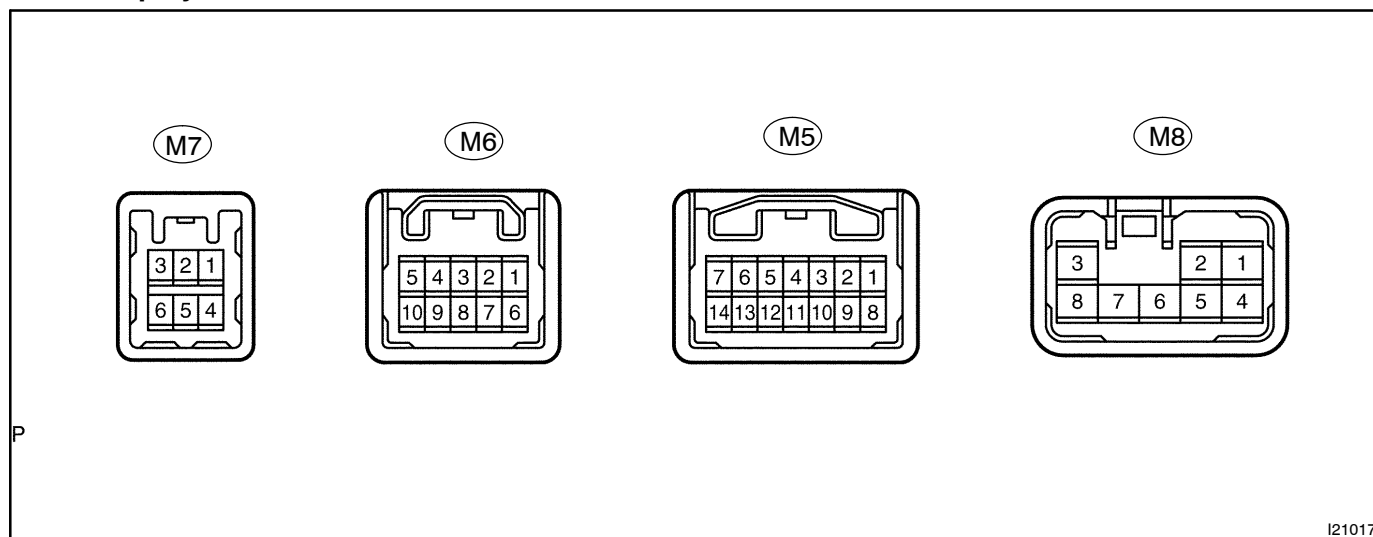


TERMINALS OF ECU

Multi-display:



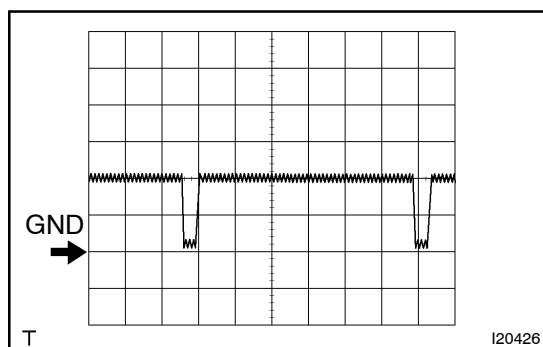
I21017

Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
M8-1 – M8-6 (+B1 – GND1)	L-W – W-B	Always	10 – 14 V
M8-2 – M8-6 (IG – GND1)	B-W – W-B	Ignition switch OFF or ACC	Below 1 V
		Ignition switch ON	10 – 14 V
M8-4 – M8-6 (ACC – GND1)	GR – W-B	Ignition switch OFF	Below 1 V
		Ignition switch ACC or ON	10 – 14 V
M8-6 – Body ground (GND1 – Body ground)	W-B – Body ground	Always	Below 1 V
M5-3 (TX+)	P	See "Service Check Mode"	–
M5-4 (TX3+)	P-L	See "Service Check Mode"	–
M5-5 – M8-6 (SPD – GND1)	V – W-B	See "Vehicle Signal Check Mode"	–
M5-7 – M8-6 (LP – GND1)	G-R – W-B	Security indicator OFF	Below 1 V
		Security indicator ON	10 – 14 V
M5-10 (TX-)	L	See "Service Check Mode"	–
M5-11 (TX3-)	P-B	See "Service Check Mode"	–
M5-13 – M8-6 (PKB – GND1)	R-W – W-B	See "Vehicle Signal Check Mode"	–
M5-14 – M8-6 (TC – GND1)	P-W – W-B	Ignition switch OFF and connect terminals TC and CG of DLC3.	Below 1 V
M6-1 – M6-6 (VR – VG)	L – Shielded	Ignition switch OFF	Below 1 V
M6-2 – M6-6 (R – VG)	LG – Shielded	Navigation map is switched	Pulse generation *2
M6-3 – M6-6 (B – VG)	R – Shielded	Navigation map is switched	Pulse generation *2
M6-6 – M8-6 (VG – GND1)	Shielded – W-B	Ignition switch OFF	Below 1 V
M6-7 – M6-6 (G – VG)	W – Shielded	Navigation map is switched	Pulse generation *2

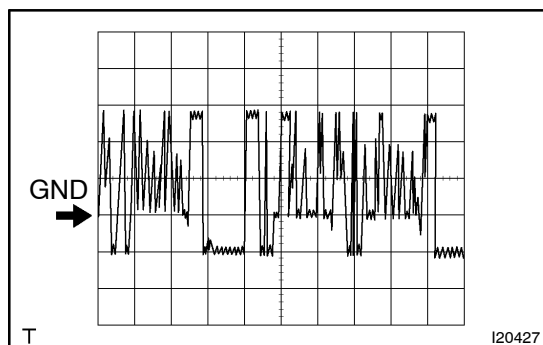
DIAGNOSTICS – LEXUS NAVIGATION SYSTEM

M6-8 – M6-6 (SYNC – VG)	G – Shielded	Navigation display is displayed	Pulse generation *1
M7-3 – M8-6 (NTSC – GND1)	R – W-B	Ignition switch ON and DVD displayed	Pulse generation *3
M7-5 – M8-6 (SG – GND1)	Shielded – W-B	Ignition switch OFF	Below 1 V
M7-6 – M8-6 (SGD1 – GND1)	R-W – W-B	Ignition switch OFF	Below 1 V

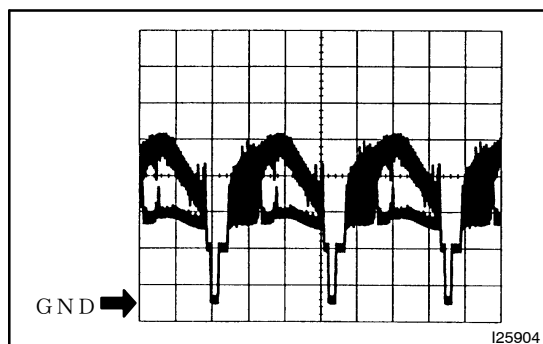
Terminal No. (Symbols)	Problem symptom when open circuit is detected.	Problem symptom when short circuit is detected.
M8-1 – M8-6 (+B1 – GND1)	Navigation system does not operate.	Navigation system does not operate.
M8-2 – M8-6 (IG – GND1)	Navigation system does not operate.	Navigation system does not operate.
M8-4 – M8-6 (ACC – GND1)	Navigation system does not operate.	Navigation system does not operate.
M8-6 – Body ground (GND1 – Body ground)	Navigation system does not operate.	Navigation system is normal.
M5-3 (TX+)	Screen is in disorder.	Screen is in disorder.
M5-4 (TX3+)	DVD screen is in disorder.	DVD screen is in disorder.
M5-5 – M8-6 (SPD – GND1)	All switch operation is available during driving.	All switch operation is available during driving.
M5-7 – M8-6 (PBEW – GND1)	Passenger seat belt warning does not come on.	Passenger seat belt warning remains lit.
M5-10 (TX-)	Screen is in disorder.	Screen is in disorder.
M5-11 (TX3-)	DVD screen is in disorder.	DVD screen is in disorder.
M5-13 – M8-6 (PKB – GND1)	The system cannot enter diagnosis system mode.	Navigation system is normal.
M5-14 – M8-6 (TC – GND1)	Navigation system is normal.	The system cannot exit service check mode.
M6-1 – M6-6 (VR – VG)	Screen noise or other types of noise occur.	Screen noise or other types of noise occur.
M6-2 – M6-6 (R – VG)	Screen color turns to blue.	Screen color turns to blue.
M6-3 – M6-6 (B – VG)	Screen color turns to yellow.	Screen color turns to yellow.
M6-6 – M8-6 (VG – GND1)	Screen noise or other types of noise occur.	Navigation system is normal.
M6-7 – M6-6 (G – VG)	Screen color turns to red-purple.	Screen color turns to red-purple.
M6-8 – M6-6 (SYNC – VG)	Synchronous pulse fluctuates rapidly in map screen.	Synchronous pulse fluctuates slowly in map screen.
M7-3 – M8-6 (NTSC – GND1)	DVD screen is in disorder.	DVD screen is in disorder.
M7-5 – M8-6 (SG – GND1)	Screen noise or other types of noise occur.	Screen noise or other types of noise occur.
M7-6 – M8-6 (SGD1 – GND1)	Screen noise or other types of noise occur.	Screen noise or other types of noise occur.



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

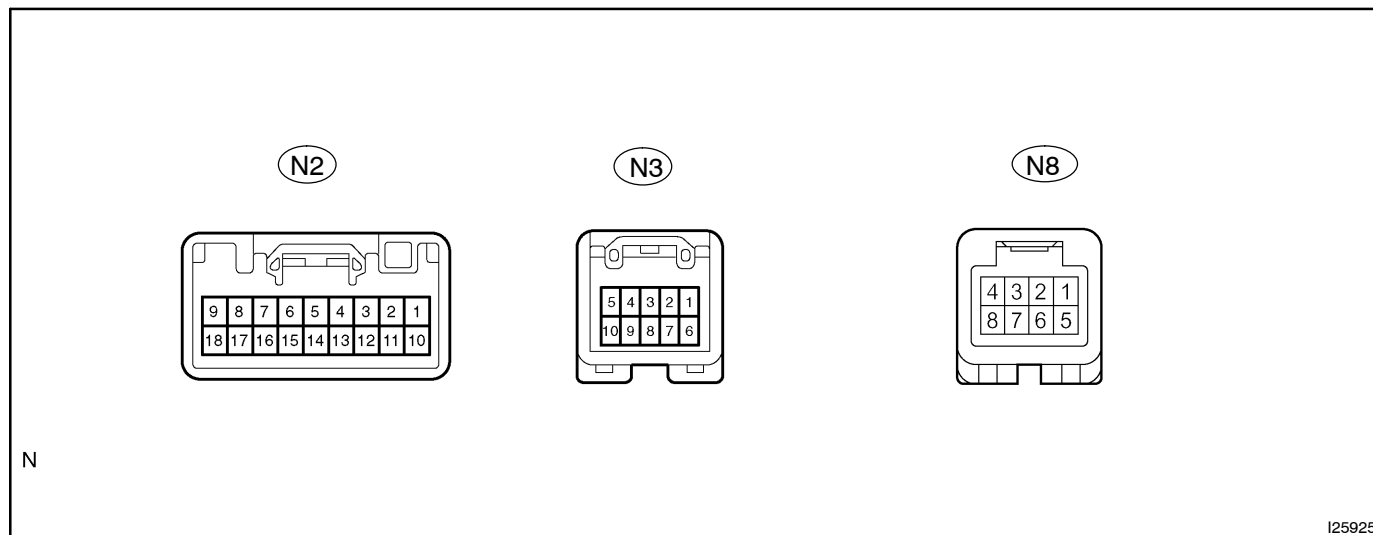


- *2: Oscilloscope wave
Terminal to be measured: R, G, B – GND1
Setting for measurement: 200 mV/DIV 10 μ s/DIV
Condition: Navigation map is switched.



- *3: Oscilloscope wave
Terminal to be measured: NTSC – SGD1
Setting for measurement: 0.2 mV/DIV, 0.2 μ s/DIV
Condition: Ignition switch ON and DVD displayed.

Navigation ECU



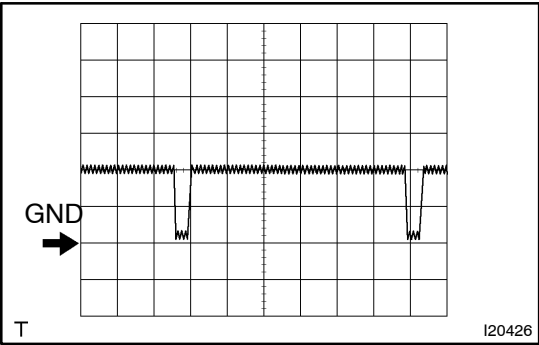
Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
N2-1 – N2-17 (AUI+ – GND)	P – W-B	Audio system is sounding	A waveform synchro- nized with sounds is output
N2-2 (AUO+)	P	Sound quality test	–
N2-5 – N2-17 (SPD – GND)	Y-R – W-B	See "Vehicle Signal Check Mode"	–
N2-9 – N2-17 (+B – GND)	L-Y – W-B	Always	10 – 14 V
N2-10 – N2-17 (AUI- – GND)	V	Audio system is sounding	A waveform synchro- nized with sounds is output
N2-11 (AUO-)	V	Sound quality test	–
N2-14 (REV)	R-B	See "Vehicle Signal Check Mode"	–
N2-15 – N2-17 (MUTE – GND)	G-R – W-B	Navigation voice sounding	Below 1 V
N2-17 – Body ground (GND – Body ground)	W-B – Body ground	Always	Below 1 V
N2-18 – N2-17 (ACC – GND)	GR – W-B	Ignition switch OFF	Below 1 V
		Ignition switch ACC or ON	10 – 14 V
N3-1 – N3-6 (VR – VG)	Y – Shielded	Ignition switch OFF	Below 1 V
N3-2 – N3-6 (R – VG)	LG – Shielded	Navigation map is switched	Pulse generation *2
N3-3 – N3-6 (B – VG)	R – Shielded	Navigation map is switched	Pulse generation *2
N3-5 (TX+)	L	See "Service Check Mode"	–
N3-6 – N2-17 (VG – GND)	Shielded – W-B	Ignition switch OFF	Below 1 V
N3-7 – N3-6 (G – VG)	W – Shielded	Navigation map is switched	Pulse generation *2
N3-8 – N3-6 (SYNC – VG)	G – Shielded	Navigation display is displayed	Pulse generation *1
N3-10 (TX-)	L-B	See "Service Check Mode"	–

2003 LEXUS LX470 (RM973U)

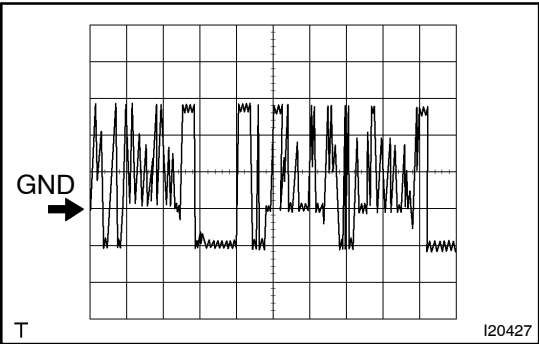
N8-3 – N2-17 (MIC+ – GND)	Y – W-B	Ignition switch OFF	Below 1 V
N8-4 – N2-17 (MACC – GND)	LG – W-B	Ignition switch ACC	5 V
N8-5 – N2-17 (MIC- – GND)	BR – W-B	Ignition switch OFF	Below 1 V
N8-6 – N2-17 (SGND – GND)	R – W-B	Ignition switch OFF	Below 1 V
N8-7 – N2-17 (SNSE – GND)	W-B – W-B	Ignition switch OFF	Below 1 V

Terminal No. (Symbols)	Problem symptom when open circuit is detected.	Problem symptom when short circuit is detected.
N2-1 – N2-17 (AUI+ – GND)	Driver side speaker does not sound.	Driver side speaker does not sound.
N2-2 (AUO+)	Navigation voice does not sound.	Navigation voice does not sound.
N2-5 – N2-17 (SPD – GND)	Navigation operation is available even when the vehicle is in motion, or a cursor on present site does not move.	Navigation operation is available even when the vehicle is in motion, or a cursor on present site does not move.
N2-9 – N2-17 (+B – GND)	Map screen does not appear.	Map screen does not appear.
N2-10 – N2-17 (AUI- – GND)	Driver side speaker does not sound.	Driver side speaker does not sound.
N2-11 (AUO-)	Navigation voice does not sound.	Navigation voice does not sound.
N2-14 (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.
N2-15 – N2-17 (MUTE – GND)	Noise occurs when navigation phrase is changed.	Speaker does not sound.
N2-17 – Body ground (GND – Body ground)	Audio system is normal.	Audio system is normal.
N2-18 – N2-17 (ACC-GND)	Navigation system does not operate.	Fuse is blown.
N3-1 – N3-6 (VR – VG)	Screen noise or other types of noise occurs.	Screen noise or other types of noise occurs.
N3-2 – N3-6 (R – VG)	Screen color turns to blue.	Screen color turns to blue.
N3-3 – N3-6 (B – VG)	Screen color turns to yellow.	Screen color turns to yellow.
N3-5 (TX+)	Screen is in disorder.	Screen is in disorder.
N3-6 – N2-17 (VG – GND)	Screen noise or other types of noise occur.	Navigation system does not operate.
N3-7 – N3-6 (G – VG)	Screen color turns to red-purple	Screen color turns to red-purple.
N3-8 – N3-6 (SYNC – VG)	Synchronous pulse fluctuates rapidly in map screen.	Synchronous pulse fluctuates slowly in map screen.
N8-3 – N2-17 (MIC+ – GND)	Voice from cellular phone cannot be heard. Voice cannot be recognized.	Voice from cellular phone cannot be heard. Voice cannot be recognized.
N8-4 – N2-17 (MACC – GND)	Voice from cellular phone cannot be heard. Voice cannot be recognized.	Voice from cellular phone cannot be heard. Voice cannot be recognized.
N8-5 – B4-17 (MIC- – GND)	Voice from cellular phone cannot be heard. Voice cannot be recognized.	Voice from cellular phone cannot be heard. Voice cannot be recognized.

N8-6 - N2-17 (SGND - GND)	Voice cannot be recognized.	Voice cannot be recognized.
N8-7 - N2-17 (SNSE - GND)	Voice cannot be recognized.	Voice cannot be recognized.

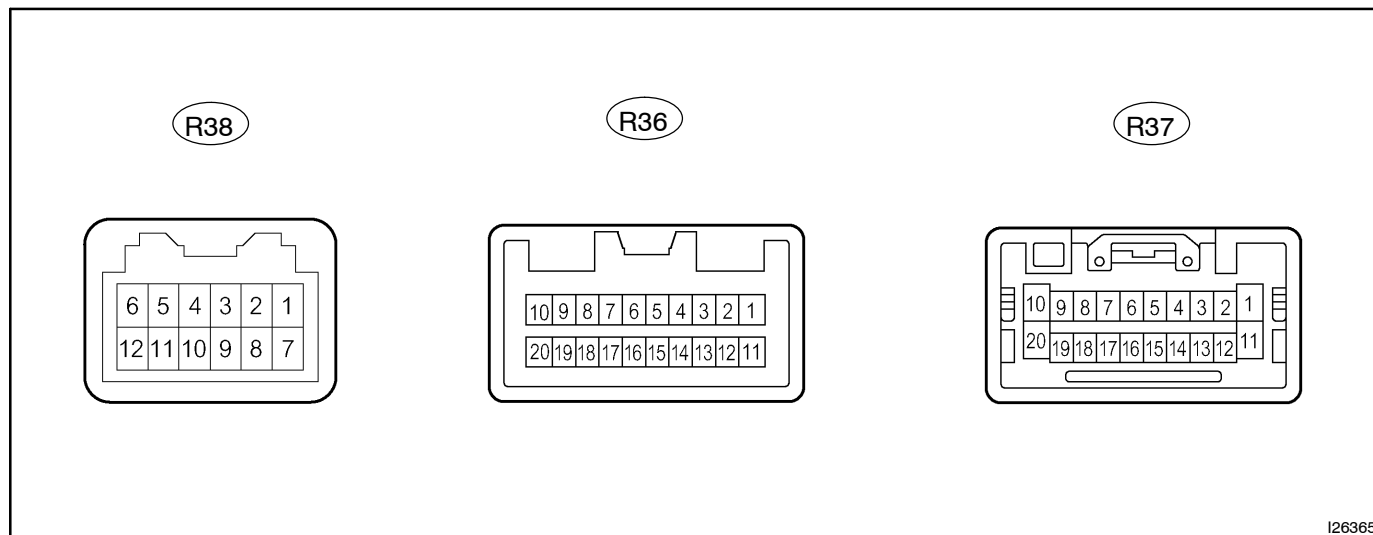


- *1: Oscilloscope wave
Terminal to be measured: SYNC - GND1
Setting for measurement: 500mV/DIV 10 μ s/DIV
Condition: Navigation display is displayed



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

Radio receiver assembly



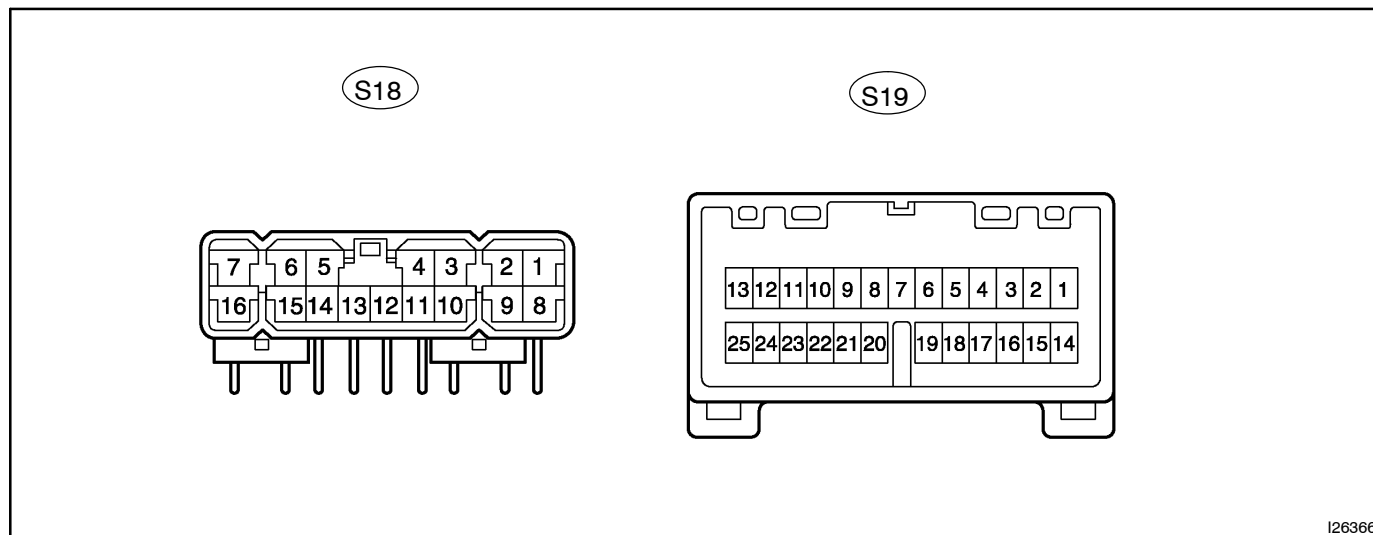
I26365

Symbols (Terminal No.)	Condition	STD Voltage (V)	Problem symptom when open circuit is detected.
			Problem symptoms when short circuit is detected.
BU ↔ GND (R37-1 ↔ R37-20)	Always	10 – 14 V	Audio system does not operate.
ILL+ ↔ GND (R37-2 ↔ R37-20)	Light control switch TAIL	10 – 14 V	Audio head unit illumination does not come on.
TX+ (R37-5)	AVC-LAN Communication circuit	–	Audio system does not operate.
MUTE ↔ GND (R37-7 ↔ R37-20)	–	–	–
R+ ↔ GND (R37-8 ↔ R37-20)	Always	10 – 14 V	Sound from right speaker is small
L+ ↔ GND (R37-9 ↔ R37-20)	Always	10 – 14 V	Sound from left speaker is small
ACC ↔ GND (R37-11 ↔ R37-20)	Ignition switch ACC	10 – 14 V	Audio system does not operate.
ILL- ↔ GND (R37-12 ↔ R37-20)	Light control switch TAIL	Below 0.5 V	Audio head unit illumination does not come on.
ANT ↔ GND (R37-13 ↔ R2-20)	Radio switch ON	10 – 14 V	Antenna does not extend.
TX- (R37-15)	AVC-LAN Communication circuit	–	Audio system does not operate.
R- ↔ GND (R37-18 ↔ R37-20)	Always	10 – 14 V	Sound from right side speaker is small.
L- ↔ GND (R37-19 ↔ R37-20)	Always	10 – 14 V	Sound from left side speaker is small.
GND ↔ Body ground (R37-20 ↔ Body ground)	Always	Continuity	Audio system is normal.
TX+ (R36-9)	AVC-LAN Communication circuit	–	Navigation system does not operate.
TX- (R36-10)	AVC-LAN Communication circuit	–	Navigation system does not operate.

DIAGNOSTICS – LEXUS NAVIGATION SYSTEM

R+ (R38-2)	–	–	Sound from right side speaker is small
R- (R38-3)	–	–	Sound from right side speaker is small
L+ (R38-4)	–	–	Sound from left side speaker is small
L- (R38-5)	–	–	Sound from left side speaker is small
MUTE (R38-6)	–	–	Pop sound etc.
			Speaker does not sound
TX+ (R38-9)	AVC-LAN communication circuit	–	Audio system does not operate.
TX- (R38-10)	AVC-LAN communication circuit	–	Audio system does not operate.

Stereo component amplifier

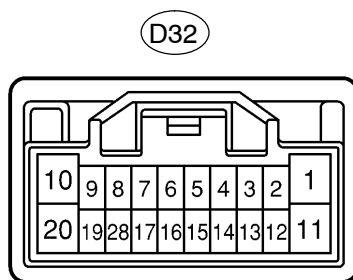


I26366

Symbols (Terminal No.)	Condition	STD Voltage (V)	Problem symptom when open circuit is detected.
FR+ ↔ E (S18-1 ↔ S18-12)	Radio switch ON	5 – 7 V	RH side speaker does not sound.
FL+ ↔ E (S18-2 ↔ S18-12)	Radio switch ON	5 – 7 V	LH side speaker does not sound.
RR+ ↔ E (S18-3 ↔ S18-12)	Radio switch ON	5 – 7 V	Rear RH side speaker does not sound.
RL+ ↔ E (S18-4 ↔ S18-12)	Radio switch ON	5 – 7 V	Rear LH side speaker does not sound.
WFR+ ↔ E (S18-5 ↔ S18-12)	Radio switch ON	5 – 7 V	Woofer speaker does not sound.
WFL+ ↔ E (S18-6 ↔ S18-12)	Radio switch ON	5 – 7 V	Woofer speaker does not sound.
+B ↔ E (S18-7 ↔ S18-12)	Always	10 – 14 V	All speaker does not sound
FR- ↔ E (S18-8 ↔ S18-12)	Radio switch ON	5 – 7 V	RH side speaker does not sound.
FL- ↔ E (S18-9 ↔ S18-12)	Radio switch ON	5 – 7 V	LH side speaker does not sound.
RR- ↔ E (S18-10 ↔ S18-12)	Radio switch ON	5 – 7 V	Rear RH side speaker does not sound.
RL- ↔ E (S18-11 ↔ S18-12)	Radio switch ON	5 – 7 V	Rear LH side speaker does not sound.
E ↔ Body ground (S18-12 ↔ Body ground)	Always	Continuity	–
GND2 ↔ Body ground (S18-13 ↔ Body ground)	Always	Continuity	–
WFR- ↔ E (S18-14 ↔ S18-12)	Radio switch ON	5 – 7 V	Woofer speaker does not sound.
WFL- ↔ E (S18-15 ↔ S18-12)	Radio switch ON	5 – 7 V	Woofer side speaker does not sound.
+B2 ↔ GND2 (S18-16 ↔ S18-13)	Always	10 – 14 V	All speaker does not sound

DIAGNOSTICS – LEXUS NAVIGATION SYSTEM

MR+ ↔ E (S19-1 ↔ S18-12)	Always	5 – 7 V	Sound from front RH speaker is small.
ML+ ↔ E (S19-2 ↔ S18-12)	Always	5 – 7 V	Sound from front LH speaker is small.
TMUT ↔ E (S19-3 ↔ S18-12)	Radio switch ON	5 – 7 V	Audio system does not operate.
BEEP (S19-4)	–	–	Beep does not sound.
TX+ (S19-5)	AVC–LAN communication circuit	–	Audio system does not operate.
N–MU ↔ E (S19-9 ↔ S18-12)	Radio switch ON	5 – 7 V	Audio system does not operate.
R+ ↔ E (S19-11 ↔ S18-12)	Always	10 – 14 V	Sound from RH speaker is small.
L+ ↔ E (S19-12 ↔ S18-12)	Always	10 – 14 V	Sound from LH speaker is small.
SPD – E (S19-13 – S18-12)	–	–	–
MR– ↔ E (S19-14 ↔ S18-12)	Always	5 – 7 V	Sound from front RH speaker is small.
ML– ↔ E (S19-15 ↔ S18-12)	Always	5 – 7 V	Sound from front LH speaker is small.
TX– (S19-18)	AVC–LAN communication circuit	–	Audio system does not operate.
ACC ↔ E (S19-20 ↔ S18-12)	Ignition switch ACC	10 – 14 V	Audio system does not operate.
MUTE ↔ E (S19-21 ↔ S18-12)	Radio switch ON	5 – 7 V	Audio system does not operate.
SGND ↔ E (S19-22 ↔ S18-12)	–	–	–
R– ↔ E (S19-23 ↔ S18-12)	Always	10 – 14 V	Sound from RH speaker is small.
L– ↔ E (S19-24 ↔ S18-12)	Always	10 – 14 V	Sound from LH speaker is small.

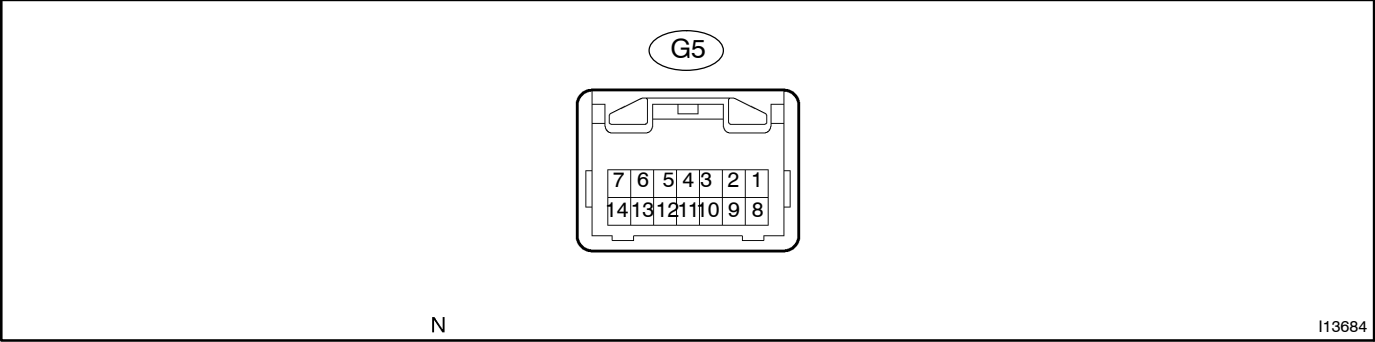
DVD auto changer:

P

I21103

Symbols (Terminal No.)	Condition	STD Voltage (V)	Problem symptom when open circuit is detected.
ACC ↔ GND (D32-1 ↔ D32-20)	Ignition switch ACC	10 – 14 V	DVD auto changer does not operate.
TXM+ (D32-3)	AVC-LAN communication circuit	–	Audio system does not operate.
CDR+ (D32-5)	–	–	Sound from right side speaker is small.
CDL+ (D32-6)	–	–	Sound from left side speaker is small.
NTSC (D32-9)	–	–	DVD auto changer does not display.
+B ↔ GND (D32-10 ↔ D32-20)	Always	10 – 14 V	DVD auto changer does not operate.
MUTE ↔ GND (D32-11 ↔ D32-20)	DISC switch ON	5 – 7 V	Pop sound etc.
			Speaker does not sound
TXM- (D32-13)	AVC-LAN communication circuit	–	Audio system does not operate.
CDR- (D32-15)	–	–	Sound from right side speaker is small.
CDL- (D32-16)	–	–	Sound from left side speaker is small.

Gateway ECU:



Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
IG ↔ GND (G5-2 ↔ G5-14)	B-W ↔ W-B	Ignition switch ON.	10 – 14 V
MPD1 (G5-4)	B	Communication circuit (Gateway ECU and Center ECU)	–
GTX+ (G5-5)	P-L	AVC-LAN communication circuit	–
CG ↔ Body ground (G5-7 ↔ Body ground)	BR ↔ Body ground	Always	Continuity
BATT ↔ GND (G5-8 ↔ G5-14)	L-W ↔ W-B	Always	10 – 14 V
MPD2 (G5-11)	P-B	Communication circuit (Gateway ECU and Center ECU)	–
GTX- (G5-12)	P-B	AVC-LAN communication circuit	–
GND ↔ Body ground (G5-14 ↔ Body ground)	W-B ↔ Body ground	Always	Continuity