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Е

F

CONTENTS

BASE AUDIO WITHOUT REAR VIEW CAM-	Description	
	U1216 AV CONTROL UNIT	32
BASIC INSPECTION1	Description	
DIAGNOSIS AND REPAIR WORKFLOW1	DTC Logic	
Work Flow1	U1243 DISPLAY UNIT3	
SYSTEM DESCRIPTION1		
MULTI AV SYSTEM1	DTC Logic	
System Diagram13	HADOO AV COMMA CIDCUIT	
System Description		
Component Description19		3€
AUDIO SYSTEM10	AV CONTROL UNIT3	36
System Diagram10	AV CONTROL LINIT · Diagnosis Procedure	
System Description10 Component Parts Location1		26
Component Description1		
DIAGNOSIS SYSTEM (AV CONTROL UNIT)19	MULTIFUNCTION SWITCH3	37
Diagnosis Description19	MULTIFUNCTION SWITCH : Diagnosis Proce-	
CONSULT Function (MULTI AV)20	6 dure3	37
DTC/CIRCUIT DIAGNOSIS2		
U1000 CAN COMM CIRCUIT2	Description	
Description28		39
DTC Logic20		40
Diagnosis Procedure28	B Description4	
U1010 CONTROL UNIT (CAN)29	Diagnosis Procedure4	40
Description29		41
DTC Logic29	Description4	41
Diagnosis Procedure29	Diagnosis Procedure4	41
U1310 AV CONTROL UNIT3		
Description30		
DTC Logic30	Diagnosis Procedure	12
U1200 AV CONTROL UNIT3	RGB AREA (YS) SIGNAL CIRCUIT4	43

Description		PRECAUTIONS	72
Diagnosis Procedure	43	Precaution for Supplemental Restraint System	
HORIZONTAL SYNCHRONIZING (HP) SIG-		(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-SIONER"	72
NAL CIRCUIT		Precaution for Trouble Diagnosis	
Description		Precaution for Harness Repair	
Diagnosis Procedure	44	·	
VERTICAL SYNCHRONIZING (VP) SIGNAL		PREPARATION	
CIRCUIT		PREPARATION	
Description		Commercial Service Tools	74
Diagnosis Procedure	45	REMOVAL AND INSTALLATION	75
AUX IMAGE SIGNAL CIRCUIT	46		
Description		AV CONTROL UNIT	
Diagnosis Procedure	46	Exploded View	
CD EJECT SIGNAL CIRCUIT	48	Removal and Installation	75
Description		DISPLAY UNIT	76
Diagnosis Procedure		Exploded View	76
-		Removal and Installation	76
STEERING SWITCH SIGNAL A CIRCUIT		EDONT DOOD SDEAVED	
Description		FRONT DOOR SPEAKER	
Diagnosis Procedure		Exploded ViewRemoval and Installation	
Component Inspection	49	Removal and installation	/ /
STEERING SWITCH SIGNAL B CIRCUIT	51	REAR DOOR SPEAKER	
Description	51	Exploded View	
Diagnosis Procedure	51	Removal and Installation	78
Component Inspection	51	TWEETER	70
STEERING SWITCH SIGNAL GND CIRCUIT	52	Exploded View	
Description		Removal and Installation	
Diagnosis Procedure			
Component Inspection		ANTENNA AMP	
		Exploded View	
ECU DIAGNOSIS INFORMATION	55	Removal and Installation	
AV CONTROL UNIT	55	MULTIFUNCTION SWITCH	81
Reference Value	55	Exploded View	_
DTC Index	60	Removal and Installation	81
DISPLAY UNIT	62	PRESET SWITCH	82
Reference Value	-	Exploded View	
		Removal and Installation	82
WIRING DIAGRAM	65	STEERING SWITCH	00
DACE AUDIO WITHOUT DEAD VIEW CAM			
BASE AUDIO WITHOUT REAR VIEW CAM-	0.5	Exploded ViewRemoval and Installation	
Wiring Diagram		Removal and installation	03
Wiring Diagram	65	AUXILIARY INPUT JACKS	84
SYMPTOM DIAGNOSIS	68	Exploded View	84
MILL TLAV OVOTEM OVMOTOMO		Removal and Installation	84
MULTI AV SYSTEM SYMPTOMS		ANTENNA FEEDER	85
Symptom Table	ნ8	Feeder Layout	
NORMAL OPERATING CONDITION	70	BASE AUDIO WITH REAR VIEW CAME	
Description			
DDECALITION		PRECAUTION	86
PRECAUTION	/2	PRECAUTIONS	26
			00

Precaution for Supplemental Restraint System	CONFIGURATION (AV CONTROL UNIT) 132
(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-	Description132 A
SIONER"86	Work Procedure132
Cautions in Removing Battery Terminal and AV	Configuration List132
Control Unit (Models with AV Control Unit)86	DTC/CIDCUIT DIACNOSIS
Precaution for Trouble Diagnosis86	DTC/CIRCUIT DIAGNOSIS134
Precaution for Harness Repair86	U1000 CAN COMM CIRCUIT134
PREPARATION88	Description
TICE ANATION	DTC Logic
PREPARATION88	Diagnosis Procedure134
Commercial Service Tools88	
	U1010 CONTROL UNIT (CAN)135
SYSTEM DESCRIPTION89	DTC Logic135
COMPONENT PARTS89	U1200 AV CONTROL UNIT136
Component Parts Location89	U1200 AV CONTROL UNIT
Component Description90	DTC Logic130
Component Description90	U1216 AV CONTROL UNIT137
SYSTEM92	DTC Logic137
	C
MULTI AV SYSTEM92	U1232 STEERING ANGLE SENSOR138
MULTI AV SYSTEM : System Diagram92	DTC Logic138 G
MULTI AV SYSTEM: System Description92	Diagnosis Procedure138
DIAGNOSIS SYSTEM (AV CONTROL UNIT)95	U1243 DISPLAY UNIT139
Description95	DTC Logic
On Board Diagnosis Function95	Diagnosis Procedure
CONSULT Function	Diagnosis Frocedure139
OCHOOLI I UIICUOTI104	U1255 SATELLITE RADIO TUNER141
DIAGNOSIS SYSTEM (TEL ADAPTER UNIT). 107	DTC Logic141
On Board Diagnosis Function107	Diagnosis Procedure141
	•
ECU DIAGNOSIS INFORMATION109	U1300 AV COMM CIRCUIT 143
AV CONTROL UNIT109	Description143
Reference Value	U1310 AV CONTROL UNIT144
DTC Index115	DTC Logic
DTC IIIdex113	DTG Logic144
DISPLAY UNIT 117	POWER SUPPLY AND GROUND CIRCUIT 145
Reference Value117	L
	AV CONTROL UNIT145
SATELLITE RADIO TUNER120	AV CONTROL UNIT: Diagnosis Procedure145
Reference Value120	DISPLAY UNIT145 M
TEL ADAPTER UNIT122	DISPLAY UNIT : Diagnosis Procedure145
Reference Value	
Reference value122	SATELLITE RADIO TUNER146
WIRING DIAGRAM124	SATELLITE RADIO TUNER : Diagnosis Proce-
	dure146
BASE AUDIO WITH REAR VIEW CAMERA 124	TEL ADAPTER UNIT147
Wiring Diagram124	TEL ADAPTER UNIT : Diagnosis Procedure147
DACIC INCRECTION	TEL ADAFTER ONT . Diagnosis Flocedure 147
BASIC INSPECTION129	RGB (R: RED) SIGNAL CIRCUIT148
DIAGNOSIS AND REPAIR WORKFLOW129	Description148
Work Flow	Diagnosis Procedure148
129	
ADDITIONAL SERVICE WHEN REPLACING	RGB (G: GREEN) SIGNAL CIRCUIT149
(AV CONTROL UNIT)131	Description149
Description131	Diagnosis Procedure149
Work Procedure131	RGB (B: BLUE) SIGNAL CIRCUIT150
	NGD (D. DLUE) SIGNAL CIRCUIT150

Description		Description	172
Diagnosis Procedure	150	REMOVAL AND INSTALLATION	175
RGB SYNCHRONIZING SIGNAL CIRCUIT	151		
Description	151	AV CONTROL UNIT	
Diagnosis Procedure	151	Exploded View	
DOD ADEA (VS) SIGNAL CIDCUIT	450	Removal and Installation	175
RGB AREA (YS) SIGNAL CIRCUIT Description		DISPLAY UNIT	177
Diagnosis Procedure		Exploded View	
		Removal and Installation	
CAMERA IMAGE SIGNAL CIRCUIT		FRONT DOOR SPEAKER	170
Description		Exploded View	
Diagnosis Procedure	153	Removal and Installation	
COMPOSITE IMAGE SIGNAL CIRCUIT	155		
Description		REAR DOOR SPEAKER	
Diagnosis Procedure	155	Exploded View	
HORIZONTAL SYNCHRONIZING (HP) SIG	: -	Removal and Installation	179
NAL CIRCUIT		TWEETER	180
Description		Exploded View	180
Diagnosis Procedure		Removal and Installation	180
		ANTENNA AMP	101
VERTICAL SYNCHRONIZING (VP) SIGNA		Exploded View	
CIRCUIT		Removal and Installation	
Description		Nomoval and motaliation	
Diagnosis Procedure	157	SATELLITE RADIO TUNER	
DISK EJECT SIGNAL CIRCUIT	158	Exploded View	
Description		Removal and Installation	182
Diagnosis Procedure	158	SATELLITE RADIO ANTENNA	183
MICROPHONE SIGNAL CIRCUIT	159	Exploded View	
Description		Removal and Installation	183
Diagnosis Procedure		MULTIFUNCTION SWITCH	404
		Exploded View	
CONTROL SIGNAL CIRCUIT		Removal and Installation	
Description Diagnosis Procedure			
Diagnosis i Tocedure	101	PRESET SWITCH	
STEERING SWITCH SIGNAL A CIRCUIT .	162	Exploded View	
Description		Removal and Installation	185
Diagnosis Procedure		STEERING SWITCH	186
Component Inspection	162	Exploded View	
STEERING SWITCH SIGNAL B CIRCUIT .	164	Removal and Installation	186
Description	164	USB CONNECTOR	187
Diagnosis Procedure	164	Exploded View	
Component Inspection	164	Removal and Installation	
STEERING SWITCH GROUND CIRCUIT	166		
Description		MICROPHONE	
Diagnosis Procedure		Exploded View	
Component Inspection		Removal and Installation	188
CVMDTOM DIA CNOCIC		TEL ANTENNA	189
SYMPTOM DIAGNOSIS	168	Exploded View	
MULTI AV SYSTEM SYMPTOMS	168	Removal and Installation	189
Symptom Table		TEL ADAPTER UNIT	100
•		Exploded View	
NORMAL OPERATING CONDITION	172	Removal and Installation	

REAR VIEW CAMERA191	Reference Value232
Exploded View191	TEL ADAPTER UNIT234
Removal and Installation191	Reference Value
Adjustment191	
STEERING ANGLE SENSOR193	WIRING DIAGRAM236
Exploded View193	BOSE AUDIO WITHOUT NAVIGATION 236
Removal and Installation193	Wiring Diagram
ANTENNA FEEDER194	
Feeder Layout	BASIC INSPECTION242
BOSE AUDIO WITHOUT NAVIGATION	DIAGNOSIS AND REPAIR WORKFLOW 242
	Work Flow242
PRECAUTION 195	
PRECAUTIONS195	ADDITIONAL SERVICE WHEN REPLACING
Precaution for Supplemental Restraint System	(AV CONTROL UNIT)244
(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-	Description
SIONER"195	Work Procedure244
Cautions in Removing Battery Terminal and AV	CONFIGURATION (AV CONTROL UNIT) 245
Control Unit (Models with AV Control Unit) 195	Description245
Precaution for Trouble Diagnosis	Work Procedure245
Precaution for Harness Repair195	Configuration List245
PREPARATION197	DTC/CIRCUIT DIAGNOSIS247
PREPARATION197	U1000 CAN COMM CIRCUIT247
Commercial Service Tools197	Description247
SYSTEM DESCRIPTION198	DTC Logic247
5151EW DESCRIPTION198	Diagnosis Procedure247
COMPONENT PARTS198	U1010 CONTROL UNIT (CAN)248
Component Parts Location198	DTC Logic248
Component Description199	
SYSTEM201	U1200 AV CONTROL UNIT249
	DTC Logic249
MULTI AV SYSTEM201	U1216 AV CONTROL UNIT250
MULTI AV SYSTEM: System Diagram201 MULTI AV SYSTEM: System Description201	DTC Logic250
WOLTTAV STSTEM . System Description201	U1232 STEERING ANGLE SENSOR251
DIAGNOSIS SYSTEM (AV CONTROL UNIT) 204	DTC Logic
Description204	Diagnosis Procedure251
On Board Diagnosis Function204	· ·
CONSULT Function213	U1243 DISPLAY UNIT252
DIAGNOSIS SYSTEM (TEL ADAPTER UNIT). 216	DTC Logic
On Board Diagnosis Function216	Diagnosis Procedure252
ECU DIAGNOSIS INFORMATION218	U1255 SATELLITE RADIO TUNER254
ECU DIAGNOSIS INFORMATION218	DTC Logic254
AV CONTROL UNIT218	Diagnosis Procedure254
Reference Value218	U1300 AV COMM CIRCUIT256
DTC Index224	Description
DISPLAY UNIT226	·
Reference Value	U1310 AV CONTROL UNIT257
	DTC Logic257
BOSE AMP	POWER SUPPLY AND GROUND CIRCUIT 258
Reference Value229	AV CONTROL UNIT258
SATELLITE RADIO TUNER232	AV CONTROL UNIT : Diagnosis Procedure258

В

С

D

Е

F

G

Н

J

Κ

L

M

0

DISPLAY UNIT	258	CONTROL SIGNAL CIRCUIT	276
DISPLAY UNIT : Diagnosis Procedure	258	Description	276
BOSE AMP	250	Diagnosis Procedure	276
BOSE AMP. : Diagnosis Procedure		STEERING SWITCH SIGNAL A CIRCUIT .	277
		Description	
SATELLITE RADIO TUNER		Diagnosis Procedure	
SATELLITE RADIO TUNER: Diagnosis Proce-		Component Inspection	
dure	260		
TEL ADAPTER UNIT	260	STEERING SWITCH SIGNAL B CIRCUIT.	
TEL ADAPTER UNIT : Diagnosis Procedure		Description	
•		Diagnosis Procedure	
RGB (R: RED) SIGNAL CIRCUIT		Component Inspection	279
Description		STEERING SWITCH GROUND CIRCUIT	281
Diagnosis Procedure	262	Description	
RGB (G: GREEN) SIGNAL CIRCUIT	263	Diagnosis Procedure	
Description		Component Inspection	
Diagnosis Procedure		OVERTON DIA ONODIO	
		SYMPTOM DIAGNOSIS	283
RGB (B: BLUE) SIGNAL CIRCUIT		MULTI AV SYSTEM SYMPTOMS	283
Description		Symptom Table	
Diagnosis Procedure	264	Cymptom rable	200
RGB SYNCHRONIZING SIGNAL CIRCUIT	265	NORMAL OPERATING CONDITION	
Description		Description	287
Diagnosis Procedure		REMOVAL AND INSTALLATION	200
		REMOVAL AND INSTALLATION	290
RGB AREA (YS) SIGNAL CIRCUIT		AV CONTROL UNIT	290
Description		Exploded View	290
Diagnosis Procedure	266	Removal and Installation	
CAMERA IMAGE SIGNAL CIRCUIT	267	DIODI AV INIT	
Description		DISPLAY UNIT	
Diagnosis Procedure		Exploded ViewRemoval and Installation	
		Removal and installation	292
COMPOSITE IMAGE SIGNAL CIRCUIT		FRONT DOOR SQUAWKER	293
Description		Exploded View	293
Diagnosis Procedure	269	Removal and Installation	293
HORIZONTAL SYNCHRONIZING (HP) SIG	-	FRONT DOOR WOOFFR	00.4
NAL CIRCUIT	270	FRONT DOOR WOOFER	
Description	270	Exploded ViewRemoval and Installation	
Diagnosis Procedure	270	Nemoval and installation	294
VEDTICAL CVNCUDONIZING (VD) CIONAL		REAR DOOR SPEAKER	295
VERTICAL SYNCHRONIZING (VP) SIGNAI		Exploded View	295
CIRCUIT Description		Removal and Installation	295
Diagnosis Procedure		TWEETER	206
Diagnosis Flocedure	∠/ 1	Exploded View	
DISK EJECT SIGNAL CIRCUIT	272	Removal and Installation	
Description	272	Nomoval and installation	230
Diagnosis Procedure	272	CENTER SPEAKER	297
MODE CHANCE SIGNAL CIDCUIT	272	Exploded View	
MODE CHANGE SIGNAL CIRCUIT		Removal and Installation	297
Description Diagnosis Procedure		REAR WOOFER	200
Diagnosis i roccaule	∠≀ऽ	Exploded View	
MICROPHONE SIGNAL CIRCUIT	274	Removal and Installation	
Description			
Diagnosis Procedure	274	BOSE AMP	299

Exploded View	299	PRECAUTIONS
Removal and Installation	299	Precaution for Supplemental Restraint System
ANTENNA AMP	300	(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-
Exploded View		SIONER"315 Cautions in Removing Battery Terminal and AV
Removal and Installation		Control Unit (Models with AV Control Unit)315
		Precaution for Trouble Diagnosis
SATELLITE RADIO TUNER		Precaution for Harness Repair
Exploded View		·
Removal and Installation	301	PREPARATION317
SATELLITE RADIO ANTENNA	302	PREPARATION 317
Exploded View		Commercial Service Tools317
Removal and Installation	302	
MULTIFUNCTION SWITCH	303	SYSTEM DESCRIPTION318
Exploded View		COMPONENT PARTS318
Removal and Installation		Component Parts Location
		Component Description
PRESET SWITCH		
Exploded View		SYSTEM321
Removal and Installation	304	MULTI AV SYSTEM321
STEERING SWITCH	305	MULTI AV SYSTEM ::::::::::::::::::::::::::::::::::::
Exploded View		MULTI AV SYSTEM : System Description321
Removal and Installation		MULTI AV SYSTEM : Fail-Safe326
HOD COMMECTOR		
USB CONNECTOR		DIAGNOSIS SYSTEM (AV CONTROL UNIT). 327
Exploded ViewRemoval and Installation		Description
Removal and installation	300	On Board Diagnosis Function
MICROPHONE	307	CONSULT FUNCTION339
Exploded View		ECU DIAGNOSIS INFORMATION 343
Removal and Installation	307	
TEL ANTENNA	308	AV CONTROL UNIT343
Exploded View		Reference Value343 Fail-Safe347
Removal and Installation		DTC Index
		DTC IIIdex540
TEL ADAPTER UNIT		DISPLAY UNIT350
Exploded View		Reference Value350
Removal and Installation	309	BOSE AMP352
REAR VIEW CAMERA	310	Reference Value
Exploded View		Neierence value
Removal and Installation		WIRING DIAGRAM355
Adjustment	310	DOOF AUDIO WITH MANIOATION
SONAR CONTROL UNIT	242	BOSE AUDIO WITH NAVIGATION
Exploded View		Wiring Diagram355
Removal and Installation		BASIC INSPECTION360
STEERING ANGLE SENSOR		DIAGNOSIS AND REPAIR WORKFLOW 360
Exploded View		Work Flow360
Removal and Installation	313	ADDITIONAL SERVICE WHEN REPLACING
ANTENNA FEEDER	314	(AV CONTROL UNIT)362
Feeder Layout		Description
BOSE AUDIO WITH NAVIGATION	- • •	Work Procedure
PRECAUTION	315	CONFIGURATION (AV CONTROL UNIT) 363
		Description363

В

С

D

Е

F

G

Н

J

Κ

L

M

AV

0

Work Procedure36	3 U121C AV CONTROL UNIT380
Configuration List36	
DTC/CIRCUIT DIAGNOSIS36	Diagnosis Procedure
	U121D AV CONTROL UNIT381
U1000 CAN COMM CIRCUIT 36	D10 L0gic
Description	Diagnosis i roccadio
DTC Logic	
Diagnosis Procedure36	DTC Logic
U1010 CONTROL UNIT (CAN) 36	6 Diagnosis Procedure
DTC Logic36	6
U1200 AV CONTROL UNIT36	U1225 AV CONTROL UNIT383
DTC Logic	D I O LOGIC
· ·	U1227 AV CONTROL UNIT384
U1201 AV CONTROL UNIT 36	8 DTC Logic
DTC Logic36	8 Diagnosis Procedure
U1202 AV CONTROL UNIT 36	9 HADDO AV CONTROL HAIT
DTC Logic	
· ·	D10 Logic
U1204 AV CONTROL UNIT 37	
Description	D I O LOGIO
DTC Logic	
Diagnosis Procedure37	DTC Logic
U1205 AV CONTROL UNIT 37	Diagnosis Procedure
Description37	1
DTC Logic37	
Diagnosis Procedure37	1 DTC Logic388
U1206 AV CONTROL UNIT 37	2 U1232 STEERING ANGLE SENSOR389
Description37	
DTC Logic37	· · · · · · · · · · · · · · · · · · ·
Diagnosis Procedure37	2 HADAD DISDLAY HAIT
U1207 AV CONTROL UNIT 37	U1243 DISPLAY UNIT390 DTC Logic390
Description	3 - 3
DTC Logic	3
Diagnosis Procedure37	
· ·	DTC Logic392
U1216 AV CONTROL UNIT 37	· · · · · · · · · · · · · · · · · · ·
DTC Logic37	U1258 SATELLITE RADIO ANTENNA393
U1217 AV CONTROL UNIT 37	
DTC Logic37	
111219 AV CONTROL LINIT	c 114262 LISB 204
U1218 AV CONTROL UNIT 37 DTC Logic	
Diagnosis Procedure37	U
Diagnosis i roccare	Diagnosis i roscadio
U1219 AV CONTROL UNIT 37	
DTC Logic	
Diagnosis Procedure37	7 Diagnosis Procedure
U121A AV CONTROL UNIT 37	8 U1265 BOSE AMP396
DTC Logic	
Diagnosis Procedure37	S .
HI121B AV CONTROL HAIT	o 111200 AV COMM CIDCUIT
U121B AV CONTROL UNIT 37 DTC Logic	
Diagnosis Procedure37	
	~

U1310 AV CONTROL UNIT398	AV CONTROL UNIT	428	
DTC Logic398	Exploded View		1
POWER SUPPLY AND GROUND CIRCUIT 399	Removal and Installation	428	
POWER SUPPLY AND GROUND CIRCUIT 399	DISPLAY UNIT	420	
AV CONTROL UNIT399	Exploded View		3
AV CONTROL UNIT: Diagnosis Procedure 399	Removal and Installation		
DISPLAY UNIT400			
DISPLAY UNIT : Diagnosis Procedure	FRONT DOOR SQUAWKER)
DISPLATIONIT : Diagnosis Procedure400	Exploded View		
BOSE AMP401	Removal and Installation	431	
BOSE AMP. : Diagnosis Procedure401	FRONT DOOR WOOFER	432)
RGB DIGITAL IMAGE SIGNAL CIRCUIT 402	Exploded View		
Description	Removal and Installation		
Diagnosis Procedure402		E	=
	REAR DOOR SPEAKER		
COMPOSITE IMAGE SIGNAL CIRCUIT403	Exploded View		
Description403	Removal and Installation	433 F	-
Diagnosis Procedure403	TWEETER	434	
DISK EJECT SIGNAL CIRCUIT404	Exploded View	434	
Description	Removal and Installation)
Diagnosis Procedure404	OFNITED ODEALED		
· ·	CENTER SPEAKER		
MODE CHANGE SIGNAL CIRCUIT405	Exploded View Removal and Installation		1
Description	Removal and installation	435	
Diagnosis Procedure405	REAR WOOFER	436	
MICROPHONE SIGNAL CIRCUIT406	Exploded View	436	
Description406	Removal and Installation	436	
Diagnosis Procedure406	BOSE AMP	427	
	Exploded View		J
CAMERA IMAGE SIGNAL CIRCUIT408	Removal and Installation		
Description	Nomovar and installation		
Diagnosis Procedure408	ANTENNA AMP	r	
STEERING SWITCH SIGNAL A CIRCUIT410	Exploded View		
Description410	Removal and Installation	438	
Diagnosis Procedure410	SATELLITE RADIO ANTENNA	/30 L	
Component Inspection410	Exploded View		
STEERING SWITCH SIGNAL B CIRCUIT 412	Removal and Installation		
Description412		N.	/
Diagnosis Procedure412	MULTIFUNCTION SWITCH	440	
Component Inspection412	Exploded View		
·	Removal and Installation	440 A\	,
STEERING SWITCH GROUND CIRCUIT 414	PRESET SWITCH		
Description414	Exploded View		
Diagnosis Procedure414	Removal and Installation		`
Component Inspection414			
SYMPTOM DIAGNOSIS416	STEERING SWITCH		
	Exploded View		5
MULTI AV SYSTEM SYMPTOMS416	Removal and Installation	442	
Symptom Table416	USB CONNECTOR	443	
NORMAL OPERATING CONDITION421	Exploded View		
Description421	Removal and Installation		
·	MICROPHONE	• • •	
REMOVAL AND INSTALLATION428	MICROPHONE		
	Exploded View	444	

M

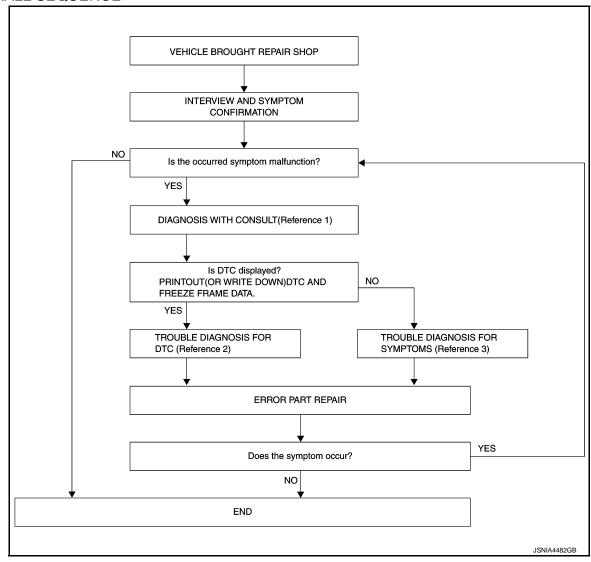
Removal and Installation	444	SONAR CONTROL UNIT	449
000 41171114		Exploded View	449
GPS ANTENNA		Removal and Installation	
Exploded View	445		
Removal and Installation		STEERING ANGLE SENSOR	450
Feeder Layout	446	Exploded View	450
REAR VIEW CAMERA		Removal and Installation	
Exploded View	447	ANTENNA FEEDER	45
Removal and Installation	447	Feeder Layout	45 ²
Adjustment		•	

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow INFOID:0000000008295957 В

OVERALL SEQUENCE



- Reference 1... Refer to AV-26, "CONSULT Function (MULTI AV)".
- Reference 2··· Refer to <u>AV-60</u>, "<u>DTC Index</u>".
- Reference 3··· Refer to <u>AV-68</u>, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

2.DIAGNOSIS WITH CONSULT

AV-11 Revision: 2012 August 2013 G Sedan

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

Connect CONSULT and perform a self-diagnosis for "MULTI AV". Refer to AV-26, "CONSULT Function (MULTI AV)".

NOTE:

Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed.

- 2. When DTC is detected, follow the instructions below:
- Record DTC and Freeze Frame Data.

Is DTC displayed?

YES >> GO TO 3.

NO >> GO TO 4.

3.trouble diagnosis for DTC

- Check the DTC indicated in the self-diagnosis results.
- Perform the relevant diagnosis referring to the DTC Index. Refer to AV-60, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-68, "Symptom Table".

>> GO TO 5.

5. ERROR PART REPAIR

- Repair or replace the identified malfunctioning parts.
- Perform a self-diagnosis for "MULTI AV" with CONSULT.

Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.

3. Check that the symptom does not occur.

Does the symptom occur?

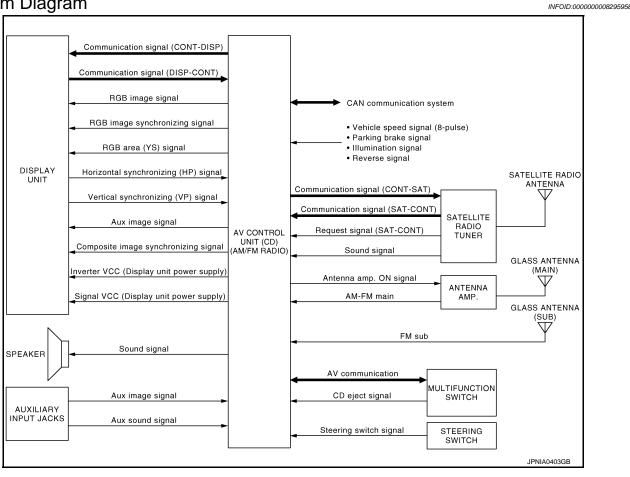
YES >> GO TO 1.

NO >> INSPECTION END

SYSTEM DESCRIPTION

MULTI AV SYSTEM

System Diagram



NOTE:

- The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.
- · Satellite radio is not used.

System Description

Multi AV system means that the following systems are integrated.

System name	System explanation
AUDIO SYSTEM	AV-16, "System Description"
VEHICLE INFORMATION SYSTEM	 Indicates the status of audio, climate control system, fuel economy and maintenance. AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp and BCM.
AUXILIARY INPUT SYSTEM	Refer to "AUXILIARY INPUT SYSTEM" shown below.

- AV control unit functions by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information. Transmitting/receiving of data signal is performed by BCM. Also, it transmits the required signal of vehicle setting and receives the response signal.

AV-13 Revision: 2012 August 2013 G Sedan

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• AV control unit is connected with display and serial communication, and it transmits the required signal of display and display control and receives the response signal from front display.

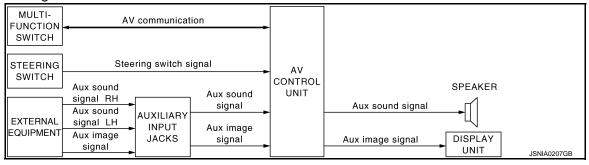
NOTE:

AV control unit can perform CONSULT self-operating function and on board self-diagnosis.

- CONSULT self-diagnosis: refer to AV-26, "CONSULT Function (MULTI AV)".
- On board self-diagnosis: refer to AV-19, "Diagnosis Description".

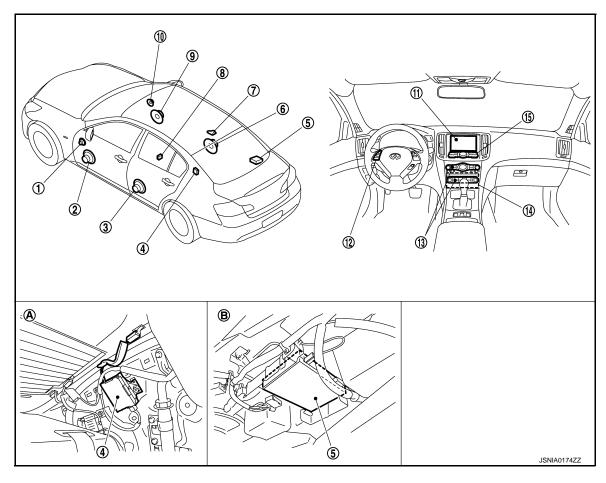
AUXILIARY INPUT SYSTEM

- Image and sound can be output from an external device by connecting a device with auxiliary input jacks.
- Operation can be performed with multifunction switch and steering switch. Multifunction switch transmits
 operation signal to AV control unit with communication.



Component Parts Location

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- 1. Tweeter LH
- 4. Antenna amp.
- Satellite radio antenna
- 10. Tweeter RH

- 2. Front door speaker LH
- Satellite radio tuner*
- 8. Auxiliary input jacks
- 11. Display unit

- Rear door speaker LH
- 6. Rear door speaker RH
- 9. Front door speaker RH
- 12. Steering switch

< SYSTEM DESCRIPTION >

MULTI AV SYSTEM [BASE AUDIO WITHOUT REAR VIEW CAMERA]

- 13. Preset switch
- 14. AV control unit

15. Multifunction switch

- A. Within rear pillar finisher LH
- B. Rear parcel shelf lower part (left side)

*: Not applicable

Component Description

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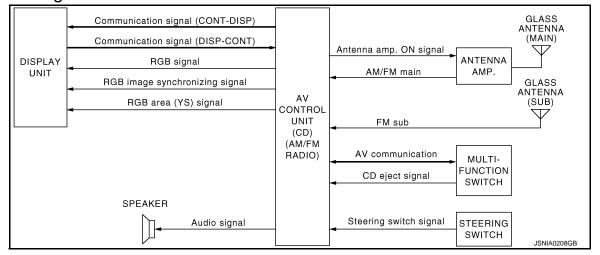
Part name	Description
AV CONTROL UNIT	 It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. AV control unit includes audio function and vehicle information function. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). Auxiliary image signal is input from the auxiliary input jacks.
DISPLAY UNIT	 Display image is controlled by the serial communication from AV control unit. RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing). Synchronizing signal (HP, VP) is output to AV control unit. Auxiliary image signal is input from the AV control unit.
FRONT DOOR SPEAKER	Outputs sound signal from AV control unit.Outputs high, mid and low range sounds.
REAR DOOR SPEAKER	Outputs sound signal from AV control unit.Outputs high, mid and low range sounds.
TWEETER	Outputs sound signal from AV control unit.Outputs high range sound.
MULTIFUNCTION SWITCH	 Operation panel is equipped with the centralized switch where audio and auxiliary input operations are integrated. Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.
PRESET SWITCH	 Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated. Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication. The CD ejection operating signal is performed by hardwire.
STEERING SWITCH	 The operation of Audio, etc. can be performed. Steering switch signal (operation signal) is output to AV control unit.
AUXILIARY INPUT JACKS	The image signal of the auxiliary input is output via the AV control unit to the display, and it outputs the sound signal to the AV control unit.
ANTENNA AMP.	 Radio signal received by glass antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit.

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

AUDIO SYSTEM

System Diagram

INFOID:0000000008295962



System Description

INFOID:0000000008295963

The audio system is equipped with the following functions. Each function can be operated with the multifunction switch, preset switch or steering switch. It indicates the operation status of AUDIO to the display.

Function
AM/FM radio
CD

FUNCTION DESCRIPTION

Operating Signal

Operation of the audio system can be performed with the multifunction switch, preset switch or steering switch.

- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch. The CD ejection operating signal is performed by hardwire.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.

Screen Display

- The display switching of the screen is performed with the communication signal between the display and the AV control unit.
- The image signal to display operating condition is performed with RGB signal, RGB area signal and RGB image synchronizing signal.

AM/FM Radio Mode

- AM/FM radio tuner is built into AV control unit.
- Audio signal is received by glass antenna, next it is amplified by antenna amp, and finally it is input to AV
 control unit. AV control unit outputs the audio signal to each speaker.

CD Mode

- CD function is built into AV control unit.
- AV control unit outputs the audio signal to each speaker when inserting the CD to AV control unit.

Component Parts Location

- 1. Tweeter LH
- 4. Antenna amp.
- 7. Satellite radio antenna*
- 10. Tweeter RH
- 13. Preset switch
- A. Within rear pillar finisher LH
- 2. Front door speaker LH
- 5. Satellite radio tuner*
- 8. Auxiliary input jacks
- 11. Display unit
- 14. AV control unit
- B. Rear parcel shelf lower part (left side)

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- 3. Rear door speaker LH
- 6. Rear door speaker RH
- 9. Front door speaker RH
- 12. Steering switch
- 15. Multifunction switch

*: Not applicable

Component Description

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Part name	Description
AV CONTROL UNIT	 The AM/FM receiving function and the CD playing function are equipped. Outputs the audio signal from each function to each speaker.
DISPLAY UNIT	 Display image is controlled by the serial communication from AV control unit. RGB image signal (audio operation condition) is input from AV control unit.
FRONT DOOR SPEAKER	Outputs sound signal from AV control unit.Outputs high, mid and low range sounds.
REAR DOOR SPEAKER	Outputs sound signal from AV control unit.Outputs high, mid and low range sounds.
TWEETER	Outputs sound signal from AV control unit.Outputs high range sound.

AUDIO SYSTEM [BASE AUDIO WITHOUT REAR VIEW CAMERA]

< SYSTEM DESCRIPTION >

Part name	Description
MULTIFUNCTION SWITCH	 Each audio operation can be operated. Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.
PRESET SWITCH	 Each audio and air conditioner operation can be operated. Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication. The CD ejection operating signal is performed by hardwire
STEERING SWITCH	 Each audio operation can be operated. Steering switch signal (operation signal) is output to AV control unit.
ANTENNA AMP.	 Radio signal received by glass antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit.

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Diagnosis Description

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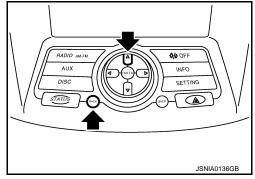
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

The ON/OFF operation (continuity) of each switch in the multifunction switch and preset switch can be checked.

Self-diagnosis Mode

- Press the "BACK" switch and the "UP" switch of the 4-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. The buzzer sounds, all indicators of the preset switch illuminate, and the selfdiagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
 CAUTION:

The hazard switch and CD eject switch cannot be checked.



Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning the ignition switch OFF.

MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

- The AV control unit diagnosis function starts up with multifunction switch operation and the AV control unit performs a diagnosis for each unit in the system during the on board diagnosis.
- Perform a CONSULT diagnosis if the on board diagnosis does not start, e.g., the screen does not display anything, the multifunction switch does not function, etc.

ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- Self-diagnosis mode performs the AV control unit diagnosis and the connection diagnosis between each of the units that make up the system, and it indicates the results to the display.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting actions generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

Mode	Description	
Self-Diagnosis	AV control unit diagnosis.Perform the connection diagnosis between each of the units.	

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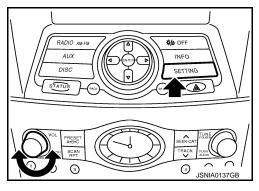
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[BASE AUDIO WITHOUT REAR VIEW CAMERA]

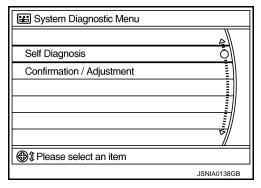
	Mode	Description	
	Display Diagnosis	The confirmations of the tint with the color spectrum bar display and shading of color with the gradation bar display can be performed.	
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition switch, and reverse.	
	Speaker Test	The connection of a speaker can be confirmed by test tone.	
	Climate Control	Start auto air conditioner system self-diagnosis.	
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.	
	Vehicle CAN Diagnosis	The transmitting/receiving of CAN communication can be monitored.	
	AV COMM Diagnosis	The communication condition of each unit of Multi AV system can be monitored.	
	Delete Unit Connection Log	Erase the connection history of unit and error history	
	Initialize Settings	Initializes the AV control unit memory.	

STARTING PROCEDURE

- 1. Start the engine.
- 2. Turn the audio system OFF.
- 3. While pressing the "SETTING" button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
 - Shifting from current screen to previous screen is performed by pressing "BACK" button.

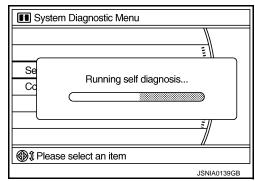


 The trouble diagnosis initial screen is displayed, and then the items of "Self Diagnosis" and "Confirmation/Adjustment" can be selected.



SELF-DIAGNOSIS MODE

- Start the self-diagnosis function and select "Self-diagnosis".
- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

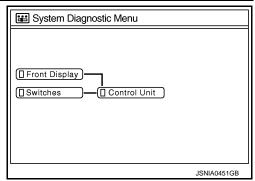


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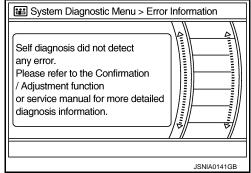
 Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

Diagnosis results	Unit	Con- nection line	
Normal	Green	Green	
Connection malfunction	Gray	Yellow	
Unit malfunction Note	Red	Green	



NOTE:

- Only the control unit (AV control unit) is displayed in red.
- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error.
- 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.
- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between AV control unit and each unit and the internal operation of the AV control unit.
- Because the start condition of diagnosis function is a switch operation, the on board diagnosis function cannot be started up if any malfunction is detected in the communication circuit between AV control unit and multifunction switch.

SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.

Screen switch	Description	Possible malfunction location / Action to take
Control unit	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit. Refer to AV-75, "Exploded View".

A Connecting Cable Between Units Is Displayed In Yellow.

Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communication circuits between AV control unit and display unit.	Serial communication circuits between AV control unit and display unit.

CONFIRMATION/ADJUSTMENT MODE

1. Start the diagnosis function and select "Confirmation/Adjustment". The confirmation/adjustment mode indicates where each item can be checked or adjusted.

Revision: 2012 August AV-21 2013 G Sedan

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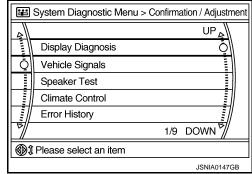
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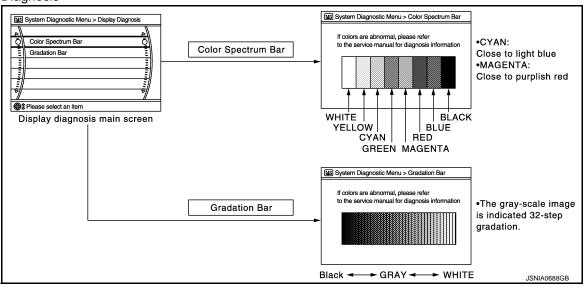
< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

 Select each switch on the "Inspection & Adjustment Mode" screen to display the relevant trouble diagnosis screen. Press the "RETURN" switch to return to the initial Inspection & Adjustment Mode screen.



Display Diagnosis



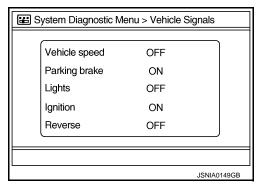
The tint of the color bar indication is as per the following list if RGB signal error is detected.

R (red) signal error : Light blue (Cyan) tint
G (green) signal error : Purple (Magenta) tint

B (blue) signal error : Yellow tint

Vehicle Signals

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



Diagnosis item	Display	Vehicle status	Remarks	
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)		
verlicie speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.	
Parking brake	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal.	
	OFF	Parking brake is released.		

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

Diagnosis item	Display	Vehicle status	Remarks
Lights	ON	Light switch ON	_
Ligitio	OFF	Light switch OFF	
Ignition	ON	Ignition switch ON	_
C	OFF	Ignition switch in ACC position	
Reverse	ON	Shift the selector lever to "R" position	Changes in indication may be delayed. This is normal.
	OFF	Shift the selector lever other than "R" position	Changes in indication may be delayed. This is norma

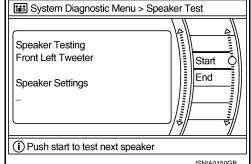
Speaker Test

Select "SPEAKER DIAGNOSIS" to display the Speaker Diagnosis screen. Press "START and NEXT" to generate a test tone in a speaker. Press "Start" to generate a test tone in the next speaker. Press "End" to stop the test tones.

NOTE:

The frequency of test tone emitted from each speaker is as follows.

Tweeter : 3 kHz Front door speaker : 300 Hz Rear door speaker : 1 kHz



Climate Control

Refer to "HEATER & AIR CONDITIONING CONTROL SYSTEM" for details.

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 SW 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.

Count up method A

- The counter resets to 0 if an error occurs when IGN switch is turned ON. The counter increases by 1 if the condition is normal at a next IGN ON cycle.
- The counter upper limit is 39. Any counts exceeding 39 are ignored. The counter can be reset (no error record display) with the "Delete log" switch or CONSULT.

Count up method B

- The counter increases by 1 if an error occurs when IGN switch is ON. The counter will not decrease even if the condition is normal at the next IGN 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 or CONSULT.

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

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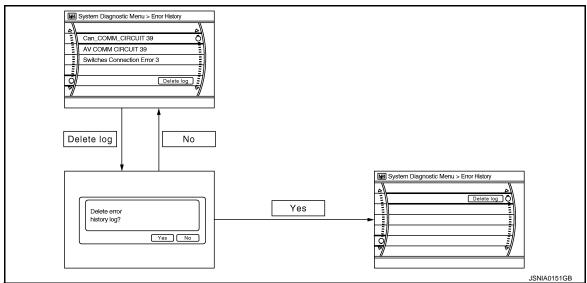
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[BASE AUDIO WITHOUT REAR VIEW CAMERA]



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

Error item	Description	Possible malfunction factor/Action to take	
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-28, "Diagnosis Procedure".	
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.		
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit.	
FLASH-ROM Error Of Control Unit	AV control unit malfunction is detected.		
CAN Controller Memory Error	AV control unit manufiction is detected.		
Front Display Connection Error	 Display unit power supply and ground circuit malfunction is detected. Malfunction is detected in communication circuit between AV control unit and display unit. Malfunction is detected in communication signal between AV control unit and display unit. 	 Display unit power supply and ground circuit. Communication circuit between AV control unit and display unit. 	
AV COMM CIRCUIT Switches Connection Error	 Multifunction switch power supply and ground circuit malfunction is detected. Malfunction is detected in AV communication circuit between AV control unit and multifunction switch. Malfunction is detected in AV communication signal between AV control unit and multifunction switch. 	 Multifunction switch power supply and ground circuits. AV communication circuit between AV control unit and multifunction switch. 	

Vehicle CAN Diagnosis

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

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

Items	Display (Current)	Malfunction counter (Past)
Tx (HVAC)	OK / UNKWN	OK / 0 – 39
Rx (ECM)	OK / UNKWN	OK / 0 – 39
Rx (Cluster)	OK / UNKWN	OK / 0 – 39
Rx (BCM)	OK / UNKWN	OK / 0 – 39
Rx (HVAC)	OK / UNKWN	OK / 0 – 39
Rx (USM)	OK / UNKWN	OK / 0 – 39

System Diag	nostic Menu	ı > Vehi	Cle CAN SBACK
Signal	Status	Count	Checking
Tx(HVAC)	OK	OK	
Rx(ECM)	OK	OK	Reset
Rx(Cluster)	OK	OK	Reset
Rx(BCM)	OK	OK	neset
Rx(HVAC)	OK	OK	
Rx(USM)	OK	OK	\ <u> </u>
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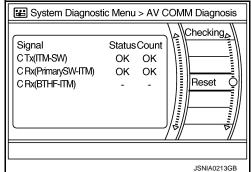
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AV COMM Diagnosis

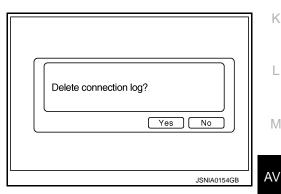
- Displays the communication status between AV control unit (master unit) and each unit.
- The error counter displays "OK" if any malfunction was not detected in the past and displays "0" if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- If it resets, the error counter is erased.

Items	Status (Current)	Counter (Past)
C Tx (ITM-SW)	OK / UNKWN	OK / 0 - 39
C Rx (PrimarySW-ITM)	OK / UNKWN	OK / 0 - 39
C Rx (XM–ITM)	_	_



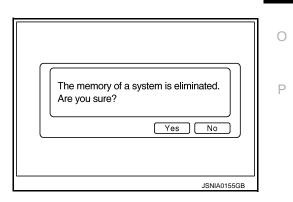
Delete Unit Connection Log

Deletes any unit connection records and error records from the AV control unit memory. (Clear the records of the unit that has been removed)



Initialize Settings

Initializes the AV control unit memory.



DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BASE AUDIO WITHOUT REAR VIEW CAMERA]

< SYSTEM DESCRIPTION >

CONSULT Function (MULTI AV)

INFOID:0000000008295967

CONSULT FUNCTIONS

CONSULT performs the following functions via the communication with the AV control unit.

Diagnosis mode	Description	
Ecu Identification	The part number of AV control unit can be checked.	
Self Diagnostic Result	Performs a diagnosis on the AV control unit and a connection diagnosis for the communication circuit of the Multi AV system, and displays the current and past malfunctions collectively.	
Data Monitor	The diagnosis of vehicle signal that is input to the AV control unit can be performed.	

AV COMMUNICATION

When "AV communication" of "CAN Diag Support Monitor" is selected, the following function will be performed.

AV communication	AV&NAVI C/U	Displays the communication status from AV control unit to each unit as well as the error counter.
	AUDIO	Displays the AV control unit communication status and the error counter.

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-28, "Diagnosis Procedure".
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit.
Cont Unit FLASH-ROM [U1200]		
CAN CONT [U1216]	AV control unit malfunction is detected.	
FRONT DISP CONN [U1243]	 Display unit power supply and ground circuit malfunction is detected. Malfunction is detected in communication circuit between AV control unit and display unit. Malfunction is detected in communication signal between AV control unit and display unit. 	 Display unit power supply and ground circuit. Communication circuit between AV control unit and display unit.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	 Multifunction switch power supply and ground circuit malfunction is detected. Malfunction is detected in AV communication circuit between AV control unit and multifunction switch. Malfunction is detected in AV communication signal between AV control unit and multifunction switch. 	 Multifunction switch power supply and ground circuits. AV communication circuit between AV control unit and multifunction switch.

DATA MONITOR **NOTE**:

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

ALL SIGNALS

- Displays the status of the following vehicle signals inputted into the AV control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

Display Item	Dis- play	Vehicle status	Remarks	
VHCL SPD SIG	On	Vehicle speed >0 km/h (0 MPH)		
VIICE OF DISIG	Off	Vehicle speed =0 km/h (0 MPH)	Changes in indication may be delayed. This is nor-	
PKB SIG	On	Parking brake is applied.	mal.	
PND SIG	Off	Parking brake is released.		
ILLUM SIG	On	Light switch ON		
ILLUM SIG	Off	Light switch OFF		
IGN SIG	On	Ignition switch ON	_	
IGN SIG	Off	Ignition switch in ACC position		
	On	Shift the selector lever to "R" position	Changes in indication may be delayed. This is not	
REV SIG	Off	Shift the selector lever other than "R" position	Changes in indication may be delayed. This is r mal.	

SELECTION FROM MENU

Allows the technician to select which vehicle signals should be displayed and displays the status of the selected vehicle signals.

Item to be selected	Description
VHCL SPD SIG	
PKB SIG	
ILLUM SIG	The same as when "ALL SIGNALS" is selected.
IGN SIG	1
REV SIG	

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Revision: 2012 August AV-27 2013 G Sedan

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:000000008295968

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to LAN-25, "CAN Communication Signal Chart".

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	Diagnostic item is detected when	Probable malfunction location
U1000	CAN COMM CIRCUIT	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

Diagnosis Procedure

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1.PERFORM SELF-DIAGNOSTIC

- 1. Turn ignition switch ON and wait for 2 seconds or more.
- 2. Check "Self Diagnostic Result" of "MULTI AV".

Is "CAN COMM CIRCUIT" displayed?

YES >> Refer to "LAN system". Refer to LAN-16, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI section. Refer to GI-43, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

U1010 CONTROL UNIT (CAN)

Description INFOID:000000008295971

Initial diagnosis of AV control unit.

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	Diagnostic item is detected when	Probable malfunction location
U1010	CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	AV control unit.

Diagnosis Procedure

1. REPLACE AV CONTROL UNIT

When DTC U1010 is detected, replace AV control unit.

>> INSPECTION END

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U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

U1310 AV CONTROL UNIT

Description INFOID:0000000008295974

Replace the AV control unit if this DTC is displayed. Refer to AV-75, "Exploded View".

Part name	Description
AV CONTROL UNIT	 It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. AV control unit includes audio function and vehicle information function. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). Auxiliary image signal is input from the auxiliary input jacks.

DTC Logic

DTC	Display contents of CONSULT	DTC Detection Condition	Action to take
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit.

U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

U1200 AV CONTROL UNIT

Description INFOID:000000008295976

Replace the AV control unit if this DTC is displayed. Refer to AV-75, "Exploded View".

Part name	Description
AV CONTROL UNIT	 It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. AV control unit includes audio function and vehicle information function. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). Auxiliary image signal is input from the auxiliary input jacks.

DTC Logic

DTC	Display contents of CONSULT	DTC Detection Condition	Action to take	
U1200	Cont Unit FLASH- ROM [U1200]	An internal malfunction is detected in AV control unit (FLASH-ROM).	Replace AV control unit.	

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Revision: 2012 August AV-31 2013 G Sedan

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U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

U1216 AV CONTROL UNIT

Description INFOID:0000000008295978

Replace the AV control unit if this DTC is displayed. Refer to AV-75, "Exploded View".

Part name	Description
AV CONTROL UNIT	 It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. AV control unit includes audio function and vehicle information function. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). Auxiliary image signal is input from the auxiliary input jacks.

DTC Logic

DTC	Display contents of CONSULT	DTC Detection Condition	Action to take
U1216	CAN CONT [U1216]	Internal malfunction of AV control unit (CAN controller) is detected.	Replace AV control unit.

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

U1243 DISPLAY UNIT

Description

Part name	Description
DISPLAY UNIT	 Display image is controlled by the serial communication from AV control unit. Inputs the RGB image signal (RGB, RGB area and RGB synchronizing) from AV control unit and the auxiliary image signal from the auxiliary input jacks. Outputs the synchronizing signals (HP and VP) to the AV control unit.

DTC Logic

DTC	Display contents of CONSULT	DTC Detection Condition	Possible causes
U1243	FRONT DISP CONN [U1243]	 Display unit power supply and ground circuit malfunction is detected. Malfunction is detected in communication circuit between AV control unit and display unit. Malfunction is detected in communication signal between AV control unit and display unit. 	 Display unit power supply and ground circuit. Communication circuit between AV control unit and display unit.

Diagnosis Procedure

INFOID:0000000008295982

1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-36, "DISPLAY UNIT: Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK CONTINUITY COMMUNICATION CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M71	11	M83	56	Existed
	22	IVIOS	44	Existed

Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminals	Ground	Continuity
M71	11	Giodila	Not existed
IVI7 I	22		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK COMMUNICATION SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

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U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M71	11	Ground	When adjusting display brightness.	(V) 6 4 2 0 ++1ms PKIB5039J

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M71	22	Ground	When adjusting display brightness.	(V) 6 4 2 0 → + 1ms PKiB5039J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit.

U1300 AV COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

U1300 AV COMM CIRCUIT

Description

U1300 is indicated when malfunction occurs in communication signal of multi AV system. Indicated simultaneously, without fail, with the malfunction of control units connected to AV control unit with communication line. Determine the possible malfunction cause from the table below.

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT	DTC Detection Condition	Possible causes
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	 Multifunction switch power supply and ground circuit malfunction is detected. Malfunction is detected in AV communication circuit between AV control unit and multifunction switch. Malfunction is detected in AV communication signal between AV control unit and multifunction switch. 	 Multifunction switch power supply and ground circuits. AV communication circuit between AV control unit and multifunction switch.

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POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

POWER SUPPLY AND GROUND CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT: Diagnosis Procedure

INFOID:0000000008295987

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19
Ignition switch ON or START	3

Is the inspection result normal?

YES >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M81	19	OFF	Battery voltage
ACC power supply	M81	7	ACC	Battery voltage
Ignition signal	M85	104	ON	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between AV control unit and fuse.

3. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect AV control unit connectors.
- 3. Check continuity between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M81	20	OFF	Existed
	M85	85		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT: Diagnosis Procedure

INFOID:0000000008295988

1. CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M71	2	ACC	9 V
Signal VCC	IVI7 I	3	700	

Is the inspection result normal?

YES >> GO TO 4. NO >> GO TO 2.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

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

- 1. Turn ignition switch OFF.
- Disconnect the harness connector between display unit and AV control unit.
- Check continuity between display unit harness connector M71 and AV control unit harness connector.

Signal name	Display unit (M71)	AV control unit (M83)	Continuity
Inverter VCC	2	59	Existed
Signal VCC	3	47	Existed

Check continuity between display unit harness connector M71 and ground.

Signal name	Display unit (M71)	_	Continuity
Inverter VCC	2	Ground	Not existed
Signal VCC	3	Ground	Not existed

Is the inspection result normal?

>> GO TO 3. YES

NO >> Repair harness or connector.

3.check power supply circuit (av control unit side)

- Connect the AV control unit harness connector.
- Turn ignition switch ACC. 2.
- Check voltage between AV control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M83	59	ACC	9 V
Signal VCC	iviOS	47	700	3 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replacement of AV control unit.

4. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect display unit connector.
- Check continuity between display unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M71	1	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

>> Repair harness or connector.

MULTIFUNCTION SWITCH

MULTIFUNCTION SWITCH: Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

AV-37 Revision: 2012 August 2013 G Sedan

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INFOID:0000000008295989

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

Check voltage between multifunction switch harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M72	3	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between multifunction switch and fuse.

3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect multifunction switch connector.
- 3. Check continuity between multifunction switch harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M72	1	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

RGB (R: RED) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

RGB (R: RED) SIGNAL CIRCUIT

Description INFOID:0000000008295991

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:000000008295992

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1. CHECK CONTINUITY RGB (R: RED) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displa	Display unit		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	17	M83	40	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	17		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M71	17	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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RGB (G: GREEN) SIGNAL CIRCUIT [BASE AUDIO WITHOUT REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

RGB (G: GREEN) SIGNAL CIRCUIT

Description

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008295994

1. CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displa	Display unit		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	6	M83	39	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

-	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M71	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0 -0. 4 → 40µs SKIB2236J

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

RGB (B: BLUE) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

RGB (B: BLUE) SIGNAL CIRCUIT

Description

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008295996

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1. CHECK CONTINUITY RGB (B: BLUE) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV cor	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	18	M83	38	Existed

4. Check continuity between display unit harness connector and ground.

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	18		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(–)	Condition	Reference value
Connector	Terminal			
M71	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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RGB SYNCHRONIZING SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

RGB SYNCHRONIZING SIGNAL CIRCUIT

Description INFOID:000000008295997

Transmit the RGB synchronizing signal to the display unit so as to synchronize the RGB image displayed with AV control unit.

Diagnosis Procedure

INFOID:0000000008295998

1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displa	ay unit	AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	19	M83	41	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	19		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB SYNCHRONIZING SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(–)	Reference value
Connector	Terminal		
M71	19	Ground	(V) 4 0 → 20 µs SKIB3603E

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

RGB AREA (YS) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

RGB AREA (YS) SIGNAL CIRCUIT

Description

Transmits the display area of RGB image displayed by AV control unit with RGB area (YS) signal to display unit.

Diagnosis Procedure

INFOID:0000000008296000

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1. CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displa	ay unit	AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	9	M83	43	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB AREA (YS) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(–)	Condition	Reference value (Approx.)
Connector	Terminal			
			At RGB image displayed	5 V
M71	9	Ground	At AUX image is displayed.	(V) 6 4 2 0 → + 200 \(\mu\) s PKIB4948J

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT DIAGNOSIS > [BASE AUDIO WITHOUT REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

Description INFOID:000000008296001

In composite image (AUX image, camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

Diagnosis Procedure

INFOID:0000000008296002

${f 1.}$ CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displa	y unit AV control unit			Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	8	M83	45	Existed

4. Check continuity between display unit harness connector and ground.

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		()	Defenses and a	
Dispi	ay unit	(–)	Reference value	
Connector	Terminal			
M71	8	Ground	(V) 4 0 → 20µs SKIB3601E	

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace display unit.

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT DIAGNOSIS > [BASE AUDIO WITHOUT REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

Description

In composite image (AUX image, camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

Diagnosis Procedure

1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displ	ay unit	AV cor	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	20	M83	57	Existed

4. Check continuity between display unit harness connector and ground.

Displ	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	20		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+)			5 (
Displa	ay unit	(–)	Reference value	
Connector	Terminal			
M71	20	Ground	(V) 4 0 + + 4ms SKiB3598E	

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace display unit.

Revision: 2012 August AV-45 2013 G Sedan

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[BASE AUDIO WITHOUT REAR VIEW CAMERA]

AUX IMAGE SIGNAL CIRCUIT

Description INFOID:000000008296005

- Transmits the image signal of AUX device from auxiliary input jacks to AV control unit.
- AV control unit transmits the image signal that is inputted to the display unit.

Diagnosis Procedure

INFOID:0000000008296006

1. CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect auxiliary input jacks connector and AV control unit connector.
- 3. Check continuity between auxiliary input jacks harness connector and AV control unit harness connector.

Auxiliary i	Auxiliary input jacks		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M154	7	M84	66	Existed

4. Check continuity between auxiliary input jacks harness connector and ground.

Auxiliary input jacks			Continuity
Connector	Terminal	Ground	Continuity
M154	7		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AUX IMAGE SIGNAL

- 1. Connect auxiliary input jacks connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between auxiliary input jacks harness connector and ground.

	+) nput jacks	(–)	Condition	Reference value
Connector	Terminal			
M154	7	Ground	At AUX image displayed.	(V) 0. 4 0 −0. 4 + 40µs SKIB2251J

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check that there is no malfunction in the external device.

3.check continuity aux image signal circuit (av control unit and display unit)

- 1. Turn ignition switch OFF.
- 2. Disconnect auxiliary input jacks connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	15	M83	36	Existed

AUX IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

4. Check continuity between display unit harness connector and ground.

Displ	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	15		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK AUX IMAGE SIGNAL

- 1. Connect AV control unit connector and display unit connector.
- Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(–)	Condition	Reference value
Connector	Terminal			
M71	15	Ground	At AUX image displayed.	(V) 0. 4 0 -0. 4 + 40μs SKIB2251J

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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CD EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

CD EJECT SIGNAL CIRCUIT

Description INFOID:000000008296007

The eject signal is output to AV control unit when the eject switch of multifunction switch is pressed.

Diagnosis Procedure

INFOID:0000000008296008

1. CHECK CONTINUITY CD EJECT SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect multifunction switch connector and AV control unit connector.
- 3. Check continuity between multifunction switch harness connector and AV control unit harness connector.

Multifunc	nction switch AV control unit		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M72	14	M85	103	Existed

4. Check continuity between multifunction switch harness connector and ground.

Multifunction switch			Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AV CONTROL UNIT VOLTAGE

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

	+) itrol unit	(–)	Condition	Voltage (Approx.)
Connector	Terminal			(πρρίολ.)
M85	103	Ground	Pressing the eject switch	0 V
IVIOJ	103	Giodila	Except for above	3.3 V

Is the inspection result normal?

YES >> Replace preset switch.

NO >> Replace AV control unit.

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

STEERING SWITCH SIGNAL A CIRCUIT

Description INFOID:0000000008296009

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

1. CHECK STEERING SWITCH SIGNAL A CIRCUIT

- Disconnect AV control unit connector and spiral cable connector.
- Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spira	l cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M81	6	M36	24	Existed

Check continuity between AV control unit harness connector and ground.

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M81	6		Not existed

Is the inspection result normal?

>> GO TO 2. YES

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK AV CONTROL UNIT VOLTAGE

- Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- Check voltage between AV control unit harness connector.

(+)	(–)	
AV cor	ntrol unit	AV cor	trol unit	Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 -)
M81	6	M81	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

>> Replace AV control unit. NO

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to AV-49, "Component Inspection".

Is the inspection result normal?

YFS >> INSPECTION END

NO >> Replace steering switch.

Component Inspection

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

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INFOID:0000000008296010

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STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

Standard

Between terminals 14 and 17

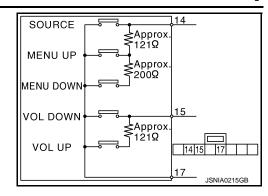
MENU DOWN switch ON $: 318 - 324 \ \Omega$ MENU UP switch ON $: 120 - 122 \ \Omega$

SOURCE switch ON : 0Ω

Between terminals 15 and 17

VOL UP switch ON : $120 - 122 \Omega$

VOL DOWN switch ON : 0 Ω



STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

STEERING SWITCH SIGNAL B CIRCUIT

Description INFOID:000000008296012

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spira	l cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M81	16	M36	31	Existed

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

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M81	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector.

(+)	(-)		
AV cor	ntrol unit	AV cor	trol unit	Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 -)
M81	16	M81	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4.CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-51, "Component Inspection"</u>.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch.

Component Inspection

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

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STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

Standard

Between terminals 14 and 17

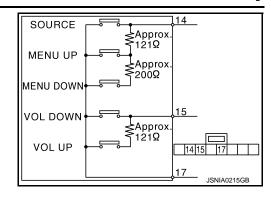
MENU DOWN switch ON $: 318 - 324 \ \Omega$ MENU UP switch ON $: 120 - 122 \ \Omega$

SOURCE switch ON : 0Ω

Between terminals 15 and 17

VOL UP switch ON : $120 - 122\Omega$

VOL DOWN switch ON : 0 Ω



STEERING SWITCH SIGNAL GND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

STEERING SWITCH SIGNAL GND CIRCUIT

Description INFOID:0000000008296015

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

1. CHECK STEERING SWITCH SIGNAL GND CIRCUIT

- Disconnect AV control unit connector and spiral cable connector.
- Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spira	l cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M81	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK GROUND CIRCUIT

- Connect AV control unit connector.
- Check continuity between AV control unit harness connector and ground.

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M81	15		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4.CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to AV-53, "Component Inspection".

Is the inspection result normal?

>> INSPECTION END YES

NO >> Replace steering switch.

Component Inspection

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

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STEERING SWITCH SIGNAL GND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

Standard

Between terminals 14 and 17

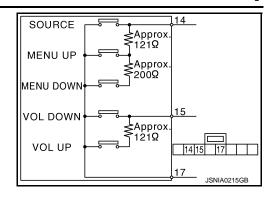
MENU DOWN switch ON $: 318 - 324 \ \Omega$ MENU UP switch ON $: 120 - 122 \ \Omega$

SOURCE switch ON : 0Ω

Between terminals 15 and 17

VOL UP switch ON : $120 - 122 \Omega$

VOL DOWN switch ON : 0 Ω



ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

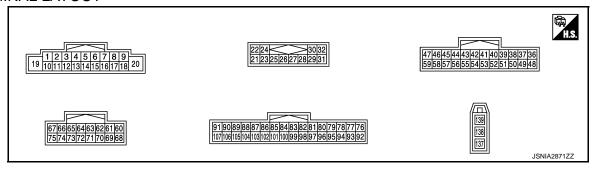
NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

Monitor Item		Condition	Value/Status
VHCL SPD SIG	Ignition switch	Vehicle speed > 0 km/h (0 MPH)	On
VIICE SPD SIG	ON	Vehicle speed = 0 km/h (0 MPH)	Off
DIVE CIC	Ignition switch	Parking brake is applied.	On
PKB SIG	ON	Parking brake is released.	Off
ILLUM SIG	Ignition switch	Light switch ON	On
ILLUM SIG	ON	Light switch OFF	Off
IGN SIG	Ignition switch ON	_	On
IGN SIG	Ignition switch ACC	_	Off
REV SIG	Ignition switch	Selector lever in R position	On
ILV SIG	ON	Selector lever in any position other than R	Off

TERMINAL LAYOUT



PHYSICAL VALUES

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	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
2 (L)	3 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
4 (LG)	5 (SB)	Sound signal rear LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
					Keep pressing SOURCE switch.	0 V
6 (P)	15 (B)	Steering switch signal A	Input	Ignition switch	Keep pressing Δ switch.	0.7 V
(F)	(D)			ON	Keep pressing ∇ switch.	1.3 V
					Except for above.	3.3 V
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
9	Ground	Illumination signal	Input	Ignition switch	Lighting switch is OFF.	0 V
(L)	Giodila	iliumination signal	iriput	OFF	Lighting switch is ON.	12 V
11 (BR)	12 (R)	Sound signal front RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
13 (L)	14 (P)	Sound signal rear speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
15 (B)	Ground	Steering switch signal GND	_	Ignition switch ON	_	0 V
				Ignition	Keep pressing VOL DOWN switch.	0 V
16 (L)	15 (B)	Steering switch signal B	Input	switch ON	Keep pressing VOL UP switch.	0.7 V
					Except for above.	3.3 V

< ECU DIAGNOSIS INFORMATION >

Terminal (Wire color) Description		Condition		Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
20 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
36 (BR)	Ground	Composite image signal	Output	Ignition switch ON	At AUX image is displayed	(V) 0. 4 0 -0. 4 + 40μs SKIB2251J
37 (Y)	Ground	Composite image ground	_	Ignition switch ON	_	0 V
38 (P)	Ground	RGB signal (B: blue)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0 -0. 4 -40μs SKIB2237J
39 (L)	Ground	RGB signal (G: green)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	0. 4 -0. 4 -0. 4 -0. 4 -0. 8 SKIB2236J
40 (G)	Ground	RGB signal (R: red)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0 -0. 4 → 40μs SKiB2238J
41 (W)	Ground	RGB synchronizing signal	Output	Ignition switch ON	_	(V) 4 0 → 20 µs SKIB3603E
			1			5NIB3003E

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
43 (B)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At RGB image is displayed At AUX image is displayed	5 V (V) 6 4 2 0 ++200 \(\mathred{\psi} \) PKIB4948J
44 (L)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ++1ms PKIB5039J
45 (R)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3601E
46 (LG)	Ground	Signal ground	_	Ignition switch ON	_	0 V
47 (BG)	Ground	Signal VCC	Output	Ignition switch ACC	_	9 V
48 (BR)	Ground	Composite synchronizing signal	Output	Ignition switch ON	_	(V) 6 4 20 µ s SKIA0187E
49 (Y)	_	Shield	_	_	_	_
50	_	Shield	_	_	_	<u> </u>
55 (B)	_	Shield	_	_	_	_
56 (LG)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 +-1ms PKIB5039J

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
57 (G)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON	_	(V) 4 0 ++4ms SKIB3598E	
58 (BR)	Ground	Inverter ground	_	Ignition switch ON	_	0 V	
59 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	9 V	
66 (G)	Ground	AUX image signal	Input	Ignition switch ON	When AUX mode is selected	(V) 0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4	
73	_	Shield	_	_			
74 (R)	Ground	AUX image signal ground	_	Ignition switch ON	_	0 V	
85 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
86 (L)	_	CAN-H	Input/ Output	_	_	_	
87 (P)	_	CAN-L	Input/ Output	_	_	-	
88 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_	
89 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_	
90 (SB)	_	AV communication signal (H)	Input/ Output	_	_	-	
91 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_	
95 (R)	Ground	AUX sound signal RH	Input	Ignition switch ON	When AUX mode is selected	(V) 1 0 -1 ++2ms SKIB3609E	

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
96 (W)	Ground	AUX sound signal LH	Input	Ignition switch ON	When AUX mode is selected	(V) 1 0 -1 + 2ms SKIB3609E	
97 (B)	Ground	AUX sound signal ground	_	Ignition switch ON	_	0 V	
101 (BR)	Ground	SW ground	_	Ignition switch ON	_	0 V	
103	Ground	l Eject signal Input			Pressing the eject switch	0 V	
(V)	Cround	Ljoot olgridi	mpat		Except for above	3.3 V	
104 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
105			1	Ignition switch ON	R position	12 V	
(BG)	Ground	Reverse signal	Input		Other than R position	0 V	
106 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake ON Parking brake OFF	0 V (V) 8 4 0 10 ms JSNIA0007GB	
107 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: Maximum voltage may be 12 V due to specifications (connected units). (V) 4 2 0 ***20ms SKIA6649J	
137	_	FM sub	Input	_			
138		AM-FM main	Input		_	_	
139	Ground	Antenna amp. ON signal	Output	Ignition switch ACC	_	12 V	

DTC Index

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-28, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [U1010]	AV-29, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-30, "DTC Logic"
U1200	Cont Unit FLASH-ROM [U1200]	AV-31, "DTC Logic"
U1216	CAN CONT [U1216]	AV-32, "DTC Logic"
U1243	FRONT DISP CONN [U1243]	AV-33, "Diagnosis Procedure"
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-35, "Description"

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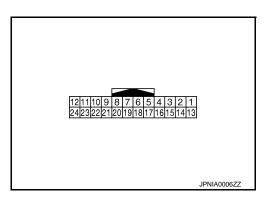
[BASE AUDIO WITHOUT REAR VIEW CAMERA]

DISPLAY UNIT

Reference Value

INFOID:0000000008296020

TERMINAL LAYOUT



PHYSICAL VALUES

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	9 V	
3 (BG)	Ground	Signal VCC	Input	Ignition switch ACC	_	9 V	
4 (Y)	Ground	Composite image ground	_	Ignition switch ON	_	0 V	
5 (Y)	_	Shield	_		_	_	
6 (L)	Ground	RGB signal (G: green)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4	
7	_	Shield	_	_	_	_	
8 (R)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3601E	

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

	Terminal (Wire color) Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)
9 (B)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At RGB image is displayed At AUX image is displayed	5 V (V) 6 4 2 0 +-200 μs PKIB4948J
11 (LG)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + 1 ms PKIB5039J
13 (BR)	Ground	Inverter ground	_	Ignition switch ON	_	0 V
14 (LG)	Ground	Signal ground	_	Ignition switch ON	_	0 V
15 (BR)	Ground	Composite image signal	Input	Ignition switch ON	At AUX image is displayed	0. 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 (BR)	Ground	Composite synchronizing signal	Input	Ignition switch ON	_	(V) 6 4 2 0 20 μs skia0187E
17 (G)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0 -0. 4 + 40µs SKIB2238J

DISPLAY UNIT

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
18 (P)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0. 4 0
19 (W)	Ground	RGB synchronizing signal	Input	Ignition switch ON	_	(V) 4 0 → 20μs SKIB3603E
20 (G)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON	_	(V) 4 0 ***4ms SKIB3598E
21	_	Shield	_	_	_	_
22 (L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••1ms
23 (B)	_	Shield	_	_	_	<u> </u>

BASE AUDIO WITHOUT REAR VIEW CAMERA [BASE AUDIO WITHOUT REAR VIEW CAMERA]

< WIRING DIAGRAM >

WIRING DIAGRAM

BASE AUDIO WITHOUT REAR VIEW CAMERA

Wiring Diagram

For connector terminal arrangements, harness layouts, and alphabets in a \bigcirc (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information". **NOTE:**

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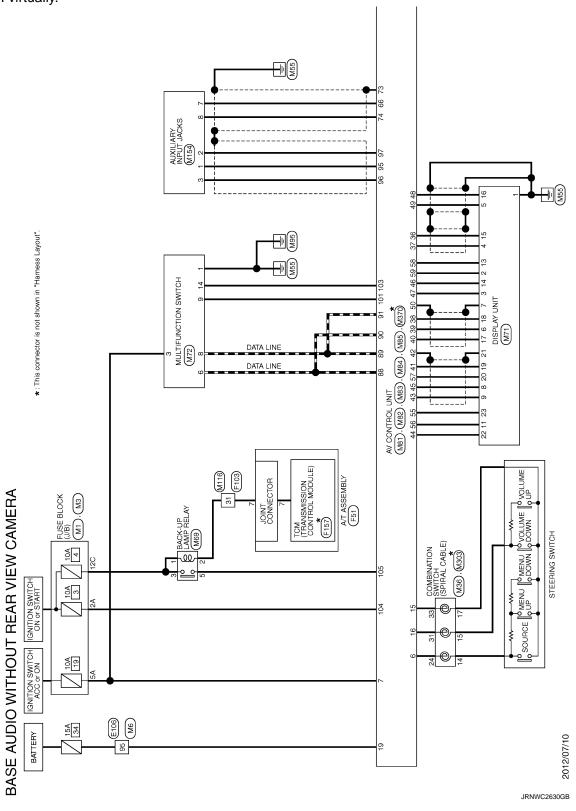
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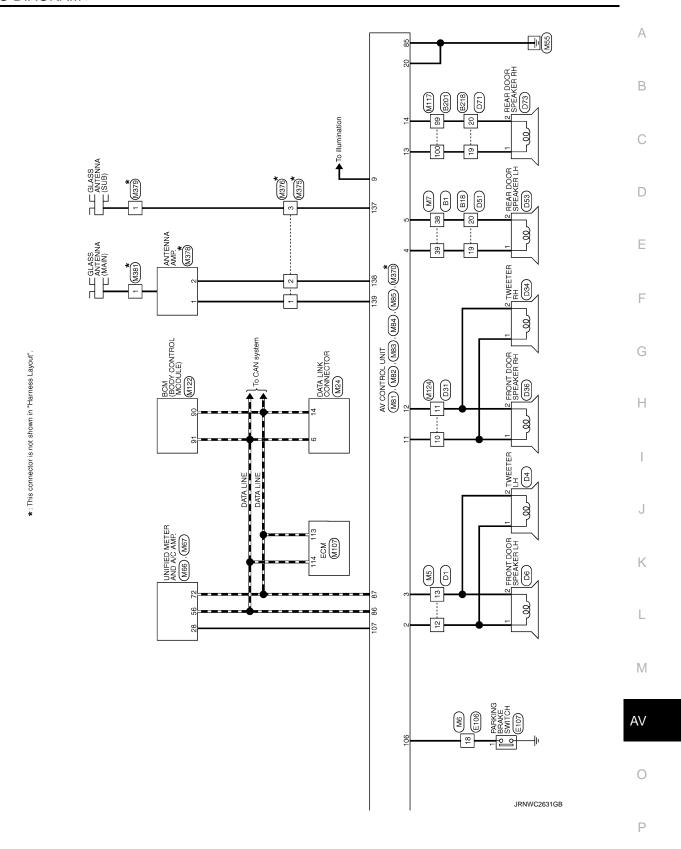
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The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.





SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table

OPERATION

Symptoms	Check items	Possible malfunction location / Action to take
	All switches cannot be operated. "MULTI AV" is displayed with CONSULT.	Perform CONSULT self-diagnosis. Refer to AV-26. "CONSULT Function (MULTI AV)".
Multifunction switch and preset switch operation does not work.	All switches cannot be operated. "MULTI AV" is not displayed on system selection screen the CONSULT is initialized.	AV control unit power supply and ground circuit malfunction. Refer to AV-36, "AV CONTROL UNIT: Diagnosis Procedure".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-19, "Diagnosis Description".

RELATED TO RGB IMAGE

Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take	
	There is malfunction in the CONSULT self-diagnosis result.	Perform CONSULT self-diagnosis. Refer to AV-26, "CONSULT Function (MULTI AV)".	
RGB image is not shown.	There is no malfunction in CONSULT self-diagnosis results.	 Display unit power supply circuit. Refer to AV-36, "DISPLAY UNIT: Diagnosis Procedure". Vertical synchronizing (VP) signal circuit. Refer to AV-45, "Diagnosis Procedure". 	
	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to AV-39, "Diagnosis Procedure".	
Color of RGB image is not proper.	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to AV-40, "Diagnosis Procedure".	
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to AV-41, "Diagnosis Procedure".	
RGB screen is rolling. —		RGB synchronizing signal circuit. Refer to AV-42, "Diagnosis Procedure".	
Fuel economy display is mal	There is malfunction in the CONSULT self-diagnosis result.	Perform CONSULT self-diagnosis. Refer to AV-26, "CONSULT Function (MULTI AV)".	
Fuel economy display is mal- functioning.	There is no malfunction in CONSULT self-diagnosis results.	Ignition signal circuit malfunction. Refer to AV-36, "AV CONTROL UNIT: Diagnosis Procedure".	

RELATED TO AUDIO

Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location	
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-48, "Diagnosis Procedure".	
	No sound from all speakers.	AV control unit power supply and ground circuits malfunction. Refer to AV-36, "AV CONTROL UNIT: Diagnosis Procedure".	
No sound comes out or the level of the sound is low.	Only a certain speaker (front right, front left, rear right, or rear left) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and speaker. Malfunction in speaker. Malfunction in AV control unit. 	

MULTI AV SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

Symptoms	Check items	Probable malfunction location
	Noise comes out from all speaker.	Malfunction in AV control unit.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left).	Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in AV control unit.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.
Radio is not received or poor reception.	Other audio sounds are normal. Any radio 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).	Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder.

RELATED TO STEERING SWITCH

Trouble diagnosis chart by symptom

Symptoms	Inspection location / Probable malfunction location
None of the steering switch operations work.	Steering switch signal GND circuit. Refer to AV-53, "Diagnosis Procedure".
Only specified switch cannot be operated.	Steering switch. Refer to AV-83, "Exploded View".
"SOURCE", "MENU UP", "MENU DOWN" switches of steering switch are not operated.	Steering switch signal A circuit. Refer to AV-49, "Diagnosis Procedure".
"VOL UP", "VOL DOWN" switches of steering switch are not operated.	Steering switch signal B circuit. Refer to AV-51, "Diagnosis Procedure".

RELATED TO AUXILIARY INPUT

NOTE:

Check that there is no malfunction of AUX equipment main body before performing a diagnosis.

Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location
No voice sound is heard when AUX mode is selected.	Voice sound is heard when other modes are selected.	AUX sound signal circuits malfunction between auxiliary input jacks and AV control unit.
Image is not displayed when AUX mode is selected.	_	 AUX image signal circuit malfunction between auxiliary input jacks and AV control unit. Refer to AV-46, "Diagnosis Procedure". Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and display unit. Refer to AV-44, "Diagnosis Procedure". RGB area (YS) signal circuit malfunction between AV control unit and display unit. Refer to AV-43, "Diagnosis Procedure".
It does not change from AUX mode to other modes.	_	Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to AV-45, "Diagnosis Procedure".

Revision: 2012 August AV-69 2013 G Sedan

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NORMAL OPERATING CONDITION

Description INFOID:000000008296024

BASIC OPERATIONS

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
No image is displayed.	The system in the video mode.	Press <disc></disc> to change the mode.
	The display is turned off.	Press <day night=""> to turn on the display.</day>
The screen is too dim. The movement is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be selected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the multi AV system.

RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD/cassette, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- 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 then determine the cause.

NOTE

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

Symptom	Cause and Counter measure	
Cannot play	Check if the CD was inserted correctly.	
	Check if the CD is scratched or dirty.	
	Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.	
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.	
	If there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD, only the music CD files (CD-DA data) will be played.	
	Files with extensions other than ".MP3", ".WMA", ".mp3", or ".wma" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.	
	Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA writing applications or other text editing applications.	
	Check if the finalization process, such as session close and disc close, is done for the disc.	
	Check if the CD is protected by copyright.	
Poor sound quality	Check if the CD is scratched or dirty.	
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA CD, or if it is a multisession disc, some time may be required before the music starts playing.	
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed.	
Skipping with high bit rate files	Skipping may occur with large quantities if data such as for high bit rate data.	
Move immediately to the next song when playing	When a non-MP3/WMA file has been given an extension of ".MP3", ".WMA", ".mp3", or ".wma", or when play is prohibited by copyright protection, the player will skip to the next song.	

NORMAL OPERATING CONDITION [BASE AUDIO WITHOUT REAR VIEW CAMERA]

< SYMPTOM DIAGNOSIS >

Symptom	Cause and Counter measure	
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files might not play in the desired order.	
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.	
Buzz/rattle sound from speaker	The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle.	

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

NOTE:

- 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 a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

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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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 "SRS AIR BAG".
- Never 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:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, never 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 3 minutes before performing any service.

Precaution for Trouble Diagnosis

INFOID:0000000008296026

AV COMMUNICATION SYSTEM

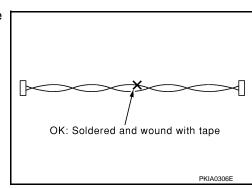
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

INFOID:0000000008296027

AV COMMUNICATION SYSTEM

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

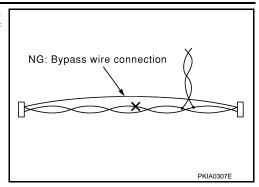


PRECAUTIONS

< PRECAUTION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

 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.)



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PREPARATION

< PREPARATION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000008296028

Tool name		Description
Power tool	PBIC0191E	Loosening screws

REMOVAL AND INSTALLATION

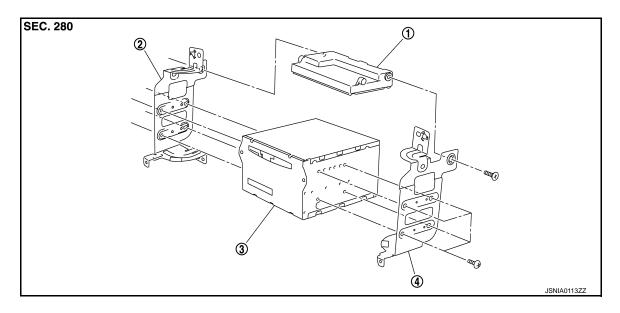
AV CONTROL UNIT

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



- 1. Unified meter and A/C amp.
- 2. Bracket LH

3. AV control unit

4. Bracket RH

Removal and Installation

REMOVAL

- Remove display unit.
- 2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

Since AV control unit connector and unified meter and A/C amp. connector have the same form, be careful not to insert them wrongly.

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DISPLAY UNIT

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

DISPLAY UNIT

Exploded View

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

Removal and Installation

INFOID:0000000008296032

REMOVAL

- Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove display unit with bracket as a single unit.

INSTALLATION

Installation is the reverse order of removal.

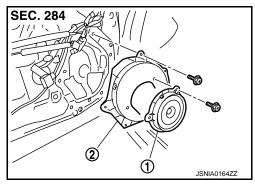
FRONT DOOR SPEAKER

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

FRONT DOOR SPEAKER

Exploded View

INFOID:0000000008296033



- 1. Front door speaker
- 2. Speaker bracket

Removal and Installation

INFOID:0000000008296034

REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove the front door speaker from speaker bracket.

INSTALLATION

Installation is the reverse order of removal.

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REAR DOOR SPEAKER

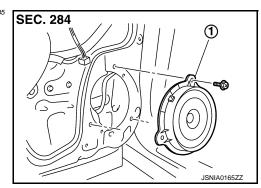
< REMOVAL AND INSTALLATION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

REAR DOOR SPEAKER

Exploded View

INFOID:0000000008296035



Rear door speaker

Removal and Installation

INFOID:0000000008296036

REMOVAL

- 1. Remove rear door finisher. Refer to INT-11, "Exploded View".
- 2. Remove rear door speaker from rear door.

INSTALLATION

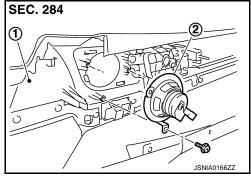
Installation is the reverse order of removal.

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

TWEETER

Exploded View

INFOID:0000000008296037



- 1. Door finisher
- 2. Tweeter

Removal and Installation

vai and installation

REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove the tweeter from the front door finisher.

INSTALLATION

Installation is the reverse order of removal.

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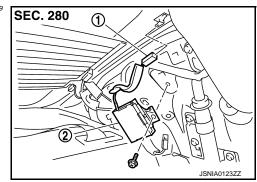
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[BASE AUDIO WITHOUT REAR VIEW CAMERA]

ANTENNA AMP.

Exploded View

INFOID:0000000008296039



- 1. AM-FM main connector
- 2. Antenna amp.

Removal and Installation

INFOID:0000000008296040

REMOVAL

- 1. Remove rear pillar finisher LH. Refer to INT-14, "Exploded View".
- 2. Remove antenna amp. from rear pillar LH.

INSTALLATION

Installation is the reverse order of removal.

MULTIFUNCTION SWITCH

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

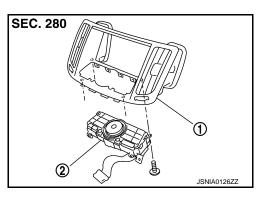
MULTIFUNCTION SWITCH

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



- 1. Center ventilator grille
- 2. Multifunction switch

Removal and Installation

INFOID:0000000008296046

REMOVAL

- 1. Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove multi function switch with center ventilator grille as a single unit.
- 3. Remove multi function switch from center ventilator.

INSTALLATION

Installation is the reverse order of removal.

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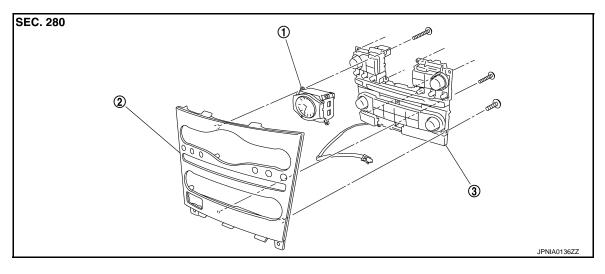
PRESET SWITCH

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



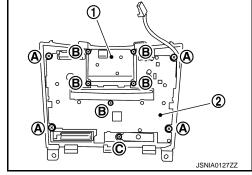
1. Clock 2. Cluster lid C 3. Preset switch

Removal and Installation

INFOID:0000000008296048

REMOVAL

- Remove cluster lid C. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove preset switch screws (A), (B), and (C), and then remove preset switch (2) from cluster lid C.
 - 1. Clock



INSTALLATION

Installation is the reverse order of removal.

NOTE:

When installing preset switch, do not allow the print wire that connects preset switch and multifunction switch to get caught in between AV control unit and preset switch.

STEERING SWITCH

< REMOVAL AND INSTALLATION >	[BASE AUDIO WITHOUT REAR VIEW CAMERA]
STEERING SWITCH	
Exploded View	INFOID:000000008296049
Refer to <u>ST-17, "Exploded View"</u> . Removal and Installation	INFOID:000000008296050
REMOVAL Refer to ST-17, "Removal and Installation". INSTALLATION	
Installation is the reverse order of removal.	E
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AUXILIARY INPUT JACKS

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITHOUT REAR VIEW CAMERA]

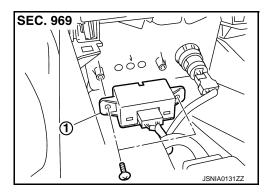
AUXILIARY INPUT JACKS

Exploded View

REMOVAL

Refer to <u>IP-33, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-38, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



1. Auxiliary input jacks

Removal and Installation

INFOID:0000000008296052

REMOVAL

- Remove center console. (M/T models) Refer to <u>IP-33, "A/T MODELS : Exploded View"</u>.
 Remove center console cup. (A/T models) Refer to <u>IP-33, "A/T MODELS : Exploded View"</u>.
- Remove auxiliary input jacks from center console. (M/T models)
 Remove auxiliary input jacks from center console cup. (A/T models)

INSTALLATION

Installation is the reverse order of removal.

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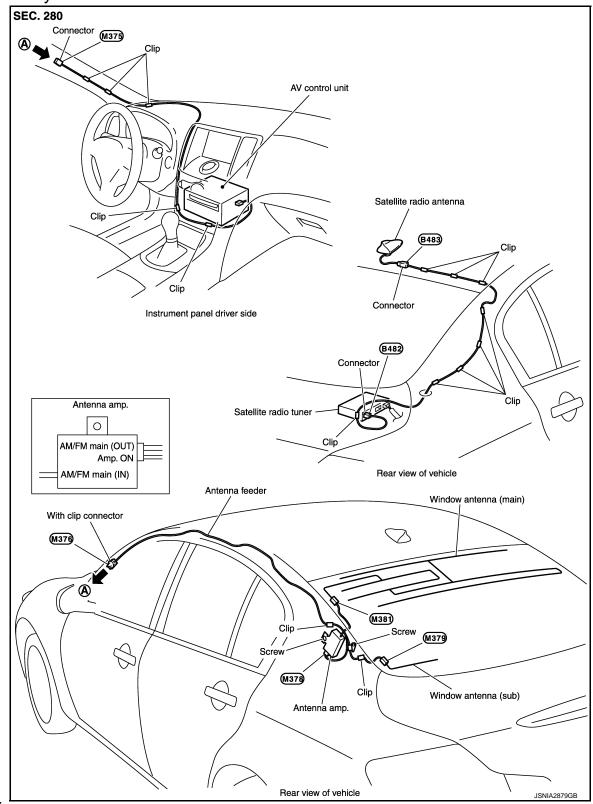
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ANTENNA FEEDER

Feeder Layout INFOID.00000000296053



NOTE:

Satellite radio tuner and satellite radio antenna are not applicable.

INFOID:0000000008296056

INFOID:0000000008296057

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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 "SRS AIR BAG".
- Never 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:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, never 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 3 minutes before performing any service.

Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)

CAUTION:

Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

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

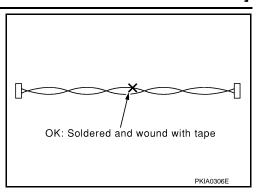
AV COMMUNICATION SYSTEM

PRECAUTIONS

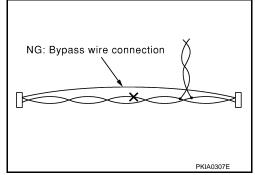
< PRECAUTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

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



 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.)



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PREPARATION

< PREPARATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

PREPARATION

PREPARATION

Commercial Service Tools

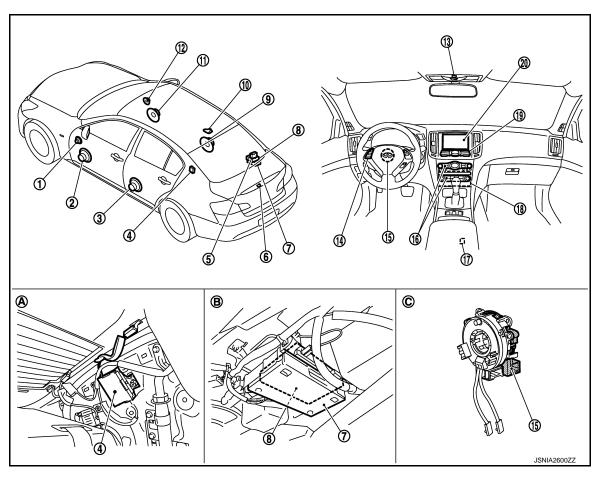
INFOID:0000000008296058

	Tool	Description
Power tool	PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



- 1. Tweeter LH
- 4. Antenna amp.
- 7. TEL adapter unit
- 10. Satellite radio antenna
- 13. Microphone
- 16. Preset switch
- 19. Multifunction switch
- A. Within rear pillar finisher LH

- 2. Front door speaker LH
- 5. TEL antenna
- 8. Satellite radio tuner
- 11. Front door speaker RH
- 14. Steering switch
- 17. USB connector
- 20. Display unit
- B. Lower part of rear parcel shelf (on the right side)

- 3. Rear door speaker LH
- 6. Rear view camera
- 9. Rear door speaker RH
- 12. Tweeter RH
- 15. Steering angle sensor
- 18. AV control unit
- C. Spiral cable removed condition

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COMPONENT PARTS [BASE AUDIO WITH REAR VIEW CAMERA]

Component Description

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Part name	Description
AV control unit	 It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. The AV control unit includes the audio, USB connection and vehicle information functions. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It is connected to the steering angle sensor and receives the steering angle sensor signal via CAN communication. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). TEL voice signal and voice guidance signal are input from TEL adapter unit.
Display unit	 Display image is controlled by the serial communication from AV control unit. It receives the power (signal VCC and inverter VCC) from the AV control unit and operates. RGB image signal is input from AV control unit (RGB image, RGB area and RGB synchronizing). Composite image signals are input from AV control unit. Synchronizing signal (HP, VP) is output to AV control unit.
Front door speaker	Outputs sound signal from AV control unit.Outputs high, mid and low range sounds.
Rear door speaker	Outputs sound signal from AV control unit.Outputs high, mid and low range sounds.
Tweeter	Outputs sound signal from AV control unit.Outputs high range sound.
Multifunction switch	 Operation panel is equipped with the centralized switch where audio operations are integrated. Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.
Preset switch	 Operation panel is equipped with the centralized switch where audio and air conditioner, etc. operations are integrated. Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication. The disk ejection operating signal is performed by hardwire.
Rear view camera	 Camera power supply is input from AV control unit. The image of vehicle rear view is transmitted to AV control unit.
Steering angle sensor	It is connected to the AV control unit and transmits the steering angle sensor signal via CAN communication.
Steering switch	 Operations for audio, hands-free phone and voice control, etc. are possible. Steering switch signal (operation signal) is output to AV control unit.
Microphone	 Used for hands-free phone operation and voice recognition. Microphone signal is transmitted to TEL adapter unit. Power (Microphone VCC) is supplied from TEL adapter unit.
Antenna amp.	 Radio signal received by glass antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit.
Satellite radio tuner	 Inputs the satellite radio signal from satellite radio antenna and outputs the sound signal to the AV control unit. It is controlled with the AV control unit and serial communication (communication signal and request signal).
Satellite radio antenna	Satellite radio signal is received and transmitted to satellite radio tuner.
TEL adapter unit	 Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit. It is connected with the AV control unit via AV communication and controlled with the AV control unit.

COMPONENT PARTS [BASE AUDIO WITH REAR VIEW CAMERA]

< SYSTEM DESCRIPTION >

Part name	Description
TEL antenna Receives the TEL voice signal and outputs it to the TEL adapter u	
USB connector	Image signal ^{*1} and sound signal of USB input is transmitted to AV control unit.

*1: Image signals cannot be received from iPod[®].

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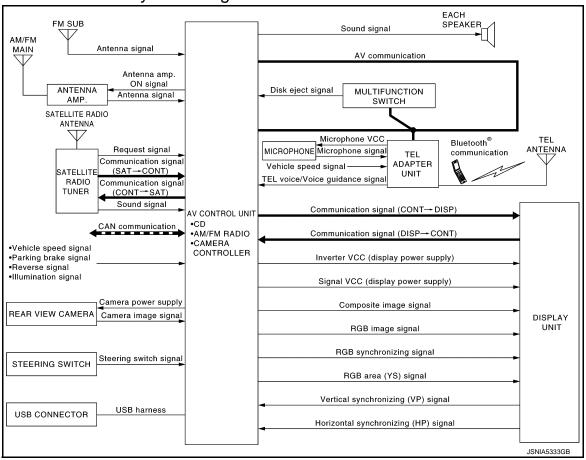
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SYSTEM MULTI AV SYSTEM

MULTI AV SYSTEM : System Diagram

INFOID:0000000008296061



NOTE:

The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

MULTI AV SYSTEM : System Description

INFOID:0000000008296062

Multi AV system means that the following systems are integrated.

FUNCTION NAME		
Audio function		
Hands-free phone function		
Rear view monitor function		
Vehicle information function		

COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures
 them completely as a master unit by connecting between units that configure MULTI AV system with two AV
 communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information.
- AV control unit is connected with display and serial communication, and it transmits the required signal of display and display control and receives the response signal from display.

AUDIO FUNCTION

SYSTEM

< SYSTEM DESCRIPTION >	[BASE AUDIO WITH REAR VIEW CAMERA]	
The audio system is equipped with the following functions. E preset switch, steering switch. Operation status of audio is in		Α
FUNCTION	_	
AM/FM radio	_	В
Satellite radio	_	
CD	_	
USB connection function	_	С
Operating Signal	-	
 Audio system operation can be performed with multifunction Operating signal is transmitted to AV control unit with AV conswitch or preset switch. The disk ejection operating signal Operating signal is transmitted to AV control unit with stee switch. 	ommunication when it is operated by multifunction is performed by hardwire.	D E
Screen Display		
 Switching of display is performed with serial communication. The image signal to display operating condition is perform RGB image synchronizing signal. 		F
AM/FM Radio Mode		G
 AM/FM radio tuner is built into AV control unit. Audio signal is received by glass antenna, next it is ample control unit. AV control unit outputs the sound signal to each 		Н
 Satellite Radio Mode Satellite radio tuner is controlled by communication signal Sound signal (satellite radio) is received by satellite anter unit is output the sound signal (satellite radio) to each spea 	nna and transmitted to AV control unit. AV control	I
 CD Mode CD function is built into AV control unit. AV control unit outputs the sound signal to each speaker was a s	when inserting the CD to AV control unit.	J
 USB Connection Function iPod or music files in USB memory can be played. iPod sound signals are transmitted from USB connector to iPod[®] is recharged when connected to USB connector. 	the AV control unit and to each speaker.	K
iPod [®] is a trademark of Apple inc., registered in the U.S. and	d other countries	
NOTE:	dottier codificies.	_
Use the enclosed USB harness when connecting iPod® to U	JSB connector.	
HANDS-FREE PHONE SYSTEM		\mathbb{M}
• TEL adapter unit is controlled with AV communication from	n AV control unit.	
 The connection between cellular phone and TEL adapter of the voice guidance signal is input from the TEL adapter speaker when operating the cellular phone. TEL adapter unit has the on board self-diagnosis function. 	unit to the AV control unit and output to the front	AV
When A Call Is Originated		0
 Spoken voice sound output from the microphone (microph 	one signal) is input to TEL adapter unit.	
 TEL adapter unit outputs to cellular phone with Bluetooth[®] Voice sound is then heard at the other party. 		Р
When Receiving A Call • Voice sound is input to own cellular phone from the other relationship.	party.	

 TEL voice signal is input to TEL adapter unit by establishing Bluetooth[®] communication from cellular phone, and the signal is output to front speaker.

REAR VIEW MONITOR FUNCTION

• The AV control unit supplies power to the rear view camera when receiving a reverse signal.

AV-93 Revision: 2012 August 2013 G Sedan

SYSTEM

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

- The rear view camera transmits camera images to the AV control unit when power is supplied from the AV control unit.
- The AV control unit transmits a warning message, fixed guide lines, and predictive course lines to the display unit by RGB image signal. Rear view monitor images are displayed by combining the RGB image signal and the camera image signals from the rear view camera.
- Predictive course lines are controlled by a steering angle sensor signal received the AV control unit via CAN communication.

VEHICLE INFORMATION FUNCTION

- Status of audio, climate control system, fuel economy and maintenance are displayed.
- AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp.
- AV control unit is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description

The AV control unit diagnosis function starts up with multifunction switch operation and the AV control unit
performs a diagnosis for each unit in the system during the on board diagnosis.

Perform a CONSULT diagnosis if the on board diagnosis does not start, e.g., the screen does not display
anything, the multifunction switch does not function, etc.

On Board Diagnosis Function

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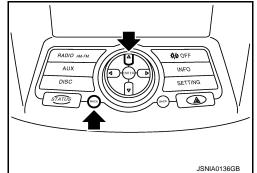
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

The ON/OFF operation (continuity) of each switch in the multifunction switch and preset switch can be checked.

Self-diagnosis Mode

- Press the "BACK" switch and the "UP" switch of the 4-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
 NOTE:

The hazard switch and disk eject switch cannot be checked.



Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning the ignition switch OFF.

ON BOARD DIAGNOSIS ITEM

Description

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- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- Self-diagnosis mode performs the AV control unit diagnosis and the connection diagnosis between each of the units that make up the system, and it indicates the results to the display unit.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

Mode	Description
Self Diagnosis	 AV control unit diagnosis. Diagnoses the connections across system components, between AV control unit and each unit.

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Revision: 2012 August AV-95 2013 G Sedan

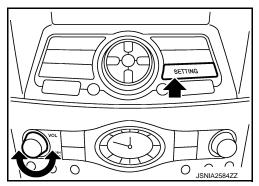
< SYSTEM DESCRIPTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

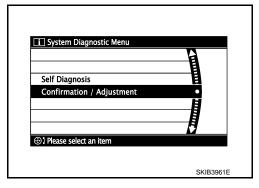
	Mode	Description
	Display Diagnosis	The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display.
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition and reverse.
	Speaker Test	The connection of a speaker can be confirmed by test tone.
	Climate Control	Start auto air conditioner system self-diagnosis.
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 Cont.	 Guiding line position that overlaps rear view camera image can be adjusted. Configuration stored in the AV control unit can be checked.
	Vehicle CAN Diagnosis	The transmitting/receiving of CAN communication can be monitored.
	AV COMM Diagnosis	The communication condition of each unit of Multi AV system can be monitored.
	Delete Unit Connection Log	Erase the connection history of unit and error history.
	Initialize Settings	Initializes the AV control unit memory.

METHOD OF STARTING

- 1. Start the engine.
- 2. Turn the audio system OFF.
- 3. While pressing the "SETTING" button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
 - Shifting from current screen to previous screen is performed by pressing "BACK" button.



 The trouble diagnosis initial screen is displayed, and then the items of "Self Diagnosis" and "Confirmation/Adjustment" can be selected.



SELF-DIAGNOSIS MODE

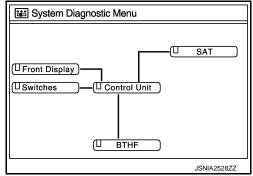
- 1. Start the self-diagnosis function and select "Self Diagnosis".
- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

 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.

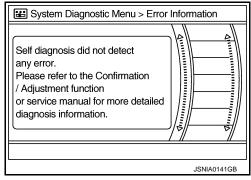
Diagnosis results	Unit	Connection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
Unit malfunction Note	Red	Green



NOTE:

Control unit (AV control unit) is displayed in red.

- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to AV-175, "Exploded View".
- 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.
- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between AV control unit and each unit and the internal operation of the AV control unit.
- Because the start condition of diagnosis function is a switch operation, the on board diagnosis function cannot be started up if any malfunction is detected in the communication circuit between AV control unit and multifunction switch.

SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.

Screen switch	Description	Possible malfunction location / Action to take
Control unit	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit. Refer to AV-175, "Exploded View".

A Connecting Cable Between Units Is Displayed In Yellow.

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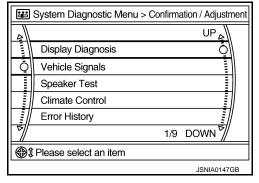
< SYSTEM DESCRIPTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communication circuits between AV control unit and display unit.	Serial communication circuits between AV control unit and display unit.
Control unit ⇔ SAT	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
Control unit ⇔ BTHF	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.

CONFIRMATION/ADJUSTMENT MODE

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



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[BASE AUDIO WITH REAR VIEW CAMERA]

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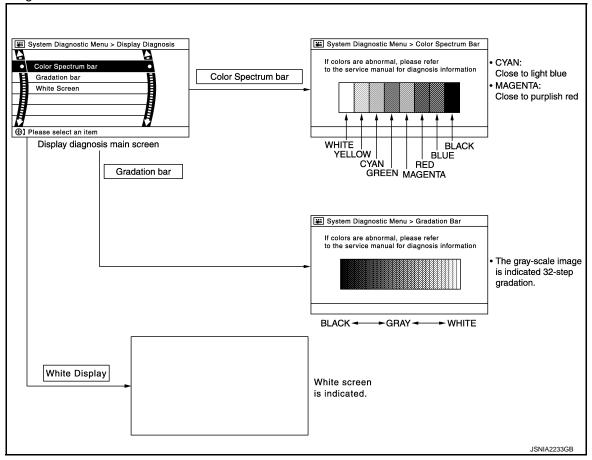
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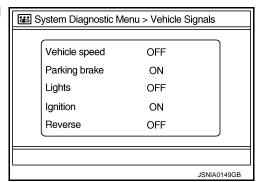
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Display Diagnosis



Vehicle Signals

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



Diagnosis item	Display	Vehicle status	Remarks	AV
Vahiala anaad	ON	Vehicle speed > 0 km/h (0 MPH)		
Vehicle speed	OFF	Vehicle speed = 0 km/h (0 MPH)	<u> </u>	
B. P. Line	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal.	
Parking brake	OFF	Parking brake is released.		
Links	ON	Light switch ON		Р
Lights	OFF	Light switch OFF	_	
195	ON	Ignition switch ON		
Ignition	OFF	Ignition switch in ACC position		

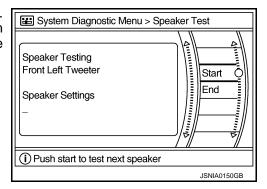
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[BASE AUDIO WITH REAR VIEW CAMERA]

Diagnosis item	Display	Vehicle status	Remarks
Deverse	ON	Shift the selector lever to "R" position	Changes in indication may be delayed. This is normal.
Reverse	OFF	Shift the selector lever other than "R" position	Changes in indication may be delayed. This is normal.

Speaker Test

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.



Climate Control

Refer to "HEATER & AIR CONDITIONING CONTROL SYSTEM" for details.

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 resets to 0 if an error occurs when ignition switch is turned ON. The counter increases by 1 if the condition is normal at a next ignition ON cycle.
- The counter upper limit is 39. Any counts exceeding 39 are ignored." The counter can be reset (no error record display) with the "Delete log" switch or CONSULT.

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 or CONSULT.

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

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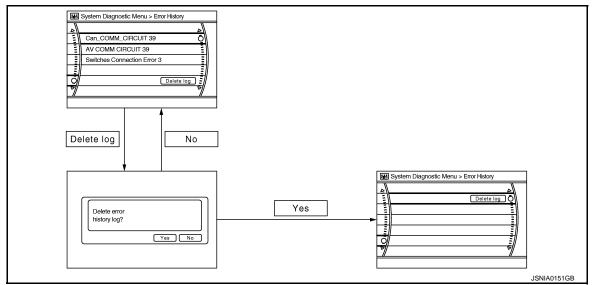
[BASE AUDIO WITH REAR VIEW CAMERA]

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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

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-104, "CONSULT Function".
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly.
FLASH-ROM Error Of Control Unit	AV toll - it it - it - it - it - it	Refer to AV-175, "Exploded View".
CAN Controller Memory Error	AV control unit malfunction is detected.	
Steer. Angle Sensor Calibration	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to AV-104, "CONSULT Function".
Front Display Connection Error	When either one of the following items is detected: display unit power supply and ground circuits are malfunctioning. communication circuits between AV control unit and display unit are malfunctioning.	 Display unit power supply and ground circuits. Communication circuits between AV control unit and display unit.
XM Connection Error	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
AV COMM CIRCUIT Switches Connection Error	 When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning. 	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.

Revision: 2012 August AV-101 2013 G Sedan

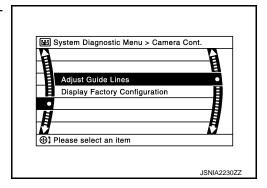
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[BASE AUDIO WITH REAR VIEW CAMERA]

Error item	Description	Possible malfunction factor/Action to take
AV COMM CIRCUIT H/F Unit Connection Error	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.
AV COMM CIRCUITSwitches Connection ErrorH/F Unit Connection Error	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

Camera Cont.

The two functions of "Correct Draw Line of Rear view Cam", "Confirm Configuration" are available.

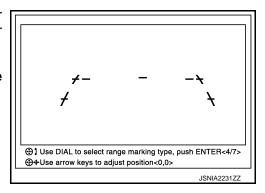


Adjust Offset of Rear view Camera

 Úse this mode to adjust the guide line display position of the rear view monitor if necessary after removing the rear view monitor camera.

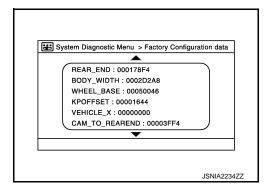
CAUTION:

After the adjustment, never perform other operations for one minute.



Factory Configuration Confirmation

Configuration stored in the AV control unit can be checked.



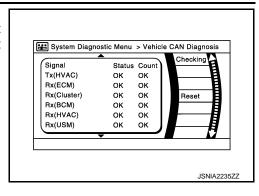
Vehicle CAN Diagnosis

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[BASE AUDIO WITH REAR VIEW CAMERA]

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

Items	Display (Current)	Malfunction counter (Past)
Tx(HVAC)	OK / ???	OK / 0 – 39
Rx(ECM)	OK / ???	OK / 0 – 39
Rx(Cluster)	OK / ???	OK / 0 – 39
Rx(BCM)	OK / ???	OK / 0 – 39
Rx(HVAC)	OK / ???	OK / 0 – 39
Rx(USM)	OK / ???	OK / 0 – 39
Rx(VDC)	OK / ???	OK / 0 – 39
Rx(STRG)	OK / ???	OK / 0 – 39



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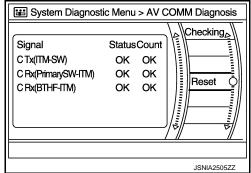
NOTE:

"???" indicates UNKWN.

AV COMM Diagnosis

- Displays the communication status between AV control 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 Tx(ITM-SW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(BTHF-ITM)	OK / ???	OK / 0 – 39

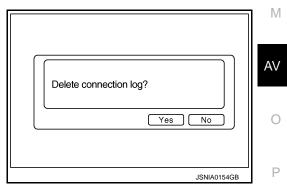


NOTE:

"???" indicates UNKWN.

Delete Unit Connection Log

Deletes any unit connection records and error records from the AV control unit memory. (Clear the records of the unit that has been removed.)



Initialize Settings

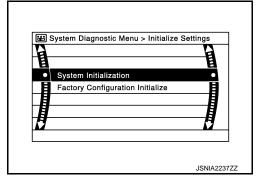
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[BASE AUDIO WITH REAR VIEW CAMERA]

"User Data Initialization" and "Accessory Number Initialization" are possible.

CAUTION:

- Never perform Accessory Number Initialization except when configuration is unsuccessful.
- Accessory Number Initialization requires configuration. For details, refer to <u>AV-132</u>, "<u>Description</u>".



CONSULT Function

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CONSULT FUNCTIONS

CONSULT performs the following functions via the communication with the AV control unit.

Diagnosis mode	Description	
Ecu Identification	The part number of AV control unit can be checked.	
Self Diagnostic Result	Performs a diagnosis on the AV control unit and a connection diagnosis for the communication circuit of the Multi AV system, and displays the current and past malfunctions collectively.	
Data Monitor	The diagnosis of vehicle signal that is input to the AV control unit can be performed.	
Work Support	Steering angle sensor can be adjusted.	
Configuration	Read and save the vehicle specification.Write the vehicle specification when replacing AV control unit.	

AV Communication

When "AV communication" of "CAN Diag Support Monitor" is selected, the following function will be performed.

AV communication	AV&NAVI C/U	Displays the communication status from AV control unit to each unit as well as the error counter.
	AUDIO	Displays the AV control unit communication status and the error counter.

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to AV-134, "Diagnosis Procedure".
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-175, "Exploded View".
Cont Unit [U1200]	AV control unit malfunction is detected.	
CAN CONT [U1216]	AV control unit manufiction is detected.	
ST ANGLE SEN CALIB [U1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

Error item	Description	Possible malfunction factor/Action to take
FRONT DISP CONN [U1243]	When either one of the following items is detected: display unit power supply and ground circuits are malfunctioning. communication circuits between AV control unit and display unit are malfunctioning.	 Display unit power supply and ground circuits. Communication circuits between AV control unit and display unit.
SAT CONN [U1255]	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.
AV COMM CIRCUIT [U1300]SWITCH CONN [U1240]HAND FREE CONN [U1256]	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

ALL SIGNALS

- Displays the status of the following vehicle signals inputted into the AV control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

Display Item	Display	Vehicle status	Remarks	
VHCL SPD SIG	On	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.	
VHCL SFD SIG	Off	Vehicle speed = 0 km/h (0 MPH)		
PKB SIG	On	Parking brake is applied.		
	Off	Parking brake is released.		
ILLUM SIG	On	Block the light beam from the auto light optical sensor when the light SW is ON.		
	Off	Expose the auto light optical sensor to light when the light SW is OFF or ON.	_	
IONI OIO	On	Ignition switch ON		
IGN SIG	Off	Ignition switch in ACC position		

Revision: 2012 August AV-105 2013 G Sedan

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[BASE AUDIO WITH REAR VIEW CAMERA]

Display Item	Display	Vehicle status	Remarks	
REV SIG	On	Selector lever in R position	Changes in indication may be delayed. This is normal.	
	Off	Selector lever in any position other than R		

SELECTION FROM MENU

Allows the technician to select which vehicle signals should be displayed and displays the status of the selected vehicle signals.

Item to be selected	Description
VHCL SPD SIG	
PKB SIG	
ILLUM SIG	The same as when "ALL SIGNALS" is selected.
IGN SIG	
REV SIG	

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION

For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.

Item	Description	
ST ANGLE SENSOR ADJUSTMENT	Adjusts the neutral position of the steering angle sensor.	

CONFIGURATION

Configuration has three functions as follows.

Fur	nction	Description	
Pood/M/rito Configuration	Before Replace ECU	to store the specification in CONSULI.	
Read/Write Configuration	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the AV control unit.	
Manual Configuration		Allows the writing of the vehicle specification into the AV control unit by hand.	

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

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[BASE AUDIO WITH REAR VIEW CAMERA]

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

On Board Diagnosis Function

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HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

ON BOARD DIAGNOSIS ITEM

The on board diagnosis has 3 modes: the self-diagnosis mode that performs the trouble diagnosis, the speaker adaptation data deleting mode and the hands-free phone system initialization mode.

CAUTION:

- Perform the diagnosis with the vehicle stopped.
- Perform STEP2 if necessary.

STEP	MODE	Description
STEP1	Self-diagnosis	The self-diagnosis mode performs the microphone test and the diagnosis of TEL adapter unit, TEL antenna and steering unit, and then reads out the results with the sound and indicates them on the display.
STEP2	Speaker adaptation data deleting	The speaker adaptation data deleting mode can delete the speaker adaptation data.
SIEPZ	Hands-free phone system initialization	Hands-free phone system initialization mode can perform the initialization of hands-free phone system.

Self-diagnosis results

Self-diagnosis mode reads out the self-diagnosis results.

NOTE:

- Error count is read out simultaneously when reading out the DTC name.
- The errors are read out continuously when some errors occur at the same time.

Self-diagnosis results

DTC	DTC name	Possible causes	
DTC 10000	INTERNAL FAILURE	TEL adapter unit	
DTC 01000	ANT. SHORT TO BATT OR OPEN	TEL antenna	
DTC 00100	ANT. SHORT TO GROUND		
DTC 00010	STEERING REMOTE BUTTON STUCK A	Steering switch	
DTC 00001	STEERING REMOTE BUTTON STUCK B		
DTC 00000	THERE ARE NO FAILURE RECORDS TO REPORT	_	

The Details of Error Count

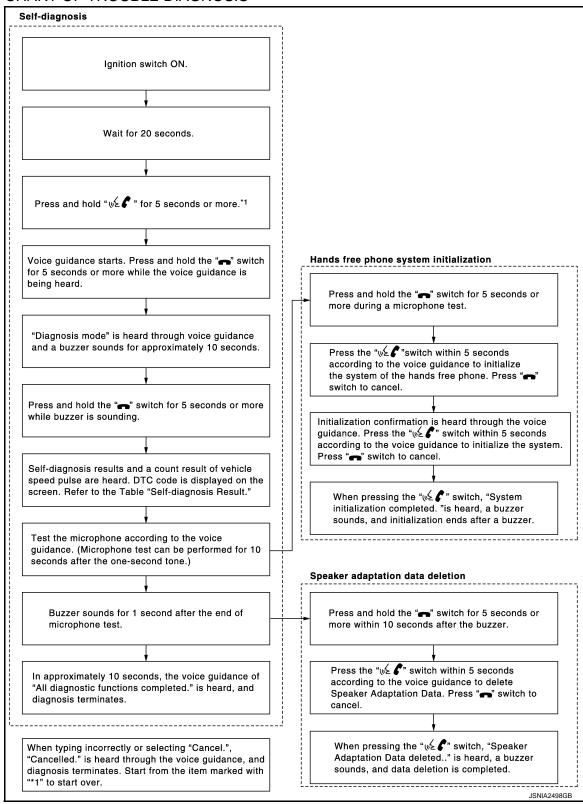
The error count guides "0" when the error occurs. The next time it counts up "1" if it is normal with the ignition switch ON. It continues the count up unless the initialization of hands-free phone system is performed.

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FLOW CHART OF TROUBLE DIAGNOSIS



ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

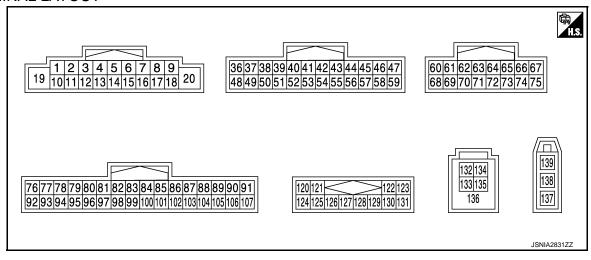
NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

Monitor Item		Condition	Value/Status
VHCL SPD SIG	Ignition switch	Vehicle speed > 0 km/h (0 MPH)	On
VHCL SPD SIG	ON	Vehicle speed = 0 km/h (0 MPH)	Off
DVD CIC	Ignition switch	Parking brake is applied.	On
PKB SIG	ON	Parking brake is released.	Off
ILLUM SIG	Ignition switch	Light switch ON	On
ILLUM SIG	ON	Light switch OFF	Off
IGN SIG	Ignition switch ON	_	On
IGN SIG	Ignition switch ACC	_	Off
REV SIG	Ignition switch	Selector lever in R position	On
NEV SIG	ON	Selector lever in any position other than R	Off

TERMINAL LAYOUT



PHYSICAL VALUES

Revision: 2012 August AV-109 2013 G Sedan

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	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
2 (L)	3 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
4 (LG)	5 (SB)	Sound signal rear LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
6 (P)	15 (B)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch.	0 V
					Keep pressing MENU UP switch.	0.7 V
					Keep pressing MENU DOWN switch.	1.3 V
					Keep pressing ৻৻≨ (switch	2.0 V
					Except for above.	3.3 V
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
9				Ignition	Lighting switch is OFF.	0 V
(L)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12.0 V
11 (BR)	12 (R)	Sound signal front RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
13 (L)	14 (P)	Sound signal rear RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E

< ECU DIAGNOSIS INFORMATION >

Signal name		minal e color)	Description			Condition	Reference value
16 (B) 15 (B) Steering switch signal B Input Ignition Switch Neep pressing VOL UP Switch Neep pressing volt up up pressing volt up up pressing volt up up pressing volt up	+	-	Signal name			Condition	(Approx.)
Communication signal Communication signal							0 V
Reep pressing			Steering switch signal B	Input	switch		0.7 V
Isa Ground Ground Ground Ground Ground Ground Ground Ground Ground Isatery power supply Input Isatery power supply Isatery power Isatery power supply Isatery powe					ON	Keep pressing switch.	1.3 V
Ground G						Except for above.	3.3 V
Ground Battery power supply Input Switch OFF		Ground	Ground	_	switch	_	0 V
Ground		Ground	Battery power supply	Input	switch	_	Battery voltage
Ground Ground Signal VCC Output Switch ACC Ground Ground Signal ground Ground Ground Horizontal synchronizing Input Input		Ground	Ground	_	switch	_	0 V
Ground Signal ground — switch OFF — 0 V Signal ground		Ground	Signal VCC	Output	switch	_	9.0 V
Ground Horizontal synchronizing (HP) signal Input Ignition switch ON		Ground	Signal ground	_	switch	_	0 V
39 (L) Ground Communication signal (DISP→CONT) Input Switch ON Switch ON Switch ON Switch ON At DVD image is displayed. Ground Ground RGB area (YS) signal Output Switch ON At DVD image is displayed. At RGB image is displayed. (V) 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Ground		Input	switch	_	4 0 + 20μs
40 (B) Ground RGB area (YS) signal Output Switch ON At DVD image is displayed.		Ground	Communication signal (DISP→CONT)	Input	switch		4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ground RGB area (YS) signal Output Switch ON At DVD image is displayed.						At RGB image is displayed.	5.0 V
	40 (B)	Ground	RGB area (YS) signal	Output	switch	At DVD image is displayed.	6 4 2 0 • • • • 200 μ s
41 — Shield — — — — — —	<u>4</u> 1	_	Shield	_	_	_	PNID4940J

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
42 (W)	Ground	RGB synchronizing signal	Output	Ignition switch ON	_	(V) 4 0 → 20 µs SKIB3603E
43 (G)	Ground	RGB signal (R: red)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1029ZZ
44 (L)	Ground	RGB signal (G: green)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 + 40μs JSNIA1030ZZ
45 (P)	Ground	RGB signal (B: blue)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1031ZZ
46 (Y)	Ground	Composite image ground	_	Ignition switch ON	_	0 V
47 (BR)	Ground	Composite image signal	Output	Ignition switch ON	At rear view camera image is displayed.	(V) 0. 4 0 -0. 4 -× 40μs SKIB2251J
48 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	9.0 V
49 (BR)	Ground	Inverter ground	_	Ignition switch OFF	_	0 V

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			O a sellitta a	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
50 (G)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON	_	(V) 4 0 ++4ms SKIB3598E
51 (P)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ++1ms PKIB5039J
52	_	Shield	_	_	_	_
57	_	Shield	_	_	_	_
58	_	Shield	_	_	_	
62 (W)	Ground	Camera image signal	Input	Ignition switch ON	At rear view camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 SKIB2251J
71	_	Shield	_	_	_	_
72 (B)	Ground	Camera ground	_	Ignition switch ON	_	0 V
73 (R)	Ground	Camera power supply	Output	Ignition switch ON	At rear view camera image is displayed.	6.0 V
76 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
77 (SB)	_	AV communication signal (H)	Input/ Output	_	_	
78 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
79 (SB)	_	AV communication signal (H)	Input/ Output	_	_	
80 (P)	_	CAN-L	Input/ Output	_	_	_
81 (L)	_	CAN-H	Input/ Output	_	_	
82 (BR)	Ground	Switch ground	_	Ignition switch ON	_	0 V
86	_	Shield	_	_	_	_

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
87 (L)	88 (P)	TEL voice signal	Input	Ignition switch ON	During voice guide output with the w ≤	(V) 1 0 -1 + + 2ms SKIB3609E
92 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: The maximum voltage varies depending on the specification (destination unit).
					Parking brake is ON.	0 V
93 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake is OFF.	(V) 8 4 0 10 ms JSNIA0007GB
94				Ignition	R position	12.0 V
(BG)	Ground	Reverse signal	Input	switch ON	Other than R position	0 V
95 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
96	Ground	Dick giggs signal	Innut	Ignition switch	Pressing the eject switch.	0 V
(V)	Ground	Disk eject signal	Input	ON	Except for above.	3.3 V
120 (B)	124 (W)	Satellite radio sound signal LH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 → 2ms SKIB3609E
121 (G)	125 (R)	Satellite radio sound signal RH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 → 2ms SKIB3609E

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

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	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
122 (L)	Ground	Communication signal (CONT→SAT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 1ms SKIA9301J	
126	_	Shield	_	_	_	_	
127	_	Shield	_	_	_	_	
129 (P)	Ground	Request signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 ++10ms SKIA9299J	
130 (G)	Ground	Communication signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 1ms SKIA9300J	
132 (G)	_	USB ground	_	_	_	_	
133 (R)	_	USB D– signal	_	_	_	_	
134 (W)	_	V BUS signal	_	_	_	_	
135 (L)	_	USB D+ signal	_	_	_	_	
136	_	Shield	_	_	_	_	
137	_	FM sub	Input	_	_	_	
138	_	AM-FM main	Input	_	_	_	
139	Ground	Antenna amp. ON signal	Output	Ignition switch ACC	_	12.0 V	

DTC Index

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-134, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-135, "DTC Logic"
U1200	Cont Unit [U1200]	AV-136, "DTC Logic"
U1216	CAN CONT [U1216]	AV-137, "DTC Logic"
U1232	ST ANGLE SEN CALIB [1232]	AV-138, "Diagnosis Procedure"

< ECU DIAGNOSIS INFORMATION >

DTC	Display item	Refer to
U1243	FRONT DISP CONN [U1243]	AV-139, "Diagnosis Procedure"
U1255	SAT CONN [U1255]	AV-141, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-144, "DTC Logic"
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-143, "Description"
U1300 U1256	AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	AV-143, "Description"
U1300 U1240 U1256	AV COMM CIRCUIT [U1300]SWITCH CONN [U1240]HAND FREE CONN [U1256]	AV-143, "Description"

DISPLAY UNIT

[BASE AUDIO WITH REAR VIEW CAMERA]

DISPLAY UNIT

Reference Value

INFOID:0000000008296069

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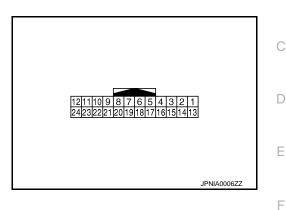
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TERMINAL LAYOUT



PHYSICAL VALUES

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	9.0 V
3 (BG)	Ground	Signal VCC	Input	Ignition switch ACC	_	9.0 V
4 (Y)	Ground	Composite image ground	_	Ignition switch ON	_	0 V
5	_	Shield	_	_	_	_
6 (L)	Ground	RGB signal (G: green)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1030ZZ
7	_	Shield	_		_	_
8 (R)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3601E

DISPLAY UNIT

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
					At RGB image is displayed.	5.0 V
9 (B)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At DVD image is displayed.	(V) 6 4 2 0 → + 200 μ s PKIB4948J
11 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J
13 (BR)	Ground	Inverter ground	_	Ignition switch ON	_	0 V
14 (LG)	Ground	Signal ground	_	Ignition switch ON	_	0 V
15 (BR)	Ground	Composite image signal	Input	Ignition switch ON	At rear view camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4
17 (G)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1029ZZ
18 (P)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 • • 40μs JSNIA1031ZZ

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

	minal e color)	Description			Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	
19 (W)	Ground	RGB synchronizing signal	Input	Ignition switch ON	_	(V) 4 0 → 20 µs SKIB3603E	B C
20 (G)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch On		(V) 4 0 → 4ms SKIB3598E	E
21	_	Shield	_	_	_	_	G
22 (L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + 1ms	Н
23	_	Shield	_	_	_	_	

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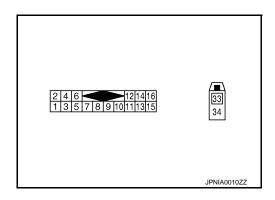
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SATELLITE RADIO TUNER

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Teri	minal	Description				Deference value
+	_	Signal name	Input/ Output		Condition	Reference value (Approx.)
2 (R)	1 (G)	Satellite radio sound signal LH	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E
4 (B)	3 (W)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	(V) 1 0 -1 + 2ms SKIB3609E
5	_	Shield	_	_	_	_
6	_	Shield	_	_	_	_
8 (G)	Ground	Request signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 → 10ms SKIA9299J
9 (L)	Ground	Communication signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 → 1ms SKIA9300J

SATELLITE RADIO TUNER

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

Teri	minal	Description				Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
10 (P)	Ground	Communication signal (CONT→SAT)	Input	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 + 1ms SKIA9301J	
12 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
16 (BG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
33	_	Satellite antenna	Input		_	_	
34	_	Shield	_		_	_	

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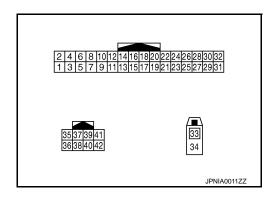
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TEL ADAPTER UNIT

Reference Value

TERMINAL LAYOUT



INFOID:0000000008296071

PHYSICAL VALUES

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
1 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
2 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
3 (BG)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
4 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
5	_	Shield	_	_	_	_	
7 (R)	8	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0 PKIB5037J	
9 (Y)	10 (G)	TEL voice signal	Output	Ignition switch ON	During voice guide output with the vs witch pressed	(V) 1 0 -1 *** 2ms SKIB3609E	
23 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V	
24 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V	

TEL ADAPTER UNIT

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
28 (W)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: The maximum voltage varies depending on the specification (destination unit).
29 (G)	8	Microphone VCC	Output	Ignition switch ON	_	5.0 V
33	_	TEL antenna	Input	_	_	_
34	_	Shield	_	_	_	_
35 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
36 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_

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BASE AUDIO WITH REAR VIEW CAMERA [BASE AUDIO WITH REAR VIEW CAMERA]

< WIRING DIAGRAM >

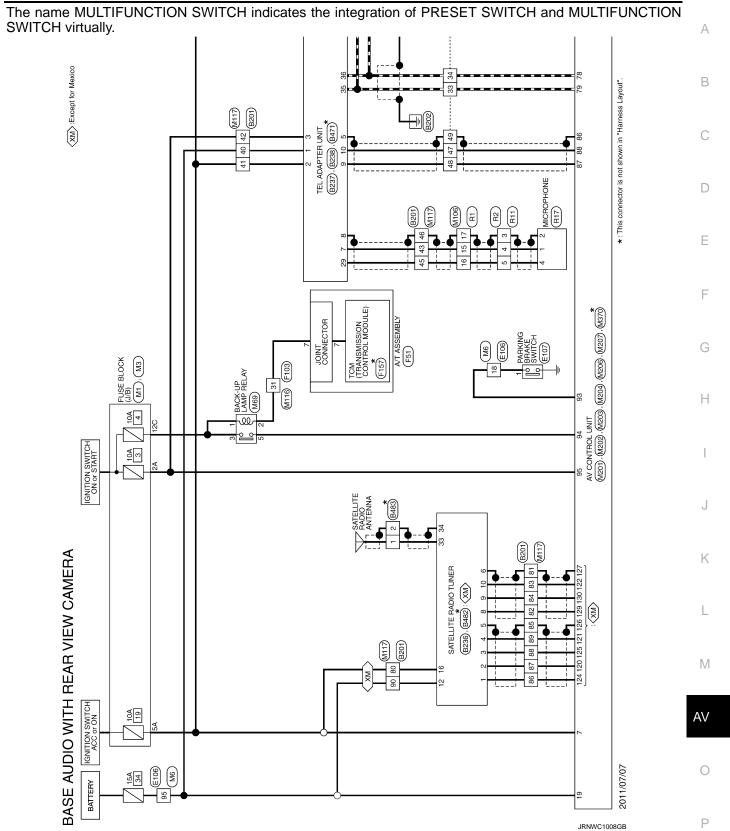
WIRING DIAGRAM

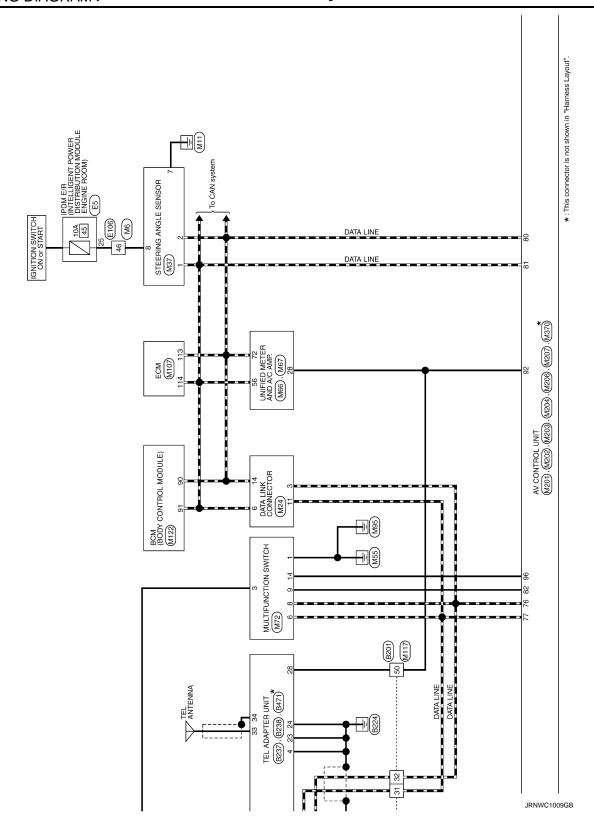
BASE AUDIO WITH REAR VIEW CAMERA

Wiring Diagram

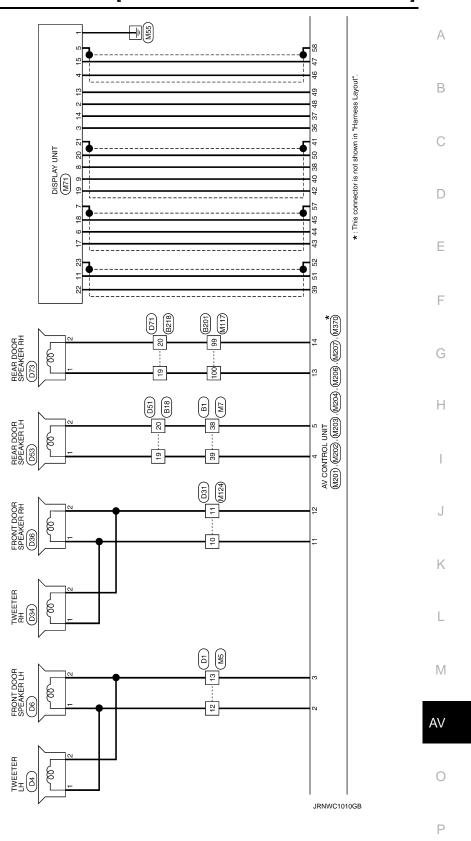
For connector terminal arrangements, harness layouts, and alphabets in a \bigcirc (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information". **NOTE:**

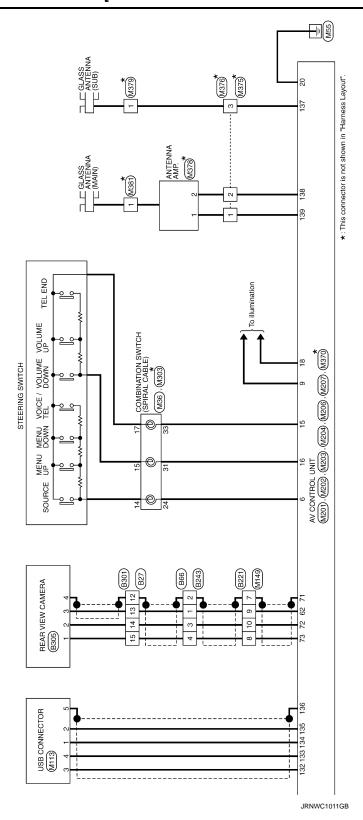
BASE AUDIO WITH REAR VIEW CAMERA





BASE AUDIO WITH REAR VIEW CAMERA [BASE AUDIO WITH REAR VIEW CAMERA]





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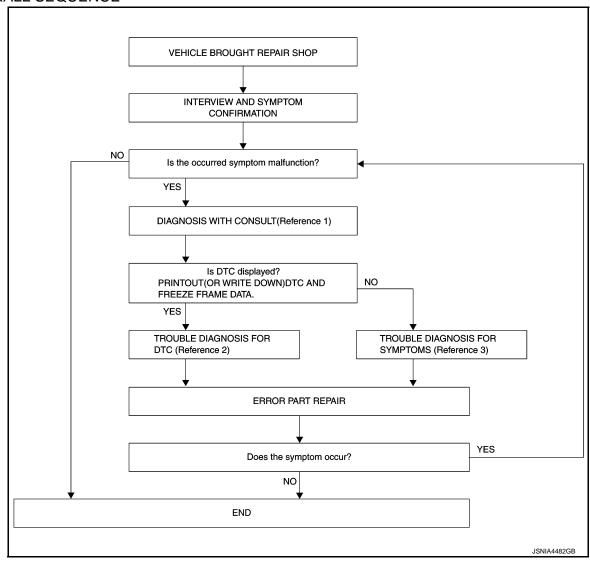
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

OVERALL SEQUENCE



- Reference 1... Refer to <u>AV-104, "CONSULT Function"</u>.
- Reference 2··· Refer to <u>AV-115</u>, "<u>DTC Index</u>".
- Reference 3··· Refer to AV-168, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

2.DIAGNOSIS WITH CONSULT

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

- Connect CONSULT and perform a self-diagnosis for "MULTI AV". Refer to <u>AV-104, "CONSULT Function"</u>. NOTE:
- Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed.
- 2. When DTC is detected, follow the instructions below:
- Record DTC and Freeze Frame Data.

Is DTC displayed?

YES >> GO TO 3. NO >> GO TO 4.

3. TROUBLE DIAGNOSIS FOR DTC

- 1. Check the DTC indicated in the "Self-Diagnosis Results".
- Perform the relevant diagnosis referring to the DTC Index. Refer to AV-115, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-168</u>, "Symptom <u>Table"</u>.

>> GO TO 5.

5. ERROR PART REPAIR

- 1. Repair or replace the identified malfunctioning parts.
- 2. Perform a self-diagnosis for "MULTI AV" with CONSULT.

NOTF:

Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the "Self-Diagnosis Results".

3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.

NO >> INSPECTION END

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

< BASIC INSPECTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

Description INFOID:0000000008296074

BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement.

AFTER REPLACEMENT

CAUTION:

When replacing AV control unit, you must perform "After Replace ECU" or "Manual Configuration" with CONSULT.

- Complete the procedure of "After Replace ECU" or "Manual Configuration" in order.
- If you set incorrect "After Replace ECU" or "Manual Configuration", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

Work Procedure INFOID:0000000008296075

1. SAVING VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "Before Replace ECU" to save or print current vehicle specification. Refer to AV-132, "Description".

If "Before Replace ECU" can not be used, use the "Manual Configuration".

>> GO TO 2.

2.REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to AV-175, "Exploded View".

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to AV-132, "Work Procedure".

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

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CONFIGURATION (AV CONTROL UNIT)

< BASIC INSPECTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

CONFIGURATION (AV CONTROL UNIT)

Description INFOID.000000008296076

 Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT.

Configuration has three functions as follows.

Function		Description	
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.	
Read/write Corniguration	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the AV control unit.	
Manual Configuration		Allows the writing of the vehicle specification into the AV control unit by hand.	

Work Procedure

1. WRITE VEHICLE SPECIFICATION

(P)CONSULT Configuration

Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.

To write vehicle specification into the AV control unit by hand>>GO TO 3.

2. WRITE STORED DATA

©CONSULT Configuration

Select "After Replace ECU" in "Read/Write Configuration." Write data stored in CONSULT with the "Before Replace ECU" function into the AV control unit.

>> GO TO 4.

3.manually write vehicle specification

(P)CONSULT Configuration

Perform "Manual Configuration." Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-132, "Configuration List".

NOTE:

If selection items are not displayed on the CONSULT screen, touch "NEXT."

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

Configuration List

INFOID:0000000008296078

CAUTION:

Grasp vehicle specifications precisely. The control of ECU may not function normally if the specifications are misread.

NOTE:

- The items shown in this list depend on vehicle specifications.
- The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

CONFIGURATION (AV CONTROL UNIT)

< BASIC INSPECTION >

[BASE AUDIO WITH REAR VIEW CAMERA]

MANUAL SE	MANUAL SETTING ITEM		
Items	Setting value	NOTE	
STEERING	LHD	_	
STEERING	RHD	_	
	MODE 1	SPORT premium grade with 4WAS	
GRADE	MODE 3	SPORT premium grade 2WD models without 4WAS	
	MODE 2	Except for above	
4WAS	WITHOUT	_	
40043	WITH	_	
SOUND SYSTEM	BASE	_	
SOUND STSTEM	BOSE	_	

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U1000 CAN COMM CIRCUIT

[BASE AUDIO WITH REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:0000000008296079

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to LAN-25, "CAN Communication Signal Chart".

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction location
U1000	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:0000000008296081

1.PERFORM SELF-DIAGNOSTIC

- 1. Turn ignition switch ON and wait for 2 seconds or more.
- 2. Check "Self Diagnostic Result" of "MULTI AV".

Is "CAN COMM CIRCUIT" displayed?

YES >> Refer to "LAN system". Refer to LAN-16, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI section. Refer to GI-43, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

U1010 CONTROL UNIT (CAN)

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction factor
U1010	CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-175, "Exploded View".

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U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

U1200 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1200	Cont Unit [U1200]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-175</u> , "Exploded View".

U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

U1216 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1216	CAN CONT [U1216]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-175</u> , "Exploded View".

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U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

U1232 STEERING ANGLE SENSOR

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1232	ST ANGLE SEN CALIB [1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor.

Diagnosis Procedure

INFOID:0000000008296086

1.adjust the predictive course line center position of the steering angle sensor

When U1232 is detected, adjust the predictive course line center position of the steering angle sensor.

>> Adjusts the steering angle sensor neutral position on ABS actuator and electrical unit (control unit) side. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

U1243 DISPLAY UNIT

DTC Logic INFOID:0000000008296087

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1243	FRONT DISP CONN [U1243]	 When either one of the following items is detected: display unit power supply and ground circuit are malfunctioning. communication circuit between AV control unit and display unit are malfunctioning. 	 Display unit power supply and ground circuit. Communication circuit between AV control unit and display unit.

Diagnosis Procedure

INFOID:0000000008296088

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1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to AV-145, "DISPLAY UNIT: Diagnosis Procedure". Is the inspection result normal?

>> GO TO 2. YES

NO >> Repair malfunctioning parts.

2.check continuity communication circuit

- Turn ignition switch OFF.
- Disconnect display unit connector and AV control unit connector. 2.
- Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminals	Connector Terminals		Continuity
M71	11	M202	51	Existed
IVI7 I	22	IVIZUZ	39	Existed

Check continuity between display unit harness connector and ground.

Display unit			Continuity	
Connector	Terminals	Ground	Continuity	
M71	11	Ciodna	Not existed	
	22		Not existed	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK COMMUNICATION SIGNAL

- Connect display unit connector and AV control unit connector.
- Turn ignition switch ON. 2.
- Check signal between display unit harness connector and ground.

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AV-139 Revision: 2012 August 2013 G Sedan

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U1243 DISPLAY UNIT

[BASE AUDIO WITH REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M71	11	Ground	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M71	22	Ground	When adjusting display brightness.	(V) 6 4 2 0 → +1ms PKIBS039J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to AV-177, "Exploded View".

U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

U1255 SATELLITE RADIO TUNER

DTC Logic INFOID:0000000008296089

DTC	Display contents of CONSULT	DTC Detection Condition	Possible causes
U1255	SAT CONN [U1255]	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.

Diagnosis Procedure

 ${\sf 1.}$ CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to AV-146, "SATELLITE RADIO TUNER: Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2.check continuity communication circuit and request signal circuit

Turn ignition switch OFF.

- 2. Disconnect AV control unit connector and satellite radio tuner connector.
- Check continuity between AV control unit harness connector and satellite radio tuner harness connector.

AV cor	trol unit	Satellite r	adio tuner	Continuity
Connector	Terminals	Connector	Terminals	Continuity
	129		8	
M206	122	B236	10	Existed
	130		9	

Check continuity between AV control unit harness connector.

AV con	ntrol unit		Continuity
Connector Terminals			Continuity
	129	Ground	
M206	122		Not existed
	130		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK AV CONTROL UNIT VOLTAGE

- Connect AV control unit connector.
- Turn ignition switch ON. 2.
- Check signal between AV control unit harness connector and ground.

(+)		(-)	Reference value
AV control unit			(Approx.)
Connector	Terminals		(11 /

AV-141 Revision: 2012 August 2013 G Sedan

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U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

M206	129	Ground	7.0 V
IVIZOO	130	Ground	7.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

4. CHECK SATELLITE RADIO TUNER VOLTAGE

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector.
- 3. Connect satellite radio tuner.
- 4. Turn ignition switch ON.
- 5. Check signal between satellite radio tuner harness connector and ground.

(+)				
Satellite radio tuner		(–)	Reference value (Approx.)	
Connector	Terminal		(11 -)	
B236	10	Ground	7.0 V	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace satellite radio tuner. Refer to AV-182, "Exploded View".

U1300 AV COMM CIRCUIT



< DTC/CIRCUIT DIAGNOSIS >

U1300 AV COMM CIRCUIT

Description INFOID:0000000008296091

U1300 is indicated when malfunction occurs in communication signal of multi AV system. Indicated simultaneously, without fail, with the malfunction of control units connected to AV control unit with communication line. Determine the possible malfunction cause from the table below.

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
U1300 U1256	AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.	TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.
U1300 U1240 U1256	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] HAND FREE CONN [U1256]	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.

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U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

U1310 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit. If the mal- function occurs constantly. Refer to <u>AV-175</u> , "Exploded View".

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

POWER SUPPLY AND GROUND CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT: Diagnosis Procedure

INFOID:0000000008296093

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1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M201	19	OFF	Battery voltage
ACC power supply	M201	7	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

>> Check harness between AV control unit and fuse. NO

3. CHECK GROUND CIRCUIT

Turn ignition switch OFF.

- Disconnect AV control unit connectors.
- Check continuity between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M201	20	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT: Diagnosis Procedure

1. CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M71	2	ACC	9.0 V
Signal VCC	IVI7 I	3	ACC	9.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.check power supply circuit (continuity)

- Turn ignition switch OFF.
- Disconnect the harness connector between display unit and AV control unit.
- Check continuity between display unit harness connector M71 and AV control unit harness connector.

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INFOID:0000000008296094

AV-145 Revision: 2012 August 2013 G Sedan

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

Signal name	Display unit (M71)	AV control unit (M202)	Continuity
Inverter VCC	2	48	Existed
Signal VCC	3	36	Existed

4. Check continuity between display unit harness connector and ground.

Signal name	Display unit (M71)	_	Continuity
Inverter VCC	2	Ground	Not existed
Signal VCC	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

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

- 1. Connect the AV control unit harness connector.
- 2. Turn ignition switch ACC.
- 3. Check voltage between AV control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M202	48	ACC	9.0 V
Signal VCC	IVIZOZ	36	ACC	9.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replacement of AV control unit.

4. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector.
- 3. Check continuity between display unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M71	1	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

SATELLITE RADIO TUNER

SATELLITE RADIO TUNER: Diagnosis Procedure

INFOID:0000000008296095

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between satellite radio tuner harness connector and ground.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B236	12	OFF	Battery voltage
ACC power supply	B236	16	ACC	Battery voltage

Is the inspection result normal?

YES >> INSPECTION END

NO >> Check harness between satellite radio tuner and fuse.

TEL ADAPTER UNIT

TEL ADAPTER UNIT: Diagnosis Procedure

INFOID:0000000008296096

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1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B237	1	OFF	Battery voltage
ACC power supply	B237	2	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between TEL adapter unit and fuse.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect TEL adapter unit connector.

3. Check continuity between TEL adapter unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B237	4	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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Revision: 2012 August AV-147 2013 G Sedan

RGB (R: RED) SIGNAL CIRCUIT

[BASE AUDIO WITH REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

RGB (R: RED) SIGNAL CIRCUIT

Description INFOID:000000008296097

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296098

1. CHECK CONTINUITY RGB (R: RED) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- Check continuity between display unit harness connector and AV control unit harness connector.

Displa	Display unit		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	17	M202	43	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	17		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

	+) ay unit	(–)	Condition	Reference value
Connector	Terminal			
M71	17	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 40μs JSNIA1029ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-177, "Exploded View".

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

RGB (G: GREEN) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

RGB (G: GREEN) SIGNAL CIRCUIT

Description

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296100

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1. CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displ	ay unit	AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	6	M202	44	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	6		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M71	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 40µs

Is inspection result normal?

YES >> Replace display unit. Refer to <u>AV-177, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-175</u>, "Exploded View".

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RGB (B: BLUE) SIGNAL CIRCUIT

[BASE AUDIO WITH REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

RGB (B: BLUE) SIGNAL CIRCUIT

Description INFOID:000000008296101

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296102

1. CHECK CONTINUITY RGB (B: BLUE) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displa	ay unit	AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	18	M202	45	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	18		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M71	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 → 40μs JSNIA1031ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-177, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-175, "Exploded View"</u>.

RGB SYNCHRONIZING SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

RGB SYNCHRONIZING SIGNAL CIRCUIT

Description INFOID:0000000008296103

Transmit the RGB synchronizing signal to the display unit so as to synchronize the RGB image displayed with AV control unit.

Diagnosis Procedure

INFOID:0000000008296104

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1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displ	Display unit		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	19	M202	42	Existed

4. Check continuity between display unit harness connector and ground.

Displ	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	19		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB SYNCHRONIZING SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Reference value
Connector	Terminal		
M71	19	Ground	(V) 4 0 → +20 µs SKIB3603E

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-177, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

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RGB AREA (YS) SIGNAL CIRCUIT

[BASE AUDIO WITH REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

RGB AREA (YS) SIGNAL CIRCUIT

Description INFOID:0000000008296105

Transmits the display area of RGB image displayed by AV control unit with RGB area (YS) signal to display unit.

Diagnosis Procedure

INFOID:0000000008296106

1. CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	9	M202	40	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB AREA (YS) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(–)	Condition	Reference value (Approx.)
Connector	Terminal			, , ,
			At RGB image is displayed.	5.0 V
M71	9	Ground	At camera image is displayed.	(V) 6 4 2 0 +-200 \(\mathred{\text{v}} \) PKIB4948J

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-177, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-175</u>, "Exploded View".

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

CAMERA IMAGE SIGNAL CIRCUIT

Description INFOID:000000008296107

• AV control unit outputs camera power supply to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.

 The AV control unit that inputs the camera image signal transmits the camera image signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296108

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1. CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect AV control unit connector and rear view camera connector.
- 3. Check continuity between AV control unit harness connector and rear view camera harness connector.

AV cor	AV control unit		w camera	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M203	73	B305	1	Existed

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

AV control unit		AV control unit	
Connector	Terminal	Ground	Continuity
M203	73		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE CAMERA POWER SUPPLY

- 1. Connect AV control unit connector and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Shift the selector lever to "R".
- 4. Check voltage between AV control unit harness connector and ground.

(+) AV control unit		(–)	Condition	Voltage (Approx.)
Connector	Terminal			(* + + + + + + + + + +
M203	73	Ground	Shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

${f 3.}$ CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and rear view camera connector.
- Check continuity between AV control unit harness connector and rear view camera harness connector.

AV control unit		Rear view camera		Continuity
Connector	Terminal	Connector Terminal		Continuity
M203	62	B305	3	Existed

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

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CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

AV con	itrol unit		Continuity
Connector	Terminal	Ground	Continuity
M203	62		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK CAMERA IMAGE SIGNAL

- 1. Connect AV control unit connector and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Shift the selector lever to "R".
- 4. Check signal between AV control unit harness connector and ground.

(+) AV control unit		(-)	Condition	Reference value
Connector	Terminal			
M203	62	Ground	At rear view camera image is displayed.	(V) 0. 4 0 −0. 4 → 40μs SKIB2251J

Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-175, "Exploded View".

NO >> Replace rear view camera. Refer to AV-191, "Exploded View".

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

COMPOSITE IMAGE SIGNAL CIRCUIT

Description INFOID:0000000008296109

AV control unit that inputs the camera image signal transmits the composite image signal to the display unit.

Diagnosis Procedure

1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect AV control unit connector and display unit connector. 2.
- Check continuity between AV control unit harness connector and display unit harness connector.

AV cor	AV control unit		ay unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M202	47	M71	15	Existed

Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M202	47		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMPOSITE IMAGE SIGNAL

- Connect AV control unit connector and display unit connector.
- 2. Turn ignition switch ON.
- Check signal between AV control unit harness connector and ground.

	+) trol unit Terminal	(-)	Condition	Reference value
M202	47	Ground	At camera image is displayed.	(V) 0. 4 0 -0. 4 → 40µs SKIB2251J

Is the inspection result normal?

Revision: 2012 August

YES >> Replace display unit. Refer to AV-177, "Exploded View".

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

AV-155

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INFOID:0000000008296110

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HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT DIAGNOSIS > [BASE AUDIO WITH REAR VIEW CAMERA]

< DTC/CIRCUIT DIAGNOSIS >

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

Description INFOID:0000000008296111

In composite image (AUX image and camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

Diagnosis Procedure

INFOID:0000000008296112

1. CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV con	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	8	M202	38	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+)				
Display unit		(–)	Reference value	
Connector	Terminal			
M71	8	Ground	(V) + *20µs SKIB3601E	

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-175, "Exploded View".

NO >> Replace display unit. Refer to AV-177, "Exploded View".

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT [BASE AUDIO WITH REAR VIEW CAMERA]

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INFOID:0000000008296114

< DTC/CIRCUIT DIAGNOSIS >

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

Description INFOID:0000000008296113

In composite image (AUX image and camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

Diagnosis Procedure

1.check continuity vertical synchronizing (VP) signal circuit

- Turn ignition switch OFF.
- Disconnect display unit connector and AV control unit connector. 2.
- Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV cor	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	20	M202	50	Existed

Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	20		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

- Connect display unit connector and AV control unit connector.
- Turn ignition switch ON.
- Check signal between display unit harness connector and ground.

(+)			
Display unit		(–)	Reference value
Connector	Terminal		
M71	20	Ground	(V) 4 0 ++4ms SKIB3598E

Is the inspection result normal?

YES

NO

>> Replace AV control unit. Refer to AV-175, "Exploded View". >> Replace display unit. Refer to AV-177, "Exploded View".

DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

DISK EJECT SIGNAL CIRCUIT

Description INFOID:0000000008296115

The eject signal is output to AV control unit when the eject switch of multifunction switch is pressed.

Diagnosis Procedure

INFOID:0000000008296116

1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect multifunction switch connector and AV control unit connector.
- 3. Check continuity between multifunction switch harness connector and AV control unit harness connector.

Multifunction switch		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M72	14	M204	96	Existed

4. Check continuity between multifunction switch harness connector and ground.

Multifunction switch			Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AV CONTROL UNIT VOLTAGE

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

	+) trol unit	(-)	Condition	Voltage (Approx.)
Connector	Terminal			(* .pp. 5/11)
M204	96	Ground	Pressing the eject switch	0 V
101204	90	Ground	Except for above	3.3 V

Is the inspection result normal?

YES >> Replace preset switch. Refer to AV-185, "Exploded View".

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

MICROPHONE SIGNAL CIRCUIT

Description INFOID:000000008296117

Supply power from TEL adapter unit to microphone. The microphone transmits the sound/voice to the microphone.

Diagnosis Procedure

1. CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect TEL adapter unit connector and microphone connector.
- 3. Check continuity between TEL adapter unit harness connector and microphone harness connector.

TEL adapter unit		Microphone		Continuity
Connector	Terminals	Connector Terminals		Continuity
	7		1	
B237	8	R17	2	Existed
	29		4	

4. Check continuity between TEL adapter unit harness connector and ground.

TEL ada	apter unit		Continuity
Connector	Terminals	Ground	Continuity
M237	7	Giodila	Not existed
IVIZ37	29		inot existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE MICROPHONE VCC

- 1. Connect TEL adapter unit connector.
- 2. Turn ignition switch ON.
- Check voltage between TEL adapter unit harness connector.

(+)	(–)	
TEL ada	apter unit	TEL adapter unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	, , ,
B237	29	B237	8	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace TEL adapter unit. Refer to AV-190, "Exploded View".

${f 3.}$ CHECK MICROPHONE SIGNAL

- 1. Connect microphone connector.
- Check signal between TEL adapter unit harness connector.

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INFOID:0000000008296118

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

(-	+)	(-	-)		
TEL ada	apter unit	TEL ada	apter unit	Condition	Reference value
Connector	Terminal	Connector	Terminal		
B237	7	B237	8	give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0

Is the inspection result normal?

>> Replace TEL adapter unit. Refer to <u>AV-190, "Exploded View"</u>. >> Replace microphone. Refer to <u>AV-188, "Exploded View"</u>. YES

NO

CONTROL SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

CONTROL SIGNAL CIRCUIT

Description INFOID:0000000008296119

TEL adapter unit identifies the vehicle model according to the control signal and performs the control.

Diagnosis Procedure

INFOID:000000008296120

1. CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect TEL adapter unit connector.
- 3. Check continuity between TEL adapter unit harness connector and ground.

TEL ada	apter unit	Ground	Continuity
Connector	Terminals		Continuity
B237	23	Glound	Existed
B237	24		Existed

<u>Is the inspection result normal?</u>

YES >> Replace TEL adapter unit. Refer to AV-190, "Exploded View".

NO >> Repair harness or connector.

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STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

STEERING SWITCH SIGNAL A CIRCUIT

Description INFOID:000000008296121

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296122

1. CHECK STEERING SWITCH SIGNAL A CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	6	M36	24	Existed

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

AV cor	ntrol unit		Continuity
Connector	Terminal	Ground	Continuity
M201	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to <u>SR-13, "Exploded View"</u>.

3.CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector.

((+)		-)	V 16
AV cor	AV control unit		trol unit	Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 -)
M201	6	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-162</u>, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17</u>, "Exploded View".

Component Inspection

INFOID:0000000008296123

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

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

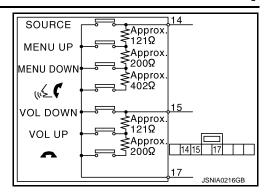
[BASE AUDIO WITH REAR VIEW CAMERA]

Standard

Between terminals 14 and 17

Between terminals 15 and 17

 $\begin{array}{lll} \bullet & \text{switch ON} & : 318 - 324 \ \Omega \\ \text{VOL UP switch ON} & : 120 - 122 \ \Omega \\ \text{VOL DOWN switch ON} & : 0 \ \Omega \\ \end{array}$



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STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

STEERING SWITCH SIGNAL B CIRCUIT

Description INFOID:000000008296124

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296125

1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	ntrol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	16	M36	31	Existed

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

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M201	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to <u>SR-13, "Exploded View"</u>.

3.CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector.

(+)		(–)		V 16
AV cor	ntrol unit	AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 - 7
M201	16	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-164</u>, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17</u>, "Exploded View".

Component Inspection

INFOID:0000000008296126

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

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

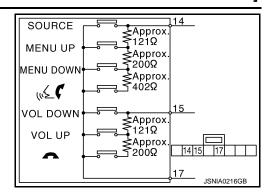
[BASE AUDIO WITH REAR VIEW CAMERA]

Standard

Between terminals 14 and 17

Between terminals 15 and 17

 $\begin{array}{lll} \bullet & \text{switch ON} & : 318 - 324 \ \Omega \\ \text{VOL UP switch ON} & : 120 - 122 \ \Omega \\ \text{VOL DOWN switch ON} & : 0 \ \Omega \\ \end{array}$



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STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

STEERING SWITCH GROUND CIRCUIT

Description INFOID:000000008296127

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296128

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	AV control unit Spiral cable		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M201	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to <u>SR-13, "Exploded View"</u>.

3. CHECK GROUND CIRCUIT

- 1. Connect AV control unit connector.
- 2. Check continuity between AV control unit harness connector and ground.

AV cor	ntrol unit		Continuity
Connector	Terminal	Ground	Continuity
M201	15		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-175, "Exploded View".

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-166, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17</u>, "Exploded View".

Component Inspection

INFOID:0000000008296129

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

STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

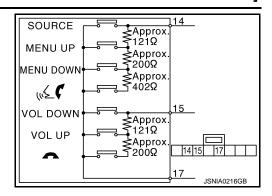
[BASE AUDIO WITH REAR VIEW CAMERA]

Standard

Between terminals 14 and 17

Between terminals 15 and 17

 $\begin{array}{lll} \bullet & \text{switch ON} & : 318 - 324 \ \Omega \\ \text{VOL UP switch ON} & : 120 - 122 \ \Omega \\ \text{VOL DOWN switch ON} & : 0 \ \Omega \\ \end{array}$



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SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table

OPERATION

Symptoms	Check items	Possible malfunction location / Action to take
	All switches cannot be operated. "MULTI AV" is displayed on system selection screen when the CONSULT is started.	Multifunction switch power supply and ground circuit. AV communication circuit between AV control unit and multifunction switch. Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-104, "CONSULT Function".
Multifunction switch and preset switch operation does not work. Fuel economy display, vehicle setting operation is abnormal.	All switches cannot be operated. "MULTI AV" is not displayed on system selection screen when the CONSULT is initialized.	AV control unit power supply and ground circuit malfunction. Refer to AV-145, "AV CONTROL UNIT : Diagnosis Procedure".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-95, "On Board Diagnosis Function".
	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-104, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-115, "DTC Index".
	There is no malfunction in the self-diagnosis results. Refer to AV-104, "CONSULT Function".	Ignition signal circuit malfunction. (AV control unit)

RELATED TO HANDS-FREE PHONE (EXCEPT FOR MEXICO)

- 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
 checking 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[®] 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.

- 4. Go to "www.infinitiusa.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[®] 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" list.
- d. If the feature related to the customer's concern shows as "Y" (compatible): Perform diagnosis as per the following table.

MULTI AV SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

free phone communication.

[BASE AUDIO WITH REAR VIEW CAMERA]

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.	TEL adapter unit malfunction. Refer to <u>AV-190</u> , "Exploded View".
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	 Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-104, "CONSULT Function". No malfunction. TEL adapter unit malfunction. Refer to AV-190, "Exploded View". Malfunction is detected. Perform detected DTC diagnosis. Refer to AV-115, "DTC Index".
The other party's voice cannot	The operation of the "ws " switch can be performed.	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
be heard by hands-free phone.	The operation of the " [" switch cannot be performed.	Control signal circuit.
Originating sound is not heard	Sound operation function is normal.	TEL adapter unit. Refer to AV-190, "Exploded View".
by the other party with hands- free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-159, "Diagnosis Procedure".
The system cannot be operat-	"SOURCE", "MENU UP", and "MENU DOWN" switches are operated. But " "" switch is not operated.	Check steering switch. Refer to <u>AV-162</u> , " <u>Component Inspection</u> ". Malfunction is detected. Replace steering switch. Refer to <u>AV-186</u> , " <u>Exploded View</u> ".
ed.	"SOURCE", "MENU UP", "MENU DOWN" and " [" " switches are not operated.	Steering switch signal A circuit malfunction. Refer to AV-162, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-166, "Diagnosis Procedure".
RELATED TO HANDS-F	REE PHONE (FOR MEXICO)	
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.	TEL adapter unit malfunction. Refer to AV-190, "Exploded View".
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	 Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-104, "CONSULT Function". No malfunction. TEL adapter unit malfunction. Refer to AV-190, "Exploded View". Malfunction is detected. Perform detected DTC diagnosis. Refer to AV-115, "DTC Index".
The other party's voice cannot	The operation of the "ws \(\mathbb{C} \)" switch can be performed.	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
be heard by hands-free phone.	The operation of the " [" switch cannot be performed.	Control signal circuit.
Originating sound is not heard by the other party with hands-	Sound operation function is normal.	TEL adapter unit. Refer to AV-190, "Exploded View".
by the other party with harids-		Microphone signal circuit malfunction.

Sound operation function does not work.

Microphone signal circuit malfunction.

Refer to AV-159, "Diagnosis Procedure".

MULTI AV SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

Symptoms	Check items	Probable malfunction location
The system cannot be operat-	"SOURCE", "MENU UP", and "MENU DOWN" switches are operated. But "w\(\)	 Check steering switch. Refer to <u>AV-162</u>, "<u>Component Inspection</u>". Malfunction is detected. Replace steering switch. Refer to <u>AV-186</u>, "<u>Exploded View</u>".
ed.	"SOURCE", "MENU UP", "MENU DOWN" and " &	Steering switch signal A circuit malfunction. Refer to AV-162, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-166, "Diagnosis Procedure".

RELATED TO RGB IMAGE

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-104, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-115, "DTC Index".
NOD image is not shown.	There is no malfunction in CONSULT self-diagnosis results. Refer to AV-104, "CONSULT Function".	Vertical synchronizing (VP) signal circuit. Refer to AV-157, "Diagnosis Procedure".
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to AV-148, "Diagnosis Procedure".
	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to AV-149, "Diagnosis Procedure".
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to AV-150, "Diagnosis Procedure".
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to AV-151, "Diagnosis Procedure".

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-158, "Diagnosis Procedure".
No sound comes out or the level of the sound is low.	No sound from all speakers.	AV control unit power supply and ground circuits malfunction. Refer to AV-145, "AV CONTROL UNIT : Diagnosis Procedure".
	Only a certain speaker (front right, front left, rear right, or rear left) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and speaker. Malfunction in speaker. Malfunction in AV control unit.
	Noise comes out from all speaker.	Malfunction in AV control unit.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left).	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in AV control unit.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.

MULTI AV SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

Symptoms	Check items	Probable malfunction location
Radio is not received or poor reception.	Other audio sounds are normal. Any radio 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).	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder.
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-104, "CONSULT Function".	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-115, "DTC Index". Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder.
self-diagnosis result.	There is no malfunction in the CONSULT self-diagnosis result. Refer to AV-104, "CONSULT Function".	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut. Refer to <u>AV-183</u>, "Exploded View".

RELATED TO USB

Check that there is no malfunction of USB equipment main body before performing a diagnosis.

Symptoms	Check items	Possible malfunction location / Action to take
iPod [®] or USB memory can not be recognized.	_	 USB harness malfunction. USB connector malfunction.

 $\mathrm{iPod}^{\$}$ is a trademark of Apple inc., registered in the U.S. and other countries.

RELATED TO STEERING SWITCH

Symptoms	Probable malfunction location
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to AV-166, "Diagnosis Procedure".
Only specified switch cannot be operated.	 Check steering switch. Refer to <u>AV-162</u>, "<u>Component Inspection</u>". Malfunction is detected. Replace steering switch. Refer to <u>AV-186</u>, "<u>Exploded View</u>".
"SOURCE", "MENU UP", "MENU DOWN" and " w w w w w w w w w w w w w	Steering switch signal A circuit. Refer to AV-162, "Diagnosis Procedure".
"VOL UP", "VOL DOWN" and "~" switches are not operated.	Steering switch signal B circuit. Refer to AV-164. "Diagnosis Procedure".

RELATED TO CAMERA

Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Probable malfunction location
Camera image is not shown. (Vehicle width and possible route line is displayed.)	_	 Camera image signal circuit. Refer to <u>AV-153, "Diagnosis Procedure"</u>. Composite image signal circuit. Refer to <u>AV-155, "Diagnosis Procedure"</u>.
Camera image does not switch.	"Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment".	Reverse signal circuit malfunction.
Camera image does not switch.	"Reverse" is turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment".	AV control unit malfunction. Replace AV control unit. Refer to AV-175, "Exploded View".

AV-171 Revision: 2012 August 2013 G Sedan

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NORMAL OPERATING CONDITION

Description INFOID:000000008296131

BASIC OPERATIONS

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
No image is displayed.	The systems in the video mode.	Press "DISC-AUX" to change the mode.
	The display is turned off.	Press "崇/ 》 OFF" to turn on the display.
The screen is too dim. The movement is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be selected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the multi AV system.

RELATED TO VOICE RECOGNITION

Related to Telephone

The system should respond correctly to all voice commands without difficulty. If problems are encountered, try the following solutions.

Where the solutions are listed by number, try each solution in turn, starting with number 1, until the problem is resolved.

Symptom	Solution
	Ensure that the command is valid.
	2. Ensure that the command is spoken after the tone.
	3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle.
System fails to interpret the command correctly.	Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). NOTE: If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.
	5. If more than one command was said at a time, try saying the commands separately.
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. See "Speaker adaptation (SA) mode" earlier in this section. Refer to "OWNER'S MANUAL".
The system consistently selects	Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the "List Names" command.
the wrong voicetag	2. Replace one of the names being confused with a new name.

RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- 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 then determine the cause.

NOTE:

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA, AAC, M4A) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

Symptom	Cause and Counter measure	
	Check if the CD was inserted correctly.	
	Check if the CD is scratched or dirty.	
	Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.	
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.	
Connet play	If there is a mixture of music CD files (CD-DA data) and MP3/WMA/AAC/M4A files on a CD, only the music CD files (CD-DA data) will be played.	
Cannot play	Files with extensions other than ".MP3", ".WMA", ".AAC", ".M4A", ".mp3", ".wma", ".aac" or ".m4a" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.	
	Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA/AAC/M4A writing applications or other text editing applications.	
	Check if the finalization process, such as session close and disc close, is done for the disc.	
	Check if the CD is protected by copyright.	
	Discs recorded in live file system format are not supported. (For Microsoft Windows Vista, check the settings.)	
Poor sound quality	Check if the CD is scratched or dirty.	
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA/AAC/M4A CD, or if it is a multisession disc, some time may be required before the music starts playing.	
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed.	
Skipping with high bit rate files	Skipping may occur with large quantities if data such as for high bit rate data.	
Move immediately to the next song when playing	When a non-MP3/WMA/AAC/M4A file has been given an extension of ".MP3", ".WMA", ".AAC", ".M4A", ".mp3", ".wma", ".aac" or ".m4a" or when play is prohibited by copyright protection, the player will skip to the next song.	
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files might not play in the desired order.	
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.	
Buzz/rattle sound from speaker	The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle.	

Noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources, 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 a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

RELATED TO HANDS-FREE PHONE

AV-173 Revision: 2012 August 2013 G Sedan

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITH REAR VIEW CAMERA]

Symptom	Cause and Counter measure	
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Some Bluetooth [®] enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" of MULTI AV SYSTEM SYMPTOM.	
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® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.	
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.	

REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

CAUTION:

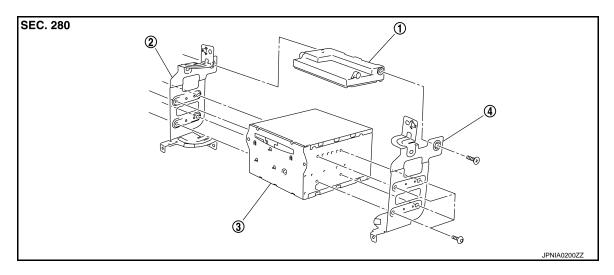
- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to AV-131, "Description".
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

Refer to IP-11, "A/T MODELS: Exploded View" (A/T models) or IP-22, "M/T MODELS: Exploded View" (M/T models).

DISASSEMBLY



- 1. Unified meter and A/C amp.
- 2. Bracket LH

3. AV control unit

4. Bracket RH

Removal and Installation

REMOVAL **CAUTION:**

- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to AV-131, "Work Procedure".
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

- Remove display unit. Refer to AV-177, "Exploded View".
- 2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
- Remove bracket screws, and then remove AV control unit.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

 Since AV control unit connector and unified meter and A/C amp. connector have the same form, be careful not to insert them wrongly.

AV-175 Revision: 2012 August 2013 G Sedan

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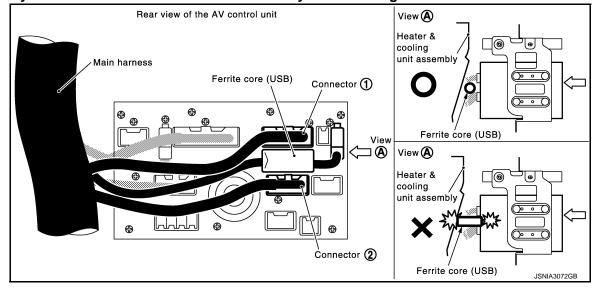
INFOID:0000000008296132

AV CONTROL UNIT

[BASE AUDIO WITH REAR VIEW CAMERA]

< REMOVAL AND INSTALLATION >

- Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to AV-132, "Work Procedure".
- Install AV control unit between connector (1) and connector (2) with the ferrite core (USB) orientated sideways to the vehicle. Incorrect installation may cause damage to the AV control unit.



DISPLAY UNIT

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

DISPLAY UNIT

Exploded View

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

Removal and Installation

INFOID:0000000008296135

REMOVAL

- 1. Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove display unit with bracket as a single unit.

INSTALLATION

Installation is the reverse order of removal.

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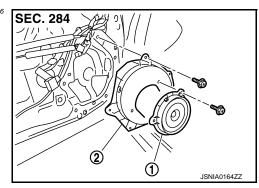
FRONT DOOR SPEAKER

[BASE AUDIO WITH REAR VIEW CAMERA]

FRONT DOOR SPEAKER

Exploded View

INFOID:0000000008296136



- 1. Front door speaker
- 2. Speaker bracket

Removal and Installation

INFOID:0000000008296137

REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove the front door speaker from speaker bracket.

INSTALLATION

Installation is the reverse order of removal.

REAR DOOR SPEAKER

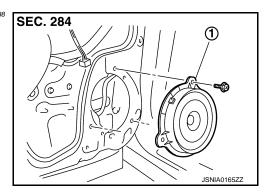
< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

REAR DOOR SPEAKER

Exploded View

INFOID:0000000008296138



Rear door speaker

Removal and Installation

REMOVAL

- 1. Remove rear door finisher. Refer to INT-11, "Exploded View".
- 2. Remove rear door speaker from rear door.

INSTALLATION

Installation is the reverse order of removal.

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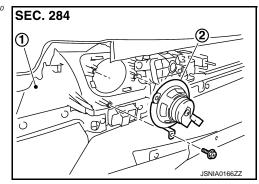
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[BASE AUDIO WITH REAR VIEW CAMERA]

TWEETER

Exploded View

INFOID:0000000008296140



- 1. Door finisher
- 2. Tweeter

Removal and Installation

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REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove the tweeter from the front door finisher.

INSTALLATION

Installation is the reverse order of removal.

ANTENNA AMP.

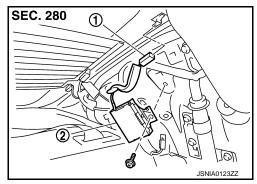
< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

ANTENNA AMP.

Exploded View

INFOID:0000000008296142



- 1. AM-FM main connector
- 2. Antenna amp.

Removal and Installation

INFOID:0000000008296143

REMOVAL

- 1. Remove rear pillar finisher LH. Refer to INT-14, "Exploded View".
- 2. Remove antenna amp. from rear pillar LH.

INSTALLATION

Installation is the reverse order of removal.

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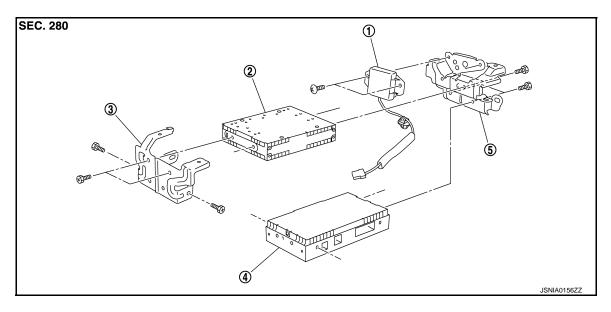
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SATELLITE RADIO TUNER

Exploded View



1. TEL antenna

- 2. Satellite radio tuner
- 5. Bracket (rear)

B. Bracket (front)

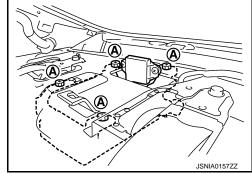
Removal and Installation

TEL adapter unit

INFOID:0000000008296145

REMOVAL

- 1. Remove trunk front finisher. Refer to INT-29, "Exploded View".
- 2. Remove rear parcel shelf finisher. Refer to INT-19, "Exploded View".
- 3. Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
- Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



INSTALLATION

Installation is the reverse order of removal.

SATELLITE RADIO ANTENNA

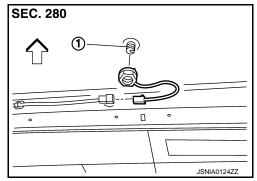
< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

SATELLITE RADIO ANTENNA

Exploded View

INFOID:0000000008296146



Satellite radio antenna

Removal and Installation

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REMOVAL

- Remove head lining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>INT-23</u>. "NORMAL ROOF: Exploded View" (normal roof models) or <u>INT-26</u>. "SUNROOF: Exploded View" (sunroof models).
- 2. Remove nut, and then remove satellite radio antenna from roof panel.

INSTALLATION

Installation is the reverse order of removal.

Satellite radio antenna mounting nut (0.66 kg-m, 58 in-lb)

CAUTION:

Be careful about tightening torque. Antenna sensitivity becomes poor, and when it is excessive, roof panel may be deformed, when satellite radio antenna mounting nut tightening torque is loose.

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MULTIFUNCTION SWITCH

[BASE AUDIO WITH REAR VIEW CAMERA]

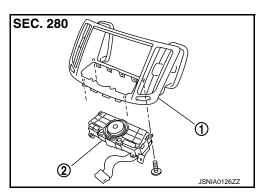
MULTIFUNCTION SWITCH

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



- 1. Center ventilator grille
- 2. Multifunction switch

Removal and Installation

INFOID:0000000008296149

REMOVAL

- 1. Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove multi function switch with center ventilator grille as a single unit.
- 3. Remove multi function switch from center ventilator.

INSTALLATION

Installation is the reverse order of removal.

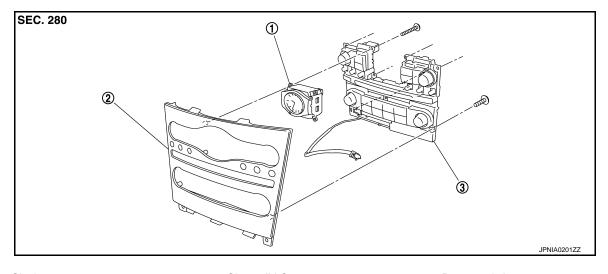
PRESET SWITCH

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY

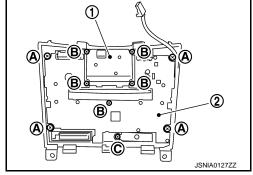


1. Clock 2. Cluster lid C 3. Preset switch

Removal and Installation

REMOVAL

- 1. Remove cluster lid C. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove preset switch screws (A), (B), and (C), and then remove preset switch (2) from cluster lid C.
 - 1. Clock



INSTALLATION

Installation is the reverse order of removal.

NOTE:

When installing preset switch, do not allow the print wire that connects preset switch and multifunction switch to get caught in between AV control unit and preset switch.

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STEERING SWITCH

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

STEERING SWITCH

Exploded View

Refer to ST-17, "Exploded View".

Removal and Installation

REMOVAL

Refer to ST-17, "Removal and Installation".

INSTALLATION

Installation is the reverse order of removal.

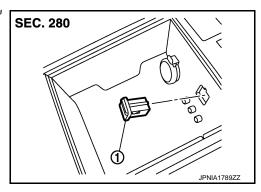
USB CONNECTOR

[BASE AUDIO WITH REAR VIEW CAMERA]

USB CONNECTOR

Exploded View

INFOID:0000000008296154



USB connector

Removal and Installation

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REMOVAL

- 1. Remove center console. Refer to <u>IP-33, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-38, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Push the pawl from the back of center console to remove USB connector.

INSTALLATION

Install in the reverse order of removal.

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[BASE AUDIO WITH REAR VIEW CAMERA]

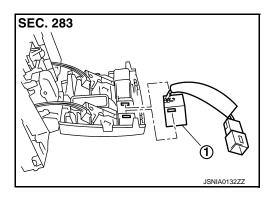
MICROPHONE

Exploded View

REMOVAL

Refer to INL-71, "Exploded View".

DISASSEMBLY



1. Microphone

Removal and Installation

INFOID:0000000008296157

REMOVAL

- 1. Remove map lamp. Refer to INL-71, "Exploded View".
- 2. Remove microphone from map lamp.

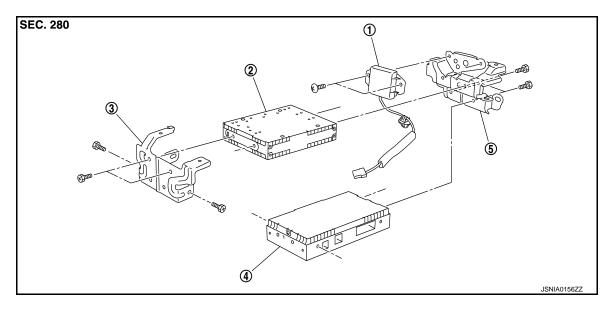
INSTALLATION

Installation is the reverse order of removal.

< REMOVAL AND INSTALLATION > **TEL ANTENNA**

Exploded View

INFOID:0000000008296158



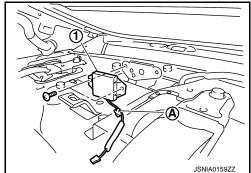
- TEL antenna
- TEL adapter unit
- 2. Satellite radio tuner
- Bracket (rear)

3. Bracket (front)

Removal and Installation

REMOVAL

- Remove trunk front finisher. Refer to INT-29, "Exploded View". 1.
- Remove rear parcel shelf finisher. Refer to INT-19, "Exploded View". 2.
- 3. Remove screws and clip (A) from inside the cabin and remove TEL antenna (1) connector from trunk room side.



INSTALLATION

Installation is the reverse order of removal.

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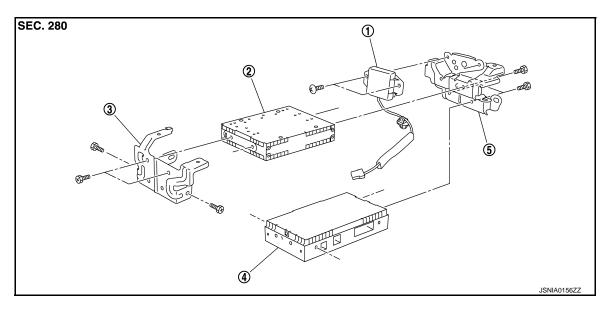
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TEL ADAPTER UNIT

Exploded View



1. TEL antenna

- 2. Satellite radio tuner
- 5. Bracket (rear)

B. Bracket (front)

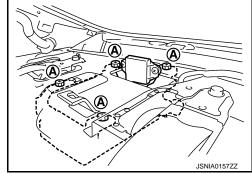
Removal and Installation

TEL adapter unit

INFOID:0000000008296161

REMOVAL

- 1. Remove trunk front finisher. Refer to INT-29, "Exploded View".
- 2. Remove rear parcel shelf finisher. Refer to INT-19, "Exploded View".
- 3. Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
- Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



INSTALLATION

Installation is the reverse order of removal.

REAR VIEW CAMERA

[BASE AUDIO WITH REAR VIEW CAMERA]

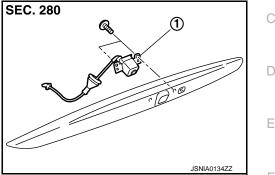
REAR VIEW CAMERA

Exploded View INFOID:0000000008296162

REMOVAL

Refer to EXT-41, "Exploded View".

DISASSEMBLY



Rear view camera

Removal and Installation

REMOVAL

- Remove trunk lid finisher outer. Refer to EXT-41, "Exploded View".
- Remove rear view camera from trunk lid finisher outer.

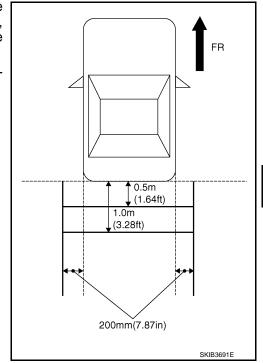
INSTALLATION

Installation is the reverse order of removal.

Adjustment INFOID:0000000008296164

Adjust the guide line position if the guide line position is shifted after installing the rear view camera.

- 1. Draw lines on rearward area of the vehicle passing through the following points: 200 mm (7.87 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1.0 m (3.28 ft) from the rear end of the bumper.
- 2. Set into "Adjust Guide Lines" mode of "Confirmation/Adjustment" mode.



AV-191 Revision: 2012 August 2013 G Sedan Α

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REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

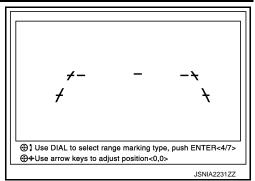
[BASE AUDIO WITH REAR VIEW CAMERA]

 Rotate the center dial, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

Selected pattern : 7

4. Make fine adjustment to the correction line of the rear of the vehicle with up/down/left/right switches so that its position is aligned with the guiding line. Press "OK" switch and record the adjusted guiding line position to the AV control unit.

Up/Down adjustment range : 20° to 20° Left/Right adjustment range : 20° to 20°



CAUTION:

After the adjustment, never perform other operations for one minute.

STEERING ANGLE SENSOR

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH REAR VIEW CAMERA]

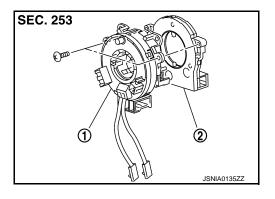
STEERING ANGLE SENSOR

Exploded View

REMOVAL

Refer to <u>SR-13</u>, "Exploded View".

DISASSEMBLY



- 1. Spiral cable
- 2. Steering angle sensor

Removal and Installation

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REMOVAL

- 1. Remove spiral cable. Refer to SR-13, "Exploded View".
- 2. Remove steering angle sensor from spiral cable.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

After work, make sure to adjust neutral position of steering angle sensor. Refer to <u>BRC-9</u>, "<u>ADJUST-MENT OF STEERING ANGLE SENSOR NEUTRAL POSITION</u>: <u>Description</u>".

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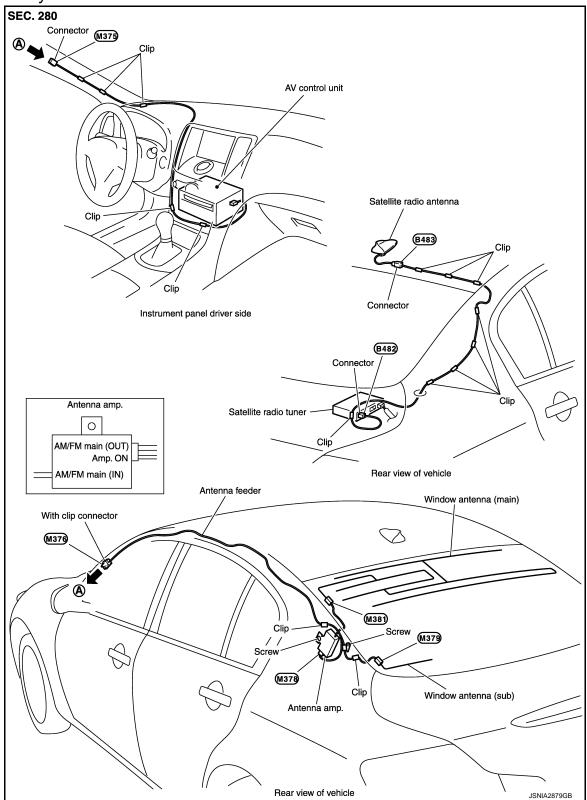
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ANTENNA FEEDER

Feeder Layout



[BOSE AUDIO WITHOUT 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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 "SRS AIR BAG".
- Never 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:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never 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 3 minutes before performing any service.

Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)

CAUTION:

Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

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

Revision: 2012 August

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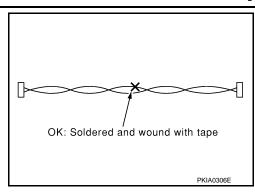
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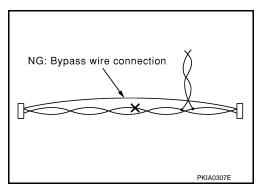
2013 G Sedan

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



 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.)



PREPARATION

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[BOSE AUDIO WITHOUT NAVIGATION]

PREPARATION

PREPARATION

Commercial Service Tools

	Tool	Description	C
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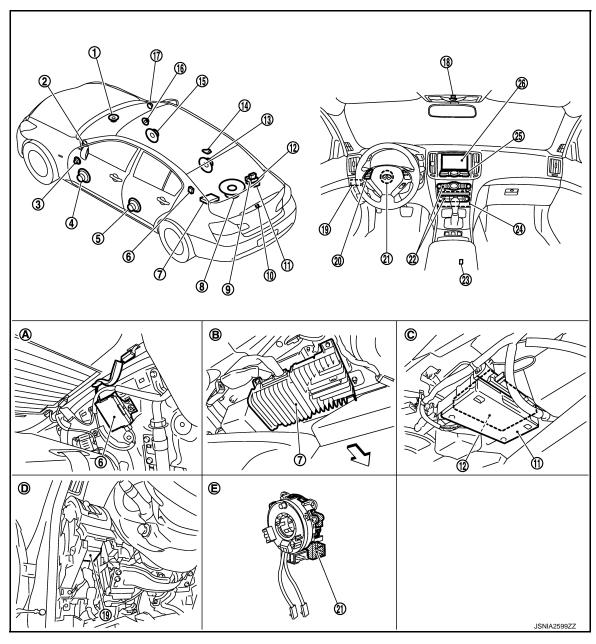
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000008296173



- Center speaker
- 4. Front door woofer LH
- 7. BOSE amp.
- 10. Rear view camera
- 13. Rear door speaker RH
- 16. Front door squawker RH
- 19. Sonar control unit
- 22. Preset switch
- 25. Multifunction switch
- A. Within rear pillar finisher LH

- 2. Tweeter LH
- Rear door speaker LH
- 8. Rear woofer
- 11. TEL adapter unit
- 14. Satellite radio antenna
- 17. Tweeter RH
- 20. Steering switch
- 23. USB connector
- 26. Display unit
- B. Lower part of rear parcel shelf (on the left side)

- Front door squawker LH
- 6. Antenna amp.
- 9. TEL antenna
- 12. Satellite radio tuner
- 15. Front door woofer RH
- 18. Microphone
- 21. Steering angle sensor
- 24. AV control unit
- C. Lower part of rear parcel shelf (on the right side)

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

D.	Instrument driver lower panel re-
υ.	moved condition

E. Spiral cable removed condition

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: Vehicle front

Component Description

Part name	Description	
AV control unit	 It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. The AV control unit includes the audio, USB connection and vehicle information functions. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It is connected to the steering angle sensor and receives the steering angle senso signal via CAN communication. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). Amp. ON signal, sound signal and mode change signal transmitted to BOSE amp. TEL voice signal and voice guidance signal are input from TEL adapter unit. 	
Display unit	 Display image is controlled by the serial communication from AV control unit. It receives the power (signal VCC and inverter VCC) from the AV control unit and operates. RGB image signal is input from AV control unit (RGB image, RGB area and RGB synchronizing). Composite image signals are input from AV control unit. Synchronizing signal (HP, VP) is output to AV control unit. 	
BOSE amp.	 Inputs sound signal from AV control unit, and outputs sound signal to each speak er. Input mode change signal from AV control unit. 	
Front door woofer	Outputs sound signal from BOSE amp.Outputs low range sound.	
Front door squawker	Outputs sound signal from BOSE amp.Outputs mid range sound.	
Rear door speaker	Outputs sound signal from BOSE amp.Outputs high, mid and low range sounds.	
Tweeter	Outputs sound signal from BOSE amp.Outputs high range sound.	
Center speaker	Outputs sound signal from BOSE amp.Outputs high, mid and low range sounds.	
Rear woofer	 Outputs sound signal from BOSE amp. Outputs low-pitched sound. Power (woofer amp. ON signal) is supplied from BOSE amp. 	
Multifunction switch	 Operation panel is equipped with the centralized switch where audio operations are integrated. Connected with preset switch via cable, and operation signal is transmitted to Al control unit via AV communication. 	
Preset switch	 Operation panel is equipped with the centralized switch where audio and air conditioner, etc. operations are integrated. Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication. The disk ejection operating signal is performed by hardwire. 	
Rear view camera	 Camera power supply is input from AV control unit. The image of vehicle rear view is transmitted to AV control unit. 	
Steering angle sensor	It is connected to the AV control unit and transmits the steering angle sensor signal via CAN communication.	

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Part name	Description	
Sonar control unit	 Controlled by AV communication transmitted from AV control unit. Trouble diagnosis is supported with CONSULT (K-LINE). 	
Steering switch	 Operations for audio, hands-free phone and voice control, etc. are possible. Steering switch signal (operation signal) is output to AV control unit. 	
Microphone	 Used for hands-free phone operation and voice recognition. Microphone signal is transmitted to AV control unit. Power (Microphone VCC) is supplied from AV control unit. 	
Antenna amp.	 Radio signal received by glass antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit. 	
Satellite radio tuner	 Inputs the satellite radio signal from satellite radio antenna and outputs the sound signal to the AV control unit. It is controlled with the AV control unit and serial communication (communication signal and request signal). 	
Satellite radio antenna	Satellite radio signal is received and transmitted to AV control unit.	
TEL adapter unit	 Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit. It is connected with the AV control unit via AV communication and controlled with the AV control unit. 	
TEL antenna	Receives the TEL voice signal and outputs it to the TEL adapter unit.	
USB connector	Image signal*1 and sound signal of USB input is transmitted to AV control unit.	

^{*1:} Image signals cannot be received from iPod[®].

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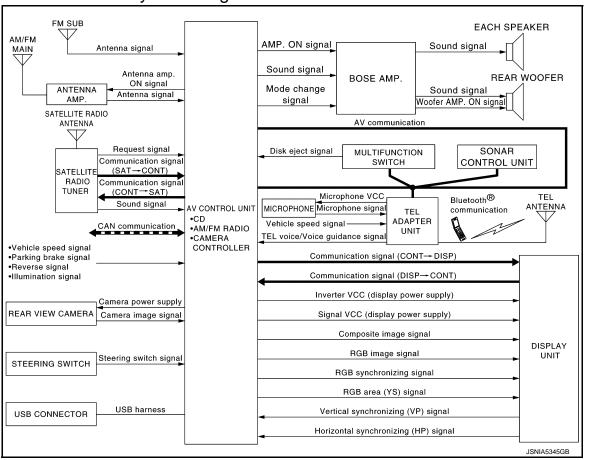
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SYSTEM MULTI AV SYSTEM

MULTI AV SYSTEM : System Diagram



NOTE:

The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

MULTI AV SYSTEM: System Description

Multi AV system means that the following systems are integrated.

FUNCTION NAME
Audio function
Hands-free phone function
Rear view monitor function
Sonar function
 Vehicle information function

COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures
 them completely as a master unit by connecting between units that configure MULTI AV system with two AV
 communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information.
- AV control unit is connected with display and serial communication, and it transmits the required signal of display and display control and receives the response signal from display.

[BOSE AUDIO WITHOUT NAVIGATION]

AUDIO FUNCTION

The audio system is equipped with the following functions. Each function is operated with multifunction switch, preset switch, steering switch. Operation status of audio is indicated at display.

FUNCTION
AM/FM radio
Satellite radio
CD
USB connection function
Driver's Audio Stage

Operating Signal

Audio system operation can be performed with multifunction switch, preset switch or steering switch.

- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch. The disk ejection operating signal is performed by hardwire.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.

Screen Display

- Switching of display is performed with serial communication between display unit and AV control unit.
- The image signal to display operating condition is performed with RGB image signal, RGB area signal and RGB image synchronizing signal.

AM/FM Radio Mode

- · AM/FM radio tuner is built into AV control unit.
- Audio signal is received by glass antenna, next it is amplified by antenna amp, and finally it is input to AV control unit. Audio signal is input to BOSE amp., and BOSE amp. outputs to each speaker.

Satellite Radio Mode

- Satellite radio tuner is controlled by communication signal and request signal with AV control unit.
- Sound signal (satellite radio) is received by satellite antenna and transmitted to AV control unit. AV control
 unit is output the sound signal (satellite radio) to each speaker.

CD Mode

- · CD function is built into AV control unit.
- AV control unit outputs audio signal to BOSE amp., and BOSE amp. outputs to each speaker when CD is inserted to AV control unit.

USB Connection Function

- iPod or music files in USB memory can be played.
- iPod sound signals are transmitted from USB connector to the AV control unit and to each speaker.
- iPod[®] is recharged when connected to USB connector.

iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

NOTE:

Use the enclosed USB harness when connecting iPod® to USB connector.

Driver's Audio Stage

- Driver's Audio Stage controls the speaker's output characteristic by BOSE amp. so that the driver's seat is to be the center of sounds.
- ON/OFF signals of Driver's Audio Stage are transmitted from AV control unit to BOSE amp. using mode change signal.

HANDS-FREE PHONE SYSTEM

- TEL adapter unit is controlled with AV communication from AV control unit.
- The connection between cellular phone and TEL adapter unit is performed with Bluetooth[®] communication.
- The voice guidance signal is input from the TEL adapter unit to the AV control unit and output via BOSE amp. to the front speaker when operating the cellular phone.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-216, "On Board Diagnosis Function".

When A Call Is Originated

• Spoken voice sound output from the microphone (microphone signal) is input to TEL adapter unit.

SYSTEM

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[BOSE AUDIO WITHOUT NAVIGATION]

- TEL adapter 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 TEL adapter unit by establishing Bluetooth[®] communication from cellular phone, and the signal is output via BOSE amp. to front speaker.

REAR VIEW MONITOR FUNCTION

- The AV control unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the AV control unit when power is supplied from the AV control unit.
- The AV control unit transmits a warning message, fixed guide lines, and predictive course lines to the display
 unit by RGB image signal. Rear view monitor images are displayed by combining the RGB image signal and
 the camera image signals from the rear view camera.
- Predictive course lines are controlled by a steering angle sensor signal received the AV control unit via CAN communication.

SONAR SYSTEM

For further information about the sonar system, refer to SN-7, "System Description".

VEHICLE INFORMATION FUNCTION

- Status of audio, climate control system, fuel economy and maintenance are displayed.
- AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp.
- AV control unit is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.

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[BOSE AUDIO WITHOUT NAVIGATION]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description INFOID:000000008296177

The AV control unit diagnosis function starts up with multifunction switch operation and the AV control unit
performs a diagnosis for each unit in the system during the on board diagnosis.

Perform a CONSULT diagnosis if the on board diagnosis does not start, e.g., the screen does not display
anything, the multifunction switch does not function, etc.

On Board Diagnosis Function

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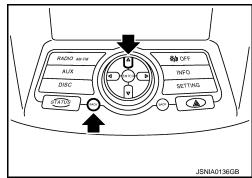
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

The ON/OFF operation (continuity) of each switch in the multifunction switch and preset switch can be checked.

Self-diagnosis Mode

- Press the "BACK" switch and the "UP" switch of the 4-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
 NOTE:

The hazard switch and disk eject switch cannot be checked.



Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning the ignition switch OFF.

ON BOARD DIAGNOSIS ITEM

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- Self-diagnosis mode performs the AV control unit diagnosis and the connection diagnosis between each of the units that make up the system, and it indicates the results to the display unit.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

Mode	Description
Self Diagnosis	 AV control unit diagnosis. Diagnoses the connections across system components, between AV control unit and each unit.

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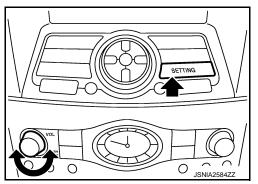
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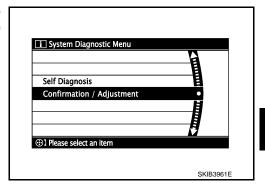
Mode		Description	
	Display Diagnosis	The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display.	
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition and reverse.	
	Speaker Test	The connection of a speaker can be confirmed by test tone.	
	Climate Control	Start auto air conditioner system self-diagnosis.	
Confirmation/ Adjustment	Error History	The system malfunction and the frequency when occurring in the past displayed. When the malfunctioning item is selected, the time and plat that the selected malfunction last occurred are displayed.	
	Camera Cont.	 Guiding line position that overlaps rear view camera image can be adjusted. Configuration stored in the AV control unit can be checked. 	
	Vehicle CAN Diagnosis	The transmitting/receiving of CAN communication can be monitored.	
•	AV COMM Diagnosis	The communication condition of each unit of Multi AV system can be monitored.	
	Delete Unit Connection Log	Erase the connection history of unit and error history.	
	Initialize Settings	Initializes the AV control unit memory.	

METHOD OF STARTING

- 1. Start the engine.
- 2. Turn the audio system OFF.
- 3. While pressing the "SETTING" button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
 - Shifting from current screen to previous screen is performed by pressing "BACK" button.



 The trouble diagnosis initial screen is displayed, and then the items of "Self Diagnosis" and "Confirmation/Adjustment" can be selected.



SELF-DIAGNOSIS MODE

- 1. Start the self-diagnosis function and select "Self Diagnosis".
- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

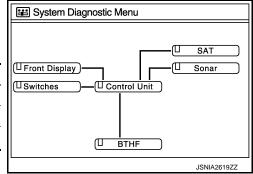
Revision: 2012 August AV-205 2013 G Sedan

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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.

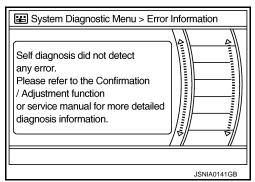
Diagnosis results	Unit	Connection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
Unit malfunction Note	Red	Green



NOTE:

Control unit (AV control unit) is displayed in red.

- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated.
 The symptom is AV control unit internal error. Refer to <u>AV-290, "Exploded View"</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.
- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between AV control unit and each unit and the internal operation of the AV control unit.
- Because the start condition of diagnosis function is a switch operation, the on board diagnosis function cannot be started up if any malfunction is detected in the communication circuit between AV control unit and multifunction switch.

SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.

Screen switch	Description	Possible malfunction location / Action to take
Control unit	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit. Refer to AV-290, "Exploded View".

A Connecting Cable Between Units Is Displayed In Yellow.

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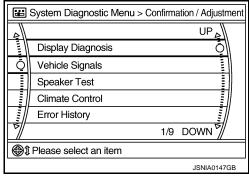
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Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communication circuits between AV control unit and display unit.	Serial communication circuits between AV control unit and display unit.
Control unit ⇔ SAT	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
Control unit ⇔ Sonar	When either one of the following items is detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
Control unit ⇔ BTHF	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.

CONFIRMATION/ADJUSTMENT MODE

1. Start the diagnosis function and select "Confirmation/Adjustment". The confirmation/adjustment mode indicates where each item can be checked or adjusted.

2. Select each switch on the "Confirmation/Adjustment Mode" screen to display the relevant trouble diagnosis screen. Press the "BACK" switch to return to the initial Confirmation/Adjustment Mode screen.



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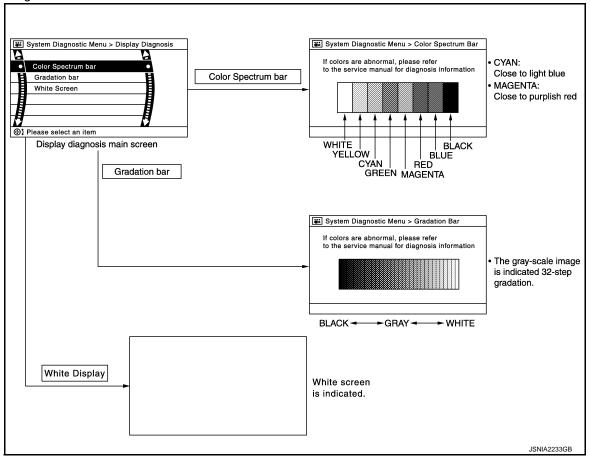
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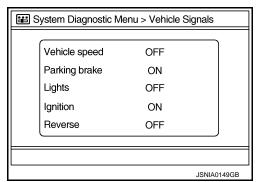
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Display Diagnosis



Vehicle Signals

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



Diagnosis item	Display	Vehicle status	Remarks
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	
verlicie speed	OFF	Vehicle speed = 0 km/h (0 MPH)	
Parking brake	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal.
	OFF	Parking brake is released.	1
Lights	ON	Light switch ON	
Lights	OFF	Light switch OFF	_
lanition	ON	Ignition switch ON	
Ignition	OFF	Ignition switch in ACC position	_

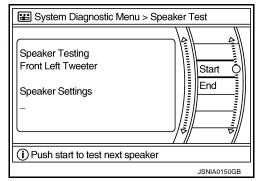
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Diagnosis item	Display	Vehicle status	Remarks
Reverse	ON	Shift the selector lever to "R" position	Changes in indication may be delayed. This is normal.
	OFF	Shift the selector lever other than "R" position	Ghanges in indication may be delayed. This is normal.

Speaker Test

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.



Climate Control

Refer to "HEATER & AIR CONDITIONING CONTROL SYSTEM" for details.

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 resets to 0 if an error occurs when ignition switch is turned ON. The counter increases by 1 if the condition is normal at a next ignition ON cycle.
- The counter upper limit is 39. Any counts exceeding 39 are ignored." The counter can be reset (no error record display) with the "Delete log" switch or CONSULT.

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 or CONSULT.

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

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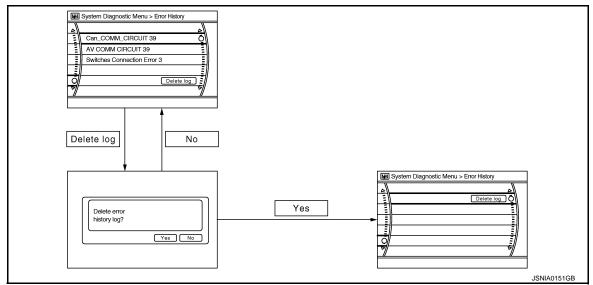
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Error item

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

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-213, "CONSULT Function".
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-290, "Exploded View".
FLASH-ROM Error Of Control Unit	AV control unit malfunction is detected.	Refer to Av-230, Exploded view.
CAN Controller Memory Error	Av control unit manufiction is detected.	
Steer. Angle Sensor Calibration	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to AV-213, "CONSULT Function".
Front Display Connection Error	When either one of the following items is detected: display unit power supply and ground circuits are malfunctioning. communication circuits between AV control unit and display unit are malfunctioning.	 Display unit power supply and ground circuits. Communication circuits between AV control unit and display unit.
XM Connection Error	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
AV COMM CIRCUIT Switches Connection Error	 When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning. 	Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.

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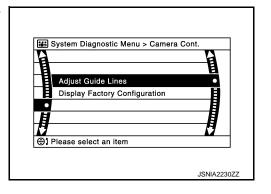
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Error item	Description	Possible malfunction factor/Action to take
AV COMM CIRCUIT Sonar Connection Error	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
AV COMM CIRCUIT H/F Unit Connection Error	 When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning. 	TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.
 AV COMM CIRCUIT Switches Connection Error Sonar Connection Error H/F Unit Connection Error 	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

Camera Cont.

The two functions of "Correct Draw Line of Rear view Cam", "Confirm Configuration" are available.

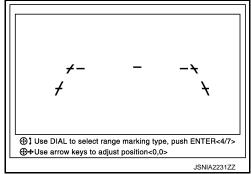


Adjust Offset of Rear view Camera

 Úse this mode to adjust the guide line display position of the rear view monitor if necessary after removing the rear view monitor camera.

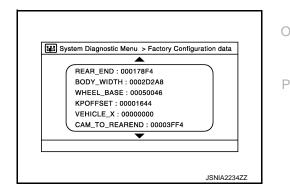
CAUTION:

After the adjustment, never perform other operations for one minute.



Factory Configuration Confirmation

Configuration stored in the AV control unit can be checked.



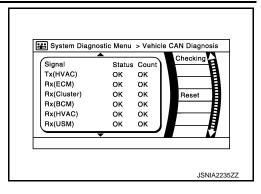
Vehicle CAN Diagnosis

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

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

Items	Display (Current)	Malfunction counter (Past)
Tx(HVAC)	OK / ???	OK / 0 – 39
Rx(ECM)	OK / ???	OK / 0 – 39
Rx(Cluster)	OK / ???	OK / 0 – 39
Rx(BCM)	OK / ???	OK / 0 – 39
Rx(HVAC)	OK / ???	OK / 0 – 39
Rx(USM)	OK / ???	OK / 0 – 39
Rx(VDC)	OK / ???	OK / 0 – 39
Rx(STRG)	OK / ???	OK / 0 - 39



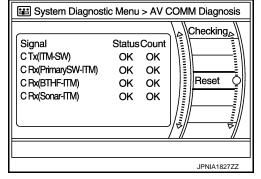
NOTE:

"???" indicates UNKWN.

AV COMM Diagnosis

- Displays the communication status between AV control 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 Tx(ITM-SW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(BTHF-ITM)	OK / ???	OK / 0 – 39
C Rx(Sonar-ITM)	OK / ???	OK / 0 - 39

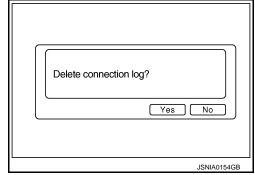


NOTE:

"???" indicates UNKWN.

Delete Unit Connection Log

Deletes any unit connection records and error records from the AV control unit memory. (Clear the records of the unit that has been removed.)



Initialize Settings

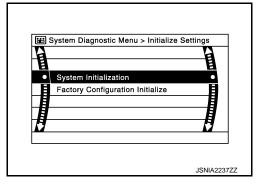
< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

"User Data Initialization" and "Accessory Number Initialization" are possible.

CAUTION:

- Never perform Accessory Number Initialization except when configuration is unsuccessful.
- Accessory Number Initialization requires configuration. For details, refer to AV-245, "Description".



CONSULT Function

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APPLICATION ITEMS

CONSULT performs the following functions via the communication with the AV control unit.

Diagnosis mode	Description	
Ecu Identification	The part number of AV control unit can be checked.	
Self Diagnostic Result	Performs a diagnosis on the AV control unit and a connection diagnosis for the communication circuit of the Multi AV system, and displays the current and past malfunctions collectively.	
Data Monitor	The diagnosis of vehicle signal that is input to the AV control unit can be performed.	
Work Support	Steering angle sensor can be adjusted.	
Configuration	 Read and save the vehicle specification. Write the vehicle specification when replacing AV control unit. 	

AV Communication

When "AV communication" of "CAN Diag Support Monitor" is selected, the following function will be performed.

AV communication AV&NAVI C/U	Displays the communication status from AV control unit to each unit as well as the error counter.	
	AUDIO	Displays the AV control unit communication status and the error counter.

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to AV-247, "Diagnosis Procedure".
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-290, "Exploded View".
Cont Unit [U1200]	AV control unit malfunction is detected.	
CAN CONT [U1216]	AV control unit mailunction is detected.	
ST ANGLE SEN CALIB [U1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
FRONT DISP CONN [U1243]	When either one of the following items is detected: display unit power supply and ground circuits are malfunctioning. communication circuits between AV control unit and display unit are malfunctioning.	Display unit power supply and ground circuits. Communication circuits between AV control unit and display unit.
SAT CONN [U1255]	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.
 AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] SONAR CONN [U125C] HAND FREE CONN [U1256] 	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.

DATA MONITOR

NOTE

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

ALL SIGNALS

- Displays the status of the following vehicle signals inputted into the AV control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

Display Item	Display	Vehicle status	Remarks	
VHCL SPD SIG	On	Vehicle speed > 0 km/h (0 MPH)		
	Off	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is	
PKB SIG	On	Parking brake is applied.	normal.	
FRB 3IG	Off	Parking brake is released.		

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Display Item	Display	Vehicle status	Remarks
ILLUM SIG	On	Block the light beam from the auto light optical sensor when the light SW is ON.	
	Off	Expose the auto light optical sensor to light when the light SW is OFF or ON.	_
IGN SIG	On	Ignition switch ON	
	Off	Ignition switch in ACC position	
REV SIG	On	Selector lever in R position	Changes in indication may be delayed. This is
	Off	Selector lever in any position other than R	normal.

SELECTION FROM MENU

Allows the technician to select which vehicle signals should be displayed and displays the status of the selected vehicle signals.

Item to be selected	Description	
VHCL SPD SIG		
PKB SIG		
ILLUM SIG	The same as when "ALL SIGNALS" is selected.	
IGN SIG		
REV SIG		

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION:

For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.

	Description
ST ANGLE SENSOR ADJUSTMENT	Adjusts the neutral position of the steering angle sensor.

CONFIGURATION

Configuration has three functions as follows.

Function		Description
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.
	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the AV control unit.
Manual Configuration		Allows the writing of the vehicle specification into the AV control unit by hand.

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DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

On Board Diagnosis Function

INFOID:0000000008296180

HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

ON BOARD DIAGNOSIS ITEM

The on board diagnosis has 3 modes: the self-diagnosis mode that performs the trouble diagnosis, the speaker adaptation data deleting mode and the hands-free phone system initialization mode.

CAUTION:

- Perform the diagnosis with the vehicle stopped.
- Perform STEP2 if necessary.

STEP	MODE	Description
STEP1	Self-diagnosis	The self-diagnosis mode performs the microphone test and the diagnosis of TEL adapter unit, TEL antenna and steering unit, and then reads out the results with the sound and indicates them on the display.
STEP2	Speaker adaptation data deleting	The speaker adaptation data deleting mode can delete the speaker adaptation data.
	Hands-free phone system initialization	Hands-free phone system initialization mode can perform the initialization of hands-free phone system.

Self-diagnosis results

Self-diagnosis mode reads out the self-diagnosis results.

NOTE:

- Error count is read out simultaneously when reading out the DTC name.
- The errors are read out continuously when some errors occur at the same time.

Self-diagnosis results

DTC	DTC name	Possible causes	
DTC 10000	INTERNAL FAILURE	TEL adapter unit	
DTC 01000	ANT. SHORT TO BATT OR OPEN	TEL antenna	
DTC 00100	ANT. SHORT TO GROUND		
DTC 00010	STEERING REMOTE BUTTON STUCK A	Steering switch	
DTC 00001	STEERING REMOTE BUTTON STUCK B		
DTC 00000	THERE ARE NO FAILURE RECORDS TO REPORT	_	

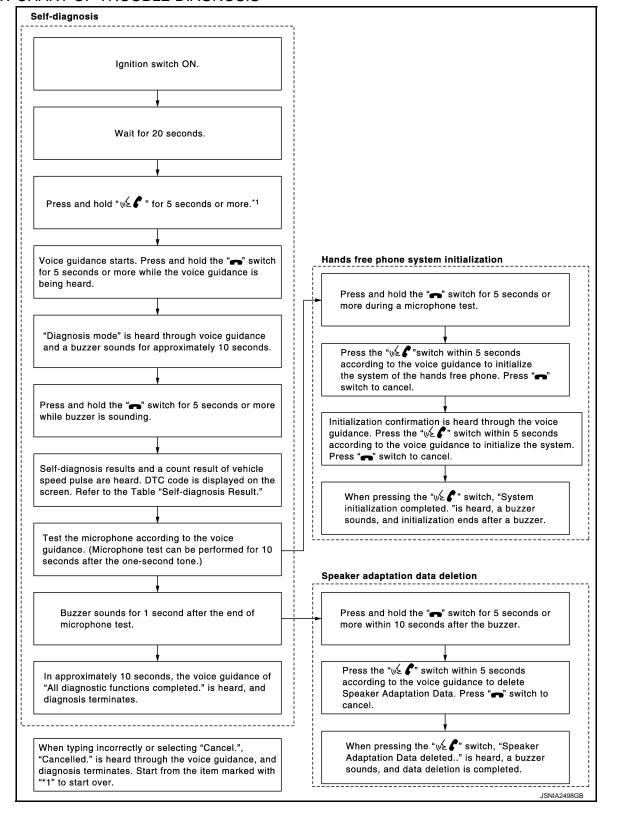
The Details of Error Count

The error count guides "0" when the error occurs. The next time it counts up "1" if it is normal with the ignition switch ON. It continues the count up unless the initialization of hands-free phone system is performed.

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

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FLOW CHART OF TROUBLE DIAGNOSIS



Revision: 2012 August AV-217 2013 G Sedan

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

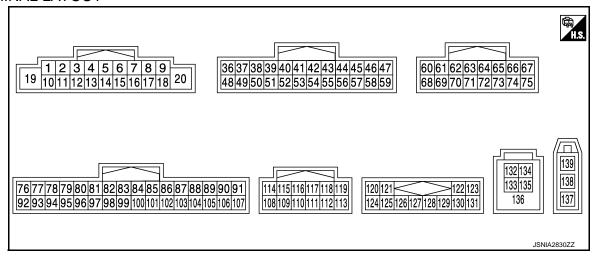
NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

Monitor Item		Condition	Value/Status
VHCL SPD SIG	Ignition switch	Vehicle speed > 0 km/h (0 MPH)	On
VIICE SPD SIG	ON	Vehicle speed = 0 km/h (0 MPH)	Off
PKB SIG	Ignition switch	Parking brake is applied.	On
	ON	Parking brake is released.	Off
ILLUM SIG	Ignition switch	Light switch ON	On
ILLUIVI SIG	ON	Light switch OFF	Off
IGN SIG	Ignition switch ON	_	On
IGN SIG	Ignition switch ACC	_	Off
REV SIG	Ignition switch	Selector lever in R position	On
ILV SIG	ON	Selector lever in any position other than R	Off

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description			Condition	Reference value	
+	1	Signal name	Input/ Output		Condition	(Approx.)	
					Keep pressing SOURCE switch.	0 V	
				Keep pressing MENU UP switch.	0.7 V		
6 (P)	15 (B)	Steering switch signal A	Input	Ignition Input switch ON	Keep pressing MENU DOWN switch.	1.3 V	
					Keep pressing √∠ 🧗 switch	2.0 V	
					Except for above.	3.3 V	
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
9			_	Ignition	Lighting switch is OFF.	0 V	
(L)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12.0 V	
					Keep pressing VOL DOWN switch.	0 V	
16 (L)	15 (B)	Steering switch signal B	Input Ignition Switch ON	Input	Keep pressing VOL UP switch.	0.7 V	
							ON
					Except for above.	3.3 V	
18 (G)	Ground	Ground	_	Ignition switch ON	_	0 V	
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
20 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
36 (BG)	Ground	Signal VCC	Output	Ignition switch ACC	_	9.0 V	
37 (LG)	Ground	Signal ground	_	Ignition switch OFF	_	0 V	
38 (R)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON		(V) 4 0 → +20μs SKIB3601E	

	Terminal (Wire color) Description				Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
39 (L)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 **-1ms
					At RGB image is displayed.	5.0 V
40 (B)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At DVD image is displayed.	(V) 6 4 2 0 ***-200 <i>μ</i> S PKIB4948J
41	_	Shield	_	_	_	_
42 (W)	Ground	RGB synchronizing signal	Output	Ignition switch ON		(V) 4 0 + 20μs SKIB3603E
43 (G)	Ground	RGB signal (R: red)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1029ZZ
44 (L)	Ground	RGB signal (G: green)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 40µs JSNIA1030ZZ
45 (P)	Ground	RGB signal (B: blue)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1031ZZ
46 (Y)	Ground	Composite image ground	_	Ignition switch ON	_	0 V

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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	minal color)	Description			O v Min	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
47 (BR)	Ground	Composite image signal	Output	Ignition switch ON	At rear view camera image is displayed.	0. 4 0 + 40μs SKIB2251J
48 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	9.0 V
49 (BR)	Ground	Inverter ground	_	Ignition switch OFF	_	0 V
50 (G)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON		(V) 4 0 *** 4ms SKIB3598E
51 (P)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J
52	_	Shield	_	_	_	_
57	_	Shield	_	_	_	
58		Shield	_		_	_
62 (W)	Ground	Camera image signal	Input	Ignition switch ON	At rear view camera image is displayed.	(V) 0. 4 0 -0. 4 SKIB2251J
71		Shield	_		_	_
72 (B)	Ground	Camera ground	_	Ignition switch ON	_	0 V
73 (R)	Ground	Camera power supply	Output	Ignition switch ON	At rear view camera image is displayed.	6.0 V
76 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
77 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_

	minal color)	Description				Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
78 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
79 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
80 (P)	_	CAN-L	Input/ Output	_	_	_
81 (L)	_	CAN-H	Input/ Output	_	_	_
82 (BR)	Ground	Switch ground	_	Ignition switch ON	_	0 V
86	_	Shield	_		<u> </u>	_
87 (L)	88 (P)	TEL voice signal	Input	Ignition switch ON	During voice guide output with the v switch pressed.	(V) 1 0 -1 + 2ms SKiB3609E
92 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: The maximum voltage varies depending on the specification (destination unit).
					Parking brake is ON.	0 V
93 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake is OFF.	(V) 8 4 0 10 ms JSNIA0007GB
94	Ground	Payarsa signal	Input	Ignition	R position	12.0 V
(BG)	Ground	Reverse signal	Input	switch ON	Other than R position	0 V
95 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
96	Ground	Disk eject signal	Input	Ignition switch	Pressing the eject switch.	0 V
(V)	Ground	nov elect sidilgi	Input	ON	Except for above.	3.3 V

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
108 (BR)	114 (Y)	Sound signal rear RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
109 (R)	115 (G)	Sound signal front RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
110 (GR)	Ground	Amp. ON signal	Output	Ignition switch ON	_	10.0 V
111 (B)	_	Shield	_	_	_	_
112 (V)	118 (LG)	Sound signal rear LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
113 (O)	119 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
120 (B)	124 (W)	Satellite radio sound signal LH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E
121 (G)	125 (R)	Satellite radio sound signal RH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E

[BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
122 (L)	Ground	Communication signal (CONT→SAT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 1ms
126	_	Shield	_	_	_	_
127	_	Shield	_	_	_	_
128	Ground	Mode change signal	Output	Ignition switch	Driver's Audio Stage ON	0 V
(SB)		g. e.g.		ON	Driver's Audio Stage OFF	8.5 V
129 (P)	Ground	Request signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 10ms SKIA9299J
130 (G)	Ground	Communication signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	10 0 -10 -10 -10 -10
132 (G)	_	USB ground	_		_	_
133 (R)	_	USB D- signal	_	_	_	_
134 (W)	_	V BUS signal	_	_	_	_
135 (L)	_	USB D+ signal	_	_	_	_
136	_	Shield	_	_	_	_
137	_	FM sub	Input	_	_	_
138	_	AM-FM main	Input	_	_	_
139	Ground	Antenna amp. ON signal	Output	Ignition switch ACC		12.0 V

DTC Index

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-247, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-248, "DTC Logic"

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

DTC	Display item	Refer to	۸
U1200	Cont Unit [U1200]	AV-249, "DTC Logic"	Α
U1216	CAN CONT [U1216]	AV-250, "DTC Logic"	
U1232	ST ANGLE SEN CALIB [1232]	AV-251, "Diagnosis Procedure"	В
U1243	FRONT DISP CONN [U1243]	AV-252, "Diagnosis Procedure"	
U1255	SAT CONN [U1255]	AV-254, "Diagnosis Procedure"	
U1310	CONTROL UNIT (AV) [U1310]	AV-257, "DTC Logic"	С
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-256, "Description"	
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	AV-256, "Description"	D
U1300 U1256	AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	AV-256, "Description"	Е
U1300 U1240 U125C U1256	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] SONAR CONN [U125C] HAND FREE CONN [U1256]	AV-256, "Description"	F

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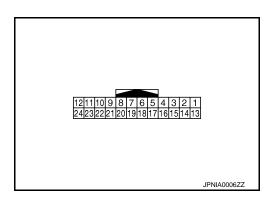
[BOSE AUDIO WITHOUT NAVIGATION]

DISPLAY UNIT

Reference Value

INFOID:0000000008296183

TERMINAL LAYOUT



PHYSICAL VALUES

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	9.0 V
3 (BG)	Ground	Signal VCC	Input	Ignition switch ACC	_	9.0 V
4 (Y)	Ground	Composite image ground	_	Ignition switch ON	_	0 V
5	_	Shield	_	_	_	_
6 (L)	Ground	RGB signal (G: green)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 • • 40μs JSNIA1030ZZ
7	_	Shield		_	_	_
8 (R)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3601E

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
9	Ground	RGB area (YS) signal	Input	Ignition switch	At RGB image is displayed.	5.0 V
(B)				ON	At DVD image is displayed.	2 0 → + 200 µ s PKIB4948J
11 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J
13 (BR)	Ground	Inverter ground	_	Ignition switch ON	_	0 V
14 (LG)	Ground	Signal ground	_	Ignition switch ON	_	0 V
15 (BR)	Ground	Composite image signal	Input	Ignition switch ON	At rear view camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4
17 (G)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40μs JSNIA1029ZZ
18 (P)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 40µs JSNIA1031ZZ

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
19 (W)	Ground	RGB synchronizing signal	Input	Ignition switch ON	<u> </u>	(V) 4 0 → 20 µs SKIB3603E
20 (G)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch On	_	(V) 4 0 ++4ms SKIB3598E
21	_	Shield	_	_	_	_
22 (L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ++1ms PKIB5039J
23	_	Shield	_	_	_	_

[BOSE AUDIO WITHOUT NAVIGATION]

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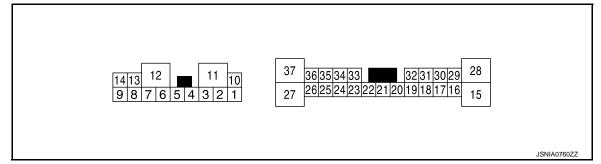
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BOSE AMP.

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	minal e color)	Description			O . Iti	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (L)	2 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 *** 2ms SKIB3609E
4 (V)	3 (LG)	Sound signal front RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
5 (G)	6 (R)	Sound signal door woofer RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 → + 2ms SKIB3609E
7 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
10 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
11 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
12 (B)	Ground	Ground	_	Ignition switch ON	_	0 V

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
14 (B)	9 (W)	Sound signal front door woofer LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 → + 2ms SKIB3609E
16 (SB)	17 (V)	Sound signal woofer	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
18 (L)	19 (P)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
20 (W)	Ground	Amp. ON signal	Input	Ignition switch ACC	_	10.0 V
21	_	Shield	_		_	_
22 (GR)	Ground	Woofer Amp. ON signal	Output	Ignition switch ACC	_	10.0 V
24 (V)	23 (SB)	Sound signal rear LH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
26 (BR)	25 (Y)	Sound signal rear RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E

BOSE AMP.

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description			Condition	Reference value	,
+	_	Signal name	Input/ Output		Condition	(Approx.)	
29 (L)	30 (BG)	Sound signal center speaker	Output	Ignition switch ON	Sound output	(V) 1 0 -1 → 2ms SKIB3609E	(
31 (LG)	32 (Y)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	E
33 (R)	34 (G)	Sound signal front RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	F
35 (P)	36 (L)	Sound signal front LH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	, i
37 (SB)	Ground	Mode change signal	Input	Ignition switch ON	Driver's Audio Stage ON Driver's Audio Stage OFF	0 V 8.5 V	l

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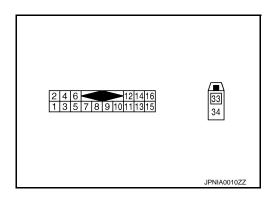
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SATELLITE RADIO TUNER

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Teri	minal	Description				Deference value
+	_	Signal name	Input/ Output		Condition	Reference value (Approx.)
2 (R)	1 (G)	Satellite radio sound signal LH	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E
4 (B)	3 (W)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	(V) 1 0 -1 + 2ms SKIB3609E
5	_	Shield	_	_	_	_
6	_	Shield	_	_	_	_
8 (G)	Ground	Request signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 → 10ms SKIA9299J
9 (L)	Ground	Communication signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 → 1ms SKIA9300J

SATELLITE RADIO TUNER

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

Teri	minal	Description				Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
10 (P)	Ground	Communication signal (CONT→SAT)	Input	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 ** 1ms SKIA9301J
12 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
16 (BG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
33	_	Satellite antenna	Input	_	_	_
34	_	Shield	_	_	_	_

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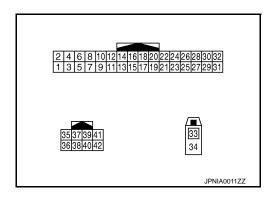
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TEL ADAPTER UNIT

Reference Value

TERMINAL LAYOUT



INFOID:0000000008296186

PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
1 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
2 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
3 (BG)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
4 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
5	_	Shield	_	_	_	_	
7 (R)	8	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0	
9 (Y)	10 (G)	TEL voice signal	Output	Ignition switch ON	During voice guide output with the vs witch pressed	(V) 1 0 -1 + 2ms SKIB3609E	
23 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V	
24 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V	

TEL ADAPTER UNIT

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

	minal color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
28 (W)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: The maximum voltage varies depending on the specification (destination unit).
29 (G)	8	Microphone VCC	Output	Ignition switch ON	_	5.0 V
33	_	TEL antenna	Input		_	_
34	_	Shield	_	_	_	_
35 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
36 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_

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BOSE AUDIO WITHOUT NAVIGATION

< WIRING DIAGRAM >

[BOSE AUDIO WITHOUT NAVIGATION]

WIRING DIAGRAM

BOSE AUDIO WITHOUT NAVIGATION

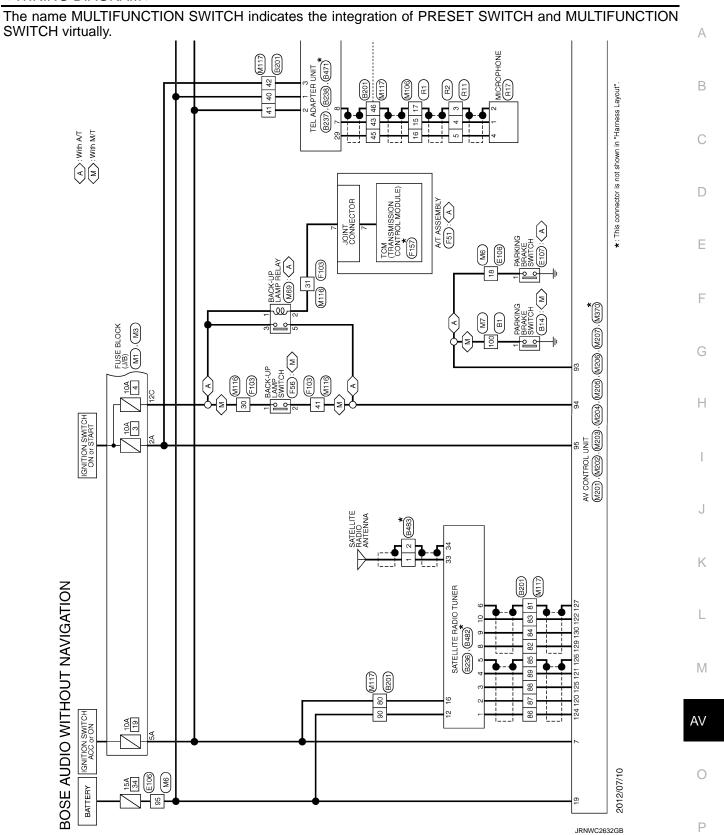
Wiring Diagram

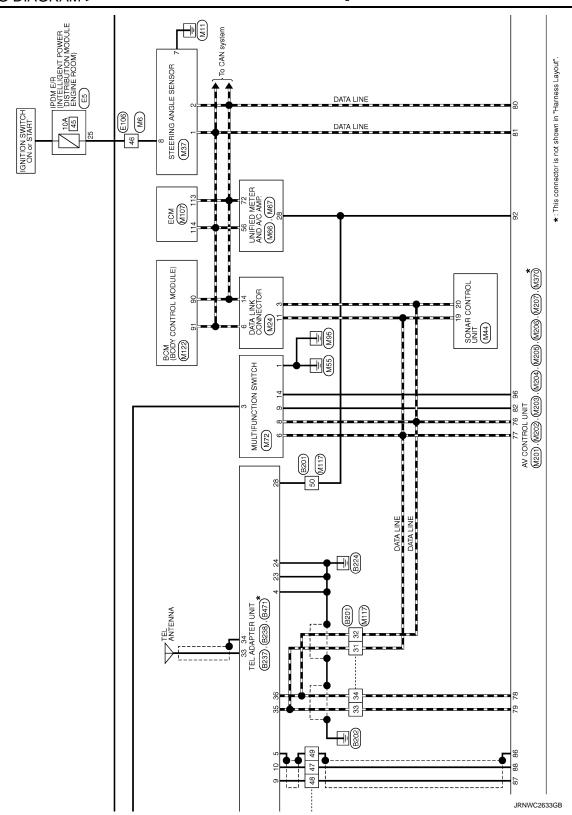
For connector terminal arrangements, harness layouts, and alphabets in a \bigcirc (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information". **NOTE:**

BOSE AUDIO WITHOUT NAVIGATION

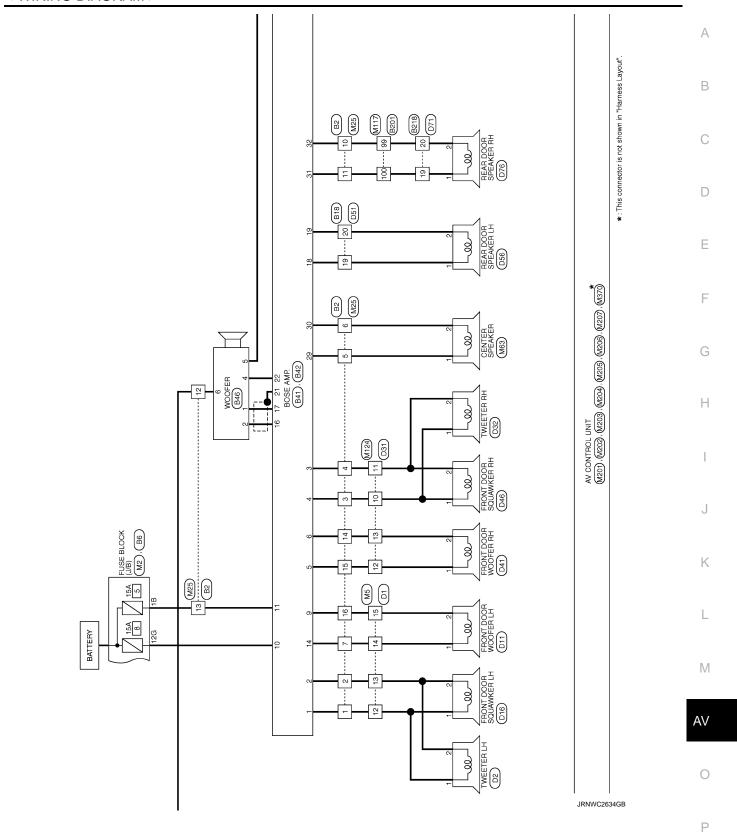
[BOSE AUDIO WITHOUT NAVIGATION]

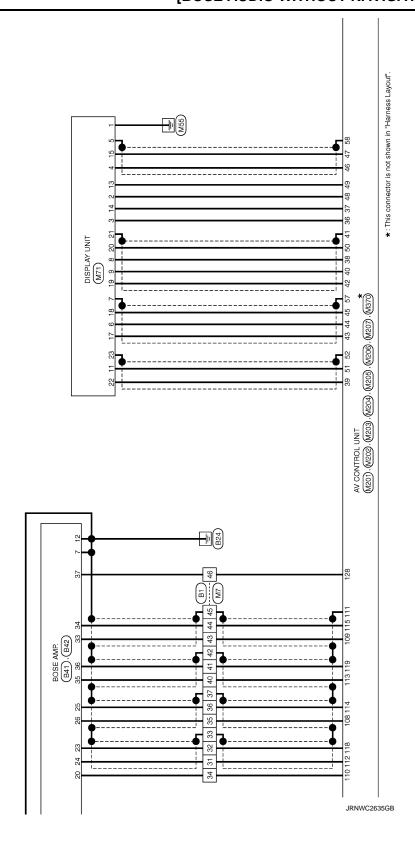
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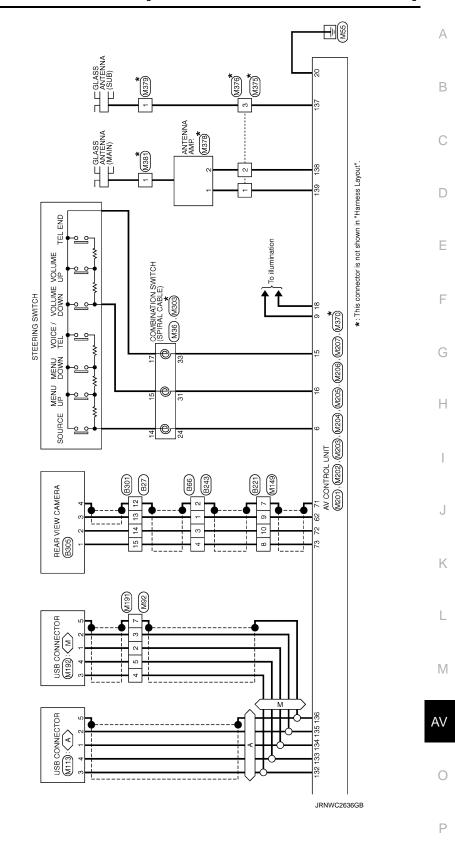


BOSE AUDIO WITHOUT NAVIGATION





[BOSE AUDIO WITHOUT NAVIGATION]



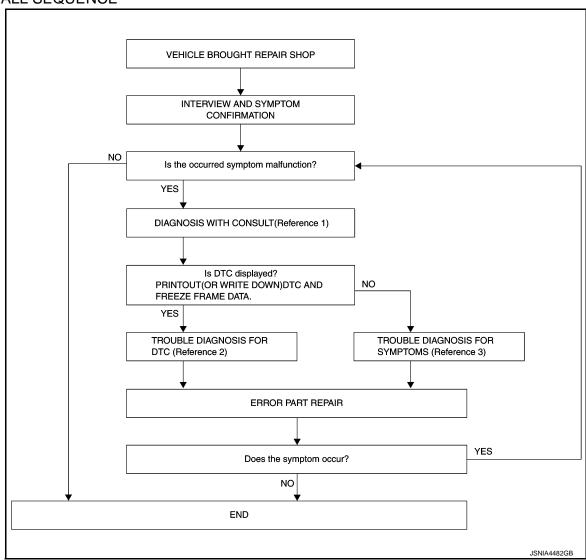
Revision: 2012 August

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

OVERALL SEQUENCE



- Reference 1... Refer to AV-213, "CONSULT Function".
- Reference 2··· Refer to <u>AV-224, "DTC Index"</u>.
- Reference 3... Refer to AV-283, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

2.DIAGNOSIS WITH CONSULT

DIAGNOSIS AND REPAIR WORKFLOW
< BASIC INSPECTION > [BOSE AUDIO WITHOUT NAVIGATION]
1. Connect CONSULT and perform a self-diagnosis for "MULTI AV". Refer to AV-213, "CONSULT Function". NOTE:
Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed.When DTC is detected, follow the instructions below:Record DTC and Freeze Frame Data.
Is DTC displayed?
YES >> GO TO 3. NO >> GO TO 4.
3. TROUBLE DIAGNOSIS FOR DTC
 Check the DTC indicated in the "Self-Diagnosis Results". Perform the relevant diagnosis referring to the DTC Index. Refer to <u>AV-224</u>, "<u>DTC Index</u>".
>> GO TO 5.
4. TROUBLE DIAGNOSIS FOR SYMPTOMS
Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-283, "Symptom Table".
>> GO TO 5.
5. ERROR PART REPAIR
Repair or replace the identified malfunctioning parts. Perform a self-diagnosis for "MULTLAY" with CONSULT.

Perform a self-diagnosis for "MULTI AV" with CONSULT.

Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the "Self-Diagnosis Results".

3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.

NO >> INSPECTION END

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ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT) [BOSE AUDIO WITHOUT NAVIGATION]

< BASIC INSPECTION >

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

Description INFOID:000000008296189

BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement.

AFTER REPLACEMENT

CAUTION:

When replacing AV control unit, you must perform "After Replace ECU" or "Manual Configuration" with CONSULT.

- Complete the procedure of "After Replace ECU" or "Manual Configuration" in order.
- If you set incorrect "After Replace ECU" or "Manual Configuration", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

Work Procedure

1. SAVING VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "Before Replace ECU" to save or print current vehicle specification. Refer to <u>AV-245, "Description"</u>. **NOTE:**

If "Before Replace ECU" can not be used, use the "Manual Configuration".

>> GO TO 2.

2. REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to AV-290, "Exploded View".

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to <u>AV-245, "Work Procedure"</u>.

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

CONFIGURATION (AV CONTROL UNIT)

< BASIC INSPECTION >

[BOSE AUDIO WITHOUT NAVIGATION]

CONFIGURATION (AV CONTROL UNIT)

Description INFOID:0000000008296191

 Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT.

Configuration has three functions as follows.

Fu	ınction	Description
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.
Read/Write Configuration	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the AV control unit.
Manual Configuration		Allows the writing of the vehicle specification into the AV control unit by hand.

Work Procedure INFOID:0000000008296192

1. WRITE VEHICLE SPECIFICATION

(P)CONSULT Configuration

Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.

To write vehicle specification into the AV control unit by hand>>GO TO 3.

$\mathbf{2}.$ write stored data

CONSULT Configuration

Select "After Replace ECU" in "Read/Write Configuration." Write data stored in CONSULT with the "Before Replace ECU" function into the AV control unit.

>> GO TO 4.

3.manually write vehicle specification

(P)CONSULT Configuration

Perform "Manual Configuration." Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-245, "Configuration List".

NOTE:

If selection items are not displayed on the CONSULT screen, touch "NEXT."

4.OPERATION CHECK

>> GO TO 4.

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

Configuration List INFOID:00000000008296193

CAUTION:

Grasp vehicle specifications precisely. The control of ECU may not function normally if the specifications are misread.

NOTE:

- The items shown in this list depend on vehicle specifications.
- The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

AV-245 Revision: 2012 August 2013 G Sedan

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CONFIGURATION (AV CONTROL UNIT)

< BASIC INSPECTION >

MANUAL SI	NOTE		
Items	Setting value	NOTE	
STEERING	LHD	_	
STEERING	RHD	_	
	MODE 1	SPORT premium grade with 4WAS	
GRADE	MODE 3	SPORT premium grade 2WD models without 4WAS	
	MODE 2	Except for above	
4WAS	WITHOUT	_	
4000	WITH	_	
SOUND SYSTEM	BASE	_	
	BOSE	_	

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:0000000008296194 В

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to LAN-25, "CAN Communication Signal Chart".

DTC Logic INFOID:0000000008296195

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction location
U1000	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:0000000008296196

1.PERFORM SELF-DIAGNOSTIC

- Turn ignition switch ON and wait for 2 seconds or more.
- Check "Self Diagnostic Result" of "MULTI AV". 2.

Is "CAN COMM CIRCUIT" displayed?

YES >> Refer to "LAN system". Refer to LAN-16, "Trouble Diagnosis Flow Chart".

>> Refer to GI section. Refer to GI-43, "Intermittent Incident". NO

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U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BOSE ÁUDIO WITHOUT NAVIGATION]

U1010 CONTROL UNIT (CAN)

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction factor
U1010	CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-290, "Exploded View".

U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1200 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1200	Cont Unit [U1200]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-290</u> , "Exploded View".

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U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1216 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1216	CAN CONT [U1216]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-290</u> , "Exploded View".

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1232 STEERING ANGLE SENSOR

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1232	ST ANGLE SEN CALIB [1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor.

Diagnosis Procedure

INFOID:0000000008296201

1.adjust the predictive course line center position of the steering angle sensor

When U1232 is detected, adjust the predictive course line center position of the steering angle sensor.

>> Adjusts the steering angle sensor neutral position on ABS actuator and electrical unit (control unit) side. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".

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U1243 DISPLAY UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1243	FRONT DISP CONN [U1243]	When either one of the following items is detected: display unit power supply and ground circuit are malfunctioning. communication circuit between AV control unit and display unit are malfunctioning.	 Display unit power supply and ground circuit. Communication circuit between AV control unit and display unit.

Diagnosis Procedure

INFOID:0000000008296203

1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-258, "DISPLAY UNIT: Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK CONTINUITY COMMUNICATION CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M71	11	M202	51	Existed
IVI7 I	22		39	

4. Check continuity between display unit harness connector and ground.

Displa	ay unit		Continuity
Connector	Terminals	Ground	
M71	11	Glound	Not existed
	22		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

${f 3.}$ CHECK COMMUNICATION SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

(+) Display unit		(-)	Condition	Reference value	
Connector	Terminal				
M71	11	Ground	When adjusting display brightness.	(V) 6 4 2 0 → 1ms PKIB5039J	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M71	22	Ground	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to AV-292, "Exploded View".

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U1255 SATELLITE RADIO TUNER

DTC Logic

DTC	Display contents of CONSULT	DTC Detection Condition	Possible causes
U1255	SAT CONN [U1255]	When either one of the following items is detected: satellite radio tuner power supply and ground circuit are malfunctioning. communication circuits between AV control unit and satellite radio tuner are malfunctioning. request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.

Diagnosis Procedure

INFOID:0000000008296205

1.CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to <u>AV-260, "SATELLITE RADIO TUNER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2.CHECK CONTINUITY COMMUNICATION CIRCUIT AND REQUEST SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and satellite radio tuner connector.
- 3. Check continuity between AV control unit harness connector and satellite radio tuner harness connector.

AV control unit		Satellite radio tuner		Continuity
Connector	Terminals	Connector Terminals		Continuity
	129		8	
M206	122	B236	10	Existed
	130		9	

4. Check continuity between AV control unit harness connector.

AV con	ntrol unit		Continuity
Connector Terminals			Continuity
	129	Ground	
M206	122		Not existed
	130	-	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. CHECK AV CONTROL UNIT VOLTAGE

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

(+) AV control unit		(-)	Reference value
Connector Terminals			(Approx.)

U1255 SATELLITE RADIO TUNER

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< DTC/CIRCUIT DIAGNOSIS >			[BOSE AU	DIO WITHOUT NAVIGATION				
M206	129	Ground	7.0 V	-				
IVI206	130	Ground	7.0 V	-				
Is the inspection	Is the inspection result normal?							
YES >> GC								
NO >> Re	place AV contro	ol unit. Refer to	AV-290, "Exploded View".					
1 OUE OV OAT		TUNED VOLT	A O E					

4. CHECK SATELLITE RADIO TUNER VOLTAGE

- Turn ignition switch OFF.
- 2. Disconnect AV control unit connector.
- 3. Connect satellite radio tuner.
- 4. Turn ignition switch ON.
- 5. Check signal between satellite radio tuner harness connector and ground.

(+)		Reference value (Approx.)
Satellite	adio tuner	(–)	
Connector	Terminal		
B236	10	Ground	7.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace satellite radio tuner. Refer to AV-301, "Exploded View".

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U1300 AV COMM CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

U1300 AV COMM CIRCUIT

Description INFOID:000000008296206

U1300 is indicated when malfunction occurs in communication signal of multi AV system. Indicated simultaneously, without fail, with the malfunction of control units connected to AV control unit with communication line. Determine the possible malfunction cause from the table below.

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
U1300 U1256	AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.	TEL adapter unit power supply and ground circuits. AV communication circuits between AV control unit and TEL adapter unit.
U1300 U1240 U125C U1256	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] SONAR CONN [U125C] HAND FREE CONN [U1256]	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.

U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1310 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit. If the mal- function occurs constantly. Refer to AV-290, "Exploded View".

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< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000008296208

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M201	19	OFF	Battery voltage
ACC power supply	M201	7	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between AV control unit and fuse.

3.CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect AV control unit connectors.
- Check continuity between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M201	20	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT: Diagnosis Procedure

INFOID:0000000008296209

1. CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M71	2	ACC	9.0 V
Signal VCC	IVI/ I	3	ACC	9.0 V

Is the inspection result normal?

YES >> GO TO 4. NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

- Turn ignition switch OFF.
- 2. Disconnect the harness connector between display unit and AV control unit.
- 3. Check continuity between display unit harness connector M71 and AV control unit harness connector.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Signal name	Display unit (M71)	AV control unit (M202)	Continuity
Inverter VCC	2	48	Existed
Signal VCC	3	36	Existed

Check continuity between display unit harness connector and ground.

Signal name	Display unit (M71)	_	Continuity
Inverter VCC	2	Ground	Not existed
Signal VCC	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

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

- Connect the AV control unit harness connector.
- 2. Turn ignition switch ACC.
- 3. Check voltage between AV control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M202	48	ACC	9.0 V
Signal VCC	IVIZUZ	36	ACC	9.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replacement of AV control unit.

4. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- Disconnect display unit connector. 2.
- 3. Check continuity between display unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M71	1	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

BOSE AMP.

BOSE AMP.: Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	5, 8

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B42	10, 11	OFF	Battery voltage

AV-259 Revision: 2012 August 2013 G Sedan

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INFOID:0000000008296210

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BOSE amp. connector.
- 3. Check continuity between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B42	7, 12	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

SATELLITE RADIO TUNER

SATELLITE RADIO TUNER: Diagnosis Procedure

INFOID:0000000008296211

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between satellite radio tuner harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B236	12	OFF	Battery voltage
ACC power supply	B236	16	ACC	Battery voltage

Is the inspection result normal?

YES >> INSPECTION END

NO >> Check harness between satellite radio tuner and fuse.

TEL ADAPTER UNIT

TEL ADAPTER UNIT: Diagnosis Procedure

INFOID:0000000008296212

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B237	1	OFF	Battery voltage
ACC power supply	B237	2	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between TEL adapter unit and fuse.

3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect TEL adapter unit connector.
- 3. Check continuity between TEL adapter unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B237	4	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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RGB (R: RED) SIGNAL CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

RGB (R: RED) SIGNAL CIRCUIT

Description INFOID:0000000008296213

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296214

1. CHECK CONTINUITY RGB (R: RED) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- Check continuity between display unit harness connector and AV control unit harness connector.

Displa	ay unit	AV control unit		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M71	17	M202	43	Existed	

4. Check continuity between display unit harness connector and ground.

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	17		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M71	17	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 → 40μs JSNIA1029ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-292, "Exploded View".

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

RGB (G: GREEN) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

RGB (G: GREEN) SIGNAL CIRCUIT

Description INFOID:000000008296215

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296216

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1. CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displ	ay unit	AV control unit		Continuity
Connector	Terminal	Connector Terminal		Continuity
M71	6	M202	44	Existed

4. Check continuity between display unit harness connector and ground.

Displ	splay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	6		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

	+)			
Displa	ay unit	(–)	Condition	Reference value
Connector	Terminal			
M71	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 + 40µs JSNIA1030ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-292, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-290, "Exploded View"</u>.

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RGB (B: BLUE) SIGNAL CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS > RGB (B: BLUE) SIGNAL CIRCUIT

Description INFOID:000000008296217

Transmit the image displayed with AV control unit with RGB signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296218

$\hbox{\bf 1.} \text{check continuity RGB (B: BLUE) SIGNAL CIRCUIT}$

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- Check continuity between display unit harness connector and AV control unit harness connector.

Displa	ay unit	AV control unit		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M71	18	M202	45	Existed	

4. Check continuity between display unit harness connector and ground.

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	18		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M71	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 → 40μs JSNIA1031ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-292, "Exploded View".

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

RGB SYNCHRONIZING SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

RGB SYNCHRONIZING SIGNAL CIRCUIT

Description INFOID:0000000008296219

Transmit the RGB synchronizing signal to the display unit so as to synchronize the RGB image displayed with AV control unit.

Diagnosis Procedure

INFOID:0000000008296220

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1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Displa	ay unit	AV control unit		Continuity
Connector	Terminal	Connector Terminal		Continuity
M71	19	M202	42	Existed

4. Check continuity between display unit harness connector and ground.

Displ	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	19		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB SYNCHRONIZING SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(–)	Reference value
Connector	Terminal		
M71	19	Ground	(V) 4 0 → 20 µs SKIB3603E

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-292, "Exploded View".

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

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Revision: 2012 August AV-265 2013 G Sedan

RGB AREA (YS) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS > [BOSE AUDIO WITHOUT NAVIGATION]

RGB AREA (YS) SIGNAL CIRCUIT

Description INFOID:000000008296221

Transmits the display area of RGB image displayed by AV control unit with RGB area (YS) signal to display unit.

Diagnosis Procedure

INFOID:0000000008296222

1. CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminal	Connector Terminal		Continuity
M71	9	M202	40	Existed

4. Check continuity between display unit harness connector and ground.

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB AREA (YS) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value (Approx.)
Connector	Terminal			(11 -)
			At RGB image is displayed.	5.0 V
M71	9	Ground	At camera image is displayed.	(V) 6 4 2 0 → 200 μ s PKIB4948J

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-292, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-290, "Exploded View"</u>.

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

CAMERA IMAGE SIGNAL CIRCUIT

Description INFOID:0000000008296223

 AV control unit outputs camera power supply to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.

 The AV control unit that inputs the camera image signal transmits the camera image signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296224

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1. CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and rear view camera connector.
- Check continuity between AV control unit harness connector and rear view camera harness connector.

AV control unit		Rear view camera		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M203	73	B305	1	Existed	

Check continuity between AV control unit harness connector and ground.

AV cor	ntrol unit		Continuity
Connector	Terminal	Ground	Continuity
M203	73		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE CAMERA POWER SUPPLY

- Connect AV control unit connector and rear view camera connector.
- Turn ignition switch ON.
- 3. Shift the selector lever to "R".
- 4. Check voltage between AV control unit harness connector and ground.

(+) AV control unit		(–)	Condition	Voltage (Approx.)
Connector	Terminal			(+)
M203	73	Ground	Shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

Revision: 2012 August

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

${f 3.}$ CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

- Turn ignition switch OFF.
- Disconnect AV control unit connector and rear view camera connector. 2.
- Check continuity between AV control unit harness connector and rear view camera harness connector.

AV-267

AV cor	AV control unit		w camera	Continuity
Connector	Terminal	Connector Terminal		Continuity
M203	62	B305	3	Existed

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Check continuity between AV control unit harness connector and ground.

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

AV con	trol unit		Continuity	
Connector	Terminal	Ground	Continuity	
M203	62		Not existed	

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK CAMERA IMAGE SIGNAL

- 1. Connect AV control unit connector and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Shift the selector lever to "R".
- 4. Check signal between AV control unit harness connector and ground.

(+) AV control unit		()	Condition	Reference value
		(–)	Condition	Reference value
Connector	Terminal			
M203	62	Ground	At rear view camera image is displayed.	(V) 0. 4 0 -0. 4 → 40µs SKiB2251J

Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-290, "Exploded View".

NO >> Replace rear view camera. Refer to AV-310, "Exploded View".

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

COMPOSITE IMAGE SIGNAL CIRCUIT

Description INFOID:0000000008296225

AV control unit that inputs the camera image signal transmits the composite image signal to the display unit.

Diagnosis Procedure

1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect AV control unit connector and display unit connector. 2.
- Check continuity between AV control unit harness connector and display unit harness connector.

AV cor	AV control unit		ay unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M202	47	M71	15	Existed

Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M202	47		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMPOSITE IMAGE SIGNAL

- Connect AV control unit connector and display unit connector.
- 2. Turn ignition switch ON.
- Check signal between AV control unit harness connector and ground.

	+) trol unit Terminal	(-)	Condition	Reference value
M202	47	Ground	At camera image is displayed.	(V) 0. 4 0 -0. 4 → 40µs SKIB2251J

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-292, "Exploded View".

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

2013 G Sedan

AV-269 Revision: 2012 August

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INFOID:0000000008296226

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HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

Description INFOID:000000008296227

In composite image (AUX image and camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

Diagnosis Procedure

INFOID:0000000008296228

1. CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminal	Connector Terminal		Continuity
M71	8	M202	38	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Reference value
Connector	Terminal		
M71	8	Ground	(V) + + 20µs SKIB3601E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-290, "Exploded View".

NO >> Replace display unit. Refer to AV-292, "Exploded View".

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

Description

In composite image (AUX image and camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image quality adjusting menu, etc.

Diagnosis Procedure

1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminal	Connector Terminal		Continuity
M71	20	M202	50	Existed

4. Check continuity between display unit harness connector and ground.

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	20		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

(+)		
Display unit		(–)	Reference value
Connector	Terminal		
M71	20	Ground	(V) 4 0 ++4ms SKIB3598E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-290, "Exploded View".

NO >> Replace display unit. Refer to AV-292, "Exploded View".

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INFOID:0000000008296230

Revision: 2012 August AV-271 2013 G Sedan

DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

DISK EJECT SIGNAL CIRCUIT

Description INFOID:000000008296231

The eject signal is output to AV control unit when the eject switch of multifunction switch is pressed.

Diagnosis Procedure

INFOID:0000000008296232

1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect multifunction switch connector and AV control unit connector.
- 3. Check continuity between multifunction switch harness connector and AV control unit harness connector.

Multifunc	tion switch	AV con	trol unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M72	14	M204	96	Existed

4. Check continuity between multifunction switch harness connector and ground.

Multifunction switch			Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AV CONTROL UNIT VOLTAGE

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

(+) AV control unit		(-)	Condition	Voltage (Approx.)	
Connector	Terminal			(, 44, 2, 11)	
M204	96	Ground	Pressing the eject switch	0 V	
101204	04 90 Giodila		Except for above	3.3 V	

Is the inspection result normal?

YES >> Replace preset switch. Refer to AV-304, "Exploded View".

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

MODE CHANGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

MODE CHANGE SIGNAL CIRCUIT

Description

- AV control unit transmits the mode change signal to BOSE amp.
- Driver's Audio Stage controls the speaker's output characteristic by BOSE amp. so that the driver's seat is to be the center of sounds.

Diagnosis Procedure

1. CHECK CONTINUITY MODE CHANGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BOSE amp. connector and AV control unit connector.
- 3. Check continuity between BOSE amp. harness connector and AV control unit harness connector.

AV control unit		BOSE amp.		Continuity
Connector	Terminal	Connector Terminal		Continuity
M206	128	B41	37	Existed

Check continuity between BOSE amp. harness connector and ground.

BOSE	E amp.		Continuity
Connector	Terminal	Ground	Continuity
B41	37		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK MODE CHANGE SIGNAL

- 1. Connect BOSE amp. connector and AV control unit connector.
- Turn ignition switch ON.
- 3. Check voltage between BOSE amp. harness connector and ground.

	+) E amp.	(-)	Condition	Voltage (Approx.)
Connector	Terminal			
B41	37	Ground	Driver's Audio Stage ON.	0 V
D41	B41 37 Giound		Driver's Audio Stage OFF.	8.5 V

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-299, "Exploded View".

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

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INFOID:0000000008296234

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Revision: 2012 August AV-273 2013 G Sedan

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

MICROPHONE SIGNAL CIRCUIT

Description INFOID:000000008296235

Supply power from TEL adapter unit to microphone. The microphone transmits the sound/voice to the microphone.

Diagnosis Procedure

INFOID:0000000008296236

1. CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect TEL adapter unit connector and microphone connector.
- 3. Check continuity between TEL adapter unit harness connector and microphone harness connector.

TEL ada	apter unit	Micro	phone	Continuity
Connector	Terminals	Connector	Terminals	Continuity
-	7		1	
B237	8	R17	2	Existed
	29		4	

4. Check continuity between TEL adapter unit harness connector and ground.

TEL ada	apter unit		Continuity
Connector	Terminals	Ground	Continuity
M237	7	Ground	Not existed
IVIZOT	29		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE MICROPHONE VCC

- 1. Connect TEL adapter unit connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between TEL adapter unit harness connector.

(+)	(-	-)	
TEL ada	apter unit	TEL ada	apter unit	Voltage (Approx.)
Connector	Terminal	Connector	Terminal	() ,
B237	29	B237	8	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace TEL adapter unit. Refer to AV-309, "Exploded View".

${f 3.}$ CHECK MICROPHONE SIGNAL

- 1. Connect microphone connector.
- Check signal between TEL adapter unit harness connector.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

	+)		-)		
I EL ada	pter unit	I EL ada	apter unit	Condition	Reference value
Connector	Terminal	Connector	Terminal		
B237	7	B237	8	give a voice.	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0 PKIB5037J

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-309, "Exploded View".

NO >> Replace microphone. Refer to <u>AV-307</u>, "Exploded View".

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CONTROL SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

CONTROL SIGNAL CIRCUIT

Description INFOID:000000008296237

TEL adapter unit identifies the vehicle model according to the control signal and performs the control.

Diagnosis Procedure

INFOID:0000000008296238

1. CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect TEL adapter unit connector.
- 3. Check continuity between TEL adapter unit harness connector and ground.

TEL ada	apter unit		Continuity	
Connector	Terminals	Ground	Continuity	
B237	23	Glound	Existed	
6237	24		Existed	

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-309, "Exploded View".

NO >> Repair harness or connector.

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH SIGNAL A CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296240

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1. CHECK STEERING SWITCH SIGNAL A CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	6	M36	24	Existed

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

AV cor	ntrol unit		Continuity
Connector	Terminal	Ground	Continuity
M201	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to <u>SR-13</u>, "Exploded View".

3. CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- Check voltage between AV control unit harness connector.

((+)		–)	
AV cor	ntrol unit	AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 -)
M201	6	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

4.CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-277</u>, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17</u>, "Exploded View".

Component Inspection

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

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STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

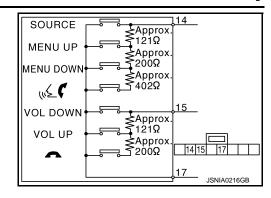
Standard

Between terminals 14 and 17

 $\begin{array}{lll} & \swarrow & \text{switch ON} & : 716 - 730 \ \Omega \\ & \text{MENU DOWN switch ON} & : 318 - 324 \ \Omega \\ & \text{MENU UP switch ON} & : 120 - 122 \ \Omega \\ & \text{SOURCE switch ON} & : 0 \ \Omega \\ \end{array}$

Between terminals 15 and 17

 $\begin{array}{lll} \bullet & \text{switch ON} & : 318 - 324 \ \Omega \\ \text{VOL UP switch ON} & : 120 - 122 \ \Omega \\ \text{VOL DOWN switch ON} & : 0 \ \Omega \\ \end{array}$



STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH SIGNAL B CIRCUIT

Description INFOID:0000000008296242

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296243

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1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

- Disconnect AV control unit connector and spiral cable connector.
- Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spiral	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	16	M36	31	Existed

Check continuity between AV control unit harness connector and ground.

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M201	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK AV CONTROL UNIT VOLTAGE

- Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- Check voltage between AV control unit harness connector.

(+)		(–)		V 16
AV control unit		AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(44)
M201	16	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

>> Replace AV control unit. Refer to AV-290, "Exploded View". NO

4.CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to AV-279, "Component Inspection".

Is the inspection result normal?

YFS >> INSPECTION END

>> Replace steering switch. Refer to ST-17, "Exploded View". NO

Component Inspection

INFOID:0000000008296244

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

AV-279 Revision: 2012 August 2013 G Sedan

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

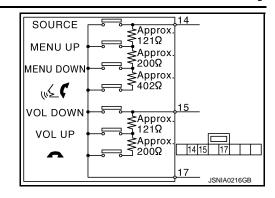
Standard

Between terminals 14 and 17

 $\begin{array}{lll} & \swarrow & \text{switch ON} & : 716 - 730 \ \Omega \\ & \text{MENU DOWN switch ON} & : 318 - 324 \ \Omega \\ & \text{MENU UP switch ON} & : 120 - 122 \ \Omega \\ & \text{SOURCE switch ON} & : 0 \ \Omega \\ \end{array}$

Between terminals 15 and 17

 $\begin{array}{lll} \bullet & \text{switch ON} & : 318 - 324 \ \Omega \\ \text{VOL UP switch ON} & : 120 - 122 \ \Omega \\ \text{VOL DOWN switch ON} & : 0 \ \Omega \\ \end{array}$



STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH GROUND CIRCUIT

Description INFOID:000000008296245

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296246

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1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- Check continuity between AV control unit harness connector and spiral cable harness connector.

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to <u>SR-13, "Exploded View"</u>.

3.CHECK GROUND CIRCUIT

- 1. Connect AV control unit connector.
- 2. Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	15		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-290, "Exploded View".

4.CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-281, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17, "Exploded View"</u>.

Component Inspection

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

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2013 G Sedan

INFOID:0000000008296247

Revision: 2012 August

AV-281

STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

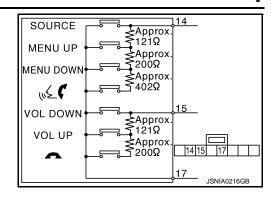
Standard

Between terminals 14 and 17

 $\begin{array}{lll} & \swarrow & \text{switch ON} & : 716 - 730 \ \Omega \\ & \text{MENU DOWN switch ON} & : 318 - 324 \ \Omega \\ & \text{MENU UP switch ON} & : 120 - 122 \ \Omega \\ & \text{SOURCE switch ON} & : 0 \ \Omega \\ \end{array}$

Between terminals 15 and 17

 $\begin{array}{lll} \bullet & \text{switch ON} & : 318 - 324 \ \Omega \\ \text{VOL UP switch ON} & : 120 - 122 \ \Omega \\ \text{VOL DOWN switch ON} & : 0 \ \Omega \\ \end{array}$



< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000008296248

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OPERATION

Symptoms	Check items	Possible malfunction location / Action to take
	 All switches cannot be operated. "MULTI AV" is displayed on system selection screen when the CONSULT is started. 	Multifunction switch power supply and ground circuit. AV communication circuit between AV control unit and multifunction switch. Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-213, "CONSULT Function".
Multifunction switch and preset switch operation does not work.	 All switches cannot be operated. "MULTI AV" is not displayed on system selection screen when the CONSULT is initialized. 	AV control unit power supply and ground circuit malfunction. Refer to AV-258, "AV CONTROL UNIT : Diagnosis Procedure".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-204, "On Board Diagnosis Function".
Fuel economy display, vehicle set-	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-213, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-224, "DTC Index".
ting operation is abnormal.	There is no malfunction in the self-diagnosis results. Refer to AV-213, "CONSULT Function".	Ignition signal circuit malfunction. (AV control unit)

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
 checking 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:

any further action.

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.infinitiusa.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[®] phone that is on the approved list before
- 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" list.
- 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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Revision: 2012 August AV-283 2013 G Sedan

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[BOSE AUDIO WITHOUT NAVIGATION]

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.	TEL adapter unit malfunction. Refer to AV-309, "Exploded View".
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	 Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-213, "CONSULT Function". No malfunction. TEL adapter unit malfunction. Refer to AV-309, "Exploded View". Malfunction is detected. Perform detected DTC diagnosis. Refer to AV-224, "DTC Index".
The other party's voice cannot	The operation of the "w\(\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
be heard by hands-free phone.	The operation of the "w\(\infty \)" switch cannot be performed.	Control signal circuit. Refer to AV-276, "Diagnosis Procedure".
Originating sound is not heard by the other party with handsfree phone communication.	Sound operation function is normal.	TEL adapter unit. Refer to AV-309, "Exploded View".
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-274, "Diagnosis Procedure".
The system cannot be operat-	"SOURCE", "MENU UP", and "MENU DOWN" switches are operated. But "w\(\)	Check steering switch. Refer to <u>AV-277, "Component Inspection"</u> . Malfunction is detected. Replace steering switch. Refer to <u>AV-305, "Exploded View"</u> .
ed.	"SOURCE", "MENU UP", "MENU DOWN" and " Source of the same of the s	Steering switch signal A circuit malfunction. Refer to AV-277, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-281, "Diagnosis Procedure".

RELATED TO RGB IMAGE

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-213, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-224, "DTC Index".
RGD IIIIage is not snown.	There is no malfunction in CONSULT self-diagnosis results. Refer to AV-213, "CONSULT Function".	Vertical synchronizing (VP) signal circuit. Refer to AV-271, "Diagnosis Procedure".
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to AV-262, "Diagnosis Procedure".
	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to AV-263, "Diagnosis Procedure".
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to AV-264, "Diagnosis Procedure".
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to AV-265, "Diagnosis Procedure".

RELATED TO AUDIO

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

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Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-272, "Diagnosis Procedure".
	No sound from all speakers.	BOSE amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to AV-259, "BOSE AMP. : Diagnosis Procedure".
No sound comes out or the lev-	Sound is not heard from woofer.	 Woofer power supply and ground circuit malfunction. Sound signal (woofer) circuit malfunction. Woofer amp. ON signal circuit malfunction.
el of the sound is low.	Only a certain speaker (center, front right, front left, rear right, or rear left) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Malfunction in AV control unit. Malfunction in BOSE amp.
	Noise comes out from all speaker.	Malfunction in AV control unit.Malfunction in BOSE amp.
Noise is mixed with audio.	Noise comes out only from a certain speaker (center, front right, front left, rear right, or rear left).	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in AV control unit. Malfunction in BOSE amp.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.
Radio is not received or poor reception.	Other audio sounds are normal. Any radio 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).	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder.
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-213, "CONSULT Function".	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-224, "DTC Index". Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder.
	There is no malfunction in the CONSULT self-diagnosis result. Refer to AV-213, "CONSULT Function".	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut. Refer to <u>AV-290</u>, "<u>Exploded View</u>".

RELATED TO USB

NOTE:

Check that there is no malfunction of USB equipment main body before performing a diagnosis.

Symptoms	Check items	Possible malfunction location / Action to take
iPod [®] or USB memory can not be recognized.		USB harness malfunction. USB connector malfunction.

 $\mathrm{iPod}^{\mathrm{@}}$ is a trademark of Apple inc., registered in the U.S. and other countries.



[BOSE AUDIO WITHOUT NAVIGATION]

RELATED TO STEERING SWITCH

Symptoms	Probable malfunction location
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to AV-281, "Diagnosis Procedure".
Only specified switch cannot be operated.	 Check steering switch. Refer to <u>AV-277, "Component Inspection"</u>. Malfunction is detected. Replace steering switch. Refer to <u>AV-305, "Exploded View"</u>.
"SOURCE", "MENU UP", "MENU DOWN" and "	Steering switch signal A circuit. Refer to AV-277, "Diagnosis Procedure".
"VOL UP", "VOL DOWN" and "A" switches are not operated.	Steering switch signal B circuit. Refer to AV-279, "Diagnosis Procedure".

RELATED TO CAMERA

Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Probable malfunction location
Camera image is not shown. (Vehicle width and possible route line is displayed.)	_	 Camera image signal circuit. Refer to <u>AV-267, "Diagnosis Procedure"</u>. Composite image signal circuit. Refer to <u>AV-269, "Diagnosis Procedure"</u>.
Comors image does not suitab	"Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment".	Reverse signal circuit malfunction.
Camera image does not switch.	"Reverse" is turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment".	AV control unit malfunction. Replace AV control unit. Refer to AV-290, "Exploded View".

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

NORMAL OPERATING CONDITION

Description INFOID:0000000008296249

BASIC OPERATIONS

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
No image is displayed.	The systems in the video mode.	Press "DISC-AUX" to change the mode.
	The display is turned off.	Press "☀/→OFF" to turn on the display.
The screen is too dim. The movement is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be selected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the multi AV system.

RELATED TO VOICE RECOGNITION

Related to Telephone

The system should respond correctly to all voice commands without difficulty. If problems are encountered, try the following solutions.

Where the solutions are listed by number, try each solution in turn, starting with number 1, until the problem is resolved.

Symptom	Solution		
System fails to interpret the command correctly.	Ensure that the command is valid.		
	2. Ensure that the command is spoken after the tone.		
	3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle.		
	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). NOTE: If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.		
	5. If more than one command was said at a time, try saying the commands separately.		
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. See "Speaker adaptation (SA) mode" earlier in this section. Refer to "OWNER'S MANUAL".		
The system consistently selects the wrong voicetag	Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the "List Names" command.		
	2. Replace one of the names being confused with a new name.		

RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- 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 then determine the cause.

NOTE:

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA, AAC, M4A) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

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Revision: 2012 August AV-287 2013 G Sedan

NORMAL OPERATING CONDITION

[BOSE AUDIO WITHOUT NAVIGATION]

Symptom	Cause and Counter measure
Cannot play	Check if the CD was inserted correctly.
	Check if the CD is scratched or dirty.
	Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.
	If there is a mixture of music CD files (CD-DA data) and MP3/WMA/AAC/M4A files on a CD, only the music CD files (CD-DA data) will be played.
	Files with extensions other than ".MP3", ".WMA", ".AAC", ".M4A", ".mp3", ".wma", ".aac" or ".m4a" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.
	Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA/AAC/M4A writing applications or other text editing applications.
	Check if the finalization process, such as session close and disc close, is done for the disc.
	Check if the CD is protected by copyright.
	Discs recorded in live file system format are not supported. (For Microsoft Windows Vista, check the settings.)
Poor sound quality	Check if the CD is scratched or dirty.
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA/AAC/M4A CD, or if it is a multisession disc, some time may be required before the music starts playing.
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed.
Skipping with high bit rate files	Skipping may occur with large quantities if data such as for high bit rate data.
Move immediately to the next song when playing	When a non-MP3/WMA/AAC/M4A file has been given an extension of ".MP3", ".WMA", ".AAC", ".M4A", ".mp3", ".wma", ".aac" or ".m4a" or when play is prohibited by copyright protection, the player will skip to the next song.
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files might not play in the desired order.
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.
Buzz/rattle sound from speaker	The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle.

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

NOTE:

- 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 a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

RELATED TO HANDS-FREE PHONE

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Symptom	Cause and Counter measure
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Some Bluetooth [®] enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" of MULTI AV SYSTEM SYMPTOM.
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® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone
The other party's voice cannot be heard by hands-free phone.	System cannot charge cellular phones. 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
Poor sound quality	call. 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

AV CONTROL UNIT

Exploded View

CAUTION:

- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-244, "Description"</u>.
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

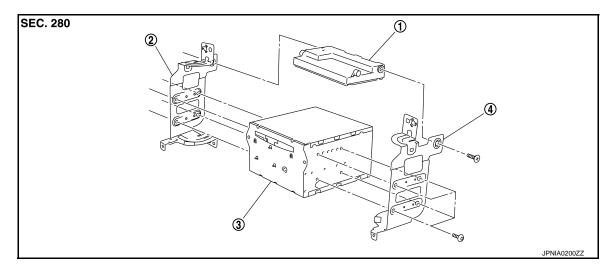
NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

REMOVAL

Refer to IP-11, "A/T MODELS: Exploded View" (A/T models) or IP-22, "M/T MODELS: Exploded View" (M/T models).

DISASSEMBLY



- 1. Unified meter and A/C amp.
- 2. Bracket LH

3. AV control unit

INFOID:0000000008296251

Bracket RH

Removal and Installation

REMOVAL

CAUTION:

- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-244, "Work Procedure"</u>.
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

- 1. Remove display unit. Refer to AV-292, "Exploded View".
- 2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

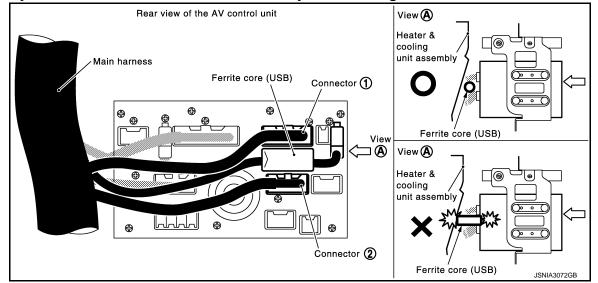
 Since AV control unit connector and unified meter and A/C amp. connector have the same form, be careful not to insert them wrongly.

AV CONTROL UNIT

[BOSE AUDIO WITHOUT NAVIGATION]

< REMOVAL AND INSTALLATION >

- Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to AV-245, "Work Procedure".
- Install AV control unit between connector (1) and connector (2) with the ferrite core (USB) orientated sideways to the vehicle. Incorrect installation may cause damage to the AV control unit.



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DISPLAY UNIT

[BOSE AUDIO WITHOUT NAVIGATION]

DISPLAY UNIT

Exploded View

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

Removal and Installation

INFOID:0000000008296253

REMOVAL

- Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove display unit with bracket as a single unit.

INSTALLATION

Installation is the reverse order of removal.

FRONT DOOR SQUAWKER

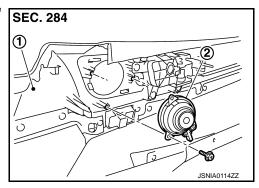
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

FRONT DOOR SQUAWKER

Exploded View

INFOID:0000000008296254



- 1. Door finisher
- 2. Front door squawker

Removal and Installation

INFOID:0000000008296255

REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove front door squawker from door finisher.

INSTALLATION

Installation is the reverse order of removal.

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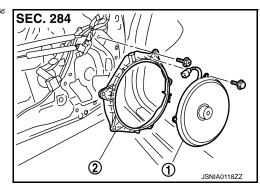
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FRONT DOOR WOOFER

Exploded View

INFOID:0000000008296256



- 1. Front door woofer
- 2. Woofer bracket

Removal and Installation

INFOID:0000000008296257

REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove front door woofer from woofer bracket.

INSTALLATION

Installation is the reverse order of removal.

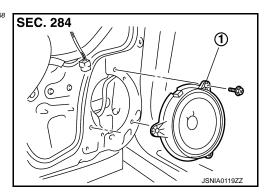
REAR DOOR SPEAKER

[BOSE AUDIO WITHOUT NAVIGATION]

REAR DOOR SPEAKER

Exploded View

INFOID:0000000008296258



Rear door speaker

Removal and Installation

REMOVAL

- 1. Remove rear door finisher. Refer to INT-11, "Exploded View".
- 2. Remove rear door speaker from rear door.

INSTALLATION

Installation is the reverse order of removal.

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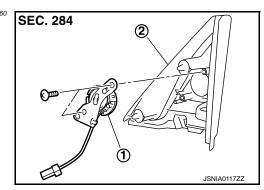
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TWEETER

Exploded View

INFOID:0000000008296260



- 1. Tweeter
- 2. Corner cover inner

Removal and Installation

INFOID:0000000008296261

REMOVAL

- 1. Remove front door finisher, and then remove corner cover inner. Refer to INT-11, "Exploded View".
- 2. Remove tweeter from corner cover inner.

INSTALLATION

Installation is the reverse order of removal.

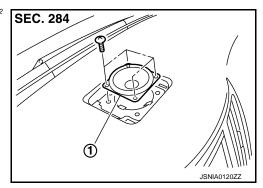
CENTER SPEAKER

[BOSE AUDIO WITHOUT NAVIGATION]

CENTER SPEAKER

Exploded View

INFOID:0000000008296262



Center speaker

Removal and Installation

REMOVAL

1. Remove upper grille, and then remove center speaker. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

INSTALLATION

Installation is the reverse order of removal.

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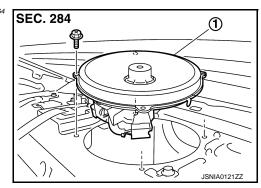
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REAR WOOFER

Exploded View

INFOID:0000000008296264



Rear woofer

Removal and Installation

INFOID:0000000008296265

REMOVAL

- 1. Remove rear parcel shelf finisher. Refer to INT-19, "Exploded View".
- 2. Remove rear woofer from rear parcel shelf.

INSTALLATION

Installation is the reverse order of removal.

BOSE AMP.

Exploded View

INFOID:0000000008296266 **SEC. 284** 1

- BOSE amp.
- Vehicle front

Removal and Installation

INFOID:0000000008296267

REMOVAL

- Remove trunk front finisher. Refer to INT-29, "Exploded View".
- Remove BOSE amp. from rear parcel shelf.

INSTALLATION

Installation is the reverse order of removal.

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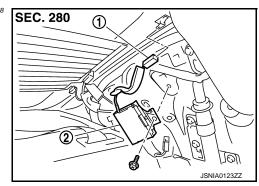
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ANTENNA AMP.

Exploded View

INFOID:0000000008296268



- 1. AM-FM main connector
- 2. Antenna amp.

Removal and Installation

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REMOVAL

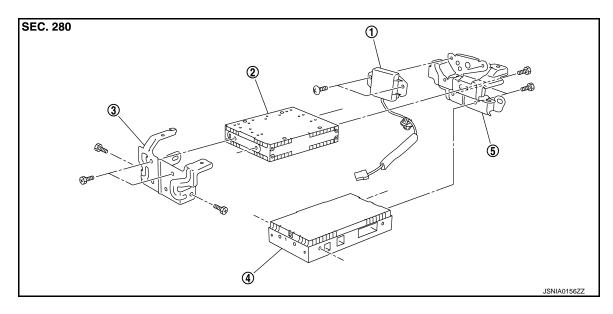
- 1. Remove rear pillar finisher LH. Refer to INT-14, "Exploded View".
- 2. Remove antenna amp. from rear pillar LH.

INSTALLATION

Installation is the reverse order of removal.

SATELLITE RADIO TUNER

Exploded View



- 1. TEL antenna
- 2. Satellite radio tuner
- 3. Bracket (front)

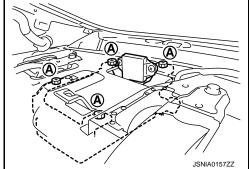
- TEL adapter unit
- 5. Bracket (rear)

Removal and Installation

INFOID:0000000008296271

REMOVAL

- 1. Remove trunk front finisher. Refer to INT-29, "Exploded View".
- 2. Remove rear parcel shelf finisher. Refer to INT-19, "Exploded View".
- Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
- Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



INSTALLATION

Installation is the reverse order of removal.

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Revision: 2012 August AV-301 2013 G Sedan

SATELLITE RADIO ANTENNA

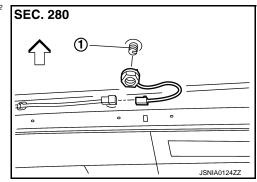
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

SATELLITE RADIO ANTENNA

Exploded View

INFOID:0000000008296272



1. Satellite radio antenna

Removal and Installation

INFOID:0000000008296273

REMOVAL

- Remove head lining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>INT-23</u>, "NORMAL ROOF: Exploded View" (normal roof models) or <u>INT-26</u>, "SUNROOF: Exploded View" (sunroof models).
- 2. Remove nut, and then remove satellite radio antenna from roof panel.

INSTALLATION

Installation is the reverse order of removal.

Satellite radio antenna mounting nut : 6.5 N·m (0.66 kg-m, 58 in-lb)

CAUTION:

Be careful about tightening torque. Antenna sensitivity becomes poor, and when it is excessive, roof panel may be deformed, when satellite radio antenna mounting nut tightening torque is loose.

MULTIFUNCTION SWITCH

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

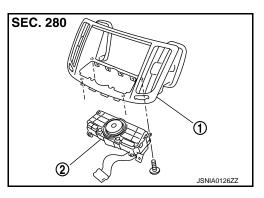
MULTIFUNCTION SWITCH

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



- 1. Center ventilator grille
- 2. Multifunction switch

Removal and Installation

INFOID:0000000008296275

REMOVAL

- 1. Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove multi function switch with center ventilator grille as a single unit.
- 3. Remove multi function switch from center ventilator.

INSTALLATION

Installation is the reverse order of removal.

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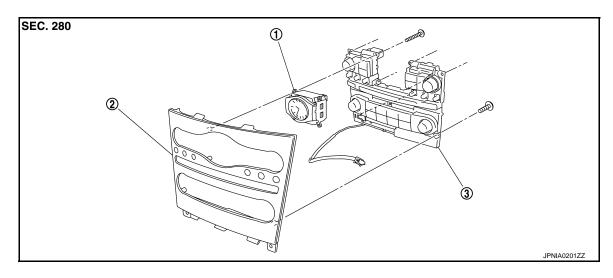
PRESET SWITCH

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



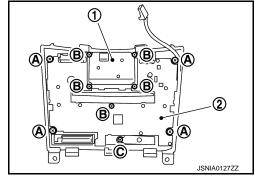
1. Clock 2. Cluster lid C 3. Preset switch

Removal and Installation

INFOID:0000000008296277

REMOVAL

- Remove cluster lid C. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove preset switch screws (A), (B), and (C), and then remove preset switch (2) from cluster lid C.
 - 1. Clock



INSTALLATION

Installation is the reverse order of removal.

NOTE:

When installing preset switch, do not allow the print wire that connects preset switch and multifunction switch to get caught in between AV control unit and preset switch.

STEERING SWITCH

< REMOVAL AND INSTALLATION > STEERING SWITCH

[BOSE AUDIO WITHOUT NAVIGATION] Α **Exploded View** INFOID:0000000008296278 Refer to ST-17, "Exploded View". В Removal and Installation INFOID:0000000008296279 C **REMOVAL** Refer to ST-17, "Removal and Installation". **INSTALLATION** D Installation is the reverse order of removal. Е F G Н K L M

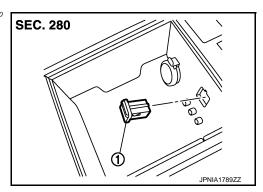
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USB CONNECTOR

Exploded View

INFOID:0000000008296280



USB connector

Removal and Installation

INFOID:0000000008296281

REMOVAL

- Remove center console. Refer to <u>IP-33, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-38, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Push the pawl from the back of center console to remove USB connector.

INSTALLATION

Install in the reverse order of removal.

MICROPHONE

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

MICROPHONE

Exploded View

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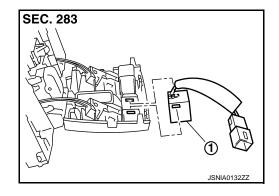
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REMOVAL

Refer to INL-71, "Exploded View".

DISASSEMBLY



1. Microphone

Removal and Installation

INFOID:0000000008296283

REMOVAL

- 1. Remove map lamp. Refer to INL-71, "Exploded View".
- 2. Remove microphone from map lamp.

INSTALLATION

Installation is the reverse order of removal.

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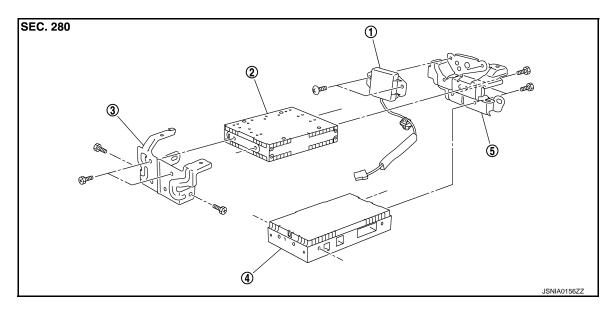
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TEL ANTENNA

Exploded View



1. TEL antenna

- 2. Satellite radio tuner
- 5. Bracket (rear)

3. Bracket (front)

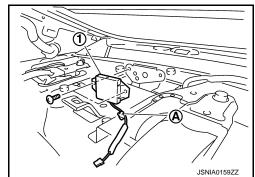
Removal and Installation

TEL adapter unit

INFOID:0000000008296285

REMOVAL

- 1. Remove trunk front finisher. Refer to INT-29, "Exploded View".
- Remove rear parcel shelf finisher. Refer to <u>INT-19</u>, "Exploded View".
- 3. Remove screws and clip (A) from inside the cabin and remove TEL antenna (1) connector from trunk room side.

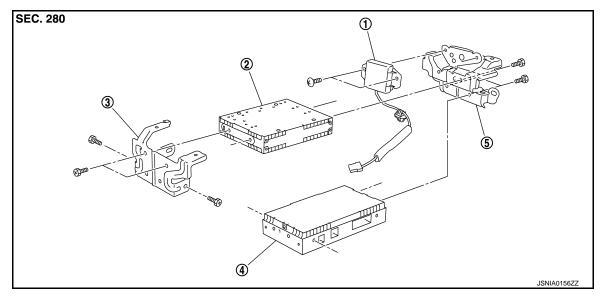


INSTALLATION

Installation is the reverse order of removal.

TEL ADAPTER UNIT

Exploded View



1. TEL antenna

- Satellite radio tuner
 - Bracket (rear)

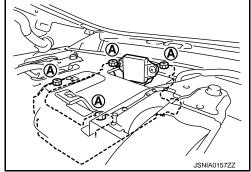
3. Bracket (front)

Removal and Installation

TEL adapter unit

REMOVAL

- 1. Remove trunk front finisher. Refer to INT-29, "Exploded View".
- 2. Remove rear parcel shelf finisher. Refer to INT-19, "Exploded View".
- Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
- Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



INSTALLATION

Installation is the reverse order of removal.

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Revision: 2012 August AV-309 2013 G Sedan

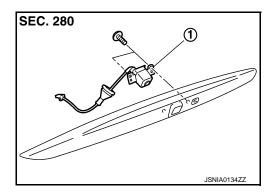
REAR VIEW CAMERA

Exploded View

REMOVAL

Refer to EXT-41, "Exploded View".

DISASSEMBLY



Rear view camera

Removal and Installation

INFOID:0000000008296289

REMOVAL

- 1. Remove trunk lid finisher outer. Refer to EXT-41, "Exploded View".
- 2. Remove rear view camera from trunk lid finisher outer.

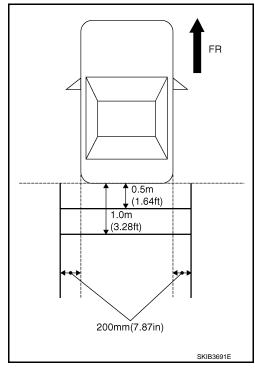
INSTALLATION

Installation is the reverse order of removal.

Adjustment INFOID:0000000008296290

Adjust the guide line position if the guide line position is shifted after installing the rear view camera.

- Draw lines on rearward area of the vehicle passing through the following points: 200 mm (7.87 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1.0 m (3.28 ft) from the rear end of the bumper.
- 2. Set into "Adjust Guide Lines" mode of "Confirmation/Adjustment" mode.



REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

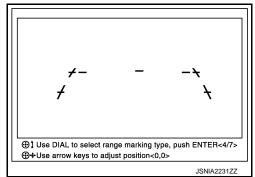
[BOSE AUDIO WITHOUT NAVIGATION]

Rotate the center dial, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

Selected pattern : 7

4. Make fine adjustment to the correction line of the rear of the vehicle with up/down/left/right switches so that its position is aligned with the guiding line. Press "OK" switch and record the adjusted guiding line position to the AV control unit.

> Up/Down adjustment range : 20° to 20° Left/Right adjustment range : 20° to 20°



CAUTION:

After the adjustment, never perform other operations for one minute.

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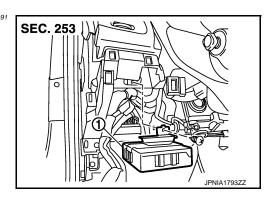
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SONAR CONTROL UNIT

Exploded View

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1. Sonar control unit

Removal and Installation

INFOID:0000000008296292

REMOVAL

- 1. Remove the instrument finisher A. Refer to IP-11, "A/T MODELS: Exploded View" (A/T models) or IP-22, "M/T MODELS: Exploded View" (M/T models).
- 2. Remove sonar control unit screw, then disconnect sonar control unit connector and remove the sonar control unit.

INSTALLATION

Install in the reverse order of removal.

STEERING ANGLE SENSOR

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

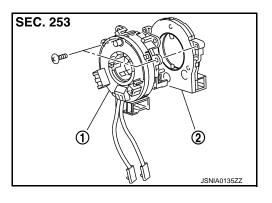
STEERING ANGLE SENSOR

Exploded View

REMOVAL

Refer to <u>SR-13</u>, "Exploded View".

DISASSEMBLY



- 1. Spiral cable
- Steering angle sensor

Removal and Installation

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REMOVAL

- 1. Remove spiral cable. Refer to SR-13, "Exploded View".
- 2. Remove steering angle sensor from spiral cable.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

After work, make sure to adjust neutral position of steering angle sensor. Refer to <u>BRC-9</u>, "<u>ADJUST-MENT OF STEERING ANGLE SENSOR NEUTRAL POSITION</u>: <u>Description</u>".

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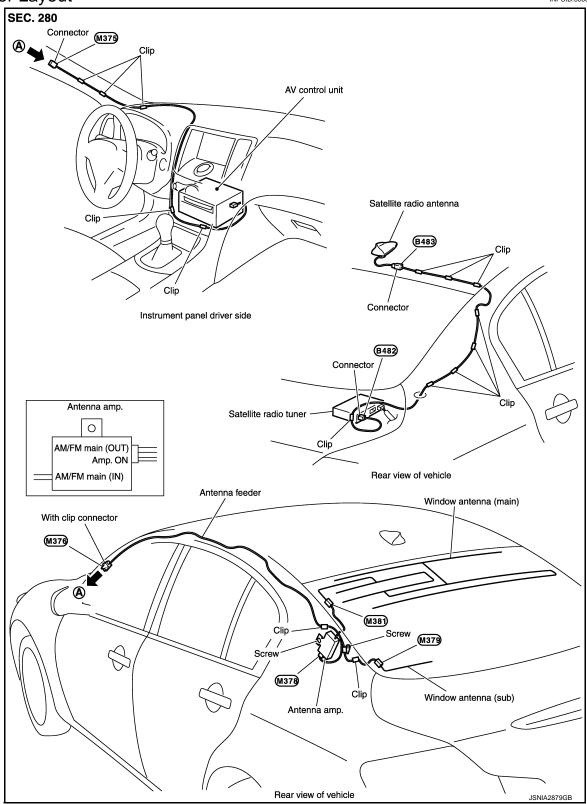
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ANTENNA FEEDER

Feeder Layout



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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 "SRS AIR BAG".
- Never 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:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never 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 3 minutes before performing any service.

Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)

CAUTION:

Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

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

Revision: 2012 August

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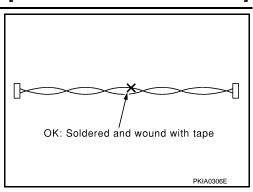
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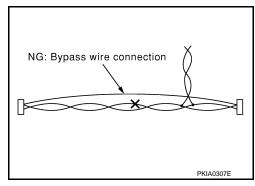
2013 G Sedan

INFOID:0000000008296299

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



 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.)



PREPARATION

< PREPARATION >

[BOSE AUDIO WITH NAVIGATION]

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000008296300	В

	Tool	Description	
Power tool	PBIC0191E	Loosening screws	

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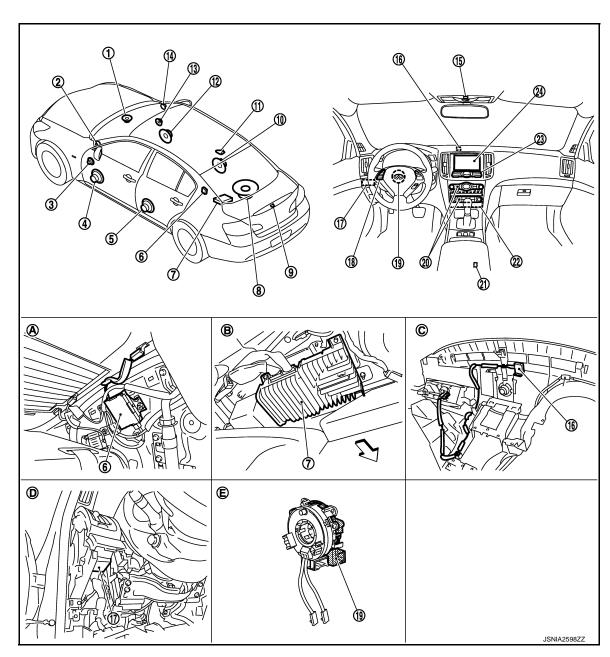
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INFOID:0000000008296301

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



- 1. Center speaker
- 4. Front door woofer LH
- 7. BOSE amp.
- 10. Rear door speaker RH
- 13. Front door squawker RH
- 16. GPS antenna
- 19. Steering angle sensor
- 22. AV control unit
- A. Within rear pillar finisher LH

- 2. Tweeter LH
- Rear door speaker LH
- 8. Rear woofer
- 11. Satellite radio antenna
- 14. Tweeter RH
- 17. Sonar control unit
- 20. Preset switch
- 23. Multifunction switch
- B. Lower part of rear parcel shelf

- 3. Front door squawker LH
- 6. Antenna amp.
- 9. Rear view camera
- 12. Front door woofer RH
- 15. Microphone
- 18. Steering switch
- 21. USB connector
- 24. Display unit
- C. Instrument panel rear side

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

D. Instrument driver lower panel removed condition

E. Spiral cable removed condition

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Component Description

Part name	Part name Description	
AV control unit	 Integrates hard disk drive (HDD) allowing map data and music data to be stored. It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. The AV control unit includes the audio, hands-free phone, voice control, navigation, USB connection, DVD play, satellite radio and vehicle information functions. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It is connected to the steering angle sensor and receives the steering angle sensor signal via CAN communication. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). The RGB digital image signal and composite image signal are output to display unit. Amp. ON signal, sound signal and mode change signal transmitted to BOSE amp Update of map data is performed with the DVD-ROM. 	
Display unit	 Display image is controlled by the serial communication from AV control unit. RGB digital image signal is input from AV control unit. Composite image signal is input from AV control unit. Camera image signal is input from rear view camera. Touch panel function can be operated for each system by touching a display directly. 	
BOSE amp.	 Inputs sound signal from AV control unit, and outputs sound signal to each speaker. Input mode change signal from AV control unit. 	
Front door woofer	Outputs sound signal from BOSE amp.Outputs low range sound.	
Front door squawker	Outputs sound signal from BOSE amp.Outputs mid range sound.	
Rear door speaker	Outputs sound signal from BOSE amp.Outputs high, mid and low range sounds.	
Tweeter	Outputs sound signal from BOSE amp.Outputs high range sound.	
Center speaker	Outputs sound signal from BOSE amp.Outputs high, mid and low range sounds.	
Rear woofer	 Outputs sound signal from BOSE amp. Outputs low-pitched sound. Power (woofer amp. ON signal) is supplied from BOSE amp. 	
Multifunction switch	 Operation panel is equipped with the centralized switch where audio, auxiliary input and navigation, etc. operations are integrated. Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication. 	
Preset switch	 Operation panel is equipped with the centralized switch where audio and air conditioner, etc. operations are integrated. Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication. The disk ejection operating signal is performed by hardwire. 	
Rear view camera	 Camera power supply is input from AV control unit. The image of vehicle rear view is transmitted to display unit. 	
Steering angle sensor	It is connected to the AV control unit and transmits the steering angle sensor signal via CAN communication.	

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Part name	Description
Sonar control unit	 Controlled by AV communication transmitted from AV control unit. Trouble diagnosis is supported with CONSULT (K-LINE).
Steering switch	 Operations for audio, hands-free phone, voice control and navigation, etc. are possible. Steering switch signal (operation signal) is output to AV control unit.
Microphone	 Used for hands-free phone operation and voice recognition. Microphone signal is transmitted to AV control unit. Power (Microphone VCC) is supplied from AV control unit.
GPS antenna	GPS signal is received and transmitted to AV control unit.
Antenna amp.	 Radio signal received by glass antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit.
Satellite radio antenna	Satellite radio signal is received and transmitted to AV control unit.
USB connector	Image signal*1 and sound signal of USB input is transmitted to AV control unit.

^{*1:} Image signals cannot be received from iPod $^{\! B}$.

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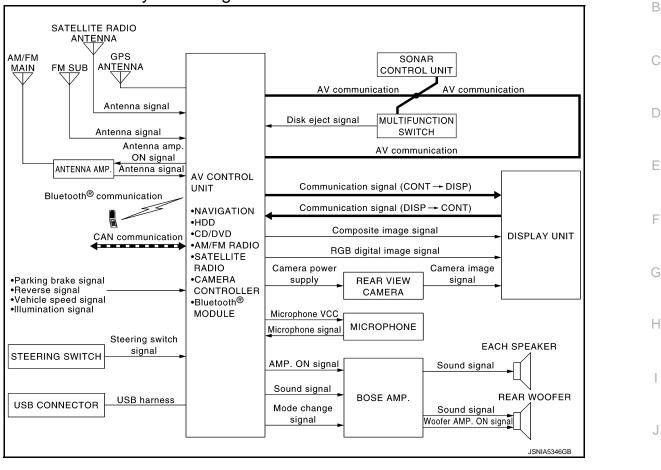
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SYSTEM MULTI AV SYSTEM

MULTI AV SYSTEM : System Diagram



NOTE:

The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

MULTI AV SYSTEM: System Description

Multi AV system means that the following systems are integrated.

FUNCTION NAME
Navigation system function
Audio function
DVD playback function
Hands-free phone function
USB connection function
Voice recognition function
Touch panel function
Rear view monitor function
Sonar system
Vehicle information function

COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information.
- AV control unit is connected with display and serial communication, and it transmits the required signal of display and display control and receives the response signal from display.

NAVIGATION SYSTEM FUNCTION

Description

- The AV control unit controls navigation function while GPS tuner has built-in map data, GYRO (angle speed sensor), on the HDD (Hard Disk Drive).
- The AV control unit inputs operation signal with communication signal, through display (touch panel) and multifunction switch and steering switch.
- Guide sound is output to front speaker through BOSE amp. from AV control unit when operating navigation system.
- A vehicle position is calculated with the GYRO (angle speed sensor), vehicle sensor, signal from GPS satellite and map data stored on HDD (Hard Disk Drive), and transmits the map image signal (RGB image, RGB area, RGB image synchronizing) to the display.

Position Detection Principle

The navigation system periodically calculates the current vehicle position according to the following three types of signals.

- Travel distance of the vehicle as determined by the vehicle speed sensor
- Vehicle turning angle determined by the gyroscope (angular speed sensor)
- The travel direction of the vehicle 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, which is stored in the HDD (Hard Disk Drive) (map-matching), and indicated on the screen with a current location mark. More accurate data is used by comparing position detection results from GPS to the map-matching.

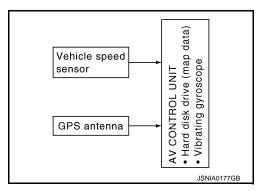
The current position is calculated by detecting the travel distance from the previous calculation point, and its direction change.

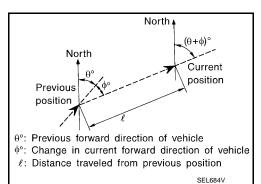
Travel distance

The travel distance is generated from the vehicle speed sensor input signal. The automatic distance correction function is adopted for preventing a miss-detection of the travel distance because of tire wear etc.

Travel direction

The gyroscope (angular velocity sensor) and GPS antenna (GPS information) generate the change of the travel direction. Both have advantages and disadvantages as per the following descriptions.



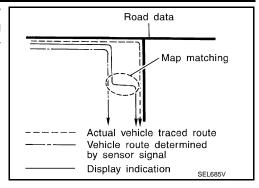


Туре	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	The turning angle is precisely detected.	Errors are accumulated when driving a long distance without stopping.
GPS antenna (GPS information)	The travel direction (North/South/East/West) is detected.	The travel direction is not precisely detected when driving slowly.

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

Map-matching

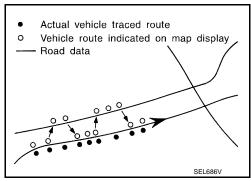
Map-matching repositions the vehicle on the road map when a new location is judged to be more accurate. This is done by comparing the current vehicle position (calculated by the normal position detection method) from the map data stored in the HDD (Hard Disk Drive).



There is a possibility that the vehicle position may not be corrected in the following case, and when vehicle is driven over a certain distance or time in which GPS information is hard to receive. Correct manually the current location mark on the screen.

In map-matching, several alternative routes are prepared and prioritized in addition to the road judged as currently driving on.
 Therefore, due to errors in the distance and/or direction, an incorrect road may be prioritized, and the current location mark may be repositioned to the incorrect road.

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

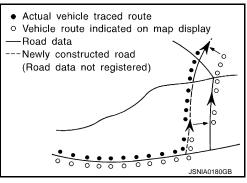


 Map-matching does not function correctly when road on which the vehicle is driving is new, etc. and not recorded in the map data. Also, map-matching does not function correctly when road pattern stored in the map data and the actual road pattern are different due to repair, etc.

Therefore, the map-matching function judges other road as a currently driving road if the road is not in the map, and displays the current location mark on it. Later, the current location mark may be repositioned to the road if 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 is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position as

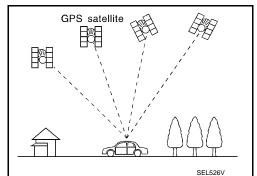
when there is an excessive gap between current vehicle position and the position on the map.



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.

Revision: 2012 August AV-323 2013 G Sedan

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< SYSTEM DESCRIPTION >

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.

AUDIO FUNCTION

The audio system is equipped with the following functions. Each function is operated with multifunction switch, preset switch, touch panel, steering switch or audio recognition. Operation status of audio is indicated at display.

FUNCTION
AM/FM radio
Satellite radio
CD
Bluetooth [®] audio
Music Box (Hard Disk Drive)*
Driver's Audio Stage

^{*:} For Mexico

Operating Signal

Audio system operation can be performed with multifunction switch, preset switch, steering switch, touch panel function or voice recognition function.

- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch. The disk ejection operating signal is performed by hardwire.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.

Screen Display

Switching of display is performed with serial communication between display unit and AV control unit.

AM/FM Radio Mode

- AM/FM radio tuner is built into AV control unit.
- Audio signal is received by glass antenna, next it is amplified by antenna amp, and finally it is input to AV
 control unit. Audio signal is input to BOSE amp., and BOSE amp. outputs to each speaker.

Satellite Radio Mode

- Satellite radio tuner is built into AV control unit.
- Audio signal (satellite radio) is received by satellite antenna, and it is input to AV control unit. AV control unit outputs audio signal to BOSE amp. The signal is also outputted from BOSE amp. to both woofer and each speaker.

CD Mode

- CD function is built into AV control unit.
- AV control unit outputs audio signal to BOSE amp., and BOSE amp. outputs to each speaker when CD is inserted to AV control unit.

Bluetooth® Audio Mode

- Bluetooth® audio function is built into AV control unit.
- Bluetooth[®] audio can play music data in the portable audio by means of Bluetooth[®] communications between the portable audio and the AV control unit.
- AV control unit outputs audio signal to BOSE amp., and BOSE amp. outputs to each speaker.

Music Box Mode (For Mexico)

- Music CD data is stored on HDD that is built into AV control unit, and it can be played.
- AV control unit outputs music (sound signal) that is stored on HDD to BOSE amp., and BOSE amp. outputs to each speaker.

[BOSE AUDIO WITH NAVIGATION]

Driver's Audio Stage

- Driver's Audio Stage controls the speaker's output characteristic by BOSE amp. so that the driver's seat is to be the center of sounds.
- ON/OFF signals of Driver's Audio Stage are transmitted from AV control unit to BOSE amp. using mode change signal.

DVD PLAYBACK FUNCTION

- DVD is played by inserting DVD into the AV control unit.
- DVD image signals are transmitted to the display unit (except for Mexico) and DVD sound signals are transmitted to each speaker via BOSE amp.

HANDS-FREE PHONE FUNCTION

- AV control unit includes hands-free phone function.
- Hands-free communication can be operated by connecting using Bluetooth® communication with cellular phone.
- Operation is performed by steering switch, and operating condition is indicated on display.
- Guide sound that is heard during operation is input from AV control unit to BOSE amp., and is output from front speaker.

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 output to door speaker, and the signal is input to BOSE amp. via AV control unit by establishing Bluetooth[®] communication from cellular phone.

USB CONNECTION FUNCTION

- Connecting iPod[®] or USB memory allows the driver to play iPod[®] music files or USB memory-stored music files, video data, and image viewer data.
- Sound signals of music files stored in iPod[®] or USB memory are transmitted from the USB connector to the AV control unit. The AV control unit transmits the sound signals to the each speaker via BOSE amp.
- Video signals and image viewer file signals are transmitted from the USB connector to the AV control unit.
 The data and files are displayed on the display unit screen.
- iPod® is recharged when connected to USB connector.
- Only files that meet the following conditions will be played.

	Music file	Video file	Image viewer file
File format	"MP3", "WMA", "AAC", "M4A"	"DivX", "MPEG4 (ASF)"	"JPEG"
File extension	".mp3", ".wma", ".aac", ".m4a"	".divx", ".afs", ".avi"	".jpg", ".jpeg"
Maximum file size	2 GB	2 GB	2 MB

NOTE:

- iPod[®] is a trademark of Apple inc., registered in the U.S. and other countries.
- Image signals cannot be received from iPod[®].
- Use the enclosed USB harness when connecting iPod® to USB connector.

VOICE RECOGNITION FUNCTION

- Each operation of multi AV system can be performed by inputting sound to microphone.
- Start of sound recognition system can be performed by steering switch.

TOUCH PANEL SYSTEM

Each operation of multi AV system can be performed by directly touching a display.

REAR VIEW MONITOR FUNCTION

- The AV control unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the display unit when power is supplied from the AV control unit.

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[BOSE AUDIO WITH NAVIGATION]

- The AV control unit transmits a warning message, fixed guide lines, and predictive course lines to the display unit by RGB digital image signal. Rear view monitor images are displayed by combining the RGB digital image signal and the camera image signals from the rear view camera.
- Predictive course lines are controlled by a steering angle sensor signal received the AV control unit via CAN communication.

SONAR SYSTEM

For further information about the sonar system, refer to SN-7, "System Description".

VEHICLE INFORMATION FUNCTION

- Status of audio, climate control system, fuel economy, maintenance and navigation are displayed.
- AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp.
- AV control unit is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.

MULTI AV SYSTEM : Fail-Safe

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When the ambiance temperature becomes extremely low or extremely high, AV control unit displays the message and limits the AV control unit function.

FAIL-SAFE CONDITIONS

When the ambiance temperature is -20°C (-4°F) or lower, or when it is 70°C (158°F) or higher

Display

The messages displayed on fail-safe conditions are as shown below:

Fail-safe mode	Display (display of the fail-safe condition)	
When HDD temperature is low	HDD system is experiencing problems due to extreme low temperature. Normal operation will resume when temperature rises.	
When HDD temperature is high	HDD system is experiencing problems due to extreme high temperature. Normal operation will resume when temperature drops.	

DESCRIPTION OF CONTROLS

Function When Fail-safe Function is activated		When Fail-safe Function is activated	
	Operation	Only multifunction switch (preset switch) can be operated.	
Air conditioner	Display	 LED of multifunction switch (preset switch) illuminates. Aimed temperature, blow angle, and flow rate are displayed in simplified mode. 	
Audio	Operation Only ON/OFF and volume control operations by multifunction switch (preset switch) are		
Display No display ("Fail-safe mode" is displayed)		No display ("Fail-safe mode" is displayed)	
Camera		Image tone cannot be controlled.	
		Cannot be superimposed. (warning display, tone control display)	
Hands-free phone	Operation	Cannot be operated.	
Navigation	Operation	Cannot be operated.	
Self diagnosis	1	The display in simplified mode of fail-safe condition	
CONSULT diagnosis Cannot be operated.		Cannot be operated.	

Ability Operation Mode

There is an ability operation mode for Fail-safes due to low or high ambiance temperature.

If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

RELEASE CONDITIONS OF FAIL-SAFE

Fail-safe is released on following conditions and normal mode is restored.

When The Temperature of HDD Is Low or High

If the ambient temperature becomes out of fail-safe condition range, normal mode is restored.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description

The AV control unit diagnosis function starts up with multifunction switch operation and the AV control unit
performs a diagnosis for each unit in the system during the on board diagnosis.

• Perform a CONSULT diagnosis if the on board diagnosis does not start, e.g., the screen does not display anything, the multifunction switch does not function, etc.

On Board Diagnosis Function

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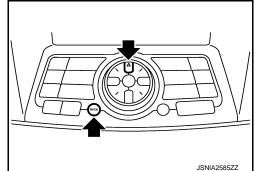
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

The ON/OFF operation (continuity) of each switch in the multifunction switch and preset switch can be checked.

Self-diagnosis Mode

- Press the "BACK" switch and the "UP" switch of the 8-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
 NOTE:

The hazard switch and disk eject switch cannot be checked.



Finishing Self-diagnosis Mode

Self-diagnosis mode is canceled when turning the ignition switch OFF.

ON BOARD DIAGNOSIS ITEM

Description

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- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- The self-diagnosis mode performs diagnoses on the AV control unit, connections between system components as well as connections between AV control unit and GPS antenna. Then it displays the diagnosis results on the display.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

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Mode	Description	
Self Diagnosis	AV control unit diagnosis. Diagnoses the connections across system components, between AV control unit and GPS antenna.	

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Revision: 2012 August AV-327 2013 G Sedan

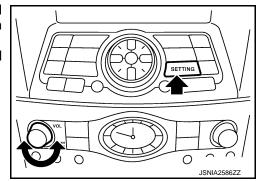
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[BOSE AUDIO WITH NAVIGATION]

Mode			Description	
	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 and touch panel calibration response check.	
Vehicle Signals			Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition, reverse, side view switch and room lamp.	
	Climate Control		Start auto air conditioner system self-diagnosis.	
		Steering Angle Adjustment	When there is a difference between the actual turning angle and the vehicle mark turning angle, it can be adjusted.	
	Navigation	Speed Calibration	When there is a difference between the current location mark and the actual location, it can be adjusted.	
		XM SAT Subscription Status	The XM NavTraffic subscription status can be checked.	
	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.	
	Synchronizer FES	S Clock	-	
Confirmation/	Speaker Test		The connection of a speaker can be confirmed by test tone.	
Adjustment	Vehicle CAN Diag	nosis	The transmitting/receiving of CAN communication can be monitored.	
	AV COMM Diagno	osis	The communication condition of each unit of Multi AV system can be monitored.	
	Hands-free Phone		The received volume adjustment of hands-free phone, microphone speaker check, and erase memory can be performed.	
	Camera Cont.		The signal connected to camera control unit can be checked and the guiding line position that overlaps rear view camera image can be adjusted.	
		XM NaviTrffic	Change Channel	
		XM NavWeather	Any necessary channels required to receive traffic information from the satellite radio system can be set.	
	XM	XM CGS	Change Application ID	
		Diag	Any application ID'-s required to receive traffic information from the satellite radio system can be set.	
	Delete Unit Connection Log		Erase the connection history of unit and error history.	
	Initialize Settings		Initializes the AV control unit memory.	
	Version Information		Version information of the AV control unit is displayed.	

METHOD OF STARTING

- 1. Start the engine.
- 2. Turn the audio system OFF.
- 3. While pressing the "SETTING" button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
 - Shifting from current screen to previous screen is performed by pressing "BACK" button.



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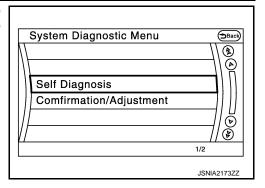
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4. The trouble diagnosis initial screen is displayed, and then the items of "Self Diagnosis" and "Confirmation/Adjustment" can be selected.



SELF-DIAGNOSIS MODE

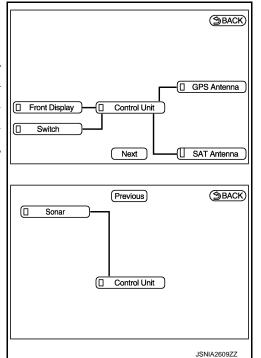
- Start the self-diagnosis function and select "Self Diagnosis".
- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.
- Diagnosis results are displayed 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 Note	Red	Green

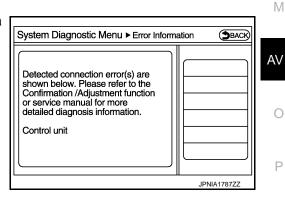
NOTE:

Control unit (AV control unit) is displayed in red.

- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to AV-428, "Exploded View".
- 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.



The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

- The self-diagnosis mode allows the technician to diagnose the connection in the communication line between AV control unit and each unit and the internal operation of the AV control unit.
- Because the start condition of diagnosis function is a switch operation, the on board diagnosis function cannot be started up if any malfunction is detected in the communication circuit between AV control unit and multifunction switch.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

SELF-DIAGNOSIS RESULTS

Check the applicable display at the following table, and then repair the malfunctioning parts.

Only Unit Part Is Displayed In Red.

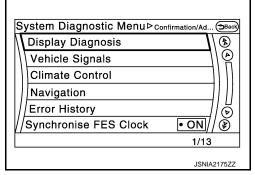
Screen switch	Description	Possible malfunction location / Action to take
Control Unit	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit.

A Connecting Cable Between Units Is Displayed In Yellow.

Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communication circuits between AV control unit and display unit.	Serial communication circuits between AV control unit and display unit.
Control unit ⇔ GPS Antenna	GPS antenna connection malfunctions detected.	GPS antenna
Control unit ⇔ SAT Antenna	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection
Control unit ⇔ Sonar	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.

CONFIRMATION/ADJUSTMENT MODE

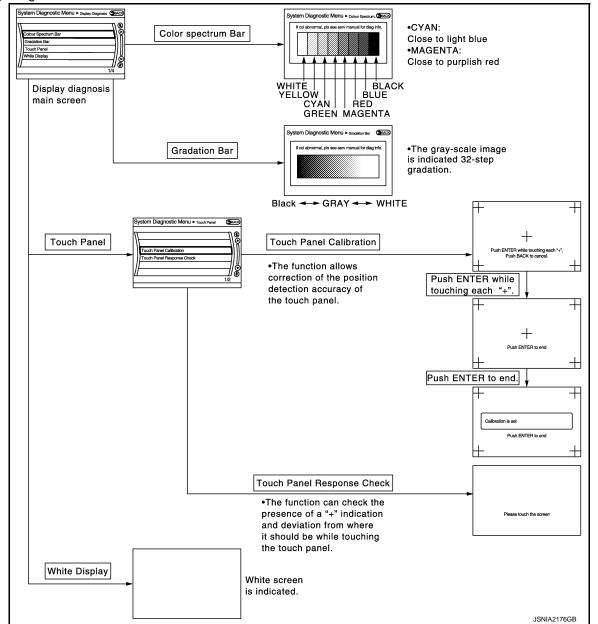
- 1. Start the diagnosis function and select "Confirmation/Adjustment". The confirmation/adjustment mode indicates where each item can be checked or adjusted.
- Select each switch on the "Confirmation/Adjustment Mode" screen to display the relevant trouble diagnosis screen. Press the "Back" switch to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



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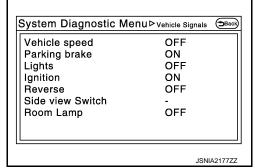
[BOSE AUDIO WITH NAVIGATION]

Display Diagnosis



Vehicle Signals

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



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[BOSE AUDIO WITH NAVIGATION]

Diagnosis item	Display	Vehicle status	Remarks	
Vahiala anaad	ON	Vehicle speed > 0 km/h (0 MPH)		
Vehicle speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be deleved. This is normal	
Dayling hydro	ON	Parking brake is applied.	Changes in indication may be delayed. This is norma	
Parking brake	OFF	Parking brake is released.		
Lighto	ON	Light switch ON		
Lights	OFF	Light switch OFF	_	
Ignition	ON	Ignition switch ON		
Ignition	OFF	Ignition switch in ACC position		
Reverse	ON	Shift the selector lever to "R" position	Changes in indication may be delayed. This is norma	
Keverse	OFF	Shift the selector lever other than "R" position	- Changes in indication may be delayed. This is notifial.	
SIDE VIEW SW	_	_	This item is displayed, but cannot be monitored.	
ROOM LAMP	OFF	_	This item is displayed, but cannot be monitored.	

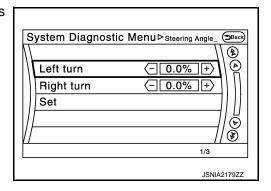
Climate Control

Refer to "HEATER & AIR CONDITIONING CONTROL SYSTEM" for details.

Navigation

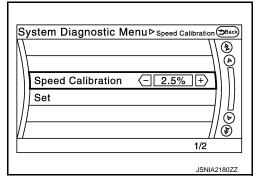
STEERING ANGLE ADJUSTMENT

The steering angle output value detected with the gyroscope is adjusted.



SPEED CALIBRATION

During normal driving, distance error caused by tire wear and tire pressure change is automatically adjusted for by the automatic distance correction function. This function, on the other hand, is for immediate adjustment, in cases such as driving with tire chain fitted on tires.



XM SAT SUBSCRIPTION STATUS

The XM NavTraffic subscription status can be checked.

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.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

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

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

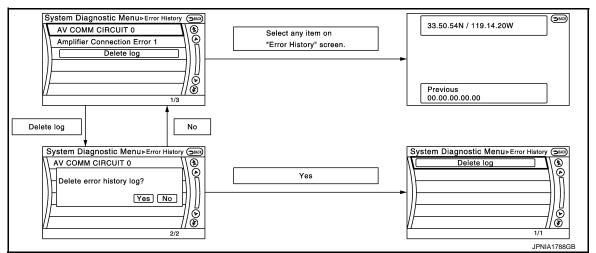
Count up method A

- The counter resets to 0 if an error occurs when ignition switch is turned ON. The counter increases by 1 if the condition is normal at a next ignition ON cycle.
- The counter upper limit is 39. Any counts exceeding 39 are ignored." The counter can be reset (no error record display) with the "Delete log" switch or CONSULT.

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 or CONSULT.

Display type of occur- rence frequency	Error history display item	
Count up method A	CAN communication line, control unit (CAN), 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

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-339. "CONSULT Function".

Revision: 2012 August AV-333 2013 G Sedan

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[BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	
FLASH-ROM Error Of Control Unit		
Connection Of Gyro		Replace the AV control unit if the malfunc-
Connection of G Sensor		tion occurs constantly. Refer to AV-428, "Exploded View".
CAN Controller Memory Error	A)/	
Bluetooth Module Connection Error	AV control unit malfunction is detected.	
Sub CPU Connection Error		
iPod authentification chip error		
Audio connection error		
DSP Connection Error		If a disc can be played, then there is a
DSP Communication Error	AV control unit malfunction is detected.	 possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".
HDD Connection Error		If the music box function has no malfunc-
HDD Read Error		tions, then there is a possibility of the de-
HDD Write Error	AV control unit malfunction is detected.	tection of a temporary malfunction. • Replace the AV control unit if the mal-
HDD Communication Error		function occurs constantly.
HDD Access Error		Refer to AV-428, "Exploded View".
GPS Communication Error		An intermittent error caused by strong radio
GPS ROM Error		interference may be detected unless any symptom (GPS reception error, etc.) oc-
GPS RAM Error	GPS malfunction is detected.	curs.
GPS RTC Error		Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".
Unfinished configuration	The writing of configuration data is incomplete.	Write configuration data with CONSULT. Refer to AV-339, "CONSULT Function".
USB Controller Communication Error	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DVD Mechanism Communication Error	AV control unit malfunction is detected.	 If DVD can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".
Steer. Angle Sensor Calibration	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to AV-339, "CONSULT Function".
Front Display Connection Error	When either one of the following items are detected: display unit power supply and ground circuits are malfunctioning. communication circuits between AV control unit and display unit are malfunctioning.	 Display unit power supply and ground circuits. Communication circuits between AV control unit and display unit.
GPS Antenna Error	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.
XM Antenna Connection Error	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection.
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[BOSE AUDIO WITH NAVIGATION]

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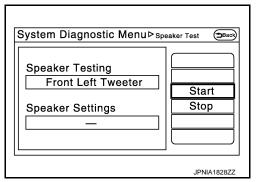
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Error item	Description	Possible malfunction factor/Action to take
USB electric current Error	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.
AM/FM antenna amplifier short to ground	Radio antenna amp. ON signal circuit mal-	Radio antenna amp. ON signal circuit be-
AM/FM antenna amplifier open	function is detected.	tween AV control unit and antenna amp.
Ext_Amp_ON output terminal short to ground	BOSE amp. ON signal circuit malfunction is	BOSE amp. ON signal circuit between AV
Ext_Amp_ON output terminal :open	detected.	control unit and BOSE amp.
AV COMM CIRCUIT Switches Connection Error	When either one of the following items are detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT Sonar Connection Error	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
AV COMM CIRCUITSwitches Connection ErrorSonar Connection Error	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

AV-335

Speaker Test

Select "SPEAKER DIAGNOSIS" to display the Speaker Diagnosis screen. Press "Start" to generate a test tone in a speaker. Press "Start" to generate a test tone in the next speaker. Press "Stop" to stop the test tones.



Vehicle CAN Diagnosis

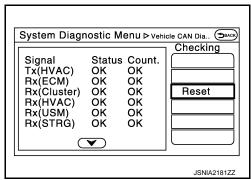
- CAN communication status and error counter is displayed.
- The error counter displays "OK" if any malfunction was not detected in the past and displays "0" if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter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

Items	Display (Current)	Malfunction counter (Past)
Tx(HVAC)	OK / ???	OK / 0 – 39
Rx(ECM)	OK / ???	OK / 0 – 39
Rx(Cluster)	OK / ???	OK / 0 – 39
Rx(HVAC)	OK / ???	OK / 0 – 39
Rx(USM)	OK / ???	OK / 0 – 39
Rx(STRG)	OK / ???	OK / 0 – 39

NOTE:

"???" indicates UNKWN.

Revision: 2012 August



2013 G Sedan

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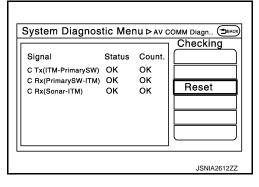
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[BOSE AUDIO WITH NAVIGATION]

AV COMM Diagnosis

- Displays the communication status between AV control 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 Tx(ITM-PrimarySW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW–ITM)	OK / ???	OK / 0 – 39
C Rx(Sonar–ITM)	OK / ???	OK / 0 – 39

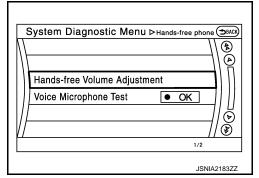


NOTE:

"???" indicates UNKWN

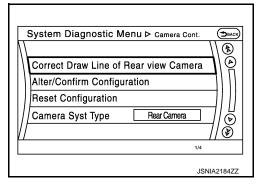
Hands-Free Phone

The hands-free phone reception volume adjustment and microphone and speaker test functions are also available.



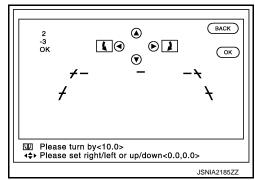
Camera Cont.

The four functions of "Correct Draw Line of Rear view Camera", "Alter/Confirm Configuration", "Reset Configuration" and "Camera Syst Type" are available.



Correct Draw Line of Rear view Camera

 Use this mode to adjust the guide line display position of the rear view monitor if necessary after removing the rear view monitor camera.

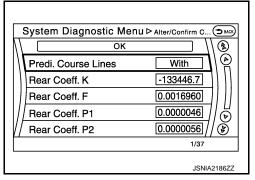


Alter/Confirm Configuration

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[BOSE AUDIO WITH NAVIGATION]

 Configuration stored in the AV control unit can be checked and modified.



Configuration list

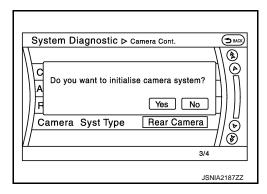
Setting item	Setting	Setting item	Setting
Predi. Course Lines	With	Wheelbase	2.8499999
Rear Coeff. K	-38009.06	Total Length	0.0000000
Rear Coeff. F	0.0014620		13.715999 ^{*1}
Rear Coeff. P1	0.0000062	Steering Gear Ratio	14.939999 ^{*2}
Rear Coeff. P2	0.0000056		16.884000 ^{*3}
Rear Coeff. C1	823.00000	Side Coeff. K	0.0000000
Rear Coeff. C2	480.00000	Side Coeff. F	0.0000000
Rear Coeff. D1	800.00000	Side Coeff. P1	0.0000000
Rear Coeff. D2	494.00000	Side Coeff. P2	0.0000000
Car Width	1.7729000	Side Coeff. C1	0.0000000
Rear Offset	0.0000000	Side Coeff. C2	0.0000000
Rear Height	1.0200800	Side Coeff. D1	0.0000000
Rear L/R Angle	0.0000000	Side Coeff. D2	0.0000000
Rear Up/Dn Angle	46.330001	Side Offset	0.0000000
Rear Roll Angle	0.0000000	Overall Height	0.0000000
Bumper Rear Dist.	0.1384900	Side L/R Angle	0.0000000
Bumper Rear Ax Dist	1.0918000	Side Up/Dn Angle	0.0000000
	457.84008 ^{*1}	Side Roll Angle	0.0000000
Steer. Max Angle	498.69720 ^{*2}	Side Front End Dist	0.0000000
	563.58789 ^{*3}	Total Width	0.0000000
Min. Turning Red.	5.5000000	_	_

AV-337

- *1: SPORT premium grade with 4WAS
- *2: SPORT premium grade 2WD models without 4WAS
- · *3: Except for above.

Reset Configuration

Configuration stored in the AV control unit can be initialized.



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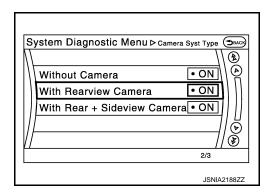
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Revision: 2012 August

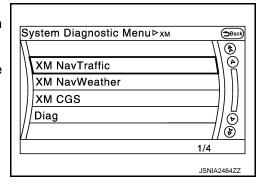
Camera Syst Type

Type of camera system is selectable.



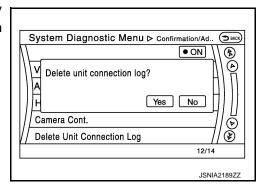
XM

- Change Channel
- Any necessary channels required to receive traffic information from the satellite radio system can be set.
- Change Application ID
- Any application ID'-s required to receive traffic information from the satellite radio system can be set.



Delete Unit Connection Log

Deletes any unit connection records and error records from the AV control unit memory. (Clear the records of the unit that has been removed.)

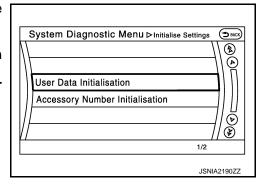


Initialize Settings

"User Data Initialization" and "Accessory Number Initialization" are possible.

CAUTION:

- Never perform Accessory Number Initialization except when configuration is unsuccessful.
- Accessory Number Initialization requires configuration. For details, refer to <u>AV-363</u>, "<u>Description</u>".

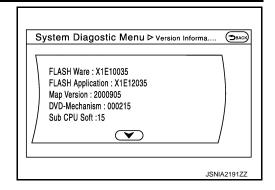


Version Information

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[BOSE AUDIO WITH NAVIGATION]

Version information of the AV control unit is displayed.



CONSULT Function

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APPLICATION ITEMS

CONSULT performs the following functions via the communication with the AV control unit.

Diagnosis mode	Description
Ecu Identification	The part number of AV control unit can be checked.
Self Diagnostic Result	Performs a diagnosis on the AV control unit and a connection diagnosis for the communication circuit of the Multi AV system, and displays the current and past malfunctions collectively.
Data Monitor	The diagnosis of vehicle signal that is input to the AV control unit can be performed.
Work Support	Steering angle sensor can be adjusted.
Configuration	 Read and save the vehicle specification. Write the vehicle specification when replacing AV control unit.

AV communication

When "AV communication" of "CAN Diag Support Monitor" is selected, the following function will be performed.

AV communication	AV&NAVI C/U	Displays the communication status from AV control unit to each unit as well as the error counter.
_	AUDIO	Displays the AV control unit communication status and the error counter.

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to AV-365, "Diagnosis Procedure".

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[BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	
Cont Unit [U1200]		
GYRO NO CONN [U1201]		Replace the AV control unit if the malfunc-
G-SENSOR NO CONN [U1202]		tion occurs constantly. Refer to AV-428.
CAN CONT [U1216]	AV	"Exploded View".
BLUETOOTH MODULE [U1217]	AV control unit malfunction is detected.	
SUB CPU CONN [U1228]		
iPod CERTIFICATION [U1229]		
Built-in AUDIO CONN [U122E]		
HDD CONN [U1218]		If the music box function has no mal-
HDD READ [U1219]		functions, then there is a possibility of
HDD WRITE [U121A]	AV control unit malfunction is detected.	the detection of a temporary malfunction.
HDD COMM [U121B]		Replace the AV control unit if the mal-
HDD ACCESS [U121C]		function occurs constantly. Refer to AV-428, "Exploded View".
GPS COMM [U1204]		An intermittent error caused by strong ra-
GPS ROM [U1205]		dio interference may be detected unless
GPS RAM [U1206]	GPS malfunction is detected.	any symptom (GPS reception error, etc.) occurs.
GPS RTC [U1207]		Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".
USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DSP CONN [U121D]		If a disc can be played, then there is a
DSP COMM [U121E]	AV control unit malfunction is detected.	 possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-428</u>, "Exploded View".
DVD COMM [U1227]	AV control unit malfunction is detected.	 If DVD can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".
CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with CONSULT. Refer to AV-363, "Description".
ST ANGLE SEN CALIB [U1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".
FRONT DISP CONN [U1243]	When either one of the following items are detected: display unit power supply and ground circuits are malfunctioning. communication circuits between AV control unit and display unit are malfunctioning.	Display unit power supply and ground circuits. Communication circuits between AV control unit and display unit.
GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.

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Error item	Description	Possible malfunction factor/Action to take
XM ANTENNA CONN [U1258]	Satellite radio antenna connection mal- function is detected.	Satellite radio antenna disconnection.
USB OVERCURRENT [U1263]	Detection of overcurrent in USB connecter.	Check USB harness between the AV control unit and USB connector.
ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264]	Radio antenna amp. ON signal circuit mal- function is detected.	Radio antenna amp. ON signal circuit between AV control unit and antenna amp.
AMP ON TERMINAL [GND-SHORT or VB-SHORT] [U1265]	BOSE amp. ON signal circuit malfunction is detected.	BOSE amp. ON signal circuit between AV control unit and BOSE amp.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items are detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] SONAR CONN [U125C]	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

ALL SIGNALS

- Displays the status of the following vehicle signals inputted into the AV control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

Display Item	Display	Vehicle status	Remarks	
VHCL SPD SIG	On	Vehicle speed > 0 km/h (0 MPH)		
VHCL SPD SIG	Off	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is	
PKB SIG	On	Parking brake is applied.	normal.	
PND SIG	Off	Parking brake is released.		
ILLUM SIG	On	Block the light beam from the auto light optical sensor when the light SW is ON.		
ILLUM SIG	Off	Expose the auto light optical sensor to light when the light SW is OFF or ON.		
IGN SIG	On	Ignition switch ON		
IGN SIG	Off	Ignition switch in ACC position		
	On	Selector lever in R position	Changes in indication may be delayed. This is	
REV SIG	Off	Selector lever in any position other than R	normal.	
SIDE VIEW SW	Off	_	This item is displayed, but cannot be monitored.	
ROOM LAMP	Off	_	This item is displayed, but cannot be monitored.	

Revision: 2012 August AV-341 2013 G Sedan

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

SELECTION FROM MENU

Allows the technician to select which vehicle signals should be displayed and displays the status of the selected vehicle signals.

Item to be selected	Description
VHCL SPD SIG	
PKB SIG	
ILLUM SIG	
IGN SIG	The same as when "ALL SIGNALS is selected.
REV SIG	
SIDE VIEW SW	
ROOM LAMP	

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION:

For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.

Item	Description
ST ANGLE SENSOR ADJUSTMENT	Adjusts the neutral position of the steering angle sensor.

CONFIGURATION

Configuration has three functions as follows.

Fur	nction	Description	
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unito store the specification in CONSULT.	
Read/White Configuration	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the AV control unit.	
Manual Configuration		Allows the writing of the vehicle specification into the AV control unit by hand.	

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ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

NOTE:

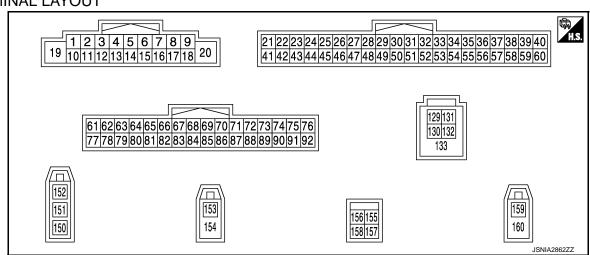
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

Monitor Item		Condition	Value/Status
VHCL SPD SIG	Ignition switch	Vehicle speed > 0 km/h (0 MPH)	On
VHCL SPD SIG	ON	Vehicle speed = 0 km/h (0 MPH)	Off
PKB SIG	Ignition switch	Parking brake is applied.	On
	ON	Parking brake is released.	Off
ILLUM SIG	Ignition switch	Light switch ON	On
	ON	Light switch OFF	Off
1011010	Ignition switch ON	_	On
IGN SIG	Ignition switch ACC	_	Off
REV SIG	Ignition switch	Selector lever in R position	On
INEV SIG	ON	Selector lever in any position other than R	Off
SIDE VIEW SW*	Ignition switch ON	_	Off
ROOM LAMP*	Ignition switch ON	_	Off

^{*:} This item is displayed, but cannot be monitored.

TERMINAL LAYOUT



PHYSICAL VALUES

[BOSE AUDIO WITH NAVIGATION]

	minal e color)	Description			O Pitt	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
1 (GR)	Ground	Amp. ON signal	Output	Ignition switch ON	_	10.0 V
2 (O)	3 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 2ms SKIB3609E
4 (V)	5 (LG)	Sound signal rear LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
					Keep pressing SOURCE switch.	0 V
		Steering switch signal A	Input	Ignition switch ON	Keep pressing MENU UP switch.	1.0 V
6 (P)	15 (B)				Keep pressing MENU DOWN switch.	2.0 V
()					Keep pressing ò switch	3.0 V
					Keep pressing ENTER switch.	4.0 V
					Except for above.	5.0 V
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
10 (B)	_	Shield	_	_	_	_
11 (R)	12 (G)	Sound signal front RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKiB3609E
13 (BR)	14 (Y)	Sound signal rear RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

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	minal e color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
					Keep pressing VOL DOWN switch.	0 V
16	16 15	Steering switch signal B	Input	Ignition switch	Keep pressing VOL UP switch.	1.0 V
(L)	(B)	Steering Switch Signal B	input	ON	Keep pressing 🗸 switch.	2.0 V
					Keep pressing 5 switch.	3.0 V
					Except for above.	5.0 V
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
20 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
22			0	Ignition	At rear view camera image is displayed.	6.0 V
(R)	Ground	Camera power supply	Output	switch ON	Except for above.	0 V
				Ignition	Pressing the eject switch.	0 V
29 (V)	Ground	Disk eject signal	Input	switch ON	Except for above.	5.0 V
30			0	Ignition	Driver's Audio Stage ON	0 V
(SB)	Ground	Mode change signal	Output	switch ON	Driver's Audio Stage OFF	8.5 V
42 (B)	Ground	Camera ground	_	Ignition switch ON	_	0 V
49 (BR)	Ground	Switch ground	_	Ignition switch ON	_	0 V
					Parking brake is ON.	0 V
65 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake is OFF.	(V) 8 4 0 10 ms JSNIA0007GB
67 (P)	Ground	Composite image signal ground		Ignition switch ON	_	0 V
68 (L)	Ground	Composite image signal	Output	Ignition switch ON	At DVD image is displayed.	(V) 0. 4 0 -0. 4 + 40μs SKiB2251J
72 (G)	Ground	Microphone VCC	Output	Ignition switch ON	_	5.0 V

[BOSE AUDIO WITH NAVIGATION]

Terminal Terminal					-		
	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output			(Approx.)	
73 (P)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ***-1ms	
74 (P)	_	CAN-L	Input/ Output	_	_	_	
75 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_	
76 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_	
79			_	Ignition	Lighting switch is OFF.	0 V	
(L)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12.0 V	
80 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
81	Cround	Deverse signal	lant	Ignition	R position	12.0 V	
(BG)	Ground	Reverse signal	Input	switch ON	Other than R position	0 V	
82 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: The maximum voltage varies depending on the specification (destination unit).	
83	_	Shield	_		_	_	
87 (R)	71	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0	
88	_	Shield	_	_	_	_	
89 (L)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 +-1ms PKIB5039J	
90 (L)	_	CAN-H	Input/ Output	_	_	_	

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

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Terminal (Wire color)		Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
91 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_	
92 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_	
129 (G)	_	USB ground	_	_	_	_	
130 (R)	_	USB D- signal	_	_	_	_	
131 (W)	_	V BUS signal	_	_	_	_	
132 (L)	_	USB D+ signal	_	_	_	_	
133	_	Shield	_	_	_	_	
150	_	FM sub	Input	_	_	_	
151	_	AM-FM main	Input	_	_	_	
152	Ground	Antenna amp. ON signal	Input	Ignition switch ON	_	12.0 V	
153	Ground	GPS antenna signal	Input	Ignition switch ON	Not connected GPS antenna connector.	5.0 V	
154	_	Shield	_	_	_	_	
157	Ground	RGB digital image signal (-)	Output	Ignition switch ON	Not connected connector.	1.3 V	
158	Ground	RGB digital image signal (+)	Output	Ignition switch ON	Not connected connector.	1.3 V	
159	Ground	Satellite antenna signal	Input	Ignition switch ON	Not connected satellite antenna connector.	5.0 V	
160	_	Shield	_	_	_	_	

Fail-Safe

When the ambiance temperature becomes extremely low or extremely high, AV control unit displays the message and limits the AV control unit function.

FAIL-SAFE CONDITIONS

When the ambiance temperature is -20°C (-4°F) or lower, or when it is 70°C (158°F) or higher

Display

The messages displayed on fail-safe conditions are as shown below:

Fail-safe mode	Display (display of the fail-safe condition)		
When HDD temperature is low	HDD system is experiencing problems due to extreme low temperature. Normal operation will resume when temperature rises.		
When HDD temperature is high	HDD system is experiencing problems due to extreme high temperature. Normal operation will resume when temperature drops.		

DESCRIPTION OF CONTROLS

[BOSE AUDIO WITH NAVIGATION]

Function)	When Fail-safe Function is activated			
	Operation	Only multifunction switch (preset switch) can be operated.			
Air conditioner	Display	 LED of multifunction switch (preset switch) illuminates. Aimed temperature, blow angle, and flow rate are displayed in simplified mode. 			
Audio	Operation	Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible.			
Audio	Display	No display ("Fail-safe mode" is displayed)			
Camera	Operation	Image tone cannot be controlled.			
Camera	Display	Cannot be superimposed. (warning display, tone control display)			
Hands-free phone	Operation	Cannot be operated.			
Navigation Operation Cannot be		Cannot be operated.			
Self diagnosis		The display in simplified mode of fail-safe condition			
CONSULT diagnosis	3	Cannot be operated.			

Ability Operation Mode

There is an ability operation mode for Fail-safes due to low or high ambiance temperature.

If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

RELEASE CONDITIONS OF FAIL-SAFE

Fail-safe is released on following conditions and normal mode is restored.

When The Temperature of HDD Is Low or High

If the ambient temperature becomes out of fail-safe condition range, normal mode is restored.

DTC Index

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-365, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-366, "DTC Logic"
U1200	Cont Unit [U1200]	AV-367, "DTC Logic"
U1201	GYRO NO CONN [U1201]	AV-368, "DTC Logic"
U1202	G-SENSOR NO CONN [U1202]	AV-369, "DTC Logic"
U1204	GPS COMM [U1204]	AV-370, "Diagnosis Procedure"
U1205	GPS ROM [U1205]	AV-371, "Diagnosis Procedure"
U1206	GPS RAM [U1206]	AV-372, "Diagnosis Procedure"
U1207	GPS RTC [U1207]	AV-373, "Diagnosis Procedure"
U1216	CAN CONT [U1216]	AV-374, "DTC Logic"
U1217	BLUETOOTH MODULE [U1217]	AV-375, "DTC Logic"
U1218	HDD CONN [U1218]	AV-376, "Diagnosis Procedure"
U1219	HDD READ [U1219]	AV-377, "Diagnosis Procedure"
U121A	HDD WRITE [U121A]	AV-378, "Diagnosis Procedure"
U121B	HDD COMM [U121B]	AV-379, "Diagnosis Procedure"
U121C	HDD ACCESS [U121C]	AV-380, "Diagnosis Procedure"
U121D	DSP CONN [U121D]	AV-381, "Diagnosis Procedure"
U121E	DSP COMM [U121E]	AV-382, "Diagnosis Procedure"
U1225	USB CONTROLLER [U1225]	AV-383, "DTC Logic"
U1227	DVD COMM [U1227]	AV-384, "Diagnosis Procedure"
U1228	SUB CPU CONN [U1228]	AV-385, "DTC Logic"

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

DTC	Display item	Refer to
U1229	iPod CERTIFICATION [U1229]	AV-386, "DTC Logic"
U122A	CONFIG UNFINISH [U122A]	AV-387, "Diagnosis Procedure"
U122E	Built-in AUDIO CONN [U122E]	AV-388, "DTC Logic"
U1232	ST ANGLE SEN CALIB [1232]	AV-389, "Diagnosis Procedure"
U1243	FRONT DISP CONN [U1243]	AV-390, "Diagnosis Procedure"
U1244	GPS ANTENNA CONN [U1244]	AV-392, "Diagnosis Procedure"
U1258	XM ANTENNA CONN [U1258]	AV-393, "Diagnosis Procedure"
U1263	USB OVERCURRENT [U1263]	AV-394, "Diagnosis Procedure"
U1264	ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264]	AV-395, "Diagnosis Procedure"
U1265	AMP ON TERMINAL [GND-SHORT or VB-SHORT] [U1265]	AV-396, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-398, "DTC Logic"
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-397, "Description"
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	AV-397, "Description"
U1300 U1240 U125C	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] SONAR CONN [U125C]	AV-397, "Description"

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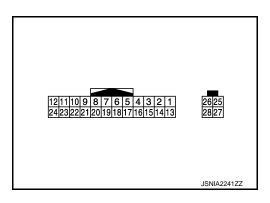
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DISPLAY UNIT

Reference Value

INFOID:0000000008296312

TERMINAL LAYOUT



PHYSICAL VALUES

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
6	_	Shield	_	_	_	_	
7	_	Shield	_		_	_	
8 (W)	Ground	Camera image signal	Input	Ignition switch ON	At rear view camera image is displayed.	(V) 0. 4 0 -0. 4 → 40μs SKIB2251J	
9 (L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••1ms	
10 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 +1ms PKIB5039J	
11 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
12 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
18 (L)	Ground	Composite image signal	Input	Ignition switch ON	At DVD image is displayed.	(V) 0. 4 0 -0. 4 ++40µs SKIB2251J	
19 (P)	Ground	Composite image ground	_	Ignition switch ON	_	0 V	
22	_	Shield	_	_	_	_	
23 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
27	_	RGB digital image signal (–)	Input	_	_	_	
28	_	RGB digital image signal (+)	Input	_	_	_	

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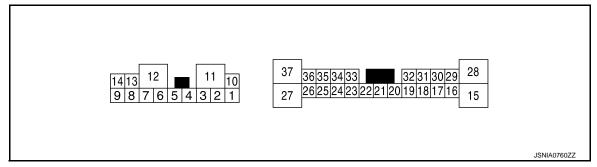
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BOSE AMP.

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
1 (L)	2 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
4 (V)	3 (LG)	Sound signal front RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
5 (G)	6 (R)	Sound signal door woofer RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
7 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
10 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
11 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
12 (B)	Ground	Ground	_	Ignition switch ON	_	0 V

BOSE AMP.

[BOSE AUDIO WITH NAVIGATION]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
14 (B)	9 (W)	Sound signal front door woofer LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + + 2ms SKIB3609E	
16 (SB)	17 (V)	Sound signal woofer	Output	Ignition switch ON	Sound output	(V) 1 0 -1 ***2ms SKIB3609E	
18 (L)	19 (P)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	
20 (W)	Ground	Amp. ON signal	Input	Ignition switch ACC	_	10.0 V	
21	_	Shield	_	_	_	_	
22 (GR)	Ground	Woofer Amp. ON signal	Output	Ignition switch ACC	_	10.0 V	
24 (V)	23 (SB)	Sound signal rear LH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 → 2ms SKiB3609E	
26 (BR)	25 (Y)	Sound signal rear RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	

[BOSE AUDIO WITH NAVIGATION]

Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
29 (L)	30 (BG)	Sound signal center speaker	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
31 (LG)	32 (Y)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
33 (R)	34 (G)	Sound signal front RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 → 2ms SKIB3609E
35 (P)	36 (L)	Sound signal front LH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 → • 2ms SKIB3609E
37 (SB)	Ground	Mode change signal	Input	Ignition switch ON	Driver's Audio Stage ON Driver's Audio Stage OFF	0 V 8.5 V

BOSE AUDIO WITH NAVIGATION

< WIRING DIAGRAM >

[BOSE AUDIO WITH NAVIGATION]

WIRING DIAGRAM

BOSE AUDIO WITH NAVIGATION

Wiring Diagram INFOID:0000000008296314 В

For connector terminal arrangements, harness layouts, and alphabets in a (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information".

NOTE:

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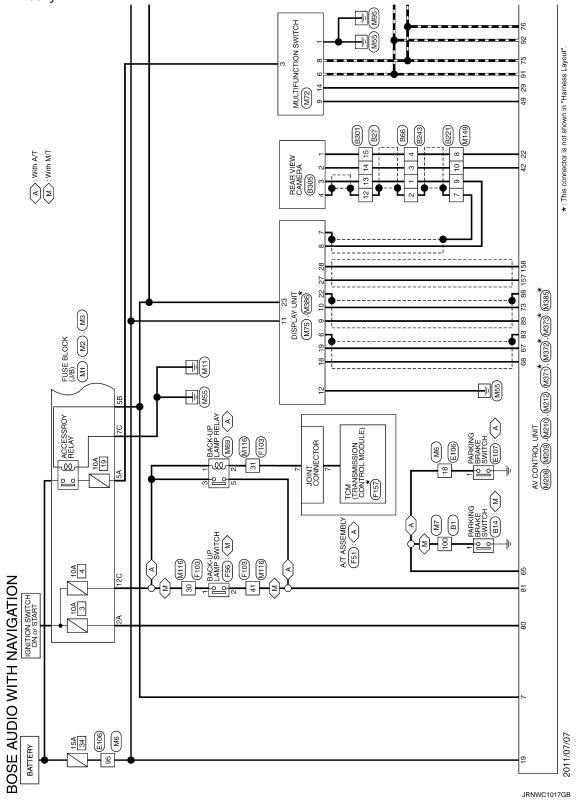
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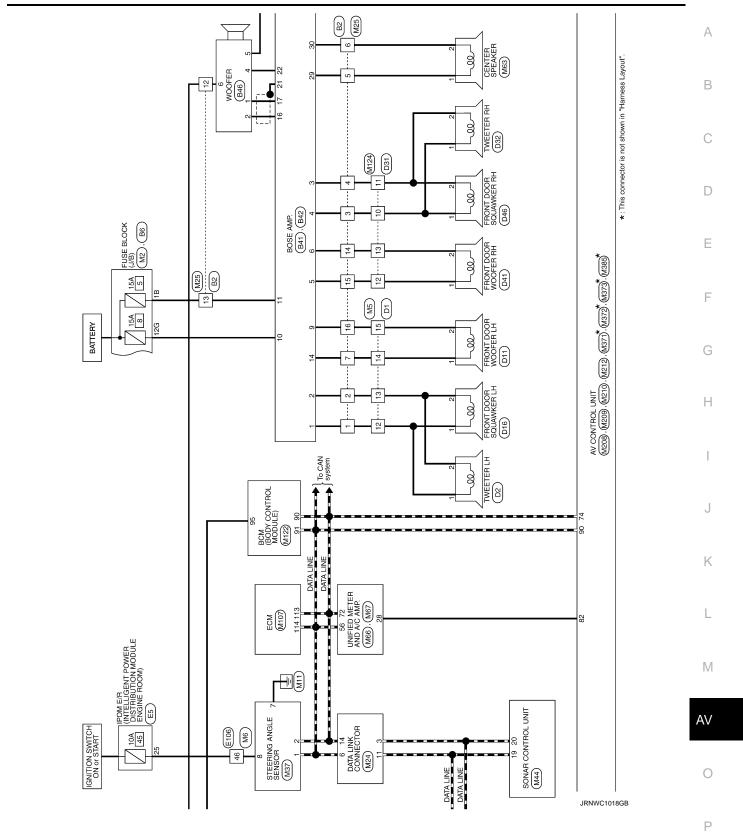
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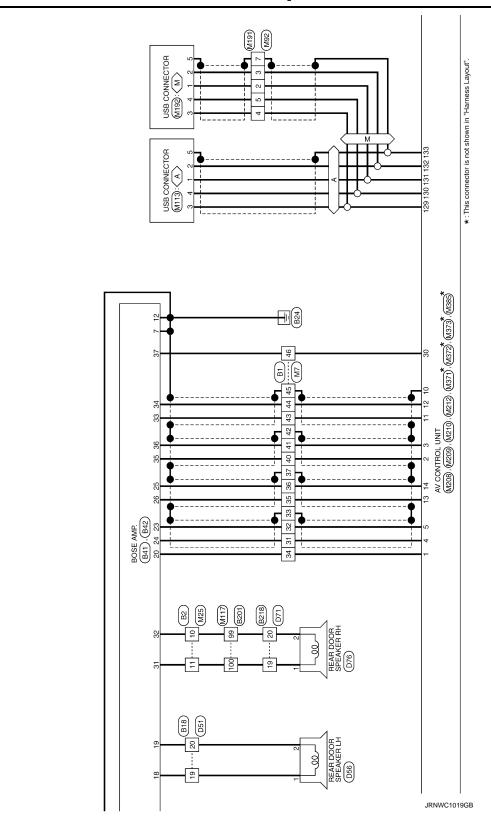
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



[BOSE AUDIO WITH NAVIGATION]



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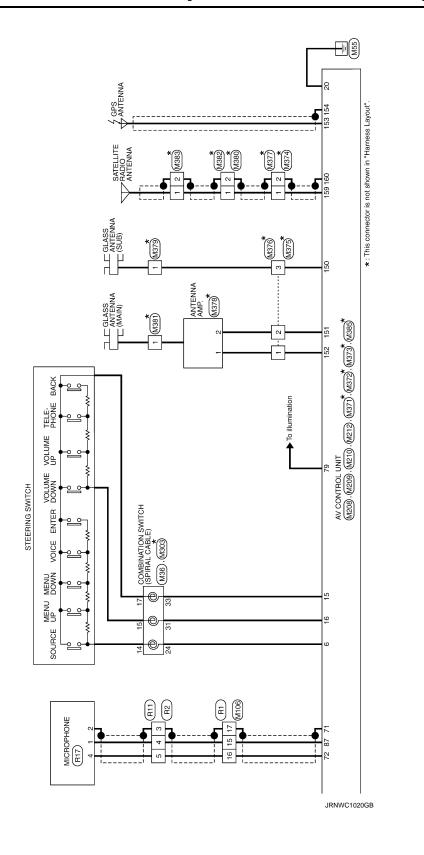
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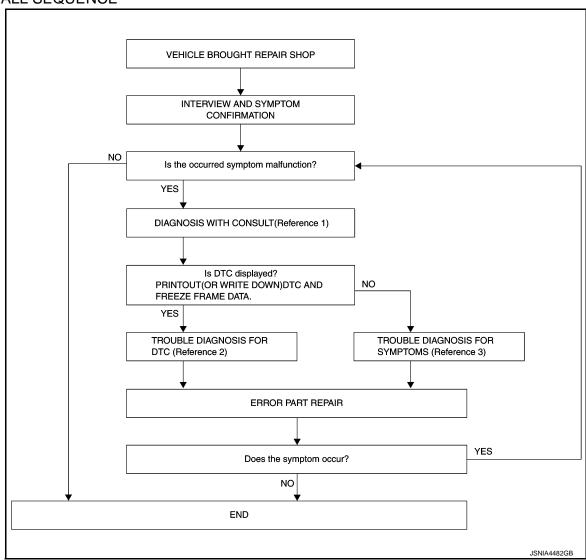


BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

OVERALL SEQUENCE



- Reference 1... Refer to <u>AV-339</u>, "CONSULT Function".
- Reference 2··· Refer to <u>AV-348, "DTC Index"</u>.
- Reference 3··· Refer to AV-416, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

2.DIAGNOSIS WITH CONSULT

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >	[BOSE AUDIO WITH NAVIGATION]
Connect CONSULT and perform a self-diagnosis for "MULTI AV" NOTE:	". Refer to AV-339, "CONSULT Function".
Skip to step 4 of the diagnosis procedure if "MULTI AV" is not dis	splayed.
When DTC is detected, follow the instructions below:Record DTC and Freeze Frame Data.	
Is DTC displayed?	
YES >> GO TO 3.	
NO >> GO TO 4.	
3. TROUBLE DIAGNOSIS FOR DTC	
 Check the DTC indicated in the "Self-Diagnosis Results". Perform the relevant diagnosis referring to the DTC Index. Refer 	r to <u>AV-348, "DTC Index"</u> .
>> GO TO 5.	
4.TROUBLE DIAGNOSIS FOR SYMPTOMS	
Perform the relevant diagnosis referring to the diagnosis chart by <u>Table"</u> .	y symptom. Refer to AV-416, "Symptom
>> GO TO 5.	
5. ERROR PART REPAIR	
 Repair or replace the identified malfunctioning parts. Perform a self-diagnosis for "MULTI AV" with CONSULT. 	
NOTE:	
Erase the stored self-diagnosis results after repairing or replace has been indicated in the "Self-Diagnosis Results".	cing the relevant components if any DTC
3. Check that the symptom does not occur.	
Does the symptom occur?	
YES >> GO TO 1. NO >> INSPECTION END	
	_

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT) INSPECTION > [BOSE AUDIO WITH NAVIGATION]

< BASIC INSPECTION >

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

Description INFOID:0000000008296316

BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement.

AFTER REPLACEMENT

CAUTION:

When replacing AV control unit, you must perform "After Replace ECU" or "Manual Configuration" with CONSULT.

- Complete the procedure of "After Replace ECU" or "Manual Configuration" in order.
- If you set incorrect "After Replace ECU" or "Manual Configuration", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

Work Procedure

1. SAVING VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "Before Replace ECU" to save or print current vehicle specification. Refer to <u>AV-363, "Description"</u>. **NOTE:**

If "Before Replace ECU" can not be used, use the "Manual Configuration".

>> GO TO 2.

2. REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to AV-428, "Exploded View".

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to AV-363, "Work Procedure".

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

CONFIGURATION (AV CONTROL UNIT)

< BASIC INSPECTION >

[BOSE AUDIO WITH NAVIGATION]

CONFIGURATION (AV CONTROL UNIT)

Description INFOID:0000000008296318

 Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT.

Configuration has three functions as follows.

Function		Description
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.
	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the AV control unit.
Manual Configuration		Allows the writing of the vehicle specification into the AV control unit by hand.

Work Procedure INFOID:0000000008296319

1. WRITE VEHICLE SPECIFICATION

(P)CONSULT Configuration

Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.

To write vehicle specification into the AV control unit by hand>>GO TO 3.

$\mathbf{2}.$ write stored data

CONSULT Configuration

Select "After Replace ECU" in "Read/Write Configuration." Write data stored in CONSULT with the "Before Replace ECU" function into the AV control unit.

>> GO TO 4.

3.manually write vehicle specification

(P)CONSULT Configuration

Perform "Manual Configuration." Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-363, "Configuration List".

NOTE:

If selection items are not displayed on the CONSULT screen, touch "NEXT."

4. OPERATION CHECK

>> GO TO 4.

Check that the operation of the AV control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

Configuration List

CAUTION:

Grasp vehicle specifications precisely. The control of ECU may not function normally if the specifications are misread.

NOTE:

- The items shown in this list depend on vehicle specifications.
- The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

INFOID:0000000008296320

AV-363 Revision: 2012 August 2013 G Sedan

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CONFIGURATION (AV CONTROL UNIT)

< BASIC INSPECTION >

[BOSE AÚDIO WITH NAVIGATION]

MANUAL SE	NOTE	
Items	Setting value	NOTE
STEERING	LHD	_
OTELINIO	RHD	_
	MODE 1	SPORT premium grade with 4WAS
GRADE	MODE 3	SPORT premium grade 2WD models without 4WAS
	MODE 2	Except for above
4WAS	WITHOUT	_
4000	WITH	_
SOUND SYSTEM	BASE	_
SOUND STOTEM	BOSE	_

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:000000008296321

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to LAN-25, "CAN Communication Signal Chart".

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction location
U1000	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:0000000008296323

1.PERFORM SELF-DIAGNOSTIC

- 1. Turn ignition switch ON and wait for 2 seconds or more.
- 2. Check "Self Diagnostic Result" of "MULTI AV".

Is "CAN COMM CIRCUIT" displayed?

YES >> Refer to "LAN system". Refer to LAN-16, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI section. Refer to GI-43. "Intermittent Incident".

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Revision: 2012 August AV-365 2013 G Sedan

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1010 CONTROL UNIT (CAN)

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction factor
U1010	CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1200 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1200	Cont Unit [U1200]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to AV-428. "Exploded View".

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U1201 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1201 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1201	GYRO NO CONN [U1201]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-428</u> , "Exploded View".

U1202 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1202 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1202	G-SENSOR NO CONN [U1202]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-428</u> , "Exploded View".

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U1204 AV CONTROL UNIT

[BOSE AUDIO WITH NAVIGATION]

U1204 AV CONTROL UNIT

Description INFOID:0000000008296328

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. <a href="Exploded View".

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1204	GPS CONN [U1204]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296330

1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- 3. Check that the DTC is detected again.

Is any DTC detected?

- YES >> Replace AV control unit. Refer to AV-428, "Exploded View".
- NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1205 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1205 AV CONTROL UNIT

Description INFOID:0000000008296331

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. <a href="Exploded View".

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1205	GPS ROM [U1205]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296333

$1_{ ext{-}}$ PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- 3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-428, "Exploded View".

NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

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Revision: 2012 August AV-371 2013 G Sedan

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U1206 AV CONTROL UNIT

[BOSE AUDIO WITH NAVIGATION]

U1206 AV CONTROL UNIT

Description INFOID:0000000008296334

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. <a href="Exploded View".

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1206	GPS RAM [U1206]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296336

1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- 3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to <u>AV-428</u>, "<u>Exploded View</u>". NO >> An intermittent error caused by strong radio interference in

>> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1207 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1207 AV CONTROL UNIT

Description INFOID:000000008296337

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. <a href="Exploded View".

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1207	GPS RTC [U1207]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. "Exploded View".

Diagnosis Procedure

INFOID:0000000008296339

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1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-428, "Exploded View".

NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

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Revision: 2012 August AV-373 2013 G Sedan

U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1216 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1216	CAN CONT [U1216]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-428</u> , "Exploded View".

U1217 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1217 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1217	BLUETOOTH MODULE [U1217]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-428</u> , "Exploded View".

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U1218 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1218 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1218	HDD CONN [U1218]	AV control unit malfunction is detected.	 If the music box function has no malfunctions, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296343

1. CHECK MUSIC BOX FUNCTION

Is music box function normal?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

U1219 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1219 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1219	HDD READ [U1219]	AV control unit malfunction is detected.	 If the music box function has no malfunctions, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. "Exploded View".

Diagnosis Procedure

1. CHECK MUSIC BOX FUNCTION

Is music box function normal?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to <u>AV-428</u>, "Exploded View".

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U121A AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121A AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121A	HDD WRITE [U121A]	AV control unit malfunction is detected.	 If the music box function has no malfunctions, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296347

1. CHECK MUSIC BOX FUNCTION

Is music box function normal?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

U121B AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121B AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121B	HDD COMM [U121B]	AV control unit malfunction is detected.	 If the music box function has no malfunctions, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. "Exploded View".

Diagnosis Procedure

1. CHECK MUSIC BOX FUNCTION

Is music box function normal?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

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U121C AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121C AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121C	HDD ACCESS [U121C]	AV control unit malfunction is detected.	 If the music box function has no malfunctions, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296351

1. CHECK MUSIC BOX FUNCTION

Is music box function normal?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

U121D AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121D AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121D	DSP CONN [U121D]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296353

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

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U121E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121E AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121E	DSP COMM [U121E]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428. "Exploded View".

Diagnosis Procedure

INFOID:0000000008296355

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

U1225 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1225 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1225	USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.

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U1227 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1227 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1227	DVD COMM [U1227]	AV control unit malfunction is detected.	 If DVD can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

Diagnosis Procedure

INFOID:0000000008296358

1. CHECK PLAYBACK OF A DISK (DVD)

Can a disc (DVD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

U1228 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1228 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1228	SUB CPU CONN [U1228]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

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U1229 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1229 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1229	iPod CERTIFICATION [U1229]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

U122A AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U122A AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Action to take
U122A	CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with "MULTI AV" of CONSULT.

Diagnosis Procedure

INFOID:0000000008296362

1. PERFORM THE SELF-DIAGNOSIS

When U122A is detected, write configuration data with "MULTI AV" of CONSULT.

>> Write configuration data with "MULTI AV" of CONSULT. Refer to AV-362, "Description".

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U122E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U122E AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U122E	Built-in AUDIO CONN [U122E]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-428, "Exploded View".

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1232 STEERING ANGLE SENSOR

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1232	ST ANGLE SEN CALIB [1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor.

Diagnosis Procedure

INFOID:0000000008296365

1.adjust the predictive course line center position of the steering angle sensor

When U1232 is detected, adjust the predictive course line center position of the steering angle sensor.

>> Adjusts the steering angle sensor neutral position on ABS actuator and electrical unit (control unit) side. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".

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[BOSE AUDIO WITH NAVIGATION]

U1243 DISPLAY UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1243	FRONT DISP CONN [U1243]	When either one of the following items is detected: display unit power supply and ground circuit are malfunctioning. communication circuit between AV control unit and display unit are malfunctioning.	 Display unit power supply and ground circuit. Communication circuit between AV control unit and display unit.

Diagnosis Procedure

INFOID:0000000008296367

1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-400, "DISPLAY UNIT: Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK CONTINUITY COMMUNICATION CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV control unit		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M75	9	M210	89	Existed
IVI75	10	IVIZIO	73	EXISTEC

4. Check continuity between display unit harness connector and ground.

Displa	ay unit	Ground	Continuity
Connector	Terminals		Continuity
M75	9		Not existed
	10		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK COMMUNICATION SIGNAL

- 1. Connect display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- Check signal between display unit harness connector and ground.

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M75	9	Ground	When adjusting display brightness.	(V) 6 4 2 0 • → 1 ms

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M75	10	Ground	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to <u>AV-430. "Exploded View"</u>.

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U1244 GPS ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1244 GPS ANTENNA

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1244	GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.

Diagnosis Procedure

INFOID:0000000008296369

1.GPS ANTENNA CHECK

Visually check GPS antenna and antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

$2.\mathsf{CHECK}$ AV CONTROL UNIT VOLTAGE

- 1. Disconnect GPS antenna connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit and ground.

(+) AV control unit Terminal	(-)	Voltage (Approx.)
153	Ground	5.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

U1258 SATELLITE RADIO ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1258 SATELLITE RADIO ANTENNA

DTC Logic

DTC	Display contents of CONSULT	DTC Detection Condition	Possible causes
U1258	XM ANTENNA CONN [U1258]	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection.

Diagnosis Procedure

INFOID:0000000008296371

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1. SATELLITE RADIO ANTENNA CHECK

Visually check satellite radio antenna (antenna base) and antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK AV CONTROL UNIT VOLTAGE

- 1. Disconnect satellite radio antenna connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit and ground.

(+) AV control unit Terminal	(-)	Voltage (Approx.)
159	Ground	5.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace AV control unit. Refer to <u>AV-428, "Exploded View"</u>.

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[BOSE AUDIO WITH NAVIGATION]

U1263 USB

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1263	USB OVERCURRENT [U1263]	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.

Diagnosis Procedure

INFOID:0000000008296373

1. CHECK USB HARNESS

Visually check USB harness.

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-428, "Exploded View".

NO >> Replace USB harness.

U1264 ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1264 ANTENNA AMP.

DTC Logic INFOID:0000000008296374

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1264	ANTENNA AMP TER- MINAL [OPEN or SHORT] [U1264]	Radio antenna amp. ON circuit is open or shorted.	Check antenna amp. ON signal circuit between the AV control unit and antenna amp.

Diagnosis Procedure

INFOID:0000000008296375

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1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND ANTENNA AMP.

- Turn ignition switch OFF.
- Disconnect antenna amp. connector and AV control unit connector.
- Check continuity between AV control unit harness connector and antenna amp. harness connector.

AV control unit		Antenna amp		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M371	152	M378	1	Existed

Check continuity between AV control unit harness connector and ground.

AV cor	ntrol unit		Continuity
Connector	Terminals	Ground	Continuity
M371	152		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE AV CONTROL UNIT

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

AV cor	ntrol unit	(_)	Voltage
Connector	Terminals	()	(Approx.)
M371	152	Ground	12.0 V

Is the inspection result normal?

YES

>> Replace antenna amp. Refer to <u>AV-438, "Exploded View"</u>. . >> Replace AV control unit. Refer to <u>AV-428, "Exploded View"</u>. NO

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[BOSE AUDIO WITH NAVIGATION]

U1265 BOSE AMP.

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1265	AMP ON TERMINAL [GND-SHORT or VB- SHORT] [U1265]	BOSE amp. ON circuit is open or shorted.	Check BOSE amp. ON signal circuit between the AV control unit and BOSE amp.

Diagnosis Procedure

INFOID:0000000008296377

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND BOSE AMP.

- Turn ignition switch OFF.
- 2. Disconnect BOSE amp. connector and AV control unit connector.
- 3. Check continuity between AV control unit harness connector and BOSE amp. harness connector.

AV control unit		BOSE amp.		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M208	1	B41	20	Existed

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

AV control unit			Continuity
Connector	Terminals	Ground	Continuity
M208	1		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE AV CONTROL UNIT

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

	+) ntrol unit	(-)	Voltage (Approx.)
Connector	Terminals		(11 -)
M208	1	Ground	10.0 V

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-437, "Exploded View".

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

U1300 AV COMM CIRCUIT

[BOSE AUDIO WITH NAVIGATION]

U1300 AV COMM CIRCUIT

Description INFOID:000000008296378

U1300 is indicated when malfunction occurs in communication signal of multi AV system. Indicated simultaneously, without fail, with the malfunction of control units connected to AV control unit with communication line. Determine the possible malfunction cause from the table below.

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items are detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
U1300 U1240 U125C	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] SONAR CONN [U125C]	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

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U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1310 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit. If the mal- function occurs constantly. Refer to <u>AV-428</u> , "Exploded View".

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

INFOID:0000000008296380

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AV CONTROL UNIT : Diagnosis Procedure

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2. CHECK BATTERY POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M208	19	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between AV control unit and fuse.

3.CHECK ACC POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M208	7	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK ACC POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit harness connector and BCM harness connector.
- 3. Check continuity between AV control unit harness connector and BCM harness connector.

AV control unit		BCM		Continuity
Connector	Terminal	Connector Terminal		Continuity
M208	7	M122	95	Existed

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

AV con	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M208	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect AV control unit connectors.

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Revision: 2012 August AV-399 2013 G Sedan

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

3. Check continuity between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M208	20	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT: Diagnosis Procedure

INFOID:0000000008296381

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK BATTERY POWER SUPPLY CIRCUIT

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M75	11	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between Display unit and fuse.

3. CHECK ACC POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M75	23	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK ACC POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit harness connector and BCM harness connector.
- 3. Check continuity between AV control unit harness connector and BCM harness connector.

Displa	Display unit		BCM	
Connector	Terminal	Connector	Terminal	Continuity
M75	23	M122	95	Existed

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

Displ	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M75	23		Not existed

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- Disconnect display unit connector.
- 3. Check continuity between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M75	12	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

BOSE AMP.

BOSE AMP.: Diagnosis Procedure

INFOID:0000000008296382

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1. CHECK FUSE

Check for blown fuses.

Power source Fuse No.

Battery 5, 8

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B42	10, 11	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B42	7, 12	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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RGB DIGITAL IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

RGB DIGITAL IMAGE SIGNAL CIRCUIT

Description INFOID:000000008296383

Transmit the image displayed with AV control unit with RGB digital image signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296384

1. CHECK CONTINUITY RGB DIGITAL IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector and AV control unit connector.
- Check continuity between display unit harness connector and AV control unit harness connector.

Display unit		AV con	trol unit	Continuity
Connector	Terminals	Connector	Terminals	Continuity
Mage	27	M205	157	Existed
M386	28	M385	158	Existed

4. Check continuity between display unit harness connector and ground.

Displa	ay unit		Continuity
Connector	Terminals	Ground	Continuity
M386	27	Giodila	Not existed
IVISOD	28		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB DIGITAL IMAGE SIGNAL

- 1. Connect AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

<u>`</u>	+) ay unit	(–)	Condition	Voltage (Approx.)	
Connector	Terminals	()	Conducti		
M386	27	Ground	_	1.3 V	
IVIOOU	28	Giodila	_	1.3 V	

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-430, "Exploded View".

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

COMPOSITE IMAGE SIGNAL CIRCUIT

Description

AV control unit transmits the playback DVD image signal to the display unit.

Diagnosis Procedure

INFOID:0000000008296386

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1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and display unit connector.
- 3. Check continuity between AV control unit harness connector and display unit harness connector.

AV control unit		Display unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M210	68	M75	18	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M210	68		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMPOSITE IMAGE SIGNAL

- 1. Connect AV control unit connector and display unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between AV control unit harness connector and ground.

	+) trol unit Terminal	(-)	Condition	Reference value
M210	68	Ground	At DVD image is displayed.	(V) 0. 4 0 -0. 4 → 40μs SKIB2251J

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-430, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

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DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

DISK EJECT SIGNAL CIRCUIT

Description INFOID:000000008296387

The eject signal is output to AV control unit when the eject switch of multifunction switch is pressed.

Diagnosis Procedure

INFOID:0000000008296388

1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect multifunction switch connector and AV control unit connector.
- 3. Check continuity between multifunction switch harness connector and AV control unit harness connector.

Multifunc	Multifunction switch		trol unit	Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M72	14	M209	29	Existed	

4. Check continuity between multifunction switch harness connector and ground.

Multifunction switch			Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AV CONTROL UNIT VOLTAGE

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

(+) AV control unit		(-)	Condition	Voltage (Approx.)	
Connector	Terminal			(11 - 7	
M209	29	Ground	Pressing the eject switch	0 V	
WI209 29	Giodila	Except for above	5.0 V		

Is the inspection result normal?

YES >> Replace preset switch. Refer to AV-441, "Exploded View".

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

MODE CHANGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

MODE CHANGE SIGNAL CIRCUIT

Description

- AV control unit transmits the mode change signal to BOSE amp.
- Driver's Audio Stage controls the speaker's output characteristic by BOSE amp. so that the driver's seat is to be the center of sounds.

Diagnosis Procedure

1. CHECK CONTINUITY MODE CHANGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BOSE amp. connector and AV control unit connector.
- 3. Check continuity between BOSE amp. harness connector and AV control unit harness connector.

AV control unit		BOSE	E amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M209	30	B41	37	Existed

Check continuity between BOSE amp. harness connector and ground.

BOSE	E amp.		Continuity
Connector	Terminal	Ground	Continuity
B41	37		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK MODE CHANGE SIGNAL

- 1. Connect BOSE amp. connector and AV control unit connector.
- 2. Turn ignition switch ON.
- Check voltage between BOSE amp. harness connector and ground.

(+) BOSE amp. (-)		Condition	Voltage (Approx.)		
Connector	Terminal			(11 -)	
B41	37	Ground	Driver's Audio Stage ON.	0 V	
D41	57	Ground	Driver's Audio Stage OFF.	8.5 V	

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to <u>AV-437</u>, "<u>Exploded View</u>".

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

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INFOID:0000000008296390

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

MICROPHONE SIGNAL CIRCUIT

Description

Supply power from AV control unit to microphone. The microphone transmits the sound/voice to the AV control unit.

Diagnosis Procedure

INFOID:0000000008296392

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and microphone connector.
- 3. Check continuity between AV control unit harness connector and microphone harness connector.

AV cor	AV control unit		phone	Continuity
Connector	Terminals	Connector	Terminals	Continuity
	71		2	
M210	72	R17	4	Existed
	87		1	

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

AV cor	ntrol unit		Continuity
Connector	Terminals	Ground	Continuity
M210	72	Glound	Not existed
M210	87		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE MICROPHONE VCC

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

(+)		(–)		14.6
AV control unit		AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	() 1 - /
M210	72	M210	71	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

${f 3.}$ CHECK MICROPHONE SIGNAL

- 1. Connect microphone connector.
- Check signal between AV control unit harness connector.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

	+)	(-)				
AV cor	trol unit	AV con	trol unit	Condition	Reference value	
Connector	Terminal	Connector	Terminal			
M210	87	M210	71	Give a voice.	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0	

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-428, "Exploded View".

NO >> Replace microphone. Refer to <u>AV-444, "Exploded View"</u>.

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CAMERA IMAGE SIGNAL CIRCUIT

[BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

CAMERA IMAGE SIGNAL CIRCUIT

Description INFOID.000000008296393

- The AV control unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the display unit when power is supplied from the AV control unit.

Diagnosis Procedure

INFOID:0000000008296394

1. CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

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

AV control unit		Rear vie	w camera	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M209	22	B305	1	Existed

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

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M209	22		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE CAMERA POWER SUPPLY

- 1. Connect AV control unit connector and rear view camera connector.
- 2. Turn ignition switch ON.
- Shift the selector lever to "R".
- 4. Check voltage between AV control unit harness connector and ground.

(+) AV control unit				V. II.
		(–)	(–) Condition	Voltage (Approx.)
Connector	Terminal			, , , , , , , , , , , , , , , , , , ,
M209	22	Ground	Shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit.

3. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect display unit connector and rear view camera connector.
- Check continuity between display unit harness connector and rear view camera harness connector.

Display unit		Rear view camera		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M75	8	B305	3	Existed	

4. Check continuity between display unit harness connector and ground.

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M75	8		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK CAMERA IMAGE SIGNAL

- 1. Connect display unit connector and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Shift the selector lever to "R".
- 4. Check signal between display unit harness connector and ground.

(+) Display unit		(–)	Condition	Reference value
Connector	Terminal			
M75	8	Ground	At rear view camera image is displayed.	(V) 0. 4 0 −0. 4 → 40μs SKIB2251J

Is inspection result normal?

YES >> Replace display unit. Refer to AV-430, "Exploded View".

NO >> Replace rear view camera. Refer to AV-447, "Exploded View".

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STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

STEERING SWITCH SIGNAL A CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296396

1. CHECK STEERING SWITCH SIGNAL A CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M208	6	M36	24	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M208	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to <u>SR-13, "Exploded View"</u>.

3.CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector.

(+)	(-	-)	\
AV cor	trol unit	AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 - 7
M208	6	M208	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-410</u>, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17</u>, "Exploded View".

Component Inspection

INFOID:0000000008296397

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

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

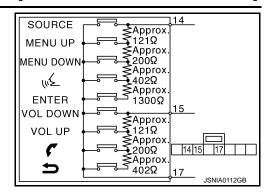
Standard

Between terminals 14 and 17

ENTER switch ON : $2003 - 2043 \Omega$ \swarrow switch ON : $716 - 730 \Omega$ MENU DOWN switch ON : $318 - 324 \Omega$ MENU UP switch ON : $120 - 122 \Omega$ SOURCE switch ON : 0Ω

Between terminals 15 and 17

Switch ON : $716 - 730 \Omega$ **Switch ON** : $318 - 324 \Omega$ **VOL UP switch ON** : $120 - 122 \Omega$ **VOL DOWN switch ON** : 0Ω



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STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

STEERING SWITCH SIGNAL B CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296399

1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	ntrol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M208	16	M36	31	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M208	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to <u>SR-13, "Exploded View"</u>.

3.CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector and spiral cable connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector.

(+)		(–)		V 16
AV cor	ntrol unit	AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 -)
M208	16	M208	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-412, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17</u>, "Exploded View".

Component Inspection

INFOID:0000000008296400

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

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

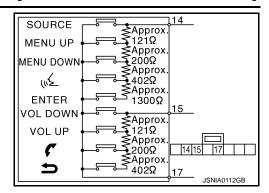
Standard

Between terminals 14 and 17

ENTER switch ON : $2003 - 2043 \Omega$ \swarrow switch ON : $716 - 730 \Omega$ MENU DOWN switch ON : $318 - 324 \Omega$ MENU UP switch ON : $120 - 122 \Omega$ SOURCE switch ON : 0Ω

Between terminals 15 and 17

S switch ON : $716 - 730 \Omega$ **S** switch ON : $318 - 324 \Omega$ VOL UP switch ON : $120 - 122 \Omega$ VOL DOWN switch ON : 0Ω



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STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

STEERING SWITCH GROUND CIRCUIT

Description INFOID:000000008296401

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000008296402

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector and spiral cable harness connector.

AV cor	trol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M208	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK GROUND CIRCUIT

- 1. Connect AV control unit connector.
- Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M208	15		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-428, "Exploded View"

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-414, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-17</u>, "Exploded View"

Component Inspection

INFOID:0000000008296403

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

STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

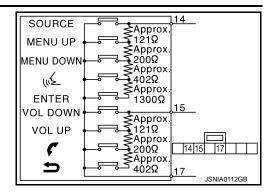
Standard

Between terminals 14 and 17

ENTER switch ON : $2003 - 2043 \Omega$ \swarrow switch ON : $716 - 730 \Omega$ MENU DOWN switch ON : $318 - 324 \Omega$ MENU UP switch ON : $120 - 122 \Omega$ SOURCE switch ON : 0Ω

Between terminals 15 and 17

S switch ON $: 716 - 730 \Omega$ \checkmark switch ON $: 318 - 324 \Omega$ VOL UP switch ON $: 120 - 122 \Omega$ VOL DOWN switch ON $: 0 \Omega$



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SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table INFOID:000000008296404

RELATED TO NAVIGATION

Symptoms	Check items	Probable malfunction location
	All switches cannot be operated. "MULTI AV" is displayed on system selection screen when the CONSULT is started.	 Multifunction switch power supply and ground circuit malfunction. AV communication circuit between AV control unit and multifunction switch. Perform CONSULT self-diagnosis. Refer to AV-339. "CONSULT Function".
Multifunction switch and preset switch operation does not work.	All switches cannot be operated. "MULTI AV" is not displayed on system selection screen when the CONSULT is initialized.	AV control unit power supply and ground circuit malfunction. Refer to AV-399, "AV CONTROL UNIT : Diagnosis Procedure".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-327, "On Board Diagnosis Function".
Fuel economy display, vehicle set-	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV". Refer to AV-339, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-348, "DTC Index".
ting operation is abnormal.	There is no malfunction in the CON- SULT "self-diagnosis results" of "MULTI AV". Refer to AV-339, "CONSULT Function".	Ignition signal circuit malfunction.
Guide sound is not heard or too low.	On the setting display select "system sound (guide sound volume, etc.)," and confirm that guide sound is ON.	AV control unit malfunction. Replace AV control unit. Refer to AV-428, "Exploded View".

RELATED TO HANDS-FREE PHONE (EXCEPT FOR MEXICO)

- 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 checking 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[®] 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.

- 4. Go to "www.infinitiusa.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[®] 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):

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

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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" list.

 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.	 Hands-free phone operation can be made, but the communication cannot be established. Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation. 	AV control unit malfunction. Replace AV control unit. Refer to AV-428, "Exploded View".
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	Sound operation function is normal.	
by the other party with hands- free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-406, "Diagnosis Procedure".
	Steering switch's "VOL UP", "VOL DOWN", "" switch works, but "" it does not work.	Steering switch malfunction. Replace steering switch. Refer to AV-442, "Exploded View".
The system cannot be operated.	Steering switch's " ," "VOL UP", "VOL DOWN", " switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-412, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-414, "Diagnosis Procedure".

RELATED TO HANDS-FREE PHONE (FOR MEXICO)

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.	 Hands-free phone operation can be made, but the communication cannot be established. Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation. 	AV control unit malfunction. Replace AV control unit. Refer to AV-428, "Exploded View".	Ī
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	Sound operation function is normal.		
by the other party with hands- free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-406, "Diagnosis Procedure".	_

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items	Probable malfunction location
The system cannot be operated.	Steering switch's "VOL UP", "VOL DOWN", "" switch works, but "" it does not work.	Steering switch malfunction. Replace steering switch. Refer to AV-442, "Exploded View".
	Steering switch's " ," "VOL UP", "VOL DOWN", " switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-412, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-414, "Diagnosis Procedure".

RELATED TO RGB IMAGE

Symptoms	Check items	Probable malfunction location
RGB image is not shown.	_	RGB digital image signal circuit malfunction. Refer to AV-402, "Diagnosis Procedure".

RELATED TO VOICE CONTROL

Symptoms	Check items	Probable malfunction location
The voice cannot be controlled even if the voice control screen	Voice sounds at "Voice Microphone Test" of Confirmation/Adjustment mode.	AV control unit malfunction. Replace AV control unit. Refer to AV-428, "Exploded View".
is displayed.	Voice does not sound at "Voice Micro- phone Test" of Confirmation/Adjustment mode.	Microphone circuit malfunction. Refer to AV-406, "Diagnosis Procedure".
	Steering switch's "SOURCE", "MENU UP", "MENU DOWN", "ENTER" switch works, but "	Steering switch malfunction. Replace steering switch. Refer to AV-442, "Exploded View".
The voice cannot be controlled (Voice control screen is not displayed).	Steering switch's "SOURCE", "MENU UP", "MENU DOWN", " " "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to AV-410, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-414, "Diagnosis Procedure".

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location	
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-404, "Diagnosis Procedure".	
No sound comes out or the level of the sound is low.	No sound from all speakers.	BOSE amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to AV-401. "BOSE AMP.: Diagnosis Procedure".	
	Sound is not heard from woofer.	 Woofer power supply and ground circuit malfunction. Sound signal (woofer) circuit malfunction. Woofer amp. ON signal circuit malfunction. 	
	Only a certain speaker (center, front right, front left, rear right, or rear left) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Malfunction in AV control unit. Malfunction in BOSE amp. 	

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

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Symptoms	Check items	Probable malfunction location
	Noise comes out from all speaker.	Malfunction in AV control unit. Malfunction in BOSE amp.
Noise is mixed with audio.	Noise comes out only from a certain speaker (center, front right, front left, rear right, or rear left).	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in AV control unit. Malfunction in BOSE amp.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.
Radio is not received or poor reception.	Other audio sounds are normal. Any radio 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).	Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder.
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-339, "CONSULT Function".	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-348, "DTC Index". Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder.
	There is no malfunction in the CONSULT self-diagnosis result. Refer to AV-339, "CONSULT Function".	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut. Refer to <u>AV-439</u>, "Exploded View".

RELATED TO DVD MODE

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-404, "Diagnosis Procedure".
DVD image is not displayed.	_	Perform CONSULT self-diagnosis. Refer to AV-339. "CONSULT Function". When detecting no malfunction in those components, the following items are a possible cause. • Composite image signal circuits malfunction. Refer to AV-403, "Diagnosis Procedure".
	No sound from all speakers.	Amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to AV-401, "BOSE AMP.: Diagnosis Procedure".
DVD sound is not heard.	Sound is not heard from rear woofer.	 Woofer power supply and ground circuit malfunction. Sound signal (rear woofer) circuit malfunction. Woofer amp. ON signal circuit malfunction.
	Sound is heard only from specific places.	Sound signals circuit of suspect system.

RELATED TO CAMERA

Trouble Diagnosis Chart by Symptom

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items	Probable malfunction location
Camera image is not shown. (Vehicle width and predictive course line are displayed.)	_	Camera image signal circuit. Refer to AV-408, "Diagnosis Procedure".
Camera image does not switch.	Select "Camera Cont." of Confirmation/ Adjustment mode, Reverse Sensor is not turned ON at "Connection Confirmation".	Reverse signal circuit malfunction.
	Select "Camera Cont." of Confirmation/ Adjustment mode, Reverse Sensor is turned ON at "Connection Confirmation".	AV control unit malfunction. Replace AV control unit. Refer to AV-428, "Exploded View".

RELATED TO USB

NOTE:

Check that there is no malfunction of USB equipment main body before performing a diagnosis.

Symptoms	Check items	Possible malfunction location / Action to take
iPod [®] or USB memory can not be recognized.	_	 USB harness malfunction. USB connector malfunction.

 $iPod^{\textcircled{\scriptsize 8}}$ is a trademark of Apple inc., registered in the U.S. and other countries.

RELATED TO STEERING SWITCH

Symptoms	Probable malfunction location
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to AV-414, "Diagnosis Procedure".
Only specified switch cannot be operated.	Steering switch malfunction. Replace steering switch. Refer to AV-442, "Exploded View".
Steering switch's "SOURCE", "MENU UP", "MENU DOWN", " "\sqrt{2}", "ENTER"switches do not work.	Steering switch signal A circuit malfunction. Refer to AV-410, "Diagnosis Procedure".
Steering switch's "", "VOL UP", "VOL DOWN", "" switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-412, "Diagnosis Procedure".

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

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NORMAL OPERATING CONDITION

Description INFOID:000000008296405

NOTE:

For Navigation system operation information, refer to Navigation system Owner's Manual.

BASIC OPERATIONS

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
	The systems in the video mode.	Press "DISC-AUX" to change the mode.
No image is displayed.	The display is turned off.	Press "☀/→" to turn on the display.
	The interior of the vehicle becomes the a little less than 80°C (176°F) or high temperature, and the protection of the display acts, and a display is turned off.	Wait until the interior of the vehicle has cooled down.
Screen not clear.	Contrast setting is not appropriate.	Adjust the contrast of the display.
No voice guidance is available. Or	The volume is not set correctly, or it is turned off.	Adjust the volume of voice guidance.
No voice guidance is available. Or The volume is too high or too low.	Voice guidance is not provided for certain streets (roads displayed in gray).	This is not a malfunction.
No map is displayed on the screen.	A screen other than map screen is displayed.	Press "MAP".
The screen is too dim. The movement is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be selected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the navigation system.

NOTE:

Locations stored in the Address Book and other memory functions may be lost if the vehicle's battery is disconnected or becomes discharged. If this occurs, service the vehicle's battery as necessary and re-enter the information in the Address Book.

RELATED TO VOICE RECOGNITION

Related to Basic Operation

Symptom	Possible cause	Possible solution
	The interior of the vehicle is too noisy.	Close the windows or have other occupants quiet.
	The volume of your voice is too low.	Speak louder.
	The volume if your voice is too loud.	Speak softer.
	Your pronunciation is unclear.	Speak clearly.
The system does not recognize your command. or The system recognizes your command incorrectly	You are speaking before the voice recognition is ready	Press and release "" " switch on the steering switch, and speak a command after the tone sounds.
	8 seconds or more have passed after you pressed and released "√∠" switch on the steering switch.	Make sure to speak a command within 8 seconds after you press and release "√∠" switch on the steering switch.
	Only a limited range of voice commands is usable for each screen.	Use a correct voice command appropriate for the current screen.
	The fan of the air conditioner is too loud.	Lower the fan speed as necessary as voice com- mand can be recognized more easily.

Related to Item Choice

The system should respond correctly to all voice commands without difficulty. If problems are encountered, follow the solutions given in this guide for the appropriate error.

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Where the solutions are listed by number, try each solution in turn, starting with number one, until the problem is resolved.

Symptom/ error message	Solution	
	1. Ensure that the command format is valid.	
Displays "COMMAND NOT DEC	2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level.	
Displays "COMMAND NOT REC- OGNIZED" or the system fails to in- terpret the command correctly.	3. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on. NOTE: If it is too noisy to use the phone, it is likely that voice commands will not be recognized.	
	4. If optional words of the command have been omitted, then command should be tried with these in place.	
The system consistently selects the wrong voicetag	1. Ensure that the voicetag requested matches what was originally stored. This can be confirmed by giving the "Addressbook" Directory or Phone Directory command.	
	2. Replace one of the voicetags being confused with a different voicetag.	

Related to Telephone

The system should respond correctly to all voice commands without difficulty. If problems are encountered, try the following solutions.

Where the solutions are listed by number, try each solution in turn, starting with number 1, until the problem is resolved.

Symptom	Solution	
	Ensure that the command is valid.	
	2. Ensure that the command is spoken after the tone.	
System fails to interpret the command correctly.	3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle.	
	Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). NOTE: If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.	
	5. If more than one command was said at a time, try saying the commands separately.	
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. See "Speaker adaptation (SA) mode" earlier in this section. Refer to "OWNER'S MANUAL".	
The system consistently selects	Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the "List Names" command.	
the wrong voicetag	2. Replace one of the names being confused with a new name.	

RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- 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 then determine the cause.

NOTE:

- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA, AAC, M4A) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

[BOSE AUDIO WITH NAVIGATION]

Symptom	Cause and Counter measure	
	Check if the CD was inserted correctly.	
	Check if the CD is scratched or dirty.	
	Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.	
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.	
	If there is a mixture of music CD files (CD-DA data) and MP3/WMA/AAC/M4A files on a CD, only the music CD files (CD-DA data) will be played.	
Cannot play	Files with extensions other than ".MP3", ".WMA", "AAC", ".M4A", ".mp3", ".wma", ".aac" or ".m4a" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.	
	Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA/AAC/M4A writing applications or other text editing applications.	
	Check if the finalization process, such as session close and disc close, is done for the disc.	
	Check if the CD is protected by copyright.	
	Disks recorded in live file system format are not supported. (For Microsoft Windows Vista, check the settings.)	
Poor sound quality	Check if the CD is scratched or dirty.	
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA/AAC/M4A CD, or if it is a multisession disc some time may be required before the music starts playing.	
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed.	
Skipping with high bit rate files	Skipping may occur with large quantities if data such as for high bit rate data.	
Move immediately to the next song when playing	When a non-MP3/WMA/AAC/M4A file has been given an extension of ".MP3", ".WMA", "AAC", ".M4A" ".mp3", ".wma", ".aac" or ".m4a", or when play is prohibited by copyright protection, the player will skip to the next song.	
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files migl not play in the desired order.	
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.	
Buzz/rattle sound from speaker	The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle.	

Noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources, 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 a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

RELATED TO DVD

Symptom	Possible cause	Possible solution
Not working as operated	Some operations may be rejected or may not function as intended because of the manufacturer's intent, depending on DVD.	This is not a malfunction.
Operation not accepted	If a requested operation is prohibited, then a message is displayed on the screen. (Message display depends on DVD.)	This is not a malfunction.

AV-423 Revision: 2012 August 2013 G Sedan

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< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptom	Possible cause	Possible solution
	Check that the DVD is inserted in the right place.	Upturn the DVD (facing the title upward).
	Check that there is no condensation inside the player.	Wait until the condensation evaporates (approximately one hour).
DVD can not be played	DVD menu is displayed.	Select item to touch "ENTER".
	Insertion of a DVD with a different region code.	DVDs with a different region code can not be played. Check DVD.
	Some DVD softwares may not be played because not all DVD softwares fully comply in the standard.	This is not a malfunction.
Interruption during play- back or flicker in the dis-	Check that the DVD has no scratches and dirt.	Errors may not be corrected depending on the size of scratches.
play		Wipe and clean the dirt on the disc.
Subtitles not shown	Subtitle setting is OFF.	Set subtitle.
Subtitles flot shown	Subtitle is not included in the software.	Check DVD.
Not played in set language	If a language is not included in the DVD, then the DVD is played in a recommended language.	Check DVD.
Not played with set subtitle	If a set subtitle is not included in the DVD, then the DVD is played with a recommended subtitle.	Check DVD.
Angle unchangeable	Plural angles are not recorded in the software.	Check if the DVD is multi-angle capable.
Unusual screen display	Display mode to the output aspect ratio for the DVD software is inappropriate.	Switch to the appropriate display mode.
Distortion in picture	In the process of fast–forward or fast–reverse.	This is not a malfunction.
Low sound quality	Check that the DVD has no scratches and dirt.	Wipe and clean the dirt on the disc.
Subtitle and language not selectable (not played with	The DVD is not multilanguage-capable.	The inclusion of the number of languages depends on DVD. Languages may be selectable on the Menu screen. Check DVD.
set subtitle or in set lan- guage)	The DVD has a priority language or setting.	If the DVD has a priority language or settings, then settings changed with this device are not reflected.
Playback time is indicated, but no sound comes out.	Playback of Mix mode Truck 1. (Mix mode: Format including Truck 1 with data other than music and Trucks from Truck 2 with music data.)	Play music data included in trucks from Truck 2.

RELATED TO VEHICLE ICON

Symptom	Possible cause	Possible solution
Names of roads differ between Plan View and Birdview [™] .	chance that names of the reads may be dis-	
The vehicle icon is not displayed in the correct position.	The vehicle was transported after the ignition switch was pressed off, for example, by a ferry or car transporter.	Drive the vehicle for a while on a road where GPS signals can be received.
	The position and direction of the vehicle icon may be incorrect depending on the driving environments and the levels of positioning accuracy of the navigation system.	This is not a malfunction. Drive the vehicle for a while to automatically correct the position and direction of the vehicle icon.
When the vehicle is traveling on a new road, the vehicle icon is located on another road nearby.	Because the new road is not stored in the map data, the system automatically places the vehicle icon on the nearest road available.	Updated road information will be included in the next version of the map data.

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptom	Possible cause	Possible solution
The screen does not switch to the night screen even after turning on the headlights.	The daytime screen was set the last time the headlights were turned on.	Set the screen to the night screen mode using <day night=""> when you turn on the headlights.</day>
The map does not scroll even when the vehicle is moving.	The current location map screen is not displayed.	Press "MAP".
The vehicle icon is not displayed.	The current location map screen is not displayed.	Press "MAP".
The location of the vehicle icon is misaligned from the actual position.	When using tire chains or replacing the tires, speed calculations based on the speed sensor may be incorrect.	Drive the vehicle for a while [at approximately 30 km/h (19 MPH) for about 30 minutes] to automatically correct the vehicle icon position. If this does not correct the vehicle icon position, contact an INFINITI dealer.
	The map data has a mistake or is incomplete (the vehicle icon position is always misaligned in the same area).	Updated road information will be included in the next version of the map data.

RELATED TO ROUTE CALCULATION AND VISUAL GUIDANCE

Symptom	Possible cause	Possible solution
Waypoints are not included in the auto reroute calculation.	Waypoints that you have already passed are not included in the auto reroute calculation.	If you want to go to that waypoint again, you need to edit the route.
	Route calculation has not yet been performed.	Set the destination and perform route calculation.
Route information is not dis-	You are not driving on the suggested route.	Drive on the suggested route.
played.	Route guidance is set to off.	Turn on route guidance.
	Route information is not provided for certain types of roads (roads displayed in gray).	This is not a malfunction.
The auto reroute calculation (or detour calculation) suggests the same route as the one previously suggested.	Route calculations took priority conditions into consideration, but the same route was calculated.	This is not a malfunction.
A waypoint cannot be added.	Five waypoints are already set on the route, including ones that you have already passed.	A maximum of 5 waypoints can be set on the route. If you want to go to 6 or more waypoints, perform route calcu- lations multiple times as necessary.
	Roads near the destination cannot be calculated.	Reset the destination to a main or or- dinary road, and recalculate the route
	The starting point and destination are too close.	Set a more distant destination.
The suggested route is not displayed.	The starting point and destination are too far away.	Divide your trip by selecting one or two intermediate destinations, and perform route calculations multiple times
	There are time restricted roads (by the day of the week, by time) near the current vehicle location or destination.	Set [Use Time Restricted Roads] to off.
A route is managed by sections between waypoints. If you passed the first waypoint, the section between the starting point and the waypoint is deleted. (It may not be deleted de pending on the area.)		This is not a malfunction.
An indirect route is suggested.	If there are restrictions (such as one-way streets) on roads close to the starting point or destination, the system may suggest an indirect route.	Adjust the location of the starting of the starting point or destination.
	The system may suggest an indirect route because route calculation does not take into consideration some areas such as narrow streets (gray roads.)	Reset the destination to a main or or- dinary road, and recalculate the route

AV-425 Revision: 2012 August 2013 G Sedan

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< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptom	Possible cause	Possible solution
The landmark information does not correspond to the actual information.	This may be caused by insufficient or incorrect map data.	Updated information will be included in the next version of the data.
The suggested route does not exactly connect to the starting point, waypoints, or destination.	There is no data for route calculation closes to these locations.	Set the starting point, waypoints and destination on a main road, and perform route calculation.

RELATED TO VOICE GUIDANCE

Symptom	Possible cause	Possible solution
Voice guidance is not available	Voice guidance is only available at certain intersections marked with? In some case, voice guidance is not available even when the vehicle should make a turn.	This is not a malfunction.
	The vehicle has deviated from the suggested route.	Go back to the suggested route or request route calculation again
	Voice guide is set to off.	Turn on voice guidance.
	Route guidance is set to off.	Turn on voice guidance.
The guidance contact does not correspond to the actual condition.	The contact of voice guidance may vary, depending on the types of intersections at which turn are made.	Follow all traffic rules and regulations.

RELATED TO HANDS-FREE PHONE (EXCEPT FOR MEXICO)

Symptom	Cause and Counter measure
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Some Bluetooth [®] enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" of MULTI AV SYSTEM SYMPTOM.
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® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.
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.

RELATED TO HANDS-FREE PHONE (FOR MEXICO)

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptom	Cause and Counter measure	
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® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.	
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

AV CONTROL UNIT

Exploded View

CAUTION:

- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-362, "Description"</u>.
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

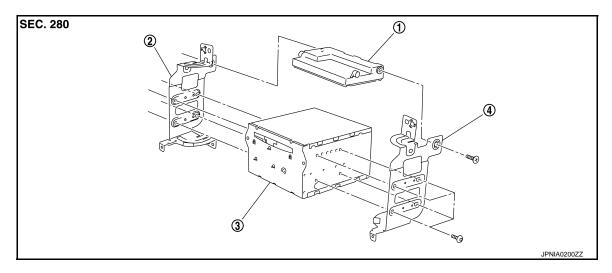
NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

RFMOVAL

Refer to IP-11, "A/T MODELS: Exploded View" (A/T models) or IP-22, "M/T MODELS: Exploded View" (M/T models).

DISASSEMBLY



- 1. Unified meter and A/C amp.
- 2. Bracket LH

3. AV control unit

4. Bracket RH

Removal and Installation

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REMOVAL

CAUTION:

- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to AV-362, "Work Procedure".
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

- Remove display unit. Refer to <u>AV-430, "Exploded View"</u>.
- 2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

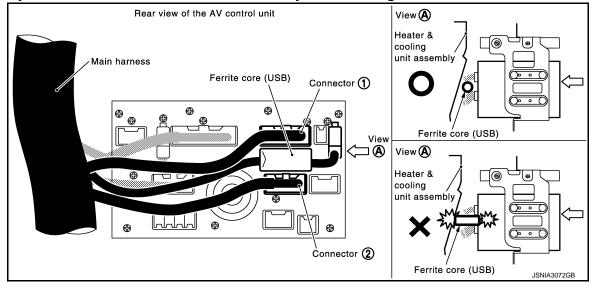
 Since AV control unit connector and unified meter and A/C amp. connector have the same form, be careful not to insert them wrongly.

AV CONTROL UNIT

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

- Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to AV-363, "Work Procedure".
- Install AV control unit between connector (1) and connector (2) with the ferrite core (USB) orientated sideways to the vehicle. Incorrect installation may cause damage to the AV control unit.



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DISPLAY UNIT

[BOSE AUDIO WITH NAVIGATION]

DISPLAY UNIT

Exploded View

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

Removal and Installation

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REMOVAL

- 1. Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove display unit with bracket as a single unit.

INSTALLATION

Installation is the reverse order of removal.

FRONT DOOR SQUAWKER

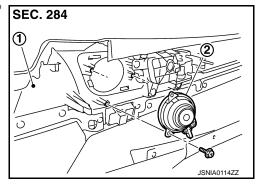
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

FRONT DOOR SQUAWKER

Exploded View

INFOID:0000000008296410



- 1. Door finisher
- 2. Front door squawker

Removal and Installation

INFOID:0000000008296411

REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove front door squawker from door finisher.

INSTALLATION

Installation is the reverse order of removal.

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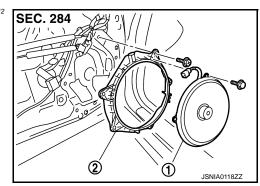
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FRONT DOOR WOOFER

Exploded View

INFOID:0000000008296412



- 1. Front door woofer
- 2. Woofer bracket

Removal and Installation

INFOID:0000000008296413

REMOVAL

- 1. Remove front door finisher. Refer to INT-11, "Exploded View".
- 2. Remove front door woofer from woofer bracket.

INSTALLATION

Installation is the reverse order of removal.

REAR DOOR SPEAKER

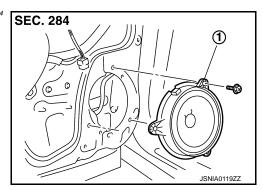
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

REAR DOOR SPEAKER

Exploded View

INFOID:0000000008296414



Rear door speaker

Removal and Installation

REMOVAL

- 1. Remove rear door finisher. Refer to INT-11, "Exploded View".
- 2. Remove rear door speaker from rear door.

INSTALLATION

Installation is the reverse order of removal.

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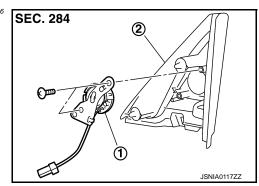
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TWEETER

Exploded View

INFOID:0000000008296416



- 1. Tweeter
- 2. Corner cover inner

Removal and Installation

INFOID:0000000008296417

REMOVAL

- 1. Remove front door finisher, and then remove corner cover inner. Refer to INT-11, "Exploded View".
- 2. Remove tweeter from corner cover inner.

INSTALLATION

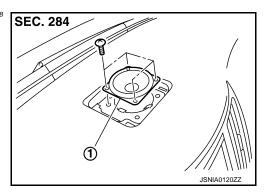
CENTER SPEAKER

[BOSE AUDIO WITH NAVIGATION]

CENTER SPEAKER

Exploded View

INFOID:0000000008296418



Center speaker

Removal and Installation

REMOVAL

1. Remove upper grille, and then remove center speaker. Refer to IP-11, "A/T MODELS: Exploded View" (A/T models) or IP-22, "M/T MODELS: Exploded View" (M/T models).

INSTALLATION

Installation is the reverse order of removal.

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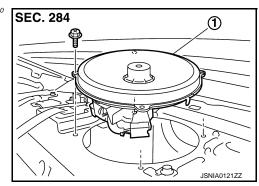
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[BOSE AUDIO WITH NAVIGATION]

REAR WOOFER

Exploded View

INFOID:0000000008296420



Rear woofer

Removal and Installation

INFOID:0000000008296421

REMOVAL

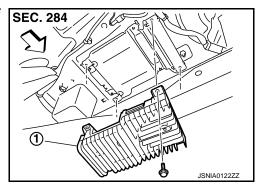
- 1. Remove rear parcel shelf finisher. Refer to INT-19, "Exploded View".
- 2. Remove rear woofer from rear parcel shelf.

INSTALLATION

BOSE AMP.

Exploded View

INFOID:0000000008296422



- 1. BOSE amp.
- Vehicle front

Removal and Installation

INFOID:0000000008296423

REMOVAL

- 1. Remove trunk front finisher. Refer to INT-29, "Exploded View".
- 2. Remove BOSE amp. from rear parcel shelf.

INSTALLATION

Installation is the reverse order of removal.

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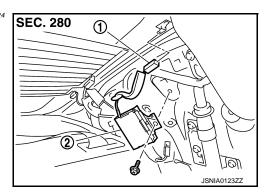
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ANTENNA AMP.

Exploded View

INFOID:0000000008296424



- 1. AM-FM main connector
- 2. Antenna amp.

Removal and Installation

INFOID:0000000008296425

REMOVAL

- 1. Remove rear pillar finisher LH. Refer to INT-14, "Exploded View".
- 2. Remove antenna amp. from rear pillar LH.

INSTALLATION

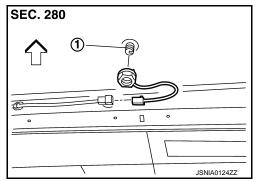
SATELLITE RADIO ANTENNA

[BOSE AUDIO WITH NAVIGATION]

SATELLITE RADIO ANTENNA

Exploded View

INFOID:0000000008296426



Satellite radio antenna

Removal and Installation

INFOID:0000000008296427

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REMOVAL

- Remove head lining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>INT-23</u>, "NORMAL ROOF: Exploded View" (normal roof models) or <u>INT-26</u>, "SUNROOF: Exploded View" (sunroof models).
- 2. Remove nut, and then remove satellite radio antenna from roof panel.

INSTALLATION

Installation is the reverse order of removal.

Satellite radio antenna mounting nut (0.66 kg-m, 58 in-lb)

CAUTION:

Be careful about tightening torque. Antenna sensitivity becomes poor, and when it is excessive, roof panel may be deformed, when satellite radio antenna mounting nut tightening torque is loose.

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MULTIFUNCTION SWITCH

[BOSE AUDIO WITH NAVIGATION]

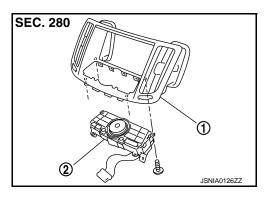
MULTIFUNCTION SWITCH

Exploded View

REMOVAL

Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).

DISASSEMBLY



- 1. Center ventilator grille
- 2. Multifunction switch

Removal and Installation

INFOID:0000000008296429

REMOVAL

- 1. Remove cluster lid D. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove multi function switch with center ventilator grille as a single unit.
- 3. Remove multi function switch from center ventilator.

INSTALLATION

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INFOID:0000000008296431

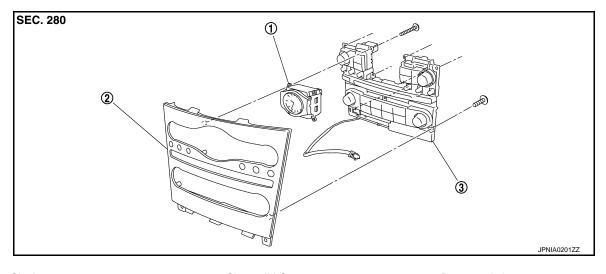
PRESET SWITCH

Exploded View

REMOVAL

Refer to IP-11, "A/T MODELS: Exploded View" (A/T models) or IP-22, "M/T MODELS: Exploded View" (M/T models).

DISASSEMBLY

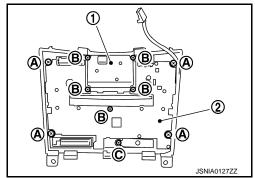


1. Clock 2. Cluster lid C 3. Preset switch

Removal and Installation

REMOVAL

- 1. Remove cluster lid C. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove preset switch screws (A), (B), and (C), and then remove preset switch (2) from cluster lid C.
 - 1. Clock



INSTALLATION

Installation is the reverse order of removal.

NOTE:

When installing preset switch, do not allow the print wire that connects preset switch and multifunction switch to get caught in between AV control unit and preset switch.

Ρ

STEERING SWITCH

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

STEERING SWITCH

Exploded View

Refer to ST-17, "Exploded View".

Removal and Installation

REMOVAL

Refer to ST-17, "Removal and Installation".

INSTALLATION

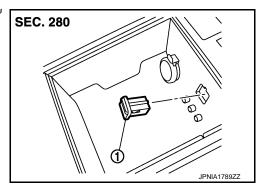
USB CONNECTOR

[BOSE AUDIO WITH NAVIGATION]

USB CONNECTOR

Exploded View

INFOID:0000000008296434



USB connector

Removal and Installation

REMOVAL

1. Remove center console. Refer to <u>IP-33</u>, "A/T <u>MODELS</u>: <u>Exploded View"</u> (A/T models) or <u>IP-38</u>, "M/T <u>MODELS</u>: <u>Exploded View"</u> (M/T models).

2. Push the pawl from the back of center console to remove USB connector.

INSTALLATION

Install in the reverse order of removal.

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[BOSE AUDIO WITH NAVIGATION]

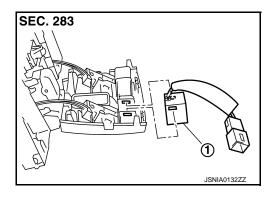
MICROPHONE

Exploded View

REMOVAL

Refer to INL-71, "Exploded View".

DISASSEMBLY



1. Microphone

Removal and Installation

INFOID:0000000008296437

REMOVAL

- 1. Remove map lamp. Refer to INL-71, "Exploded View".
- 2. Remove microphone from map lamp.

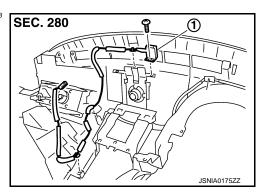
INSTALLATION

[BOSE AUDIO WITH NAVIGATION]

GPS ANTENNA

Exploded View

INFOID:0000000008296438

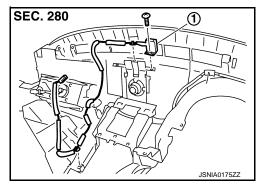


. GPS antenna

Removal and Installation

REMOVAL

- 1. Remove instrument panel. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove GPS antenna (1) from instrument panel.



INSTALLATION

Installation is the reverse order of removal.

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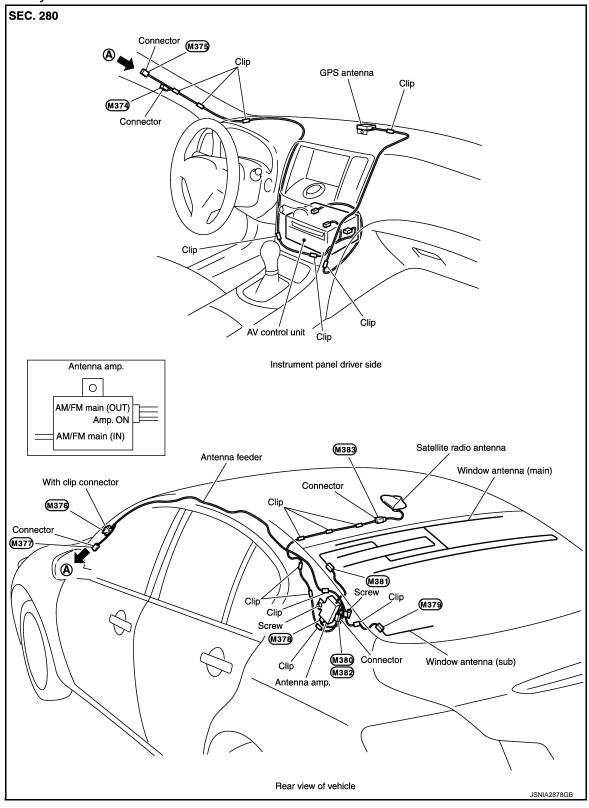
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Feeder Layout



REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

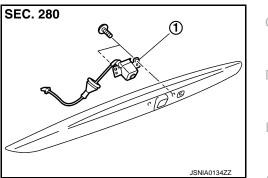
REAR VIEW CAMERA

Exploded View

REMOVAL

Refer to EXT-41, "Exploded View".

DISASSEMBLY



Rear view camera

Removal and Installation

REMOVAL

- Remove trunk lid finisher outer. Refer to EXT-41, "Exploded View".
- Remove rear view camera from trunk lid finisher outer.

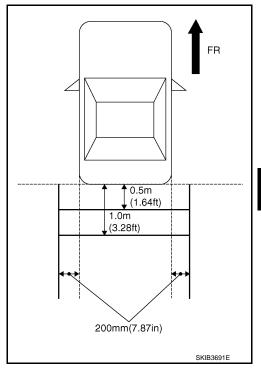
INSTALLATION

Installation is the reverse order of removal.

Adjustment INFOID:0000000008296443

Adjust the guide line position if the guide line position is shifted after installing the rear view camera.

- 1. Draw lines on rearward area of the vehicle passing through the following points: 200 mm (7.87 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1.0 m (3.28 ft) from the rear end of the bumper.
- 2. Set into "Adjust offset of rear view camera" mode of Confirmation / Adjustment mode.



AV-447 Revision: 2012 August 2013 G Sedan

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REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

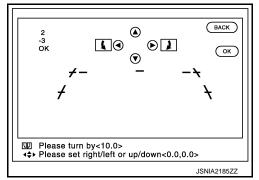
[BOSE AUDIO WITH NAVIGATION]

3. Rotate the center dial, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

Selected pattern : -10° to 10°

4. Make fine adjustment to the correction line of the rear of the vehicle with up/down/left/right switches so that its position is aligned with the guiding line. Press "OK" switch and record the adjusted guiding line position to the camera control unit.

Up/Down adjustment range $: -10^{\circ}$ to 10° Left/Right adjustment range $: -10^{\circ}$ to 10°



CAUTION:

Never operate other function such as pressing BACK while writing index data.

SONAR CONTROL UNIT

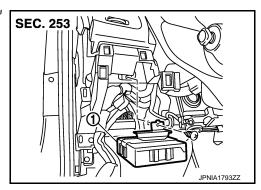
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

SONAR CONTROL UNIT

Exploded View

INFOID:0000000008296444



1. Sonar control unit

Removal and Installation

INFOID:0000000008296445

REMOVAL

- 1. Remove the instrument finisher A. Refer to <u>IP-11, "A/T MODELS : Exploded View"</u> (A/T models) or <u>IP-22, "M/T MODELS : Exploded View"</u> (M/T models).
- 2. Remove sonar control unit screw, then disconnect sonar control unit connector and remove the sonar control unit.

INSTALLATION

Install in the reverse order of removal.

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STEERING ANGLE SENSOR

[BOSE AUDIO WITH NAVIGATION]

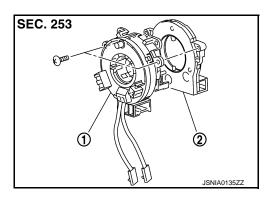
STEERING ANGLE SENSOR

Exploded View

REMOVAL

Refer to <u>SR-13</u>, "Exploded View".

DISASSEMBLY



- 1. Spiral cable
- Steering angle sensor

Removal and Installation

INFOID:0000000008296447

REMOVAL

- 1. Remove spiral cable. Refer to SR-13, "Exploded View".
- 2. Remove steering angle sensor from spiral cable.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

After work, make sure to adjust neutral position of steering angle sensor. Refer to <u>BRC-9</u>, "<u>ADJUST-MENT OF STEERING ANGLE SENSOR NEUTRAL POSITION</u>: <u>Description</u>".

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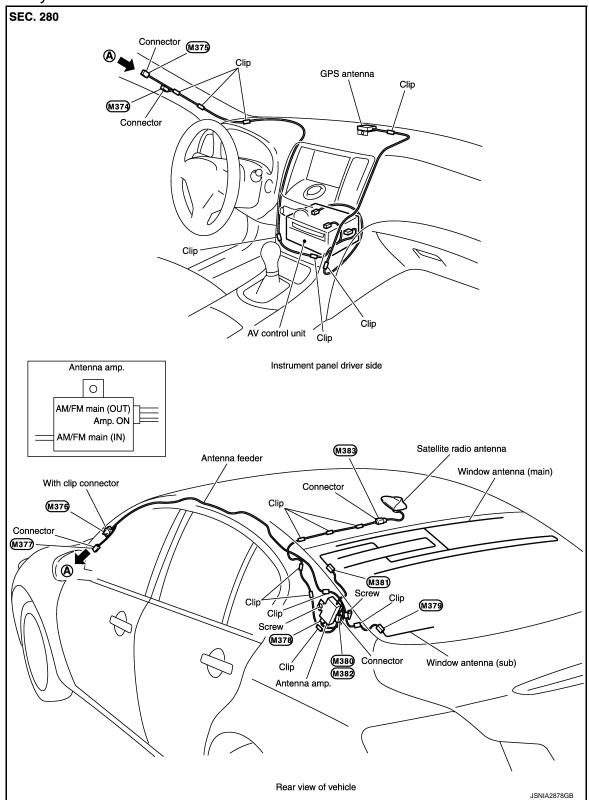
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ANTENNA FEEDER

Feeder Layout



Revision: 2012 August AV-451 2013 G Sedan