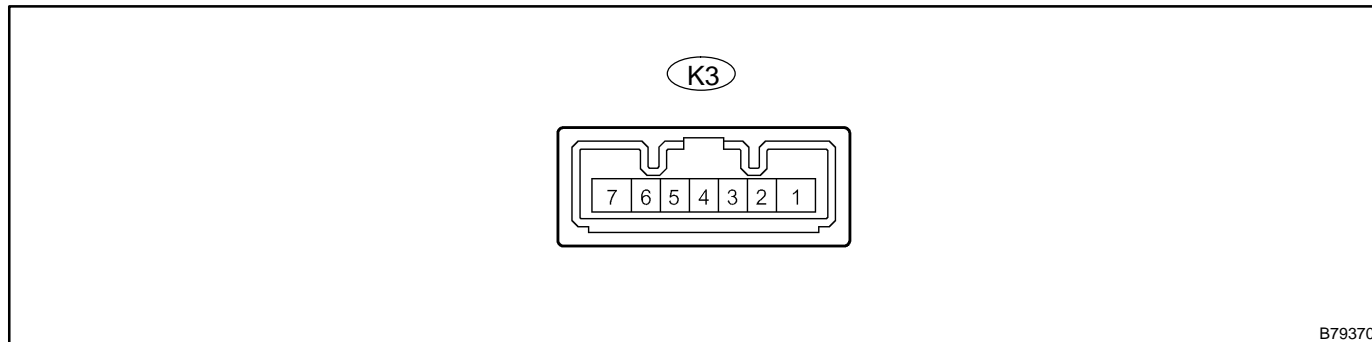


# TERMINALS OF ECU

## 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 –<br>Body ground | Ground               | Constant  | Below 1 Ω           |

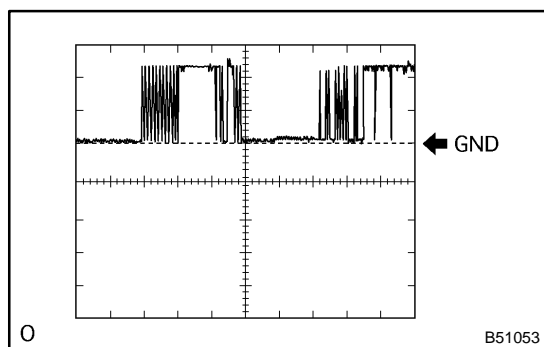
If the result is not as specified, the wire harness side may have a malfunction.

- (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 →<br>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 →<br>Key inserted | Pulse generation (see waveform 1) |
| TXCT (K3-5) – GND (K3-7) | LG – P             | Key code output signal              | No key in key slot →<br>Key inserted | Pulse generation (see waveform 2) |
| GND (K3-7) – Body ground | P –<br>Body ground | Ground                              | Constant                             | Below 1 Ω                         |

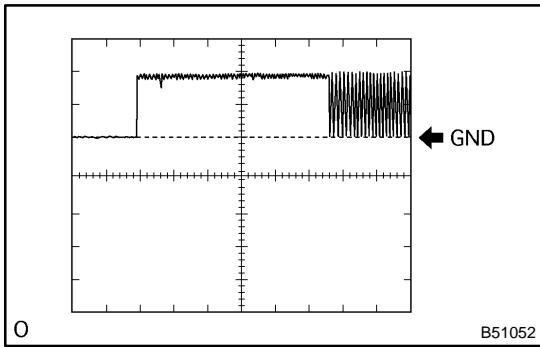
If the result is not as specified, the key slot (amplifier) may have a malfunction.



- (e) Inspect using an oscilloscope.

**Waveform 1 (Reference):**

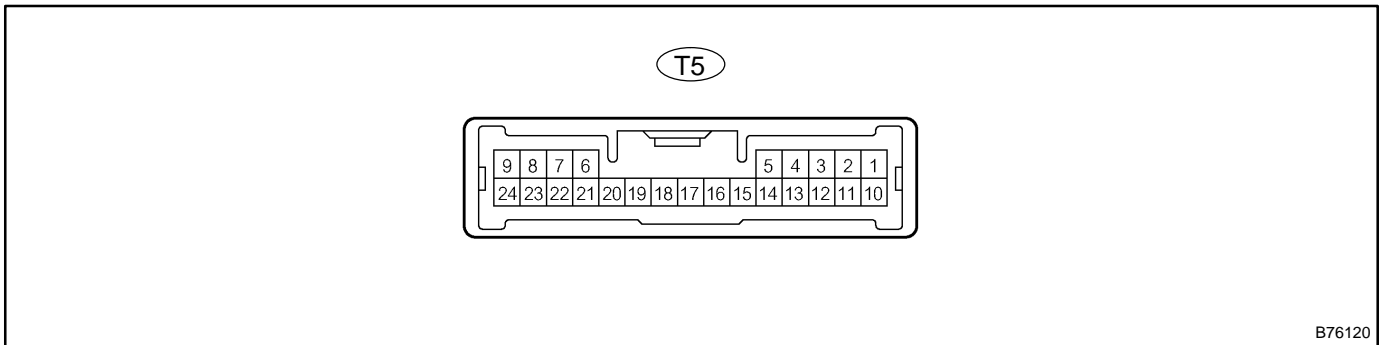
| Terminal     | CODE – GND                        |
|--------------|-----------------------------------|
| Tool Setting | 2.5 V/DIV., 20 ms/DIV.            |
| Condition    | No key in key slot → Key inserted |



**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<br>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 →<br>Key inserted       | 10 kΩ or higher →<br>Below 1 Ω |
| AGND (T5-7) – GND (T5-22)    | P – W-B              | Ground                | Constant                                   | Below 1 Ω                      |
| GND (T5-22) –<br>Body ground | W-B – Body<br>ground | Ground                | Constant                                   | Below 1 Ω                      |

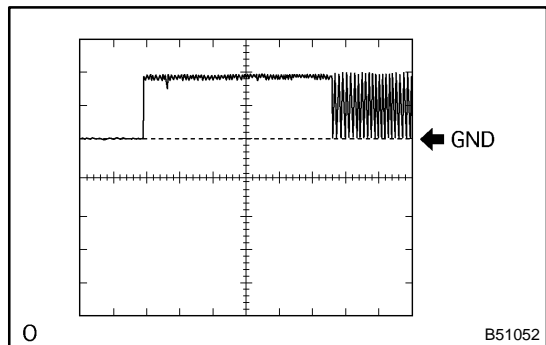
If the result is not as specified, there may be a malfunction on the wire harness side.

- (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 →<br>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 →<br>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 →<br>Key inserted | Pulse generation<br>(see waveform 1) |
| TXCT (T5-6) – AGND (T5-7)  | LG – P       | Transponder key amplifier communication signal | No key in key slot →<br>Key inserted | Pulse generation<br>(see waveform 2) |
| HEV0 (T5-19) – GND (T5-22) | W – W-B      | Hybrid vehicle control ECU output signal       | No key in key slot →<br>Key inserted | Pulse generation<br>(see waveform 3) |
| HEV1 (T5-18) – GND (T5-22) | R – W-B      | Hybrid vehicle control ECU input signal        | Constant                             | Pulse generation<br>(see waveform 4) |

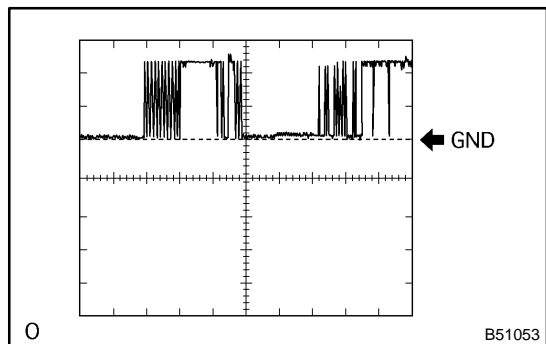
If the result is not as specified, the ECU may have a malfunction.



(e) Inspect using an oscilloscope.

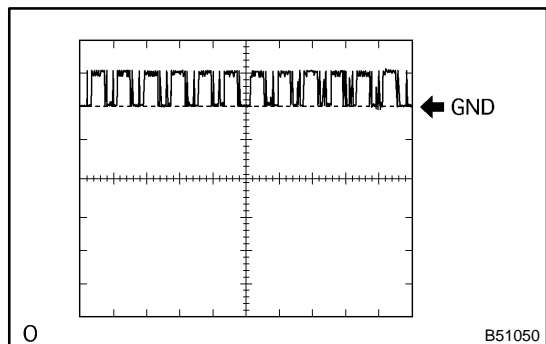
**Waveform 1 (Reference):**

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



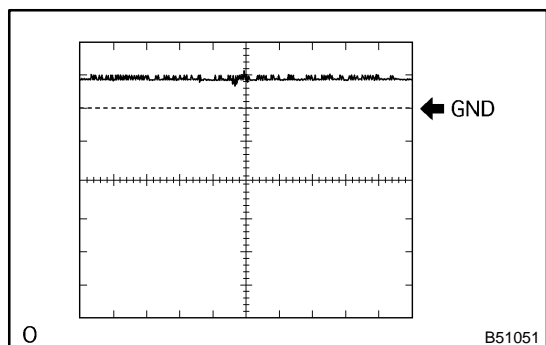
**Waveform 2 (Reference):**

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



**Waveform 3 (Reference):**

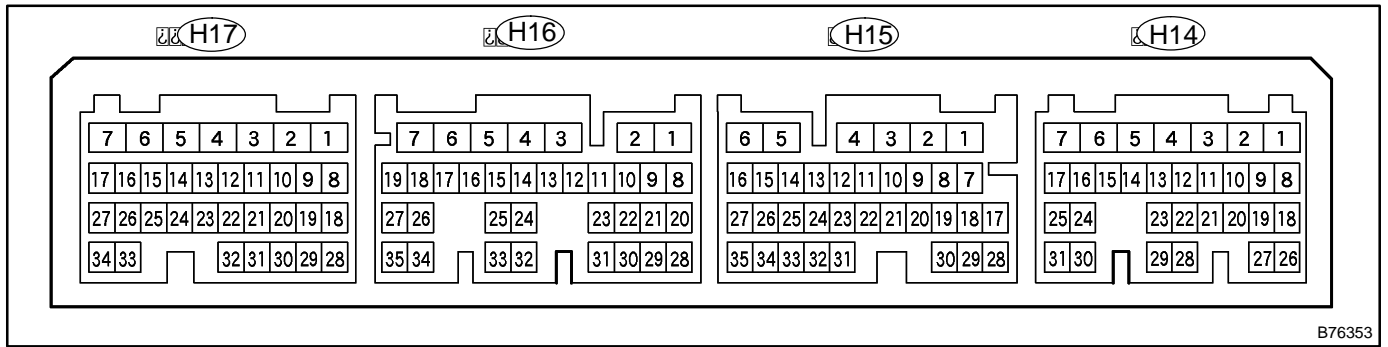
|              |                                   |
|--------------|-----------------------------------|
| Terminal     | HEV0 – GND                        |
| Tool Setting | 12 V/DIV., 100 ms/DIV.            |
| Condition    | No key in key slot → Key inserted |



**Waveform 4 (Reference):**

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

3. CHECK HYBRID VEHICLE CONTROL ECU



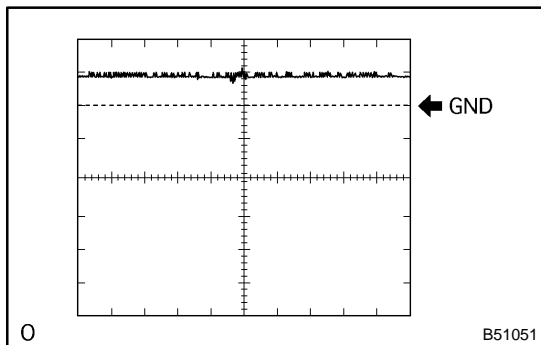
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(a) Measure the resistance and voltage of each terminal of the connectors.

**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 to 14 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 to 14 V                        |
| BATT (H15-6) – GND1 (H14-1) | Y – W-B           | Battery                             | Constant   | 10 to 14 V                        |
| +B1 (H16-7) – GND1 (H14-1)  | L – W-B           | Ignition power supply               | Power switch's power mode ON (IG)                                      | 10 to 14 V                        |
| +B2 (H16-6) – GND1 (H14-1)  | L – W-B           | Ignition power supply               | Power switch's power mode ON (IG)                                      | 10 to 14 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                         |

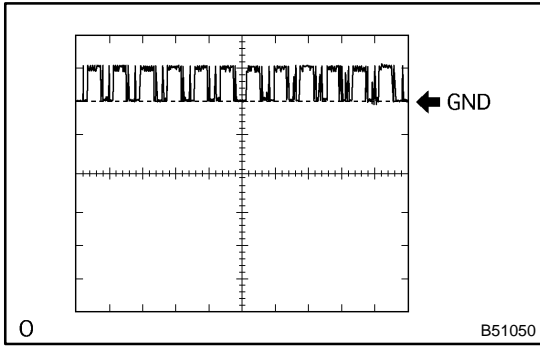
If the result is not as specified, the ECU may have a malfunction.



(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 |