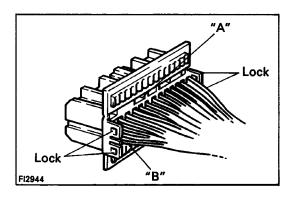
### **Electronic Control Module (ECM) INSPECTION OF ECM**

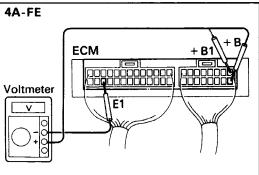
HINT: The MR and SFI circuit can be checked by measuring the resistance and voltage at the wiring connectors of the ECM.



#### 1. 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.



# 3S-GTE and 5S-FE (A/T) **ECM** Voltmeter +B15S-FE (M/T) **ECM** Voltmeter

FI4253 FI2911 P01340

#### 2. INSPECT VOLTAGE OF ECM

Check the voltage between each terminal of the wiring connectors.

- Turn the ignition switch ON.
- Measure the voltage at each terminal.

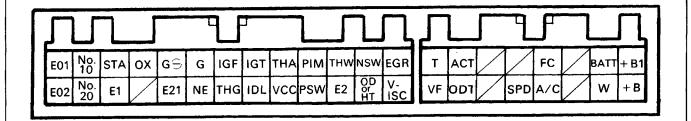
#### HINT:

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

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

Terminals		STD voltage (V)					
+B + B1 – E1	IG SW ON	10–14					
BATT – E 1		10–14					
I D L – E2	- IG SW ON	Throttle valve open	10–14				
PSW – E2	IG SW ON	Throttle valve fully closed	10–14				
PIM-E2		3.3–3.9					
VCC – E2	IG SW ON	4.5–5.5					
No.10 E01 No.20 E02			10–14				
THA – E2	IG SW ON	Intake air temp. 20°C (68°F)	1 –3				
THW – E2	IG SW ON	Engine coolant temp. 80°C (176°F)	0.1 –1.0				
STA – E1	Cranking	6–14					
IGT – E1	Cranking or idling		0.7–1.0				
W – E1	No trouble (Malfunction	n indicator– lamp off) and engine running	10–14				
A/C – E1		Air conditioning ON	8–14				
ACT – E1		Heater blower SW ON	4–6				
T – E1	IG SW ON	Data link connector 1 TE1 – E1 not connected	10–14				
1-51	I IG SVV OIN	Data link connector 1 TE1 – E1 connected	0.5 or less				
NSW – E1		Park/Neutral position switch P or N position	0 – 2				
INOVV — ET		Ex. park/neutral position switch P or N position	6–14				
V-ISC - E1	V–ISC – E1 Cranking for ten seconds after starting						

#### **ECM Terminals**



FI4266

### **Voltage at ECM Wiring Connectors (3S-GTE)**

Terminals	Terminals Condition							
+B – E1 + B1	IG SW ON		10–14					
BATT – E 1		-	10–14					
I D L – E2		Throttle valve open						
VTA – E2		Throttle valve fully closed (Throttle opener must be cancelled first)						
V IA – E2	IG SW ON	Throttle valve fully open	3.2–4.2					
VC – E2	10 000 010	_	4.5–5.5					
		Measuring plate fully closed	3.7–4.3					
		0.2-0.5						
VS – E2	Idling	Idling						
	3,000 rpm		1.0-2.0					
No. 1 No. 2 _ E01 No. 3 E02 No. 4	IG SW ON		10–14					
THA – E2		Intake air temp. 20°C (68°F)	1 –3					
THW – E2	IG SW ON	Engine coolant temp. 80°C (176°F)	0.1 –1.1					
STA – E1	Cranking		6–14					
IGT – E1	Cranking or idlir	ng	0.8–1.2					
RSC_ E1 RSO	IG SW ON	ECM connectors disconnected	8–14					
W–EI	No trouble (mal	function indicator lamp off) and engine running	10–14					
PIM – E2	IG SW ON		2.5–4.5					
AC -E1		Air conditioning ON	8–14					
*1 TVIS – E1	[G SW ON	Throttle valve fully closed	2.0 or less					
1 113 – E1		Throttle valve open	10–14					
*2 TVIS – E1	Idling		2.0 or less					
1 110 - E1	4,200 rpm or mo	ore	10–14					
TE4 E4	IC SW ON	Data link connector 1 TE1 – E1 not connected	10–14					
TE1 – E1	IG SW ON	Data link connector 1 TE1 – E1 connected	0.5 or less					

**ECM Terminals** 

\*1 w/ Regular Unleaded Gasoline \*2 w/ Premium Unleaded Gasoline

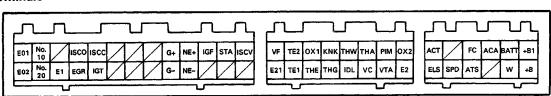
w	ղ	P		M	r L			٦	F			Ŋ	<u>L</u>	ľ		 	d)				ער	U
E01 No.1No.2 RSO RSC	HT STJ EG	R G2 NE	IGF	TPC TVIS	VF		ОХ	PIM	THW	THA	vs	VC	STA	AC	SPD	ATS	FPR	W	STP	$\angle$	ELS	ATT
E02 No.3 No.4	IGT	G1 G⊝		E1	$\mathbb{Z}$	TE1	TE2	KNK	IDL	VTA	THG	E2		ACT						FC	+B1	+B

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### **Voltage at ECM Wiring Connectors (5S-FE)**

Terminals		STD voltage (V)							
+B – E1 + B1	IG SW ON	IG SW ON							
BATT – E1		_							
IDL – E2		Throttle valve open							
VTA – E2	IG SW ON Throttle valve fully closed (Throttle opener must be cancelled first)		0.8 – 1.2						
		Throttle valve fully open	3.2 – 4.2						
PIM-E2		3.3 – 3.9							
VC – E2	IG SW ON	4.5 – 5.5							
No. 10 E01 No. 20 E02	IG SW ON		10 – 14						
THA – E2	IC CIM ON	Intake air temp. 20°C (68°F)	1.9 – 2.9						
THW – E2	IG SW ON	Engine coolant temp. 80°C (176°F)	0.1 –1.1						
STA – E1	Cranking	6 –14							
IGT – E1	Cranking or idling	0.8 – 1.2							
ISCC - E1	IGSWON	ECM connectors disconnected	8 –14						
W–EI	No trouble (malfunctio	n indicator lamp off) and engine running	10 – 14						
A/C – E1		Air conditioning ON	8 –14						
ACT – E1		Air conditioning ON	4.5 – 5.5						
ACA – E1		Air conditioning ON	2 or less						
TE4 E4	IG SW ON	Data link connector 1 TE1 – E1 not connected	10–14						
TE1 – E1		Data link connector 1 TE1 – E1 connected	1 or less						
NSW – E1		Park/Neutral position switch P or N position	0-2						
N244 - E1		Ex. park/neutral position switch P or N position	6 –14						
B/ K – E1	Stop light SW ON (Bra	ke pedal depressed)	10 –14						

#### **ECM Terminals**

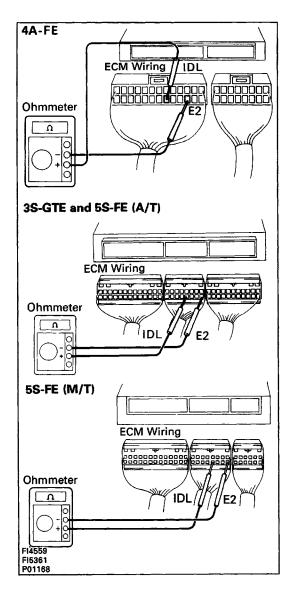


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#### **ECM Terminals**

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	01	No.		No. 20	isco	ISC	c	/	ISCV	2	NE-	NE+	IGF	S1	SL	VF	П	OX1	OX2	THW	THA	PIM	vcc	STA		SPD	ACA	OD2	$\angle$	w	B/K	THE	ELS	BATT
Œ	02	_	1	<u> </u>	EGR	Р		/	IGT	L	G+	G-	SP2	S2	E1	E21	TE1	TE2	KNK	IDL	VTA	THG	E2	NSW	ACT	001		$\angle$	$\angle$	$\angle$	ATS	FC	+81	+B

FI2796



### 2. INSPECT RESISTANCE OF ECM

#### **NOTICE:**

- Do not touch the ECM terminals.
- The tester probe should be inserted into the wiring connector from the wiring side.

Check the resistance between each terminal of the wiring connectors.

- Disconnect the connectors from the ECM.
- Measure the resistance at each terminal.

## **Resistance of ECM Wiring Connector (4A-FE)**

I D L – E2  PSW – E2  THA – E2  THW – E2	Throttle valve open  Throttle valve fully closed  Throttle valve fully open  Throttle valve fully closed  Intake air temperature 20°C (68°F)	Infinity  0  0  Infinity  2,000 – 3,000				
PSW – E2 THA – E2 THW – E2	Throttle valve fully open  Throttle valve fully closed  Intake air temperature 20°C (68°F)	0 Infinity				
THA – E2 THW – E2	Throttle valve fully closed Intake air temperature 20°C (68°F)	Infinity				
THA – E2 THW – E2	Intake air temperature 20°C (68°F)					
THW – E2		2,000 – 3,000				
	Ευτών Ισημά Δουσο συστέρων 0000 (4700Ε)	2,000 – 3,000				
	Engine coolant temperature 80°C (176°F)	200–400				
G1 – G (–) NE	Cold	185–265				
E01 No. STA OX E02 No. E1		ACT FC BATT + B' ODT SPDA/C W + B				

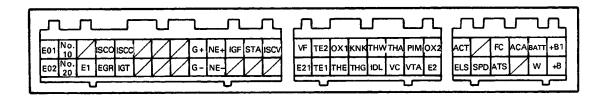
### **Resistance of ECM Wiring Connectors (3S–GTE)**

Terminals	Condition	STD resistance ( $\Omega$ )						
IDI F2	Throttle valve open	Infinity						
IDL – E2	Throttle valve fully closed	2,300 or less						
\/TA	Throttle valve fully open	3,100 – 12,100						
VTA – E2	Throttle valve fully closed	470–6,100						
VC –E2	-	3,900 – 9,000						
	Measuring plate fully closed	200–600						
VS – E2	Measuring plate fully open	20–1,200						
THA – E2	Intake air temp. 20°C (68°F)	2,000 – 3,000						
THW – E2	Engine coolant temp. 80°C (176°F)	200–400						
G1 G2 - G(-)	Cold	125–190						
NE -G(-)	Cold	155–240						
RSC + B RSO + B1	_	19.3–22.3						
ECM Terminals  E01 No. 1 No. 2 RSO RSC HT STJ  E02 No. 3 No. 4 IGT	EGR G2 NE IGF TPC TVIS VF OX PIM THW THA VS VC	STA AC SPD ATS FPR W STP ELS BATT ACT FC +B1 +B						

### Resistance of ECM Wiring Connectors (5S-FE)

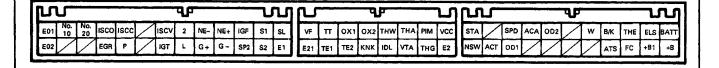
Terminals	Condition	STD resistance (Ω)
	Throttle valve open	Infinity
IDL – E2	Throttle valve fully closed (Throttle opener must be cancelled first)	2,300 or less
	Throttle valve fully open	2,000 – 10,200
VTA – E2	Throttle valve fully closed (Throttle opener must be cancelled first)	200–5,700
VC – E2	_	2,500 – 5,900
THA – E2	Intake air temp. 20°C (68°F)	2,000 – 3,000
THW – E2	Engine coolant temp. 80°C (176°F)	200–400
G+ – G–	Cold	185–265
NE+ – NE–	Cold	370–530
ISCC _ + B ISCO +B I		19.3–22.3

#### **ECM Terminals**



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#### **ECM Terminals**



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