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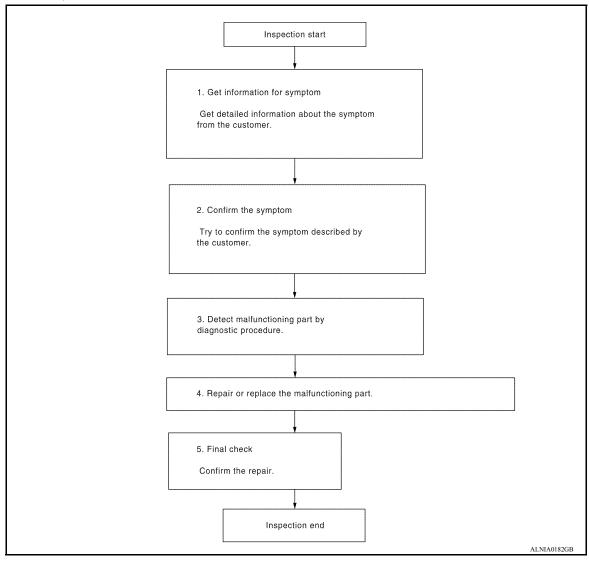
[BASE AUDIO] < BASIC INSPECTION >

# **BASIC INSPECTION**

# DIAGNOSIS AND REPAIR WORKFLOW

Work Flow INFOID:0000000009876435 В

### **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.

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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.

### Has the symptom been repaired?

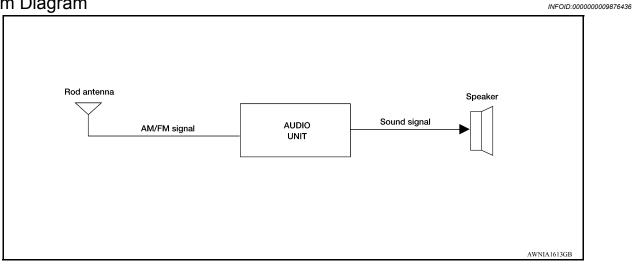
YES >> Inspection End.

NO >> GO TO 2.

# SYSTEM DESCRIPTION

### **AUDIO SYSTEM**

System Diagram



# System Description

AUDIO SYSTEM

The audio systems consists of the following components

- Audio unit
- Rod antenna
- · Front door speakers
- · Front tweeters
- Rear door speakers
- Rear door tweeters (crew cab)

When the audio system is on, radio signals are received by the rod antenna. The audio unit then sends audio signals to the front door speakers, front tweeters, rear door speakers and rear door tweeters (crew cab). Refer to Owner's Manual for audio system operating instructions.

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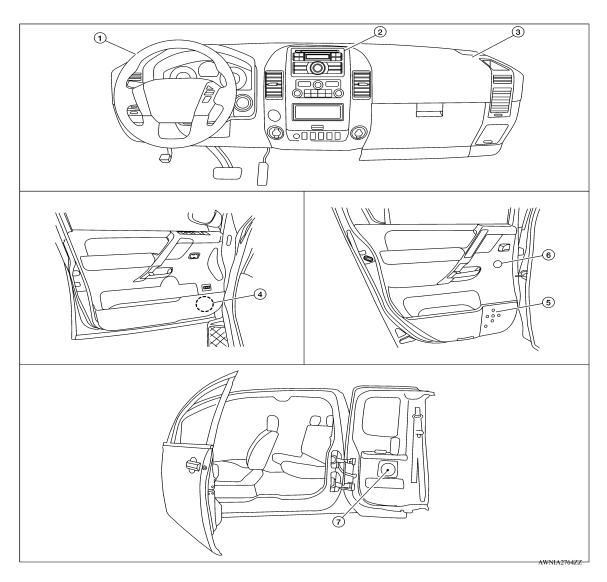
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### **Component Parts Location**

INFOID:0000000009876438



- 1. Front tweeter LH M109
- Front door speaker LH D12 RH D112
- Rear door speaker (king cab) LH B76 RH B159
- 2. Audio unit M168
- Rear door speaker (crew cab)
   LH D207
   RH D307
- 3. Front tweeter RH M111
- 6. Rear door tweeter (crew cab) LH D208 RH D308

# **Component Description**

INFOID:0000000009876439

Part name	Description
Audio unit	Controls audio system functions
Front door speakers	Outputs audio signal from audio unit     Outputs high, mid and low range sounds
Front tweeters	Outputs audio signal from audio unit     Outputs high range sounds

### **AUDIO SYSTEM**

### < SYSTEM DESCRIPTION >

[BASE AUDIO]

Part name	Description
Rear door speakers	Outputs audio signal from audio unit     Outputs high, mid and low range sounds
Rear door tweeters (crew cab)	Outputs audio signal from audio unit     Outputs high range sounds

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# DTC/CIRCUIT DIAGNOSIS

# POWER SUPPLY AND GROUND CIRCUIT AUDIO UNIT

AUDIO UNIT: Diagnosis Procedure

INFOID:0000000009876440

Regarding Wiring Diagram information, refer to AV-23, "Wiring Diagram".

### 1.CHECK FUSES

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

Unit Terminals		Signal name	Fuse No.	
Audio unit	19	Battery power	31	
Addio di iit	7	Ignition switch ACC or ON	4	

### Are the fuses OK?

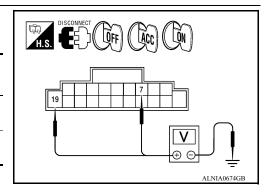
YES >> GO TO 2.

NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

# 2. POWER SUPPLY CIRCUIT CHECK

- 1. Disconnect audio unit connector M168.
- 2. Check voltage between the audio unit connector M168 ground.

(+)		(-)	OFF	ACC	ON	
Connector	Terminal	(-)	OH	700	ON	
M168	7	Ground	0V	Battery voltage	Battery voltage	
	19	Ground	Battery voltage	Battery voltage	Battery voltage	



### Are the voltage results as specified?

YES >> Inspection end.

NO >> • Check connector housings for disconnected or loose terminals.

· Repair harness or connector.

# $3. \mathsf{ground} \; \mathsf{circuit} \; \mathsf{check}$

Inspect audio unit case ground.

### Does case ground pass inspection?

YES >> Inspection end.

NO >> Repair audio unit case ground.

### FRONT DOOR SPEAKER

Description (INFOID:000000009876441

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

Diagnosis Procedure

INFOID:0000000009876442

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Regarding Wiring Diagram information, refer to AV-23, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2. HARNESS CHECK

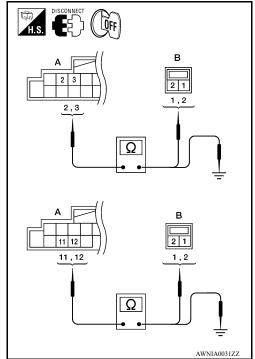
- 1. Disconnect audio unit connector M168 and suspect front door speaker connector.
- Check continuity between audio unit harness connector M168

   (A) terminal and suspect front door speaker harness connector
   (B) terminal.

-	Α		В	Continuity
Connector	Terminal	Connector	Terminal	Continuity
	2	D12	1	
M168	3	D12 -	2	Yes
IVI 100	11		1	165
	12	שווע	2	

3. Check continuity between audio unit harness connector M168 (A) terminal and ground.

Α			Continuity	
Connector	Terminal	_	Continuity	
	2	2		
M168	3	Cround	No	
	11	Ground	INO	
	12			



Are continuity results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.FRONT SPEAKER SIGNAL CHECK

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### < DTC/CIRCUIT DIAGNOSIS >

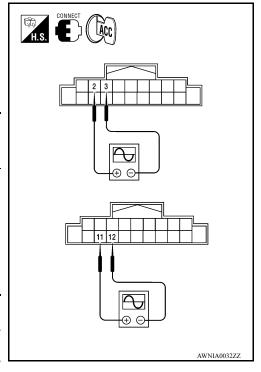
- Connect audio unit connector M168 and front door speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M168 terminals with CONSULT or oscilloscope.

	(+) (-)				
Con- nector	Terminal	Terminal	Condition	Reference signal	
	2	3			
M168	11	12	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

### Is the audio signal voltage as specified?

YES >> Replace front door speaker. Refer to <u>AV-37, "Removal and Installation"</u>.

NO >> Replace audio unit. Refer to <u>AV-35, "Removal and Installation"</u>.



### FRONT TWEETER

Description INFOID:000000009876443

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

Diagnosis Procedure

INFOID:000000009876444

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Regarding Wiring Diagram information, refer to AV-23, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

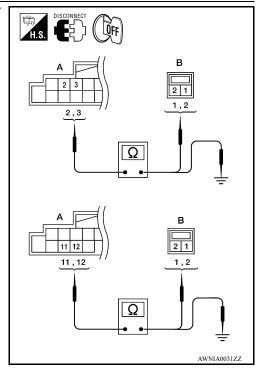
# 2. HARNESS CHECK

- 1. Disconnect audio unit connector M168 and suspect front tweeter connector.
- 2. Check continuity between audio unit harness connector M168 (A) and suspect front tweeter harness connector (B).

	A	I	В	Continuity
Connector	Terminal	Connector Terminal		Continuity
	2	M109	1	
M168	3	WITUS	2	Yes
WITOO	11	M111	1	165
	12	IVIIII	2	

 Check continuity between audio unit harness connector M168 (A) and ground.

	Α		Continuity	
Connector	Terminal			
	2			
M168	3	Ground	No	
WITOO	11			
	12			



Are the continuity results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. FRONT TWEETER SIGNAL CHECK

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### < DTC/CIRCUIT DIAGNOSIS >

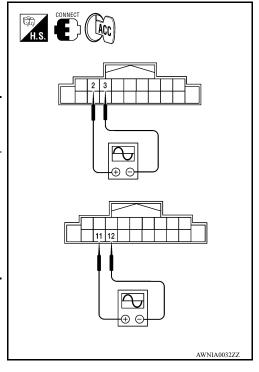
- 1. Connect audio unit connector M168 and front tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M168 terminals with CONSULT or oscilloscope.

(+)		(-)				
Con- nector	Terminal	Terminal	Condition	Reference signal		
	2	3				
M168	11	12	Receive audio sig- nal	(V) 1 0 -1 1 ms		

### Is the audio signal voltage as specified?

YES >> Replace the suspect front tweeter. Refer to <u>AV-36, "Removal and Installation"</u>.

NO >> Replace audio unit. Refer to <u>AV-35, "Removal and Installation"</u>.



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### REAR DOOR SPEAKER

Description INFOID:0000000009876445

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

Diagnosis Procedure

INFOID:0000000009876446

Regarding Wiring Diagram information, refer to AV-23, "Wiring Diagram".

1. CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

2. HARNESS CHECK

Disconnect audio unit connector M168 and suspect rear door speaker connector.

2. Check continuity between audio unit harness connector M168 (A) and suspect rear door speaker harness connector (B).

	4	В	Continuity	
Connector	Terminal	Connector	Continuity	
	4	D207 (crew cab)	1	
M168	5	B76 (king cab)	2	Yes
WITOO	13	D307 (crew cab)	1	103
	14	B159 (king cab)	2	

Check continuity between audio unit harness connector M168 (A) and ground.

	Α		Continuity	
Connector	Terminal		Continuity	
	4			
M168	5	Ground	No	
IVI 100	13			
	14			

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Are the continuity results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.rear door speaker signal check

**AV-17** Revision: April 2014 2014 Titan

### **REAR DOOR SPEAKER**

### < DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO]

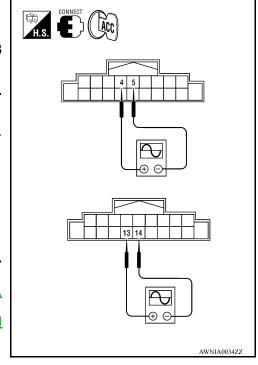
- 1. Connect audio unit connector and rear door speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M168 terminals with CONSULT or oscilloscope.

(+)		(-)	Condition	Reference signal	
Connector	Terminal	Terminal	Condition	reference signal	
	4	5			
M168	13	14	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

### Is the audio signal voltage as specified?

YES >> Replace the suspect rear door speaker. Refer to <u>AV-38</u>, <u>"Removal and Installation"</u>.

NO >> Replace audio unit. Refer to <u>AV-35, "Removal and Installation"</u>.



### REAR DOOR TWEETER

Description (INFOID:000000009876447)

The audio unit sends audio signals to the rear door tweeters using the audio signal circuits.

Diagnosis Procedure

INFOID:0000000009876448

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Regarding Wiring Diagram information, refer to AV-23, "Wiring Diagram".

1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- · Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

2. HARNESS CHECK

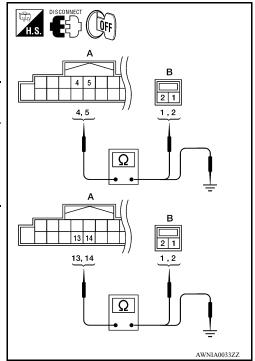
 Disconnect audio unit connector M168 and suspect rear door tweeter connector.

2. Check continuity between audio unit harness connector M168 (A) and suspect rear door tweeter harness connector (B).

	4	В	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
	4	D208	1	
M168	5	D206	2	Yes
IVITOO	13	D308	1	165
	14	D306	2	

3. Check continuity between audio unit harness connector M168 (A) and ground.

	Α		Continuity	
Connector	Terminal		Continuity	
	4	Ground		
M168	5		No	
IVI I OO	13			
	14			



Are the continuity results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. REAR DOOR TWEETER SIGNAL CHECK

Revision: April 2014 AV-19 2014 Titan

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### **REAR DOOR TWEETER**

### < DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO]

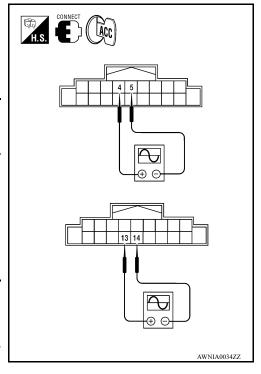
- 1. Connect audio unit connector and rear door tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M168 terminals with CONSULT or oscilloscope.

(+)		(-)			
Connec- tor	Terminal	Terminal	Condition	Reference signal	
	4	5			
M168	13	14	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

### Is the audio signal voltage as specified?

YES >> Replace the suspect rear door tweeter. Refer to <u>AV-38</u>, <u>"Removal and Installation"</u>.

NO >> Replace audio unit. Refer to <u>AV-35, "Removal and Installation"</u>.



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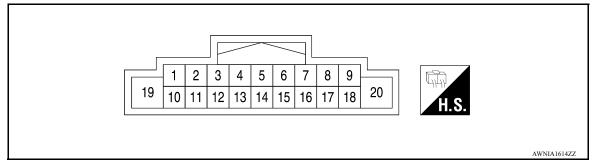
SKIB3609E

# **ECU DIAGNOSIS INFORMATION**

# **AUDIO UNIT**

Reference Value

### TERMINAL LAYOUT



### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
2 (L/W)	3 (L/R)	Sound signal front door speaker and front tweeter LH (if equipped)	Output	Ignition switch ON	Audio output	(V) 1 0 -1 ** 2ms SKIB3609E	
4 (SB)	5 (B/Y)	Sound signal rear door speaker and rear tweeter LH (if equipped)	Output	Ignition switch ON	Audio output	(V) 1 0 -1 + 2ms SKIB3609E	
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC or ON	_	Battery voltage	
9 (R/L)	8 (BR)	Illumination	Input	Ignition switch ACC or ON	Exterior lights ON	Battery voltage	
11 (W/B)	12 (L/B)	Sound signal front door speaker and front tweeter RH (if equipped)	Output	Ignition switch ON	Voice output	(V) 1 0 -1 + 2ms	

### **AUDIO UNIT**

[BASE AUDIO]

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
13 (O/L)	14 (R/L)	Sound signal rear door speaker and rear tweeter RH (if equipped)	Output	Ignition switch ON	Voice output	(V) 1 0 -1 *** 2ms SKIB3609E
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage

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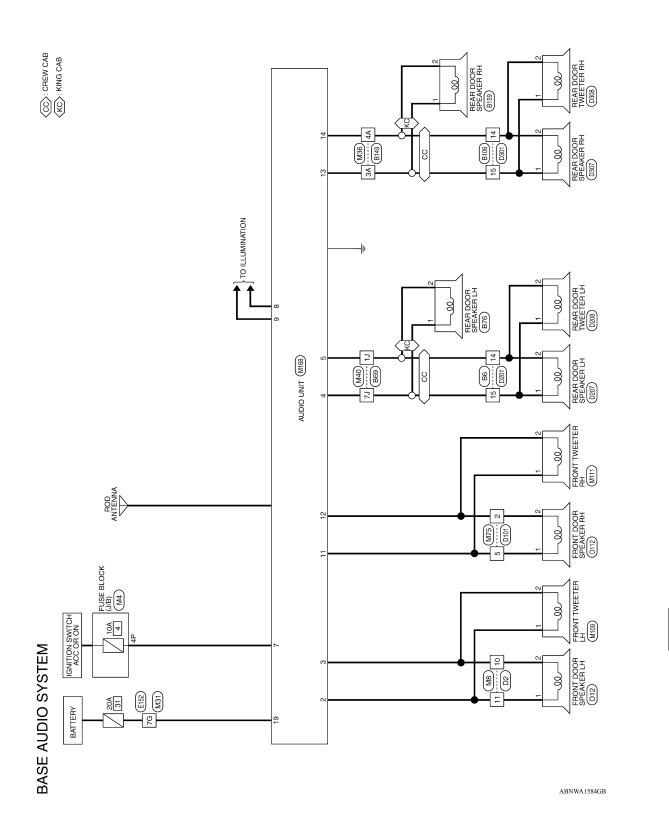
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INFOID:0000000009876450

# WIRING DIAGRAM

# **BASE AUDIO SYSTEM**

Wiring Diagram



# BASE AUDIO SYSTEM CONNECTORS

Connector Name FUSE BLOCK (J/B) Connector Color WHITE		
Connector Color WHITE	ector Name FUSE BLOCK (	XK (J/B)
	ector Color WHITE	

Connector Name WIRE TO WIRE Connector Color WHITE

Connector No. M8

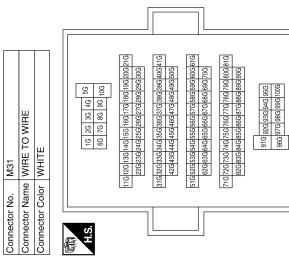






Signal Name	_	ı	
Color of Wire	L/R	M/l	
erminal No.	10	11	

	Signal Name	_
	Color of Wire	Υ
	Terminal No. Wire	76



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Trail   Signal   Name   Sign	me         WIRE TO WIRE         Connector Name         WIRE TO WIRE           or         WHITE         Connector Color         WHITE	1.0 2.1 3.1 4.1 5.1 E.1 3.0 10.0 10.0 10.0 10.0 10.0 10.0 10.	11.0   12.0   15.0	31.1 (32.1) (33.1) (34.	71.1 72.1 72.1 73.1 75.1 75.1 75.1 75.1 75.1 75.1 75.1 75	196   196	Color of Signal Name	B/Y -		M111	ne FRONT TWEETER RH	or BROWN	2 1	Color of Signal Name Wire	W/B –	
1A   2A   3A   4A   5   5   5   5   5   5   5   5   5	Connector Name	而 H.S.					Terminal No.	L1	2	Connector No.	Connector Name	Connector Color	F.S.		-	2
	RE TO WIRE	2A 3A 4A 7A 8A 9A				91A 92A 93A 94A 95A 96A 97A 98A 99A100A		1	ı	109		ROWN	2			

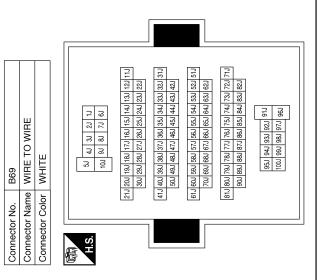
Revision: April 2014 AV-25 2014 Titan

Terminal No.   Color of   Signal Name	16 –	17 –	18	19 Y	20 –							Connector No.   B6	-	Connector Color WHITE	10 9 8 7 6 6 4 14 13 H.S.	Terminal No.   Color of   Signal Name	14 B/Y	15 SB			
Signal Name	1	ı	1	ı	ı	1	ı	1	1	ı	1		Signal Name	1							
Color of Wire	В/У	1	>	BR	R/L	1	M/B	R - R	J/0	R/L	1	Color of	Wire	-							
Terminal No.	5	9	7	8	6	10	11	12	13	14	15		Terminal No.	ָס							
	ш,				20	]	Signal Name								5 98 90 98	21G20G19G18G17G16G15G14G13G12G11G 30G29G28G27G26G25G24G23G22G	000000000000000000000000000000000000000	50G 49G 48G 47G 46G 45G 44G 42G	61G800G39G58G57G58G68GG54G83GE2G51G 770G89G88G67G86G68G64G63G82G	81G80G79G77G77G76G75G74G73G72G71G 90G89G89G87G87G86G85G8AG83G82G	95G 94G 93G [97G ]
	AUDIO SYSTEM)			- w			ق			1	1		Connector Name WIRE TO WIRE		56 46 36 26 1	15G1 25G2	250	4564	5566	75G 85G	176

ABNIA3962GB

	1		1			
	REAR DOOR SPEAKER LH	Щ		Signal Name	- (WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	– (WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
B76		or WHITE	2	Color of Wire		>
Connector No.	Connector Name	Connector Color	画 H.S.	Terminal No.	-	2

Terminal No.	Color of Wire	Signal Name
L1	>	- (KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
1,1	В/У	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
L7	L	- (KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
L7	SB	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)



	WIRE TO WIRE	3.	10 9 8 7 6 5 4 3 2 1 18 17 16 15 14 13 12 11	Signal Name	-	ı
B106		r WHIT	9 8 7 6 17 16 11	Color of Wire	R/L	O/L
Connector No.	Connector Name	Connector Color WHITE	[10] H.S.	Terminal No.	14	15

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Aame Connector No. B159 Connector Name REAR DOOR SPEAKER RH	Connector Color WHITE		70000	Terminal No. Wire Signal Name	1 C SYSTEM OR MID AUDIO SYSTEM)	2 R/L					Connector No. D101	PEAKER LH Connector Name WIRE TO WIRE	Connector Color WHITE	1 2 m 3 4 5 6 7 8 9 10		Vame Terminal No. Wire Signal Name	2 L/B -	
Signal Name	– (KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	ı								12	FRONT DOOR SPEAKER LH	WHITE			of Signal Name	I	
Color of Wire	_	O/L	R/L								). D12		_		<u> </u>	Color of Wire	M/I	!
Terminal No.	3A	3A	4A								Connector No.	Connector Name	Connector Color	E SH		Terminal No.	-	,
B149 WIRE TO WIRE	WHITE	54 44 34 24 14 10A 94 88 77 64	214 204 194 184 174 164 154 144 138 124 114	30A 294 284 274 264 254 24 24 24 24 24 24 24 24 24 24 24 24 384 374 384 374 384 384 384 384 384 384 384 384 384 38	50A 43A 48A 47A 46A 45A 44A 43A 42A	0 1 46 UA 394 37 4 364 53 4 354 31 A 70 4 69 4 68 4 67 4 66 4 65 4 64 63 4 62 A	81A 80A 79A 78A 76A 75A 74A 73A 72A 77A  90A 89A 88A 87A 86A 85A 84A 82A 82A	954 944 934 924 91A	100A 99A 98A 97A 96A		D2	Connector Name WIRE TO WIRE	WHITE	1 2 3		r of Signal Name	-	
			21A 20	414	3 3	07 70	814 80					ame W		1 2 3 8 9 10		Color of Wire	L/R	
Connector No.	Connector Color	H.S.									Connector No.	Connector N	Connector Color	是 E		Terminal No.	10	Ť

Connector No.	D201	01	Connector No.	D207	7
onnector Na	me WIF	Connector Name WIRE TO WIRE	Connector Na	me RE/	Connector Name REAR DOOR SPEAKER LH
Connector Color WHITE	lor WH	ITE	Connector Color WHITE	lor WH	TE TIE
H.S.	11 12 3 4	1 2 3 4 5   10 17 8 9 10 11 12 13 14 15 16 17 18   10 10 10 10 10 10 10 10 10 10 10 10 10	原 H.S.		
Terminal No. Wire	Color of Wire	Signal Name	Terminal No. Wire	Color of Wire	Signal Name
14	B∕Y	- (WITHOUT NAVI OR	-	SB	- (WITHOUT NAVI OR

Signal Name	- (WITHOUT NAVI OR MID AUDIO SYSTEM)	- (WITHOUT NAVI OR MID AUDIO SYSTEM)
Color of Wire	В/	SB
Terminal No.	14	15

- (WITHOUT NAVI OR MID AUDIO SYSTEM)

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

Connector Name FRONT DOOR SPEAKER RH

D112

Connector No.

Connector Color WHITE

D307	REAR DOOR SPEAKER RH	VHITE	-	r of Signal Name		MID AUDIO SYSTEM)
Connector No. D	Connector Name   R	Connector Color WHITE	斯 H.S.	Terminal No. Wire	1 0/L	2 R/L
	TO WIRE		14   15   16   17   19	Signal Name	ı	- (WITHOUT NAVI OR MID AUDIO SYSTEM)
. D301	me WIRE	lor WHIT	1 2 3 4 5 1 3 4 5 1 3 4 5 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1	Color of Wire	R/L	O/L
Connector No.	Connector Name   WIRE TO WIRE	Connector Color WHITE	(H.S.	Terminal No.	14	15

Connector Name	me REAF	REAR DOOR IWEELER LH
Connector Color	lor BROWN	۷N
H.S.	2	
Terminal No.	Color of Wire	Signal Name
-	SB	ı
2	В/У	ı

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**AV-29** 2014 Titan Revision: April 2014

Connector No. D208

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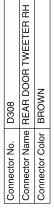
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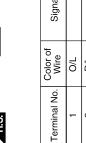
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Signal Name Color of Wire O/L B/L Ø

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### **AUDIO SYSTEM**

< SYMPTOM DIAGNOSIS >

[BASE AUDIO]

# SYMPTOM DIAGNOSIS

# **AUDIO SYSTEM**

Symptom Table

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### **AUDIO SYSTEM**

Symptom	Possible cause	Reference page	
Inoperative	Audio unit power and ground circuit     Audio unit	• AV-12 • AV-35	
All speakers do not sound	<ul><li>Speaker circuit shorted to ground</li><li>Audio unit power and ground circuit</li><li>Audio unit</li></ul>	• AV-23 • AV-12 • AV-35	
One or several speakers do not sound	<ul><li>Front door speaker</li><li>Front tweeter</li><li>Rear door tweeter (crew cab)</li><li>Rear door speaker</li></ul>	<ul> <li>AV-13</li> <li>AV-15</li> <li>AV-19</li> <li>AV-17</li> </ul>	
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAG- NOSIS" in the ap- propriate interior trim section.	

CD

Symptom	Possible cause	Reference page
CD cannot be inserted.		
CD cannot be ejected.	- Audio unit	AV-3 <u>5</u>
The CD cannot be played.	- Audio unit	<u>AV-33</u>
The sound skips, stops suddenly, or is distorted.		

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### NORMAL OPERATING CONDITION

Description INFOID:000000009876452

The majority of the audio concerns 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	Possible cause		
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	Ignition components	
The occurrence of the noise is lin	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 operating.	The noise occurs when various motors are operating.	Motor case ground     Motor	
The noise occurs constantly, not j	<ul><li>Rear defogger coil malfunction</li><li>Open circuit in printed heater</li><li>Poor ground of antenna feeder line</li></ul>		
A cracking or snapping sound occ 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>		

### **PRECAUTIONS**

< PRECAUTION > [BASE AUDIO]

# **PRECAUTION**

### **PRECAUTIONS**

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

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 SR 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 SR 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.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

- When removing or disassembling each component, be careful not to damage or deform it. If a component
  may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- · Be sure to tighten bolts and nuts securely to the specified torque.
- · After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

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### **PREPARATION**

< PREPARATION > [BASE AUDIO]

# **PREPARATION**

# **PREPARATION**

# **Special Service Tools**

INFOID:0000000010159255

Tool number (TechMate No.) Tool name	Description
(J-46534) Trim Tool Set	Removing trim components

# **Commercial Service Tools**

INFOID:0000000009876456

Tool name		Description
Power tool		Loosening nuts, screws and bolts
	PIIB1407E	

# REMOVAL AND INSTALLATION

### **AUDIO UNIT**

### Removal and Installation

### INFOID:0000000009876457

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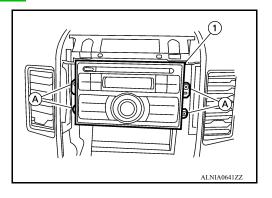
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### **AUDIO UNIT**

### Removal

- 1. Remove the cluster lid C. Refer to <a href="IP-15">IP-15</a>, "Removal and Installation".
- 2. Remove the audio unit screws (A), using power tool.
- 3. Remove the audio unit.
- a. Pull out the audio unit (1) out of the instrument panel.
- b. Disconnect the audio unit harness connectors.



### Installation

Installation is in the reverse order of removal.

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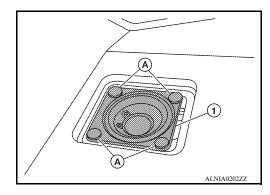
### **FRONT TWEETER**

### Removal and Installation

### INFOID:0000000009876458

### **REMOVAL**

- 1. Remove front tweeter speaker grille, using a suitable tool.
- 2. Remove the front tweeter clips (A).
- 3. Disconnect the front tweeter harness connector.
- 4. Remove the front tweeter (1).



### Installation

Installation is in the reverse order of removal.

### FRONT DOOR SPEAKER

< REMOVAL AND INSTALLATION >

[BASE AUDIO]

## FRONT DOOR SPEAKER

## Removal and Installation

#### INFOID:0000000009876459

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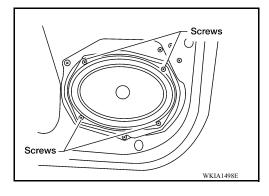
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### **REMOVAL**

- 1. Remove the front door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation".
- 2. Remove the front door speaker screws.
- 3. Disconnect the front door speaker harness connector.
- 4. Remove the front door speaker.



#### **INSTALLATION**

Installation is in the reverse order of removal.

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## **REAR DOOR SPEAKER**

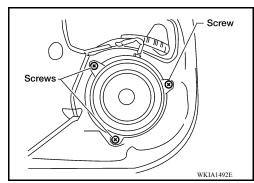
#### Removal and Installation

#### INFOID:0000000009876460

#### **REAR DOOR SPEAKER**

#### Removal

- 1. Remove the rear door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation" (Crew Cab) or <a href="INT-10">INT-10</a>, "Removal and Installation" (King Cab).
- 2. Remove the rear door speaker.
- a. Remove the rear door speaker screws.
- b. Disconnect the rear door speaker harness connector.



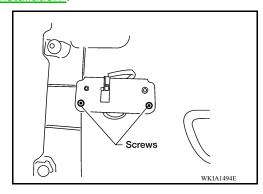
#### Installation

Installation is in the reverse order of removal.

#### REAR DOOR TWEETER

#### Removal

- 1. Remove the rear door finisher. Refer to INT-10, "Removal and Installation".
- 2. Remove the rear door tweeter.
- a. Remove the rear door tweeter screws.
- Disconnect the rear door tweeter harness connector.



#### Installation

Installation is in the reverse order of removal.

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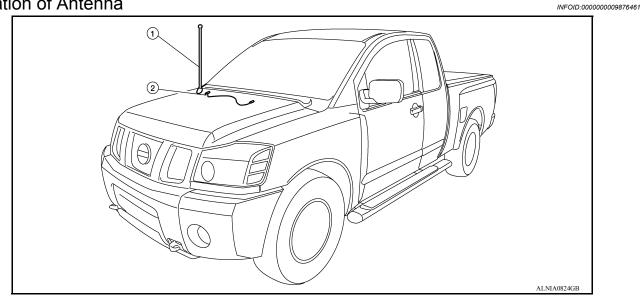
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## **AUDIO ANTENNA**

#### Location of Antenna



1. Antenna

Main feeder cable

## Removal and Installation

**REMOVAL** 

- 1. Remove audio antenna rod.
- 2. Remove audio antenna rubber seal.
- Remove fender protector RH. Refer to <u>EXT-24</u>, "Removal and Installation".
- 4. Remove audio antenna assembly bolts.
- 5. Disconnect the audio antenna feeder from the audio antenna assembly.
- 6. Remove audio antenna assembly from the vehicle.

#### INSTALLATION

Installation is in the reverse order of removal.

Tighten audio antenna rod to specification.

Audio antenna rod : 3.5 N·m (0.36 kg-m, 31 in-lb)

#### **CAUTION:**

Always properly tighten the audio antenna rod during installation or the audio antenna rod may bend or break during vehicle operation.

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< PRECAUTION > [MID AUDIO]

## **PRECAUTION**

### **PRECAUTIONS**

# Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

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 SR 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 SR 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.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

## Precaution for Trouble Diagnosis

INFOID:0000000009876464

#### 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 Work

INFOID:0000000009876466

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- · Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.

## **PRECAUTIONS**

< PRECAUTION > [MID AUDIO]

- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

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## **PREPARATION**

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## **PREPARATION**

## **PREPARATION**

## **Special Service Tools**

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The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name		Description
— (J-46534) Trim Tool Set	AWIIA0483ZZ	Removing trim components

## **Commercial Service Tools**

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Tool name		Description
Power tool		Loosening nuts, screws and bolts
	PIIB1407E	

### [MID AUDIO]

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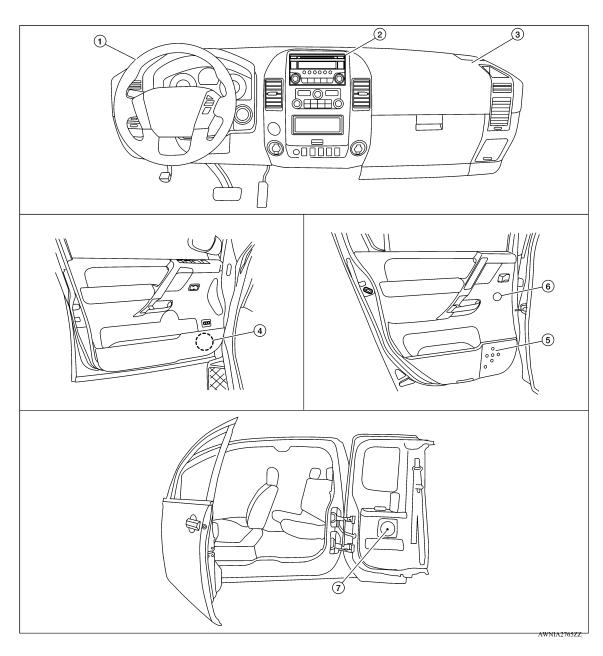
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## SYSTEM DESCRIPTION

## **COMPONENT PARTS**

## **Component Parts Location**



- 1. Front tweeter LH M109
- 4. Front door speaker LH D12 RH D112
- Rear door speaker (king cab) LH B76 RH B159
- 2. Audio unit M163, M164
- Rear door speaker (crew cab)
   LH D207
   RH D307
- 3. Front tweeter RH M111
- Rear door tweeter (crew cab)
   LH D208
   RH D308

Component Description

INFOID:0000000009876470

Revision: April 2014 AV-43 2014 Titan

## **COMPONENT PARTS**

## < SYSTEM DESCRIPTION >

[MID AUDIO]

Part name	Description
Audio unit	Controls audio system functions.
Front door speakers	Outputs audio signal from audio unit.    Outputs high, mid and low range sounds
Front tweeters	Outputs audio signal from audio unit     Outputs high range sounds.
Rear door speakers	Outputs audio signal from audio unit.     Outputs high, mid and low range sounds.
Rear door tweeters (crew cab)	<ul><li>Outputs audio signal from audio unit.</li><li>Outputs high range sounds.</li></ul>
Rod antenna	AM/FM signal is received and transmitted to the audio unit.

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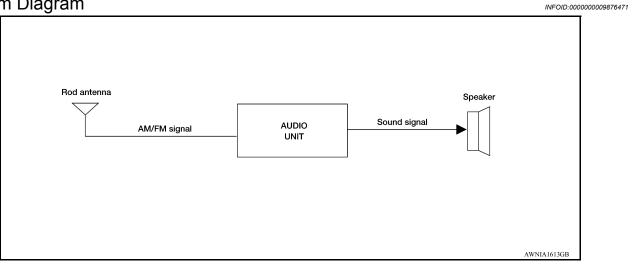
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## **SYSTEM**

System Diagram



## System Description

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#### **AUDIO SYSTEM**

The audio system consists of the following components

- Audio unit
- · Front door speakers
- · Front tweeters
- Rear speakers
- Rear tweeters (crew cab)
- Rod antenna

When the audio system is on, radio signals are received by the rod antenna. The audio unit then sends audio signals to the front door speakers, front tweeters, rear door speakers and rear tweeters (crew cab). Refer to Owner's Manual for audio system operating instructions.

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[MID AUDIO]

## **DIAGNOSIS SYSTEM (AUDIO UNIT)**

## **Diagnosis Description**

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The audio unit on board diagnosis performs the functions listed in the table below:

Mode	Description
Hardware/Software Versions	Hardware and software versions are available for:  • audio unit.  • combination meter  EEPROM version and EQ pin info are also available for the audio unit.
Speaker Channel Check	The connection of the speakers to the audio unit can be confirmed.
Communication Diagnosis	The AV communication (M-CAN) message history can be monitored.

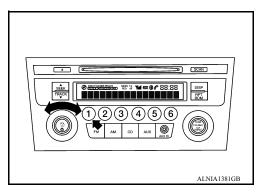
## On Board Diagnosis Function

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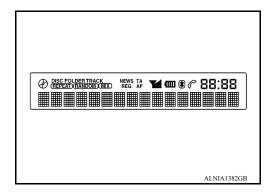
#### METHOD OF STARTING

Hardware/Software Versions and Speaker Channel Check

- 1. Turn the ignition ON.
- 2. Turn the audio system OFF.
- 3. While pressing the preset 1 button, turn the volume control dial clockwise or counterclockwise 30 clicks or more.



Initially, all display segments will be illuminated.



5. To exit hardware/software versions and speaker channel check, turn the ignition OFF.

Communication Diagnosis

- 1. Turn the ignition ON.
- 2. Turn the audio system OFF.

### **DIAGNOSIS SYSTEM (AUDIO UNIT)**

#### < SYSTEM DESCRIPTION >

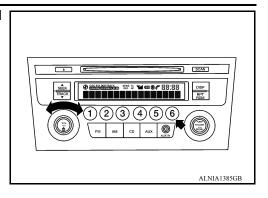
[MID AUDIO]

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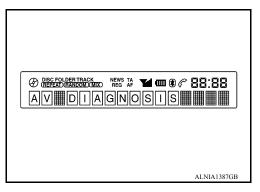
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3. While pressing the preset 6 button, turn the volume control dial clockwise or counterclockwise 30 clicks or more.



4. Initially, the communication diagnosis mode is displayed.

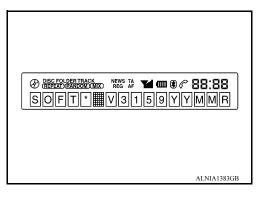


5. To exit communication diagnosis, turn the ignition OFF.

#### SELF DIAGNOSIS MODE

Hardware/Software Versions

1. Press the DISP button to enter versions display, and the audio head unit software version is displayed.



- 2. With each additional press of the DISP button, the following information is available:
- HARD V###### (hardware version)
- EEP V###### (EEPROM version)
- MeterS V###### (combination meter software version)
- MeterH V##### (combination meter hardware version)
- @@@@ EQ1-4 # (EQ pin info)

If an EQ error is present, INVALID EQ is displayed

- BTSOFT ###### (internal Bluetooth® module software version)
- BTHARD ######## (internal Bluetooth® module hardware version)
- BTCONF #####00 (internal Bluetooth® module configuration)
- 3. Hold the DISP button down to return to all display segments screen.

Speaker Channel Check

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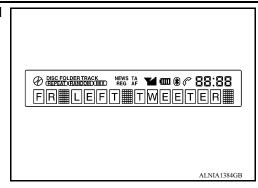
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## **DIAGNOSIS SYSTEM (AUDIO UNIT)**

#### < SYSTEM DESCRIPTION >

[MID AUDIO]

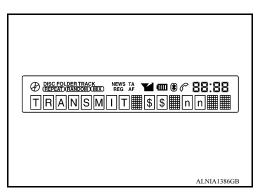
 Press the RPT/DRM button to enter speaker channel check, and the front left tweeter (front speaker LH) is displayed.



- With each additional press of the RPT/DRM button, the following information is available:
- FR RIGHT TWEETER (front speaker RH)
- FR RIGHT (front door speaker RH)
- RR RIGHT (rear speaker RH)
- RR LEFT (rear speaker LH)
- FR LEFT (front door speaker LH)
- 3. Hold the RPT/DRM button down to return to all display segments screen.

#### **Communication Diagnosis**

1. Press the DISP button, and the M-CAN message transmission error history screen is displayed.



- Press the DISP button again, and the METER \$\$ nn (CMF message reception error history from M-CAN METER) screen is displayed.
- Press the DISP button again, and the TROUBLE DEL. (deletion of M-CAN message communication history) screen is displayed. To retain the M-CAN message communication history and return to the communication diagnosis mode screen, press the DISP button.
- 4. To proceed to the M-CAN message communication history deletion screen, press the SEEK/TRACK △ button. The REC DEL-NO? (selection of M-CAN message communication history deletion) screen is displayed. To cancel M-CAN message communication history deletion, wait 6 seconds and you will be returned to the TROUBLE DEL. (deletion of M-CAN message communication history) screen. To proceed with M-CAN message communication history deletion, press the SEEK/TRACK △ button again.
- 5. The REC DEL-YES?@ (selection of M-CAN message communication history deletion) screen is displayed. To cancel M-CAN message communication history deletion, press the SEEK/TRACK ∇ button and you will be returned to the REC DEL-NO? (selection of M-CAN message communication history deletion) screen. To proceed with M-CAN message communication history deletion, wait 6 seconds and the communication history deletion will be executed. After the communication history deletion has been executed, you will be returned to the TROUBLE DEL. (deletion of M-CAN message communication history) screen. To return to the communication diagnosis mode screen, press the DISP button.

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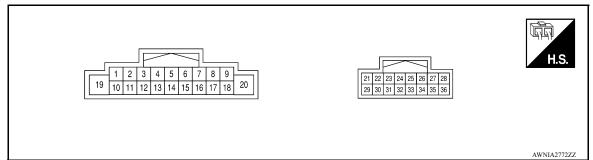
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## **ECU DIAGNOSIS INFORMATION**

## **AUDIO UNIT**

Reference Value

## TERMINAL LAYOUT



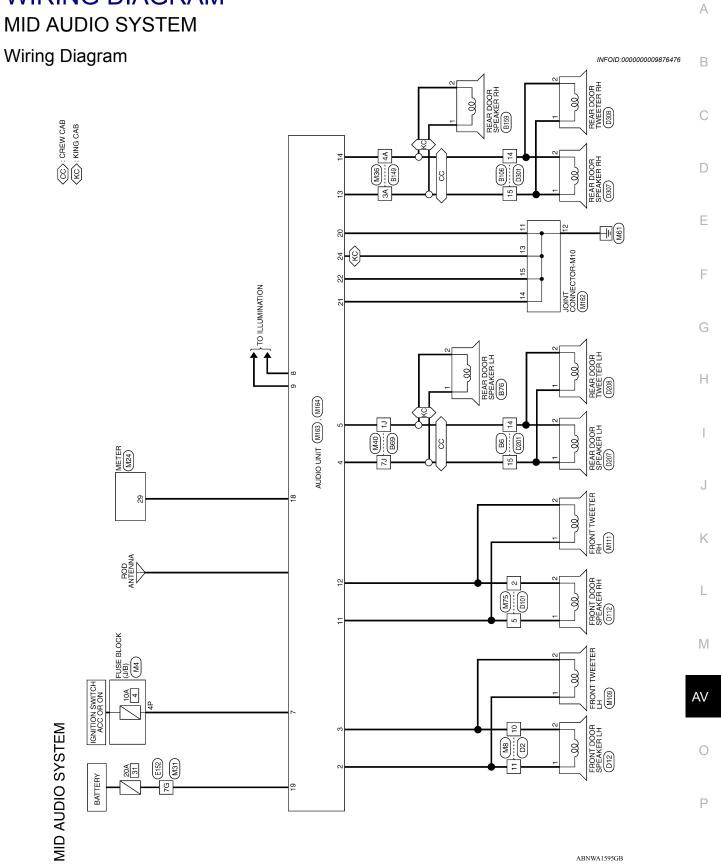
#### PHYSICAL VALUES

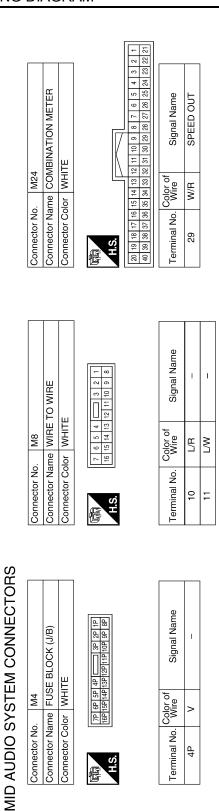
	minal e color)	Item	Signal input/		Condition	Reference value (Approx.)
+	_		output			(Арргох.)
2 (L/W)	3 (L/R)	Audio sound signal front LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms
4 (SB)	5 (B/Y)	Audio sound signal rear LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms
7 (V)	Ground	ACC signal	Input	Ignition switch ON	-	Battery voltage
8 (BR)	Ground	Illumination control signal	Input	Ignition switch ON	Illumination control switch is operated by lighting switch in 1st position.	Changes between 0 and 12V
9	0	Illiania eti en ei en el	14	OFF	Lighting switch is in 1st position.	Battery voltage
(R/L)	Ground	Illumination signal	Input	OFF	Lighting switch is OFF.	0V
11 (W/B)	12 (L/B)	Audio sound signal front RH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms

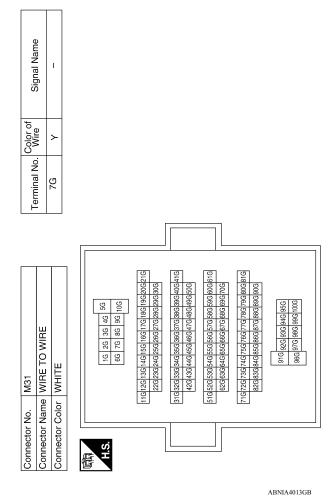
	minal e color)	Item	Signal input/		Condition	Reference value (Approx.)
+	_		output			(Αρρίολ.)
13 (O/L)	14 (R/L)	Audio sound signal rear RH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms
18 (W/R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 mph)	(V) 15 10 5 0 → 20ms PKIA1935E
19 (Y)	Ground	Battery power	Input	_	_	Battery voltage
20 (Y)	_	Ground	_	-	-	0V
21 (B)	Ground	Eq1 port1	_	Ignition switch ON	_	0V
22 (B)	Ground	Eq2 port2	_	Ignition switch ON	_	0V
24 (B)	Ground	Eq4 port4	_	Ignition switch ON	_	0V

[MID AUDIO] < WIRING DIAGRAM >

# WIRING DIAGRAM







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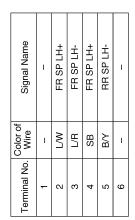
Connector No.  Connector Color  WHITE	H.S.			
Connector Color WHITE	11   21   31   41   51     11   121   31   41   51   50   100     11   121   131   141   151   151   72   181   191   200   271     222   233   244   233   284   237   284   294   300     313   322   333   344   353   352   372   284   294   300     314   322   333   344   353   354   372   384   394   400   473     422   433   444   453   464   473   484   483   600     514   522   533   544   535   564   573   584   594   600     517   722   733   744   723   724   724   724   724   724   724     917   922   933   944   953     963   972   982   934   953     963   972   982   934   953     963   972   983   934   953     963   972   983   934   953     963   972   983   934   953     963   972   983   934   953     964   972   983   934   953     965   972   983   973   973     973   973   973   973   973     974   975   975   975   975     975   975   975   975   975     975   975   975   975   975     975   975   975   975   975     975   975   975   975     975   975   975   975     975   975   975   975     975   975   975   975     975   975   975     975   975   975     975   975   975     975   975   975     975   975   975     975   975   975     975   975   975     975   975   975     975   975   975     975   975     975   975   975     975   975   975     975   975   975     975     975   975     975     975   975     97	Terminal No.         Color of Wire         Signal Name           1J         B/Y         -           7J         SB         -	Connector No. M111 Connector Name FRONT TWEETER RH Connector Color BROWN	Terminal No. Color of Signal Name
Connector No. M36 Connector Color WHITE	1	Terminal No.         Color of Wire         SignaLName           3A         O/L         -           4A         R/L         -	Connector No. M109 Connector Name FRONT TWEETER LH Connector Color BROWN	Terminal No. Wire Signal Name

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Signal Name	ACC	ILL CONT	LIGHT SW	1	FR SP RH+	RR SP RH-	RR SP RH+	RR SP RH-	1	-	ı	SPEED SIG SSV	BACK UP	GND
Color of Wire	>	BB	R/L	1	M/B	L/B	O/L	B/L	1	-	1	W/R	Α	В
Terminal No.	7	80	6	10	Ξ	12	13	14	15	16	17	18	19	20

Signal Name	-	-	-
Color of Wire	1	1	-
Terminal No.	34	35	36

Connector No.	M163
Connector Name	Connector Name AUDIO UNIT (WITH MID AUDIO SYSTEM)
Connector Color WHITE	WHITE



Signal Name	1	EQ4 PORT4	1	1	1	1	-	ı	1	-	1
Color of Wire	_	В	_	_	_	-	_	_	1	_	_
Terminal No.	23	24	25	56	27	28	29	30	31	32	33

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Connector No.	No.	Ξ	M162								
Connector Name JOINT CONNECTOR-M10	Name	9	Ž	_	8	ź	Щ	Ė	5	8-M10	
Connector Color	Color	BLUE	J.	111							
- -	L									F	
		80	7	9	2	4	6	2	-		
S.	20 19 18 17 16 15 14 13 12 11 10	18	17	16	15	14	13	12	Ξ	<b>P</b>	
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Signal Name	1	-	1	-	-
Color of Wire	В	В	В	В	В
Terminal No. Wire	11	12	13	14	15

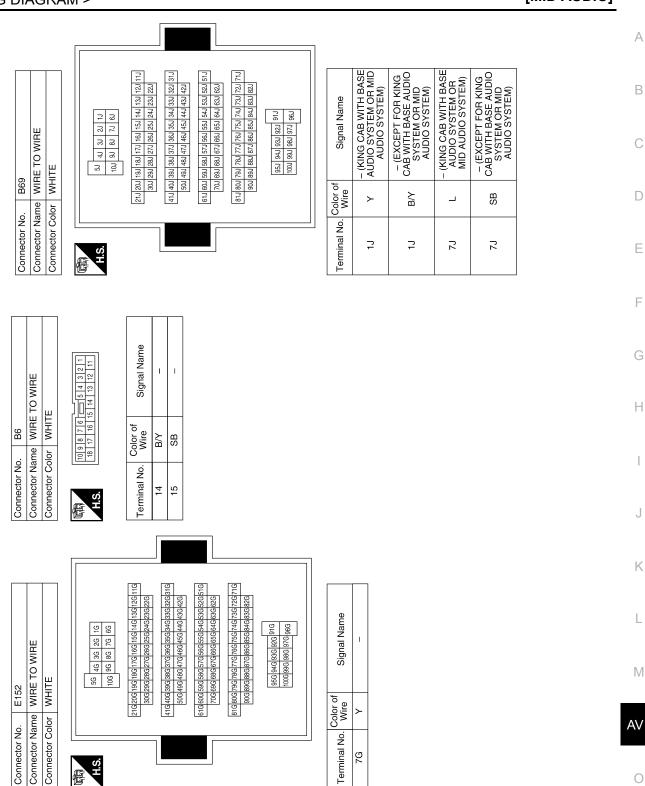
94	AUDIO UNIT (WITH MID AUDIO SYSTEM)	11	22 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36	Signal Name	EQ1 PORT1	EQ2 PORT2
). M164		lor WHITE	21 22 29 30	Color of Wire	В	В
Connector No.	Connector Name	Connector Color	原 H.S.	Terminal No.	21	22

Sign	EQ1	EQ2
Color of Wire	В	В
Terminal No.	21	22

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### MID AUDIO SYSTEM

< WIRING DIAGRAM > [MID AUDIO]



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29	REAR DOOR SPEAKER RH	WHITE		Signal Name	- (WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	_
). B159				Color of Wire	٦	B/L
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	-	2

Connector No.	B159
Connector Name	Connector Name REAR DOOR SPEAK
Connector Color WHITE	WHITE



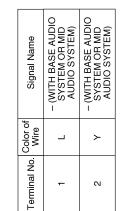
_	J/H	2
– (WITH BASE AI SYSTEM OR M AUDIO SYSTE	٦	-
Signal Name	Color of Wire	Terminal No.

Connector No.	B106
Connector Name	Connector Name WIRE TO WIRE
Connector Color WHITE	WHITE

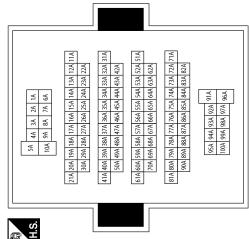


ı	ı		Signal Name	– (KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	– (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	-
٦/٢ ٢	O/L		Color of Wire	Г	O/L	R/L
<u>+</u>	15		Terminal No. Color of Wire	3A	3A	4A

Connector Color WHITE	Connector No. Connector Name	Connector No. B76 Connector Name REAR DOOR SPEAKER LH
	ector Color	WHITE







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r No. D101	Connector Name WIRE TO WIRE	Connector Color WHITE	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Terminal No.   Color of   Signal Name		M/W
Connector No.	Connecto	Connecto	疆 H.S.	Terminal I	2	ιc
D12	Connector Name FRONT DOOR SPEAKER LH	VHITE	2	r of Signal Name		-
Connector No.	Connector Name F	Connector Color WHITE	H.S.	Color of Wire	1 L/W	0 L/B
	or Name WIRE TO WIRE	tor Color WHITE	11 12 13 14 15 16	Signal Name	1	
	ш	l <b>⊢</b> !				

	REAR DOOR SPEAKER LH	TE		Signal Name	- (WITH NAVI OR MID AUDIO SYSTEM)	- (WITH NAVI OR MID AUDIO SYSTEM)
. D207	me RE	lor WH	[ 2	Color of Wire	٦	>
Connector No.	Connector Name	Connector Color WHITE	用.S.	Terminal No.	-	2

Connector No.	D201	01
Connector Name		WIRE TO WIRE
Connector Color		WHITE
语 H.S.	1 2 3 4 5	4 5 - 6 7 8 9 10 13 14 15 16 17 18
Terminal No.	Color of Wire	Signal Name
14	Å	- (WITH NAVI OR MID AUDIO SYSTEM)
15	7	- (WITH NAVI OR MID AUDIO SYSTEM)

	FRONT DOOR SPEAKER RH	111		Signal Name	ı	_
D112	e FRON	WHITE	N	Color of Wire	W/B	L/B
Š.	Nam	Colo				
Connector No.	Connector Name	Connector Color	原.R.S.	Terminal No.	-	2

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D307	onnector Name REAR DOOR SPEAKER RH	WHITE	
onnector No.	onnector Name	onnector Color WHITE	

Signal Name	- (WITH NAVI OR MID AUDIO SYSTEM)	_
Color of Wire	7	B/L
No.		



Signal	– (WITH NA AUDIO S	1
Color of Wire	٦	B/L
Terminal No.	1	2



Signal Name	1	- (WITH NAVI OR MID AUDIO SYSTEM)
Color of Wire	B/L	Г
Terminal No.	14	15





Connector No.	o. D208	8
Connector Name		REAR DOOR TWEETER LH
Connector Color		BROWN
原 H.S.		
Terminal No.	Color of Wire	Signal Name
-	SB	ı



Connector No. D308



Signal Name	I	I	
Color of Wire	O/L	B/L	
Terminal No.	1	2	

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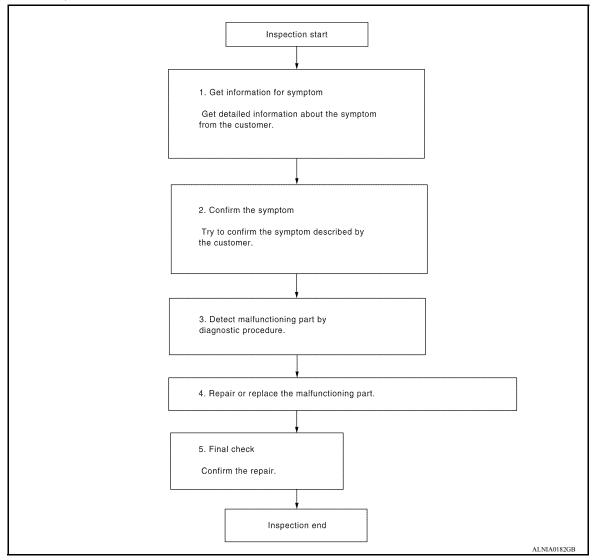
[MID AUDIO] < BASIC INSPECTION >

## **BASIC INSPECTION**

## DIAGNOSIS AND REPAIR WORKFLOW

Work Flow INFOID:0000000009876477 В

#### **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.

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#### DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION > [MID 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.

#### Has the symptom been repaired?

YES >> Inspection End.

NO >> GO TO 2

### POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[MID AUDIO]

## DTC/CIRCUIT DIAGNOSIS

# POWER SUPPLY AND GROUND CIRCUIT

**AUDIO UNIT** 

AUDIO UNIT : Diagnosis Procedure

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Regarding Wiring Diagram information, refer to AV-51, "Wiring Diagram".

## 1. CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
7	ACC power supply	4 (10A)
19	Battery power supply	31 (20A)

#### Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

## 2.CHECK POWER SUPPLY CIRCUIT

Turn ignition switch OFF.

2. Disconnect audio unit connector M164.

3. Check voltage between audio unit connector M164 and ground.

Audi	o unit	Ground	Condition	Voltage	
Connector	Terminal	Ground	Condition	(Approx.)	
M164	7		Ignition switch: ON	Battery voltage	
IVI 104	19	_	Ignition switch: OFF	Ballery Vollage	

#### Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

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### FRONT DOOR SPEAKER

## Diagnosis Procedure

INFOID:0000000009876479

Regarding Wiring Diagram information, refer to AV-51, "Wiring Diagram".

## 1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminals or connectors.

## 2.CHECK FRONT DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY

- Disconnect audio unit connector M164 and suspect front door speaker connector.
- Check continuity between audio unit connector M164 and suspect front door speaker connector.

Aud	o unit Front de		Front door speaker	
Connector	Terminal	Connector	Terminal	Continuity
	2	– D12 (LH)	1	Yes
N404	3		2	
M164	11	D440 (DU)	1	res
	12	D112 (RH)	2	

Check continuity between audio unit connector M164 and ground.

Aud	io unit	Ground	Continuity	
Connector	Terminal	Ground		
	2			
M164	3		No	
	11	_	INO	
	12			

#### Is the inspection result normal?

YES >> GO TO 3

NO >> Repair or replace harness or connectors.

## 3.check front door speaker signal

- Connect audio unit connector M164 and suspect front door speaker connector.
- Turn ignition switch to ACC. 2.
- Push audio unit POWER switch.
- Check signal between audio unit connector M164 and ground.

Audio unit co	onnector M85		
(+)	(-)	Condition	Reference value
Terminal	Terminal		

## FRONT DOOR SPEAKER

### < DTC/CIRCUIT DIAGNOSIS >

[MID AUDIO]

2	3		0.0
11	12	Audio signal output	(V) 1 0 -1 + 2ms SKiB3609E

Is the inspection result normal?

YES >> Replace front door speaker. Refer to AV-140, "Removal and Installation".

NO >> Replace audio unit. Refer to AV-137, "Removal and Installation".

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## FRONT TWEETER

## Diagnosis Procedure

INFOID:0000000009876480

Regarding Wiring Diagram information, refer to AV-51, "Wiring Diagram".

## 1. CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- · Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminals or connectors.

## 2.CHECK FRONT TWEETER SIGNAL CIRCUIT CONTINUITY

- 1. Disconnect audio unit connector M164 and suspect front tweeter connector.
- 2. Check continuity between audio unit connector M164 and suspect front tweeter connector.

Audio unit		Front tweeter		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	2	M109 (LH)	1	Yes
M164	3		2	
M164 -	11	MAAA (DUI)	1	res
	12	M111 (RH)	2	

Check continuity between audio unit connector M164 and ground.

Aud	io unit	Ground	Continuity	
Connector	Terminal	Ground		
	2			
M164	3		No	
	11	_		
	12			

#### Is the inspection result normal?

YES >> GO TO 3

NO >> Repair or replace harness or connectors.

## 3.CHECK FRONT TWEETER SIGNAL

- 1. Connect audio unit connector M164 and suspect front tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push audio unit POWER switch.
- Check signal between audio unit connector M164 and ground.

Audio uni	t connector		
(+)	(-)	Condition	Reference value
Terminal	Terminal		

## **FRONT TWEETER**

### < DTC/CIRCUIT DIAGNOSIS >

[MID AUDIO]

2	3		0.0
11	12	Audio signal output	(V) 1 0 -1 * 2ms SKiB3609E

### Is the inspection result normal?

YES >> Replace front tweeter. Refer to AV-74, "Removal and Installation".

NO >> Replace audio unit. Refer to AV-73, "Removal and Installation".

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[MID AUDIO]

### REAR SPEAKER

Description INFOID:000000009876481

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

## Diagnosis Procedure

INFOID:0000000009876482

Regarding Wiring Diagram information, refer to AV-51, "Wiring Diagram".

## 1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

## 2. HARNESS CHECK

- 1. Disconnect audio unit connector M164 and suspect speaker connector.
- 2. Check continuity between audio unit harness connectors M164 and suspect speaker harness connector.

Audio unit		Rear speakers		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M164	4	D207 (crew cab) B76 (king cab)	1	
	5		2	Yes
	13	D307 (crew cab)	1	165
	14	B159 (king cab)	2	

Check continuity between audio unit harness connectors M164 and ground.

Connector	Terminal	-	Continuity	
	4			
M164	5	Ground	No	
IVI 10 <del>4</del>	13	Ground		
	14			

#### Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

## 3.rear door speaker signal check

- 1. Connect audio unit connectors and suspect speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connectors M164 terminals with CONSULT or oscilloscope.

## **REAR SPEAKER**

Connector	Term	ninals	Condition	Reference
Connector	(+)	(-)	Condition	signal
	4	5		
M164	13	14	Receive audio sig- nal	1 0 -1 1 ms

### Are audio signal voltage readings as specified?

YES >> Replace suspect speaker. Refer to <u>AV-76. "Removal and Installation"</u>.

NO >> Replace audio unit. Refer to AV-73, "Removal and Installation".

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#### REAR DOOR TWEETER

< DTC/CIRCUIT DIAGNOSIS >

[MID AUDIO]

### REAR DOOR TWEETER

Description INFOID:000000009876483

The audio unit sends audio signals to the rear door tweeters using the audio signal circuits.

## Diagnosis Procedure

INFOID:0000000009876484

Regarding Wiring Diagram information, refer to AV-51, "Wiring Diagram".

## 1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- · Proper connection
- Damage
- Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

## 2. HARNESS CHECK

- 1. Disconnect audio unit connector M164 and suspect rear door tweeter connector.
- Check continuity between audio unit harness connectors M164 and suspect rear door tweeter harness connector.

Audi	Audio unit		Rear door tweeters	
Connector	Terminal	Connector	Terminal	Continuity
	4	D208	1	Yes
M164	5		2	
W104	13	D308	1	165
	14	D300	2	

Check continuity between audio unit harness connectors M164 and ground.

Connector	Terminal	-	Continuity	
	4			
M164	5	Ground	No	
	13	Ground		
	14			

#### Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

## 3. REAR DOOR TWEETER SIGNAL CHECK

- 1. Connect audio unit connectors and suspect rear door tweeter connector.
- Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between audio unit harness connectors M164 terminals with CONSULT or oscilloscope.

## **REAR DOOR TWEETER**

### < DTC/CIRCUIT DIAGNOSIS >

[MID AUDIO]

Connector	Term	ninals	Condition	Reference
Connector	(+)	(-)	Condition	signal
	4	5		
M164	13	14	Receive audio sig- nal	1 0 -1 1 ms

Are audio signal voltage readings as specified?

YES >> Replace suspect rear door tweeter. Refer to AV-76, "Removal and Installation".

NO >> Replace audio unit. Refer to <u>AV-73, "Removal and Installation"</u>.

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## SYMPTOM DIAGNOSIS

## **AUDIO SYSTEM**

Symptom Table

INFOID:0000000009876485

### **RELATED TO AUDIO**

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	Audio unit	Malfunction in audio unit.  Refer to AV-46, "On Board Diagnosis Function".
	No sound from all speakers.	Speaker circuit shorted to ground. Refer to AV-51, "Wiring Diagram".     Audio unit power supply and ground circuits malfunction. Refer to AV-61, "AUDIO UNIT: Diagnosis Procedure".
No sound comes out or the level of the sound is low.	Only a certain speaker (front door speaker LH, front door speaker RH, front speaker LH, front speaker RH, rear speaker LH, rear speaker RH) does not output sound.	<ul> <li>Poor connector connection of speaker.</li> <li>Sound signal circuit malfunction between audio unit and speaker. Refer to:  - AV-62, "Diagnosis Procedure" (front door speaker).  - AV-64, "Diagnosis Procedure" (front tweeter).  - AV-68, "Diagnosis Procedure" (rear speaker).  - AV-68, "Diagnosis Procedure" (rear door tweeter)</li> <li>Malfunction in speaker. Refer to: - AV-75, "Removal and Installation" (front door speaker).</li> <li>- AV-74, "Removal and Installation" (front tweeter).</li> <li>- AV-76, "Removal and Installation" (rear speaker).</li> <li>- AV-76, "Removal and Installation" (rear door tweeter)</li> <li>Malfunction in audio unit. Refer to AV-46, "On Board Diagnosis Function".</li> </ul>

## **AUDIO SYSTEM**

[MID AUDIO]

Symptoms	Check items	Probable malfunction location
	Noise comes out from all speakers.	Malfunction in audio unit.  Refer to AV-46, "On Board Diagnosis Function".
Noise is mixed with audio.	Noise comes out only from a certain speaker (front door speaker LH, front door speaker RH, front speaker RH, rear speaker LH, rear speaker RH).	<ul> <li>Poor connector connection of speaker.</li> <li>Sound signal circuit malfunction between audio unit and speaker. Refer to:  - AV-62, "Diagnosis Procedure" (front door speaker).  - AV-64, "Diagnosis Procedure" (front speaker).  - AV-64, "Diagnosis Procedure" (rear speaker).  - AV-68, "Diagnosis Procedure" (rear tweeter).</li> <li>Malfunction in speaker.</li> <li>Poor Installation of speaker (e.g. backlash and looseness). Refer to:  - AV-75, "Removal and Installation" (front door speaker).  - AV-74, "Removal and Installation" (front tweeter).  - AV-76, "Removal and Installation" (rear speaker).  - AV-76, "Removal and Installation" (rear tweeter).</li> <li>Malfunction in audio unit. Refer to AV-46, "On Board Diagnosis Function".</li> </ul>
	Noise is mixed with radio only (when the vehicle hits a bump or while driving over bad roads)	Poor connector connection of antenna.
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.

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[MID AUDIO]

## NORMAL OPERATING CONDITION

Description INFOID:000000009876486

#### RELATED TO NOISE

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

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

Occurrence condition		Possible cause
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	Ignition components
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 when various motors are operating.	Motor case ground     Motor
The noise occurs constantly, not just under certain conditions.		Rear defogger coil malfunction     Open circuit in printed heater     Poor ground of antenna feeder line
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>

## [MID AUDIO]

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# REMOVAL AND INSTALLATION

## **AUDIO UNIT**

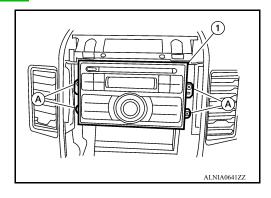
## Removal and Installation

#### INFOID:0000000009876487

## **AUDIO UNIT**

#### Removal

- 1. Remove the cluster lid C. Refer to <a href="IP-15">IP-15</a>, "Removal and Installation".
- 2. Remove the audio unit screws (A), using power tool.
- 3. Remove the audio unit.
- a. Pull out the audio unit (1) out of the instrument panel.
- b. Disconnect the audio unit harness connectors.



#### Installation

Installation is in the reverse order of removal.

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[MID AUDIO]

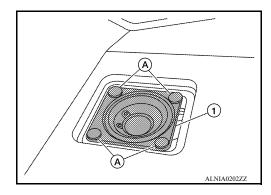
## **FRONT TWEETER**

## Removal and Installation

#### INFOID:0000000009876488

## **REMOVAL**

- 1. Remove front tweeter speaker grille, using a suitable tool.
- 2. Remove the front tweeter clips (A).
- 3. Disconnect the front tweeter harness connector.
- 4. Remove the front tweeter (1).



#### Installation

Installation is in the reverse order of removal.

## FRONT DOOR SPEAKER

< REMOVAL AND INSTALLATION >

[MID AUDIO]

## FRONT DOOR SPEAKER

## Removal and Installation

#### INFOID:0000000009876489

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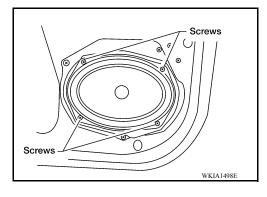
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## **REMOVAL**

- 1. Remove the front door finisher. Refer to INT-10, "Removal and Installation".
- 2. Remove the front door speaker screws.
- 3. Disconnect the front door speaker harness connector.
- 4. Remove the front door speaker.



## **INSTALLATION**

Installation is in the reverse order of removal.

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## **REAR DOOR SPEAKER**

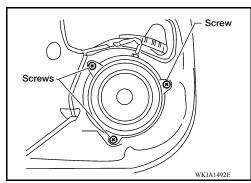
## Removal and Installation

#### INFOID:0000000009876490

## **REAR DOOR SPEAKER**

#### Removal

- 1. Remove the rear door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation" (Crew Cab) or <a href="INT-10">INT-10</a>, "Removal and Installation" (King Cab).
- 2. Remove the rear door speaker.
- a. Remove the rear door speaker screws.
- b. Disconnect the rear door speaker harness connector.



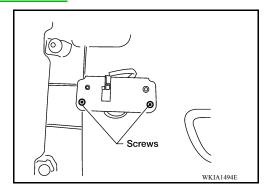
#### Installation

Installation is in the reverse order of removal.

#### REAR DOOR TWEETER

#### Removal

- 1. Remove the rear door finisher. Refer to INT-10, "Removal and Installation".
- 2. Remove the rear door tweeter.
- a. Remove the rear door tweeter screws.
- Disconnect the rear door tweeter harness connector.



#### Installation

Installation is in the reverse order of removal.

[MID AUDIO]

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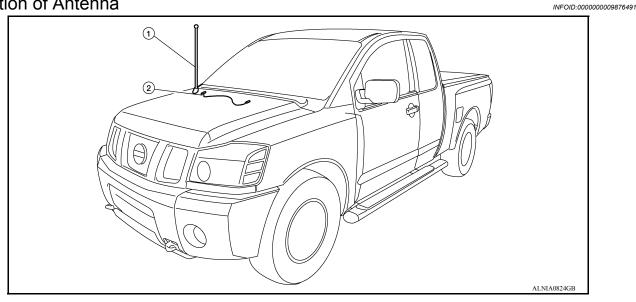
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# **AUDIO ANTENNA**

## Location of Antenna



1. Antenna

Main feeder cable

## Removal and Installation

**REMOVAL** 

- 1. Remove audio antenna rod.
- 2. Remove audio antenna rubber seal.
- Remove fender protector RH. Refer to <u>EXT-24</u>, "Removal and Installation".
- 4. Remove audio antenna assembly bolts.
- 5. Disconnect the audio antenna feeder from the audio antenna assembly.
- 6. Remove audio antenna assembly from the vehicle.

#### INSTALLATION

Installation is in the reverse order of removal.

Tighten audio antenna rod to specification.

Audio antenna rod : 3.5 N·m (0.36 kg-m, 31 in-lb)

## **CAUTION:**

Always properly tighten the audio antenna rod during installation or the audio antenna rod may bend or break during vehicle operation.

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# PRECAUTION

## **PRECAUTIONS**

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

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 SR 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 SR 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.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Trouble Diagnosis

INFOID:0000000009876494

#### AV COMMUNICATION SYSTEM

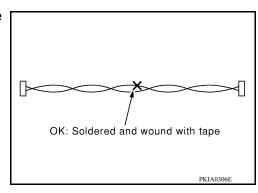
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

INFOID:0000000009876495

#### AV COMMUNICATION SYSTEM

 Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]

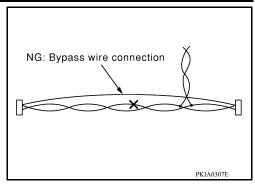


## **PRECAUTIONS**

#### < PRECAUTION >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

 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.)



Precaution for Work

INFOID:0000000009876496

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- · Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

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## **PREPARATION**

< PREPARATION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

# **PREPARATION**

## **PREPARATION**

# Special Service Tools

INFOID:0000000010159261

The actual shape of the tools ma	ay differ from those illustrated here.	
Tool number		Description
(TechMate No.)		
Tool name		
		Removing trim components
(J-46534)		
Trim Tool Set		
	AWJIA0483ZZ	

## **Commercial Service Tools**

INFOID:0000000009876498

Tool name		Description
Power tool		Loosening nuts, screws and bolts
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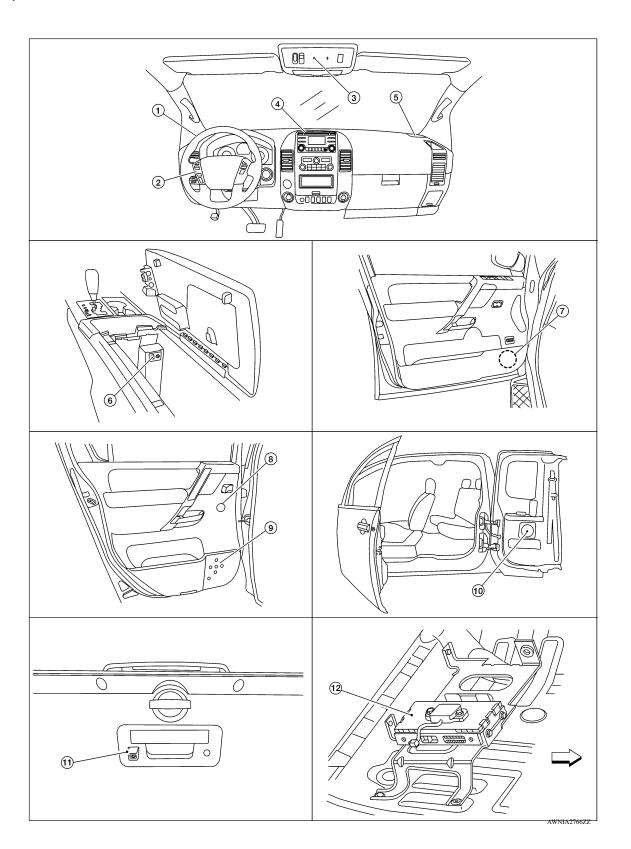
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INFOID:0000000009876499

# SYSTEM DESCRIPTION

## **COMPONENT PARTS**

**Component Parts Location** 



## **COMPONENT PARTS**

## < SYSTEM DESCRIPTION >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

- 1. Front tweeter LH M109
- 4. Audio unit M165, M166, M167, M189
- 7. Front door speaker LH D12 RH D112
- Rear door speaker (king cab)
   LH B76
   RH B159
- 2. Steering wheel audio control switches 3.
- 5. Front tweeter RH M111
- 8. Rear door tweeter (crew cab) LH D208 RH D308
- 11. Rear view camera T2

- . Microphone R109
- 6. USB Interface M214
- 9. Rear door speaker (crew cab) LH D207 RH D307
- 12. Bluetooth® control unit B142, B143, B144

## **Component Description**

INFOID:0000000009876500

Part name	Description
Audio unit	<ul> <li>Controls audio, hands-free phone, USB connection, AUX IN connection, satellite radio and rear view camera functions.</li> <li>Display unit is built in to audio unit.</li> </ul>
Front door speakers	
Front speakers	Outputs high, mid and low range audio signals from audio unit.
Rear speakers	
Front tweeters	Outputs audio signal from audio unit.
Rear tweeters	Outputs high range sounds.
Steering switches	<ul> <li>Operations for audio, hands-free phone and voice recognition are possible.</li> <li>Steering switch signal is output to combination meter.</li> <li>Combination meter outputs steering switch signal to audio unit.</li> </ul>
Microphone	<ul> <li>Used for hands-free phone operations.</li> <li>Microphone signal is transmitted to audio unit.</li> <li>Power is supplied from audio unit.</li> </ul>
USB interface	USB sound and data input signals are transmitted to audio unit.
Rear view camera	<ul><li>Outputs image of vehicle rear to audio unit.</li><li>Power is supplied from audio unit.</li></ul>
Satellite antenna	Satellite radio signal is received and transmitted to audio unit.
Rod antenna	AM/FM signal is received and transmitted to the audio unit.

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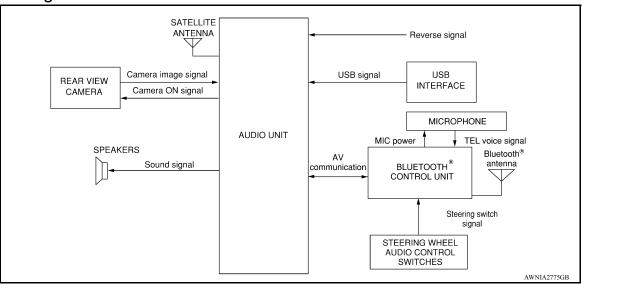
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INFOID:0000000009876501

INFOID:000000009876502

## **SYSTEM**

## System Diagram



## System Description

**AUDIO SYSTEM** 

The audio system consists of the following components

- Audio unit
- Front door speakers
- Front tweeters
- Rear speakers
- · Rear tweeters
- Steering switches
- Microphone
- USB interface
- · Rear view camera
- Rod antenna

When the audio system is on, AM/FM signals received by the rod antenna and sent to the audio unit. The audio unit then sends audio signals to the front door speakers, front tweeters, rear speakers and rear tweeters

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

#### HANDS-FREE PHONE SYSTEM

#### System Operation

#### NOTE:

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

The Bluetooth<sup>®</sup> telephone system allows users who have a Bluetooth<sup>®</sup> cellular telephone to make a wireless connection between their cellular telephone and the audio unit. Hands-free cellular telephone calls can be sent and received. Some Bluetooth<sup>®</sup> cellular telephones may not be recognized by the audio unit. When a cellular telephone or the audio unit is replaced, the telephone must be paired with the audio unit. Different cellular telephones may have different pairing procedures, refer to the cellular telephone operating manual.

Refer to the Owner's Manual for Bluetooth® telephone system operating instructions.

#### Audio unit

When the ignition switch is turned to ACC or ON, the audio unit will power up. During power up, the audio unit is initialized and performs various self-checks. Initialization may take up to 20 seconds.

Steering Switches

Revision: April 2014 AV-83 2014 Titan

## **SYSTEM**

#### < SYSTEM DESCRIPTION >

#### [DISPLAY AUDIO WITHOUT AMPLIFIER]

When buttons on the steering switches are pushed, the resistance in steering switches circuits change, depending on which button is pushed.

The following functions can be performed using the steering switches:

- Initiate self-diagnosis of the Bluetooth<sup>®</sup> 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 audio unit.

#### REAR VIEW CAMERA SYSTEM

- The audio unit supplies power to the rear view camera when the reverse signal is received from the TCM.
- The rear view camera transmits rear view camera images to the audio unit when power is supplied from the audio unit.
- The audio unit combines a warning message and fixed guide lines with an image received from the rear view camera to display a rear view camera image on the screen.

Description INFOID:0000000000876503

The audio unit on board diagnosis performs the functions listed in the table below:

Mode		Description		
Self Diagnosis		Audio unit diagnosis.     Diagnoses the connections across system components.		
	Display Diagnosis	The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display.		
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, lights, reverse, EQ pin, destination and camera type.		
	Speaker Test	The connection of a speaker can be confirmed by test tone.		
Confirmation/ Adjustment	Error History	The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.		
	Camera System	Guiding line position that overlaps rear view camera image can be adjusted.		
	AV COMM Diagnosis	The communication condition of each unit of display audio system can be monitored.		
	Delete Unit Connection Log	Erase the connection history of unit and error history.		
	Initialize Setting	Initializes the audio unit memory.		

## On Board Diagnosis Function

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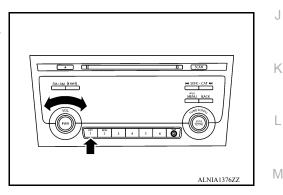
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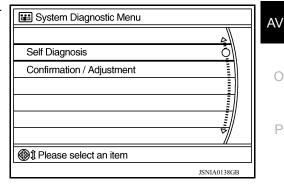
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## METHOD OF STARTING

- 1. Turn the ignition ON.
- 2. Turn the audio system OFF.
- While pressing the preset 1 button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. When selfdiagnosis mode begins, a short beep will be heard. Shifting from current screen to previous screen is performed by pressing BACK button.



4. The trouble diagnosis initial screen is displayed, and Self Diagnosis or Confirmation/Adjustment can be selected.



#### SELF DIAGNOSIS MODE

Audio Unit Self Diagnosis

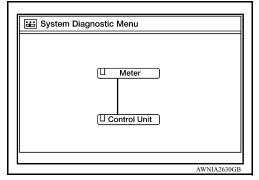
1. Select Self Diagnosis.

Revision: April 2014 AV-85 2014 Titan

## < SYSTEM DESCRIPTION >

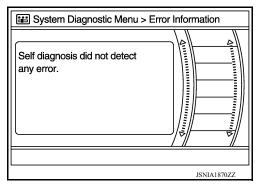
## [DISPLAY AUDIO WITHOUT AMPLIFIER]

- 2. Self diagnosis screen is displayed. The bar graph visible in center of screen indicates progress of self diagnosis.
- 3. 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
Connection malfunction	Gray	Yellow
Unit malfunction <sup>1</sup>	Red	Green

- 1: Control unit (audio unit) is displayed in red.
- Replace audio unit if Self Diagnosis did not run because control unit malfunction is indicated. The symptom is audio unit internal
  error. Refer to <u>AV-137</u>, "Removal and Installation".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.
- 4. Comments of self diagnosis results can be viewed in the diagnosis result screen.



#### Audio Unit Self Diagnosis Results

Only Unit Part Is Displayed In Red								
Screen switch	Description	Possible cause						
Control unit	Malfunction is detected in audio unit power supply and ground circuits.  necting Cable Between Units Is Displayed In	Audio unit power supply or ground circuits. Refer to AV-114, "AUDIO UNIT: Diagnosis Procedure".     If no malfunction is detected in audio unit power supply and ground circuits, replace audio unit. Refer AV-137, "Removal and Installation".  Yellow						
Area with yellow connection lines	Description	Possible cause						
Control unit ⇔ Meter	When one of the following is detected:  malfunction is detected in combination meter power supply and ground circuits.  malfunction is detected in AV communication circuits between audio unit and combination meter.	<ul> <li>Combination meter power supply or ground circuits.</li> <li>AV communication circuits between audio unit and combination meter.</li> </ul>						

#### < SYSTEM DESCRIPTION >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

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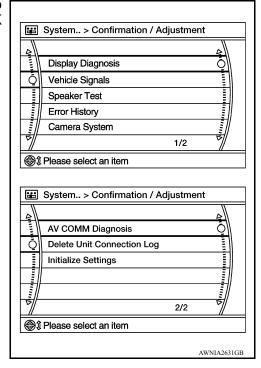
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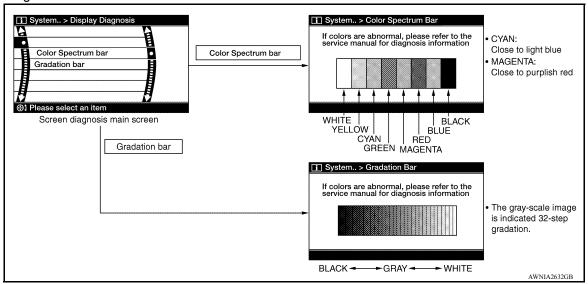
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Audio Unit Confirmation/Adjustment

- 1. Select Confirmation/Adjustment.
- Select each switch on the Confirmation/Adjustment screen to display the relevant trouble diagnosis screen. Press the BACK switch to return to the initial Confirmation/Adjustment screen.



#### **Display Diagnosis**



## Vehicle Signals

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

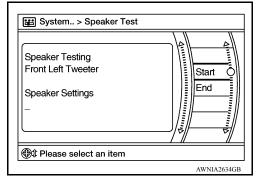
Vehicle speed	i OF	F	
Lights	OF	F	
Reverse	OF	F	
EQ Pin	1		
Destination	2		
Camera Type	1		

Speaker Test

< SYSTEM DESCRIPTION >

#### [DISPLAY AUDIO WITHOUT AMPLIFIER]

Select Speaker Test to display the Speaker Diagnosis screen. Press Start to generate a test tone in a speaker. Press Start again to generate a test tone in the next speaker. Press End to stop the test tones.



#### **Error History**

The self diagnosis results are judged depending on whether any error occurs from when Self Diagnosis is selected until the self diagnosis results are displayed.

However, the diagnosis results are judged normal if an error has occurred before the ignition switch is turned ON and then no error has occurred until the self diagnosis start. Check the Error Record to detect any error that may have occurred before the self diagnosis start because of this situation.

The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

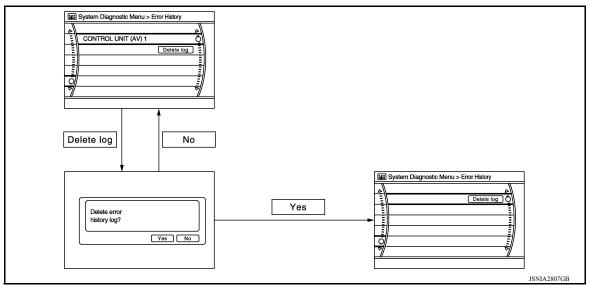
#### Count up method A

- The counter is set to 40 if an error occurs. 1 is subtracted from the counter if the condition is normal at a next ignition ON cycle.
- The counter lower limit is 1. The counter can be reset (no error record display) with the Delete log switch.

#### Count up method B

- The counter increases by 1 if an error occurs when ignition switch is ON. The counter will not decrease even if the condition is normal at the next ignition ON cycle.
- The counter upper limit is 50. Any counts exceeding 50 are ignored. The counter can be reset (no error record display) with the Delete log switch.

Display type of occurrence frequency	Error history display item			
Count up method A	AV communication line, control unit (AV)			
Count up method B	Other than the above			



#### Error item

Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

## < SYSTEM DESCRIPTION >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

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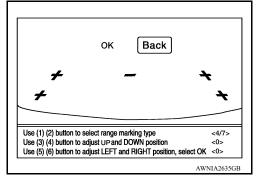
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Error item	Description	Possible cause
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	Replace the audio unit if the malfunction occurs constantly. Refer to AV-137, "Removal and Installation"
AV COMM CIRCUIT	When one of the following is detected:  malfunction is detected in combination meter power supply and ground circuits.  malfunction is detected in AV communication circuits between audio unit and combination meter.	Combination meter power supply or ground circuits.     AV communication circuits between audio unit and combination meter.

#### Camera System

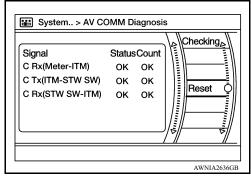
This mode is used to adjust the guide line display position of the rear view camera.



#### AV COMM Diagnosis

- · Displays the communication status between audio unit (master unit) and each unit.
- 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 is pressed.

Items	Status (Current)	Counter (Past)	
C Rx(Meter-ITM)	OK / ???	OK / 0 – 39	
C Tx(ITM-TW SW)	OK / ???	OK / 0 – 39	
C Rx(STW SW-ITM)	OK / ???	OK / 0 – 39	

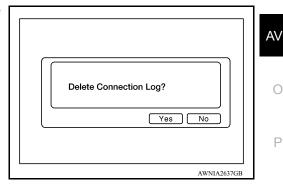


## NOTE:

"???" indicates UNKWN.

#### **Delete Unit Connection Log**

Deletes any unit connection records and error records from the audio unit memory (clears the records of the unit that has been removed).

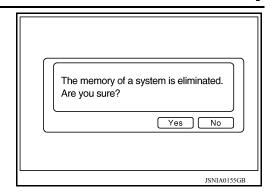


Initialize Settings

< SYSTEM DESCRIPTION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

Deletes data stored from the audio unit.



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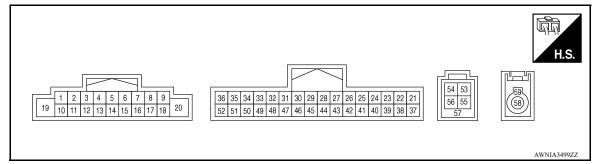
SKIB3609E

# **ECU DIAGNOSIS INFORMATION**

## **AUDIO UNIT**

Reference Value

## **TERMINAL LAYOUT**



## PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value																							
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)																							
2 (L/W)	3 (L/R)	Sound signal front speaker LH	Output	ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E																							
4 (SB)	5 (B/Y)	Sound signal rear speaker LH	Output	ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E																							
					Press SEEK DOWN switch.	0.7 V																							
6		OTDO OWA		011	Press SEEK UP switch.	1.3 V																							
(V)	Ground	STRG SW A	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	input	Input	Input	Input	Input	Input 	Input	Input	Input	ON	Press A switch.	2.0 V
					Except for above.	3.3 V																							
7 (V)	Ground	ACC power supply	Input	ACC	_	Battery voltage																							
8 (BR)	9 (R/L)	Illumination control signal	Input	ON	Headlamps ON	Battery voltage																							
11 (W/B)	12 (L/B)	Sound signal front speaker RH	Output	ON	Sound output	(V) 1 0 -1 -2ms																							

## **AUDIO UNIT**

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

Terminal (Wire color)		Description			Condition	Reference value
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
13 (O/L)	14 (R/L)	Sound signal rear speaker RH	Output	ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
15 (R/B)	_	STRG SW ground	Output	_	_	-
					Press SOURCE switch.	0 V
16					Press 🌾 🌈 switch.	0.7 V
(G/O)	Ground	STRG SW B	Input	ON	Press VOL UP switch.	1.3 V
					Press VOL DOWN switch	2.0 V
					Except for above.	3.3 V
18 (W/R)	Ground	Vehicle speed signal	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	0 JSNIA0012GB
19 (Y)	Ground	Battery power supply	Input	OFF	_	Battery voltage
23 (W)	Ground	Camera power supply	Output	ON	When camera image is displayed  Except for above	6.0 V 0 V
24 (R)	25 (G)	Telephone audio in	_	_	_	0 V
26	_	Telephone shield	_	_	_	<del>-</del>
28 (W/L)		M-CAN A+	_		_	_
29 (Y/L)	_	M-CAN A-	_	_	_	_
30	_	Multimedia CAN shield	_	_	_	_
31 (B/P)	_	M-CAN B+	_	_	_	_
32 (L/W)	_	M-CAN B-	_	_	_	_
33 (B)	Ground	RV_CAM_GND	_	_	_	_
34 (W)	Ground	RV_CAM_SIG	Output	Ignition switch ACC	Shift selector is in R position	6.0V

## **AUDIO UNIT**

## < ECU DIAGNOSIS INFORMATION >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
35 (R)	Ground	Rear view camera video in (+)	Input	Ignition switch ON	With rear view camera ON	(V) 0. 4 0 -0. 4 -40\(\mu\)s SKIB2251J
36	_	Shield	_	_	_	_
41 (Y)	Ground	Telephone ON signal	Input	ON		-
44 (G)	_	Camera DET	_	_	_	
45 (B)	_	EQ 1 Port 1	_	_	_	_
46 (B)	_	EQ 2 Port 2	_	_	1	_
47 (B)	_	EQ 3 Port 3	_	_	_	_
48 (B)	_	EQ4 Port 4	_	_	_	_
50				Ignition	R position	Battery voltage
(G/W)	Ground	Reverse signal	Input	switch ON	Other than R position	0 V
53 (W)	_	V BUS signal	_	_	_	_
54 (G)	_	USB ground	_	_		
55 (L)	_	USB D+	_	_	<u> </u>	_
56 (R)	_	USB D-	_	_	_	_
57		Shield		_	_	<del>-</del>
58 (B)	_	Satellite antenna signal	_	_	_	_
59 (B)	_	Shield	_	_	_	_

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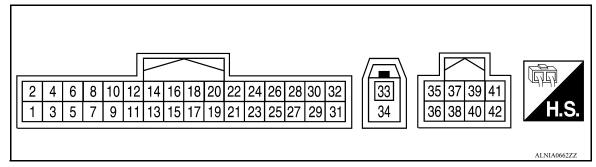
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## **BLUETOOTH® CONTROL UNIT**

Reference Value

## **TERMINAL LAYOUT**



## PHYSICAL VALUES

Term (wire		Descriptio	n		Condition	Reference value
+	_	Signal name	Input/ output		Condition	(Approx.)
1 (Y)	Ground	Battery power	Input	_	1	Battery voltage
2 (V)	Ground	ACC power	Input	Ignition switch ACC/ON	1	Battery voltage
3 (G/R)	Ground	IGN power	Input	Ignition switch ON/ START	-	Battery voltage
4 (B/W)	Ground	Ground	_	Ignition switch ON	-	0V
6	_	MIC Shield	_	_	_	-
7 (B)	8 (R/L)	MIC in signal	Input	_	-	-
9 (G)	10 (R)	Audio out	Output	Ignition switch ACC/ON	Bluetooth <sup>®</sup> control unit sends audio signal	(V) 1 0 -1 + 2ms SKIB3609E
11 (Y)	-	Mute control	Output	_	_	-
					Press SEEK DOWN switch.	0.7 V
12 (R/G)	Ground	Ladder in 1	Input	ACC/ON	Press SEEK UP switch.	1.3 V
(K/G)					Pressing switch.	2.0 V
					Except for above.	3.3 V

## **BLUETOOTH® CONTROL UNIT**

< ECU DIAGNOSIS INFORMATION >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

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	ninal color)	Description	n		Condition	Reference value
+	_	Signal name	Input/ output		Condition	(Approx.)
					Press SOURCE switch.	0 V
13					Press w 🗗 switch.	0.7 V
(G/W)	Ground	Ladder in 2	Input	ACC/ON	Press VOL UP switch.	1.3 V
					Press VOL DOWN switch	2 V
					Except for above.	3.3 V
14 (Y/R)	-	Ladder in ground	Input	-	-	-
15 (GR)	_	LED ind 1		_	_	-
					Press SEEK DOWN switch.	0.7 V
17	Ground	Ladder out 1	Output	ACC/ON	Press SEEK UP switch.	1.3 V
(V)			-		Pressing switch.	2.0 V
					Except for above.	3.3 V
					Press SOURCE switch.	0 V
18					Press w 🗗 switch.	0.7 V
(G/O)	Ground	Ladder out 2	Output	ACC/ON	Press VOL UP switch.	1.3 V
					Press VOL DOWN switch	2 V
					Except for above.	3.3 V
19 (R/B)	Ground	Ladder out ground	Output	_		_
21 (B)	Ground	Cont 1	_	_	_	0V
22 (B)	Ground	Cont 3	-	_	_	0V
27 (B)	Ground	Cont 4	-	_	_	0V
28 (W/R)	Ground	Vehicle speed sig- nal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	(V) 15 10 5 0 +-20ms PKIA1935E
29 (R/W)	Ground	Microphone power	Output	Ignition switch ON	_	5V

## **BLUETOOTH® CONTROL UNIT**

## < ECU DIAGNOSIS INFORMATION >

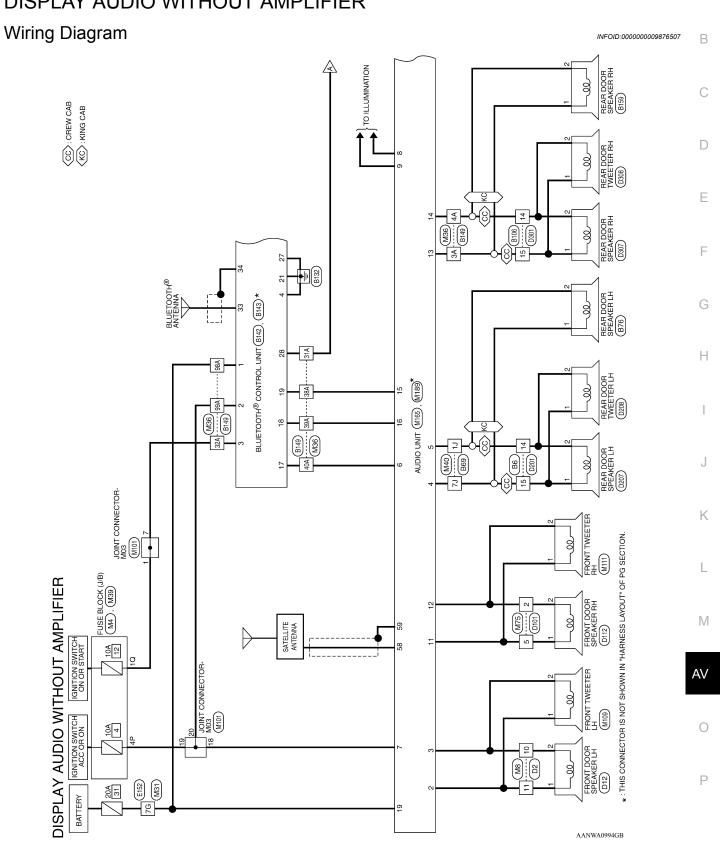
## [DISPLAY AUDIO WITHOUT AMPLIFIER]

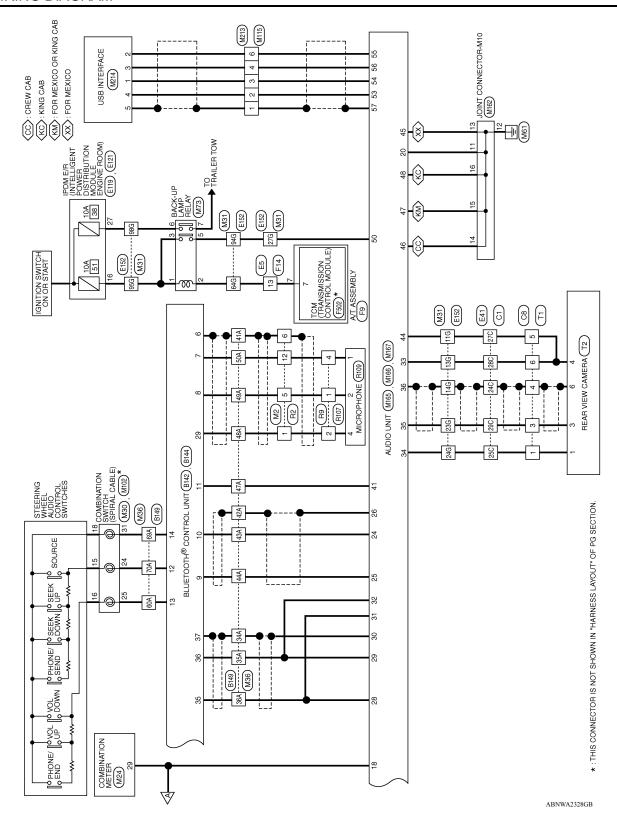
	ninal color)	Description	n		Condition	Reference value	
+	_	Signal name	Input/ output		Condition	(Approx.)	
33 (B)	_	Bluetooth <sup>®</sup> antenna	-	_	_	_	
34 (B)	_	Bluetooth <sup>®</sup> antenna	_	_	_	_	
35 (B)	_	M-CAN (+)	-	_	_	_	
36 (P)	_	M-CAN (-)	_	_	_	_	
37	_	Shield	1	_	_	_	

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# **WIRING DIAGRAM**

## **DISPLAY AUDIO WITHOUT AMPLIFIER**





[DISPLAY AUDIO WITHOUT AMPLIFIER]

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## < WIRING DIAGRAM >

# DISPLAY AUDIO CONNECTORS WITHOUT AMPLIFIER

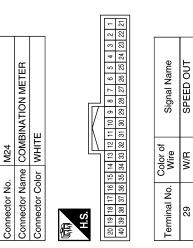
Connector No.	M2
Connector Name	Connector Name WIRE TO WIRE
Connector Color WHITE	WHITE

			_			
	'IRE			1	9 /	
	8			8	8 7	
	7	ш		П	6	
.	R	≒		Ш	12 11 10 9	
1	M	≶		4	=	
	tor Name WIRE TO WIRE	tor Color WHITE		2	12	

12 11 10 9 8 7 6	Signal Name	– (WITHOUT NAVI)	– (WITHOUT NAVI)	-	- (WITHOUT NAVI)
12 11 1	Color of Wire	R/W	R/L	SHIELD	В
H.S.	Terminal No.	1	9	9	12

	TO WIRE	Ę	7 6 5 4	Signal Name	1	ı	
W8	e WIRE	r WHIT	6 15 14 13	Color of Wire	L/R	Ŋ	
Connector No.	Connector Name WIRE TO WIRE	Connector Color WHITE	明.S.H	Terminal No. Wire	10	11	
Connector No. M4	Connector Name FUSE BLOCK (J/B)	Connector Color WHITE	(南) (12) (8) (8) (4) (13) (14) (15) (15) (15) (15) (15) (15) (15) (15	Terminal No.   Color of   Signal Name	4P V –		

	Connector No.	M30
ION METER	Connector Name	Connector Name COMBINATION SWITCH (SPIRAL CABLE)
	Connector Color GRAY	GRAY



Signal Name	- (WITHOUT NAVI)	- (WITHOUT NAVI)	- (WITHOUT NAVI)	
Color of Wire	B/G	G/W	Y/R	
Terminal No.	24	25	31	

ним) –	H/Y	31	
) ЭНДІМ)—	M/5	25	
)НЦIM) —	5/H	24	
Signa	Color of Wire	Terminal No.	

Signal Name	SPEED OUT	
	1	

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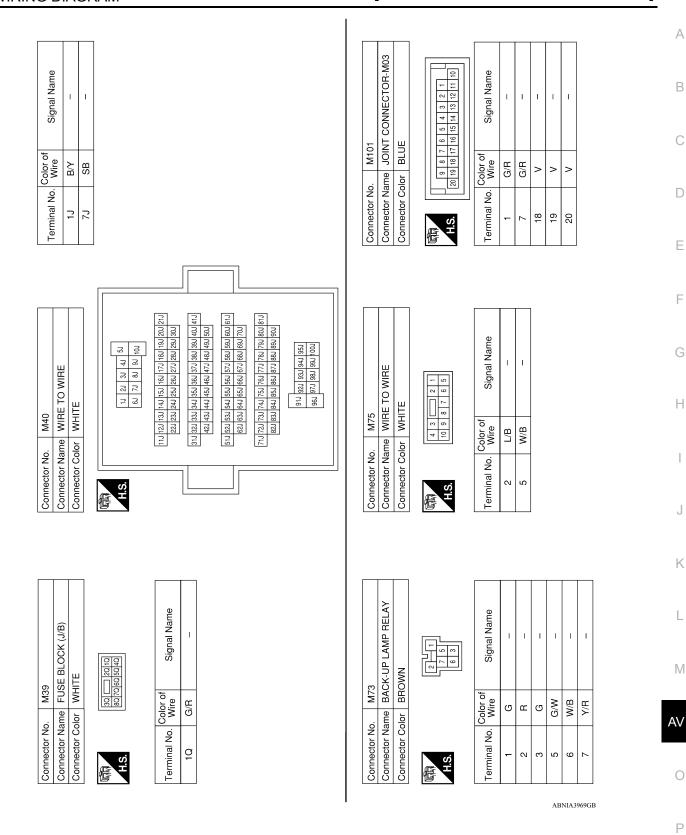
Signal Name	1	1	ı	ı	1	ı	ı	ı	ı	1																		
Color of Wire	ŋ	Å	R/W	R/L	В	G/W	Y/R	B/G	>	^																		
Terminal No.	44A	47A	48A	49A	50A	60A	P69	70A	98A	99A																		
			F											]														
TO WIBE	1 1 2			14 24 34 44 5A	6A 7A 8A 9A 10A		11A 12A 13A 14A 15A 16A 17A 18A 19A 20A 21A	22A 23A 24A 25A 26A 27A 28A 29A 30A	31A 32A 33A 34A 35A 36A 37A 38A 39A 40A 41A	42A 43A 44A 45A 46A 47A 48A 49A 50A	51A 52A 53A 54A 55A 56A 57A 56A 59A 60A 61A 62A 63A 64A 65A 66A 67A 68A 69A 70A	718 728 738 748 758 758 778 738 739 808 818 828 838 838 838 838 838 838 838 838 83	91A 92A 93A 94A 95A 96A 97A 98A 99A 100A		Signal Name	1	ı	ı	1	1	1	ı	1	1	ı	ı	ı	-
o. M36	olor WHITE	_					11A 12A 13	22A 23	31A 32A 33	42A 43	51A 52A 56	71A 72A 73 82A 83		-	Color of Wire	O/L	R/L	W/R	G/R	SHIELD	Ь	В	B/B	0/5	>	SHIELD	SHIELD	Œ
Connector No. M36 Connector Name MIRE TO WIRE	Connector Color			S											Terminal No.	3A	4A	31A	32A	34A	35A	36A	38A	39A	40A	41A	42A	43A
														1														
Connector No. M31	WHITE			16 26 36 46 56	8 8			22G 23G 24G 25G 26G 27G 28G 29G 30G	31G 32G 33G 34G 35G 36G 37G 38G 39G 40G 41G	42G 43G 44G 45G 46G 47G 48G 49G 50G	51G52G63G64G55G5G657G58G59G60G61G 62G63G84G65G66G67G68G69G70G	71G72G73G74G75G76G77G78G79G80G81G 82G83G84G85G86G87G88G89G90G	91G 92G 93G 94G 95G 96G 95G 96G 97G 98G 93G 100G		Signal Name	ı	ı	-	-	ı	ı	ı	ı	ı	ı	-		
lo. M31	olor WF	_					11G12G	226	31G 32G	42G	51G 52G 62G	71G72G 82G			Color of Wire	>	ŋ	В	SHIELD	œ	>	Ø/Ð	œ	G/W	ŋ	M/B		
Connector No.	Connector Color			J.										J	Terminal No.	76	11G	13G	14G	23G	24G	27G	64G	94G	95G	986		

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< WIRING DIAGRAM >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

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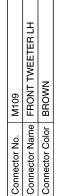
**AV-101** Revision: April 2014 2014 Titan

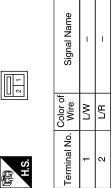


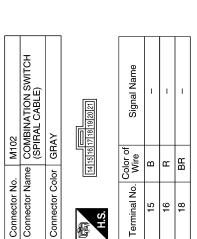


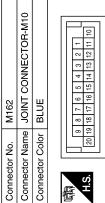


Color of Wire	8/M	9/1
Terminal No.	-	2









BLUE   CONNECT OF   March   CONNECT OF   March   CONNECT OF   March   March	Signal Name	ı	1	_	I	-	I
	Color of Wire	В	В	В	В	В	В
Connector Color H.S.	Terminal No.	11	12	13	14	15	16

Connector No.   M115	Connector Name WIRE TO WIRE	Connector Color GRAY	
Connecto	Connecto	Connecto	



Signal Name	I	-	I	I	_	
Color of Wire	SHIELD	M	В	æ	7	
Color of Terminal No. Wire	-	2	3	4	9	

ABNIA6346GB

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

< WIRING DIAGRAM >

Connector No.		M166
Connector Name		AUDIO UNIT (WITH DISPLAY AUDIO WITHOUT AMPLIFIER)
Connector Co	Color	GREEN
原 H.S.		54 83 56 85 57
Terminal No.	Color of Wire	of Signal Name
53	≥	V BUS
54	σ	USB GND
55	_	USB D +
56	Œ	USB D -
22	SHIELD	D SHIELD
Terminal No.	Color of Wire	of Signal Name
42	ı	1
43	1	1
44		CAMERA DET
45	В	EQ1 PORT 1
46	В	EQ2 PORT 2
47	В	EQ3 PORT 3
48	В	EQ4 PORT 4
49	I	1
20	W/5	REVERSE SGN
51	ı	1
52	-	-

Signal Name	ACC	(-)	ILL (+), LIGHT SW	ı	FR SP RH+	FR SP RH-	RR SP RH+	RR SP RH-	STRG SW GND	STRG SW B	1	SPEED SIG SSV	BAT	GND
Color of Wire	>	BB	R/L	ı	M/B	R R	O/L	R/L	B/B	9/0	1	M/R	<b>\</b>	В
Terminal No.	7	8	6	10	#	12	13	14	15	16	17	18	19	20

Signal Name	MCAN A+	MCAN A-	MULTIMEDIA CAN SHIELD	MCAN B+	MCAN B-	GND	CAMERA ON	COMP+	COMP-	ı	ı	-	1	TEL ON
Color of Wire	M/L	Y/L	SHIELD	B/P	L/W	В	×	В	SHIELD	ı	-	-	_	٨
Terminal No. Wire	28	59	30	31	32	33	34	35	36	37	38	39	40	41

Connector Name DISPLAY AUDIO WITH DISPLAY AUDIO WITHOUT AMPLIFIER) Connector Color WHITE	Connector No.	M165
Connector Color WHITE		AUDIO UNIT (WITH DISPLAY AUDIO WITHOUT AMPLIFIER)
	Connector Color	WHITE

4 5 6 7 8 9 9 13 14 15 16 17 18 20	Signal Name	ı	FR SP LH+	FR SP LH-	RR SP LH+	RR SP LH-	STRG SW A
1 2 1 1 2 1 1 2 1 3 4 4 1 1 2 1 3 1 3 4 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1	Color of Wire	ı	~	L'A	SB	В/У	^
H.S.	Terminal No.	-	2	က	4	5	9

3	L/R	FR SP LH-
4	SB	RR SP LH+
2	В/У	RR SP LH-
9	>	STRG SW A
Connector No.	M167	97
Connector Name		AUDIO UNIT (WITH DISPLAY AUDIO WITHOUT AMPLIFIER)

				36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21	38 37	
	<b>-</b>			23	88	
	AUDIO UNIT (WITH DISPLAY AUDIO WITHOUT AMPLIFIER)			24	51 50 49 48 47 46 45 44 43 42 41 40 39	ı
	Ě			32	14	
	∓\E			88	42	
	<b>₩</b>		117	27	43	
	≥ే		l I <i>V</i>	28	4	
	₹8€		\	53	45	
	AUDIO UNIT DISPLAY AL AMPLIFIER)			98	46	
	o∑"	쁘		31	47	
<u> </u>	근유	\=		32	48	
/O   M	₹₫₹	∣≥		88	49	
	Φ	_		뚕	20	
·	Ë	흥		35	51	
ž	ž	ŏ		ဗ္တ	52	
CIOI INO.	ctor Name	ctor Color WHITE				_

Signal Name	ı	-	I	TEL I/F -	TEL I/F +	TEL SHIELD	I
Color of Wire	1	1	ı	Ж	9	SHIELD	-
Terminal No. Wire	21	22	23	24	52	26	27

ABNIA6347GB

Revision: April 2014 AV-103 2014 Titan

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[DISPLAY AUDIO WITHOUT AMPLIFIER]

## < WIRING DIAGRAM >

Connector No. M189	Connector No.	M213	Connector No.	M214	
Connector Name DISPLAY AUDIO WITHOUT AMPLIFIER)	Connector Name Connector Color	WIRE TO WIRE GRAY	Connector Name Connector Color	me USB INTERFACE lor GRAY	
Connector Color GRAY	<u></u>				
H.S.	K.E.	L 0 0 V V O V O V O V O V O V O V O V O V	H.S.	1 c c c c c c c c c c c c c c c c c c c	
Terminal No.   Color of   Signal Name   Wire	Terminal No. Wire	or of Signal Name	Terminal No.	Color of Signal Name	Φ
58 B SAT ANT	1 SHIELD	- CTD	-	ا ق	
59 B SAT SHIELD	2 W	-	2	-	
	3	1	ဧ	R	
	4 R	1	4	M	
	9 P	ı	2	SHEILD -	
$\parallel$				lŀ	
Connector No. E5	Connector No.	E41	Connector No.	. E119	
	-	WIRE TO WIRE	omol V rotoccaso	IPDM E/R (INTELLIGENT	L Z
Connector Color WHITE	Connector Color	GRAY			(MOC
			Connector Color	lor WHITE	
1 2 3 4 5 6  7 8 9 10 11 11 12 13 14 15 16  10 11 90 91 92 93 94	H.S.	2C 3C 4C 5C			
		7C 8C 9C 10C 11C	SH	9     8     7     6     5     4     3       18     17     16     15     14     13     12     11     10	
	120	12C 13C 14C 15C 16C 17C 18C 19C 20C 21C			
Terminal No. Color of Signal Name		220 230 240 250 260 270 280 290 300 310	Terminal No.	Color of Signal Name	<u>ə</u>
c.	350	32C 33C 34C 35C 36C 37C 38C 39C 40C 41C	16	G REVERSE LAMP	AMP
_	420	42C 43C 46C 47C 45C 46C 47C 48C 48C 42C 50C 51C			
	Terminal No. Wire	re Signal Name			
	24C SHIELD	- d7:			
	25C W	- /			
	27C G	1			
	28C B	-			
	29C R	1			

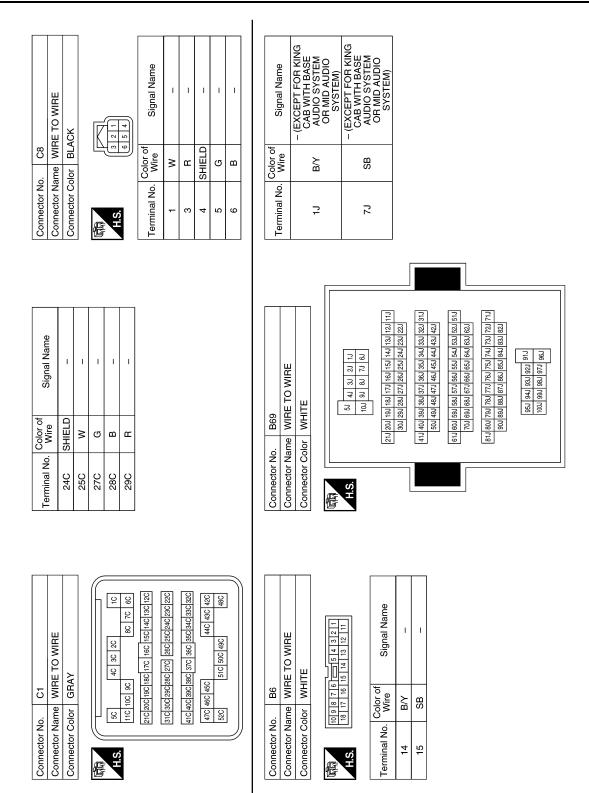
ABNIA6355GB

< WIRING DIAGRAM >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

11G   11G	11G   11G	11G   11G	Connector Color   WHITE   11G   Color   Colo	POWER DISTRIBUTION   WHITE	S
### ### ##############################	### ### ##############################	### ### ##############################	Connector Name   WIRE TO WIRE	PDM MEN (NINELLIGEN	
WIRE TO WIRE     WIRE TO WIRE     WIRE TO WIRE     WIRE TO WIRE     S6 46 36 20 16   Mag   Mag	Connector Name   WIRE TO WIRE	Connector Name   WIRE TO WIRE	Connector Nam Connector No. Connector No. Connector No. Connector Colo	PDM E/R (INTELLIGENT POWNEY LIGENT POWNEY POWE ENGINE ROOM)   POWE DISTRIBUTION   Connector Colo	13G 14G Si 23G 24G 24G 94G 95G 98G 98G Connector No.
MHITE	Connector Name	Connector Name   WIRE TO WIRE	Connector Nam Connector Colo Connector No. Connector Nam Connector Nam Connector Nam	PDM E/R (INTELLIGENT POWNEY LIGENT POWNEY POWE ENGINE ROOM)   POWE DISTRIBUTION   Connector Colo	
NHITE TO N	Connector Name   WHRE TO	Connector Name   WIRE TO V	Connector Nam Connector No. Connector No. Connector Nam Connector Nam	PDM E/R (INTELLIGENT POWNEY LIGENT POWNEY POWE ENGINE ROOM)   POWE DISTRIBUTION   Connector Colo	30 20 10 60
	Connector Nam Connector No.  Sonnector No.  Sonnector No.  Sonnector Colo	Connector No.  Connector No.  Connector No.  Connector No.  Connector No.		POWE PR (INTELLIGENT MODULE ENGINE ROOM)  BROWN  BROWN  Iso The Signal Name  With Tow Rev LAMP  AT ASSEMBLY  (FLOOR SHIFT)  GREEN	100   90   100   90   90   90   90   9

[DISPLAY AUDIO WITHOUT AMPLIFIER]



ABNIA6349GB

[DISPLAY AUDIO WITHOUT AMPLIFIER]

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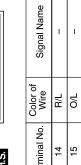
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## < WIRING DIAGRAM >

$\overline{}$				_											
Signal Name	LADDER OUT 2	LADDER OUT GND	ı	CONT 2	ı	-	1	I	-	CONT 6	SPEED SIGNAL	MIC POWER	1	ı	1
Color of Wire	G/O	B/B	1	В	ı	ı	-	I	ı	В	W/R	R/W	1	ı	1
Terminal No.	18	19	20	21	22	23	24	25	56	27	28	29	30	31	32

B106	WIRE TO WIRE	WHITE	0 9 8 7 6 6 5 4 3 2 1
Connector No.	Connector Name WIRE TO WIRE	Connector Color	10 9 H.S.

Connector No. B76
Connector Name REAR DOOR SPEAKER LH



ш		Signal Name	- (EXCEPT BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	- (EXCEPT BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
r WHIT		Color of Wire	SB	B/Y
Connector Color WHITE	H.S.	Terminal No.	<del>-</del>	2

Signal Name	MIC SHIELD	MIC IN+	MIC IN-	AUDIO OUT+	AUDIO OUT-	MUTE CONTROL	LADDER IN 1	LADDER IN 2	LADDER IN GND	ı	ı	LADDER OUT 1
Color of Wire	SHIELD	В	R/L	ŋ	œ	>	R/G	G/W	Y/R	ı	1	۸
Terminal No.	9	7	æ	6	10	Ξ	12	13	14	15	16	17

tor No. B142	Connector Name BLUETOOTH® CONTROL UNIT	tor Color WHITE	
Connector No.	Connector Nam	Connector Color	

	32	31	1						
	30	53							
	28	27							
	26	25							
	24	23 25 27		Signal Name					
	22	21		l e	I⊨	ပ္ကြ	IGN	♀	١.
117	20	17 19 21		ल	BATT	ACC	<u>छ</u>	GND	l '
V	48	17		Ϊġ	-				
IN.	16	15		ဟ					
П	14	13							
	12	Ξ		_					
	10	စ					~	>	
	8	^		Color of Wire	<b>&gt;</b>	>	G/R	B/W	
	9	2		0			_	_	
	4	က		·					
	2	-		Ιž					
AF.		Ŋ.	_	Terminal No.	-	2	3	4	2
	7	7		_					

ABNIA6350GB

**AV-107** Revision: April 2014 2014 Titan

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

<	W	IRI	N	G	DI	Α	GF	RΑ	M	>

Signal Name	MCAN + 1	MCAN - 1	MCAN SHIELD 1	1	1	1	1	1
Color of Wire	В	۵	SHIELD	ı	1	ı	ı	1
Terminal No. Wire	35	36	28	38	68	40	41	42

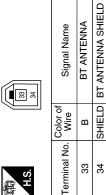
Signal Name	1	1	I	ı	ı	1	1	1	1
Color of Wire	>	B/W	B/L	В	G/W	Y/R	B/G	>	^
Terminal No.	47A	48A	49A	50A	60A	69A	70A	98A	99A

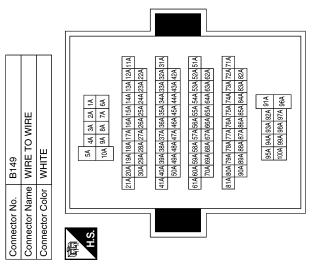




Signal Name	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	I	I	I	_	I	ī	ī	I	I	-	1	I	1
Color of Wire	O/L	R/L	W/R	G/R	SHIELD	Ь	В	B/B	G/O	>	SHIELD	SHIELD	Œ	Э
Terminal No.	3A	4A	31A	32A	34A	35A	36A	38A	39A	40A	41A	42A	43A	44A

B143	Connector Name BLUETOOTH CONTRO	BLACK	
Connector No.	Connector Name	Connector Color BLACK	





ABNIA6351GB

## **DISPLAY AUDIO WITHOUT AMPLIFIER**

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

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## < WIRING DIAGRAM >

Connector Name REAR DOOR SPEAKER RH

Connector No. B159

Connector Color WHITE

Connector No.			Connector No.	T2
unector N	ame WIF	Connector Name WIRE TO WIRE	Connector Name	ne REAR VIEW CAMERA
Connector Color BLACK	olor BLA	ACK	Connector Color GRAY	or GRAY
			ag.	<
中中 H.S.	- 4	2 S 8	(科型) H.S.	6 3 2 1
	J			
Terminal No. Wire	Color of Wire	Signal Name	Terminal No. Wire	Solor of Signal Name
-	8	ı	-	M
3	Œ	I	က	۱
4	SHIELD	1	4	В
5	ŋ	ı	9	SHIELD -
9	m	ı		_

Signal Name

Color of Wire

Terminal No.

ı	ı	1	1					WIRE TO WIRE	ш	8 3		Signal Na	I	I	ı	
>	Œ	В	SHIELD				). R107		lor WHIT	1 2 4 5 6		Color of Wire	B/L	R/W	В	•
-	ဗ	4	9				Connector No.	Connector Name	Connector Color WHITE		5	Terminal No.	-	2	4	
ı	ı	ı	ı	ı				TO WIRE	ш	5 2 4 1	]	Signal Name	- (WITHOUT NAVI)	ı	ı	
>	æ	SHIELD	ڻ ق	В	-		B3	me WIRE	lor WHIT	3 7 6 5		Color of Wire	R/L	W/A	В	
<del>-</del>	8	4	2	9	-		Connector No.	Connector Name WIRE TO WIRE	Connector Color WHITE			Terminal No.	-	2	4	
- (EXCEPT BASE	AUDIO SYSTEM	SYSTEM)	1					E TO WIRE	12	9 10 11 12		Signal Name	- (WITHOUT NAVI)	- (WITHOUT NAVI)	ı	
	O/L		R/L				R2	WIR	M	1 2 3 <b>•</b> 6 7 8 9		Color of Wire	W/A	B/L	SHIELD	
	-		2				Connector No.	Connector Name	Connector Color	管	113	Terminal No.	-	2	9	

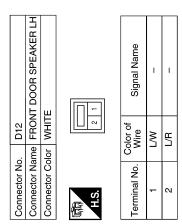
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**AV-109** 2014 Titan Revision: April 2014

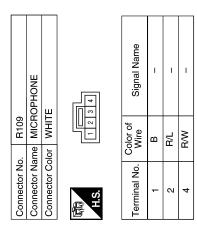
# **DISPLAY AUDIO WITHOUT AMPLIFIER**

# [DISPLAY AUDIO WITHOUT AMPLIFIER]

## < WIRING DIAGRAM >



	WIRE TO WIRE	щ	3	Signal Name	I	ı
. D2		or WHITE	9 5	Color of Wire	L/R	3
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	10	+



Connector No.	. D201	
Connector Name		WIRE TO WIRE
Connector Color	lor WHITE	Ш
H.S.	2 3 4 5 <b>••</b> 1 12 13 14 15	■ 6 7 8 9 10 15 16 17 18
Terminal No.	Color of Wire	Signal Name
14	В/У	- (WITHOUT NAVI OR MID AUDIO SYSTEM)
15	SB	- (WITHOUT NAVI OR MID AUDIO SYSTEM)

	FRONT DOOR SPEAKER RH			Signal Name	1	1
D112	me FRONT	or WHITE	8	Color of Wire	M/B	L/B
Connector No.	Connector Name	Connector Color	崎 H.S.	Terminal No.	٦	2

	WIRE TO WIRE	ш	8 8 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	Signal Name	I	_
D101		v WHITE	1 2 6 7 8	Color of Wire	L/B	W/B
Connector No.	Connector Name	Connector Color	(中) H.S.	Terminal No.	2	2

ABNIA6353GB

# **DISPLAY AUDIO WITHOUT AMPLIFIER**

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

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< WIRING DIAGRAM >

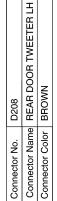


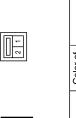
Signal Name	-	– (WITHOUT NAVI OR MID AUDIO SYSTEM)
Color of Wire	R/L	O/L
Terminal No.	14	15





Signal Name	ı	– (WITHOUT NA OR MID AUDIC SYSTEM)
Color of Wire	J/H	7/0
Terminal No.	14	15

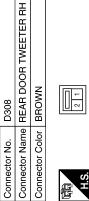


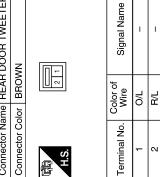


Signal Nan	I	1
Color of Wire	SB	B/Y
Ferminal No.	1	2



	REAR DOOR SPEAKER LH	E		Signal Name	- (WITHOUT NAVI OR MID AUDIO SYSTEM)	- (WITHOUT NAVI OR MID AUDIO
D207		WHITE	2	Color of Wire	SB	B/Y
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	-	2
$\Box$	_				l	





	唇	H.S.
-		_

Signal Name	– (WITHOUT NAVI OR MID AUDIO SYSTEM)	_	
Color of Wire	O/L	B/L	
nal No.	-	2	

Connector Name | REAR DOOR SPEAKER RH

D307

Connector No.

WHITE

Connector Color

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0)	_ ≥º	
Color of Wire	O/L	B/L
Terminal No.	-	2

ABNIA6354GB

**AV-111** 2014 Titan Revision: April 2014

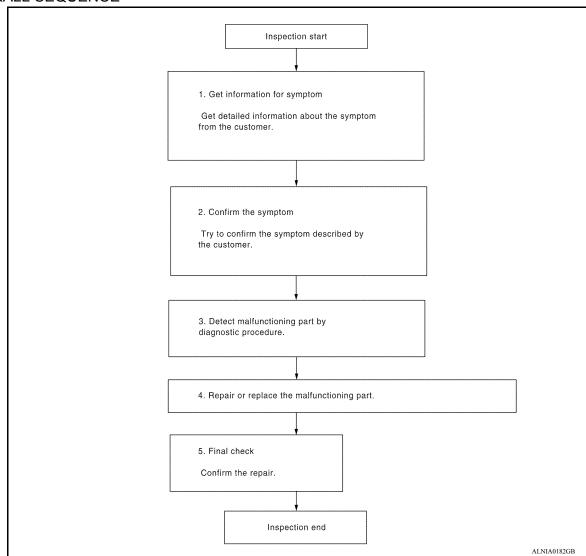
## [DISPLAY AUDIO WITHOUT AMPLIFIER]

# **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).

>> 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.

# **DIAGNOSIS AND REPAIR WORKFLOW**

< BASIC INSPECTION >	[DISPLAY AUDIO WITHOUT AMPLIFIER]
Is malfunctioning part detected?	<u> </u>
YES >> GO TO 4.	
NO >> GO TO 2.  4. REPAIR OR REPLACE THE MALFUNCTIONING PAR	OT.
	<u> </u>
<ol> <li>Repair or replace the malfunctioning part.</li> <li>Reconnect parts or connectors disconnected during I</li> </ol>	Diagnostic Procedure.
>> GO TO 5.	
5. FINAL CHECK	
Refer to confirmed symptom in step 2, and make sure tha Was the repair confirmed?	t the symptom is not detected.
YES >> Inspection End.	
NO >> GO TO 2.	

Revision: April 2014 AV-113 2014 Titan

### POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

# DTC/CIRCUIT DIAGNOSIS

# POWER SUPPLY AND GROUND CIRCUIT AUDIO UNIT

AUDIO UNIT: Diagnosis Procedure

INFOID:0000000009876509

Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

## 1.CHECK FUSES

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

Unit Terminals		Signal name	Fuse No.
Audio unit	7	Battery power	4 (10A)
Addio driit	19	Ignition switch ACC or ON	31 (20A)

### Is the fuse blown?

YES >> GO TO 2.

NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

# 2. POWER SUPPLY CIRCUIT CHECK

- Disconnect audio unit connector M165.
- Check voltage between the audio unit connector M165 and ground.

(+)		(-)	(-) OFF	ACC	ON
Connector	Terminal	(-)	011	AGG	 
M165	7	Ground	0V	Battery voltage	Battery voltage
WITOS	19	Ground	Battery voltage	Battery voltage	Battery voltage

### Is the inspection result normal?

YES >> GO TO 3.

NO >> • Check connector housing for disconnected or loose terminals.

· Repair harness or connector.

# 3. GROUND CIRCUIT CHECK

- 1. Turn ignition switch OFF..
- Check continuity between the audio unit connector M165, M167 and ground.

Connector	Terminal	_	Continuity	
	45 (Mexico)	46 (Crew cab)		
M167	46 (Crew cab)			
WITO	47 (Mexico or King cab)		Yes	
	48 (King cab)	0.03.13		
M165	20			

### Is the inspection result normal?

YES >> Inspection End.

NO >> Repair audio unit ground.

BLUETOOTH® CONTROL UNIT

BLUETOOTH® CONTROL UNIT: Diagnosis Procedure

INFOID:0000000009876510

## POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

### [DISPLAY AUDIO WITHOUT AMPLIFIER]

# 1. CHECK FUSE

Check that the following fuses for the Bluetooth® control unit are not blown.

Unit	Terminal	Signal name	Fuse No.
Bluetooth <sup>®</sup> control unit	1	Battery power	31 (20A)
	2	Ignition switch ACC or ON	4 (10A)
	3	Ignition switch ON or START	12 (10A)

### Is the fuse blown?

YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

# 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between Bluetooth® control unit harness connector B142 and ground.

Connector	Terminal	Ignition switch position	Value (Approx.)
	1	OFF	
B142	2	ACC	Battery voltage
	3	ON	

### Is the inspection result normal?

YES >> GO TO 3.

>> Check harness between Bluetooth® control unit and fuse. NO

## 3.CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- Disconnect Bluetooth® control unit connector. 2.
- 3. Check continuity between Bluetooth® control unit harness connector B142 and ground.

Connector	Terminal	_	Continuity
	4		
B142	21	Ground	Yes
	27		

### Is the inspection result normal?

YES >> Inspection End.

>> Repair harness or connector. NO

### MICROPHONE

## MICROPHONE: Diagnosis Procedure

Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

# 1. CHECK POWER SUPPLY CIRCUIT (MICROPHONE SIDE)

- Turn ignition switch ON.
- Check voltage between microphone harness connector R109 and ground.

(+)		(-) Value (Approx.)		
Connector	Terminal	(-)	value (Approx.)	
R109	4	Ground	5V	

### Is the inspection result normal?

**AV-115 Revision: April 2014** 2014 Titan

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INFOID:0000000009876511

## POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

YES >> GO TO 3. NO >> GO TO 2.

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

- 1. Turn ignition switch OFF.
- 2. Disconnect microphone and Bluetooth<sup>®</sup> control unit harness connectors.
- 3. Check continuity between microphone harness connector R109 and Bluetooth<sup>®</sup> control unit harness connector B142.

Microphone		Bluetooth <sup>®</sup> control unit		Continuity
Connector	Connector Terminal		Connector Terminal	
R109	4	B142	29	Yes

4. Check continuity between microphone harness connector R109 terminal 4 and ground.

Microphone			Continuity	
Connector	Terminal		Continuity	
R109	4	Ground	No	

### Is the inspection result normal?

YES >> Replace the Bluetooth® control unit. Refer to AV-147, "Removal and Installation".

NO >> Repair harness or connector.

# 3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect microphone harness connector R109 and Bluetooth<sup>®</sup> control unit harness connector B142.
- 3. Check continuity between microphone harness connector R109 and Bluetooth® control unit harness connector B142.

Micro	Microphone Bluetooth® control unit		Bluetooth <sup>®</sup> control unit	
Connector	Terminal	Connector	Terminal	Continuity
R109	2	B142	8	Yes

### Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

## FRONT DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## FRONT DOOR SPEAKER

## Diagnosis Procedure

INFOID:0000000009876512

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Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

# 1. CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminals or connectors.

# 2.CHECK FRONT DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY

- 1. Disconnect audio unit connector M43 and suspect front door speaker connector.
- 2. Check continuity between audio unit connector M165 and suspect front door speaker connector.

Aud	io unit	Front door speaker		Continuity		
Connector	Terminal	Connector	Terminal	Continuity		
	2	D12 (LH)	D42 (LLI)	D42 (LLI)	1	
M165	3		2	Yes		
	11	D440 (DLI)	1	165		
	12	D112 (RH)	2			

3. Check continuity between audio unit connector M165 and ground.

Audio unit		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
	2			
M165	3		No	
WITOS	11	_		
	12			

### Is the inspection result normal?

YES >> GO TO 3

NO >> Repair or replace harness or connectors.

# 3.check front door speaker signal

- 1. Connect audio unit connector M165 and suspect front door speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push audio unit POWER switch.
- 4. Check signal between audio unit connector M165 and ground.

Audio unit connector M43			
(+)	(-)	Condition	Reference value
Terminal	Terminal		

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## FRONT DOOR SPEAKER

## < DTC/CIRCUIT DIAGNOSIS >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

2	3		4.0
11	12	Audio signal output	1 0 -1 + 2ms SKIB3609E

# Is the inspection result normal?

>> Replace front door speaker. Refer to <u>AV-140, "Removal and Installation"</u>. >> Replace audio unit. Refer to <u>AV-137, "Removal and Installation"</u>. YES

NO

## FRONT TWEETER

< DTC/CIRCUIT DIAGNOSIS >

### [DISPLAY AUDIO WITHOUT AMPLIFIER]

## FRONT TWEETER

# Diagnosis Procedure

INFOID:0000000009876513

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Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

# 1. CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminals or connectors.

# 2.CHECK FRONT TWEETER SIGNAL CIRCUIT CONTINUITY

- 1. Disconnect audio unit connector M165 and suspect front tweeter connector.
- 2. Check continuity between audio unit connector M165 and suspect front tweeter connector.

Aud	io unit	Front tweeter		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
	2	M109 (LH)	1	1	
M165	3		2	Yes	
	11	M111 (RH)	1	165	
	12		2		

3. Check continuity between audio unit connector M165 and ground.

Audio unit		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
	2			
M165	3		No	
	11	_		
	12			

### Is the inspection result normal?

YES >> GO TO 3

NO >> Repair or replace harness or connectors.

# 3.CHECK FRONT TWEETER SIGNAL

- 1. Connect audio unit connector M165 and suspect front tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push audio unit POWER switch.
- 1. Check signal between audio unit connector M165 and ground.

Audio unit connector			
(+)	(-)	Condition	Reference value
Terminal Terminal			

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## **FRONT TWEETER**

### < DTC/CIRCUIT DIAGNOSIS >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

2	3		
11	12	Audio signal output	(V) 1 0 -1 + 2ms SKIB3609E

## Is the inspection result normal?

YES >> Replace front tweeter. Refer to AV-139, "Removal and Installation".

NO >> Replace audio unit. Refer to <u>AV-137, "Removal and Installation"</u>.

### **REAR DOOR SPEAKER**

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## REAR DOOR SPEAKER

Description INFOID:0000000009876514

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

## Diagnosis Procedure

INFOID:0000000009876515

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Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

# 1. CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2. HARNESS CHECK

1. Disconnect audio unit connector M165 and suspect rear door speaker connector.

2. Check continuity between audio unit harness connectors M165 and suspect rear door speaker harness connector.

Aud	io unit	Rear speakers		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
	4	D207 (crew cab) B76 (king cab)	1		
M165	5		2	Yes	
	13	D307 (crew cab)	1	165	
	14	B159 (king cab)	2		

3. Check continuity between audio unit harness connectors M165 and ground.

Connector	Terminal	-	Continuity	
M165	4	Ground		
	5		No	
	13			
	14			

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3.REAR DOOR SPEAKER SIGNAL CHECK

1. Connect audio unit connectors and suspect rear door speaker connector.

- Turn ignition switch to ACC.
- 3. Push "POWER" switch.

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Check the signal between audio unit harness connectors M166 terminals with CONSULT or oscilloscope.

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## **REAR DOOR SPEAKER**

## < DTC/CIRCUIT DIAGNOSIS >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

Connector	Terminals		Condition	Reference	
Connector	(+)	(-)	Condition	signal	
	4	5			
M165	13	14	Receive audio sig- nal	(V) 1 0 -1 -1 -SKIA0177E	

## Is the inspection result normal?

YES >> Replace suspect rear door speaker. Refer to AV-141, "Removal and Installation".

NO >> Replace audio unit. Refer to AV-137, "Removal and Installation".

### REAR DOOR TWEETER

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## REAR DOOR TWEETER

Description INFOID:0000000009876516

The audio unit sends audio signals to the rear door tweeters using the audio signal circuits.

Diagnosis Procedure

INFOID:0000000009876517

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Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

# 1. CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2. HARNESS CHECK

1. Disconnect audio unit connector M166 and suspect rear door tweeter connector.

Check continuity between audio unit harness connectors M165 and suspect rear door tweeter harness connector.

Aud	Audio unit		Rear tweeters	
Connector	Terminal	Connector	Terminal	- Continuity
	4	D208	1	
M165	5	D200	2	Yes
WIOS	13	D308	1	165
	14	D300	2	

Check continuity between audio unit harness connectors M165 and ground.

Connector	Terminal	-	Continuity	
	4			
M166	5	Ground	No	
	13	Ground		
	14			

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3. REAR DOOR TWEETER SIGNAL CHECK

- 1. Connect audio unit connectors and suspect rear door tweeter connector.
- Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connectors M165 terminals with CONSULT or oscilloscope.

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## **REAR DOOR TWEETER**

### < DTC/CIRCUIT DIAGNOSIS >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

Connector	Terminals		Condition	Reference	
Connector	(+)	(-)	Condition	signal	
	4	5			
M166	13	14	Receive audio sig- nal	1 0 -1 1 ms	

## Is the inspection result normal?

YES >> Replace suspect rear door tweeter. Refer to AV-141, "Removal and Installation".

NO >> Replace audio unit. Refer to AV-137, "Removal and Installation".

# REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

# Diagnosis Procedure

INFOID:0000000009876518

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Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

# 1. CHECK REVERSE INPUT SIGNAL

- Turn ignition switch ON.
- Shift the selector lever to R (reverse).
- Check voltage between audio unit connector M167 and ground.

Aud	Audio unit			
	(+)		Condition	Voltage (Approx.)
Connector	Terminal	(-)		,
M167	50	_	Selector lever in R (reverse)	Battery Voltage

### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

# 2.CHECK CAMERA POWER SUPPLY CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- 2. Disconnect audio unit connector M167 and rear view camera connector.
- Check continuity between audio unit connector M167 and rear view camera connector T2.

Audi	o unit	Rear view camera		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M167	34	T2	1	Yes	

Check continuity between audio unit connector M167 and ground.

Audi	o unit		Continuity
Connector	Terminal	Ground	Continuity
M167	34		No

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

# 3.CHECK CAMERA POWER SUPPLY VOLTAGE

- Connect audio unit connector M167 and rear view camera connector.
- Turn ignition switch ON.
- Shift the selector lever to R (reverse).
- Check voltage between audio unit connector M167 and ground.

Audio unit		Ground		Voltage (Approx.)	
	(+)		Condition		
Connector	Terminal	(-)		( ) ,	
M167	34	_	Selector lever is in "R".	6.0 V	

### Is the inspection result normal?

YFS >> GO TO 4.

>> Replace audio unit. Refer to AV-137, "Removal and Installation". NO

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# REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT GNOSIS > [DISPLAY AUDIO WITHOUT AMPLIFIER]

### < DTC/CIRCUIT DIAGNOSIS >

# 4. CHECK CAMERA IMAGE SIGNAL CIRCUIT CONTINUITY

- 1. Turn ignition switch OFF.
- 2. Disconnect audio unit connector M167 and rear view camera connector.
- 3. Check continuity between audio unit connector M167 and rear view camera connector T2.

Audi	o unit	Rear vie	w camera	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M167	35	T2	3	Yes

4. Check continuity between audio unit connector M167 and ground.

Audi	o unit		Continuity
Connector	Terminal	Ground	Continuity
M167	35		No

### Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness or connectors.

## CHECK CAMERA GROUND CIRCUIT CONTINUITY

Check continuity between audio unit connector M167 and rear view camera connector T2.

Audi	Audio unit Rear		w camera	Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M167	33	T2	4	Yes	

### Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness or connectors.

## 6.CHECK CAMERA IMAGE SIGNAL

- 1. Connect audio unit connector M167 and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Shift the selector lever to R (reverse).
- Check signal between audio unit connector M167 and ground.

Aud	Audio unit				
(	(+)		Condition	Reference value	
Connector	Terminal	(–)			
M167	35	_	Camera image dis- played.	(V) 0. 4 0 -0. 4 → 40μs SKIB2251J	

### Is the inspection result normal?

YES >> Replace audio unit. Refer to AV-137, "Removal and Installation".

NO >> Replace rear view camera.

### STEERING SWITCH

[DISPLAY AUDIO WITHOUT AMPLIFIER]

### < DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH

Diagnosis Procedure

INFOID:0000000009876519

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Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

- Disconnect combination switch connector M102.
- 2. Check resistance between combination switch connector terminals.

Terminal		Signal name	Condition	Resistance $(\Omega)$ (Approx.)
		Volume (down)	Depress - 🗘 switch.	1
16	18	Volume (up)	Depress 4 switch.	121
		Phone end	Depress 🗪 switch.	321
		Source	Depress SOURCE switch.	1
45	18	Seek (up)	Depress $\Delta$ switch.	121
15		Seek (down)	Depress ∇ switch.	321
		Phone/Send	Depress 🌾 🌠 switch.	723

### Do the steering wheel audio control switches check OK?

YES >> GO TO 2.

NO >> Replace steering wheel audio control switch. Refer to AV-142, "Removal and Installation".

## 2. CHECK HARNESS

- Turn ignition switch OFF.
- Disconnect Bluetooth® control unit connector B142 and combination switch connector M30.
- 3. Check continuity between Bluetooth® control unit harness connector B142 and combination switch harness connector M30.

Bluetooth <sup>®</sup>	control unit	Combination switch		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	12		24	
B142	14	M30	31	Yes
	13		25	

Check continuity between Bluetooth® control unit connector B142 and ground.

Blue	tooth <sup>®</sup> control unit	_	Continuity
Connector	Terminal		Continuity
	12		
B142	13	Ground	No
	14		

### Are the continuity results as specified?

YES >> GO TO 3.

NO >> Repair harness.

## STEERING SWITCH

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## < DTC/CIRCUIT DIAGNOSIS >

# 3.SPIRAL CABLE CHECK

Check continuity between combination switch harness connectors M30 and M102.

	Combinat	Continuity		
Connector	Terminal	Connector	Terminal	Continuity
	24		15	
M30	31	M102	18	Yes
	25		16	

## Does the spiral cable check OK?

YES >> Inspection End.

NO >> Replace spiral cable. Refer to <u>SR-13, "Removal and Installation"</u>.

## MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## MICROPHONE SIGNAL CIRCUIT

Description INFOID:000000009876520

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

Diagnosis Procedure

INFOID:0000000009876521

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Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

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

- 1. Turn ignition switch OFF.
- 2. Disconnect Bluetooth® control unit connector and microphone connector.
- 3. Check continuity between Bluetooth<sup>®</sup> control unit harness connector B142 and microphone harness connector R109.

Bluetooth <sup>®</sup> control unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	7		1	
B142	8	R109	2	Yes
	29		4	

4. Check continuity between Bluetooth® control unit harness connector B142 and ground.

Bluetoo	th <sup>®</sup> control unit	_	Continuity	
Connector	Terminal		Continuity	
	7			
B142	8	Ground	No	
	29			

### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

## 2.CHECK MICROPHONE POWER SUPPLY

- 1. Connect Bluetooth<sup>®</sup> control unit connector and microphone connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between microphone harness connector R109 terminal 4 and ground.

	(+)	(-)	Value (Approx.)
Connector Terminal		(-)	value (Approx.)
R109	4	Ground	5V

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace Bluetooth® control unit. Refer to AV-147, "Removal and Installation".

## 3.CHECK MICROPHONE SIGNAL

Check signal between Bluetooth® control unit harness connector B142 with CONSULT or and oscilloscope.

Revision: April 2014 AV-129 2014 Titan

## **MICROPHONE SIGNAL CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

Connector	(+) Terminal	(-) Terminal	Reference signal
B142	7	8	While speaking into MIC  (V)  1  0  -1  *** 2ms  SKIB3609E

# Is the inspection result normal?

YES >> Replace Bluetooth<sup>®</sup> control unit. Refer to <u>AV-147</u>, "Removal and Installation".

NO >> Replace microphone. Refer to AV-145, "Removal and Installation".

## **USB CONNECTOR**

< DTC/CIRCUIT DIAGNOSIS >

### [DISPLAY AUDIO WITHOUT AMPLIFIER]

## **USB CONNECTOR**

# Diagnosis Procedure

INFOID:0000000009876522

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Regarding Wiring Diagram information, refer to AV-97, "Wiring Diagram".

# 1. CHECK USB INTERFACE HARNESS CONTINUITY

- 1. Turn ignition switch OFF.
- Disconnect audio unit connector M166 and USB interface connector M214.
- 3. Check continuity between audio unit connector M166 and USB interface connector M214.

Audio unit		USB interface		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	53		4	
	54		1	
M166	55	M214	2	Yes
	56		3	
	57		5	

Check continuity between audio unit connector M166 and ground.

Audi	o unit	_	Continuity
Connector	Terminal	_	Continuity
M166	53	Ground	No
101100	55	Sibulia	110

### Is the inspection result normal?

YES >> Replace the USB interface. Refer to AV-144, "Removal and Installation".

NO >> Repair or replace harness or connectors.

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# SYMPTOM DIAGNOSIS

# **AUDIO SYSTEM**

Symptom Table

INFOID:0000000009876523

## **RELATED TO AUDIO**

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	Audio unit	Malfunction in audio unit.  Refer to AV-85, "On Board Diagnosis Function".
	No sound from all speakers.	Speaker circuit shorted to ground. Refer to AV-97. "Wiring Diagram".      Audio unit power supply and ground circuits malfunction. Refer to AV-114. "AUDIO UNIT: Diagnosis Procedure".
No sound comes out or the level of the sound is low.	Only a certain speaker (front door speaker LH, front door speaker RH, front speaker LH, front speaker RH, rear speaker LH, rear speaker RH) does not output sound.	<ul> <li>Poor connector connection of speaker.</li> <li>Sound signal circuit malfunction between audio unit and speaker. Refer to:  - AV-117, "Diagnosis Procedure" (front door speaker).  - AV-119, "Diagnosis Procedure" (front tweeter).  - AV-121, "Diagnosis Procedure" (rear speaker).  - AV-123, "Diagnosis Procedure" (rear tweeter)</li> <li>Malfunction in speaker. Refer to:  - AV-140, "Removal and Installation" (front door speaker).  - AV-139, "Removal and Installation" (front tweeter).  - AV-141, "Removal and Installation" (rear speaker).  - AV-141, "Removal and Installation" (rear tweeter)</li> <li>Malfunction in audio unit. Refer to AV-85, "On Board Diagnosis Function".</li> </ul>

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

Symptoms	Check items	Probable malfunction location
	Noise comes out from all speakers.	Malfunction in audio unit. Refer to AV-85. "On Board Diagnosis Function".
Noise is mixed with audio.	Noise comes out only from a certain speaker (front door speaker LH, front door speaker RH, front speaker RH, rear speaker LH, rear speaker RH).	<ul> <li>Poor connector connection of speaker.</li> <li>Sound signal circuit malfunction between audio unit and speaker.</li> <li>Refer to: <ul> <li>AV-117, "Diagnosis Procedure" (front door speaker).</li> <li>AV-119, "Diagnosis Procedure" (front tweeter).</li> <li>AV-121, "Diagnosis Procedure" (rear speaker).</li> <li>AV-123, "Diagnosis Procedure" (rear tweeter)</li> <li>Malfunction in speaker.</li> <li>Poor Installation of speaker (e.g. backlash and looseness).</li> <li>Refer to: <ul> <li>AV-140, "Removal and Installation" (front door speaker).</li> <li>AV-139, "Removal and Installation" (front tweeter).</li> <li>AV-141, "Removal and Installation" (rear speaker).</li> <li>AV-141, "Removal and Installation" (rear tweeter)</li> <li>Malfunction in audio unit.</li> <li>Refer to AV-85, "On Board Diagnosis Function".</li> </ul> </li> </ul></li></ul>
	Noise is mixed with radio only (when the vehicle hits a bump or while driving over bad roads)	Poor connector connection of antenna.
No radio reception or poor reception.	<ul> <li>Other audio sounds are normal.</li> <li>Any radio station cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).</li> </ul>	Poor connector connection of antenna.
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.

### RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is
  a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and
  check that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

### **Check Compatibility**

- 1. Make sure the customer's Bluetooth® related concern is understood.
- Verify the customer's concern.

#### NOTE:

The customer's phone may be required, depending upon their concern.

3. Write down the customer's phone brand, model and service provider.

### NOTE:

It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.

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## **AUDIO SYSTEM**

### [DISPLAY AUDIO WITHOUT AMPLIFIER]

- 4. Go to "www.nissanusa.com/bluetooth/".
- a. Using the website's search engine, find out if the customer's phone is on the approved list.
- b. If the customer's phone is NOT on the approved list:
   Stop diagnosis here. The customer needs to obtain a Bluetooth<sup>®</sup> phone that is on the approved list before any further action.
- c. If the feature related to the customer's concern shows as "N" (not compatible):
  Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as "Y" (compatible) in the "Basic Features".
- d. If the feature related to the customer's concern shows as "Y" (compatible): Perform diagnosis as per the following table.

Symptoms	Check items	Probable malfunction location	
Does not recognize cellular phone connection (no connection is displayed on the display at the guide).	Repeat the registration of cellular phone.	Malfunction in audio unit. Replace audio unit. Refer to AV-137, "Removal and Installation".	
Hands-free phone cannot be established.	<ul> <li>Hands-free phone operation can be made, but the communication cannot be established.</li> <li>Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.</li> </ul>		
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in Inspection & Adjustment Mode if sound is heard.		
Originating sound is not heard by the other	Sound operation function is normal.		
party with hands-free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-129, "Diagnosis Procedure".	
	<ul> <li>The voice recognition can be controlled.</li> <li>Steering switch's □ + , - □ , and ⇒ switch works, but √ does not work.</li> </ul>	Steering switch malfunction. Replace steering switch. Refer to AV-142, "Removal and Installation".	
The system cannot be operated.	Steering switch's 🎺 🌈 , 🗹 + , - 🗓 , and <b>S</b> switches do not work.	Steering switch signal circuit malfunction. Refer to AV-127, "Diagnosis Procedure".	
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-127, "Diagnosis Procedure".	

### RELATED TO REAR VIEW CAMERA

Symptoms	Check items	Probable malfunction location
Rear view camera is inoperative.	Reverse signal circuit malfunction.	Reverse signal circuit malfunction between BCM and audio unit. Refer to AV-125, "Diagnosis Procedure".
	Camera image signal circuit malfunction.	Camera image signal circuit malfunction between rear view camera and audio unit. Refer to AV-125, "Diagnosis Procedure".
	Rear view camera malfunction.	Replace rear view camera.

### NORMAL OPERATING CONDITION

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## NORMAL OPERATING CONDITION

Description INFOID:000000009876524

### RELATED TO NOISE

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

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

Occurrence condition		Possible cause
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	Ignition components
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 when various motors are operating.	Motor case ground     Motor
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 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>

#### RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection (No connection is displayed on the display at the guide).	Some Bluetooth <sup>®</sup> enabled cellular phones may not be recognized by the in-vehicle phone module.  Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" in AV-132. "Symptom Table".
Cannot use hands-free phone.	Customer will not be able to use a hands-free phone under the following conditions:  The vehicle is outside of the telephone service area.  The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area.  The cellular phone is locked to prevent it from being dialed.  NOTE:
	While a cellular phone is connected through the Bluetooth <sup>®</sup> wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth <sup>®</sup> Hands-Free Phone System cannot charge cellular phones.

# **NORMAL OPERATING CONDITION**

## < SYMPTOM DIAGNOSIS >

# [DISPLAY AUDIO WITHOUT AMPLIFIER]

Symptom	Cause and Counter measure	
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.	
Poor sound quality.	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.	

## **AUDIO UNIT**

### < REMOVAL AND INSTALLATION >

### [DISPLAY AUDIO WITHOUT AMPLIFIER]

# REMOVAL AND INSTALLATION

# **AUDIO UNIT**

### Removal and Installation

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### **AUDIO UNIT**

### Removal

- 1. Disconnect the battery negative terminal. Refer to PG-79. "Removal and Installation".
- 2. Remove the cluster lid C. Refer to IP-15, "Removal and Installation".
- Remove the audio unit.
- a. Remove the audio unit screws using power tool.
- b. Pull the audio unit out from the instrument panel.
- c. Disconnect the harness connectors from the audio unit.

#### Installation

Installation is in the reverse order of removal.

### **AV SWITCH**

#### Removal

- 1. Disconnect battery negative terminal. Refer to PG-79, "Removal and Installation".
- 2. Remove the cluster lid C. Refer to <a href="IP-15">IP-15</a>, "Removal and Installation".
- 3. Remove the AV switch screws.
- 4. Carefully remove the AV switch.

### Installation

Installation is in the reverse order of removal.

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## **SATELLITE RADIO ANTENNA**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

# SATELLITE RADIO ANTENNA

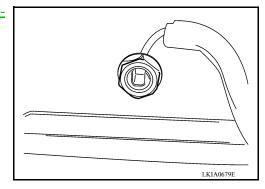
## Removal and Installation

#### INFOID:0000000010159256

## SATELLITE RADIO ANTENNA

### Removal

- 1. Lower the headliner. Refer to <a href="INT-21">INT-21</a>, "Removal and Installation".
- 2. Disconnect the satellite radio antenna connector.
- 3. Remove the satellite radio antenna nut.
- 4. Remove the satellite radio antenna.



### Installation

Installation is in the reverse order of removal.

## **FRONT TWEETER**

< REMOVAL AND INSTALLATION >

## [DISPLAY AUDIO WITHOUT AMPLIFIER]

# FRONT TWEETER

## Removal and Installation

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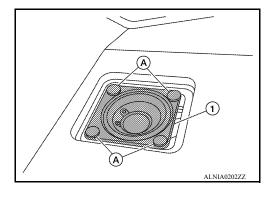
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## **REMOVAL**

- 1. Remove front tweeter speaker grille, using a suitable tool.
- 2. Remove the front tweeter clips (A).
- 3. Disconnect the front tweeter harness connector.
- 4. Remove the front tweeter (1).



### Installation

Installation is in the reverse order of removal.

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## **FRONT DOOR SPEAKER**

[DISPLAY AUDIO WITHOUT AMPLIFIER]

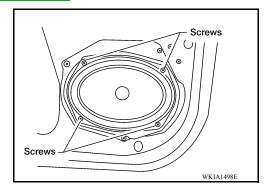
# FRONT DOOR SPEAKER

## Removal and Installation

#### INFOID:0000000009876527

## **REMOVAL**

- 1. Remove the front door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation".
- 2. Remove the front door speaker screws.
- 3. Disconnect the front door speaker harness connector.
- 4. Remove the front door speaker.



### **INSTALLATION**

Installation is in the reverse order of removal.

## **REAR DOOR SPEAKER**

### < REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

# REAR DOOR SPEAKER

## Removal and Installation

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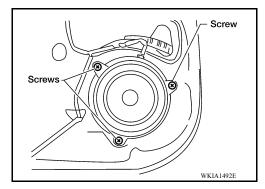
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### REAR DOOR SPEAKER

### Removal

- 1. Remove the rear door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation" (Crew Cab) or <a href="INT-10">INT-10</a>, "Removal and Installation" (King Cab).
- 2. Remove the rear door speaker.
- a. Remove the rear door speaker screws.
- b. Disconnect the rear door speaker harness connector.



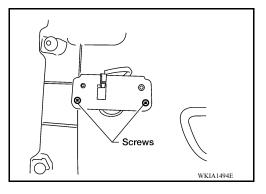
#### Installation

Installation is in the reverse order of removal.

### REAR DOOR TWEETER

### Removal

- 1. Remove the rear door finisher. Refer to INT-10, "Removal and Installation".
- Remove the rear door tweeter.
- a. Remove the rear door tweeter screws.
- b. Disconnect the rear door tweeter harness connector.



### Installation

Installation is in the reverse order of removal.

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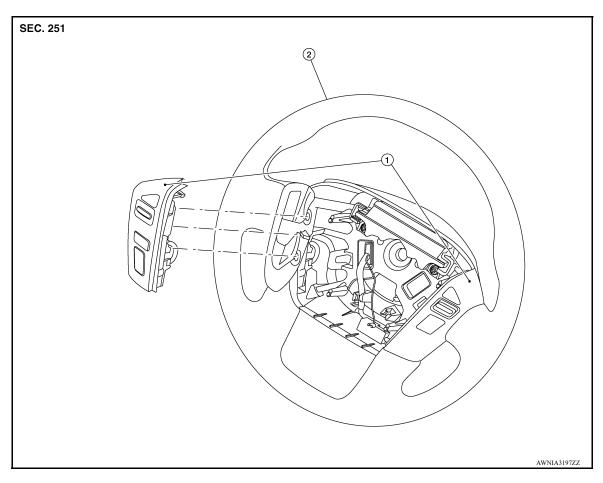
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Revision: April 2014 AV-141 2014 Titan

## STEERING SWITCH

## Removal and Installation

INFOID:0000000010159258



1. Steering wheel audio control switches 2. Steering wheel

## STEERING WHEEL AUDIO CONTROL SWITCHES

### Removal

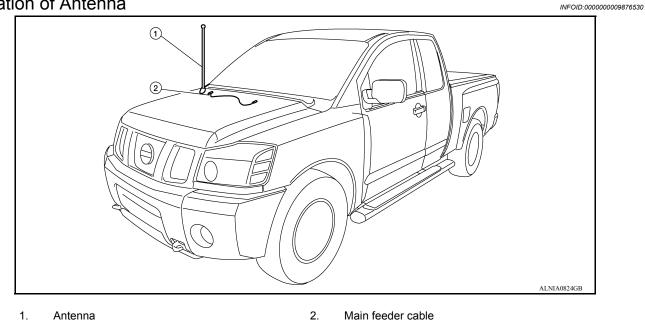
- 1. Remove the steering wheel. Refer to ST-22, "Removal and Installation".
- 2. Remove the steering wheel rear cover screws and the steering wheel rear cover.
- 3. Remove the steering wheel switch assembly screws and the steering wheel switches.

### Installation

Installation is in the reverse order of removal.

# **AUDIO ANTENNA**

## Location of Antenna



Removal and Installation

### **REMOVAL**

- 1. Remove audio antenna rod.
- 2. Remove audio antenna rubber seal.
- 3. Remove fender protector RH. Refer to EXT-24, "Removal and Installation".
- 4. Remove audio antenna assembly bolts.
- 5. Disconnect the audio antenna feeder from the audio antenna assembly.
- 6. Remove audio antenna assembly from the vehicle.

### **INSTALLATION**

Installation is in the reverse order of removal.

· Tighten audio antenna rod to specification.

Audio antenna rod : 3.5 N·m (0.36 kg-m, 31 in-lb)

### **CAUTION:**

Always properly tighten the audio antenna rod during installation or the audio antenna rod may bend or break during vehicle operation.

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## **USB CONNECTOR**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## **USB CONNECTOR**

## Removal and Installation

INFOID:0000000009876532

## **REMOVAL**

- 1. Remove the center console assembly. Refer to IP-20, "Removal and Installation".
- 2. Push the pawl from the back of the center console to remove the USB interface.

### **INSTALLATION**

Installation is in the reverse order of removal.

#### **MICROPHONE**

#### < REMOVAL AND INSTALLATION >

#### [DISPLAY AUDIO WITHOUT AMPLIFIER]

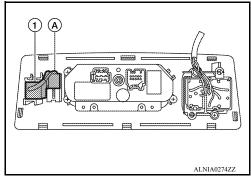
## **MICROPHONE**

## Removal and Installation

#### INFOID:0000000009876533

#### **REMOVAL**

- 1. Remove the front roof console finisher. Refer to <u>INT-21.</u> "Removal and Installation".
- 2. Remove the Bluetooth microphone (1)
- a. Disconnect the Bluetooth microphone harness connector (A).
- b. Detach the Bluetooth microphone (1) from the front roof console finisher.



#### **INSTALLATION**

Installation is in the reverse order of removal.

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## **TEL ANTENNA**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

# TEL ANTENNA

## Removal and Installation

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The Bluetooth antenna and the Bluetooth control unit are serviced as an assembly. Refer to <u>AV-147</u>, "Removal and Installation".

## **BLUETOOTH CONTROL UNIT**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## **BLUETOOTH CONTROL UNIT**

## Removal and Installation

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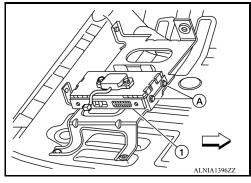
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#### **REMOVAL**

- 1. Disconnect the negative battery terminal.
- 2. Slide the front RH seat forward.
- 3. Remove the Bluetooth control unit kick shield screws and the Bluetooth control unit kick shield.
- 4. Remove the Bluetooth control unit (1).
- a. Remove the Bluetooth control unit screws (A).
- b. Disconnect the harness connectors from the Bluetooth control unit.
  - ⟨□: Front



#### **INSTALLATION**

Installation is in the reverse order of removal.

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#### **REAR VIEW CAMERA**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITHOUT AMPLIFIER]

## **REAR VIEW CAMERA**

## Removal and Installation

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#### **REMOVAL**

- 1. Remove the tail gate handle. Refer to <u>DLK-137, "Exploded View"</u>.
- 2. Remove the rear view camera screws and the rear view camera from the tail gate handle.

#### **INSTALLATION**

Installation is in the reverse order of removal.

# **PRECAUTION**

## **PRECAUTIONS**

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRF-TFNSIONER"

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 SR 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 SR 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.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Trouble Diagnosis

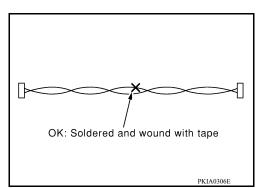
#### AV COMMUNICATION SYSTEM

- 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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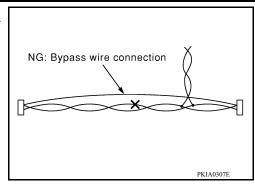
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#### **PRECAUTIONS**

#### < PRECAUTION >

#### [DISPLAY AUDIO WITH AMPLIFIER]

 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.)



#### Precaution for Work

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- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- · Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

## **PREPARATION**

## < PREPARATION >

## [DISPLAY AUDIO WITH AMPLIFIER]

# PREPARATION

## **PREPARATION**

**Special Service Tools** 

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The actual	shape of the	tools may diffe	r from those illus	strated here.

Tool number		Description	
(TechMate No.)			
Tool name			
		Removing trim components	
(J-46534)			
Trim Tool Set			
	AWIIA048377		

## **Commercial Service Tools**

INFOID:0000000009876542

Tool name		Description
Power tool		Loosening nuts, screws and bolts
	PIIB1407E	

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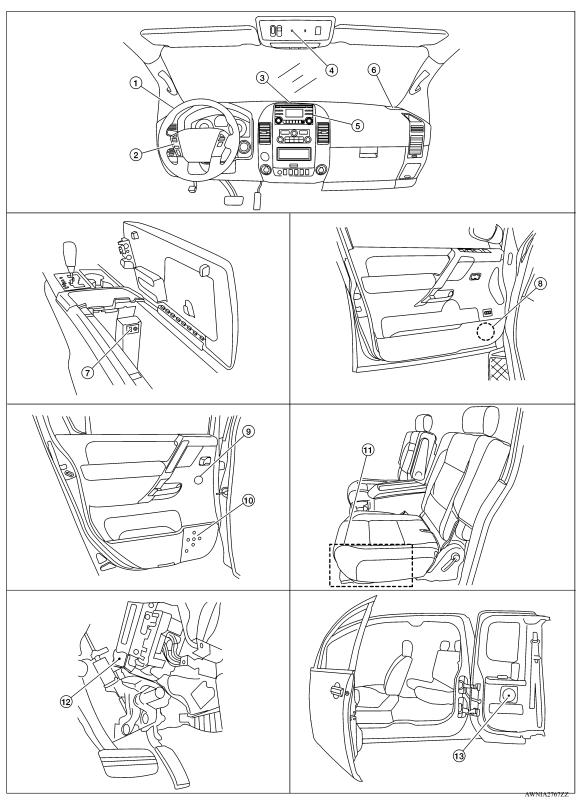
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# SYSTEM DESCRIPTION

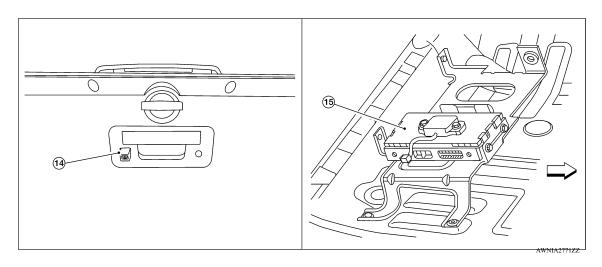
## **COMPONENT PARTS**

## **Component Parts Location**

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## [DISPLAY AUDIO WITH AMPLIFIER]



- 1. Front tweeter LH M109
- 4. Microphone R109
- 7. USB Interface M214
- Rear door speaker (crew cab)
   LH D207
   RH D307
- Rear door speaker (king cab)
   LH B76
   RH B159

- 2. Steering wheel audio control switches 3.
- 5. Audio unit M171, M172, M175, M188
- 8. Front door speaker LH D12 RH D112
- 11. Subwoofer B72
- 14. Rear view camera T2

- 3. Center speaker M110
- 6. Front tweeter RH M111
- Rear door tweeter (crew cab)
   LH D208
   RH D308
- 12. Audio amp. M112, M113
- 15. Bluetooth® control unit B142, B143, B144

## **Component Description**

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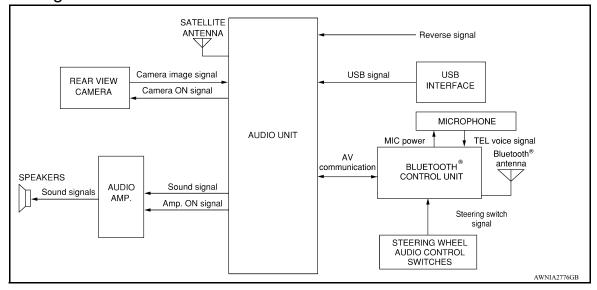
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Part name	Description	
Audio unit	<ul> <li>Controls audio, hands-free phone, USB connection, AUX IN connection, satellite ra dio and rear view camera functions.</li> <li>Display unit is built in to audio unit.</li> </ul>	
Audio amp.	Receives audio signals from audio unit and outputs audio signals to each speaker.	
Front speakers		
Center speaker		
Front door speakers	Outputs high, mid and low range audio signals from audio amp.	
Rear door speakers		
Rear speakers		
Steering switches	<ul> <li>Operations for audio, hands-free phone and voice recognition are possible.</li> <li>Steering switch signal is output to combination meter.</li> <li>Combination meter outputs steering switch signal to audio unit.</li> </ul>	
Microphone	<ul> <li>Used for hands-free phone operations.</li> <li>Microphone signal is transmitted to audio unit.</li> <li>Power is supplied from audio unit.</li> </ul>	
USB interface	USB sound and data input signals are transmitted to audio unit.	
Rear view camera	<ul><li>Outputs image of vehicle rear to audio unit.</li><li>Power is supplied from audio unit.</li></ul>	
Satellite antenna	Satellite radio signal is received and transmitted to audio unit.	
Antenna amp.	<ul> <li>AM/FM signal received by window antenna is amplified and transmitted to audio unit.</li> <li>Power is supplied from audio unit.</li> </ul>	
Window antenna	AM/FM signal is received and transmitted to antenna amp.	

## **SYSTEM**

## System Diagram

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## System Description

INFOID:0000000009876546

#### **AUDIO SYSTEM**

The audio system consists of the following components

- Audio unit
- · Audio amp.
- Front speakers
- Center speaker
- · Front door speakers
- · Rear door speakers
- Rear speakers
- · Steering switches
- Microphone
- USB interface
- Rear view camera
- satellite antenna
- Antenna amp.
- Window antenna

When the audio system is on, AM/FM signals received by the window antenna are amplified by the antenna amp. and sent to the audio unit. The audio unit then sends audio signals to the audio amp. The audio amp. then sends audio signals to the front speakers, center speaker, front door speakers, rear door speakers and rear speakers.

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

#### HANDS-FREE PHONE SYSTEM

#### System Operation

#### NOTE:

Cellular telephones must have their wireless connection set up (paired) before using the Bluetooth<sup>®</sup> telephone system.

The Bluetooth<sup>®</sup> telephone system allows users who have a Bluetooth<sup>®</sup> cellular telephone to make a wireless connection between their cellular telephone and the audio unit. Hands-free cellular telephone calls can be sent and received. Some Bluetooth<sup>®</sup> cellular telephones may not be recognized by the audio unit. When a cellular telephone or the audio unit is replaced, the telephone must be paired with the audio unit. Different cellular telephones may have different pairing procedures, refer to the cellular telephone operating manual.

Refer to the Owner's Manual for Bluetooth® telephone system operating instructions.

Audio unit

#### **SYSTEM**

#### < SYSTEM DESCRIPTION >

#### [DISPLAY AUDIO WITH AMPLIFIER]

When the ignition switch is turned to ACC or ON, the audio unit will power up. During power up, the audio unit is initialized and performs various self-checks. Initialization may take up to 20 seconds.

## Steering Switches

When buttons on the steering switches are pushed, the resistance in steering switches circuits change, depending on which button is pushed.

The following functions can be performed using the steering switches:

- 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 audio unit.

#### REAR VIEW CAMERA SYSTEM

- The audio unit supplies power to the rear view camera when the reverse signal is received.
- The rear view camera transmits rear view camera images to the audio unit when power is supplied from the audio unit.
- The audio unit combines a warning message and fixed guide lines with an image received from the rear view camera to display a rear view camera image on the screen.

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## **DIAGNOSIS SYSTEM (AUDIO UNIT)**

Description INFOID:0000000009876547

The audio unit on board diagnosis performs the functions listed in the table below:

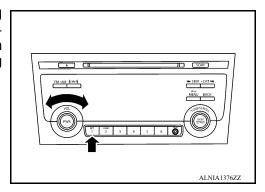
Mode		Description	
	Self Diagnosis	<ul><li>Audio unit diagnosis.</li><li>Diagnoses the connections across system components.</li></ul>	
	Display Diagnosis	The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display.	
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, lights, reverse, EQ pin, destination and camera type.	
	Speaker Test	The connection of a speaker can be confirmed by test tone.	
Confirmation/ Adjustment	Error History	The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.	
	Camera System	Guiding line position that overlaps rear view camera image can be adjusted.	
	AV COMM Diagnosis	The communication condition of each unit of display audio system can be monitored.	
	Delete Unit Connection Log	Erase the connection history of unit and error history.	
	Initialize Setting	Initializes the audio unit memory.	

## On Board Diagnosis Function

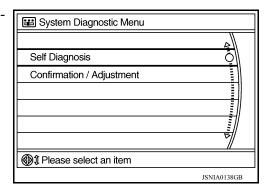
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#### METHOD OF STARTING

- 1. Turn the ignition ON.
- 2. Turn the audio system OFF.
- While pressing the preset 1 button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. When selfdiagnosis mode begins, a short beep will be heard. Shifting from current screen to previous screen is performed by pressing BACK button.



4. The trouble diagnosis initial screen is displayed, and Self Diagnosis or Confirmation/Adjustment can be selected.



#### SELF DIAGNOSIS MODE

Audio Unit Self Diagnosis

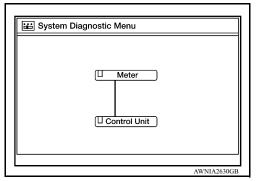
Select Self Diagnosis.

## **DIAGNOSIS SYSTEM (AUDIO UNIT)**

#### < SYSTEM DESCRIPTION >

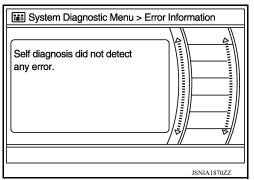
## [DISPLAY AUDIO WITH AMPLIFIER]

- 2. Self diagnosis screen is displayed. The bar graph visible in center of screen indicates progress of self diagnosis.
- 3. 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
Connection malfunction	Gray	Yellow
Unit malfunction <sup>1</sup>	Red	Green

- 1: Control unit (audio unit) is displayed in red.
- Replace audio unit if Self Diagnosis did not run because control unit malfunction is indicated. The symptom is audio unit internal
  error. Refer to <u>AV-228</u>, "<u>Removal and Installation</u>".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order
  of priority: red > gray.
- 4. Comments of self diagnosis results can be viewed in the diagnosis result screen.



#### Audio Unit Self Diagnosis Results

Only Unit Part Is Displayed In Red			
Screen switch	Description	Possible cause	
Control unit	Malfunction is detected in audio unit power supply and ground circuits.	<ul> <li>Audio unit power supply or ground circuits. Refer to <u>AV-192</u>, "<u>AUDIO UNIT</u>: <u>Diagnosis Procedure</u>".</li> <li>If no malfunction is detected in audio unit power supply and ground circuits, replace audio unit. Refer to <u>AV-228</u>, "<u>Removal and Installation</u>".</li> </ul>	

A Connecting Cable Between Units Is Displayed In Yellow			
Area with yellow connection lines	Description	Possible cause	
Control unit ⇔ Meter	When one of the following is detected:  malfunction is detected in combination meter power supply and ground circuits.  malfunction is detected in AV communication circuits between audio unit and combination meter.	Combination meter power supply or ground circuits.  Refer to <a href="MWI-33">MWI-33</a> , "COMBINATION METER: Diagnosis Procedure".  AV communication circuits between audio unit and combination meter.	

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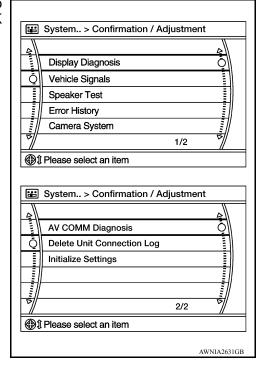
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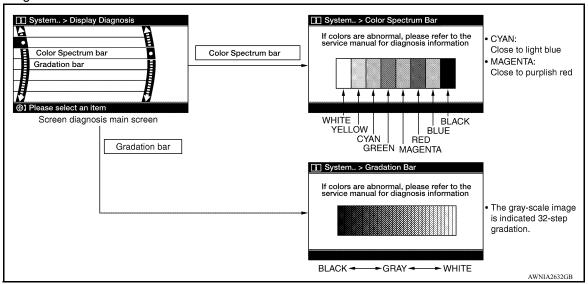
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Audio Unit Confirmation/Adjustment

- 1. Select Confirmation/Adjustment.
- Select each switch on the Confirmation/Adjustment screen to display the relevant trouble diagnosis screen. Press the BACK switch to return to the initial Confirmation/Adjustment screen.

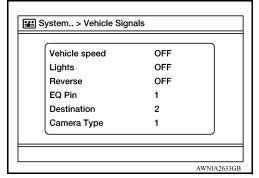


#### **Display Diagnosis**



#### Vehicle Signals

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



Speaker Test

## **DIAGNOSIS SYSTEM (AUDIO UNIT)**

#### < SYSTEM DESCRIPTION >

#### [DISPLAY AUDIO WITH AMPLIFIER]

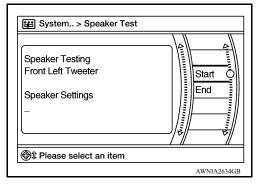
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Select Speaker Test to display the Speaker Diagnosis screen. Press Start to generate a test tone in a speaker. Press Start again to generate a test tone in the next speaker. Press End to stop the test tones.



#### **Error History**

The self diagnosis results are judged depending on whether any error occurs from when Self Diagnosis is selected until the self diagnosis results are displayed.

However, the diagnosis results are judged normal if an error has occurred before the ignition switch is turned ON and then no error has occurred until the self diagnosis start. Check the Error Record to detect any error that may have occurred before the self diagnosis start because of this situation.

The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

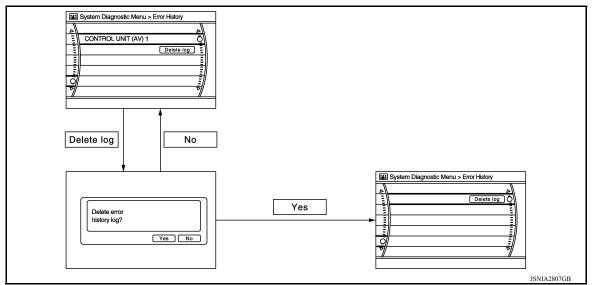
#### Count up method A

- The counter is set to 40 if an error occurs. 1 is subtracted from the counter if the condition is normal at a next ignition ON cycle.
- The counter lower limit is 1. The counter can be reset (no error record display) with the Delete log switch.

#### Count up method B

- The counter increases by 1 if an error occurs when ignition switch is ON. The counter will not decrease even if the condition is normal at the next ignition ON cycle.
- The counter upper limit is 50. Any counts exceeding 50 are ignored. The counter can be reset (no error record display) with the Delete log switch.

Display type of occurrence frequency	Error history display item	
Count up method A	AV communication line, control unit (AV)	
Count up method B	Other than the above	



Error item

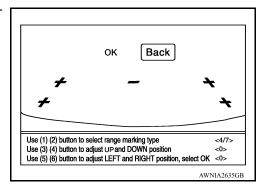
Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

## [DISPLAY AUDIO WITH AMPLIFIER]

Error item	Description	Possible cause
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	Replace the audio unit if the malfunction occurs constantly.  Refer to AV-228, "Removal and Installation".
AV COMM CIRCUIT	When one of the following is detected:  malfunction is detected in combination meter power supply and ground circuits.  malfunction is detected in AV communication circuits between audio unit and combination meter.	Combination meter power supply or ground circuits. Refer to <a href="MWI-33">MWI-33</a> , "COMBINATION METER: Diagnosis Procedure".  AV communication circuits between audio unit and combination meter.

#### Camera System

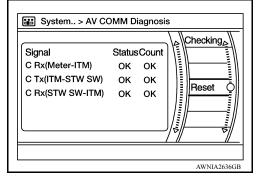
This mode is used to adjust the guide line display position of the rear view camera.



#### **AV COMM Diagnosis**

- Displays the communication status between audio unit (master unit) and each unit.
- 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 is pressed.

Items	Status (Current)	Counter (Past)
C Rx(Meter-ITM)	OK / ???	OK / 0 – 39
C Tx(ITM-TW SW)	OK / ???	OK / 0 – 39
C Rx(STW SW-ITM)	OK / ???	OK / 0 – 39

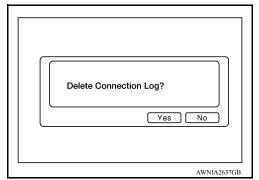


#### NOTE:

"???" indicates UNKWN.

#### **Delete Unit Connection Log**

Deletes any unit connection records and error records from the audio unit memory (clears the records of the unit that has been removed).



**Initialize Settings** 

## **DIAGNOSIS SYSTEM (AUDIO UNIT)**

< SYSTEM DESCRIPTION >

## [DISPLAY AUDIO WITH AMPLIFIER]

Deletes data stored from the audio unit.

The memory of a system is eliminated. Are you sure?  Yes No
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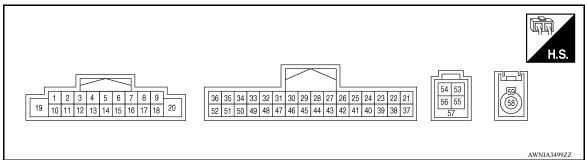
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# **ECU DIAGNOSIS INFORMATION**

## **AUDIO UNIT**

Reference Value

#### **TERMINAL LAYOUT**



#### PHYSICAL VALUES

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)	
1 (G/W)	Ground	Amp. ON signal	Output	ACC	_	Battery voltage	
2 (Y)	3 (BR)	Sound signal front speaker LH	Output	ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	
4 (BR)	5 (B/R)	Sound signal rear speaker LH	Output	ON	Sound output	(V) 1 0 -1 + 2ms SKiB3609E	
		Steering switch signal A	Input	Ignition switch	Keep pressing SOURCE switch.	0 V	
					Keep pressing MENU UP switch.	1.0 V	
6	15				Keep pressing MENU DOWN switch.	2.0 V	
(V)	(R/B)			ON	Keep pressing "≨ switch	3.0 V	
					Keep pressing ENTER switch.	4.0 V	
					Except for above.	5.0 V	
7 (V)	Ground	ACC power supply	Input	ACC	_	Battery voltage	
9 (R/L)	8 (BR)	Illumination control signal	Input	ON	Headlamps ON	Battery voltage	

## **AUDIO UNIT**

## [DISPLAY AUDIO WITH AMPLIFIER]

	minal color)	Description			Condition	Reference value	А	
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)		
11 (W)	12 (B)	Sound signal front speaker RH	Output	ON	Sound output	(V) 1 0 -1 +2ms SKIB3609E	B C	
13 (L)	14 (B/W)	Sound signal rear speaker RH	Output	ON	Sound output	(V) 1 0 -1 * * 2ms SKIB3609E	E	
					Keep pressing VOL DOWN switch.	0 V	G	
		Steering switch signal B		Ignition switch ON	Keep pressing VOL UP switch.	1.0 V		
16 (G/O)	15 (R/B)		Input		Keep pressing 🎺 🌈 switch.	2.0 V	Н	
					Keep pressing <b>5</b> switch.	3.0 V	I	
					Except for above.	5.0 V		
18 (W/R)	Ground	Vehicle speed signal	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	0 20 ms JSNIA0012GB	J K	
19 (Y)	Ground	Battery power supply	Input	OFF	_	Battery voltage		
20 (B)	Ground	Ground	_	ON	_	0 V	M	
24 (R)	_	TEL I/F —	Input	ON	_	(V) 1 0 -1 + 2ms SKiB3609E	AV	
25 (G)	_	TEL I/F +	Input	ON	_	(V) 1 0 -1 → 2ms SKIB3609E	P	

## [DISPLAY AUDIO WITH AMPLIFIER]

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)	
26	Shield	TEL shield	_	_	_	0 V	
28 (W/L)	_	M-CAN (A+)	Input/ Output	_	_	_	
29 (Y/L)	_	M-CAN (A-)	Input/ Output	_	_	_	
30	Shield	Multimedia CAN shield	_	_	_	_	
31 (B/P)	_	M-CAN (B+)	Input/ Output	_	_	_	
32 (L/W)	_	M-CAN (B-)	Input/ Output	_	_	_	
33 (B)	Ground	Ground	_	ON	_	0 V	
34 (W)	_	Camera ON	Input/ Output	_	_	_	
35 (R)	Ground	Rear view camera video in (+)	Input	Ignition switch ON	With rear view camera ON	(V) 0. 4 0 -0. 4 	
36	Shield	Comp –	Input/ Output	_	_	<del>-</del>	
41 (Y)	Ground	Tel ON	_	ON	_	0 V	
44 (G)	Ground	Camera det	_	ON	_	0 V	
45 (B)	Ground	EQ2 port 2	_	ON	_	0 V	
46 (B)	Ground	EQ2 port 2	_	ON	_	0 V	
47 (B)	Ground	EQ3 port 3	_	ON	_	0 V	
48 (B)	Ground	EQ4 port 4	_	ON	_	0 V	
50 (G/W)	Ground	Reverse signal	Input	ON	Selector lever in R (reverse)  Selector lever in any position other than R	Battery voltage	
53 (W)	_	V BUS signal	_	_	(reverse)	_	
54 (G)	_	USB ground	_	_	_	_	
55 (L)	_	USB D+ signal	_	_	_	_	
56 (R)	_	USB D– signal	_	_	_	_	
57	_	Shield	_	_	_	_	

## **AUDIO UNIT**

## < ECU DIAGNOSIS INFORMATION >

## [DISPLAY AUDIO WITH AMPLIFIER]

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)	
58 (B)	_	Satellite antenna signall	_	_	_	_	
59 (B)	_	Shield	_	_	_	_	

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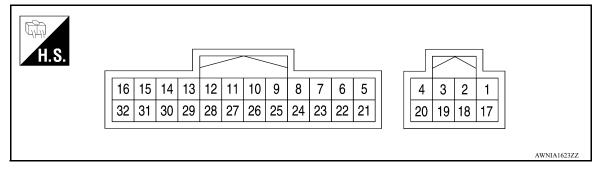
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## **AUDIO AMP**

Reference Value

## TERMINAL LAYOUT



#### PHYSICAL VALUES

	minal color)	Item	Signal input/ output		Condition	Reference value (Approx.)
1 (Y)	Ground	Battery	Input	_	_	Battery voltage
2 (W)	18 (B)	Subwoofer	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E
3 (BR/W)	19 (BR)	Subwoofer	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms
4 (B)	Ground	Ground	-	Ignition switch ON	-	-
9 (G/W)	Ground	Amp. ON signal	Input	Ignition switch ON	-	More than 6.5V
10 (L/W)	26 (L/B)	Center speaker	Output	Ignition switch ON	Receive audio signal	(V) 1 0 -1 1 ms

## **AUDIO AMP**

## [DISPLAY AUDIO WITH AMPLIFIER]

	ninal color)	Signal ltem input/				Reference value		
+	_		output		T	(Approx.)		
11 (SB)	27 (B/Y)	Rear door speak- er LH and rear door tweeter LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E		
12 (O/L)	28 (R/L)	Rear door speak- er RH and rear door tweeter RH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E		
13 (W/B)	29 (L/B)	Front door tweeter RH	Output	Ignition switch ON	Receive audio signal	(V) 1 0 -1 1 ms		
14 (L/W)	30 (L/R)	Front tweeter LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms		
15 (L/W)	31 (L/R)	Front door speak- er LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms		
16 (W/B)	32 (L/B)	Front door speak- er RH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms		
17 (Y/G)	Ground	Battery	Input	_	_	Battery voltage		
20 (B)	Ground	Ground	_	Ignition switch ON	-	-		

## [DISPLAY AUDIO WITH AMPLIFIER]

	ninal color)	Item	Signal input/ output	Condition		Reference value (Approx.)
21 (W)	5 (B)	Audio sound sig- nal front RH	Input	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms skiao177E
22 (Y)	6 (BR)	Audio sound sig- nal front LH	Input	Ignition switch ON	Receive audio signal	(V) 1 0 -1 1 ms
23 (L)	7 (B/W)	Audio sound sig- nal rear RH	Input	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms
24 (BR)	8 (B/R)	Audio sound sig- nal rear LH	Input	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms

## **BLUETOOTH® CONTROL UNIT**

< ECU DIAGNOSIS INFORMATION >

[DISPLAY AUDIO WITH AMPLIFIER]

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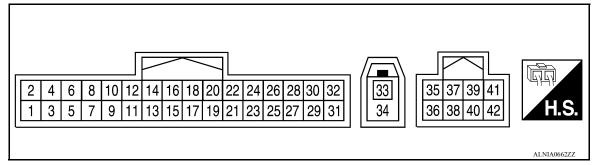
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## **BLUETOOTH® CONTROL UNIT**

Reference Value

#### **TERMINAL LAYOUT**



#### PHYSICAL VALUES

	ninal color)	Descriptio	on		Condition	Reference value
+	_	Signal name	Input/out- put		Condition	(Approx.)
1 (Y)	Ground	Battery power	Input	_	-	Battery voltage
2 (V)	Ground	ACC power	Input	Ignition switch ACC/ON	_	Battery voltage
3 (G/R)	Ground	IGN power	Input	Ignition switch ON/ START	-	Battery voltage
4 (B/W)	Ground	Ground	-	Ignition switch ON	_	0V
6	-	MIC Shield	_	_	-	_
7 (B)	8 (R/L)	MIC in signal	Input	_	-	-
9 (G)	10 (R)	Audio out	Output	Ignition switch ACC/ON	Bluetooth <sup>®</sup> control unit sends audio sig- nal	(V) 1 0 -1 + 2ms SKIB3609E
11 (Y)	-	Mute control	Output	_	_	-
					Press SEEK DOWN switch.	0.7 V
12 (R/G)	Ground	Ladder in 1	Input	ACC/ON	Press SEEK UP switch.	1.3 V
· - /					Pressing A switch.	2.0 V
					Except for above.	3.3 V

## **BLUETOOTH® CONTROL UNIT**

## < ECU DIAGNOSIS INFORMATION >

# [DISPLAY AUDIO WITH AMPLIFIER]

	ninal color)	Description	ı		Condition	Reference value
+	_	Signal name	Input/out- put		Condition	(Approx.)
					Press SOURCE switch.	0 V
					Press 🌾 🌈 switch.	0.7 V
13 (G/W)	Ground	Ladder in 2	Input	ACC/ON	Press VOL UP switch.	1.3 V
					Press VOL DOWN switch	2 V
					Except for above.	3.3 V
14 (Y/R)	-	Ladder in ground	Input	-	-	-
					Press SEEK DOWN switch.	0.7 V
17 (V)	Ground	Ladder out 1	Output	ACC/ON	Press SEEK UP switch.	1.3 V
, ,					Pressing  switch.	2.0 V
					Except for above.	3.3 V
			Output	ACC/ON	Press SOURCE switch.	0 V
					Press 🌾 🌈 switch.	0.7 V
18 (G/O)	Ground	Ladder out 2			Press VOL UP switch.	1.3 V
					Press VOL DOWN switch	2 V
					Except for above.	3.3 V
19 (R/B)	Ground	Ladder out ground	Output	_		_
21 (B)	Ground	Cont 1	_	-	_	0V
22 (B)	Ground	Cont 3	-	-	_	0V
27 (B)	Ground	Cont 4	_	-	-	0V
28 (W/R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	(V) 15 10 5 0 • • • 20ms PKIA1935E
29 (R/W)	Ground	Microphone power	Output	Ignition switch ON	-	5V
33 (B)	_	Bluetooth <sup>®</sup> antenna	_	_	-	_
34	Shield	Bluetooth® antenna	_	-	_	
35 (B)	_	M-CAN (+)	_	_	-	_

## **BLUETOOTH® CONTROL UNIT**

## < ECU DIAGNOSIS INFORMATION >

## [DISPLAY AUDIO WITH AMPLIFIER]

Tern (wire	ninal color)	Description	n		Condition	Reference value	
+	_	Signal name	Input/out- put	Condition		(Approx.)	
36 (P)	_	M-CAN (-)	_	_	_	_	
37	_	Shield	_				

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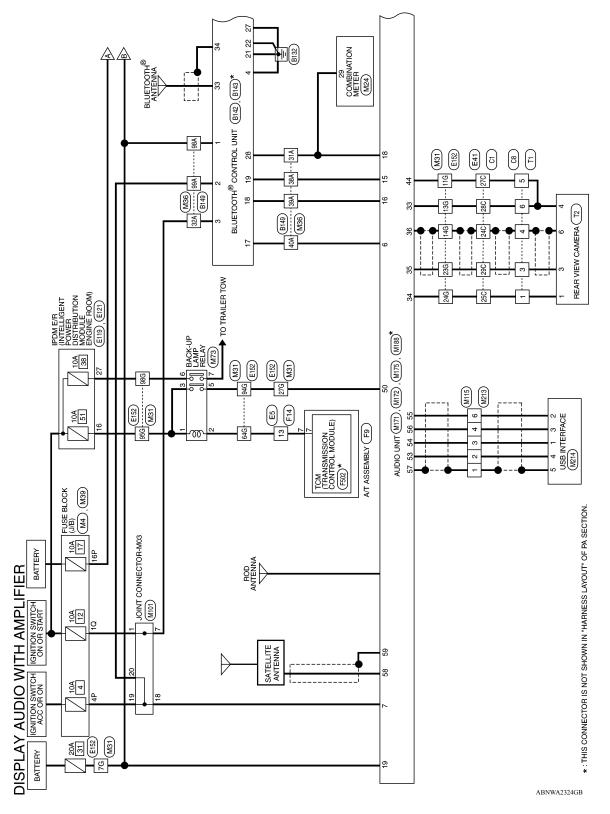
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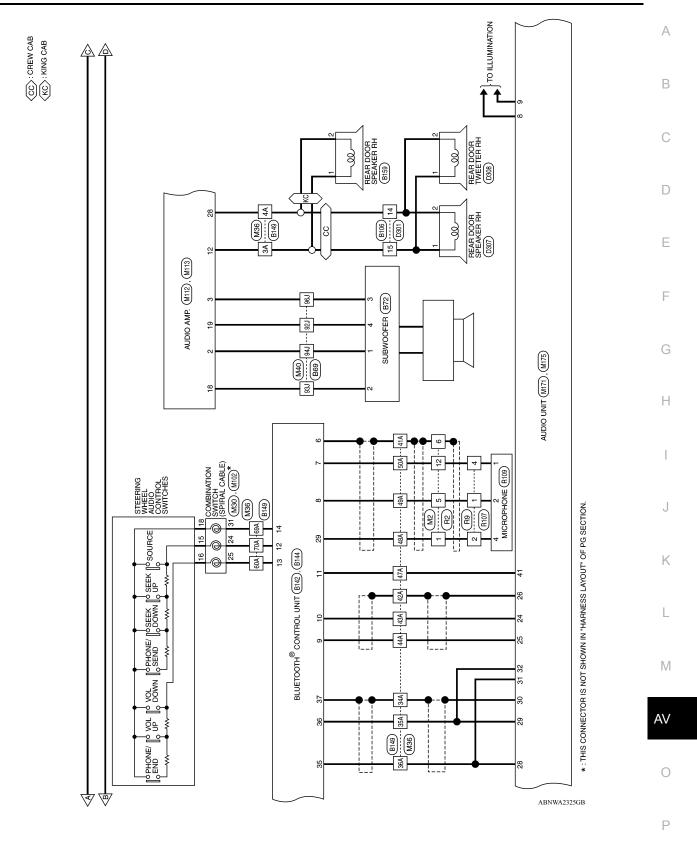
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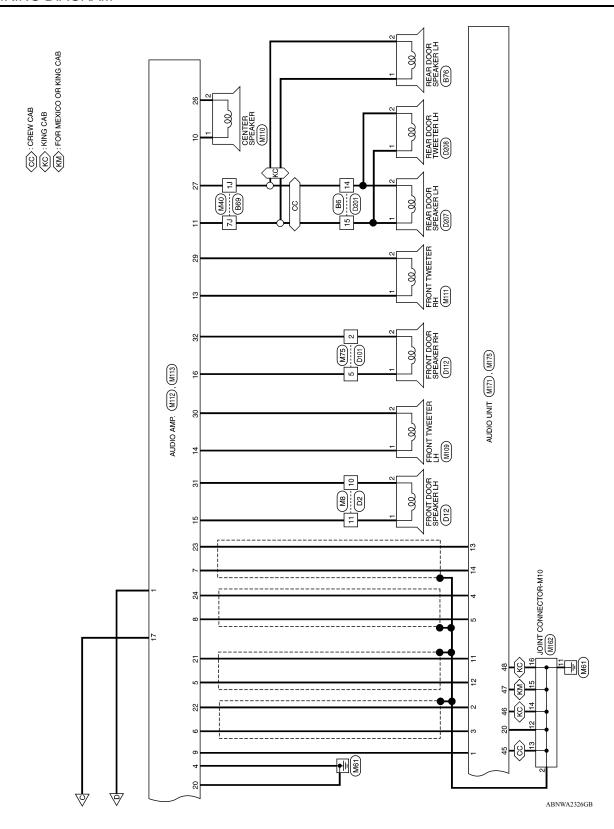
# WIRING DIAGRAM

## **DISPLAY AUDIO WITH AMPLIFIER**

Wiring Diagram







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# DISPLAY AUDIO CONNECTORS WITH AMPLIFIER

Connector No.   M8	Connector Name WIRE TO WIRE	Connector Color WHITE	(15   14   13   12   11   10   9   8   1   15   14   13   12   14   15   15	Terminal No. Color of Wire Signal Name	10 L/R -	11 L/W –		
Connector No. M4	Connector Name FUSE BLOCK (J/B)	Connector Color WHITE	(新) (7P   6P   5P   4P   1P   1P   1P   1P   1P   1P   1	Terminal No. Color of Wire Signal Name	4P V –	16P Y/G –		
M2	WIRE TO WIRE	WHITE	5 4 3 2 1	or of Signal Name	W – (WITHOUT NAVI)	/L — (WITHOUT NAVI)	ELD -	3 – (WITHOUT NAVI)
Connector No.	Connector Name WIRE	Connector Color WHIT	H.S.	Terminal No. Wire	1 B/W	5 R/L	BHE SHIEI	12 B

Connector No.	M30
Connector Name	Connector Name COMBINATION SWITCH (SPIRAL CABLE)
Connector Color GRAY	GRAY

Signal Name	- (WITHOUT NAVI)	- (WITHOUT NAVI)	- (WITHOUT NAVI)
Color of Wire	B/G	G/W	Y/R
Terminal No.   Color of Wire	54	52	31

		2 Z Z	
Connector Name COMBINATION METER	ПЕ	29 28 27 28 25 24 28 Signal Name	SPEED OUT
me CO	lor WHITE	Sis 34 33 3 Sis 34 0	M/R
Connector Na	Connector Color	HS. 20 19 18 17 16 15 14 13 12 11 10 40 38 37 18 38 34 38 32 31 30 Terminal No. Color of Wire 1	29

ABNIA6331GB

Revision: April 2014 AV-175 2014 Titan

Connector No.

Terminal No. Color of Wire Signal Name	43A R –	- G –	- Y A74	48A R/W –	49A R/L –	50A B –	60A G/W –	69A Y/R –	70A R/G –	- Y A86	- V A66															
Connector No. M36 Connector Name WIRE TO WIRE		_		14 28 34 44 5A	8A		11A 12A 13A 14A 15A 16A 17A 18A 19A 20A 21A	22A 23A 24A 25A 26A 27A 28A 29A 30A	31A 32A 33A 34A 35A 36A 37A 38A 39A 40A 41A	42A 43A 44A 45A 46A 47A 48A 49A 50A	514 524 534 544 554 564 574 584 594 604 614	71A 72A 73A 74A 75A 76A 73A 73A 73A 73A 80A 81A 82A 83A 83A 83A 83A 83A 83A 83A 83A 83A 83	No.	Signal Name Signal Name	- J/O	, R/L –	A W/R	A G/R –	A SHIELD –	- Н	- B	A R/B –	- O/O +	- ×	A SHIELD -	A SHIELD
Connector No.	Connect			U I			G21G	<u></u>	G41G	9	9619			Terminal No.	38	4A	31A	32A	34A	35A	36A	38A	39A	40A	41A	42A
Connector No. M31 Connector Name WIRF TO WIRF	WHITE	_		16 26 36 46 56			11G12G13G14G15G16G17G18G19G20G21G	22G23G24G25G26G27G28G29G30	316326336346356366376386396406416	426 436 446 456 466 476 486 496 50	51952953954955956959989999999	71 G/20G/30G/44G/75G/76G/30G/30G/30G/30G/30G/30G/30G/30G/30G/30	Tops	Color of Signal Name	\ >	ا ا	В	SHIELD -		M	G/W –	١	G/W –	- B		
Connector No.	Connector Color			S II										Terminal No.	76	11G	13G	14G S	23G	24G	27G	64G	94G	95G	98G	

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## **DISPLAY AUDIO WITH AMPLIFIER**

[DISPLAY AUDIO WITH AMPLIFIER]

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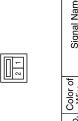
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## < WIRING DIAGRAM >

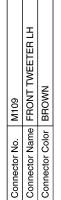
Color of Signal Name Wire B/Y –	SB	BR -	В –		BR/W –		M101	JOINT CONNECTOR-M03 BLUE	9 8 7 6 5 4 3 2 1	f Signal Name		ı	1	1 1	
Terminal No. V	3 PZ	927	93.1	94)	96J		Connector No. M1	Connector Name JO	H.S.	Terminal No. Color of		ם מי	1		
	Connector Color   WHITE		1, 2, 3, 4, 5,	8 12 19		11,	Connector No. M75	Connector Name WIRE TO WIRE Connector Color WHITE	H.S. (10) 9 8 7 6 5	Terminal No.   Color of   Signal Name	2 L/B –	5 W/B –			
FUSE BLOCK (J/B)	WHILE	ΠÇ	80 70 60 50 40			Signal Name	M73	BACK-UP LAMP RELAY BROWN	2   1   2   1   1   1   1   1   1   1	of Signal Name	1	1	1	-	_
	Connector Color W	LE LE		5		10 Wire of Wire of G/R	Connector No. M	Connector Name B	S.H.	Terminal No.   Color of   Wire	1 2	2 R	3		9 W/B

Revision: April 2014 AV-177 2014 Titan











Signal N	_	ı
Color of Wire	MΠ	L/R
Terminal No.	-	2



Connector Name COMBINATION SWITCH (SPIRAL CABLE)

Connector No. | M102

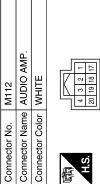
GRAY

Connector Color



Signal Name	-	I	I
Color of Wire	В	Я	BR
No.			





19 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Signal Name	BAT	WOOFER 1+	WOOFER 2+	GND	BAT	WOOFER 1-	WOOFER 2-	GND
4 82	Color of Wire	<b>\</b>	Μ	W/H8	В	5//K	В	НB	В
(南) H.S.	Terminal No.	-	2	3	4	17	18	19	20



Signal Name	1	I	
Color of Wire	M/B	Π/B	
No.			





Connector No. M111



ABNIA6334GB

## **DISPLAY AUDIO WITH AMPLIFIER**

[DISPLAY AUDIO WITH AMPLIFIER]

## < WIRING DIAGRAM >

Signal Name	FR RH TW-	FR LH TW-	FR LH OUT-	FR RH OUT-
Color of Wire	I/B	L/R	L/R	L/B
Terminal No. Wire	59	30	31	32

Color of Wire         Signal Name           W/B         FR RH TW+           L/W         FR LH TW+           L/W         FR LH OUT+           W/B         FR RH OUT+           W         FR RH IN+           Y         FR LH IN+           L         RR RH IN+           BR         RR LH IN+
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RR RH RR LH I
FRLHI

13	AUDIO AMP.	WHITE	13 12 11 10 9 8 7 6 5 29 28 27 26 25 24 23 22 21	Signal Name	FR RH IN-	FR LH IN-	RR RH IN-	BR LH IN-	AMP ON	CIR OUT+	RR LH OUT+	RR RH OUT+
. M113			15 14 31 30	Color of Wire	<u>m</u>	BB	B/W	B/R	G/W	ΜΠ	SB	O/L
Connector No.	Connector Name	Connector Color	[5] 16 H.S. 32	Terminal No.	5	9	7	8	6	10	11	12

	-M10		20 19 18 17 16 15 14 13 12 11 10
	SF		
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	$^{\circ}$		ε <u>ε</u>
	Z		4 4
	6		5 15
	Ö		9 9
Ŋ	F	Щ	7 17
M162	ō	BLUE	8 81
2	٢	ш	9 6
or No.	or Name JOINT CONNECTOR-M10	or Color	20

Ra	ပိ	
ctor	ctor	
onnector	onnecto	S
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Connector Name WIRE TO WIRE Connector Color GRAY

M115

Connector No.

Signal Name	1	ı	ı	1	1	ı	ı
Color of Wire	SHIELD	В	В	В	В	В	В
Terminal No. Wire	2	11	12	13	14	15	16

	Signal Name	ı	ı	ı	I	1
- 2 4 9 E 8 7 7	Color of Wire	SHIELD	Μ	ŋ	Н	_
明.S.	Ferminal No.	-	2	3	4	9

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Connector No.	). M172	7.2
Connector Name		AUDIO UNIT (WITH DISPLAY AUDIO WITH AMPLIFIER)
Connector Color		GREEN
H.S.	56 56 5	22 22 22 22 22 22 22 22 22 22 22 22 22
Terminal No.	Color of Wire	Signal Name
53	Μ	V BUS
54	<sub>o</sub>	USB GND
55	7	USB D +
56	ш	USB D -
57	SHIELD	SHIELD

Signal Name	EQ2 PORT 2	EQ2 PORT 2	EQ3 PORT 3	EQ4 PORT 4	ı	REVERSE SGN	ı	ı
Color of Wire	В	В	В	В	1	G/W	-	1
Terminal No.	45	46	47	48	49	20	51	52

Signal Name	ILL (-)	ILL (+), LIGHT SW	ı	FR SP RH+	FR SP RH-	RR SP RH+	RR SP RH-	STRG SW GND	STRG SW B	1	SPEED SIG SSV	BAT	GND
Color of Wire	BR	B/L	ı	8	В	_	B/W	B/B	0/9	1	W/R	>	В
Terminal No.	8	6	10	11	12	13	14	15	16	11	18	19	20

Terminal No.	Color of Wire	Signal Name
29	J//L	MCAN A-
30	SHIELD	MULTIMEDIA CAN SHIELD
31	d/8	MCAN B+
32	MΠ	MCAN B-
33	В	GND
34	Μ	CAMERA ON
35	œ	COMP+
36	SHIELD	COMP-
37	_	-
38	ı	ı
39	_	I
40	_	ı
41	<b>\</b>	TEL ON
42	_	ı
43	_	1
44	5	CAMERA DET

Connector No.	M171
Connector Name	Connector Name AUDIO UNIT (WITH DISPLAY AUDIO WITH AMPLIFIER)
Connector Color WHITE	WHITE

10 11 12 13 14 15 16 17 18 20	Signal Name	AMP ON	FR SP LH+	FR SP LH-	+HT dS HH	BR SP LH-	STRG SW A	ACC
10 11 1	Color of Wire	G/W	>	BB	BR	B/R	>	۸
-to	Terminal No.	-	2	ဗ	4	5	9	7

Signal Name	1	1	I	TEL I/F -	TEL I/F +	TEL SHIELD	ı	MCAN A+
Color of Wire	1	ı	ı	œ	ច	SHIELD	ı	M/L
Terminal No. Wire	21	22	23	24	25	56	27	28

ABNIA6336GB

# **DISPLAY AUDIO WITH AMPLIFIER**

# [DISPLAY AUDIO WITH AMPLIFIER]

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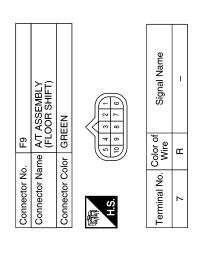
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< WIRING DIAGRAM >

GRAY  1 2 3 4	Signal Name	Signal Name
Connector Name USB IN Connector Color GRAY H.S.	al No. Color of Wire G G G Ware No. Wire SHIELD	al No. Color of Wire C SHIELD C G W W C G G G G G G G G G G G G G G G
Connec Connec H.S.	Terminal No. 1 1 2 2 3 3 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Terminal No. 24C 25C 25C 28C 28C 29C 29C
GRAY  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Signal Name	E41
	No. Color of Wire SHIELD G	Connector No. E41  Connector Name WIRE TO WIRE  Connector Color GRAY  10 20 30 40  120 230 240 250 270 270  220 230 240 250 400  420 430 440
Connector Name Connector Color H.S.	Terminal No. 1 2 2 3 4 4 4 6	Connector Name Connector Color H.S. H.S. 66
AUDIO UNIT (WITH DISPLAY AUDIO WITH AMPLIFIER) GRAY	Signal Name SAT ANT SAT SHIELD	E5 WHRE TO WIRE WHITE
	Color of Wire B B B	Connector No. E5  Connector Name WIRE T  Connector Color   WHITE
Connector Name	58 59	

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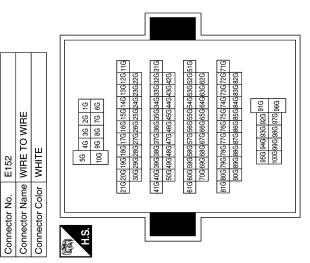
Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM) Connector Color BROWN	Connector No.	E121
Connector Color BROWN	Connector Name	
	Connector Color	BROWN

29 28 37 30 32 31 30 38 38 38 38 38 38 38 38 38 38 38 38 38	Signal Name	T TOW REV LAMP
36 38 34	Color of Wire	M/B
頃 H.S.	Terminal No.	27

	-	
Color of Wire	M/B	
Terminal No.	27	

Connector No.	). E119	6	
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	
Connector Color WHITE	olor WHI	TE	
原 H.S.	9 8 17 18 17	7 6 5 4 3 16 15 14 13 12 11 10	
Terminal No.	Color of Wire	Signal Name	
16	ŋ	REVERSE LAMP	

Signal Name	ı	ı	1	ı	ı	ı	ı	ı	1	ı	I
Color of Wire	>	ß	В	SHIELD	В	8	G/W	В	G/W	В	M/B
Terminal No.	76	11G	13G	14G	23G	24G	27G	64G	94G	95G	98G



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# [DISPLAY AUDIO WITH AMPLIFIER]

	А
WIRE Signal Name	В
	С
No. No. C8 Name WIR Color of Wire of W	D
Connector No. Connector Name Connector Color H.S.  Terminal No. W W 4 SHI 6 5 6 6	Е
	F
Signal Name  Signal Name	G
	Н
	I
Connector No.   Connector Name   Connector Name   Connector Color	J
	К
Signal Name Signal Name Signal Name  Signal Name  Signal Name  Signal Name  AIRE  AIRE  Signal Name  Signal Name  Signal Name  Signal Name  AIRE  AIRE	L
NHE TO WIRE   Signal Name   Signal Name   NHE TO WIRE   Signal Name   Signal Name   NHE TO WIRE   Signal Name	М
Connector No. F14  Connector Name WIRE TO WIRE  Connector Color WHITE  Terminal No. Wire  Connector Name WIRE TO WIRE  Connector Name WIRE TO WIRE  Connector Name WIRE TO WIRE  Connector Color GRAY  #10   100   300	AV
Connector No.  Connector No.  Terminal No.  Connector Nar  Aria  A	0
l	AANIA2357GB

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Connector No. B6 Connector Name WIRE TO WIRE		Connector No.	. B69	B69 WIRE TO WIRE		Terminal No.	Color of Wire	Signal Name
nnector Color WHITE		Connector Color	lor WHITE			£.	В/	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
H.S.	111	(内)		5J 4J 3J 2J 1J 10J 9J 8J 7J 6J		L7	SB	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
Color of			1 00	1401471401441		92J	BB	_
l erminal No. Wire	lame		300 200	30, 29, 28, 27, 26, 25, 24, 23, 22,		93J	В	-
14 B/Y –						94J	Μ	-
15 SB -			41.1 40.1 3	41J 40J 39J 38J 37J 36J 35J 34J 33J 32J 31J 50J 49J 48J 47J 46J 45J 44J 43J 42J		f96	BR/W	_
			81.3 80V 81 81.3	611 (601 (501 (501 (501 (501 (501 (501 (501 (5				
					1			
Connector No. B72		Connector No.	. B76			Connector No.	). B106	9
		Connector Name	-	REAR DOOR SPEAKER LH		Connector Name		WIRE TO WIRE
Connector Color WHITE		Connector Color	lor WHITE	Щ.		Connector Color	olor WHITE	TE .
H.S.		所 H.S.		<u></u>		H.S.	10 9 8 7 6	7 6 5 4 3 2 1 1 16 15 14 13 12 11
Terminal No. Color of Signal Nar Wire	lame	Terminal No.	Color of Wire	Signal Name		Terminal No.	Color of Wire	Signal Name
1 W -		•	a	- (EXCEPT BASE		14	H/L	_
2 B -		-	9	MID AUDIO SYSTEM)		15	O/L	ı
3 BR/W –		c	2	- (EXCEPT BASE				
4 BR –		7	- 2	MID AUDIO SYSTEM)				

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# **DISPLAY AUDIO WITH AMPLIFIER**

# [DISPLAY AUDIO WITH AMPLIFIER]

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< WIRING DIAGRAM >

Signal Name	1	CONT 2	CONT 3	ı	1	1	ı	CONT 6	SPEED SIGNAL	MIC POWER	ı	1	_
Color of Wire	1	В	В	ı	-	1	ı	В	W/R	R/W	ı	1	1
Terminal No. Wire	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
7	В	MIC IN+
8	R/L	MIC IN-
6	ŋ	AUDIO OUT+
10	Œ	AUDIO OUT-
11	Y	MUTE CONTROL
12	R/G	LADDER IN 1
13	G/W	LADDER IN 2
14	Y/R	LADDER IN GND
15	I	1
16	-	1
17	۸	LADDER OUT 1
18	G/O	LADDER OUT 2
19	B/B	LADDER OUT GND

			32							
23	BLUETOOTH® CONTROL UNIT	WHITE	12 14 16 18 20 22 24 26 28 30 11 13 15 17 19 21 23 25 27 29	Signal Name	BATT	ACC	NÐI	GNĐ	ı	MIC SHIELD
. B142			6 8 10	Color of Wire	>	>	G/R	B/W	ı	SHIELD
Connector No.	Connector Name	Connector Color	H.S. 1 3 4	Terminal No.	-	2	3	4	2	9

4.	BLUETOOTH® CONTROL UNIT	<u>I</u> E	37 38 41	Signal Name	MCAN + 1	MCAN - 1	MCAN SHIELD 1	I	ı	ı	1	ı
B144		or WHITE	88	Color of Wire	В	۵	SHIELD	ı	-	ı	ı	ı
Connector No.	Connector Name	Connector Color	H.S.	rerminal No.	35	36	37 (8	38	39	40	41	42

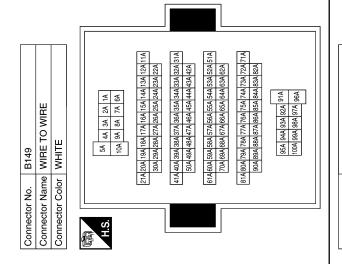
Connector No.	). B143	3
Connector Na	ime BLUE UNIT	Connector Name BLUETOOTH® CONTROL UNIT
Connector Color BLACK	olor BLA	CK
H.S.	33 B	
Terminal No.	Color of Wire	Signal Name
33	В	BT ANTENNA
34	SHIELD	SHIELD BT ANTENNA SHIELD

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Revision: April 2014 AV-185 2014 Titan

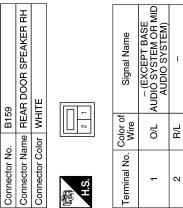
Signal Name	I	1	I	ı	1	ı	1	-	ı	I	1	1
Color of Wire	SHIELD	æ	ŋ	<b>&gt;</b>	R/W	R/L	В	G/W	Y/R	R/G	٨	^
Terminal No. Color of Wire	42A	43A	44A	47A	48A	49A	50A	60A	99A	70A	98A	99A

Terminal No.	Color of Wire	Signal Name
3A	7/0	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
4A	H/L	ı
31A	H/W	ı
32A	H/9	-
34A	SHIELD	I
35A	d	_
36A	В	_
38A	B/B	_
39A	0/9	_
40A	۸	_
41A	анегр	_



Connector No.	).	
Connector Name		REAR VIEW CAMERA
Connector Color	olor GRAY	AY
原列 H.S.		(a) (b) (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d
Terminal No.	Color of Wire	Signal Name
-	Μ	ı
က	Œ	1
4	В	-
9	SHIELD	

Connector No.	<u>.</u>	
Connector Name		WIRE TO WIRE
Connector Color	olor BLACK	CK
偃		II. <b>Æ</b> ⊩
H.S.	- 4	2 2 3
Terminal No.	Color of Wire	Signal Name
-	Μ	1
က	ш	1
4	SHIELD	1
5	ŋ	1
9	В	ı



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# **DISPLAY AUDIO WITH AMPLIFIER**

## [DISPLAY AUDIO WITH AMPLIFIER]

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## < WIRING DIAGRAM >

	O WIRE			<u>888</u>	Signal Name	1	1	1		
R107	ne WIRE T	or WHITE		4 5 6 7 8	Solor of Wire	R/L	B/W	В		
Connector No.	Connector Name   WIRE TO WIRE	Connector Color WHITE		H.S.	Terminal No. Wire	1	2	4		
	E TO WIRE	TE TE	Լፕ	3	Signal Name	- (WITHOUT NAVI)	ı	ı		
B9	me WIR	or WHI	I LT	8 8	Color of Wire	B/L	B/W	В		
Connector No.	Connector Name WIRE TO WIRE	Connector Color WHITE		H.S.	Terminal No.   Color of   Wire	1	2	4		
						(L	(L		(L	
	or Name WIRE TO WIRE	TE T		10 11 12	Signal Name	- (WITHOUT NAVI)	– (WITHOUT NAVI)	I	- (WITHOUT NAVI)	
). R2	me WIR	or Color WHITE	I I⊢	6 7 8 9	No. Color of Wire	B/W	R/L	SHIELD	В	
or No.	or Na	ပို			Š.					

ctor ctor all N	Connector No.   D2	No.         R109         Connector           Name         MICROPHONE         Connector           Color         WHITE         Connector           1 2 3 4         H.S.           Color of Wire         Signal Name         Terminal Name           B         -         10           R/L         -         11
		I Name

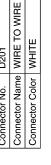
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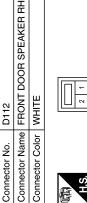


Signal Name	- (WITHOUT NAVI OR MID AUDIO SYSTEM)	- (WITHOUT NAVI OR MID AUDIO SYSTEM)
Color of Wire	Β/Y	SB
erminal No. Color of Wire	14	15





MID AUDIO SYSTE	3	2
- (WITHOUT NAVI	0	Ť.
- (WITHOUT NAVI	В/	4
Signal Name	Color of Wire	Terminal No.





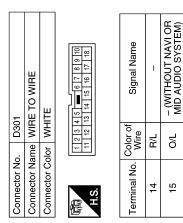


Signal Name

ī



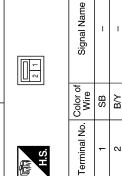
-	WIRE TO WIRE	ITE	7 8 9 10	Signal Name	ı	ı
D101	me WIF	lor WH	2 9 2	Color of Wire	Γ/B	W/R
Connector No.	Connector Name	Connector Color WHITE	南 H.S.	Terminal No.	2	יכי





D208

Connector No.



1 1



Connector No.	). D207	7
Connector Name		REAR DOOR SPEAKER LH
Connector Color WHITE	olor WH	=======================================
H.S.	2	
Terminal No.	Color of Wire	Signal Name
1	SB	- (WITHOUT NAVI OR MID AUDIO SYSTEM)
2	В/У	- (WITHOUT NAVI OR MID AUDIO SYSTEM)





	≥	≥
Color of Wire	SB	В/Υ
Terminal No.	1	2

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# [DISPLAY AUDIO WITH AMPLIFIER]

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Color of Wire	J/O	H/L
Terminal No.	1	2

Signal Name

Connector No.	D307
Connector Name	Connector Name REAR DOOR SPEAK
Connector Color WHITE	WHITE
是 H.S.	2 1

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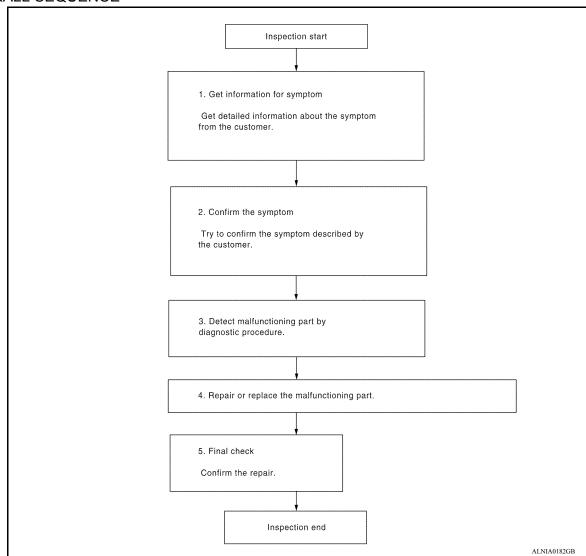
Signal Name	- (WITHOUT NAVI OR MID AUDIO SYSTEM)	1
Color of Wire	O/L	R/L
Terminal No.	1	2

# **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).

#### >> 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.

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# **DIAGNOSIS AND REPAIR WORKFLOW**

DIAGNOSIS AND REPAIR WORKFLOW	
< BASIC INSPECTION > [DISPLAY AUDIO WIT	H AMPLIFIER]
Is malfunctioning part detected?	
YES >> GO TO 4	F
NO >> GO TO 2	
4. REPAIR OR REPLACE THE MALFUNCTIONING PART	E
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.	
Was the repair confirmed?	
YES >> Inspection End.	[
NO >> GO TO 2	
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#### POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITH AMPLIFIER]

# DTC/CIRCUIT DIAGNOSIS

# POWER SUPPLY AND GROUND CIRCUIT AUDIO UNIT

AUDIO UNIT: Diagnosis Procedure

INFOID:0000000009876554

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
7	ACC power supply	4 (10A)
19	Battery power supply	31 (20A)

#### Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

# 2.CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect audio unit connector M171.
- Check voltage between audio unit connector M171 and ground.

Audio unit		Ground	Condition	Voltage
Connector	Terminal	Ground	Condition	(Approx.)
M171	7		Ignition switch: ON	Battery voltage
IVI I / I	19		Ignition switch: OFF	Dattery Voltage

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

# 3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect audio unit connectors M171 and M175.
- 3. Check continuity between audio unit connectors and ground.

Audio unit		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
M171	20			
M175	45 (Crew cab)			
	46 (King cab)	_	Yes	
	47 (King cab or Mexico)			
	48 (King cab)			

#### Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

**AUDIO AMP** 

#### POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITH AMPLIFIER]

# **AUDIO AMP: Diagnosis Procedure**

INFOID:0000000009876555

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

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## 1.CHECK FUSE

Check that the audio amp. fuses are not blown.

Unit	Terminal	Signal name	Fuse No.
Audio amp.	1	Pottony nowor	31
Λυσίο απη.	17	- Battery power	17

#### Are the fuses OK?

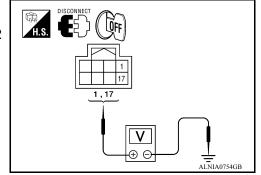
YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

# 2. CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect audio amp. connector.
- 3. Check voltage between audio amp. harness connector M112 and ground.

(+)		(-)	Voltage (approx.)
Connector	Terminal	(-)	voltage (approx.)
M112	1	Ground	Battery voltage
WITZ	17	Giodila	Battery voltage



#### Is battery voltage present?

YES >> GO TO 3.

NO >> Check harness between audio amp. and fuse.

# 3. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect audio amp. connector.
- Check continuity between audio amp. harness connector M112 and ground.

Connector	Terminal	_	Continuity
M112	4	Ground	Yes
	20	Giodila	165

# 4,20

#### Does continuity exist?

YES >> Inspection End.

>> Repair harness or connector.

#### BLUETOOTH® CONTROL UNIT

# BLUETOOTH® CONTROL UNIT: Diagnosis Procedure

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1.CHECK FUSE

Check that the following fuses for the Bluetooth® control unit are not blown.

**AV-193** Revision: April 2014 2014 Titan

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INFOID:000000009876556

#### POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

Unit	Terminal	Signal name	Fuse No.
Bluetooth <sup>®</sup> control unit	1	Battery power	31
	2	Ignition switch ACC or ON	4
	3	Ignition switch ON or START	12

#### Is inspection result OK?

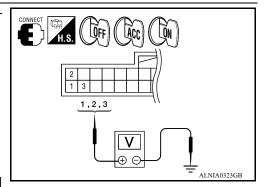
YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

# 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between Bluetooth® control unit harness connector B142 and ground.

Connector	Terminal	Ignition switch position	Value (Approx.)
	1	OFF	
B142	2	ACC	Battery voltage
	3	ON	



#### Is battery voltage present as specified?

YES >> GO TO 3.

NO >> Check harness between Bluetooth® control unit and fuse.

# 3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect Bluetooth® control unit connector.
- 3. Check continuity between Bluetooth® control unit harness connector B142 and ground.

Connector	Terminal	_	Continuity	
B142	4			
	21	Ground	Yes	
	22	Glound		
	27			

#### Are continuity results as specified?

YES >> Inspection End.

NO >> Repair harness or connector.

# FRONT DOOR SPEAKER

# Diagnosis Procedure

INFOID:0000000009876557

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Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1. CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

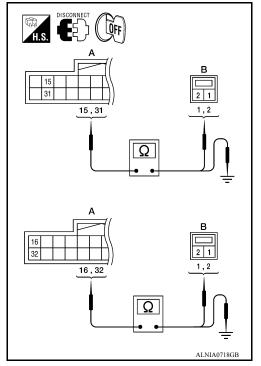
# 2.SPEAKER HARNESS CHECK

- 1. Disconnect audio amp. connector M113 and suspect front door speaker connector.
- 2. Check continuity between audio amp. harness connector M113 (A) and suspect front door speaker harness connector (B).

А		В		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M113	15	D12	1	
	31		2	Yes
	16	D440	1	165
	32	D112	2	

 Check continuity between audio amp. harness connector M113 (A) and ground.

	Α		Continuity
Connector	Terminal		Continuity
	15		No
M113	31	Ground	
WIII	16	Glound	
	32		



## Are continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3.FRONT DOOR SPEAKER SIGNAL CHECK

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#### FRONT DOOR SPEAKER

## < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

- 1. Connect audio amp. connector M113 and suspect front door speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connector M113 terminals with CONSULT or oscilloscope.

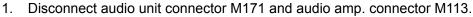
Connec-	Terminal		Condition	Reference	
tor	(+)	(-)	Condition	signal	
	15	31			
M113	16	32	Receive audio sig- nal	1 0 1 1 ms 3 SKIA0177E	

## Is audio signal voltage as specified?

YES >> Replace suspect front door speaker. Refer to <u>AV-232.</u> "Removal and Installation".

NO >> GO TO 4.

## 4.PRE-AMP HARNESS CHECK



2. Check continuity between audio unit harness connector M171 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	3		6	
M171	2	M113	22	Yes
	12	WITIS	5	163
	11		21	

3. Check continuity between audio unit harness connector M171 and ground.

Connector	Terminal	_	Continuity	
	3	Ground		
M171	2		No	
IVI I / I	12			
	11			

#### Are continuity test results as specified?

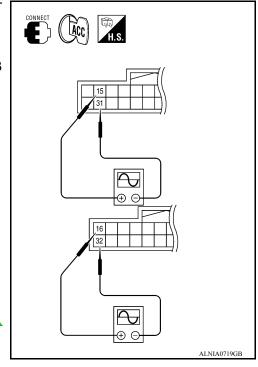
YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect audio unit connector and audio amp. connector.
- 2. Turn ignition switch ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M171 terminals with CONSULT or oscilloscope.



# FRONT DOOR SPEAKER

## [DISPLAY AUDIO WITH AMPLIFIER]

< DTC/CIRCUIT DIAGNOSIS >

Connector	Terminals		Condition	Reference	
Connector	Connector (+) (-) Condition		signal		
	2	3			
M171	11	12	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

Are the audio signal voltage readings as specified?

>> Replace audio amp. Refer to <u>AV-236, "Removal and Installation"</u>. >> Replace audio unit. Refer to <u>AV-228, "Removal and Installation"</u>. YES

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INFOID:0000000009876558

## FRONT TWEETER

# Diagnosis Procedure

Regarding Wiring Diagram information, refer to AV-172. "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- · Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

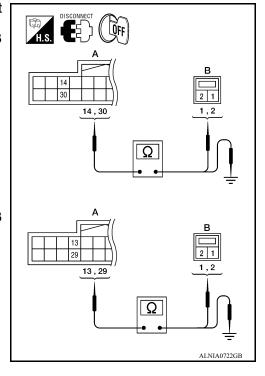
# 2. HARNESS CHECK

- 1. Disconnect audio amp. connector M113 and suspect front tweeter connector.
- 2. Check continuity between audio amp. harness connector M113 (A) and suspect front tweeter harness connector (B).

А		В		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	14	M109	1	
M113	30		2	Yes
	13	M111	1	165
	29		2	

 Check continuity between audio amp. harness connector M113 (A) and ground.

	Α		Continuity	
Connector	Terminal	_	Continuity	
	14			
M113	30	Ground	No	
WITIS	13			
	29			



## Are continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.FRONT TWEETER SIGNAL CHECK

#### FRONT TWEETER

## < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

- 1. Connect audio amp. connector M113 and suspect front tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connector M113 terminals with CONSULT or oscilloscope.

Connec-	Terminal		Condition	Reference	
tor	(+)	(-)	Condition	signal	
	14	30			
M113	13	29	Receive audio sig- nal	1 0 1 ms skladim	

#### Is audio signal voltage as specified?

YES >> Replace suspect front tweeter. Refer to <u>AV-230</u>, <u>"Removal and Installation"</u>.

NO >> GO TO 4.

## 4.PRE-AMP HARNESS CHECK

- 1. Disconnect audio unit connector M171 and audio amp. connector M113.
- 2. Check continuity between audio unit harness connector M171 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
M171	3		6	
	2	M113	22	Yes
	12		5	
	11		21	

3. Check continuity between audio unit harness connector M171 and ground.

Connector	Terminal	_	Continuity	
	3	Ground		
M171	2		No	
	12	Giouna		
	11			

#### Are continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect audio unit connector and audio amp. connector.
- 2. Turn ignition switch ACC.
- 3. Push "POWER" switch.

4. Check the signal between audio unit harness connector M171 terminals with CONSULT or oscilloscope.

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Connector	Terminals		Condition	Reference	
Connector	(+)	(-)	Condition	signal	
	2	3			
M171	11	12	Receive audio sig- nal	1 0 -1 1 ms	

#### Are the audio signal voltage readings as specified?

>> Replace audio amp. Refer to <u>AV-236, "Removal and Installation"</u>. >> Replace audio unit. Refer to <u>AV-228, "Removal and Installation"</u>. YES

NO

#### [DISPLAY AUDIO WITH AMPLIFIER]

## **CENTER SPEAKER**

# Diagnosis Procedure

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Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2.CENTER SPEAKER HARNESS CHECK

- Disconnect audio amp. connector M113 and center speaker connector M110.
- 2. Check continuity between audio amp. harness connector M113 (A) and center speaker harness connector M110 (B).

	A		В	Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M113	10	M110	1	Yes	
IVITIS	26	IVITIO	2	res	

Check continuity between audio amp. harness connector M113 (A) and ground.

	Α		Continuity	
Connector	Terminal		Continuity	
M113	10	Ground	No	
WITIS	26	Ground	INO	

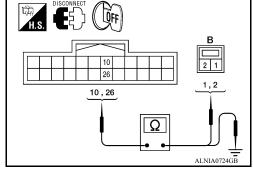
### Are continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3.CENTER SPEAKER SIGNAL CHECK

- Connect audio amp. connector M113 and center speaker connector M110.
- Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connector M113 terminals with CONSULT or oscilloscope.



H.S. CONNECT

H.S. DISCONNECT (OFF)	
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Connector	Terminals		Condition	Reference	
Connector	(+)	(-)	Condition	signal	
M113	10	26	Receive audio sig- nal	(V) 1 0 -1 1 ms	

#### Is the audio signal voltage reading as specified?

YES >> Replace center speaker. Refer to AV-231, "Removal and Installation".

NO >> GO TO 4.

# 4.PRE-AMP HARNESS CHECK

- 1. Disconnect audio unit connector M171 and audio amp. connector M113.
- Check continuity between audio unit harness connector M171 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	3		6	Yes
M171	2	M113	22	
IVITT	12		5	res
	11		21	

3. Check continuity between audio unit harness connector M171 and ground.

Connector	Terminal	_	Continuity	
	3			
M171	2	Ground	No	
IVI I / I	12			
	11			

#### Are continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect audio unit connector and audio amp. connector.
- 2. Turn ignition switch ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M171 terminals with CONSULT or oscilloscope.

Connector	Terminals		Condition	Reference		
Connector	(+)	(-)	signal	signal	signal	signal
	2	3				
M171	11	12	Receive audio sig- nal	(V) 1 0 -1 1 ms		

Are the audio signal voltage readings as specified?

## **CENTER SPEAKER**

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITH AMPLIFIER]

YES >> Replace audio amp. Refer to AV-236. "Removal and Installation".

NO >> Replace audio unit. Refer to AV-228, "Removal and Installation".

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# **REAR DOOR SPEAKER**

# Diagnosis Procedure

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- · Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

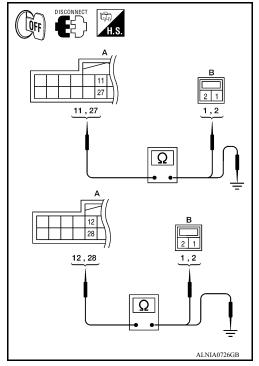
# 2.speaker harness check

- 1. Disconnect audio amp. connectors M113 and suspect rear door speaker connector.
- 2. Check continuity between audio amp. harness connectors M113 (A) and suspect rear door speaker harness connector (B).

	A	В	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
	11	D207 (crew cab)	1	
M113	27	B76 (king cab)	2	Yes
IVITIO	12 D307 (crew cab)		1	168
	28	B159 (king cab)	2	

3. Check continuity between audio amp. harness connectors M113 (A) and ground.

Connector	Terminal	-	Continuity	
	11			
M113	27	Ground	No	
WIII3	12	Glound	NO	
	28			



#### Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.SPEAKER SIGNAL CHECK

#### **REAR DOOR SPEAKER**

## < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

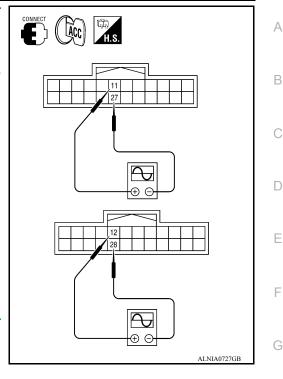
- Connect audio amp. connectors and suspect rear door speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connectors M113 terminals with CONSULT or oscilloscope.

Connector	Terminals		Condition	Reference	
Connector	(+)	(-)	Condition	signal	
	11	27			
M113	12	28	Receive audio sig- nal	(V) 1 0 -1 1 ms	

## Are audio signal voltage readings as specified?

>> Replace suspect rear door speaker. Refer to AV-233. "Removal and Installation".

NO >> GO TO 4.



# 4.PRE-AMP HARNESS CHECK

- Disconnect audio unit connector M171 and audio amp. connector M113.
- 2. Check continuity between audio unit harness connector M171 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	5		8	Yes
M171	4	M113	24	
IVI I / I	14	IVITIO	7	163
	13		23	

Check continuity between audio unit harness connector M171 and ground.

Connector	Terminal	_	Continuity	
	5			
M171	4	Ground	No	
	14	Ground	NO	
	13			

#### Are the continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

• Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect audio unit connector M171 and audio amp. connector M113.
- Turn ignition switch to ACC. 2.
- Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M171 terminals with CONSULT or oscilloscope.

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## **REAR DOOR SPEAKER**

Connector	Term	ninals	Condition	Reference
Connector	(+)	(-)	Condition	signal
	4	5		
M171	13	14	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E

Is the audio signal voltage reading as specified?

>> Replace audio amp. Refer to <u>AV-236. "Removal and Installation"</u>. >> Replace audio unit. Refer to <u>AV-228. "Removal and Installation"</u>. YES

NO

# **REAR DOOR TWEETER**

# **Diagnosis Procedure**

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

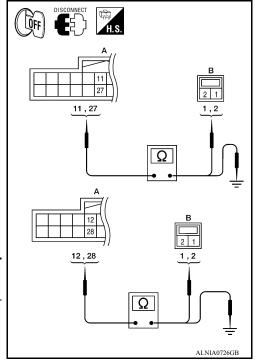
# 2.TWEETER HARNESS CHECK

- 1. Disconnect audio amp. connectors M113 and suspect rear door tweeter connector.
- 2. Check continuity between audio amp. harness connectors M113 (A) and suspect rear door tweeter harness connector (B).

	A	В		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	11	D208	1	
M113	27	D206	2	Yes
	12	D308	1	162
	28	D306	2	

3. Check continuity between audio amp. harness connectors M113 (A) and ground.

Α		_	Continuity	
Connector	Terminal	_	Continuity	
	11			
M113	27	Ground	No	
WITIS	12	Ground		
	28			



Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. TWEETER SIGNAL CHECK

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#### **REAR DOOR TWEETER**

## < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

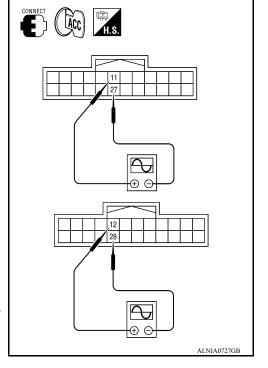
- Connect audio amp. connectors and suspect rear door tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connectors M113 terminals with CONSULT or oscilloscope.

Connector	Term	ninals	Condition	Reference
Connector	(+)	(-)	Condition	signal
	11	27		
M113	12	28	Receive audio sig- nal	(V) 1 0 -1 1 MS SKIA0177E

#### Are audio signal voltage readings as specified?

YES >> Replace suspect rear door tweeter. Refer to <u>AV-233.</u> "Removal and Installation".

NO >> GO TO 4.



# 4.PRE-AMP HARNESS CHECK

- 1. Disconnect audio unit connector M171 and audio amp. connector M113.
- 2. Check continuity between audio unit harness connector M171 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	5		8	Yes
M171	4	4 M113	24	
	14	IVITIS	7	165
	13		23	

3. Check continuity between audio unit harness connector M171 and ground.

Connector	Terminal	_	Continuity	
M171	5			
	4	Ground	No	
	14	Giouna		
	13			

#### Are the continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

· Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect audio unit connector M171 and audio amp. connector M113.
- Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M171 terminals with CONSULT or oscilloscope.

## **REAR DOOR TWEETER**

# < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

Connector	Term	ninals	Condition	Reference
Connector	(+)	(-)	Condition	signal
	4	5		
M171	13	14	Receive audio sig- nal	1 0 -1 1 ms SKIA0177E

Is the audio signal voltage reading as specified?

>> Replace audio amp. Refer to <u>AV-236, "Removal and Installation"</u>. >> Replace audio unit. Refer to <u>AV-228, "Removal and Installation"</u>. YES

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## **SUBWOOFER**

Description INFOID:000000009876562

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

## Diagnosis Procedure

INFOID:0000000009876563

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1. CONNECTOR CHECK

Check the audio amp. and subwoofer connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

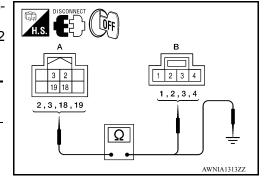
YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2. SUBWOOFER HARNESS CHECK

- Disconnect audio amp. connector M112 and subwoofer connector B72.
- 2. Check continuity between audio amp. harness connector M112 (A) and subwoofer harness connector B72 (B).

А		l	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
	2		1	
M112	3	B72	3	Yes
	18	DIZ	2	165
	19		4	



Check continuity between audio amp. harness connector M112 (A) and ground.

	Α		Continuity
Connector	Terminal	_	Continuity
	2		No
M112	3	Ground	
IVI I I Z	18	Ground	No
	19		

#### Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.SUBWOOFER SIGNAL CHECK

#### **SUBWOOFER**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

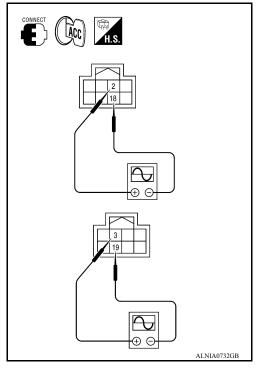
- Connect audio amp. connector M112 and subwoofer connector B72.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connector M112 terminals with CONSULT or oscilloscope.

Connector	Terminals		Condition	Reference	
Connector	(+)	(-)	Condition	signal	
	2	18			
M112	3	19	Receive au- dio signal	(V) 1 0 -1 1 ms skia0177E	

## Is the audio signal voltage as specified?

YES >> Replace subwoofer. Refer to <u>AV-234, "Removal and Installation"</u>.

NO >> GO TO 4.



# 4.PRE-AMP HARNESS CHECK

- 1. Disconnect audio unit connector M171 and audio amp. connector M113.
- 2. Check continuity between audio unit harness connector M171 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity	
	5		8		
M171	4	M113	24	Yes	
	14	IVITIS	7	165	
	13	i	23		

3. Check continuity between audio unit harness connector M171 and ground.

Connector	Terminal	_	Continuity	
	5			
M171	4	Ground	No	
	14	Ground		
	13			

#### Are the continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

• Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect audio unit connector M171 and audio amp. connector M113.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio unit harness connector M171 terminals with CONSULT or oscilloscope.

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Connector	Term	ninals	Condition	Reference
Connector	(+)	(-)	Condition	signal
	4	5		
M171	13	14	Receive audio sig- nal	1 0 -1 1 ms SKIA0177E

Is the audio signal voltage reading as specified?

>> Replace audio amp. Refer to <u>AV-236, "Removal and Installation"</u>. >> Replace audio unit. Refer to <u>AV-228, "Removal and Installation"</u>. YES

NO

#### **AMP ON SIGNAL CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITH AMPLIFIER]

# **AMP ON SIGNAL CIRCUIT**

# Diagnosis Procedure

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Regarding Wiring Diagram information, refer to AV-172. "Wiring Diagram".

# 1. CHECK AMP ON SIGNAL

- 1. Turn audio system ON.
- 2. Check voltage between audio amp. harness connector M113 terminal 9 and ground.

(+)		(-)	Voltage (approx.)	
Connector	Terminal	(-)	voltage (approx.)	
M113	9	Ground	More than 6.5V	

# CONNECT H.S. WH.S. TILNIA0733GB

#### Is inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

# $2.\mathsf{CHECK}$ AMP ON SIGNAL (AUDIO UNIT)

Check voltage between audio unit harness connector M171 terminal 1 and ground.

(+)		(-)	Voltage (approx.)	
Connector	Terminal	(-)	voltage (approx.)	
M171	1	Ground	More than 6.5V	

#### Is inspection result normal?

YES >> Repair harness or connector.

NO >> Replace audio unit. Refer to AV-228, "Removal and Installation".

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## REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITH AMPLIFIER]

INFOID:0000000009876565

### REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

# Diagnosis Procedure

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1. CHECK REVERSE INPUT SIGNAL

- 1. Turn ignition switch ON.
- Shift the selector lever to R (reverse).
- 3. Check voltage between audio unit connector M175 and ground.

Audio unit		Ground		Mallana
(	+)	(-)	Condition	Voltage (Approx.)
Connector	Terminal	(-)		, , ,
M175	50	_	Selector lever in R (reverse)	Battery Voltage

#### Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

# 2. CHECK CAMERA POWER SUPPLY CIRCUIT CONTINUITY

- 1. Turn ignition switch OFF.
- 2. Disconnect audio unit connector M175 and rear view camera connector.
- 3. Check continuity between audio unit connector M175 and rear view camera connector T2.

Audi	io unit	Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M175	34	T2	1	Yes

4. Check continuity between audio unit connector M44 and ground.

Audi	o unit		Continuity
Connector	Terminal	Ground	Continuity
M175	34		No

#### Is inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

# 3.CHECK CAMERA POWER SUPPLY VOLTAGE

- 1. Connect audio unit connector M175 and rear view camera connector.
- 2. Turn ignition switch ON.
- Shift the selector lever to R (reverse).
- 4. Check voltage between audio unit connector M175 and ground.

Audio unit		Ground		N/allana	
(	+)	(_)	Condition	Voltage (Approx.)	
Connector	Terminal	(-)		( 11 - )	
M175	34	_	Selector lever is in "R".	6.0 V	

#### Is inspection result normal?

YES >> GO TO 4.

NO >> Replace audio unit. Refer to AV-228, "Removal and Installation".

## REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO WITH AMPLIFIER]

# f 4.CHECK CAMERA IMAGE SIGNAL CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect audio unit connector M175 and rear view camera connector.
- Check continuity between audio unit connector M175 and rear view camera connector T2.

Aud	io unit	Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M175	35	T2	3	Yes

Check continuity between audio unit connector M175 terminal 35 and ground.

Audi	o unit		Continuity
Connector	Terminal	Ground	Continuity
M175	35		No

#### Is inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness or connectors.

# CHECK CAMERA GROUND CIRCUIT CONTINUITY

Check continuity between audio unit connector M175 and rear view camera connector T2.

Audi	udio unit Rear		Rear view camera	
Connector	Terminal	Connector Terminal		Continuity
M175	33	T2	4	Yes

#### Is inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness or connectors.

#### 6.CHECK CAMERA IMAGE SIGNAL

- Connect audio unit connector M175 and rear view camera connector.
- 2. Turn ignition switch ON.
- Shift the selector lever to R (reverse).
- Check signal between audio unit connector M175 and ground.

Audi	Audio unit		Condition		
(+)		( )		Reference value	
Connector	Terminal	(-)			
M175	35	_	Camera image dis- played.	(V) 0. 4 0 -0. 4 → 40µs SKIB2251J	

#### Is inspection result normal?

YES >> Replace audio unit. Refer to AV-228, "Removal and Installation".

>> Replace rear view camera. Refer to AV-242, "Removal and Installation". NO

**AV-215** Revision: April 2014 2014 Titan В

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## MICROPHONE SIGNAL CIRCUIT

## Diagnosis Procedure

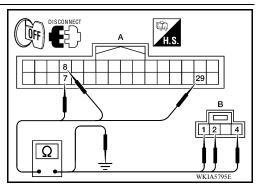
INFOID:0000000009876566

Regarding Wiring Diagram information, refer to AV-172. "Wiring Diagram".

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

- 1. Turn ignition switch OFF.
- Disconnect Bluetooth<sup>®</sup> control unit connector and microphone connector.
- 3. Check continuity between Bluetooth® control unit harness connector B142 (A) and microphone harness connector R109 (B).

А		В		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	7		1	
B142	8	R109	2	Yes
	29		4	



4. Check continuity between Bluetooth® control unit harness connector B142 (A) and ground.

A			Continuity
Connector	Terminal	_	Continuity
B142	7		
	8	Ground	No
	29		

## Are the continuity test results as specified?

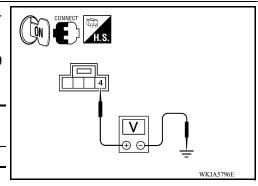
YES >> GO TO 2.

NO >> Repair harness or connector.

# 2. CHECK MICROPHONE POWER SUPPLY

- 1. Connect Bluetooth  $^{\circledR}$  control unit connector and microphone connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between microphone harness connector R109 terminal 4 and ground.

(+)		(-)	Voltage (approx.)
Connector	Terminal	(-)	voltage (approx.)
R109	4	Ground	5V



#### Is voltage reading approx. 5 volts?

YES >> GO TO 3.

NO >> Replace Bluetooth® control unit. Refer to AV-241, "Removal and Installation".

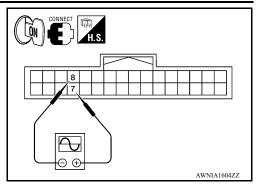
 ${f 3.}$ CHECK MICROPHONE SIGNAL

# **MICROPHONE SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

Connector	(+)	(-)	Reference signal
Connector	Terminal	Terminal	Treference signal
B142	7	8	While speaking into MIC  (V)  1  0  -1  -2ms
			SKIB3609E



#### Are voltage readings as specified?

YES >> Replace Bluetooth<sup>®</sup> control unit. Refer to <u>AV-241, "Removal and Installation"</u>.

NO >> Replace microphone. Refer to AV-239, "Removal and Installation".

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# STEERING SWITCH

# Diagnosis Procedure

INFOID:0000000009876567

Regarding Wiring Diagram information, refer to AV-172. "Wiring Diagram".

# 1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

- 1. Disconnect combination switch connector M102.
- 2. Check resistance between combination switch connector terminals.

Terr	minal	Signal name	Condition	Resistance $(\Omega)$ (Approx.)
		Volume (down)	Depress - 🗘 switch.	1
16	18	Volume (up)	Depress 4 switch.	121
	Phone end	Depress - switch.	321	
-		Source	Depress SOURCE switch.	1
45	40	Seek (up)	Depress $\Delta$ switch.	121
15 18	Seek (down)	Depress ∇ switch.	321	
		Phone/Send	Depress √ witch.	723

# Do the steering wheel audio control switches check OK?

YES >> GO TO 2.

NO >> Replace steering wheel audio control switch. Refer to AV-235, "Removal and Installation".

# 2. CHECK HARNESS

- 1. Turn ignition switch OFF.
- 2. Disconnect Bluetooth® control unit connector B142 and combination switch connector M30.
- 3. Check continuity between Bluetooth<sup>®</sup> control unit harness connector B142 and combination switch harness connector M30.

Bluetooth® control unit		Combination switch		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	12		24	
B142	14	M30	31	Yes
	13		25	

4. Check continuity between Bluetooth® control unit connector B142 and ground.

Bluetooth <sup>®</sup> control unit			Continuity	
Connector	Terminal	_	Continuity	
	12			
B142	13	Ground	No	
	14			

#### Are the continuity results as specified?

YES >> GO TO 3.

NO >> Repair harness.

# **STEERING SWITCH**

## < DTC/CIRCUIT DIAGNOSIS >

#### [DISPLAY AUDIO WITH AMPLIFIER]

# 3.SPIRAL CABLE CHECK

Check continuity between combination switch harness connectors M30 and M102.

	Combination switch			Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
	24		15		
M30	31	M102	18	Yes	
	25		16		

#### Does the spiral cable check OK?

YES >> Inspection End.

NO >> Replace spiral cable. Refer to <u>SR-13, "Removal and Installation"</u>.

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#### **USB CONNECTOR**

#### [DISPLAY AUDIO WITH AMPLIFIER]

# **USB CONNECTOR**

# Diagnosis Procedure

INFOID:0000000009876568

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1. CHECK USB INTERFACE HARNESS CONTINUITY

- 1. Turn ignition switch OFF.
- 2. Disconnect audio unit connector M172 and USB interface connector M214.
- 3. Check continuity between audio unit connector M172 and USB interface connector M214.

Audio unit		USB interface		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	53		4	
	54	M214	1	
M172	55		2	Yes
	56		3	
	57		5	

4. Check continuity between audio unit connector M172 and ground.

Aud	o unit		Continuity	
Connector	Terminal	_		
M172	53	Ground	No	
IVITIZ	55	Ground		

#### Is the inspection result normal?

YES >> Replace the USB interface. Refer to AV-238, "Removal and Installation".

NO >> Repair or replace harness or connectors.

# **AUDIO SYSTEM**

< SYMPTOM DIAGNOSIS >

# [DISPLAY AUDIO WITH AMPLIFIER]

# SYMPTOM DIAGNOSIS

# **AUDIO SYSTEM**

Symptom Table

#### INFOID:0000000009876569

#### **RELATED TO AUDIO**

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	Audio unit	Malfunction in audio unit.  Refer to AV-156, "On Board Diagnosis  Function".

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# [DISPLAY AUDIO WITH AMPLIFIER]

Symptoms	Check items	Probable malfunction location
	No sound from all speakers.	Speaker circuit shorted to ground. Refer to AV-172, "Wiring Diagram".     Audio amp. ON signal circuit malfunction. Refer to AV-213, "Diagnosis Procedure".     Audio amp. power supply and ground circuits malfunction. Refer to AV-193, "AUDIO AMP: Diagnosis Procedure".
No sound comes out or the level of the sound is low.	Only a certain speaker (front door speaker LH, front door speaker RH, front speaker LH, front speaker RH, center speaker, rear door speaker LH, rear door speaker RH, rear speaker LH, rear speaker RH) does not output sound.	<ul> <li>Poor connector connection of speaker.</li> <li>Sound signal circuit malfunction between audio unit and audio amp. Refer to:  - AV-195, "Diagnosis Procedure" (front door speaker).  - AV-198, "Diagnosis Procedure" (front tweeter).  - AV-201, "Diagnosis Procedure" (center speaker).  - AV-204, "Diagnosis Procedure" (rear door speaker).  - AV-207, "Diagnosis Procedure" (rear door tweeter).</li> <li>Sound signal circuit malfunction between audio amp. and speaker. Refer to:  - AV-195, "Diagnosis Procedure" (front door speaker).  - AV-198, "Diagnosis Procedure" (front tweeter).  - AV-201, "Diagnosis Procedure" (center speaker).  - AV-201, "Diagnosis Procedure" (rear door speaker).  - AV-204, "Diagnosis Procedure" (rear door speaker).  - AV-207, "Diagnosis Procedure" (rear door speaker).  - AV-203, "Removal and Installation" (front tweeter).  - AV-230, "Removal and Installation" (front tweeter).  - AV-231, "Removal and Installation" (rear door speaker).  - AV-233, "Removal and Installation" (rear door tweeterr).  - AV-233, "Removal and Installation" (rear door speaker).  - AV-233, "Removal and Installation" (rear door speaker).  - AV-233, "Removal and Installation" (rear door speaker).  - AV-234, "Diagnosis Procedure of the service of th</li></ul>

# [DISPLAY AUDIO WITH AMPLIFIER]

Symptoms	Check items	Probable malfunction location	
	Noise comes out from all speakers.	<ul> <li>Malfunction in audio unit.         Refer to AV-156, "On Board Diagnosis Function".</li> <li>Malfunction in audio amp.         Replace audio amp. Refer to AV-236, "Removal and Installation".</li> </ul>	
		<ul> <li>Poor connector connection of speaker.</li> <li>Sound signal circuit malfunction between audio unit and audio amp.</li> <li>Refer to:</li> </ul>	
		<ul> <li>AV-195, "Diagnosis Procedure" (front door speaker).</li> <li>AV-198, "Diagnosis Procedure" (front tweeter).</li> </ul>	
		<ul> <li>AV-201, "Diagnosis Procedure" (center speaker).</li> <li>AV-204, "Diagnosis Procedure" (rear</li> </ul>	
		<ul> <li>door speaker).</li> <li>AV-207, "Diagnosis Procedure" (rear door tweeter).</li> <li>Sound signal circuit malfunction between</li> </ul>	
		audio amp. and speaker.  Refer to:  - AV-195, "Diagnosis Procedure" (front door speaker).	
Noise is mixed with audio.	Noise comes out only from a certain speaker (front door speaker LH, front door speaker LH)	<ul> <li>AV-198, "Diagnosis Procedure" (front tweeter).</li> <li>AV-201, "Diagnosis Procedure" (center</li> </ul>	
	er RH, front speaker LH, front speaker RH, center speaker, rear speaker door LH, rear door speaker RH, rear speaker LH, rear	Speaker).  - AV-204 "Diagnosis Procedure" (rear	
	speaker RH).	<ul><li>door tweeter).</li><li>Malfunction in speaker.</li><li>Poor Installation of speaker (e.g. backlash and looseness).</li></ul>	
		Refer to:  - AV-232, "Removal and Installation" (front door speaker).  - AV-230, "Removal and Installation" (front	
		tweeter).  - AV-231, "Removal and Installation" (center speaker).  - AV-233, "Removal and Installation" (rear	
		door speaker).  - AV-233, "Removal and Installation" (rear door tweeter).	
		<ul> <li>Malfunction in audio unit.</li> <li>Refer to <u>AV-156</u>, "On <u>Board Diagnosis</u></li> <li><u>Function</u>".</li> <li>Malfunction in audio amp.</li> </ul>	
		Replace audio amp. Refer to <u>AV-236.</u> "Removal and Installation".	
	Noise is mixed with radio only (when the vehicle hits a bump or while driving over bad roads)	Poor connector connection of antenna or antenna feeder.  Refer to AV-237, "Location of Antenna".	
No radio reception or poor reception.	<ul> <li>Other audio sounds are normal.</li> <li>Any radio station cannot be received or poor reception is caused even after mov- ing to a service area with good reception</li> </ul>		
	(e.g. a place with clear view and no obstacles generating external noises).	antenna feeder.  Refer to AV-237, "Location of Antenna".	

#### **AUDIO SYSTEM**

#### [DISPLAY AUDIO WITH AMPLIFIER]

Symptoms	Check items	Probable malfunction location	
No satellite radio reception.	Satellite radio antenna malfunction.	<ul> <li>Poor continuity in antenna feeder.</li> <li>Poor connector connection of antenna or antenna feeder.</li> <li>Loose satellite radio antenna mounting nut.</li> <li>Refer to <u>AV-237</u>, "<u>Location of Antenna</u>".</li> </ul>	
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.	

#### RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and check that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

#### Check Compatibility

- Make sure the customer's Bluetooth<sup>®</sup> related concern is understood.
- 2. Verify the customer's concern.

#### NOTE:

The customer's phone may be required, depending upon their concern.

3. Write down the customer's phone brand, model and service provider.

#### NOTE:

It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.

- Go to "www.nissanusa.com/bluetooth/".
- a. Using the website's search engine, find out if the customer's phone is on the approved list.
- b. If the customer's phone is NOT on the approved list:
   Stop diagnosis here. The customer needs to obtain a Bluetooth<sup>®</sup> phone that is on the approved list before any further action.
- c. If the feature related to the customer's concern shows as "N" (not compatible): Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as "Y" (compatible) in the "Basic Features".
- d. If the feature related to the customer's concern shows as "Y" (compatible): Perform diagnosis as per the following table.

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection (no connection is displayed on the display at the guide).	Repeat the registration of cellular phone.	
Hands-free phone cannot be established.	<ul> <li>Hands-free phone operation can be made, but the communication cannot be established.</li> <li>Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.</li> </ul>	Malfunction in audio unit. Replace audio unit. Refer to AV-228, "Removal and Installation".
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in Inspection & Adjustment Mode if sound is heard.	
Originating sound is not heard by the other	Sound operation function is normal.	
party with hands-free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-216, "Diagnosis Procedure".

# **AUDIO SYSTEM**

Symptoms	Check items	Probable malfunction location
The system cannot be operated.	<ul> <li>The voice recognition can be controlled.</li> <li>Steering switch's □+, - □, and ⇒ switch works, but √2 for does not work.</li> </ul>	Steering switch malfunction. Replace steering switch. Refer to AV-235. "Removal and Installation".
	Steering switch's √ ← , □ + , □ □, and switches do not work.	Steering switch signal circuit malfunction. Refer to AV-218, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-218, "Diagnosis Procedure".
RELATED TO REAR VIEW C	CAMERA	
Symptoms	Check items	Probable malfunction location
Rear view camera is inoperative.	Reverse signal circuit malfunction.	Reverse signal circuit malfunction between BCM and audio unit. Refer to AV-214, "Diagnosis Procedure".
	Camera image signal circuit malfunction.	Camera image signal circuit malfunction between rear view camera and audio unit. Refer to AV-214, "Diagnosis Procedure".

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#### NORMAL OPERATING CONDITION

[DISPLAY AUDIO WITH AMPLIFIER]

# NORMAL OPERATING CONDITION

Description INFOID:000000009876570

#### RELATED TO NOISE

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

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

Occurrence condition		Possible cause
Occurs only when engine is ON.	nen engine is ON. A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	
The occurrence of the noise is linked 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 operating.	The noise occurs when various motors are operating.	Motor case ground     Motor
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 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>

#### RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection (No connection is displayed on the display at the guide).	Some Bluetooth <sup>®</sup> enabled cellular phones may not be recognized by the in-vehicle phone module.  Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" in <u>AV-221</u> , "Symptom Table".
Cannot use hands-free phone.	Customer will not be able to use a hands-free phone under the following conditions:  • The vehicle is outside of the telephone service area.  • The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area.  • The cellular phone is locked to prevent it from being dialed.  NOTE:
	While a cellular phone is connected through the Bluetooth <sup>®</sup> wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth <sup>®</sup> Hands-Free Phone System cannot charge cellular phones.

# **NORMAL OPERATING CONDITION**

# < SYMPTOM DIAGNOSIS >

# [DISPLAY AUDIO WITH AMPLIFIER]

Symptom	Cause and Counter measure
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality.	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

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# REMOVAL AND INSTALLATION

# **AUDIO UNIT**

#### Removal and Installation

#### INFOID:0000000009876571

#### **AUDIO UNIT**

#### Removal

- 1. Disconnect the battery negative terminal. Refer to PG-79. "Removal and Installation".
- 2. Remove the cluster lid C. Refer to IP-15, "Removal and Installation".
- 3. Remove the audio unit.
- a. Remove the audio unit screws using power tool.
- b. Pull the audio unit out from the instrument panel.
- c. Disconnect the harness connectors from the audio unit.

#### Installation

Installation is in the reverse order of removal.

#### **AV SWITCH**

#### Removal

- 1. Disconnect battery negative terminal. Refer to PG-79, "Removal and Installation".
- 2. Remove the cluster lid C. Refer to IP-15, "Removal and Installation".
- 3. Remove the AV switch screws.
- 4. Carefully remove the AV switch.

#### Installation

Installation is in the reverse order of removal.

#### **SATELLITE RADIO ANTENNA**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITH AMPLIFIER]

# SATELLITE RADIO ANTENNA

#### Removal and Installation

#### INFOID:0000000010159257

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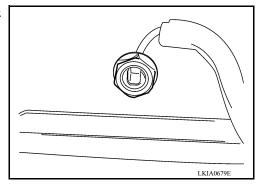
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#### SATELLITE RADIO ANTENNA

#### Removal

- 1. Lower the headliner. Refer to <a href="INT-21">INT-21</a>, "Removal and Installation".
- 2. Disconnect the satellite radio antenna connector.
- 3. Remove the satellite radio antenna nut.
- 4. Remove the satellite radio antenna.



#### Installation

Installation is in the reverse order of removal.

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#### [DISPLAY AUDIO WITH AMPLIFIER]

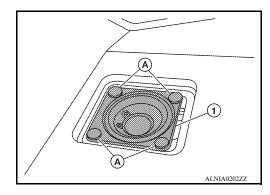
# FRONT TWEETER

# Removal and Installation

#### INFOID:0000000009876572

#### **REMOVAL**

- 1. Remove front tweeter speaker grille, using a suitable tool.
- 2. Remove the front tweeter clips (A).
- 3. Disconnect the front tweeter harness connector.
- 4. Remove the front tweeter (1).



#### Installation

Installation is in the reverse order of removal.

#### **CENTER SPEAKER**

#### < REMOVAL AND INSTALLATION >

#### [DISPLAY AUDIO WITH AMPLIFIER]

# **CENTER SPEAKER**

# Removal and Installation

#### INFOID:0000000009876573

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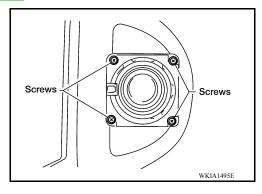
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#### **CENTER SPEAKER**

#### Removal

- 1. Remove the center console. Refer to IP-20, "Removal and Installation".
- 2. Remove the cluster lid D. Refer to IP-15, "Removal and Installation".
- 3. Remove the center speaker screws.
- 4. Disconnect the center speaker harness connector.
- 5. Remove the center speaker.



#### Installation

Installation is in the reverse order of removal.

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# **FRONT DOOR SPEAKER**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITH AMPLIFIER]

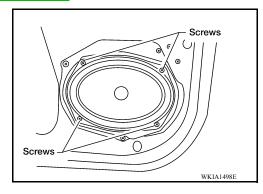
# FRONT DOOR SPEAKER

## Removal and Installation

INFOID:0000000009876574

#### **REMOVAL**

- 1. Remove the front door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation".
- 2. Remove the front door speaker screws.
- 3. Disconnect the front door speaker harness connector.
- 4. Remove the front door speaker.



#### **INSTALLATION**

Installation is in the reverse order of removal.

#### **REAR DOOR SPEAKER**

#### < REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITH AMPLIFIER]

# REAR DOOR SPEAKER

# Removal and Installation

#### INFOID:0000000009876575

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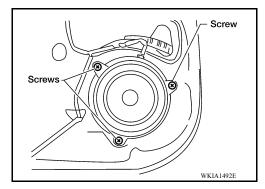
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#### REAR DOOR SPEAKER

#### Removal

- 1. Remove the rear door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation" (Crew Cab) or <a href="INT-10">INT-10</a>, "Removal and Installation" (King Cab).
- 2. Remove the rear door speaker.
- a. Remove the rear door speaker screws.
- b. Disconnect the rear door speaker harness connector.



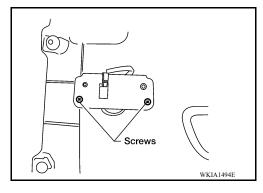
#### Installation

Installation is in the reverse order of removal.

#### REAR DOOR TWEETER

#### Removal

- 1. Remove the rear door finisher. Refer to INT-10, "Removal and Installation".
- Remove the rear door tweeter.
- a. Remove the rear door tweeter screws.
- Disconnect the rear door tweeter harness connector.



#### Installation

Installation is in the reverse order of removal.

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#### [DISPLAY AUDIO WITH AMPLIFIER]

# **SUBWOOFER**

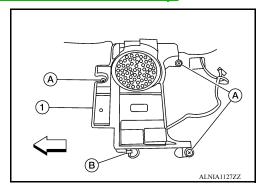
# Removal and Installation

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#### **SUBWOOFER**

#### Removal

- 1. Remove the LH front seat. Refer to SE-34, "Removal and Installation Front Seat Assembly".
- 2. Disconnect the subwoofer harness connector (B).
  - <⊐: Front
- 3. Remove the subwoofer bolts (A).
- 4. Remove the subwoofer (1).



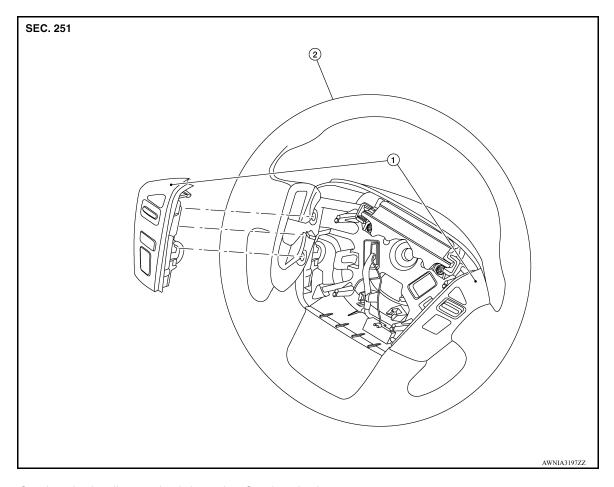
#### Installation

Installation is in the reverse order of removal.

#### [DISPLAY AUDIO WITH AMPLIFIER]

# STEERING SWITCH

# Removal and Installation



1. Steering wheel audio control switches 2. Steering wheel

#### STEERING WHEEL AUDIO CONTROL SWITCHES

#### Removal

- Remove the steering wheel. Refer to <u>ST-22, "Removal and Installation"</u>.
- 2. Remove the steering wheel rear cover screws and the steering wheel rear cover.
- 3. Remove the steering wheel switch assembly screws and the steering wheel switches.

#### Installation

Installation is in the reverse order of removal.

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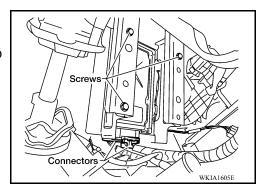
# AUDIO AMP.

## Removal and Installation

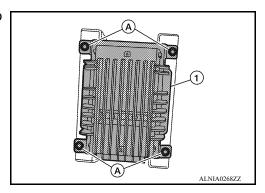
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#### **REMOVAL**

- 1. Remove the accelerator pedal. Refer to ACC-3, "Removal and Installation".
- 2. Remove the BCM. Refer to BCS-52, "Removal and Installation".
- 3. Remove the audio amp.
- a. Disconnect the audio amp. harness connectors.
- b. Remove the audio amp bracket screws and slide the audio amp and bracket assembly down.



4. Remove the audio amp. screws (A) and separate the audio amp. (1) from the bracket.



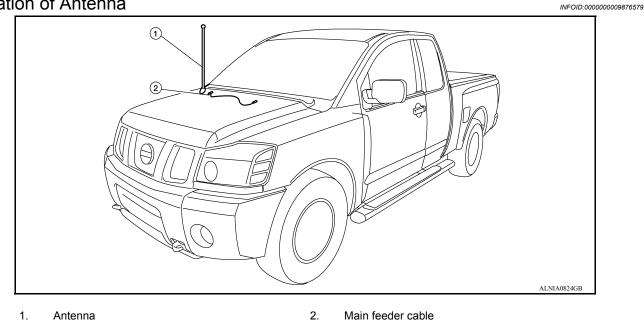
#### **INSTALLATION**

Installation is in the reverse order of removal.

#### [DISPLAY AUDIO WITH AMPLIFIER]

# **AUDIO ANTENNA**

# Location of Antenna



Removal and Installation

Main recacl casis

# REMOVAL

- Remove audio antenna rod.
- 2. Remove audio antenna rubber seal.
- 3. Remove fender protector RH. Refer to EXT-24, "Removal and Installation".
- 4. Remove audio antenna assembly bolts.
- 5. Disconnect the audio antenna feeder from the audio antenna assembly.
- 6. Remove audio antenna assembly from the vehicle.

#### **INSTALLATION**

Installation is in the reverse order of removal.

Tighten audio antenna rod to specification.

Audio antenna rod : 3.5 N·m (0.36 kg-m, 31 in-lb)

#### **CAUTION:**

Always properly tighten the audio antenna rod during installation or the audio antenna rod may bend or break during vehicle operation.

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#### **USB CONNECTOR**

#### < REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITH AMPLIFIER]

# **USB CONNECTOR**

# Removal and Installation

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#### **REMOVAL**

- 1. Remove the center console assembly. Refer to IP-20, "Removal and Installation".
- 2. Push the pawl from the back of the center console to remove the USB interface.

#### **INSTALLATION**

Installation is in the reverse order of removal.

#### **MICROPHONE**

#### < REMOVAL AND INSTALLATION >

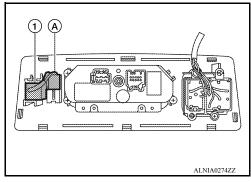
#### [DISPLAY AUDIO WITH AMPLIFIER]

# **MICROPHONE**

# Removal and Installation

#### **REMOVAL**

- 1. Remove the front roof console finisher. Refer to <u>INT-21.</u> "Removal and Installation".
- 2. Remove the Bluetooth microphone (1)
- a. Disconnect the Bluetooth microphone harness connector (A).
- b. Detach the Bluetooth microphone (1) from the front roof console finisher.



#### **INSTALLATION**

Installation is in the reverse order of removal.

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# **TEL ANTENNA**

[DISPLAY AUDIO WITH AMPLIFIER]

# TEL ANTENNA

# Removal and Installation

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The Bluetooth antenna and the Bluetooth control unit are serviced as an assembly. Refer to <u>AV-241, "Removal and Installation"</u>.

#### **BLUETOOTH CONTROL UNIT**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITH AMPLIFIER]

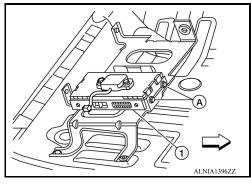
# **BLUETOOTH CONTROL UNIT**

## Removal and Installation

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#### **REMOVAL**

- 1. Disconnect the negative battery terminal.
- 2. Slide the front RH seat forward.
- 3. Remove the Bluetooth control unit kick shield screws and the Bluetooth control unit kick shield.
- 4. Remove the Bluetooth control unit (1).
- a. Remove the Bluetooth control unit screws (A).
- b. Disconnect the harness connectors from the Bluetooth control unit.
  - ⟨□: Front



#### **INSTALLATION**

Installation is in the reverse order of removal.

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#### **REAR VIEW CAMERA**

< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO WITH AMPLIFIER]

# **REAR VIEW CAMERA**

# Removal and Installation

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#### **REMOVAL**

- 1. Remove the tail gate handle. Refer to <u>DLK-137, "Exploded View"</u>.
- 2. Remove the rear view camera screws and the rear view camera from the tail gate handle.

#### **INSTALLATION**

Installation is in the reverse order of removal.

#### **PRECAUTIONS**

< PRECAUTION > [NAVIGATION]

# **PRECAUTION**

## **PRECAUTIONS**

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

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 SR 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 SR 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.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Trouble Diagnosis

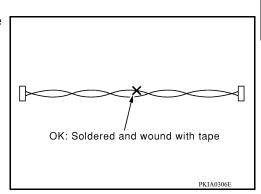
#### AV COMMUNICATION SYSTEM

- 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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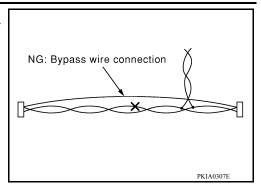
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#### **PRECAUTIONS**

< PRECAUTION > [NAVIGATION]

 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.)



Precaution for Work

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• When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.

- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- · Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

# **PREPARATION**

PREP	AKATION
< PREPARATION >	[NAVIGATION]
PREPARATION	
PREPARATION	

# Special Service Tools The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name		Description	
— (J-46534) Trim Tool Set		Removing trim components	
	AWJIA0483ZZ		

# **Commercial Service Tools**

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Tool name		Description	(
Power tool		Loosening nuts, screws and bolts	
	PIIB1407E		

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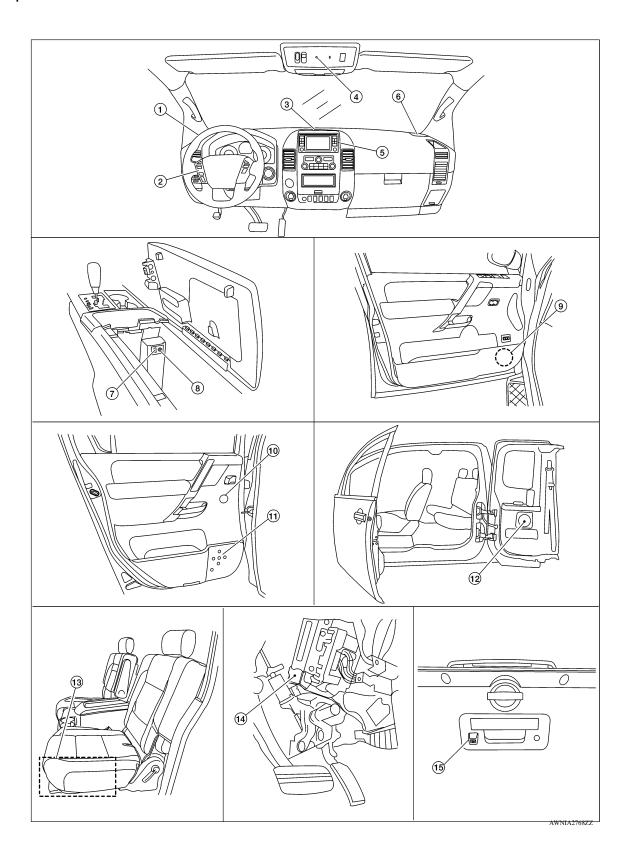
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# SYSTEM DESCRIPTION

# **COMPONENT PARTS**

**Component Parts Location** 

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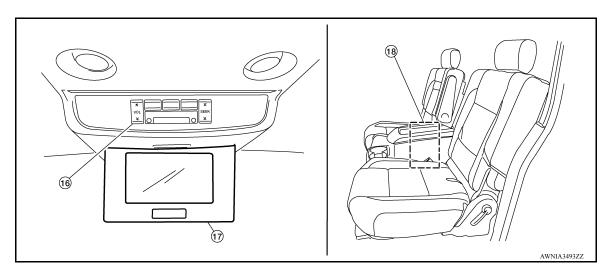
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- 1. Front tweeter LH M109
- 4. Microphone
- 7. USB interface M124
- Rear door tweeter (crew cab)
   LH D208
   RH D308
- 13. Subwoofer B72
- Rear control assembly (if equipped) R204

- 2. Steering wheel audio control switches 3.
- 5. AV control unit M42, M43, M45, M184, 6. M185
- 8. Auxiliary input jacks
- Rear door speaker (crew cab)
   LH D207
   RH D307
- 14. Audio amp M112, M113
- 17. Video monitor (if equipped) R202

- 3. Center speaker M110
- Front tweeter RH M111
- 9. Front door speaker LH D12 RH D112
- Rear door speaker (king cab)
   LH B76
   RH B159
- 15. Rear view camera T2
- 18. DVD player (if equipped) M205, M206

**Component Description** 

INFOID:0000000009876593

Part name	Description
AV control unit	<ul> <li>Operation of navigation and audio systems are integrated.</li> <li>Includes the audio, hands-free phone, navigation, satellite radio, rear view monitor, USB connection and AUX IN connection functions.</li> <li>Map data can be loaded from SD-card inserted in SD-card slot.</li> <li>Audio signals are output to audio amp.</li> <li>Inputs illumination signals required for display dimming control.</li> <li>Inputs signals for driving status recognition (vehicle speed and reverse).</li> <li>Touch panel functions can be operated by touching display directly.</li> </ul>
Map SD-card	A collection of Map data.
Audio amp.	Receives audio signals from AV control unit and outputs audio signals to each speaker.
Front tweeters	
Center speaker	
Front door speakers	Outputs high, mid and low range audio signals from audio amp.
Rear door speakers	
Rear door tweeters	
Steering switches	<ul> <li>Operations for audio, hands-free phone and voice recognition are possible.</li> <li>Steering switch signal is output to combination meter.</li> <li>Combination meter outputs steering switch signal to AV control unit.</li> </ul>
Microphone	<ul> <li>Used for hands-free phone operations.</li> <li>Microphone signal is transmitted to AV control unit.</li> <li>Power is supplied from AV control unit.</li> </ul>
USB interface	USB sound and data input signals are transmitted to AV control unit.

# **COMPONENT PARTS**

# < SYSTEM DESCRIPTION >

[NAVIGATION]

Part name	Description
Rear view camera	<ul> <li>Outputs image of vehicle rear to AV control unit.</li> <li>Power is supplied from AV control unit.</li> </ul>
Satellite antenna	Satellite radio signal is received and transmitted to AV control unit.
GPS antenna	GPS signal is received and transmitted to AV control unit.
Antenna amp.	<ul> <li>AM/FM signal received by window antenna is amplified and transmitted to AV control unit.</li> <li>Power is supplied from AV control unit.</li> </ul>
Window antenna	AM/FM signal is received and transmitted to antenna amp.
DVD player	<ul> <li>Outputs DVD video to video monitor.</li> <li>Outputs DVD audio to AV control unit via AUX JACK.</li> </ul>
Video monitor	Receives and displays the DVD video signal.
Rear control assembly	<ul> <li>Audio and DVD functions can be operated.</li> <li>Switch signal is output to the DVD player.</li> <li>Receives audio signal from DVD player for headphones.</li> </ul>

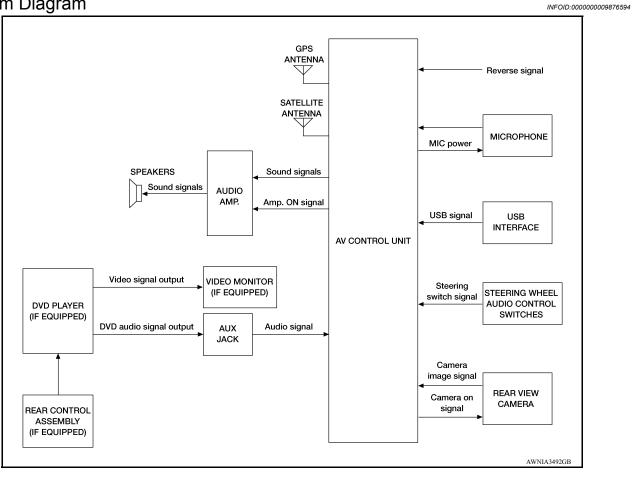
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## **SYSTEM**

System Diagram



# System Description

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

Audio function and display are built into AV control unit.

This navigation has the following functions.

- · Map data on SD-card
- Full support for playback of music from iPod<sup>®</sup> and USB device
- High resolution color 5 inch display with touch panel function
- · FM/AM twin digital tuner
- USB mass storage connection
- · Satellite radio
- · Hands-free phone system

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

#### NAVIGATION SYSTEM FUNCTION

#### Description

- The navigation system can be operated by control panel of the AV control unit and display (touch panel) of the AV control unit.
- Guide sound during the operation of the navigation system is output from AV control unit to front speakers.
- AV control unit calculates the vehicle location based on the signals from GYRO (angle speed sensor), vehicle sensor, and GPS satellite, as well as the map data from map SD-card. The vehicle location is displayed on the AV control unit.

#### POSITION DETECTION PRINCIPLE

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

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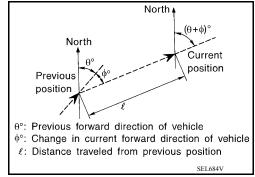
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- Turning angle of the vehicle as determined by the gyroscope (angular velocity sensor)
- Direction of vehicle travel as determined by the GPS antenna (GPS information)

The current position of the vehicle is then identified by comparing the calculated vehicle position with map data read from the map SD-card (map-matching), and indicated on the screen as a vehicle mark. More accurate data is judged and used by comparing vehicle position detection results found by the GPS with the result by map-matching.

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

- Travel distance
  - Travel distance calculations are based on the vehicle speed sensor input signal. Therefore, the calculation may become incorrect as the tires wear down. To prevent this, an automatic distance correction 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). They have both advantages and disadvantages.



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

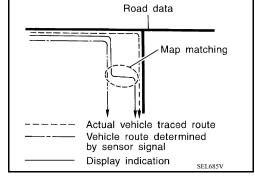
More accurate traveling direction is detected because priorities are set for the signals from these two devices according to the situation.

#### MAP-MATCHING

Map-matching compares a current location detected by the method in the "Location Detection Principle" with a road map data from map SD-card.

#### NOTE:

The road map data is based on data stored in the map SD-card.

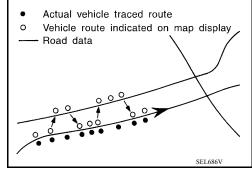


The vehicle position may not be corrected under the following circumstances and after driving for a certain time when GPS information is difficult to receive. In this case, the vehicle mark on the display must be corrected manually.

 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 vehicle mark has been repositioned.

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

Routes are of the same priority if two roads are running in parallel. Therefore, the vehicle mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road.



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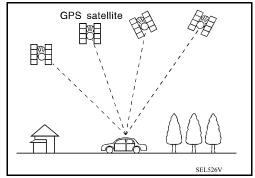
- Map-matching does not function correctly when a road on which the vehicle is driving is new and not recorded in the map SD-card, or when road pattern stored in the map data and the actual road pattern are different due to repair.
- The map-matching function may find another road and position the vehicle mark on it when driving on a road not present in the map. Then, the vehicle mark may change to it when the correct road is detected.
- Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data read from the map SD-card is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position and the position on the map.

# · Actual vehicle traced route · Vehicle route indicated on map display -Road data Newly constructed road (Road data not registered on DVD-ROM map)

#### GPS (Global Positioning System)

GPS (Global Positioning System) is developed for and is controlled by the US Department of Defense. The system utilizes GPS satellites (NAVSTAR), transmitting out radio waves while flying on an orbit around the earth at an altitude of approximately 21,000 km (13,049 mile).

The receiver calculates the travel position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves that four or more GPS satellites transmit (three-dimensional positioning). The GPS receiver calculates the travel position in two dimensions (latitude/longitude) with the previous altitude data if the GPS receiver receives only three radio waves (two-dimensional positioning). GPS position correction is not performed while stopping the vehicle.



Accuracy of the GPS will deteriorate under the following conditions:

- In two-dimensional positioning, GPS accuracy will deteriorate when altitude of the vehicle position changes.
- The position of GPS satellite affects GPS detection precision. The position detection may not be precisely performed.
- The position detection is not performed if GPS receiver does not receive radio waves from GPS satellites. (Inside a tunnel, parking in a building, under an elevated highway etc.) GPS receiver may not receive radio waves from GPS satellites if any object is placed on the GPS antenna.

#### NOTE:

- The detection result has an error of approximately 10 m (32.81 ft) even with a high-precision three dimensional positioning.
- There may be cases when the accuracy is lowered and radio waves are stopped intentionally because the GPS satellite signal is controlled by the US trace control center.

#### SATELLITE RADIO FUNCTION

- Satellite radio function is built into AV control unit.
- Sound signal (satellite radio) is received by satellite antenna and transmitted to AV control unit. AV control unit outputs sound signal to each speaker.

#### **AUXILIARY INPUT FUNCTION**

- Sound can be output from an external device by connecting a device with USB connector and AUX jack.
- AUX sound signals are transmitted to each speaker via AV control unit.

#### REAR VIEW MONITOR FUNCTION

Camera Image Operation Principle

- The ITS control unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the ITS control unit when power is supplied from the ITS control unit.
- The ITS control unit transmits camera images to the AV control unit.
- The AV control unit combines a warning message and fixed guide lines with an image received from the ITS control unit to display a rear view camera image on the screen.

#### USB CONNECTION FUNCTION

iPod<sup>®</sup> or music files in USB memory can be played.

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[NAVIGATION]

- Sound signals are transmitted from USB connector and AUX jack to the AV control unit and output to each speaker and tweeter.
- iPod<sup>®</sup> is recharged when connected to USB connector and AUX jack.

#### NOTE:

Use the enclosed USB harness when connecting iPod® to USB connector and AUX jack.

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

#### 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.

#### HANDS-FREE PHONE SYSTEM

- Bluetooth<sup>®</sup> control is built into AV control unit.
- The connection between cellular phone and AV control unit is performed with Bluetooth® communication.
- The voice guidance signal is input from the AV control unit and output to the front speakers when operating the cellular phone.

#### When A Call Is Originated

- Spoken voice sound output from the microphone (microphone signal) is input to AV control unit.
- AV control unit outputs to cellular phone with Bluetooth® communication as a TEL voice signal.
- · Voice sound is then heard at the other party.

#### When Receiving A Call

- · Voice sound is input to own cellular phone from the other party.
- TEL voice signal is input to AV control unit by establishing Bluetooth® communication from cellular phone, and the signal is output to front speakers.

#### **DVD PLAYER SYSTEM**

The DVD entertainment system consists of the following components

- · DVD player
- Video monitor
- · Rear control assembly

When the DVD entertainment system is on, video signals are sent from the DVD player to the video monitor. Audio signals are sent to the AV control unit via AUX JACK. Audio signals can be directed through the wireless infrared headphones or through the audio amp. to the vehicle speakers. Refer to the Owner's Manual for complete DVD entertainment system operating instructions.

# **DIAGNOSIS SYSTEM (AV CONTROL UNIT)**

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# DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description INFOID:000000009876596

The AV control unit on board diagnosis performs the functions listed in the table below:

	Mode	Item	Content
,	Version	_	Version data of the AV control unit is displayed.
User Configuration	Touch Display Calibration	_	Allows correction of the position detection accuracy of the touch panel.
	FM monitor	_	Monitors the dynamic values of the cur-
	AM monitor	_	rent tuner
Radio	XM monitor	_	Version data is displayed.
	XM functions	<ul> <li>Clear XM Chipset NVM</li> <li>Reset All XM Settings</li> <li>Clear IGS</li> <li>XM CBM Debug Mode</li> <li>External Diag Mode</li> </ul>	Current status is displayed.
System State	Running System Status	SD card slot Access     Power Supply     Speed Signal     Direction Signal     Illumination Signal     GPS Antenna     GPS Tracking     Satellites Visible     Satellites Tracked     BTHFU Status     Radio Antenna     USB Device     iPod® firmware version     Steering wheel key	The current system status is displayed.
·	Speaker Test 4kHz Speaker Test 100Hz	_	This activates a sequence of test tone outputs to the audio circuits one after the other for 1 second.
	Display-Test	_	This provides a test sequence where test displays (plain colored display: e.g. white, black, red, blue, green) are shown one after the other.  The respective color is shown for an indicated period of time (parameter). After the display test, the design of the display previously available is stored. While the screen shows a plain colored display, a pixel malfunction may be detected.
S	Self Test	SD Card Access     Radio Antenna     GPS Antenna     XM Antenna	A system self test is executed and the results are stored into the error memory

Perform CONSULT diagnosis if the AV control unit on board diagnosis does not start or the screen does not display anything.

# On Board Diagnosis Function

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## METHOD OF STARTING

- 1. Turn the ignition ON.
- Turn the audio system OFF.

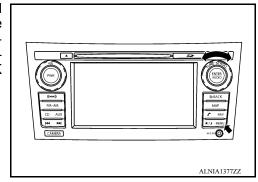
Revision: April 2014 AV-253 2014 Titan

## **DIAGNOSIS SYSTEM (AV CONTROL UNIT)**

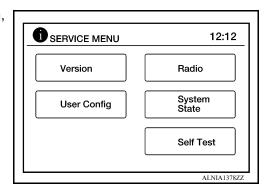
#### < SYSTEM DESCRIPTION >

[NAVIGATION]

3. While pressing the MENU button, turn the TUNE-SCROLL dial counterclockwise 3 or more clicks, then clockwise 3 or more clicks, then counterclockwise 3 or more clicks. When self diagnosis mode begins, a short beep will be heard. Shifting from current screen to previous screen is performed by pressing BACK button.



4. The trouble diagnosis initial screen is displayed, and Version, User Config, Radio, System State or Self Test can be selected.



## **CONSULT Function**

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#### CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the AV control unit.

Direct Diagnostic Mode	Description
Ecu Identification	The AV control unit part number is displayed.
Self Diagnostic Result	The AV control unit self diagnostic results are displayed.
Data Monitor	The AV control unit input/output data is displayed in real time.
Configuration	<ul> <li>The vehicle specification can be read and saved.</li> <li>The vehicle specification can be written when replacing AV control unit.</li> </ul>
CAN Diag Support Mntr	<ul> <li>The result of transmit/receive diagnosis of AV communication is displayed.</li> <li>The result of transmit/receive diagnosis of CAN communication is displayed.</li> </ul>

#### **ECU IDENTIFICATION**

The part number of AV control unit is displayed.

#### SELF DIAGNOSTIC RESULT

Refer to AV-258, "DTC Index".

#### **DATA MONITOR**

Monitor Item [Unit]	Description
VHCL SPD SIG [On/Off]	Indicates vehicle speed signal received from combination meter on CAN communication line.
ILLUM SIG [On/Off]	Indicates condition of illumination signal for the AV control unit.
IGN SIG [On/Off]	Indicates condition of ignition signal.
REV SIG [On/Off]	Indicates condition of reverse signal received from BCM.

#### CONFIGURATION

Refer to AV-288, "CONFIGURATION (AV CONTROL UNIT): Description".

## CAN DIAG SUPPORT MNTR

Refer to LAN-10, "CAN Diagnostic Support Monitor".

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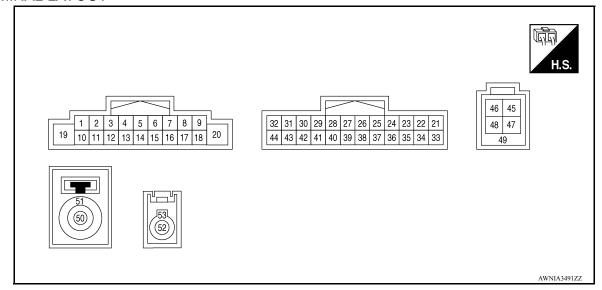
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# **ECU DIAGNOSIS INFORMATION**

# AV CONTROL UNIT

Reference Value

## **TERMINAL LAYOUT**



## PHYSICAL VALUES

Terminal (Wire color)		Description			Condition	Reference value
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
1 (G/W)	Ground	Amp. ON signal	Output	ACC	_	Battery voltage
2 (Y)	3 (BR)	Sound signal front speaker LH	Output	ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
4 (BR)	5 (B/R)	Sound signal rear speaker LH	Output	ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
					Press and hold SOURCE switch.	0V
				Ignition	Press and hold $\Delta$ switch.	1.0V
6 15 (R) (L)	Steering switch signal A	Input	switch	Press and hold $\nabla$ switch.	2.0V	
			ON	Press and hold 🎉 🌈 switch.	3.0V	
				Except for above.	5.0V	

## < ECU DIAGNOSIS INFORMATION >

19 (Y)         Ground         Battery power supply         Input         OFF         —         Battery voltage           20 (B)         Ground         Ground         —         ON         —         0 V           231 (SB)         —         MR output         —         —         —         —           232 —         —         MR output         —         —         —         —			DOIO IN OTAMATION				
To Signal name Output switch Operation  7 (V) Ground ACC power supply Input ACC — Battery voltage  8 (L) — CAN (H) Output — — — — — — — — — — — — — — — — — — —			Description			Condition	Reference value
CAN (H)   Input   Input   CAN (H)   Input	+	_	Signal name			Operation	(Approx.)
CLU CAN (III) Output — — — Battery voltage  (RZL) (BR) (BR) Illumination control signal Input ON Headlamps ON Battery voltage  10 — Shield — — — — — — — — — — — — — — — — — — —		Ground	ACC power supply	Input	ACC	_	Battery voltage
RR   Sound signal front speaker   Output   ON   Sound output   ON   ON   ON   ON   ON   ON   ON   O		_	CAN (H)			_	_
Sound signal front speaker (New (New Press and hold (New Press and			Illumination control signal	Input	ON	Headlamps ON	Battery voltage
11 (W) (B) RH Sound signal front speaker (W) (B) RH Sound signal rear speaker (C) (A) Sound output (C) (C) (A) Sound output (C)	10	_	Shield	_	_	_	_
13 (L) (B/W) RH Sound signal rear speaker RH (B/W) RH Sound output ON Sound output OV Sound ou				Output	ON	Sound output	1 0 -1 ****2ms
Steering switch signal B   Input   Ignition switch   Press and hold □ + switch   Pr				Output	ON	Sound output	1 0 -1 -2ms
Steering switch signal B  Input   Switch   Press and hold   Switch   Switch   Press and hold   Switch   Switch   Switch   Switch   Press and hold   Switch   Switch   Switch   Switch   Switch   Except for above   S.0V    Input   ON   When vehicle speed is approx. 40 km/h (25 MPH)   ON   Switch   Swit							0V
Except for above 5.0V    17			Steering switch signal B	Input	switch	Press and hold <b>□</b> + switch	1.0V
17						Press and hold A switch	2.0V
(P) CAN (L) Output — — — — — — — — — — — — — — — — — — —						Except for above	5.0V
19   Ground   Battery power supply   Input   OFF   —   Battery voltage     20   Ground   Ground   — ON   — 0 V     231   — MR output   — — — — — — — — — — — — — — — — — —		_	CAN (L)	Input/ Output	_	_	_
(Y)         Ground         Battery power supply         Input         OFF         —         Battery voltage           20 (B)         Ground         Ground         —         ON         —         0 V           231 (SB)         —         MR output         —         —         —           232 —         —         MR output         —         —         —		Ground	Vehicle speed signal	Input	ON		
(B)         Ground         Ground         —         ON         —         0 V           231 (SB)         —         MR output         —         —         —         —           232 —         —         MR output         —         —         —         —		Ground	Battery power supply	Input	OFF	_	Battery voltage
(SB) — MR output — — — — — — — — — — — — — — — — — — —		Ground	Ground	_	ON	_	0 V
		_	MR output		_	_	_
(R/L)	23 <sup>2</sup> (R/L)	_	MR output	_		_	

# **AV CONTROL UNIT**

# < ECU DIAGNOSIS INFORMATION >

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Terminal (Wire color)		Description			Condition	Reference value
+	_	Signal name	Input/ Output	Ignition switch	Operation	(Approx.)
28 (G/W)	Ground	Reverse signal	Input	ON	Selector lever in R (reverse)  Selector lever in any position of the P (reverse)	Battery voltage
30 (W)	_	Audio L	Input	_	tion other than R (reverse)  —	_
31 (R)	_	Audio ground	_	_	_	_
32 (B)	_	Audio R	Input	_	_	_
33 (B)	Ground	Rear view camera video signal ground	_	ON	_	0 V
34 (W)	_	Rear view camera ON	_	_	_	_
36 (R)	35 (Shield)	Camera image signal	Input	ON	When camera image is displayed	(V) 0. 4 0 -0. 4 -40μs SKIB2251J
37 (G/R)	Ground	Ignition power supply	Input	ON or START	_	Battery voltage
42 (W)	Ground	Microphone power supply	Output	ON	_	5.0 V
43 (B)	41 (Shield)	Microphone signal	Input	ON	While speaking into microphone.	(V) 1 0 -1 + 2ms SKIB3609E
45 (G)	_	USB ground	_	_	_	_
46 (R)	_	USB D- signal	_	_	_	_
47 (L)	_	USB D+ signal	_	_	_	_
48 (W)	_	V BUS signal	_	_	_	_
49	_	Shield	_	_		
50 (B)	_	GPS antenna signal	_	_	_	
51 (B)	_	Shield	_	_		
52 (B)	_	Satellite antenna signal	_	_		_
53 (B)	_	Shield	_	_	_	_

# < ECU DIAGNOSIS INFORMATION >

DTC Index

CONSULT Display	Reference Page
U1000: CAN COMM CIRCUIT	AV-290, "DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-291, "DTC Logic"
U1217: BLUETOOTH MODULE	AV-292, "DTC Logic"
U1229: iPod CERTIFICATION	AV-293, "DTC Logic"
U122F: Digital broadcasting connection error	AV-294, "DTC Logic"
U1244: GPS ANTENNA CONN	AV-295, "DTC Logic"
U1258: XM ANTENNA CONN	AV-296, "DTC Logic"
U1263: USB OVERCURRENT	AV-297, "DTC Logic"
U1265: AMP ON TERMINAL	AV-298, "DTC Logic"
U12AA: Configuration Error	AV-299, "DTC Logic"
U12AB: FM Antenna error	AV-300, "DTC Logic"
U12AC: Display Temperature too High	AV-301, "DTC Logic"
U12AD: ECU Temperature too High	AV-302, "DTC Logic"
U12AE: Internal Amplifier temperature Warning	AV-303, "DTC Logic"
U12AF: CD Mechanism Temperature Warning	AV-304, "DTC Logic"
U12B0: Supply Voltage Goes below 9V > 20s	AV-305, "DTC Logic"
U12B1: Supply Voltage Goes High > 16V for 20s	AV-306, "DTC Logic"
U1310: CONTROL UNIT (AV)	AV-307, "DTC Logic"

<sup>&</sup>lt;sup>1</sup>: without rear entertainment system

<sup>&</sup>lt;sup>2</sup>: with rear entertainment system

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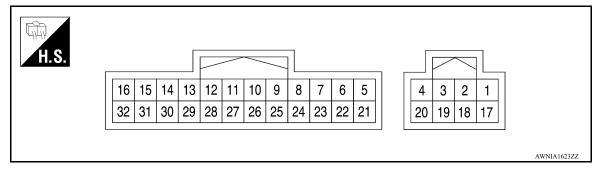
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# **AUDIO AMP**

Reference Value

## **TERMINAL LAYOUT**



## PHYSICAL VALUES

				ı		
	ninal color)	Item	Signal input/	Condition		Reference value (Approx.)
+	_		output			(* \$\beta(*)
1 (Y)	Ground	Battery	Input	_	_	Battery voltage
2 (W)	18 (B)	Subwoofer	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E
3 (BR/W)	19 (BR)	Subwoofer	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E
4 (B)	Ground	Ground	-	Ignition switch ON	-	_
9 (G/W)	Ground	Amp. ON signal	Input	Ignition switch ON	-	More than 6.5V
10 (L/W)	26 (L/B)	Center speaker	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms

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	ninal color)	Item	Signal input/		Condition	Reference value	
+	_		output			(Approx.)	
11 (SB)	27 (B/Y)	Rear door speak- er LH and rear door tweeter LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms \$\frac{1}{2}\$ SKIA0177E	
12 (O/L)	28 (R/L)	Rear door speak- er RH and rear door tweeter RH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms	
13 (W/B)	29 (L/B)	Front door tweet- er RH	Output	lgnition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms	
14 (L/W)	30 (L/R)	Front tweeter LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms	
15 (L/W)	31 (L/R)	Front door speak- er LH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	
16 (W/B)	32 (L/B)	Front door speak- er RH	Output	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms \$\frac{1}{2}\$ SKIA0177E	
17 (Y/G)	Ground	Battery	Input	_	_	Battery voltage	
20 (B)	Ground	Ground	-	Ignition switch ON	_	_	

# **AUDIO AMP**

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	ninal color)	Item	Signal input/ output	Condition		Reference value (Approx.)
21 (W)	5 (B)	Audio sound sig- nal front RH	Input	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms
22 (Y)	6 (BR)	Audio sound sig- nal front LH	Input	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E
23 (L)	7 (B/W)	Audio sound sig- nal rear RH	Input	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms
24 (BR)	8 (B/R)	Audio sound sig- nal rear LH	Input	Ignition switch ON	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E

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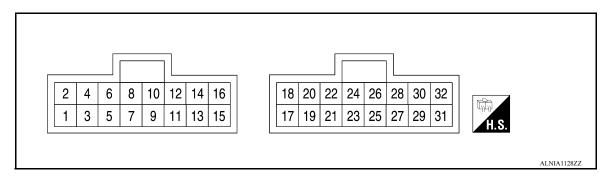
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# **DVD PLAYER**

Reference Value



## PHYSICAL VALUES

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (B)	2 (W)	DVD audio signal LH	Output	Ignition switch ON	With operation of the DVD player	(V) 1 0 -1 + 2ms SKIB3609E
3 (R)	4 (G)	DVD audio signal RH	Output	Ignition switch ON	With DVD player operation	(V) 1 0 -1 + 2ms SKIB3609E
9 (S/B)	Ground	Audio ON	Output	Ignition switch ON	With DVD player operation	Battery voltage
10 (BR)	Ground	Illumination control	Input	Ignition switch ON	With lighting switch in 1st or 2nd position	Varies between 0 and Battery voltage
11 (S/B)	Ground	Family entertainment system enable	Input	Ignition switch ON	With DVD player operation	Battery voltage
12 (R/L)	Ground	Illumination power	Input	Ignition switch ON	With lighting switch in 1st or 2nd position	Battery voltage
15 (V)	Ground	ACC power	Input	Ignition switch ACC or ON	_	Battery voltage
16 (Y)	Ground	Battery power	Input	_	_	Battery voltage

# **DVD PLAYER**

# < ECU DIAGNOSIS INFORMATION >

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	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
17 (R)	Ground	Common	_	Ignition switch ON	1	0V	
18 (B)	Ground	DVD audio signal L	Output	_	_	_	
19 (B/W)	Ground	Ground	_	Ignition switch ON	_	0V	
20 (W)	Ground	DVD audio signal R	Outputt			_	
21 (G/Y)	Ground	Switch power	Output	Ignition switch ON	With DVD player operation	5V	
22 (B)	Ground	Ground	_	Ignition switch ON	_	0V	
23 (B/W)	Ground	VTR (+)	Output	Ignition switch ON	With DVD player operation	_	
24 (L)	Ground	VTR (-)	Output	Ignition switch ON	With DVD player operation	_	
26	_	Shield	_	_	_	_	
27 (B/Y)	Ground	Ground	_	Ignition switch ON	_	0V	
28 (Y)	_	Data receive	Input	_	_	_	
29 (BR)	_	Data transmit	Output	_	_	_	
31 (SB)	Ground	Battery power	Output	_	_	Battery voltage	
32 (BR)	Ground	Battery power	Output		_	Battery voltage	

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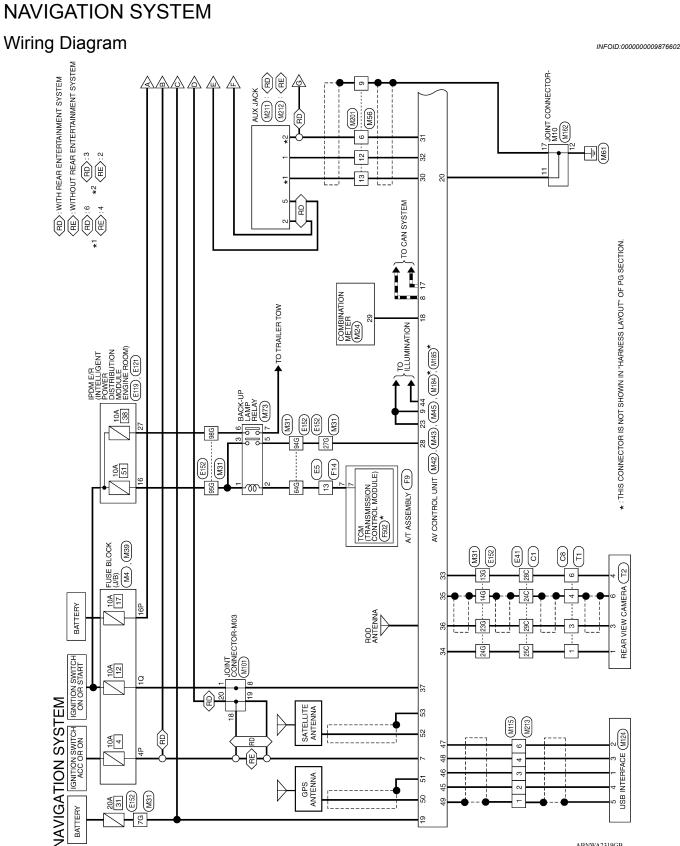
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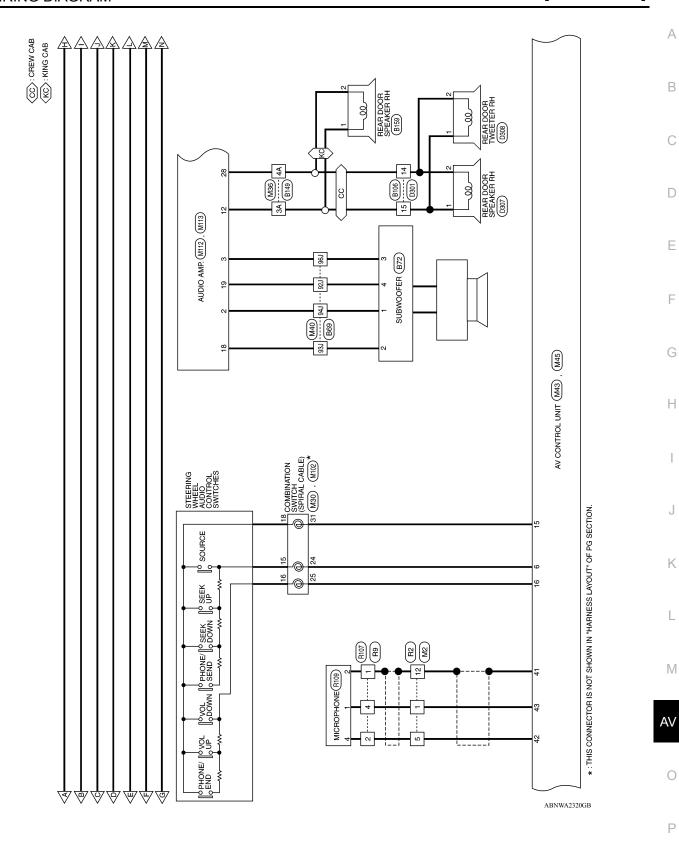
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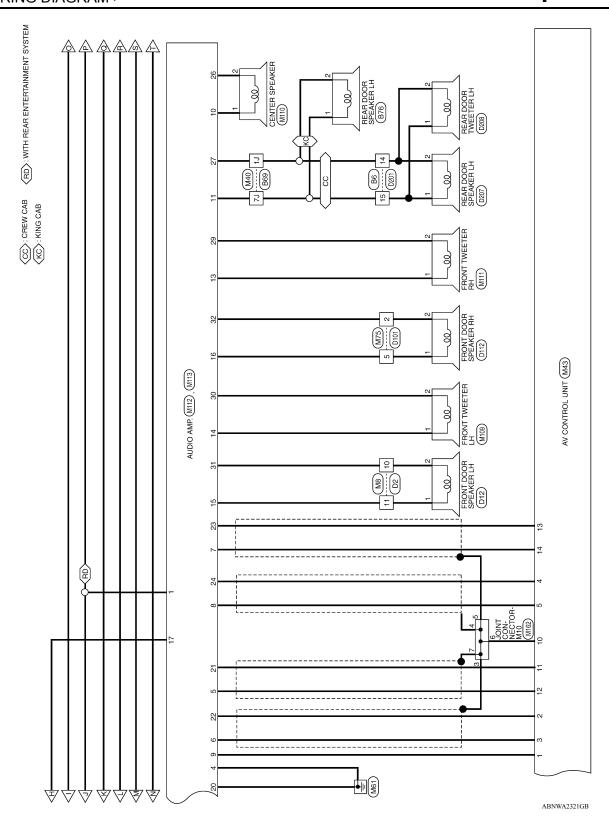
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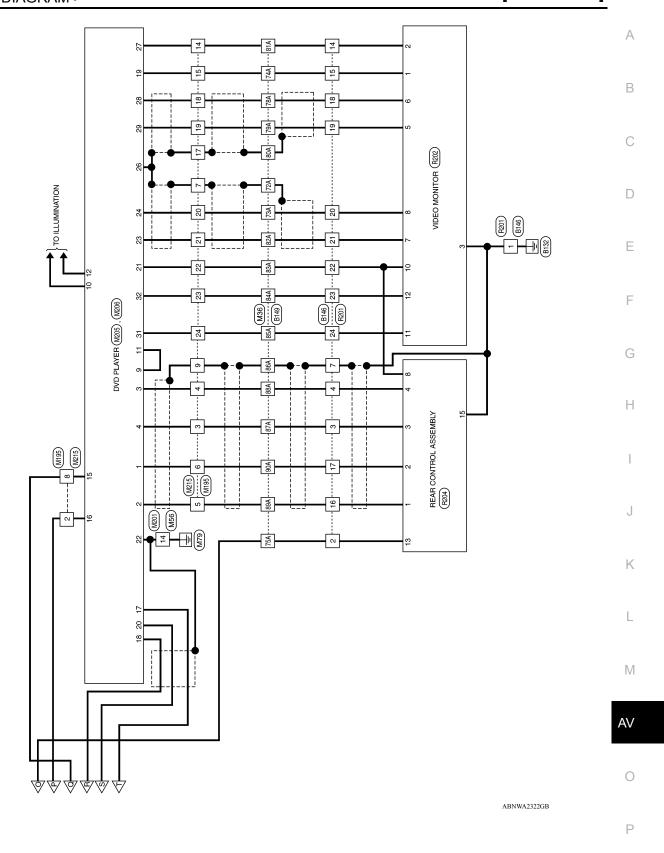
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# WIRING DIAGRAM









Connector Name | WIRE TO WIRE Connector Color | WHITE

Connector Name | FUSE BLOCK (J/B)

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Connector No.

Connector Color WHITE

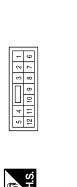
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Connector No.

# NAVIGATION SYSTEM CONNECTORS







7P 6P 5P 4P 3P 2P 1P 16P 15P 15P 11P 10P 9P 8P

	(IV	(I)	(I)
Signal Name	- (WITH NAVI)	- (WITH NAVI)	- (WITH NAVI)
Color of Wire	В	*	SHIELD
Terminal No.	-	2	12

Signal Name	I	ı
Color of Wire	L/R	L/W
Terminal No. Wire	10	11

Signal Name	ì	Ī	
Color of Wire	^	Y/G	
Terminal No.	4P	16P	

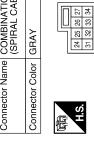


Connector Name COMBINATION METER

M24

Connector No.

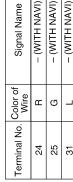
Connector Color WHITE



Signal Name SPEED OUT

Color of Wire W/R

Terminal No. 29



Signal Name	WITH NAVI	WITH NAVI	WITH NAVI
Color of Wire	В	G	Т
Terminal No. Wire	24	22	31

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Signal Name	ı	ı	1	ı	ı																					
Color of Wire	SHIELD	ŋ	Œ	Μ	В																					
Terminal No.	86A	87A	88A	89A	90A																					
_ '	I		F								1]															
M36 WIRF TO WIRE	1	1		14 04 04 45 5A	84 44 84 94	5A 16A 1	31A 32A 33A 34A 35A 36A 37A 38A 30A 40A 41A 42A 43A 44A 45A 46A 47A 48A 49A 50A	51A 52A 53A 54A 55A 56A 57A 58A 59A 60A 61A 62A 63A 64A 65A 66A 67A 68A 69A 70A	71A 72A 73A 74A 75A 76A 77A 78A 79A 80A 81A 82A 83A 84A 65A 86A 87A 88A 89A 90A	91A 92A 93A 94A 95A 96A 97A 98A 99A 100A		Signal Name	1	-	ı	I	I	I	-	ı	I	I	ı	1	-	1
o. M36	olor WHITE	-				11A 12A 13A	31A 32A 33A 42A 43A	51A 52A 53A 62A 63A	71A 72A 73A 82A 83A			Color of Wire	O/L	R/L	SHIELD	_	B/W	ш	Y	BR	SHIELD	В/У	B/W	G/Y	BR	SB
Connector No.	Connector Color				<u>.</u>							Terminal No.	3A	4A	72A	73A	74A	75A	78A	79A	80A	81A	82A	83A	84A	85A
			F								7															
E TO WIRE		ı		16 26 36 46 56	_	1 - 1 0 1	326 336 346 356 366 376 386 396 406 416  426 436 446 456 466 476 486 496 506	54G 55G 56G 57G 58G 59G 60G 61G  64G 65G 66G 67G 68G 69G 70G	74G 75G 76G 77G 78G 79G 80G 81G  84G 85G 86G 87G 88G 89G 90G	91G 92G 93G 94G 95G 96G 97G 98C 99G 100G		Signal Name	I	ı	I	ı	1	I	ı	ı	_	_				
o. M31	olor WHITE	_				11G12G13G14G15G 22G23G24G25G	31G32G33G34G35G 42G43G44G45G	51G 52G 53G 54G 55G 62G 63G 64G 65G	71G72G73G74G75G 82G83G84G85G			Color of Wire	>	В	SHIELD	œ	>	G/W	Œ	G/W	g	W/B				
Connector No. M31 Connector Name WIRE TO	Connector Color			S.	2							Terminal No.	76	13G	14G	23G	24G	27G	64G	94G	95G	98G				

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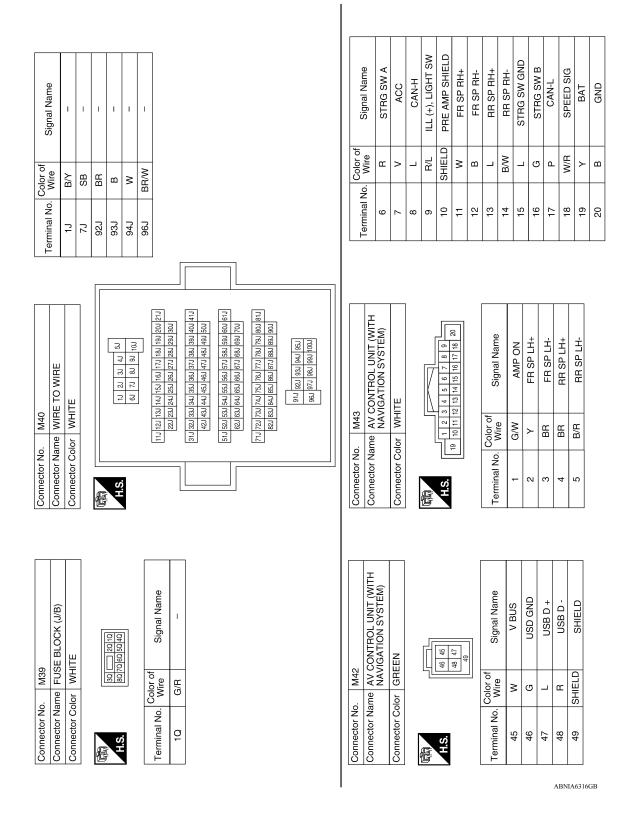
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Connector No.		M56	
Connector Name		WIR	WIRE TO WIRE
Connector Color	olor	WHITE	ПЕ
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Terminal No.	Color of Wire	e of	Signal Name
9	Œ		ı
6	SHIELD	רם	1
12	В		-
13	8		1
14	Ф		ı
		1	

Signal Name	1	AUDIO L	AUDIO GND	AUDIO R	GND	CAMERA ON	COMP-	COMP+	IGN	1	-	1	MIC GND	MIC VCC	MIC SIGNAL	ILL (-)
Color of Wire	1	W	ш	В	В	Μ	SHIELD	ш	G/R	ı	ı	ı	SHIELD	W	В	BR
Terminal No.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44

10	AV CONTROL UNIT (WITH NAVIGATION SYSTEM)	WHITE	23 28 27 28 25 24 23 22 21 41 40 39 38 37 36 35 34 33	Signal Name	ı	ı	MR OUTPUT (WITHOUT REAR ENTERTAINMENT SYSTEM)	MR OUTPUT (WITH REAR ENTERTAINMENT SYSTEM)	-	ı	-	ı	REVERSE SIGNAL
. M45		_	32 31 30 2 44 43 42 4	Color of Wire	ı	ı	SB	R/L	I	1	1	ı	G/W
Connector No.	Connector Name	Connector Color	斯 H.S.	Terminal No.	21	22	23	23	24	25	56	27	28

M101 JOINT CONNECTOR-M03	<u>Е</u>	7 6 5 4 3 2 1 7 16 15 14 13 12 11 10	Signal Name	ı	-	=	ı	_
l e	lor BLUE	9 8 8 19 18	Color of Wire	G/R	G/R	۸	>	^
Connector No. Connector Name	Connector Color	H.S.	Terminal No.	-	8	18	19	20

	E TO WIRE	ІТЕ	9 9 8 4 1	Signal Name	1	I
. M75	me WIF	lor WHITE	4 10	Color of Wire	L/B	M/B
Connector No.	Connector Name WIRE TO WIRE	Connector Color	南 H.S.	Terminal No.	2	5

			1							
8	BACK-UP LAMP RELAY	BROWN	2   2   2   2   2   2   2   2   2   2	Signal Name	ı	I	Ι	I	ı	ı
. M73		-		Color of Wire	9	В	G	G/W	W/B	Y/R
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	-	2	8	5	9	7

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Revision: April 2014 AV-271 2014 Titan

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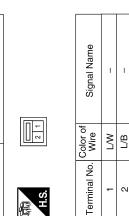
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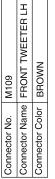
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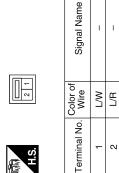
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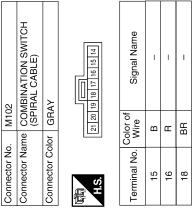
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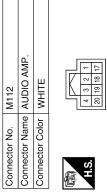
	Connector No.	M110
ETER LH	Connector Name	onnector Name   CENTER SPEAKER
	Connector Color BROWN	BROWN





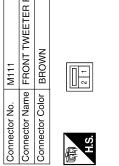


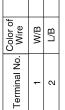




AUDIO AMP.	ITE	3 2 2 181 171	Signal Name	BAT	WOOFER 1+	WOOFER 2+	GND	BAT	WOOFER 1-	WOOFER 2-	GND
	lor WHITE	4 02	Color of Wire	>	8	BR/W	В	Y/G	В	BR	В
Connector Name	Connector Color	H.S.	Terminal No.	F	2	8	4	17	18	19	20

M111	ector Name FRONT TWEETER RH	BROWN	
ector No.	ector Name	ector Color	





Signal Name

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M115	Connector Name WIRE TO WIRE	GRAY	1	Color of Signal Name	SHIELD –		- -	H	
l o	ame	olor		రి >	R				
Connector No.	Connector N	Connector Color	语.S.H	Terminal No.	-	5	က	4	9

FR RH OUT+ FR LH OUT+

FR RH IN+

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FR LH IN+

RR RH IN+ RR LH IN+

Signal Name FR RH TW+ FR LH TW+

Color of Wire W/B Š  $\stackrel{>}{\vdash}$ W/B

Terminal No.

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Signal Name	1	ı	Ι	1	-	
Color of Wire	SHIELD	8	G	В	٦	
Terminal No. Wire	-	2	3	4	9	

RR LH OUT-RR RH OUT-

CIR OUT-

L/B В/У

BB

Signal Name	1	ı	1	-	-	
Color of Wire	SHIELD	8	g	В	٦	
Terminal No. Wire	1	2	3	4	9	
						'

35	AV CONTROL UNIT (WITH NAVIGATION SYSTEM)			Signal Name	SAT ANT	SAT SHIELD
. M185		lor –		Color of Wire	В	В
Connector No.	Connector Name	Connector Color	馬 H.S.	Terminal No.	52	53



Connector Name AV CONTROL UNIT (WITH NAVIGATION SYSTEM)

Connector Color

M184

Connector No.

FR RH OUT-

FR LH TW-FR LH OUT-

Н 8 18

FR RH TW-

ΓB R/L

27 29 30 32

 Color of Wire
inal No.
inal

Signal Name	GPS ANT	GPS SHIELD	
Color of Wire	В	В	
Terminal No.	50	51	

Connector No.	M113
Connector Name   AUDIO AMP	AUDIO AMP.
Connector Color WHITE	WHITE
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

13 12 11 10 9 8 7 6 5 29 28 27 26 25 24 23 22 21	Signal Name	FR RH IN-	FR LH IN-	RR RH IN-	RR LH IN-	AMP ON	CIR OUT+	RR LH OUT+	RR RH OUT+
16 15 14 32 31 30	Color of Wire	В	BR	B/W	B/R	G/W	L/W	SB	O/L
原和 H.S.	Terminal No.	2	9	7	8	6	10	11	12

Connector No.		M162	62								
Connector Name JOINT CONNECTOR-M10	Name	9	≥	_	18	ź	<u>単</u>	IĔ.	<u>ا</u> چ	-M10	
Connector Color BLUE	Color	뮵	≒								
·	L									F	
	6	9 / 8	7	9	2	5 4 3	က	2	Γ.	_	
H.S.	20 19 18 17 16 15 14 13 12 11 10	18	17	16	15	14	13	12 1	=	- -	
										7	

6 5 4 3 2 1	Signal Name	1	ı	ı	1	ı	1	_	1
9 8 7 20 19 18 17	Color of Wire	SHIELD	SHIELD	SHIELD	SHIELD	SHIELD	В	В	CHIELD
明 H.S.	Terminal No. Wire	3	4	5	9	7	11	12	17

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Connector No.	D. M201	10
Connector Name		WIRE TO WIRE
Connector Color	olor WHITE	Œ
臣	7 6 5 14 1	7 6 5 4 3 2 1 16 15 14 13 12 11 10 9 8
E E		
Terminal No.	Color of Wire	Signal Name
9	æ	ı
6	SHIELD	1
12	В	-
13	Α	ı
14	В	1

Signal Name	1	1	1	1	1	1	1	1
Color of Wire	SHIELD	Υ	BR	٦	B/W	G/Y	BR	SB
Terminal No. Wire	17	18	19	20	21	22	23	24

o	WIRE TO WIRE	BROWN	5 6 <b>m</b> 7 8 9 10 11 16 17 18 19 20 21 22 23 24	Signal Name	ı	_	-	1	_	1	1	1	1	ı	
CR IM .			2 3 4 13 14 15	Color of Wire	Υ	G	Ж	>	В	SHIELD	۸	SHIELD	В/Υ	B/W	
Collinector No.	Connector Name	Connector Color	H.S.	Terminal No.	2	3	4	5	9	7	8	6	14	15	

Signal Name	1	ı	1	AUDIO ON	ILL-	FES ENABLE	LIGHTING SW	1	1	ACC	B+
Color of Wire	_	1	ı	S/B	BR	S/B	R/L	ı	-	>	<b>\</b>
Terminal No. Wire	9	7	8	6	10	11	12	13	14	15	16

35	DVD PLAYER	AY	8 10 12 14 16 7 9 11 13 15	Signal Name	FES L+ OUTPUT	FES L- OUTPUT	FES R+ OUTPUT	FES R- OUTPUT	_
. M205		lor GRAY	2 4 6 1 3 5 5	Color of Wire	В	×	В	g	_
Connector No.	Connector Name	Connector Color	原 H.S.	Terminal No.	-	2	3	4	5

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Ξ.	AUX JACK (WITH REAR ENTERTAINMENT SYSTEM)	ITE		8 8	Signal Name	_	_	-	-	I
. M211		lor WHITE		1 2	Color of Wire	В	Μ	Я	В	8
Connector No.	Connector Name	Connector Color		H.S.	Terminal No.	1	2	8	9	9
			_	_						

Signal Name	GND	DATA RX	DATA TX	-	8+	4B
Color of Wire	В/У	Υ	BR	-	SB	BR
Terminal No. Wire	27	28	29	30	31	32

90	DVD PLAYER	<b>3</b>		20 22 24 26 28 30 32 19 21 23 25 27 29 31	Signal Name	FES OUTPUT COMMON	FES L+ OUTPUT	GND	FES R+ OUTPUT	SW POWER +5V	GND	VTR+	VTR-	1	VTR SHIELD	
. M206	-	lor BLUE		18 20 2	Color of Wire	æ	В	B/W	>	G/Y	В	B/W	_	ı	SHIELD	
Connector No.	Connector Name	Connector Color	Œ	H.S.	Terminal No.	17	18	19	20	21	22	23	24	25	56	

	Color of Wire	Color of Wire	Color of Signal Name Wire G -
	0		
Terminal No. Color of Wire 1 G 2 L 3 R			

3	WIRE TO WIRE	44	- 0 0 L	Signal Name	ı	ı	ı	I	1
M213		or GRAY		Color of Wire	SHIELD	W	g	В	_
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	-	2	ဇ	4	9

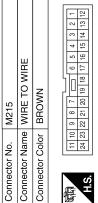
	Connector Name   AUX JACK (WILHOUL KEAR)   ENTERTAINMENT SYSTEM)	Connector Color WHITE	H.S.	Color of Signal Name Signal Name	1 B -	2 R –	4 W –
Connec		Connec	明.H.S.	Termina	1	2	4

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Revision: April 2014 AV-275 2014 Titan

Connector No.	). E5	
Connector Name		WIRE TO WIRE
Connector Color	olor WHITE	11
H.S.	2 3 4 15 14 15	1 2 3 4 5 6 TO 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Terminal No.	Color of Wire	Signal Name
13	В	1

Signal Name	1	ı	ı	ı	I	1	I	1
Color of Wire	SHIELD	>	BR	_	B/W	G/Y	BR	SB
Terminal No. Wire	17	18	19	20	21	22	23	24

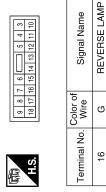




Signal Name	1	1	1	1	I	1	1	I	1	1
Color of Wire	>	В	Œ	8	В	SHIELD	>	SHIELD	В/У	B/W
Terminal No.	2	3	4	22	9	7	8	6	14	15







Signal Name	_	-	-	_
Color of Wire	SHIELD	M	В	В
Terminal No.	24C	25C	28C	29C





Connector Name WIRE TO WIRE

E41

Connector No.

Connector Color GRAY

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Revision: April 2014

Connector No.	E121	Connector No.	E152	T	ON legiman	Color of	Signal Name	
Connector Name		Connector Name WIRE T	Connector Name WIRE TO WIRE	5		wire >		
					13G	В	1	
Connector Color	BROWN				14G	SHIELD	ı	
é		2			23G	æ	1	
西山	72	i c	46 36 26 16		24G	>	1	
H.S.	36 35 34 33 32 31 30				27G	G/W	1	
(		210	216 206 196 186 176 166 156 146 136 126 116		64G	æ	1	
Terminal No.   Col	Color of Signal Name Wire		30G29G28G27G26G25G24G23G22G	0,	94G	G/W	1	
27 W	W/B T TOW REV LAMP	410	416 406 396 386 376 366 356 346 336 326 316	0,	95G	ŋ	1	
	-		506496486476466456446436426	0,	98G	M/B	1	
		910	61G60G59G58G57G56G55G54G53G52G51G					
			70G 69G 68G 67G 66G 65G 64G 63G 62G					
		810	81G 80G 79G 78G 77G 76G 75G 74G 73G 72G 71G					
			90G 89G 88G 87G 86G 85G 84G 83G 82G					
			95G 94G 93G 92G 91G					
			1006 996 986 976 966					
old softoner	CL	Connector No	7	2	oly rotor	0011		
Connector No.	F9	Cormector No.	714	5	Corrrector No.	F502		

nector No.	Е	Connector No. F14	). F14		Connector No.	F502	
nector Nar	nnector Name A/T ASSEMBLY	Connector Name WIRE TO WIRE	ame WIR	E TO WIRE	Connector Nan	ne TCM	Connector Name TCM (TRANSMISSION
	(FLOOR SHIFT)	Connector Color WHITE	olor WHI	Ш		S S	I HOL MODULE)
nector Cole	nnector Color GREEN				Connector Color GRAY	or   GRA	٨
υj	1 5	H.S.	11 10 9 8 24 23 22 21	11 10 9 8 7	高 H.S.	10 9 8 7	6 5 4 3 2 1
I	D D D D D D D D D D D D D D D D D D D		Color of				
Color of	č	Terminal No. Wire	Wire	Signal Name	Color of	Color of	- I
minai No.	Wire Signal Name	13	æ	1	reminal No.	Wire	olgnal Name
7	1				7	0	REV LAMP RLY

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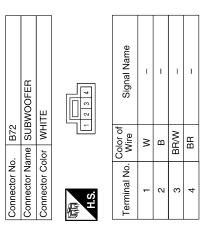
O WIRE	1 1 1 1	Signal Name	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	ı	1	I	ı			
	M R SHIELD	Color of Wire	B/Y	SB	BR	В	8	BR/W			
Connector No.	- 6 4	Terminal No.	L1	LZ	927	93J	94J	P6J			
			Г								
No. Wire Signal Name SHIELD - WIRE B - R - R - R - R - R - R - R - R - R -		r No. B69		5.0 4.0 3.0 2.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	21 20 19 18 17 16 15 11 14 11 13 12 11 1	30J 29J 28J 27J 26J 25J 24J 23J 22J	41.1 40.1 38.1 38.1 37.1 38.1 35.1 34.1 33.1 32.1 31.1	50) 490 480 470 460 450 440 430 420	61.1 60.1 59.1 58.1 57.2 56.1 55.1 55.1 55.1 51.3 51.3 51.3 51.3 51	121   122   123   124   125   124   125	136   126   186
24C 24C 25C 28C 28C 29C		Connector No.	Connector Color	H.S.							
Connector No.   C1	41C 40C 39C 39C 39C 37C 39C 39C 32C           47C 45C 45C         44C 43C 42C           52C         51C 50C 49C	Connector No. B6		S. 10 9 8 7 6 5 4 3 2 1 1 18 17 16 15 14 13 12 11	Color of	Terminal No. Wire Signal Name	14 B/Y –	15 SB –			

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Connector No.	o. B106	9(
Connector Name WIRE TO WIRE	ame WIF	RE TO WIRE
Connector Color		WHITE
H.S.	10 9 8 7 6 18 17 16 7	7 6 6 4 3 2 11 16 15 14 13 12 11
Terminal No.	Color of Wire	Signal Name
14	R/L	Ι
٦,	2	I

Connector No.	B76	Connector No.	
Connector Name	Connector Name REAR DOOR SPEAKER LH	Connector Name	ne
Connector Color WHITE	WHITE	Connector Color	o.
所 H.S.	2 1	高 H.S.	10 9 18 1
Terminal No. Wire	Color of Signal Name	Terminal No. Win	Color

2 1	Signal Name	- (EXCEPT BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	– (EXCEPT BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)
	Color of Wire	SB	В/У
H.S.	erminal No.	٢	2



Signal Name	_	1	1	-	-	ı	-	-
Color of Wire	В	Γ	В	٦	M	G/Y	BR	SB
Terminal No.	17	18	19	20	21	22	23	24

ctor Name WIRE TO WIRE  ctor Color BROWN    1 2 3 4 5 6	ctor No.	Š		<u>m</u>	B146	9								
ctor Color BROWN    1   2   3   4   5   6	ctor	Nar	ne	>	IÄ.	Щ.	임	3	IR	ш				
1         2         3         4         5         6         mm         7         8         9         100         11           12         13         14         16         16         17         18         19         20         21         22         23         24	ctor	Col	or	В	Ж	8	Z							
1         2         3         4         5         6         mm         7         8         9         10         11           12         13         14         15         16         17         18         19         20         21         22         23         24								l r	'					
12 13 14 15 16 17 18 19 20 21 22 23 24		-	2	က	4	5	9	J∣∎	ıT	7	œ	6	10	F
		12	13	14	15	16	17	18	19	20	21	22	23	24

				ł	0	8	
				ŀ	÷	Ñ	
				l	6	22	
				l	8	7	
	ш				7	20	
	<u>E</u>		[	1		9	
	Connector Name   WIRE TO WIRE		١,			12 13 14 15 16 17 18 19 20 21 22 23 3	
	2	z			9	17	
	ш	∣≶		Ì	2	16	
B146	/IR	Connector Color BROWN		Ì	4	15	
В	>	m		Ì	2 3	4	
	e	7		Ì	2	5	
o.	<u>a</u>	ĕ		ĺ	1	12	
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矣	유	유					
e	<u>ĕ</u>	ě		•		-	
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Connector No.	ပြ	ပြ		9	岢	7	ı
	_			Ť	_		3

Signal Name	=	I	I	ı	I	I	1	I
Color of Wire	В	В	В	æ	SHIELD	В/У	B/W	W
Terminal No.	+	2	3	4	7	14	15	16

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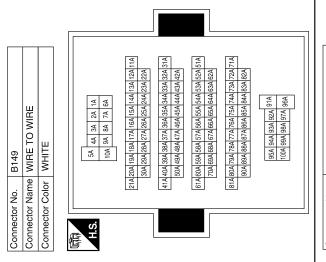
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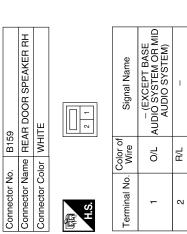
Signal Name	ı	ı	ı	ı
Color of Wire	g	В	*	В
Terminal No. Wire	87A	88A	89A	90A

Signal Name	- (EXCEPT FOR KING CAB WITH BASE AUDIO SYSTEM OR MID AUDIO SYSTEM)	ı	ı	ı	ı	ı	1	ı	ı	1	ı	ı	1	ı	ı
Color of Wire	O/L	R/L	SHIELD	٦	B/W	В	٦	В	SHIELD	В/У	M	G/Y	BR	SB	SHIELD
Terminal No.	3A	4A	72A	73A	74A	75A	V87	¥62	80A	81A	82A	83A	84A	85A	86A



Connector No.	). T2	
Connector Name		REAR VIEW CAMERA
Connector Color		GRAY
		<
管		$\rightarrow$
H.S.	<u> </u>	8 8 8 9 4 4 4
Terminal No.	Color of Wire	of Signal Name
-	Μ	I
3	Н	ı
4	В	ı
9	SHIELD	

	WIRE TO WIRE	CK	- 4 S 0 S 0	Signal Name	ı	1	ı	ı
=	me WIR	lor BLACK		Color of Wire	8	ш	SHIELD	а
connector No.	Connector Name	Connector Color	明 H.S.	Terminal No.	-	3	4	9



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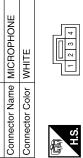
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			ı				
7	E TO WIRE	TE	8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Signal Name	ı	1	1
R10	me WIR	or WHI	<u> </u>	Color of Wire	B/L	B/W	В
Connector No. R107	Connector Name WIRE TO WIRE	Connector Color WHITE	原 用.S.	Terminal No. Wire	-	2	4
	E TO WIRE	Æ	2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	Signal Name	– (WITH NAVI)	_	1
R9	me WIRE	or WHIT		Color of Wire	SHIELD	R/W	В
Connector No.	Connector Name WIRE TO WIRE	Connector Color WHITE	高 H.S.	Terminal No. Wire	1	2	4
	E TO WIRE	世	3   4   5   8   9   10   11   12	Signal Name	- (WITH NAVI)	– (WITH NAVI)	– (WITH NAVI)
R2	me WIR	or WHI	1 2 6 7	Color of Wire	В	B/W	SHIELD
Connector No.	Connector Name WIRE TO WIRE	Connector Color WHITE	H.S.	Color of Terminal No. Wire	1	5	12

Signal Name	ı	1	1	1	1	1
Color of Wire	G	Т	W	G/Y	BR	SB
Terminal No.	19	20	21	22	23	24

Connector No.	Š.		ш	R201										
Connector Name WIRE TO WIRE	Nan	<u>e</u>	>	₩	끭	2	>	≝	ш					
Connector Color BROWN	Ö	>	ш	ľĔ	≳	Ζ								
							'							١.
恒	Ξ	0	6	80	_	ᄓ	Ί'n	9	22	4	С	2	-	
SH	24 23 22 21 20 19 18 17 16 15 14 13 12	83	22	21	20	13	18	17	16	15	4	13	12	

	7 6 5 4 3 2	20 19 18 17 16 15 14 13	Signal Name	1	1	ı	1	ı	ı	I	=	I	-
	10 9 8	23 22 21	Color of Wire	В	ш	ŋ	В	SHIELD	В/У	B/W	M	В	٦
		24 1.5	Terminal No.	-	2	3	4	7	14	15	16	17	18





Signal Nam	-	1	-
Color of Wire	В	R/L	R/W
Terminal No.	-	2	4

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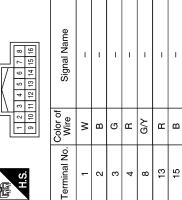
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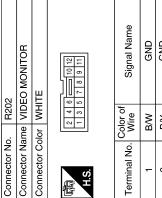
**AV-281** Revision: April 2014 2014 Titan

Connector No. R109

Connector No.	R204
Connector Name	Connector Name REAR CONTROL ASSEMBLY
Connector Color WHITE	WHITE
	2 3 4 4 5 6 7 8 8

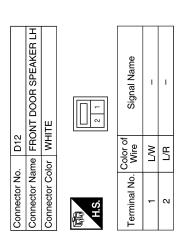


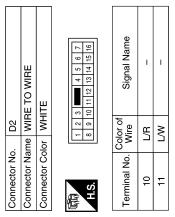
Signal Name	FILTERED BATT	FILTERED BATT	
Color of Wire	SB	BR	
Terminal No.	Ξ	12	





Connector No.	). D101	ll l
Connector Name WIRE TO WIRE	ıme WIF	RE TO WIRE
Connector Color	lor WHITE	ITE
H.S.	_ r	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Terminal No.	Color of Wire	Signal Name
2	9/1	_
2	M/B	_





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	Connector Name REAR DOOR SPEAKER LH	ПЕ		Signal Name	- (WITH NAVI OR MID	AUDIO SYSTEM)	- (WITH NAVI OR MID AUDIO SYSTEM)
. D207	me RE/	lor WH		Color of Wire	_	ı	>
Connector No.	Connector Na	Connector Color WHITE	雨 H.S.	Terminal No. Wire	•		2
1	E TO WIRE	TE	1 2 3 4 5 = 6 7 8 9 10	Signal Name	- (WITH NAVI OR MID	AUDIO SYSTEM)	- (WITH NAVI OR MID
D201	ne WIR	or WHI	11 12 3	Color of Wire	>	-	_
Connector No.	Connector Name WIRE TO WIRE	Connector Color WHITE	雨 H.S.	Terminal No. Wire	14	<u>+</u>	15
	Name FRONT DOOR SPEAKER RH			Signal Name	1		
D112	e FRONT DO	Solor WHITE	2 - 1	o. Wire Si	W/B	L/B	
ف	lam	Solo		O		_	-

7	REAR DOOR SPEAKER RH	<u> </u>	2 1	Signal Name	- (WITH NAVI OR MID AUDIO SYSTEM)	1
. D307	me RE/	lor WH		Color of Wire	٦	R/L
Connector No.	Connector Name	Connector Color WHITE	H.S.	Terminal No.	1	2

Connector No. D301  Connector Name WIRE TO WIRE  Connector Color WHITE  Terminal No. Wire Signal Name  14 R/L - (WITH NAVI OR MID  15 L AIDLO SYSTEM)							
Connector No. D3.  Connector Name WIF  Connector Color WH  LS.  Terminal No. Wire  14 R/L  15 L	)1	RE TO WIRE	<u> </u>			-	- (WITH NAVI OR MID
Connector No. Connector Col. Connector Col. H.S. Terminal No. 14		ne WIF	or WH	1 2 3	Solor of Wire	B/L	٦
	Connector No.	Connector Nar	Connector Col	明.S.	Terminal No.	14	15

Connector No.		D208	8
Connector Name		REA	REAR DOOR TWEETER LH
Connector Color	_	BRC	BROWN
H.S.			2
Terminal No.	Color of Wire	r of re	Signal Name
-	SB	3	-
2	Β/Y	>	I

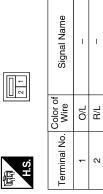
Signa			
Color of Wire	SB	В/Υ	
Terminal No.	-	2	

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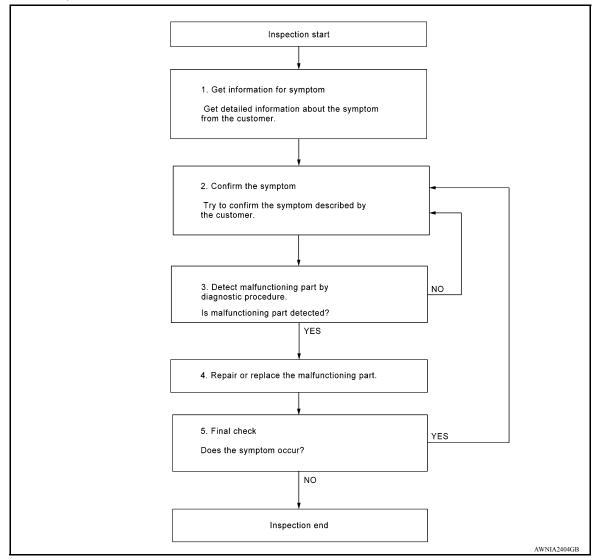
< BASIC INSPECTION > [NAVIGATION]

# **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).

#### >> 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. Refer to <u>AV-338</u>, "Symptom Table".

## >> 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 > [NAVIGATION]

## 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.

## Was the repair confirmed?

YES >> Inspection End.

NO >> GO TO 2

## **INSPECTION AND ADJUSTMENT**

[NAVIGATION] < BASIC INSPECTION > INSPECTION AND ADJUSTMENT Α ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Description INFOID:0000000009876604 BEFORE REPLACEMENT When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement. NOTE: If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replac-D ing AV control unit. AFTER REPLACEMENT **CAUTION:** Е When replacing AV control unit, you must perform "After Replace ECU" with CONSULT. Complete the procedure of "After Replace ECU" in order. • If you set incorrect "After Replace ECU", incidents might occur. F • Configuration is different for each vehicle model. Confirm configuration of each vehicle model. ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure 1. SAVING VEHICLE SPECIFICATION P-CONSULT Н Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification. NOTE: If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing AV control unit. >> GO TO 2. 2.REPLACE AV CONTROL UNIT Replace AV control unit. Refer to AV-353, "Removal and Installation". >> GO TO 3. 3.WRITING VEHICLE SPECIFICATION (P)CONSULT 1. Enter "Re/Programming, Configuration". 2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to AV-288, "CONFIGURATION (AV CONTROL UNIT): Work Procedure". ΑV 3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to AV-288, "CONFIGURATION (AV CONTROL UNIT): Work Procedure". 0 >> GO TO 4. 4. OPERATION CHECK Check that the operation of the AV control unit and camera images (fixed guide lines) are normal. >> Work End.

CONFIGURATION (AV CONTROL UNIT)

#### INSPECTION AND ADJUSTMENT

< BASIC INSPECTION > [NAVIGATION]

# CONFIGURATION (AV CONTROL UNIT): Description

INFOID:0000000009876606

Vehicle specification needs to be written with CONSULT because it is not written after replacing AV control unit.

Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	Reads the vehicle configuration of current AV control unit.     Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

#### **CAUTION:**

- When replacing AV control unit, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new AV control unit.

# CONFIGURATION (AV CONTROL UNIT): Work Procedure

INFOID:0000000009876607

# 1. WRITING MODE SELECTION

## (P)CONSULT

Select "Reprogramming, Configuration" of AV control unit.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

# 2.PERFORM "SAVED DATA LIST"

### (P)CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

# ${f 3.}$ PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

### (P)CONSULT

- 1. Select "After Replace ECU" or "Manual Configuration".
- 2. Identify the correct model and configuration list. Refer to <u>AV-289, "CONFIGURATION (AV CONTROL UNIT)</u>: Configuration List".
- 3. Confirm and/or change setting value for each item.

#### **CAUTION:**

Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.

4. Select "Next".

#### **CAUTION:**

Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new AV control unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.

5. When "Completed", select "End".

>> GO TO 4.

## 4. OPERATION CHECK

Confirm that each function controlled by AV control unit operates normally.

#### **INSPECTION AND ADJUSTMENT**

< BASIC INSPECTION >

[NAVIGATION]

>> Work End.

# CONFIGURATION (AV CONTROL UNIT): Configuration List

INFOID:0000000009876608

#### CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM		
Items Setting value		
SOUND SYSTEM	BASE ⇔ BOSE	
CAMERA SYSTEM	NONE/AVM ⇔ REAR CAMERA	

 $<sup>\</sup>Leftrightarrow$ : Items which confirm vehicle specifications

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#### **U1000 CAN COMM CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# DTC/CIRCUIT DIAGNOSIS

# U1000 CAN COMM CIRCUIT

DTC Logic

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

# Diagnosis Procedure

INFOID:0000000009876610

# 1. PERFORM SELF DIAGNOSTIC RESULT

- 1. Turn ignition switch ON and wait for 2 seconds or more.
- 2. Perform Self Diagnostic Result for MULTI AV.

#### Is CAN COMM CIRCUIT displayed?

YES >> Refer to LAN-14, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI-42, "Intermittent Incident".

# **U1010 CONTROL UNIT (CAN)**

#### < DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# U1010 CONTROL UNIT (CAN)

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	Error during CAN controller hardware initialization (VCAN).	Replace the AV control unit if the malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

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#### **U1217 AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U1217 AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
BLUETOOTH MODULE [U1217]	Connection failure to the internal Bluetooth <sup>®</sup> sub unit is detected.	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

#### **U1229 AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U1229 AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
iPod CERTIFICATION [U1229]	iPod authentication chip error.	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

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#### **U122F AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U122F AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Digital broadcasting connection error [U122F]	Communication error with digital audio broadcast module internal to AV control unit.	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

#### **U1244 GPS ANTENNA**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [NAVIGATION]

# **U1244 GPS ANTENNA**

DTC Logic

#### INFOID:0000000009876615

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#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
GPS ANTENNA CONN [U1244]	Open or short to ground is detected in GPS antenna connection.	GPS antenna disconnection.     Open or short to ground in GPS antenna signal circuit.

# Diagnosis Procedure

INFOID:0000000009876616

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1.GPS ANTENNA INSPECTION

F

Visually inspect the GPS antenna and antenna feeder. Refer to <u>AV-364, "Removal and Installation"</u>. <u>Is inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

# 2.CHECK AV CONTROL UNIT VOLTAGE

Н

- 1. Disconnect AV control unit connector M184.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit terminal 50 and ground.

AV control unit terminal	Ground	Voltage
(+)	(–)	Vollage
50	_	5.0 V

#### Is inspection result normal?

YES >> Replace GPS antenna. Refer to AV-364, "Removal and Installation".

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

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#### **U1258 SATELLITE RADIO ANTENNA**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# U1258 SATELLITE RADIO ANTENNA

DTC Logic

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
XM ANTENNA CONN [U1258]	Open or short to ground is detected in satellite antenna connection.	<ul> <li>Satellite antenna disconnection.</li> <li>Open or short to ground in satellite antenna signal circuit.</li> </ul>

# Diagnosis Procedure

INFOID:0000000009876618

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. SATELLITE ANTENNA INSPECTION

Visually inspect the satellite antenna and antenna feeder. Refer to <u>AV-364, "Removal and Installation"</u>. <u>Is inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

# 2. CHECK AV CONTROL UNIT VOLTAGE

- 1. Disconnect AV control unit connector M185.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit terminal 52 and ground.

AV control unit terminal	Ground	Voltage
(+)	(–)	voltage
52	_	5.0 V

#### Is inspection result normal?

YES >> Replace satellite radio antenna. Refer to AV-364, "Removal and Installation".

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

#### **U1263 USB**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [NAVIGATION]

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INFOID:0000000009876620

#### **U1263 USB**

DTC Logic

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
USB OVERCURRENT [U1263]	Overcurrent in USB harness is detected.	Device connected to USB interface.     Harness between the AV control unit and USB interface.

#### DTC CONFIRMATION PROCEDURE

# 1. PERFORM SELF DIAGNOSTIC RESULT

- 1. If there is a device connected to the USB interface, disconnect it.
- 2. Turn ignition switch ON and wait for 2 seconds or more.
- 3. Perform Self Diagnostic Result for MULTI AV.

#### Is DTC U1263 displayed?

YES >> Refer to AV-297, "Diagnosis Procedure".

NO >> Inspection End.

# Diagnosis Procedure

# 1. CHECK USB INTERFACE HARNESS

Visually inspect USB interface harness. Refer to AV-363, "Removal and Installation".

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace USB interface harness. Refer to AV-363, "Removal and Installation".

#### 2. CHECK USB INTERFACE HARNESS

Check USB interface harness. Refer to AV-337, "Diagnosis Procedure".

#### Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

NO >> Replace USB interface harness. Refer to AV-363, "Removal and Installation".

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Revision: April 2014 AV-297 2014 Titan

[NAVIGATION]

#### U1265 AUDIO AMP.

DTC Logic

CONSULT Display	DTC Detection Condition	Possible Cause
AMP ON TERMINAL [U1265]	Open or short to ground is detected in audio amp. ON signal circuit.	Open or short to ground in audio amp. ON signal circuit.

#### Diagnosis Procedure

INFOID:0000000009876622

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND AUDIO AMP.

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector M43 and audio amp. connector M113.
- 3. Check continuity between AV control unit connector M43 and audio amp. connector M113.

AV cor	ntrol unit	Audio	o amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M43	1	M113	9	Yes

4. Check continuity between AV control unit connector M43 and ground.

AV control unit		Ground	Continuity
Connector	Terminal	Ground	Continuity
M43	1	_	No

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

# 2.CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector M43.
- Turn ignition switch ON.
- 3. Check voltage between AV control unit connector M43 and ground.

AV control unit		Ground	
(+)		( )	Voltage (Approx.)
Connector	Terminal	(-)	(11 /
M43	1	_	Battery voltage

#### Is the inspection result normal?

YES >> Replace audio amp. Refer to AV-360, "Removal and Installation".

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

#### **U12AA CONFIGURATION ERROR**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U12AA CONFIGURATION ERROR**

DTC Logic

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Configuration Error [U12AA]	AV control unit is not properly configured or configuration is corrupt.	Configuration data needs to be written.  Refer to AV-288, "CONFIGURATION (AV CONTROL UNIT): Work Procedure".

# Diagnosis Procedure

INFOID:0000000009876624

# 1.PERFORM CONFIGURATION

When U12AA is detected, configuration data must be written.

>> Write configuration data with CONSULT. Refer to <u>AV-288, "CONFIGURATION (AV CONTROL UNIT): Work Procedure"</u>.

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#### **U12AB ANTENNA**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U12AB ANTENNA**

DTC Logic

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
FM Antenna error [U12AB]	Open or short to ground is detected in rod antenna connection.	<ul><li>Rod antenna disconnection.</li><li>Open or short to ground in antenna feeder.</li></ul>

# Diagnosis Procedure

INFOID:0000000009876626

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. ROD ANTENNA INSPECTION

Visually inspect the rod antenna and antenna feeder. Refer to <u>AV-361, "Location of Antenna"</u>. <u>Is inspection result normal?</u>

YES >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

NO >> Repair or replace malfunctioning components.

#### **U12AC AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U12AC AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Display Temperature too High [U12AC]	Display temperature has exceeded maximum temperature. Display is switched OFF to avoid irreversible damage.	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

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#### **U12AD AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U12AD AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ECU Temperature too High [U12AD]	AV control unit temperature has exceeded maximum temperature.	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

#### **U12AE AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U12AE AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Internal Amplifier temperature Warning [U12AE]	Internal amplifier temperature has exceeded maximum temperature.	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

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#### **U12AF AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U12AF AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CD Mechanism Temperature Warning [U12AF]	CD drive temperature has exceeded maximum temperature. CD drive is switched OFF to avoid irreversible damage.	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

#### **U12B0 POWER SUPPLY VOLTAGE**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

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#### U12B0 POWER SUPPLY VOLTAGE

DTC Logic

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Supply Voltage Goes below 9V > 20s [U12B0]	AV control unit supply voltage exceeds lower limits.	<ul><li>Charging system malfunction.</li><li>AV control unit power supply or ground circuits.</li></ul>

# Diagnosis Procedure

1. CHECK CHARGING SYSTEM

Check the vehicle charging system. Refer to <u>CHG-4</u>, "Work Flow (With EXP-800 NI or <u>GR8-1200 NI)"</u> or <u>CHG-7</u>, "Work Flow (Without EXP-800 NI or <u>GR8-1200 NI)"</u>.

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning components.

# 2.CHECK AV CONTROL UNIT POWER SUPPLY AND GROUND CIRCUITS

Perform the AV control unit power supply and ground circuit diagnosis procedure. Refer to <u>AV-308, "AV CONTROL UNIT : Diagnosis Procedure"</u>.

#### Is the inspection result normal?

YES >> Replace the AV control unit. Refer to AV-353, "Removal and Installation".

NO >> Repair or replace harness or connectors.

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#### **U12B1 POWER SUPPLY VOLTAGE**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U12B1 POWER SUPPLY VOLTAGE**

DTC Logic

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Supply Voltage Goes High > 16V for 20s [U12B1]	AV control unit supply voltage exceeds upper limits.	Charging system malfunction.

# Diagnosis Procedure

INFOID:0000000009876634

# 1. CHECK CHARGING SYSTEM

Check the vehicle charging system. Refer to <u>CHG-4</u>, "Work Flow (With EXP-800 NI or GR8-1200 NI)" or <u>CHG-7</u>, "Work Flow (Without EXP-800 NI or GR8-1200 NI)".

#### Is the inspection result normal?

YES >> Replace the AV control unit. Refer to AV-353, "Removal and Installation".

NO >> Repair or replace the malfunctioning components.

#### **U1310 AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# **U1310 AV CONTROL UNIT**

DTC Logic

# DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (AV) [U1310]	Error during CAN controller hardware initialization (MCAN).	Replace AV control unit if malfunction occurs constantly.  Refer to AV-353, "Removal and Installation".

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#### POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

# POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

AV CONTROL UNIT: Diagnosis Procedure

INFOID:0000000009876636

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
7	ACC power supply	4 (10A)
19	Battery power supply	31 (20A)
37	Ignition power supply	12 (10A)

#### Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

# 2. CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connectors M43 and M45.
- 3. Check voltage between AV control unit connector M43, M45 and ground.

	ntrol unit	Ground	Condition	Voltage (Approx.)	
Connector	Terminal			(дрргох.)	
M43	19		Ignition switch: OFF		
WHO	7	_	Ignition switch: ON	Battery voltage	
M45	37		igilition switch. Oiv		

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

# 3.CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- Check continuity between AV control unit connector M43 and ground.

AV control unit		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
M43	20	_	Yes	

#### Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

AUDIO AMP.

AUDIO AMP.: Diagnosis Procedure

INFOID:0000000009876637

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. CHECK FUSE

#### POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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Check that the audio amp. fuses are not blown.

Unit	Terminal	Signal name	Fuse No.
Audio amp.	1	Battery power	31
Addio amp.	17	Battery power	17

#### Are the fuses OK?

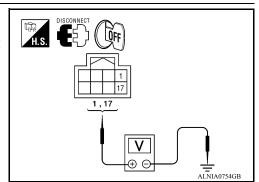
YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

# 2.CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect audio amp. connector.
- 3. Check voltage between audio amp. harness connector M112 and ground.

(+)		(-)	Voltage (approx.)
Connector	Terminal	(-)	voltage (approx.)
M112	1	Ground	Battery voltage
IVITIZ	17	Ground	Battery voltage



#### Is battery voltage present?

YES >> GO TO 3.

NO >> Check harness between audio amp. and fuse.

# 3. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect audio amp. connector.
- 3. Check continuity between audio amp. harness connector M112 and ground.

Connector	Terminal	_	Continuity
M112	4	Ground	Yes
IVITIZ	20	Giodila	163

# 4,20

#### Does continuity exist?

YES >> Inspection End.

NO >> Repair harness or connector.

#### DVD PLAYER

# **DVD PLAYER: Diagnosis Procedure**

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1.CHECK FUSE

Check that the following fuses for the DVD player are not blown.

Unit	Terminal	Signal name	Fuse No.
DVD player	16	Battery power	31
DVD playei	15	Ignition switch ACC or ON	4

#### Is the fuse OK?

YES

NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

**AV-309** Revision: April 2014 2014 Titan

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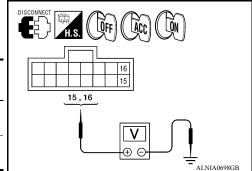
#### < DTC/CIRCUIT DIAGNOSIS >

# 2. POWER SUPPLY CIRCUIT CHECK

1. Disconnect DVD player connector M205.

Check voltage between the DVD player connector M205 and ground.

(	(+)	(-)	OFF	ACC	ON
Connector	Terminal	(-)	011	100	
M205	16	Ground	Battery voltage	Battery voltage	Battery voltage
IVIZOS	15	Ground	0V	Battery voltage	Battery voltage



#### Are the voltage results as specified?

YES >> GO TO 3.

>> • Check connector housings for disconnected or loose terminals. NO

Repair harness or connector.

# 3.ground circuit check

Turn ignition switch OFF.

Disconnect DVD player connector M206.

Check continuity between DVD player harness connector M206 terminal 22 and ground.

Connector	Terminal	_	Continuity
M206	22	Ground	Yes

#### Are the continuity results as specified?

YES >> Inspection End.

NO >> Repair harness or connector.

#### **VIDEO MONITOR**

# VIDEO MONITOR: Diagnosis Procedure

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INFOID:0000000010621045

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch to ACC.
- Check voltage between video monitor harness connector R202 and ground.

(	(+)		Value (Approx.)	
Connector	Terminal	(-)	Value (Approx.)	
R202	11	Ground	12V	
1\202	12	Glound	12 V	

#### Does specified voltage exist?

YES >> GO TO 3. NO >> GO TO 2.

# 2.CHECK POWER SUPPLY CIRCUIT

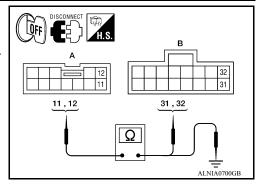
#### POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

- 1. Turn ignition switch OFF.
- 2. Disconnect the video monitor connector R202 and the DVD player connector M206.
- 3. Check continuity between the video monitor harness connector R202 (A) and the DVD player connector M206 (B).

	А		В	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
R202	11	M206	31	Yes	
RZUZ	12	IVIZUU	32	165	



4. Check continuity between video monitor harness connector R202 (A) and ground.

Α			Continuity	
Connector	Terminal	<u>—</u>	Continuity	
R202	11	Ground	No	
R202	12	Giouna	INO	

#### Are continuity test results as specified?

YES >> Refer to AV-309, "DVD PLAYER: Diagnosis Procedure".

NO >> Repair harness or connector.

# 3.CHECK GROUND CIRCUIT

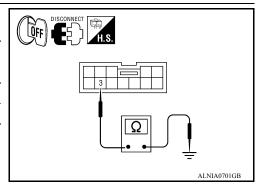
- 1. Turn ignition switch OFF.
- Disconnect video monitor connector.
- 3. Check continuity between video monitor harness connector R202 and ground.

Connector	Terminal	_	Continuity
R202	3	Ground	Yes

#### Does continuity exist?

YES >> Inspection End.

NO >> Repair harness or connector.



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#### FRONT DOOR SPEAKER

#### Diagnosis Procedure

INFOID:0000000009876638

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- · Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2.SPEAKER HARNESS CHECK

- 1. Disconnect audio amp. connector M113 and suspect front door speaker connector.
- Check continuity between audio amp. harness connector M113 and suspect front door speaker harness connector.

Connector	Terminal	Connector	Terminal	Continuity
	15	D12	1	
M113	31		2	Yes
WITIS	16	D112	1	163
	32		2	

3. Check continuity between audio amp. harness connector M113 and ground.

Connector	Terminal	_	Continuity	
	15			
M113	31	Ground	No	
	16	Ground	NO	
	32			

#### Are continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

# $3. \mathsf{FRONT} \mathsf{DOOR} \mathsf{SPEAKER} \mathsf{SIGNAL} \mathsf{CHECK}$

- 1. Connect audio amp. connector M113 and suspect front door speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between audio amp. harness connector M113 terminals with CONSULT or oscilloscope.

Connec-	Terr	Terminal		Reference	
tor	(+)	(-)	Condition	signal	
	15	31			
M113	16	32	Receive audio sig- nal	1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

#### Is audio signal voltage as specified?

YES >> Replace suspect front door speaker. Refer to <u>AV-232, "Removal and Installation"</u>.

NO >> GO TO 4.

# 4.PRE-AMP HARNESS CHECK

1. Disconnect AV control unit connector M43 and audio amp. connector M113.

2. Check continuity between AV control unitharness connector M43 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
M43	3		6	
	2	M113	22	Yes
	12		5	165
	11		21	

3. Check continuity between AV control unitharness connector M43 and ground.

Connector	Terminal	_	Continuity	
M43	3			
	2	Ground	No	
	12	Giouna	INO	
	11			

#### Are continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

• Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

1. Connect AV control unit connector and audio amp. connector.

2. Turn ignition switch ACC.

3. Push "POWER" switch.

 Check the signal between AV control unit harness connector M43 terminals with CONSULT or oscilloscope. С

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

Are the audio signal voltage readings as specified?

YES

>> Replace audio amp. Refer to <u>AV-360, "Removal and Installation"</u>. >> Replace AV control unit. Refer to <u>AV-353, "Removal and Installation"</u>. NO

#### FRONT TWEETER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

#### FRONT TWEETER

# Diagnosis Procedure

INFOID:0000000009876639

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Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2. HARNESS CHECK

Disconnect audio amp. connector M113 and suspect front tweeter connector.

2. Check continuity between audio amp. harness connector M113 and suspect front tweeter harness connector.

Connector	Terminal	Connector	Terminal	Continuity
M113	14	M109	1	Yes
	30	WITOS	2	
	13	M111	1	165
	29		2	

Check continuity between audio amp. harness connector M113 and ground.

Connector	Terminal	_	Continuity	
M113	14			
	30	Ground	No	
	13	Glound		
	29			

#### Are continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3.front tweeter signal check

- Connect audio amp. connector M113 and suspect front tweeter connector.
- 2. Turn ignition switch to ACC.
- Push "POWER" switch.
- Check the signal between audio amp. harness connector M113 terminals with CONSULT or oscilloscope.

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Connec-	Terr	Terminal		Reference	
tor	(+)	(-)	Condition	signal	
	14	30			
M113	13	29	Receive audio sig- nal	1 0 -1 1 ms skladime	

#### Is audio signal voltage as specified?

>> Replace suspect front tweeter. Refer to AV-354, "Removal and Installation".

NO >> GO TO 4.

# 4.PRE-AMP HARNESS CHECK

Disconnect AV control unit connector M43 and audio amp. connector M113.

2. Check continuity between AV control unit harness connector M43 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	3		6	
M42	2	M113	22	Yes
M43	12		5	res
	11		21	

Check continuity between AV control unit harness connector M43 and ground.

Connector	Terminal	_	Continuity	
M43	3	Ground		
	2		No	
	12			
	11			

#### Are continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect AV control unit connector and audio amp. connector.
- Turn ignition switch ACC.
   Push "POWER" switch.
- 4. Check the signal between AV control unit harness connector M43 terminals with CONSULT or oscilloscope.

#### **FRONT TWEETER**

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

Are the audio signal voltage readings as specified?

YES >> Replace audio amp. Refer to AV-360, "Removal and Installation".

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

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#### **CENTER SPEAKER**

# Diagnosis Procedure

INFOID:0000000009876640

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- · Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2.CENTER SPEAKER HARNESS CHECK

- Disconnect audio amp. connector M113 and center speaker connector M110.
- 2. Check continuity between audio amp. harness connector M113 (A) and center speaker harness connector M110 (B).

А		В		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M113	10	M110	1	Yes	
WITIS	26	IVITIO	2	165	

 Check continuity between audio amp. harness connector M113 (A) and ground.

	A		Continuit.
Connector	Terminal	_	Continuity
M113	10	Ground	No
WITIS	26	Giouna	

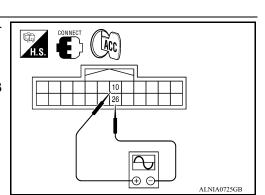
#### Are continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3. CENTER SPEAKER SIGNAL CHECK

- Connect audio amp. connector M113 and center speaker connector M110.
- Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connector M113 terminals with CONSULT or oscilloscope.



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<u>10,26</u>	
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Connector	Terminals		Condition	Reference	
	(+)	(-)		signal	
M113	10	26	Receive audio sig- nal	(V) 1 0 -1 1 ms	

#### Is the audio signal voltage reading as specified?

YES >> Replace center speaker. Refer to AV-355, "Removal and Installation".

NO >> GO TO 4.

# 4.PRE-AMP HARNESS CHECK

1. Disconnect AV control unit connector M43 and audio amp. connector M113.

Check continuity between AV control unit harness connector M43 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	3		6	Yes
M43	2	M113	22	
	12	IVITIO	5	163
	11		21	

3. Check continuity between AV control unit harness connector M43 and ground.

Connector	Terminal	_	Continuity	
M43	3	Ground		
	2		No	
	12	Ground		
	11			

#### Are continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect AV control unit connector and audio amp. connector.
- 2. Turn ignition switch ACC.
- 3. Push "POWER" switch.
- Check the signal between AV control unit harness connector M43 terminals with CONSULT or oscilloscope.

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

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#### **CENTER SPEAKER**

#### < DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

Are the audio signal voltage readings as specified?

- YES >> Replace audio amp. Refer to AV-360, "Removal and Installation".
- NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

# **REAR DOOR SPEAKER**

# **Diagnosis Procedure**

INFOID:0000000009876641

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Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

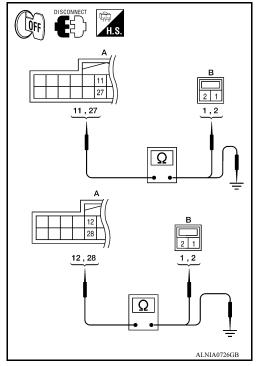
# 2.SPEAKER HARNESS CHECK

- 1. Disconnect audio amp. connectors M113 and suspect rear door speaker connector.
- 2. Check continuity between audio amp. harness connectors M113 (A) and suspect rear door speaker harness connector (B).

Α		В		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	11 D207 (crew cab)		1	
M113	27	B76 (king cab)	2	Yes
WIII3	12	D307 (crew cab)	1	res
	28	B159 (king cab)	2	

 Check continuity between audio amp. harness connectors M113 (A) and ground.

Connector	Terminal	-	Continuity	
	11			
M113	27	Ground	No	
WITIS	12	Glound		
	28			



Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. SPEAKER SIGNAL CHECK

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#### < DTC/CIRCUIT DIAGNOSIS >

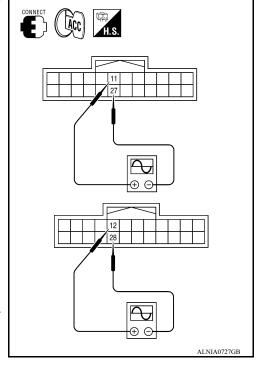
- Connect audio amp. connectors and suspect rear door speaker connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connectors M113 terminals with CONSULT or oscilloscope.

Connector	Terminals		Condition	Reference	
Connector	(+)	(-)	Condition	signal	
	11	27			
M113	12	28	Receive audio sig- nal	(V) 1 0 -1 1 MS SKIA0177E	

#### Are audio signal voltage readings as specified?

YES >> Replace suspect rear door speaker. Refer to <u>AV-233</u>. "<u>Removal and Installation"</u>.

NO >> GO TO 4.



# 4.PRE-AMP HARNESS CHECK

- 1. Disconnect AV control unit connector M43 and audio amp. connector M113.
- 2. Check continuity between AV control unit harness connector M43 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	5		8	Yes
M43	4	M113	24	
	14		7	
	13		23	

3. Check continuity between AV control unit harness connector M43 and ground.

Connector	Terminal	_	Continuity	
M43	5			
	4	Ground	No	
	14	Ground		
	13			

#### Are the continuity test results as specified?

YES >> GO TO 5.

NO

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

· Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- Connect AV control unit connector M43 and audio amp. connector M113.
- Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between AV control unit harness connector M43 terminals with CONSULT or oscilloscope.

#### **REAR DOOR SPEAKER**

#### < DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

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

Is the audio signal voltage reading as specified?

YES >> Replace audio amp. Refer to AV-360, "Removal and Installation".

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

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#### REAR DOOR TWEETER

#### Diagnosis Procedure

INFOID:0000000009876642

Regarding Wiring Diagram information, refer to AV-172. "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and speaker connectors for the following:

- · Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2.TWEETER HARNESS CHECK

- 1. Disconnect audio amp. connectors M113 and suspect rear door tweeter connector.
- Check continuity between audio amp. harness connectors M113 and suspect rear door tweeter harness connector.

Connector	Terminal	Connector	Terminal	Continuity
M113	11	D208	1	Yes
	27	D200	2	
	12	D308	1	
	28	D306	2	

3. Check continuity between audio amp. harness connectors M113 and ground.

Connector	Terminal	-	Continuity	
	11			
M113	27	Ground	No	
	12	Glound		
	28			

#### Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3. TWEETER SIGNAL CHECK

- 1. Connect audio amp. connectors and suspect rear door tweeter connector.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between audio amp. harness connectors M113 terminals with CONSULT or oscilloscope.

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Connector	Term	ninals	Condition	Reference	
Connector	(+)	(-)	Condition	signal	
	11	27			
M113	12	28	Receive audio sig- nal	(V) 1 0 -1 1 ms SKIA0177E	

#### Are audio signal voltage readings as specified?

YES >> Replace suspect rear door tweeter. Refer to AV-357, "Removal and Installation".

NO >> GO TO 4.

## 4.PRE-AMP HARNESS CHECK

1. Disconnect AV control unit connector M43 and audio amp. connector M113.

Check continuity between AV control unit harness connector M43 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity	
	5		8		
M43	4	M113	24	Yes	
	14	WITIS	7		
	13		23		

3. Check continuity between AV control unit harness connector M43 and ground.

Connector	Terminal	_	Continuity	
	5			
M43	4	Ground	No	
	14			
	13			

#### Are the continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

Repair harness or connector.

## 5.PRE-AMP SIGNAL CHECK

- 1. Connect AV control unit connector M43 and audio amp. connector M113.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- Check the signal between AV control unit harness connector M43 terminals with CONSULT or oscilloscope.

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

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## **REAR DOOR TWEETER**

### < DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

Is the audio signal voltage reading as specified?

- >> Replace audio amp. Refer to <u>AV-360, "Removal and Installation"</u>.
  >> Replace AV control unit. Refer to <u>AV-353, "Removal and Installation"</u>. NO

#### **SUBWOOFER**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [NAVIGATION]

## **SUBWOOFER**

Description INFOID:0000000009876643

The AV control unit sends audio signals to the audio amp. The audio amp. amplifies the audio signals before sending them to the subwoofer using the audio signal circuits.

## Diagnosis Procedure

INFOID:0000000009876644

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Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1.CONNECTOR CHECK

Check the audio amp. and subwoofer connectors for the following:

- Proper connection
- Damage
- · Disconnected or loose terminals

#### Is the inspection result normal?

YES >> GO TO 2

NO >> Repair the terminal and connector.

# 2. SUBWOOFER HARNESS CHECK

- 1. Disconnect audio amp. connector M112 and subwoofer connector B72.
- 2. Check continuity between audio amp. harness connector M112 and subwoofer harness connector B72.

Connector	Terminal	Connector	Terminal	Continuity
	2		1	
M112	3	B72	3	Yes
IVITIZ	18	D12	2	165
	19		4	

Check continuity between audio amp. harness connector M112 and ground.

	Α		Continuity	
Connector	Terminal			
	2			
M112	3	Ground	No	
IVITIZ	18	Glound		
	19			

#### Are the continuity test results as specified?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3. SUBWOOFER SIGNAL CHECK

- 1. Connect audio amp. connector M112 and subwoofer connector B72.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.

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Check the signal between audio amp. harness connector M112 terminals with CONSULT or oscilloscope.

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Connector	Term	ninals	Condition Reference	
Connector	(+)	(-)	Condition	signal
	2	18		
M112	3	19	Receive au- dio signal	(V) 1 0 -1 1 ms SKIA0177E

#### Is the audio signal voltage as specified?

YES >> Replace subwoofer. Refer to AV-358, "Removal and Installation".

NO >> GO TO 4.

## 4.PRE-AMP HARNESS CHECK

- 1. Disconnect AV control unit connector M43 and audio amp. connector M113.
- 2. Check continuity between AV control unit harness connector M43 and audio amp. harness connector M113.

Connector	Terminal	Connector	Terminal	Continuity
	5		8	Yes
M43	4	M113	24	
10143	14	IVITIO	7	
	13		23	

3. Check continuity between AV control unit harness connector M43 and ground.

Connector	Terminal		Continuity	
	5			
M43	4	Ground	No	
10143	14			
ļ	13			

#### Are the continuity test results as specified?

YES >> GO TO 5.

NO >> • Check connector housings for disconnected or loose terminals.

· Repair harness or connector.

# 5.PRE-AMP SIGNAL CHECK

- 1. Connect AV control unit connector M43 and audio amp. connector M113.
- 2. Turn ignition switch to ACC.
- 3. Push "POWER" switch.
- 4. Check the signal between AV control unit harness connector M43 terminals with CONSULT or oscilloscope.

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

## **SUBWOOFER**

< DTC/CIRCUIT DIAGNOSIS >	[NAVIGATION]	

Is the audio signal voltage reading as specified?

YES >> Replace audio amp. Refer to <u>AV-360, "Removal and Installation"</u>.

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

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### **AMP ON SIGNAL CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

## AMP ON SIGNAL CIRCUIT

## Diagnosis Procedure

INFOID:0000000009876645

Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. CHECK AMP ON SIGNAL

- 1. Turn audio system ON.
- 2. Check voltage between audio amp. harness connector M113 terminal 9 and ground.

(+	)	( )	Voltage (approx.)	
Connector	Terminal	(-)		
M113	9	Ground	More than 6.5V	

#### Is inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

# $2.\mathsf{CHECK}$ AMP ON SIGNAL (AV CONTROL UNIT)

Check voltage between AV control unit harness connector M43 terminal 1 and ground.

(+)		(-)	Voltage (approx.)
Connector	Terminal	(-)	voltage (approx.)
M43	1	Ground	More than 6.5V

#### Is inspection result normal?

YES >> Repair harness or connector.

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

### REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

## REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

## Diagnosis Procedure

INFOID:0000000009876646

Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1. CHECK REVERSE INPUT SIGNAL

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- Turn ignition switch ON.
- Shift the selector lever to R (reverse).
- Check voltage between AV control unit connector M45 and ground.

AV cor	ntrol unit	Ground		
	(+)		Condition	Voltage (Approx.)
Connector	Terminal	(-)		, , ,
M45	28	_	Selector lever in R (reverse)	Battery Voltage

#### Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

# 2.CHECK CAMERA POWER SUPPLY CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- 2. Disconnect AV control unit connector M45 and rear view camera connector T2.
- 3. Check continuity between AV control unit connector M45 and rear view camera connector T2.

AV cor	trol unit	Rear vie	w camera	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M45	34	T2	1	Yes

Check continuity between AV control unit connector M45 and ground.

AV control unit			Continuity
Connector Terminal		Ground	Continuity
M45	34		No

#### Is inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

# 3.CHECK CAMERA POWER SUPPLY VOLTAGE

- Connect AV control unit connector M45 and rear view camera connector T2.
- Turn ignition switch ON.
- Shift the selector lever to R (reverse).
- Check voltage between AV control unit connector M45 and ground.

AV cor	ntrol unit	Ground		
(+)		( )	Condition	Voltage (Approx.)
Connector	Terminal	(-)		( )
M45	34	_	Selector lever is in "R".	6.0 V

### Is inspection result normal?

YFS >> GO TO 4.

>> Replace AV control unit. Refer to AV-353, "Removal and Installation". NO

**AV-331** Revision: April 2014 2014 Titan

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### REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

## 4. CHECK CAMERA IMAGE SIGNAL CIRCUIT CONTINUITY

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector M45 and rear view camera connector.
- 3. Check continuity between AV control unit connector M45 and rear view camera connector T2.

AV cor	ntrol unit	Rear vie	w camera	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M45	36	T2	3	Yes

4. Check continuity between AV control unit connector M45 terminal 36 and ground.

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M45	36		No

#### Is inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness or connectors.

## CHECK CAMERA GROUND CIRCUIT CONTINUITY

Check continuity between AV control unit connector M45 and rear view camera connector T2.

AV cor	ntrol unit	Rear vie	w camera	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M45	33	T2	4	Yes

#### Is inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness or connectors.

## 6.CHECK CAMERA IMAGE SIGNAL

- 1. Connect AV control unit connector M45 and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Shift the selector lever to R (reverse).
- 4. Check signal between AV control unit connector M45 and ground.

AV cor	ntrol unit	Ground			
(+)		( )	Condition	Reference value	
Connector	Terminal	(–)			
M45	36	_	Camera image dis- played.	(V) 0. 4 0 -0. 4 → 40µs skib2251J	

#### Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

NO >> Replace rear view camera. Refer to AV-367, "Removal and Installation".

### MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

## MICROPHONE SIGNAL CIRCUIT

## Diagnosis Procedure

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Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. CHECK MICROPHONE SIGNAL CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect AV control unit connector M45 and microphone connector R109.
- Check continuity between AV control unit connector M45 and microphone connector R109.

AV co	ntrol unit	Micro	phone	Continuity
Connector	Terminal	Connector	Terminal	Continuity
	41		2	
M45	42	R109	4	Yes
	43		1	

Check continuity between AV control unit connector M45 and ground.

AV control unit		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
	41			
M45	42	_	No	
	43			

#### Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

## 2.CHECK MICROPHONE VCC VOLTAGE

- Connect AV control unit connector M45.
- 2. Turn ignition switch ON.
- Check voltage between terminals of AV control unit connector M45.

AV control u		
(+) (-)		Voltage (Approx.)
Terminal	Terminal	( , , , , , , , , , , , , , , , , , , ,
42	41	5.0 V

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to AV-353, "Removal and Installation".

## 3.CHECK MICROPHONE SIGNAL

- Connect microphone connector.
- Check signal between terminals of AV control unit connector M45.

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## **MICROPHONE SIGNAL CIRCUIT**

[NAVIGATION]

AV control ur	AV control unit connector			
(+)	(–)	Condition	Reference value	
Terminal	Terminal			
42	43	Speak into microphone.	(V) 1 0 -1 + 2ms SKIB3609E	

### Is the inspection result normal?

>> Replace AV control unit. Refer to <u>AV-353, "Removal and Installation"</u>. >> Replace microphone. Refer to <u>AV-366, "Removal and Installation"</u>. YES

NO

#### [NAVIGATION]

## STEERING SWITCH

## Diagnosis Procedure

INFOID:0000000009876648

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Regarding Wiring Diagram information, refer to AV-264, "Wiring Diagram".

# 1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

- 1. Disconnect combination switch connector M102.
- 2. Check resistance between combination switch connector terminals.

Teri	minal	Signal name	Condition	Resistance ( $\Omega$ ) (Approx.)
		Volume (down)	Depress <sup>−</sup> Switch.	1
16	18	Volume (up)	Depress ♥ + switch.	121
		Phone end	Depress 🗪 switch.	321
		Source	Depress SOURCE switch.	1
45	40	Seek (up)	Depress $\Delta$ switch.	121
15	18	Seek (down)	Depress ∇ switch.	321
		Phone/Send	Depress √ witch.	723

#### Do the steering wheel audio control switches check OK?

YES >> GO TO 2.

NO >> Replace steering wheel audio control switch. Refer to AV-359, "Removal and Installation".

# 2. CHECK HARNESS

- Turn ignition switch OFF.
- Disconnect AV control unit connector M43 and combination switch connector M30.
- Check continuity between AV control unit harness connector M43 and combination switch harness connector M30.

AV cont	rol unit	Combination switch		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	6		24	
M43	15	M30	31	Yes
	16		25	

4. Check continuity between AV control unit connector M43 and ground.

AV control unit			Continuity	
Connector	Terminal	_	Continuity	
	6			
M43	15	Ground	No	
	16			

#### Are the continuity results as specified?

YES >> GO TO 3.

NO >> Repair harness.

3.SPIRAL CABLE CHECK

## **STEERING SWITCH**

### < DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION]

Check continuity between combination switch harness connectors M30 and M102.

	Combinat	Continuity		
Connector	Terminal	Connector	Terminal	Continuity
	24		15	
M30	31	M102	18	Yes
	25		16	

#### Does the spiral cable check OK?

YES >> Inspection End.

NO >> Replace spiral cable. Refer to <u>SR-13, "Removal and Installation"</u>.

### **USB CONNECTOR**

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[NAVIGATION]

## **USB CONNECTOR**

## **Diagnosis Procedure**

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Regarding Wiring Diagram information, refer to AV-172, "Wiring Diagram".

# 1. CHECK USB INTERFACE HARNESS CONTINUITY

- 1. Turn ignition switch OFF.
- Disconnect AV control unit connector M42 and USB interface connector M124.
- 3. Check continuity between AV control unit connector M42 and USB interface connector M124.

AV cont	rol unit	USB interface		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	48		3	
	45		4	
M42	47	M124	2	Yes
	46		1	
	49		5	

Check continuity between AV control unit connector M42 and ground.

AV control unit		_	Continuity	
Connector	Terminal	<u>—</u>	Continuity	
M42	48	Ground	No	
IVITZ	47	Ground	INO	

#### Is the inspection result normal?

YES >> Replace the USB interface. Refer to AV-363, "Removal and Installation".

NO >> Repair or replace harness or connectors.

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< SYMPTOM DIAGNOSIS >

[NAVIGATION]

# **SYMPTOM DIAGNOSIS**

# **MULTI AV SYSTEM**

Symptom Table

INFOID:0000000009876650

### **RELATED TO AUDIO**

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	AV control unit	Malfunction in AV control unit.  Refer to AV-253, "On Board Diagnosis  Function".

[NAVIGATION]

Symptoms	Check items	Probable malfunction location
	No sound from all speakers.	<ul> <li>Speaker circuit shorted to ground. Refer to <u>AV-264</u>, "Wiring <u>Diagram</u>".</li> <li>Amp ON signal circuit malfunction. Refer to <u>AV-330</u>, "<u>Diagnosis Procedure</u>".</li> <li>Audio amp. power supply and ground circuits malfunction. Refer to <u>AV-308</u>, "<u>AUDIO AMP</u>.: <u>Diagnosis Procedure</u>".</li> </ul>
		Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and audio amp. Refer to: AV-312. "Diagnosis Procedure" (front door speaker).  AV-315. "Diagnosis Procedure" (front toor speaker).
		tweeter).  - AV-318. "Diagnosis Procedure" (center speaker).  - AV-321. "Diagnosis Procedure" (rear door speaker).  - AV-324. "Diagnosis Procedure" (rear
	Only a certain speaker (front door speaker LH, front door speaker RH, front speaker LH, front speaker RH, center speaker, rear door speaker LH, rear door speaker RH, rear speaker LH, rear speaker RH) does not output sound.	<ul> <li>door tweeter).</li> <li>AV-327, "Diagnosis Procedure" (subwoofer).</li> <li>Sound signal circuit malfunction between audio amp. and speaker.</li> </ul>
lo sound comes out or the level of the ound is low.		Refer to:  - AV-312, "Diagnosis Procedure" (front door speaker).  - AV-315, "Diagnosis Procedure" (front tweeter).  - AV-318, "Diagnosis Procedure" (center
		speaker).  - AV-321, "Diagnosis Procedure" (rear door speaker).  - AV-324, "Diagnosis Procedure" (rear door tweeter).
		<ul> <li>AV-327, "Diagnosis Procedure" (subwoofer).</li> <li>Malfunction in speaker.         Refer to:         AV-356, "Removal and Installation" (front     </li> </ul>
		door speaker).  - AV-354, "Removal and Installation" (front tweeter).  - AV-355, "Removal and Installation" (center speaker).
		<ul> <li>AV-357, "Removal and Installation" (rear door speaker).</li> <li>AV-357, "Removal and Installation" (rear door tweeter).</li> </ul>
		<ul> <li>AV-358, "Removal and Installation" (subwoofer).</li> <li>Malfunction in AV control unit.</li> <li>Refer to AV-253, "On Board Diagnosis</li> </ul>
		Function".  • Malfunction in audio amp. Replace Audio amp. Refer to AV-360, "Removal and Installation".

SYMPTOM DIAGNOSIS >		[NAVIGATION
Symptoms	Check items	Probable malfunction location
	Noise comes out from all speakers.	<ul> <li>Malfunction in AV control unit.         Refer to <u>AV-253</u>, "On <u>Board Diagnosis Function"</u>.</li> <li>Malfunction in audio amp.         Replace audio amp. Refer to <u>AV-360</u>, "Removal and Installation".</li> </ul>
Noise is mixed with audio.	Noise comes out only from a certain speaker (front door speaker LH, front door speaker RH, center speaker, rear door speaker LH, rear door speaker RH, rear speaker RH).	<ul> <li>Poor connector connection of speaker.</li> <li>Sound signal circuit malfunction betwee AV control unit and audio amp. Refer to:</li> <li>AV-312. "Diagnosis Procedure" (front door speaker).</li> <li>AV-315. "Diagnosis Procedure" (front tweeter).</li> <li>AV-318. "Diagnosis Procedure" (center speaker).</li> <li>AV-321. "Diagnosis Procedure" (rear door speaker).</li> <li>AV-324. "Diagnosis Procedure" (rear door tweeter).</li> <li>AV-327. "Diagnosis Procedure" (subwoofer).</li> <li>Sound signal circuit malfunction betwee audio amp. and speaker. Refer to:</li> <li>AV-312. "Diagnosis Procedure" (front door speaker).</li> <li>AV-315. "Diagnosis Procedure" (front tweeter).</li> <li>AV-318. "Diagnosis Procedure" (rear door speaker).</li> <li>AV-321. "Diagnosis Procedure" (rear door speaker).</li> <li>AV-324. "Diagnosis Procedure" (rear door tweeter).</li> <li>AV-327. "Diagnosis Procedure" (subwoofer).</li> <li>Malfunction in speaker.</li> <li>Poor Installation of speaker (e.g. backlash and looseness). Refer to:</li> <li>AV-356, "Removal and Installation" (fror tweeter).</li> <li>AV-355, "Removal and Installation" (fror tweeter).</li> <li>AV-357. "Removal and Installation" (rear door speaker).</li> <li>AV-357. "Removal and Installation" (rear door tweeter).</li> <li>AV-358. "Removal and Installation" (rear door tweeter).</li> <li>AV-358. "Removal and Installation" (subwoofer).</li> <li>Malfunction in AV control unit. Refer to AV-253. "On Board Diagnosis Function".</li> <li>Malfunction in audio amp. Refer to AV-360, "Removal and Installation".</li> </ul>
	hicle hits a bump or while driving over bad roads)	antenna feeder.  Refer to AV-361, "Location of Antenna".

#### < SYMPTOM DIAGNOSIS >

[NAVIGATION]

Symptoms	Check items	Probable malfunction location
No radio reception or poor reception.	Other audio sounds are normal.     Any radio station cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	<ul> <li>Antenna amp. ON signal circuit malfunction. Refer to <u>AV-255</u>, "<u>Reference Value</u>".</li> <li>Poor connector connection of antenna or antenna feeder. Refer to <u>AV-361</u>, "<u>Location of Antenna</u>".</li> </ul>
No satellite radio reception.	There is malfunction in the CONSULT self diagnosis result.  Refer to AV-254, "CONSULT Function".	<ul> <li>Malfunction in antenna, antenna feeder or AV control unit. Perform DTC diagnosis.         Refer to AV-296, "Diagnosis Procedure".     </li> <li>Poor continuity in antenna feeder.</li> <li>Poor connector connection of antenna or antenna feeder.</li> <li>Refer to AV-296, "Diagnosis Procedure".</li> </ul>
	There is no malfunction in the CONSULT self diagnosis result.  Refer to AV-254, "CONSULT Function".	<ul> <li>Poor continuity in antenna feeder.</li> <li>Poor connector connection of antenna or antenna feeder.</li> <li>Loose satellite radio antenna mounting nut.</li> <li>Refer to <u>AV-361</u>, "<u>Location of Antenna</u>".</li> </ul>
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.

#### RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and check that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

#### **Check Compatibility**

- 1. Make sure the customer's Bluetooth® related concern is understood.
- 2. Verify the customer's concern.

#### NOTE:

The customer's phone may be required, depending upon their concern.

3. Write down the customer's phone brand, model and service provider.

#### NOTE:

It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.

- Go to "www.nissanusa.com/bluetooth/".
- Using the website's search engine, find out if the customer's phone is on the approved list.
- b. If the customer's phone is NOT on the approved list: Stop diagnosis here. The customer needs to obtain a Bluetooth<sup>®</sup> phone that is on the approved list before any further action.
- c. If the feature related to the customer's concern shows as "N" (not compatible): Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as "Y" (compatible) in the "Basic Features".
- d. If the feature related to the customer's concern shows as "Y" (compatible): Perform diagnosis as per the following table.

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## < SYMPTOM DIAGNOSIS >

Symptoms	Check items	Probable malfunction location	
Does not recognize cellular phone connection (no connection is displayed on the display at the guide).	Repeat the registration of cellular phone.	Malfunction in AV control unit. Replace AV control unit. Refer to AV-353, "Removal and Installation".	
Hands-free phone cannot be established.	<ul> <li>Hands-free phone operation can be made, but the communication cannot be established.</li> <li>Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.</li> </ul>		
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in Inspection & Adjustment Mode if sound is heard.		
Originating sound is not heard by the other	Sound operation function is normal.		
party with hands-free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to <u>AV-333</u> , " <u>Diagnosis Procedure</u> ".	
	<ul> <li>The voice recognition can be controlled.</li> <li>Steering switch's □+, - □, and ⇒ switch works, but √2 C does not work.</li> </ul>	Steering switch malfunction. Replace steering switch. Refer to AV-359. "Removal and Installation".	
The system cannot be operated.	Steering switch's $\sqrt{2}$ ( $^{\circ}$ , $\sqrt{1}$ + , $^{-}$ $\sqrt{1}$ , and $^{\bullet}$ switches do not work.	Steering switch signal circuit malfunction. Refer to AV-335, "Diagnosis Procedure".	
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-335. "Diagnosis Procedure".	

### **RELATED TO NAVIGATION**

Symptoms	Check items	Probable malfunction location
Navigation system is inoperative.	Navigation malfunction.	Malfunction in SD card.     Malfunction in AV control unit.     Refer to AV-253, "On Board Diagnosis Function".
	Steering switches malfunction.	Steering switch signal circuit malfunction. Refer to AV-335, "Diagnosis Procedure".
	Voice activated control malfunction.	Microphone signal circuit malfunction. Refer to AV-333, "Diagnosis Procedure". Steering switch signal circuit malfunction. Refer to AV-335, "Diagnosis Procedure".

## RELATED TO REAR VIEW CAMERA

Symptoms	Check items	Probable malfunction location
Rear view camera is inoperative.	Reverse signal circuit malfunction.	Reverse signal circuit malfunction between BCM and AV control unit. Refer to AV-331, "Diagnosis Procedure".
	Camera image signal circuit malfunction.	Camera image signal circuit malfunction between rear view camera and AV control unit.  Refer to AV-331, "Diagnosis Procedure".
	Rear view camera malfunction.	Replace rear view camera. Refer to AV-367. "Removal and Installation".

### **DVD PLAYER**

## < SYMPTOM DIAGNOSIS >

# [NAVIGATION]

Symptom	Possible cause	Reference page
DVD player inoperative	DVD player power and ground circuit     DVD player	<ul><li>AV-309</li><li>AV-369</li></ul>
No sound when playing a DVD	<ul><li>Audio signal circuits</li><li>AV control unit</li><li>DVD player</li></ul>	<ul><li>AV-255</li><li>AV-255</li><li>AV-369</li></ul>
Video monitor is inoperative/does not display properly	<ul><li>Power supply and ground circuits</li><li>Video out circuit</li><li>DVD player</li><li>Video monitor</li></ul>	• AV-310 • AV-262 • AV-369 • AV-369
Rear control assembly is inoperative/does not operate properly	DVD player     Rear control assembly	<ul><li>AV-369</li><li>AV-368</li></ul>
Headphones inoperative	<ul> <li>Headphone batteries</li> <li>Headphone audio signal circuits from AV control unit</li> <li>AV control unit</li> <li>Rear control assembly</li> </ul>	• <u>AV-255</u> • <u>AV-353</u> • <u>AV-368</u>

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[NAVIGATION]

## NORMAL OPERATING CONDITION

Description INFOID.000000009876651

#### RELATED TO NOISE

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

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

Occurrence condition		Possible cause	
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	Ignition components	
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, AV control unit malfunction	
electrical components are operating.	The noise occurs when various motors are operating.	Motor case ground     Motor	
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 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>	

#### RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection (No connection is displayed on the display at the guide).	Some Bluetooth <sup>®</sup> enabled cellular phones may not be recognized by the in-vehicle phone module.  Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" in <u>AV-338</u> , "Symptom Table".
Cannot use hands-free phone.	Customer will not be able to use a hands-free phone under the following conditions:  • The vehicle is outside of the telephone service area.  • The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area.  • The cellular phone is locked to prevent it from being dialed.  NOTE:
	While a cellular phone is connected through the Bluetooth <sup>®</sup> wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth <sup>®</sup> Hands-Free Phone System cannot charge cellular phones.

Wait until GPS satellites are visible by mov-

ing the vehicle.

SYMPTOM DIAGNOSIS >				
Symptom		Cause and Counter measure		
		loud, it may be diffic	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.	
Poor sound quality.		far away from the ir	Ilular phone in an area surrounded by metal or nevenicle phone module to prevent tone quality reless connection disruption.	
RELATED TO NAVIGATIO	N			
Basic Operation				
Symptom	Cause	!	Remedy	
No image is shown.	Display brightness adjustme side.	nt is set fully to DARK	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 availat driving on a dark pink route.	ole while the vehicle is	System is not malfunctioning.	
Screen is too dark. Motion of the image is too slow.	Temperature inside the vehic	cle 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.	
/ehicle Mark				
Symptom	Cause		Remedy	
Map screen and BIRDVIEW™ Name of the place vary with the screen.	Some thinning of the character data is done to prevent 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 correctly.	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 satellite 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 dimming setting is done. Switching between daytime/nighttime screen may be inhibited by the automatic illumination adjustment function.		Perform screen dimming and select the nighttime screen by "SWITCH SCREENS".	
Map screen will not scroll in accordance with the vehicle travel.	Current location is not displayed.		Press "MAP" button to display the current location.	
Vehicle mark will not be shown.	Current location is not displa	ayed.	Press "MAP" button to display the current location.	
Accuracy indicator (GPS satellite mark) on the map screen stays			Move the vehicle out to an open space.	
gray.	GPS satellite signal cannot I an obstacle is placed on top		Do not place anything on top of the meter display (instrument panel).	

GPS satellites are not visible from current location.

## < SYMPTOM DIAGNOSIS >

[NAVIGATION]

Symptom	Cause	Remedy
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 fitted or the system has been used on another vehicle.	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 CONFIRMATION/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

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.
Route information will not be displayed.	Route searching has not been done.	Set the destination and perform route searching.
	Vehicle mark is not on the recommended route.	Drive on the recommended route.
	Route guide is turned OFF.	Turn route guide ON.
	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 recommended route will be shown.)	Drive on the recommended route.
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). However, the result is the same as that of the previous search.	Performed search with every conditions considered. 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 selected.	The vehicle is being driven.	Stop the vehicle at a safe place and then operate the system.

Voice Guide

## < SYMPTOM DIAGNOSIS >

[NAVIGATION]

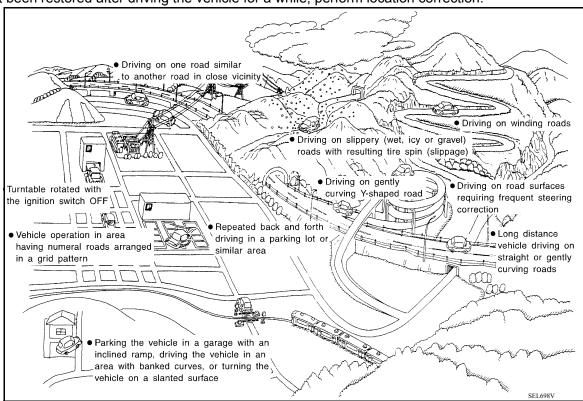
Symptom	Cause	Remedy	
Voice guide will not operate.	Note: Voice guide is only available at intersections that satisfy certain conditions (indicated by ● on the map). Therefore, guidance may not be given even when the route on the map changes direction.	System is not malfunctioning.	
	The vehicle is not on the recommended route.	Return to the recommended route or research 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 actual 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 destination.	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 current 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.	to	
When the vehicle has passed the recommended route, it is deleted from the screen.	A recommended route is controlled by each section. 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.	
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.	

Except for the ordinance-designated cities. (Malfunctioning areas may be changed in the updated map disc.)

Examples of Current-Location Mark Displacement

[NAVIGATION]

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.



[NAVIGATION]

Cause (condition) —: While driving ooo: Display	Driving condition	Remarks (correction, etc.)	
Y-intersections	At a Y intersection or similar gradual division 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	When driving on a large, continuous spiral road (such as loop bridge), turning angle error is accumulated and the vehicle mark		
ELK0193D  Straight roads	may deviate from the correct location.		
oad config-	When driving on a long, straight road and slow curve without stopping, map-matching does not work effectively enough and distance errors may accumulate. As a result, the vehicle mark may deviate from the correct location when the vehicle is turned at a corner.	If after travelling about 10 km (6 miles) the correct location has	
Road configuration  Zigzag roads  ELK0194D	When driving on a zigzag road, the map may be matched to other roads in the similar direction nearby at every turn, and the vehicle mark may deviate from the correct location.	not been restored, perform lo- 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 running in the similar direction nearby, the map		
ELK0196D	may be matched to them by mistake and the vehicle mark may deviate from the correct 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 mistake and the vehicle mark may deviate from the correct location.		A

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[NAVIGATION]

Cause (co	ndition) -: While driving ooo: Display	Driving condition	Remarks (correction, etc.)
	In a parking lot  Parking lot  SEL709V	When driving in a parking lot, or other location 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 deviated from the correct location.  When driving in circle or turning the steering wheel repeatedly, direction errors accumulate, and the vehicle mark may deviate from the correct location.	
Place	Turntable  Turntable  SEL710V	When the ignition switch is OFF, the navigation 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 easily 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 cases 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  New road  SEL699V	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 on the map, the vehicle mark may deviate from the correct road.	
Map data	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 correct 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.)

#### < SYMPTOM DIAGNOSIS >

[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 stopping, 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 detection, and may cause the vehicle mark to deviate from the correct road.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
How to cor- rect location	Position correction accuracy  Within 1 mm (0.04 in)  SEL701V	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  Direction calibration adjustment	If the accuracy of location settings during correction is poor, accuracy may be reduced 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™ 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

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#### < SYMPTOM DIAGNOSIS >

[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 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 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 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.

#### **AV CONTROL UNIT**

< REMOVAL AND INSTALLATION >

[NAVIGATION]

# REMOVAL AND INSTALLATION

### AV CONTROL UNIT

Removal and Installation

#### INFOID:0000000009876652

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#### REMOVAL

#### **CAUTION:**

Before replacing AV control unit, perform "READ CONFIGURATION" to save current vehicle specification. Refer to AV-288, "CONFIGURATION (AV CONTROL UNIT): Description".

- 1. Disconnect the battery negative terminal. Refer to PG-79, "Removal and Installation".
- Remove the cluster lid C. Refer to <u>IP-15, "Removal and Installation"</u>.
- 3. Remove the AV control unit.
- a. Remove the AV control unit screws using power tool.
- b. Pull the AV control unit out from the instrument panel.
- Disconnect the harness connectors from the AV control unit.

#### **INSTALLATION**

### **CAUTION:**

• When replacing AV control unit, perform "WRITE CONFIGURATION". Refer to <u>AV-288, "CONFIGURA-TION (AV CONTROL UNIT): Description"</u>.

Installation is in the reverse order of removal.

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[NAVIGATION]

## FRONT TWEETER

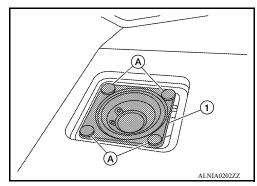
## Removal and Installation

#### INFOID:0000000009876653

#### **FRONT TWEETER**

#### Removal

- 1. Remove the front tweeter grille. Refer to IP-11, "Removal and Installation".
- 2. Remove the front tweeter clips (A).
- 3. Disconnect the front tweeter harness connector.
- 4. Remove the front tweeter (1).



#### Installation

### **CENTER SPEAKER**

#### < REMOVAL AND INSTALLATION >

[NAVIGATION]

## **CENTER SPEAKER**

## Removal and Installation

#### INFOID:0000000009876654

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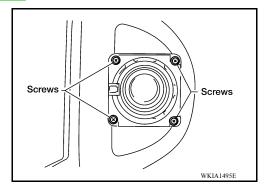
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#### **CENTER SPEAKER**

#### Removal

- 1. Remove the center console. Refer to IP-20, "Removal and Installation".
- 2. Remove the cluster lid D. Refer to IP-15, "Removal and Installation".
- 3. Remove the center speaker screws.
- 4. Disconnect the center speaker harness connector.
- 5. Remove the center speaker.



#### Installation

Installation is in the reverse order of removal.

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## FRONT DOOR SPEAKER

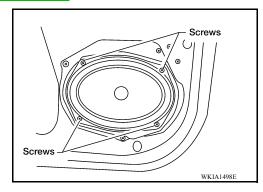
## Removal and Installation

#### INFOID:0000000009876655

#### FRONT DOOR SPEAKER

#### Removal

- 1. Remove the front door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation".
- 2. Remove the four front door speaker screws.
- 3. Disconnect the front door speaker harness connector.
- 4. Remove the front door speaker.



#### Installation

[NAVIGATION]

## REAR DOOR SPEAKER

#### Removal and Installation

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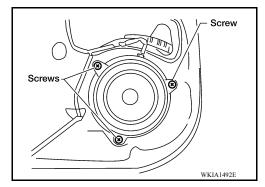
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#### **REAR DOOR SPEAKER**

#### Removal

- 1. Remove the rear door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation" (Crew Cab) or <a href="INT-10">INT-10</a>, "Removal and Installation" King Cab.
- 2. Remove the three rear door speaker screws.
- 3. Disconnect the rear door speaker harness connector.
- 4. Remove the rear door speaker.



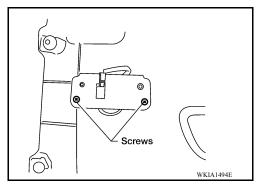
Installation

Installation is in the reverse order of removal.

#### REAR DOOR TWEETER

#### Removal

- 1. Remove the rear door finisher. Refer to <a href="INT-10">INT-10</a>, "Removal and Installation".
- Remove the rear door tweeter screws.
- 3. Remove the rear door tweeter.
- 4. Disconnect the rear door tweeter harness connector.



Installation

Installation is in the reverse order of removal.

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## **SUBWOOFER**

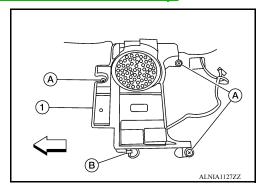
## Removal and Installation

#### INFOID:0000000009876657

#### **SUBWOOFER**

#### Removal

- 1. Remove the LH front seat. Refer to SE-34, "Removal and Installation Front Seat Assembly".
- 2. Disconnect the subwoofer harness connector (B).
  - <⊐: Vehicle front
- 3. Remove the subwoofer bolts (A).
- 4. Remove the subwoofer (1).



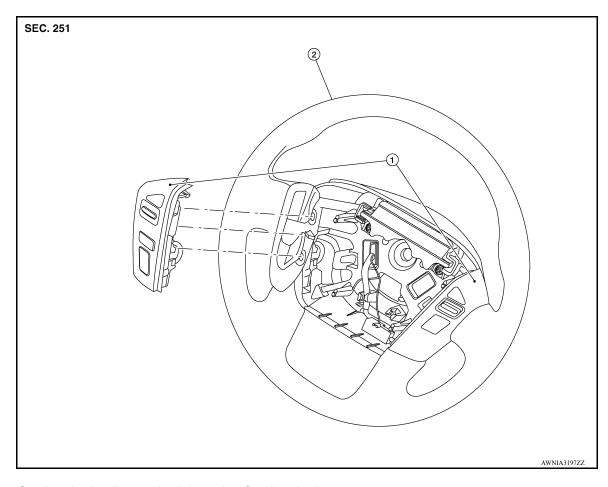
#### Installation

### [NAVIGATION]

INFOID:0000000010159267

## STEERING SWITCH

## Removal and Installation



1. Steering wheel audio control switches 2. Steering wheel

### STEERING WHEEL AUDIO CONTROL SWITCHES

#### Removal

- Remove the steering wheel. Refer to <u>ST-22, "Removal and Installation"</u>.
- 2. Remove the steering wheel rear cover screws and the steering wheel rear cover.
- 3. Remove the steering wheel switch assembly screws and the steering wheel switches.

#### Installation

Installation is in the reverse order of removal.

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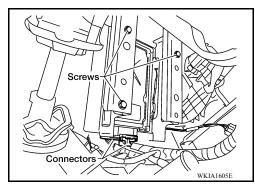
## AUDIO AMP.

### Removal and Installation

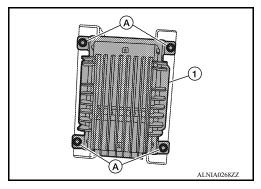
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#### **REMOVAL**

- 1. Remove the accelerator pedal. Refer to ACC-3, "Removal and Installation".
- 2. Remove the BCM. Refer to BCS-52, "Removal and Installation".
- 3. Remove the audio amp.
- a. Disconnect the audio amp. harness connectors.
- b. Remove the audio amp bracket screws and slide the audio amp and bracket assembly down.



4. Remove the audio amp. screws (A) and separate the audio amp. (1) from the bracket.



#### **INSTALLATION**

#### [NAVIGATION]

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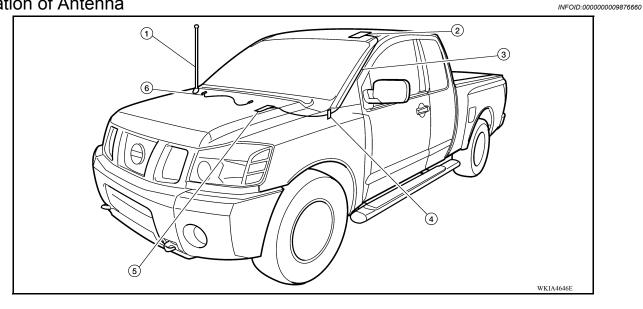
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## **AUDIO ANTENNA**

## Location of Antenna



- 1. Antenna
- 4. Connectors

- 2. Satellite antenna (if equipped, facto- 3. ry installed)
- 5. Satellite radio tuner
- Satellite antenna feeder
- Main feeder cable

#### Removal and Installation

REMOVAL

- 1. Remove audio antenna rod.
- 2. Remove audio antenna rubber seal.
- Remove fender protector RH. Refer to EXT-24, "Removal and Installation".
- Remove audio antenna assembly bolts.
- 5. Disconnect the audio antenna feeder from the audio antenna assembly.
- 6. Remove audio antenna assembly from the vehicle.

#### **INSTALLATION**

Installation is in the reverse order of removal.

· Tighten audio antenna rod to specification.

Audio antenna rod : 3.5 N·m (0.36 kg-m, 31 in-lb)

#### **CAUTION:**

Always properly tighten the audio antenna rod during installation or the audio antenna rod may bend or break during vehicle operation.

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Revision: April 2014 AV-361 2014 Titan

## **AUXILIARY INPUT JACK**

< REMOVAL AND INSTALLATION >

[NAVIGATION]

## **AUXILIARY INPUT JACK**

## Removal and Installation

INFOID:0000000009876662

### **REMOVAL**

- 1. Remove the center console. Refer to IP-20, "Removal and Installation".
- 2. Remove the auxiliary input jack.

#### **INSTALLATION**

USB CONNECTOR

Removal and Installation
REMOVAL

1. Remove the center console assembly. Refer to IP-20, "Removal and Installation".

2. Push the pawl from the back of the center console to remove the USB interface.

INSTALLATION
Installation is in the reverse order of removal.

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### **SATELLITE RADIO ANTENNA**

< REMOVAL AND INSTALLATION >

[NAVIGATION]

## SATELLITE RADIO ANTENNA

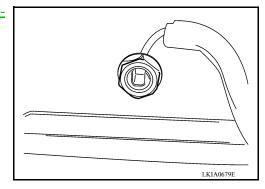
## Removal and Installation

#### INFOID:0000000009876664

### SATELLITE RADIO ANTENNA

#### Removal

- 1. Lower the headliner. Refer to <a href="INT-21">INT-21</a>, "Removal and Installation".
- 2. Disconnect the satellite radio antenna connector.
- 3. Remove the satellite radio antenna nut.
- 4. Remove the satellite radio antenna.



#### Installation

### **GPS ANTENNA**

#### < REMOVAL AND INSTALLATION >

[NAVIGATION]

## **GPS ANTENNA**

### Removal and Installation

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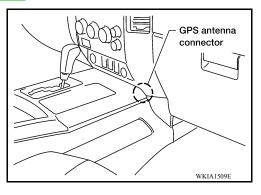
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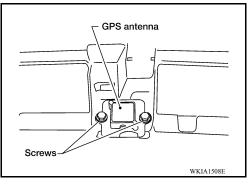
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### **REMOVAL**

- 1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
- 2. Disconnect center speaker.
- 3. Remove defroster grille. Refer to VTL-25, "Removal and Installation".
- 4. Disconnect GPS antenna connector.



5. Remove the GPS antenna.



#### **INSTALLATION**

Installation is in the reverse order of removal.

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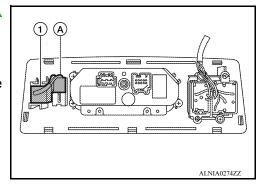
## **MICROPHONE**

## Removal and Installation

#### INFOID:0000000009876665

#### **REMOVAL**

- 1. Remove the front roof console finisher. Refer to <u>INT-21.</u> "Removal and Installation".
- 2. Remove the Bluetooth microphone (1)
- a. Disconnect the Bluetooth microphone harness connector (A).
- b. Detach the Bluetooth microphone (1) from the front roof console finisher.



#### **INSTALLATION**

### **REAR VIEW CAMERA**

< REMOVAL AND INSTALLATION >

[NAVIGATION]

## **REAR VIEW CAMERA**

## Removal and Installation

INFOID:0000000009876666

## **REMOVAL**

- 1. Remove the tail gate handle. Refer to <u>DLK-137, "Exploded View"</u>.
- 2. Remove the rear view camera screws and the rear view camera from the tail gate handle.

#### **INSTALLATION**

Installation is in the reverse order of removal.

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## REAR CONTROL SWITCH

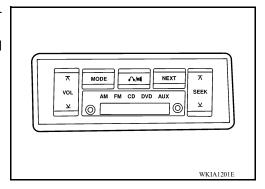
## Removal and Installation

#### INFOID:0000000010621851

### REAR AUDIO REMOTE CONTROL UNIT

#### Removal

- 1. Carefully remove the rear control switch from the rear roof console assembly using a suitable tool.
- 2. Disconnect the harness connector from rear control switch and remove.



#### Installation

## **DVD ENTERTAINMENT SYSTEM**

## Removal and Installation

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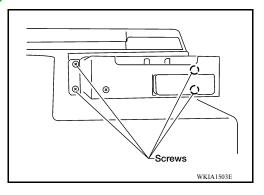
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## **DVD PLAYER**

#### Removal

- 1. Disconnect the battery negative terminal.Refer to PG-79, "Removal and Installation".
- 2. Remove the center console bin. Refer to IP-19, "Exploded View".
- 3. Remove the DVD player screws.



4. Remove the DVD player.

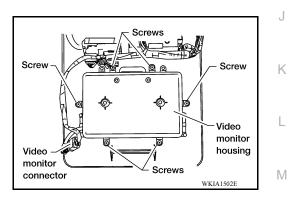
Installation

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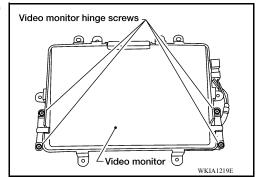
#### VIDEO MONITOR

#### Removal

- 1. Remove the rear roof console assembly. Refer to <a href="INT-21">INT-21</a>, "Removal and Installation".
- 2. Disconnect the harness connector from video monitor.
- 3. Remove the video housing screws.



- 4. Remove the video monitor and housing.
- Remove the video monitor hinge screws and remove the video monitor.



Installation