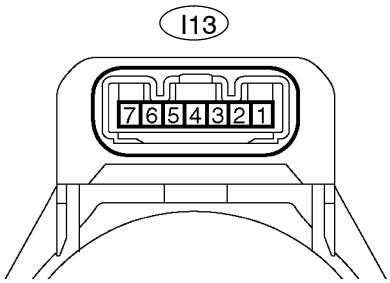
05AC1–02

TERMINALS OF ECU

1. CHECK TRANSPONDER KEY AMPLIFIER



B65593

(a) Disconnect the I13 amplifier connector, and check the continuity of each terminal of the wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
GND (I13–7) ⇔ Body ground	BR ⇔ –	Constant	Continuity

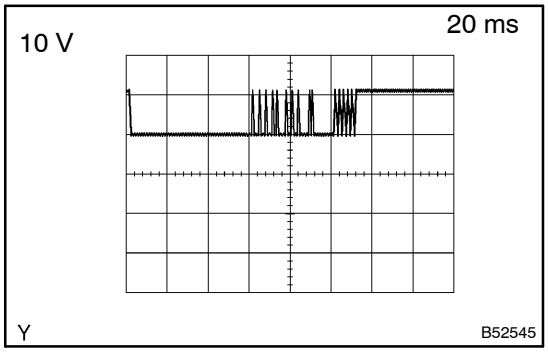
If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the I13 amplifier connector, and check the continuity or voltage of each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
VC5 (I13–1) ⇔ GND (I13–7)	R ⇔ BR	No key in ignition key cylinder → With key	0 V → 10 – 14 V
CODE(I13–4) ⇔ GND (I13–7)	Y ⇔ BR	No key in ignition key cylinder → With key	Waveform 1
TXCK (I13–5) ⇔ GND (I13–7)	Y–B ⇔ BR	No key in ignition key cylinder → With key	Waveform 2
GND (I13–7) ⇔ Body ground	BR ⇔ –	Constant	Continuity

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

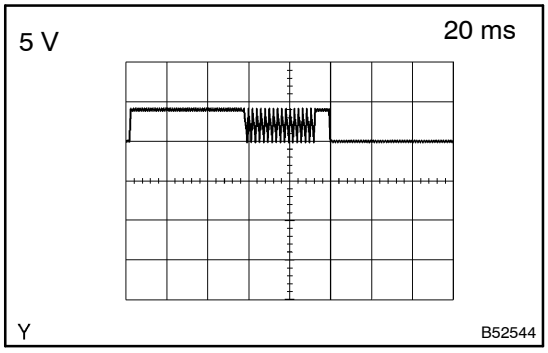


B52545

(c) Inspect using an oscilloscope.

Waveform 1 (Reference):

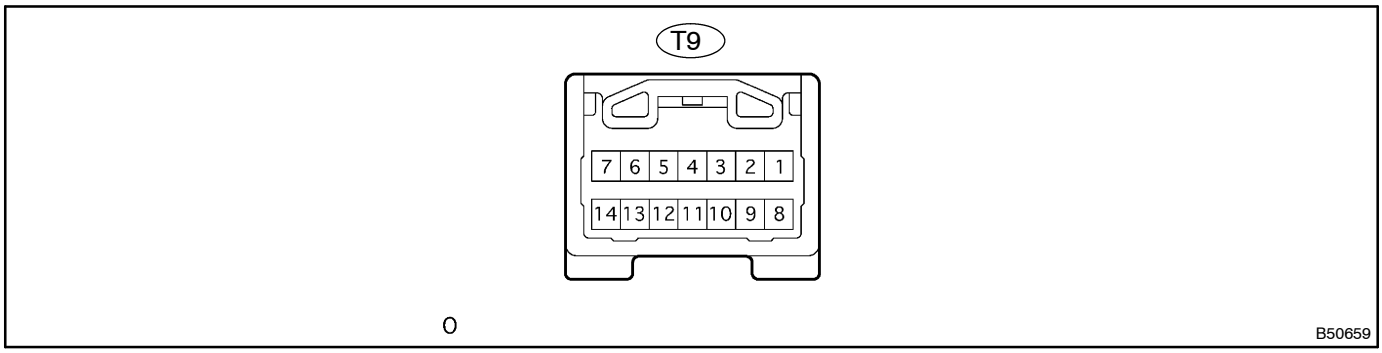
Terminal	CODE – GND
Tool setting	10 V/DIV, 20 ms/DIV
Condition	Ignition switch ON



Waveform 2 (Reference):

Terminal	TXCK ⇔ GND
Tool setting	5 V/DIV., 20 ms/DIV.
Condition	Ignition switch ON

2. CHECK TRANSPONDER KEY ECU ASSY



(a) Disconnect the T9 ECU connector, and check the voltage or continuity between each terminal of the wire harness side connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
GND (T9–14) ⇔ Body ground	W–B ⇔ –	Constant	Continuity
+B (T9–1) ⇔ GND (T9–14)	W–R ⇔ W–B	Constant	10 – 14 V
IG (T9–2) ⇔ GND (T9–14)	B–R ⇔ W–B	Ignition switch OFF → ON	0 V → 10 – 14 V
KSW (T9–10) ⇔ GND (T9–14)	G–Y ⇔ W–B	No key in the ignition key cylinder → With key	No continuity → Continuity
AGND (T9–13) ⇔ Body ground	BR ⇔ –	Constant	Continuity

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

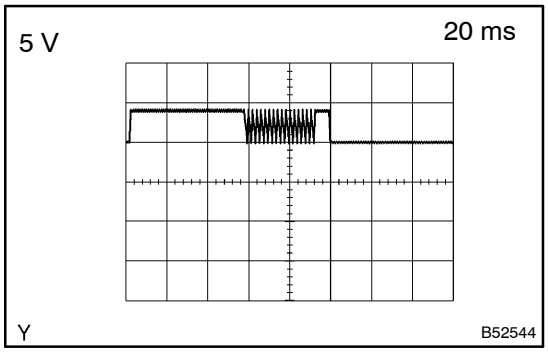
(b) Reconnect the T9 ECU connector, and check the voltage between each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
KSW (T9–10) ⇔ GND (T9–14)	G–Y ⇔ W–B	No key in ignition key cylinder → With key	10 – 14 V → 0 V
VC5 (T9–8) ⇔ GND (T9–14)	R ⇔ W–B	Ignition switch OFF → ON	0 V → 10 – 14 V
TXCT (T9–12) ⇔ GND (T9–14)	Y–B ⇔ W–B	Ignition switch OFF → ON	Waveform 1
CODE (T9–11) ⇔ GND (T9–14)	Y ⇔ W–B	Ignition switch OFF → ON	Waveform 2
EFIO (T9–6) ⇔ GND (T9–14)	W–R ⇔ W–B	Ignition switch OFF → ON	Waveform 3
EFII (T9–7) ⇔ GND (T9–14)	L–R ⇔ W–B	Ignition switch OFF → ON	Waveform 4

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CTY (T9–4) ⇔ GND (T9–14)	R–Y ⇔ W–B	Driver side door CLOSED → OPEN	10 – 14 V → 0 V
IND (T9–3) ⇔ GND (T9–14)	V–W ⇔ W–B	During set preparation	10 – 14 V → 0 V (Waveform)

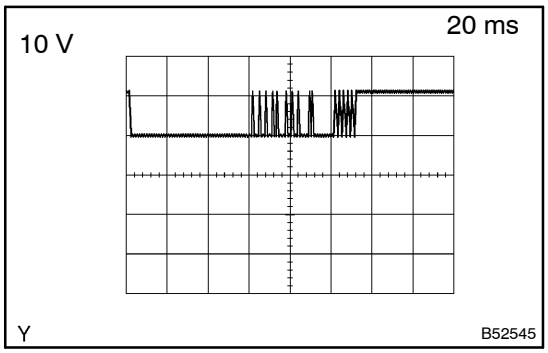
If the result is not as specified, the transponder key ECU assy may malfunction.



(c) Inspect using an oscilloscope.

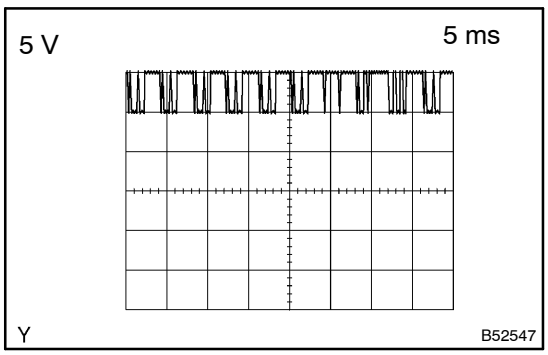
Waveform 1 (Reference):

Terminal	TXCT ⇔ GND
Tool setting	5 V/DIV., 20 ms/DIV.
Condition	Ignition switch ON



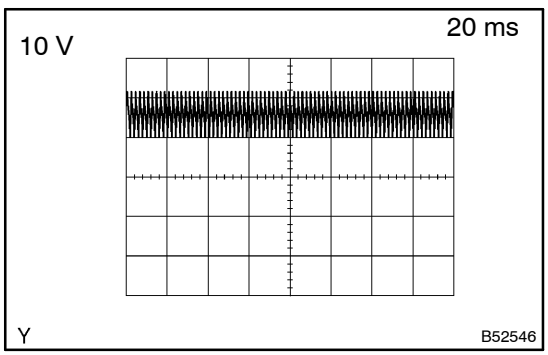
Waveform 2 (Reference):

Terminal	CODE ⇔ GND
Tool setting	10 V/DIV., 20 ms/DIV.
Condition	Ignition switch ON



Waveform 3 (Reference):

Terminal	EFIO ⇔ GND
Tool setting	5 V/DIV., 5 ms/DIV.
Condition	Ignition switch ON

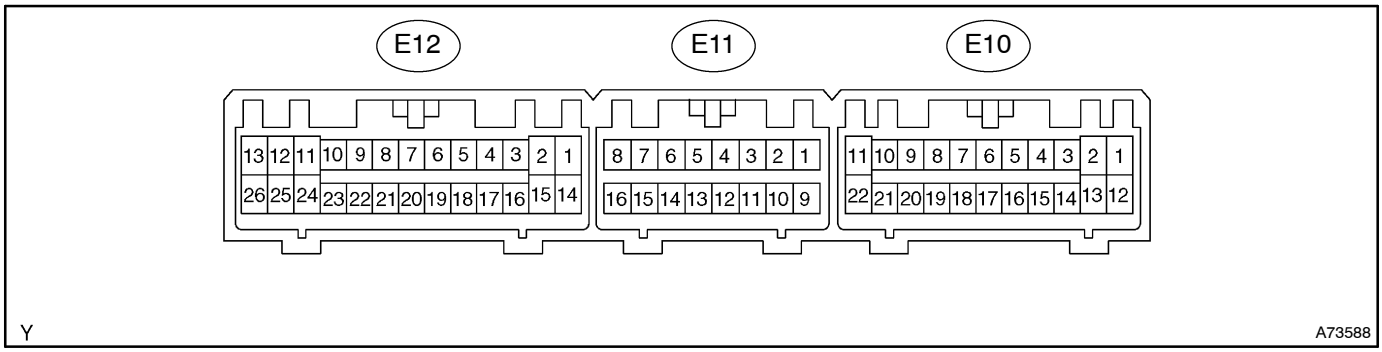


Waveform 4 (Reference):

Terminal	EFII ⇔ GND
Tool setting	10 V/DIV., 20 ms/DIV.
Condition	Ignition switch ON

3. INSPECT ECM

3RZ–FE engine (Leaded gasoline):



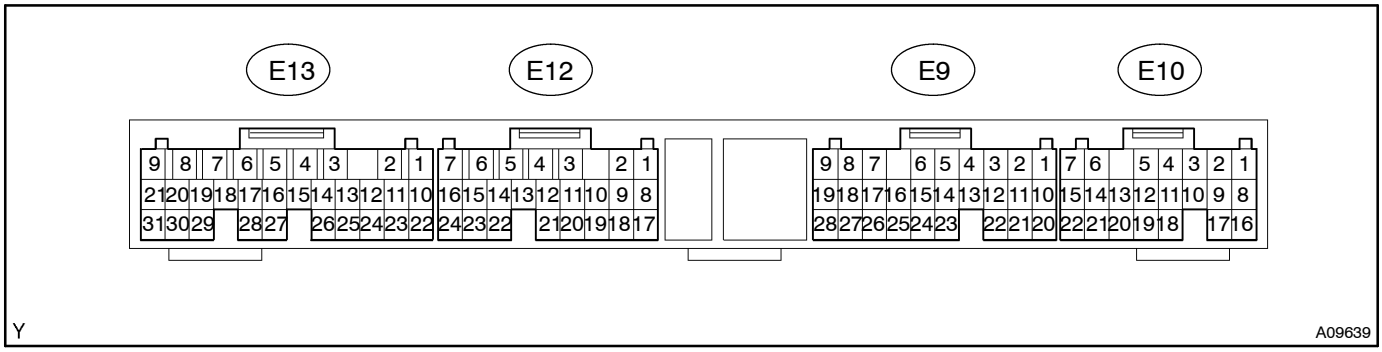
(a) Disconnect the the E10 and E12 ECM connectors, and check the voltage or continuity between each terminal of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
IMI (E10–19) ⇔ E1 (E12–24)	W–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 1
IMO (E10–8) ⇔ E1 (E12–24)	L–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 2
E1 (E12–24) ⇔ Body ground	BR ⇔ –	Constant	Continuity

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

1KD–FTV engine:



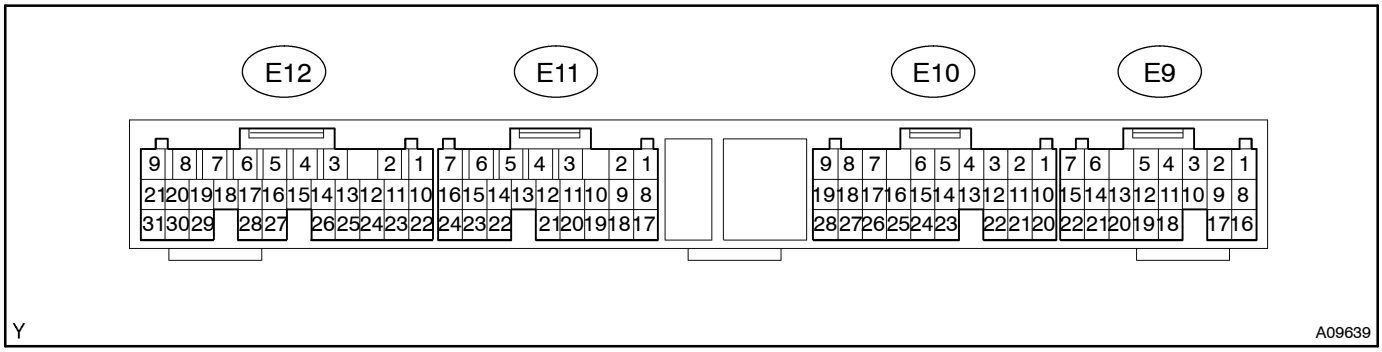
(b) Disconnect the the E10 and E13 ECM connectors, and check the voltage or continuity between each terminal of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
IMI (E10–14) ⇔ E1 (E13–22)	W–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 1
IMO (E10–21) ⇔ E1 (E13–22)	L–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 2
E1 (E13–22) ⇔ Body ground	BR ⇔ –	Constant	Continuity

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

1KZ–TE engine:



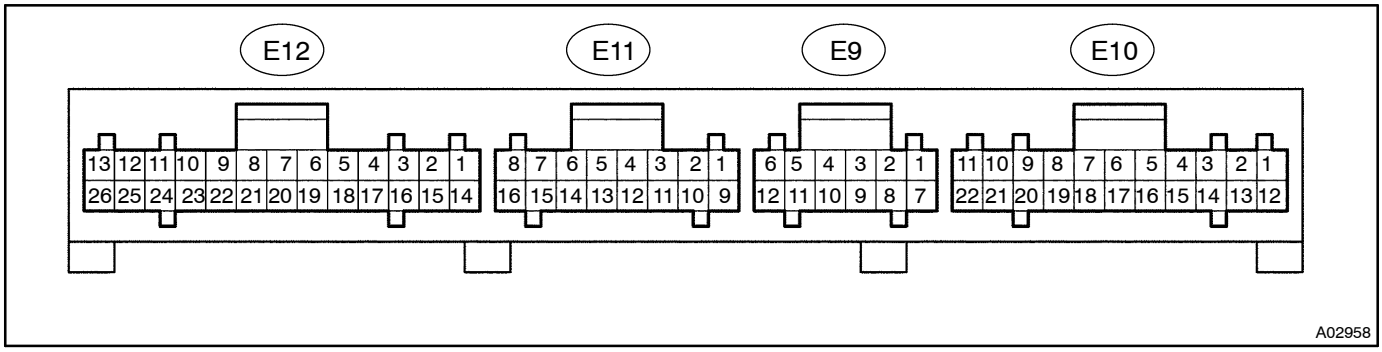
(c) Disconnect the the E11 and E12 ECM connectors, and check the voltage or continuity between each terminal of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
IMI (E11–7) ⇔ E1 (E12–22)	W–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 1
IMO (E9–15) ⇔ E1 (E12–22)	L–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 2
E1 (E12–22) ⇔ Body ground	BR ⇔ –	Constant	Continuity

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

5L–E engine:

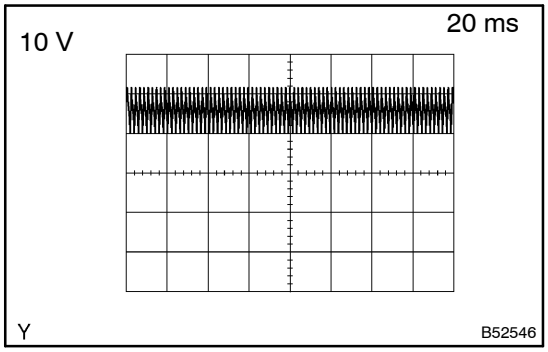


(d) Disconnect the the E10 and E12 ECM connectors, and check the voltage or continuity between each terminal of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
IMI (E10–18) ⇔ E1 (E12–14)	W–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 1
IMO (E10–7) ⇔ E1 (E12–14)	L–R ⇔ BR	No key in ignition key cylinder → With key	Waveform 2
E1 (E12–14) ⇔ Body ground	BR ⇔ –	Constant	Continuity

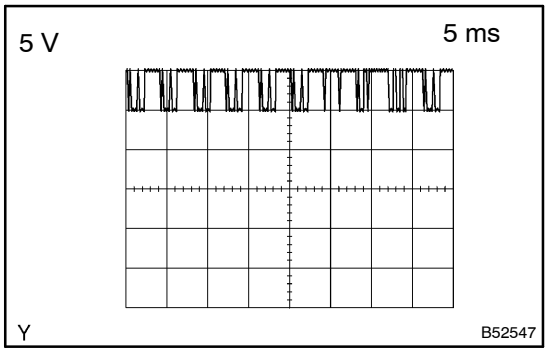
If the result is not as specified, there may be a malfunction on the wire harness side.



(e) Inspect using an oscilloscope.

Waveform 1 (Reference):

Terminal	IMI ⇔ GND
Tool setting	10 V/DIV., 20 ms/DIV.
Condition	Ignition switch ON



Waveform 2 (Reference):

Terminal	IMO ⇔ GND
Tool setting	5 V/DIV., 5 ms/DIV.
Condition	Ignition switch ON