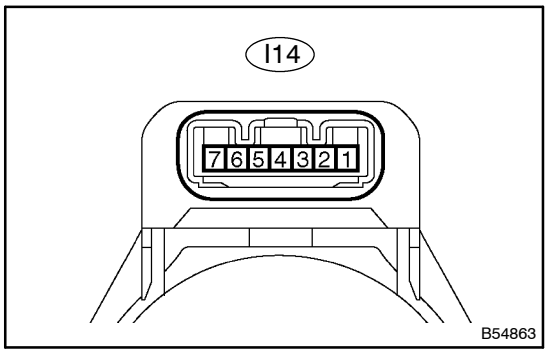
055VI–02

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.

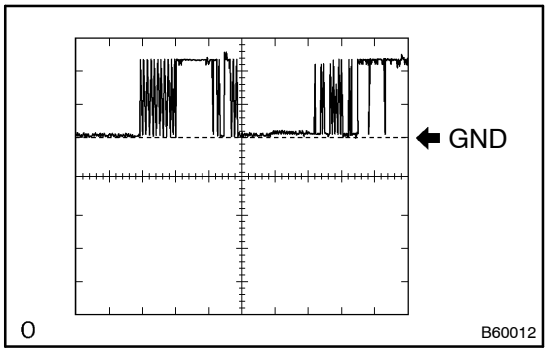
(c) Using an oscilloscope, inspect.

NOTICE:

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

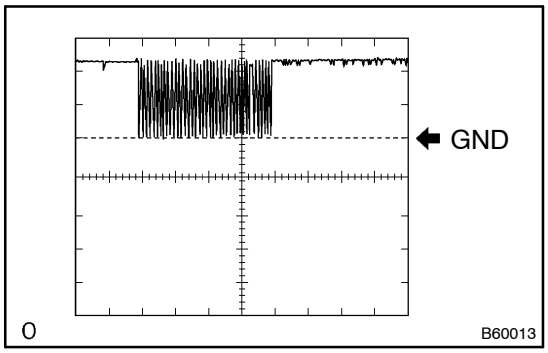
HINT:

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



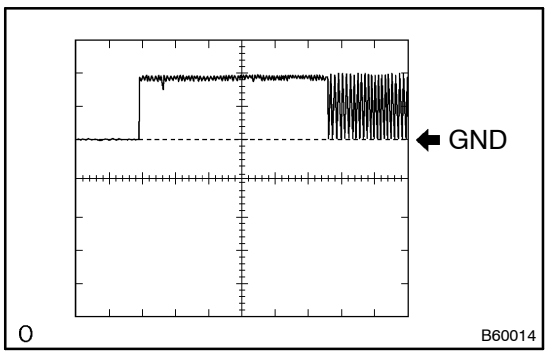
Waveform 1 (Reference):

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):

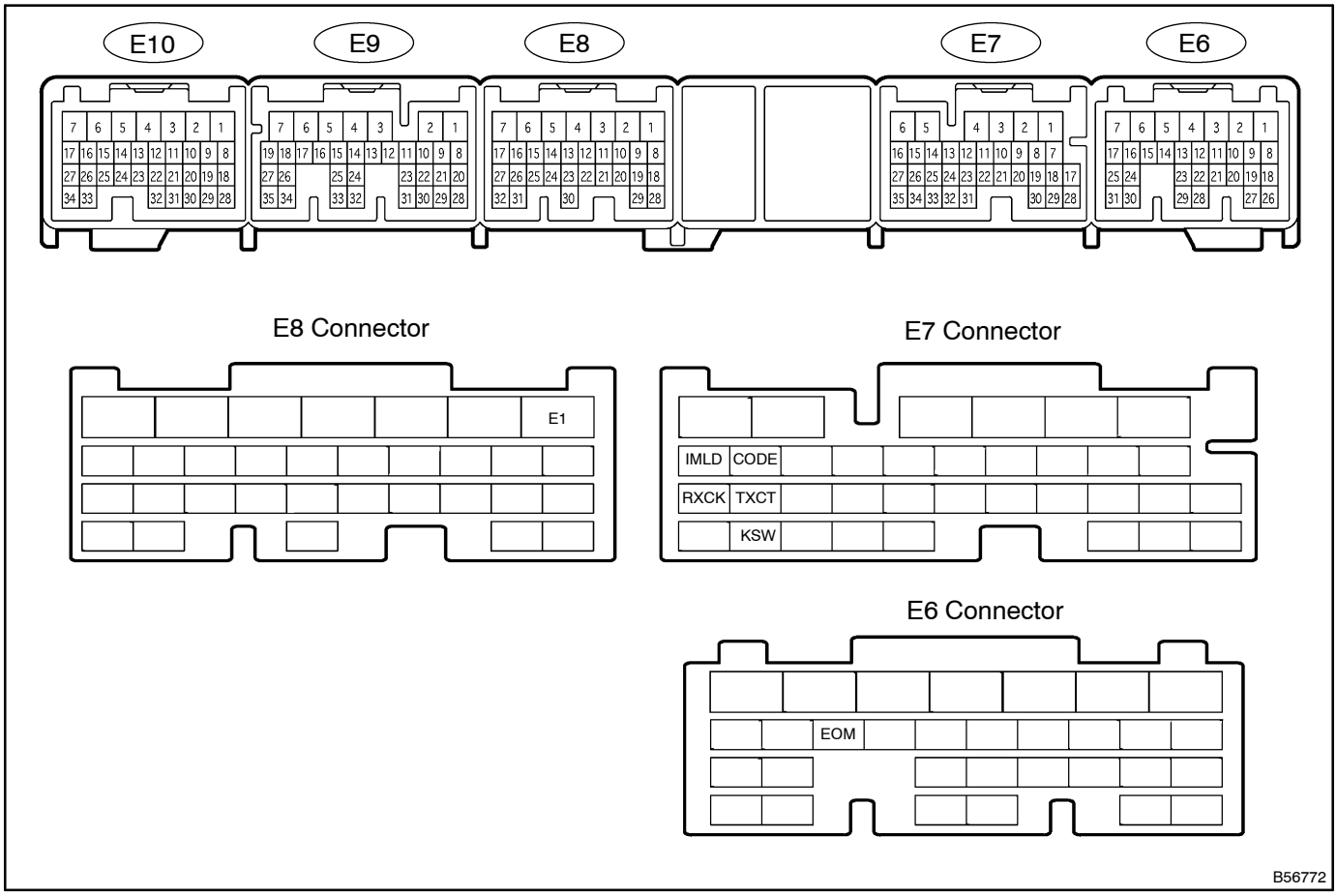
Item	Condition
Symbols (Terminal No.)	RXCK ⇔ GND (I14–3 ⇔ I14–7)
Tool setting	10 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder



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.

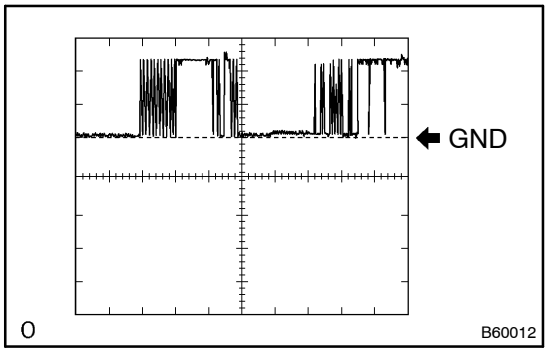
(b) Using an oscilloscope, inspect.

NOTICE:

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

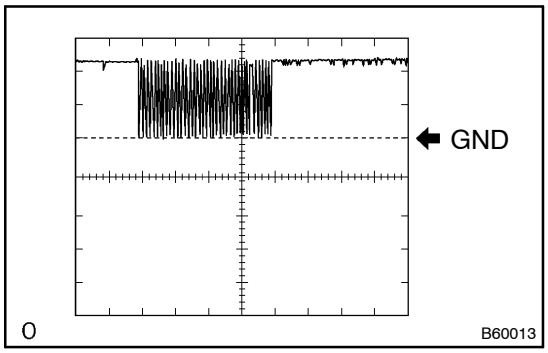
HINT:

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



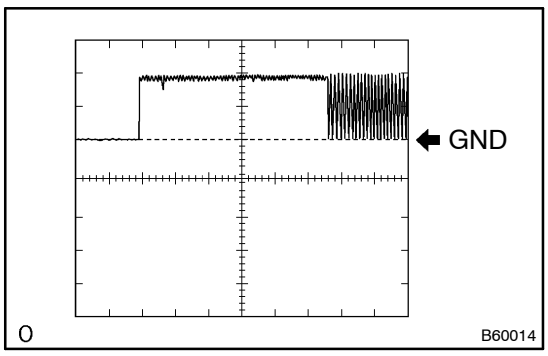
Waveform 1 (Reference):

Item	Condition
Symbols (Terminal No.)	CODE ⇔ E1 (E7–15 ⇔ 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 ⇔ E1 (E7–27 ⇔ 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 ⇔ E1 (E7–26 ⇔ E8–1)
Tool setting	2 V/DIV, 10 ms/DIV
Vehicle condition	Key in ignition key cylinder