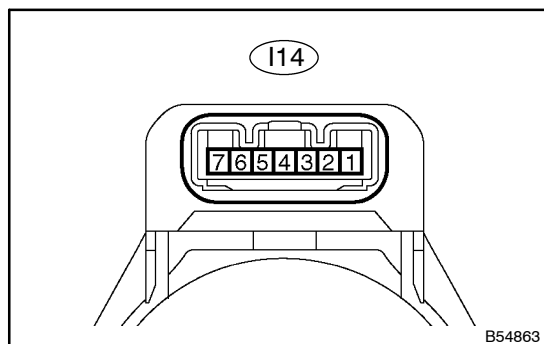


TERMINALS OF ECU

1. CHECK TRANSPONDER KEY AMPLIFIER



- (a) Disconnect the I14 transponder key amplifier connector, and check the continuity of the terminal of the disconnected connector.

Standard:

Symbols (Terminal No.)	Wiring color	Condition	Specified condition
GND ⇔ Body ground) (I14-7 ⇔ Body ground)	W-B ⇔ Body ground	Constant	Continuity

If the result is not as specified, the vehicle's side may malfunction.

- (b) Reconnect the connector, and check the voltage of each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring color	Condition	Specified condition
+B ⇔ GND (I14-1 ⇔ I14-7)	B-W ⇔ W-B	Key not inserted in ignition key cylinder → Key inserted	0 V → 10 - 14 V
CODE ⇔ GND (I14-4 ⇔ I14-7)	L-R ⇔ W-B	Key not inserted in ignition key cylinder → Key inserted	Waveform 1
RXCK ⇔ GND (I14-3 ⇔ I14-7)	B-R ⇔ W-B	Key not inserted in ignition key cylinder → Key inserted	Waveform 2
TXCT ⇔ GND (I14-5 ⇔ I14-7)	L ⇔ W-B	Key not inserted in ignition key cylinder → Key inserted	Waveform 3

If the result is not as specified, the transponder key amplifier may malfunction.

HINT:

If a "waveform" is specified in the table, the actual waveform is provided on the following pages.

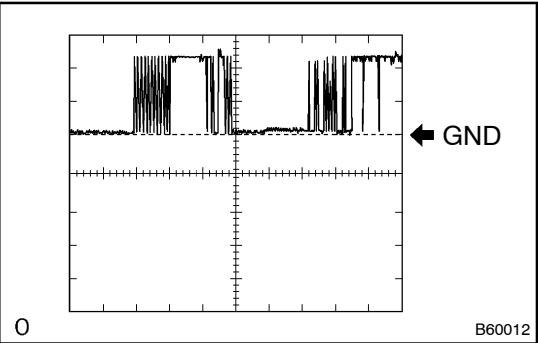
(c) Using an oscilloscope, inspect.

NOTICE:

The waveform provided on this text does not include noise and chattering.

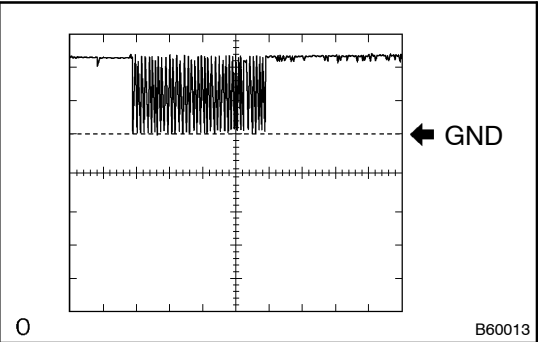
HINT:

If the result is not as specified, transponder key amplifier may malfunction.



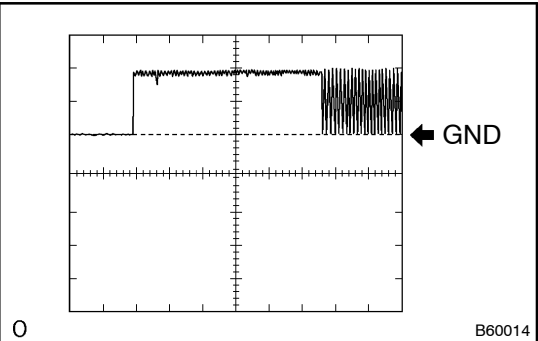
Waveform 1 (Reference):

Item	Condition
Symbols (Terminal No.)	CODE ⇔ GND (I14-4 ⇔ I14-7)
Tool setting	5 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder



Waveform 2 (Reference):

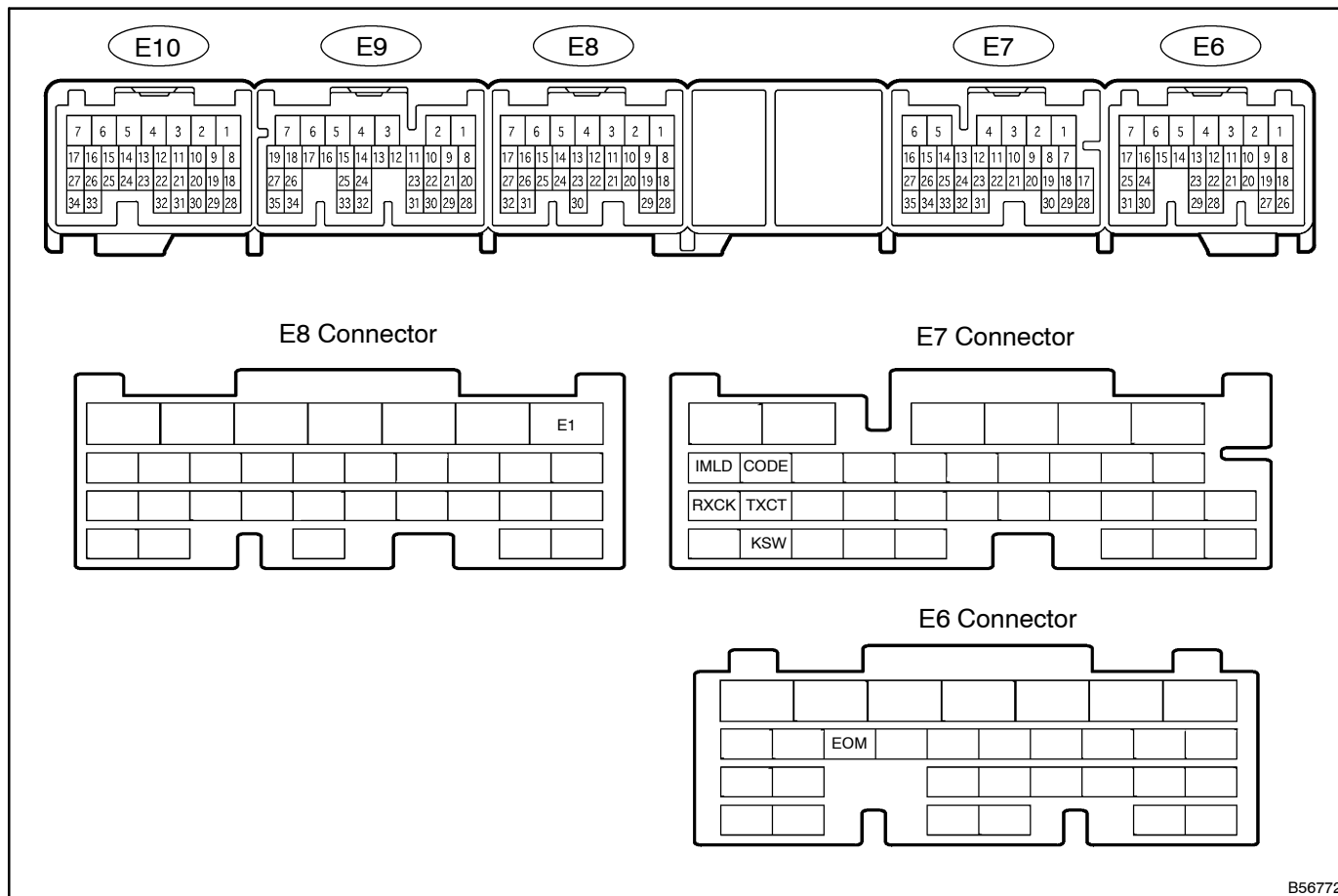
Item	Condition
Symbols (Terminal No.)	RXCK ⇔ GND (I14-3 ⇔ I14-7)
Tool setting	10 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder



Waveform 3 (Reference):

Item	Condition
Symbols (Terminal No.)	TXCT ⇔ GND (I14-5 ⇔ I14-7)
Tool setting	10 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder

2. CHECK ECM



(a) Check the voltage and continuity of each terminal of the wire harness side connectors.

NOTICE:

- The check should be started from the backside of the ECM with the ECM connector being connected.
- Inspect the power source voltage (ignition switch ON: 10 – 14 V) and the body ground (ignition switch OFF: below 5 Ω (each ground terminal ⇔ engine ground, body ground)) before the check.

Standard:

Symbols (Terminal No.)	Wiring color	Condition	Specified condition
CODE ⇔ E1 (E7-15 ⇔ E8-1)	G-W ⇔ BR	Key not inserted in ignition key cylinder → Key inserted	Waveform 1
RXCK ⇔ E1 (E7-27 ⇔ E8-1)	R-L ⇔ BR	Key not inserted in ignition key cylinder → Key inserted	Waveform 2
TXCT ⇔ E1 (E7-26 ⇔ E8-1)	L-Y ⇔ BR	Key not inserted in ignition key cylinder → Key inserted	Waveform 3
IMLD ⇔ E1 (E7-16 ⇔ E8-1)	V ⇔ BR	Immobiliser system set	10 – 14 V
KSW ⇔ E1 (E7-34 ⇔ E8-1)	L ⇔ BR	Key not inserted → Key inserted	10 – 14 V → 0 V or less
E1 ⇔ Body round (E8-1 ⇔ Body round)	BR ⇔ Body ground	Constant	Continuity
EOM ⇔ Body round (E6-15 ⇔ Body round)	BR ⇔ Body ground	Constant	Continuity

HINT:

If a "waveform" is specified in the table, the actual waveform is provided on the following pages.

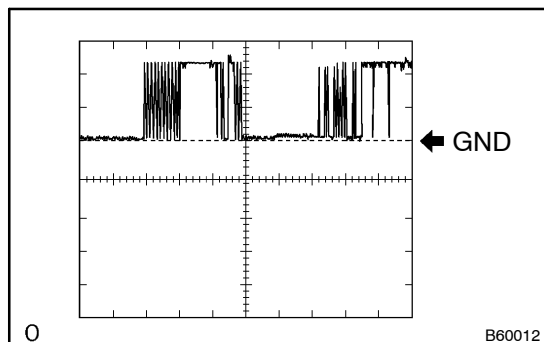
(b) Using an oscilloscope, inspect.

NOTICE:

The waveform provided on this text does not include noise and chattering.

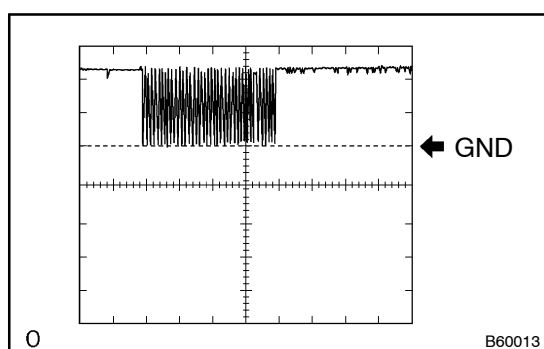
HINT:

If the result is not as specified, the ECM may malfunction.



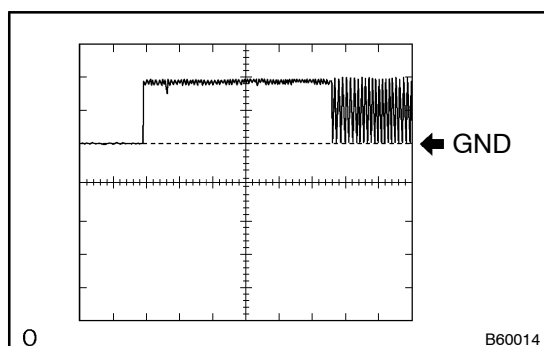
Waveform 1 (Reference):

Item	Condition
Symbols (Terminal No.)	CODE \Leftrightarrow E1 (E7-15 \Leftrightarrow E8-1)
Tool setting	5 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder



Waveform 2 (Reference):

Item	Condition
Symbols (Terminal No.)	RXCK \Leftrightarrow E1 (E7-27 \Leftrightarrow E8-1)
Tool setting	5 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder



Waveform 3 (Reference):

Item	Condition
Symbols (Terminal No.)	TXCT \Leftrightarrow E1 (E7-26 \Leftrightarrow E8-1)
Tool setting	2 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder