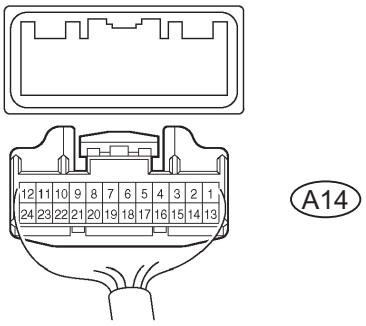
TERMINALS OF ECU

1. INSPECT AIR CONDITIONER AMPLIFIER ASSEMBLY

(a) Disconnect the connector from the air conditioner amplifier assembly and inspect the connector on the wire harness side, as shown in the table below.

Wire Harness Side:



C

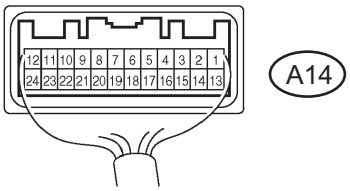
I036518E01

Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	STD Voltages
IG+ (A14-12) - GND (A14-1)	P - W-B	Power source (IG)	Ignition switch: OFF → ON	Below 1.0 → 10 to 14 V
+B (A14-24) - GND (A14-1)	P - W-B	Power source (Back-up)	Always	10 to 14 V
GND (A14-1) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1.0 Ω

If the results are not as specified, inspect the circuits connected to the other parts.

(b) Connect the connector to the air conditioning amplifier assembly and inspect the wire harness side connector from the back side, as shown in the table below.

From Back Side:



AC

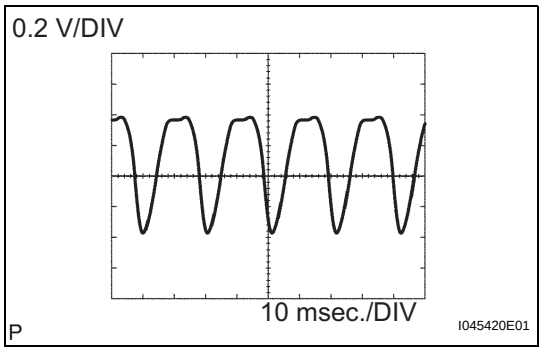
C

I036517E01

Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	STD Voltages
DEF (A14-2) - GND (A14-1)	LG - W-B	Mode switch signal	Ignition switch: ON Mode select switch: Except DEF → DEF	1.0 to 14 → Below 1.0 V
LOCK (A14-6) - SG (A14-3)	R-W - W	Magnet clutch signal	Start engine Operate A/C system Magnet clutch: ON	Pulse generation (See waveform 1)
ACI (A14-9) - GND (A14-1)	G-W - W-B	Idle up request signal	Engine idling Operate A/C system Magnet clutch: OFF → ON	10 to 14 → Below 1.0 V
FRS (A14-10) - GND (A14-1)	V-W - W-B	Recirculation/Fresh switch signal	Ignition switch: ON Recirculation/Fresh switch: RECIRCULATION → FRESH	Below 1.0 → 10 to 14 V

Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	STD Voltages
REC (A14-11) - GND (A14-1)	P-B - W-B	Recirculation/Fresh switch signal	Ignition switch: ON Recirculation/Fresh switch: FRESH → RECIRCULATION	Below 1.0 → 10 to 14 V
MGC (A14-21) - GND (A14-1)	G - W-B	Magnet clutch relay signal	Engine idling Operate A/C system Magnet clutch: OFF → ON	10 to 14 → Below 1.0 V
PRS (A14-5) - GND (A14-1)	O - W-B	A/C pressure sensor signal	Start engine Operate A/C system Refrigerant pressure: Abnormal (More than 3,030 kPa (31.0 kgf/cm^2, 440 psi))	4.7 V or higher
PRS (A14-5) - GND (A14-1)	O - W-B	A/C pressure sensor signal	Start engine Operate A/C system Refrigerant pressure: Abnormal (Less than 186 kPa (1.9 kgf/cm^2, 27 psi))	Below 0.7 V
PRS (A14-5) - GND (A14-11)	O - W-B	A/C pressure sensor signal	Start engine Operate A/C system Refrigerant pressure: Normal (Less than 3,030 kPa (31.0 kgf/cm^2, 440 psi)) and more than 186 kPa (1.9 kgf/cm^2, 27 psi))	0.7 to 4.7 V
TE (A14-4) - GND (A14-1)	B - W-B	A/C evaporator temperature sensor signal	Ignition switch: ON Evaporator temperature: 0 → 15°C (32 → 59°F)	2.0 to 2.4 → 1.4 to 1.8 V
BLRH (A14-23) - GND (A14-1)	G-Y - W-B	Blower switch signal	Ignition switch: ON Blower switch: ON OFF → ON (LO, M1, M2, H1)	0 → 10 to 14 V
ACID (A14-15) - GND (A14-1)	Y - W-B	A/C switch LED signal	Ignition switch: ON Blower switch: ON A/C switch: OFF → ON	10 to 14 → Below 3.0 V
RDEF (A14-16) - GND (A14-1)	L-W - W-B	REC switch LED signal	Ignition switch: ON Blower switch: ON REC switch: OFF → ON	10 to 14 → Below 1.0 V
MR/F (A14-17) - GND (A14-1)	G-B - W-B	REC switch operation signal	Ignition switch: ON REC switch: OFF → ON	4 to 5 → Below 1.0 V
A/C (A14-18) - GND (A14-1)	GR - W-B	A/C switch operation signal	Ignition switch: ON A/C switch: OFF → ON	4 to 5 → Below 1.0 V
GND (A14-1) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1.0 Ω
SG (A14-3) - Body ground	W - Body ground	Ground for A/C evaporator temperature sensor	Always	Below 1.0 Ω
IG (A14-12) - Body ground	P - Body ground	Power source (IG)	Ignition switch: OFF → ON	Below 1.0 → 10 to 14 V
+B (A14-24) - Body ground	R - Body ground	Power source (Back-up)	Always	10 to 14 V

If the results are not as specified, replace the air conditioning amplifier assembly with a new one. If the results are still not as specified after replacing the air conditioning control assembly, inspect the circuits connected to other parts.



(1) WAVEFORM 1:
Magnet clutch signal

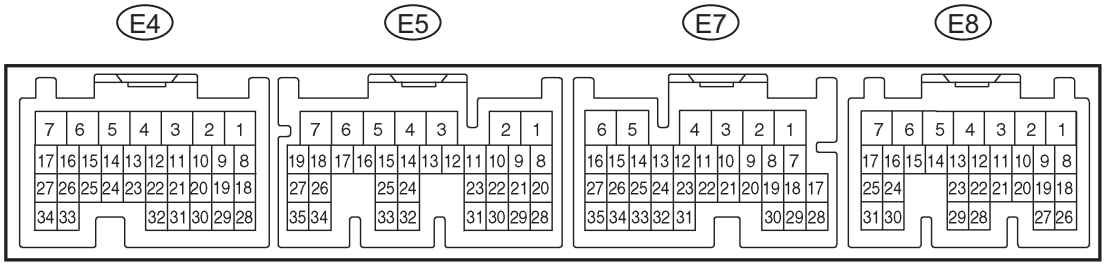
ECM Terminal Names	Between LOCK and SG
Tester Ranges	0.2 V/DIV, 10 msec./DIV
Conditions	Idling

HINT:
The wavelength becomes shorter as the engine rpm increases.

2. Inspect ECM (2TR-FE)

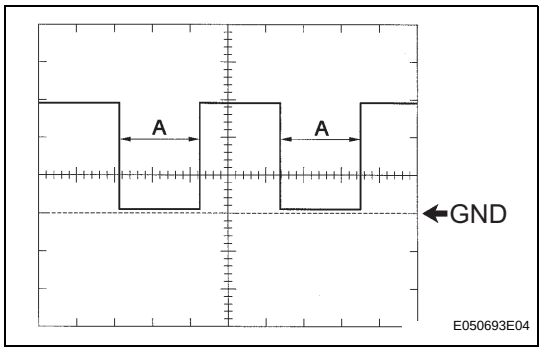
(a) Connect the connector to the ECM and inspect the wire harness side connector from the back side, as shown in the table below.

From Back Side:



Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	STD Voltages
ACT (E7-25) - E1 (E4-3)	L - BR	Magnet clutch ON Permit signal	Start engine Operate A/C system Accelerator pedal: released → depressed	10 to 14 → Below 1.0 V
THWO (E7-14) - E2 (E4-28)	GR-B - BR	Engine coolant temperature sensor signal	Ignition switch: ON	Pulse generation (See waveform 1)
TACH (E7-1) - E1 (E4-3)	B-W - BR	Engine speed signal	Engine idling	Pulse generation (See waveform 2)

AC

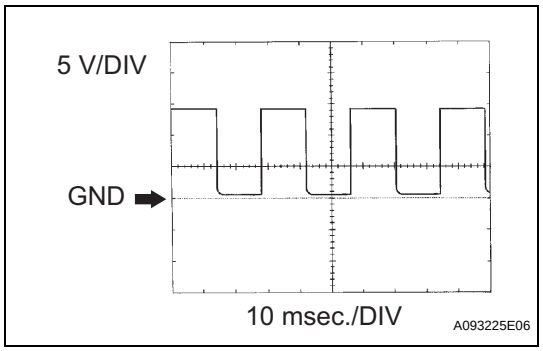


(1) WAVEFORM 1:
Engine coolant temperature sensor signal

ECM Terminal Names	Between THWO and E2
Tester Ranges	5 V/DIV, 0.1 sec./DIV
Conditions	Ignition switch ON

A changes in accordance with the engine coolant temperature.

Coolant Temperature	Below 30°	Approx. 75°C	Above 90°F
A	Approx. 16 ms	Approx. 204 ms	Approx. 262 ms



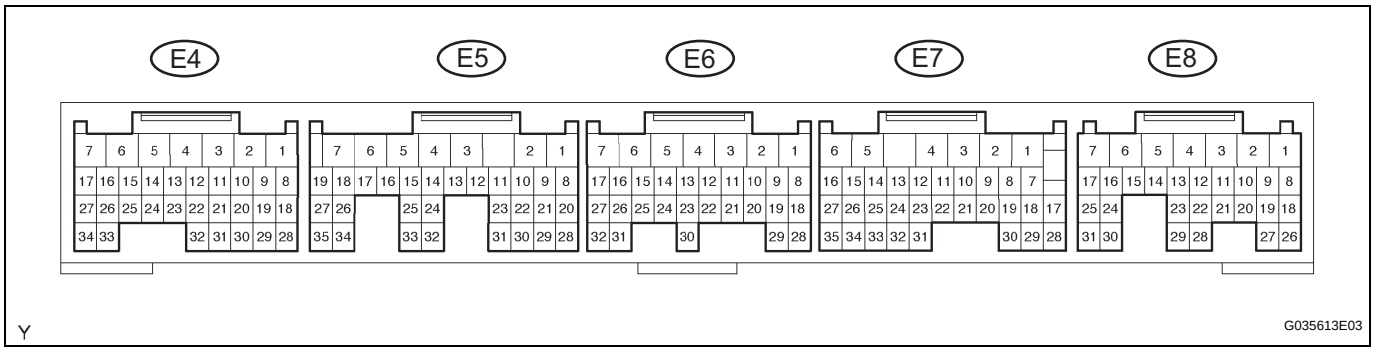
(2) WAVEFORM 2:
Engine speed signal

ECM Terminal Names	Between TACH and E1
Tester Ranges	5 V/DIV, 10 msec./DIV
Conditions	Idling

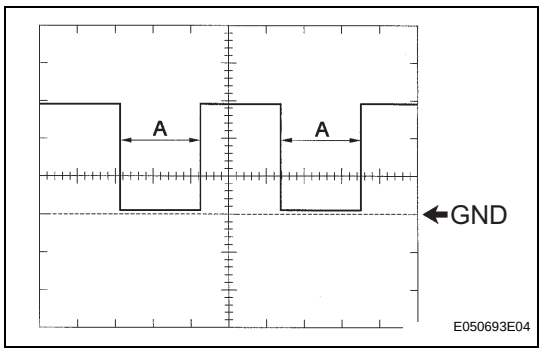
HINT:
The wavelength becomes shorter as the engine rpm increases.

3. INSPECT ECM (1GR-FE)

(a) Connect the connector to the ECM and inspect the wire harness side connector from the back side, as shown in the table below.



Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	STD Voltages
ACT (E7-25) - E1 (E6-1)	L - BR	Magnet clutch ON permit signal	Start engine Operate A/C system Accelerator pedal: released → depressed	10 to 14 → Below 1.0 V
THWO (E7-14) - E2 (E4-28)	GR-B - BR	Engine coolant temperature sensor signal	Ignition switch: ON	Pulse generation (See waveform 1)
TACH (E7-1) - E1 (E6-1)	B-W - BR	Engine speed signal	Engine idling	Pulse generation (See waveform 2)



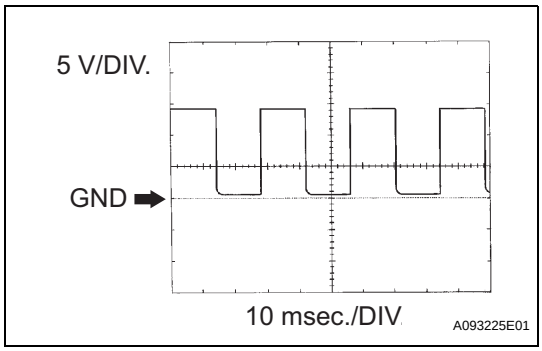
(1) WAVEFORM 1:
Engine coolant temperature sensor signal

ECM Terminal Names	Between THWO and E2
Tester Ranges	5 V/DIV, 0.1 sec./DIV
Conditions	Ignition switch ON

A changes in accordance with the engine coolant temperature.

Coolant Temperature	Below 30°	Approx. 75°	Above 90°
A	Approx. 16ms	Approx. 204ms	Approx. 262ms

AC



(2) WAVEFORM 2:
Engine speed signal

ECM Terminal Names	Between TACH and E1
Tester Ranges	5 V/DIV, 10 msec./DIV
Conditions	Idling

HINT:
The wavelength becomes shorter as the engine rpm increases.