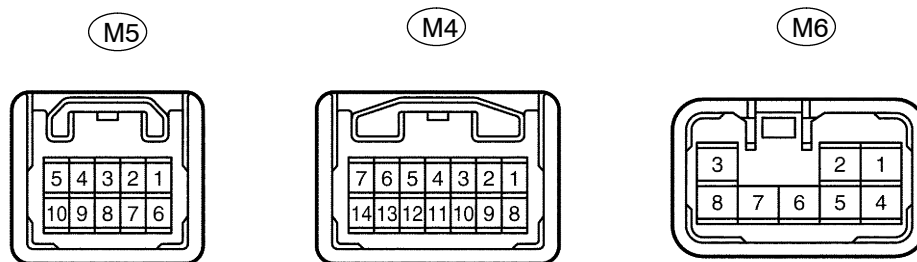


TERMINALS OF ECU

Multi-display:



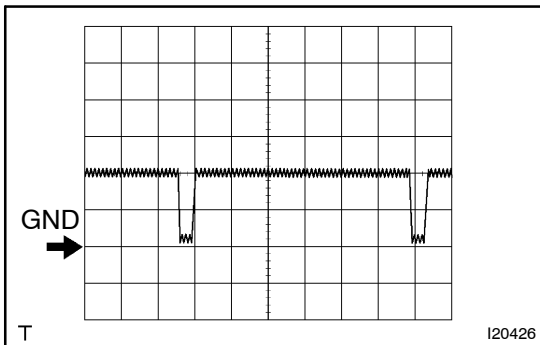
I26026

Symbols (Terminals No.)	Wiring Color	Condition	Specified condition
M6-1 - M6-6 (+B1 - GND1)	L-W - W-B	Constant	10 - 14 V
M6-2 - M6-6 (IG - GND1)	B-W - W-B	Ignition switch OFF or ACC	Below 1 V
		Ignition switch ON	10 - 14 V
M6-4 - M6-6 (ACC - GND1)	GR - W-B	Ignition switch OFF	Below 1 V
		Ignition switch ACC or ON	10 - 14 V
M6-6 - Body ground (GND1 - Body ground)	W-B - Body ground	Constant	Below 1 V
M4-3 (TX+)	P	See "Service Check Mode"	-
M4-4 (TX3+)	P-L	See "Service Check Mode"	-
M4-5 - M6-6 (SPD - GND1)	V - W-B	See "Vehicle Signal Check Mode"	-
M4-7 - M6-6 (LP - GND1)	G-R - W-B	Security indicator OFF	Below 1 V
		Security indicator ON	10 - 14 V
M4-10 (TX -)	L	See "Service Check Mode"	-
M4-11 (TX3 -)	P-B	See "Service Check Mode"	-
M4-13 - M6-6 (PKB - GND1)	R-W - W-B	See "Vehicle Signal Check Mode"	-
M4-14 - M6-6 (TC - GND1)	P-W - W-B	Ignition switch OFF and connect terminals TC and CG of DLC3.	Below 1 V
M5-1 - M5-6 (VR - VG)	L - Shielded	Ignition switch OFF	Below 1 V
M5-2 - M5-6 (R - VG)	LG - Shielded	Navigation map is switched	Pulse generation *2
M5-3 - M5-6 (B - VG)	R - Shielded	Navigation map is switched	Pulse generation *2
M5-6 - M6-6 (VG - GND1)	Shielded - W-B	Ignition switch OFF	Below 1 V

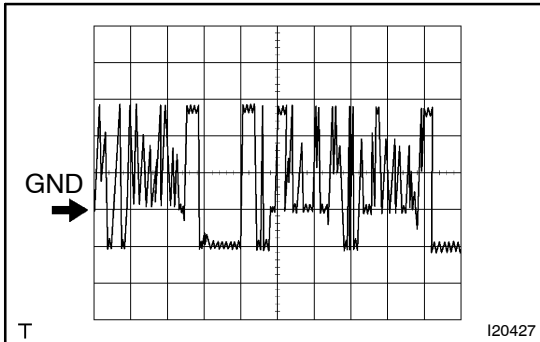
DIAGNOSTICS – NAVIGATION SYSTEM

M5-7 – M5-6 (G – VG)	W – Shielded	Navigation map is switched	Pulse generation *2
M6-8 – M6-6 (SYNC – VG)	G – Shielded	Navigation display is displayed	Pulse generation *1

Terminal No. (Symbols)	Problem symptom when open circuit is detected.	Problem symptom when short circuit is detected.
M6-1 – M6-6 (+B1 – GND1)	Navigation system does not operate.	Navigation system does not operate.
M6-2 – M6-6 (IG – GND1)	Navigation system does not operate.	Navigation system does not operate.
M6-4 – M6-6 (ACC – GND1)	Navigation system does not operate.	Navigation system does not operate.
M6-6 – Body ground (GND1 – Body ground)	Navigation system does not operate.	Navigation system is normal.
M4-3 (TX+)	Screen is in disorder.	Screen is in disorder.
M4-4 (TX3+)	DVD screen is in disorder.	DVD screen is in disorder.
M4-5 – M6-6 (SPD – GND1)	All switch operation is available during driving.	All switch operation is available during driving.
M4-7 – M6-6 (PBEW – GND1)	Passenger seat belt warning does not light up.	Passenger seat belt warning remains lit.
M4-10 (TX –)	Screen is in disorder.	Screen is in disorder.
M4-11 (TX3 –)	DVD screen is in disorder.	DVD screen is in disorder.
M4-13 – M6-6 (PKB – GND1)	The system can not enter diagnosis system mode.	Navigation system is normal.
M4-14 – M6-6 (TC – GND1)	Navigation system is normal.	The system can not exit service check mode.
M5-1 – M5-6 (VR – VG)	Screen noise or other types of noise occur.	Screen noise or other types of noise occur.
M5-2 – M5-6 (R – VG)	Screen color turns to blue.	Screen color turns to blue.
M5-3 – M5-6 (B – VG)	Screen color turns to yellow.	Screen color turns to yellow.
M5-6 – M6-6 (VG – GND1)	Screen noise or other types of noise occur.	Navigation system is normal.
M5-7 – M6-6 (G – VG)	Screen color turns to red –purple.	Screen color turns to red –purple.
M5-8 – M5-6 (SYNC – VG)	Synchronous pulse fluctuates rapidly in map screen.	Synchronous pulse fluctuates slowly in map screen.

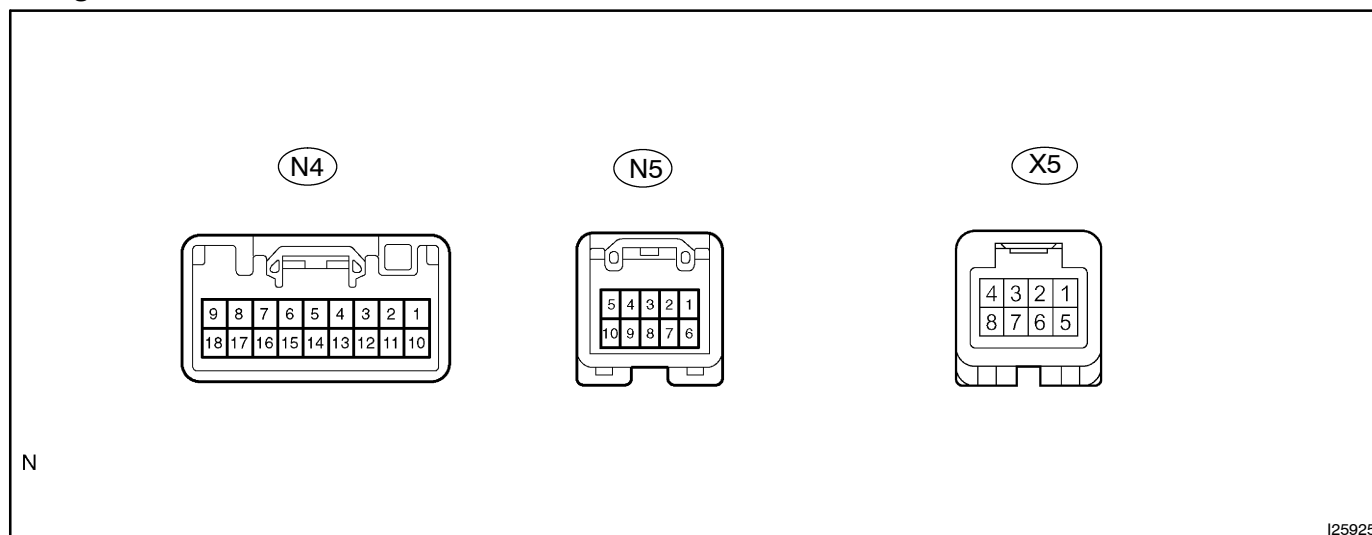


- *1: Oscilloscope wave
Terminal to be measured: SYNC – GND1
Setting for measurement: 500 mV/DIV 10 – μ s/DIV
Condition: Navigation display is displayed.



- *2: Oscilloscope wave
Terminal to be measured: R, G, B – GND1
Setting for measurement: 200 mV/DIV 10 – μ s/DIV
Condition: Navigation map is switched.

Navigation ECU



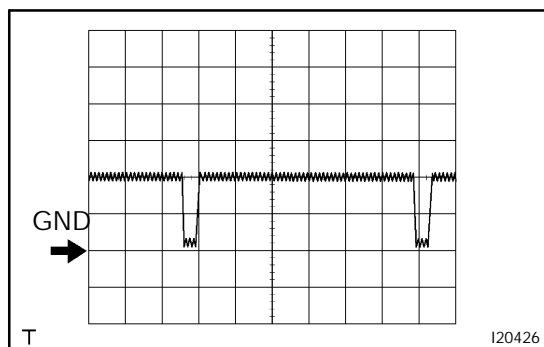
Symbols (Terminals No.)	Wiring Color	Condition	Specified condition
N4-1 – N4-17 (AUI+ – GND)	P – W-B	Audio system is sounding	A waveform synchronized with sounds is output
N4-2 (AUO+)	P	Sound quality test	–
N4-5 – N4-17 (SPD – GND)	Y-R – W-B	See "Vehicle Signal Check Mode"	–
N4-9 – N4-17 (+B – GND)	L-Y – W-B	Constant	10 – 14 V
N4-10 – N4-17 (AUI- – GND)	V	Audio system is sounding	A waveform synchronized with sounds is output
N4-11 (AUO –)	V	Sound quality test	–
N4-14 (REV)	R-B	See "Vehicle Signal Check Mode"	–
N4-15 – N4-17 (MUTE – GND)	G-R – W-B	Navigation voice sounding	Below 1 V
N4-17 – Bodyground (GND – Body ground)	W-B – Body ground	Constant	Below 1 V
N4-18 – N4-17 (ACC – GND)	GR – W-B	Ignition switch OFF	Below 1 V
		Ignition switch ACC or ON	10 – 14 V
N5-1 – N5-6 (VR – VG)	Y – Shielded	Ignition switch OFF	Below 1 V
N5-2 – N5-6 (R – VG)	R – Shielded	Navigation map is switched	Pulse generation *2
N5-3 – N5-6 (B – VG)	B – Shielded	Navigation map is switched	Pulse generation *2
N5-5 (TX+)	L	See "Service Check Mode"	–
N5-6 – N4-17 (VG – GND)	Shielded – W-B	Ignition switch OFF	Below 1 V
N5-7 – N5-6 (G – VG)	W – Shielded	Navigation map is switched	Pulse generation *2
N5-8 – N5-6 (SYNC – VG)	G – Shielded	Navigation display is displayed	Pulse generation *1
N5-10 (TX –)	LG	See "Service Check Mode"	–

LAND CRUISER (W/G) SUP (RM970E)

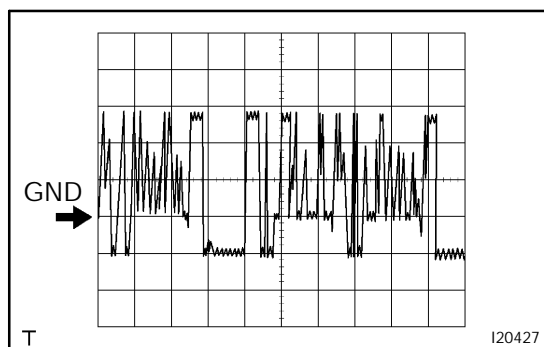
X5-3 – N4-17 (MIC+ – GND)	R-W – W-B	Ignition switch ACC	5 V
X5-4 – N4-17 (MACC – GND)	Y-G – W-B	Ignition switch OFF	Below 1 V
		Ignition switch ACC or ON	5 V
X5-5 – N4-17 (MIC- – GND)	R – W-B	Ignition switch OFF	Below 1 V
X5-6 – N4-17 (SGND – GND)	R – W-B	Ignition switch OFF	Below 1 V
X5-7 – N4-17 (SNSE – GND)	W-B – W-B	Ignition switch OFF	Below 1 V

Terminal No. (Symbols)	Problem symptom when open circuit is detected.	Problem symptom when short circuit is detected.
N4-1 – N4-17 (AUI+ – GND)	Driver side speaker does not sound.	Driver side speaker does not sound.
N4-2 (AUO+)	Navigation voice does not sound.	Navigation voice does not sound.
N4-5 – N4-17 (SPD – GND)	Navigation operation is available during, or a cursor on present site does not move.	Navigation operation is available during, or a cursor on present site does not move.
N4-9 – N4-17 (+B – GND)	Map screen does not appear.	Map screen does not appear.
N4-10 – N4-17 (AUI- – GND)	Driver side speaker does not sound.	Driver side speaker does not sound.
N4-11 (AUO-)	Navigation voice does not sound.	Navigation voice does not sound.
N4-14 (REV)	Moving direction of the vehicle is different from that of the cursor.	Moving direction of the vehicle is different from that of the cursor.
N4-15 – N4-17 (MUT2 – GND)	Noise occurs when navigation phrase is changed.	Speaker does not sound.
N4-17 – Body ground (GND – Body ground)	Audio system is normal.	Audio system is normal.
N4-18 – N4-17 (ACC-GND)	Navigation system does not operate.	Fuse is blown.
N5-1 – N5-6 (VR – VG)	Screen noise or other types of noise occur.	Screen noise or other types of noise occur.
N5-2 – N5-6 (R – VG)	Screen color turns to blue.	Screen color turns to blue.
N5-3 – N5-6 (B – VG)	Screen color turns to yellow.	Screen color turns to yellow.
N5-5 (TX+)	Screen is in disorder.	Screen is in disorder.
N5-6 – N4-17 (VG – GND)	Screen noise or other types of noise occur.	Navigation system does not operate.
N5-7 – N5-6 (G – VG)	Screen color turns to red-purple	Screen color turns to red-purple.
N5-8 – N5-6 (SYNC – VG)	Synchronous pulse fluctuates rapidly in map screen.	Synchronous pulse fluctuates slowly in map screen.
X5-3 – N4-17 (MIC+ – GND)	Voice cannot be recognized.	Voice cannot be recognized.
X5-4 – N4-17 (MACC – GND)	Voice cannot be recognized.	Voice cannot be recognized.
X5-5 – N4-17 (MIC- – GND)	Voice cannot be recognized.	Voice cannot be recognized.

X5-6 – N4-17 (SGND – GND)	Voice cannot be recognized.	Voice cannot be recognized.
X5-7 – N4-17 (SNSE – GND)	Voice cannot be recognized.	Voice cannot be recognized.

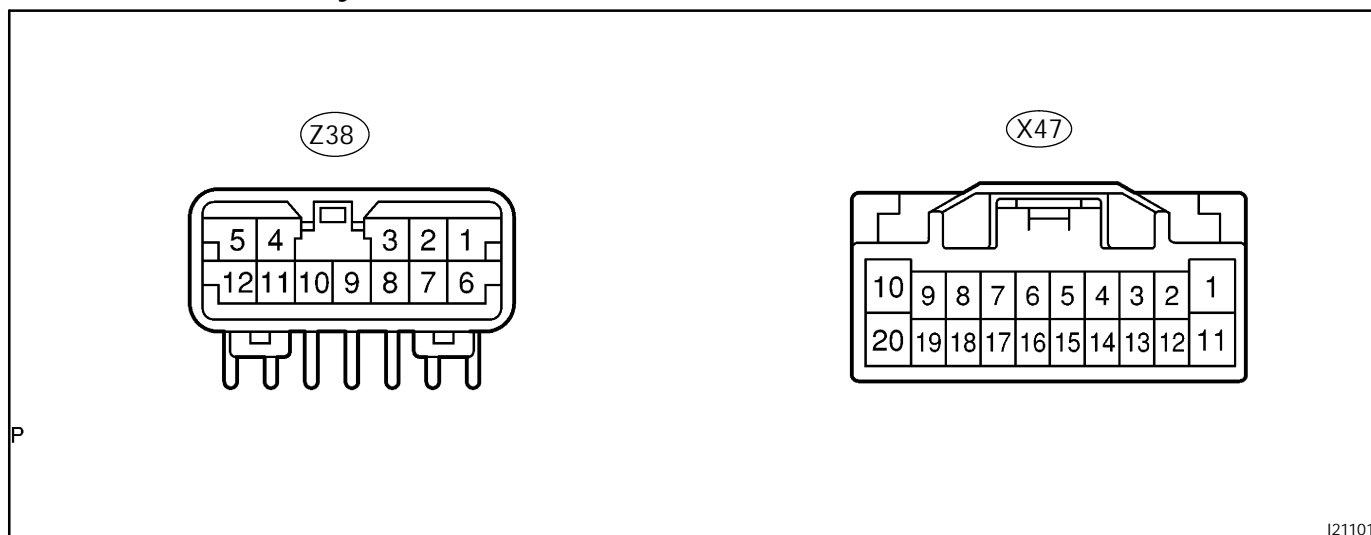


- S *1: Oscilloscope wave
 Terminal to be measured: SYNC – GND1
 Setting for measurement: 500mV/DIV 10 μ s/DIV
 Condition: Navigation display is displayed



- S *2: Oscilloscope wave
 Terminal to be measurement: R, G, B – GND1
 Setting for measurement: 200mV/DIV 10 μ s/DIV
 Condition: Navigation map is switched.

Radio receiver assembly

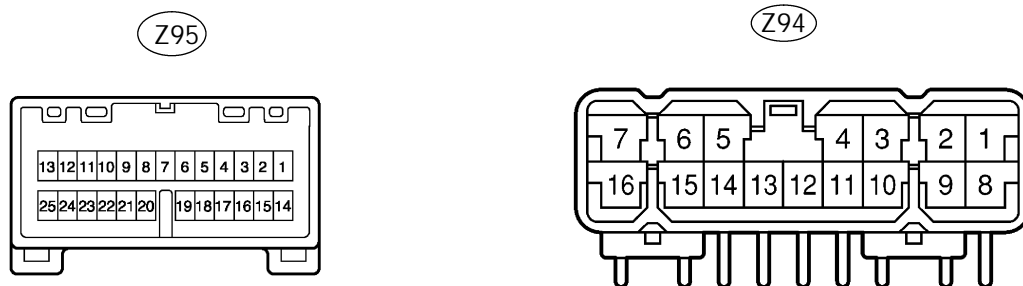


Symbols (Terminal No.)	Condition	Specified condition	Problem symptoms when short circuit is detected.
B ↔ GND (X47-1 ↔ X47-20)	Constant	10 – 14 V	Audio system does not operate.
ILL+ ↔ GND (X47-2 ↔ R2-20)	Light control switch TAIL	10 – 14 V	Audio head unit illumination does not light up.
TX+ (X47-5)	AVC-LAN Communication circuit	–	Audio system does not operate.
MUTE ↔ GND (X47-7 ↔ X47-20)	–	–	Pop sound etc.
R+ ↔ GND (X47-8 ↔ X47-20)	Constant	10 – 14 V	Sound from front right speaker is small
L+ ↔ GND (X47-9 ↔ X47-20)	Constant	10 – 14 V	Sound from front left speaker is small
ACC ↔ GND (X47-11 ↔ X47-20)	Ignition switch ACC	10 – 14 V	Audio system does not operate.
ANT+ ↔ GND (X47-13 ↔ R2-20)	Radio switch ON	10 – 14 V	Antenna does not extend.
ILL- ↔ GND (X47-12 ↔ R2-20)	Light control switch TAIL	10 – 14 V	Fuse is blown.
TX- (X47-15)	AVC-LAN Communication circuit	–	Audio system does not operate.
R- ↔ GND (X47-18 ↔ X47-20)	Constant	10 – 14 V	Sound from rear right side speaker is small.
L- ↔ GND (X47-19 ↔ X47-20)	Constant	10 – 14 V	Sound from rear left side speaker is small.
GND ↔ Body ground (X47-20 ↔ Body ground)	Constant	Continuity	Audio system is normal.
R+ (Z38-2)	–	–	Sound from right side speaker is small
R- (Z38-2)	–	–	Sound from left side speaker is small
L+ (Z38-4)	–	–	Sound from right side speaker is small

DIAGNOSTICS – NAVIGATION SYSTEM

L- (Z38-5)	–	–	Sound from left side speaker is small
MUTE ↔ GND (Z38-6 ↔ X47-20)	–	–	Pop sound etc.
			Audio system does not operate.
TX+ (Z38-9)	AVC-LAN communication circuit	–	Audio system does not operate.
TX+ (Z38-10)	AVC-LAN communication circuit	–	Audio system does not operate.
RMUTE ↔ GND (R54-19 ↔ X47-20)	–	–	Pop sound etc.
			Audio system does not operate.

Stereo component amplifier



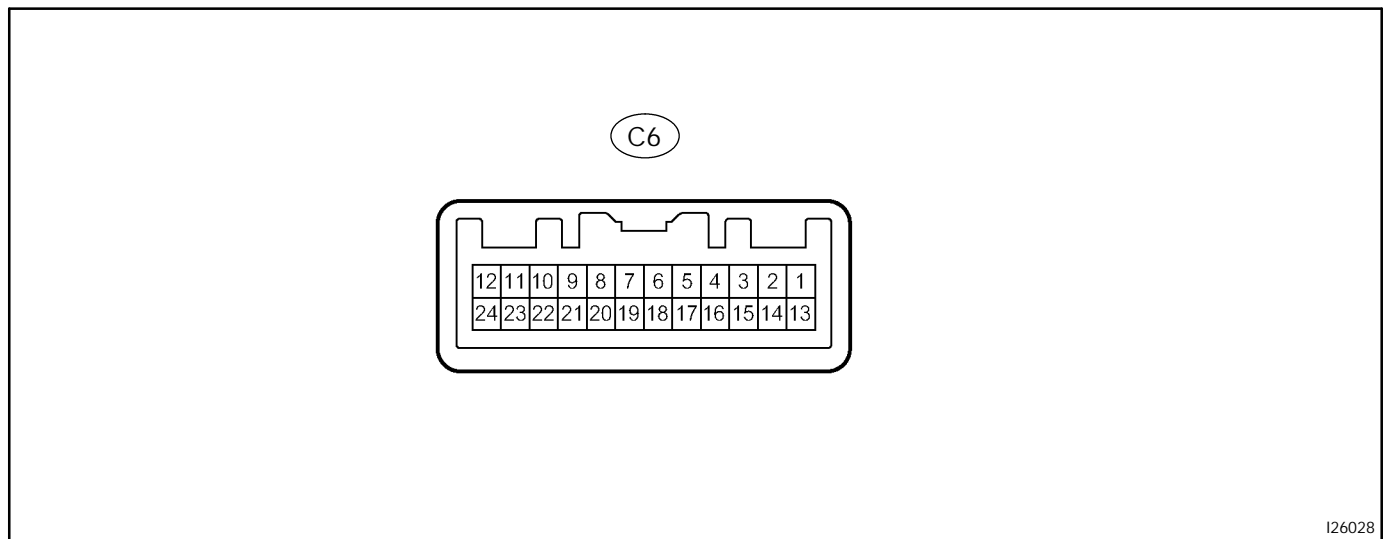
I26027

Symbols (Terminal No.)	Condition	Specified condition	Problem symptom when open circuit is detected.
FR+ ↔ GND1 (Z94-1 ↔ Z94-12)	Radio switch ON	5 – 7 V	RH side speaker does not sound.
FL+ ↔ GND1 (Z94-2 ↔ Z94-12)	Radio switch ON	5 – 7 V	LH side speaker does not sound.
RR+ ↔ GND1 (Z94-3 ↔ Z94-12)	Radio switch ON	5 – 7 V	Rear RH side speaker does not sound.
RL+ ↔ GND1 (Z94-4 ↔ Z94-12)	Radio switch ON	5 – 7 V	Rear LH side speaker does not sound.
WR+ ↔ GND1 (Z94-5 ↔ Z94-12)	Radio switch ON	5 – 7 V	Rear RH side speaker does not sound.
WL+ ↔ GND1 (Z94-6 ↔ Z94-12)	Radio switch ON	5 – 7 V	Rear LH side speaker does not sound.
+B ↔ GND1 (Z94-7 ↔ Z94-12)	Constant	10 – 14 V	All speaker does not sound
FR- ↔ GND1 (Z94-8 ↔ Z94-12)	Radio switch ON	5 – 7 V	RH side speaker does not sound.
FL- ↔ GND1 (Z94-9 ↔ Z94-12)	Radio switch ON	5 – 7 V	LH side speaker does not sound.
RL- ↔ GND1 (Z94-11 ↔ Z94-12)	Radio switch ON	5 – 7 V	Rear LH side speaker does not sound.
GND1 ↔ Body ground (Z94-12 ↔ Body ground)	Constant	Continuity	–
GND2 ↔ Body ground (Z94-13 ↔ Body ground)	Constant	Continuity	–
WR- ↔ GND1 (Z94-14 ↔ Z94-12)	Radio switch ON	5 – 7 V	Rear RH side speaker does not sound.
WL- ↔ GND1 (Z94-14 ↔ Z94-12)	Radio switch ON	5 – 7 V	Rear LH side speaker does not sound.
+B2 ↔ GND2 (Z94-7 ↔ Z94-13)	Constant	10 – 14 V	All speaker does not sound
AMP (Z95-1)	–	–	–

DIAGNOSTICS – NAVIGATION SYSTEM

ACC ↔ GND1 (Z95-2 ↔ Z94-13)	Ignition switch ACC	10 – 14 V	Audio system does not operate.
BEEP (Z95-4)	–	–	LH side speaker does not sound.
F.L ↔ GND1 (Z95-5 ↔ Z94-13)	Constant	10 – 14 V	Sound from front LH speaker is small.
F.R ↔ GND1 (Z95-6 ↔ Z94-13)	Constant	10 – 14 V	Sound from front RH speaker is small.
SGND ↔ GND1 (Z95-11 ↔ Z94-13)	–	5 – 7 V	–
MUTE ↔ GND1 (Z95-12 ↔ Z94-13)	Radio switch ON	5 – 7 V	Audio system does not operate.
R.L ↔ GND1 (Z95-13 ↔ Z94-13)	Constant	10 – 14 V	Sound from rear LH speaker is small.

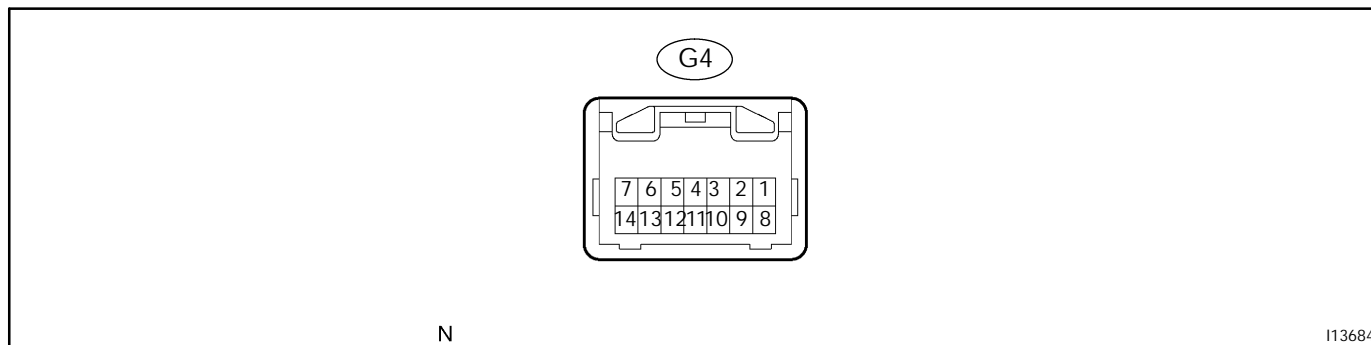
CD auto changer:



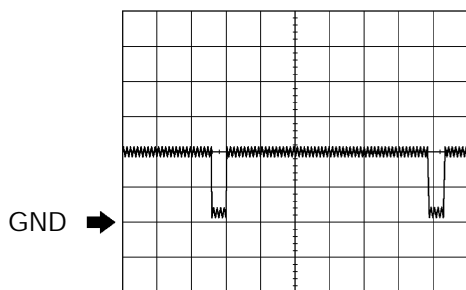
I26028

Symbols (Terminal No.)	Condition	Specified condition	Problem symptom when open circuit is detected.
CDR+ (C6-8)	–	–	Sound from right side speaker is small.
CDR- (C6-9)	–	–	Sound from right side speaker is small.
CDL+ (C6-10)	–	–	Sound from left side speaker is small.
CDL- (C6-11)	–	–	Sound from left side speaker is small.
MUTE ↔ GND (C6-12 ↔ C6-20)	DISC switch ON	5 – 7 V	Audio system does not operate.
TXM+ ↔ GND (C6-21 ↔ C6-20)	AVC-LAN communication circuit	–	Audio system does not operate.
TXM- ↔ GND (C6-22 ↔ C6-20)	AVC-LAN communication circuit	–	Audio system does not operate.
ACC ↔ GND (C6-23 ↔ C6-20)	Ignition switch ACC	10 – 14 V	CD auto changer does not operate.
+B ↔ GND (C6-24 ↔ C6-20)	Constant	10 – 14 V	CD auto changer does not operate.

Gateway ECU:



Symbols (Terminals No.)	Wiring Color	Condition	Specified condition
IG ↔ GND (G4-2 ↔ G4-14)	GR ↔ W-B	Ignition switch ON.	10 – 14 V
MPD1 (G4-4)	W	Communication circuit (Gateway ECU and Center ECU)	–
GTX+ (G4-5)	BR	AVC-LAN communication circuit	–
CG ↔ Body ground (G4-7 ↔ Body ground)	W-B ↔ Body ground	Constant	Continuity
BATT ↔ GND (G4-8 ↔ G4-14)	G-W ↔ W-B	Constant	10 – 14 V
MPD2 (G4-11)	W	Communication circuit (Gateway ECU and Center ECU)	–
GTX- (G4-12)	Y	AVC-LAN communication circuit	–
GND ↔ Body ground (G4-7 ↔ Body ground)	W-B ↔ Body ground	Constant	Continuity



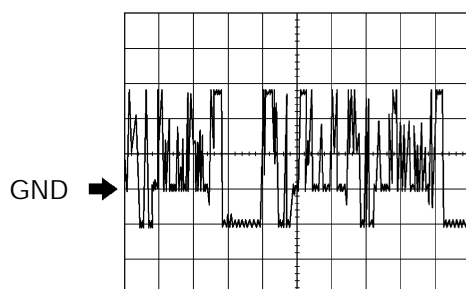
N

Oscilloscope

*1: wave1

D Measure terminal: SYNC ↔ GND1
D Measure set: 500 mV/DIV 10 μs/DV
D Condition: Navigation display is displayed

I15531



N

Oscilloscope

*1: wave1

D Measure terminal: R, G, B ↔ GND1
D Measure set: 200 mV/DIV 10 μs/DV
D Condition: Navigation map is switched

I15532