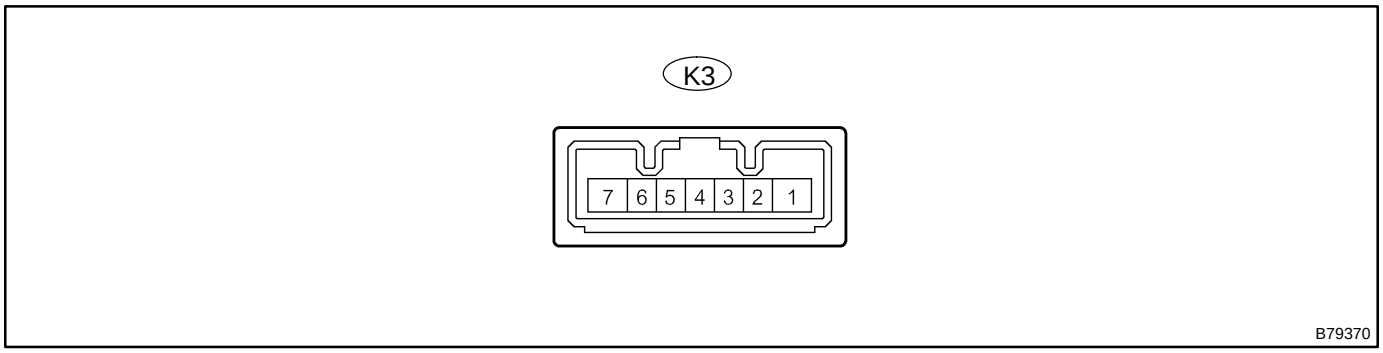
05J53–01

TERMINALS OF ECU

1. CHECK KEY SLOT



(a) Disconnect the K3 key slot connector.

(b) Measure the resistance of the terminal of the wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (K3–7) – Body ground	P – Body ground	Ground	Constant	Below 1 Ω

If the result is not as specified, the wire harness side may have a malfunction.

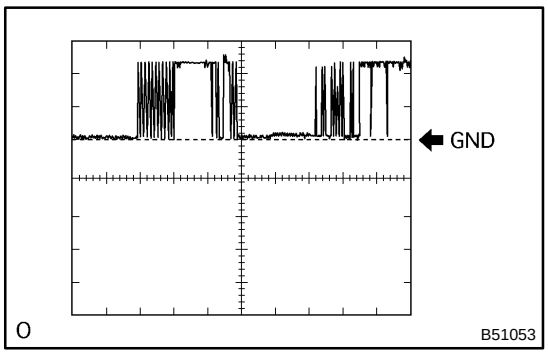
(c) Reconnect the K3 key slot connector.

(d) Measure the resistance and voltage of each terminal of wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
VC5 (K3–1) – GND (K3–7)	Y – P	Power source	No key in key slot → Key inserted	0 V → 4.6 to 5.4 V
CODE (K3–4) – GND (K3–7)	L – P	Demodulated signal of key code data	No key in key slot → Key inserted	Pulse generation (see waveform 1)
TXCT (K3–5) – GND (K3–7)	LG – P	Key code output signal	No key in key slot → Key inserted	Pulse generation (see waveform 2)
GND (K3–7) – Body ground	P – Body ground	Ground	Constant	Below 1 Ω

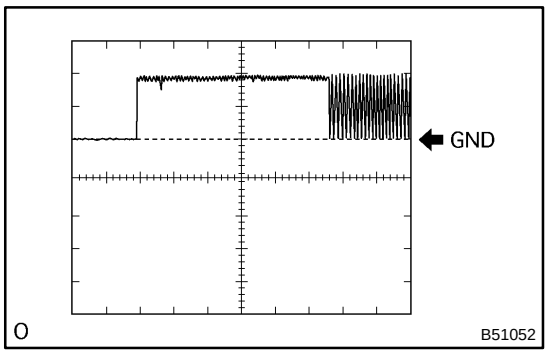
If the result is not as specified, the key slot (amplifier) may have a malfunction.



(e) Inspect using an oscilloscope.

Waveform 1 (Reference):

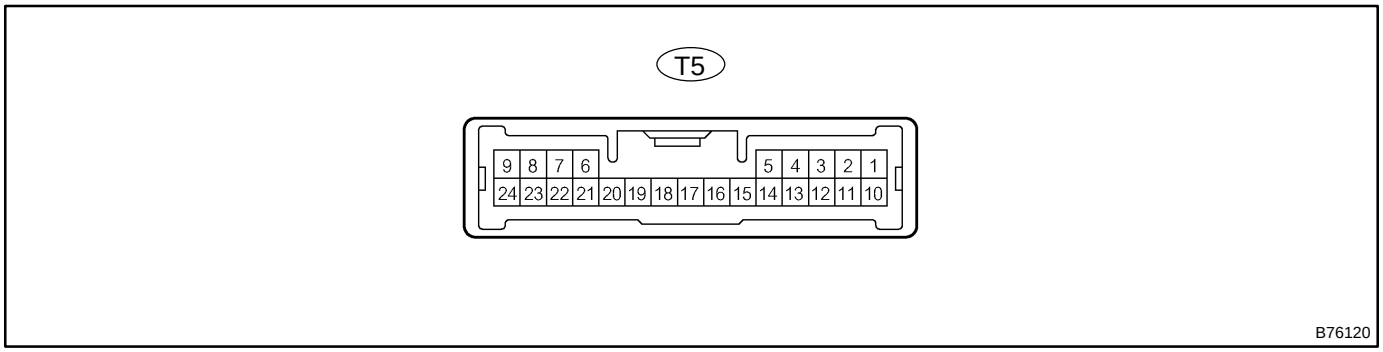
Terminal	CODE – GND
Tool Setting	2.5 V/DIV., 20 ms/DIV.
Condition	No key in key slot → Key inserted



Waveform 2 (Reference):

Terminal	TXCT – GND
Tool Setting	2.5 V/DIV., 10 ms/DIV.
Condition	No key in key slot → Key inserted

2. CHECK TRANSPONDER KEY ECU



(a) Disconnect the T5 ECU connector.

(b) Measure the resistance and voltage of each terminal of the wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
CPUB (T5–3) – GND (T5–22)	L – W–B	Battery	Constant	10 to 14 V
IG (T5–4) – GND (T5–22)	O – W–B	Power switch (IG)	Power switch's power mode OFF → ON (IG)	0 V → 10 to 14 V
CUWS (T5–5) –GND (T5–22)	B – W–B	Unlock warning switch	No key in key slot → Key inserted	10 kΩ or higher → Below 1 Ω
AGND (T5–7) – GND (T5–22)	P – W–B	Ground	Constant	Below 1 Ω
GND (T5–22) – Body ground	W–B – Body ground	Ground	Constant	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.

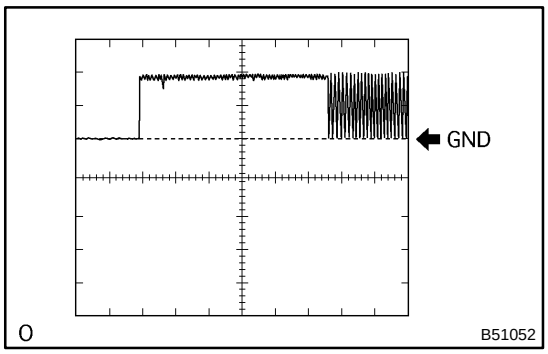
(c) Reconnect the T5 ECU connector.

(d) Measure the voltage of each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
CUWS (T5–5) –GND (T5–22)	B – W–B	Unlock warning switch	No key in key slot → Key inserted	10 to 14 V ⍁ Below 1 V
VC5 (T5–20) – GND (T5–22)	Y – W–B	Power source	No key in key slot → Key inserted	0 V → 4.6 to 5.4 V
CODE (T5–21) – AGND (T5–7)	L – P	Transponder key amplifier communication signal	No key in key slot → Key inserted	Pulse generation (see waveform 1)
TXCT (T5–6) – AGND (T5–7)	LG – P	Transponder key amplifier communication signal	No key in key slot → Key inserted	Pulse generation (see waveform 2)
HEV0 (T5–19) – GND (T5–22)	W – W–B	Hybrid vehicle control ECU output signal	No key in key slot → Key inserted	Pulse generation (see waveform 3)
HEV1 (T5–18) – GND (T5–22)	R – W–B	Hybrid vehicle control ECU input signal	Constant	Pulse generation (see waveform 4)

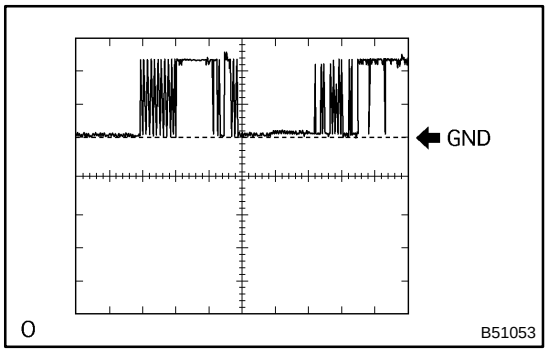
If the result is not as specified, the ECU may have a malfunction.



(e) Inspect using an oscilloscope.

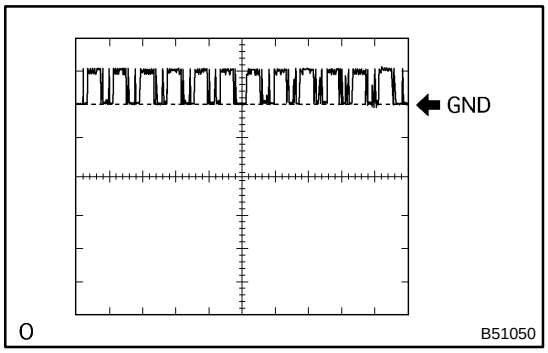
Waveform 1 (Reference):

Terminal	TXCT – GND
Tool Setting	2.5 V/DIV., 10 ms/DIV.
Condition	No key in key slot → Key inserted



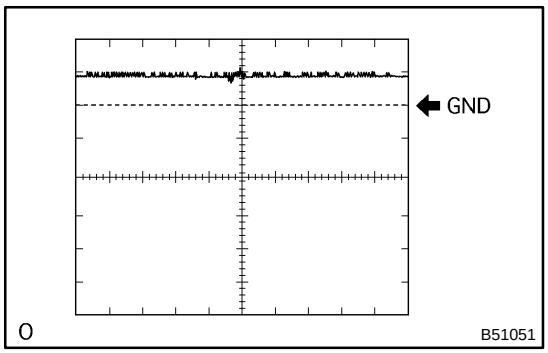
Waveform 2 (Reference):

Terminal	CODE – GND
Tool Setting	2.5 V/DIV., 20 ms/DIV.
Condition	No key in key slot → Key inserted



Waveform 3 (Reference):

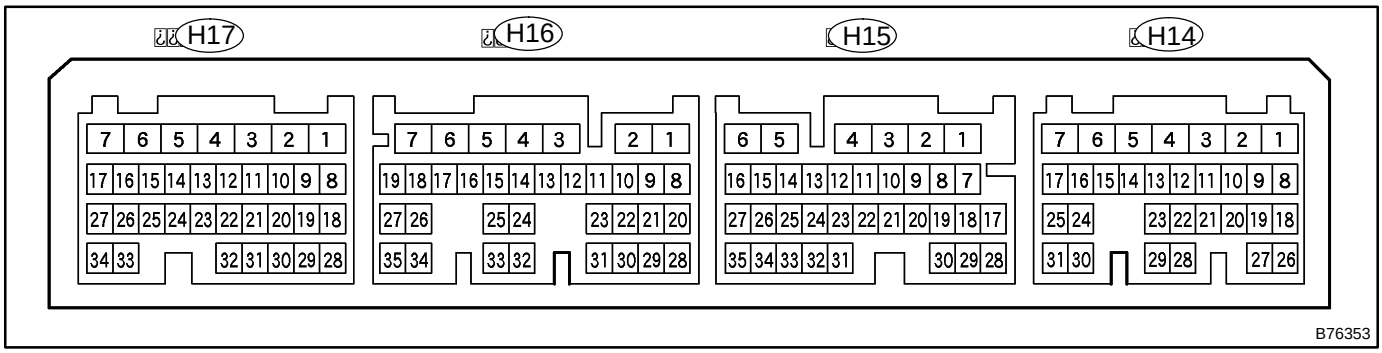
Terminal	HEV0 – GND
Tool Setting	12 V/DIV., 100 ms/DIV.
Condition	No key in key slot → Key inserted



Waveform 4 (Reference):

Terminal	HEV1 – GND
Tool Setting	12 V/DIV., 100 ms/DIV.
Condition	Constant

3. CHECK HYBRID VEHICLE CONTROL ECU

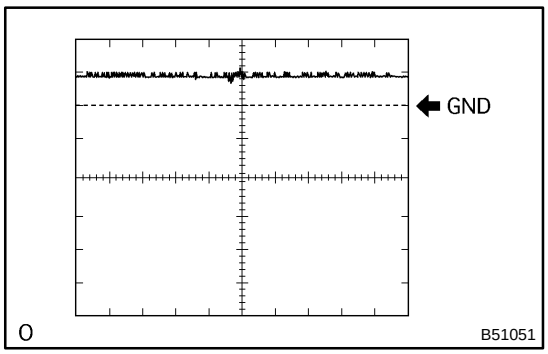


(a) Measure the resistance and voltage of each terminal of the connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ST2 (H14–5) – GND1 (H14–1)	Y – W–B	Ignition start control signal input	Hybrid control system stopped and power switch's power mode ON (READY)	10 to14 V
IGSW (H14–7) – GND1 (H14–1)	O – W–B	Ignition ready control signal input	Hybrid control system stopped and power switch's power mode ON (IG)	10 to14 V
BATT (H15–6) – GND1 (H14–1)	Y – W–B	Battery	Constant	10 to14 V
+B1 (H16–7) – GND1 (H14–1)	L – W–B	Ignition power supply	Power switch's power mode ON (IG)	10 to14 V
+B2 (H16–6) – GND1 (H14–1)	L – W–B	Ignition power supply	Power switch's power mode ON (IG)	10 to14 V
IMI (H14–6) – GND2 (H14–4)	W – W–B	Transponder key ECU input signal	Power switch's power mode ON (IG)	Pulse generation (see waveform 1)
IMO (H14–26) – GND2 (H14–4)	R – W–B	Transponder key ECU input signal	No key in key slot → Key insert	Pulse generation (see waveform 2)
GND1 (H14–1) – Body ground	W–B – Body ground	Ground	Constant	Below 1 Ω
GND2 (H14–4) – Body ground	W–B – Body ground	Ground	Constant	Below 1 Ω

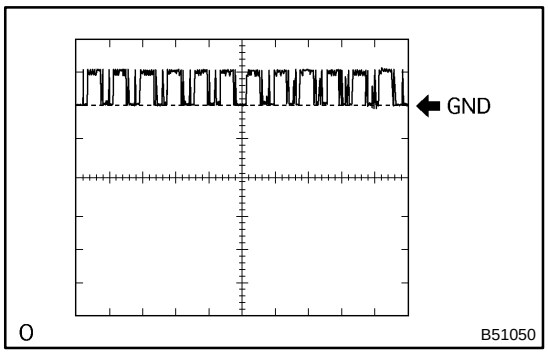
If the result is not as specified, the ECU may have a malfunction.



(b) Inspect using an oscilloscope.

Waveform 1 (Reference):

Terminal	IMI – GND1
Tool Setting	12 V/DIV., 100 ms/DIV.
Condition	Power switch's power mode ON (IG)



Waveform 2 (Reference):

Terminal	IMO – GND2
Tool Setting	12 V/DIV., 100 ms/DIV.
Condition	No key in key slot → Key inserted