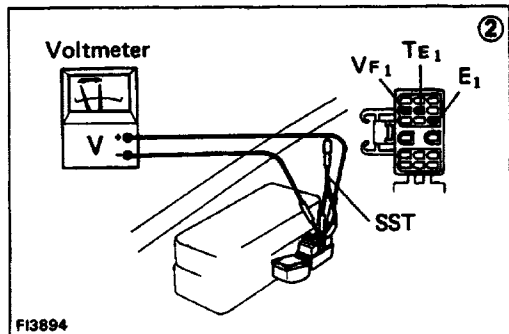
BAD

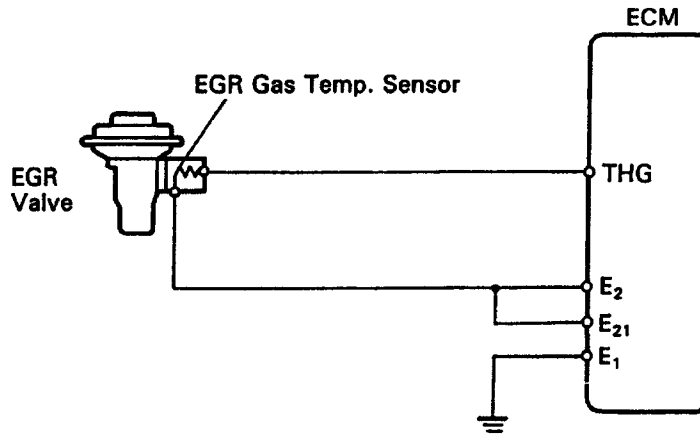
Repair or replace.

OK

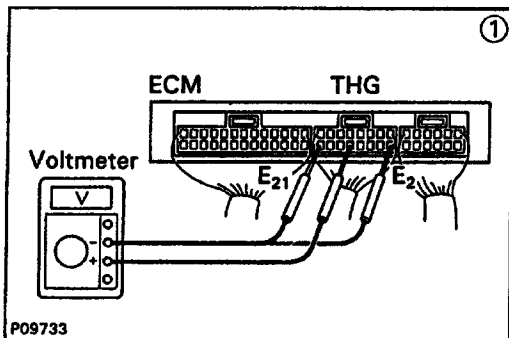
CONTINUED 4N PAGE

EG1-142

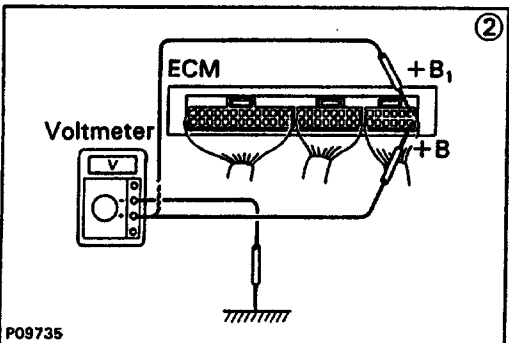




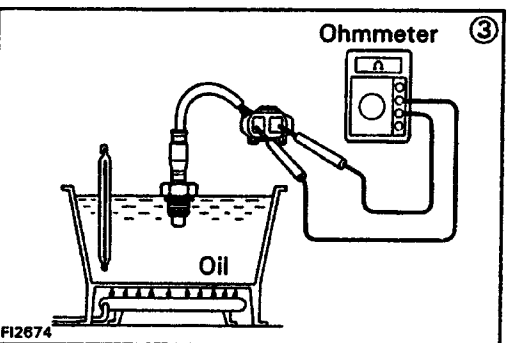
FI3895



P09733



P09735



FI2674

(1) There is no voltage between ECM terminals THG and E2 (E21) Engine running at 2,000 rpm)

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

OK

NO

Refer to No. 1.

Check wiring between ECM terminal E, and body ground.

OK

BAD

Repair or replace.

Check EGR system.

BAD

Repair or replace.

OK

(3) Check EGR gas temp. sensor

BAD

Replace EGR gas temp. sensor.

OK

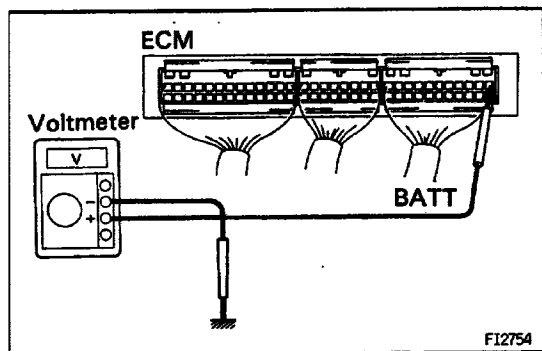
Check wiring between ECM and EGR gas temp. sensor.

OK

BAD

Try another ECM.

Repair or replace.



## MFI SYSTEM CHECK PROCEDURE (4WD A/T)

### HINT:

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

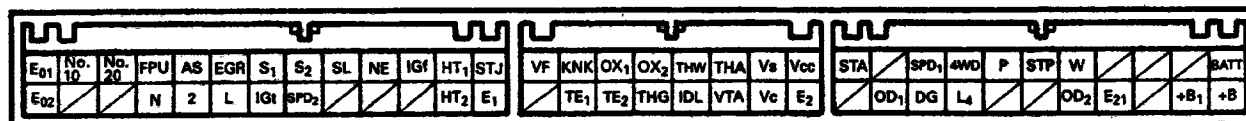
Using a voltmeter with high impedance (10 kΩ/V minimum), measure the voltage at each terminal of the wiring connector.

ECM Terminals RWD A/T)

Symbol	Terminal Name	Symbol	Terminal Name
E <sub>01</sub>	ENGINE GROUND	TE <sub>2</sub>	DLC1
E <sub>02</sub>	ENGINE GROUND	* O <sub>x2</sub>	OXYGEN SENSOR (SUB)
No.10	INJECTOR	THG	EGR GAS TEMPERATURE SENSOR
No.20	INJECTOR	THW	ENGINE COOLANT TEMPERATURE SENSOR
Fpu	FUEL PRESSURE CONTROL VSV	IDL	THROTTLE POSITION SENSOR
N	PNP SWITCH	THA	INTAKE AIR TEMPERATURE SENSOR
AS	PAIR VALVE	VTA	THROTTLE POSITION SENSOR
2	PNP SWITCH	Vs	VOLUME AIR FLOW METER
* EGR	EGR VSV	Vc	VOLUME AIR FLOW METER
L	PNP SWITCH	Vcc	THROTTLE POSITION SENSOR
S <sub>1</sub>	No.1 SOLENOID	E <sub>2</sub>	SENSOR GROUND
IGt	IGNITER	STA	SORTER SWITCH
S <sub>2</sub>	NO.2 SOLENOID	OD <sub>1</sub>	CRUISE CONTROL COMPUTER
SPD <sub>2</sub>	SPEED SENSOR	SPD <sub>1</sub>	SPEED SENSOR
S <sub>L</sub>	SL SOLENOID	DG	DLC 1
Ne	DISTRIBUTOR	4WD	4WD SWITCH
IGf	IGNITER	L <sub>4</sub>	TRANSFER POSITION SWITCH
HT <sub>1</sub>	OXYGEN SENSOR HEATER (MAIN)	P	PATTERN SELECT SWITCH
* HT <sub>2</sub>	OXYGEN SENSOR HEATER (SUB)	STP	STOP LIGHT SWITCH
STJ	COLD START INJECTOR	W	MALFUNCTION INDICATOR LAMP
E <sub>1</sub>	ENGINE GROUND	OD <sub>2</sub>	CRUISE CONTROL COMPUTER
V <sub>F</sub>	DLC1	E <sub>21</sub>	SENSOR GROUND
KNK	KNOCK SENSOR	+B <sub>1</sub>	MAIN RELAY
TE <sub>1</sub>	DLC 1	BATT	BATTERY POSITIVE VOLTAGE
Ox <sub>1</sub>	OXYGEN SENSOR (MAIN)	+B	MAIN RELAY

\*: California only

ECM Terminals

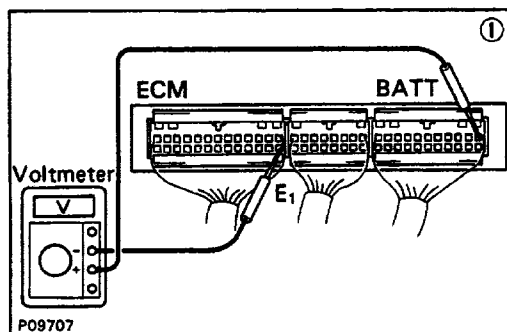
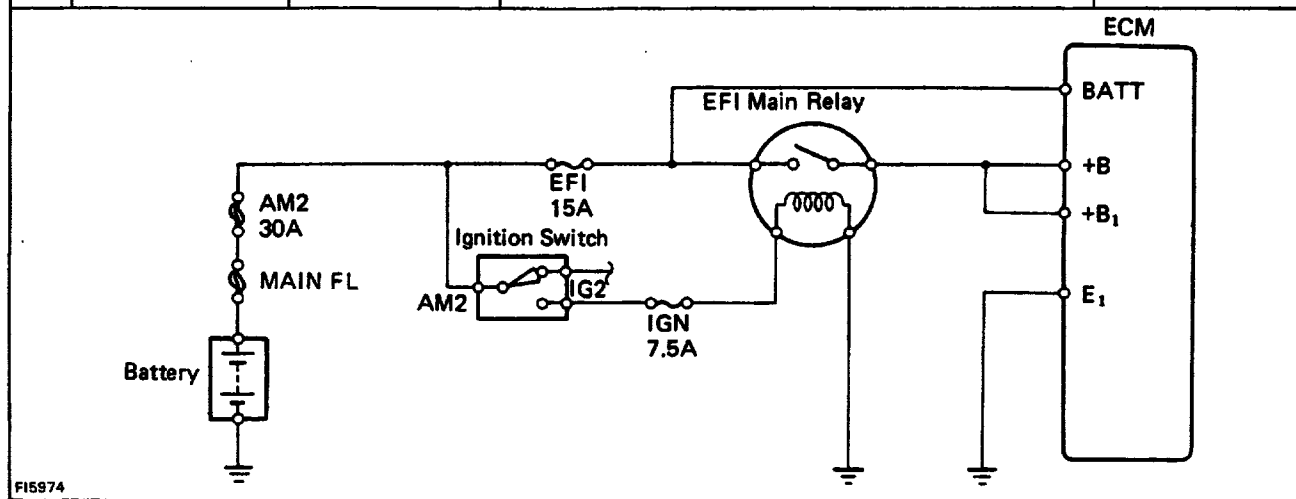


F12796

## Voltage at ECM Connectors (4WD A/T)

No..	Terminals	Condition		STD voltage	See page
1	BATT — E <sub>1</sub>	—		9 — 14	EG1-146
	+B — E <sub>1</sub>	Ignition switch ON			
	+B <sub>1</sub> — E <sub>1</sub>				
2	IDL — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	Throttle valve open	9 — 14	EG1-148
	Vcc — E <sub>2</sub> (E <sub>21</sub> )		—	4.5 — 5.5	
	VTA — E <sub>2</sub> (E <sub>21</sub> )		Throttle valve fully closed	0.3 — 0.8	
			Throttle valve fully open	3.2 — 4.9	
3	Vc — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	—	6—10	EG1-150
	Vs — E <sub>2</sub> (E <sub>21</sub> )		Measuring plate fully closed	0.5 — 2.5	
			Measuring plate fully open	5 — 10	
		Idling		2 — 8	
	THA — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	Intake air temperature 20°C (68°F)	0.5 — 3.4	
4	THW — E <sub>2</sub> (E <sub>21</sub> )	Ignition switch ON	Coolant temperature 80°C (176°F)	0.2 — 1.0	EG1-152
5	STA — E <sub>1</sub>	Ignition switch START position		6—12	EG1-153
6	No. 10 — E <sub>01</sub> No. 20 — E <sub>02</sub>	Ignition switch ON		9 — 14	EG1-154
7	IGt — E <sub>1</sub>	Idling		0.7—1.0	EG1-155
8	W — E <sub>1</sub>	No trouble (MIL off) and engine running		9 — 14	EG1-156
9	STJ — E <sub>1</sub>	Ignition switch START position	Coolant temperature 80°C (176°F)	6—12	EG1-157
10	STP — E <sub>1</sub>	Stop light switch ON		7.5 — 14	EG1-158

No.	Terminals	Trouble	Condition	STD voltage
1	<b>BATT – E<sub>1</sub></b>	No voltage	–	<b>9 – 14 V</b>
	<b>+B – E<sub>1</sub></b>		Ignition switch ON	
	<b>+B<sub>1</sub> – E<sub>1</sub></b>			



#### • BATT - E<sub>1</sub>

(1) There is no voltage between ECM terminals BATT and E<sub>1</sub>.

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

NO

OK

(3) Check wiring between ECM terminal E<sub>1</sub> and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Check fuse and fusible link.

BAD

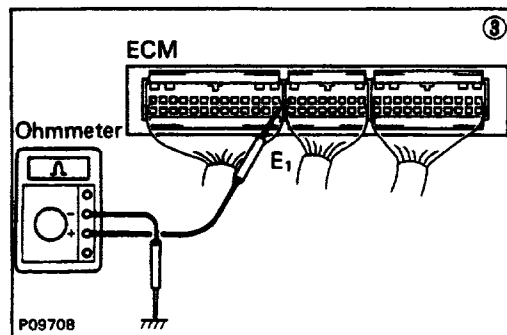
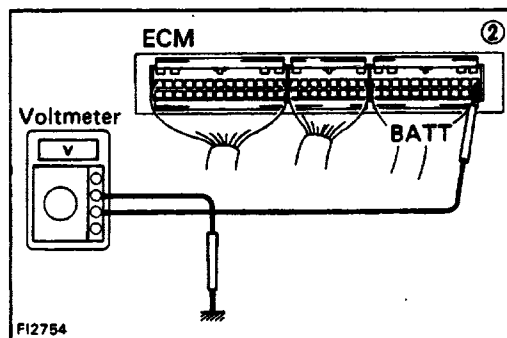
Replace.

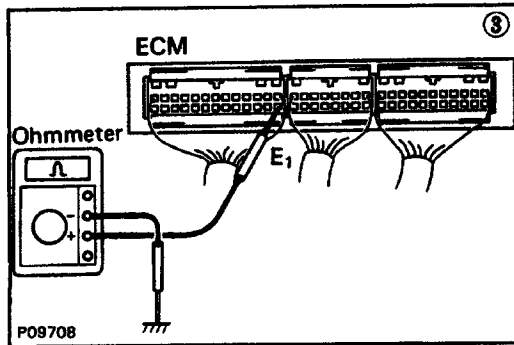
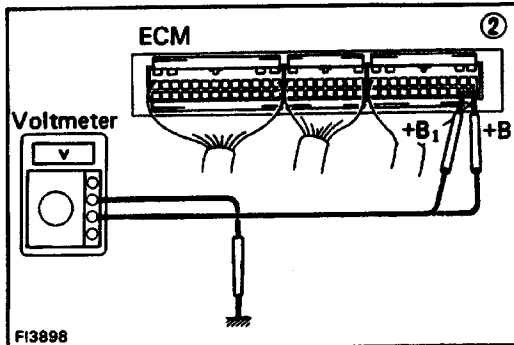
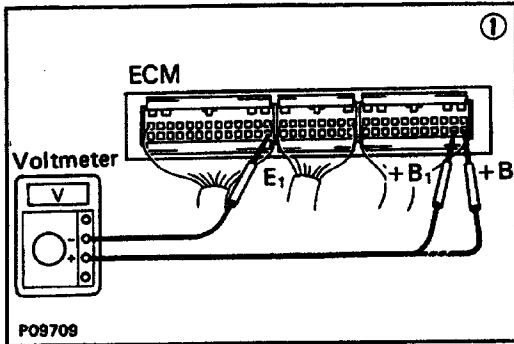
OK

Check wiring between fuse and ECM.

BAD

Repair or replace.





# • +B (+B<sub>1</sub>) - E 1

(1) There is no voltage between ECM terminals + B (+ B<sub>1</sub>) and E<sub>1</sub> (IG SW ON)

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

NO

OK

(3) Check wiring between ECM terminal E<sub>1</sub> and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Check fuse, fusible link and ignition switch.

BAD

Repair or replace.

OK

Check EF I main relay.

BAD

Replace.

OK

Check wiring between EF I main relay and battery.

BAD

Repair or replace.

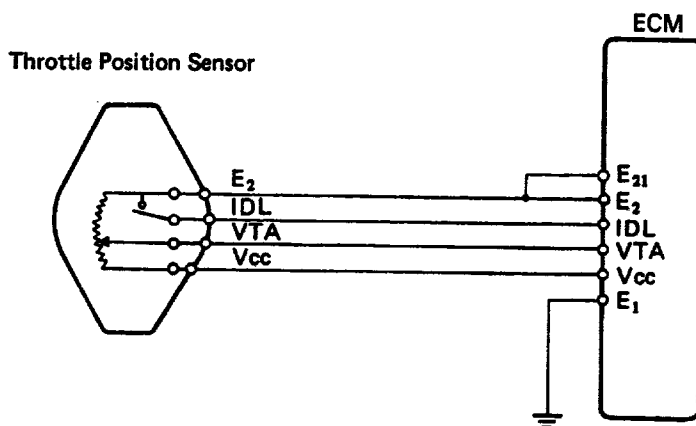
OK

Check wiring between EFI main relay and ECM terminal +B (B+1).

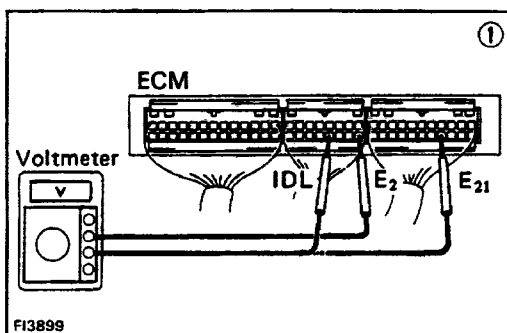
BAD

Repair or replace.

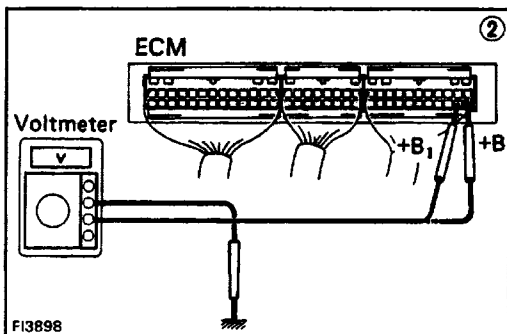
No.	Terminals	Trouble	Condition		STD Voltage
2	IDL – E <sub>2</sub> (E <sub>21</sub> )	No voltage	Ignition switch ON	Throttle valve open	9 – 14 V
	–			4.5 – 5.5 V	
	Throttle valve fully dosed			0.3 – 0.8 V	
	Throttle valve fully open			3.2 – 4.9 V	
	Vcc – E <sub>2</sub> (E <sub>21</sub> )				
	VTA – E <sub>2</sub> (E <sub>21</sub> )				



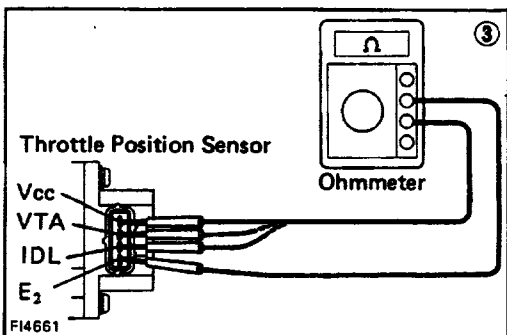
F13877



F13899



F13898



F14661

#### • IDL - EZ (E21)

(1) There is no voltage between ECM terminals IDL and E2 (E21).  
(IG SW ON) (Throttle valve open)

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

NO

Refer to No. 1.

BAD

Replace or repair.

OK

Check wiring between ECM terminal E, and body  
ground.

OK

OK

BAD

BAD

Replace or repair.

(3) Check throttle position sensor.

BAD

Replace or repair throttle  
position sensor.

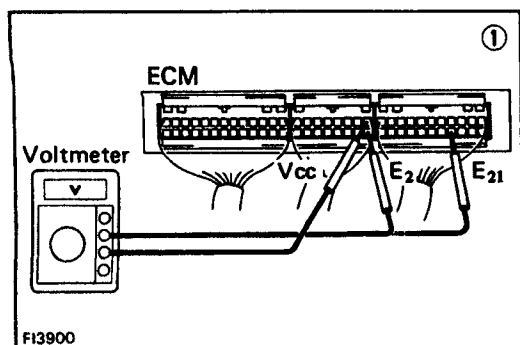
OK

Check wiring between ECM and  
throttle position sensor.

OK

Try another ECM.





### • FCC - EZ (Et1)

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

Check that there is voltage between ECM terminals +B (+ B1) and E1 (IG SW ON)

OK

(2) Check throttle position sensor.

BAD

Repair or replace.

OK

Check wiring between ECM and throttle position sensor.

OK

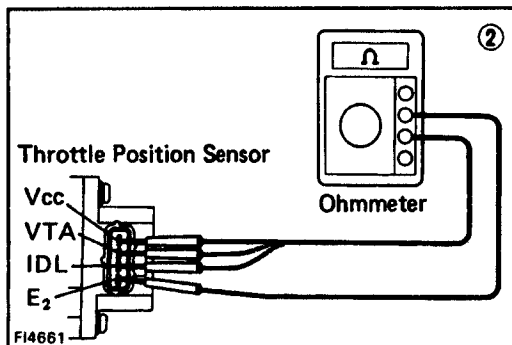
Try another ECM.

NO

Refer to No. 11.

BAD

Repair or replace wiring.



### • VTA - E2 (E21)

(1) There is no voltage between ECM terminals VTA and E2 (E20. (IG SW ON)

(2) Check that there is voltage between ECM terminals FCC and E2 (E20. (IG SW ON)

OK

NO

Perform inspection of FCC - Et (E21).

(3) Check throttle position sensor.

BAD

Repair or replace.

OK

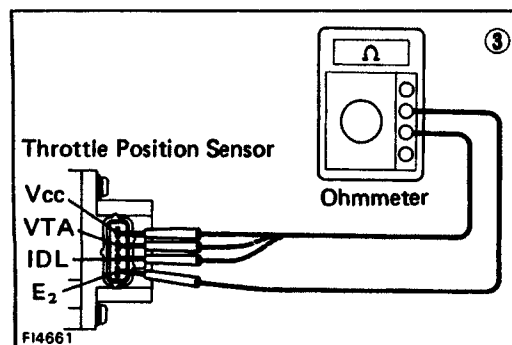
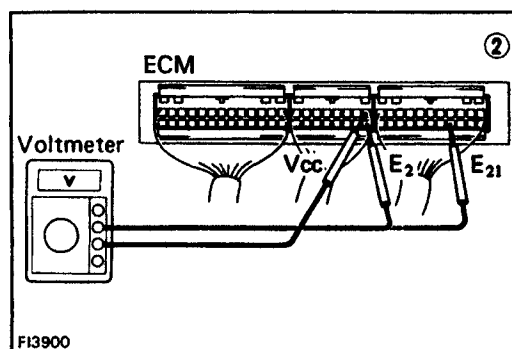
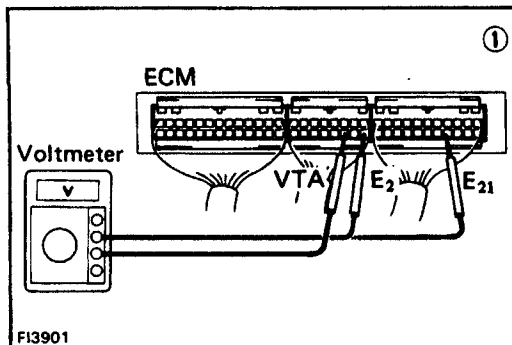
Check wiring between ECM and throttle position sensor.

BAD

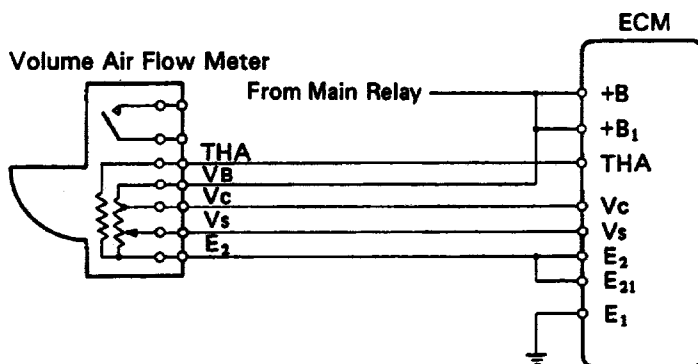
Repair or replace.

OK

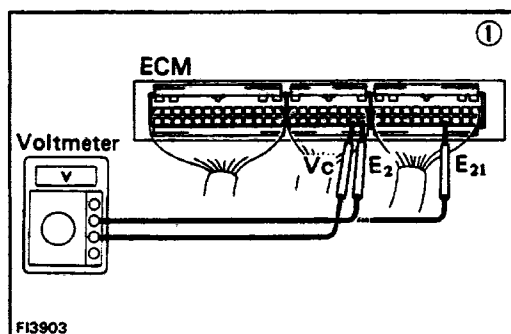
Try another ECM.



No.	Terminal:	Trouble	Condition		STD Voltage
3	Vc – E <sub>2</sub> (E <sub>21</sub> )	No voltage	Ignition switch ON	–	6 – 10 V
	Measuring plate fully dosed			0.5 – 2.5 V	
	Measuring plate fully open			5 – 10 V	
	Idling		2 – 8 V		
	THA – E <sub>2</sub> (E <sub>21</sub> )		Ignition –switch ON	Intake air temperature 20° C (68° F)	0.5 – 3.4 V



FI3881



FI3903

#### • Vc - E<sub>2</sub> (E<sub>21</sub>)

(1) There is no voltage between ECM terminals Vc and E<sub>2</sub> (E<sub>21</sub>) (IG SW ON)

(2) Check that there is voltage between ECM terminals + B (+ B<sub>1</sub>) and E<sub>1</sub>. (IG SW ON)

OK

NO

(3) Check volume air flow meter.

Refer to No. 1.

BAD

OK

Replace or repair volume air flow meter.

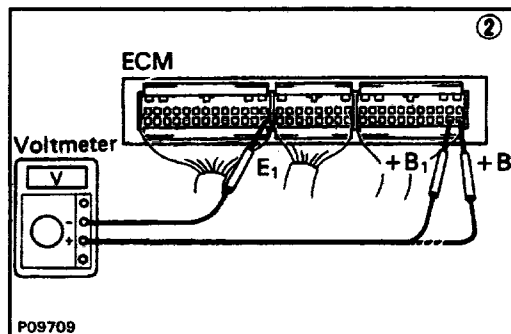
Check wiring between ECM and volume air flow meter.

OK

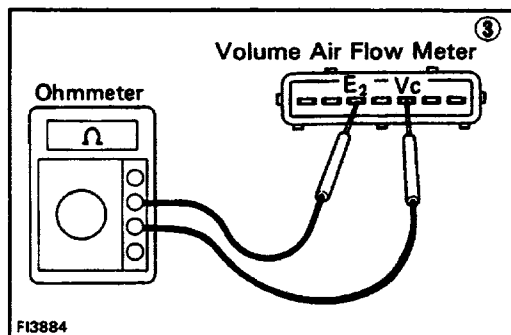
BAD

Try another ECM.

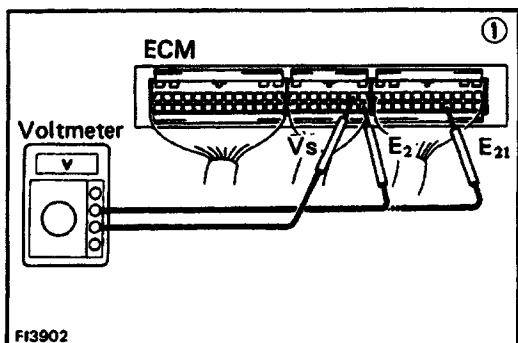
Replace or repair wiring.



P09709



FI3884



### • Vs - E2 (E21)

(1) There is no voltage between ECM terminals Vs and E2 (E21) (IG SW ON)

(2) Check that there is voltage between ECM terminals Vc and E2 (E21). (IG SW ON)

OK NO

Refer to FCC - E2 (E21).

BAD

Repair or replace.

(3) Check volume air flow meter.

BAD

Repair or replace.

OK

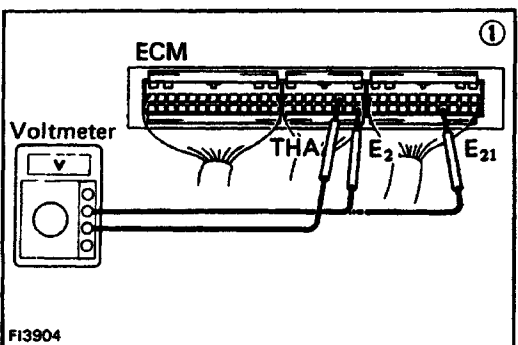
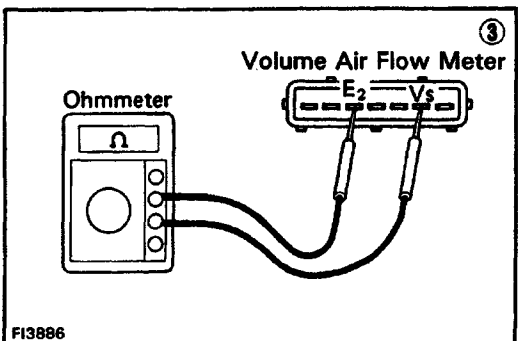
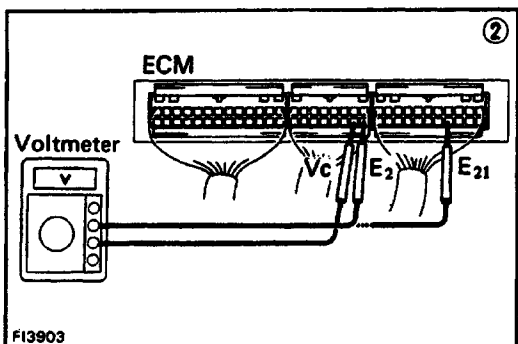
Check wiring between ECM and volume air flow meter.

BAD

Repair or replace.

OK

Try another ECM.



### • THA - E2 (E21)

(1) There is no voltage between ECM terminals THA and E2 (E21). (IG SW ON)

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

OK

(2) Check intake air temp. sensor.

BAD

Replace volume air flow meter.

OK

Check wiring between ECM and intake air temp. sensor.

OK

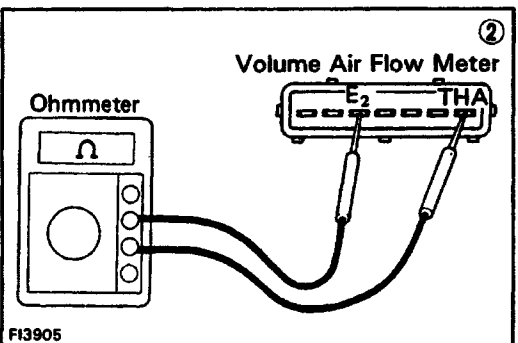
Try another ECM.

NO

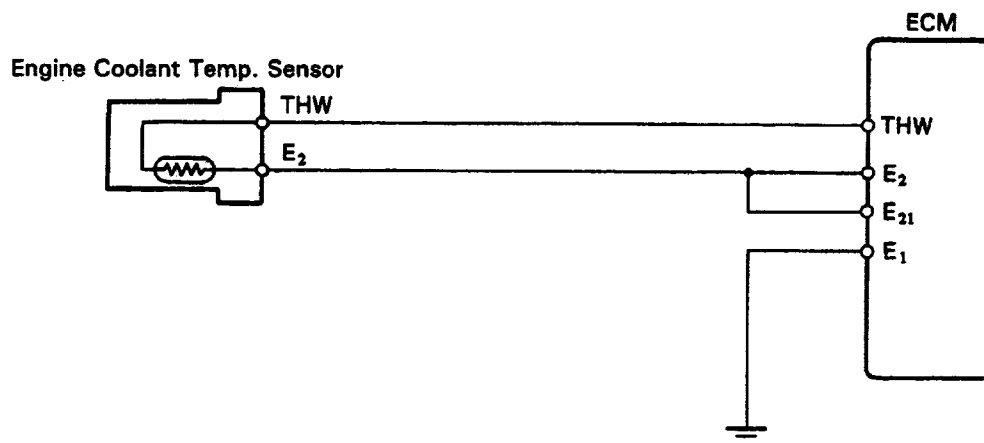
Refer to No. 1.

BAD

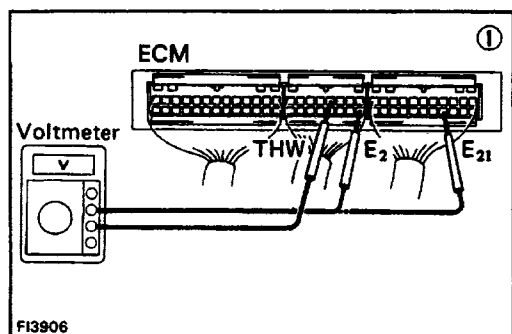
Repair or replace wiring.



No.	Terminal	Trouble	Condition		STD Voltage
4	THW - E <sub>2</sub> (E <sub>21</sub> )	No Voltage	Ignition switch ON	Coolant temperature 80°C (176°F)	0.2 - 1.0 V



FI5971



FI3906

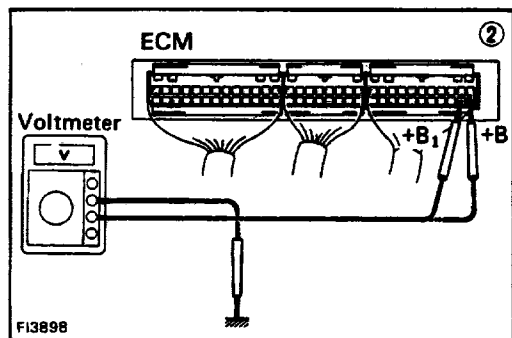
(1) There is no voltage between ECM terminals THW and EZ (E<sub>21</sub>-IG SW ON)

(2) Check that there is voltage between ECM terminal + B 1 (+ B1) and body ground. (IG SW ON)

OK

NO

Refer to No. 1.



FI3898

Check wiring between ECM terminal E, and body ground.

OK

BAD

(3) Check engine coolant temp. sensor.

Repair or replace.

BAD

OK

Replace engine coolant temp. sensor.

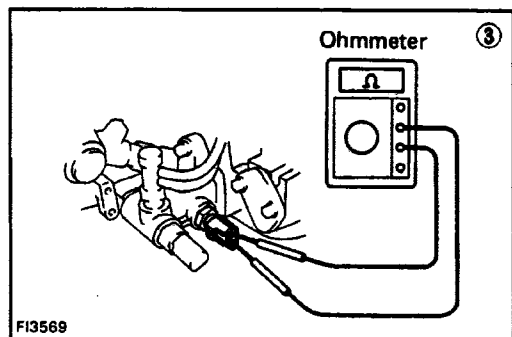
Check wiring between ECM and engine coolant temp. sensor.

OK

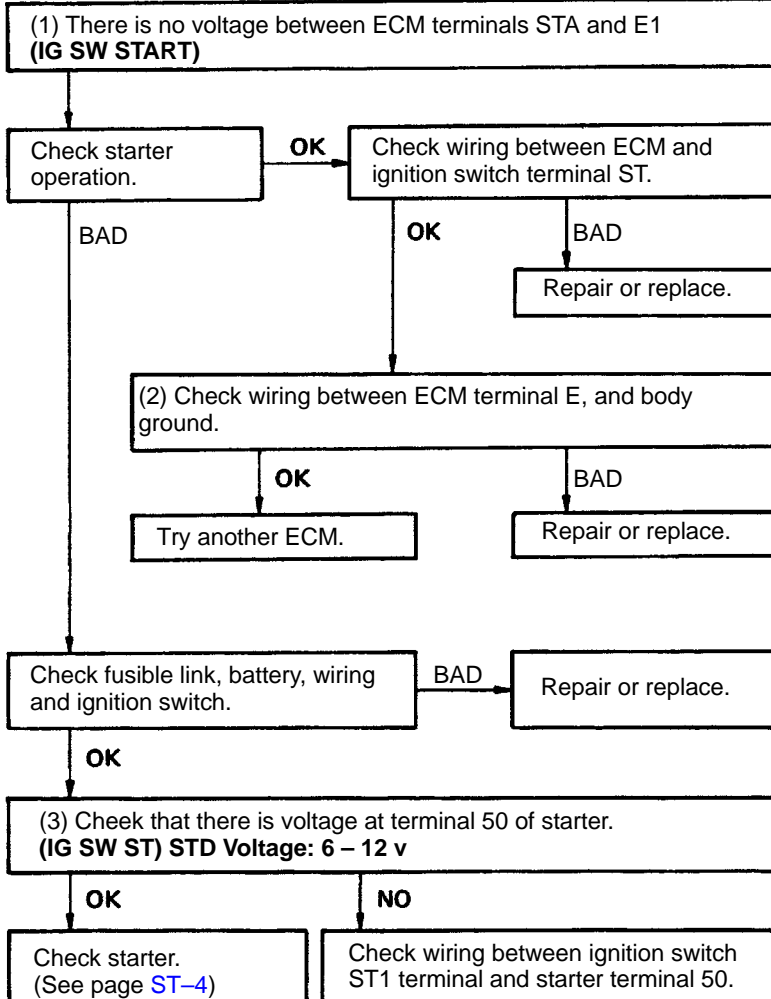
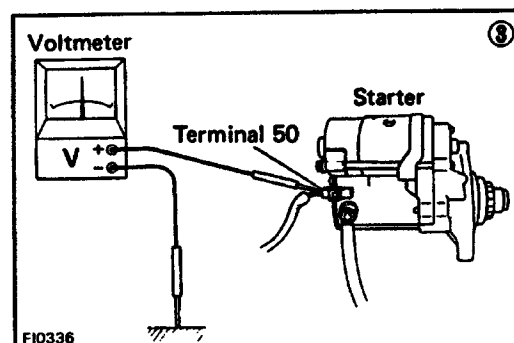
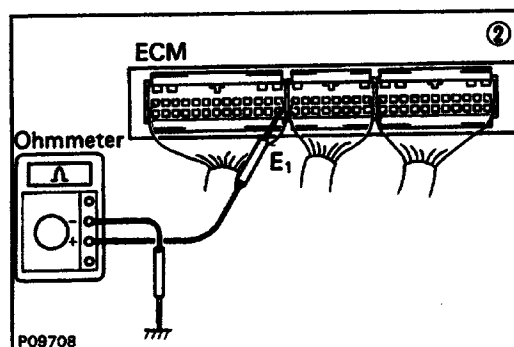
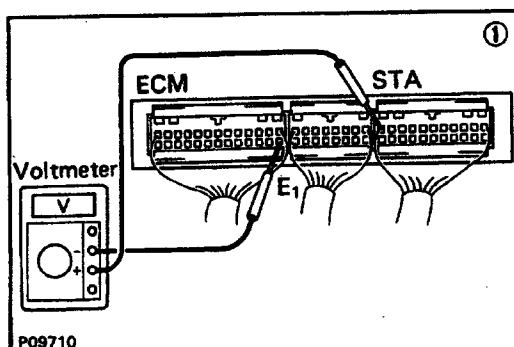
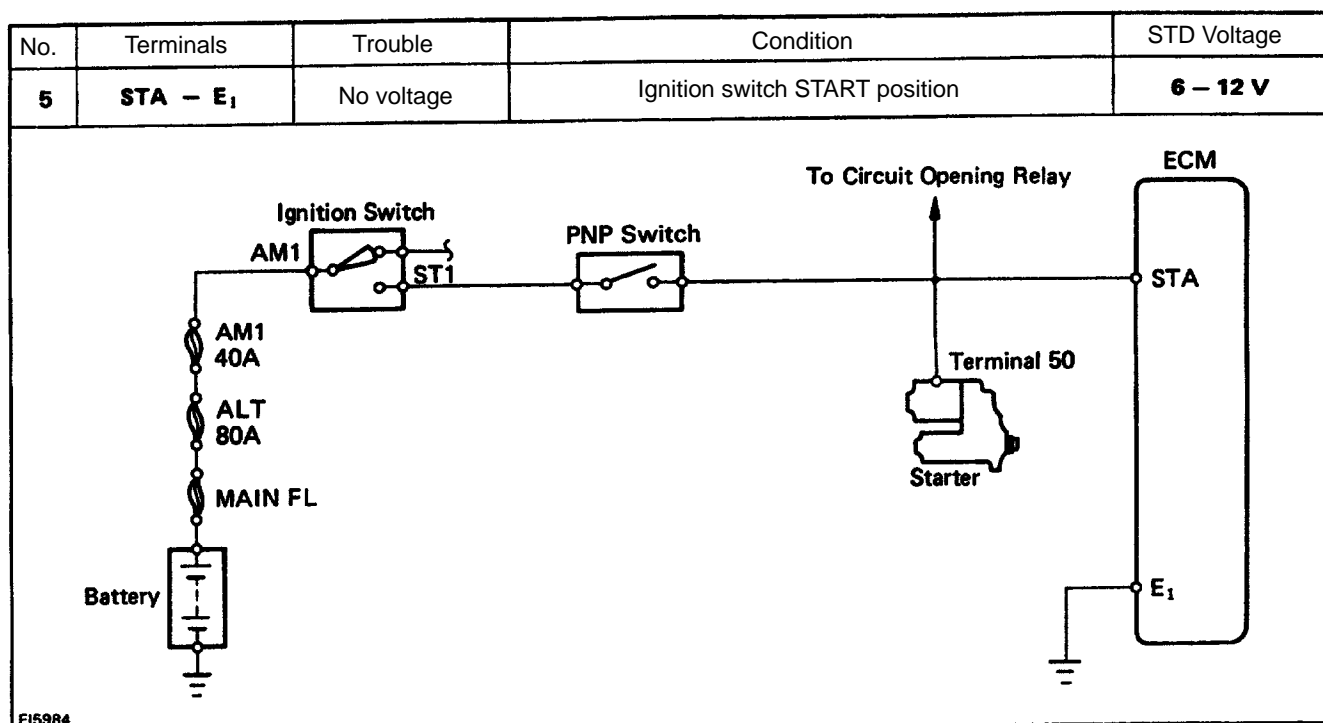
BAD

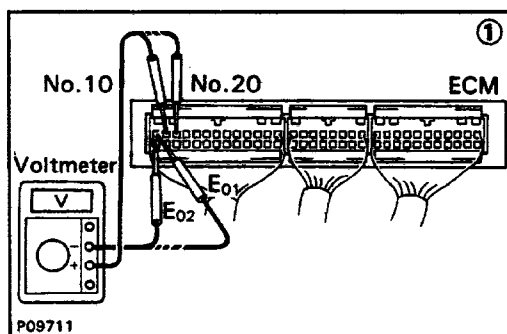
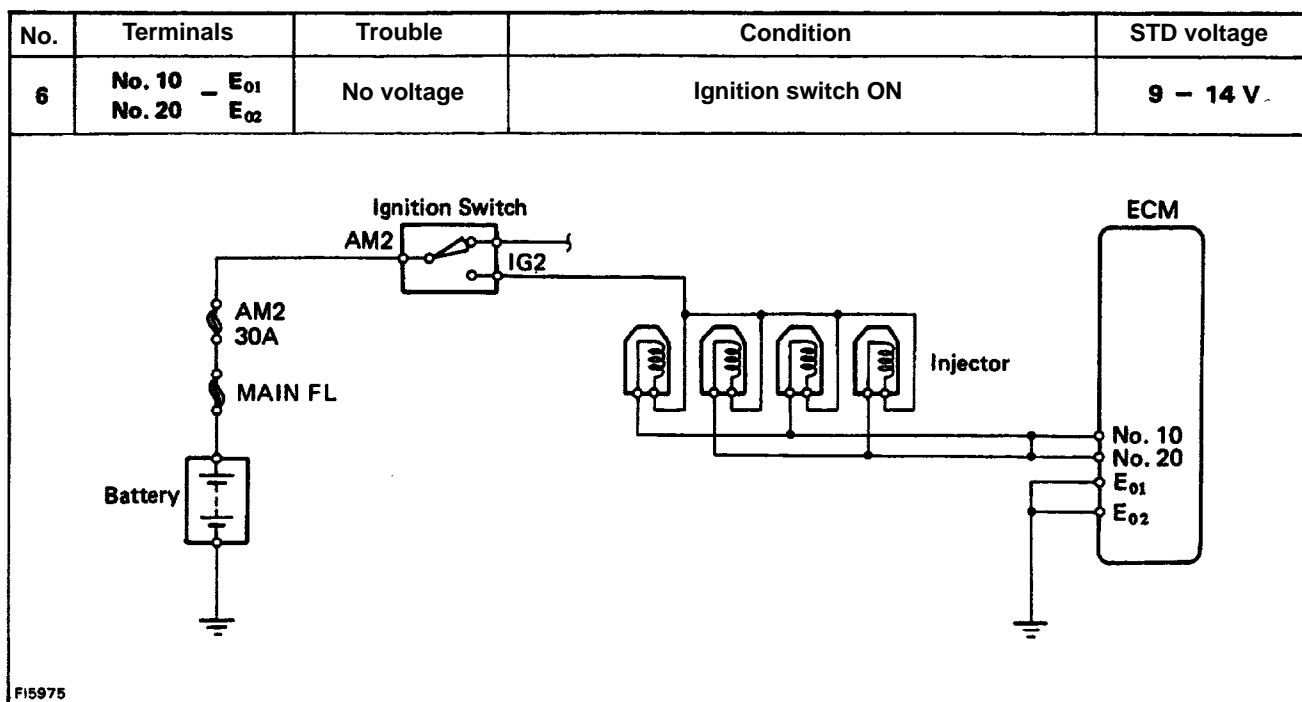
Try another ECM.

Repair or replace.



FI3569





(1) There is no voltage between ECM terminals No. 10 and/or No. 20 and E<sub>01</sub> and/or E<sub>02</sub> - (IG SW ON)

(2) Check that there is voltage between ECM terminal No. 10 and/or No. 20 and body ground.

NO

OK

Check wiring between ECM terminal E<sub>01</sub> and/or E<sub>02</sub> 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 magnetic coil in each injector.  
STD resistance: 13.4 - 14.2Ω

OK

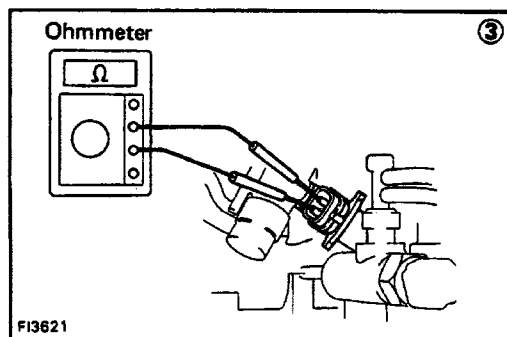
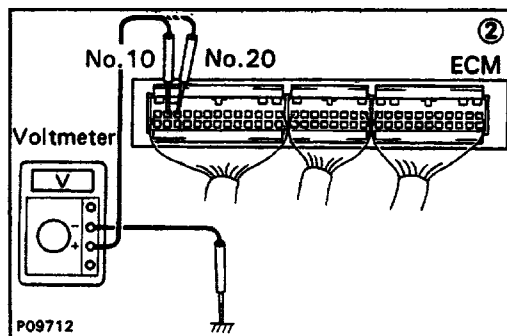
NO

Replace injector.

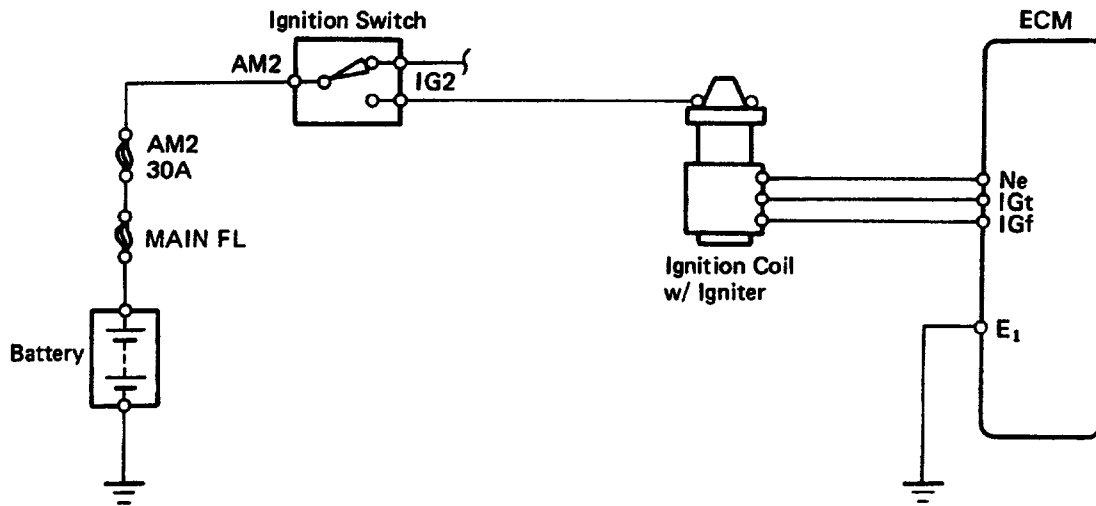
Check wiring between ECM terminal No. 10 and/or No. 20 and battery.

BAD

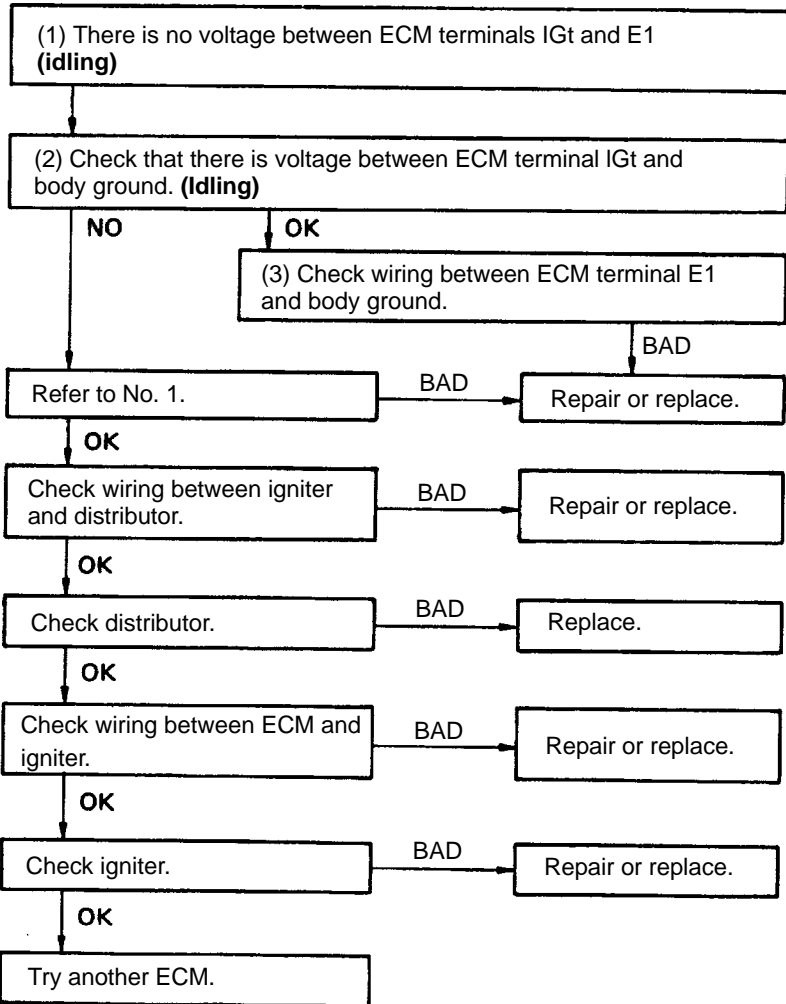
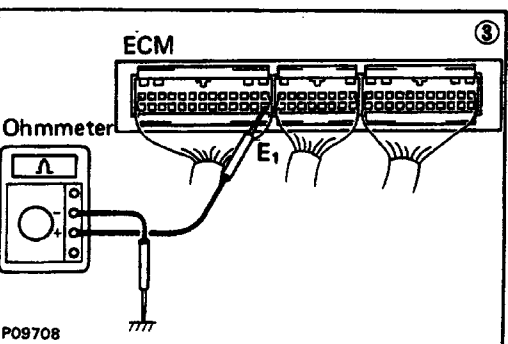
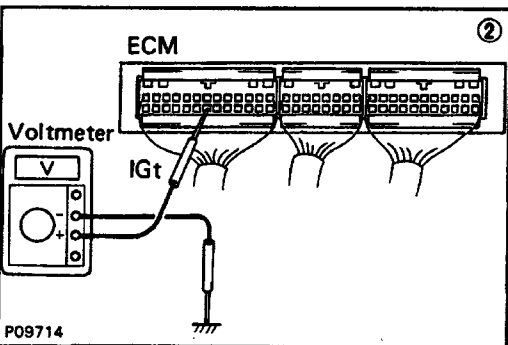
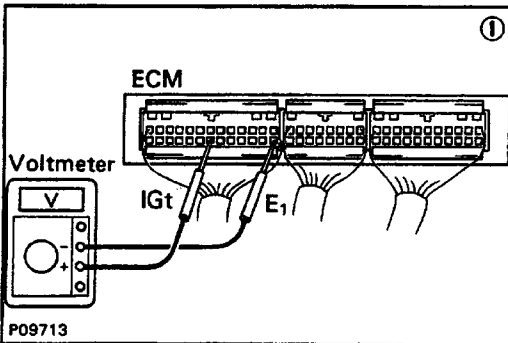
Repair or replace.

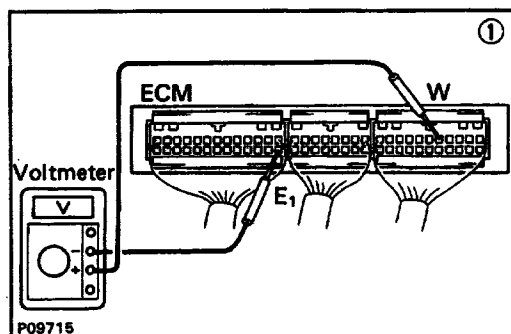
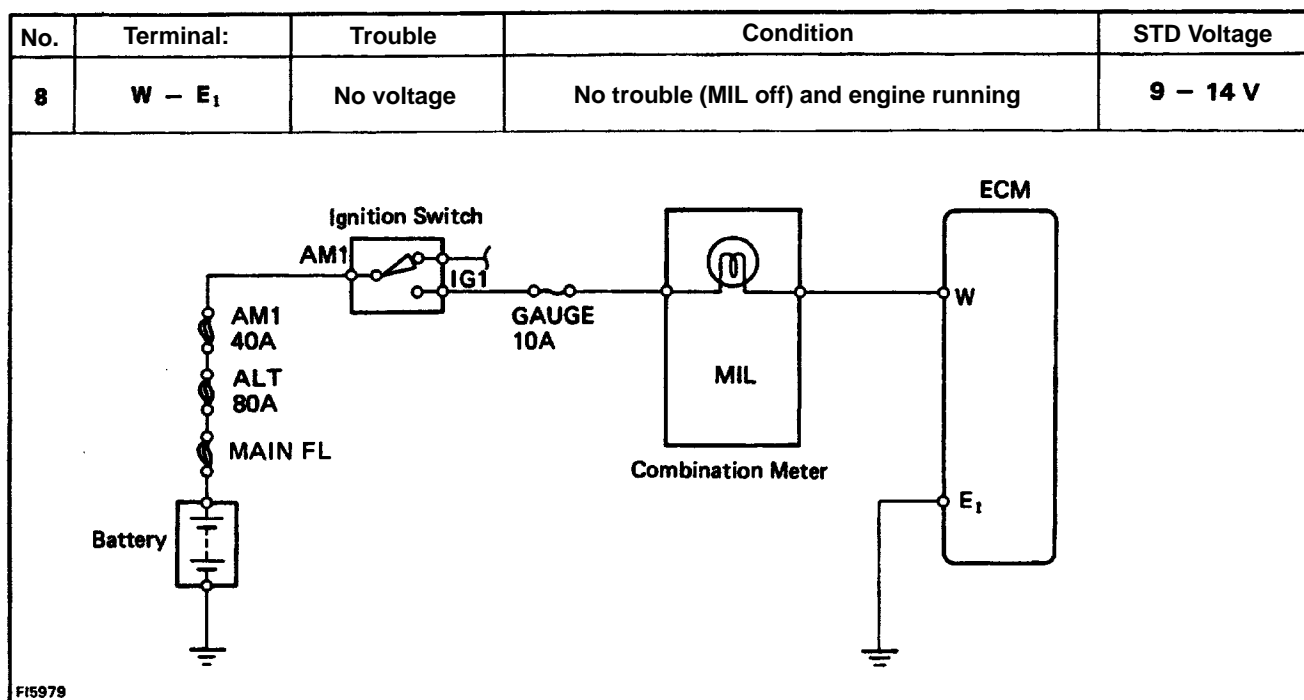


No.	Terminals	Trouble	Condition	STD Vol tage
7	IGt - E <sub>1</sub>	No voltage	Idling	0.7 - 1.0 V



F15977





(1) There is no voltage between ECM terminals W and E<sub>1</sub> (idling)

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

NO

OK

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

OK

BAD

Try another ECM.

Repair or replace.

Check GAUGE fuse (10 A) and MIL.

OK

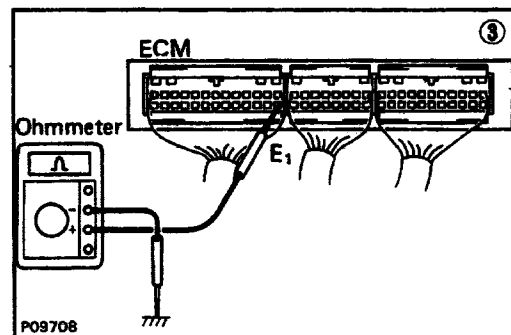
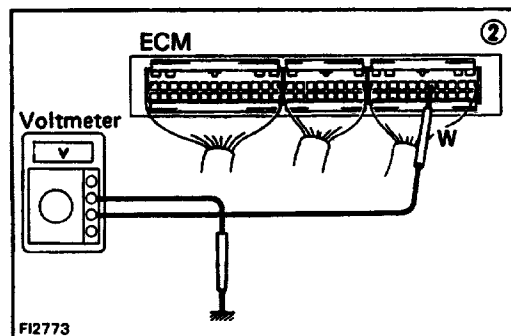
BAD

Repair or replace.

Fuse blows again  
ECM BAD

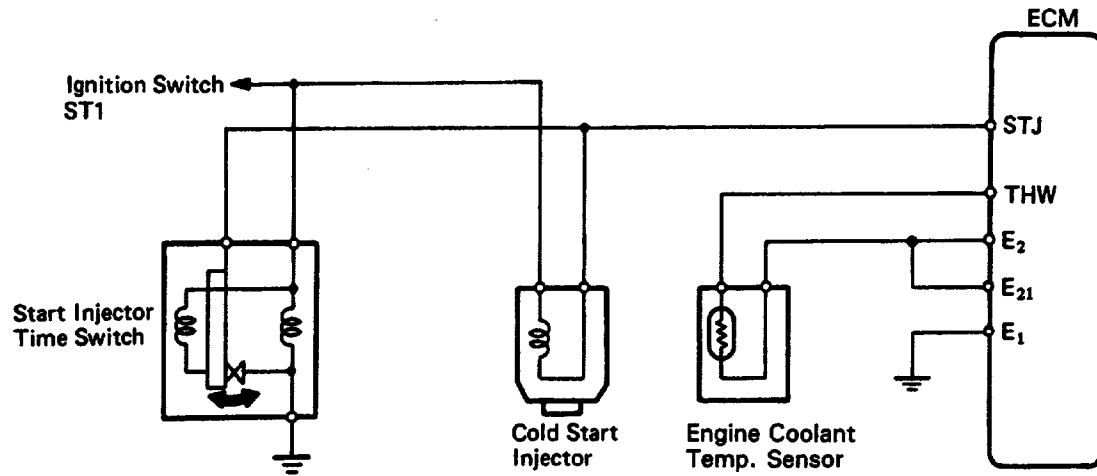
Check wiring between ECM terminal W and fuse.

Repair or replace.

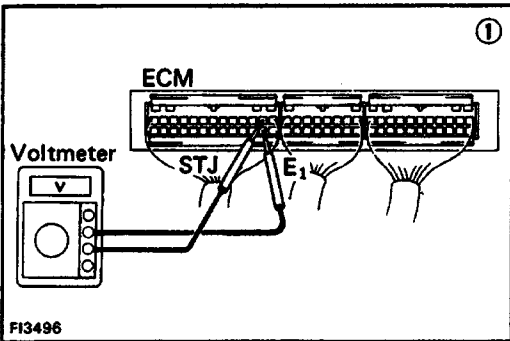




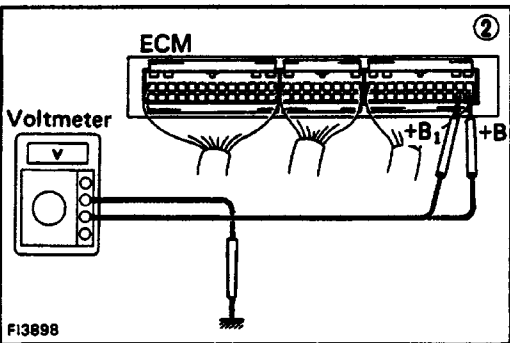
No.	Terminal	Trouble	Condition		STD Voltage
9	STJ - E <sub>1</sub>	No voltage	Ignition switch START position	Coolant temperature 80°C (176°F)	6 - 12 V



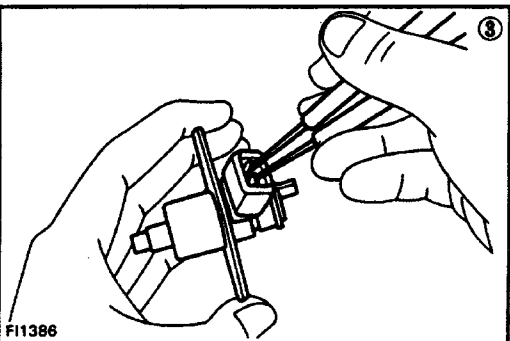
F13893



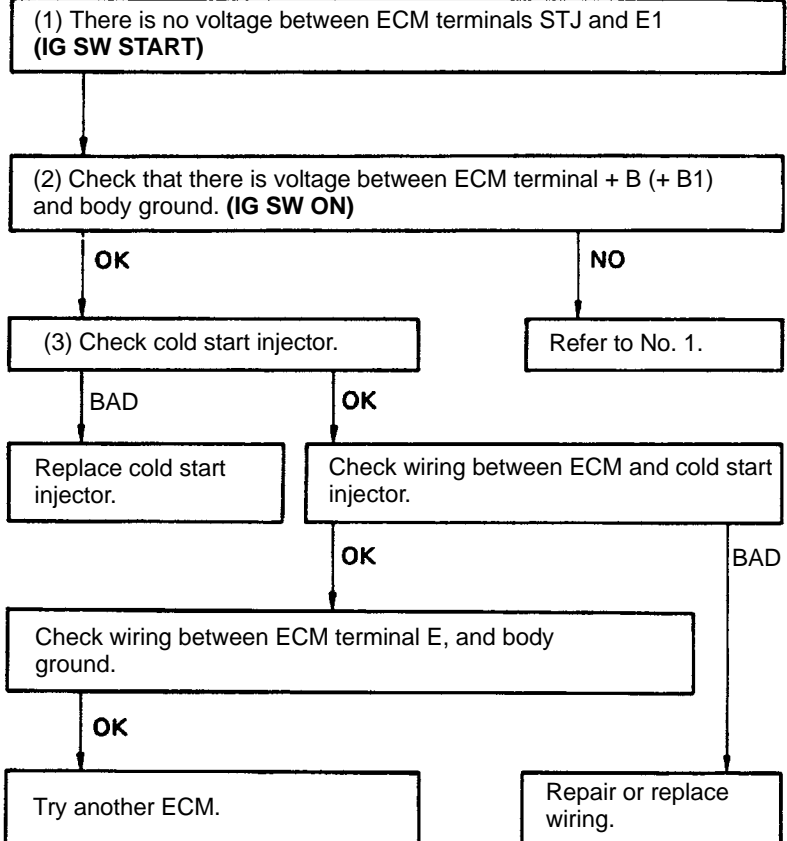
F13496



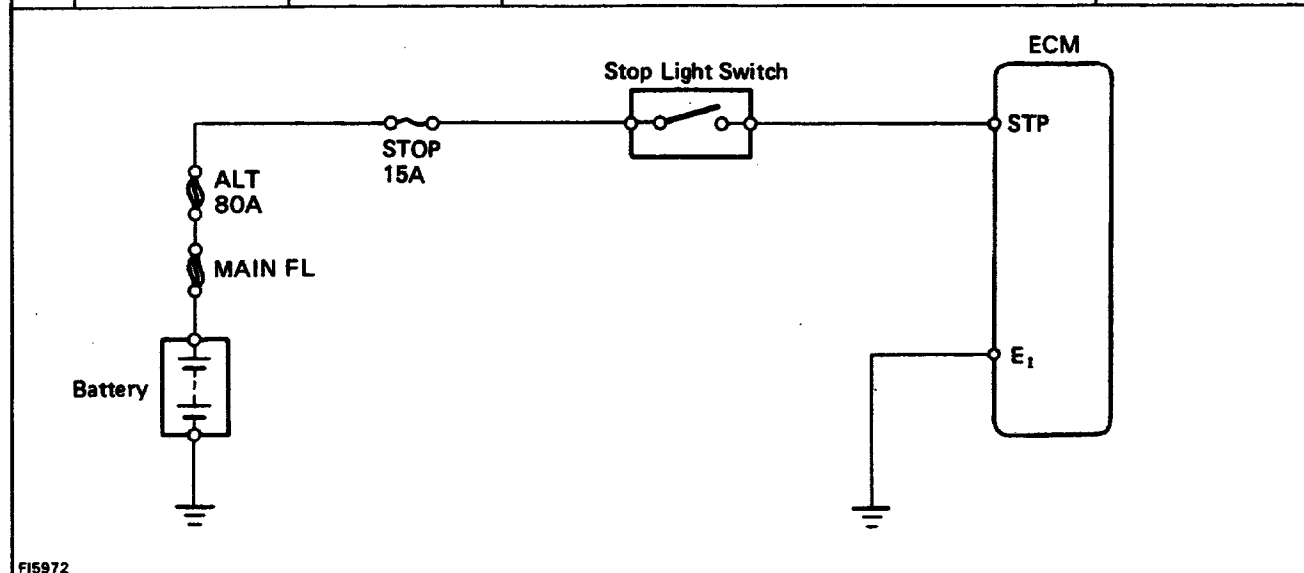
F13898



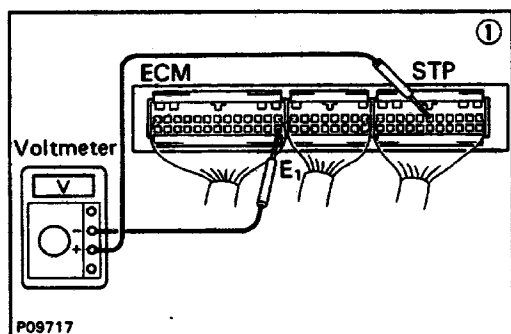
F11386



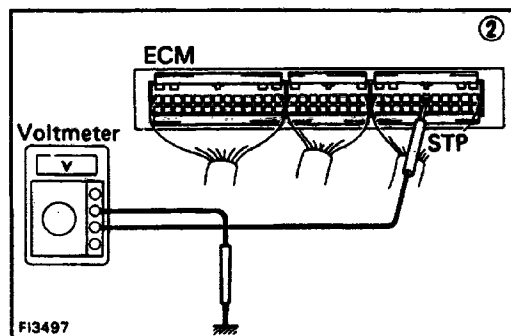
No.	Terminals	Trouble	Condition	STD Voltage
10	STP - E <sub>1</sub>	No voltage	Stop light switch ON	7.5 - 14 V



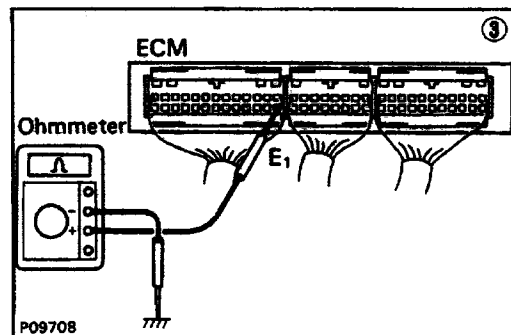
FI5972



P09717



FI3497



P09708

(1) There is no voltage between ECM terminals STP and E<sub>1</sub>.

(2) Check that there is voltage between ECM terminal STP and body ground when the brake pedal is depressed.

NO

OK

(3) Check wiring between ECM terminal E<sub>1</sub> and body ground.

OK

BAD

Try another ECM.

Repair or replace.

Check STOP fuse (15A) and stop light switch.

BAD

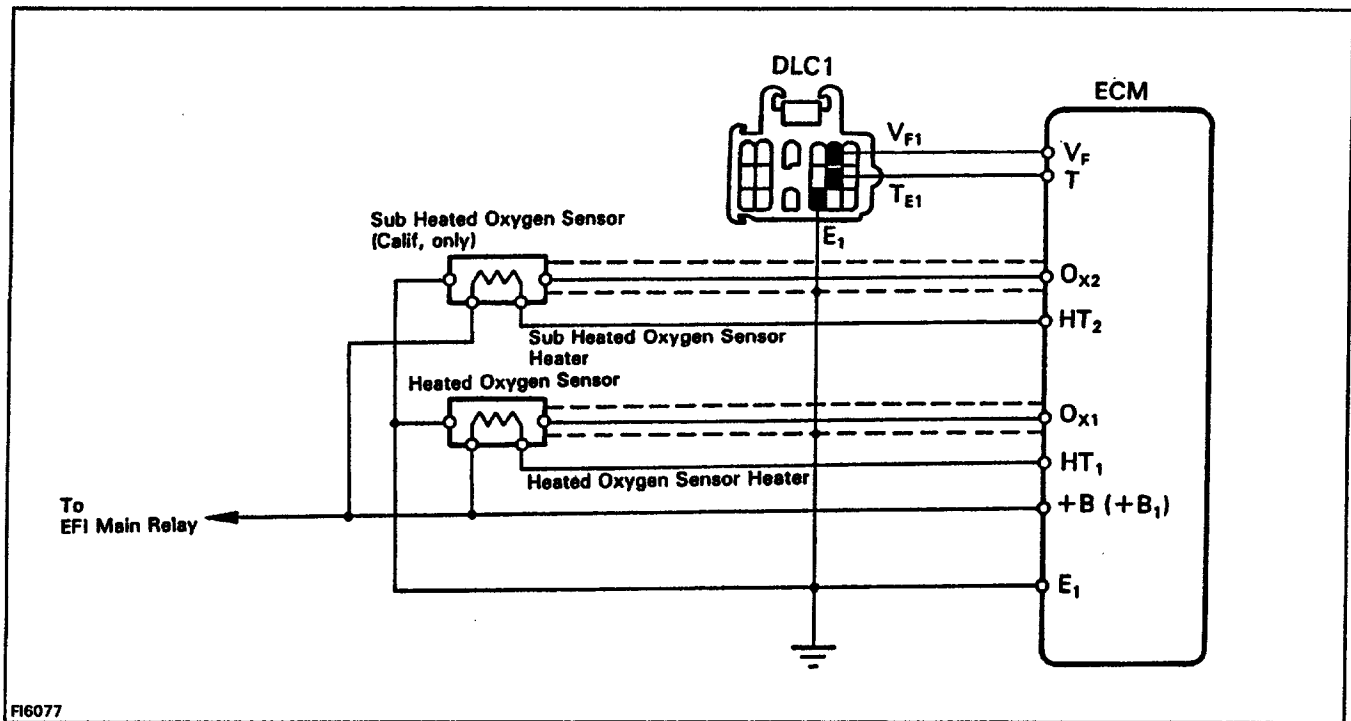
Repair or replace.

OK

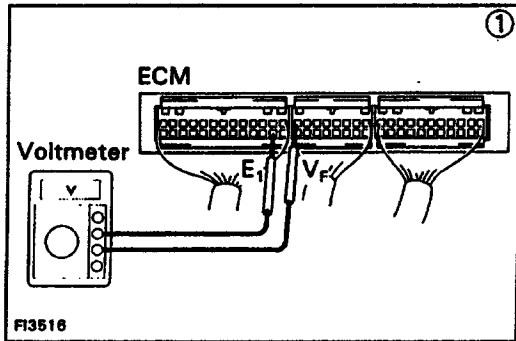
Check wiring between ECM terminal STP and battery.

BAD

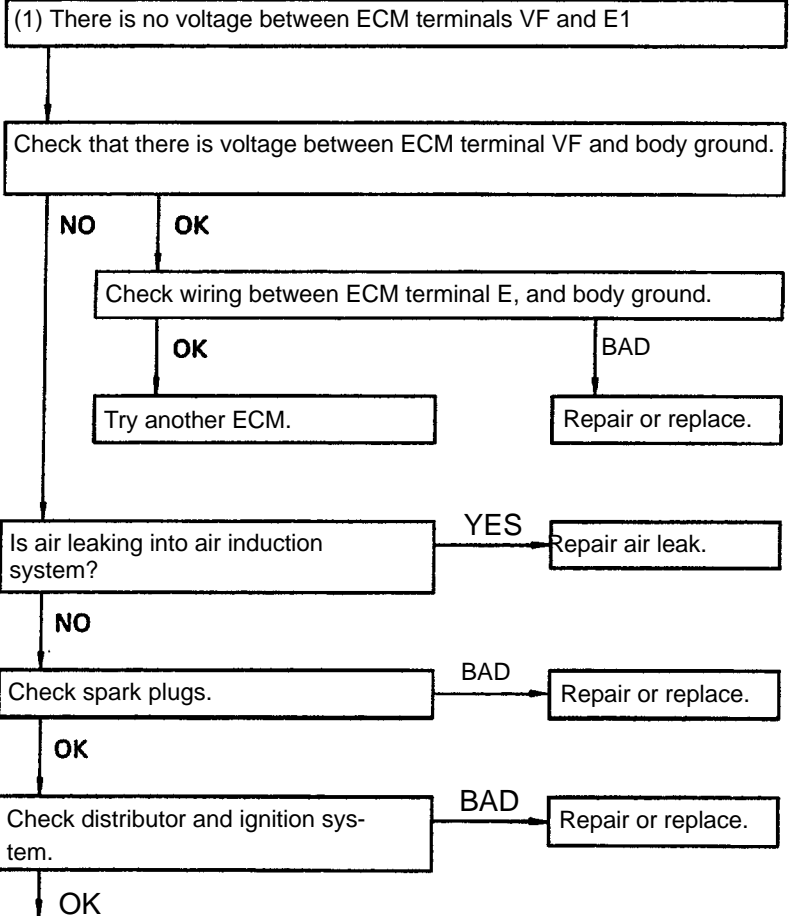
Repair or replace.



F16077



F13516

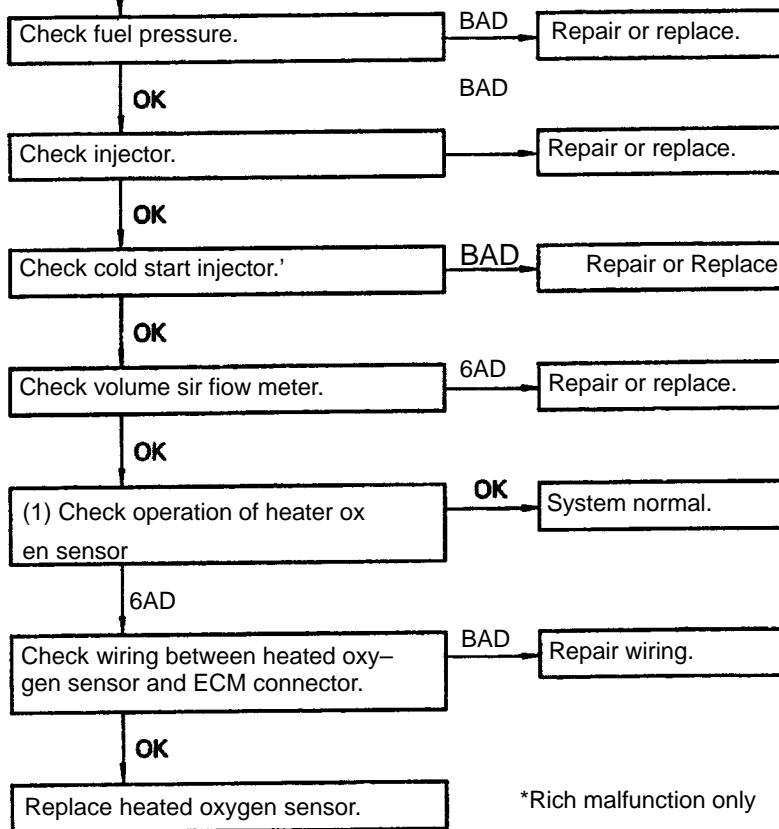


CONTINUED ON PAGE  
EG1-160

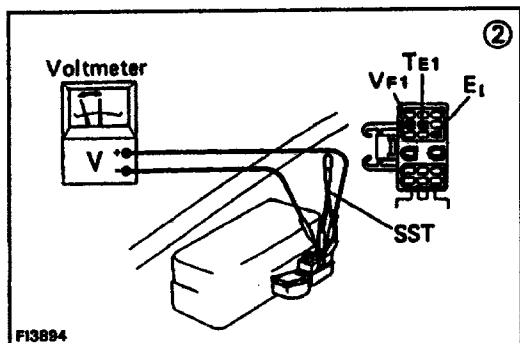
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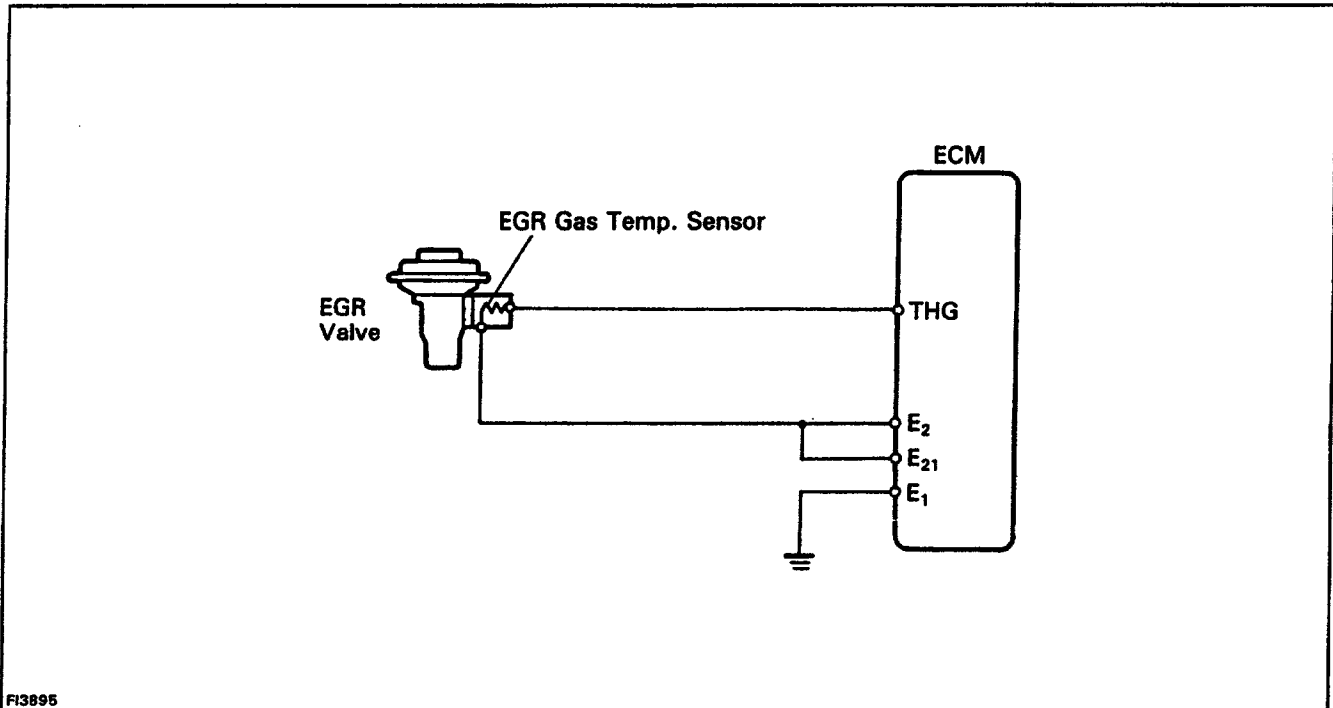
EG1-159

OK

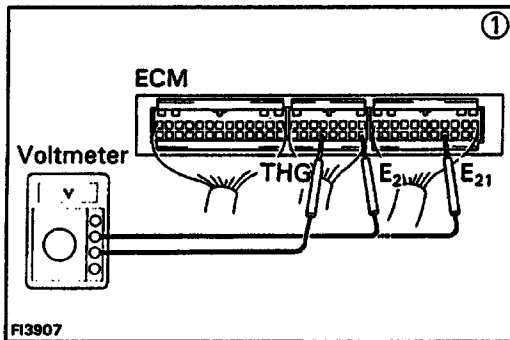


\*Rich malfunction only

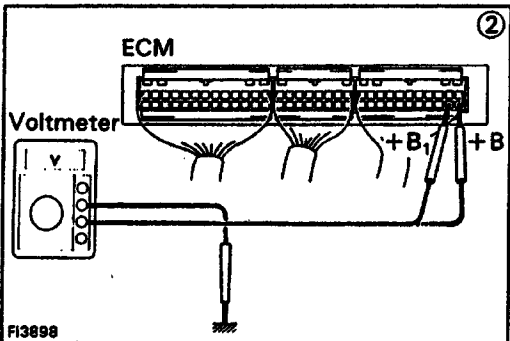




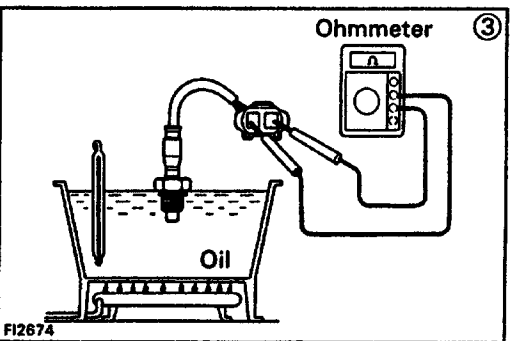
FI3895



FI3907



FI3898



FI2674

