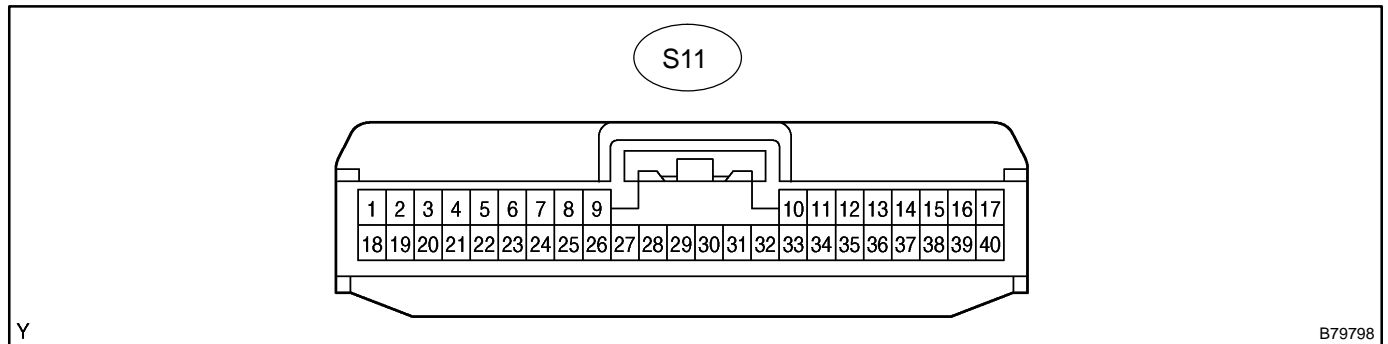


TERMINALS OF ECU

1. CHECK SMART ECU



- (a) Disconnect the S11 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
+B1 (S11-1) – Body ground	R – Body ground	+B power supply	Constant	10 to 14 V
IG (S11-18) – Body ground	B – Body ground	Ignition power supply	Power switch OFF → ON (IG)	0 V → 10 to 14 V
E (S11-17) – Body ground	W-B – Body ground	Ground	Constant	Below 1 Ω
TSW1 (S11-5) – Body ground	B – Body ground	Outside door handle LH lock switch signal	Lock switch OFF → ON	10 kΩ or higher → Below 1 Ω
TSW2 (S11-6) – Body ground	R – Body ground	Outside door handle RH lock switch signal	Lock switch OFF → ON	10 kΩ or higher → Below 1 Ω
TSW6 (S11-8) – Body ground	B – Body ground	Back door lock switch sig- nal	Back door lock switch OFF → ON	10 kΩ or higher → Below 1 Ω
CNSL (S11-25) – Body ground	W-B – Body ground	Smart entry system cancel switch signal	Cancel switch OFF → ON	10 kΩ or higher → Below 1 Ω

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

- (c) Reconnect the S11 ECU connector.
 (d) Measure the voltage and frequency of each terminal of the connector.

Standard:

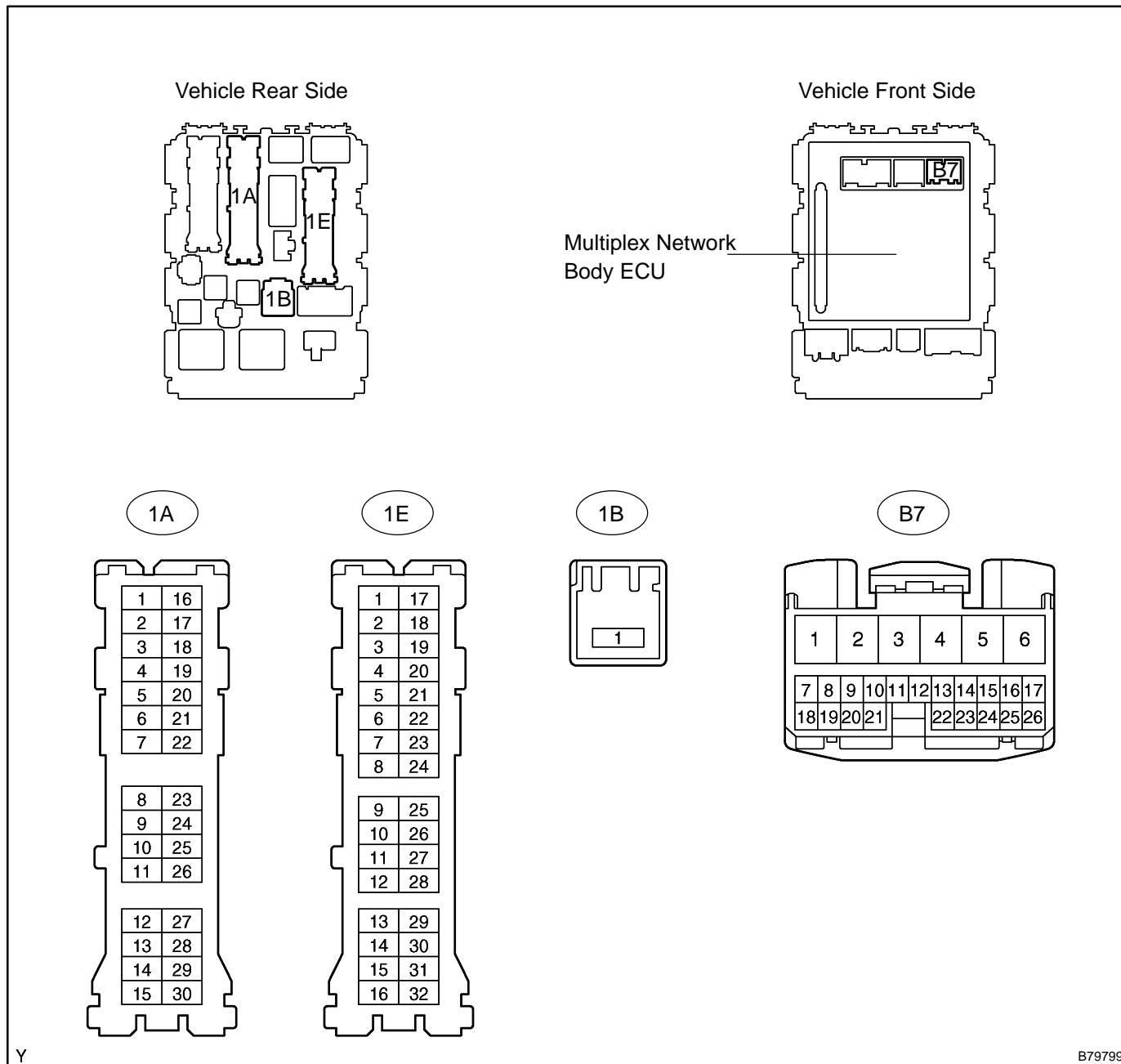
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
CLG1 (S11-13) – E (S11-17)	P – W-B	Driver door oscillator sen- sor signal	All doors locked by wire- less operation from outside vehicle and power switch OFF → ON (IG)	Some Hz → 0 Hz
CLG2 (S11-14) – E (S11-17)	R – W-B	Passenger door oscillator sensor signal	All doors locked by wire- less operation from outside vehicle and power switch OFF → ON (IG)	Some Hz → 0 Hz
CLG5 (S11-36) – E (S11-17)	G – W-B	Room oscillator sensor sig- nal	30 seconds after driver side door opened and closed, power switch OFF → ON (IG)	Some Hz → 0 Hz
CLG7 (S11-38) – E (S11-17)	BR – W-B	Luggage oscillator inner sensor signal	30 seconds after driver side door opened and closed, power switch OFF → ON (IG)	Some Hz → 0 Hz
CLG8 (S11-39) – E (S11-17)	O – W-B	Luggage oscillator outer sensor signal	Back door opener switch OFF → ON	Some Hz → 0 Hz

DIAGNOSTICS – SMART ENTRY SYSTEM

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
SEL1 (S11-23) – E (S11-17)	Y – W-B	Sensor detection signal	Smart key at least 3 m away from door → near outside door handle LH	10 to 14 V → 0 V
SEL2 (S11-24) – E (S11-17)	B – W-B	Sensor detection signal	Smart key at least 3 m away from door → near outside door handle RH	10 to 14 V → 0 V
SEN1 (S11-21) – E (S11-17)	R – W-B	Lock switch detection signal	Outside door handle LH touched → not touched	10 to 14 V → 0 V
SEN2 (S11-22) – E (S11-17)	W – W-B	Lock switch detection signal	Outside door handle RH touched → not touched	10 to 14 V → 0 V
RDA3 (S11-29) – E (S11-17)	L – W-B	Door control receiver input signal	With power switch OFF, no smart key and all doors closed, turn smart key switch OFF → ON	Below 1 V → Approx. 6 to 7 V
PRG (S11-28) – E (S11-17)	B – W-B	Door control receiver output signal	With power switch OFF, no smart key and all doors closed, turn smart key switch OFF → ON	Below 1 V → Approx. 6 to 7 V
RCO (S11-12) – E (S11-17)	L – W-B	Power source	With power switch OFF, no smart key and doors closed, turn smart key switch OFF → ON	0 to 5 V → 5 V
RSSI (S11-11) – E (S11-17)	V – W-B	Door control receiver output signal	Power switch OFF, all doors closed and smart key switch OFF → ON	0 to 5 V → Below 1 V
RDA (S11-10) – E (S11-17)	GR – W-B	Door control receiver input signal	With power switch OFF, no smart key and all doors closed, turn smart key switch OFF → ON	Below 1 V → Approx. 6 to 7 V
KSW (S11-4) – E (S11-17)	Y – W-B	Key unlock warning switch input signal	No key in key slot → Key inserted	10 to 14 V → 0 V

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

2. CHECK INSTRUMENT PANEL J/B ASSY (MULTIPLEX NETWORK BODY ECU)



- (a) Disconnect the 1A, 1B and 1E J/B connectors.
- (b) Measure the voltage and resistance between each terminal of the wire harness side connector and body ground.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ECUB (1A-30) – Body ground	R – Body ground	+B (ECUB) power supply	Constant	10 to 14 V
ALTB (1B-1) – Body ground	W – Body ground	+B (power system, generator system) power supply	Constant	10 to 14 V
GND (1E-17) – 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.

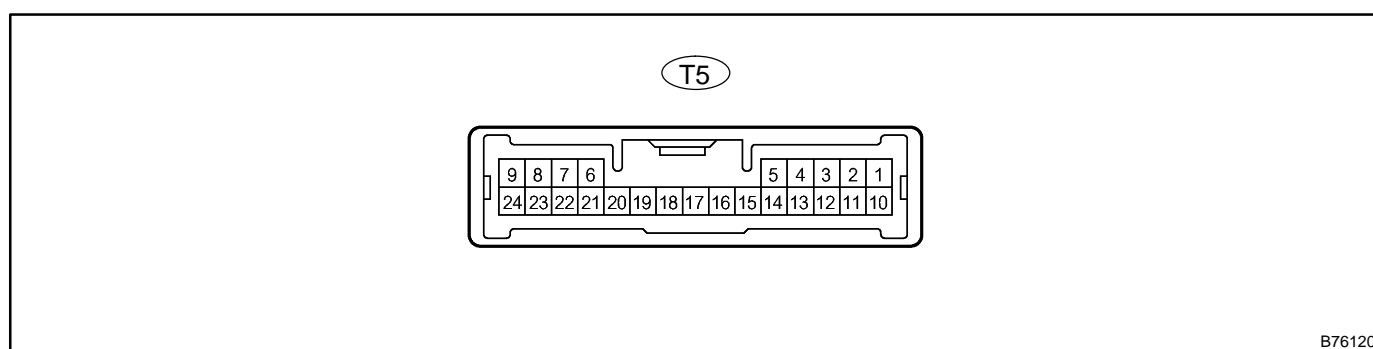
- (c) Reconnect the 1A, 1B and 1E J/B ECU connectors.
- (d) Measure the voltage between each terminal of the connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
PRG (B7-24) – GND (1E-17)	B – W-B	Door control receiver out- put signal	With power switch OFF, no smart key and all doors closed, turn smart key switch OFF → ON	0 to 5 V → 0 V
RDA (B7-23) – GND (1E-17)	L – W-B	Door control receiver input signal	With power switch OFF, no smart key and all doors closed, turn smart key switch OFF → ON	Below 1 V → Approx. 6 to 7 V

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

3. 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 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:

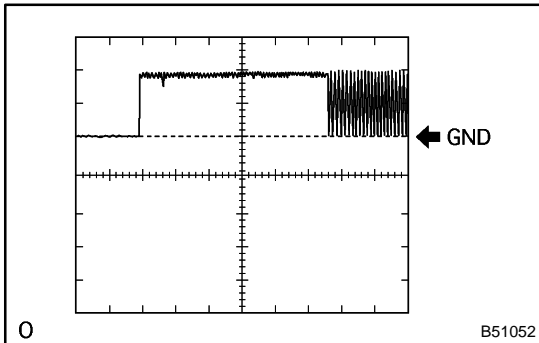
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
CUWS (T5-5) – GND (T5-22)	B – W-B	Unlock warning switch	No key in key slot → Key inserted	10 to 14 V □ Below 1 V
VC5 (T5-20) – GND (T5-22)	Y – W-B	Power source	No key in key slot → Key inserted	0 V → 4.6 to 5.4 V
CODE (T5-21) – AGND (T5-7)	L – P	Transponder key ampli- fier communication signal	No key in key slot → Key inserted	Pulse generation (see waveform 1)
TXCT (T5-6) – AGND (T5-7)	LG – P	Transponder key ampli- fier 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.

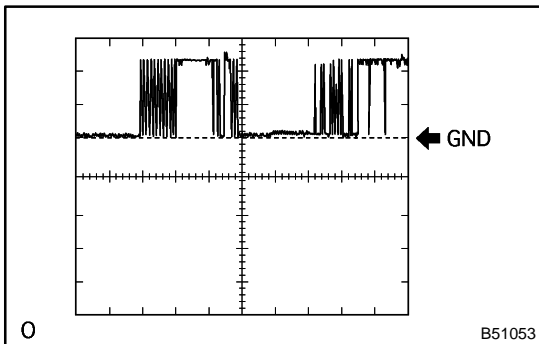
Waveform 1 (Reference):

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



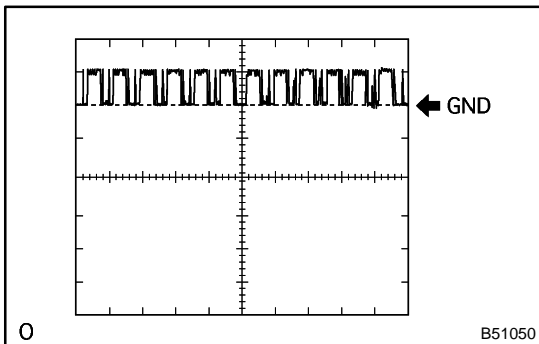
Waveform 2 (Reference):

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

