# SECTION AV В AUDIO, VISUAL & NAVIGATION SYSTEM С

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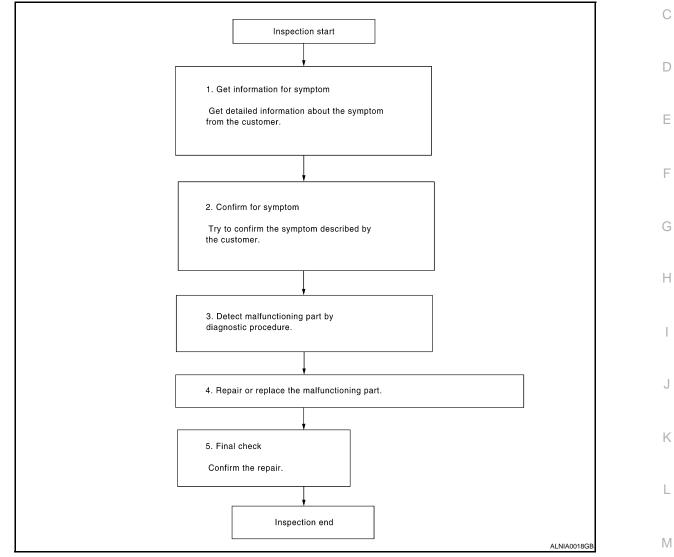
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# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

#### Work Flow

**OVERALL SEQUENCE** 



#### DETAILED FLOW

#### **1.**GET INFORMATION FOR SYMPTOM

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

2. CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

#### >> GO TO 3..

**3.** DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

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## DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BASE AUDIO]

Is malfunctioning part detected?

YES >> GO TO 4..

NO >> GO TO 2..

**4.**REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.

2. Reconnect parts or connectors disconnected during Diagnostic Procedure.

>> GO TO 5..

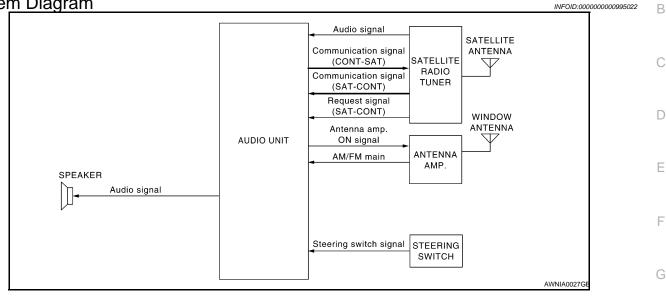
5.FINAL CHECK

Refer to confirmed symptom in step 2, and make sure that the symptom is not detected. OK or NG

- OK >> Inspection End..
- NG >> GO TO 2..

# **FUNCTION DIAGNOSIS AUDIO SYSTEM**

#### System Diagram



# System Description

#### AUDIO SYSTEM

The audio system consists of the following components

- Audio unit
- Window antenna
- Antenna amp.
- Steering switches
- Front door speakers
- Tweeters
- Rear speakers

Κ When the audio system is on, radio signals are received by the window antenna. These signals are amplified by the antenna amp. before reaching the audio unit. The audio unit then sends audio signals to the front door speakers, front tweeters and rear speakers. L

Refer to Owner's Manual for audio system operating instructions.

#### SATELLITE RADIO SYSTEM

The satellite radio system consists of the following components

- Satellite antenna
- Satellite radio tuner

When the satellite radio system is on, radio signals are supplied to the satellite radio tuner from the satellite antenna. The satellite radio tuner then sends audio signals to the audio unit. AM Refer to Owner's Manual for satellite radio system operating instructions.

#### Component Parts Location

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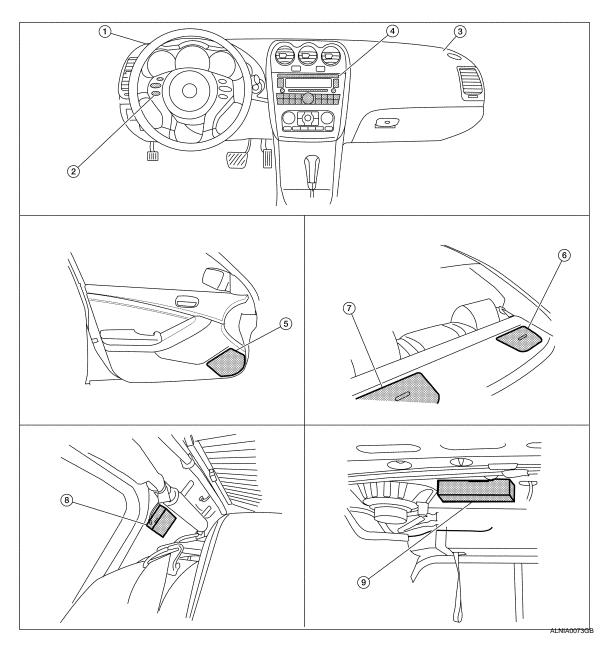
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## **AUDIO SYSTEM**

#### < FUNCTION DIAGNOSIS >



- 1. Tweeter LH M51
- 4. Audio unit M43, M45, M81

**Component Description** 

- 7. Rear speaker LH B26
- Steering wheel audio control switches 3.
   Front door speaker 6. LH D3
- 8. Antenna amp M502 (view with rear pil- 9. lar finisher RH removed)

RH D103

- Tweeter RH M52
- 6. Rear speaker RH B44
  - Satellite radio tuner B123, B129 (with satellite radio tuner)

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Part name	Description		
Audio unit	Controls audio system and satellite radio system functions		
Steering switches	<ul> <li>Each audio operation can be operated</li> <li>Steering switch signal (operation signal) is output to AV control unit</li> </ul>		
Front door speakers	<ul><li>Outputs audio signal from audio unit</li><li>Outputs high, mid and low range sounds</li></ul>		

# AV-10

# **AUDIO SYSTEM**

#### < FUNCTION DIAGNOSIS >

[BASE AUDIO]

Part name	Description
Tweeters	<ul><li>Outputs audio signal from audio unit</li><li>Outputs high range sounds</li></ul>
Rear speakers	<ul><li>Outputs audio signal from audio unit</li><li>Outputs high, mid and low range sounds</li></ul>
Antenna amp.	<ul> <li>Radio signal received by glass antenna is amplified and sent to audio unit</li> <li>Power (antenna amp ON signal) is supplied from audio unit</li> </ul>
Satellite radio tuner	<ul> <li>Receives radio signals from satellite antenna</li> <li>Sends audio signals to audio unit</li> </ul>
Satellite antenna	Audio signal (satellite radio) is received and output to audio unit.

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#### < FUNCTION DIAGNOSIS >

# **DIAGNOSIS SYSTEM (AUDIO UNIT)**

#### Diagnosis Description

Self-diagnosis mode can check the following items.

- Audio unit hardware/software versions
- Continuity of each speaker channel
- Continuity of each audio unit switch

#### **OPERATION PROCEDURE**

- 1. Turn ignition switch to the ACC position.
- 2. Turn the audio unit off.
- 3. While pressing the "AUDIO" button, turn the volume control dial clockwise or counterclockwise 30 clicks or more. When the self-diagnosis mode is started, a short beep will be heard.

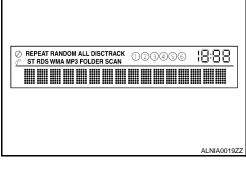
4. Initially, all display segments will be illuminated.

Version Check

1. Press the "AUDIO" switch to enter version diagnostics. "Software" (audio software version) is displayed.

	SEEK TRACK	) =(						 >= (		
ſ	PRESET A·B·C DISP	1 CD	2 RADIO	3 AUX	PUSH PWR VOL	4 RDM RPT	5 SCAN	6 AUX IN Ø	AUDIO	
								,	AWNIA	0026Z2

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6 CD CHANGER CH/FOLDER

# **DIAGNOSIS SYSTEM (AUDIO UNIT)**

#### < FUNCTION DIAGNOSIS >

2. Press the "AUDIO" switch again to display the "Hardware" (audio hardware version).

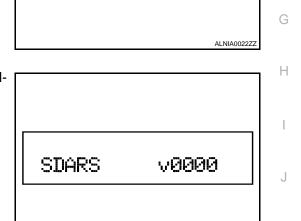
3. Press the "AUDIO" switch again to display the "CD Mech" (CD mechanism version).

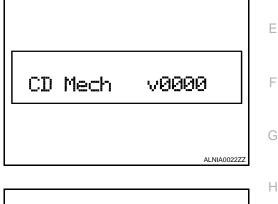
4. Press the "AUDIO" switch again to display the "SDARS" (satellite radio version).

**Channel Check Diagnostics** When all segments are illuminated, press the "TUNE" up switch to enter channel check diagnostics. The self-diagnostic function will then send a tone to each channel (FL, RL, RR, FR) for 1 second.

**Button Check Diagnostics** 

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# **DIAGNOSIS SYSTEM (AUDIO UNIT)**

#### < FUNCTION DIAGNOSIS >

When all segments are illuminated, press the "TUNE" down switch to enter button check diagnostics. When each audio unit switch is pressed, a tone will sound and the switch name will be displayed.

BUTTON CHECK	
	ALNIA0025

# < COMPONENT DIAGNOSIS > COMPONENT DIAGNOSIS POWER SUPPLY AND GROUND CIRCUIT AUDIO UNIT AUDIO UNIT : Diagnosis Procedure **1.**CHECK FUSES

Check that the following fuses are not blown.

Unit	Terminals	Signal name	Fuse No.	D
Audio unit	19	Battery power	24	
	7	Ignition switch ACC or ON	19	Ε

#### OK or NG

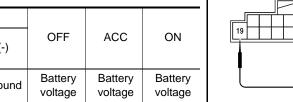
OK >> GO TO 2...

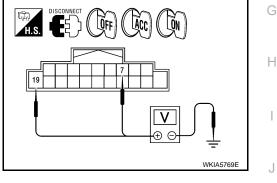
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

# 2. POWER SUPPLY CIRCUIT CHECK

- Disconnect audio unit connector M43. 1
- Check voltage between the audio unit connector M43 and ground.

	-	Terminal No.				
Unit	Unit (+)		(-)	OFF	ACC	ON
	Connector	Terminal	(-)			
Audio unit	M43	19	Ground	Battery voltage	Battery voltage	Battery voltage
	10143	7	Ground	0V	Battery voltage	Battery voltage





#### OK or NG

OK >> GO TO 3..

NG >> • Check connector housings for disconnected or loose terminals. • Repair harness or connector.

## **3.**GROUND CIRCUIT CHECK

Inspect audio unit case ground. OK or NG OK >> Inspection End. NG >> Repair audio unit case ground.

# SATELLITE RADIO TUNER

# SATELLITE RADIO TUNER : Diagnosis Procedure

# 1.CHECK FUSES

Check that the following fuses are not blown.

Unit	Terminals	Signal name	Fuse No.
Satellite radio tuner (factory in-	32	Battery power	24
stalled)	36	Ignition switch ACC or ON	19

#### OK or NG

OK >> GO TO 2...

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

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# **POWER SUPPLY AND GROUND CIRCUIT**

#### < COMPONENT DIAGNOSIS >

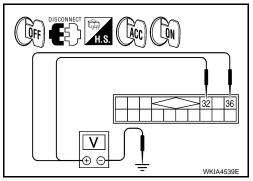
[BASE AUDIO]

# 2. POWER SUPPLY CIRCUIT CHECK

#### 1. Turn ignition switch OFF.

- Disconnect satellite radio tuner (factory installed) connector B123. 2.
- Check voltage between the satellite radio tuner (factory installed) and ground. 3.

	Т	Ferminal No.					
Unit	(+)		(-)	OFF	ACC	ON	
	Connector	Terminal	(-)			l	
Satellite radiotuner	B123 -	32	Ground	Battery voltage	Battery voltage	Battery voltage	
(factory in- stalled)	B123 —	36	Ground	0V	Battery voltage	Battery voltage	



#### OK or NG

NG

OK >> GO TO 3..

- >> Check connector housings for disconnected or loose terminals. • Repair harness or connector.

# 3. GROUND CIRCUIT CHECK

Inspect satellite radio tuner (factory installed) case ground.

#### OK or NG

- OK >> Inspection End.
- NG >> Repair satellite radio tuner (factory installed) case ground.

# FRONT DOOR SPEAKER

#### < COMPONENT DIAGNOSIS >

# FRONT DOOR SPEAKER

# Description

The audio unit sends audio signals to the front door speakers using the front door speaker circuits.

#### **Diagnosis** Procedure

# **1.**HARNESS CHECK

- 1. Disconnect audio unit connector M43 (A) and suspect speaker connector (B).
- 2. Check continuity between audio unit harness connector M43 (A) terminal and suspect speaker harness connector (B) terminal.

		Term	ninals		
	Audi	o unit	Spe	aker	Continuity
C	Connector	Terminal	Connector	Terminal	
		2	B: D3	1	
	A: M43	3	D. D5	2	Yes
	A. 10143	11	B: D103	1	163
		12	D. D103	2	1

3. Check continuity between audio unit harness connector M43 (A) terminal and ground.

	Terminals		
	Audio unit		Continuity
Connector	Terminal	. —	
	2		
A: M43	3	Ground	No
A. 10143	11	Giouna	NO
	12		

#### OK or NG

NG

OK >> GO TO 2..

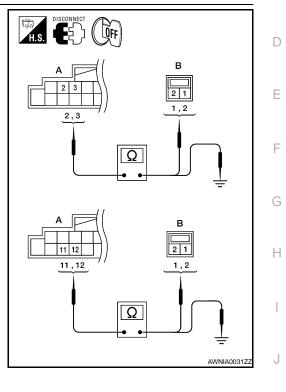
>> • Check connector housings for disconnected or loose terminals. • Repair harness or connector.

# 2.FRONT SPEAKER SIGNAL CHECK

Connect audio unit connector and front speaker connector. 1.

2. Turn ignition switch to ACC.

Push "POWER" switch. 3.



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[BASE AUDIO]

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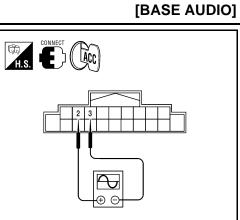
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# FRONT DOOR SPEAKER

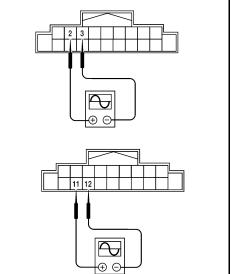
#### < COMPONENT DIAGNOSIS >

Check the signal between audio unit harness connector termi-4. nals with CONSULT-III or oscilloscope.



	Terminals					
	(+)	(-)		Condi-	Reference	
Con- nec- tor	Termi- nal	Con- nec- tor	Termi- nal	tion	signal	
	2		3			
M43	11	M43	12	Receive audio signal	(V) 1 0 -1 1 ms 5 KIA0177E	
OK or I	N <u>G</u>					

- OK >> Replace speaker. Refer to AV-47, "Removal and Installation".
- NG >> Replace audio unit. Refer to AV-45, "Removal and Installation".



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#### TWEETER

# < COMPONENT DIAGNOSIS >

# TWEETER

#### Description

The audio unit sends audio signals to the tweeters using the tweeter circuits.

#### **Diagnosis** Procedure

# **1.**HARNESS CHECK

- 1. Disconnect audio unit connector M43 (A) and suspect tweeter connector (B).
- 2. Check continuity between audio unit harness connector M43 (A) and suspect tweeter harness connector (B).

	Term											
Audi	o unit	Tweeter		Tweeter		Tweeter		Tweeter		Tweeter		Continuity
Connector	Terminal	Connector Terminal										
	2	B: M51	1									
A: M43	3		2	Yes								
A. 10143	11	B: M52	1	165								
	12	D. 10102	2	<b>†</b>								

 Check continuity between audio unit harness connector M43 (A) and ground.

	Terminals				
	Continuity				
Connector	Connector Terminal				
	2		No		
A: M43	3	Ground			
A. 10145	11	Giouna	NO		
	12				

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OK or NG

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OK >> GO TO 2..

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

2.TWEETER SIGNAL CHECK

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# TWEETER

#### < COMPONENT DIAGNOSIS >

- 1. Connect audio unit connector and tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector terminals with CONSULT-III or oscilloscope.

nals with CONSULT-III or oscilloscope.						
	Terminals					
(+)			(-) Condi-		Reference	
Con- nec- tor	Termi- nal	Con- nec- tor	Termi- nal	tion	signal	
	2		3			
M43	11	M43	12	Receive audio signal	(V) 1 0 -1 1 ms SKIA0177E	

# 

#### OK or NG

- OK >> Replace tweeter. Refer to <u>AV-47, "Removal and Installa-</u> tion".
- NG >> Replace audio unit. Refer to <u>AV-45, "Removal and</u> <u>Installation"</u>.

#### **REAR SPEAKER**

#### < COMPONENT DIAGNOSIS >

# REAR SPEAKER

#### Description

The audio unit sends audio signals to the rear speakers using the rear speaker circuits.

#### **Diagnosis** Procedure

# **1.**HARNESS CHECK

- 1. Disconnect audio unit connector M43 (A) and suspect speaker connector.
- Check continuity between audio unit harness connector M43 (A) and suspect speaker harness connector (B).

	Term							
Audi	o unit	Speaker		Speaker		Speaker		Continuity
Connector	Terminal	Connector Terminal						
	4	B: B26	1					
A: M43	5		2	Yes				
A. MH3	13	B: B44	1	163				
	14	D. D44	2	<b>†</b>				

 Check continuity between audio unit harness connector M43 (A) and ground.

	Continuity			
Connector	Connector Terminal			
	4		No	
A: M43	5	Ground		
A. M45	13			
	14			

# A A A B 211 1,2 4,5 1,2 4,5 1,2 4,5 1,2 1,2 1,2 1,2 1,2 1,2 1,3,14 1,2

OK or NG

NG

OK >> GO TO 2..

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

2.REAR SPEAKER SIGNAL CHECK

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INFOID:000000000995033

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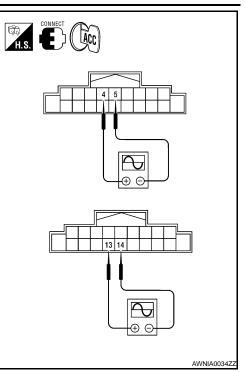
В

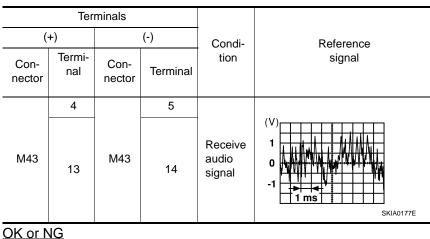
С

# **REAR SPEAKER**

#### < COMPONENT DIAGNOSIS >

- 1. Connect audio unit connector and rear speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between audio unit harness connector termi-4. nals with CONSULT-III or oscilloscope.





- OK >> Replace rear speaker. Refer to AV-48, "Removal and Installation".
- NG >> Replace audio unit. Refer to AV-45, "Removal and Installation".

## STEERING SWITCH

#### < COMPONENT DIAGNOSIS >

# STEERING SWITCH

#### Description

When one of the steering wheel audio control switches is pushed, the resistance in steering switch circuit В changes depending on which button is pushed.

#### **Diagnosis** Procedure

# 1. CHECK STEERING SWITCH RESISTANCE

- 1. Disconnect steering switch connector M88.
- 2. Check resistance between steering switch connector terminals.

Terr	minal	Signal name	Condition	Resistance (Ω) (Approx.)
15	17	Seek (down)	Depress (station) down switch.	165
15 17	Volume (down)	Depress volume down switch.	487	
		Seek (up)	Depress (station) up switch.	165
14	17	Source	Depress source switch.	0
		Volume (up)	Depress volume up switch.	487

>> Replace steering switch. Refer to AV-53, "Removal and Installation".

#### 2. CHECK HARNESS

OK or NG OK

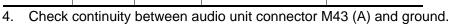
NG

1. Turn ignition switch OFF.

>> GO TO 2...

- 2. Disconnect audio unit connector M43 (A) and spiral cable connector M30 (B).
- Check continuity between spiral cable harness connector M30 3. (B) and audio unit harness connector M43 (A).

Spiral	cable		Continuity	
Connector	Terminal	Connector Terminal		
	24		16	
B: M30	31	A: M43	6	Yes
	33		15	

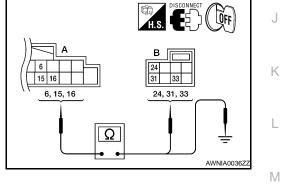


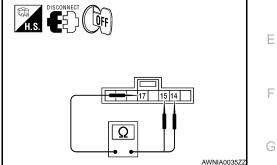
	Terminals			
	Audio unit		Continuity	
Connector	Terminal	_		
	6			
A: M43	15	Ground	No	
	16			

OK or NG

OK >> GO TO 3.. NG >> Repair harness.

**3.**SPIRAL CABLE CHECK





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INFOID:000000000995035

# **STEERING SWITCH**

#### < COMPONENT DIAGNOSIS >

- 1. Disconnect spiral cable connector M88 (B).
- Check continuity between spiral cable harness connector M30 (A) and M88 (B).

80		
	24 31 33	
_	24,31,33	Ω
		AWNIA0037ZZ

Terminals				
Spiral cable			Continuity	
Connector	Terminal	Connector	Terminal	
	24		14	
A: M30	31	B: M88	15	Yes
	33		17	†

#### OK or NG

OK >> Inspection End.

NG >> Replace spiral cable. Refer to <u>SRS-6. "Removal and Installation"</u>.

Communication signals are exchanged between the audio unit and satellite radio tuner using the communica-

1. Turn ignition switch OFF.

1.CHECK HARNESS - 1

< COMPONENT DIAGNOSIS >

SATELLITE RADIO TUNER

COMMUNICATION SIGNAL CIRCUIT

SATELLITE RADIO TUNER : Description

 Disconnect satellite radio tuner (factory installed) connector B123 and audio unit connector M45.

SATELLITE RADIO TUNER : Diagnosis Procedure

 Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 28 and audio unit harness connector M45 (B) terminal 38.

#### Continuity should exist.

4. Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 28 and ground.

#### Continuity should not exist.

#### OK or NG

tion circuits.

OK >> GO TO 2..

NG >> Repair harness or connector.

#### 2. CHECK HARNESS - 2

 Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 29 and audio unit harness connector M45 (B) terminal 39.

#### Continuity should exist.

 Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 29 and ground.

#### Continuity should not exist.

#### <u>OK or NG</u>

- OK >> GO TO 3..
- NG >> Repair harness or connector.

```
3.CHECK HARNESS - 3
```

 Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 30 and audio unit harness connector M45 (B) terminal 40.

#### Continuity should exist.

2. Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 30 and ground.

#### Continuity should not exist.

#### OK or NG

- OK >> GO TO 4..
- NG >> Repair harness or connector.

**4.**CHECK REQ1 SIGNAL

# AV-25

Ω

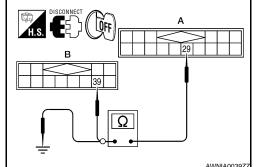


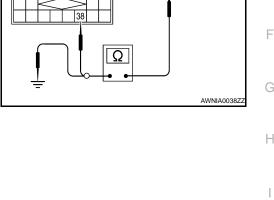
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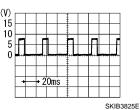
INFOID:000000000995038

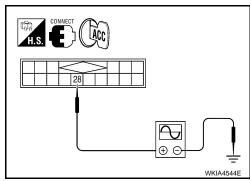
# **COMMUNICATION SIGNAL CIRCUIT**

#### < COMPONENT DIAGNOSIS >

- 1. Connect satellite radio tuner (factory installed) connector and audio unit connector.
- 2. Turn ignition switch to ACC
- Check signal between satellite radio tuner (factory installed) harness connector B123 terminal 28 and ground with CONSULT-III or oscilloscope.

#### 28 - Ground





#### OK or NG

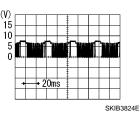
OK >> GO TO 5..

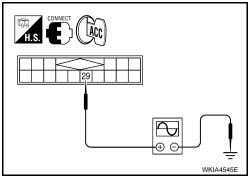
NG >> Replace audio unit. Refer to <u>AV-45, "Removal and Installation"</u>.

#### 5. CHECK TXD SIGNAL

Check signal between satellite radio tuner (factory installed) harness connector B123 terminal 29 and ground with CONSULT-III or oscillo-scope.

#### 29 - Ground





#### OK or NG

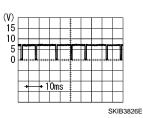
OK >> GO TO 6..

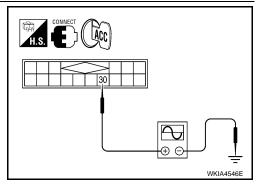
NG >> Replace satellite radio tuner.

**6.**CHECK RXD SIGNAL

Check signal between satellite radio tuner (factory installed) harness connector B123 terminal 30 and ground with CONSULT-III or oscillo-scope.

#### 30 - Ground





#### OK or NG

OK >> Replace satellite radio tuner.

NG >> Replace audio unit. Refer to <u>AV-45. "Removal and Installation"</u>.

#### [BASE AUDIO] < COMPONENT DIAGNOSIS > SOUND SIGNAL CIRCUIT А SATELLITE RADIO TUNER SATELLITE RADIO TUNER : Description INFOID:000000000995039 В Left and right channel audio signals are supplied from the satellite radio tuner to the audio unit through the sound signal circuits. SATELLITE RADIO TUNER : Diagnosis Procedure INFOID:000000000995040 LEFT CHANNEL D **1.**CHECK HARNESS Turn ignition switch OFF. 1. Disconnect satellite radio tuner (factory installed) connector 2. Ε B123 (A) and audio unit connector M45 (B). 3. Check continuity between satellite radio tuner (factory installed) and audio unit. F B 32 Terminals 31 Satellite radio tuner Audio unit Continuity Ω Connector Terminal Connector Terminal 21 31 AWNIA0041ZZ A: B123 B: M45 Yes Н 22 32 Check continuity between satellite radio tuner (factory installed) and ground. 4. Terminals Satellite radio tuner Continuity Terminal Connector 21 A: B123 Ground No 22 Κ OK or NG OK >> GO TO 2... NG >> Repair harness or connector. L 2. CHECK LEFT CHANNEL AUDIO SIGNAL 1. Connect satellite radio tuner (factory installed) and audio unit. Μ Turn ignition switch ON. 2. Check signal between satellite radio tuner (factory installed) 3. connector B123 terminals 21 and 22 with CONSULT-III or oscil-H.S. CONNECT loscope. AM 21 - 22 (V Ð⊕ WKIA4548E SKIB3609E OK or NG OK >> Replace audio unit. Refer to AV-45, "Removal and Installation". >> Replace satellite radio tuner. Refer to AV-127, "Removal and Installation". NG

AV-27

RIGHT CHANNEL

# SOUND SIGNAL CIRCUIT

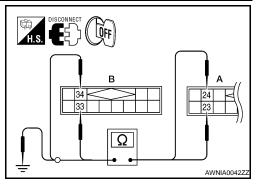
# SOUND SIGNAL CIRCUIT

#### < COMPONENT DIAGNOSIS >

# **1.**CHECK HARNESS

- 1. Turn ignition switch OFF.
- Disconnect satellite radio tuner (factory installed) connector B123 (A) and audio unit connector M45 (B).
- 3. Check continuity between satellite radio tuner (factory installed) and audio unit.

-		Tern	ninals		
_	Satellite ra	adio tuner	Audio unit		Continuity
_	Connector	Terminal	Connector	Terminal	
	A: B123	23	B: M45	33	Yes
	A. D125	24	D. 10145	34	163



4. Check continuity between satellite radio tuner (factory installed) and ground.

Sate	Satellite radio tuner			
Connector	Terminal			
A: B123	23	Ground	No	
A. 0125	24	Giounu	NO	

#### <u>OK or NG</u>

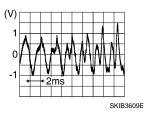
OK >> GO TO 2..

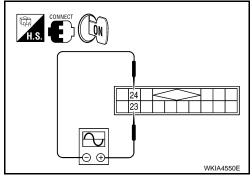
NG >> Repair harness or connector.

# 2. CHECK RIGHT CHANNEL AUDIO SIGNAL

- 1. Connect satellite radio tuner (factory installed) and audio unit.
- 2. Turn ignition switch ON.
- Check signal between satellite radio tuner (factory installed) connector B123 terminals 23 and 24 with CONSULT-III or oscilloscope.

#### 23 - 24





#### OK or NG

- OK >> Replace audio unit. Refer to <u>AV-45</u>, "Removal and Installation".
- NG >> Replace satellite radio tuner. Refer to <u>AV-127, "Removal and Installation"</u>.

#### [BASE AUDIO]

				~			
	AGNOSI						[BASE AUDIO]
		SNOSIS	5				
UDIC	UNIT						
eferer	ice Valu	le					INFOID:00000000099504
RMIN	AL LAYC	UT					
	19 10		6 7 8	9 18 20	32 34		
		11 12 13 14 1	5 10 17	10			H.S.
							AWNIA0043ZZ
HYSIC/	AL VALU	ES					
	ninal color)		Signal	(	Condition		Example of symp-
+	_	Item	input/ output	Ignition switch	Operation	Reference value	tom
				ownorr			
		Audio sound			Receive audio		No sound from
2 (W)	3 (B)	signal front LH	Output	ON	Receive audio signal		front door speaker LH or tweeter LH.
						-1	
		Audio sound			Pagaiva audia		No cound from
4 (O/B)	5 (W/R)	signal rear LH	Output	ON	Receive audio signal		No sound from rear speaker LH.
						-1	
					Press SEEK DOWN switch	Approx. 0.75V	
6 (W/G)	Ground	Remote control A	Input	ON	Press VOL DOWN switch	Approx. 2.0V	Steering wheel au- dio controls do not
					Except for above	Approx. 5.0V	function
7 (V/Y)	Ground	ACC signal	Input	ON	Ignition switch	Battery voltage	System does not
/ (0/1)	Cround	Acc signal	input		ACC or ON		work properly.
1 (G/W)	12 (BR)	Audio sound signal front	Output	ON	Receive audio signal		No sound from front door speaker
		RH					RH or tweeter RH.

# AV-29

#### < ECU DIAGNOSIS >

Tern (Wire	ninal color)	ltem	Signal	(	Condition	Reference value	Example of symp-
+	_	item	input/ output	Ignition switch	Operation	Reference value	tom
13 (L)	14 (B/W)	Audio sound signal rear RH	Output	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from rear speaker RH.
15 (L/B)	_	Remote control ground	Input	_	_	_	Steering wheel au- dio controls do not function
					Press SOURCE switch	Approx. 0.0V	
16 (GR/L)	Ground	Remote	Input	ON	Press SEEK UP switch	Approx. 0.75V	Steering wheel au- dio controls do not
10 (GR/L)	Ground	control B	mput	ON	Press VOL UP switch	Approx. 2.0V	function
					Except for above	Approx. 5.0V	
19 (Y/R)	Ground	Battery pow- er	Input	_	_	Battery voltage	System will not work properly.
32 (Y/L)	31 (W/L)	Audio left channel sound signal from satel- lite radio tuner	Input	ON	Receive audio signal	(V) 1 0 -1 SKIA0177E	No sound from sat- ellite radio tuner left channel.
34 (BR/L)	33 (Y/G)	Audio right channel sound signal from satel- lite radio tuner	Input	ON	Receive audio signal	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from sat- ellite radio tuner right channel.
35	_	Shield ground (au- dio signal)	_	_	_	٥V	_
36	_	Shield ground (da- ta)	_	_	_	٥V	-

#### < ECU DIAGNOSIS >

[BASE	AUDIO]
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	ninal color)	Item	Signal input/		Condition	Reference value	Example of symp-	А
+	_	licin	output	Ignition switch	Operation		tom	
38 (R)	Ground	Satellite ra- dio tuner re- quest to audio unit	Input		Turn audio unit ON	5V	Satellite radio tun- er does not oper- ate properly.	B
39 (G)	Ground	Audio RX	Input	ON	Operate audio volume	(V) 6 2 0 • • • 5ms SKIA4403E	Satellite radio tun- er audio informa- tion does not display properly.	D
40 (B)	Ground	Audio TX	Output		Operate audio volume	(V) 6 2 0 • • • 2ms SKIA4402E	Satellite radio tun- er audio informa- tion does not display properly.	F
75 (B)	Ground	Amp power supply	Output	ON	Turn audio unit ON	Battery voltage	-	Н
76 (B)	Ground	Main anten- na	Input	ON	Turn audio unit ON	-	-	I

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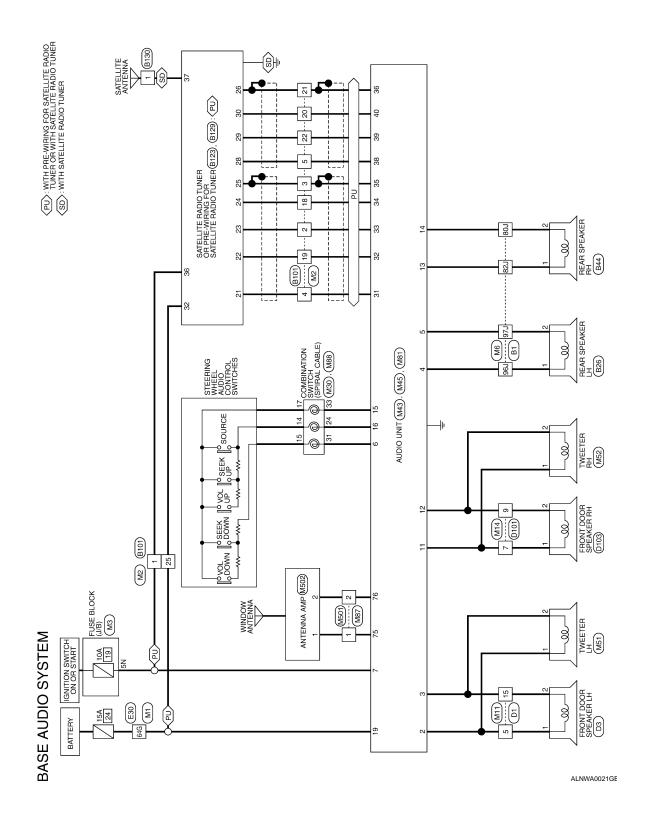
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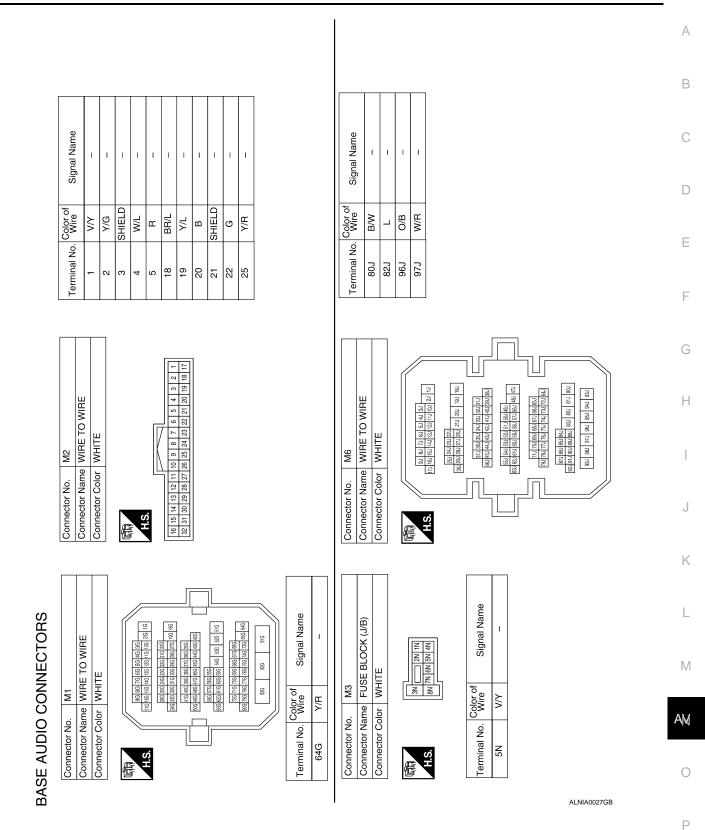
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# Wiring Diagram

INFOID:000000000995042





Connector No. M30 Connector Name COMBINATION SWITCH (SPIRAL CABLE)	Connector Color GRAY	al No. Color of Wire	4 W/G AUDIO_STRG_SW_ REMOTE_A 1 GR/L AUDIO_STRG_SW_	33 L/B AUDIO_STRG_SW_GND	Connector No. M45		_	32 34 40 42	31 33 35 36 37 38			Calar of	Terminal No. Wire Signal Name	31 W/L SAT LH INPUT (-)	32 Y/L SAT LH INPUT (+)	33 Y/G SAT RH INPUT (-)	34 BR/L SAT RH INPUT (+)	35 SHIELD EARTH	36 SHIELD DAT EARTH	37 – – –	38 R RFQ1 (SAT TO COMBI)	39 G RX (SAT TO COMBI)	40 B TX (COMBI TO SAT)	41 – – – –	
Conne	Conne		31 24	e E	Conne																		7	7	
Connector No. M14 Connector Name WIRE TO WIRE Connector Color MHITE	2 <b>a</b> 3 4	of Signal Name	1 1		of Signal Name	STRG_SW_A	ACC	ILL_CONT_OUT	TAIL/ILL_RLY	I		FR SP RH (-)			ŝ	STRG_SW_B	I	I	BAT	I					
o. ame W		0	BR BR		Color of Wire	W/G	۲V	RУ	R/L	I	G/W	Ш	-	BV	Ц	GR/L	Т	Т	Y/R	T					
Connector No. Connector Name	HS	Terminal No.	6		Terminal No.	g	2	ω	6	10	11	12	13	14	15	16	17	18	19	20					
E TO WIRE	■ 11 12 13 14 15 16 7 17 14 15 16 17 17 14 15 16 17 17 17 17 17 17 17 17 17 17	Signal Name	1 1		M43	TE			5 6 7 8 9	13 14 15 16 17 18 20			Signal Name	I	FR SP LH (+)	FR SP LH (-)	RR SP LH (+)	RR SP LH (-)							
M11 e WIRE	r WHI	Color of Wire	≥ m				_			10 11 12 13		color of	Wire	I	≥	m	O/B	W/R							
Connector No. M11 Connector Name WIRE TO WIRE	Connector Color WHILE 机S	al No.	5 15		Connector No.	Connector Color		E	بًال ر	19			Terminal No.	-	5	e	4	5							

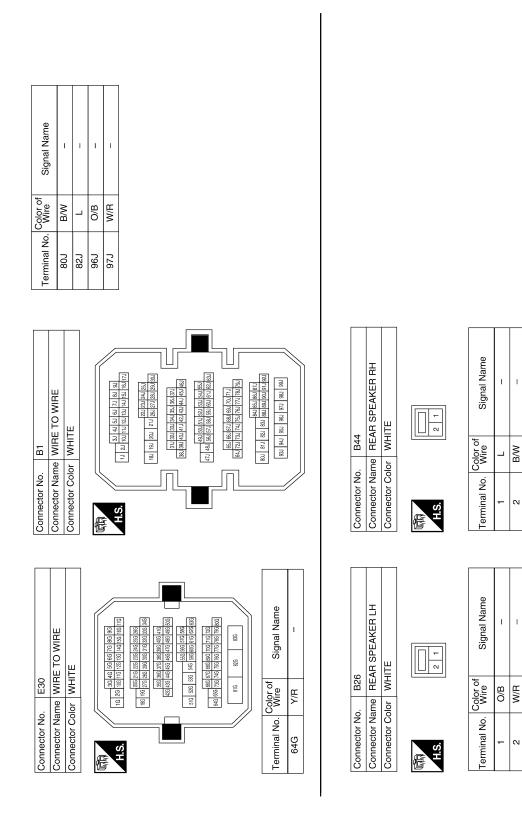
#### < ECU DIAGNOSIS >

GNOSIS >			
NIT I	Signal Name AMP POWER SUPPLY MAIN ANTENNA	M501 WIRE TO WIRE GRAY GRAY ar of Signal Name	
M81 AUDIO UN GRAY			
r No.	No. Color of Wire B B		
Connector No. M81 Connector Name AUDIO UNIT Connector Color GRAY	Terminal No. 75 76 77	Connector No. Connector Narr Connector Colc A.S. Terminal No. C	
		H P P M	
HE H	Signal Name	M88 COMBINATION SWITCH (SPIRAL CABLE) GRAY GRAY Igl 18 [17] 16] 15 [14] 13] Igl 18 [17] 16] 15 [14] 13] r of Signal Name REMOTE A REMOTE B R GND	
Connector No. M52 Connector Name TWEETER RH Connector Color BROWN		M88 COMBINATION SV (SPIRAL CABLE) GRAY GRAY 2019 19 17 16 15 14 13 Mire Signal Ni ER REMOT L REMOT BR GND	
No. No. Name A Color B	4o. Color of Wire G/W BR		
Connector No. Connector Name Connector Color	Terminal No.	Connector No. Connector Name Connector Color HS Terminal No. Col 15 15 15 15 15	
		e e e e e e e e e e e e e e e e e e e	
	Signal Name	Signal Name	Signal Name
M51 TWEETER I BROWN			22 44
Vo. M51 Vame TWE Color BRO	b. Color of Wire B B		
Connector No. M51 Connector Name TWEETER LH Connector Color BROWN	Terminal No.	Connector No. Connector Name Connector Color H.S. Terminal No. Color 2 B	Connector No. Connector Name Connector Color H.S. Terminal No. Color 2 E
Con			

< ECU DIAGNOSIS >

#### [BASE AUDIO]

AV-35



ALNIA0075GB

# **AUDIO UNIT**

Signal Name	SAT_LCH (-)	SAT_LCH (+)	SAT_RCH (-)	SAT_RCH (+)	EARTH (SIG)	DATA	I	EC1 (SAT-COMBI)			RAT		1	1	ACC					E	1		2 1 9 8				Signal Name	I	1	
Signa	SAT	SAT	SAT	SAT	EARI	Δ		EC1 (S/ TVD /c/							4					E TO WIF			7 6 5 4 3 3 2 16 15 14 13 12 11 10 9				Sig			
Color of Wire	W/L	٦/۲	Y/G	BR/L	SHIELD	SHIELD	I	R/L	ž,	n I			ı	I	GR/W					ame WIB	olor WHITE		7 6 5 16 15 14			•	Color of Wire	M	В	
Terminal No.	21	22	23	24	25	26	27	58	53	30	5 6	33 25	34	35	36				Connector No	Connector Name WIRE TO WIRE	Connector Color		E	Ч. Ч.			Terminal No.	5	15	
i 111	y U	<u>ц</u>	- I																			ô	(010	]		Γ			7	
			nector Color WHITE		22 24 26 33 34 36 21 23 25 27 28 29 30 31 33 35														nector No B130		ANTENNA		BROWN (WITH XM SATELLITE RADIO)		is.		minal No. Color of Signal Name	- 8		
Connector No. B123 Connector Name SATELLITE RADIO TLINI			Connector Color WHITE		22 24 26 13 23 25 27 28 29 30 31														Connector No B130	e e	ANTENNA O O O O O O O O O O O O O O O O O O O	Connector Color   GHAY (WITH SIRIUS SATELLITE RADIO)	BROWN (WITH XM SATELLITE RADIO)		HS.					
Connector No.						8 7 6 5 4 3 2 1 34 39 39 30 46 48 47	61 C2 ZZ ZI ZI ZA	Sinnal Name		1 1		1		1	1	1	1		Connector No	JNER Connector Name	UNER	S Connector Color	(JUD)		国 H.S.		Terminal No. Wire	-	ANTENNA SIGNAL	
						7 6 5 4 3 2 1 23 29 24 20 44 48 47	61 C2 ZZ ZI ZI ZA	Color of Sinnal Name						BR/L –	۸/۲ – ۸			V/R – V/R		ne SATELLITE RADIO TUNER Connector Name	OR PRE-WIRING FOR SATELLITE RADIO TUNER	S Connector Color	SATELLITE RADIO) VIOLET (WITH XM				Terminal No. Wire			

#### [BASE AUDIO]

Connector No. D103 Connector Name FRONT DOOR SPEAKER RH Connector Color BROWN Connector Color BROWN Terminal No. Color of Signal Name Terminal No. Color of Signal Name 2 BR -							
Connector No. D100 Connector Name FRO Connector Color BRO H.S. Terminal No. Color of Terminal No. Color of 2 BR		NT DOOR SPEAKER RH	WN		Signal Name	I	1
Connector No. Connector Nam Connector Colt H.S. H.S. Terminal No.	D10(	le FRO	or BRC		Color of Wire	G/W	ВВ
	Connector No.	Connector Nam	Connector Cold	高 H.S.	Terminal No.	-	2

	Signal Name	I
4         3           10         9         8         7	Color of Wire	G/W
品.S.H	Terminal No. Wire	2

L

ВВ

6

Connector No. D101 Connector Name WIRE TO WIRE Connector Color WHITE

	Connector Name FRONT DOOR SPEAKER LH	TE		Signal Name	I	I
D3	ne FRC	or WHI		Color of Wire	N	в
Connector No.	Connector Nar	Connector Color WHITE	劻 H.S.	Terminal No. Wire	F	2

_		L
<u> </u>		
∞	5	
10 9 8	Color of Wire	∣≩
힌	19 <u>5</u>	
	Ŭ,	
	Terminal No.	
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H.S.	<u> </u>	Ľ
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ALNIA0077GB

**AUDIO UNIT** 

# SATELLITE RADIO TUNER

#### **Reference Value**

[BASE AUDIO]

LKIA0735E

INFOID:000000000995043

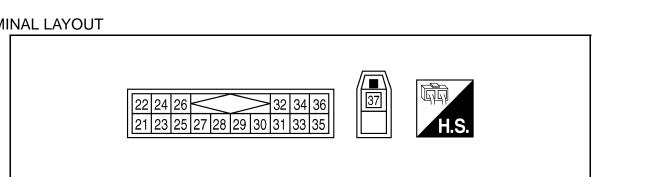
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#### PHYSICAL VALUES

Term (Wire		ltem	Signal input/		Condition	Voltage	F
+	_	item	output	Ignition switch	Operation	(approx.)	G
22 (Y/L)	21 (W/L)	Audio signal LH	Output	ON	Receive audio signal.	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	H
24 (BR/L)	23 (Y/G)	Audio signal RH	Output	ON	Receive audio signal.	(V) 1 0 -1 2 SKIB3609E	J K
25	-	Shield	-	_	-	_	- L
26	-	Data ground	-	ON	-	Approx. 0 V	-
28 (R/L)	Ground	REQ1 (SAT-AUDIO)	Output	ON	Set to the satellite radio mode	(V) 15 0 	M AM O
29 (R/W)	Ground	Communication signal (SAT-AUDIO)	Output	ON	Set to the satellite radio mode	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0	P

# SATELLITE RADIO TUNER

#### < ECU DIAGNOSIS >

#### [BASE AUDIO]

Term (Wire)		ltem	Signal input/		Condition	Voltage (approx.)	
+	_	. nem	output	Ignition switch	Operation		
30 (B)	Ground	Communication signal (AUDIO-SAT)	Input	ON	Set to the satellite radio mode	(V) 15 0 5 0 • • • • • • • • • • • • •	
32 (Y/R)	Ground	Battery power supply		OFF		Battery voltage	
36 (GR/W)	Gibunu	ACC power supply	Input	ACC	_	Dallery Vollage	
37 (B)	-	Antenna signal		-	_	-	

# Wiring Diagram

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Refer to AV-32, "Wiring Diagram".

#### < SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS AUDIO SYSTEM

AUDIO UNIT

# AUDIO UNIT : Symptom Table

Symptom	Possible cause	Reference page	
Inoperative	<ul><li>Audio unit power circuit</li><li>Audio unit</li></ul>	• <u>AV-15</u> • <u>AV-45</u>	
Steering switch does not operate	<ul><li>Steering switch</li><li>Audio unit</li></ul>	• <u>AV-23</u> • <u>AV-45</u>	
All speakers do not sound	<ul><li>Audio unit power circuit</li><li>Audio unit</li></ul>	• <u>AV-15</u> • <u>AV-45</u>	
One or several speakers do not sound	<ul><li>Front door speaker</li><li>Tweeter</li><li>Rear speaker</li></ul>	• <u>AV-17</u> • <u>AV-19</u> • <u>AV-21</u>	

# CD

# CD : Symptom Table

Symptom	Possible cause	Reference page	Н
CD cannot be inserted.			
CD cannot be ejected.	- Audio unit	A)/ 45	1
The CD cannot be played.		<u>AV-45</u>	1
The sound skips, stops suddenly, or is distorted.			

# SATELLITE RADIO TUNER

# SATELLITE RADIO TUNER : Symptom Table

Symptom	Possible cause	Reference page	
Inoperative	<ul> <li>Satellite radio tuner power or ground circuit</li> <li>Satellite radio tuner communication circuit</li> <li>Satellite radio tuner</li> </ul>	<ul> <li><u>AV-15</u></li> <li><u>AV-25</u></li> <li><u>AV-127</u></li> </ul>	L
Right or left channel does not sound	<ul> <li>Satellite radio tuner right channel audio signal circuit</li> <li>Satellite radio tuner left channel audio signal circuit</li> <li>Satellite radio tuner</li> </ul>	• <u>AV-27</u> • <u>AV-27</u> • <u>AV-127</u>	M

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[BASE AUDIO]

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#### NORMAL OPERATING CONDITION

#### < SYMPTOM DIAGNOSIS >

# NORMAL OPERATING CONDITION

#### Description

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[BASE AUDIO]

The majority of the audio troubles are the result of outside causes (bad CD, electromagnetic interference, etc.).

#### NOISE

The following noise results from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources. It is not a malfunction.

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from the waves sent directly from the broadcast station arriving at the antenna at a different time from the waves which reflect off mountains or buildings.

The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and determine the cause.

#### NOTE:

The source of the noise can be found easily by listening to the noise while removing the fuses of electrical components, one by one.

Type of Noise and Possible Cause

C	Occurrence condition	Possible cause
	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	Ignition components
Occurs only when engine is ON.	A whistling noise occurs while the engine speed is high. A booming noise occurs while the engine is running and the lighting switch is ON.	Generator
The occurrence of the noise is lin	ked with the operation of the fuel pump.	Fuel pump condenser
Noise only occurs when various	A cracking or snapping sound occurs with the operation of various switches.	Relay malfunction, audio unit malfunction
electrical components are oper- ating.	The noise occurs when various motors are operat- ing.	<ul><li>Motor case ground</li><li>Motor</li></ul>
The noise occurs constantly, not	<ul> <li>Rear defogger coil malfunction</li> <li>Open circuit in printed heater</li> <li>Poor ground of antenna amplifier or antenna feeder line</li> </ul>	
A cracking or snapping sound occ it is vibrating excessively.	urs while the vehicle is being driven, especially when	<ul> <li>Ground wire of body parts</li> <li>Ground due to improper part installation</li> <li>Wiring connections or a short circuit</li> </ul>

# < PRECAUTION > PRECAUTION PRECAUTIONS

Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSION-ER"

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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# < PREPARATION > PREPARATION

#### PREPARATION

# **Commercial Service Tools**

Tool name		Description
		Loosening bolts and nuts
Power tool		
	PBIC0191E	

#### AUDIO UNIT

# < ON-VEHICLE REPAIR > ON-VEHICLE REPAIR AUDIO UNIT

Removal and Installation

#### REMOVAL

- 1. Remove the cluster lid D. Refer to IP-11, "Removal and Installation".
- 2. Remove the cluster lid D screws (A), then remove the audio unit screws (B) and the audio unit (1).

INSTALLATION Installation is in the reverse order of removal. А

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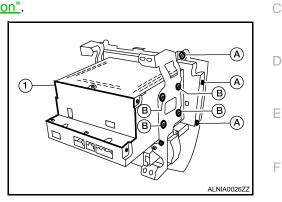
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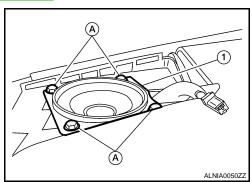


# TWEETER

#### Removal and Installation

REMOVAL

- 1. Remove the front pillar finisher. Refer to INT-19, "Removal and Installation".
- 2. Remove tweeter speaker grille. Refer to IP-11, "Removal and Installation".
- 3. Remove the tweeter speaker screws (A), disconnect the tweeter speaker connector and remove the tweeter speaker (1).



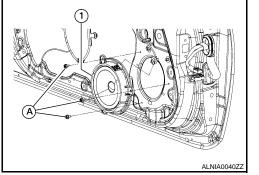
INSTALLATION Installation is in the reverse order of removal.

# FRONT DOOR SPEAKER

#### Removal and Installation

#### REMOVAL

- 1. Remove the front door finisher. Refer to INT-11, "Removal and Installation".
- Remove the front door speaker screws (A), then disconnect the front door speaker connector and remove the front door speaker (1).



INSTALLATION Installation is in the reverse order of removal.

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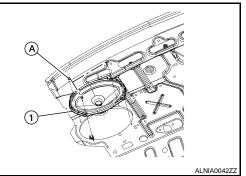
#### < ON-VEHICLE REPAIR >

# REAR SPEAKER

# Removal and Installation

#### REMOVAL

- 1. Remove the rear parcel shelf finisher. Refer to INT-15, "Removal and Installation".
- 2. Remove the rear speaker screws (A), then disconnect the rear speaker and remove the rear speaker (1).



INSTALLATION Installation is in the reverse order of removal.

#### ANTENNA AMP.

#### < ON-VEHICLE REPAIR >

# ANTENNA AMP.

#### **Removal and Installation**

#### REMOVAL

- 1. Remove the rear pillar finisher RH. Refer to INT-19, "Removal and Installation".
- 2. Partially remove the side curtain air bag module RH to gain access to the antenna amp. Refer to SRS-10. "Removal and Installation".
- 3. Detach the antenna amp harness clip (A), disconnect the antenna amp connectors (B), remove the antenna amp screw (C) and remove the antenna amp (1).

**INSTALLATION** Installation is in the reverse order of removal. INFOID:000000000995055

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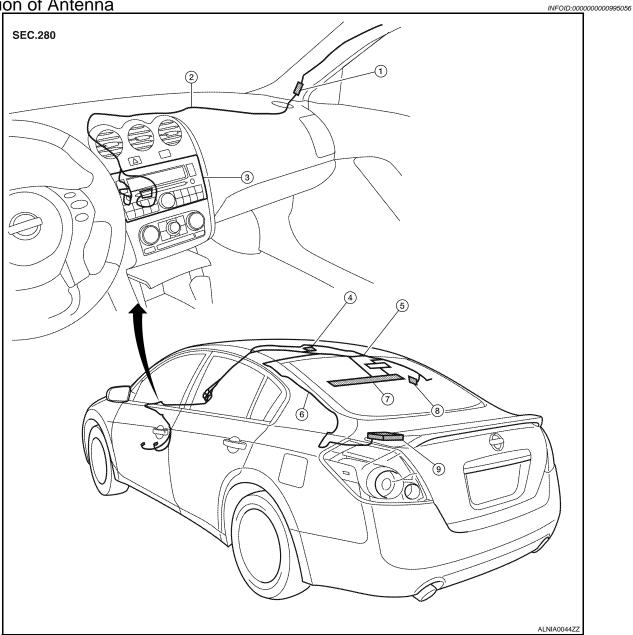
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#### < ON-VEHICLE REPAIR > AUDIO ANTENNA

#### Location of Antenna

[BASE AUDIO]



- 1. Audio unit harness connector
- 4. Satellite antenna
- 7. Window Antenna

# Window Antenna Repair

ELEMENT CHECK

- 2. Audio unit harness
- 5. Audio antenna feeder
- 8. Antenna amp.
- 3. Audio unit
- 6. Satellite radio antenna feeder
- 9. Satellite radio tuner

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#### AV-50

# **AUDIO ANTENNA**

#### < ON-VEHICLE REPAIR >

#### [BASE AUDIO]

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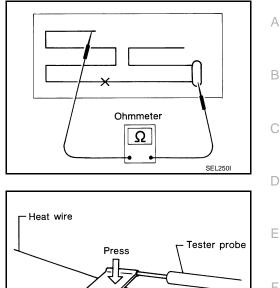
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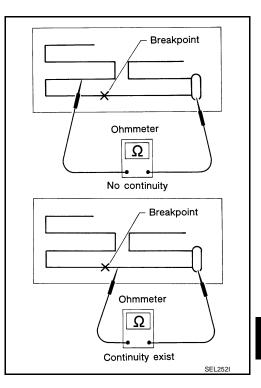
1. Attach probe circuit tester (ohm setting) to antenna terminal on each side.



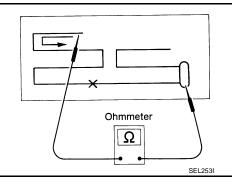
Tin foil

• When measuring continuity, wrap tin foil around the top of probe. Then, press the foil against the wire with your finger.

2. If an element is broken, no continuity will exist.



To locate a break, move probe along element. Tester indication 3. will change abruptly when probe passes the broken point.



#### **AUDIO ANTENNA**

#### < ON-VEHICLE REPAIR >

#### **REPAIR EQUIPMENT**

- Conductive silver composition (DuPont No. 4817 or equivalent)
- Ruler 30 cm (11.8 in) long
- Drawing pen
- Heat gun
- Alcohol
- Cloth

#### REPAIRING PROCEDURE

composition is deposited.

- 1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
- 2. Apply a small amount of conductive silver composition to tip of drawing pen.

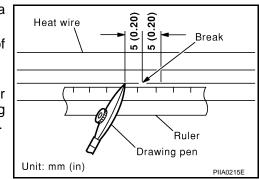
Shake silver composition container before use.

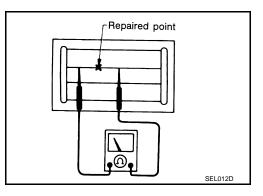
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.

4. After repair has been completed, check repaired wire for conti-

Do not touch repaired area while test is being conducted.

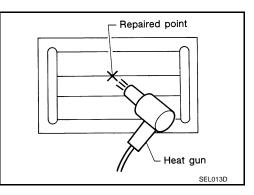
nuity. This check should be conducted 10 minutes after silver





5. Apply a constant stream of hot air directly to the repaired area for approximately 20 minutes with a heat gun. A minimum distance of 3 cm (1.2 in) should be kept between repaired area and hot air outlet.

If a heat gun is not available, let the repaired area dry for 24 hours.



#### **STEERING SWITCH**

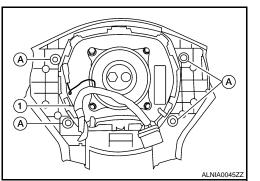
#### < ON-VEHICLE REPAIR >

# STEERING SWITCH

# Removal and Installation

#### REMOVAL

- 1. Remove the driver airbag module. Refer to <u>SRS-4. "Removal and Installation"</u>.
- 2. Remove the steering wheel switch assembly screws (A), then remove the steering wheel switches (1).



INSTALLATION Installation is in the reverse order of removal. [BASE AUDIO]

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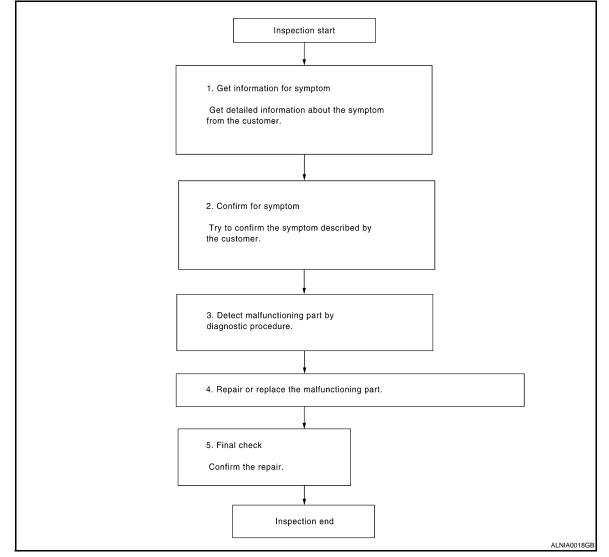
# [BOSE AUDIO WITHOUT NAVIGATION]

# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

#### Work Flow

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**OVERALL SEQUENCE** 



#### DETAILED FLOW

#### **1.**GET INFORMATION FOR SYMPTOM

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

#### >> GO TO 2..

#### 2.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

#### >> GO TO 3..

**3.** DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

#### AV-54

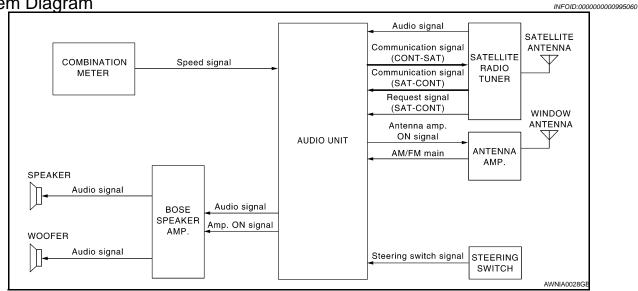
#### DIAGNOSIS AND REPAIR WORKFLOW

#### [BOSE AUDIO WITHOUT NAVIGATION]

< BASIC INSPECTION >	[BOSE AUDIO WITHOUT NAVIGATION]
Is malfunctioning part detected?	
YES >> GO TO 4 NO >> GO TO 2	
4. REPAIR OR REPLACE THE MALFUNC	TIONING PART
<ol> <li>Repair or replace the malfunctioning page.</li> <li>Reconnect parts or connectors disconr</li> </ol>	art.
>> GO TO 5	
5.FINAL CHECK	make sure that the symptom is not detected
Refer to confirmed symptom in step 2, and OK or NG	make sure that the symptom is not detected.
OK >> Inspection End	
NG >> GO TO 2	
	_
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# FUNCTION DIAGNOSIS AUDIO SYSTEM

#### System Diagram



#### System Description

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#### AUDIO SYSTEM

The audio system consists of the following components

- Audio unit
- BOSE speaker amp.
- Window antenna
- Antenna amp.
- Steering switches
- Front door speakers
- Tweeters
- Center speaker
- Rear door speakers
- Woofers

When the audio system is on, radio signals are received by the audio antenna. These signals are amplified by the antenna amp. before reaching the audio unit. The audio unit then sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the front door speakers, tweeters, center speaker, rear door speakers and woofers.

Refer to Owner's Manual for audio system operating instructions.

#### SATELLITE RADIO SYSTEM

The satellite radio system consists of the following components

- Satellite antenna
- Satellite radio tuner

When the satellite radio system is on, radio signals are supplied to the satellite radio tuner from the satellite antenna. The satellite radio tuner then sends audio signals to the audio unit.

Refer to Owner's Manual for satellite radio system operating instructions.

#### SPEED SENSITIVE VOLUME SYSTEM

Volume level of this system goes up and down automatically in proportion to the vehicle speed. The control level can be selected by the customer. Refer to Owner's Manual for operating instructions.

#### **Component Parts Location**

#### **AUDIO SYSTEM**

#### < FUNCTION DIAGNOSIS >

#### [BOSE AUDIO WITHOUT NAVIGATION]



1. Tweeter LH M51

Audio unit M43, M44, M45, M81

4.

- Steering wheel audio control switch- 3. 2. es
  - Tweeter RH M52

- 5. Combination meter M24
- 6. Front door speaker LH D3 RH D103
- AV-57

#### **AUDIO SYSTEM**

Rear subwoofer LH B120

#### < FUNCTION DIAGNOSIS >

#### Rear subwoofer RH B124 7.

pillar finisher RH removed)

- 10. Antenna amp M502 (view with rear 11. Satellite radio tuner B123, B129
- 13. BOSE speaker amp B121, B122 14. Microphone R7

8.

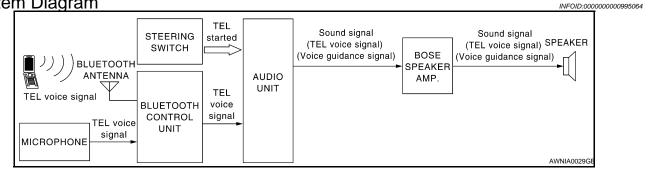
**Component Description** 

- [BOSE AUDIO WITHOUT NAVIGATION] 9.
  - Rear door speaker LH D202 RH D302
  - 12. Bluetooth control unit B125, B126
  - 15. Bluetooth ON indicator R8

Part name	Description
Audio unit	Controls audio system and satellite radio system functions
BOSE speaker amp.	Receives power (amp ON) and audio signals from audio unit, and outputs au- dio signals to each speaker.
Steering switches	<ul><li>Each audio operation can be operated</li><li>Steering switch signal (operation signal) is output to audio unit</li></ul>
Front door speakers	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Tweeters	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high range sounds</li></ul>
Center speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high range sounds</li></ul>
Rear door speakers	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Woofers	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs low range sounds</li></ul>
Antenna amp.	<ul> <li>Radio signal received by glass antenna is amplified and sent to audio unit</li> <li>Power (antenna amp ON signal) is supplied from audio unit</li> </ul>
Satellite radio tuner	<ul><li>Receives radio signals from satellite antenna</li><li>Sends audio signals to audio unit</li></ul>
Satellite antenna	Audio signal (satellite radio) is received and output to audio unit.

# HANDS-FREE PHONE SYSTEM

#### System Diagram



#### System Description

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Refer to the owner's manual for Bluetooth telephone system operating instructions. **NOTE:** 

Cellular telephones must have their wireless connection set up (paired) before using the Bluetooth telephone F system.

Bluetooth telephone system allows users who have a Bluetooth cellular telephone to make a wireless connection between their cellular telephone and the Bluetooth control unit. Hands-free cellular telephone calls can be sent and received. Personal memos can be created using the Nissan Voice Recognition system. Some Bluetooth cellular telephones may not be recognized by the Bluetooth control unit. When a cellular telephone or the Bluetooth control unit is replaced, the telephone must be paired with the Bluetooth control unit. Different cellular telephones may have different pairing procedures. Refer to the cellular telephone operating manual.

#### **BLUETOOTH CONTROL UNIT**

When the ignition switch is turned to ACC or ON, the Bluetooth control unit will power up. During power up, the Bluetooth control unit is initialized and performs various self checks. Initialization may take up to 10 seconds. During this time the Bluetooth ON indicator will flash until initialization is complete. If a phone is present in the vehicle and paired with the Bluetooth control unit, Nissan Voice Recognition will then become active and the Bluetooth ON indicator will remain on. Bluetooth telephone functions can be turned off using the Nissan Voice Recognition system.

#### STEERING WHEEL AUDIO CONTROL SWITCHES

When buttons on the steering wheel audio control switch are pushed, the resistance in steering wheel audio control switch circuit changes depending on which button is pushed. The Bluetooth control unit uses this signal to perform various functions while navigating through the voice recognition system.

- The following functions can be performed using the steering wheel audio control switch:
- Initiate Self Diagnosis of the Bluetooth telephone system
- Start a voice recognition session
- Answer and end telephone calls
- Adjust the volume of calls
- Record memos

#### MICROPHONE

The microphone is located in the roof console assembly. The microphone sends a signal to the Bluetooth control unit. The microphone can be actively tested during self-diagnosis.

#### BLUETOOTH ON INDICATOR

The Bluetooth ON indicator is located in the overhead console. The indicator will flash during power up while the Bluetooth control unit is initializing. This process may take up to 10 seconds. If a phone is present in the vehicle and paired with the Bluetooth control unit, the indicator will remain on to indicate that the system is ready for voice commands. The indicator flashes during self-diagnosis.

#### AUDIO UNIT

The audio unit receives signals from the Bluetooth control unit and sends audio signals to the speakers.

#### Component Parts Location

Refer to AV-56, "Component Parts Location".

< FUNCTION DIAGNOSIS >

# HANDS-FREE PHONE SYSTEM

#### [BOSE AUDIO WITHOUT NAVIGATION]

# **Component Description**

Part name	Description
Audio unit	<ul> <li>Receives telephone voice signal from Bluetooth control unit</li> <li>Sends telephone voice and voice guidance signals to BOSE speaker amp.</li> </ul>
BOSE speaker amp.	Inputs power (amp ON) and sound signal from audio unit, and outputs sound signal to each speaker.
Front door speaker	
Tweeter	Receives telephone voice and voice guidance signals from BOSE speaker amp.
Center speaker	
Steering switches	<ul> <li>Start a voice recognition session</li> <li>Answer and end telephone calls</li> <li>Adjust the volume level</li> </ul>
Microphone	Sends voice signals to Bluetooth control unit
Bluetooth control unit	Controls hands-free phone functions
Bluetooth antenna	Sends telephone voice signal to bluetooth control unit

#### < FUNCTION DIAGNOSIS >

# DIAGNOSIS SYSTEM (AUDIO UNIT)

#### Diagnosis Description

Self-diagnosis mode can check the following items.

- Audio unit hardware/software versions
- Continuity of each speaker channel
- Continuity of each audio unit switch

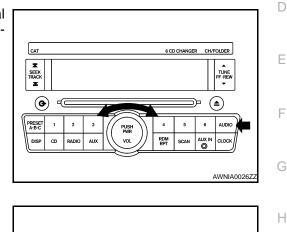
#### OPERATION PROCEDURE

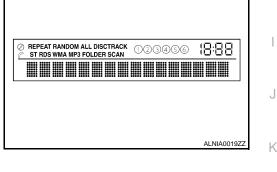
- 1. Turn ignition switch to the ACC position.
- 2. Turn the audio unit off.
- 3. While pressing the "AUDIO" button, turn the volume control dial clockwise or counterclockwise 30 clicks or more. When the self-diagnosis mode is started, a short beep will be heard.

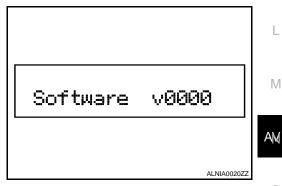
4. Initially, all display segments will be illuminated.

Version Check

1. Press the "AUDIO" switch to enter version diagnostics. "Software" (audio software version) is displayed.







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# DIAGNOSIS SYSTEM (AUDIO UNIT)

#### < FUNCTION DIAGNOSIS >

2. Press the "AUDIO" switch again to display the "Hardware" (audio hardware version).

Hardware	√0000
	ALNIA0021Z

3. Press the "AUDIO" switch again to display the "CD Mech" (CD mechanism version).



4. Press the "AUDIO" switch again to display the "SDARS" (satellite radio version).

SDARS	v0000
	ALNIA0023ZZ

Channel Check Diagnostics

When all segments are illuminated, press the "TUNE" up switch to enter channel check diagnostics. The self-diagnostic function will then send a tone to each channel (FL, RL, RR, FR) for 1 second.

Channel	check	FL
		ALNIA0024ZZ

**Button Check Diagnostics** 

# DIAGNOSIS SYSTEM (AUDIO UNIT)

#### < FUNCTION DIAGNOSIS >

When all segments are illuminated, press the "TUNE" down switch to enter button check diagnostics. When each audio unit switch is pressed, a tone will sound and the switch name will be displayed.

# [BOSE AUDIO WITHOUT NAVIGATION]

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#### DIAGNOSIS SYSTEM (BLUETOOTH CONTROL UNIT) [BOSE AUDIO WITHOUT NAVIGATION]

#### < FUNCTION DIAGNOSIS >

# DIAGNOSIS SYSTEM (BLUETOOTH CONTROL UNIT)

#### **Diagnosis Description**

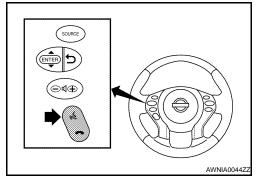
The Bluetooth control unit has two diagnostic checks. The first diagnostic check is performed automatically every ignition cycle during control unit initialization. The second diagnostic check is performed by the technician using the steering wheel audio control switches prior to trouble diagnosis.

#### BLUETOOTH CONTROL UNIT INITIALIZATION CHECKS

- Internal control unit failure
- Bluetooth antenna connection open or shorted
- Steering wheel audio control switches (SEND/END) stuck closed
- Vehicle speed pulse count
- Microphone connection test (with playback to operator)
- Bluetooth inquiry check

#### **OPERATION PROCEDURE**

- 1. Turn ignition switch to ACC or ON.
- Wait for the Bluetooth system to complete initialization and the Bluetooth ON indicator to stop flashing. This may take up to 10 seconds.
- Press and hold the steering wheel audio control switch SEND button for at least 5 seconds. The Bluetooth system will begin to play a verbal prompt.

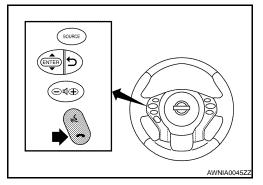


- While the prompt is playing, press and hold the steering wheel audio control switch END button until you hear the "Diagnostics mode" prompt. The Bluetooth system will sound a 5 second beep.
- 5. While the beep is sounding, press and hold the steering wheel audio control switch END button again until you hear prompts.
- The Bluetooth system has now entered into the diagnostic mode. Results of the diagnostic checks will be verbalized to the technician. Refer to <u>AV-64</u>, "Work Flow".
- After the failure records are reported, an interactive microphone test will be performed. Follow the voice prompt. If the microphone test fails refer to <u>AV-64</u>, "Work Flow".
- 8. Self-diagnosis mode is complete when the voice prompt says "All diagnostic functions completed".

#### Work Flow

INFOID:000000000995070

Failure Message	Action		
"Internal failure"	Replace Bluetooth control unit. Refer to AV-135, "Removal and Installation".		
"Bluetooth antenna open"	1. Inspect harness connection.		
"Bluetooth antenna shorted"	2. Replace Bluetooth antenna. Refer to <u>AV-134, "Removal and Installation"</u> .		
"Phone/Send for Hands Free System is stuck"	Check steering wheel audio control switches. Refer to AV-80, "Diagnosis Pr		
"Phone/End for the Hands Free System is stuck"	dure".		
"Microphone test" (failed interactive test)	<ol> <li>Inspect harness between Bluetooth control unit and microphone.</li> <li>Replace microphone. Refer to <u>AV-133</u>, "<u>Removal and Installation</u>".</li> </ol>		



#### AV-64

# AV-65

#### OK or NG OK >> GO TO 2... NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. 2. AUDIO UNIT POWER SUPPLY CIRCUIT CHECK Disconnect audio unit connector. 1 Check voltage between the audio unit and ground. 2. Terminal No. Unit (+) OFF ACC ON (-) Connector Terminal Battery Battery Battery 19 Ground voltage voltage voltage Audio unit M43 Battery Battery 7 0V V Ground voltage voltage Æ F OK or NG OK >> GO TO 3.. >> • Check connector housings for disconnected or loose NG terminals. Repair harness or connector.

# 3.GROUND CIRCUIT CHECK

Inspect audio unit case ground. OK or NG

#### OK >> Inspection End.

>> Repair audio unit case ground. NG

# BOSE SPEAKER AMP

# **BOSE SPEAKER AMP : Diagnosis Procedure**

# 1.CHECK FUSE

#### Check for blown fuses.

Unit	Terminals	Signal name	Fuse No.	Ρ
BOSE speaker amp.	50	Battery power	25	
	51	Dattery power	26	

#### OK or NG

OK >> GO TO 2..

NG >> Be sure to eliminate cause of malfunction before installing new fuse.

# POWER SUPPLY AND GROUND CIRCUIT < COMPONENT DIAGNOSIS >

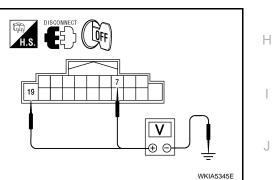
# COMPONENT DIAGNOSIS POWER SUPPLY AND GROUND CIRCUIT AUDIO UNIT

# AUDIO UNIT : Diagnosis Procedure

# 1.CHECK FUSE

Check that the following fuses of the audio unit are not blown.

Unit	Terminals	Signal name	Fuse No.	L
Audio unit	19	Battery power	24	
	7	Ignition switch ACC or ON	19	E
				•



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# [BOSE AUDIO WITHOUT NAVIGATION]

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#### POWER SUPPLY AND GROUND CIRCUIT

#### < COMPONENT DIAGNOSIS >

# [BOSE AUDIO WITHOUT NAVIGATION]

# 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE speaker amp harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	v B122	50	OFF	Battery voltage
	DIZZ	51		Dattery voltage

#### OK or NG

OK >> GO TO 3..

NG >> Check harness between BOSE speaker amp and fuse.

# **3.**CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BOSE speaker amp connector.

3. Check continuity between BOSE speaker amp harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B122	47	OFF	Continuity should exist.
Gibana	Bround B122	52	011	Continuity should exist.

OK or NG

OK >> Inspection End.

NG >> Repair harness or connector.

SATELLITE RADIO TUNER

#### SATELLITE RADIO TUNER : Diagnosis Procedure

INFOID:000000000995073

#### 1.CHECK FUSES

Check that the following fuses are not blown.

Unit	Terminals	Signal name	Fuse No.
Satellite radio tuner (factory in-	32	Battery power	24
stalled)	36	Ignition switch ACC or ON	19

#### OK or NG

OK >> GO TO 2..

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

2. POWER SUPPLY CIRCUIT CHECK

1. Turn ignition switch OFF.

2. Disconnect satellite radio tuner (factory installed) connector B123.

3. Check voltage between the satellite radio tuner (factory installed) and ground.

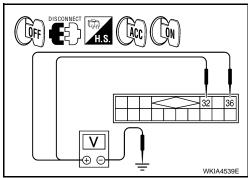
	Terminal No.					
Unit	(-	+)	(-)	OFF	ACC	ON
	Connector	nector Terminal				
Satellite radio tuner	radiotuner		Ground	Battery voltage	Battery voltage	Battery voltage
(factory in- stalled)		36	Ground	0V	Battery voltage	Battery voltage

#### <u>OK or NG</u>

NG

OK >> GO TO 3..

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.



< COMPONENT DIAC				BOSE AUDIO WI	THOUT NAVIGATION]
<b>3.</b> GROUND CIRCUIT					
Inspect satellite radio to	uner (factory installed	) case groun	d.		
<u>OK or NG</u>	<b>F</b> _a_d				
OK >> Inspection NG >> Repair sate	ellite radio tuner (facto	orv installed)	case oro	und	
BLUETOOTH CC		ory motanou)	ouce gie		
BLUETOOTH CO	NTROL UNIT : D	Diagnosis F	Proced	ure	INF01D:000000000995074
<b>1.</b> CHECK FUSE		5			
Check that the followin	g fuses of the Bluetoo	oth control un	it are not	t blown.	
	Power source			Fuse N	0.
	Battery			24	
Ignitio	on switch ACC or ON			19	
Ignition	switch ON or START			3	
2.CHECK POWER SI					
Check voltage betweer	n Bluetooth control un	it harness co	nnector a	and ground.	
Signal name	Connector No.	Terminal	No.	Ignition switch positio	n Value (Approx.)
Battery power supply		1		OFF	
,		-		011	
ACC power supply	B126	2		ACC	Battery voltage
ACC power supply Ignition signal	B126			-	Battery voltage
ACC power supply Ignition signal OK or NG OK >> GO TO 3 NG >> Check har 3.CHECK GROUND ( 1. Turn ignition switch 2. Disconnect Blueto	ness between Bluetoo CIRCUIT	2 3 oth control un		ACC ON Se.	Battery voltage
ACC power supply Ignition signal OK or NG OK >> GO TO 3 NG >> Check har 3.CHECK GROUND ( 1. Turn ignition switch 2. Disconnect Blueto	ness between Bluetoo CIRCUIT h OFF. oth control unit conne	2 3 oth control un	ess conr	ACC ON Se.	Continuity
ACC power supply Ignition signal OK or NG OK >> GO TO 3 NG >> Check har 3.CHECK GROUND ( 1. Turn ignition switch 2. Disconnect Bluetor 3. Check continuity b Signal name Ground	ness between Bluetoo CIRCUIT h OFF. oth control unit conne etween Bluetooth cor	2 3 oth control un ctor B126. htrol unit harn	ess conr	ACC ON se.	
ACC power supply Ignition signal OK or NG OK >> GO TO 3 NG >> Check har 3. CHECK GROUND ( 1. Turn ignition switch 2. Disconnect Bluetor 3. Check continuity b Signal name Ground OK or NG OK >> Inspection NG >> Repair har MICROPHONE : I 1.CHECK POWER SI	ness between Blueton CIRCUIT h OFF. oth control unit conne- etween Bluetooth cor <u>Connector No.</u> <u>B126</u> End. ness or connector. <b>Diagnosis Proced</b> UPPLY CIRCUIT (MIC	2 3 oth control un ctor B126. htrol unit harn Terminal No. 4, 24 dure CROPHONE	ess conr Igni	ACC ON se.	Continuity
ACC power supply Ignition signal OK or NG OK >> GO TO 3 NG >> Check har 3. CHECK GROUND ( 1. Turn ignition switch 2. Disconnect Bluetor 3. Check continuity b Signal name Ground OK or NG OK >> Inspection NG >> Repair har MICROPHONE : I 1.CHECK POWER SI	ness between Blueton CIRCUIT h OFF. oth control unit conne- etween Bluetooth cor <u>Connector No.</u> <u>B126</u> End. ness or connector. <b>Diagnosis Proced</b> UPPLY CIRCUIT (MIC	2 3 oth control un ctor B126. htrol unit harn Terminal No. 4, 24 dure CROPHONE	ess conr Igni	ACC ON se.	Continuity Continuity should exist.
ACC power supply Ignition signal OK or NG OK >> GO TO 3 NG >> Check har 3. CHECK GROUND ( 1. Turn ignition switch 2. Disconnect Bluetor 3. Check continuity b Signal name Ground OK or NG OK >> Inspection NG >> Repair har MICROPHONE : I	ness between Blueton CIRCUIT h OFF. oth control unit conne- etween Bluetooth cor <u>Connector No.</u> <u>B126</u> End. ness or connector. <b>Diagnosis Proced</b> UPPLY CIRCUIT (MIC	2 3 oth control un ctor B126. htrol unit harn Terminal No. 4, 24 dure CROPHONE	ess conr Igni SIDE) nd grour	ACC ON se.	Continuity Continuity should exist.

<u>OK or NG</u>

OK >> GO TO 4..

#### POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

NG >> GO TO 2..

 $2. {\sf CHECK POWER SUPPLY CIRCUIT (CONTINUITY)}$ 

- 1. Turn ignition switch OFF.
- 2. Disconnect Bluetooth control unit and microphone connectors.
- 3. Check continuity between microphone harness connector R7 terminal 4 and Bluetooth control unit harness connector B126 terminal 29.

Signal name	Continuity	
Microphone VCC signal	Continuity should exist.	

4. Check continuity between microphone harness connector R7 terminal 4 and ground.

Signal name	Continuity
Microphone VCC signal	Continuity should not exist.

OK or NG

OK >> GO TO 3..

NG >> Repair harness or connector.

# 3. check power supply circuit (bluetooth control unit side)

- 1. Connect Bluetooth control unit connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between Bluetooth control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Microphone VCC signal	B126	29	ON	5V

OK or NG

OK >> Inspection End..

NG >> Replace Bluetooth control unit.. Refer to <u>AV-135, "Removal and Installation"</u>.

**4.**CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect Bluetooth control unit and microphone connectors.
- 3. Check continuity between microphone harness connector R7 terminal 2 and Bluetooth control unit harness connector B126 terminal 8.

Signal name	Continuity
Microphone ground	Continuity should exist.

OK or NG

OK >> Inspection End.

NG >> Repair harness or connector.

#### FRONT DOOR SPEAKER

#### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio В signals before sending them to the front door speakers using the audio signal circuits.

#### **Diagnosis** Procedure

INFOID-000000000995077

INFOID:000000000995076

#### **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B121 and suspect speaker connector.
- Check continuity between BOSE speaker amp. harness connector B121 and suspect speaker harness D 2. connector.

BOSE spe	eaker amp.	Spe	Continuity	
Connector	Terminal	Connector Terminal		
	58	D3	1	
B121	59	03	2	Yes
DIZI	71	D103	1	
	72	D103	2	

3. Check continuity between BOSE speaker amp. harness connector B121 and ground.

Terminals			
BOSE	BOSE speaker amp.		Continuity
Connector	Terminal		
B121	58		No
	59	Ground	
	71	Giouna	
	72		

#### OK or NG

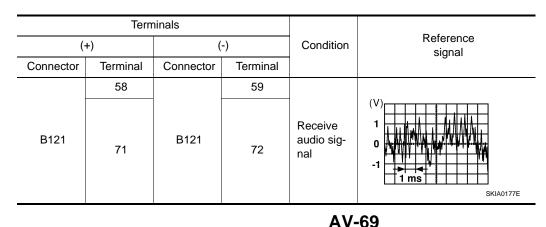
OK >> GO TO 2.. NG

- >> Check connector housings for disconnected or loose terminals.
  - · Repair harness or connector.

#### 2.FRONT SPEAKER SIGNAL CHECK

1. Connect BOSE speaker amp. connector B121 and suspect speaker connector.

- Turn ignition switch to ACC. 2.
- Push "POWER" switch. 3.
- Check the signal between BOSE speaker amp. harness connector B121 terminals with CONSULT-III or 4. AM oscilloscope.



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< COMPONENT DIAGNOSIS >

#### <u>OK or NG</u>

- OK >> Replace suspect speaker. Refer to <u>AV-123, "Removal and Installation"</u>.
- NG >> GO TO 3..

# **3.**HARNESS CHECK

- 1. Disconnect audio unit connector M43 and BOSE speaker amp. connector B121.
- Check continuity between audio unit harness connector M43 and BOSE speaker amp. harness connector B121.

Audi	Audio unit BOSE speaker amp.				
Connector	Terminal	Connector			
	2		76		
M43	3	B121	75	Yes	
WI43	11	DIZI	73	Tes	
	12		74		

3. Check continuity between audio unit harness connector M43 and ground.

	Terminals				
	Audio unit				
Connector	Terminal				
	2				
M43	3	Ground	No		
10145	11	Ground			
	12				

#### OK or NG

NG

OK >> GO TO 4..

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

#### **4.**FRONT SPEAKER SIGNAL CHECK

- 1. Connect audio unit connector and BOSE speaker amp. connector.
- 2. Turn ignition switch ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector terminals with CONSULT-III or oscilloscope.

	Terminals			Condition	5.4	
(+)		(-)			Reference signal	
Connector	Terminal	Connector	Terminal			
	2		3			
M43	11	M43	12	Receive audio sig- nal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5	

#### OK or NG

OK >> Replace BOSE speaker amp. Refer to AV-119, "Removal and Installation".

NG >> Replace audio unit. Refer to <u>AV-118, "Removal and Installation"</u>.

#### < COMPONENT DIAGNOSIS >

# TWEETER

#### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the tweeters using the audio signal circuits.

# Diagnosis Procedure

INFOID:000000000995079

INFOID:000000000995078

#### **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B122 and suspect tweeter connector.
- Check continuity between BOSE speaker amp. harness connector B122 and suspect tweeter harness connector.

Terminals				
BOSE speaker amp. Tweeter				Continuity
Connector	Terminal	Connector Terminal		
B122	41	M51	1	- Yes
	42		2	
	44	M52	1	165
	43		2	

3. Check continuity between BOSE speaker amp. harness connector B122 and ground.

Terminals			Continuity
BOSE speaker amp.			
Connector	Connector Terminal		
	41		No
B122	42	Ground	
DI22	44	Giouna	
	43		

#### <u>OK or NG</u>

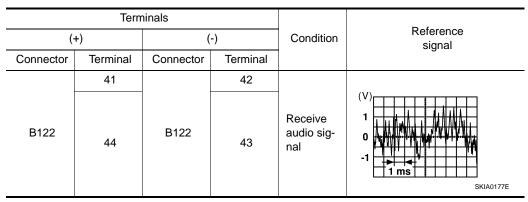
OK >> GO TO 2.. NG >> • Check co

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

# 2.TWEETER SIGNAL CHECK

1. Connect BOSE speaker amp. connector B122 and suspect tweeter connector.

- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between BOSE speaker amp. harness connector B122 terminals with CONSULT-III or AM oscilloscope.



# AV-71

#### [BOSE AUDIO WITHOUT NAVIGATION]

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#### OK or NG

OK >> Replace suspect tweeter. Refer to <u>AV-121, "Removal and Installation"</u>.

NG >> GO TO 3..

**3.**HARNESS CHECK

- 1. Disconnect audio unit connector M43 and BOSE speaker amp. connector B121.
- Check continuity between audio unit harness connector M43 and BOSE speaker amp. harness connector B121.

Audio unit		BOSE speaker amp.		Continuity	
Connector	Terminal	Connector	Terminal		
M43	2	B121	76		
	3		75	Yes	
	10143	11	DIZI	73	Tes
	12		74		

3. Check continuity between audio unit harness connector M43 and ground.

	Audio unit		Continuity	
Connector	Terminal			
	2		No	
M43	3	Ground		
	11	Ground		
	12			

#### OK or NG

NG

OK >> GO TO 4..

- >> Check connector housings for disconnected or loose terminals.• Repair harness or connector.
- 4.TWEETER SIGNAL CHECK
- 1. Connect audio unit connector and BOSE speaker amp. connector.
- 2. Turn ignition switch ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M43 terminals with CONSULT-III or oscilloscope.

Terminals						
(+)		(-)		Condition	Reference signal	
Connector	Terminal	Connector	Terminal			
	2		3			
M43	11	M43	12	Receive audio sig- nal	(V) 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1	

#### <u>OK or NG</u>

OK >> Replace BOSE speaker amp. Refer to <u>AV-119, "Removal and Installation"</u>.

NG >> Replace audio unit. Refer to <u>AV-118, "Removal and Installation"</u>.

### CENTER SPEAKER

#### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio gignals before sending them to the center speaker using the audio signal circuits.

#### **Diagnosis Procedure**

INFOID:000000000995081

INFOID:000000000995080

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#### **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B121 and center speaker connector M151.
- Check continuity between BOSE speaker amp. harness connector B121 and center speaker harness connector M151.

BOSE speaker amp. Center speaker		Continuity		
Connector	Terminal	Connector	Terminal	
B121	69	M151	1	Yes
DIZI	70	- INITOT	2	165

3. Check continuity between BOSE speaker amp. harness connector B121 and ground.

BOSI	Continuity		
Connector	Terminal		
B121	69	Ground	No
DIZI	70	Giouna	INU

#### <u>OK or NG</u>

OK >> GO TO 2.. NG >> • Check co

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

### **2.**CENTER SPEAKER SIGNAL CHECK

- 1. Connect BOSE speaker amp. connector B121 and center speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between BOSE speaker amp. harness connector B121 terminals with CONSULT-III or oscilloscope.

	Terminals						
(·	(+) (-)		(+)		(-)		Reference signal
Connector	Terminal	Connector	Terminal				
B121	69	B121	70	Receive audio sig- nal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5		

#### OK or NG

OK >> Replace center speaker. Refer to <u>AV-122, "Removal and Installation"</u>.

NG >> GO TO 3..

**3.**HARNESS CHECK

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### **CENTER SPEAKER**

#### < COMPONENT DIAGNOSIS >

- 1. Disconnect audio unit connector M43 and BOSE speaker amp. connector B121.
- 2. Check continuity between audio unit harness connector M43 and BOSE speaker amp. harness connector B121.

Audi	Audio unit BOSE speaker amp.			Continuity
Connector	Terminal	Connector		
	2		76	
M43	3	B121	75	Yes
10143	11	DIZI	73	Tes
	12		74	

3. Check continuity between audio unit harness connector M43 and ground.

	Terminals					
	Audio unit					
Connector	Terminal					
	2	Ground				
M43	3		No			
10143	11	Ground				
	12					

#### OK or NG

OK >> GO TO 4.. NG >> • Check co

>> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

#### **4.**CENTER SPEAKER SIGNAL CHECK

1. Connect audio unit connector and BOSE speaker amp. connector.

- 2. Turn ignition switch ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M43 terminals with CONSULT-III or oscilloscope.

	Terminals			Condition		
(+)		(-)			Reference signal	
Connector	Terminal	Connector	Terminal			
	2		3			
M43	11	M43	12	Receive audio sig- nal	(V) 1 0 -1 1 1 1 1 1 1 1 1 1 1 1 1 1	

#### OK or NG

- OK >> Replace BOSE speaker amp. Refer to <u>AV-119, "Removal and Installation"</u>.
- NG >> Replace audio unit. Refer to <u>AV-118, "Removal and Installation"</u>.

### REAR DOOR SPEAKER

### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the rear door speakers using the audio signal circuits.

### **Diagnosis Procedure**

INFOID:000000000995083

INFOID:000000000995082

### **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connectors B121, B122 and suspect speaker connector.
- Check continuity between BOSE speaker amp. harness connectors B121, B122 and suspect speaker harness connector.

BOSE spe	eaker amp.	aker amp. Speaker			
Connector	Terminal	Connector			
B121	55	D202	2		
DIZI	68	D202	1	Yes	
P100	49	D302	2	165	
B122	54	0302	1		

3. Check continuity between BOSE speaker amp. harness connectors B121, B122 and ground.

	Terminals			
BOSI	BOSE speaker amp.			
Connector	Terminal			
B121	55			
BIZI	68	Ground	No	
B122	49	Giouna		
DIZZ	54			

#### <u>OK or NG</u>

OK >> GO TO 2.. NG >> • Check co

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

### **2.**REAR DOOR SPEAKER SIGNAL CHECK

- 1. Connect BOSE speaker amp. connectors and suspect speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between BOSE speaker amp. harness connectors B121, B122 terminals with CON-SULT-III or oscilloscope.

	Terminals				
(*	(+) (-		(-)		Reference signal
Connector	Terminal	Connector	Terminal		
B121	68	B121	55		
B122	54	B122	49	Receive audio sig- nal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5

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#### <u>OK or NG</u>

- OK >> Replace suspect speaker. Refer to <u>AV-124, "Removal and Installation"</u>.
- NG >> GO TO 3..

### **3.**HARNESS CHECK

- 1. Disconnect audio unit connector M43 and BOSE speaker amp. connector B121.
- Check continuity between audio unit harness connector M43 and BOSE speaker amp. harness connector B121.

	Terminals				
Audi	o unit	Continuity			
Connector	Terminal	Connector			
	4	B121	64		
M43	5		63	Yes	
10143	13		66	Tes	
	14		65		

3. Check continuity between audio unit harness connector M43 and ground.

	Terminals					
	Audio unit					
Connector	Terminal					
	4	Ground				
M43	5		No			
10143	13	Giouna				
	14					

#### OK or NG

NG

OK >> GO TO 4..

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

#### **4.**REAR DOOR SPEAKER SIGNAL CHECK

- 1. Connect audio unit connector M43 and BOSE speaker amp. connector B121.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M43 terminals with CONSULT-III or oscilloscope.

Terminals						
(+)		(	(-)		Reference signal	
Connector	Terminal	Connector	Terminal			
	4		5			
M43	13	M43	14	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

#### <u>OK or NG</u>

OK >> Replace BOSE speaker amp. Refer to <u>AV-119</u>, "Removal and Installation".

NG >> Replace audio unit. Refer to <u>AV-118, "Removal and Installation"</u>.

# WOOFER

#### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the woofers using the audio signal circuits.

### **Diagnosis Procedure**

INFOID:000000000995085

### **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B122 and suspect rear subwoofer connector.
- Check continuity between BOSE speaker amp. harness connector B122 and suspect rear subwoofer harness connector.

BOSE spe	eaker amp.	Rear su	ıbwoofer	Continuity
Connector	Terminal	Connector	Terminal	
	53	B120	1	
B122	48		2	Yes
DIZZ	45		1	165
	46	D124	2	

3. Check continuity between BOSE speaker amp. harness connector B122 and ground.

	Terminals		
BOSE	BOSE speaker amp.		Continuity
Connector	Terminal		
	53		No
P100	48	Cround	
B122 –	45	Ground	
	46		

#### <u>OK or NG</u>

OK >> GO TO 2.. NG >> • Check co

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

### 2.REAR SUBWOOFER SIGNAL CHECK

1. Connect BOSE speaker amp. connector B122 and suspect rear subwoofer connector.

- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between BOSE speaker amp. harness connector B122 terminals with CONSULT-III or AM oscilloscope.

AV-77

	Terminals					
(·	(+) (-)		(-)		Reference signal	
Connector	Terminal	Connector	Terminal		oighai	
	53		48			
B122	45	B122	46	Receive audio sig- nal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5	

#### [BOSE AUDIO WITHOUT NAVIGATION]

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#### <u>OK or NG</u>

OK >> Replace suspect rear subwoofer. Refer to <u>AV-125, "Removal and Installation"</u>.

NG >> GO TO 3..

**3.**HARNESS CHECK

- 1. Disconnect audio unit connector M43 and BOSE speaker amp. connector B121.
- Check continuity between audio unit harness connector M43 and BOSE speaker amp. harness connector B121.

Audi	o unit	BOSE spe	Continuity	
Connector	Terminal	Connector	Terminal	
	4		64	
M43	5	B121 -	63	Yes
10143	13		66	165
	14		65	

3. Check continuity between audio unit harness connector terminal and ground.

	Terminals				
	Audio unit		Continuity		
Connector	Terminal				
	4		No		
M43	5	Ground			
10145	13	Giouna			
	14				

#### OK or NG

OK >> GO TO 4.. NG >> • Check co

>> • Check connector housings for disconnected or loose terminals.• Repair harness or connector.

#### **4.**REAR SUBWOOFER SIGNAL CHECK

- 1. Connect audio unit connector M43 and BOSE speaker amp. connector B121.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M43 terminals with CONSULT-III or oscilloscope.

	Terminals				5.4		
(+	+)	(-)		(-) Condition		Condition	Reference signal
Connector	Terminal	Connector	Terminal				
	4		5				
M43	13	M43	14	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E		

#### OK or NG

OK >> Replace BOSE speaker amp. Refer to <u>AV-119, "Removal and Installation"</u>.

NG >> Replace audio unit. Refer to <u>AV-118, "Removal and Installation"</u>.

#### AMP ON SIGNAL CIRCUIT

## < COMPONENT DIAGNOSIS >

### AMP ON SIGNAL CIRCUIT

Description

When the audio system is turned on, a voltage signal is supplied from the audio unit to the BOSE speaker  $_{\rm B}$  amp. When this signal is received, the BOSE speaker amp. will turn on.

### Diagnosis Procedure

INFOID:000000000995087

INFOID:000000000995086

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<b>1.</b> c⊦	IECK AMP ON SIGNAL	(BOSE SPEAKER AMP)	
	urn audio system ON. heck voltage between B	OSE speaker amp. harness connector B121 terminal 60 and ground.	D
	60 - Ground	: More than approx. 6.5V	
<u>OK or</u> OK NG	<u>NG</u> >> Inspection End. >> GO TO 2.		E
-	IECK AMP ON SIGNAL	(AUDIO UNIT)	F
Check	< voltage between audio	unit harness connector M43 terminal 1 and ground.	
	1 - Ground	: More than approx. 6.5V	G
<u>OK or</u>	<u>NG</u>		
OK	>> Repair harness or		Н
NG	>> Replace audio un	it. Refer to AV-118, "Removal and Installation".	

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### STEERING SWITCH

#### Description

When one of the steering wheel audio control switches is pushed, the resistance in the steering switch circuit changes depending on which button is pushed.

**Diagnosis** Procedure

#### WITH BLUETOOTH

### **1.**CHECK HARNESS

- 1. Turn ignition switch OFF.
- 2. Disconnect Bluetooth control unit connector and spiral cable connector M30.
- 3. Check continuity between Bluetooth control unit connector B126 terminals 12, 14, and 13 and spiral cable connector M30 terminals 24, 31, and 33.

	Continuity			
Connector	Terminal	Connector	Terminal	Continuity
	12		24	
B126	13	M30	31	Yes
_	14		33	

4. Check continuity between Bluetooth control unit and ground.

	(+)	(-)	Continuity
Connector	Terminal		
	12		
B126	13	Ground	No
	14		

OK or NG

OK >> GO TO 2..

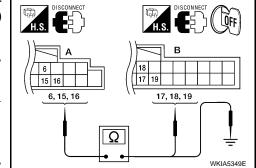
NG >> Repair harness.

### 2. CHECK HARNESS

1. Disconnect audio unit connector.

 Check continuity between audio unit connector M43 (A) terminals 6, 15, and 16 and Bluetooth control unit connector B126 (B) terminals 17, 19, and 18.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	Continuity
	6		17	
A: M43	15	B: B126	19	Yes
	16		18	



OK or NG

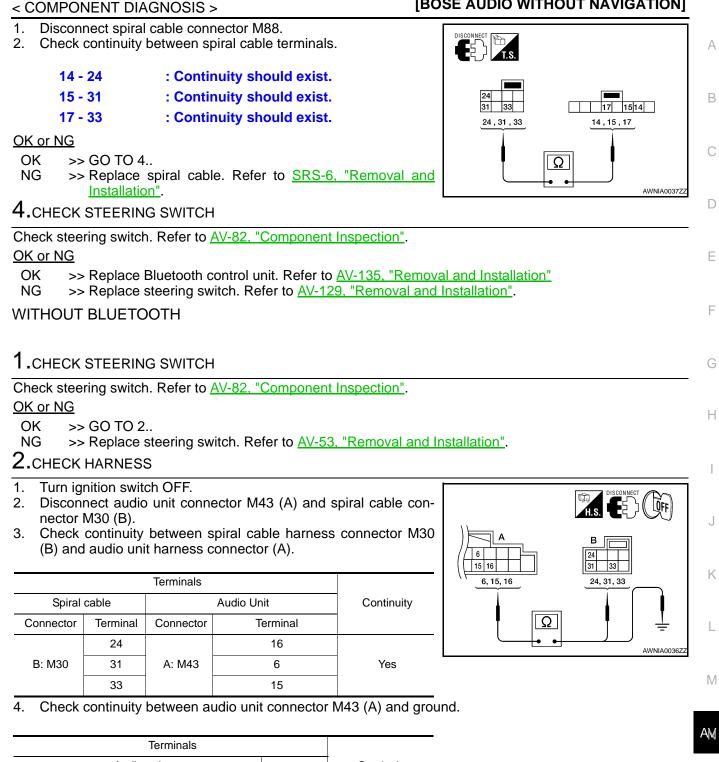
OK >> GO TO 3.. NG >> Repair harness. **3.**SPIRAL CABLE CHECK INFOID:000000000995088

INFOID:000000000995089

### **STEERING SWITCH**

#### [BOSE AUDIO WITHOUT NAVIGATION]

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	Terminals					
ŀ	Continuity					
Connector	Terminal					
	6					
A: M43	15	Ground	No			
	16	-				

OK or NG

>> GO TO 3.. OK

NG >> Repair harness.

3. SPIRAL CABLE CHECK

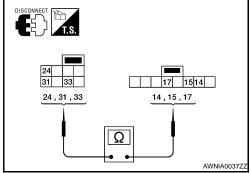
### **STEERING SWITCH**

#### < COMPONENT DIAGNOSIS >

- 1. Disconnect spiral cable connector M88 (B).
- Check continuity between spiral cable harness connector M30 (A) and M88 (B).

	Term			
	Spira	Continuity		
Connector	Terminal	Connector	Terminal	*
	24		14	
A: M30	31	B: M88	15	Yes
	33		17	1

# 



#### OK or NG

OK >> Inspection End.

NG >> Replace spiral cable. Refer to <u>SRS-6. "Removal and Installation"</u>.

### **Component Inspection**

INFOID:000000000995090

#### WITH BLUETOOTH

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

#### Standard

Between terminals 14 and 17	
🚗 switch ON	<b>: 0</b> Ω
SEEK UP switch ON	: <b>108 – 112</b> Ω
SEEK DOWN switch ON	<b>: 323 – 337</b> Ω

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#### "∕ switch ON SOURCE switch ON

Between terminals 15 and 17

**VOL DOWN switch ON** 

**VOL UP switch ON** 

#### WITHOUT BLUETOOTH

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

**: 0** Ω

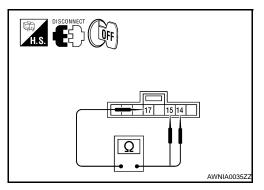
**: 108 – 112** Ω

**: 323 – 337** Ω

**: 990 – 1030** Ω

#### Standard

Between terminals 14 and 17	
SOURCE switch ON	<b>: 0</b> Ω
SEEK UP switch ON	<b>: 162 – 168</b> Ω
VOLUME UP switch ON	<b>: 639 – 665</b> Ω
Between terminals 15 and 17	
SEEK DOWN switch ON	<b>: 162 – 168</b> Ω
VOL DOWN switch ON	<b>: 639 – 665</b> Ω



### **COMMUNICATION SIGNAL CIRCUIT**

#### < COMPONENT DIAGNOSIS >

### COMMUNICATION SIGNAL CIRCUIT SATELLITE RADIO TUNER

### SATELLITE RADIO TUNER : Description

Communication signals are exchanged between the audio unit and satellite radio tuner using the communication circuits.

### SATELLITE RADIO TUNER : Diagnosis Procedure

### 1.CHECK HARNESS - 1

- 1. Turn ignition switch OFF.
- 2. Disconnect satellite radio tuner (factory installed) connector B123 and audio unit connector M45.
- 3. Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 28 and audio unit harness connector M45 (B) terminal 38.

#### Continuity should exist.

4. Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 28 and ground.

#### Continuity should not exist.

#### OK or NG

OK >> GO TO 2...

>> Repair harness or connector. NG

#### 2. CHECK HARNESS - 2

1. Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 29 and audio unit harness connector M45 (B) terminal 39.

#### Continuity should exist.

Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 29 and ground.

#### Continuity should not exist.

#### OK or NG

- OK >> GO TO 3..
- NG >> Repair harness or connector.



1. Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 30 and audio unit harness connector M45 (B) terminal 40.

#### Continuity should exist.

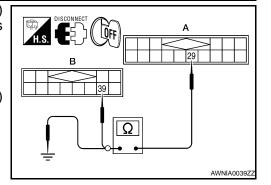
2. Check continuity between satellite radio tuner (factory installed) harness connector B123 (A) terminal 30 and ground.

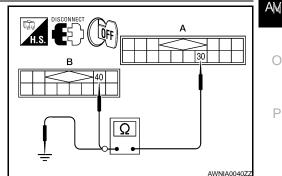
#### Continuity should not exist.

#### OK or NG

- OK >> GO TO 4...
- NG >> Repair harness or connector.

**4.**CHECK REQ1 SIGNAL





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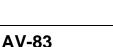
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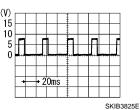
### **COMMUNICATION SIGNAL CIRCUIT**

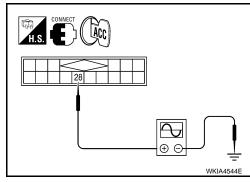
#### < COMPONENT DIAGNOSIS >

### [BOSE AUDIO WITHOUT NAVIGATION]

- 1. Connect satellite radio tuner (factory installed) connector and audio unit connector.
- 2. Turn ignition switch to ACC
- Check signal between satellite radio tuner (factory installed) harness connector B123 terminal 28 and ground with CONSULT-III or oscilloscope.

#### 28 - Ground





#### OK or NG

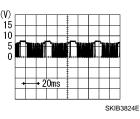
OK >> GO TO 5..

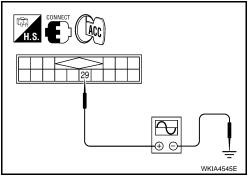
NG >> Replace audio unit. Refer to <u>AV-45, "Removal and Installation"</u>.

#### 5. CHECK TXD SIGNAL

Check signal between satellite radio tuner (factory installed) harness connector B123 terminal 29 and ground with CONSULT-III or oscillo-scope.

#### 29 - Ground





#### OK or NG

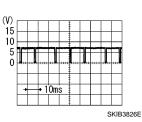
OK >> GO TO 6..

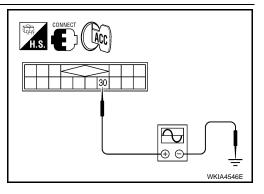
NG >> Replace satellite radio tuner. Refer to <u>AV-127, "Removal and Installation"</u>.

#### **6.**CHECK RXD SIGNAL

Check signal between satellite radio tuner (factory installed) harness connector B123 terminal 30 and ground with CONSULT-III or oscillo-scope.

#### 30 - Ground





#### OK or NG

- OK >> Replace satellite radio tuner. Refer to <u>AV-127, "Removal and Installation"</u>.
- NG >> Replace audio unit. Refer to <u>AV-45. "Removal and Installation"</u>.

### < COMPONENT DIAGNOSIS > SOUND SIGNAL CIRCUIT SATELLITE RADIO TUNER SATELLITE RADIO TUNER : Description Left and right channel audio signals are supplied from the satellite radio tuner to the audio unit through the sound signal circuits.

### SATELLITE RADIO TUNER : Diagnosis Procedure

#### LEFT CHANNEL

#### **1.**CHECK HARNESS

- Turn ignition switch OFF. 1.
- Disconnect satellite radio tuner (factory installed) connector 2. B123 (A) and audio unit connector M45 (B).
- 3. Check continuity between satellite radio tuner (factory installed) and audio unit.

		Tern	ninals		
-	Satellite ra	adio tuner	Audio	o unit	Continuity
-	Connector	Terminal	Connector	Terminal	
-	A: B123	21	B: M45	31	Yes
	A. 0123	22	D. 10145	32	165

Check continuity between satellite radio tuner (factory installed) and ground.

Terminals

Sate	llite radio tuner		Continuity
 Connector	Terminal		
 A: B123	21	Ground	No
A. D123	22	Cround	NO

#### OK or NG

4.

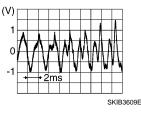
OK >> GO TO 2...

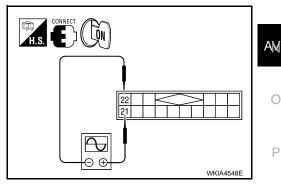
NG >> Repair harness or connector.

### 2. CHECK LEFT CHANNEL AUDIO SIGNAL

- 1. Connect satellite radio tuner (factory installed) and audio unit.
- Turn ignition switch ON. 2.
- Check signal between satellite radio tuner (factory installed) 3. connector B123 terminals 21 and 22 with CONSULT-III or oscilloscope.

#### 21 - 22



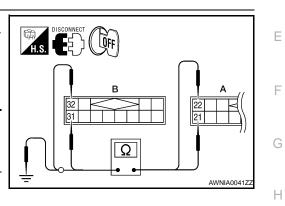


#### OK or NG

OK >> Replace audio unit. Refer to AV-45, "Removal and Installation".

>> Replace satellite radio tuner. Refer to AV-127, "Removal and Installation". NG

#### RIGHT CHANNEL







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### SOUND SIGNAL CIRCUIT

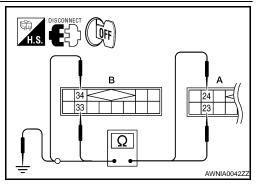
#### < COMPONENT DIAGNOSIS >

### [BOSE AUDIO WITHOUT NAVIGATION]

### **1.**CHECK HARNESS

- 1. Turn ignition switch OFF.
- Disconnect satellite radio tuner (factory installed) connector B123 (A) and audio unit connector M45 (B).
- 3. Check continuity between satellite radio tuner (factory installed) and audio unit.

	Tern	ninals		
Satellite ra	adio tuner	Audio	o unit	Continuity
Connector	Terminal	Connector	Terminal	
A: B123	23	B: M45	33	Yes
A. 0123	24	D. 10145	34	165



4. Check continuity between satellite radio tuner (factory installed) and ground.

	Terminals		
Sate	llite radio tuner		Continuity
Connector	Terminal		
A: B123	23	Ground	No
A. 0125	24	Giounu	NO

#### <u>OK or NG</u>

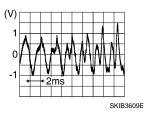
OK >> GO TO 2..

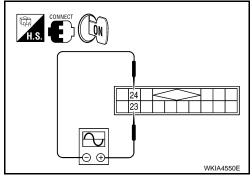
NG >> Repair harness or connector.

### 2. CHECK RIGHT CHANNEL AUDIO SIGNAL

- 1. Connect satellite radio tuner (factory installed) and audio unit.
- 2. Turn ignition switch ON.
- Check signal between satellite radio tuner (factory installed) connector B123 terminals 23 and 24 with CONSULT-III or oscilloscope.

#### 23 - 24





#### OK or NG

- OK >> Replace audio unit. Refer to <u>AV-45</u>, "Removal and Installation".
- NG >> Replace satellite radio tuner. Refer to <u>AV-127, "Removal and Installation"</u>.

#### MICROPHONE SIGNAL CIRCUIT

#### < COMPONENT DIAGNOSIS >

### **MICROPHONE SIGNAL CIRCUIT**

#### Description

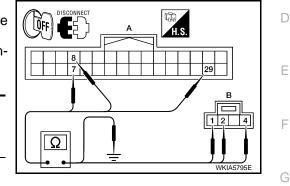
Voice signals are transmitted from the microphone to the Bluetooth control unit using the microphone signal circuits.

#### **Diagnosis Procedure**

### 1. CHECK HARNESS BETWEEN BLUETOOTH CONTROL UNIT AND MICROPHONE

- 1. Turn ignition switch OFF.
- Disconnect Bluetooth control unit connector and microphone connector.
- Check continuity between Bluetooth control unit harness connector B126 (A) and microphone harness connector R7 (B).

	Tern	ninals		
Bluetooth	control unit	Micro	phone	Continuity
Connector	Terminal	Connector	Terminal	
	7		1	
A: B126	8	B: R7	2	Yes
	29		4	



4. Check continuity between Bluetooth control unit harness connector B126 (A) and ground.

	Terminals		
Blu	etooth control unit		Continuity
Connector	Terminal		
	7		
A: B126	8	Ground	No
	29		

#### <u>OK or NG</u>

OK >> GO TO 2.

NG >> Repair harness or connector.

### 2. CHECK MICROPHONE POWER SUPPLY

- Connect Bluetooth control unit connector and microphone connector.
   Turn ignition switch ON.
- Check voltage between microphone harness connector R7 terminal 4 and ground.

#### 4 - Ground

#### OK or NG

- OK >> GO TO 3.
- NG >> Replace Bluetooth control unit. Refer to <u>AV-135</u>, <u>"Removal and Installation"</u>.

 ${\it 3.}$  CHECK MICROPHONE SIGNAL

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INFOID:000000000995096

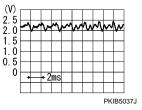
#### **MICROPHONE SIGNAL CIRCUIT** [BOSE AUDIO WITHOUT NAVIGATION]

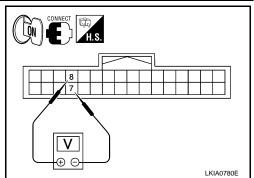
#### < COMPONENT DIAGNOSIS >

Check signal between Bluetooth control unit harness connector B126 terminals 7 and 8.

#### 7 - 8:

#### When giving a voice





#### OK or NG

- >> Replace Bluetooth control unit. Refer to <u>AV-135</u>, "<u>Removal and Installation</u>". >> Replace microphone. Refer to <u>AV-133</u>, "<u>Removal and Installation</u>". OK
- NG

< ECU DIAGNOSIS >

#### **ECU DIAGNOSIS** А AUDIO UNIT **Reference Value** INFOID:000000000995097 В **TERMINAL LAYOUT** 1 2 3 4 5 6 7 8 9 22 23 24 21 19 20 10 11 12 13 14 15 16 17 18 25 26 27 28 D ū 32 34 -40 42 Ε 75 76 77 31 33 35 36 37 38 39 НS 41 AWNIA0046ZZ PHYSICAL VALUES F Terminal Condition Signal (Wire color) Example of symp-Item input/ Reference value tom Ignition output + Operation switch Amp. ON Н Amp. does not 1 (B/P) Ground Output ON \_ More than approx. 6.5V signal work properly. (V Audio sound No sound from Receive audio 2 (G) 3 (R) signal front Output ON front door speaker 0 signal LH LH or tweeter LH. J SKIA0177E Κ (V No sound from Audio sound Receive audio rear door speaker 4 (GR/V) 5 (W/L) signal rear ON L Output 0 LH or subwoofer signal LH LH. -1 Μ SKIA0177E Press SEEK 0.7 V DOWN switch. AM Press SEEK UP 1.3 V Steering wheel auswitch. Remote 6 (W/G) Ground ON dio controls do not Input control A Press function 2.0 V 0 switch. Except for 3.3 V above. Ignition switch System does not 7 (V/Y) Ground ACC signal Input ON Battery voltage ACC or ON work properly. Interference and 10 Shield Approx. 0V distortion heard \_ \_ \_ \_ from speakers.

#### < ECU DIAGNOSIS >

#### [BOSE AUDIO WITHOUT NAVIGATION]

	ninal color)	ltore	Signal	(	Condition		Example of symp-
+	_	Item	input/ output	Ignition switch	Operation	Reference value	tom
11 (B)	12 (W)	Audio sound signal front RH	Output	ON	Receive audio signal	(V) 1 0 -1 5 KIA0177E	No sound from front door speaker RH or tweeter RH.
13 (V)	14 (LG)	Audio sound signal rear RH	Output	ON	Receive audio signal	(V) 1 0 -1 SKIA0177E	No sound from rear door speaker RH or subwoofer RH.
15 (L/B)	_	Remote control ground	Input	_	_	_	Steering wheel au- dio controls do not function
					Press SOURCE switch.	0 V	
					Press 🔬 switch.	0.7 V	
16 (GR/L)	Ground	Remote control B	Input	ON	Press VOL UP switch.	1.3 V	Steering wheel au- dio controls do not function
					Press VOL DOWN switch	2 V	
					Except for above.	3.3 V	
18 (L/B)	Ground	Vehicle speed signal (8-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	(V) 15 10 5 0 + 20ms PKIA1935E	Speed sensitive volume inopera- tive.
19 (Y/R)	Ground	Battery pow- er	Input	_	_	Battery voltage	System will not work properly.
20	_	Shield	_	_	_	Approx. 0V	Interference and distortion heard from speakers.
21	-	M-CAN +	-	_	_	_	-
22	_	M-CAN -	-	_	_	_	-
23	-	Shield	-	-	_	Approx. 0V	-
25	-	Tel. Shield	-	_	_	Approx. 0V	_
26 (BR)	27 (Y)	Telephone audio in	-	_	_	-	_
28 (R/W)	Ground	Telephone ON signal	Input	ON	_	_	_

#### < ECU DIAGNOSIS >

### [BOSE AUDIO WITHOUT NAVIGATION]

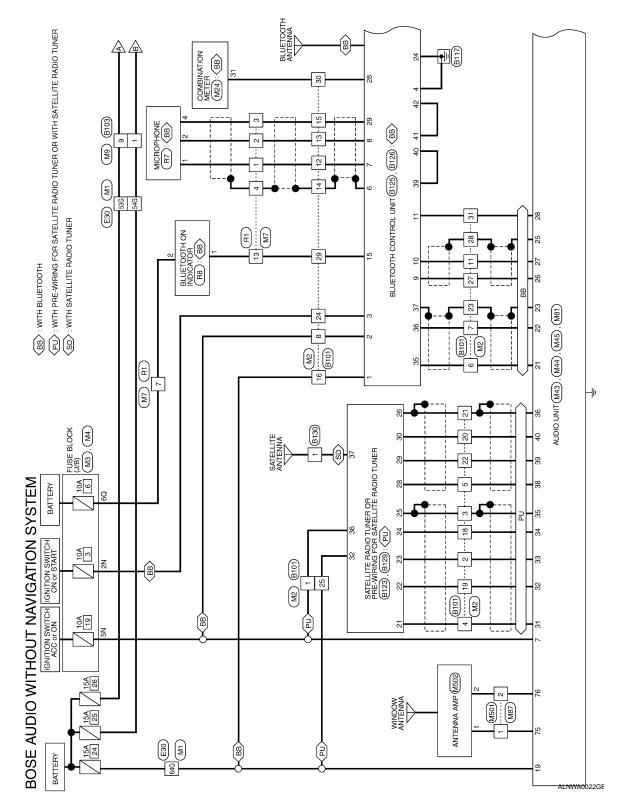
	ninal color)	14	Signal	(	Condition	Deference uslus	Example of symp-	A
+	_	Item	input/ output	Ignition switch	Operation	Reference value	tom	
32 (Y/L)	31 (W/L)	Audio left channel sound signal from satel- lite radio tuner	Input	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from sat- ellite radio tuner left channel.	B C D
34 (BR/L)	33 (Y/G)	Audio right channel sound signal from satel- lite radio tuner	Input	ON	Receive audio signal	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from sat- ellite radio tuner right channel.	E
35	_	Shield ground (au- dio signal)	_	_	_	OV	_	G
36	_	Shield ground (da- ta)	_	_	_	OV	_	Н
38 (R)	Ground	Satellite ra- dio tuner re- quest to audio unit	Input		Turn audio unit ON	5V	Satellite radio tun- er does not oper- ate properly.	I
39 (G)	Ground	Audio RX	Input	ON	Operate audio volume	(V) 6 4 2 0 • • • 5 ms SKIA4403E	Satellite radio tun- er audio informa- tion does not display properly.	J K
40 (B)	Ground	Audio TX	Output	1	Operate audio volume	(V) 6 4 2 0 • • • 2ms SKIA4402E	Satellite radio tun- er audio informa- tion does not display properly.	M
75 (B)	Ground	Amp power supply	Output	ON	Turn audio unit ON	Battery voltage	_	С
76 (B)	Ground	Main anten- na	Input	ON	Turn audio unit ON	_	_	

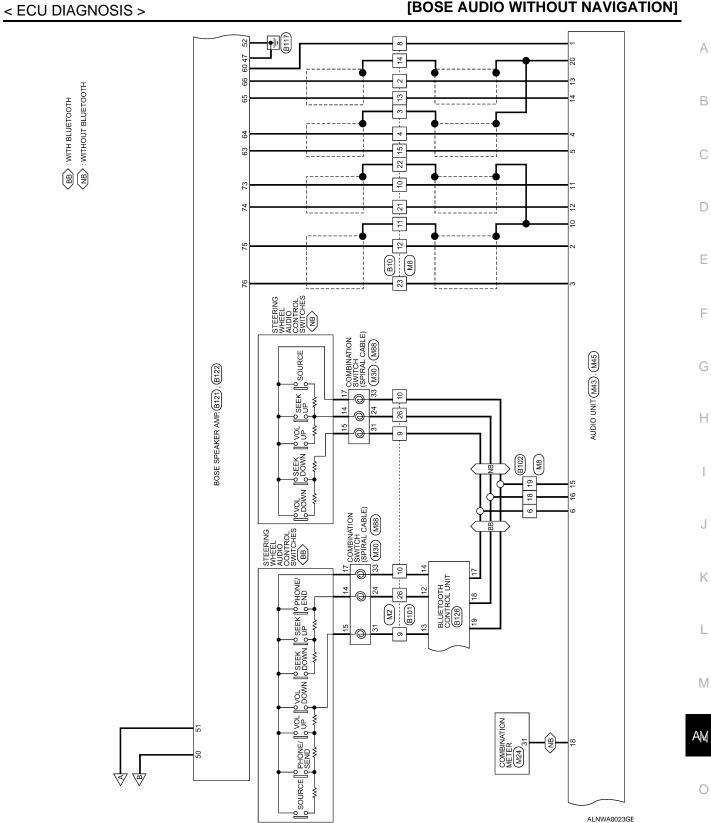
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#### [BOSE AUDIO WITHOUT NAVIGATION]

### Wiring Diagram

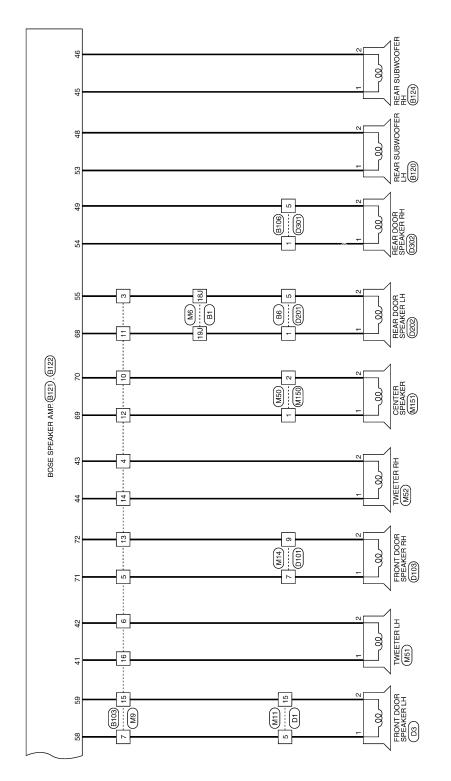
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#### [BOSE AUDIO WITHOUT NAVIGATION]

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BOSE AUDIO WITHOUT NAVIGATION CONNECTORS	ON CONNECTORS				
Connector No. M1	Connector No. M2	Terminal No.	Color of Wire	Signal Name	
Connector Name WIRE TO WIRE	Connector Name WIRE TO WIRE	Ţ	2	- -	
Connector Color WHITE	Connector Color WHITE	12	B/B		
		13	R/B	1	_
96 86 76 66 56 46 36		14	SHIELD	I	
H.S.		15	R/L	I	
2016 2550 2016 2551 2151 2100 2016 2305 250 216 2016 2305 2506 2506 1960		16	Y/B	I	
416 405 386 316 316 318	26 25 24 23 22 21 20 19	18	BR/L	I	
8105 4805 4805 4805 4805 4805 4805 4805 48		19	۲/۲	I	
806 15/10 1880 2001 8508 8505 1610 1800 3800 1846 500 2505 1510	Terminal No. Wire Signal Name	20	В	Ι	
728 776 776 866 885 676 869		21	SHIELD	Ι	
805 725 726 775 725 725 726 726 726 725 725 725 725 725 725 725 725 725 725	7/G		G	Ι	
636 626 816	SHIELD		SHIELD	Ι	
		24	G	Ι	
Terminal No Wire Sinnal Name		25	Y/R	I	
	_	26	M/G	Ι	
B/B	B/W	27	BR	I	
	NN	28	SHIELD	I	
64G Y/R –		29	BR/W	I	
	divr 1/B	30	W/N	I	
		31	R/W	I	
					-
Connector No. M3	Connector No. M4				
Connector Name FUSE BLOCK (J/B)	Connector Name FUSE BLOCK (J/B)				
Connector Color WHITE	Connector Color WHITE				
<b>BN T IN BN T IN DN DN DN DN DN DN DN D</b>	AHA HC 100 00 100 100 100 100 100 100 100 100				
Color of	Color of				
Terminal No. Wire Signal Name	Terminal No.				
- GN G	6Q Y/R –				
- ×/> NS					
GB					

AV-95

#### [BOSE AUDIO WITHOUT NAVIGATION]

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AM

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Connector Name WIRE TO WIRE

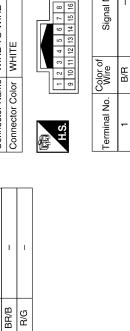
Connector No. M7

Signal Name

Terminal No. Wire

R/G

18J



Signal Name

ī T

SHIELD

I. T.

BR/W

13

Y/R

I

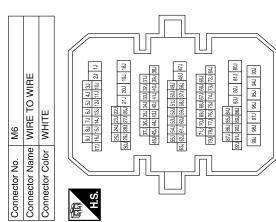
R/B R/L

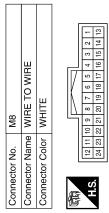
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	-									
	Signal Name	I	I	I	I	I	I	I	I	I
	Color of Wire	G	ГG	SHIELD	W/L	GR/L	L/B	Μ	SHIELD	н
	Terminal No. Wire	12	13	14	15	18	19	21	22	23

**AUDIO UNIT** 





Signal Name	I	I	I	I	T	Ι	-	
Color of Wire	>	SHIELD	GR/V	W/G	B/P	В	SHIELD	
Ferminal No. Color of	2	e	4	9	8	10	11	

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Connector No. M11 Connector Name WIRE TO WIRE			L	- 8			Color of	Terminal No. Wire Signal Name	- 2 M -	15 B -					Connector No. M30 Connector Name COMBINATION SWITCH (SPIRAL CABLE) Connector Color GRAY		al No. Color	W/G AI GR/L AI L/B AUC	
Signal Name	1	I	1	1	1	I	1	1	1	I	I	1	I	I	Connector No. M24 Connector Name COMBINATION METER Connector Color WHITE		6         7         8         9         10         11         12         13         14         15         16         1           26         27         28         30         31         32         33         34         35         36         36         36	Signal Name 8P/R OUT	
Color of Wire	BR	BR/B	GR/L	G/W	Β/Υ	N	B/R	O/B	R/G	B/P	BR	Г0	в	ГG	o. M24 ame COMBIN blor WHITE			Color of Wire V/W	
Terminal No.	-	e	4	ъ	9	7	0	10	11	12	13	14	15	16	Connector No. Connector Name Connector Color	王 B H	1         2         3         4         5           21         22         23         24         25	Terminal No. 31	
M9 WIBE TO WIBE				12 11 10 9 8											TO WIRE	<b>a</b> 3 4 <b>b</b> 10		Signal Name -	
M9 WIBF				7 6 5 4 16 15 14 13											Connector No. M14 Connector Name WIRE TO WIRE Connector Color WHITE	1 2 <b>•</b> 5 6 7		Color of Wire G/W BR	
Connector No. N	Connector Name	2													Connector No. Connector Nan Connector Colo			Terminal No.	

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### [BOSE AUDIO WITHOUT NAVIGATION]

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Terminal No.       Collor of Wire       Signal Name       Connector No.         UNIT       6       W/G       STRG_SW_A       Connector Name         7       V/Y       ACC       Connector Name       Connector Name         7       V/Y       ACC       8       -       -         9       -       V/Y       ACC       Connector Color         9       -       -       -       -       -         10       SHIELD       -       -       -       -         11       B       FRSP RH (+)       -       -       -         7       V       RR SP RH (-)       -       -       -       -         8       -	44	AUDIO UNIT	WHITE		R	21 22 23 24	25 26 27 28			Signe	M-0	-W					ļ.
Terminal No.         Collor of Wire         Signal Name         Connector Nc           UNIT         6         W/G         STRG_SW_A         Connector Nc           6         W/G         STRG_SW_A         Connector Nc           7         V/Y         ACC         ACC           7         V/Y         ACC         Connector Nc           9         -         -         -         Connector Nc           9         -         -         -         -         Connector Nc           9         -	. M44		+	_					-	Wire		٩	SHIELD	I	SHIELD	B/B	>
Terminal No.     Color of Write       UNIT     6     W/G       7     V/Y     7       8     -     7       9     -     10       11     B     11       8     -     8       AMP_ON     13     1       7     MP     1       8     -     7       9     -     1       11     B     1       12     W     1       7     13     V       13     V     1       14     LG       15     L/B       16     GR/L       17     -       18     L/B       19     Y/R       19     Y/R	Connector No	Connector Na	Connector Co				<u>ю</u> п			Terminal No.	21	22	23	24	25	26	27
Terminal No.     Color of Write       UNIT     6     W/G       7     V/Y     7       8     -     7       9     -     10       11     B     11       8     -     8       AMP_ON     13     1       7     MP     1       8     -     7       9     -     1       11     B     1       12     W     1       7     13     V       13     V     1       14     LG       15     L/B       16     GR/L       17     -       18     L/B       19     Y/R       19     Y/R																	
UNIT UNIT Comparison Compari	Signal Name		STRG_SW_A	ACC	I	I	I	FR SP RH (+)	FR SP RH (-)	RR SP RH (+)	RR SP RH (-)	STRG_SW_GND	STRG_SW_B	I	SPEED SIGNAL	BAT	1
UNIT Signal Name AMP_ON FR SP LH (-) RR SP LH (-) RR SP LH (-)	Color of		M/G	λ/λ	1	1	SHIELD	ш	×	>	ГG	L/B	GR/L	I	L/B	Y/R	SHIELD
	Terminal No		9	7	8	6	10	÷	12	13	14	15	16	17	18	19	20
			1	7					Г		1	1	1	1	1	T	
	e	IDIO UNIT	HTE			6 7 8	17 18			Signal Name	AMP_ON	FR SP LH (+)	FR SP LH (-)	RR SP LH (+)	RR SP LH (-)		

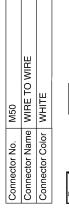
Signal Name

M-CAN + M-CAN -

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Connector No.	M43
Connector Name	AUDIO UNIT WHITE
H.S.	2 3 4 5 6 7 8 9 11 12 13 14 15 16 17 18 20
Terminal No. Wire	of Signal Name

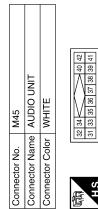
Signal Name	AMP_ON	FR SP LH (+)	FR SP LH (-)	RR SP LH (+)	RR SP LH (-)	
Color of Wire	B/P	9	В	GR/V	W/L	
Terminal No.	÷	2	З	4	5	





Signal Name	I	I
Color of Wire	B/P	O/B
Terminal No.	Ļ	2

Signal Name	SAT LH INPUT (-)	SAT LH INPUT (+)	SAT RH INPUT (-)	SAT RH INPUT (+)	EARTH	DAT EARTH	I	RFQ1 (SAT TO COMBI)	RX (SAT TO COMBI)	TX (COMBI TO SAT)	Ι	I
Color of Wire	W/L	۲/۲	Y/G	BR/L	SHIELD	SHIELD	I	щ	J	в	I	I
Terminal No.	31	32	33	34	35	36	37	38	39	40	41	42



H.S.

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### **AUDIO UNIT**

TEL I/F +

TEL I/F -TEL ON

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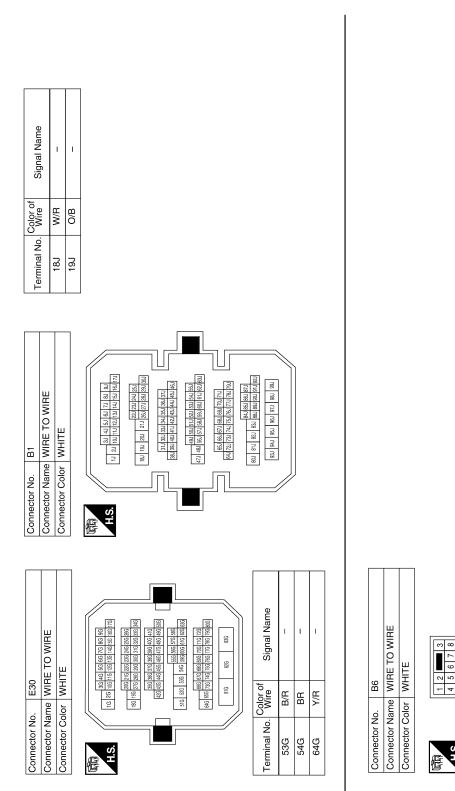
AV-98

M81 AUDIO UNIT GRAY	e of Signal Name AMP SUPPLY MAIN ANTENNA	WIRE TO WIRE WHITE	M502 ANTENNA AMP GRAY GRAY rof Signal Name
Connector No. M81 Connector Name AUDIO UNIT Connector Color GRAY	Terminal No. Color of 75 B 77 B 77 -		Connector No. M5C Connector Name AN1 Connector Color GRP H.S. Terminal No. Color of 3 2 8 8
M52 TWEETER RH BROWN	Signal Name	r GRAY 2019 18 17 16 14 13 W REMOTE A Ure Signal Name W REMOTE A L REMOTE A L REMOTE B	M501 WIRE TO WIRE GRAY GRAY GRAY GRAY In 23 In 2
Connector No. M52 Connector Name TWE Connector Color BRO	Terminal No.     Color of Wire       1     L/O       2     GR/L       Connector No.     M88		Connector No. M5 Connector Name WIF Connector Color GR H.S Terminal No. Color of 1 B 2 B
M51 TWEETER LH BROWN	r of Signal Name	WIRE TO WIRE GRAY eff fe signal Name	M151 CENTER SPEAKER BROWN BROWN 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1
Connector No. M Connector Name T Connector Color BI	Terminal No.     Color of Wire       1     LG       2     B/Y       Connector No.     M87		Connector No. M15 Connector Name CEN Connector Color BR A.S. Connector Color BR Terminal No. Color of 1 B/P

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#### [BOSE AUDIO WITHOUT NAVIGATION]

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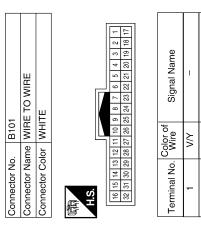
	Signal Name	-	-
÷	Color of Wire	O/B	W/R
H.S.	Terminal No.	Ļ	2

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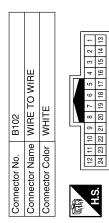
Signal Name	1	1	1	I	1	1	I	I	I	I	I	I
Color of Wire	m	SHIELD	σ	SHIELD	σ	Y/R	D/M	BR	SHIELD	BR/W	W/N	R/W
Terminal No.	20	21	22	23	24	25	26	27	28	29	30	31
	Terminal No. Color of Signal Name											

Signal Name	1	I	I	1	1	1	I	I	1	I	I	I
Color of Wire	B/W	٨٨	GR/L	L/B	≻	B/R	R/B	SHIELD	R/L	Y/B	BR/L	۲/L
Terminal No.	7	80	6	10	11	12	13	14	15	16	18	19



Signal Name	I	I	I	Ι	I	1	
Color of Wire	٨٨	Y/G	SHIELD	M/L	н	Γ	
Terminal No.	-	2	с	4	5	9	

Terminal No.         Color of Wire         Signal Name         Terminal No.         Color of Wire           2         LG         -         13         V           3         SHIELD         -         14         SHIELD           4         BR         -         15         Y           6         W/G         -         15         Y           8         B/G         -         19         L/B           10         W/L         -         22         SHIELD           11         SHIELD         -         23         B/R
Terminal No.     Color of Wire       2     LG       2     LG       3     SHIELD       4     BR       6     W/G       8     B/G       10     W/L       12     W/R
Terminal No. 2 3 4 6 6 8 8 10 11





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#### [BOSE AUDIO WITHOUT NAVIGATION]

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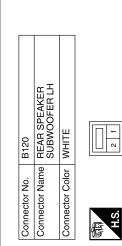
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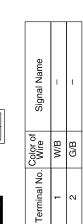
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3106	VIRE TO WIRE	VHITE		с с	4 5 6 7 8				I	-		
Connector No. E	Connector Name V	Connector Color V				0.1	Torminal No. Color		1 F	5 B/V		
Signal Name		1	I	1	1	1	I	1	1	1		
Color of		8	B/B	O/B	B/G	B/P	BR	9	B	P		
Terminal No		7	6	10	1	12	13	14	15	16		
		-	_							1		
3	RE TO WIRE	NMO		4 5 6 7	11 12 13 14				-	1	1	1
	me WIR	lor BRC		1 2 3	8 9 10		Color of	wire	BR	BR/B	GR/L	WV U
Connector No	Connector Na	Connector Co				þ	Tourismol No		F	ю	4	Ľ
		Terminal No. Color of Signal Name	Terminal No.         Color of Wire         Signal Name           7         W         -	Terminal No.     Color of Wire     Signal Name       7     W       9     B/R	Terminal No.     Color of Wire     Signal Name       7     W     -       9     B/R     -       10     O/B     -	Terminal No.     Color of Wire     Signal Name       7     W     -       9     B/R     -       10     O/B     -       11     R/G     -	Terminal No.     Color of Wire     Signal Name       7     W     -       9     B/R     -       10     O/B     -       11     R/G     -       12     B/P     -	Terminal No.     Color of Wire     Signal Name     Connector No.     B106       7     W     -     Connector Name     WIRE T       9     B/R     -     Connector Color     WHITE       10     O/B     -     -     -       11     R/G     -     -     -       12     B/P     -     -     -       13     BR     -     -     -	Terminal No.     Color of Wire     Signal Name       7     W     -       9     B/R     -       11     R/G     -       12     B/P     -       13     BR     -       14     L/O     -	Terminal No.         Color of Wire         Signal Name         Connector No.         B106           7         W         -         Connector Name         WIRE T           9         B/R         -         Connector Color         WHITE           10         O/B         -         Connector Color         WHITE           11         R/G         -         -         Connector Color         WHITE           11         R/G         -         -         -         -         -           11         R/G         -	Terminal No.         Color of Wire         Signal Name         Connector No.         B106           7         W         -         Connector Name         WIRE T           9         B/R         -         Connector Name         WIRE T           10         O/B         -         Connector Color         WHITE           11         R/G         -         -         Connector Color         WHITE           11         R/G         -         -         -         -         -           11         R/G         -         -         -         -         -         -           11         R/G         - <td>Terminal No.     Color of Wire     Signal Name     Connector No.     B106       7     W     -     Connector Name     WIRE T       9     B/R     -     Connector Name     WIRE T       9     B/R     -     Connector Name     WIRE T       10     O/B     -     -     UNHITE       11     R/G     -     -       12     B/R     -     -       13     B/R     -     -       14     L/O     -     -       15     B     -     -       16     LG     -     -       15     B     -     -       16     LG     -     -</td>	Terminal No.     Color of Wire     Signal Name     Connector No.     B106       7     W     -     Connector Name     WIRE T       9     B/R     -     Connector Name     WIRE T       9     B/R     -     Connector Name     WIRE T       10     O/B     -     -     UNHITE       11     R/G     -     -       12     B/R     -     -       13     B/R     -     -       14     L/O     -     -       15     B     -     -       16     LG     -     -       15     B     -     -       16     LG     -     -

Signal Name I. T

2 3 <b>2</b> 4 5 6 7 9 10 11 12 13 14 15 16	Signal Name	I	I	I	I	I
1         2         3           8         9         10	Color of Wire	BR	BR/B	GR/L	G/W	B/Y
用 H.S.	Terminal No. Color of	-	e	4	5	9



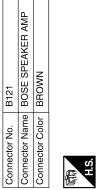


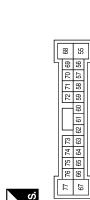
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Signal Name	RR DOOR LH - OUT	RR DOOR LH + OUT	FR DOOR LH - OUT	AMP ON	RR LH - IN	RR LH + IN	RR RH - IN	RR RH + IN	RR DOOR LH + OUT	INST CTR TWDR +	INST CTR TWDR - OUT	FR DOOR RH + OUT	FR DOOR RH - OUT	FR RH + IN	FR RH - IN	FR LH + IN	FR LH - IN
Color of Wire	BR/B	8	в	B/G	≻	BR	>	ГG	R/G	B/P	O/B II	G/W	BR	W/L	GR/V	W/R	B/R
Terminal No.	55	58	59	60	63	64	65	66	68	69	70	71	72	73	74	75	76

	B121	BOSE SPEAKER AMP	BROWN		
	B121	e BOSE (			
	ctor No.	ctor Name	ctor Color		

**AUDIO UNIT** 





B123	SATELLITE RADIO TUNER	SATELLITE RADIO TUNER	WHITE	26 23 34 36 35 34 36 35 35 37 38 35	20 21 21 21 21 21 21 21 21 21 21 21 21 21												
Connector No.	Connector Name		Connector Color	(元) 22 24 21 23	H.S.												
52	BOSE SPEAKER AMP	BROWN	[	52 51 51 50 47 46 45 44 43 42 41	Signal Name	FR TWDR LH + OUT	FR TWDR LH - OUT	FR TWDR RH - OUT	FR TWDR RH + OUT	RH WOOFER + OUT	RH WOOFER - OUT	GND	LH WOOFER - OUT	RR DOOR RH - OUT	BAT	BAT	
). B122			l	54 53 5 49 48 47	Color of Wire	ГG	Β/Υ	GR/L	2	BR/W	ВВ	B/W	G/B	B/W	ВВ	B/R	
Connector No.	Connector Name	Connector Color	ą	िमन् H.S.	Terminal No.	41	42	43	44	45	46	47	48	49	50	51	

REQ1 (SAT - COMBI)

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27 28 29

DATA

SHIELD SHIELD

23 25 25 26

RXD (COMBL\_SAT) TXD (SAT\_COMBI)

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МM B/L

BAT I. I. I

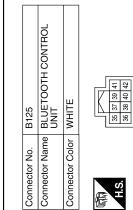
Y/R

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33 33

			-					
	Signal Name	M-CAN +_1	M-CAN2	M-CAN_SHIELD_1	M-CAN_JUMPER 1	M-CAN+_2	M-CAN_JUMPER 1	M-CAN2
	Color of Wire	_	٩	SHIELD	Y/R	Y/R	SB	SB
	Terminal No. Wire	35	36	37	39	40	41	42

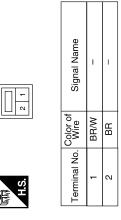


Connector Name REAR SUBWOOFER RH

Connector No. B124

Connector Color WHITE

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### **AUDIO UNIT**

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GR/W

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### [BOSE AUDIO WITHOUT NAVIGATION]

#### < ECU DIAGNOSIS >

SAT\_LCH (+)

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SAT\_LCH (-) Signal Name

W/L

Color of Wire

Terminal No. 5 52

SAT\_RCH (-)

Y/G BR/L

SAT\_RCH (+) EARTH (SIG)

LH WOOFER + OUT RR DOOR RH + OUT

W/B

52

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54

B/W

GND

	μπ.         μπ.           B/R         MIC_IN_+           B/R         MIC_IN           B/R         MUD_OUT(+)           Y         AUDIO_OUT(-)           G/O         MUTE_CONTROL           W/G         LAD_IN1           GR/L         LAD_IN1           GR/L         LAD_IN1           GR/L         LAD_OUT(-)           W/G         LAD_OUT-1           BR/W         IND1           W/G         LAD_OUT-1           BR/W         IND1           W/G         LAD_OUT-1           BR/W         IND1           W/G         LAD_OUT-2           L/B         LAD_OUT-2           L/B         LAD_OUT-2           L/B         LAD_OUT-2           L/B         LAD_OUT-2           W/W         SPEED SIGNAL	Connector Name Connector Color Terminal No. Co	me SATELLITE RADIO TUNER OR PRE-WIRING FOR SATELLITE RADIO TUNER Ior BROWN (WITH SIRIUS SATELLITE RADIO) VIOLET (WITH XM VIOLET (WITH XM SATELLITE RADIO) SATELLITE RADIO) SATELLITE RADIO) B ANTENNA SIGNAL
UNIT WHITE WHITE VII Nice Signal Name SW IGN IGN IGN		Connector Color Terminal No. Co	SATELLIFE RANG TUNER BROWN (WITH SIRIUS ATELLITE TUNER) VIOLET (WITH XM SATELLITE RADIO SATELLITE RADIO SATELLITE RADIO GI SateLLITE RADIO SateLLITE RADIO
WHIE 214 16 17 19 21 23 23 24 26 28 28 28 28 28 28 28 28 28 28 28 28 28		Connector Color Terminal No. Co	BROWN (WITH SIRIUS SATELLITE VIOLET (WITH XER) VIOLET WITH XER) SATELLITE RADIO SATELLITE RADIO Of of Signal Name B ANTENNA SIGNAL
9         11         13         15         17         19         21         22         24         28 </td <td></td> <td>Terminal No. Co</td> <td>VIOLET (WITH XM SATELLITE RADIC SATELLITE RADIC Cor of Signal Name B ANTENNA SIGNAL</td>		Terminal No. Co	VIOLET (WITH XM SATELLITE RADIC SATELLITE RADIC Cor of Signal Name B ANTENNA SIGNAL
10         12         14         16         18         22         24         28         28         31           9         11         15         17         19         21         22         22         23         32         31           Color of Wire         Signal Name         N/N         BAT         ACC		Terminal No. Co	VIOLET WITH XM SATELLITE RADIO International Name B ANTENNA SIGNAL
10         12         14         16         18         22         28<		Terminal No. Co	lor of Signal Name B ANTENNA SIGNAL
10     12     14     16     18     22     24     28     28     29     21     21     28     27     29     31       Point     Viration     Signal Name     Signal Name     N<		Terminal No.	
9 11113 15 17 19 21 23 25 27 29 31 Color of Signal Name Y/B BAT V/Y ACC G/W IGN		Terminal No.	
Color of Signal Name V/B BAT V/Y ACC C/Wire C/V ACC C/V ACC C/V IGN IGN		Terminal No.	
Color of Signal Name Wire BAT V/Y ACC G/W IGN		Terminal No.	
Y/B     BAT       V/Y     ACC       G/W     IGN		Terminal No. 37	
		Terminal No. 37	
G/W IGN		37	
		ER	-
		ER	
4 B/W GND			
	-		
Connector No. B130 Connector No.	. D1	Connector No.	D3
Connector Name SATELLITE RADIO Connector Name	Ime WIRE TO WIRE	Connector Name	FRONT DOOR SPEAKER LH
	olor WHITE	Connector Color	· WHITE
Connector Color   GRAY (WITH SIRIUS SATELLITE TUNER) BROWN (WITH XM	7 6 5 4 3 2 1		
RADIO)	14 13 12 11 10	H.S.	2 1
HS.			
Terminal No. Color of Signal Name Terminal No.	Color of Signal Name	Terminal No.	Color of Signal Name
1 GR - 5	- M		- M
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### **AUDIO UNIT**

#### [BOSE AUDIO WITHOUT NAVIGATION]

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MIRE (8)	Signal Name	Connector No.     D301       Connector Name     WIRE TO WIRE       Connector Color     WHITE       Image: Signal Name     Signal Name       Terminal No.     Color of Nire     Signal Name       Signal Name     -	
D106 WIRE TO W WHITE 4 1 5 6 1 7 8		D301 WIRE TO WHITE WW WW	
	Color of Wire V/R	B/WHI B/W	
stor No.	al No.	Connector No. Connector Name Connector Color H.S. Terminal No. Color 5 E	
Connector No. Connector Name Connector Color	Terminal No. 5	Conne Conne H.S.	
щ.			
D103 FRONT DOOR SPEAKER BROWN	Signal Name	D202 REAR DOOR SPEAKER LH BROWN 2 1 B B C C B C C B C C R C C C C C C C C C	
SOOR S	Signal	Signal Name	
D103 FRONT E BROWN	24	D202 REAR D R G of R B ROWN	
	Color of Wire G/W BR		
Connector No. Connector Name Connector Color	Terminal No.	Connector No. Connector Name Link Terminal No. Color 2 W	
Conne Conne H.S.			
	Signal Name	Signal Name	
D101 WIRE TO WIRE WHITE	Signe		
D101 WIRE T0 WHITE		D201 WHITE TO WHITE TO WHITE 1 V/R S S S S S S S S S S S S S S S S S S S	
	Color of Wire G/W BR		
Connector No. Connector Name Connector Color	Terminal No. 7 9	Connector No. Connector Name Connector Color H.S. Terminal No. Color 5 V	
Conne Conne H.S.		Termi H.S.	

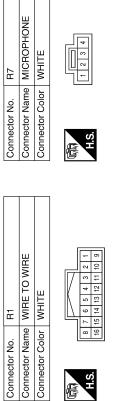
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#### [BOSE AUDIO WITHOUT NAVIGATION]

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AV-105





Signal Name	I	I	I	I	I	I
Color of Wire	M	щ	В	SHIELD	B/Υ	BR
Terminal No. Color of	t-	2	3	4	7	13

Signal Name

Color of Wire

Terminal No.

GND VCC SIG

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Connector No.	D302
Connector Name	Connector Name REAR DOOR SPEAKER RH
Connector Color BROWN	BROWN

E

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Connector No.

2 1	Signal Nam
	Color of Wire
H.S.	erminal No.

N.S.H E

Signal Name	I	I	
Color of Wire	L	B/W	
Terminal No.	-	2	

R8	IE BLUETOOTH ON INDICATOR	r WHITE	1234
Connector No.	Connector Name	Connector Color WHITE	雨 H.S.

Signal Name	ani
Color of Wire	BR
Terminal No.	1

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### **BOSE SPEAKER AMP**

#### [BOSE AUDIO WITHOUT NAVIGATION]

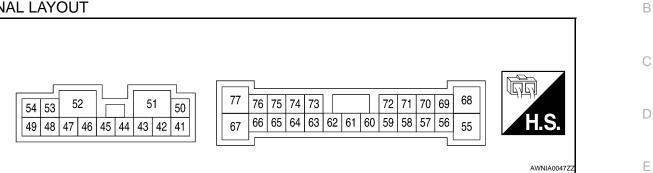
### **BOSE SPEAKER AMP**

#### **Reference Value**

INFOID:000000000995099

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#### PHYSICAL VALUES

Terminal (wire color)		Signal Item input/		(	Condition	Reference value	Example of	F
+	_	item	output	Ignition switch	Operation	Reletence value	symptom	G
41 (LG)	42 (B/Y)	Tweeter LH	Output	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from tweeter LH.	H
44 (L/O)	43 (GR/L)	Tweeter RH	Output	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from tweeter RH.	J K
45 (BR/W)	46 (BR)	Woofer RH	Output	ON	Receive audio signal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5	No sound from woofer RH.	M
47 (B/W)	Ground	Ground	-	ON	_	-	- '	
50 (BR)	0	Dattan				Detter	System does not	0
51(B/R)	Ground	Battery	Input	-	_	Battery voltage	work properly.	
52 (B/W)	Ground	Ground	-	ON	_	_	-	-
53 (W/B)	48 (G/B)	Woofer LH	Output	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from woofer LH.	Ρ

### BOSE SPEAKER AMP

#### < ECU DIAGNOSIS >

#### [BOSE AUDIO WITHOUT NAVIGATION]

Terminal (wire color)		Item	Signal input/	Condition		Reference value	Example of
+	_	nem	output	Ignition switch	Operation		symptom
54 (L)	49 (B/W)	Rear door speaker RH	Output	ON	Receive audio signal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5	No sound from rear speaker RH.
58 (W)	59 (B)	Front door speaker LH and tweeter LH	Output	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from front door speak- er LH or tweeter LH.
60 (B/G)	Ground	Amp. ON sig- nal	Input	ON	_	More than approx. 6.5V	System does not work properly.
64 (BR)	63 (Y)	Audio sound signal rear LH	Input	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from rear door speak- er LH.
66 (LG)	65 (V)	Audio sound signal rear RH	Input	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from rear door speak- er RH.
68 (R/G)	55 (BR/B)	Rear door speaker LH	Output	ON	Receive audio signal	(V) 1 0 -1 SKIA0177E	No sound from rear speaker LH.
69 (B/P)	70 (O/B)	Center speak- er	Output	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from center speaker.

# **BOSE SPEAKER AMP**

#### < ECU DIAGNOSIS >

### [BOSE AUDIO WITHOUT NAVIGATION]

	ninal color)	Item	Signal input/		Condition	Reference value	Example of	A
+	_	nem	output	Ignition switch	Operation		symptom	
71 (G/W)	72 (BR)	Front door speaker RH and tweeter RH	Output	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from front door speak- er RH or tweeter RH.	B C D
73 (W/L)	74 (GR/V)	Audio sound signal front RH	Input	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from front door speak- er RH or tweeter RH.	E
75 (W/R)	76 (B/R)	Audio sound signal front LH	Input	ON	Receive audio signal	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	No sound from front door speak- er LH or tweeter LH.	G

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# SATELLITE RADIO TUNER

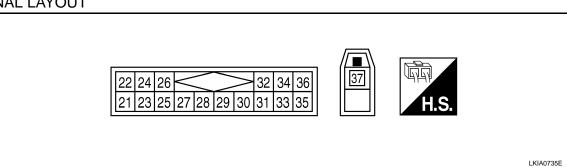
### [BOSE AUDIO WITHOUT NAVIGATION]

# SATELLITE RADIO TUNER

### **Reference Value**

**TERMINAL LAYOUT** 

INFOID:000000000995100



### PHYSICAL VALUES

Term (Wire		ltem	Signal input/		Condition	Voltage
+	_	nem	output	Ignition switch	Operation	(approx.)
22 (Y/L)	21 (W/L)	Audio signal LH	Output	ON	Receive audio signal.	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
24 (BR/L)	23 (Y/G)	Audio signal RH	Output	ON	Receive audio signal.	(V) 1 0 -1 + 2ms SKIB3609E
25	_	Shield	-	-	_	-
26	_	Data ground	-	ON	_	Approx. 0 V
28 (R/L)	Ground	REQ1 (SAT-AUDIO)	Output	ON	Set to the satellite radio mode	(V) 15 10 5 0 + 20ms SKIB3825E
29 (R/W)	Ground	Communication signal (SAT-AUDIO)	Output	ON	Set to the satellite radio mode	(V) 15 10 5 0 •••• 20ms SKIB3824E

# SATELLITE RADIO TUNER

### < ECU DIAGNOSIS >

### [BOSE AUDIO WITHOUT NAVIGATION]

Term (Wire		ltem	Signal input/		Condition	Voltage	А
+	_	licin	output	Ignition switch	Operation	(approx.)	
30 (B)	Ground	Communication signal (AUDIO-SAT)	Input	ON	Set to the satellite radio mode	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0	B C D
32 (Y/R)	Ground	Battery power supply		OFF		Battery voltage	
36 (GR/W)	Ground	ACC power supply	Input	ACC		Datiery Voltage	E
37	-	Antenna signal		_	_	-	

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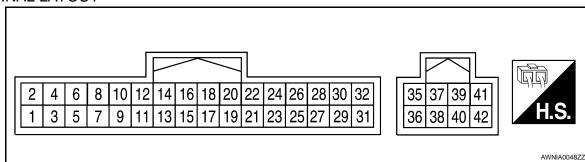
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# **BLUETOOTH CONTROL UNIT**

### **Reference Value**

TERMINAL LAYOUT

INFOID:000000000995101



### PHYSICAL VALUES

Term (Wire		Item	Signal		Condition	Reference value	Example of symp-
+	_	nem	input/ output	Ignition switch	Operation	(Approx.)	tom
1 (Y/B)	Ground	Battery pow- er	Input	_	_	Battery voltage	System does not work properly.
2 (V/Y)	Ground	ACC power	Input	ACC/ ON	_	Battery voltage	System does not work properly.
3 (G/W)	Ground	IGN power	Input	ON/ START	_	Battery voltage	System does not work properly.
4 (B/W)	_	Ground	-	-	_	_	-
6	-	Shield	-	-	_	-	_
7 (B/R)	8 (R/B)	Mic-in signal	Input	_	_	_	Microphone inoper- ative.
9 (BR)	10 (Y)	Audio out	Output	ACC/ ON	Bluetooth control unit sends audio signal	(V) 1 0 -1 2 2 SKIB3609E	Audio can not be heard.
11 (G/O)	-	Mute	Output	-	_	_	Mute inoperative.
					Press SEEK DOWN switch.	0.7 V	
12 (W/G)	Ground	Ground Control switch 1	Input	ACC/ ON	Press SEEK UP switch.	1.3 V	Steering wheel au- dio control switches
					Pressing <b>A</b> switch.	2.0 V	do not function.
					Except for above.	3.3 V	

#### < ECU DIAGNOSIS >

# BLUETOOTH CONTROL UNIT

### [BOSE AUDIO WITHOUT NAVIGATION]

Term (Wire)			Signal		Condition	Reference value	Example of symp-
+	_	Item	input/ output	Ignition switch	Operation	(Approx.)	tom
					Press SOURCE switch.	0 V	
					Press 🔬 switch.	0.7 V	-
13 (GR/L)	Ground	Remote control switch 2	Input	ACC/ ON	Press VOL UP switch.	1.3 V	- Steering wheel au- dio control switches do not function.
					Press VOL DOWN switch	2 V	
					Except for above.	3.3 V	
14 (L/B)	-	Remote control ground	Input	-	-	-	Steering wheel au- dio control switches do not function.
15 (BR/W)	Ground	Bluetooth ON indicator LED	Output	-	Bluetooth control unit initialized and paired with phone	Battery voltage	Bluetooth ON indi- cator inoperative.
					Press SEEK DOWN switch.	0.7 V	
					Press SEEK UP		
17 (W/G)	Ground	Steering switch 1	Output	ACC/ ON	switch.	1.3 V	Steering wheel au- dio controls do not function.
		SWIICH		ON	Pressing <b>A</b> switch.	2.0 V	
					Except for above.	3.3 V	
					Press SOURCE switch.	0 V	
					Press 📢 switch.	0.7 V	
18 (GR/L)	Ground	Steering switch 2	Output	ACC/ ON	Press VOL UP switch.	1.3 V	Steering wheel au- dio controls do not function.
					Press VOL DOWN switch	2 V	
					Except for above.	3.3 V	
19 (L/B)	Ground	Steering switch ground	Output	_	-	-	Steering wheel au- dio controls do not function.
24 (B/W)	-	Ground	-	-	_	_	-
28 (V/W)	_	Vehicle speed signal (8-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	(V) 15 10 5 0 + 20ms PKIA1935E	_
29 (R/L)	Ground	Microphone power	Output	-	_	-	Microphone inoper- ative.
35 (L)	_	M-CAN (+)	-	-		-	_
36 (P)	-	M-CAN (-)	-	-		-	-
		Shield					

### [BOSE AUDIO WITHOUT NAVIGATION]

# SYMPTOM DIAGNOSIS AUDIO SYSTEM

# Symptom Table

INFOID:000000000995102

### AUDIO SYSTEM

Symptom	Possible cause	Reference page
Inoperative	<ul><li>Audio unit power circuit</li><li>Audio unit</li></ul>	• <u>AV-65</u> • <u>AV-118</u>
Steering switch does not operate	Steering switch     Audio unit	• <u>AV-80</u> • <u>AV-118</u>
All speakers do not sound	<ul> <li>Audio unit</li> <li>Audio unit power circuit</li> <li>BOSE speaker amp. ON signal</li> <li>BOSE speaker amp. ground circuit</li> <li>BOSE speaker amp.</li> </ul>	<ul> <li><u>AV-118</u></li> <li><u>AV-65</u></li> <li><u>AV-79</u></li> <li><u>AV-65</u></li> <li><u>AV-119</u></li> </ul>
One or several speakers do not sound	<ul> <li>Front door speaker</li> <li>Tweeter</li> <li>Center speaker</li> <li>Rear door speaker</li> <li>Woofer</li> </ul>	<ul> <li><u>AV-69</u></li> <li><u>AV-71</u></li> <li><u>AV-73</u></li> <li><u>AV-75</u></li> <li><u>AV-77</u></li> </ul>

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Symptom	Possible cause	Reference page
CD cannot be inserted.		
CD cannot be ejected.	- Audio unit	AV-118
The CD cannot be played.		<u>AV-110</u>
The sound skips, stops suddenly, or is distorted.		

### SATELLITE RADIO

Symptom	Possible cause	Reference page
Inoperative	<ul> <li>Satellite radio tuner power or ground circuit</li> <li>Satellite radio tuner communication circuit</li> <li>Satellite radio tuner</li> </ul>	• <u>AV-66</u> • <u>AV-83</u> • <u>AV-127</u>
Right or left channel does not sound	<ul> <li>Satellite radio tuner right channel audio signal circuit</li> <li>Satellite radio tuner left channel audio signal circuit</li> <li>Satellite radio tuner</li> </ul>	<ul> <li><u>AV-85</u></li> <li><u>AV-85</u></li> <li><u>AV-127</u></li> </ul>

### HANDS-FREE PHONE

Symptom	Possible cause	Reference page
Inoperative	<ul><li>Bluetooth control unit power and ground circuit</li><li>Bluetooth control unit</li></ul>	• <u>AV-67</u> • <u>AV-135</u>
Steering switch does not operate	<ul><li>Steering switch</li><li>Bluetooth control unit</li></ul>	• <u>AV-80</u> • <u>AV-135</u>
Voice activated control does not operate	<ul><li>Microphone</li><li>Steering switch</li><li>Bluetooth control unit</li></ul>	• <u>AV-87</u> • <u>AV-80</u> • <u>AV-135</u>

### NORMAL OPERATING CONDITION

#### < SYMPTOM DIAGNOSIS >

# NORMAL OPERATING CONDITION

### Description

The majority of the audio troubles are the result of outside causes (bad CD, electromagnetic interference, etc.).

NOISE

The following noise results from variations in field strength, such as fading noise and multi-path noise, or c external noise from trains and other sources. It is not a malfunction.

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from the waves sent directly from the broadcast station arriving at the antenna at a different time from the waves which reflect off mountains or buildings.

The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and determine the cause. **NOTE:** 

The source of the noise can be found easily by listening to the noise while removing the fuses of electrical components, one by one.

Type of Noise and Possible Cause

C	occurrence condition	Possible cause
	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	Ignition components
Occurs only when engine is ON.	y when engine is ON.       A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.       Ignition components         y when engine is ON.       A whistling noise occurs while the engine speed is high. A booming noise occurs while the engine is running and the lighting switch is ON.       Generator         ence of the noise is linked with the operation of the fuel pump.       Fuel pump condenser         occurs when various omponents are oper-       A cracking or snapping sound occurs with the operation of various switches.         The noise occurs when various motors are operating.       Motor case ground         occurs constantly, not just under certain conditions.       Rear defogger coil malfunction         or snapping sound occurs while the vehicle is being driven, especially when a recessively.       Ground wire of body parts	
The occurrence of the noise is lin	ked with the operation of the fuel pump.	Fuel pump condenser
,		Relay malfunction, audio unit malfunction
	<ul> <li>re oper-</li> <li>re oper-</li> <li>re noise occurs when various motors are operating.</li> <li>Relay mainunction, audio unit mainunction</li> <li>Motor case ground</li> <li>Motor</li> </ul>	
The noise occurs constantly, not j	ust under certain conditions.	<ul><li> Open circuit in printed heater</li><li> Poor ground of antenna amplifier or anten-</li></ul>
Occurs only when engine is ON.       A whistling noise occurs while the engine speed is high. A booming noise occurs while the engine is running and the lighting switch is ON.       • Generator         The occurrence of the noise is linked with the operation of the fuel pump.       • Fuel pump condenser         Noise only occurs when various electrical components are operating.       A cracking or snapping sound occurs with the operation of various switches.       • Relay malfunction, audio unit malfunction         The noise occurs constantly, not just under certain conditions.       • Rear defogger coil malfunction       • Open circuit in printed heater         Poor ground of antenna amplifier or antenna fielder line       • Ground wire of body parts       • Ground wire of body parts		

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INFOID:000000000995103

# PRECAUTION PRECAUTIONS

Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSION-ER"

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

# < PREPARATION >

# PREPARATION

# PREPARATION

# **Commercial Service Tools**

INFOID:00000000995105

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Tool name		Description	
		Loosening bolts and nuts	
Power tool			
	PBIC0191E		

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INFOID:000000000995106

# ON-VEHICLE REPAIR

## AUDIO UNIT

Removal and Installation

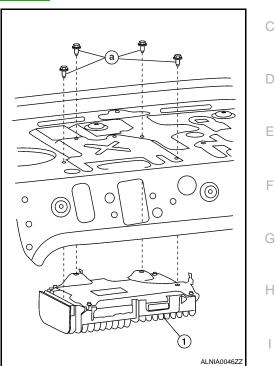
For removal and installation, refer to AV-45, "Removal and Installation".

# BOSE AMP.

### **Removal and Installation**

### REMOVAL

- 1. Remove the rear parcel shelf. Refer to INT-15. "Removal and Installation".
- 2. Remove the Bose speaker amp. screws (A), then disconnect the Bose speaker amp. connectors and remove the speaker amplifier (1).



INSTALLATION Installation is in the reverse order of removal.

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# CD CHANGER

### **Removal and Installation**

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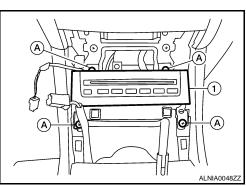
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### REMOVAL

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- 1. Remove Cluster D lower finisher. Refer to IP-11, "Removal and Installation".
- 2. Put selector lever in the drive (D) position (CVT models only).
- 3. Put shift lever in neutral (M/T models only).
- 4. Using a suitable tool remove the CD changer finisher (1), then disconnect the power socket, AUX jack connectors and remove the CD changer finisher (1).

 Remove the CD changer screws (A), pull out the unit, then disconnect the CD changer connector and remove the CD changer (1).



• CD changer (2)

• CD changer brackets (1)

Remove the CD changer bracket screws (A).

INSTALLATION Installation is in the reverse order of removal.

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Removal and Installation	INFOID:000000000995109	A
For removal and installation, refer to AV-46, "Removal and Installation".		В
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# [BOSE AUDIO WITHOUT NAVIGATION]

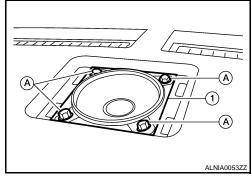
# **CENTER SPEAKER**

### Removal and Installation

INFOID:000000000995110

#### REMOVAL

- 1. Remove the center speaker grille. Refer to <u>IP-11, "Removal and Installation"</u>.
- 2. Remove the center speaker screws (A), then pull out the center speaker, disconnect the connector and remove the center speaker.



INSTALLATION Installation is in the reverse order of removal.

# < ON-VEHICLE REPAIR > FRONT DOOR SPEAKER А Removal and Installation INFOID:000000000995111 For removal and installation, refer to AV-47. "Removal and Installation". В С D Е F G Н J

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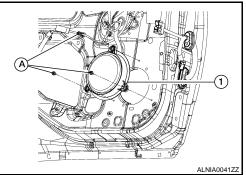
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# REAR DOOR SPEAKER

Removal and Installation

REMOVAL

- 1. Remove the rear door finisher. Refer to INT-11, "Removal and Installation".
- Remove the rear door speaker screws (A), then disconnect the rear door speaker connector and remove the rear door speaker (1).



INSTALLATION Installation is in the reverse order of removal.

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# [BOSE AUDIO WITHOUT NAVIGATION] < ON-VEHICLE REPAIR > **REAR SPEAKER** А Removal and Installation INFOID:000000000995113 For removal and installation, refer to AV-48. "Removal and Installation". В С D Е F G Н J Κ L

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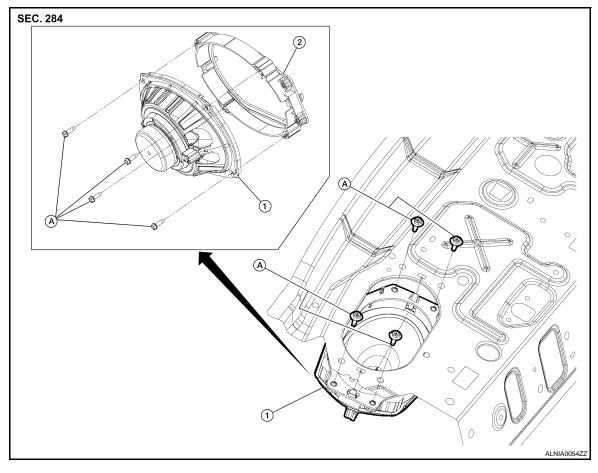
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### [BOSE AUDIO WITHOUT NAVIGATION]

# < ON-VEHICLE REPAIR > WOOFER

# Components

INFOID:000000000999494



1. Woofer speaker

2. Woofer speaker spacer

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Screws

### Removal and Installation

INFOID:000000000995114

### REMOVAL

- 1. Remove the rear parcel shelf finisher. Refer to INT-15, "Removal and Installation".
- 2. Remove the woofer speaker screws from the top, disconnect the woofer speaker harness connector and remove the woofer speaker and spacer assembly.
- 3. Remove the spacer screws and remove the woofer speaker from the spacer.

### INSTALLATION

Installation is in the reverse order of removal.

# SATELLITE RADIO TUNER

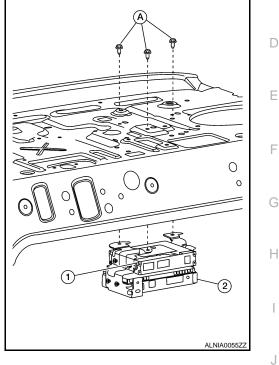
# Removal and Installation

### REMOVAL

- 1. Disconnect the battery negative terminal.
- 2. Remove the rear parcel shelf finisher. Refer to INT-15, "Removal and Installation".
- 3. Remove the satellite radio tuner unit screws (A), disconnect the satellite tuner harness connectors and remove the satellite radio tuner (1).

### NOTE:

Bluetooth control unit (2) is removed with the satellite radio tuner unit (if equipped).



INSTALLATION Installation is in the reverse order of removal.

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# SATELLITE RADIO TUNER

# [BOSE AUDIO WITHOUT NAVIGATION]

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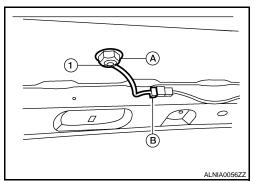
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# SATELLITE RADIO ANTENNA

Removal and Installation

### REMOVAL

- 1. Lower the headliner. Refer to INT-19. "Removal and Installation".
- 2. Remove the satellite radio antenna nut (A), then disconnect the satellite radio antenna connector (B) and remove the satellite radio antenna (1).



INSTALLATION Installation is in the reverse order of removal.

INFOID:000000000995116

## **STEERING SWITCH**

< ON-VEHICLE REPAIR > [BOSE AUDIO WITHOUT NA	
STEERING SWITCH	
	INFOID:000000000995117
"Removal and Installation".	

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[BOSE AUDIO WITHOUT NAVIGATION]

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# ANTENNA FEEDER (RADIO)

Location of Antenna

For removal and installation, refer to AV-50. "Location of Antenna".

### < ON-VEHICLE REPAIR > ANTENNA AMP.

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Removal and Installation	INFOID:000000000995119	<i>x</i> 1.
For removal and installation, refer to AV-49, "Removal and Installation".		В
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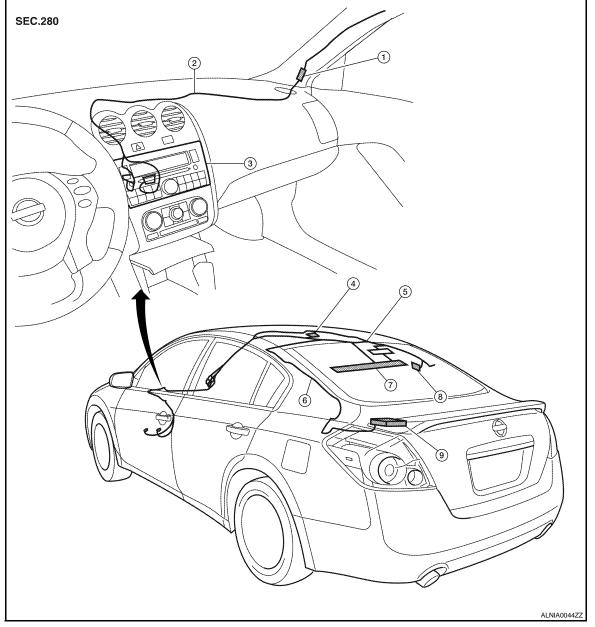
### **AUDIO ANTENNA**

### [BOSE AUDIO WITHOUT NAVIGATION]

# < ON-VEHICLE REPAIR > AUDIO ANTENNA

Location of Antenna

INFOID:000000000995120



- 1. Audio unit harness connector
- 4. Satellite antenna
- 7. Window antenna

- 2. Audio unit harness
- 5. Audio antenna feeder
- 8. Antenna amp.
- 3. Audio unit
- 6. Satellite radio antenna feeder

INFOID:000000000995121

9. Satellite radio tuner

Window Antenna Repair

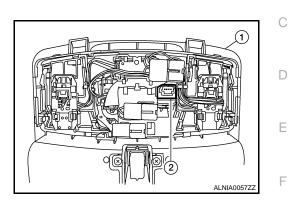
For window antenna repair, refer to AV-50, "Window Antenna Repair".

# MICROPHONE

## Removal and Installation

### REMOVAL

- 1. Remove the map lamp. Refer to INL-51, "Removal and Installation".
- 2. Remove the Bluetooth microphone (2).
  - Map lamp (1)



INSTALLATION Installation is in the reverse order of removal.



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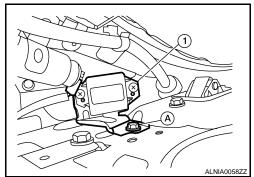
# TEL ANTENNA

### Removal and Installation

INFOID:000000000995123

#### REMOVAL

- 1. Remove the rear parcel shelf. Refer to INT-15, "Removal and Installation".
- 2. Remove the Bluetooth antenna screw (A), fold down the rear seat, disconnect the Bluetooth antenna connector and remove the Bluetooth antenna (1).



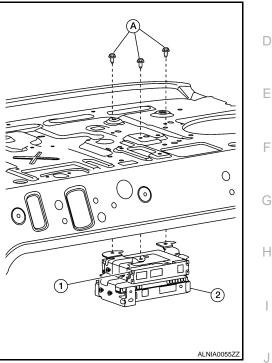
INSTALLATION Installation is in the reverse order of removal.

# TEL ADAPTER UNIT

### Removal and Installation

#### REMOVAL

- 1. Remove the rear parcel shelf. Refer to INT-15. "Removal and Installation".
- 2. Remove the Bluetooth control (tel adaptor) unit screws (A), disconnect the Bluetooth control (tel adapter) unit connectors and remove the Bluetooth control (tel adapter) unit (2).
  - Satellite radio tuner (1)



INSTALLATION Installation is in the reverse order of removal.

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## [BOSE AUDIO WITHOUT NAVIGATION]

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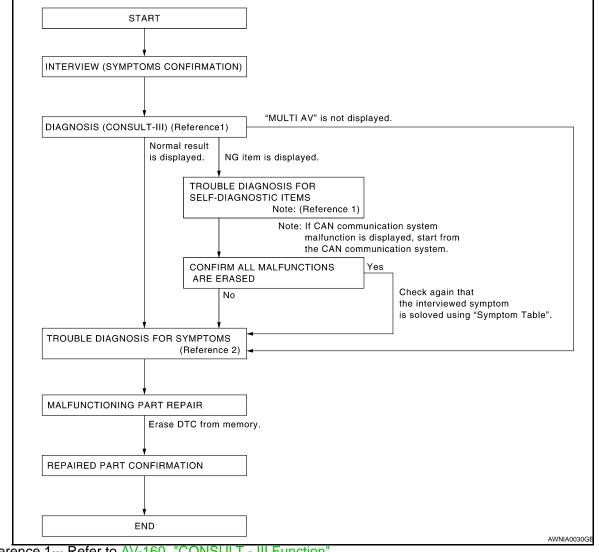
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# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

### Work Flow

INFOID:000000000995125

### **OVERALL SEQUENCE**



Reference 1... Refer to <u>AV-160, "CONSULT - III Function"</u>.

Reference 2... Refer to <u>AV-239, "Symptom Table"</u>.

# DETAILED FLOW

### **1.**CHECK SYMPTOM

Check the malfunction symptoms by performing the following items.

- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

>> GO TO 2..

# 2.self-diagnosis (consult-III)

- 1. Connect CONSULT-III and perform "SELF-DIAGNOSIS" for "MULTI AV". NOTE:
  - Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed.
- 2. Check if any DTC No. is displayed in the self-diagnosis results.

# AV-136

### DIAGNOSIS AND REPAIR WORKFLOW

	[BOSE AUDIO WITH NAVIGATION]
< BASIC INSPECTION >	
Is any DTC No. displayed?	
YES >> GO TO 3 NO >> GO TO 4	
3. CHECK SELF-DIAGNOSIS RESULTS	S (CONSULT-III)
<ol> <li>Check the DTC No. indicated in the s</li> <li>Perform the relevant diagnosis referr NOTE:</li> </ol>	ing to the DTC No. list. Refer to <u>AV-231, "DTC Index"</u> .
	nmunication system if "CAN COMM CIRCUIT [U1000] or CONTROL
>> GO TO 5	
<b>4.</b> PERFORM DIAGNOSIS BY SYMPTO	M
Perform the relevant diagnosis referring Table".	g to the diagnosis chart by symptom. Refer to AV-239, "Symptom
>> GO TO 5	
<b>5.</b> REPAIR OR REPLACE MALFUNCTION	DNING PARTS
Repair or replace the identified malfunction <b>NOTE:</b>	oning parts.
Erase the stored self-diagnosis results af been indicated in the self-diagnosis resul	ter repairing or replacing the relevant components if any DTC No. has ts.
>> GO TO 6	
6. CHECK AFTER REPAIR	
1. Perform self-diagnosis for "MULTI A	V" with CONSULT-III after repairing or replacing the malfunctioning
parts.	
2. Check if any DTC No. is displayed in	the self-diagnosis results.
Is any DTC No. displayed?	
YES >> GO TO 3 NO >> GO TO 7	
7.FINAL CHECK	
	that the moleuration exampton is achied as that any other examptons
are present.	that the malfunction symptom is solved or that any other symptoms
Are any symptoms present?	
YES >> GO TO 4	
NO >> Inspection End.	

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### **INSPECTION AND ADJUSTMENT**

< BASIC INSPECTION >

### INSPECTION AND ADJUSTMENT REAR VIEW MONITOR GUIDING LINE ADJUSTMENT

REAR VIEW MONITOR GUIDING LINE ADJUSTMENT : Description

This mode is used to modify the side distance guidelines if they are dislocated from the rear view monitor image, because of variations of body/camera mounting conditions.

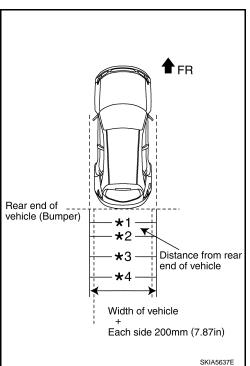
# REAR VIEW MONITOR GUIDING LINE ADJUSTMENT : Special Repair Requirement

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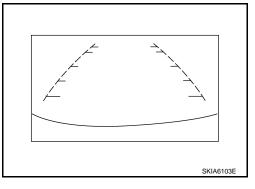
INFOID:000000000995126

- Create a correction line to modify the screen. Draw lines on the rearward of the vehicle passing through the following points: 200 mm (7.87 inch) from both sides of the vehicle, and
  - \*1: 0.5 m (1.5 feet)
  - \*2: 1 m (3 feet)
  - \*3: 2 m (7 feet)
  - \*4: 3 m (10 feet)
    - and from the rear end of the bumper
- With the ignition switch OFF, connect CONSULT-III, then turn ignition switch ON. Select "REARVIEW CAMERA". CAUTION:

Stop engine for safety when correcting side distance guideline.



3. Shift the A/T selector lever to R position.



- 4. Touch "SELCT GUIDELINE PATTERN" under "WORK SUPPORT" menu.
- 5. Touch "UP" or "DOWN", and select the guide line, "PATTERN NO. 0" or "PATTERN NO. 1", which is the closest to the corrected line.
- 6. Touch "SAVE", and confirm the guide line.
- 7. Touch "END".
- 8. Touch "ADJ GUIDELINE POSITION" under the "WORK SUPPORT" menu.
- 9. Adjust the guide line touching "X UP", "X DOWN", "Y UP" or "Y DOWN" so that the corrected line can fit the guide line.
- 10. Touch "SAVE", and confirm the guide line.

# AV-138

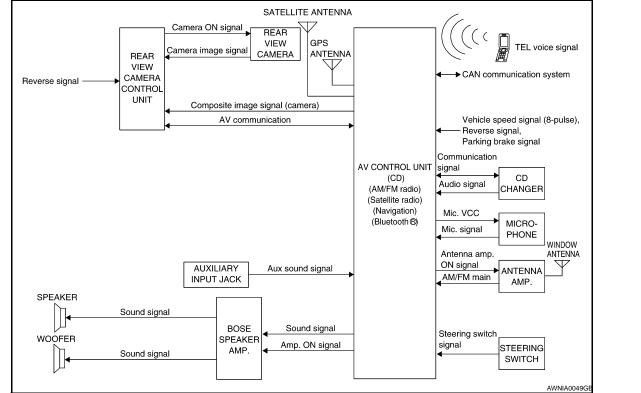
#### < BASIC INSPECTION >

11. Touch "END" to finish correcting.

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# FUNCTION DIAGNOSIS MULTI AV SYSTEM

### System Diagram



## System Description

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INFOID:000000000995128

The multi AV system consists of the following systems.

- Navigation system
- Audio system
- Rear view monitor
- Hands-free phone system

Refer to the following table for multi AV system descriptions.

System	Reference page
Navigation system	<u>AV-145</u>
Audio system	<u>AV-149</u>
Rear view monitor system	<u>AV-148</u>
Hands-free phone system	<u>AV-151</u>

#### **VOICE RECOGNITION**

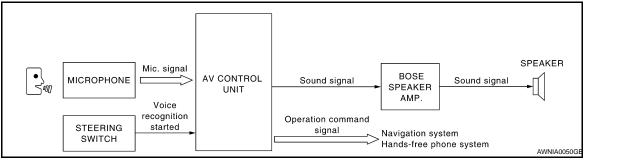
The multi AV system uses voice recognition to control functions of the following systems:

Navigation system

### < FUNCTION DIAGNOSIS >

### [BOSE AUDIO WITH NAVIGATION]

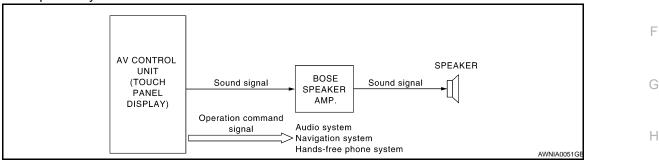
#### • Hands-free phone system



#### TOUCH PANEL

The multi AV system uses a touch panel display to control functions of the following systems:

- Audio system
- Navigation system
- Hands-free phone system



**Component Parts Location** 

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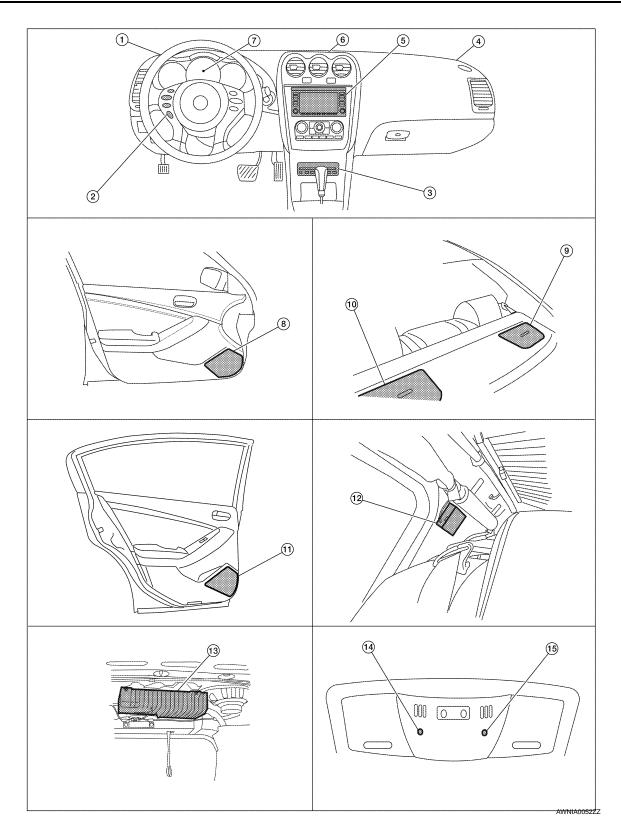
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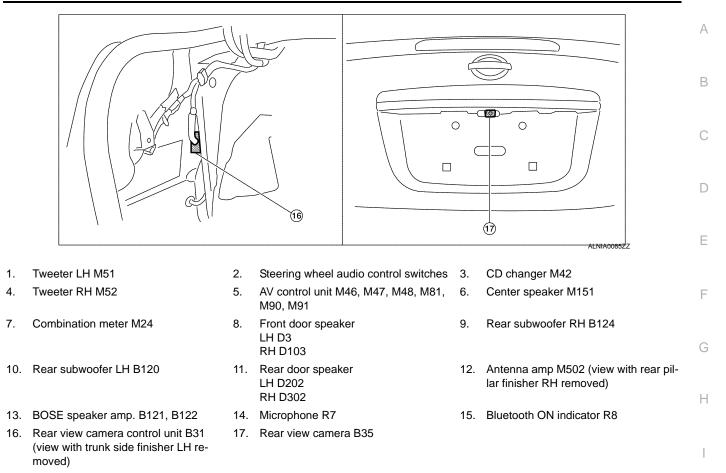
### < FUNCTION DIAGNOSIS >



#### < FUNCTION DIAGNOSIS >

**Component Description** 

#### [BOSE AUDIO WITH NAVIGATION]



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Part name	Description
AV control unit	<ul> <li>Integrates DVD-ROM drive allowing map data to be stored</li> <li>The AV control unit includes the navigation, audio, hands-free phone, satellite radio and display functions</li> </ul>
BOSE speaker amp.	Receives power (amp ON) and audio signals from AV control unit, and outputs audio signals to each speaker.
CD changer	Outputs audio signals to AV control unit.
Front door speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Tweeter	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high range sound</li></ul>
Center speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Rear door speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Woofer	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs low range sound</li></ul>
Rear view camera control unit	<ul> <li>Camera image signal is input from rear view camera, and camera image is indicated on the display</li> <li>Power (camera ON signal) is sent to rear view camera</li> <li>Controlled by AV communication sent from AV control unit</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal</li> </ul>
Rear view camera	<ul> <li>Receives camera ON signal from rear view camera control unit</li> <li>Sends image signal to rear view camera control unit</li> </ul>

#### < FUNCTION DIAGNOSIS >

### [BOSE AUDIO WITH NAVIGATION]

Part name	Description
Steering switches	<ul> <li>Operations for audio, hands-free phone and navigation are possible</li> <li>Steering switch signal (operation signal) is output to AV control unit</li> </ul>
Microphone	Voice signals are received and sent to AV control unit.
GPS antenna	GPS signal is received and sent to AV control unit.
Antenna amp.	<ul> <li>Radio signal received by glass antenna is amplified and sent to AV control unit</li> <li>Power (antenna amp ON signal) is supplied from AV control unit</li> </ul>
Satellite radio antenna	Satellite radio signal is received and sent to AV control unit.

#### NAVIGATION SYSTEM

#### < FUNCTION DIAGNOSIS >

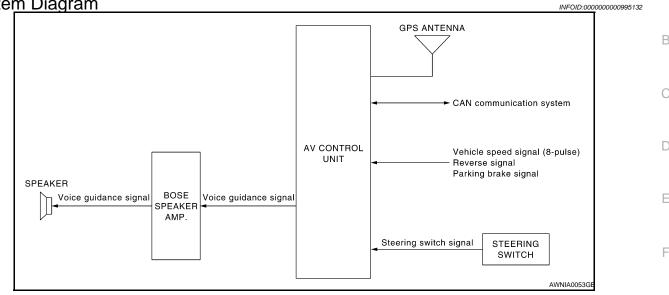
## NAVIGATION SYSTEM







System Diagram



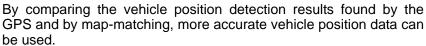
#### System Description

#### NOTE:

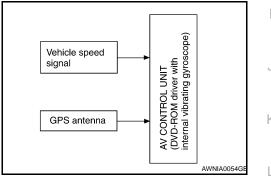
Refer to NAVI System Owner's Manual for system operation.

The navigation system periodically calculates the vehicle's current position according to the following three signals: Travel distance of the vehicle as determined by the vehicle speed sensor, turning angle of the vehicle as determined by the gyroscope (angular velocity sensor), and the direction of vehicle travel as determined by the GPS antenna (GPS information).

The current position of the vehicle is then identified by comparing the calculated vehicle position with map data read from the map DVD-ROM, which is stored in the DVD-ROM drive (map-matching), and indicated on the screen with a current-location mark.



The current vehicle position will be calculated by detecting the distance the vehicle moved from the previous calculation point and its direction.



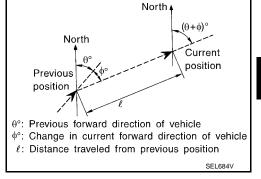
INFOID:000000000995133

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#### TRAVEL DISTANCE

Travel distance calculations are based on the vehicle speed input signal. Therefore, the calculation may become incorrect as the tires wear down. To prevent this, an automatic distance fine adjustment function has been adopted.

#### TRAVEL DIRECTION

Change in the travel direction of the vehicle is calculated by a gyroscope (angular velocity sensor) and a GPS antenna (GPS information). As the gyroscope and GPS antenna have both merit and demerit, input signals

#### AV-145

## NAVIGATION SYSTEM

#### < FUNCTION DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

from them are prioritized in each situation. However, this order of priority may change in accordance with more detailed travel conditions so that the travel direction is detected more accurately.

Туре	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	Can detect the vehicle's turning angle quite accurately.	• Direction errors may accumulate when the vehicle is driven for long distances without stopping.
GPS antenna (GPS information)	<ul> <li>Can detect the vehicle's travel direction (North/South/East/West).</li> </ul>	• Correct direction cannot be detected when the vehicle speed is low.

#### MAP-MATCHING

Map-matching is a function that repositions the vehicle on the road map when a new location is judged to be the most accurate. This is done by comparing the current vehicle position, calculated by the method described in the position detection principle, with the road map data around the vehicle, read from the map DVD-ROM stored in the DVD-ROM drive.

Therefore, the vehicle position may not be corrected after the vehicle is driven over a certain distance or time in which GPS information is hard to receive. In this case, the current-location mark on the display must be corrected manually.

#### CAUTION:

# The road map data is based on data stored in the map DVD-ROM.

• In map-matching, alternative routes to reach the destination will be shown and prioritized, after the road on which the vehicle is currently driven has been judged and the current-location mark has been repositioned.

If there is an error in distance and/or direction, the alternative routes will be shown in different order of priority, and the wrong road can be avoided.

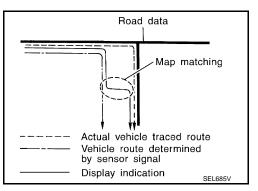
If two roads are running in parallel, they are of the same priority. Therefore, the current-location mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road.

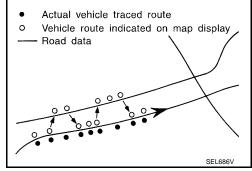
 Map-matching does not function correctly when the road on which the vehicle is driving is new and not recorded in the map DVD-ROM, or when the road pattern stored in the map data and the actual road pattern are different due to repair.

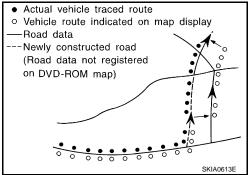
When driving on a road not present in the map, the map-matching function may find another road and position the current-location mark on it. Then, when the correct road is detected, the current-location mark may leap to it.

• Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data read from the map DVD-ROM is limited. Therefore, when there is an excessive gap between the current vehicle position and the position on the map, correction by map-matching is not possible.

GPS (GLOBAL POSITIONING SYSTEM)



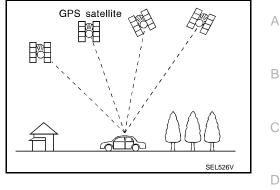




#### **NAVIGATION SYSTEM**

#### < FUNCTION DIAGNOSIS >

GPS (Global Positioning System) has been developed and controlled by the US Department of Defense. The system utilizes GPS satellite (NAVSTAR), sending out radio waves while flying on an orbit around the earth at the height of approx. 21,000 km (13,000 miles). The GPS receiver calculates the vehicle's position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves received from four or more GPS satellites (three-dimensional positioning). If radio waves were received only from three GPS satellites, the GPS receiver calculates the vehicle's position in two dimensions (latitude/longitude), utilizing the altitude data calculated previously by using radio waves from four or more GPS satellites (two-dimensional positioning).



Accuracy of the GPS will deteriorate under the following conditions.

- In two-dimensional positioning, the GPS accuracy will deteriorate when the altitude of the vehicle position changes.
- There may be an error of approximately 10 m (30 ft.) in position detected by three-dimensional positioning, which is more accurate than two-dimensional positioning. The accuracy can be even lower depending on the arrangement of the GPS satellites utilized for the positioning.
- Position detection is not possible when the vehicle is in an area where radio waves from the GPS satellite do
  not reach, such as in a tunnel, parking lot in a building, and under an elevated highway. Radio waves from
  the GPS satellites may not be received when some object is located over the GPS antenna.
- Position correction by GPS is not available while the vehicle is stopped.

#### Component Parts Location

#### Refer to AV-141, "Component Parts Location".

#### **Component Description**

INFOID:000000000995135

INFOID:000000000995134

Part name	Description
AV control unit	<ul> <li>Controls each operation of the navigation system</li> <li>DVD-ROM drive is built in</li> <li>Voice guidance signal is output to BOSE speaker amp.</li> </ul>
BOSE speaker amp.	Voice guidance signal is input from AV control unit, and it is output to speakers.
Tweeter	Voice guidance signal from BOSE speaker amp. is output.
Steering switches	<ul> <li>Each operation of navigation system can be performed</li> <li>Switch operating signal is output to AV control unit</li> </ul>
Microphone	Sends voice signals to AV control unit
GPS antenna	GPS signal is received and is output to AV control unit.

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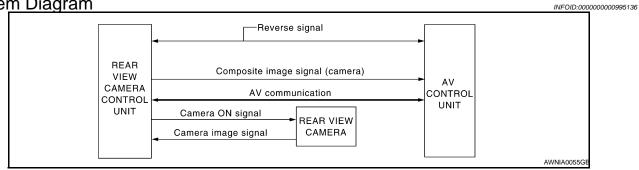
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#### REAR VIEW MONITOR SYSTEM

#### < FUNCTION DIAGNOSIS >

## REAR VIEW MONITOR SYSTEM

#### System Diagram



#### System Description

When the selector is in the R position, the display will show a view to the rear of the vehicle. Lines which indicate the vehicle clearance and distances are also displayed.

#### AV COMMUNICATION LINE

The rear view camera control unit is connected to the AV control unit using an AV communication line. This line is used to transmit and receive data.

#### **Component Parts Location**

Refer to AV-141, "Component Parts Location".

#### **Component Description**

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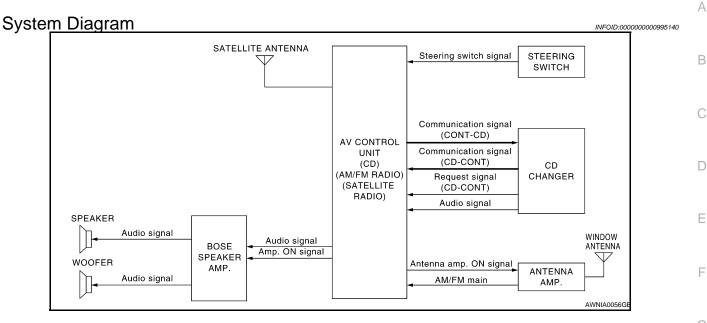
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Part name	Description
AV control unit	Camera image signal is sent from rear view camera control unit
Rear view camera control unit	<ul> <li>Receives reverse signal from park/neutral position (PNP) switch (with CVT and QR25DE)</li> <li>Receives reverse signal from back-up lamp relay (with CVT and VQ35DE)</li> <li>Receives reverse signal from back up lamp switch (with M/T)</li> <li>Receives rear view camera image signal</li> <li>Sends camera ON signal to rear view camera</li> <li>Sends image signal to AV control unit</li> </ul>
Rear view camera	<ul> <li>Receives camera ON signal from rear view camera control unit</li> <li>Sends image signal to rear view camera control unit</li> </ul>

#### **AUDIO SYSTEM**

## < FUNCTION DIAGNOSIS >

# AUDIO SYSTEM



## System Description

#### AUDIO SYSTEM

The audio system consists of the following components

- AV control unit (audio unit)
- BOSE speaker amp.
- Window antenna
- Antenna amp.
- Steering switches
- Front door speakers
- Tweeters
- Center speaker
- Rear door speakers
- Woofers
- CD changer

When the audio system is on, radio signals are received by the window antenna. These signals are amplified by the antenna amp. before reaching the audio unit. The audio unit then sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the front door speakers, tweeters, center speaker, rear door speakers and woofers. Μ

Refer to Owner's Manual for audio system operating instructions.

#### SATELLITE RADIO SYSTEM

The satellite radio system consists of the following components

- Satellite antenna
- Satellite radio tuner

When the satellite radio system is on, radio signals are supplied to the satellite radio tuner from the satellite antenna. The satellite radio tuner then sends audio signals to the audio unit. Refer to Owner's Manual for satellite radio system operating instructions.

#### SPEED SENSITIVE VOLUME SYSTEM

Volume level of this system goes up and down automatically in proportion to the vehicle speed. The control P level can be selected by the customer. Refer to Owner's Manual for operating instructions.

AV-149

#### Component Parts Location

Refer to AV-141, "Component Parts Location".

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#### **AUDIO SYSTEM**

#### < FUNCTION DIAGNOSIS >

Part name	Description
AV control unit	<ul> <li>Controls audio system and satellite radio system functions</li> <li>Audio information is displayed on display screen</li> </ul>
BOSE speaker amp.	Receives power (amp ON) and audio signals from AV control unit, and outputs audio signals to each speaker.
CD changer	Sends audio signals to AV control unit
Front door speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Tweeter	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high range sound</li></ul>
Center speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Rear door speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Woofer	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs low range sound</li></ul>
Steering switches	<ul><li>Each audio operation can be operated</li><li>Steering switch signal (operation signal) is output to AV control unit</li></ul>
Antenna amp.	<ul> <li>Radio signal received by window antenna is amplified and sent to AV control unit</li> <li>Power (antenna amp ON signal) is supplied from AV control unit</li> </ul>
Satellite antenna	Audio signal (satellite radio) is received and output to AV control unit.

#### < FUNCTION DIAGNOSIS >

## HANDS-FREE PHONE SYSTEM



#### А System Diagram INFOID:00000000995144 Sound signal Sound signal SPEAKER (TEL voice, Voice (TEL voice, Voice TEL voice signal BOSE guidance signal) guidance signal) SPEAKER AV CONTROL TEL started STEERING AMP. UNIT C SWITCH (Bluetooth® module) Mic. signal . MICROPHONE รีซก AWNIA00570

#### System Description

INFOID:000000000995145

Refer to the owner's manual for Bluetooth telephone system operating instructions. NOTE:

F Cellular telephones must have their wireless connection set up (paired) before using the Bluetooth telephone system.

Bluetooth telephone system allows users who have a Bluetooth cellular telephone to make a wireless connection between their cellular telephone and the AV control unit. Hands-free cellular telephone calls can be sent and received. Personal memos can be created using the Nissan Voice Recognition system. Some Bluetooth cellular telephones may not be recognized by the AV control unit. When a cellular telephone or the AV control unit is replaced, the telephone must be paired with the AV control unit. Different cellular telephones may have Н different pairing procedures. Refer to the cellular telephone operating manual.

#### AV CONTROL UNIT

When the ignition switch is turned to ACC or ON, the AV control unit will power up. During power up, the AV control unit is initialized and performs various self checks. Initialization may take up to 10 seconds. During this time the Bluetooth ON indicator will flash until initialization is complete. If a phone is present in the vehicle and paired with the AV control unit, Nissan Voice Recognition will then become active and the Bluetooth ON indicator will remain on. Bluetooth telephone functions can be turned off using the Nissan Voice Recognition system.

#### STEERING WHEEL AUDIO CONTROL SWITCHES

When buttons on the steering wheel audio control switch are pushed, the resistance in steering wheel audio Κ control switch circuit changes depending on which button is pushed. The AV control unit uses this signal to perform various functions while navigating through the voice recognition system.

The following functions can be performed using the steering wheel audio control switch:

- Initiate Self-Diagnosis of the Bluetooth telephone system
- Start a voice recognition session
- Answer and end telephone calls
- Adjust the volume of calls
- Record memos

#### MICROPHONE

The microphone is located in the roof console assembly. The microphone sends a signal to the AV control unit. AM The microphone can be actively tested during self-diagnosis.

#### BLUETOOTH ON INDICATOR

The Bluetooth ON indicator is located in the overhead console. The indicator will flash during power up while the AV control unit is initializing. This process may take up to 10 seconds. If a phone is present in the vehicle and paired with the AV control unit, the indicator will remain on to indicate that the system is ready for voice commands. The indicator flashes during self-diagnosis. Ρ

#### Component Parts Location

Refer to AV-141, "Component Parts Location".

**Component Description** 

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INFOID:000000000995146

## HANDS-FREE PHONE SYSTEM

#### < FUNCTION DIAGNOSIS >

Part name	Description
AV control unit	<ul><li>Controls hands-free phone functions</li><li>Displays hands-free phone information on display screen</li></ul>
BOSE speaker amp.	Inputs power (amp ON) and sound signal from AV control unit, and outputs sound signal to each speaker.
Front door speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Tweeter	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high range sound</li></ul>
Center speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Rear door speaker	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs high, mid and low range sounds</li></ul>
Woofer	<ul><li>Outputs audio signal from BOSE speaker amp.</li><li>Outputs low range sound</li></ul>
Steering switches	<ul> <li>Start a voice recognition session</li> <li>Answer and end telephone calls</li> <li>Adjust the volume level</li> </ul>
Microphone	Sends voice signals to AV control unit

#### < FUNCTION DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

## DIAGNOSIS SYSTEM (AV CONTROL UNIT)

#### Diagnosis Description

#### DESCRIPTION

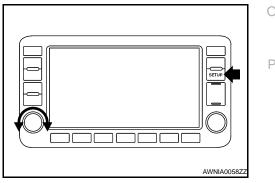
- Diagnosis function consists of the self-diagnosis mode performed automatically and the CONFIRMATION/ ADJUSTMENT mode operated manually.
- Self-diagnosis mode checks for connections between the units constituting this system, analyzes each individual unit at the same time, and displays the results on the LCD screen.
- CONFIRMATION/ADJUSTMENT mode is used to perform trouble diagnosis that requires operation and judgment by an operator (trouble that cannot be automatically judged by the system), to check/change the set value, and to display the History of Errors of the multi AV system.

#### DIAGNOSIS ITEM

	Mode		Description
	Self-diagnosis		<ul> <li>AV control unit diagnosis (DVD-ROM drive will not be diagnosed when no map DVD-ROM is in it.</li> <li>Analyzes connection between the AV control unit, CD changer, satel- lite radio antenna and GPS antenna.</li> </ul>
		Color spectrum bar	Color tone of the screen can be checked by the display of a color bar.
	Display diagnosis	Gradation bar	Shading of the screen can be checked by the display of a gray scale.
		Touch panel	<ul><li>Touch panel response can be checked.</li><li>Touch panel calibration can be performed.</li></ul>
			The following vehicle signals are analyzed: Vehicle speed signal, park- ing brake signal, light signal, ignition switch signal, and reverse signal.
			Connection can be checked by sending a test tone to each speaker.
			XM NavTraffic subscription status can be checked.
	Error history		Diagnosis results previously stored in the memory are displayed in this mode.
CONFIRMATION/	Verlicie CAN ulau	iosis	The transmitting/receiving of CAN communication can be monitored.
ADJUSTMENT	Handsfree phone	Handsfree volume adjustment	Volume of hands-free phone can be adjusted.
		Voice microphone test	Hands-free phone microphone can be tested.
		Delete handsfree memory	Hands-free phone memory can be deleted.
	Bluetooth	Confirm / Change Passkey	Bluetooth passkey can be changed.
	Divelootri	Confirm / Change Device Key	Bluetooth device name can be changed.
	XM SAT		Traffic channel information can be reviewed and changed.

#### **OPERATION PROCEDURE**

- 1. Start the engine.
- 2. Turn the audio system off.
- 3. While pressing the "SETUP" button, turn the volume control dial clockwise or counterclockwise for 30 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)



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#### < FUNCTION DIAGNOSIS >

 The initial trouble diagnosis screen will be displayed, and items "Self-Diagnosis" and "Confirmation/Adjustment" can be selected.

3		
9	1 System Diagnosis	S Back

Self Diagnosis	
Confirmation / Adjustment	
(i) Please select an item	
(1) Please select an item	

#### SELF-DIAGNOSIS

- 1. Perform self-diagnosis by selecting "Self-diagnosis".
  - Self-diagnosis subdivision screen is displayed, and the selfdiagnosis mode starts.
  - A bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis. **NOTE:**

Self-diagnosis requires approximately 10 seconds to complete.

i s	System Diagnosis	Back
Self [ Confi	Running self diagnosis Cancel	
(i) Plea	se select an item	
		ALNIA0087Z

2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

Diagnosis results	Unit	Connection line
Normal	Green	Green
<b>Connection malfunction</b>	Gray	Yellow
Unit malfunction Note	Red	Green

System Diagnosis>Connection Confi (SBack)
CD Changer
SAT Antenna Control unit
GPS Antenna
ALNIA0088ZZ

#### Note:

- Only the control unit (AV control unit) is displayed in red.
- If multiple malfunctions occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > yellow > gray.
- Select a switch on the "SELF DIAGNOSIS" screen and comments for the diagnosis results will be shown.

Self diagnosis did not detect any erro Please refer to the Confirmation/ Adjustment function or service manu more detailed diagnosis information.	al for
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#### Self-Diagnosis Results

#### < FUNCTION DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

Area with yellow connection lines	Description	Possible malfunction location / Action to take	
System Diagnosis>Connection Confi  Back CD Changer SAT Antenna Control unit GPS Antenna  Red ALNIA0090GB	AV control unit malfunction is detect- ed	Replace the AV control unit. Refer to AV-250, "Removal and Installation".	
Image: Sara Antenna       Sara Antenna         Image: GPS Antenna       Image: Sara Antenna         Image: Gray       Image: Sara Antenna	GPS antenna connection malfunction is detected	GPS antenna	
System Diagnosis > Connection Confi Seck CD Changer SAT Antenna GPS Antenna GPS Antenna Control unit GPS Antenna ALNIA0092GB	Poor connection is detected in satel- lite antenna	<ul> <li>Satellite antenna feeder</li> <li>Satellite antenna</li> </ul>	

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#### < FUNCTION DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

Area with yellow connection lines	Description	Possible malfunction location / Action to take
Image: System Diagnosis > Connection Confi       Sack)         Image: CD Changer       Image: SAT Antenna         Image: SAT Antenna       Image: Control unit         Image: GPS Antenna       Image: Gray         Image: Gray       Image: Gray         ALNIA0093GB	No diagnosis due to internal malfunc- tion of CD changer	Replace the CD changer. Refer to <u>AV-</u> 252, "Removal and Installation".
Image: System Diagnosis>Connection Confi         Image: CD Changer         Image: CD Cha	<ul> <li>CD changer power supply and ground circuits</li> <li>A malfunction is detected in communication circuit between AV control unit and CD changer (REQ1 signal or communication signal)</li> <li>A malfunction is detected in communication signal between AV control unit and CD changer (REQ1 signal or communication signal between AV control unit and CD changer (REQ1 signal or communication signal)</li> </ul>	<ul> <li>CD changer power supply and ground circuits</li> <li>Communication line between AV control unit and CD changer (REQ1 signal or communication signal)</li> </ul>

#### CONFIRMATION/ADJUSTMENT MODE

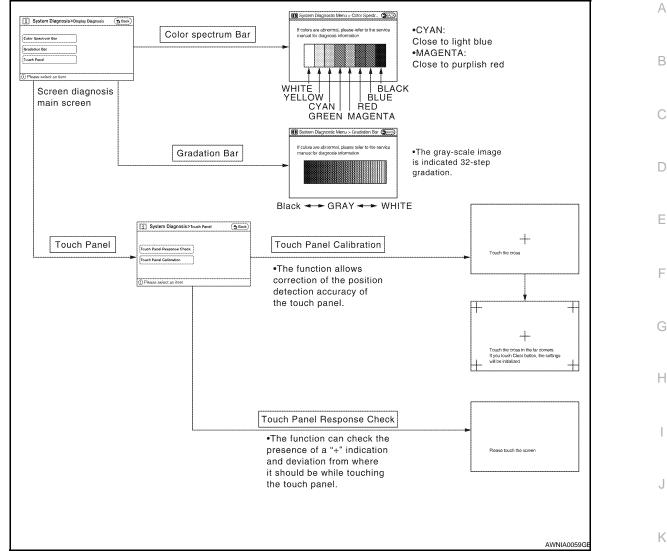
- 1. Start the diagnosis function and select "Confirmation/Adjustment". The confirmation/adjustment mode indicates where each item can be checked or adjusted.
- 2. Select each button on the "Confirmation/Adjustment Mode" screen to display the relevant trouble diagnosis screen. Press the "BACK" button to return to the initial Confirmation/Adjustment Mode screen.

Display Diagnosis	
Vehicle Signals	
Speaker Test	
Navigation	
Error History	

#### < FUNCTION DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

#### **Display Diagnosis**



Vehicle Signals

A comparison check can be made of each actual vehicle signal and the signals recognized by the system.

Vehicle speed	OFF	
Parking brake	OFF	
Lights	OFF	
Ignition	ON	
Reverse	OFF	

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Diagnosis item	Dis- play	Vehicle status	Remarks	Ρ
	ON	Vehicle speed > 0 km/h		
Vehicle speed	OFF	Vehicle speed = 0 km/h		
	_	Ignition switch in ACC position	Changes in indication may be delayed by approxi- mately 1.5 seconds. This is normal.	
Parking brake	ON	Parking brake is applied.		
I arking blace	OFF	Parking brake is released.		

#### < FUNCTION DIAGNOSIS >

Diagnosis item	Dis- play	Vehicle status	Remarks	
Lights	ON	Light switch ON	Block the light beam from the auto light optical sensor.	
Lights	OFF	Light switch OFF		
Ignition	ON	Ignition switch ON		
Ignition	OFF	Ignition switch in ACC position		
	ON	Selector lever in R position		
Reverse	OFF	Selector lever in any position other than R	Changes in indication may be delayed by approxi- mately 1.5 seconds. This is normal.	
	_	Ignition switch in ACC position		

#### Speaker Test

Select "SPEAKER TEST" to display the speaker diagnosis screen. Press "START" to generate a test tone in speakers. Press "End" to stop the test tones.

#### NOTE:

The speakers are tested in the following order:

Front left tweeter > front center > front right tweeter > front right > rear right > woofer > rear left > front left

<b>1</b> System Diagnosis>Speaker Test	Back
Speaker Testing Front Left Tweeter	Start
(i) Push start to test next speaker	End
	ALNIA0097ZZ

#### Navigation

The XM NavTraffic subscription status can be checked.

<b>I</b> System Diagnosis>Navigation	Back
XM S XM SAT subscribed	
(i) Please select an item	
	ALNIA0098ZZ

#### Error History

The error record displays the time and place of the most recent occurrence of that error. However, take note of the following points.

- If there is a malfunction with the GPS antenna circuit board in the AV control unit, the correct date and time of occurrence may not be able to be displayed.
- Place of the error occurrence is represented by the position of the current location mark at the time an error occurred. If current location mark has deviated from the correct position, then the place of the error occurrence cannot be located correctly.

Vehicle CAN Diagnosis

#### DIAGNOSIS SYSTEM (AV CONTROL UNIT) IS S [BOSE AUDIO WITH NAVIGATION]

#### < FUNCTION DIAGNOSIS >

- CAN communication status and error counter is displayed.
- The error counter displays "OK" if any malfunction was not detected in the past and displays "0" if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if reset.

Items	Display (Current)	Malfunction counter (Past)
Rx (ECM)	OK / UNKWN	OK / 0 - 39
Rx (Cluster)	OK / UNKWN	OK / 0 - 39
Rx (HEV)	Not used	_

#### Handsfree Phone

The hands-free phone reception volume adjustment, microphone test and memory erase functions are available.

# System Diagnosis > Vehicle CAN Dia... Back Checking Signal Signal Status Rx(ECM) OK Rx(Cluster) OK Rx(HEV) \*\*\* Reset

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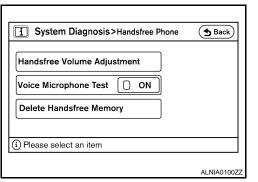
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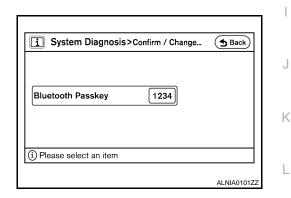
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Bluetooth

Passkey confirmation/change

- The passkey of Bluetooth can be confirmed and changed.
- The passkey can be changed by four digits within 0 to 9.



Device name confirmation/change

- The device name of Bluetooth can be confirmed and changed.
- The device name can be changed by sixteen digits within A to Z (small character can be used) and (hyphen).

System Diagnosis>Co	nfirm / Change (	<u>Back</u>
Device Name	MY-CAR	
1) Please select an item		

XM SAT

#### < FUNCTION DIAGNOSIS >

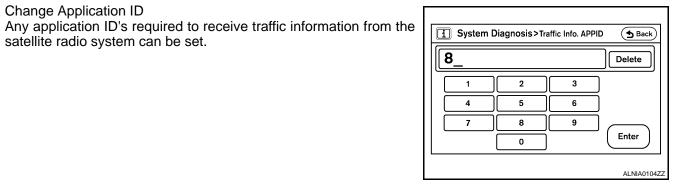
#### Change Channel

Change Application ID

satellite radio system can be set.

- Any necessary channels required to receive traffic information from the satellite radio system can be set.

#### System Diagnosis>Traffic Info. CH Back 255 Delete 2 3 1 5 6 4 8 9 7 Enter 0 ALNIA0103ZZ



Change EXT ID

- Any EXT ID's required to receive traffic information from the satellite radio system can be set.

1 System	Diagnosis>Traffi	fic Info. EXTID Sack
5_		Delete
	$\begin{array}{c} 2 \\ 5 \end{array}$	3
7		9 Enter
	0	
		ALNIA0105Z

INFOID:000000000995149

#### **CONSULT - III Function**

CONSULT-III can display each diagnostic item using the diagnostic test modes shown following.

MULTI AV diagnosis mode	Description
SELF-DIAG RESULTS	Displays AV control unit self-diagnosis results.
DATA MONITOR	Displays AV control unit input/output data in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
AV COMM MONITOR	Allows the technician to monitor the status of the Multi AV system communication signals.
ECU PART NUMBER	The part number of AV control unit can be checked.

#### SELF-DIAG RESULTS

**Display Item List** Refer to AV-231, "DTC Index".

#### DATA MONITOR

**Display Item List** 

#### DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [BOSE AUDIO WITH NAVIGATION]

#### < FUNCTION DIAGNOSIS >

Display item [unit]	ALL SIGNALS	SELECTION FROM MENU	Description	А
VHCL SPD SIG [ON/OFF]	х	х	Displays "ON" when vehicle speed > 0 km/h. Displays "OFF" when vehicle speed = 0 km/h.	В
PKB SIG [ON/OFF]	Х	Х	Displays [ON/OFF] condition of parking brake switch.	
ILLUM SIG [ON/OFF]	Х	Х	Displays [ON/OFF] condition of lighting switch.	
IGN SIG [ON/OFF]	Х	Х	Displays [ON/OFF] condition of ignition switch.	С
REV SIG [ON/OFF]	Х	Х	Displays [ON/OFF] condition of back-up lamp switch.	

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## COMPONENT DIAGNOSIS U1000 CAN COMM CIRCUIT

Description

Refer to LAN-7, "System Description".

DTC Logic

DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition
U1000	CAN COMM CIRCUIT [U1000]	When AV control unit is not transmitting or receiving CAN communication signals for 2 sec- onds or more.

#### **Diagnosis** Procedure

INFOID:000000000995152

Symptom: Displays "CAN COMM CIRCUIT [U1000]" as a self-diagnosis result of AV control unit.

**1.**CHECK CAN COMMUNICATION

Select "SELF-DIAG RESULTS" mode for "MULTI AV" with CONSULT-III.

>> Go to "LAN system". Refer to LAN-10, "Condition of Error Detection".

INFOID:000000000995150

## [BOSE AUDIO WITH NAVIGATION] < COMPONENT DIAGNOSIS > U1010 CONTROL UNIT (CAN) А Description INFOID:000000000995153 Refer to LAN-7, "System Description". В **DTC** Logic INFOID:000000000995154 С DTC DETECTION LOGIC DTC CONSULT-III display **Detection condition** D CONTROL UNIT (CAN) U1010 When a malfunction is detected during initial diagnosis for CAN controller of each control unit. [U1010] **Diagnosis Procedure** Е INFOID:000000000995155 Symptom: Displays "CONTROL UNIT (CAN) [U1010]" as a self-diagnosis result of AV control unit. **1.**CHECK CAN COMMUNICATION F Select "SELF-DIAG RESULTS" mode for "MULTI AV" with CONSULT-III. >> Go to "LAN system". Refer to LAN-10, "Condition of Error Detection". Н Κ L Μ AM

**U1010 CONTROL UNIT (CAN)** 

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## U1200 AV CONTROL UNIT

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995157

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition	Action to take
U1200	Cont Unit FLASH-ROM [U1200]	An internal malfunction is detected in AV control unit (FLASH-ROM).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal-</u> lation".

## U1201 AV CONTROL UNIT

#### Description

Refer to AV-140. "System Description".

## DTC Logic

#### INFOID:00000000995159

INFOID:000000000995158

#### DTC DETECTION LOGIC

_	DTC	CONSULT-III display	Detection condition	Action to take	
_	U1201	GYRO NO CONN [U1201]	An internal malfunction is detected in AV control unit (gy- rocompass disconnection).	Replace AV control unit. Refer to <u>AV-250</u> , "Removal and Instal- lation".	D
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#### [BOSE AUDIO WITH NAVIGATION]

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## U1204 GPS COMM

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995161

INFOID:000000000995160

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition	Action to take
U1204	GPS COMM [U1204]	An internal malfunction is detected in AV control unit (GPS malfunction).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal- lation"</u> .

## U1205 GPS ROM

## Description

Refer to AV-140, "System Description".

## DTC Logic

INFOID:000000000995163

INFOID:000000000995162

#### DTC DETECTION LOGIC

	DTC	CONSULT-III display	Detection condition	Action to take	_
-	U1205	GPS ROM [U1205]	An internal malfunction is detected in AV control unit (GPS malfunction).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal-</u> lation".	D
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#### [BOSE AUDIO WITH NAVIGATION]

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## U1206 GPS RAM

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995165

INFOID:000000000995164

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition	Action to take
U1206	GPS RAM [U1206]	An internal malfunction is detected in AV control unit (GPS malfunction).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal- lation"</u> .

## U1207 GPS RTC

## Description

Refer to AV-140, "System Description".

## DTC Logic

INFOID:000000000995167

#### DTC DETECTION LOGIC

	DTC	CONSULT-III display	Detection condition	Action to take	_
	U1207	GPS RTC [U1207]	An internal malfunction is detected in AV control unit (GPS malfunction).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal- lation"</u> .	D
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## U1208 DVD-ROM COMM

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995169

INFOID:000000000995170

INFOID:000000000995168

[BOSE AUDIO WITH NAVIGATION]

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition
U1208	DVD-ROM COMM [U1208]	An internal malfunction is detected in AV control unit (DVD-ROM).

#### **Diagnosis Procedure**

## 1.CHECK DVD-ROM

Check DVD-ROM for dirt, scratches and warpage.

OK or NG

OK >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

NG >> Replace DVD-ROM map.

#### \_\_\_\_\_

	AD	
Description		INFOID:000000000995171
Refer to <u>AV-140, "System Description"</u> . DTC Logic		
DTC DETECTION LOGIC		
DTC CONSULT-III display	Detection condition	
U1209 DVD-ROM READ [U1209]	An internal malfunction is detected in AV control unit (DVD-ROM).	
Diagnosis Procedure		INFOID:000000000995173
CHECK DVD-ROM		
Check DVD-ROM for dirt, scratch <u>DK or NG</u>	hes and warpage.	
	unit. Refer to <u>AV-250, "Removal and Installation"</u> . map.	

## **U120A DVD-ROM DISC**

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995175

INFOID:000000000995176

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition
U120A	DVD-ROM DISC [U120A]	An internal malfunction is detected in AV control unit (DVD-ROM).

#### **Diagnosis Procedure**

## 1.CHECK DVD-ROM

Check DVD-ROM for dirt, scratches and warpage.

OK or NG

OK >> Replace AV control unit. Refer to AV-250, "Removal and Installation".

NG >> Replace DVD-ROM map.

## AV-172

[BOSE AUDIO WITH NAVIGATION]

#### **U120C DVD-ROM MECHA DETECT**

#### < COMPONENT DIAGNOSIS >

## U120C DVD-ROM MECHA DETECT

#### А Description INFOID:000000000995177 Refer to AV-140, "System Description". В **DTC** Logic INFOID:000000000995178 С DTC DETECTION LOGIC DTC CONSULT-III display **Detection condition** D DVD-ROM MECHA DE-U120C An internal malfunction is detected in AV control unit (DVD-ROM). TECT [U120C] Ε **Diagnosis Procedure** INFOID:000000000995179 1.CHECK DVD-ROM F Check DVD-ROM for dirt, scratches and warpage. OK or NG OK >> Replace AV control unit. Refer to AV-250, "Removal and Installation". NG >> Replace DVD-ROM map.

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## U120D DVD-ROM DRIVE MECHA

#### Description

Refer to AV-140, "System Description".

DTC Logic

DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition
U120D	DVD-ROM MECHA [U120D]	An internal malfunction is detected in AV control unit (DVD-ROM).

#### **Diagnosis Procedure**

1.CHECK DVD-ROM

Check DVD-ROM for dirt, scratches and warpage.

<u>OK or NG</u>

OK >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

NG >> Replace DVD-ROM map.

INFOID:000000000995180

INFOID:000000000995181

#### U1210 DVD-ROM SEEK

< COMPO	COMPONENT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATIO		TH NAVIGATION]
U1210 I	DVD-ROM SEE	ΕK	
Descripti	ion		INFOID:000000000995183
Refer to A	/-140, "System Descr	iption".	
DTC Log	jic		INFOID:000000000995184
DTC DET	ECTION LOGIC		
DTC	CONSULT-III display	Detection condition	
U1210	DVD-ROM SEEK [U1210]	An internal malfunction is detected in AV control unit (DVD-ROM).	
Diagnosi	is Procedure		INFOID:000000000995185
<b>1.</b> снеск	DVD-ROM		
	D-ROM for dirt, scratc	hes and warpage.	
<u> OK or NG</u>	.,		
OK >>	Replace AV control	unit. Refer to AV-250, "Removal and Installation".	
NG >>	> Replace DVD-ROM	map.	
	-1	- F	

## U1212 DVD-ROM DATA FORWARD

#### Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995187

INFOID:000000000995186

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition
U1212	DVD-ROM DATA FOR- WARD [U1212]	An internal malfunction is detected in AV control unit (DVD-ROM).

#### **Diagnosis Procedure**

INFOID:000000000995188

1.CHECK DVD-ROM

Check DVD-ROM for dirt, scratches and warpage.

OK or NG

OK >> Replace AV control unit. Refer to AV-250, "Removal and Installation".

NG >> Replace DVD-ROM map.

#### U1213 DVD-ROM DATA

< COMPONENT DIAGNOSIS >

J1213 DVD-ROM DATA Description		INFOID:000000000995189
Refer to <u>AV-140, "System Descrip</u>	tion".	
DTC Logic		INFOID:00000000095190
TC DETECTION LOGIC		
DTC CONSULT-III display	Detection condition	
U1213 DVD-ROM DATA [U1213]	An internal malfunction is detected in AV control unit (DVD-ROM).	
Diagnosis Procedure		INFOID:000000000995191
CHECK DVD-ROM		
Check DVD-ROM for dirt, scratch	es and warpage.	
<u>DK or NG</u> OK >> Replace AV control u NG >> Replace DVD-ROM n	nit. Refer to <u>AV-250, "Removal and Installation"</u> . nap.	

## U1214 DVD-ROM TIMEOUT

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995193

INFOID:000000000995194

INFOID:000000000995192

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition
U1214	DVD-ROM TIMEOUT [U1214]	An internal malfunction is detected in AV control unit (DVD-ROM).

#### **Diagnosis Procedure**

#### 1.CHECK DVD-ROM

Check DVD-ROM for dirt, scratches and warpage.

OK or NG

OK >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

NG >> Replace DVD-ROM map.

#### U1215 DVD-ROM LOAD

< COMPONENT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION]			TH NAVIGATION]
U1215 [	OVD-ROM LOA	D	
Descripti	on		INFOID:000000000995195
Refer to AV	-140, "System Descri	otion".	
DTC Log	ic		INFOID:000000000995196
DTC DETE	ECTION LOGIC		
DTC	CONSULT-III display	Detection condition	
U1215	DVD-ROM LOAD [U1215]	An internal malfunction is detected in AV control unit (DVD-ROM).	
Diagnosi	s Procedure		INFOID:000000000995197
1.снеск	DVD-ROM		
Check DVD	-ROM for dirt, scratch	nes and warpage.	
OK or NG			
OK >> NG >>	<ul> <li>Replace AV control t</li> <li>Replace DVD-ROM</li> </ul>	init. Refer to <u>AV-250, "Removal and Installation"</u> . map.	
110 22		nop.	

## U1216 AV CONTROL UNIT

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995199

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition	Action to take
U1216	CAN CONT [U1216]	An internal malfunction is detected in AV control unit (CAN controller).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal- lation"</u> .

## **U1217 AV CONTROL UNIT**

#### < COMPONENT DIAGNOSIS >

## U1217 AV CONTROL UNIT

## Description

Refer to AV-140. "System Description".

## DTC Logic

INFOID:000000000995201

## DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition	Action to take	_
U1217	BLUETOOTH CONN [U1217]	An internal malfunction is detected in AV control unit (Blue- tooth module connection malfunction).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal- lation"</u> .	D
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#### [BOSE AUDIO WITH NAVIGATION]

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INFOID:000000000995200

## U1220 AV CONTROL UNIT

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995203

INFOID:000000000995202

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition	Action to take
U1220	XM SERIAL COMM [U1220]	An internal malfunction is detected in AV control unit (sat- ellite radio tuner communication malfunction).	Replace AV control unit. Refer to <u>AV-250, "Removal and Instal- lation"</u> .

< COMPONENT DIAGNOSIS >

U1244 G	PS ANTENNA			٨
Descriptio	on		INFOID:000000000995204	A
Refer to <u>AV-</u>	140, "System Descrip	<u>vtion"</u> .		В
DTC Logi	С		INFOID:00000000995205	
DTC DETE	CTION LOGIC			С
DTC	CONSULT-III display	Detection condition		
U1244	GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.		D
Diagnosis	s Procedure		INFOID:000000000995206	Е
1.gps an	TENNA CHECK			
•	S antenna and antenn	a feeder for damage or poor connection.		F
<u>OK or NG</u> OK >>	GO TO 2			
NG >>	Repair or replace ma			G
	AV CONTROL UNIT \	/OLTAGE		
	nition switch ON. voltage between AV co	ontrol unit connector M90 terminal 73 and ground.		Н
73 -	Ground	: Approx. 5V		1
OK or NG				1
		a. Refer to <u>AV-261, "Removal and Installation"</u> . nit. Refer to <u>AV-250, "Removal and Installation"</u> .		J
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## U124C CD CHANGER

## Description

Refer to AV-140, "System Description".

DTC Logic

INFOID:000000000995208

INFOID:00000000995207

#### DTC DETECTION LOGIC

DTC	CONSULT-III display	Detection condition
U124C	N-BUS CD CHG CONN [U124C]	<ul> <li>A malfunction is detected in CD changer power supply and ground circuits</li> <li>Malfunction occurs in request signal circuit. (Between CD changer and AV control unit)</li> <li>Malfunction occurs in communication signal circuit. (Between CD changer and AV control unit)</li> </ul>

## **Diagnosis Procedure**

INFOID:000000000995209

#### 1. CHECK CD CHANGER POWER SUPPLY AND GROUND CIRCUIT

Check CD changer power supply and ground circuit. Refer to <u>AV-189, "CD CHANGER : Diagnosis Proce-</u><u>dure"</u>.

OK or NG

OK >> GO TO 2..

NG >> Repair power supply or ground circuit.

2. CHECK COMMUNICATION CIRCUIT CONTINUITY

- 1. Turn ignition switch OFF.
- 2. Disconnect CD changer connector M42 and AV control unit connector M48.
- 3. Check continuity between CD changer harness connector M42 terminals 8, 9 and 10 and AV control unit harness connector M48 terminals 69, 70 and 72.

8 - 72	: Continuity should exist.
9 - 69	: Continuity should exist.
10 - 70	: Continuity should exist.

4. Check continuity between CD changer harness connector M42 terminals 8, 9, 10 and ground.

8, 9, 10 - Ground : Continuity should not exist.

OK or NG

OK >> GO TO 3..

NG >> Repair harness or connector.

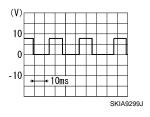
3.CHECK REQUEST SIGNAL

1. Connect CD changer connector and AV control unit connector.

2. Turn ignition switch ON.

3. Check signal between CD changer harness connector M42 terminal 8 and ground.

8 - Ground



<u>OK or NG</u> OK >> GO TO 4..

## AV-184

## U124C CD CHANGER

< COMPONENT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]
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NG >> Replace CD changer. Refer to <u>AV-252, "Removal and Installation"</u> .	
.CHECK COMMUNICATION SIGNAL	
heck signal between CD changer harness connector M42 terminal 9 and ground.	
9 - Ground	
(V)	
-10 + 1ms	
SKIA9300J	
<ul> <li>OK &gt;&gt; GO TO 5</li> <li>NG &gt;&gt; Replace CD changer. Refer to <u>AV-252, "Removal and Installation"</u>.</li> </ul>	
CHECK COMMUNICATION SIGNAL	
Check signal between CD changer harness connector M42 terminal 10 and ground.	
10 - Ground	
(V)	
$-10 \rightarrow +1 \text{ms}$	
SKIA9300J	
<u>DK or NG</u> OK >> Inspection End.	
NG >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u> .	
	1

#### < COMPONENT DIAGNOSIS >

## POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

### AV CONTROL UNIT : Diagnosis Procedure

INFOID:000000000995210

[BOSE AUDIO WITH NAVIGATION]

## 1.CHECK FUSE

Check that the following fuses of the AV control unit are not blown.

Unit	Terminals	Signal name	Fuse No.
	20	Battery power	24
AV control unit	7	Ignition switch ACC or ON	19
	10	Ignition switch ON or START	3

#### <u>OK or NG</u>

OK >> GO TO 2..

NG >> Be sure to eliminate cause of malfunction before installing new fuse.

### 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply		20	OFF	
ACC power supply	M47	7	ACC	Battery voltage
Ignition signal		10	ON	

#### OK or NG

OK >> GO TO 3..

NG >> Check harness between AV control unit and fuse.

3. CHECK GROUND CIRCUIT

#### 1. Turn ignition switch OFF.

- 2. Disconnect AV control unit connectors.
- 3. Check continuity between AV control unit harness connector M47 terminal 19 and ground.

Signal name	Continuity
Ground	Continuity should exist.

#### <u>OK or NG</u>

OK >> Inspection End.

NG >> Repair harness or connector.

REAR VIEW CAMERA CONTROL UNIT

### **REAR VIEW CAMERA CONTROL UNIT : Diagnosis Procedure**

INFOID:000000000995211

## 1.CHECK FUSE

Check that the following fuses of the rear view camera control unit are not blown.

Unit	Terminals	Signal name	Fuse No.
Rear view camera control unit	1	Battery power	24
Real New Camera Control unit	2	Ignition switch ACC or ON	19

#### <u>OK or NG</u>

OK >> GO TO 2..

NG >> Be sure to eliminate cause of malfunction before installing new fuse.

2. CHECK POWER SUPPLY CIRCUIT

#### < COMPONENT DIAGNOSIS >

### [BOSE AUDIO WITH NAVIGATION]

control unit an r. I unit harness		Battery voltage
control unit an	and fuse.	
r.		terminal 3 and groun
r.		terminal 3 and groun
r.		terminal 3 and groun
	s connector B131	terminal 3 and groun
	s connector B131	terminal 3 and groun
	s connector B131	terminal 3 and groun
		torrinnar o arra groan
ure		INFOID:000000000
AMERA SIDI	)E)	
AMERA SIDI		
nector and gro	ound.	
nector and gro		n Value (Approx.) 6V

1. Turn ignition switch OFF.

- 2. Disconnect rear view camera and rear view camera control unit connectors.
- 3. Check continuity between rear view camera harness connector B35 terminal 1 and rear view camera control unit harness connector B31 terminal 8.

Signal name	Continuity
Camera ON signal	Continuity should exist.

4. Check continuity between rear view camera harness connector B35 terminal 1 and ground.

Signal name	Continuity
Camera ON signal	Continuity should not exist.

OK or NG

OK >> GO TO 3..

NG >> Repair harness or connector.

3. CHECK POWER SUPPLY CIRCUIT (CAMERA CONTROL UNIT SIDE)

1. Connect rear view camera control unit harness connector.

2. Turn ignition switch ON.

Check voltage between rear view camera control unit harness connector and ground. 3.

## AV-187

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#### < COMPONENT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Signal name	Connector No.	Terminal No.	Transmission position	Value (Approx.)
Camera ON signal	B31	8	Reverse	6V

#### OK or NG

OK >> Inspection End..

NG >> Replace rear view camera control unit.. Refer to <u>AV-268, "Removal and Installation"</u>.

#### **4.**CHECK GROUND CIRCUIT

#### 1. Turn ignition switch OFF.

- 2. Disconnect rear view camera harness connector.
- 3. Check continuity between rear view camera harness connector B35 terminal 2 and ground.

Signal name	Continuity
Ground	Continuity should exist.

#### OK or NG

OK >> Inspection End.

NG >> Repair harness or connector. BOSE SPEAKER AMP

### BOSE SPEAKER AMP : Diagnosis Procedure

1.CHECK FUSE

Check that the following fuses of the BOSE speaker amp. are not blown.

Unit	Terminals	Signal name	Fuse No.
BOSE speaker amp.	50	Battery power	25
BOSE speaker amp.	51	Ballery power	26

#### OK or NG

OK >> GO TO 2..

NG >> Be sure to eliminate cause of malfunction before installing new fuse.

#### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE speaker amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B122	50	OFF	Battery voltage
ballery power supply	DIZZ	51	OIT	Dallery Vollage

#### OK or NG

OK >> GO TO 3..

NG >> Check harness between BOSE speaker amp. and fuse.

## 3.CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BOSE speaker amp. connector.

3. Check continuity between BOSE speaker amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	Ground B122	47	OFF	Continuity should exist.
Ground	DIZZ	52	OIT	Continuity should exist.

<u>OK or NG</u>

OK >> Inspection End.

NG >> Repair harness or connector.

#### CD CHANGER

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#### < COMPONENT DIAGNOSIS >

## CD CHANGER : Diagnosis Procedure

INFOID:000000000995214

[BOSE AUDIO WITH NAVIGATION]

#### 1.CHECK FUSE

Check that the following fuses of the CD changer are not blown.

Unit	Terminals	Signal name	Fuse No.	
	12	Battery power	24	С
CD changer	16	Ignition switch ACC or ON	19	

#### <u>OK or NG</u>

OK >> GO TO 2..

NG >> Be sure to eliminate cause of malfunction before installing new fuse.

### 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between CD changer harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)	F
Battery power supply	M42	12	OFF	Potton voltago	
ACC power supply	10142	16	ACC	Battery voltage	
			4		~

#### <u>OK or NG</u>

OK >> Inspection End..

NG >> Check harness between CD changer and fuse.

#### MICROPHONE

#### MICROPHONE : Diagnosis Procedure

#### **1.**CHECK POWER SUPPLY CIRCUIT (MICROPHONE SIDE)

Check voltage between microphone harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Microphone VCC signal	R7	4	ACC	5V

#### OK or NG

OK >> GO TO 4..

NG >> GO TO 2..

**2.**CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

1. Turn ignition switch OFF.

2. Disconnect microphone and AV control unit harness connectors.

 Check continuity between microphone harness connector R7 terminal 4 and AV control unit harness connector M46 terminal 46.

Signal name	Continuity
Microphone VCC signal	Continuity should exist.

4. Check continuity between microphone harness connector R7 terminal 4 and ground.

Signal name	Continuity
Microphone VCC signal	Continuity should not exist.

OK or NG

OK >> GO TO 3..

NG >> Repair harness or connector.

 ${f 3.}$  CHECK POWER SUPPLY CIRCUIT (AV CONTROL UNIT SIDE)

1. Connect AV control unit harness connector.

## AV-189

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#### POWER SUPPLY AND GROUND CIRCUIT OSIS > [BOSE AUDIO WITH NAVIGATION]

#### < COMPONENT DIAGNOSIS >

#### 2. Turn ignition switch to ACC.

3. Check voltage between AV control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Microphone VCC signal	M46	46	ACC	5V

#### OK or NG

OK >> Inspection End..

NG >> Replace AV control unit.. Refer to AV-250, "Removal and Installation".

4. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

- 2. Disconnect microphone harness connector R7 and AV control unit harness connector M46.
- 3. Check continuity between microphone harness connector R7 terminal 2 and AV control unit harness connector M46 terminal 47.

Signal name	Continuity
Ground	Continuity should exist.

<u>OK or NG</u>

OK >> Inspection End.

NG >> Repair harness or connector.

## FRONT DOOR SPEAKER

## Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the front door speakers using the audio signal circuits.

#### **Diagnosis Procedure**

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INFOID:00000000995216

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## **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B121 and suspect speaker connector.
- Check continuity between BOSE speaker amp. harness connector B121 and suspect speaker harness connector.

BOSE spe	BOSE speaker amp. Speaker			
Connector	Terminal	Connector Terminal		
	58	D3	1	
B121	59		2	Yes
DIZI	71		1	165
	72	D103	2	

3. Check continuity between BOSE speaker amp. harness connector B121 and ground.

	Terminals		
BOSE speaker amp.			Continuity
Connector	Terminal		
	58		No
<b>P101</b>	59	Cround	
B121	71	Ground	
-	72		

#### <u>OK or NG</u>

OK >> GO TO 2.. NG >> • Check co

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

## 2.FRONT DOOR SPEAKER SIGNAL CHECK

1. Connect BOSE speaker amp. connector B121 and suspect speaker connector.

- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between BOSE speaker amp. harness connector B121 terminals with CONSULT-III or AM oscilloscope.

	Terminals					
(	+)	(-)		Condition	Reference signal	
Connector	Terminal	Connector	Terminal			
	58		59			
B121	71	B121	72	Receive audio sig- nal	(V) 1 0 -1 SKIA0177E	

## FRONT DOOR SPEAKER

< COMPONENT DIAGNOSIS >

#### <u>OK or NG</u>

OK >> Replace suspect speaker. Refer to <u>AV-255, "Removal and Installation"</u>.

NG >> GO TO 3..

## **3.**HARNESS CHECK

- 1. Disconnect AV control unit connector M47 and BOSE speaker amp. connector B121.
- 2. Check continuity between AV control unit harness connector and BOSE speaker amp. harness connector.

AV cor	Continuity			
Connector	Terminal	Connector		
	2	B121 -	75	
M47	3		76	Yes
10147	11	DIZI	73	165
	12		74	

3. Check continuity between AV control unit harness connector M47 and ground.

	Terminals				
A	Continuity				
Connector	Terminal				
	2	2			
M47	3	Ground	No		
10147	11	Ground			
	12				

#### OK or NG

NG

OK >> GO TO 4..

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

#### **4.**FRONT DOOR SPEAKER SIGNAL CHECK

- 1. Connect AV control unit connector and BOSE speaker amp. connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between AV control unit harness connector terminals with CONSULT-III or oscilloscope.

	Terminals					
(	+)	(-)		Condition	Reference signal	
Connector	Terminal	Connector	Terminal		-9	
	2		3			
M47	11	M47	12	Receive audio sig- nal	(V) 1 0 -1 1 1 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1	

#### OK or NG

OK >> Replace BOSE speaker amp. Refer to <u>AV-251, "Removal and Installation"</u>.

NG >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

#### AV-192

## < COMPONENT DIAGNOSIS >

## TWEETER

#### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the tweeters using the audio signal circuits.

## Diagnosis Procedure

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INFOID:000000000995218

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## **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B122 and suspect tweeter connector.
- Check continuity between BOSE speaker amp. harness connector B122 and suspect tweeter harness connector.

BOSE spe	eaker amp.	Twe	Continuity		
Connector	Terminal	Connector	Terminal		
	41	M51	1		
B122	42		2	Yes	
DIZZ	44		1	165	
	43	M52	2	1	

3. Check continuity between BOSE speaker amp. harness connector B122 and ground.

Terminals			
BOSE	BOSE speaker amp.		Continuity
Connector	Terminal		
	41		No
B122	42	Ground	
DIZZ	44	Ground	
	43		

#### <u>OK or NG</u>

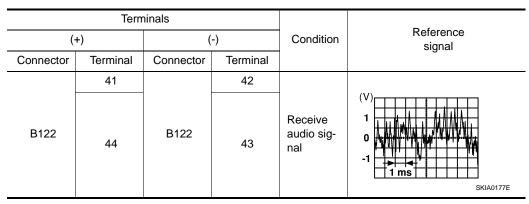
OK >> GO TO 2.. NG >> • Check co

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

## 2.TWEETER SIGNAL CHECK

1. Connect BOSE speaker amp. connector B122 and suspect tweeter connector.

- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between BOSE speaker amp. harness connector B122 terminals with CONSULT-III or AM oscilloscope.



#### [BOSE AUDIO WITH NAVIGATION]

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#### OK or NG

OK >> Replace suspect tweeter. Refer to AV-253, "Removal and Installation".

NG >> GO TO 3..

**3.**HARNESS CHECK

- 1. Disconnect AV control unit connector M47 and BOSE speaker amp. connector B121.
- 2. Check continuity between AV control unit harness connector M47 and BOSE speaker amp. harness connector B121.

AV cor	AV control unit BOSE speaker amp.				
Connector	Terminal	Connector			
	2	B121	75		
M47	3		76	Yes	
10147	11		73	165	
	12		74		

3. Check continuity between AV control unit harness connector B121 and ground.

	Terminals				
A	Continuity				
Connector	Terminal				
	2		No		
M47	3	Ground			
10147	11	Ground	NO		
	12				

#### <u>OK or NG</u>

OK >> GO TO 4.. NG >> • Check co

>> • Check connector housings for disconnected or loose terminals.• Repair harness or connector.

## 4.TWEETER SIGNAL CHECK

- 1. Connect AV control unit connector and BOSE speaker amp. connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between AV control unit harness connector terminals with CONSULT-III or oscilloscope.

	Terminals					
(·	(+)		(-)		Reference signal	
Connector	Terminal	Connector	Terminal			
	2		3			
M47	11	M47	12	Receive audio sig- nal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5	

#### OK or NG

OK >> Replace BOSE speaker amp. Refer to <u>AV-251, "Removal and Installation"</u>.

NG >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

#### < COMPONENT DIAGNOSIS >

## CENTER SPEAKER

### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio gignals before sending them to the center speaker using the audio signal circuits.

#### Diagnosis Procedure

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#### **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B121 and center speaker connector M151.
- Check continuity between BOSE speaker amp. harness connector B121 and center speaker harness connector M151.

BOSE spe	Continuity			
Connector	Terminal	Connector	Terminal	
B121	69	M151	1	Yes
DIZI	70	- INITOT	2	165

3. Check continuity between BOSE speaker amp. harness connector B121 and ground.

BOSE	speaker amp.		Continuity
Connector	Terminal		
B121	69	Ground	No
DIZI	70	Ground	INO

#### <u>OK or NG</u>

OK >> GO TO 2.. NG >> • Check co

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

## **2.**CENTER SPEAKER SIGNAL CHECK

- 1. Connect BOSE speaker amp. connector B121 and center speaker connector M151.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between BOSE speaker amp. harness connector B121 terminals with CONSULT-III or oscilloscope.

	Terminals			Deferrere	
(	+)	(-)		Condition	Reference signal
Connector	Terminal	Connector	Terminal		
B121	69	B121	70	Receive audio sig- nal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5

#### OK or NG

OK >> Replace center speaker. Refer to <u>AV-254</u>, "Removal and Installation".

NG >> GO TO 3..

#### **3.**HARNESS CHECK

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## **CENTER SPEAKER**

#### < COMPONENT DIAGNOSIS >

- 1. Disconnect AV control unit connector M47 and BOSE speaker amp. connector B121.
- Check continuity between AV control unit harness connector M47 and BOSE speaker amp. harness connector B121.

AV cor	Continuity			
Connector	Terminal	Connector		
	2	B121	75	
M47	3		76	Yes
10147	11		73	165
	12		74	

3. Check continuity between AV control unit harness connector B121 and ground.

	Terminals					
A	AV control unit					
Connector	Terminal					
	2	Ground	No			
M47	3					
10147	11	Ground				
	12					

#### <u>OK or NG</u>

OK >> GO TO 4.. NG >> • Check co

>> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

## **4.**CENTER SPEAKER SIGNAL CHECK

1. Connect AV control unit connector and BOSE speaker amp. connector.

- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between AV control unit harness connector terminals with CONSULT-III or oscilloscope.

	Terminals			Condition		
(+) (-)		-)	Reference signal			
Connector	Terminal	Connector	Terminal			
	2		3			
M47	11	M47	12	Receive audio sig- nal	(V) 1 0 -1 1 ms 5 5 5 5 5 5 5 5 5 5 5 5 5	

#### OK or NG

- OK >> Replace BOSE speaker amp. Refer to <u>AV-251, "Removal and Installation"</u>.
- NG >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

## REAR DOOR SPEAKER

#### Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the rear door speakers using the audio signal circuits.

## **Diagnosis Procedure**

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INFOID:000000000995222

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#### **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connectors B121, B122 and suspect speaker connector.
- Check continuity between BOSE speaker amp. harness connectors B121, B122 and suspect speaker harness connector.

BOSE speaker amp. Speaker				Continuity
Connector	Terminal	Connector Terminal		
B121	68	D202	1	Yes
DIZI	55		2	
B122	B122 49		1	165
DIZZ	53	D302	2	-

3. Check continuity between BOSE speaker amp. harness connectors B121, B122 and ground.

	Terminals				
BOSE	BOSE speaker amp.				
Connector	Terminal				
B121	68		No		
BIZI	55	Ground			
B122	49	Ground			
B122	53				

#### <u>OK or NG</u>

OK >> GO TO 2.. NG >> • Check co

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

## **2.**REAR DOOR SPEAKER SIGNAL CHECK

1. Connect BOSE speaker amp. connectors B121, B122 and suspect speaker connector.

- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between BOSE speaker amp. harness connectors B121, B122 terminals with CON-SULT-III or oscilloscope.

	Terminals				- /	
(	+)	(-)		Condition	Reference signal	
Connector	Terminal	Connector	Terminal			
B121	68	B121	55			
B122	49	B122	53	Receive audio sig- nal	(V) 1 0 -1 5 5 5 5 5 5 5 5 5 5 5 5 5	

< COMPONENT DIAGNOSIS >

#### <u>OK or NG</u>

OK >> Replace suspect speaker. Refer to <u>AV-256, "Removal and Installation"</u>.

NG >> GO TO 3..

## **3.**HARNESS CHECK

- 1. Disconnect AV control unit connector M47 and BOSE speaker amp. connector B121.
- 2. Check continuity between AV control unit harness connector M47 and BOSE speaker amp. harness connector B121.

	Terminals					
AV cor	AV control unit BOSE speaker amp.					
Connector	Terminal	Connector				
	5	B121	64			
M47	6		63	Yes		
10147	14		66	Tes		
	15		65			

3. Check continuity between AV control unit harness connector M47 and ground.

	Terminals					
A	Continuity					
Connector	Terminal					
	5	Ground	No			
M47	6					
101-77	14	Ground				
	15					

#### OK or NG

NG

OK >> GO TO 4..

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

### **4.**REAR DOOR SPEAKER SIGNAL CHECK

- 1. Connect AV control unit connector M47 and BOSE speaker amp. connector B121.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between AV control unit harness connector M47 terminals with CONSULT-III or oscilloscope.

Terminals						
(+)		(	-)	Condition	Reference signal	
Connector	Terminal	Connector	Terminal		0.9.1.2.	
	5		6			
M47	14	M47	15	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

<u>OK or NG</u>

OK >> Replace BOSE speaker amp. Refer to <u>AV-251, "Removal and Installation"</u>.

NG >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

## AV-198

# < COMPONENT DIAGNOSIS > WOOFER

## Description

The audio unit sends audio signals to the BOSE speaker amp. The BOSE speaker amp. amplifies the audio signals before sending them to the woofers using the audio signal circuits.

## **Diagnosis Procedure**

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## **1.**HARNESS CHECK

- 1. Disconnect BOSE speaker amp. connector B122 and suspect rear subwoofer connector.
- Check continuity between BOSE speaker amp. harness connector B122 and suspect rear subwoofer harness connector.

BOSE spe	Continuity			
Connector	Terminal	Connector Terminal		
	53	B120	1	Yes
B122	48		2	
	45	P104	1	165
	46	B124	2	

3. Check continuity between BOSE speaker amp. harness connector B122 and ground.

	Terminals		
BOSE speaker amp.			Continuity
Connector	Terminal		
	53		No
B122	48	Ground	
B122 -	45	Ground	
	46		

#### <u>OK or NG</u>

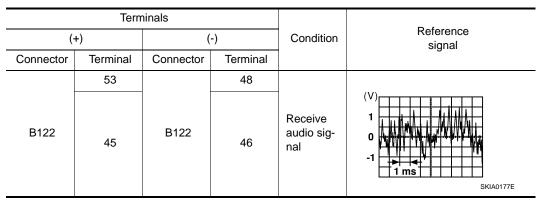
OK >> GO TO 2.. NG >> • Check co

- >> Check connector housings for disconnected or loose terminals.
  - Repair harness or connector.

## 2.REAR SUBWOOFER SIGNAL CHECK

1. Connect BOSE speaker amp. connector B122 and suspect rear subwoofer connector.

- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between BOSE speaker amp. harness connector B122 terminals with CONSULT-III or AM oscilloscope.



#### < COMPONENT DIAGNOSIS >

#### <u>OK or NG</u>

OK >> Replace suspect rear subwoofer. Refer to <u>AV-257, "Removal and Installation"</u>.

NG >> GO TO 3..

**3.**HARNESS CHECK

- 1. Disconnect AV control unit connector M47 and BOSE speaker amp. connector B121.
- 2. Check continuity between AV control unit harness connector M47 and BOSE speaker amp. harness connector B121.

AV cor	Continuity			
Connector	Terminal	Connector Terminal		
	5	B121	64	
M47	6		63	Yes
	14		66	Tes
	15		65	1

3. Check continuity between AV control unit harness connector M47 and ground.

A	V control unit		Continuity
Connector	Terminal		
	5		No
M47	6	Ground	
M47	14	Giouna	
	15		

#### OK or NG

NG

OK >> GO TO 4..

>> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

### **4.**REAR SUBWOOFER SIGNAL CHECK

- 1. Connect AV control unit connector M47 and BOSE speaker amp. connector B121.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between AV control unit harness connector M47 terminals with CONSULT-III or oscilloscope.

Terminals				Condition		
(+)		(-)			Reference signal	
Connector	Terminal	Connector	Terminal		0.9	
	5		6			
M47	14	M47	15	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

<u>OK or NG</u>

OK >> Replace BOSE speaker amp. Refer to <u>AV-251, "Removal and Installation"</u>.

NG >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

## AV-200

#### AMP ON SIGNAL CIRCUIT

## < COMPONENT DIAGNOSIS >

## AMP ON SIGNAL CIRCUIT

Description

When the audio system is turned on, a voltage signal is supplied from the AV control unit to the BOSE speaker amp. When this signal is received, the BOSE speaker amp. will turn on.

#### **Diagnosis** Procedure INFOID:000000000995227 С 1.CHECK AMP ON SIGNAL (BOSE SPEAKER AMP) 1. Turn audio system ON. D Check voltage between BOSE speaker amp. harness connector B121 terminal 60 and ground. 2. 60 - Ground : More than approx. 6.5V Е OK or NG OK >> Inspection End. NG >> GO TO 2... F 2. CHECK AMP ON SIGNAL (AV CONTROL UNIT) Check voltage between AV control unit harness connector M47 terminal 16 and ground. 16 - Ground : More than approx. 6.5V OK or NG OK Н >> Repair harness or connector. NG >> Replace AV control unit. Refer to AV-250, "Removal and Installation".

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INFOID:00000000995226

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#### < COMPONENT DIAGNOSIS >

## STEERING SWITCH

### Description

When one of the steering wheel audio control switches is pushed, the resistance in the steering switch circuit changes depending on which button is pushed.

#### **Diagnosis Procedure**

INFOID:000000000995229

INFOID:00000000995228

## 1.CHECK HARNESS

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector M46 and spiral cable connector M30.
- 3. Check continuity between AV control unit connector M46 terminals 25, 26, and 27 and spiral cable connector M30 terminals 24, 31, and 33.

AV cont	rol unit		Continuity	
Connector	Terminal	Connector Terminal		
	25		24	
M46	26	M30	33	Yes
	27		31	

4. Check continuity between AV control unit connector M46 and ground.

	()	Continuity	
Connector	Terminal	()	
	25		
M46	26	Ground	No
	27		

#### OK or NG

OK >> GO TO 2..

NG >> Repair harness.

2.SPIRAL CABLE CHECK

1. Disconnect spiral cable connector M88.

2. Check continuity between spiral cable terminals.

- 14 24 : Continuity should exist.
- 15 31 : Continuity should exist.

17 - 33 : Continuity should exist.

#### <u>OK or NG</u>

OK >> GO TO 3..

NG >> Replace spiral cable. Refer to <u>SRS-6, "Removal and Installation"</u>.

**3.**CHECK STEERING SWITCH

Check steering switch. Refer to <u>AV-202, "Component Inspection"</u>.

#### OK or NG

OK >> Inspection End.

NG >> Replace steering switch. Refer to <u>AV-262, "Removal and Installation"</u>.

#### Component Inspection

INFOID:000000000995230

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

## AV-202

## **STEERING SWITCH**

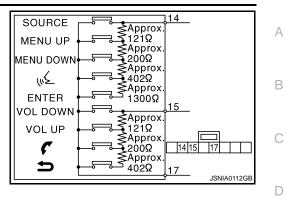
#### < COMPONENT DIAGNOSIS >

**VOL DOWN switch ON** 

Standard	
Between terminals 14 and	
17	
ENTER switch ON	<b>: 2003 – 2043</b> Ω
" <mark>≲ switch ON</mark>	: <b>716 – 730</b> Ω
MENU DOWN switch ON	<b>: 318 – 324</b> Ω
MENU UP switch ON	<b>: 120 – 122</b> Ω
SOURCE switch ON	: <b>0</b> Ω
Between terminals 15 and 17	
🕁 switch ON	: <b>716 – 730</b> Ω
🗸 switch ON	<b>: 318 – 324</b> Ω
VOL UP switch ON	: <b>120 – 122</b> Ω

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#### [BOSE AUDIO WITH NAVIGATION]



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#### MICROPHONE SIGNAL CIRCUIT

#### < COMPONENT DIAGNOSIS >

## MICROPHONE SIGNAL CIRCUIT

#### Description

Power is supplied to the microphone from the AV control unit. The microphone transmits voice signals to the AV control unit.

#### Diagnosis Procedure

INFOID:000000000995232

INFOID:00000000995231

## 1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector M46 and microphone connector R7.
- 3. Check continuity between AV control unit harness connector M46 terminals 45, 46, 47 and microphone harness connector R7 terminals 1, 2, 4.

45 - 1	: Continuity should exist.
47 - 2	: Continuity should exist.
46 - 4	: Continuity should exist.

- 4. Check continuity between AV control unit harness connector M46 terminals 45, 46, 47 and ground.
  - 45, 46, 47 Ground

#### : Continuity should not exist.

Is inspection result OK?

YES >> GO TO 2..

NO >> Repair harness or connector.

2. CHECK MICROPHONE VCC VOLTAGE

- 1. Connect AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector M46 terminals 46 and 47.

#### 46 - 47

#### : Approx. 5V

Is inspection result OK?

YES >> GO TO 3..

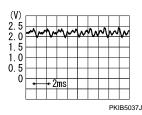
NO >> Replace AV control unit. Refer to <u>AV-250, "Removal and Installation"</u>.

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3. CHECK MICROPHONE SIGNAL

- 1. Connect microphone connector.
- 2. Check signal between AV control unit harness connector M46 terminals 45 and 47.

#### 45 - 47



#### Is inspection result OK?

- YES >> Replace AV control unit.. Refer to <u>AV-250, "Removal and Installation"</u>.
- NO >> Replace microphone. Refer to <u>AV-264, "Removal and Installation"</u>.

CAMERA IMAGE SIGNAL CIRCUIT (REAR VIEW CAMERA TO CAMERA CO TROL UNIT)	N-
< COMPONENT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION COMPONENT DIAGNOSIS > [BOSE AUDIO NOTION COM	ON]
CAMERA IMAGE SIGNAL CIRCUIT (REAR VIEW CAMERA TO CAME CONTROL UNIT)	RA
Description	
Rear view camera images are transmitted to the rear view camera control unit using the camera image si circuits.	ignal
Diagnosis Procedure	000995234
1. CHECK CAMERA IMAGE SIGNAL CIRCUIT CONTINUITY	
1. Turn ignition switch OFF.	D
<ol> <li>Disconnect rear view camera control unit connector and rear view camera connector.</li> <li>Check continuity between rear view camera control unit harness connector B31 terminals 9, 10 and view camera harness connector B35 terminals 3, 4.</li> </ol>	l rear E
9 - 4 : Continuity should exist.	
10 - 3: Continuity should exist.	F
4. Check continuity between rear view camera control unit harness connector B31 terminals 9, 10 ground.	and G
9, 10 - Ground : Continuity should not exist.	
Is inspection result OK?	Н
YES >> GO TO 2 NO >> Repair harness or connector.	
2. CHECK CAMERA IMAGE SIGNAL	1
1. Connect rear view camera control unit connector and rear view camera connector.	
<ol> <li>Turn ignition switch ON.</li> <li>Check signal between rear view camera control unit harness connector B31 terminals 10 and 9.</li> </ol>	J
10 - 9 :	
	K
$-0.4 \xrightarrow{0} 40\mu$	L
SKIB2251J	M
Is inspection result OK? YES >> Replace rear view camera control unit Refer to <u>AV-268, "Removal and Installation"</u> .	IVI
NO >> Replace rear view camera. Refer to <u>AV-267, "Removal and Installation"</u> .	

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## CAMERA ON SIGNAL CIRCUIT

#### Description

When the selector lever is placed in the R position, the rear view camera control unit sends a camera ON signal to the rear view camera.

#### **Diagnosis Procedure**

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## 1. CHECK CAMERA ON SIGNAL CIRCUIT CONTINUITY

- 1. Turn ignition switch OFF.
- 2. Disconnect rear view camera control unit connector and rear view camera connector.
- 3. Check continuity between rear view camera control unit harness connector B31 terminal 8 and rear view camera harness connector B35 terminal 1.

#### 8 - 1 : Continuity should exist.

4. Check continuity between rear view camera control unit harness connector B31 terminal 8 and ground.

#### 8 - Ground

#### : Continuity should not exist.

Is inspection result OK?

YES >> GO TO 2..

NO >> Repair harness or connector.

2. CHECK CAMERA ON SIGNAL VOLTAGE

- 1. Connect rear view camera control unit connector and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between rear view camera control unit harness connector B31 terminal 8 and ground.

#### 8 - Ground

: Approx. 6V

#### Is inspection result OK?

- YES >> Replace rear view camera.. Refer to <u>AV-267, "Removal and Installation"</u>.
- NO >> Replace rear view camera control unit. Refer to <u>AV-268, "Removal and Installation"</u>.

CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO AV CON- TROL UNIT)	
< COMPONENT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION]	
CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO AV CONTROL UNIT)	А
Description INFOID:000000000995237	В
Rear view camera image signals are transmitted from the rear view camera control unit to the AV control unit using the image signal circuits.	D
Diagnosis Procedure	С
1. CHECK CAMERA IMAGE SIGNAL CIRCUIT CONTINUITY	
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect rear view camera control unit connector B31 and AV control unit connector M46.</li> <li>Check continuity between rear view camera control unit harness connector B31 terminals 11, 12 and AV control unit harness connector M46 terminals 34, 55.</li> </ol>	D
11 - 55 : Continuity should exist.	
12 - 34   : Continuity should exist.	F
4. Check continuity between rear view camera control unit harness connector B31 terminals 11, 12 and ground.	G
11, 12 - Ground : Continuity should not exist.	G
Is inspection result OK?	Н
YES >> GO TO 2 NO >> Repair harness or connector.	
2. CHECK CAMERA IMAGE SIGNAL	I
1. Connect rear view camera control unit connector and AV control unit connector.	
<ol> <li>Turn ignition switch ON.</li> <li>Check signal between rear view camera control unit harness connector terminals 12 and 11.</li> </ol>	J
12 - 11 :	
	Κ
-0. 4	L
Is inspection result OK?	M
YES >> Replace AV control unit Refer to <u>AV-250, "Removal and Installation"</u> .	
NO >> Replace rear view camera control unit. Refer to <u>AV-268. "Removal and Installation"</u> .	AM

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## **REVERSE SIGNAL CIRCUIT**

### Description

A reverse signal is supplied from the back-up lamp relay (with CVT and VQ35DE), park/neutral position switch (with CVT and QR25DE) or backup lamp switch (with M/T) to the rear view camera control unit. When this signal is received, the display shows a view to the rear of the vehicle.

### Diagnosis Procedure

#### **1.**BACK-UP LAMP INSPECTION

- 1. Turn ignition switch ON.
- 2. Shift A/T selector lever to R position.

#### Does back-up lamp illuminate?

#### YES >> GO TO 2..

NO >> Check back-up lamp system. Refer to <u>EXL-4, "Work Flow"</u>.

2. CHECK REVERSE POSITION INPUT SIGNAL

#### With CONSULT-III

Select "DATA MONITOR" of "REARVIEW CAMERA". Operate ignition switch with "R POSI SIG" of "DATA MONITOR" and check operate status.

#### Without CONSULT-III

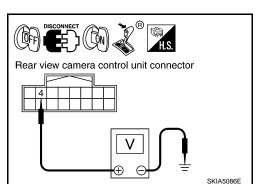
- 1. Turn ignition switch OFF.
- 2. Disconnect rear view camera control unit connector.
- 3. Turn ignition switch ON.
- 4. Shift selector lever to R position.
- 5. Check voltage between rear view camera control unit harness connector B31 terminal 4 and ground.

#### Battery voltage should exist.

#### OK or NG

- OK >> Inspection End.
- NG >> Check harness for open or short between rear view L
  - camera control unit and back-up lamp relay (with CVT and VQ35DE), park/neutral position switch (with CVT and QR25DE) or backup lamp switch (with M/T).

AV-208



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## < ECU DIAGNOSIS >

## ECU DIAGNOSIS AV CONTROL UNIT

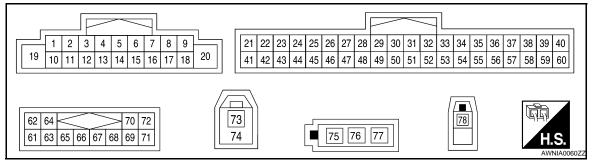
### **Reference Value**

## VALUES ON THE DIAGNOSIS TOOL

#### CONSULT-III data monitor item

Display Item	Dis- play	Vehicle status	Remarks
VHCL SPD SIG	ON	Vehicle speed > 0 km/h (0 MPH)	
VIICE OF DISIG	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is
PKB SIG	ON	Parking brake is applied.	normal.
FKB 3IG	OFF	Parking brake is released.	
ILLUM SIG	ON	Block the light beam from the auto light optical sensor when the light SW is ON .	
	OFF	Expose the auto light optical sensor to light when the light SW is OFF or ON.	
IGN SIG	ON	Ignition switch ON	-
	OFF	Ignition switch in ACC position	
	ON	Selector lever in R position	Changes in indication may be delayed. This is
REV SIG	OFF	Selector lever in any position other than R	normal.

#### TERMINAL LAYOUT



#### PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value		
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)	AM	
				Ignition	Parking brake ON	0V		
1 (G/R)	Ground	und Parking brake signal	Input	nput switch ON	Parking brake OFF	Battery voltage	0	
2 (G)	3 (R)	Sound signal front LH	Output	Ignition switch ON		(V) 1 0 -1 + 2ms SKIB3609E	Ρ	
4	_	Shield	—		—	_		

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## < ECU DIAGNOSIS >

Terminal (Wire color)		Description			Condition	Reference value
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
5 (GR/V)	6 (W/L)	Sound signal rear LH	Output	Ignition switch ON		(V) 1 0 -1 • 2ms SKIB3609E
7 (V/Y)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
8 (V/W)	Ground	Vehicle speed (8-pulse) signal	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25MPH)	(V) 6 4 2 0 • • • 20ms SKIA6643J
9 (R/L)	Ground	Illumination signal	Input	OFF	Lighting switch is OFF.	0V
			•		Lighting switch is ON.	Battery voltage
10 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
11 (B)	12 (W)	Sound signal front RH	Output	Ignition switch ON		(V) 1 0 -1 • • • 2ms SKIB3609E
13		Shield			_	_
14 (V)	15 (LG)	Sound signal rear RH	Output	Ignition switch ON		(V) 1 0 -1 • 2ms SKIB3609E
16 (B/P)	Ground	Amp. ON signal	Output	Ignition switch ON	_	Battery voltage
17 (P/B)	Ground	Reverse signal	Input	Ignition switch ON	R position	Battery voltage
18 (R/Y)	Ground	Illumination control	Input	OFF	_	Refer to INL-9, "System Descrip- tion".
19 (B)	Ground	Ground	_	Ignition switch ON		0V

#### < ECU DIAGNOSIS >

	ninal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
20 (Y/R)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
24 (L)	_	CAN-H	Input/ Output	_	—	_
					Keep pressing SOURCE switch.	0V
					Keep pressing MENU UP switch.	1V
25 (W/G)	26 (L/B)	Steering switch signal 1	Input	Ignition switch	Keep pressing MENU DOWN switch.	2V
				ON	Keep pressing 🔬 switch	3V
					Keep pressing ENTER switch.	4V
					Except for above.	5V
26 (L/B)	Ground	Steering switch signal ground	_	Ignition switch ON	_	٥V
					Keep pressing VOL DOWN switch.	0V
				Ignition	Keep pressing VOL UP switch.	1V
27 (GR/L) 26 (L/B)	26 (L/B)	Steering switch signal 2	Input	Input switch ON	Keep pressing 🌈 switch.	2V
					Keep pressing 🗲 switch.	3V
					Except for above.	5V
31 (W/R)	Ground	AUX sound signal RH	Input	Ignition switch ON	When AUX mode is select- ed	(V) 1 0 −1 + 2ms SKIB3609E
32	_	Shield			_	_
33 (W/L)	Ground	AUX sound signal LH	Input	Ignition switch ON	When AUX mode is select- ed	(V) 1 0 -1 ••••••••••••••••••••••••••••••••
34 (W)	Ground	Camera image signal	Input	Ignition switch ON	Rear view camera image displayed	(V) 0.4 0 −0.4 + 40µs SKIB2251J
35	_	Shield			_	_

## < ECU DIAGNOSIS >

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
44 (P)	_	CAN-L	Input/ Output	_	_	_
45 (B/R)	Ground	Microphone signal	Input	Ignition switch ON	_	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0 • • • 2ms PKIB5037J
46 (R/L)	Ground	Microphone VCC	Output	Ignition switch ON	_	5V
47 (R/B)	Ground	Microphone ground	_	Ignition switch ON	_	0V
48	—	Shield		—	—	—
		Camera-connection rec-		Ignition	Connected to camera con- trol unit connector	0V
53 (V/G)	Ground	ognition signal	Input	switch ON	Not connected to camera control unit connector	5V
55 (R)	Ground	Camera image signal	Input	Ignition switch ON	Rear view camera image displayed	(V) 0.4 0 -0.4 • 40µs skiB2251J
62 (Y/L)	61 (W/L)	CD changer sound sig- nal LH	Input	Ignition switch ON	_	(V) 1 0 -1 • 2ms SKIB3609E
64 (Y/G)	63 (BR/L)	CD changer sound sig- nal RH	Input	Ignition switch ON	_	(V) 1 0 -1 -1 -1 -1 -1 -2ms SKIB3609E
65		Shield				
66	_	Shield	_	—	—	_

#### < ECU DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

Terminal (Wire color)		Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)	
69 (B)	Ground	Communication signal (CD→CONT)	Input	Ignition switch ON	_	(V) 10 0 -10 -10 -10 -10 -10 -10 -	B C D
70 (G)	Ground	Communication signal (CONT→CD)	Input	Ignition switch ON	_	(V) 10 0 -10 • • 1 ms SKIA9301J	E
72 (R)	Ground	Request signal (CD→CONT)	Output	Ignition switch ON		(V) 10 -10 • • 10ms SKIA9299J	G
73 (B)	_	GPS signal	Input	Ignition switch ACC	Not connected to GPS an- tenna connector	5V	
74 (B)		Shield	_		_		J
75 (B)	Ground	Antenna amp. supply	Output	Ignition switch ACC	_	Battery voltage	K
76 (B)	_	Main antenna	Input	_	—	—	
78 (B)	Ground	Satellite antenna signal	Input	Ignition switch ACC	Not connected to satellite antenna connector	5V	L

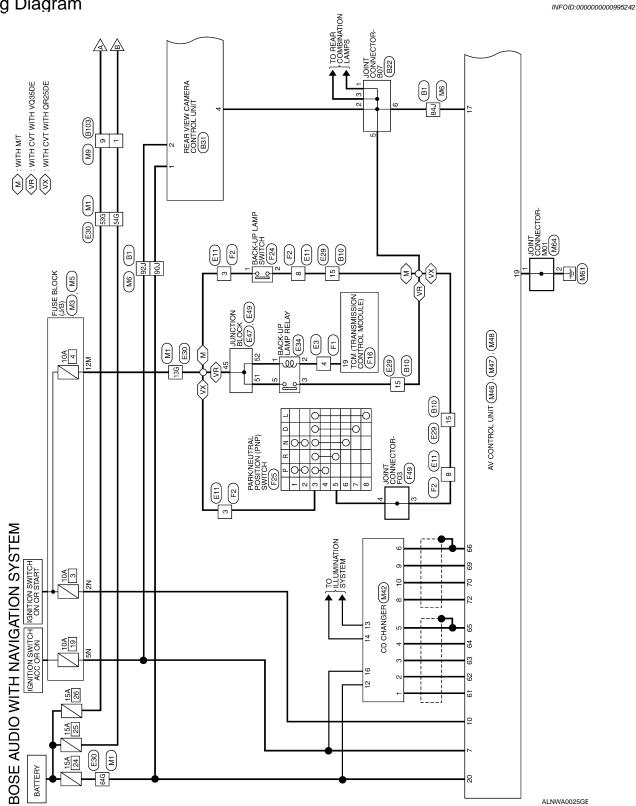
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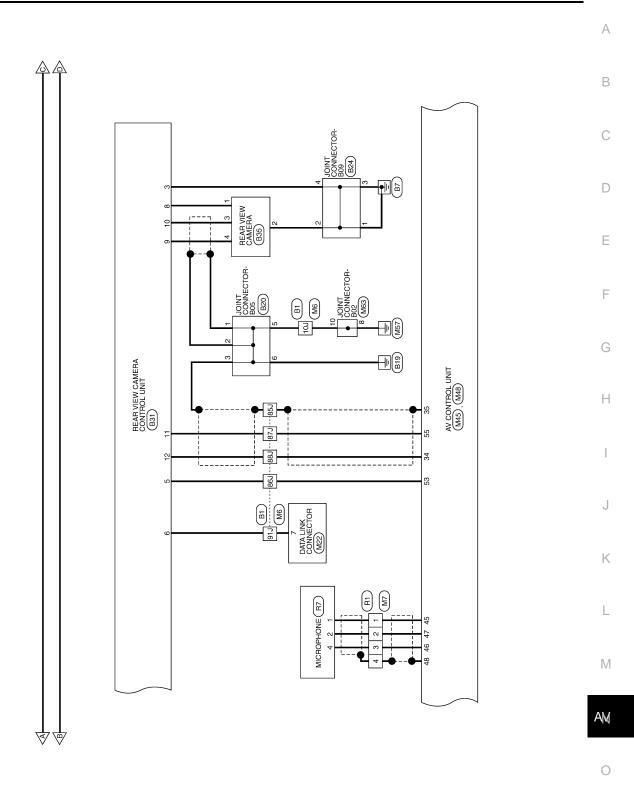
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#### < ECU DIAGNOSIS >

Wiring Diagram



### [BOSE AUDIO WITH NAVIGATION]

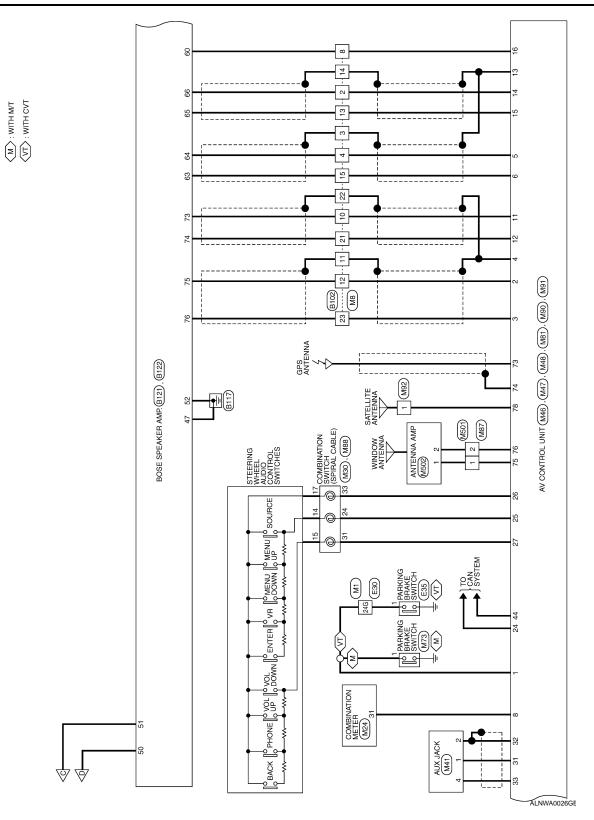


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## **AV CONTROL UNIT**



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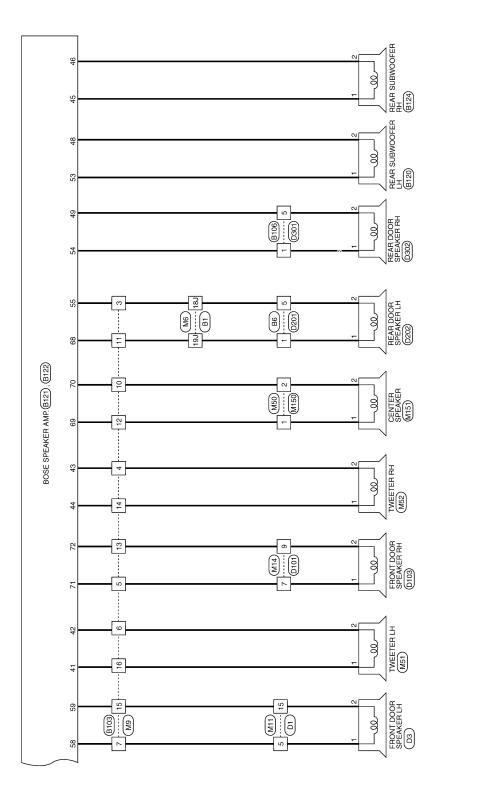
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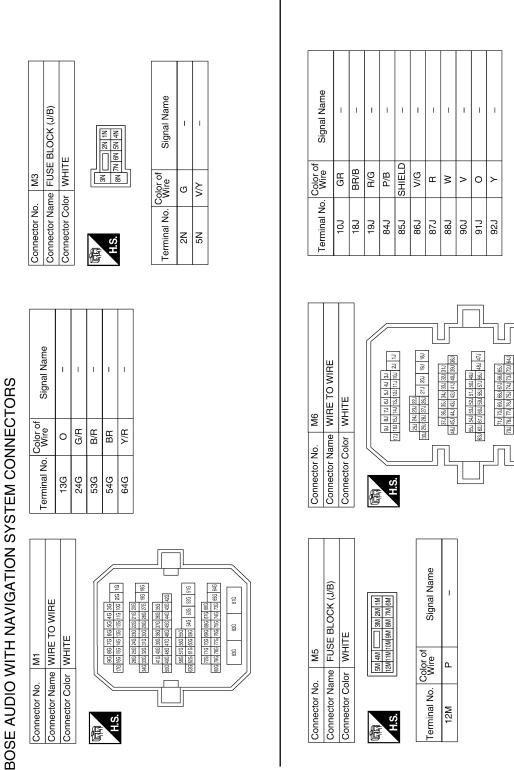
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99J 98J 97J 96J 95J 94J 93J

## **AV CONTROL UNIT**

#### [BOSE AUDIO WITH NAVIGATION]

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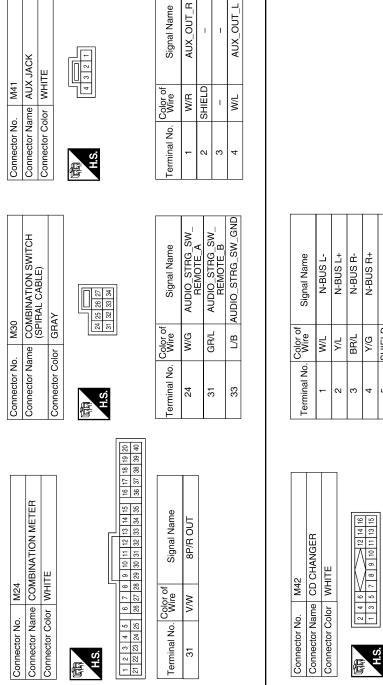
RE TO WIRE     Connector Name     WIRE TO WIRE       IITE     Connector Color     BROWN	The second sec	Exercise Signal Name Signal Name Signal Name	- 1 B/R	е Г		○ ►	- 9 B/R	- 10 O/B	- 11		- 13	- 14 L		16 LG	4 Connector No.   M22		ITE Connector Color WHITE	1     2     —     3     4       5     6     7     8     9     10	Signal Name Terminal No. Color of Signal Name	- 7 0	I	
Connector Name WIRE TO WIRE Connector Name WIRE TO WIRE Connector Color WHITE Connector Color WHITE	1 2 3 4 5 6 7 8 9 1011 12 13 4 15 16 24 23 22 21 20 1	Color of Signal Name Terminal No. Color of Wire	B/R – 2 V	R/B – 3 SHIELD	R/L – 4 GR/V	10 B 11 SHIELD			14 SHIELD	15 W/L	21 W	HS	23 R		M11 Connector No. M14	WIRE TO WIRE Connector Name WIRE TO WIRE	WHITE Connector Color WHITE	2 3 m 4 5 6 7 9 10 11 12 13 14 15 16 H.S.	Color of Signal Name Terminal No. Color of		- 9 BR	

## **AV CONTROL UNIT**

#### < ECU DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

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Signal Name	N-BUS L-	N-BUS L+	N-BUS R-	N-BUS R+	I	DATA_GND	I	REQ	RX	TX	B+	ILL-	ILL+	ACC
Color of Wire	W/L	٨١L	BR/L	Y/G	SHIELD	I	I	æ	ш	σ	Y/R	RV	R/L	٨Ŋ
Terminal No.	-	2	e	4	5	9	7	œ	6	10	12	13	14	16

## < ECU DIAGNOSIS >

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Connector No.		M46 AV CONTROL LINIT	Terminal No.	Color of Wire	Signal Name	Termi	Terminal No.	Color of Wire	
Connector Color		WHITE	29	1	1	4	45	B/R	1
		1	30	ı	I	4	46	R/L	
			31	W/R	AUX_IN_R	4	47	R/B	
			32	SHIELD	1	4	48	SHIELD	
0.11			33	M/L	AUX_IN_L	4	49	ı	
21 22 23 24 25 26 27 28		33 34 35 36 37 38	34	8	COMP_IN +	5	50	1	
41 42 43 44 45	44 45 46 47 48	49 50 51 52 53 54 55 56 57 58 58 59 60	35	SHIELD	I	5	51	1	
Torminal No	Color of		36	I	I	5	52	-	
			37	I	I	5	53	V/G	
21	I	I	38	1	I	£	54	I	
22	I	I	39	1	I	2	55	æ	
23	I	1	40	1	1	2	56	I	
24	-	V-CAN_H	41	1	I	2	57	1	
25	W/G	STRG_SW_SIG_1	42		1	2	58	1	
26	L/B	STRG_SW_GND	43	I		2	59		
27	GR/L	STRG_SW_SIG_2	44	٩	V-CAN L	9	60	1	
28	I	I					-	-	
									L
Connector No.		24	Terminal No.	Color of Wire	Signal Name				
Connector Name		AV CONTROL UNIT	7	٨٨	ACC				
			8	W/N	SPEED (8P)				
Æ	Ľ		6	R/L	ILL				
		4 5 6 7 8 9	10	ß	IGN				
0 L		15 16 17	11	В	FR_RH +				
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RR\_LH + RR\_LH -

FR\_LH -FR\_LH + PKB

Т

SHIELD GR/V W/L

4 ß 9

÷ 12 13 14 15 16 17 18

FR\_RH -

≥

RR\_RH + RR\_RH -AMP\_ON

>

ŋ B/P P/B RY

I.

SHIELD

Signal Name

Color of Wire

Terminal No.

G/R Q щ

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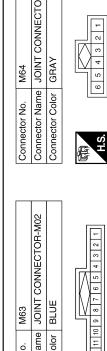
Signal Name MIC\_IN+

MIC\_GND

T T I T

MIC\_+B

Connector No. M51 Connector Name TWEETER LH Connector Color BROWN	(月) H.S.		Terminal No. Wire Signal Name		ے در	Z   B/X   -									Connector No. M64	Connector Name JOINT CONNECTOR-M01	Connector Color GRAY
Connector No. M50 Connector Name WIRE TO WIRE Connector Color WHITE	H.S.		Terminal No. Wire Signal Name			- 0/B									Connector No. M63	Connector Name JOINT CONNECTOR-M02	Connector Color BLUE
M48 AV CONTROL UNIT GRAY	61 63 65 66 67 68 69 71	c of Signal Name	L N-BUS_L -	- N-BUS_L +	'L N-BUS_R -	G N-BUS_R+		DATA_GND	I	I	RX	TX	I	REQ2	M52	TWEETER RH	BROWN
Connector No.M48Connector NameAV CCConnector ColorGRAY	低日 H.S.	Terminal No. Wire	61 W/L	62 Y/L	63 BR/L	64 Y/G	65 SHIELD	- 99	67 –	- 68	69 B	70 G	71 –	72 R	Connector No.	Connector Name TWEETER RH	Connector Color BROWN



Signal Name	Ι	-
Color of Wire	В	GR
Terminal No.	8	10

Signal Name	I	I	
Color of Wire	Г/0	GR/L	
Terminal No.	-	2	

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H.S. E

-

H.S. E

#### < ECU DIAGNOSIS >

Signal Name I. Т

Color of Wire

Terminal No.

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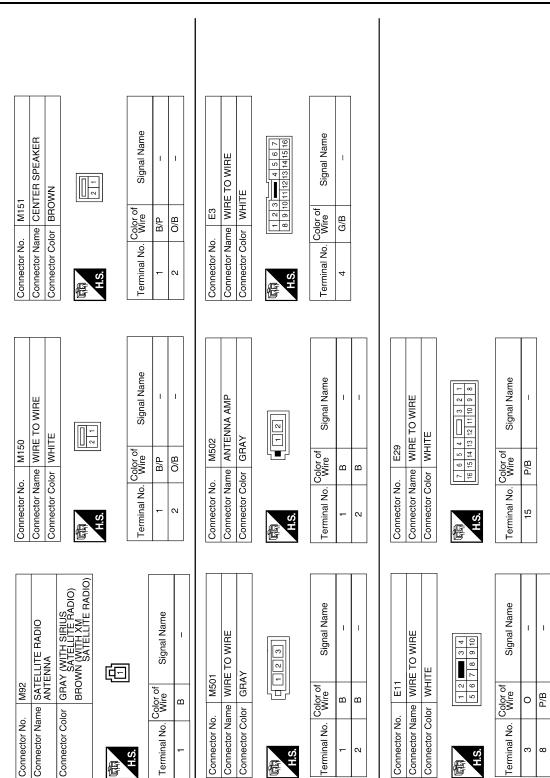
-

Connector No.     M87       Connector Name     WIRE TO WIRE       Connector Color     GRAY       Image: State of the	Terminal No.     Color of Wire     Signal Name       1     B     -       2     B     -	Connector No.     M91       Connector Name     AV CONTROL UNIT       Connector Color     BROWN (WITH SIRIUS BROWN (WITH SIRIUS VIOLET (WITH LITTE RADIO)       VIOLET (WITH SIRIUS VIOLET (WITH ADIO)     VIOLET (WITH ADIO)       Total     VIOLET (WITH ADIO)       Terminal No.     Color of Wire       78     B
Connector No. M81 Connector Name AV CONTROL UNIT Connector Color GRAY	Terminal No.Color of WireSignal Name75BAMP SUPPLY76BMAIN ANTENNA77	Connector No.     M90       Connector Name     AV CONTROL UNIT       Connector Color     GRAY       Times     Table       Table     Table       Table     Signal Name       T3     B     -       T4     B     -
Connector No. M73 Connector Name PARKING BRAKE SWITCH (WITH M/T) Connector Color BLACK	Terminal No. Color of Signal Name 1 G/R –	Connector No.     M88       Connector Name     COMBINATION SWITCH       Connector Name     COMBINATION SWITCH       Connector Color     GRAY       Connector Color     GRAY       Image: Signal Name     14       Image: Signal Name     17       Image: Signal Name     17       BR     GND

## < ECU DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

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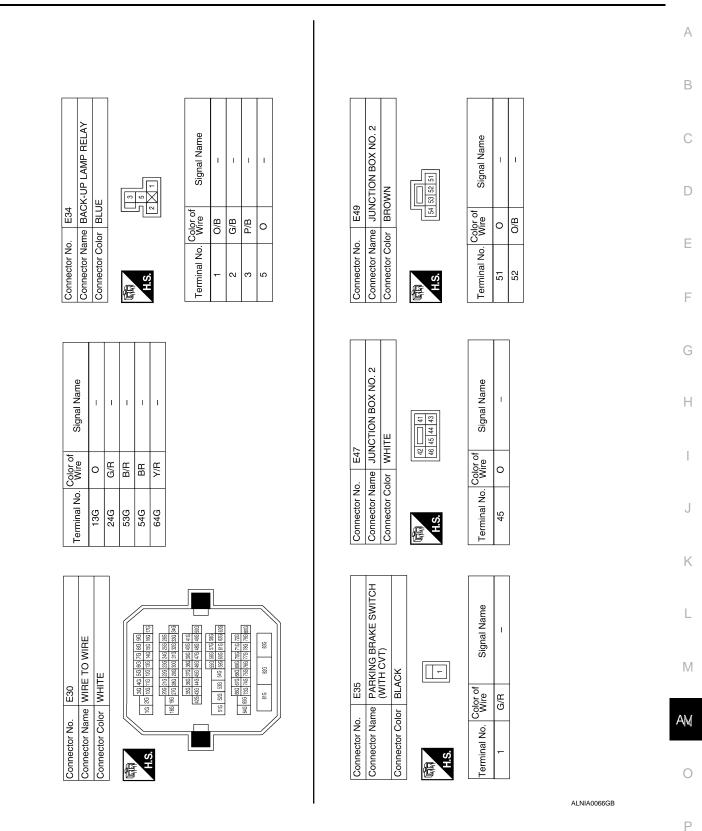


## **AV CONTROL UNIT**

#### < ECU DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

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**AV CONTROL UNIT** 

#### < ECU DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

Connector No. F1 Connector Name WIRE TO WIRI Connector Color WHITE H.S. [16] 15 14 13 12 11 10 Terminal No. Color of Sign	Signal Name	Connector No.     F2       Connector Name     WIRE TO WIRE       Connector Color     WHITE       Terminal No.     Color of     Signal       3     0     -       8     P/B     -       Connector No.     F25	F2         HTE           me         WIRE T           mine         WHIE           0         O           P/B	E TO WIRE Signal Name	Connector No. Connector Color H.S. Terminal No. Connector No.		F16 TOM (TRANSMISSION TOM (TRANSMISSION BLACK BLACK 33 33 35 37 38 39 40 47 48 33 4 5 6 7 8 9 10 41 42 3 4 5 6 7 8 9 10 41 42 Signal Name B REV LAMP RLY	
ctor No. F24		Connector No			Connector No	- 149		
~	MP SWITCH	Connector Name		PARK/NEUTRAL POSITION	Connector Na	me JOIN	Connector Name JOINT CONNECTOR-F03	
Connector Color BLACK			0R2	SDE CVT)	Connector Color	lor BLACK	X	
<		Connector Color	olor BLACK	X			K	
H.S.		(the second seco	8		HIS.		9 8 7 6	
Color of		H.S.		6 5 1		-		
Terminal No. Wire Sign	nal Name		J		Terminal No.	Color of Wire	Signal Name	
0	I		Color of		e.	W/U		
P/B	I	l erminal No.	Wire	signal Name	, -			
		3	0	IGN	+			

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## **AV CONTROL UNIT**

#### < ECU DIAGNOSIS >

R\_OUTPUT

P/B

S

TOWRF			с П	6 7 8						signal Name	I		f CONNECTOR-B07		4 3 2 1	Signal Name	1	1	1	1	I	
Connector No. B6 Connector Name WIRF TO WIRF	Connector Color WHITE		励	4 5 6 7	5				Color of	i erminal No. Wire				Connector Color GHAY	H.S.	Terminal No. Color of	1 P/B	2 P/B	3 P/B	5 P/B	6 P/B	
Signal Name		]		1	-	1	1	1								Signal Name		1		1		
al No. Color of Wire	J GR	J BR/B	J R/G	J P/B	J SHIELD	J V/G	8	2		0				Connector Color GHAY	6 5 4 3	Terminal No. Wire S	1 GR	2 GR	3 GR	5 GR	B	-
Terminal No.	101	181	191	84J	85J	86J	[22]	88	F06	91J	92		Conne	Conne	。 H.S.H							
Connector No. B1						221 231 244 254	181 194 200 214 264 277 281 289 300	311 321 333 344 355 361 377	380/380/400/410/420/480/460/480	49.1 50.151.1 52.1 53.1 54.1 55.1 47.1 48.1 55.1 55.1 55.1 55.1 55.1 55.1 55.1 5		Buil Tau		Connector Color WHILE	<ul> <li>123 世 45 67</li> <li>1314 15 16</li> <li>133 14 15 16</li> </ul>	Terminal No. Color of Signal Name	15 P/B –					

## **AV CONTROL UNIT**

< ECU DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

Termina		-	N	e	4	5	9	8	6	10	
Connector No. B31	Connector Name   REAR VIEW CAMERA	CONTROL UNIT	Connector Color WHITE			H.S. 2 4 6 8 10 12 14 16 1 3 5 7 9 11 13 15	- > - >				
	Connector Name JOINT CONNECTOR-B09 Co							Volor of Signal Name		- 	6
Connector No. B24	Connector Nan	Connector Color GBAV				0°11		Terminal No. With		-	

4 3 2 1 1	Signal Name	1
	Color of Wire	в
雨 H.S.	Terminal No.	-

Signal Name	I	I	I	I
Color of Wire	ш	В	в	в
Terminal No. Color of Wire	-	2	e	4

	MERA		
B35	Connector Name REAR VIEW CAMERA CONTROL UNIT	WHITE	
Connector No.	Connector Name	Connector Color WHITE	



Signal Name	CAMERA ON	GND	COMP +	COMP -
Color of Wire	GR	в	٩	L
Terminal No.	F	2	e	4

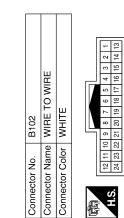
ALNIA0069GB

Signal Name	B +	ACC	GND	REV	CONTROL 1	DDL (K-LINE)	CAMERA ON	CAMERA -	CAMERA +	COMP -	COMP +
Color of Wire	≻	>	в	P/B	V/G	0	GR	_	٩	н	Ν
Terminal No.	-	5	e	4	5	9	8	6	10	11	12

< ECU DIAGNOSIS >

Signal Name	I	I	I	I	I	I	I	I	I	I	1	I	1	
Color of Wire	ГG	SHIELD	BR	B/G	M/L	SHIELD	M/R	>	SHIELD	٢	GR/V	SHIELD	B/R	
Terminal No.	2	е	4	8	10	11	12	13	14	15	21	22	23	

3 4



## [BOSE AUDIO WITH NAVIGATION]

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## **AV CONTROL UNIT**

## < ECU DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

Connector No. B124 Connector Name REAR SUBWOOFER RH	Connector Color WHITE			H.S.			Terminal No.   Color of Signal Name	1 BRW -	2 BR -						Connector No. D101	Connector Name WIRE TO WIRE	Connector Color WHITE			Terminal No. Color of Signal Name	7 G/W –	9 BR -
Signal Name	FR TWDR LH + OUT	FR TWDR LH - OUT	FR TWDR RH - OUT	FR TWDR RH + OUT	RH WOOFER + OUT	RH WOOFER - OUT	GND	LH WOOFER - OUT	RR DOOR RH - OUT	BAT	BAT	GND	LH WOOFER +OUT	RR DOOR RH + OUT		FRONT DOOR SPEAKER LH	LE			Signal Name	I	1
Color of Wire	ГG	B/Y	GR/L	9	BR/W	BR	B/L	G/B	B/W	BR	B/R	ш	W/B		lo. D3		olor WHITE		<u> </u>	Color of Wire	×	m
Terminal No.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	Connector No.	Connector Name	Connector Color	E		Terminal No.	-	2
Connector No. B122 Connector Name BOSE SPEAKER AMP	BROWN			54 53 <sup>52</sup> <sup>51</sup> 50 49 48 47 46 45 44 43 42 41											D1	me WIRE TO WIRE	Nor WHITE	7         6         5         4         1         3         2         1           16         15         14         12         11         10         9         8		Color of Signal Name	- M	В
Connector No. Connector Nan	Connector Color			SH	) -										Connector No.	Connector Name	Connector Color	E	0 L	Terminal No.	5	15

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## **AV CONTROL UNIT**

#### < ECU DIAGNOSIS >

U DIAGNOSIS >	[BOSE /	AUDIO WITH NAVIGATION]
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		В
Connector No.     D202       Connector Name     REAR DOOR SPEAKER LH       Connector Color     BROWN       Mile     2       Terminal No.     Color of Wire       2     W/R	WIRE Signal Name Signal Name	С
D202 REAR DOOF BROWN Re of Sig	12 12 12 12 12 12 12 12 12 12 12 12 12 1	D
Connector No. D2C Connector Name REL Connector Color BRR H.S. Connector Color BRR Terminal No. Color of 1 O/B		E
Connector N Connector N Connector C H.S.	Connector Ne Connector Ne Connector Connector Connector Connector And Connector And	F
e e e e e e e e e e e e e e e e e e e	le l	G
E E Signal Name	Connector No.     D302       Connector Name     REAR DOOR SPEAKER RH       Connector Color     BROWN       Terminal No.     Color of Wire     Signal Name       1     L     -       2     B/W     -	Signal Name SIG GND VCC
. D201 me WIRE Tr dor WHTE To Mire 0.0B	0. D302 ame REAR Do blor BROWN Color of Color of L L	B R K
Connector No.     D201       Connector Name     WIRE TO WIRE       Connector Color     WHITE       Alar     3 1 6 5 4       Terminal No.     Color of Wire       5     W/R	Connector No. Connector Name Connector Color H.S. Terminal No. Col	Terminal No.
		к
D103 FRONT DOOR SPEAKER RH BROWN 2 1 2 1 3 8 8 8 8 8 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	Signal Name	L
33 DNT DOOR Signe	01 AE TO WIR Signa Signa	MICROPHONE           WHITE           I
40. D103 4ame FRONT I 2010r BROWN 2010r BROWN Color of BR	No. D301 Vame WIRE T Color WHITE 	
Connector No. Connector Name Connector Color H.S. Terminal No. Color 1 G.	Connector No.     D301       Connector Name     WIRE TO WIRE       Connector Name     WIRE TO WIRE       Connector Color     WHITE       Mise     Grant       Image: Signal     1       1     L       5     B/W	Connector No. Connector Name Connector Color
		ALNIA0072GB

DTC Index

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## **AV CONTROL UNIT**

## < ECU DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

## **AV CONTROL UNIT**

#### < ECU DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

CONSULT-III display	Malfunction	Reference page
CAN COMM CIRCUIT [U1000]	When AV control unit is not transmitting or receiving CAN communication signals for 2 seconds or more.	<u>AV-162</u>
CONTROL UNIT (CAN) [U1010]	When a malfunction is detected during initial diagnosis for CAN controller of each control unit.	<u>AV-163</u>
Cont Unit FLASH- ROM [U1200]	An internal malfunction is detected in AV control unit (FLASH-ROM).	<u>AV-250</u>
GYRO NO CONN [U1201]	An internal malfunction is detected in AV control unit (gyrocompass disconnection).	<u>AV-250</u>
GPS COMM [U1204]	An internal malfunction is detected in AV control unit (GPS malfunction).	<u>AV-250</u>
GPS ROM [U1205]	An internal malfunction is detected in AV control unit (GPS malfunction).	<u>AV-250</u>
GPS RAM [U1206]	An internal malfunction is detected in AV control unit (GPS malfunction).	<u>AV-250</u>
GPS RTC [U1207]	An internal malfunction is detected in AV control unit (GPS malfunction).	<u>AV-250</u>
DVD-ROM COMM [U1208]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-170</u>
DVD-ROM READ [U1209]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-171</u>
DVD-ROM DISC [U120A]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-172</u>
DVD-ROM MECHA DETECT [U120C]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-173</u>
DVD-ROM MECHA [U120D]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-174</u>
DVD-ROM SEEK [U1210]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-175</u>
DVD-ROM DATA FORWARD [U1212]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-176</u>
DVD-ROM DATA [U1213]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-177</u>
DVD-ROM TIMEOUT [U1214]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-178</u>
DVD-ROM LOAD [U1215]	An internal malfunction is detected in AV control unit (DVD-ROM).	<u>AV-179</u>
CAN CONT [U1216]	An internal malfunction is detected in AV control unit (CAN controller).	<u>AV-250</u>
BLUETOOTH CONN [U1217]	An internal malfunction is detected in AV control unit (Bluetooth module connection malfunc- tion).	<u>AV-250</u>
XM SERIAL COMM [U1220]	An internal malfunction is detected in AV control unit (satellite radio tuner communication mal- function).	<u>AV-250</u>
GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	<u>AV-183</u>
N-BUS CD CHG CONN [U124C]	<ul> <li>A malfunction is detected in CD changer power supply and ground circuits</li> <li>Malfunction occurs in request signal circuit. (Between CD changer and AV control unit)</li> <li>Malfunction occurs in communication signal circuit. (Between CD changer and AV control unit)</li> </ul>	<u>AV-184</u>

## **BOSE SPEAKER AMP**

#### **Reference Value**

#### INFOID:000000000995244 **TERMINAL LAYOUT** ģā 77 68 72 71 70 69 51 76 75 74 73 52 50 54 53 H.S 66 65 64 63 62 61 60 59 58 57 56 49 48 47 46 45 44 43 42 41 67 55 AWNIA0047ZZ

## PHYSICAL VALUES

	ninal color)	Description		Condition	Reference value
+	_	Signal name	Input/Output		(Approx.)
41 (LG)	42 (B/Y)	Sound signal front tweeter LH	Output	Ignition switch ON	(V) 1 0 -1 + 2ms SKIB3609E
44 (L/O)	43 (GR/L)	Sound signal front tweeter RH	Output	Ignition switch ON	(V) 1 0 -1 •••2ms SKIB3609E
45 (BR/W)	46 (BR)	Sound signal woofer RH	Output	Ignition switch ON	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
47 (B/L)	Ground	GND	_	Ignition switch ON	0V
50 (BR)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
51 (B/R)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
52 (B)	Ground	GND	—	Ignition switch ON	0V

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## **BOSE SPEAKER AMP**

#### < ECU DIAGNOSIS >

### [BOSE AUDIO WITH NAVIGATION]

	ninal color)	Description		Condition	Reference value
+	-	Signal name	Input/Output		(Approx.)
53 (W/B)	48 (G/B)	Sound signal woofer LH	Output	Ignition switch ON	(V) 1 0 -1 • 2ms SKIB3609E
54 (L)	49 (B/W)	Sound signal rear door RH	Output	Ignition switch ON	(V) 1 0 -1 • 2ms SKIB3609E
58 (W)	59 (B)	Sound signal front door speaker LH	Output	Ignition switch ON	(V) 1 0 -1 • 2ms SKIB3609E
60 (B/G)	Ground	Amp. ON signal	Input	Ignition switch ACC	Battery voltage
64 (BR)	63 (Y)	Sound signal rear LH	Input	Ignition switch ON	(V) 1 0 -1 • 2ms SKIB3609E
66 (LG)	65 (V)	Sound signal rear RH	Input	Ignition switch ON	(V) 1 0 -1 • 2ms SKIB3609E
68 (R/G)	55 (BR/B)	Sound signal rear door LH	Output	Ignition switch ON	(V) 1 0 -1 • 2ms SKIB3609E

## **BOSE SPEAKER AMP**

#### < ECU DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

	minal e color)	Description		Condition	Reference value	А
+	-	Signal name	Input/Output		(Approx.)	
69 (B/P)	70 (O/B)	Sound signal center speaker	Output	Ignition switch ON	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	B C D
71 (G/W)	72 (BR)	Sound signal front door speaker RH	Output	Ignition switch ON	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	E
73 (W/L)	74 (GR/V)	Sound signal front RH	Input	Ignition switch ON	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	G H
75 (W/R)	76 (B/R)	Sound signal front LH	Input	Ignition switch ON	(V) 1 0 -1 + 2ms SKIB3609E	I J K

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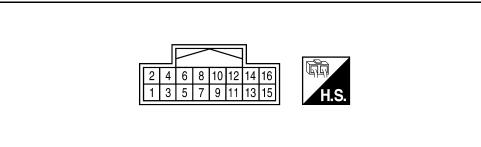
## REAR VIEW CAMERA CONTROL UNIT

### **Reference Value**

INFOID:000000000995245

WKIA5224E

TERMINAL LAYOUT



## PHYSICAL VALUES

Terminal		Description			Condition	Reference value
	color)	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
1 (Y)	Ground	Battery power	Input	OFF	—	Battery voltage
2 (V)	Ground	ACC power	Input	ACC	—	Battery voltage
3 (B)	Ground	Ground	_	ON	_	0V
4 (P/B)	Ground	Reverse signal input	Input	ON	A/T selector lever R position	Battery voltage
	erea.ra				A/T selector lever in other than R position	0V
5 (V/G)	Ground	AV Control	Output	ON	—	0V
6 (O)	Ground	DDL	Output	—	_	—
8 (GR)	Ground	Camera power output	Output	ON	A/T selector lever R position	6V
9 (L)	Ground	Camera image input (-)	Input	ON	—	0V
10 (P)	Ground	Camera image input (+)	Input	ON	A/T selector lever R position	(V) 0.6 0.4 0.2 0 −0.2 −0.4 + 20 µ s −0.6 −5.6
11 (R)	Ground	Composite image output (-)	Output	ON	A/T selector lever R position	(V) 0.6 0.4 0.2 0 -0.2 -0.4 -0.6 SKIA4896E
12 (W)	Ground	Composite image output (+)	Output	ON	A/T selector lever R position	(V) 0, 6 0, 4 0, 2 0 −0, 2 −0, 2 −0, 4 −0, 6 −0, 2 −0, 4 −0, 6 −0, 2 −0, 4 −0, 6 −0, 2 −0, 4 −0, 6 −0, 4 −0, 6 −0, 4 −0, 6 −0, 6 −0

## [BOSE AUDIO WITH NAVIGATION]

## < ECU DIAGNOSIS >

## **CD CHANGER**

## **Reference Value**

INFOID:000000000995246

А

#### **TERMINAL LAYOUT** В С > 12 14 16 2 4 6 < 1 3 5 7 8 9 10 11 13 15 D Е AWNIA0061ZZ

## PHYSICAL VALUES

	ninal color)	Description			Condition	Reference value	F
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)	G
2 (Y/L)	1 (W/L)	CD changer sound signal LH	Output	Ignition switch ON	When CD change mode is selected	(V) 1 0 -1 • 2ms SKIB3609E	H
4 (Y/G)	3 (BR/L)	CD changer sound signal RH	Output	lgnition switch ON	When CD change mode is selected	(V) 1 0 -1 2ms SKIB3609E	J K
5	—	Shield	_		—	—	- L
6	—	Shield	_		—	—	-
8 (R)	Ground	Request signal (CD→CONT)	Output	Ignition switch ON	When CD change mode is selected	(V) 10 0 -10 + 10ms SKIA9299J	M AM O
9 (B)	Ground	Communication signal (CONT→CD)	Input	Ignition switch ON	When CD change mode is selected	(V) 10 0 -10 -10 -10 -10 -10 -10 -	P

## **CD CHANGER**

#### < ECU DIAGNOSIS >

### [BOSE AUDIO WITH NAVIGATION]

	Terminal Description Condition		Reference value				
+	_	Signal name	Input/ Output	Ignition switch Operation		(Approx.)	
10 (G)	Ground	Communication signal (CD→CONT)	Output	Ignition switch ON	When CD change mode is selected	(V) 10 0 -10 • • 1 ms SKIA9301J	
12 (Y/R)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	
13 (R/Y)	Ground	Illumination (-)	Input	OFF	_	Refer to INL-9, "System Descrip- tion".	
14 (R/L)	Ground	Illumination (+)	Input	OFF	Lighting switch is OFF.	0V	
14 (IVL)	Ground		input	OIT	Lighting switch is ON.	Battery voltage	
16 (V/Y)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	

## SYMPTOM DIAGNOSIS

## MULTI AV SYSTEM

## Symptom Table

## NAVIGATION SYSTEM

			С
Symptom	Possible cause	Reference page	
Inoperative	<ul><li>AV control unit power and ground circuit</li><li>AV control unit</li></ul>	• <u>AV-186</u> • <u>AV-250</u>	D
Steering switch does not operate	<ul><li>Steering switch</li><li>AV control unit</li></ul>	• <u>AV-202</u> • <u>AV-250</u>	
Voice activated control does not operate	<ul><li>Microphone</li><li>Steering switch</li><li>AV control unit</li></ul>	<u>AV-204</u> <u>AV-202</u> <u>AV-250</u>	E

#### HANDS-FREE PHONE SYSTEM

Symptom	Possible cause	Reference page
Inoperative	<ul><li>AV control unit power and ground circuit</li><li>AV control unit</li></ul>	• <u>AV-186</u> • <u>AV-250</u>
Steering switch does not operate	<ul><li>Steering switch</li><li>AV control unit</li></ul>	• <u>AV-202</u> • <u>AV-250</u>
Voice activated control does not operate	<ul><li>Microphone</li><li>Steering switch</li><li>AV control unit</li></ul>	AV-204     AV-202     AV-250

### REAR VIEW MONITOR

Symptom	Possible cause	Reference page	
Inoperative	<ul> <li>Rear view camera control unit power and ground circuit</li> <li>Reverse signal circuit</li> <li>Camera ON signal circuit</li> <li>Camera image signal circuit (rear view camera to rear view camera control unit)</li> </ul>	<ul> <li>AV-186</li> <li>AV-208</li> <li>AV-206</li> <li>AV-205</li> </ul>	
	<ul> <li>Camera image signal circuit (rear view camera control unit to AV control unit)</li> <li>Rear view camera control unit</li> </ul>	<ul> <li><u>AV-207</u></li> <li>AV-268</li> </ul>	

#### AUDIO SYSTEM

Symptom	Possible cause	Reference page	Μ
Inoperative	<ul><li>AV control unit power and ground circuit</li><li>AV control unit</li></ul>	• <u>AV-186</u> • <u>AV-250</u>	AM
Steering switch does not operate	<ul><li>Steering switch</li><li>AV control unit</li></ul>	• <u>AV-202</u> • <u>AV-250</u>	
All speakers do not sound	<ul> <li>AV control unit power and ground circuit</li> <li>BOSE speaker amp. ON signal</li> <li>BOSE speaker amp. power and ground circuit</li> <li>BOSE speaker amp.</li> <li>AV control unit</li> </ul>	<ul> <li><u>AV-186</u></li> <li><u>AV-201</u></li> <li><u>AV-188</u></li> <li><u>AV-251</u></li> <li><u>AV-250</u></li> </ul>	O
One or several speakers do not sound	<ul> <li>Front door speaker</li> <li>Tweeter</li> <li>Center speaker</li> <li>Rear door speaker</li> <li>Rear subwoofer</li> </ul>	<ul> <li><u>AV-191</u></li> <li><u>AV-193</u></li> <li><u>AV-195</u></li> <li><u>AV-197</u></li> <li><u>AV-199</u></li> </ul>	_

#### [BOSE AUDIO WITH NAVIGATION]

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#### < SYMPTOM DIAGNOSIS >

## NORMAL OPERATING CONDITION

### Description

INFOID:000000000995248

[BOSE AUDIO WITH NAVIGATION]

#### AUDIO SYSTEM

The majority of the audio troubles are the result of outside causes (bad CD, electromagnetic interference, etc.).

Noise

The following noise results from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources. It is not a malfunction.

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from the waves sent directly from the broadcast station arriving at the antenna at a different time from the waves which reflect off mountains or buildings.

The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and determine the cause.

#### NOTE:

The source of the noise can be found easily by listening to the noise while removing the fuses of electrical components, one by one.

Type of Noise and Possible Cause

C	Occurrence condition	
	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	Ignition components
Occurs only when engine is ON.	A whistling noise occurs while the engine speed is high. A booming noise occurs while the engine is running and the lighting switch is ON.	Generator
The occurrence of the noise is lin	ked with the operation of the fuel pump.	Fuel pump condenser
Noise only occurs when various	A cracking or snapping sound occurs with the operation of various switches.	Relay malfunction, audio unit malfunction
electrical components are oper- ating.	The noise occurs when various motors are operat- ing.	<ul><li>Motor case ground</li><li>Motor</li></ul>
The noise occurs constantly, not just under certain conditions.		<ul> <li>Rear defogger coil malfunction</li> <li>Open circuit in printed heater</li> <li>Poor ground of antenna amplifier or antenna feeder line</li> </ul>
A cracking or snapping sound occurs while the vehicle is being driven, especially when it is vibrating excessively.		<ul> <li>Ground wire of body parts</li> <li>Ground due to improper part installation</li> <li>Wiring connections or a short circuit</li> </ul>

#### NAVIGATION SYSTEM

#### **Basic Operation**

Symptom	Cause	Remedy
No image is shown.	Display brightness adjustment is set fully to DARK side.	Adjust the display brightness.
No guide sound is heard.	Volume control is set to OFF, MIN or MAX.	Adjust the audio guide volume.
Audio guide volume is too low or too high.	Audio guidance is not available while the vehicle is driving on a dark pink route.	System is not malfunctioning.
Screen is too dark. Motion of the image is too slow.	Temperature inside the vehicle is low.	Wait until the temperature inside the vehicle reaches the proper temperature.
Small black or bright spots appear on the screen.	Symptom peculiar to a liquid crystal display (display unit).	System is not malfunction.

Vehicle Mark

#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

Symptom	Cause	Remedy
Map screen and BIRDVIEW™ Name of the place vary with the screen.	Some thinning of the character data is done to pre- vent the display becoming to complex. In some cases and in some locations, the display contents may differ. The same place name, street name, etc. may not be displayed every time on account of the data processing.	System is not malfunctioning.
Vehicle mark is not positioned cor- rectly.	Vehicle is transferred by ferry or by towing after its ignition switch is turned to OFF.	Drive the vehicle for a while in the GPS sat- ellite signal receiving condition.
Screen will not switch to nighttime mode after the lighting switch is turned ON.	The daytime screen is selected by the "SWITCH SCREENS" when the last time the screen dim- ming setting is done. Switching between daytime/nighttime screen may be inhibited by the automatic illumination adjust- ment function.	Perform screen dimming and select the nighttime screen by "SWITCH SCREENS".
Map screen will not scroll in accor- dance with the vehicle travel.	Current location is not displayed.	Press "MAP" button to display the current lo- cation.
Vehicle mark will not be shown.	Current location is not displayed.	Press "MAP" button to display the current lo- cation.
Accuracy indicator (GPS satellite mark) on the map screen stays	GPS satellite signal is intercepted because the vehicle is in or behind a building.	Move the vehicle out to an open space.
gray.	GPS satellite signal cannot be received because an obstacle is placed on top of the instrument pan- el.	Do not place anything in the center on top of the display.
	GPS satellites are not visible from current location.	Wait until GPS satellites are visible by mov- ing the vehicle.
Vehicle location accuracy is low.	Accuracy indicator (GPS satellite mark) on the map screen stays gray.	Current location is not determined.
	Vehicle speed setting by the vehicle speed pulse has been deviated (advanced or retarded) from the actual vehicle speed because tire chain is fit- ted or the system has been used on another vehi- cle.	Drive the vehicle for a while [for approx. 30 minutes at approx. 30 km/h (19 MPH)] and the deviation will be automatically adjusted. If advancement or retard still occur, perform the distance adjustment by CONFIRMA-TION/ADJUSTMENT mode of diagnosis function.
	Map data has error or omission. (Vehicle mark is always deviated to the same position.)	As a rule, an updated map DVD–ROM will be released once a year.

#### Destination, Passing Points and Menu Items Cannot be Selected/Set

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Symptom	Cause	Remedy	
Destination cannot be set.	Destination to be set is on an expressway.	Set the destination on an ordinary road.	
Passing point is not searched when re-searching the route.	The vehicle has already passed the passing point, or the system judged so.	To include the passing points that have been passed into the route again, set the route again.	Ą
Route information will not be displayed.	Route searching has not been done.	Set the destination and perform route searching.	C
	Vehicle mark is not on the recommended route.	Drive on the recommended route.	-
	Route guide is turned OFF.	Turn route guide ON.	F
	Route information is not available on the dark pink route.	System is not malfunctioning.	-
After the route searching, no guide sign will appear as the vehicle goes near the entrance/exit to the toll road.	Vehicle mark is not on the recommended route. (On the display, only guide signs related to the rec- ommended route will be shown.)	Drive on the recommended route.	-

#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

Symptom	Cause	Remedy
Automatic route searching is not possible.	Vehicle is driving on a highway (gray route), or no recommended route is available.	Drive on a road to be searched. Or re–search the route manually. In this case, however, the whole route will be searched.
Performed automatic detour search (or detour search). Howev- er, the result is the same as that of the previous search.	Performed search with every conditions consid- ered. However, the result is the same as that of the previous search.	System is not malfunctioning.
Passing points cannot be set.	More than five passing points were set.	Passing points can be set up to five. To stop at more than five points, perform sharing in several steps.
When setting the route, the starting point cannot be selected.	The current vehicle location is always set as the starting point of a route.	System is not malfunctioning.
Some menu items cannot be se- lected.	The vehicle is being driven.	Stop the vehicle at a safe place and then operate the system.

#### Voice Guide

Symptom	Cause	Remedy
Voice guide will not operate.	Note: Voice guide is only available at intersections that satisfy certain conditions (indicated by $\bullet$ on the map). Therefore, guidance may not be given even when the route on the map changes direction.	System is not malfunctioning.
	The vehicle is not on the recommended route.	Return to the recommended route or re- search the route.
	Voice guide is turned OFF.	Turn voice guide ON.
	Route guide is turned OFF.	Turn route guide ON.
Voice guide does not match the ac- tual road pattern.	Voice guide may vary with the direction to which the vehicle is turn and the connection of the road to other roads.	Drive in conformity to the actual traffic rules.

#### **Route Search**

Symptom	Cause	Remedy
No route is shown.	No road to be searched is found around the des- tination.	Find wider road (orange road or wider) near- by and reset the destination and passing points onto it. Take care of the traveling direc- tion when there are separate up and down roads.
	Starting point and the destination are too close.	Set the destination at more distant point.
	Conditional traffic regulation (day of the week/ time of the day) is set at the area around the cur- rent location or the destination.	Turn the time-regulating search conditions OFF. Turn "Avoid regulation time" in the search conditions OFF.
Indicated route is intermittent.	In some areas, highways (gray routes) are not used for the search <sup>(Note)</sup> Therefore, the route to the current location or the passing points may be intermittent.	System is not malfunctioning.
When the vehicle has passed the recommended route, it is deleted from the screen.	A recommended route is controlled by each sec- tion. When the vehicle has passed the passing point 1, then the map data from the starting point up to the passing point 1 will be deleted. (The data may remain undeleted in some area.)	System is not malfunctioning.

#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

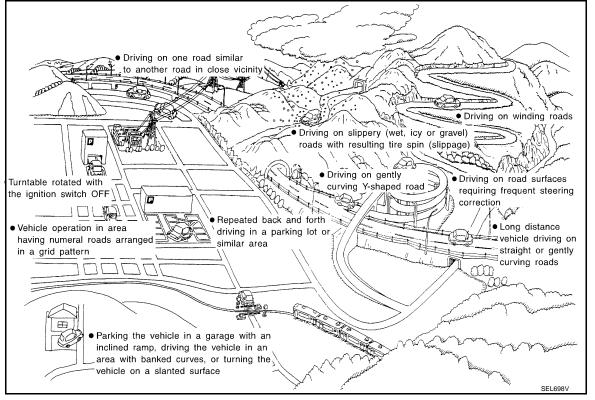
Symptom	Cause	Remedy
Detouring route is recommended.	In some areas, highways (gray routes) are not used for the search. (Note). Therefore, detour route may be recommended.	Set the route closer to the basic route (gray route).
	A detour route may be shown when some traffic regulation (one-way traffic, etc.) is set at the area around the starting point or the destination.	Slightly move the starting point or the destina- tion, or set the passing point on the route of your choice.
	In the area where highways (gray routes) are used for the search, left turn has priority around the current location and the destination (passing points). For this reason, the recommended route may be detouring.	System is not malfunctioning.
Landmarks on the map do not match the actual ones.	This can be happen due to omission or error in the map data.	As a rule, an updated map DVD-ROM will be released once a year. Wait until the latest map has become available.
Recommended route is far from the starting point, passing points, and destination.	Starting point, passing points, and destination of the route guide were set far from the desired points because route searching data around these area were not stored.	Reset the destination onto the road nearby. If this road is one of the highways (gray routes), an ordinary road nearby may be displayed as the recommended route.

#### NOTE:

Except for the ordinance-designated cities. (Malfunctioning areas may be changed in the updated map disc.)

#### Examples of Current-Location Mark Displacement

Vehicle's travel amount is calculated by reading its travel distance and turning angle. Therefore, if the vehicle is driven in the following manner, an error will occur in the vehicle's current location display. If correct location has not been restored after driving the vehicle for a while, perform location correction.



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#### < SYMPTOM DIAGNOSIS >

## NORMAL OPERATING CONDITION

## [BOSE AUDIO WITH NAVIGATION]

Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
	Y-intersections	At a Y intersection or similar gradual divi- sion of roads, an error in the direction of travel deduced by the sensor may result in the current-location mark appearing on the wrong road.	
	Spiral roads		
	ELK0193D	When driving on a large, continuous spiral road (such as loop bridge), turning angle error is accumulated and the vehicle mark may deviate from the correct location.	
Road config-	Straight roads	When driving on a long, straight road and slow curve without stopping, map-matching does not work effectively enough and dis- tance errors may accumulate. As a result, the vehicle mark may deviate from the cor- rect location when the vehicle is turned at a corner.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform lo-
uration	Zigzag roads	When driving on a zigzag road, the map may be matched to other roads in the simi- lar direction nearby at every turn, and the vehicle mark may deviate from the correct location.	cation correction and, if neces- sary, direction correction.
	Roads laid out in a grid pattern	When driving where roads are laid out in a grid pattern, or where many roads are run- ning in the similar direction nearby, the map may be matched to them by mistake and the vehicle mark may deviate from the cor- rect location.	
	Parallel roads		
		When two roads are running in parallel (such as highway and sideway), the map may be matched to the other road by mis- take and the vehicle mark may deviate from the correct location.	

#### < SYMPTOM DIAGNOSIS >

## [BOSE AUDIO WITH NAVIGATION]

Cause (cor	ndition) –: While driving ooo: Display	Driving condition	Remarks (correction, etc.)	
	In a parking lot	When driving in a parking lot, or other loca- tion where there are no roads on the map, matching may place the vehicle mark on a nearby road. When the vehicle returns to the road, the vehicle mark may have devi- ated from the correct location. When driving in circle or turning the steer- ing wheel repeatedly, direction errors accu- mulate, and the vehicle mark may deviate from the correct location.		
Place	Turntable Turntable SEL710V	When the ignition switch is OFF, the navi- gation system cannot get the signal from the gyroscope (angular speed sensor). Therefore, the displayed direction may be wrong and the correct road may not be eas- ily returned to after rotating the vehicle on a turntable with the ignition OFF.		
	Slippery roads	On snow, wet roads, gravel, or other roads where tires may slip easily, accumulated mileage errors may cause the vehicle mark to deviate from the correct road.	If after travelling about 10 km (6 miles) the correct location has	
	Slopes	When parking in sloped garages, when travelling on banked roads, or in other cas- es where the vehicle turns when tilted, an error in the turning angle will occur, and the vehicle mark may deviate from the road.	not been restored, perform lo- cation correction and, if neces- sary, direction correction.	
	Road not displayed on the map screen	When driving on new roads or other roads not displayed on the map screen, map matching does not function correctly and matches the location to a nearby road. When the vehicle returns to a road which is		
	SEL699V	on the map, the vehicle mark may deviate from the correct road.		
	Different road pattern (Changed due to repair)	If the road pattern stored in the map data and the actual road pattern are different, map matching does not function correctly and matches the location to a nearby road. The vehicle mark may deviate from the cor-		
	ELK0201D	rect road.		
Vehicle	Use of tire chains	When tire chains are used, the mileage is not correctly detected, and the vehicle mark may deviate from the correct road.	Drive the vehicle for a while. If the distance still deviates, ad- just it by using the distance ad- justment function. (If the tire chain is removed, recover the original value.)	

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#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
Precautions for driving	Just after the engine is started	If the vehicle is driven just after the engine is started when the gyroscope (angular speed sensor) correction is not completed, the vehicle can lose its direction and may have deviated from the correct location.	Wait for a short while before driving after starting the engine.
	Continuous driving without stopping	When driving long distances without stop- ping, direction errors may accumulate, and the current-location mark may deviate from the correct road.	Stop and adjust the orientation.
	Abusive driving	Spinning the wheels or engaging in other kinds of abusive driving may result in the system being unable perform correct detec- tion, and may cause the vehicle mark to de- viate from the correct road.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform lo- cation correction and, if neces- sary, direction correction.
How to cor- rect location	Position correction accuracy Within 1 mm (0.04 in)	If the accuracy of location settings is poor, accuracy may be reduced when the correct road cannot be found, particularly in places where there are many roads.	Enter in the road displayed on the screen with an accuracy of approx. 1mm. Caution: Whenever possible, use detailed map for the correc- tion.
	Direction when location is corrected	If the accuracy of location settings during correction is poor, accuracy may be re- duced afterwards.	Perform direction correction.

Location Correction by Map-Matching is Slow

- The map-matching function needs to refer to the data of the surrounding area. It is necessary to drive some distance for the function to work.
- Because map-matching operates on this principle, when there are many roads running in similar directions in the surrounding area, no matching determination may be made. The location may not be corrected until some special feature is found.

#### Name of Road is Not Displayed

The current road name may not be displayed if there are no road names displayed on the map screen.

Contents of Display Differ for Birdview<sup>™</sup> and the (Flat) Map Screen

Difference of the BIRDVIEW<sup>™</sup> screen from the flat map screen are as follows.

- The current place name displays names which are primarily in the direction of vehicle travel.
- The amount of time before the vehicle travel or turn angle is updated on the screen is longer than for the (flat) map display.
- The conditions for display of place names, roads, and other data are different for nearby areas and for more distant areas.
- Some thinning of the character data is done to prevent the display becoming too complex. In some cases and in some locations, the display contents may differ.
- The same place name, street name, etc. may be displayed multiple times.

Vehicle Mark Shows a Position Which is Completely Wrong

In the following cases, the vehicle mark may appear on completely different position in the map depending on the GPS satellite signal receiving conditions. In this case, perform location correction and direction correction.

- When location correction has not been done
- If the receiving conditions of the GPS satellite signal is poor, if the vehicle mark becomes out of place, it may move to a completely different location and not come back if location correction is not done. The position will be corrected if the GPS signal can be received.
- When the vehicle has traveled by ferry, or when the vehicle has been being towed

#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

- Because calculation of the current location cannot be done when traveling with the ignition off, for example when traveling by ferry or when being towed, the location before travel is displayed. If the precise location A can be detected with GPS, the location will be corrected.

#### Vehicle Mark Jumps

In the following cases, the vehicle mark may appear to jump as a result of automatic correction of the current B location.

- When map matching has been done
- If the current location and the vehicle mark are different when map matching is done, the vehicle mark may seem to jump. At this time, the location may be "corrected" to the wrong road or to a location which is not on a road.
- When GPS location correction has been done
- If the current location and the vehicle mark are different when the location is corrected using GPS measurements, the vehicle mark may seem to jump. At this time, the location may be "corrected" to a location which is not on a road.

#### Vehicle Mark is in a River or Sea

The navigation system moves the vehicle mark with no distinction between land and rivers or sea. If the vehicle mark is somehow out of place, it may appear that the vehicle is driving in a river or the sea.

#### Vehicle Mark Automatically Rotates

The system wrongly memorizes the rotating status as stopping when the ignition switch is turned ON with the turntable rotating. That causes the vehicle mark to rotate when the vehicle is stopped.

When Driving on Same Road, Sometimes Vehicle Mark is in Right Place and Sometimes it is in Wrong Place <sup>G</sup> The conditions of the GPS antenna (GPS data) and gyroscope (angular speed sensor) change gradually. Depending on the road traveled and the operation of the steering wheel, the location detection results will be different. Therefore, even on a road on which the location has never been wrong, conditions may cause the vehicle mark to deviate.

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## < PRECAUTION > PRECAUTION

## PRECAUTIONS

Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSION-ER"

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

## Precaution for Trouble Diagnosis

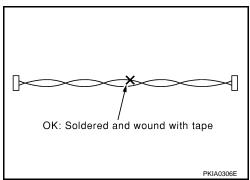
#### AV COMMUNICATION SYSTEM

- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

### Precaution for Harness Repair

#### AV COMMUNICATION SYSTEM

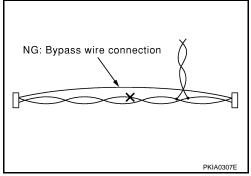
• Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]



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• Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



## [BOSE AUDIO WITH NAVIGATION]

## < PREPARATION >

## PREPARATION

## PREPARATION

## **Commercial Service Tools**

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Tool name		Description	
		Loosening bolts and nuts	
Power tool			
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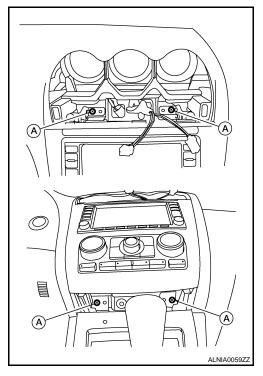
# <ON-VEHICLE REPAIR > ON-VEHICLE REPAIR AUDIO UNIT

Removal and Installation

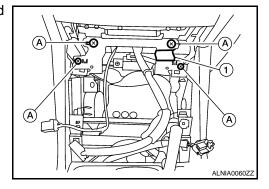
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### REMOVAL

- 1. Remove cluster lid C. Refer to IP-11, "Removal and Installation".
- 2. Remove cluster lid D lower finisher. Refer to IP-11, "Removal and Installation".
- 3. Remove navigation audio unit upper and lower screws (A).



4. Remove the navigation audio unit bracket screws (A) and remove the navigation audio unit bracket (1).



5. Pull out the navigation audio unit assembly, disconnect the navigation audio unit assembly connectors.

#### INSTALLATION

Installation is in the reverse order of removal.

< ON-VEHICLE REPAIR >	[BOSE AUDIO WITH NAVIGATION]
BOSE AMP.	
Removal and Installation	INFOID:00000000995254
For removal and installation, refer to AV-119. "Removal and Installation	on".
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< ON-VEHICLE REPAIR >

## [BOSE AUDIO WITH NAVIGATION]

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## CD CHANGER

Removal and Installation

For removal and installation, refer to <u>AV-120, "Removal and Installation"</u>.

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Removal and Installation	INFOID:000000000995256	A
For removal and installation, refer to AV-121, "Removal and Installation".		В
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# CENTER SPEAKER

Removal and Installation

For removal and installation, refer to <u>AV-122, "Removal and Installation"</u>.

# < ON-VEHICLE REPAIR > FRONT DOOR SPEAKER А Removal and Installation INFOID:000000000995258 For removal and installation, refer to AV-47. "Removal and Installation". В С D Е F G

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# **REAR DOOR SPEAKER**

Removal and Installation

For removal and installation, refer to <u>AV-124, "Removal and Installation"</u>.

# REAR SPEAKER A Removal and Installation INFOID:0000000995260 For removal and installation, refer to AV-48. "Removal and Installation". B C D

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# SATELLITE RADIO TUNER

Removal and Installation

For removal and installation, refer to <u>AV-127, "Removal and Installation"</u>.

### SATELLITE RADIO ANTENNA

< ON-VEHICLE REPAIR >	[BOSE AUDIO WITH NAVIGATION]
SATELLITE RADIO ANTENNA	
Removal and Installation	INFOID:00000000995262
For removal and installation, refer to AV-128. "Removal and Installat	<u>ion"</u> .

[BOSE AUDIO WITH NAVIGATION]

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# ANTENNA FEEDER (SATELLITE RADIO)

Harness Layout

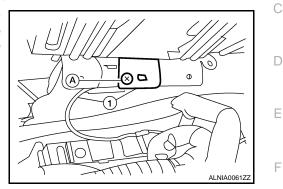
For harness layout, refer to <u>AV-128, "Removal and Installation"</u>.

# GPS ANTENNA

### Removal and Installation

### REMOVAL

- 1. Remove the combination meter. Refer to IP-11, "Removal and Installation".
- 2. Remove the navigation audio unit. Refer to Navigation audio unit.
- 3. Remove the GPS navigation antenna screw (A), then fish the GPS navigation antenna connector and harness (1), through the combination meter instrument panel opening and remove the GPS antenna.



INSTALLATION Installation is in the reverse order of removal.

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# STEERING SWITCH

Removal and Installation

For removal and installation, refer to <u>AV-53, "Removal and Installation"</u>.

## < ON-VEHICLE REPAIR > ANTENNA AMP. А Removal and Installation INFOID:000000000995266 For removal and installation, refer to AV-49. "Removal and Installation". В С

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# MICROPHONE

Removal and Installation

For removal and installation, refer to <u>AV-133</u>, "Removal and Installation".

# TEL ANTENNA A Removal and Installation INFOID-00000000995266 For removal and installation, refer to <u>AV-134, "Removal and Installation"</u>. B C D

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# TEL ADAPTER UNIT

Removal and Installation

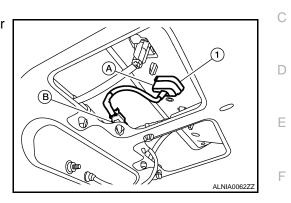
For removal and installation, refer to <u>AV-135, "Removal and Installation"</u>.

# **REAR VIEW MONITOR**

### Removal and Installation

### REMOVAL

- 1. Remove the license plate finisher. Refer to EXL-124, "Removal and Installation".
- 2. Remove trunk lid finisher. Refer to Trunk lid finisher.
- 3. Disconnect the rear view monitor connector (B), press the rear view monitor tab (A) and remove the rear view monitor (1).



#### INSTALLATION Installation is in the reverse order of removal.

### Adjustment

REAR VIEW MONITOR For adjustment on the rear view monitor, refer to <u>AV-138, "REAR VIEW MONITOR GUIDING LINE ADJUST-</u> MENT : Special Repair Requirement".

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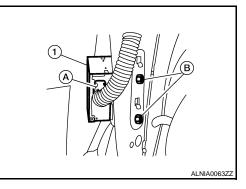
### [BOSE AUDIO WITH NAVIGATION]

# CAMERA CONTROL UNIT

### Removal and Installation

### REMOVAL

- 1. Remove the trunk side finisher. Refer to INT-23. "Removal and Installation".
- Disconnect the rear view monitor control unit connector (A), then remove the rear view monitor screws (B) and remove the rear view monitor control unit (1).



INSTALLATION Installation is in the reverse order of removal. INFOID:000000000995272