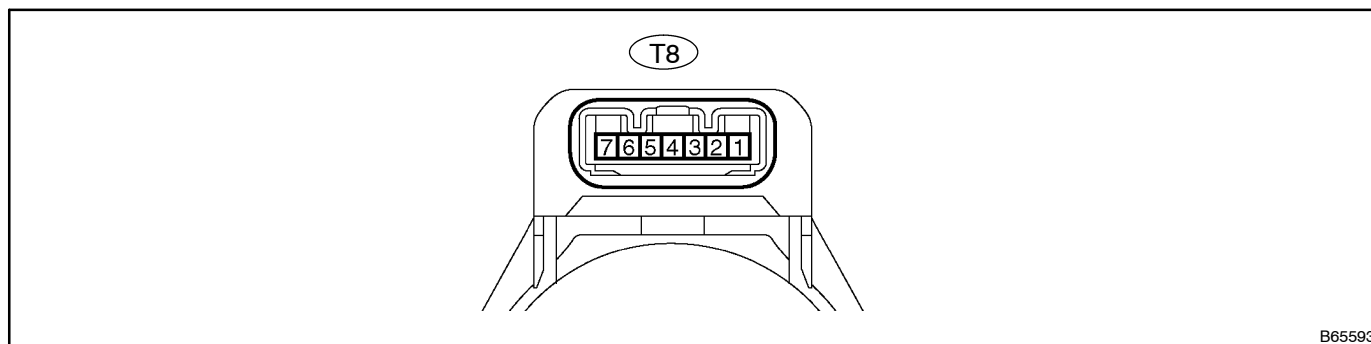


TERMINALS OF ECU

1. CHECK TRANSPONDER KEY AMPLIFIER



B65593

- (a) Disconnect the T8 amplifier connector.
- (b) Measure the resistance between the terminal of the wire harness side connector and body ground.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (T8-7) – Body ground	V – Body ground	Ground	Constant	Below 1 Ω

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

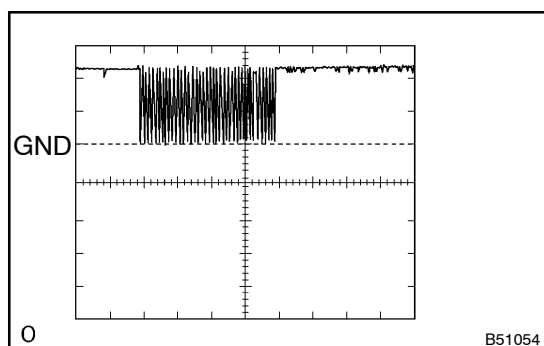
- (c) Reconnect the T8 amplifier connector.
- (d) Measure the voltage and resistance between each terminal of the connector and body ground.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
VC5 (T8-1) – GND (T8-7)	R – V	Power source	No key in ignition key cylinder → Key inserted	0 V → 4.6 to 5.4 V
RXCK (T8-3) – GND (T8-7)	L* ¹ – V L-W* ² – V	Demodulated signal of key code data	No key in ignition key cylinder → Key inserted	Pulse generation (see waveform 1)
CODE (T8-4) – GND (T8-7)	O – V	Demodulated signal of key code data	No key in ignition key cylinder → Key inserted	Pulse generation (see waveform 2)
TXCT (T8-5) – GND (T8-7)	Y-B – V	Key code output signal	No key in ignition key cylinder → Key inserted	Pulse generation (see waveform 3)
GND (T8-7) – Body ground	V – Body ground	Ground	Constant	Below 1 Ω

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

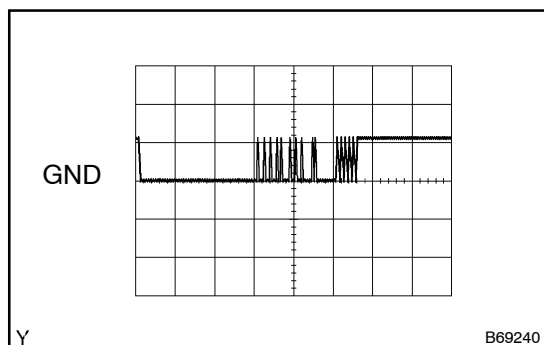
*1: LHD *2: RHD



- (e) Inspect using an oscilloscope.

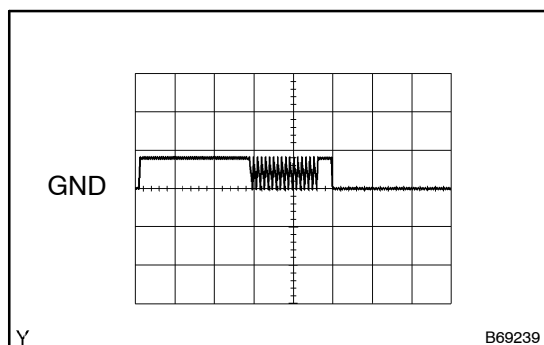
Waveform 1 (Reference):

Terminal	RXCK – GND
Tool Setting	5 V/DIV., 50 ms/DIV.
Condition	No key in ignition key cylinder → Key inserted



Waveform 2 (Reference):

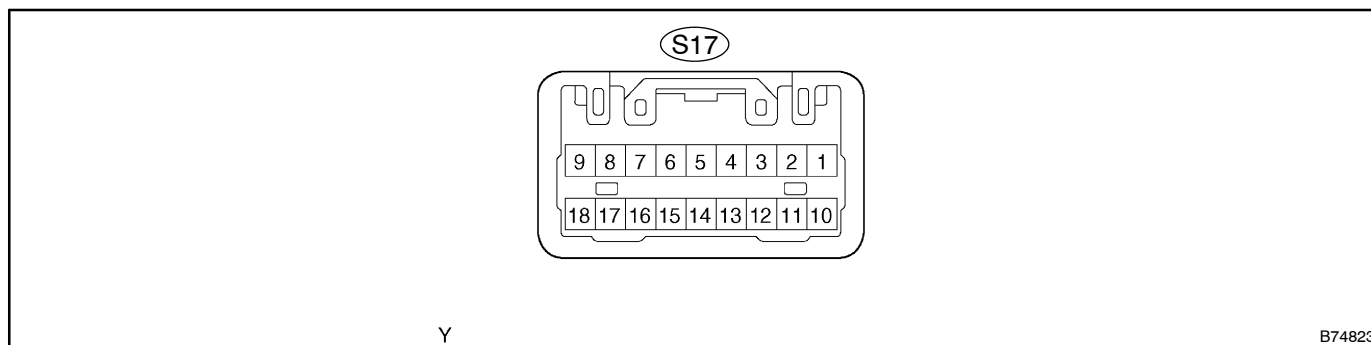
Terminal	CODE – GND
Tool Setting	10 V/DIV., 20 ms/DIV.
Condition	No key in ignition key cylinder → Key inserted



Waveform 3 (Reference):

Terminal	TXCT – GND
Tool Setting	5 V/DIV., 20 ms/DIV.
Condition	No key in ignition key cylinder → Key inserted

2. CHECK STEERING LOCK ECU



- Disconnect the S17 ECU connector.
- 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
AGND (S17-18) – Body ground	V – Body ground	Ground	Constant	Below 1 Ω
CPUB (S17-1) – GND (S17-9)	V-Y – W-B	Battery	Constant	10 to 14 V
IG2 (S17-2) – AGND (S17-18)	B – V	Ignition switch	Ignition switch OFF → ON	0 V → 10 to 14 V
KSW (S46-12) – AGND (S17-18)	LG-B – V	Unlock warning switch	No key in ignition key cylinder → Key inserted	10 k Ω or higher → Below 1 Ω
PUSH (S17-11) – AGND (S17-18)	P-B – V	Ignition push start switch	Ignition switch not pushed → pushed	10 k Ω or higher → Below 1 Ω

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

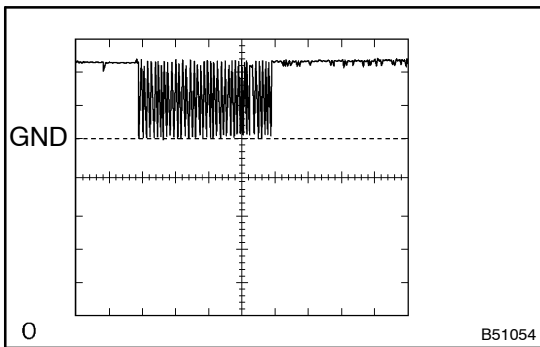
- (c) Reconnect the S17 ECU connector.
 (d) Measure the voltage between each terminal of the connector

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
KSW (S17-12) – AGND (S17-18)	LG-B – V	Unlock warning switch	No key in ignition key cylinder → Key inserted	10 to 14 V → 0 V
VC5 (S17-7) – AGND (S17-18)	R – V	Power source	Ignition switch OFF → ON	0 V → 4.6 to 5.4 V
RXCK (S17-8) – AGND (S17-18)	L* ¹ – V L-W* ² – V	Transponder key amplifier communication signal	Ignition switch OFF → ON	Pulse generation (see waveform 1)
TXCT (S17-16) – AGND (S17-18)	Y-B – V	Transponder key amplifier communication signal	Ignition switch OFF → ON	Pulse generation (see waveform 2)
CODE (S17-17) – AGND (S17-18)	O – V	Transponder key amplifier communication signal	Ignition switch OFF → ON	Pulse generation (see waveform 3)
EFIO (S17-13) – AGND (S17-18)	GR-G – V	ECM output signal	Ignition switch OFF → ON	Pulse generation (see waveform 4)
EFII (S17-8) – AGND (S17-18)	GR-R – V	ECM input signal	Ignition switch OFF → ON	Pulse generation (see waveform 5)

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

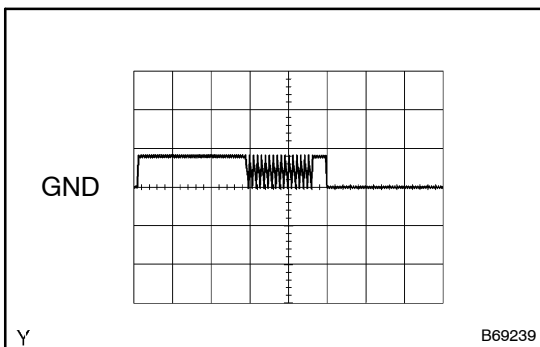
*1: LHD *2: RHD



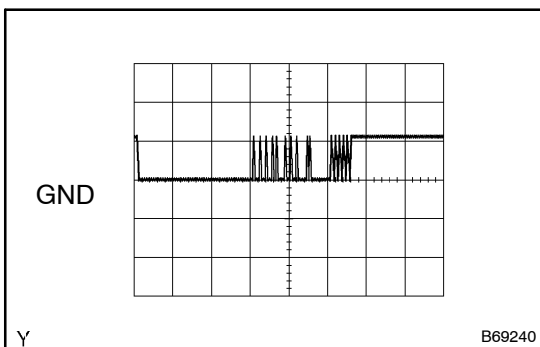
- (e) Inspect using an oscilloscope.

Waveform 1 (Reference):

Terminal	RXCK – GND
Tool Setting	5 V/DIV., 10 ms/DIV.
Condition	Ignition switch OFF → ON

**Waveform 2 (Reference):**

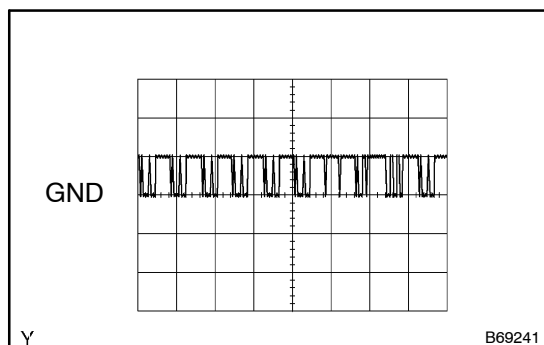
Terminal	TXCT – GND
Tool Setting	5 V/DIV., 20 ms/DIV.
Condition	Ignition switch OFF → ON

**Waveform 3 (Reference):**

Terminal	CODE – GND
Tool Setting	10 V/DIV., 20 ms/DIV.
Condition	Ignition switch OFF → ON

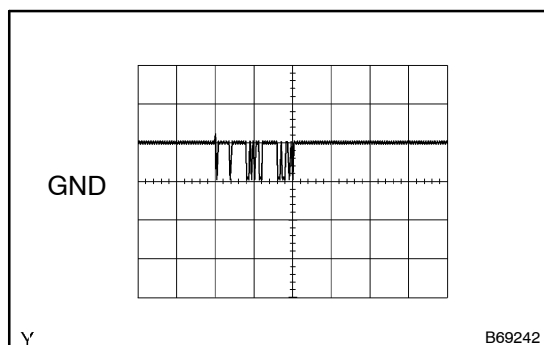
Waveform 4 (Reference):

Terminal	EFIO – GND
Tool Setting	10 V/DIV., 500 ms/DIV.
Condition	Ignition switch OFF → ON

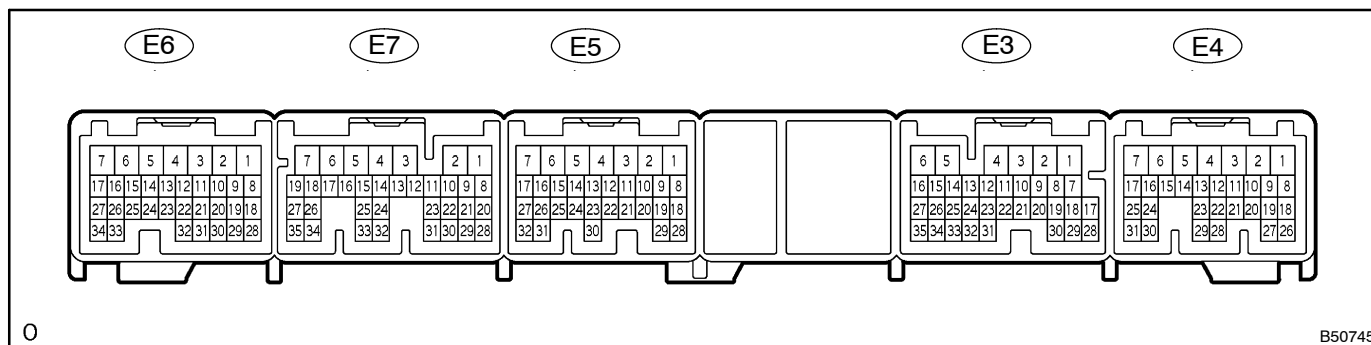


Waveform 5 (Reference):

Terminal	EFII – GND
Tool Setting	10 V/DIV., 500 ms/DIV.
Condition	Ignition switch OFF → ON



3. CHECK ECM



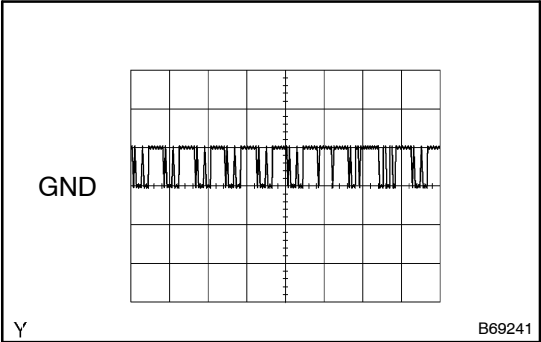
- Disconnect the E3 and E5 ECM connectors.
- Measure the voltage and resistance between each terminal of the wire harness side connectors and body ground.

Standard:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IMI (E3-6) – E01 (E5-2)	B-Y*1 – W-B GR-G*2 – W-B	Steering lock ECU input signal	No key in ignition key cylinder → Key inserted	Pulse generation (see waveform 1)
IMO (E3-7) – E01 (E5-2)	GR-R – W-B	Steering lock ECU output signal	No key in ignition key cylinder → Key inserted	Pulse generation (see waveform 2)
E01 (E5-2) – 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.

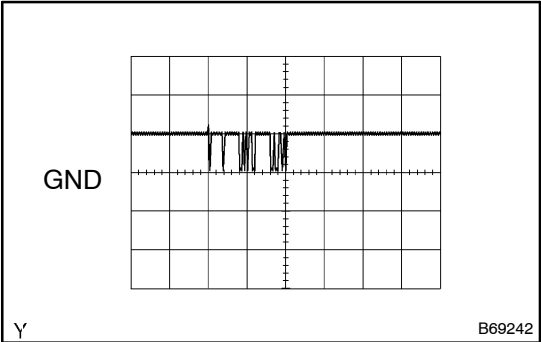
*1: LHD *2: RHD



(c) Inspect using an oscilloscope.

Waveform 1 (Reference):

Terminal	IMI – GND
Tool Setting	10 V/DIV., 500 ms/DIV.
Condition	No key in ignition key cylinder → Key inserted



Waveform 2 (Reference):

Terminal	IMO – GND
Tool Setting	10 V/DIV., 500 ms/DIV.
Condition	No key in ignition key cylinder → Key inserted