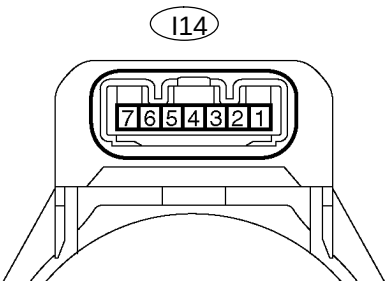
05A27−16

TERMINALS OF ECU

1. CHECK TRANSPONDER KEY AMPLIFIER



B65593

(a) Disconnect the I14 amplifier connector, and check the continuity between the terminal of the wire harness side connector and body ground.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Standard
GND (I14−7) ⇔ Body ground	W−B ⇔ −	Constant	Continuity

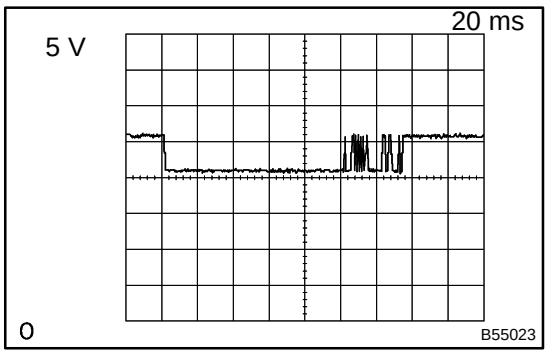
If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the I14 amplifier connector, and check the continuity or voltage of each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Standard
VC5 (I14−1) ⇔ GND (I14−7)	B ⇔ W−B	No key in ignition key cylinder → With key	0 V → 10 − 14 V
CODE(I14−4) ⇔ GND (I14−7)	G−W ⇔ W−B	No key in ignition key cylinder → With key	Waveform 1
TXCT (I14−5) ⇔ GND (I14−7)	L−Y ⇔ W−B	No key in ignition key cylinder → With key	Waveform 2
GND (I14−7) ⇔ Body ground	W−B ⇔ −	Constant	Continuity

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

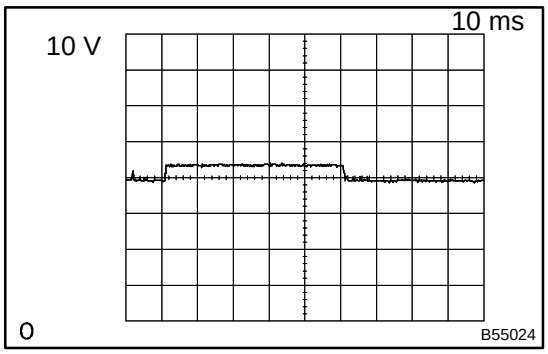


B55023

(c) Inspect using an oscilloscope.

Waveform 1 (Reference):

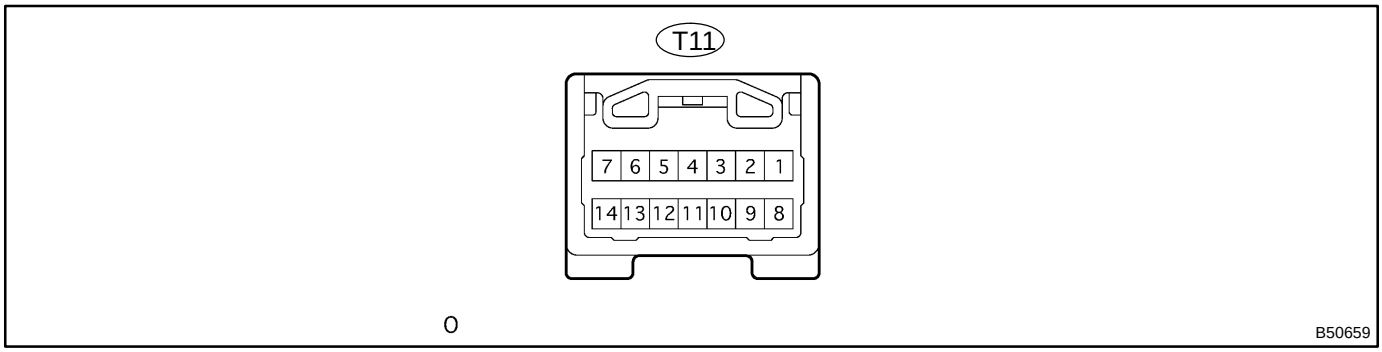
Terminal	CODE ⇔ GND
Tool Setting	5 V/DIV., 20 ms/DIV.
Condition	Ignition switch ON



Waveform 2 (Reference):

Terminal	TXCT ⇔ GND
Tool Setting	10 V/DIV., 10 ms/DIV.
Condition	Ignition switch ON

2. CHECK TRANSPONDER KEY ECU ASSY (TMMK Made)



(a) Disconnect the T11 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
AGND (T11−13) ⇔ Body ground	W−B ⇔ −	Constant	Continuity
+B (T11−1) ⇔ GND (T11−14)	W−R ⇔ W−B	Constant	10 − 14 V
IG (T11−2) ⇔ AGND (T11−13)	B−R ⇔ W−B	Ignition switch OFF → ON	0 V → 10 − 14 V
KSW (T11−10) ⇔ AGND (T11−13)	L ⇔ W−B	No key in ignition key cylinder → With key	No continuity → Continuity

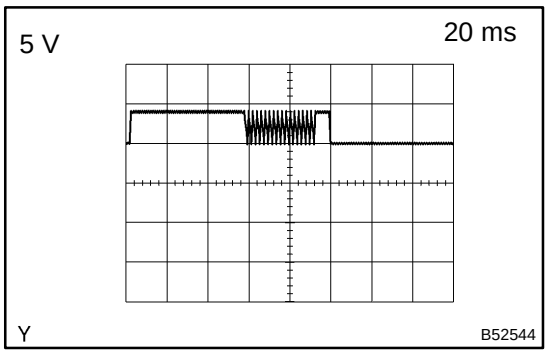
If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the T11 ECU connector, and check the voltage between each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
KSW (T11−10) ⇔ AGND (T11−13)	L ⇔ W−B	No key in ignition key cylinder → With key	10 − 14 V → 0 V
VC5 (T11−8) ⇔ AGND (T11−13)	B ⇔ W−B	Ignition switch OFF → ON	0 V → 4.5 − 5.5 V
TXCT (T11−12) ⇔ AGND (T11−13)	L−Y ⇔ W−B	Ignition switch OFF → ON	Waveform 1
CODE (T11−11) ⇔ AGND (T11−13)	G−W ⇔ W−B	Ignition switch OFF → ON	Waveform 2
EFIO (T11−6) ⇔ AGND (T11−13)	R−L ⇔ W−B	Ignition switch OFF → ON	Waveform 3
EFII (T11−7) ⇔ AGND (T11−13)	L−B ⇔ W−B	Ignition switch OFF → ON	Waveform 4

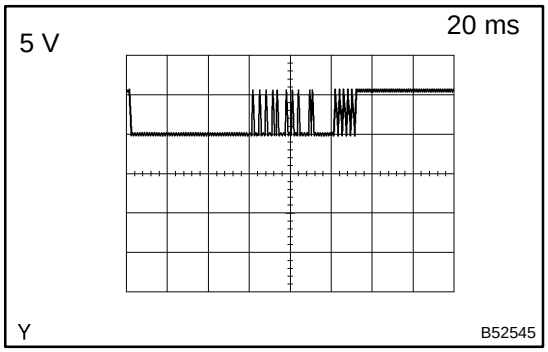
If the result is not as specified, the ECU may have a malfunction.



(c) Inspect using an oscilloscope.

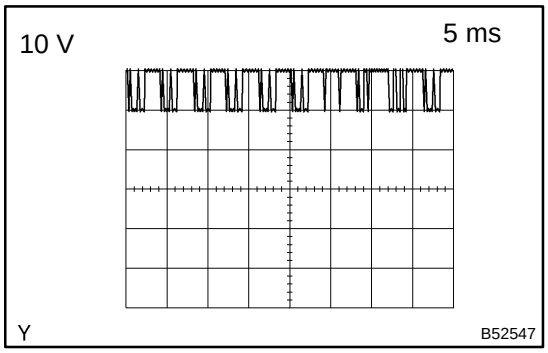
Waveform 1 (Reference):

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



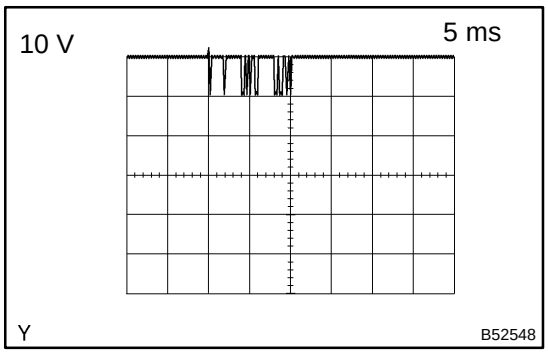
Waveform 2 (Reference):

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



Waveform 3 (Reference):

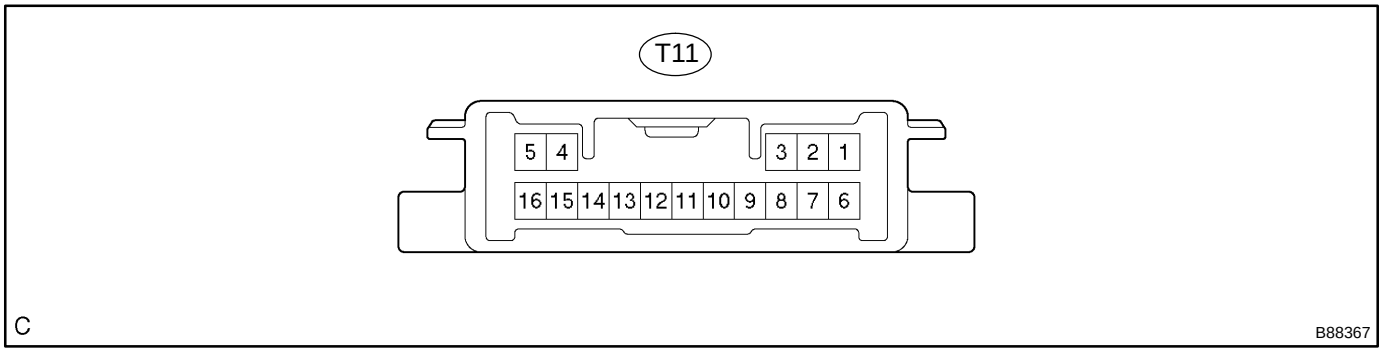
Terminal	EFIO ⇔ GND
Tool Setting	10 V/DIV., 5 ms/DIV.
Condition	Ignition switch ON



Waveform 4 (Reference):

Terminal	EFII ⇔ GND
Tool Setting	10 V/DIV., 5 ms/DIV.
Condition	Constant

3. CHECK TRANSPONDER KEY ECU ASSY (TMC Made)



(a) Disconnect the T11 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
AGND (T11−5) ⇔ Body ground	W−B ⇔ −	Constant	Continuity
+B (T11−1) ⇔ GND (T11−16)	W−R ⇔ W−B	Constant	10 − 14 V
IG (T11−2) ⇔ AGND (T11−5)	B−R ⇔ W−B	Ignition switch OFF → ON	0 V → 10 − 14 V
KSW (T11−10) ⇔ AGND (T11−5)	L ⇔ W−B	No key in ignition key cylinder → With key	No continuity → Continuity

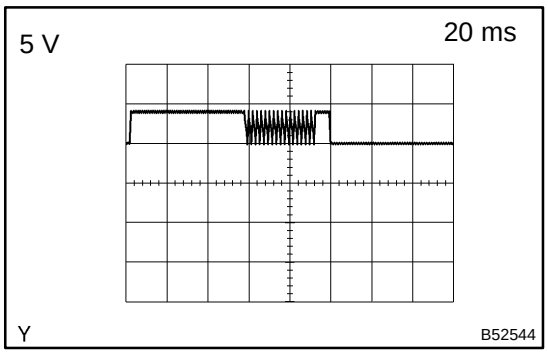
If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the T11 ECU connector, and check the voltage between each terminal of the connector.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
KSW (T11−3) ⇔ AGND (T11−5)	L ⇔ W−B	No key in ignition key cylinder → With key	10 − 14 V → 0 V
VC5 (T11−14) ⇔ AGND (T11−5)	B ⇔ W−B	Ignition switch OFF → ON	0 V → 4.5 − 5.5 V
TXCT (T11−4) ⇔ AGND (T11−5)	L−Y ⇔ W−B	Ignition switch OFF → ON	Waveform 1
CODE (T11−15) ⇔ AGND (T11−5)	G−W ⇔ W−B	Ignition switch OFF → ON	Waveform 2
EFIO (T11−13) ⇔ AGND (T11−5)	R−L ⇔ W−B	Ignition switch OFF → ON	Waveform 3
EFII (T11−12) ⇔ AGND (T11−5)	L−B ⇔ W−B	Ignition switch OFF → ON	Waveform 4

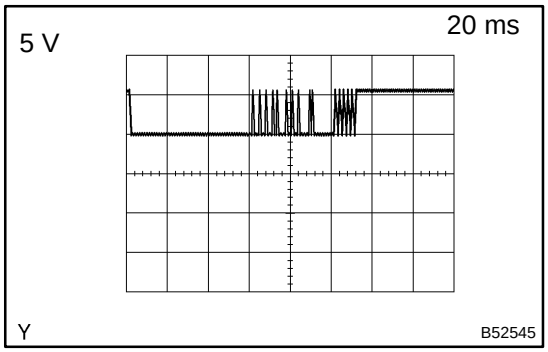
If the result is not as specified, the ECU may have a malfunction.



(c) Inspect using an oscilloscope.

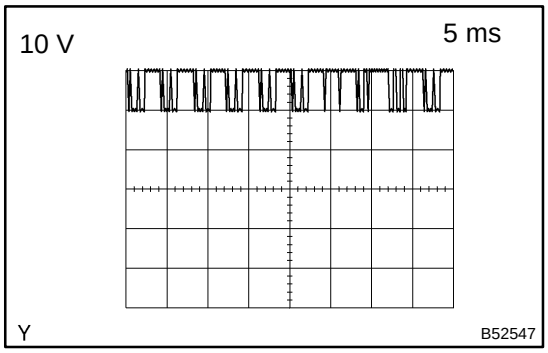
Waveform 1 (Reference):

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



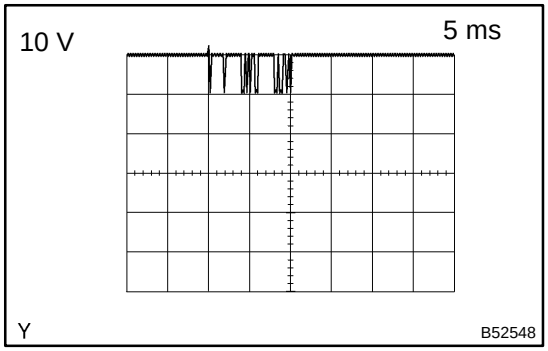
Waveform 2 (Reference):

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



Waveform 3 (Reference):

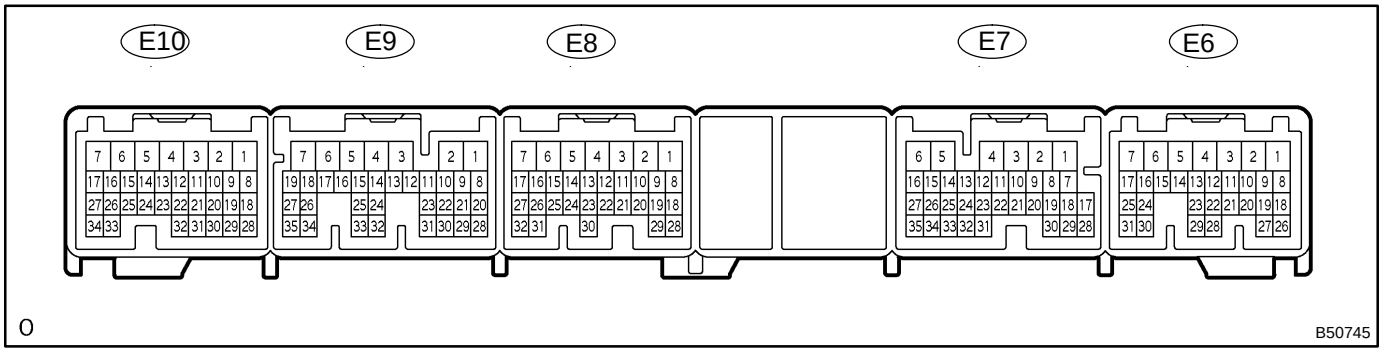
Terminal	EFIO ⇔ GND
Tool Setting	10 V/DIV., 5 ms/DIV.
Condition	Ignition switch ON



Waveform 4 (Reference):

Terminal	EFII ⇔ GND
Tool Setting	10 V/DIV., 5 ms/DIV.
Condition	Constant

4. CHECK ECM (1MZ−FE, 3MZ−FE)

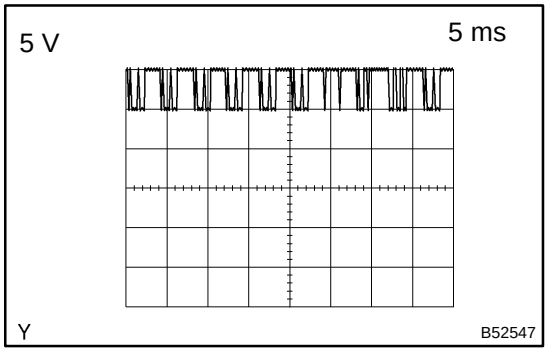


(a) Disconnect the E7 and E8 ECM connectors, and check the voltage or continuity between each terminal of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
IMI (E7−27) ⇔ E1 (E8−1)	R−L ⇔ BR	No key in ignition key cylinder → With key	Waveform 1
IMO (E7−26) ⇔ E1 (E8−1)	L−B ⇔ BR	No key in ignition key cylinder → With key	Waveform 2
E1 (E8−1) ⇔ Body ground	BR ⇔ −	Constant	Continuity

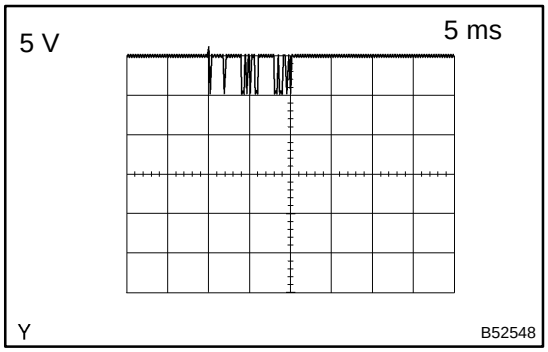
If the result is not as specified, there may be a malfunction on the wire harness side.



(b) Inspect using an oscilloscope.

Waveform 1 (Reference):

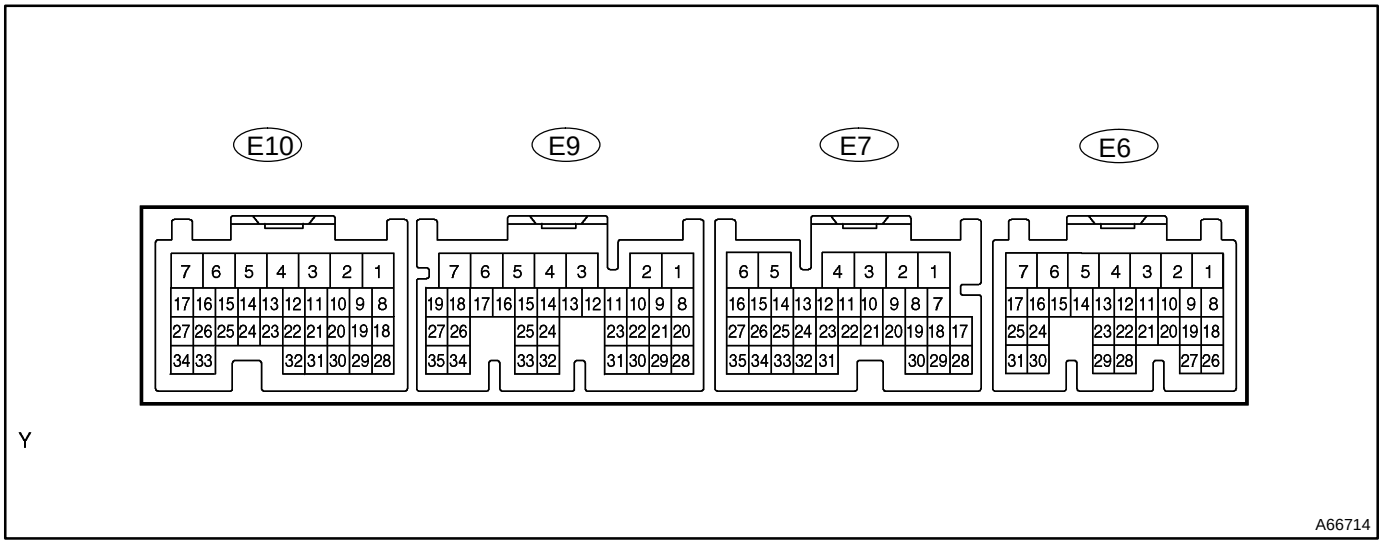
Terminal	IMI ⇔ GND
Tool Setting	5 V/DIV., 5 ms/DIV.
Condition	Ignition switch ON



Waveform 2 (Reference):

Terminal	IMO ⇔ GND
Tool Setting	5 V/DIV., 5 ms/DIV.
Condition	Constant

5. CHECK ECM (2AZ−FE)

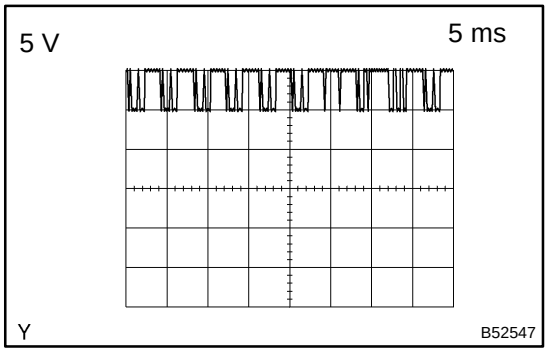


(a) Disconnect the E7 and E10 ECM connectors, and check the voltage or continuity between each terminal of the wire harness side connectors.

Standard:

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
IMI (E7−16) ⇔ E1 (E10−3)	R−L ⇔ BR	No key in ignition key cylinder → With key	Waveform 1
IMO (E7−15) ⇔ E1 (E10−3)	L−B ⇔ BR	No key in ignition key cylinder → With key	Waveform 2
E1 (E10−3) ⇔ Body ground	BR ⇔ −	Constant	Continuity

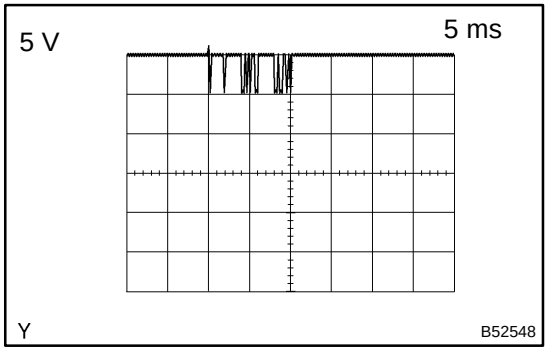
If the result is not as specified, there may be a malfunction on the wire harness side.



(b) Inspect using an oscilloscope.

Waveform 1 (Reference):

Terminal	IMI ⇔ GND
Tool Setting	5 V/DIV., 5 ms/DIV.
Condition	Ignition switch ON



Waveform 2 (Reference):

Terminal	IMO ⇔ GND
Tool Setting	5 V/DIV., 5 ms/DIV.
Condition	Constant