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BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000009721555 B

А

OVERALL SEQUENCE



DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2

2.CONFIRM THE SYMPTOM

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

>> GO TO 3

3. Detect malfunctioning part by diagnostic procedure

Inspect according to Diagnostic Procedure of the system.

AV

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BASE AUDIO WITHOUT COLOR DISPLAY]

Is a malfunctioning part detected?

YES >> GO TO 4

NO >> GO TO 2

4.REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.

2. Reconnect parts or connectors disconnected during Diagnostic Procedure.

>> GO TO 5

5.FINAL CHECK

Refer to confirmed symptom in step 2, and check that the symptom is not detected. Has the symptom been repaired?

YES >> INSPECTION END.

NO >> GO TO 2

< SYSTEM DESCRIPTION > SYSTEM DESCRIPTION AUDIO SYSTEM

System Diagram



System Description

AUDIO SYSTEM

The audio system consists of the following components.

- Audio unit
- Rod antenna (AM/FM main)
- Glass antenna (FM sub)
- Front door speakers
- Rear door speakers
- Front squawker
- Audio display unit

AM/FM Radio Mode

- AM/FM radio tuner is integrated into audio unit.
- When AM/FM radio waves are received by rod antenna, the radio waves are amplified by an antenna amp. to input them to audio unit. Sound signals are output to each speaker for the audio unit. The FM sub antenna is installed on the back door window glass and the audio unit is received.

CD Mode

• The audio unit has CD function.

• The audio unit outputs sound signals to each speaker when CD is inserted into the audio unit.

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INFOID:000000009721556

INFOID:000000009721557

< SYSTEM DESCRIPTION >

AUDIO SYSTEM [BASE AUDIO WITHOUT COLOR DISPLAY]

Component Parts Location

INFOID:000000009721558



- 1. Front squawker RH
- 4. Rear door speaker LH
- 7. Front door speaker RH

Component Description

- 2. Front squawker LH
- 5. Antenna base (antenna amp.)
- 8. Audio unit

- 3. Front door speaker LH
- 6. Rear door speaker RH
- 9. Audio display unit

INFOID:000000009721559

Part name	Description
AUDIO UNIT	Has radio function and CD playing function.Sound signals are output to each speaker.
AUDIO DISPLAY UNIT	Display images are controlled by AV communication from audio unit.
FRONT DOOR SPEAKER	Outputs sound signals from audio unit.Outputs sound (mid and low range).
REAR DOOR SPEAKER	Outputs sound signals from audio unit.Outputs sound (mid and low range).
FRONT SQUAWKER	Outputs sound signals from audio unit.Outputs sound (high and mid range).
ANTENNA BASE	 An antenna base integrated with radio antenna amp. is adopted. ANTENNA AMP. Radio waves received by rod antenna are amplified and transmitted to audio unit. Power (antenna amp. ON signal) is supplied from audio unit.

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (AUDIO UNIT)

Diagnosis Description

Self-diagnosis mode can perform the following items.

- Versions display
- Channel check diagnosis
- Key check diagnosis
- AV communication diagnosis

VERSIONS DISPLAY FUNCTION

- Turn ignition switch ON. 1.
- 2. Turn the audio unit off.
- 3. While pressing "1" button, turn volume control dial clockwise or counterclockwise for 30 clicks or more.

4. Diagnosis default screen of audio display unit is displayed. NOTE:

Diagnosis default screen = All icons and segments of the audio display unit are turned on.

5. Pressing the AUDIO switch briefly displays the version display mode. Pressing the AUDIO switch briefly switches to each version display. Pressing and holding the AUDIO switch when displaying each software version returns to the diagnosis default screen.

Version display item			0
	Mode	Description	
Versions display	Software V######	Audio unit software version is displayed.	K
	Hardware V######	Audio unit hardware version is displayed.	
	CD Mech V######	Audio unit CD mechanism version is displayed.	
	EEPROM V######	Audio unit EEPROM version is displayed.	L
	Disp SW V######	Display unit software version is displayed.	
	Disp HW V######	Display unit hardware version is displayed.	Г.Л
	SDARS V######	Audio unit SDARS version is displayed. NOTE: "VFFFFFF" is displayed when SDARS is not available.	

Self-diagnosis mode is canceled when the ignition switch is turned OFF. 6.

CHANNEL CHECK DIAGNOSIS FUNCTION

- Turn ignition switch ON. 1.
- 2. Turn the audio unit off.



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< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (AUDIO UNIT) [BASE AUDIO WITHOUT COLOR DISPLAY]

3. While pressing the "1" button, turn the volume control dial clockwise or counterclockwise for 30 clicks or more.



The diagnosis default screen of audio display unit is displayed. 4. NOTE:

Diagnosis default screen = All icons and segments of the audio display unit are turned on.

5. Turning the TUNE/FOLDER dial clockwise displays the channel check mode. Pressing and holding the AUDIO switch during each channel check or waiting approximately 1 second after finishing all channel checks returns to the diagnosis default screen.

Channel check item		
	Mode	Description
Channel check Channel check Channel check Cha Rea Cha Rea	Channel Check Front Left	Connection of a speaker can be confirmed by test tone.
	Channel Check Front Right	
	Channel Check Rear Right	
	Channel Check Rear Left	

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

KEY CHECK DIAGNOSIS FUNCTION

- 1. Turn ignition switch ON.
- 2. Turn the audio unit off.
- While pressing the "1" button, turn the volume control dial clock-3. wise or counterclockwise for 30 clicks or more.



The diagnosis default screen of audio display unit is displayed. 4. NOTE:

Diagnosis default screen = All icons and segments of the audio display unit are turned on.

Turning the TUNE/FOLDER dial counterclockwise displays the key check mode, and the pressed switch 5. name is shown. Pressing and holding the AUDIO switch during the key check returns to the diagnosis default screen.

DIAGNOSIS SYSTEM (AUDIO UNIT) [BASE AUDIO WITHOUT COLOR DISPLAY]

< SYSTEM DESCRIPTION >

Mode	Display item	Switch name	A
	1	Preset button "1" switch	
	2	Preset button "2" switch	_
	3	Preset button "3" switch	В
	4	Preset button "4" switch	
	5	Preset button "5" switch	С
	6	Preset button "6" switch	
	POWER	"ON-OFF" switch	
	VOLUME up	"VOL up" switch	D
	VOLUME down	"VOL down" switch	
	AM·FM	"AM·FM" switch	F
Kovabook	DISC	"DISC" switch	
Rey check	AUX	"AUX" switch	
	AUDIO	"AUDIO" switch	F
	TUNE/FOLDER up	"TUNE/FOLDER up" switch	
	TUNE/FOLDER down	"TUNE/FOLDER up" switch	0
	DISP CLOCK	"DISP CLOCK" switch	G
	SCAN	"SCAN" switch	
	RPT/RDM	"RPT RDM" switch	Н
	SEEK/TRACK up	"SEEK CAT" switch	
	SEEK/TRACK down	"TRACK" switch	
	LOAD	"LOAD" switch	
	EJECT	"EJECT" switch	

Key

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

AV COMMUNICATION DIAGNOSIS FUNCTION

- 1. Turn ignition switch ON.
- Turn the audio unit off. 2.
- 3. While pressing the "6" button, turn the volume control dial clockwise or counterclockwise for 30 clicks or more.



- 4. Returns to diagnosis default screen and displays "AV DIAGNOSIS".
- Pressing the AUDIO switch briefly displays the AV communication diagnosis mode. Pressing the AUDIO 5. switch briefly again switches to each AV communication display.

AV communication diagnosis item

Display i	tem		Description
AV communication item	Current	Past	Description
TRANSMIT	OK / UN	OK / 0 –39	The communication condition and error counter from the audio unit to the audio display unit are displayed.

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DIAGNOSIS SYSTEM (AUDIO UNIT)

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT COLOR DISPLAY]

Display i	tem		Description
AV communication item	Current	Past	Description
DISP	OK / UN	OK / 0 –39	The communication condition and error counter from the audio display
DISP MPDT	OK / UN	OK / 0 –39	unit to the audio unit.
NO HISTORY BTHF	_		Not used.
AV TROUBLE DEL	_	—	The error record can be deleted.

6. Pressing the SEEK TRACK up switch displays the confirmation screen of "delete error record". Press the SEEK TRACK down switch if returning from RECORD DEL YES? to RECORD DEL NO? The item is automatically determined approximately 6 seconds after it is displayed. Then the display returns to AV TROUBLE DEL display item.

Display item	Description
RECORD DEL NO?	Does not delete error record.
RECORD DEL YES?	Deletes error record.

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

< DTC/CIRCUIT DIA	POWER SUP GNOSIS >	PLY AND	D GROU [BAS	IND CIRCUIT	COLOR DISPLAY]
DTC/CIRCL	IIT DIAGNO	SIS			
POWER SUPP	LY AND GROU	ND CIR	CUIT		
AUDIO UNIT					
AUDIO UNIT : Di	agnosis Procedu	re			INFOID:000000009721561
1. CHECK FUSE					
Check for blown fuses	3.				
	Power source			Fuse No.	
	Battery			35	
Ignitic	on switch ACC or ON			19	
YES >> GO TO 2. NO >> Be sure to 2.CHECK POWER S	c eliminate the cause of SUPPLY CIRCUIT	of malfunctio	on before i	nstalling new fuse.	
				.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Value (Approx.)
Battery power supply ACC power supply	M46	19)	OFF ACC	Battery voltage
AUDIO DISPLAY	UNIT : Diagnosis	unit and fuse s Procedu	e. Ire		INFOID:000000009721562
Check for blown fuses	3.				
	Power source			Fuse No.	
	Battery			35	
Ignitic	on switch ACC or ON			19	
Is the inspection result YES >> GO TO 2.	t normal?	- f		n e te ll'an anna ann faire e	
2.CHECK POWER S	UPPLY CIRCUIT		n belore i	nstalling new luse.	
Check voltage betwee	n audio display unit h	arness conn	ectors and	d ground.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Value (Approx.)
Battery power supply	MADE	9		OFF	Battory voltage
ACC power supply	IVI I 20	8		ACC	Ballery Voltage
Is the inspection resultYES>> GO TO 3.NO>> Check ha3.CHECK GROUND	<u>t normal?</u> rness between audio o CIRCUIT	display unit a	and fuse.		

1.

Turn ignition switch OFF. Disconnect the harness connector audio display unit. 2.

POWER SUPPLY AND GROUND CIRCUIT DSIS > [BASE AUDIO WITHOUT COLOR DISPLAY]

< DTC/CIRCUIT DIAGNOSIS >

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M126	3	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

[BASE AUDIO WITHOUT COLOR DISPLAY]

ECU DIAGNOSIS INFORMATION

AUDIO UNIT

Reference Values

TERMINAL LAYOUT



PHYSICAL VALUES

Terr (Wire	ninal color)	Description			Condition	Reference value	G
+	_	Signal name	Input/ Output		Condition	(Approx.)	Н
2 (L)	3 (B)	Sound signal front LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	l
4 (LG)	5 (Y)	Sound signal rear LH	Output	Ignition switch ON	Sound output.	(V) 1 -1 + 2ms SKIB3609E	K
7 (R)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	M

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AUDIO UNIT

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITHOUT COLOR DISPLAY]

Terı (Wire)	minal e color)	Description				Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
8	9	Illumination control signal	Outout	Ignition	 Lighting switch 1ST When meter illumination is maximum 	(V) 15 10 5 0 10 10 10 10 10 10 10 10 10 10 10 10 1
(SB)	(R)			ON	 Lighting switch 1ST When meter illumination is minimum 	(V) 15 10 5 0 10 10 ms JPNIA0827GB
11 (BR)	12 (W)	Sound signal front RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 * 2ms SKIB3609E
13 (GR)	14 (P)	Sound signal rear RH	Output	lgnition switch ON	Sound output.	(V) 1 -1 + 2ms SKIB3609E
19 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage
33 (G)	Ground	AV communication signal (L)	Input/ Output	_	_	_
34 (R)	Ground	AV communication signal (H)	Input/ Output	_	_	_
35	—	FM sub	Input	—	—	_
36	—	AM-FM main	Input	—	—	_
37	Ground	Antenna amp. ON signal	Output	Ignition switch ACC	_	12.0 V

< ECU DIAGNOSIS INFORMATION >

AUDIO DISPLAY UNIT

Reference Value

TERMINAL LAYOUT

[BASE AUDIO WITHOUT COLOR DISPLAY]

 Description

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PHYSICAL VALUES

Terr (Wire	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (R)	Ground	AV communication signal (L)	Input/ Output	—	_	_
2 (G)	Ground	AV communication signal (H)	Input/ Output	_	_	_
3 (B)	Ground	Ground		Ignition switch ON	_	0 V
8 (R)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
9 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
10	11	Illumination control signal	Outout	Ignition	 Lighting switch 1ST When meter illumination is maximum 	(V) 15 10 5 0 10 10 10 10 10 10 10 10 10 10 10 10 1
(R)	(SB)	momination control signal	Output	ON	 Lighting switch 1ST When meter illumination is minimum 	(V) 15 10 5 0 10 10 10 10 10 10 10 10 10 10 10 10 1

WIRING DIAGRAM

BASE AUDIO WITHOUT COLOR DISPLAY

Wiring Diagram

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Connector No. B2/6 Connector Nom WRE TO WIRE Connector Name WRE TO WIRE Connector Type NSTMARR-CS Connector Type 011112	Terminal No. Color No. Signal Muno (Sectication) No. No. Signal Muno (Sectication) P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P P	
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15 BR 21 BR 21 BR 21 BR 23 BR 24 L 23 B 23 B 23 B 23 L 23 L 23 K 30 K 31 L 32 L	47 B	
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BASE AUDIO WITHOUT COLOR DISPI Connector Nume REAR DOOR SPEAKER LH Connector Type NSI25FW-CS Cannetor Type NSI25FW-CS Cannetor Type 121	Terminal No. Color Of Norm Signal Name [Specification] 1 L 2 L Connector Num REAR DOOR SPEAKER RH Connector Num REAR DOOR SPEAKER RH Connector Typa NS207FW-CS Connector Typa NS207FW-CS 1 L 1 L	

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R	1		2 N	 [With iPod without BOSE system] 	5	-	[With BOSE system and base audio without iPod]	2		
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W	-		8 B		8	W	1			
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W	-	-	7 Y	-	10	L	1	Terminal	Color Of	Cinnel Name [Consideration]
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U	1	-	9 R	1	14	8	1	2	٦	SOUND SIGNAL FRONT LH (+)
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9	1	e	0	1	24	۵.	Т	÷	BR	SOUND SIGNAL FRONT RH (+)
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		Connector Name FRONT SQUAWKER RH	Connector Type TK02FBR	Ð		13	1 6					20 - 0 - · F	I Britinial Color Of Signal Name [Specification]	No. Wire	1 BR - [With BOSE system and base audio without iPod]	1 W - [With iPod without BOSE evetam]		Z L – – [With IPod without BUSE system]	2 R – [With BOSE system]	2 W = [Without iPod and BOSE system]				CONNECTOR NO. M/U	Connector Name V/IRE TO WIRE		Connector Type NS16FBR-CS		Ð	AMIA				16 15 14 13 12 10 9 8				Terminal Color Of	No. Mire Signal Name [Specification]		× .	4 P -	5 GR -	-	. 3		8 GR -		10 GB -	- - -		13 V	14 L –	15 BR –	16 V -		
BASE AUDIO WITHOUT COLOR DISF	0	Connector Name AUDIO UNIT	Connector Type TH12FW-NH	¹			1 2 2 4 5 6						Signal Name [Specification]	No. Wire	33 G AV COMM (L)	34 B AV COMM (H)				Connector No. M65		Connector Name FRONT SQUAWKER LH		Connector Type IKU2FBR	6				C +	7 1				Taminal Dalay Of	Mo Mice Signal Name [Specification]	100. mile	1 G – [With iPod without BOSE system]	1 L – [Without iPod and BOSE system]	1 I G - [With ROSF evetam]		Z B - LWithout IPod and BUSE system]	2 R – [With iPod without BOSE system]	2 Y – [With BOSE system]														

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AUDIO SYSTEM SYMPTOMS [BASE AUDIO WITHOUT COLOR DISPLAY]

SYMPTOM DIAGNOSIS AUDIO SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009721566

Symptoms	Check items	Possible malfunction location / Action to take
Audio unit does not start.	_	Audio unit power supply and ground circuit. Refer to <u>AV-19</u> , "AUDIO UNIT : Diagnosis Procedure".
	No sound from all speakers.	Audio unit power supply and ground circuit. Refer to <u>AV-19</u> , "AUDIO UNIT : Diagnosis Procedure".
No sound comes out.	Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between audio unit and speaker. Malfunction in speaker. Malfunction in audio unit.
	Noise comes out from all speakers.	Malfunction in audio unit.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.).	 Poor connector connection of speaker. Sound signal circuit malfunction between audio unit and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in audio 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. Loose antenna base mounting nut. Refer to <u>AV-44, "Explod-ed View"</u>
Radio is not received or poor re- ception.	 Other audio sounds are normal. Any radio cannot be received or poor reception is caused even af- ter moving to a service area with good reception (e.g. a place with clear view and no obstacles gen- erating external noises). 	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-44, "Explod-ed View"</u>
Audio display unit does not work.	_	 Audio display unit power supply and ground circuits. AV communication circuits between audio unit and audio display unit.

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION

Description

NOTE:

- Audio operation information, refer to Owner's Manual.
- The majority of the audio concerns are the result of outside causes (bad CD, electromagnetic interference, etc.).

NOISE

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

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

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

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

Types of Noise and Possible Causes

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

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 that noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment. 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 that 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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< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION

Symptoms	Cause and Counter measure										
	Check that the disc was inserted correctly.										
	Check that the disc is scratched or dirty.										
	Check if there is condensation inside the player. If there is, wait until the condensation is gone (about 1 hour) before using the player.										
	If there is a temperature increase error, the CD player will play correctly after it returns to the nor- mal temperature.										
Cannot play	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 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 disc is protected by copyright.										
Poor sound quality	Check if the disc is scratched or dirty.										
	Bit rate may be too low.										
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, etc., might not match the specifications. Try using the slowest writing speed.										
Skipping with high bit rate files	Skipping may occur with large quantities of 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 ".wr when play is prohibited by copyright protection, there will be approximately 5 seconds of no and then 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 writing software. There 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.

< PRECAUTION > PRECAUTION

PRECAUTIONS EXCEPT FOR MEXICO

EXCEPT FOR MEXICO : 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
 H 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.

EXCEPT FOR MEXICO : Precautions for Removing of Battery Terminal

 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
 NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. **NOTE:**

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

• After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC. **NOTE:**

The removal of 12V battery may cause a DTC detection error.

EXCEPT FOR MEXICO : Precaution for Trouble Diagnosis

AV COMMUNICATION SYSTEM

• Do not apply voltage of 7.0 V or higher to the measurement terminals.



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< PRECAUTION >

PRECAUTIONS [BASE AUDIO WITHOUT COLOR DISPLAY]

- Use the tester with its open terminal voltage at 7.0 V or less.
- Turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

EXCEPT FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

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



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• Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



FOR MEXICO

FOR MEXICO : 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. 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.
PRECAUTIONS

[BASE AUDIO WITHOUT COLOR DISPLAY]

• 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.

FOR MEXICO : Precautions for Removing of Battery Terminal

When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds. NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC. NOTE:

The removal of 12V battery may cause a DTC detection error.

FOR MEXICO : Precaution for Trouble Diagnosis

AV COMMUNICATION SYSTEM

< PRECAUTION >

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

FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

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

 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

PREPARATION

Commercial Service Tools

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< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION AUDIO UNIT

Exploded View

REMOVAL

Refer to IP-14, "Exploded View".

DISASSEMBLY

A

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4. Bracket RH

Removal and Installation

			_
RE	MOVAL	ŀ	<
1.	Remove cluster lid C lower. Refer to IP-14, "Exploded View".		
2.	Remove instrument stay cover LH and instrument stay cover RH. Refer to IP-14, "Exploded View".	1	
3.	Remove audio unit with an A/C auto amp. as a single unit from the body.		
4.	Remove bracket screws, and then remove audio unit.		
INS	STALLATION	N	Л
Inst	tall in the reverse order of removal.		

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AUDIO DISPLAY UNIT

< REMOVAL AND INSTALLATION > AUDIO DISPLAY UNIT

[BASE AUDIO WITHOUT COLOR DISPLAY]

3. A/C display

Exploded View

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- 1. Audio display unit
- 2. Bracket

4. Front cover

Removal and Installation

REMOVAL

- 1. Remove center ventilator assembly. Refer to IP-14, "Exploded View".
- 2. Remove audio display unit and A/C display with bracket as a single unit (1).
- 3. Remove bracket screws, and then remove audio display unit.



INSTALLATION Install in the reverse order of removal. INFOID:000000009721578

FRONT DOOR SPEAKER [BASE AUDIO WITHOUT COLOR DISPLAY]

< REMOVAL AND INSTALLATION >

FRONT DOOR SPEAKER



1.

speaker.

REMOVAL

1.

2.



INSTALLATION Install in the reverse order of removal.

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REAR DOOR SPEAKER

Exploded View



1. Rear door speaker

Removal and Installation

INFOID:000000009721582

REMOVAL

- 1. Remove rear door finisher. Refer to INT-16, "REAR DOOR FINISHER : Exploded View".
- 2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

INSTALLATION

Install in the reverse order of removal.

< REMOVAL AND INSTALLATION >

FRONT SQUAWKER

Exploded View

1.

1.

2.



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ROOF ANTENNA

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITHOUT COLOR DISPLAY]

ROOF ANTENNA

Exploded View



1.Rod antenna2.Antenna base

Refer to <u>GI-4, "Components"</u> for symbols in the figure.

Removal and Installation

INFOID:000000009721586

INFOID:000000009721585

REMOVAL

- 1. Remove headlining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>INT-26, "NORMAL ROOF : Exploded View"</u> [normal roof] or <u>INT-30, "SUNROOF : Exploded View"</u> [sunroof].
- 2. Disconnect AM/FM main connector.
- 3. Remove antenna base mounting nut, and then remove antenna base from roof panel.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

If the antenna base mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.

ANTENNA FEEDER (RADIO) < REMOVAL AND INSTALLATION >

ANTENNA FEEDER (RADIO)

[BASE AUDIO WITHOUT COLOR DISPLAY]

Feeder Layout



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< PRECAUTION > PRECAUTION PRECAUTIONS EXCEPT FOR MEXICO

EXCEPT FOR MEXICO : 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.

EXCEPT FOR MEXICO : Precautions for Removing of Battery Terminal

 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
 NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. **NOTE:**

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

• After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC. **NOTE:**

The removal of 12V battery may cause a DTC detection error.

EXCEPT FOR MEXICO : Precaution for Trouble Diagnosis

AV COMMUNICATION SYSTEM

• Do not apply voltage of 7.0 V or higher to the measurement terminals.





PRECAUTIONS

- [BASE AUDIO WITH COLOR DISPLAY]
- 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 A checking the circuit.

EXCEPT FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

< PRECAUTION >

• 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.)

FOR MEXICO

FOR MEXICO : 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. 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.

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PRECAUTIONS

[BASE AUDIO WITH COLOR DISPLAY]

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• 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.

FOR MEXICO : Precautions for Removing of Battery Terminal

 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
 NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. **NOTE:**

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
 NOTE:

The removal of 12V battery may cause a DTC detection error.

FOR MEXICO : Precaution for Trouble Diagnosis

AV COMMUNICATION SYSTEM

< PRECAUTION >

- 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.

FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

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



BATTERY
SEF289H





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PREPARATION

[BASE AUDIO WITH COLOR DISPLAY]

< PREPARATION > [BASE AUDIO WITH COLOR DISPLA]		PLAY]	
PREPARATION			A
PREPARATION			
Commercial Service To	ools	INFOID:0000	000009721596 B
	Tool	Description	C
Power tool		Loosening screws	D
	PBIC0191E		E
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SYSTEM DESCRIPTION COMPONENT PARTS

Component Parts Location

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- 1. Front squawker LH
- 4. Satellite radio tuner
- 7. TEL antenna
- 10. Front door speaker RH
- 13. Steering angle sensor
- 16. Auxiliary input jacks
- 19. Multifunction switch
- A. Luggage floor finisher is removed condition
- **Component Description**

- 2. Front door speaker LH
- 5. TEL adapter unit
- 8. Antenna base (antenna amp. and satellite radio antenna)
- 11. Front squawker RH
- 14. Steering switch
- 17. Preset switch
- 20. Display unit
- B. Spiral cable part

- 3. Rear door speaker LH
- 6. Rear view camera
- 9. Rear door speaker RH
- 12. Microphone
- 15. USB connector
- 18. AV control unit

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COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH COLOR DISPLAY]

Part name	Description	
	 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 sig- nals from the AV control unit. The AV control unit includes the audio, rear view monitor, USB connection and view 	A
	 The AV control unit includes the addid, real view monitor, OSD connection and verhicle information functions. It is connected to ECM and combination meter via CAN communication to obtain necessary information for the vehicle information function. 	В
AV control unit	 It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function. It is not to be illumination signals that are required for the display dimping control. 	С
	 It inputs the information signals that are required for the display dimining control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). 	D
	 It supplies power to the rear camera. Sound signal is transmitted to each speaker. TEL voice signal is input from TEL adapter unit. 	F
	 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 	
Display unit	RGB image signal is input from AV control unit (RGB, RGB area and RGB synchro-	F
	 nizing). Composite image signals (auxiliary input and camera images) are input from AV control unit. 	
	Synchronizing signal (HP, VP) is output to AV control unit.	G
Front door speaker	Outputs sound signal from AV control unit.Outputs sound (high, mid and low range).	
Rear door speaker	Outputs sound signal from AV control unit.Outputs sound (high, mid and low range).	Н
Front squawker	Outputs sound signal from AV control unit.Outputs sound (high and mid range).	I
	Operation panel is equipped with the centralized switch where audio and auxiliary input etc. operations are integrated.	
Multifunction switch	 Connected with preset switch via harness, and operation signal is transmitted to AV control unit via AV communication. 	J
	Operation panel is equipped with the centralized switch where audio and air con- ditioner etc. operations are integrated	
Preset switch	 Connected with multifunction switch via harness, and operation signal is transmitted to AV control unit via AV communication 	K
	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.	L
Steering angle sensor	It is connected to the AV control unit and transmits the steering angle sensor signal via CAN communication.	M
Steering switch	Operations for audio and hands-free phone are possible.Steering switch signal (operation signal) is output to AV control unit.	
Microphone	 Used for hands-free phone operation. Microphone signal is transmitted to TEL adapter unit. 	AV
	Power (Microphone VCC) is supplied from TEL adapter unit.	
Auxiliary input jacks	Image signal and sound signal of auxiliary input are transmitted to AV control unit.	0
	A radio antenna base integrated with radio antenna amp. and satellite radio antenna is adopted. ANTENNA AMP.	D
Antenna base	 Radio signal received by rod antenna is amplified and transmitted to AV control unit. 	Р
	Power (antenna amp. ON signal) is supplied from AV control unit. SATELLITE RADIO ANTENNA Bosting and subsute it to actallite and is tupor	
	Receives satellite radio waves and outputs it to satellite radio tuner.	

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH COLOR DISPLAY]

Part name	Description
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).
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	Sound signal of USB input is transmitted to AV control unit.

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH COLOR DISPLAY]

А

SYSTEM MULTI AV SYSTEM



- *1: With hands-free phone system **NOTE:**
- FLASH AUDIO is not used.
- The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.
- An antenna base integrated with radio antenna amp. and satellite radio antenna is adopted.



MULTI AV SYSTEM : System Description

Multi AV system means that the following systems are integrated.

FUNCTION NAME	_
Audio function	
Hands-free phone function	
Auxiliary input function	

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SYSTEM

< SYSTEM DESCRIPTION >

FUNCTION NAME
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 and combination meter, and 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 control unit is connected with display unit and serial communication, and it transmits the required signal of display and display control and receives the response signal from display unit.

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

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.
- AM/FM radio wave is received by rod antenna, next it is amplified by antenna amp., and finally it is input to AV control unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the AV control unit directly. The FM sub antenna is installed on the back door window glass.
- AV control unit outputs audio signal 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 radio antenna (antenna base) and transmitted to AV control unit via satellite radio tuner. 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 each speaker when CD is inserted to AV control unit.

USB Connection Function

- Connecting iPod[®] or USB memory allows the driver to play iPod[®] music files or USB memory-stored music files.
- Sound signals of music files stored in iPod[®] or USB memory is transmitted from the USB connector to the AV control unit. The AV control unit transmits the sound signals to the each speaker.

SYSTEM

< SYSTEM DESCRIPTION >

- [BASE AUDIO WITH COLOR DISPLAY]
- iPod[®] is recharged when connected to USB connector.
 Only files that meet the following conditions will be played.

	Music file
File format	"MP3", "WMA"
File extension	".mp3", ".wma"
Maximum file size	800 MB
NOTE:	
• $iPod^{(R)}$ is a trademark of Apple inc., registered in the	U.S. and other countries.
• Image signals cannot be received from iPod $^{\textcircled{R}}$ or US	B memory.
 Use the enclosed USB harness when connecting iPe 	od [®] to USB connector.
HANDS-FREE PHONE SYSTEM	
 TEL adapter unit is controlled with AV communication 	n from AV control unit.
 The connection between cellular phone and TEL ada The voice guidance signal is input from the TEL ada operating the cellular phone. 	apter unit is performed with Bluetooth [®] communication. pter unit to the AV control unit to the front speaker when
 TEL adapter unit has the on board self-diagnosis fur 	nction. Refer to AV-68, "On Board Diagnosis Function".
When A Call Is Originated Spoken voice sound output from the microphone (m TEL adapter unit outputs to cellular phone with Blue 	icrophone signal) is input to TEL adapter unit.
 Voice sound is then heard at the other party. 	
When Receiving A Call	
 Voice sound is input to own cellular phone from the optimized states and the second states and th	other party.
 TEL voice signal is input to TEL adapter unit by esta and the signal is output to front speaker. 	blishing Bluetooth [®] communication from cellular phone,
AUXILIARY INPUT FUNCTION	
 Image and sound can be output from an external de AUX image signals are transmitted to the display u transmitted to each speaker via the AV control unit. 	vice by connecting a device with auxiliary input jacks. Init via the AV control unit, and AUX sound signals are
REAR VIEW MONITOR FUNCTION	
Camera Image Operation Principle	
 The AV control unit supplies power to the rear view of The rear view camera transmits camera images to the control unit 	camera when receiving a reverse signal. the AV control unit when power is supplied from the AV
 The AV control unit transmits a warning message, fix unit by RGB image signals. Rear view monitor image and the camera image signals from the rear view ca 	ted guide lines, and predictive course lines to the display ges are displayed by combining the RGB image signals mera.
 Predictive course lines are controlled by a steering a communication. 	angle sensor signal received the AV control unit via CAN
EHICLE INFORMATION FUNCTION	
 Status of audio, climate control system, fuel econom AV control unit displays the fuel consumption status from ECM and combination meter. 	y and maintenance are displayed. while receiving data signal through CAN communication
 AV control unit is connected to BCM via CAN comn function. 	nunication transmitting/receiving for the vehicle settings

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DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

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

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

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 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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INFOID:000000009721602

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

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/	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.	
Aujustment	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 AV COMM Diagnosis Delete Unit Connection Log	The transmitting/receiving of CAN communication can be monitored.	
		The communication condition of each unit of Multi AV system can be mon- itored.	
		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, the trouble diagnosis initial screen is displayed.)
 - Shifting from current screen to previous screen is performed by pressing "BACK" button.



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Items of "Self Diagnosis" and "Confirmation/Adjustment" can be 4. selected on the trouble diagnosis initial screen.



SELF-DIAGNOSIS MODE

- Start the self-diagnosis function and select "Self Diagnosis". 1.
- 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.

[BASE AUDIO WITH COLOR DISPLAY]

DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BASE AUDIO WITH COLOR DISPLAY]

< SYSTEM DESCRIPTION >

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

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



NOTE:

Control unit (AV control unit) and 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-149</u>, "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 mal- function in those components, replace AV control unit.

A Connecting Cable Between Units Is Displayed In Yellow.

< SYSTEM DESCRIPTION >

Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communi- cation 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. Refer to <u>AV-119</u>, "SATELLITE RADIO <u>TUNER : Diagnosis Procedure"</u>. 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. Refer to <u>AV-120, "TEL ADAPTER UNIT :</u> <u>Diagnosis Procedure"</u>. 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.

	System Diagnostic Menu > Confirmation / Adjustment
4	UP
	Display Diagnosis
Ō	Vehicle Signals
	Speaker Test
	Climate Control
	Error History
	1/9 DOWN
@ 1	Please select an item
	JSNIA0147GB

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DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

Display Diagnosis



Vehicle Signals

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

System Diagnostic Menu > Vehicle Signals				
		055		
	venicie speed	OFF		
	Parking brake	ON		
	Lights	OFF		
	Ignition	ON		
	Reverse	OFF		
			JSNIA0149GB	

Diagnosis item	Display	Vehicle status	Remarks
Vohicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	
venicie speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal
Parking broke	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal.
Faiking blake	OFF	Parking brake is released.	
Lighto	ON	Lighting switch is ON	
Lights	OFF	Lighting switch is OFF	
Ignition	ON	Ignition switch is ON	
Ignition	OFF	Ignition switch is in ACC position	—

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

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[BASE	AUDIO	WITH	COLOR	DISPL	AY]

Diagnosis item	Display	Vehicle status	Remarks	Λ
	ON	Selector lever is in R position		A
Reverse	OFF	Selector lever is in any position other than R	Changes in indication may be delayed. This is normal.	B

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 Н that may have occurred before the self-diagnosis start because of this situation.

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

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)	AV
Count up method B	Other than the above	

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DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BASE AUDIO WITH COLOR DISPLAY]

< SYSTEM DESCRIPTION >



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 detect- ed.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-65, "CONSULT Function"</u> .
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 malfunc- tion occurs constantly.
FLASH-ROM Error Of Control Unit	All control unit malfunction is detected	Relef to <u>AV-149, Exploded view</u> .
CAN Controller Memory Error	AV control unit mairunction is detected.	
Steer. Angle Sensor Calibration	Predictive course line center position ad- justment of the steering angle sensor is in- complete.	Adjust the predictive course line center po- sition of the steering angle sensor. Refer to <u>AV-65</u> , " <u>CONSULT Function</u> ".
Front Display Connection Error	 When either one of the following items are detected: display unit power supply and ground circuits are malfunctioning. serial communication circuits between AV control unit and display unit are malfunctioning. 	 Display unit power supply and ground circuits. Refer to <u>AV-118</u>. "DISPLAY UNIT : Diagnosis Procedure". Serial 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 circuits 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 circuits. Refer to <u>AV-119</u>, "SATELLITE RADIO <u>TUNER : Diagnosis Procedure"</u>. Communication circuits between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
AV COMM CIRCUITSwitches 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.



DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH COLOR DISPLAY]

Error item	Description	Possible malfunction factor/Action to take	Λ
AV COMM CIRCUITH/F Unit Connection Error	 When either one of the following items are 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. Refer to <u>AV-120</u>. "<u>TEL ADAPTER UNIT</u>: <u>Diagnosis Procedure</u>". AV communication circuits between AV control unit and TEL adapter unit. 	B
AV COMM CIRCUITSwitches Connection ErrorH/F Unit Connection Error	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.	C

Camera Cont.

The two functions of "Adjust Guide Lines", "Display Factory configuration" are available.



Adjust Guide Lines

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



Display Factory configuration

Configuration stored in the AV control unit can be checked.



Vehicle CAN Diagnosis

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DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BASE AUDIO WITH COLOR DISPLAY]

< SYSTEM DESCRIPTION >

- 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-PrimarySW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(BTHF-ITM)	OK / ???	OK / 0 – 39



"???" 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

Signal StatusCount C Tx(ITM-SW) OK OK C Rx(PrimarySW-ITM) OK OK C Rx(BTHF-ITM) OK OK JSNIA2505ZZ

DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BASE AUDIO WITH COLOR DISPLAY]

< SYSTEM DESCRIPTION >

"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-105, "Description"</u>.



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CONSULT Function

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	AV
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is de- tected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts ac- cording to the diagnosis results. Refer to <u>AV-107</u> , " <u>Diagnosis Procedure</u> ".	0
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is de- tected.		_
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunc- tion occurs constantly.	Ρ
Cont Unit [U1200]	AV control unit malfunction is detected	Kelel to <u>Av-143, Exploded view</u> .	
CAN CONT [U1216]	Av control unit manufiction is detected.		

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH COLOR DISPLAY]

Error item	Description	Possible malfunction factor/Action to take
ST ANGLE SEN CALIB [1232]	Predictive course line center position ad- justment of the steering angle sensor is in- complete.	Adjust the predictive course line center position of the steering angle sensor. Refer to <u>BRC-9</u> , "ADJUSTMENT OF <u>STEERING ANGLE SENSOR NEUTRAL</u> 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. serial communication circuits between AV control unit and display unit are malfunctioning. 	 Display unit power supply and ground circuits. Refer to <u>AV-118, "DISPLAY UNIT : Diagnosis Procedure"</u>. Serial 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 circuits 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 circuits. Refer to <u>AV-119</u>, "<u>SATELLITE RADIO</u> <u>TUNER</u>: <u>Diagnosis Procedure</u>". Communication circuits 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 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] HAND FREE CONN [U1256] 	 When either one of the following items are 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. Refer to <u>AV-120</u>, "<u>TEL ADAPTER UNIT</u> <u>: Diagnosis Procedure</u>". AV communication circuits between AV control unit and TEL adapter unit.
 AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] HAND FREE CONN [U1256] 	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		
	On	Vehicle speed >0 km/h (0 MPH)	Changes in indication may be delayed. This is	
VIICE OF D SIG	Off	Vehicle speed =0 km/h (0 MPH)		
	On	Parking brake is applied.	normal.	
	Off	Parking brake is released.		

DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BASE AUDIO WITH COLOR DISPLAY]

< SYSTEM DESCRIPTION >

Display Item	Display	Vehicle status	Remarks	٨
	On	Lighting switch is ON.		
	Off	Lighting switch is OFF.		
IGN SIG	On	Ignition switch is ON		В
	Off	Ignition switch is in ACC position		
	On	Selector lever is in R position	Changes in indication may be delayed. This is	
REV SIG	Off	Selector lever is in any position other than R	normal.	С

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	ine 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 includes 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 >

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

Description

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 Function

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INFOID:000000009721604

[BASE AUDIO WITH COLOR DISPLAY]

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 indi- cates 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	Stooring switch	
DTC 00001	STEERING REMOTE BUTTON STUCK B	Steering Switch	
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)

< SYSTEM DESCRIPTION >

[BASE AUDIO WITH COLOR DISPLAY]

FLOW CHART OF TROUBLE DIAGNOSIS



[BASE AUDIO WITH COLOR DISPLAY]

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

INFOID:000000009721606

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 ON	Vehicle speed > 0 km/h (0 MPH)	On
		Vehicle speed = 0 km/h (0 MPH)	Off
	Ignition switch	Parking brake is applied.	On
FRD SIG	ON	Parking brake is released.	Off
ILLUM SIG	Ignition switch ON	Lighting switch is ON	On
		Lighting switch is OFF	Off
	Ignition switch ON	_	On
	Ignition switch ACC	_	Off
REV SIG	Ignition switch ON	Selector lever is in R position	On
		Selector lever is in any position other than R	Off

TERMINAL LAYOUT



PHYSICAL VALUES

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITH COLOR DISPLAY]

Terminal (Wire color)		Description		Condition		Reference value	А
+	-	Signal name	Input/ Output	Condition		(Approx.)	В
2 (G)	3 (R)	Sound signal front door speaker and front squawk- er LH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	C
4 (LG)	5 (Y)	Sound signal rear door speaker LH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 • • • 2ms SKIB3609E	E F
6 (BR)	15 (L)	Steering switch signal A	Input	lgnition switch ON	Keep pressing SOURCE switch.	0 V	G
					Keep pressing MENU UP switch.	0.7 V	Н
					Keep pressing MENU DOWN switch.	1.3 V	
					Keep pressing 🔬 🌾 switch	2.0 V	I
					Except for above.	3.3 V	I
7 (R)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	J
9	Oraciand		Innet	Ignition Input switch OFF	Lighting switch is OFF.	0 V	Κ
(R)	Ground	illumination signal	Input		Lighting switch is ON.	12.0 V	
11 (W)	12 (L)	Sound signal front door speaker and front squawk- er RH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 * 2ms SKIB3609E	L M
13 (GR)	14 (P)	Sound signal rear door speaker RH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E	O P

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITH COLOR DISPLAY]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
				1	Keep pressing VOL DOWN switch.	0 V	
16 (G)	15 (L)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL UP switch.	0.7 V	
				ÖN	Keep pressing 🗪 switch	1.3 V	
					Except for above.	3.3 V	
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
20 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
36 (GR)	Ground	Signal VCC	Output	Ignition switch ACC	_	9.0 V	
37 (SB)	Ground	Signal ground	_	Ignition switch OFF	_	0 V	
38 (G)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON	_	(V) 4 0 • • • 20µs 5KIB3601E	
39 (L)	Ground	Communication signal (DISP→CONT)	Input	lgnition switch ON	When adjusting display brightness.	(V) 6 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
					At RGB image is displayed.	5.0 V	
40 (W)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At AUX image is displayed.	(V) 6 2 0 ++200 µ s ++200 µ s PKIB4948J	
41		Shield			—	_	
42 (B)	Ground	RGB synchronizing signal	Output	Ignition switch ON	_	(V) 4 0 • • 20 µs SKIB3603E	
< ECU DIAGNOSIS INFORMATION >

Terminal (Wire color)		Description			Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	_
43 (G)	Ground	RGB signal (R: red)	Output	lgnition 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 $4^{-0.4}$ -0.4 $4^{-0.4}$ $4^{-0.4}$ $4^{-0.4}$ $4^{-0.4}$ $4^{-0.4}$ $4^{-0.4}$ $4^{-0.4}$ $4^{-0.4}$ $4^{-0.4}$ $5^{-0.4}$ SKIB2238J	D D
44 (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.	(V) 0.4 0 −0.4 ••••••••••••••••••••••••••••••••••••	E
45 (Y)	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 1.4 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1	G
46 (V)	Ground	Composite image signal ground		lgnition switch ON	_	0 V	
47 (LG)	Ground	Composite image signal	Output	Ignition switch ON	At camera image or AUX image is displayed.	(V) 0.4 0 −0.4 • • • 40µs SKIB2251J	K
48 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	9.0 V	M
49 (BR)	Ground	Inverter ground	_	Ignition switch OFF	_	0 V	AV
50 (R)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON		(V) 4 0 • • • 4ms SKIB3598E	O P

< ECU DIAGNOSIS INFORMATION >

Terr (Wire)	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
51 (P)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••1ms •••••1ms •••••••••••••••••••••
52	_	Shield	—		_	—
57	—	Shield	_		_	_
58	—	Shield	—	—	_	_
61 (Y)	Ground	AUX image signal	Input	Ignition switch ON	At AUX image is displayed.	(V) 0.4 0 -0.4 • 40,45 SKiB2251J
62 (R)	Ground	Camera image signal	Input	Ignition switch ON	At camera image is dis- played.	(V) 0.4 0 -0.4 ••••••••••••••••••••••••••••••••••••
69 (BR)	Ground	AUX image signal ground	_	Ignition switch ON	_	0 V
70	—	Shield	—		_	_
71		Shield			_	_
72 (LG)	Ground	Camera ground		lgnition switch ON	_	0 V
73 (V)	Ground	Camera power supply	Output	Ignition switch ON	Selector lever is in "R" position.	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	_		_

< ECU DIAGNOSIS INFORMATION >

leri (Wire)	minal e color)	Description		Condition		Reference value	А
+	-	Signal name	Input/ Output		Condition	(Approx.)	
82 (V)	Ground	Switch ground	_	Ignition switch ON	_	0 V	В
86	—	Shield	—	—	—	_	С
87 (R)	88 (L)	TEL voice signal	Input	lgnition switch ON	During voice guide output with the vá	(V) 1 0 -1 • 2ms SKIB3609E	D
				Ignition		NOTE: The maximum voltage varies de- pending on the specification (destination unit).	F
92 (V)	92 (V) Ground Vehicle speed signal (8- pulse) Input Switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	0 20 ms JSNIA0012GB	G			
93				Ignition	Parking brake is applied.	4.5 V	I
(G)	Ground	Parking brake signal	Input	switch ON	Parking brake is released.	0 V	
94	Ground	Reverse signal	Input	Ignition switch	Selector lever is in R position.	12.0 V	J
(SB)		U U		ON	Selector lever is in other than R position.	0 V	
95 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	K
96	Ground	Disk eiect signal	Input	Ignition switch	Pressing the eject switch.	0 V	L
(W)	Cround		mput	ON	Except for above.	5.0 V	
103 (B)	102 (W)	AUX sound signal LH	Input	Ignition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 • 2ms SKIB3609E	M AV O
104 (R)	102 (W)	AUX sound signal RH	Input	lgnition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 + 2ms SKIB3609E	Ρ

< ECU DIAGNOSIS INFORMATION >

(Wire	e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
120 (G)	124 (B)	Satellite radio sound signal LH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 • 2ms SKIB3609E
121 (W)	125 (R)	Satellite radio sound signal RH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E
122 (B)	Ground	Communication signal (CONT→SAT)	Output	lgnition switch ON	When satellite radio mode is selected.	(V) 10 -10 -10 -10 -10 -10 -10 -10
126		Shield	—	—	—	
127		Shield	_	—	—	_
129 (R)	Ground	Request signal	Input	Ignition	When satellite radio mode	
		(SAT→CONT)	input	switch ON	is selected.	0 -10 ++10ms SKIA9299J
130 (W)	Ground	(SAT→CONT) Communication signal (SAT→CONT)	Input	Ignition Switch ON	When satellite radio mode is selected.	0 -10 + 10ms -10 + 10ms -10 -10 -10 -10 -10 -10 -10 -10 -10 -10
130 (W) 132 (G)	Ground	(SAT→CONT) Communication signal (SAT→CONT) USB ground	Input	Ignition Switch ON	When satellite radio mode is selected.	0 -10 -10 -10 -10 -10 -10 -10 -1
130 (W) 132 (G) 133 (W)	Ground	(SAT→CONT) Communication signal (SAT→CONT) USB ground USB D– signal	Input	Ignition switch ON	When satellite radio mode is selected. 	0 -10 + 10ms SKIA9299J SKIA9209J SKIA9200J SKIA9300J
130 (W) 132 (G) 133 (W) 134 (R)	Ground	(SAT→CONT) Communication signal (SAT→CONT) USB ground USB D– signal V BUS signal	Input	Ignition switch ON 	When satellite radio mode is selected. 	0 -10 SKIA9299J SKIA9299J SKIA9209J SKIA9209J
130 (W) 132 (G) 133 (W) 134 (R) 135 (L)	Ground	(SAT→CONT) Communication signal (SAT→CONT) USB ground USB D– signal V BUS signal USB D+ signal	Input	Ignition switch ON 	When satellite radio mode is selected. 	
130 (W) 132 (G) 133 (W) 134 (R) 135 (L) 136	Ground	(SAT→CONT) Communication signal (SAT→CONT) USB ground USB D– signal V BUS signal USB D+ signal Shield	Input	switch ON Ignition switch ON — — — — — —	When satellite radio mode is selected. — — — — — — — — — — — — — — — — — — —	

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITH COLOR DISPLAY]

Terminal (Wire color)		Description			Condition	Reference value	А
+	-	Signal name	Input/ Output		Condition	(Approx.)	
138		AM - FM main	Input	—	_	_	В
139	_	Antenna amp. ON signal	Output	lgnition switch ON		12.0 V	С

DTC Index

INFOID:000000009721607

D

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to	
U1000	CAN COMM CIRCUIT [U1000]	AV-107, "Diagnosis Procedure"	- L
U1010	CONTROL UNIT (CAN) [1010]	AV-108, "DTC Logic"	_
U1200	Cont Unit [U1200]	AV-109, "DTC Logic"	F
U1216	CAN CONT [U1216]	AV-110, "DTC Logic"	_
U1232	ST ANGLE SEN CALIB [1232]	AV-111, "Diagnosis Procedure"	_
U1243	FRONT DISP CONN [U1243]	AV-112, "Diagnosis Procedure"	- G
U1255	SAT CONN [U1255]	AV-114, "Diagnosis Procedure"	_
U1310	CONTROL UNIT (AV) [U1310]	AV-117, "DTC Logic"	- н
U1300 U1240	AV COMM CIRCUIT [U1300]SWITCH CONN [U1240]		_
U1300 U1256	AV COMM CIRCUIT [U1300]HAND FREE CONN [U1256]	AV-116, "Description"	
U1300 U1240 U1256	 AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] HAND FREE CONN [U1256] 		J

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< ECU DIAGNOSIS INFORMATION >

DISPLAY UNIT

Reference Value

TERMINAL LAYOUT

INFOID:000000009721608



PHYSICAL VALUES

Teri (Wire	minal e 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 (GR)	Ground	Signal VCC	Input	Ignition switch ACC	_	9.0 V
4 (V)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V
5		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 ••••••••••••••••••••••••••••••••••••
7		Shield	—		_	_
8 (G)	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.)	
					At RGB image is displayed.	5.0 V	В
9 (W)	Ground	RGB area (YS) signal	Input	lgnition switch ON	At AUX image is displayed.	(V) 6 4 2 0 ★ ★ 200 µ s ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►	C
						(V)	Е
11 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	$\begin{array}{c} \mathbf{\hat{f}} \\ \mathbf{\hat{f}} \\$	F
				Ignition		PKIB5039J	G
13 (BR)	Ground	Inverter ground	_	switch ON	—	0 V	
14 (SB)	Ground	Signal ground	_	Ignition switch ON	_	0 V	Η
15 (LG)	Ground	Composite image signal	Input	Ignition switch ON	At camera image is dis- played.	(V) 0.4 0 −0.4 •••40µs SKIB2251J	J
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 ++++++++++++++++++++++++++++++++++	L
18 (Y)	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 -0.4 (V) 0 0 0 0 0 0 0 0 0 0 0 0 0	AV O P

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

Terr (Wire	ninal color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Concilion	(Approx.)
19 (B)	Ground	RGB synchronizing signal	Input	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3603E
20 (R)	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 2 0 + 1ms - KIB5039J
23	_	Shield	—	—	—	

< ECU DIAGNOSIS INFORMATION >

SATELLITE RADIO TUNER

Reference Value

TERMINAL LAYOUT

PHYSICAL VALUES

Terr	minal	Description					
+	_	Signal name	Input/ Output		Condition	Reference value (Approx.)	G
2 (Y/L)	1 (W/L)	Satellite radio sound signal LH	Output	lgnition switch ON	When satellite radio mode is selected.	(V) 1 -1 + 2ms SKIB3609E	Η
4 (BR/L)	3 (Y/G)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	(V) 1 -1 -1 -2ms SKIB3009E	J
5		Shield					L
6		Shield			_	_	
8 (R/W)	Ground	Request signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 ★ 10ms SKIA9299J	M AV C
9 (R/L)	Ground	Communication signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 -10 -10 -10 -10 -10 -	Ρ



[BASE AUDIO WITH COLOR DISPLAY]

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SATELLITE RADIO TUNER

< ECU DIAGNOSIS INFORMATION >

Terminal		Description				Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
10 (B)	Ground	Communication signal (CONT→SAT)	Input	Ignition switch ON	When satellite radio mode is selected	(V) 10 -10 -10 -10 -10 -10 -10 -10	
12 (V)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	
15 (B)	Ground	Ground		Ignition switch ON	_	0 V	
16 (GR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
33	_	Satellite radio antenna sig- nal	Input	_	_	_	

< ECU DIAGNOSIS INFORMATION >

TEL ADAPTER UNIT

Reference Value

INFOID:000000009721610

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PHYSICAL VALUES

Tor	minal						F
Wire)	ninai color)	Description			Condition	Reference value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	(
1 (V)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	ŀ
2 (GR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
3 (R)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
4 (B/W)	Ground	Ground	_	Ignition switch ON	_	0 V	I
5	_	Shield	—		—		
6	—	Shield			—	_	
7 (R/W)	8 (R/L)	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2.5 2.0 1.5 1.0 0.5 0 • • 2ms	IN AN
9 (B/R)	10 (W/R)	TEL voice signal	Output	Ignition switch ON	During voice guide output with the $\sqrt{2}$ \checkmark switch pressed.	(V) 1 -1 + 2ms SKIB3609E	ſ
20 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V	

TEL ADAPTER UNIT

< ECU DIAGNOSIS INFORMATION >

(Wire color)		Description		Condition		Reference value
+	-	Signal name	Input/ Output			(Approx.)
24 (B/W)	Ground	Control signal	Input	Ignition switch ON	_	0 V
28 (BR)	Ground	Vehicle speed signal (8-pulse)	Input	lgnition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	NOTE: The maximum voltage varies depending on the specification (destination unit).
29 (B)	8 (R/L)	Microphone VCC	Output	Ignition switch ON	_	5.0 V
33		TEL antenna signal	Input/ Output	_	_	_
34	—	Shield			_	_
35 (SB)		AV communication signal (H)	Input/ Output	_	_	_
36 (LG)		AV communication signal (L)	Input/ Output		_	_
40 (G)		AV communication signal (H)	Input/ Output	_	_	_
42 (GR)		AV communication signal (L)	Input/ Output	_		_

WIRING DIAGRAM BASE AUDIO WITH COLOR DISPLAY

Wiring Diagram

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С

INFOID:000000009721611 B

NOTE:

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





BASE AUDIO WITH COLOR DISPLAY [BASE AUDIO WITH COLOR DISPLAY]

< WIRING DIAGRAM >



BASE AUDIO WITH COLOR DISPLAY [BASE AUDIO WITH COLOR DISPLAY]

* : This connector is not shown in "Harness Layout". To illumination TEL END VOLUME AV CONTROL UNIT (M177). (M172). (M173). (M174). (M177). (M384) VOLUME COMBINATION SWITCH (SPIRAL CABLE) STEERING SWITCH VOICE / TEL (ESM MENU € MENU 17 € ş 5 SOURCE 24 **0** 4 o M251 (797 M43 œ AUXILIARY INPUT JACKS ß 5 4 4 17 6 15 · 5 8 8 თ ic D182 B11 (LLM B7) REAR VIEW CAMERA (D192) 48 с 49 œ 7 50 9 51 ć __! i____.

JRNWC2806GB



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ROD ANTENNA (AM / FM MAIN)

GLASS ANTENNA (FM SUB)

BASE A	UDIO WITH COLOR DISPLAY										
Connector No.	83	~	8	1	27	>	-	12	B/R	1	
		σ	9		28	α		62	≻	-	
Connector Nan	ne WIRE TO WIRE	2	>		8	•		73	. 9		
Connector Typ.	e TK10FW-NSB	=		-	31	BR	-	74	BS	-	
[12	BR	1	32	BR		75	_		
ť		13	۵.	-	34	SB	-	76	9	-	
		14	æ	1	38	SHELD		12	a	1	
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		4			27	-		g	•	,	
	18 17 15 14 13 12 11	2	,		Ģ	} >		8 5	•		
					2			5	: -		
		¢			4	25		ZR	-		
		Connect	or No.	B11	42	9	-	8	ВR	-	
Terminal Colc	or Of Signal Name [Snecification]	Connect	vr Name	WIRE TO WIRE	46	0		84	0	-	
No. W.	Ire ogrammer population				46	LG	-	85	9	-	
+	-	Connect	or Type	TH80MW-CS19	47	SB		86	SB	-	
4	- 5				47	^	-	87	α		
2	-	l			48	g		88	0		
7	-				48	SHIFLD		68	GR		
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12	- 5				20	9	1	92	H	1	
13	-				20	R/W		93	σ	T	
14 C	зя -				51	я	-	94	>	-	
15 E	ж – –	Termina	Color Of	[51	R/L	-	96	BR	-	
17	1	No.	Wire	oignal Name Lopecincation	52	æ	,	96	GR	,	
18	-		SHIELD		53	Y	-	97	œ		
		2		-	54	ΓC	1	86	P	-	
				,	55	H	,	66	c	1	
Connector No.	84	4	R/W		26	٩	-				
		9	٩	1	57		1				
Connector Nan	ne WIRE IO WIRE	7	>	-	58	œ		Connect	or No.	833	
Connector Tvp	e NS16MW-CS	~	SHIFLD	1	65	a	-		:		
		σ	RR/I	1	55	SHIFLD	-	Connect	or Name	TEL ADAPTER UNIT	
£		, e	10/2	,	G g	2	-	Connect	or Tyne	THORFW-NH	
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		21	N/F	-	19	R/L	-	王子			
	8 9 10 11 12 13 14 15 16	13	-	1	62	R/W	1	SH		K	
		14	BR	-	63	LG					
		15	SB		64	~				35	
		16	BR	-	65	BR	-			20 10 25	
Terminal Colc	pr Of Simul Name [Canadianal	17	>	1	65	œ	-			PT PT 00	
No.	Tre orginal Name Copecimication	18	SB	-	99	L	-				
-	-	19	~		99	>	,	Termina	I Color Of		
~		20	٩	-	67	c		No.	Wire	Signal Name [Specification]	
~		21	e -	1	67	g	,	35	R.	AV COMM (H)	
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+ L		77	;		8 8	5		9 9	3 (
	-	52	-[8	r i		40	; ا	AV COMM (H)	
2 2	1	24	ž	-	69	SHELU	-	42	Ч	AV COMM (L)	
7	-	25	7	-	70	W/R	-				

JRNWC8926GB

< WIRING DIAGRAM >

11 Y - 12 Q - - 13 Q - - - 14 P - - - - 15 SB - - - - - 13 QR - - - - - - 18 QR - <td< th=""><th>Image: Construction of the co</th><th></th></td<>	Image: Construction of the co	
Genneeter Mo. B216 Connector Nume WIRE TO WIRE Connector Nume WISI BUBR-OS Connector Type NISI BUBR-OS MAS 1 MAS 1 MAS 1	Terminal Calmer Of New Super Secretation No. Wine Specification 1 2 0 - 2 2 - - 12 2 - - 13 2 - - 13 2 - - 14 8 - - 13 2 - - 14 8 - - 15 0 - - 16 17 1 1 1	
B R/W REQUEST(SAT-CONT) 9 R.L COMM (SAT-CONT) 10 B COMM (SAT-CONT) 12 V COMM (CONT-SAT) 15 B GAM (SAT-CONT) 16 GR ACC ACC ACC ACC	Commentant Type Thi 2MW Terminal Californian Terminal Californian Terminal Californian Terminal Californian 1 LO 2 L 3 H 5 H/L 6 T 1 LO 1 LO 2 L 3 H 1 LO 1 LO 1 LO 1 LO 1 LO 1 LO 1 L 1 L 1 L 1 L 1 L 1 L	
Base Audio WITH COLOR DISPLAY Connect Name Connect Type Transform Connect Type	Terminal Nucleon Calier Of Signal Name [Specification] 1 V BATTERY 2 CR BATTERY 3 B.R.L Colored 5 SHIELD SHIELD 1 B.N.R.D SHIELD 2 B.N.R.D SHIELD 3 B.R.N MCGPOHORE GIAN. 1 B.N.R.D CONTROL SIGNAL. 2 B.N. MCROPHONE CO. 3 B.N. MCROPHONE VC. Connector Name SATELLITE RADIO TUNER Connector Name SATELLITE RADIO SOUND SIGNAL (+) (+) (+) (+) (+) (+) (+) (+) (+) (+)	

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BASE AUDIO WITH COLOR DISPLAY [BASE AUDIO WITH COLOR DISPLAY]



< WIRING DIAGRAM >

JRNWC8928GB

BASE AUDIO WITH COLOR DISPLAY [BASE AUDIO WITH COLOR DISPLAY]



JRNWC8929GB



JRNWC8930GB

BASE AUDIO WITH COLOR DISPLAY [BASE AUDIO WITH COLOR DISPLAY]

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BASE AUDIO WITH COLOR DISPLAY [BASE AUDIO WITH COLOR DISPLAY]

Revision: 2013 August

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BASE AUDIO WITH COLOR DISPLAY [BASE AUDIO WITH COLOR DISPLAY]

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BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000009721612

OVERALL SEQUENCE



- Reference 1... Refer to <u>AV-65, "CONSULT Function"</u>.
- Reference 2... Refer to <u>AV-77, "DTC Index"</u>.
- Reference 3... Refer to <u>AV-142, "Symptom Table"</u>.

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 COLOR DISPLAY]
1. Connect CONSULT and perform a self-diagnosis for "MULT NOTE:	AV". Refer to <u>AV-65, "CONSULT Function"</u> .
 Skip to step 4 of the diagnosis procedure if "MULTI AV" is no When DTC is detected, follow the instructions below: 	ot displayed.
- Record DTC and Freeze Frame Data.	В
YES >> GO TO 3. NO >> GO TO 4.	
3. TROUBLE DIAGNOSIS FOR DTC	C
 Check the DTC indicated in the self-diagnosis results. Perform the relevant diagnosis referring to the DTC Index. F 	Refer to <u>AV-77, "DTC Index"</u> .
>> GO TO 5.	-
4. TROUBLE DIAGNOSIS FOR SYMPTOMS	E
Perform the relevant diagnosis referring to the diagnosis cha <u>Table</u> ".	rt by symptom. Refer to <u>AV-142, "Symptom</u> F
>> GO TO 5.	
5. ERROR PART REPAIR	G
 Repair or replace the identified malfunctioning parts. Perform a self-diagnosis for "MULTI AV" with CONSULT. NOTE: 	Н
Erase the stored self-diagnosis results after repairing or re has been indicated in the self-diagnosis results.	eplacing the relevant components if any DTC
Does the symptom occur?	I
YES >> GO TO 1. NO >> INSPECTION END	J
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ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT) < BASIC INSPECTION > [BASE AUDIO WITH COLOR DISPLAY]

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

Description

INFOID:000000009721613

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:000000009721614

1.SAVING VEHICLE SPECIFICATION

-CONSULT Configuration

Perform "Before Replace ECU" to save or print current vehicle specification. Refer to <u>AV-105, "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-149, "Exploded View".

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

CONSULT Configuration Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to <u>AV-105</u>, "Work <u>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 >

CONFIGURATION (AV CONTROL UNIT)

Description

- 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.

F	unction	Description
	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		INFO/D:00000009721616
1. WRITE VEHICLE SPE	ECIFICATION	
CONSULT Configuration	on n into AV control unit.	
To write vehicle specifica To write vehicle specifica 2.WRITE STORED DAT	ation stored in CONSULT ation into the AV control u A	into the AV control unit>>GO TO 2. Init by hand>>GO TO 3.
CONSULT Configuration Select "After Replace EC Replace ECU" function in	on CU" in "Read/Write Confi nto the AV control unit.	guration." Write data stored in CONSULT with the "Before
>> GO TO 4. 3. MANUALLY WRITE V	EHICLE SPECIFICATION	٨
CONSULT Configuration Perform "Manual Configuration rrol unit. Refer to <u>AV-105</u> NOTE: If selection items are not	on Iration." Refer to the Con <u>5. "Configuration List"</u> . displayed on the CONSU	figuration List to write vehicle specification into the AV con-
>> GO TO 4.		
4. OPERATION CHECK		
Check that the operation lines) are normal.	of the AV control unit an	nd camera images (fixed guide lines and predictive course
>> WORK END		
Configuration List		INFOID:000000009721617
CAUTION: Grasp vehicle specifica tions are misread. NOTE: • The items shown in this	tions precisely. The con	ntrol of ECU may not function normally if the specifica-

• The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

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INFOID:000000009721615

< BASIC INSPECTION >

MANUAL SE	TTING ITEM	Datail	
Items	Setting value	Dotai	
STEERING	LHD	LHD models	
STEERING	RHD	RHD models	
	REAR CAMERA	With rear view monitor system	
CAMERA SYSTEM	REAR+SIDE	With rear view monitor system and front-side view monitor function	
	BASE	Without BOSE system	
SCOND STOLEM	BOSE	With BOSE system	
MICROPHONE	DIRECTIONAL MIC	With directional microphone*	
	NON-DIRECTIONAL MIC	With non-directional microphone*	
AFFORDARI E ITS	WITH	With BSW and LDW	
	WITHOUT	Without BSW and LDW	

*: In the following table, find an illustration that the (A) part matches the vehicle and select microphone type.



DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

Description

INFOID:000000009721618

INFOID:000000009721619

INFOID:000000009721620

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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.

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction location	F
U1000	CAN COMM CIRCUIT [U1000]	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.	Ċ

Diagnosis Procedure

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-18, "Trouble Diagnosis Procedure".
- NO >> Refer to <u>GI-44, "Intermittent Incident"</u>.

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U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:000000009721621

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 <u>AV-149, "Exploded View"</u> .
U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1200 AV CONTROL UNIT

Display contents of

CONSULT

Cont Unit

[U1200]

DTC Logic

DTC

U1200

INFOID:000000009721622

DTC detection condition	Possible malfunction factor	В
AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-149</u> , "Exploded View".	С
		D
		E
		F
		G
		Η
		I
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U1216 AV CONTROL UNIT [BASE AUDIO WITH COLOR DISPLAY]

< DTC/CIRCUIT DIAGNOSIS >

U1216 AV CONTROL UNIT

DTC Logic

INFOID:000000009721623

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-149</u> , "Exploded View".

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009721624

				В
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 cen- ter position of the steering angle sen- sor.	С
Diagn	osis Procedure		INFOID:00000009721625	D
1.adj	UST THE PREDICTIV	E COURSE LINE CENTER POSITION OF THE	STEERING ANGLE SENSOR	
When L	J1232 is detected, adj	ust the predictive course line center position of the	ne steering angle sensor.	E
	>> Adjusts the steer side. Refer to <u>BR</u> <u>Special Repair R</u>	ing angle sensor neutral position on ABS actuato C-9, "ADJUSTMENT OF STEERING ANGLE S equirement".	or and electrical unit (control unit) ENSOR NEUTRAL POSITION :	F
				G
				J
				K
				L
				N
				AV
				С
				F

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U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1243 DISPLAY UNIT

DTC Logic

INFOID:000000009721626

[BASE AUDIO WITH COLOR DISPLAY]

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

Diagnosis Procedure

INFOID:000000009721627

1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-118, "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
M104	11	M172	51	Existed
101194	22	IVI I 7 Z	39	Existed

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

Displa	ay unit			
Connector Terminals		Cround	Continuity	
N404	11	Gibana	Not evicted	
101194	12		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.

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

(*	+)				A
Displa	ay unit	(-)	Condition	Reference value	
Connector	Terminal				В
M194	11	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

Display unit (-) Condition Reference value Connector Terminal M194 22 Ground When adjusting display bright- ness.	(- Diank	+)		Condition	
Connector Terminal M194 22 Ground When adjusting display bright-ness.	Displa	ay unit	(-)	Condition	Reference value
M194 22 Ground When adjusting display bright-	Connector	Terminal			
	M194	22	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 + + 1ms (V) 6 4 10 10 10 10 10 10 10 10 10 10

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

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U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH COLOR DISPLAY]

U1255 SATELLITE RADIO TUNER

DTC Logic

INFOID:000000009721628

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. Refer to <u>AV-119. "SATELLITE RA- DIO TUNER : Diagnosis Proce- dure"</u>. Communication circuit between AV control unit and satellite radio tun- er. Request signal circuit between AV control unit and satellite radio tun- er.

Diagnosis Procedure

INFOID:000000009721629

1. CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to <u>AV-119, "SATELLITE RADIO TUNER :</u> <u>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
	122		10	
M176	129	B48	8	Existed
	130		9	

4. Check continuity between AV control unit harness connector.

AV cor	ntrol unit		Continuity	
Connector Terminals			Continuity	
	122	Ground		
M176	129		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.

U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

(-	+)			A
AV con	trol unit	()	Voltage	
Connector	Terminals	_	(Αμρισχ.)	В
M176	129	Ground	7.0 V	
IVI 176	130	Giouna	7.0 V	
Is the inspection YES >> GC NO >> Rep 4 CHECK SAT	n result normal TO 4. place AV contro TELLITE RADIO	? ol unit. Refer to ;	AV-149, "Exploded View".	C
 Turn ignitio Disconnect Connect sa Turn ignitio Check sign 	n switch OFF. AV control uni atellite radio tur n switch ON. al between sat	t connector. her connector. ellite radio tunei	harness connector and ground	E F
(-	+)			
Satellite r	adio tuner	()	Voltage	
Connector	Terminal	_	(Αμρισκ.)	G
B48	10	Ground	7.0 V	
Is the inspection	n result normal	?		Н
YES >> INS NO >> Re	SPECTION EN place satellite i	D radio tuner. Refe	er to <u>AV-166, "Exploded View"</u> .	

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< DTC/CIRCUIT DIAGNOSIS >

U1300 AV COMM CIRCUIT

Description

INFOID:000000009721630

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 U1256	 AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256] 	 When either one of the following items are 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] 	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1310 AV CONTROL UNIT

DTC Logic

DTC

U1310

INFOID:000000009721631

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Display contents of CONSULT	DTC detection condition	Possible malfunction factor
ONTROL UNIT (AV) J1310]	An initial diagnosis error is detected in AV communication circuit.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-149, "Exploded View"</u> .

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POWER SUPPLY AND GROUND CIRCUIT DSIS > [BASE AUDIO WITH COLOR DISPLAY]

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

INFOID:000000009721632

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	35
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	M171	19	OFF	Battery voltage
ACC power supply		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.

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	M171	20	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT : Diagnosis Procedure

INFOID:000000009721633

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	M104	2		9.0.1/
Signal VCC	101134	3	ACC	3.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

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-118

< DTC/CIRCUIT DIAGNOSIS >

Connector Terminal Connector Terminal Connector M172 48 M194 2 Existed C. Check continuity between display unit harness connector and ground. Display unit Continuity M194 2 Control M194 2 Continuity M194 2 Continuity Connector Terminal Continuity M194 2 Continuity M194 2 Continuity Connector Terminal Control with existed Scheek Control unit harness connector. Scheek Control unit harness connector and ground. Connector Terminal (-) Ignition switch Voltage (Apposition Prox. Connector Terminal Voltage (Apposition M172 48 Ground ACC 9.0 V Schee AV control unit connector. Connector Terminal Connector No. Terminal Prox. M172 48 Ground ACC 9.0 V Schee AV control unit Connector. Check Continuity between display unit harness connector and ground. Signal name Connector No. <th>AV cont</th> <th>trol unit</th> <th>Displ</th> <th>ay unit</th> <th>Continuit</th> <th></th> <th></th> <th></th>	AV cont	trol unit	Displ	ay unit	Continuit			
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Signal name Connector No. Terminal No. Ignition switch position Continuity Ground M194 1 OFF Existed Sthe inspection result normal? YES >> INSPECTION END Existed NO >> Repair harness or connector. SATELLITE RADIO TUNER Importance Importance SATELLITE RADIO TUNER : Diagnosis Procedure Importance Importance Importance .CHECK FUSE Importance Importance Importance Importance Power source Fuse No. Emportance Emportance Importance	. Disconr 5. Check of	nect display continuity b	y unit conne petween dis	ector. play unit har	ness conn	ector and	d ground.	
Ground M194 1 OFF Existed Sthe inspection result normal? YES >> INSPECTION END NO >> Repair harness or connector. NO >> Repair harness or connector. SATELLITE RADIO TUNER Impoint the second se	Signal	name	Connect	tor No.	Termina	No.	Ignition switch position	Continuity
a the inspection result normal? YES >> INSPECTION END NO >> Repair harness or connector. SATELLITE RADIO TUNER SATELLITE RADIO TUNER : Diagnosis Procedure .CHECK FUSE heck for blown fuses. Power source Fuse No. Battery 35 Ignition switch ACC or ON 19	Grou	und	M19	94	1		OFF	Existed
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Ignition switch ACC or ON 19			Battery				35	
the inspection result normal?		lanitio	n switch ACC	or ON			19	
	e the inene		normal?	-				
	1 20 22	JU IU Z.						

POWER SUPPLY AND GROUND CIRCUIT DSIS > [BASE AUDIO WITH COLOR DISPLAY]

< DTC/CIRCUIT DIAGNOSIS >

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	(· Satellite r	+) adio tuner	(-)	Ignition switch position	Voltage
	Connector	Terminal			(//pp/0x.)
Battery power supply	B48	12	Ground	OFF	Battory voltage
ACC power supply	D40	16	Gibana	ACC	Dattery 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:000000009721635

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	35
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	B20	1	OFF	Battony voltago
ACC power supply	D39	2	ACC	Dattery 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	B39	4	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

RGB (R: RED) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

RGB (R: RED) SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

1.CHECK CONTINUITY RGB (R: RED) 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.

A	AV con	trol unit	Displa	ay unit	Continuity
Conne	ector	Terminal	Connector	Terminal	Continuity
M17	72	43	M194	17	Existed

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

Displa	ay unit		0			
Connector	Terminal	Gr	ound	inuity	ity	
M194	17		Not e	xisted		
Is inspection	result norm	al?				
YES >>	GO TO 2.		1			
NU >>	Repair name	ess or conne	ector.			
Z.CHECK F	RGB (R: REI	D) SIGNAL				
 Connect Turn ion 	t AV control (hition switch (unit connect ON.	tor and display unit cor	nector.		
3. Check s	signal betwee	en display u	nit harness connector	and ground.		
						_
(·	+)					
Displa	ay unit	(-)	Condition	Refer	ence value	
Connector	Terminal					_
			Start confirmation/adjust-	(V)		
			ment mode, and then dis-	0.4		
M194	17	Ground	selecting "Color Spec-	0		
			trum Bar" on DISPLAY		uma man man man man man man man man man m	

Is inspection result normal?

YES >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

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INFOID:000000009721636

INFOID:000000009721637

AV

SKIB2238J

RGB (G: GREEN) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

RGB (G: GREEN) SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721639

INFOID:000000009721638

[BASE AUDIO WITH COLOR DISPLAY]

1.CHECK CONTINUITY RGB (G: GREEN) 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 con	ntrol unit	Displa	ay unit	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M172	44	M194	6	Existed	

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

Displa	ay unit		Continuity	
Connector	Terminal	Ground		
M194	6		Not existed	
		10	•	

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

1. Connect AV control unit connector and display unit connector.

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

(+)				
Display unit		()	Condition	Reference value
Connector	Terminal			
M194	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{array}{c} (V) \\ 0.4 \\ 0 \\ + & + & + & + & + & + & + \\ 0 \\ -0.4 \\ \hline \end{array} $

Is inspection result normal?

YES >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

RGB (B: BLUE) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

RGB (B: BLUE) SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

1.CHECK CONTINUITY RGB (B: BLUE) 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.

A	V con	trol unit	Displa	ay unit	Continuity
Connec	ctor	Terminal	Connector	Terminal	Community
M17:	2	45	M194	18	Existed

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

Displa	ay unit			ontinuity	•
Connector	Terminal	Gro	ound	ontinuity	
M194	18		Nc	ot existed	-
Is inspection YES >> NO >>	<u>n result norm</u> GO TO 2. Repair harne	al? ess or conne	ector.		
2.CHECK	RGB (B: BLU	JE) SIGNAL			
 Connec Turn ign Check s 	t AV control hition switch hignal betwee	unit connect ON. en display ur	or and display unit on the second display unit on the second displayed by the second displayed displayed by the second displayed d	connector. or and grou	nd.
(-	+)				
Displa	ay unit	(–)	Condition		Reference value
Connector	Terminal				
			Start confirmation (adju	uct (V) –	

Start confirmation/adjustment mode, and then display color bar by

selecting "Color Spec-

trum Bar" on DISPLAY DIAGNOSIS screen.

Is inspection result normal?

18

YES >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

Ground

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

SKIB2237J

M194

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INFOID:000000009721640

INFOID:000000009721641

RGB SYNCHRONIZING SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

RGB SYNCHRONIZING SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721643

INFOID:000000009721642

1. CHECK CONTINUITY RGB SYNCHRONIZING 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 cor	ntrol unit	Displa	ay unit	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M172	42	M194	19	Existed	

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

Displa	ay unit		Continuity	
Connector	Terminal	Ground	Continuity	
M194	19		Not existed	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB SYNCHRONIZING SIGNAL

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

(· Displa	+) ay unit	(-)	Reference value
Connector Terminal			
M194	19	Ground	(V) 4 0 + + 20 µs SKIB3603E

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

RGB AREA (YS) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

1. CHECK CONTINUITY RGB AREA (YS) 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 cont	trol unit	Displa	ay unit	Continuity		
Connector	Terminal	Connector	Terminal	Continuity		
M172	40	M194	9	Existed		
4. Check c	4. Check continuity between display unit harness connector and					
Displa	ıy unit			Continuity		
Connector	Terminal	Gro	ound	Continuity		

Not existed

Is the inspec	ction resu	It normal?	

9

YES >> GO TO 2.

M194

NO >> Repair harness or connector.

2.CHECK RGB AREA (YS) SIGNAL

1. Connect AV control unit connector and display 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	
M194	9	Ground	At AUX image is displayed.	(V) 6 4 2 0 ★ + 200 µ 5 FKIB4948J	A

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-149, "Exploded View"</u>.

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INFOID:000000009721644

INFOID:000000009721645

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT < DTC/CIRCUIT DIAGNOSIS > [BASE AUDIO WITH COLOR DISPLAY]

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

Description

In composite image (AUX 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:000000009721647

INFOID:000000009721646

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	ay unit	AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	8	M172	38	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	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.

(Displa	+) ay unit	()	Reference value
Connector	Terminal		
M194	8	Ground	(V) 4 0 ++20µs 5KiB3601E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

NO >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

< DTC/CIRCUIT DIAGNOSIS > [BASE AUDIO VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

Description

In composite image (AUX 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

$1. \mathsf{CHECK} \ \mathsf{CONTINUITY} \ \mathsf{VERTICAL} \ \mathsf{SYNCHRONIZING} \ \mathsf{(VP)} \ \mathsf{SIGNAL} \ \mathsf{CIRCUIT}$

- 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 con	trol unit	Continuity	Init Continuity		
Connector	Terminal	Connector	Terminal	Continuity			
M194	20	M172	50	Existed			
. Check c	ontinuity be	tween display	y unit harnes	s connector ar	d ground.		
Displa	ay unit			Continuity			
Connector	Terminal	Gro	ound	Continuity			
M194	20	-		Not existed			
the inspec	tion result n	ormal?	4				
YES >> (GO TO 2.						
NO >> I	Repair harn	ess or conne	ctor.				
CHECK V	FRTICAL S	SYNCHRONI	ZING (VP) S	IGNAL			
			()				
. Connect	t display uni	t connector a	and AV contro	ol unit connecto	or.		
Connect Turn ign	t display uni ition switch	t connector a ON.	and AV contro	ol unit connecto	or.		
Connect Turn ign Check s	t display uni ition switch ignal betwee	t connector a ON. en display ur	and AV contro	ol unit connector	or. round.		
. Connect . Turn ign . Check s	t display uni ition switch ignal betwee	t connector a ON. en display ur	and AV contro	ol unit connecto	or. round.		
Connect Turn ign Check s	t display uni ition switch ignal betwee	t connector a ON. en display ur	and AV contro	ol unit connecto	or. round.		
Connect Turn ign Check s (+ Displa	t display uni ition switch ignal betwee +)	t connector a ON. en display ur (–)	and AV contro nit harness co Refer	ol unit connector onnector and g	or. round.		
Connect Turn ign Check s (+ Displa Connector	t display uni ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display ur (–)	and AV contro nit harness co Refer	ol unit connector onnector and g	or. round.		
Connect Turn ign Check s (+ Displa Connector	t display uni ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display ur (–)	nd AV contro nit harness co Refer	ol unit connector onnector and g rence value	or. round. 		
Connect Turn ign Check s (+ Displa Connector	t display uni ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display ur (–)	nd AV contro nit harness co Refer	ol unit connector onnector and g rence value	or. round.		
Connect Turn ign Check s (+ Displa Connector	t display uni ition switch ignal between +) ay unit Terminal	t connector a ON. en display ur (–)	and AV contro nit harness co Refer	ol unit connector onnector and g rence value	or. round. 		
Connect Turn ign Check s (+ Displa Connector M194	t display uni ition switch ignal between +) ay unit Terminal	t connector a ON. en display un (–) Ground	and AV contro nit harness co Refer	ol unit connector onnector and g rence value	or. round. 		
Connect Turn ign Check s (+ Displa Connector M194	t display uni ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display un (–) Ground	nd AV contro nit harness co Refer	ol unit connector onnector and g rence value	or. round.		
Connect Turn ign Check s (+ Displa Connector	t display uni ition switch ignal between +) ay unit Terminal	t connector a ON. en display ur (–) Ground	(V) (V) 4 0 4 0 4 0 4 0 4 4 0 4 4 4 4 4 4 4 4 4 4 4 4 4	ol unit connector onnector and g rence value	or. round. 		F
Connect Turn ign Check s (+ Displa Connector M194	t display uni ition switch ignal betwee +) ay unit Terminal 20	t connector a ON. en display un (–) Ground	and AV contro nit harness co Refer	ol unit connector onnector and g rence value	or. round.		ŀ
. Connect . Turn ign . Check s (+ Displa Connector M194	t display uni ition switch ignal betwee +) ay unit Terminal 20	t connector a ON. en display un (–) Ground	and AV contro nit harness co Refer	ol unit connector onnector and g rence value	or. round.		ł

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VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT DIAGNOSIS > [BASE AUDIO WITH COLOR DISPLAY]

INFOID:000000009721648

INFOID:000000009721649

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COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

COMPOSITE IMAGE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721651

INFOID:000000009721650

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 cor	ntrol unit	Displa	ay unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M172	47	M194	15	Existed

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

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M172	47		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.

(+) AV control unit		(–)	Condition	Reference value
Connector	Terminal			
M172	47	Ground	At camera image is dis- played.	(V) (V)

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-150, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

AUX IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

AUX IMAGE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721653

INFOID:000000009721652

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- 1. CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT
- Turn ignition switch OFF.
 Disconnect auxiliary input jacks connect
- Disconnect auxiliary input jacks connector and AV control unit connector.
 Check continuity between auxiliary input jacks harness connector and AV control unit harness connector.

Auxiliary i	nput jacks	AV con	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M253	7	M173	61	Existed

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

Auxiliary	input jacks		Continuity
Connector	Terminal	Ground	Continuity
M253	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.

(Auxiliarv	(+) input jacks	(-)	Condition	Reference value
Connector	Terminal			
M253	7	Ground	At AUX image is displayed.	(V) 0.4 −0.4 ••••40µs SKIB2251J

Is the inspection result normal?

YES >> Replace AV control unit. Refer to <u>AV-149, "Exploded View"</u>.

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

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CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

CAMERA IMAGE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721655

INFOID:000000009721654

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 con	ntrol unit	Rear vie	w camera	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M173	73	D192	1	Existed

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

AV con	itrol unit		Continuity
Connector	Terminal	Ground	Continuity
M173	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			(
M173	73	Ground	Selector lever is in "R".	6.0 V	

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

3.CHECK CONTINUITY CAMERA IMAGE SIGNAL 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
M173	62	D192	3	Existed

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

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

	trol unit					А
	Terminal	Gro	hund	Conti	nuity	
M173	62		Junu	Not ex	visted	
ls inspection	result norm	al?		1101.07		В
YES >> NO >> 4.CHECK (GO TO 4. Repair harne CAMERA IM	ess or conne AGE SIGNA	ector. L			С
 Connec Turn igr Shift the Check s 	t AV control hition switch selector lev hignal betwee	unit connect ON. er to "R". en AV contro	or and rear v I unit harnes	iew came s connect	ra connector. or and ground.	D
(1	+)					. –
AV cor	trol unit	(-)	Condi	tion	Reference value	
Connector	Terminal					F
M173	62	Ground	At camera ima played.	age is dis-		G
			1		-0.4	Н
Is inspection YES >> NO >>	<u>result norm</u> Replace AV Replace rea	<u>al?</u> control unit. r view came	Refer to <u>AV-</u> ra. Refer to A	<u>149, "Exp</u> V-159, "E	loded View". xploded View".	I
						J
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DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DISK EJECT SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721657

INFOID:000000009721656

[BASE AUDIO WITH COLOR DISPLAY]

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 con	itrol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M125	14	M174	96	Existed

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

Multifunc	tion switch		Continuity	
Connector	Terminal	Ground	Continuity	
M125	14		Not existed	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK AV CONTROL UNIT VOLTAGE

1. 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			(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
M17/	96	Ground	Pressing the eject switch	0 V	
11174	30	Ground	Except for above	5.0 V	

Is the inspection result normal?

YES >> Replace preset switch. Refer to <u>AV-155, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MICROPHONE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721659

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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.

TerminalsConnectorTerminals71398R202294	TEL ada	pter unit	Micro	phone	Continuity
7 1 39 8 R20 2 Existed 29 4 Existed 1 1	Connector	Terminals	Connector	Terminals	Continuity
39 8 R20 2 Existed 29 4 4 4		7		1	
29 4	B39	8	R20	2	Existed
		29		4	1

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

TEL adapter unit			Continuity
Connector	Terminals	Ground	Continuity
P20	7	Ground	Not ovisted
D39	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.

(*	+)	(Maltara	
	Voltage (Approx.)			
Connector	Terminal Connector Term			(TT -)
B39	29	B39	8	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO	>> Replace TEL adapter unit. Refer to AV-162. "Removal and Installation".
\mathbf{O}	

3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.

2. Check signal between TEL adapter unit harness connector.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

(+)	(*	-)		
	I EL ada	apter unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B39	7	B39	8	give a voice.	(V) 2.5 2.0 1.5 1.5 0.5 0 • • • 2ms PKIB5037J

Is the inspection result normal?

 >> Replace TEL adapter unit. Refer to <u>AV-162, "Removal and Installation"</u>.
 >> Replace microphone. Refer to <u>AV-164, "Exploded View"</u>. YES

NO

CONTROL SIGNAL CIRCUIT

[BASE AUDIO WITH COLOR DISPLAY]

< DTC/CIRCUIT DIAGNOSIS >

CONTROL SIGNAL CIRCUIT

Description

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

Di	agnosis Procedure	INFOID:000000009721661
1.	CHECK CONTINUITY CONTROL SIGNAL CIRCUIT	С
1.	Turn ignition switch OFF.	
2.	Disconnect TEL adapter unit connector.	
3.	Check continuity between TEL adapter unit harness connector and ground.	D

TEL ada	apter unit	Ground	Continuity
Connector	Terminals		
B39	20	Ground	Evictod
	24		EXISTED

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to <u>AV-162, "Removal and Installation"</u>.

NO >> Repair harness or connector.

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INFOID:000000009721660

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< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH SIGNAL A CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

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

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M171	6	M33	24	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M171	6		Not existed
		10	

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-15, "Exploded View"</u> (except for Mexico) or <u>SR-42, "Exploded View"</u> (for Mexico).

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 control unit			Voltage (Approx.)	
Connector	Terminal	Connector	Terminal	(11 -)
M171	6	M171	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.

- 2. Check steering switch. Refer to AV-137, "Component Inspection".
- Is the inspection result normal?
- YES >> INSPECTION END
- NO >> Replace steering switch. Refer to <u>AV-156, "Exploded View"</u>.

INFOID:000000009721662

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STEERING SWITCH SIGNAL A CIRCUIT SIS > [BASE AUDIO WITH COLOR DISPLAY]

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

🔬 🌈 switch ON

INFOID:000000009721664

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

Standard

Between terminals 14 and 17

MENU DOWN switch ON

MENU UP switch ON

SOURCE switch ON

: Approx. 716 – 730 Ω : Approx. 318 – 324 Ω : Approx. 120 – 122 Ω : Approx. 0 Ω

: Approx. 0 Ω

Between terminals 15 and 17

switch ON	: Approx. 318 – 324 Ω
VOL UP switch ON	: Approx. 120 – 122 Ω
VOL DOWN switch ON	: Approx. 0 Ω



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< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH SIGNAL B CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M171	16	M33	31	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M171	16		Not existed
		10	•

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-15, "Exploded View"</u> (except for Mexico) or <u>SR-42, "Exploded View"</u> (for Mexico).

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 control unit			Voltage (Approx.)	
Connector	Terminal	Connector	Terminal	(TT -)
M171	16	M171	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.

- 2. Check steering switch. Refer to AV-139. "Component Inspection".
- Is the inspection result normal?
- YES >> INSPECTION END
- NO >> Replace steering switch. Refer to <u>AV-156, "Exploded View"</u>.

INFOID:000000009721665

INFOID:000000009721666

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITH COLOR DISPLAY]

Component Inspection

🔬 🌈 switch ON

INFOID:000000009721667

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

Standard

Between terminals 14 and 17

MENU DOWN switch ON

MENU UP switch ON

SOURCE switch ON

: Approx. 716 – 730 Ω
: Approx. 318 – 324 Ω
: Approx. 120 – 122 Ω
: Approx. 0 Ω

Between terminals 15 and 17

Switch ON	: Approx. 318 – 324 Ω
VOL UP switch ON	: Approx. 120 – 122 Ω
VOL DOWN switch ON	: Approx. 0 Ω



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STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH GROUND CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:000000009721669

INFOID:000000009721668

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M171	15	M33	33	Existed

4. 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-15, "Exploded View"</u> (except for Mexico) or <u>SR-42, "Exploded View"</u> (for Mexico).

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
M171	15		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-149</u>, "Exploded View".

4.CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-140. "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>AV-156, "Exploded View"</u>.

Component Inspection

INFOID:000000009721670

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 COLOR DISPLAY]

Standard 114 SOURCE Approx. 121Ω Approx. 200Ω Approx. Between terminals 14 and 17 MENU UP 🔬 🌈 switch ON : Approx. 716 – 730 Ω MENU DOWN MENU DOWN switch ON : Approx. 318 – 324 Ω Approx 402Ω (1125 MENU UP switch ON : Approx. 120 – 122 Ω SOURCE switch ON : Approx. 0 Ω 15 VOL DOWN Approx. 121Ω Approx. 200Ω VOL UP Between terminals 15 and 17 17 14 15 0 : Approx. 318 – 324 Ω switch ON <u>17</u> JSNIA0216GB VOL UP switch ON : Approx. 120 – 122 Ω VOL DOWN switch ON : Approx. 0 Ω

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SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009721671

OPERATION

Symptoms	Check items	Probable malfunction location
Multifunction switch and preset switch operation does not work.	 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 Diagnostic Result" of "MULTI AV" with CONSULT. Refer to <u>AV-65, "CONSULT Function"</u>.
	 All switches cannot be operated. "MULTI AV" is not displayed on system selection screen when the CON-SULT is initialized. 	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-118</u> , " <u>AV CONTROL UNIT</u> : <u>Diagnosis</u> <u>Procedure</u> ".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-di- agnosis function. Refer to <u>AV-56. "On Board Diagnosis</u> <u>Function"</u> .
Fuel economy display is abnor- mal.	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV".	Perform detected DTC diagnosis. Refer to <u>AV-77, "DTC Index"</u> .
	There is no malfunction in the CON- SULT "self-diagnosis result" of "MULTI AV".	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:**

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.nissanusa.com/bluetooth/".
- a. Using the website's search engine, find out if the customer's phone is on the approved list.
- b. If the customer's phone is NOT on the approved list:

Stop diagnosis here. The customer needs to obtain a Bluetooth[®] 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.

< SYMPTOM DIAGNOSIS >

MULTI AV SYSTEM SYMPTOMS

[BASE AUDIO WITH COLOR DISPLAY]

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection. (No con- nection is displayed on the dis- play at the guide.)	Repeat the registration of cellular phone.	TEL adapter unit malfunction. Refer to <u>AV-162, "Removal and Installation"</u> .
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	 Perform "Self Diagnostic Result" of "MULTI AV" with CONSULT. Refer to <u>AV-65, "CONSULT Function"</u>. No malfunction. TEL adapter unit malfunction. Refer to <u>AV-162, "Removal and Installation"</u>. Malfunction is detected. Perform detected DTC diagnosis. Refer to <u>AV-77, "DTC Index"</u>.
The other party's voice cannot be heard by hands-free phone.	Steering switch's "🖋 🌈" switch works.	TEL voice signal circuit malfunction between TEL adapt- er unit and AV control unit.
	Steering switch's " 💉 🌈 " switch do not work.	Control signal circuit malfunction. Refer to <u>AV-135, "Diagnosis Procedure"</u> .
Originating sound is not heard by the other party with hands- free phone communication.	Sound operation function is normal.	TEL adapter unit malfunction. Refer to <u>AV-162, "Removal and Installation"</u> .
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to <u>AV-133</u> , "Diagnosis Procedure".
The system cannot be operat- ed.	Steering switch's "SOURCE", "MENU UP", and "MENU DOWN" switches works, but " $_{w}$ \checkmark " it does not work.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-156. "Exploded</u> <u>View"</u> .
	Steering switch's "SOURCE", "MENU UP", "MENU DOWN" and " v ≨	Steering switch signal B circuit malfunction. Refer to <u>AV-138, "Diagnosis Procedure"</u> .
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to <u>AV-140, "Diagnosis Procedure"</u> .

RELATED TO CAMERA

Symptoms	Check items	Probable malfunction location	N
Camera image is not shown. (Vehicle width and predictive course line is displayed.)	AUX image is displayed.	Camera image signal circuit. Refer to <u>AV-130, "Diagnosis Procedure"</u> .	L
	AUX image is not displayed.	Composite image signal circuit. Refer to <u>AV-128</u> , "Diagnosis Procedure".	
Camera image is not shown. (displayed in black and nothing can be displayed)	_	Horizontal synchronizing (HP) signal circuit malfunc- tion between AV control unit and display unit. Refer to <u>AV-126, "Diagnosis Procedure"</u> .	Μ
		 Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-127</u>, "Diagnosis Procedure". 	AV
Camera image does not switch.	"Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjust- ment".	Reverse signal circuit malfunction.	0
	"Reverse" is turned ON on "Vehicle Sig- nals"screen of "Confirmation/Adjustment".	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-149, "Exploded</u> <u>View"</u> .	Ρ

RELATED TO RGB IMAGE

< SYMPTOM DIAGNOSIS >

MULTI AV SYSTEM SYMPTOMS

[BASE AUDIO WITH COLOR DISPLAY]

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV".	Perform detected DTC diagnosis. Refer to <u>AV-77, "DTC Index"</u> .
	There is no malfunction in CONSULT "self-diagnosis results" of "MULTI AV".	Vertical synchronizing (VP) signal circuit. Refer to <u>AV-127, "Diagnosis Procedure"</u> .
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to <u>AV-121, "Diagnosis Procedure"</u> .
	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to <u>AV-122</u> , "Diagnosis Procedure".
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to <u>AV-123, "Diagnosis Procedure"</u> .
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to <u>AV-124, "Diagnosis Procedure"</u> .
Fuel economy display is mal- functioning.	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV".	Perform detected DTC diagnosis. Refer to <u>AV-77, "DTC Index"</u> .
	There is no malfunction in CONSULT "self-diagnosis results" of "MULTI AV".	Ignition signal circuit malfunction. (AV control unit)

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to <u>AV-132</u> , "Diagnosis Procedure".
No sound comes out or the lev- el of the sound is low.	No sound from all speakers.	AV control unit power supply and ground circuits malfunc- tion. Refer to <u>AV-118</u> , " <u>AV CONTROL UNIT : Diagnosis</u> <u>Procedure</u> ".
	Only a certain speaker (front right, front left, rear right, or rear left, etc.) 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 is mixed with audio.	Noise comes out from all speakers.	Malfunction in AV control unit.
	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.).	 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. Loose antenna base mounting nut. Refer to <u>AV-165</u>. <u>"Exploded View"</u>.
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 ob- stacles generating external noises). 	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-165.</u> <u>"Exploded View"</u>.
MULTI AV SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITH COLOR DISPLAY]

Symptoms	Check items	Probable malfunction location
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to <u>AV-65, "CONSULT Function"</u> .	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to <u>AV-77, "DTC In-dex"</u>. 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 <u>AV-65, "CONSULT Function"</u> .	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut. Refer to <u>AV-165, "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.	F

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

RELATED TO STEERING SWITCH

Symptoms	Probable malfunction location	Н
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to <u>AV-140</u> , "Diagnosis Procedure".	
Only specified switch cannot be operated.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-156. "Exploded View"</u> .	
"SOURCE", "MENU UP", "MENU DOWN", " 📢 🌈 " switches are not operated.	Steering switch signal A circuit. Refer to <u>AV-136, "Diagnosis Procedure"</u> .	J
"VOL UP", "VOL DOWN", " " " switches are not operated.	Steering switch signal B circuit. Refer to <u>AV-138, "Diagnosis Procedure"</u> .	_
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RELATED TO AUXILIARY INPUT **NOTE**:

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

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 circuit.	M
Image is not displayed when AUX mode is selected.	Camera image is displayed.	AUX image signal circuit malfunction. Refer to <u>AV-129</u> , "Diagnosis Procedure".	
	Camera image is not displayed.	Composite image signal circuit malfunction. Refer to <u>AV-128, "Diagnosis Procedure"</u> .	AV

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NORMAL OPERATING CONDITION

[BASE AUDIO WITH COLOR DISPLAY]

INFOID:000000009721672

NORMAL OPERATING CONDITION

Description

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 "☀/ఎ OFF" to turn on the display.
Screen not clear.	Contrast setting is not appropriate.	Adjust the contrast of the display.
The screen is too dim. The move- ment 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 se- lected.	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
	1. 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 com- mand correctly.	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). NOTE: If it is the point 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	1. 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/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.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

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 files on a CD, only the music CD files (CD-DA data) will be played.
Cannot play	Files with extensions other than ".MP3 (.mp3)" or ".WMA (.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.
	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 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 (.mp3)" or ".WMA (.wma)" 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

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITH COLOR DISPLAY]

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.

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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-105, "Description"</u>.

REMOVAL

Refer to IP-14, "Exploded View".

DISASSEMBLY

INFOID:000000009721673

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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 <u>AV-105, "Description"</u>.

- 1. Remove cluster lid C. Refer to IP-14, "Exploded View".
- 2. Remove AV control unit with an A/C auto amp. as a single unit from the vehicle.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to <u>AV-</u><u>376, "Work Procedure"</u>.

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< REMOVAL AND INSTALLATION > DISPLAY UNIT

Exploded View



1. Display unit

Removal and Installation

INFOID:000000009721676

REMOVAL

- 1. Remove center ventilator assembly. Refer to IP-14, "Exploded View".
- 2. Remove display unit with bracket as a single unit.

INSTALLATION

Install in the reverse order of removal.

FRONT DOOR SPEAKER

[BASE AUDIO WITH COLOR DISPLAY]

< REMOVAL AND INSTALLATION > FRONT DOOR SPEAKER

Exploded View



2. Remove front door speaker screws, then disconnect front door speaker connector and remove front door speaker.

INSTALLATION

1.

REMOVAL

1.

Install in the reverse order of removal.

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< REMOVAL AND INSTALLATION >

REAR DOOR SPEAKER

Exploded View



1. Rear door speaker

Removal and Installation

INFOID:000000009721680

REMOVAL

- 1. Remove rear door finisher. Refer to INT-16, "REAR DOOR FINISHER : Exploded View".
- 2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

INSTALLATION

Install in the reverse order of removal.

FRONT SQUAWKER

[BASE AUDIO WITH COLOR DISPLAY]

< REMOVAL AND INSTALLATION > **FRONT SQUAWKER**

Exploded View

1.

INSTALLATION

REMOVAL

1.

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MULTIFUNCTION SWITCH

< REMOVAL AND INSTALLATION >

MULTIFUNCTION SWITCH

Exploded View

REMOVAL Refer to <u>IP-14, "Exploded View"</u>. DISASSEMBLY



- 1. Multifunction switch
- 2. Cluster lid D

Removal and Installation

REMOVAL

- 1. Remove cluster lid D. Refer to <u>IP-14, "Exploded View"</u>.
- 2. Remove multifunction switch with center ventilator grille as a single unit.
- 3. Remove multifunction switch screws, remove multifunction switch from cluster lid D.

INSTALLATION

Install in the reverse order of removal.

[BASE AUDIO WITH COLOR DISPLAY]

INFOID:000000009721683

PRESET SWITCH

< REMOVAL AND INSTALLATION > PRESET SWITCH

Exploded View

REMOVAL Refer to <u>IP-14, "Exploded View"</u>. DISASSEMBLY



Removal and Installation

REMOVAL

- 1. Remove cluster lid C. Refer to IP-14, "Exploded View".
- 2. Remove preset switch screws (A) (B), remove preset switch (1) from cluster lid C.
 - 1. Preset switch
 - A. Screw
 - B. Screw



INSTALLATION Install in the reverse order of removal.

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< REMOVAL AND INSTALLATION >

STEERING SWITCH

Exploded View

Refer to ST-36, "Exploded View".

Removal and Installation

REMOVAL Refer to <u>ST-36, "Removal and Installation"</u>.

INSTALLATION Install in the reverse order of removal. INFOID:000000009721687

AUXILIARY INPUT JACKS

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH COLOR DISPLAY]

AUXILIARY INPUT JACKS А **Removal and Installation** INFOID:000000009721689 REMOVAL В 1. Remove center console assembly. Refer to IP-22. "Exploded View". 2. Remove auxiliary input jacks mounting screws. С Disconnect connector to remove auxiliary input jacks from lower console assembly. 3. **INSTALLATION** Install in the reverse order of removal. D Е F Н J Κ Μ AV Ο Ρ

< REMOVAL AND INSTALLATION >

USB CONNECTOR

Removal and Installation

REMOVAL

- 1. Remove console finisher assembly. Refer to <u>IP-22, "Exploded View"</u>.
- 2. Press the pawl from the back of lower console assembly to remove USB connector.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000009721690

[BASE AUDIO WITH COLOR DISPLAY]

Revision: 2013 August

REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

REAR VIEW CAMERA

Exploded View

INFOID:000000009721691

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[BASE AUDIO WITH COLOR DISPLAY]



REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

- 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.



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

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.

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: 20° to 20° : 20° to 20°

CAUTION:

Never operate other function such as pressing BACK while writing index data.

[BASE AUDIO WITH COLOR DISPLAY]



STEERING ANGLE SENSOR

< REMOVAL AND INSTALLATION >

STEERING ANGLE SENSOR

Exploded View



INFOID:000000009721694





	1.	Spiral cable		
	2.	Steering angle sensor		F
Re	moval	and Installation	INFOID:000000009721695	
RE	MOVAL	_		G
1.	Remov Mexico	ve spiral cable. Refer to <u>SR-15, "Exploded View"</u> (except for Mexico) or <u>SR-42, "Explo</u>).	<u>oded View"</u> (for	Ц
2.	Remov	ve steering angle sensor from spiral cable.		П
INS	TALLA	TION		
1.	Install	in the reverse order of removal.		
2.	Perforr	n steering angle sensor neutral position adjustment. Refer to <u>AV-65, "CONSULT Fu</u>	nction".	
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< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH COLOR DISPLAY]

TEL ADAPTER UNIT Exploded View

INFOID:000000009721696



- 1. Satellite radio tuner
- 2. Bracket LH

4. Bracket RH

Removal and Installation

REMOVAL

- 1. Remove luggage floor finisher front. Refer to INT-34, "Exploded View".
- 2. Remove TEL adapter unit (1) with satellite radio tuner as a single unit from the vehicle.
- 3. Remove bracket screws, and them remove TEL adapter unit.



3. TEL adapter unit

INSTALLATION Install in the reverse order of removal.

< REMOVAL AND INSTALLATION > [BASE AUD] TEL ANTENNA Removal and Installation

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REMOVAL

1.	Remove luggage floor finisher center (front and rear). Refer to INT-34, "Exploded View".
2.	Remove luggage side finisher lower RH. Refer to INT-34, "Exploded View".

- 3. Remove TEL antenna feeder clips.
- 4. Disconnect TEL antenna connector, and them remove TEL antenna.

INSTALLATION

Install in the reverse order of removal.

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< REMOVAL AND INSTALLATION > **MICROPHONE**

Exploded View

REMOVAL Refer to INL-123, "Exploded View". DISASSEMBLY

SEC. 283 JSNIA0132Z

1. Microphone

Removal and Installation

INFOID:000000009721700

INFOID:000000009721699

REMOVAL

- Remove map lamp. Refer to INL-123, "Exploded View". 1.
- Remove microphone from map lamp. 2.

INSTALLATION

Install in the reverse order of removal.

ROOF ANTENNA

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITH COLOR DISPLAY]

ROOF ANTENNA



If the antenna base mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.

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< REMOVAL AND INSTALLATION >

SATELLITE RADIO TUNER

Exploded View

INFOID:000000009721703



- 1. Satellite radio tuner
- 2. Bracket LH

4. Bracket RH

Removal and Installation

REMOVAL

- 1. Remove luggage floor finisher front. Refer to INT-34, "Exploded View".
- Remove satellite radio tuner (1) with TEL adapter unit as a single unit from the body.

3. Remove bracket screws, and them remove satellite tuner.



3. TEL adapter unit

INSTALLATION Install in the reverse order of removal.

ANTENNA FEEDER

< REMOVAL AND INSTALLATION >

ANTENNA FEEDER



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< PRECAUTION > PRECAUTION PRECAUTIONS EXCEPT FOR MEXICO

EXCEPT FOR MEXICO : 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.

EXCEPT FOR MEXICO : Precautions for Removing of Battery Terminal

 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
 NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. **NOTE:**

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

• After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC. **NOTE:**

The removal of 12V battery may cause a DTC detection error.

EXCEPT FOR MEXICO : Precaution for Trouble Diagnosis

AV COMMUNICATION SYSTEM

• Do not apply voltage of 7.0 V or higher to the measurement terminals.

BATTERY BEF289H



Revision: 2013 August

PRECAUTIONS

[BOSE AUDIO WITHOUT NAVIGATION]

- 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 А checking the circuit.

EXCEPT FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

< PRECAUTION >

 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.)

FOR MEXICO

FOR MEXICO : Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" INFOID:000000009721710

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. 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.
- AV 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.

AV-169





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twisted line will be lost.)

PRECAUTIONS

[BOSE AUDIO WITHOUT NAVIGATION]

 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.

FOR MEXICO : Precautions for Removing of Battery Terminal

When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

< PRECAUTION >

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC. NOTE:

The removal of 12V battery may cause a DTC detection error.

FOR MEXICO : 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.

FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

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





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[BOSE AUDIO WITHOUT NAVIGATION]

PREPARATION А PREPARATION **Commercial Service Tools** INFOID:000000009721714 В Tool Description С D Power tool Loosening screws Ε PBIC0191E F

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< PREPARATION >

SYSTEM DESCRIPTION COMPONENT PARTS

Component Parts Location



- 1. Center speaker
- 4. Rear door speaker LH
- 7. TEL adapter unit
- 10. Rear view camera
- 13. Antenna base (antenna amp. and satellite radio antenna)
- 16. Front squawker RH
- 19. Steering switch
- 22. Preset switch
- 25. Display unit
- A. Luggage floor finisher is removed con-

- 2. Front squawker LH
- 5. Rear speaker LH
- 8. BOSE amp.
- 11. TEL antenna
- 14. Rear door speaker RH
- 17. Microphone
- 20. USB connector
- 23. AV control unit
- B. Luggage floor finisher is removed condition C. Spi

- 3. Front door speaker LH
- 6. Satellite radio tuner
- 9. Woofer
- 12. Rear speaker RH
- 15. Front door speaker RH
- 18. Steering angle sensor
- 21. Auxiliary input jacks
- 24. Multifunction switch
- C. Spiral cable part

< SYSTEM DESCRIPTION >

Component Description

[BOSE AUDIO WITHOUT NAVIGATION]

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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, rear view monitor, USB connection and vehicle information functions. It is connected to ECM and combination meter 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). It supplies power to the rear camera. Amp. ON signal and sound signal are transmitted to BOSE amp. TEL voice signal is 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, RGB area and RGB synchronizing). Composite image signals (auxiliary input and camera images) 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.
Front door speaker	Outputs sound signal from BOSE amp.Outputs sound (mid and low range).
Rear door speaker	Outputs sound signal from BOSE amp.Outputs sound (mid and low range).
Front squawker	Outputs sound signal from BOSE amp.Outputs sound (high and mid range).
Rear speaker	Outputs sound signal from BOSE amp.Outputs sound (high and mid range).
Center speaker	Outputs sound signal from BOSE amp.Outputs sound (high and mid range).
Woofer	 Composed of two woofers. Inputs sound signal from BOSE amp. Outputs sound (low range).
Multifunction switch	 Operation panel is equipped with the centralized switch where audio and auxiliary input, etc. operations are integrated. Connected with preset switch via harness, 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 harness, 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 and hands-free phone are possible. Steering switch signal (operation signal) is output to AV control unit.

COMPONENT PARTS

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Part name	Description
Microphone	 Used for hands-free phone operation. Microphone signal is transmitted to TEL adapter unit. Power (Microphone VCC) is supplied from TEL adapter unit.
Auxiliary input jacks	Image signal and sound signal of auxiliary input are transmitted to AV control unit.
Antenna base	 A radio antenna base integrated with radio antenna amp. and satellite radio antenna is adopted. ANTENNA AMP. Radio signal received by rod antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit. SATELLITE RADIO ANTENNA Receives satellite radio waves and outputs it to Satellite radio tuner.
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).
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	Sound signal of USB input is transmitted to AV control unit.

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SYSTEM MULTI AV SYSTEM



NOTE:

- FLASH AUDIO is not used.
- The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.
- An antenna base integrated with radio antenna amp. and satellite radio antenna is adopted.



MULTI AV SYSTEM : System Description

Multi AV system means that the following systems are integrated.

FUNCTION NAME
Audio function
Hands-free phone function
Auxiliary input function

SYSTEM

< SYSTEM DESCRIPTION >

FUNCTION NAME
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 and combination meter, and 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 control unit is connected with display unit and serial communication, and it transmits the required signal of display and display control and receives the response signal from display unit.

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

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.
- AM/FM radio wave is received by rod antenna, next it is amplified by antenna amp., and finally it is input to AV control unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the AV control unit directly. The FM sub antenna is installed on the back door window glass.
- AV control unit outputs audio signal to BOSE amp. The signal is also outputted from BOSE amp. to woofer and 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 radio antenna (antenna base) and transmitted to AV control unit via satellite radio tuner.
- AV control unit outputs audio signal (satellite radio) to BOSE amp. The signal is also outputted from BOSE amp. to woofer and each speaker.

CD Mode

- CD function is built into AV control unit.
- AV control unit outputs audio signal to BOSE amp. The signal is also outputted from BOSE amp. to woofer and each speaker when CD is inserted to AV control unit.

USB Connection Function

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- Connecting iPod[®] or USB memory allows the driver to play iPod[®] music files or USB memory-stored music files.
- Sound signals of music files stored in iPod[®] or USB memory is transmitted from the USB connector to the AV control unit.
- AV control unit outputs sound signal to BOSE amp. The signal is also outputted from BOSE amp. to woofer and each speaker.
- iPod[®] is recharged when connected to USB connector.
- Only files that meet the following conditions will be played.

	Music file	
File format	"MP3", "WMA"	D
File extension	".mp3", ".wma"	
Maximum file size	800 MB	

NOTE:

- iPod[®] is a trademark of Apple inc., registered in the U.S. and other countries.
- Image signals cannot be received from iPod[®] or USB memory.
- Use the enclosed USB harness when connecting iPod[®] to USB connector.

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 to the front speaker via BOSE amp. when operating the cellular phone.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-190, "On Board Diagnosis Function".

When A Call Is Originated

- Spoken voice sound output from the microphone (microphone signal) is input to TEL adapter unit.
- 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 to front speaker via BOSE amp.

AUXILIARY INPUT FUNCTION

- Image and sound can be output from an external device by connecting a device with auxiliary input jacks.
- AUX image signals are transmitted to the display unit via the AV control unit.
- AUX sound signals are transmitted to BOSE amp. via AV control unit. The signal is also outputted from BOSE amp. to woofer and each speaker.

REAR VIEW MONITOR FUNCTION

Camera Image Operation Principle

- 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 signals. Rear view monitor images are displayed by combining the RGB image signals 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 and combination meter.
- AV control unit is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.

AV-177

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

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

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

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 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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DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

	Mode	Description	
Confirmation/ Adjustment	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.	
	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 mon- itored.	
	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.
- 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, the trouble diagnosis initial screen is displayed.)
 - Shifting from current screen to previous screen is performed by pressing "BACK" button.



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4. Items of "Self Diagnosis" and "Confirmation/Adjustment" can be selected on the trouble diagnosis initial screen.



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.

Adjustment" can be

DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BOSE AUDIO WITHOUT NAVIGATION]

< SYSTEM DESCRIPTION >

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

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



NOTE:

Control unit (AV control unit) and 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-276</u>, "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 mal- function 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	A
Control unit \Leftrightarrow Front Display	Malfunction is detected in serial communi- cation circuits between AV control unit and display unit.	Serial communication circuits between AV control unit and display unit.	В
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. Refer to <u>AV-246</u>, "SATELLITE RADIO <u>TUNER : Diagnosis Procedure"</u>. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner. 	C D E
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. Refer to <u>AV-247, "TEL ADAPTER UNIT :</u> <u>Diagnosis Procedure"</u>. AV communication circuits between AV control unit and TEL adapter unit. 	F

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.

	System Diagnostic Menu > Confirmation / Adjustment
4	UP
	Display Diagnosis
Ō	Vehicle Signals
	Speaker Test
	Climate Control
	Error History
	1/9 DOWN
@ 1	Please select an item
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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.

📰 S	system Diagnostic	Menu > Vehicle S	ignals
	Vehicle speed	OFF	
	Parking brake	ON	
	Lights	OFF	
	Ignition	ON	
	Reverse	OFF	
			JSNIA0149GB

Diagnosis item	Display	Vehicle status	Remarks
Vehiele aneed	ON	Vehicle speed > 0 km/h (0 MPH)	
venicie speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal
Parking broke	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal.
Parking brake	OFF	Parking brake is released.	
Lighto	ON	Lighting switch is ON	
Lights	OFF	Lighting switch is OFF	
Ignition	ON	Ignition switch is ON	
Ignition	OFF	Ignition switch is in ACC position	—

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[BOSE AUDIO WITHOUT NAVIGATION]

Diagnosis item	Display	Vehicle status	Remarks	٨
	ON	Selector lever is in R position		A
Reverse	OFF	Selector lever is in any position other than R	Changes in indication may be delayed. This is normal.	R

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 H that may have occurred before the self-diagnosis start because of this situation.

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

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)	AV
Count up method B	Other than the above	

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DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BOSE AUDIO WITHOUT NAVIGATION]

< SYSTEM DESCRIPTION >



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 detect- ed.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-187, "CONSULT Function"</u> .
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 malfunc- tion occurs constantly.
FLASH-ROM Error Of Control Unit	All control unit malfunction is detected	Relef to AV-276, Exploded view.
CAN Controller Memory Error	AV control unit manufaction is detected.	
Steer. Angle Sensor Calibration	Predictive course line center position ad- justment of the steering angle sensor is in- complete.	Adjust the predictive course line center po- sition of the steering angle sensor. Refer to <u>AV-187, "CONSULT Function"</u> .
Front Display Connection Error	 When either one of the following items are detected: display unit power supply and ground circuits are malfunctioning. serial communication circuits between AV control unit and display unit are malfunctioning. 	 Display unit power supply and ground circuits. Refer to <u>AV-244, "DISPLAY UNIT : Diagnosis Procedure"</u>. Serial 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 circuits 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 circuits. Refer to <u>AV-246. "SATELLITE RADIO</u><u>TUNER : Diagnosis Procedure"</u>. Communication circuits between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
AV COMM CIRCUITSwitches 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.

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[BOSE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take	٨
AV COMM CIRCUITH/F Unit Connection Error	 When either one of the following items are 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. Refer to <u>AV-247</u>. "<u>TEL ADAPTER UNIT</u>: <u>Diagnosis Procedure</u>". AV communication circuits between AV control unit and TEL adapter unit. 	B
 AV COMM CIRCUIT Switches Connection Error H/F Unit Connection Error 	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.	С

Camera Cont.

The two functions of "Adjust Guide Lines", "Display Factory configuration" are available.



Adjust Guide Lines

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



Display Factory configuration

Configuration stored in the AV control unit can be checked.



Vehicle CAN Diagnosis

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< SYSTEM DESCRIPTION >

- 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



[BOSE AUDIO WITHOUT NAVIGATION]

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-PrimarySW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(BTHF-ITM)	OK / ???	OK / 0 – 39



"???" 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

Signal StatusCount C Tx(ITM-SW) OK OK C Rx(PrimarySW-ITM) OK OK C Rx(BTHF-ITM) OK OK JSNIA2505ZZ

< SYSTEM DESCRIPTION >

"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-231, "Description"</u>.



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CONSULT Function

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 de- tected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts ac- cording to the diagnosis results. Refer to <u>AV-233, "Diagnosis Procedure"</u> .	
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is de- tected.		
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunc- tion occurs constantly.	Р
Cont Unit [U1200]	AV control unit malfunction is detected	- Refer to <u>Av-270, Exploded view</u> .	
CAN CONT [U1216]	Av control unit manufiction is detected.		

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take	
ST ANGLE SEN CALIB [1232]	Predictive course line center position ad- justment of the steering angle sensor is in- complete.	Adjust the predictive course line center position of the steering angle sensor. Refer to <u>BRC-9</u> , "ADJUSTMENT OF <u>STEERING ANGLE SENSOR NEUTRAL</u> <u>POSITION : Special Repair Requirement"</u> .	
FRONT DISP CONN [U1243]	 When either one of the following items are detected: display unit power supply and ground circuits are malfunctioning. serial communication circuits between AV control unit and display unit are malfunctioning. 	 Display unit power supply and ground circuits. Refer to <u>AV-244</u>, "<u>DISPLAY UNIT</u> : <u>Di-agnosis Procedure</u>". Serial 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 circuits 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 circuits. Refer to <u>AV-246</u>, "SATELLITE RADIO <u>TUNER : Diagnosis Procedure</u>". Communication circuits 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 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] HAND FREE CONN [U1256] 	 When either one of the following items are 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. Refer to <u>AV-247</u>, "<u>TEL ADAPTER UNIT</u> <u>: Diagnosis Procedure</u>". AV communication circuits between AV control unit and TEL adapter unit. 	
 AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] HAND FREE CONN [U1256] 	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	
	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	
	On	Parking brake is applied.	normal.	
	Off	Parking brake is released.		

DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BOSE AUDIO WITHOUT NAVIGATION]

< SYSTEM DESCRIPTION >

Display Item	Display	Vehicle status	Remarks	^
	On	Lighting switch is ON.		P
	Off	Lighting switch is OFF.		
	On	Ignition switch is ON		В
	Off	Ignition switch is in ACC position		
	On	Selector lever is in R position	Changes in indication may be delayed. This is	
REV SIG	Off	Selector lever is 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	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 includes 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 >

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

Description

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 Function

INFOID:000000009721723

INFOID:000000009721722

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 indi- cates 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	DTC 01000 ANT. SHORT TO BATT OR OPEN				
DTC 00100					
DTC 00010	Stooring switch				
DTC 00001	Steering Switch				
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)

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

FLOW CHART OF TROUBLE DIAGNOSIS



[BOSE AUDIO WITHOUT NAVIGATION]

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

INFOID:000000009721724

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
	Ignition switch	Vehicle speed > 0 km/h (0 MPH)	On
VIICE OF DIG	ON	Vehicle speed = 0 km/h (0 MPH)	Off
	Ignition switch	Parking brake is applied.	On
FRB 31G	ON	Parking brake is released.	Off
	Ignition switch ON	Lighting switch is ON	On
ILLOW SIG		Lighting switch is OFF	Off
	Ignition switch ON	_	On
	Ignition switch ACC	_	Off
REV SIG	Ignition switch	Selector lever is in R position	On
	ON	Selector lever is in any position other than R	Off

TERMINAL LAYOUT



PHYSICAL VALUES

< ECU DIAGNOSIS INFORMATION >

Teri (Wire	minal e color)	Description		Condition		Condition Reference value		Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	В		
					Keep pressing SOURCE switch.	0 V			
				Ignition	Keep pressing MENU UP switch.	0.7 V	С		
6 (BR)	15 (L)	Steering switch signal A	Input	switch ON	Keep pressing MENU DOWN switch.	1.3 V	D		
					Keep pressing 💉 🗲 switch	2.0 V	D		
					Except for above.	3.3 V	Ε		
7 (W)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	F		
9				Ignition	Lighting switch is OFF.	0 V	1		
(R)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12.0 V	0		
					Keep pressing VOL DOWN switch.	0 V	G		
16 (G)	15 (L)	Steering switch signal B	Input	Ignition switch	Keep pressing VOL UP switch.	0.7 V	Н		
(-)				ON	Keep pressing 🗪 switch.	1.3 V			
					Except for above.	3.3 V			
19 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	J		
20 (B)	Ground	Ground	_	lgnition switch ON	_	0 V			
36 (GR)	Ground	Signal VCC	Output	Ignition switch ACC	_	9.0 V	r.		
37 (SB)	Ground	Signal ground	_	lgnition switch OFF	_	0 V	L		
38 (G)	Ground	Horizontal synchronizing (HP) signal	Input	lgnition switch ON		(V) 4 0 + + 20µs 5KiB3601E	M AV O		
39 (L)	Ground	Communication signal (DISP→CONT)	Input	lgnition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••1ms •••••1ms ••••••1ms ••••••	Ρ		

< ECU DIAGNOSIS INFORMATION >

Terr (Wire)	minal e color)	Description		Condition		Condition Reference value		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)		
					At RGB image is displayed.	5.0 V		
40 (W) 41	Ground	RGB area (YS) signal	Output	Ignition switch ON	At AUX image is displayed.	(V) 4 2 0 ★ ★ 2 0 ★ ★ 2 0 ★ ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 4 0 ★ 5 ★ ★ 5 ★ ★ 5 ★ ★ ★ 5 ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★		
42 (B)	Ground	RGB synchronizing signal	Output	lgnition switch ON		(V) 4 0 → 20µs SKIB3603E		
43 (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 -0.4 ••••••••••••••••••••••••••••••••••••		
44 (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.	(V) 0.4 0 -0.4 (V) 0 0 0 0 0 0 0 0 0 0 0 0 0		
45 (Y)	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 1.4 0 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4		
46 (V)	Ground	Composite image signal ground		Ignition switch ON		0 V		
47 (LG)	Ground	Composite image signal	Output	Ignition switch ON	At camera image is dis- played.	(V) 0.4 0 -0.4 * 40µs SKIB2251J		

< ECU DIAGNOSIS INFORMATION >

Terr (Wire)	Terminal Description			- Condition		Reference value	А
+	_	Signal name	Input/ Output	•	Condition	(Approx.)	
48 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	9.0 V	В
49 (BR)	Ground	Inverter ground		lgnition switch OFF	_	0 V	С
50 (R)	Ground	Vertical synchronizing (VP) signal	Input	lgnition switch ON		(V) 4 0 ••••4ms SKIB3598E	D E F
51 (P)	Ground	Communication signal (CONT→DISP)	Output	lgnition switch ON	When adjusting display brightness.	(V) 6 2 0 •••••••••••••••••••••••••••••••••	G
52	—	Shield	—	—	—	_	-
57	—	Shield	—	_	—	—	
58	—	Shield	—	_	—	—	
61 (Y)	Ground	AUX image signal	Input	lgnition switch ON	At AUX image is displayed.	(V) 0.4 0 −0.4 + 40µs SKIB2251J	J K L
62 (R)	Ground	Camera image signal	Input	lgnition switch ON	At camera image is dis- played.	(V) 0.4 0 −0.4 •••40µs SKIB2251J	M
69 (BR)	Ground	AUX image signal ground		lgnition switch ON	_	0 V	0
70		Shield	_	_	_	_	
71		Shield	_	_			Р
72 (LG)	Ground	Camera ground		Ignition switch ON	_	0 V	
73 (V)	Ground	Camera power supply	Output	Ignition switch ON	Selector lever is in "R" position.	6.0 V	

< ECU DIAGNOSIS INFORMATION >

Teri (Wire	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
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 (V)	Ground	Switch ground	_	Ignition switch ON	_	0 V
86	—	Shield	—	_	_	_
87 (R)	88 (L)	TEL voice signal	Input	Ignition switch ON	During voice guide output with the w≨ ✔ switch pressed.	(V) 1 0 -1 • • • 2ms SKIB3609E
92 (V)	Ground	Vehicle speed signal (8- pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	NOTE: The maximum voltage varies de- pending on the specification (destination unit). 0 0 0 0 0 0 0 0 0 0 0 0 0
93	Ground	Parking brake signal	Input	Ignition switch	Parking brake is applied.	4.5 V
(LG)		, , ,		ON	Parking brake is released.	0 V
94	Ground	Reverse signal	Input	Ignition switch	Selector lever is in R posi- tion.	12.0 V
(SB)				ON	Selector lever is in 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
(W)	Ground	Disk eject signal	input	ON	Except for above.	5.0 V

< ECU DIAGNOSIS INFORMATION > ____

[BOSE AUDIO WITHOUT NAVIGATION]

Terı (Wire	minal e color)	Description			Condition	Reference value	A
+	_	Signal name	Input/ Output		Condition	(Approx.)	_
103 (B)	102 (W)	AUX sound signal LH	Input	lgnition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 ••••2ms SKIB3609E	B C D
104 (R)	102 (W)	AUX sound signal RH	Input	lgnition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 + 2ms SKIB3609E	E F
108 (LG)	114 (V)	Sound signal rear RH	Output	lgnition switch ON	Sound output.	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	G
109 (W)	115 (B)	Sound signal front RH	Output	lgnition switch ON	Sound output.	(V) 1 0 -1 -1 -1 -1 -1 -2ms SKIB3609E	J
110 (P)	Ground	Amp. ON signal	Output	Ignition switch ACC	_	12.0 V	L
111 (B)	_	Shield	_	_	_	_	M
112 (R)	118 (L)	Sound signal rear LH	Output	lgnition switch ON	Sound output.	(V) 1 0 −1 + 2ms SKIB3609E	AV O
113 (R)	119 (G)	Sound signal front LH	Output	lgnition switch ON	Sound output.	(V) 1 0 -1 -1 SKIB3609E	Ρ

< ECU DIAGNOSIS INFORMATION >

(Wire	ninai color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
120 (G)	124 (B)	Satellite radio sound signal LH	Input	lgnition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 • • 2ms SKIB3609E
121 (W)	125 (R)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	(V) 1 0 -1 * 2ms SKIB3609E
122 (B)	Ground	Communication signal (CONT→SAT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 -10 -10 -10 -10 -10 -
126		Shield			—	—
127		Shield				
		Chicia				
129 (R)	Ground	Request signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 10 -10 -10 -10 -10 -10 -10 -10
129 (R) 130 (W)	Ground	Request signal (SAT→CONT) Communication signal (SAT→CONT)	Input	Ignition switch ON Ignition switch ON	When satellite radio mode is selected. When satellite radio mode is selected.	(V) 10 0 -10 -10 -10 -10 -10 -10 -
129 (R) 130 (W) 132 (G)	Ground	Request signal (SAT→CONT) Communication signal (SAT→CONT) USB ground	Input	Ignition switch ON Ignition switch ON	When satellite radio mode is selected. When satellite radio mode is selected.	
129 (R) 130 (W) 132 (G) 133 (W)	Ground Ground	Request signal (SAT \rightarrow CONT) Communication signal (SAT \rightarrow CONT) USB ground USB D– signal	Input	Ignition switch ON Ignition switch ON	When satellite radio mode is selected. When satellite radio mode is selected.	
129 (R) 130 (W) 132 (G) 133 (W) 134 (R)	Ground Ground	Request signal (SAT→CONT) Communication signal (SAT→CONT) USB ground USB D– signal V BUS signal	Input	Ignition switch ON Ignition switch ON	When satellite radio mode is selected. When satellite radio mode is selected. 	
129 (R) 130 (W) 132 (G) 133 (W) 134 (R) 135 (L)	Ground Ground	Request signal (SAT \rightarrow CONT) Communication signal (SAT \rightarrow CONT) USB ground USB D– signal V BUS signal USB D+ signal	Input Input	Ignition switch ON Ignition switch ON	When satellite radio mode is selected. When satellite radio mode is selected. — — — — —	
129 (R) 130 (W) 132 (G) 133 (W) 134 (R) 135 (L) 136	Ground Ground	Request signal (SAT→CONT) Communication signal (SAT→CONT) USB ground USB D– signal V BUS signal USB D+ signal Shield	Input Input	Ignition switch ON Ignition switch ON	When satellite radio mode is selected. When satellite radio mode is selected. — — — — — — — —	

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

Terminal (Wire color)		Description		Condition		Reference value	A
+	-	Signal name	Input/ Output	Condition		(Approx.)	
138		AM - FM main	Input	—	_	—	В
139	_	Antenna amp. ON signal	Output	lgnition switch ON	_	12.0 V	С

DTC Index

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SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to	-
U1000	CAN COMM CIRCUIT [U1000]	AV-233, "Diagnosis Procedure"	- L
U1010	CONTROL UNIT (CAN) [1010]	AV-234, "DTC Logic"	-
U1200	Cont Unit [U1200]	AV-235, "DTC Logic"	F
U1216	CAN CONT [U1216]	AV-236, "DTC Logic"	_
U1232	ST ANGLE SEN CALIB [1232]	AV-237, "Diagnosis Procedure"	_
U1243	FRONT DISP CONN [U1243]	AV-238, "Diagnosis Procedure"	G
U1255	SAT CONN [U1255]	AV-240, "Diagnosis Procedure"	_
U1310	CONTROL UNIT (AV) [U1310]	AV-243, "DTC Logic"	H
U1300 U1240	AV COMM CIRCUIT [U1300]SWITCH CONN [U1240]		-
U1300 U1256	AV COMM CIRCUIT [U1300]HAND FREE CONN [U1256]	AV-242, "Description"	I
U1300 U1240 U1256	 AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] HAND FREE CONN [U1256] 		J

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< ECU DIAGNOSIS INFORMATION >

DISPLAY UNIT

Reference Value

TERMINAL LAYOUT

INFOID:000000009721726



PHYSICAL VALUES

Terr (Wire	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 (GR)	Ground	Signal VCC	Input	Ignition switch ACC	_	9.0 V	
4 (V)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V	
5		Shield			_	_	
6 (L)	Ground	RGB signal (G: green)	Input	lgnition 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 (V) 0 0 0 0 0 0 0 0 0 0 0 0 0	
7	—	Shield	—	_	_	—	
8 (G)	Ground	Horizontal synchronizing (HP) signal	Output	lgnition switch ON	_	(V) 4 0 + 20µs 5KIB3601E	

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

lerr Wire)	ninal color)	Description			Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	
					At RGB image is displayed.	5.0 V	В
9 (W)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At AUX image is displayed.	(V) 6 4 2 0 +++200,µs −++200,µs −+KIB4948J	C
11 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 2 0 •••••1ms •••••1ms ••••••1ms ••••••1ms	E F
13 (BR)	Ground	Inverter ground	_	Ignition switch ON		0 V	9
14 (SB)	Ground	Signal ground	_	Ignition switch ON	_	0 V	Η
15 (LG)	Ground	Composite image signal	Input	Ignition switch ON	At camera image is dis- played.	(V) 0.4 0 −0.4 ••••40µs SKIB2251J	J
17 (G)	Ground	RGB signal (R: red)	Input	lgnition 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 $+40\mu$ s SKIB2238J	L
18 (Y)	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.	$ \begin{array}{c} (V) \\ 0.4 \\ 0 \\ \hline \\ -0.4 \\ \hline \\ $	AV O P

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

Terr (Wire	ninal color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
19 (B)	Ground	RGB synchronizing signal	Input	Ignition switch ON		(V) 4 0 → 20µs SKIB3603E
20 (R)	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 2 0 •••••1ms •••••1ms •••••••••••••••••••••
23		Shield			—	

[BOSE AUDIO WITHOUT NAVIGATION] < ECU DIAGNOSIS INFORMATION >

BOSE AMP.

Reference Values

INFOID:000000009721727

А

TERMINAL LAYOUT



PHYSICAL VALUES

Terı (Wire	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
1 (LG)	2 (V)	Sound signal front squawk- er LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
4 (P)	3 (L)	Sound signal front squawk- er RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E
7 (B)	Ground	Ground		Ignition switch ON	_	0 V
10 (SB)	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
13 (GR)	8 (BR)	Sound signal woofer	Output	Ignition switch ON	Sound output	(V) 1 0 -1 • • 2ms SKIB3609E

BOSE AMP.

< ECU DIAGNOSIS INFORMATION >

Terr (Wire)	ninal color)	Description				Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
14 (L)	9 (O)	Sound signal rear door speaker RH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 +2ms SKIB3609E
16 (GR)	17 (BR)	Sound signal rear speaker	Output	lgnition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
18 (W)	19 (B)	Sound signal front door speaker LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 -2ms SKIB3609E
20 (SB)	Ground	Amp. ON signal	Input	Ignition switch ACC	_	12.0 V
24 (GR/V)	23 (W/L)	Sound signal rear LH	Input	lgnition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E
26 (GR/V)	25 (W/L)	Sound signal rear RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E
28 (G)	15 (R)	Sound signal rear door speaker LH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 • • 2ms SKIB3609E

BOSE AMP.

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

lerr Wire)	ninal color)	Description			Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	
29 (V)	30 (P)	Sound signal center speak- er	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	B C D
31 (BR)	32 (Y)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	E
33 (W/R)	34 (B/R)	Sound signal front RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	G
35 (W/R)	36 (B/R)	Sound signal front LH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	J

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< ECU DIAGNOSIS INFORMATION >

SATELLITE RADIO TUNER

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Terr	ninal	Description				Deference volue
+	_	Signal name	Input/ Output		Condition	(Approx.)
2 (Y/L)	1 (W/L)	Satellite radio sound signal LH	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E
4 (BR/L)	3 (Y/G)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	(V) 1 -1 • 2ms SKIB3609E
5	—	Shield	_	—	—	—
6	—	Shield		—	—	_
8 (R/W)	Ground	Request signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 • + 10ms SKIA9299J
9 (R/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]

Terr	minal	Description				Poforonoo voluo	^
+	_	Signal name	Input/ Output		Condition	(Approx.)	A
10 (B)	Ground	Communication signal (CONT→SAT)	Input	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 • • 1ms SKIA9301J	B
12 (V)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	D
15 (B)	Ground	Ground		Ignition switch ON	_	0 V	E
16 (GR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	F
33		Satellite radio antenna sig- nal	Input		_	_	G

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< ECU DIAGNOSIS INFORMATION >

TEL ADAPTER UNIT

Reference Value

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PHYSICAL VALUES

Terr (Wire	ninal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (V)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
2 (GR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
3 (R)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
4 (B/W)	Ground	Ground		Ignition switch ON	_	0 V
5		Shield	_	—	_	_
6	_	Shield	_	_	—	_
7 (R/W)	8 (R/L)	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2.5 2.0 1.5 1.0 0.5 0 ★ 2ms PKiB5037J
9 (B/R)	10 (W/R)	TEL voice signal	Output	Ignition switch ON	During voice guide output with the $\sqrt{2}$ C switch pressed.	(V) 1 0 -1 • • 2ms SKIB3609E
20 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V

TEL ADAPTER UNIT

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

Terr (Wire)	minal color)	Description			Condition	Reference value	А
+	-	Signal name	Input/ Output		Condition	(Approx.)	
24 (B/W)	Ground	Control signal	Input	Ignition switch ON	_	0 V	В
28 (BR)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	NOTE: The maximum voltage varies de- pending on the specification (destination unit). 0 0 0 0 0 JSNIA0012GB	C D E
29 (B)	8 (R/L)	Microphone VCC	Output	Ignition switch ON	_	5.0 V	F
33	_	TEL antenna signal	Input/ Output	—	_	_	G
34		Shield			_	_	Ц
35 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_	П
36 (LG)		AV communication signal (L)	Input/ Output	_	_	_	I
40 (G)		AV communication signal (H)	Input/ Output	_	_	_	
42 (GR)	_	AV communication signal (L)	Input/ Output	_	_	_	J

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WIRING DIAGRAM BOSE AUDIO WITHOUT NAVIGATION

Wiring Diagram

INFOID:000000009721730

NOTE:

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



BOSE AUDIO WITHOUT NAVIGATION [BOSE AUDIO WITHOUT NAVIGATION]

< WIRING DIAGRAM >



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REAR SPEAKER LH B9 g

REAR DOOR SPEAKER RH D106

REAR DOOR SPEAKER LH D86 -99

CENTER SPEAKER M66 ą

B200 B12

3218) D155

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M124 B226

B206

B12

D81

B3

BOSE AMP. B224), B225

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B12 B206

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WOOFER B89



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Connector No. B3					
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Connector Name WIRE TO WIRE		Connector Name WIRE TO WIRE	46	-	
Connector Type TK10FW-NS8	-	Connector Type TH80MW-CS19	47 S	-	
	12 BR -		47	-	
E	13 P -		48 G		
[[14 BR -		48 SHI	- ELD	
	15 0 -		49		
	16 G		49 B	·	
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No. March Signal Name [Specification]	Connector Name REAR SPEAKER RH	Nimital Color Of Signal Name [Specification]			
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-	Connector Type TKU2FBR	1 SHIELD =	22	-	
4 LG –	4	2 B –	54 L	- 5	
- 2		3 R/L -	55 B		
7 16		4 R/W -	56		
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			10		
=1 SB -	1 2	7 V -	58	1	
12 G -		8 SHIELD -	29		
13 V		9 BR/L -	29 SHI	ELD -	
14 GR -		10 Y/G -	09	, ,	
	Tarminal Color Of	11 V/I =	, UA		
j c	Mo Mice Signal Name [Specification]	12 I I I I I I I I I I I I I I I I I I I	3 3		
		- T/M ZI	5		
	- 28	13 L -	97 H	-	
	2 GR -	14 BR –	e3	- 9	
		15 SB -	64	-	
Connector No. B4		16 BR -	65 B	-	
	Connector No. Ro	- v Ct	65		
Connector Name WIRE TO WIRE		* 40 V	3		
	Connector Name REAR SPEAKER LH	18 26	99		
Connector Type NS16MW-CS		19 R -	99		
ſ	Connector Type TK02FBR	20 P -	67 0	1	
E		21 16 -	67	-	
AHP I	£	2 3	5		
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	2 1	25 Y -	70 W		
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-			7/	-	
Terminal Color Of cimel Manue [Canadian]		30 P -	73 L		
No. Wire Signal Name Specification	Terminal Color Of	31 BR -	74 S	-	
9	No Mire Signal Name [Specification]		75		
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BOSE AUDIO WITHOUT NAVIGATION [BOSE AUDIO WITHOUT NAVIGATION]

Revision: 2013 August

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86	P	T	36	P	AV COMM (L)	2	۲/۲	SATELLITE RADIO SOUND SIGNAL LH (+)			
66	0		40	0	AV COMM (H)	~	7/G	SATELLITE RADIO SOUND SIGNAL RH (-)			
			42	ß	AV COMM (L)	4	BR/L	SATELLITE RADIO SOUND SIGNAL RH (+)			
]			ۍ	SHIFLD	SHIFLD	Terminal Color	Of	
Connecto	vr No.	812				g	SHIFLD	SHIELD	No. Wire	Signal Name [Specification]	
			Connecte	or No	R20	a	W/d	BEOLIEST (SAT- CONT)	1/H	WOFFFR+	
Connecto	or Name	WIRE TO WIRE				, ,	1/4	COMM (SAT- CONT)	- c	WOFFFR-	
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H-S-H-S			ALL			16	GR	ACC	Connector Name	WIRE TO WIRE	
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		135 145 05 85							Connector Type	NS16MW-CS	
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-	0		No.	Wire	Signal Name [Specification]	ß				0 A 11 11 71 21 41 CI 01	
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œ	0	1	8	œ	IGNITION			R 7 R 0 10 11 12	Terminal Color	Of Simul Name [Canaification]	
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=	٩	1	9	SHIELD	SHIELD				2 GR	1	
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5	0	1		R/L	MICROPHONE GND	No.	Wire	olgnal Name [opecification]	•	1	
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			20	8	CONTROL SIGNAL	е С	_	,	-1 1	ı	
			24	B/W	CONTROL SIGNAL	4	Υ	-	12 G	-	
			28	BR	VEHICLE SPEED (8-PULSE)	5	W	-	13 R	-	
			29		MICROPHONE VCC	9	R/L	-	14 BR	1	
						2	W/A		15 GR		

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BOSE AUDIO WITHOUT NAVIGATION [BOSE AUDIO WITHOUT NAVIGATION]



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me Wite To Write Write To Write HH70FW-CS10-M3 HH70FW-CS10-	er F -
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Connector No. M3 Connector Name FUSE BLOCK (J/S) Connector Type NS12FW-CS Connector Type A Connector Type Connector Type Conn	Terminal No. Color Of Signal Name (Specification) 100 81 100 81 100 81 100 81 100 81 100 81 100 81 100 81 100 81 100 91 100 80
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	Connector No. M125	Connector Name MULTIFUNCTION SWITCH		Connector Type TH16FW-NH	ģ	Lykky.			92 91		103 102 100 100 89		Terminal Color Of Simul Name [Secretion]	No. Wire Olgian Name Lopeonication	1 B GROUND	3 W ACC	4 R ILL	5 B ILL CONT	6 SB AV COMM (H)	8 LG AV COMM (L)	9 V SW GND	14 W EJECT SIGNAL			Connector No. M171	Consistent Name AV CONTROL LINIT		Connector Type TH18FW-CS2	ą	(duth)	Hs		1 2 3 4 5 6 7	19 10 11 12 13 14 15 16 20		Tarminal Color Of	No. Wire Signal Name [Specification]	2 G SOURD SIZINAL FRONT DOOR SPEAKER AND FRONT SIZUARCER LIT(+)	3 R SOUND SOMAL FRONT DOOR SPEAKER AND FRONT SOURMERLIA (-)	4 LG SOUND SIGNAL REAR DOOR SPEAKER LH (5 Y SOUND SIGNAL REAR DOOR SPEAKER LH (6 BR STRG SW A	7 W ACC [With BOSE system]	9 R ILLUMINATION	11 W SOUND SIGNAL FRONT DODR SPEAKER AND FROMT SQUARKER RH (+)	12 L SOUND SIGNAL FRONT DOOR SPEAKER AND FRONT SOURNEER RH (~)	13 GR SOUND SIGNAL REAR DOOR SPEAKER RH (+	14 D COUNT DEAD DOOD CDEAVED DH (-
	82 BR IGN RELAY (F/B) CONT	83 P KEYLESS ENTRY RECEIVER COMM	87 R COMBI SW INPUT 5	88 GR COMBI SW INPUT 3	90 P CAN-L	91 L CAN-H	92 R KEY SLOT ILL CONT	93 P ON IND	95 L ACC RELAY CONT	96 Y CVT SHIFT SELECTOR POWER SUPPLY	99 V SHIFT P	100 P PASSENGER DOOR REQUEST SW	101 W DRIVER DOOR REQUEST SW	102 Y BLOWER RELAY CONT	103 L KEYLESS ENTRY RECEIVER POWER SUPPLY	107 0 COMBI SW INPUT 1	108 P COMBI SW INPUT 4	109 SB COMBI SW INPUT 2	110 G HAZARD SW			Connector No. M124	Commission Name		Connector Type NS12FBR-CS	ą				12 11 10 9 8 7 6				Terminal Color Of Signal Name [Specification]		- c	- u	- × +	5 BR -	6 GR –	7 W –		- -	10 BR -	11 LG -	12 R –		
	Connector No. M97	Connector Name WIRE TO WIRE		Connector Type TH18FW-CS2	Ó	(ANA)			2 3 4 5 6 7 9 7	19 44 40 42 44 45 48 20			Terminal Color Of Simul Name [Samification]	No. Wire Ognammania Lopectineation	1 W -	4 W -	5 SHIELD -	6 W -	8 B	- × 6	10 B -	13 SHIELD -	14 R –	15 B -	17 SHIELD -	18 BR -			Connector No. M122	Connector Name BCM (BODY CONTROL MODIII E)		Connector Type TH40FB-NH	đ	MHTA	S.	21 21 21 21 21 21 21 21 21 21 21 21 21 2				Terminal Color Of Col	No. Wire Specification]	72 B ROOM ANT-	73 W ROOM ANT+	74 Y PASSENGER DOOR ANT-	75 LG PASSENGER DOOR ANT+	76 V DRIVER DOOR ANT-	77 P DRIVER DOOR ANT+	OD CD NATE ANT AND
30SE AUDIO WITHOUT NAVIGATION	66 L L –	66 Y -	67 G –	67 W -	68 BG -	68 G -	69 SHIELD -	70 L –	71 P -	72 LG -	73 Y -	74 R -	75 P –	76 L –	77 BR -	79 B	80 W -	81 L	82 L – –	83 GR – [Without automatic drive positioner]	83 W – [With automatic drive positioner]	84 R -	85 V -	86 W -	87 R -	88 G -	89 B -	90 V -	91 G –	92 BR –	93 P	94 V -	95 W -	96 SB	%													
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124 E SATELLITE RADIO SOUND SIGNAL INI (-) 125 125 SHELD SOUND SIGNAL INI (-) 120 129 SHELD SHELD 120 N NITT 120 N NITT 120 NITT COMM (SAT- CONT) 120 N VOIT POLITY 120 N NITT 120 N NITT 120 NITT COMM (SAT- CONT) 120 NITT COMM (SAT- CONT) 120 NITT COMM (SAT- CONT) 121 NITT COMM (SAT- CONT) 122 NITT NITT 123 NITT NITT 124 USB CHARL SIGNAL 125 NITT NITT 126 USB CHARL SIGNAL 128 NITT NITT 121 NITT NITT 121 NITT NITT 121 NITT NITT 121 NITT NITT	Terminal (2) Color Of (2) Color Of (2)<
85 C TONITION 100 B AUX SOUND SIGNAL DH (s) 100 B AUX SOUND SIGNAL DH (s) 100 B AUX SOUND SIGNAL DH (s) 000 B AUX SOUND SIGNAL DH (s) 0000 B AUX SOUND SIGNAL DH (s) 000 B AUX SOUND SIGNAL DH (s) 0000 COUNTS Count DE SIGNAL DH (s) 0000 SIGNAL SIGNAL DH (s) Interverter The Signal DH (s) 111 B SOUND SIGNAL DH (s) 111 B SOUND SIGNAL REAR HI (s) 1	Commeter Type A12FW Interference Interference Interference Same Same Same Same Reich Interference Interference Interference Count ICONF - SAT
Connector No. M173 Connector Yana V CONTROL UNIT Connector Types V CONTROL UNIT Connector Types M173 Connector Types M173 Connector Types M173 Connector Types M174 Connector Types M174 March Signal Name [Sacoff-action] Signal Name [Sacoff-action] Signal Name [Sacoff-action] March Signal Name [Sacoff-action] Signal Name [Sacoff-action] Signal Name [Sacoff-action] March Signal Name [Sacoff-action] March Signal Name [Sacoff-action] March Signal Name [Sacoff-action] Signal Name [Sacoff-action] Signal Name [Sacoff-action] March Signal Name [Sacoff-action] Signal Name [Sacoff-action]	No. Wree Optimum control 79 LG AV COMM (1) 79 LG AV COMM (1) 79 LG AV COMM (1) 79 SG AV COMM (1) 79 SG AV COMM (1) 70 SG AV COMM (1) 71 SG AV COMM (1) 79 SG AV COMM (1) 80 LG AV COMM (1) 81 L CMA+1 82 LL SM (20) 83 L CMA+1 84 L TELVOICE SIGNAL (5) 82 L VENDICE SIGNAL (5) 82 L VENDICE SIGNAL (5) 83 L VENDICE SIGNAL (5) 84 SI VENDICE SIGNAL (5) 93 SI VENDICE SIGNAL (5) 94 SI PARNUE BIOLE SIGNAL (5)
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BOSE AUDIO WITHOUT NAVIGATION

< WIRING DIAGRAM >

[BOSE AUDIO WITHOUT NAVIGATION]

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< WIRING DIAGRAM >	[BOSE AUDIO WITHOUT NAVIGATION]
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BOSE AUDIO WITHOUT NAVIGATION

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BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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OVERALL SEQUENCE



- Reference 1... Refer to AV-187, "CONSULT Function".
- Reference 2... Refer to <u>AV-199, "DTC Index"</u>.
- Reference 3... Refer to <u>AV-269, "Symptom Table"</u>.

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 WORK FLOW

< BASIC INSPECTION >	[BOSE AUDIO WITHOUT NAVIGATION]
1. Connect CONSULT and perform a self-diagnosis for "MULTI NOTE:	AV". Refer to <u>AV-187, "CONSULT Function"</u> . A
 Skip to step 4 of the diagnosis procedure if "MULTLAV" is no When DTC is detected, follow the instructions below: Record DTC and Freeze Frame Data. 	ot displayed.
Is DTC displayed?	В
YES >> GO TO 3. NO >> GO TO 4.	C
3. TROUBLE DIAGNOSIS FOR DTC	
 Check the DTC indicated in the self-diagnosis results. Perform the relevant diagnosis referring to the DTC Index. R 	Refer to <u>AV-199, "DTC Index"</u> .
>> GO TO 5.	
4. TROUBLE DIAGNOSIS FOR SYMPTOMS	E
Perform the relevant diagnosis referring to the diagnosis char Table".	rt by symptom. Refer to <u>AV-269, "Symptom</u> F
>> GO TO 5.	
5. ERROR PART REPAIR	G
 Repair or replace the identified malfunctioning parts. Perform a self-diagnosis for "MULTI AV" with CONSULT. NOTE: 	Н
Erase the stored self-diagnosis results after repairing or re has been indicated in the self-diagnosis results.	placing the relevant components if any DTC
3. Check that the symptom does not occur.	I
VES >> GO TO 1	
NO >> INSPECTION END	J
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ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT) < BASIC INSPECTION > [BOSE AUDIO WITHOUT NAVIGATION]

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

Description

INFOID:000000009721732

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:000000009721733

1.SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform "Before Replace ECU" to save or print current vehicle specification. Refer to <u>AV-231, "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-276, "Exploded View".

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

CONSULT Configuration Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to <u>AV-231</u>, "Work <u>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 >

CONFIGURATION (AV CONTROL UNIT)

Description

- 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.

F	unction	Description
	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.
Read/while 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:00000009721735
1.WRITE VEHICLE SPE	CIFICATION	
CONSULT Configuration	on n into AV control unit.	
To write vehicle specific To write vehicle specific 2. WRITE STORED DAT	ation stored in CONSULT ation into the AV control u A	into the AV control unit>>GO TO 2. Init by hand>>GO TO 3.
CONSULT Configuration Select "After Replace EC Replace ECU" function in	on CU" in "Read/Write Config to the AV control unit.	guration." Write data stored in CONSULT with the "Before
>> GO TO 4		
3. MANUALLY WRITE V	EHICLE SPECIFICATION	١
CONSULT Configuration Perform "Manual Configuration trol unit. Refer to <u>AV-231</u>	on Iration." Refer to the Con , "Configuration List".	figuration List to write vehicle specification into the AV con-
If selection items are not	displayed on the CONSU	LT screen, touch "NEXT."
>> GO TO 4.		
4. OPERATION CHECK		-
Check that the operation lines) are normal.	of the AV control unit ar	nd camera images (fixed guide lines and predictive course
>> WORK END		
Configuration List		INFOID:00000009721736
CAUTION: Grasp vehicle specifica tions are misread. NOTE: • The items shown in this	i tions precisely. The con s list depend on vehicle sp	ntrol of ECU may not function normally if the specifica-

• The config list may not be displayed depending on vehicle specifications. This is not a malfunction.

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INFOID:000000009721734

< BASIC INSPECTION >

MANUAL SE	TTING ITEM	Detail				
Items	Setting value	Detail				
STEEDING	LHD	LHD models				
STEERING	RHD	RHD models				
	REAR CAMERA	With rear view monitor system				
CAMERA SYSTEM	REAR+SIDE	With rear view monitor system and front-side view monitor function				
	BASE	Without BOSE system				
SCOND STOLEN	BOSE	With BOSE system				
MICROPHONE	DIRECTIONAL MIC	With directional microphone*				
	NON-DIRECTIONAL MIC	With non-directional microphone*				
AFFORDARI E ITS	WITH	With BSW and LDW				
ATTORDADEL ITO	WITHOUT	Without BSW and LDW				

*: In the following table, find an illustration that the (A) part matches the vehicle and select microphone type.



DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

Description

INFOID:000000009721737 B

INFOID:000000009721738

INFOID:000000009721739

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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.

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction location	F
U1000	CAN COMM CIRCUIT [U1000]	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.	0

Diagnosis Procedure

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-18, "Trouble Diagnosis Procedure".
- NO >> Refer to <u>GI-44, "Intermittent Incident"</u>.

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U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:000000009721740

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 <u>AV-276, "Exploded View"</u> .

U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1200 AV CONTROL UNIT

Display contents of

CONSULT

Cont Unit

[U1200]

DTC Logic

DTC

U1200

INFOID:000000009721741

DTC detection condition	Possible malfunction factor
AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-276, "Exploded View"</u> .

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U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1216 AV CONTROL UNIT

INFOID:000000009721742

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-276, "Exploded View"</u> .

U1232 STEERING ANGLE SENSOR S > [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009721743

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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 cen- ter position of the steering angle sen- sor.
Diagn	osis Procedure		INFOID:00000009721744
1.ADJ	UST THE PREDICTIV	E COURSE LINE CENTER POSITION OF THE	STEERING ANGLE SENSOR
When L	J1232 is detected, adj	ust the predictive course line center position of t	he steering angle sensor.
	>> Adjusts the steer side. Refer to <u>BF</u> <u>Special Repair R</u>	ing angle sensor neutral position on ABS actuato RC-9. "ADJUSTMENT OF STEERING ANGLE S equirement".	or and electrical unit (control unit) ENSOR NEUTRAL POSITION :

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1243 DISPLAY UNIT

DTC Logic

INFOID:000000009721745

[BOSE AUDIO WITHOUT NAVIGATION]

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1243	FRONT DISP CONN [U1243]	 When either one of the following items are detected: display unit power supply and ground circuits are mal- functioning. serial communication circuits between display unit and AV control unit are malfunctioning. 	 Display unit power supply and ground circuits. Serial communication circuits be- tween display unit and AV control unit.

Diagnosis Procedure

INFOID:000000009721746

1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-244, "DISPLAY UNIT : Diagnosis Procedure"</u>. Is the inspection result normal?

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	
M104	11	M172	51	Existed	
101194	22	101172	39	Existed	

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

Display unit			
Connector	Terminals	Cround	Continuity
M104	11	Gibana	Not evicted
101194	12		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.

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

(+)				ŀ
Displ	ay unit	(-)	Condition	Reference value	
Connector	Terminal				F
M194	11	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 ++1ms PKIB5039J	(

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(- Displa	+)	(_)	Condition	Reference value	G
Connector	Torminal		Condition		
Connector	Terminal				F
M194	22	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

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U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1255 SATELLITE RADIO TUNER

DTC Logic

INFOID:000000009721747

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. Refer to <u>AV-246</u>. "SATELLITE RA- <u>DIO TUNER : Diagnosis Proce- dure"</u>. Communication circuit between AV control unit and satellite radio tun- er. Request signal circuit between AV control unit and satellite radio tun- er.

Diagnosis Procedure

INFOID:000000009721748

1. CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to <u>AV-246, "SATELLITE RADIO TUNER :</u> <u>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 cor	AV control unit Satellite ra		adio tuner	Continuity
Connector	Terminals	Connector	Terminals	Continuity
	122	10		
M176	129	B48	8	Existed
	130		9	

4. Check continuity between AV control unit harness connector.

AV cor	ntrol unit		Continuity
Connector	Terminals	*	Continuity
	122	Ground	
M176	129		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.

U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

(-	+)			A
AV con	trol unit	(-)	Voltage	
Connector	Terminals		(Αρριολ.)	В
M176	129	Ground	7.0 V	
WT76	130	Giouna	7.0 V	
Is the inspection	n result normal	<u>?</u>		С
YES >> GC NO >> Re 4.CHECK SAT	TO 4. place AV contro ELLITE RADIO	ol unit. Refer to <u>A</u> D TUNER VOLTA	AV-276, "Exploded View". AGE	D
 Turn ignitio Disconnect Connect sa Turn ignitio Check sign 	n switch OFF. AV control unit Itellite radio tun n switch ON. al between sate	t connector. er connector. ellite radio tuner	harness connector and grour	E J. F
(-	+)			
Satellite r	adio tuner	(-)	Voltage (Approx.)	0
Connector	Terminal	-	(//pp/ox.)	G
B48	10	Ground	7.0 V	
Is the inspection YES >> INS NO >> Re	n result normal SPECTION ENI place satellite r	<u>?</u> D adio tuner. Refei	r to <u>AV-297, "Exploded View"</u> .	H

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< DTC/CIRCUIT DIAGNOSIS >

U1300 AV COMM CIRCUIT

Description

INFOID:000000009721749

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 U1256	 AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256] 	 When either one of the following items are 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] 	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

U1310 AV CONTROL UNIT [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1310 AV CONTROL UNIT

DTC Logic

DTC

U1310

INFOID:000000009721750

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Display contents of CONSULT	DTC detection condition	Possible malfunction factor
CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-276, "Exploded View"</u> .

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POWER SUPPLY AND GROUND CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

INFOID:000000009721751

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	35
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	M171	19	OFF	Battery voltage
ACC power supply		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.

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	M171	20	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT : Diagnosis Procedure

INFOID:000000009721752

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	M104	2		0.0.1/	
Signal VCC	101134	3	ACC	9.0 V	

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

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.



< DTC/CIRCUIT DIAGNOSIS >

AV cor	ntrol unit	Displ	ay unit	Continuit	-				
Connector	Terminal	Connector	Terminal	Continuity					
M170	48	M104	2	Existed	-				
101172	36	101134	3	Existed	_				
4. Check	continuity b	etween dis	play unit ha	rness conr	ector an	d ground.			
Displ	av unit								
Connector	Terminal		Continuity						
	2	Ground	Not existed						
M194	3		Not existed						
ls the inspe	ction result	normal?							
YFS >>	GO TO 3	<u>normar:</u>							
NO >>	Repair hai	rness or cor	nnector.						
3. снеск	POWER S	UPPLY CIR	CUIT (AV C	CONTROL	UNIT SI	DE)			
1. Conne	ct the AV co	ontrol unit h	arness con	nector		,			
2. Turn ig	nition switc	h ACC.							
3. Check	voltage bet	ween AV co	ontrol unit h	arness con	nector a	nd ground.			
		1	1						
(+)	-	Ignition sw	itch Voltac	ie (An-				
AV cor	itrol unit	(-)	position		ox.)				
Connector	Terminal								
M172	48	Ground	ACC	9.0) V				
	36			9.0) V				
Is the inspe	ection result	normal?							
YES >>	INSPECT	ION END	oit Dofor to		volodod	View"			
				<u>AV-270, E</u>	<u>xpioded</u>				
+.CHECK	GROUND								
1. Turn ig	nition switc	h OFF.	otor						
2. Discon 3. Check	continuity b	etween dis	plav unit ha	rness conr	ector an	d around.			
Signal	name	Connec	tor No.	Termina	I No.	Ignition switch position	Continuity		
Gro	und	M19	94	1		OFF	Existed		
ls the inspe	ection result	normal?							
YES >>	INSPECT	ON END					The second se		
	Repair hai	rness or cor	nnector.						
503E A	IVIP.								
BOSE AI	MP. : Dia	gnosis P	rocedure				INFOID:000000009721753		
		0							
Check for t	nown iuses	•							
		Power source				Fuse No.			
						23			
		Battery				24			
						25			

Is the inspection result normal?

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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	B224	10	OFF	Battery voltage	
	0224	11	en en		

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	B224	7	OFF	Evisted	
Ground	DZZY	12		Existed	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

SATELLITE RADIO TUNER

SATELLITE RADIO TUNER : Diagnosis Procedure

INFOID:000000009721754

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	35
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	(+) Satellite radio tuner		(-)	Ignition switch position	Voltage	
	Connector	Terminal			(********)	
Battery power supply	D10	12	Ground	OFF	Potton voltago	
ACC power supply	D40	16	Giouna	ACC	Ballery Vollage	

Is the inspection result normal?

YES >> INSPECTION END

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

TEL ADAPTER UNIT

POWER SUPPLY AND GROUND CIRCUIT DSIS > [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

TEL ADAPTER UNIT : Diagnosis Procedure

INFOID:000000009721755

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1.CHECK FUSE

Check for blown fuses.

	Power source			Fuse No.	
	Battery		35		
Ignition switch ACC or ON				19	
Is the inspection resu	It normal?				
YES >> GO TO 2 NO >> Be sure to 2.CHECK POWER S	o eliminate cause of m SUPPLY CIRCUIT	alfunction b	efore insta	alling new fuse.	
Check voltage betwee	en TEL adapter unit ha	irness conne	ector and	ground.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Value (Approx.)
Battery power supply	Baa	1		OFF	Dettersuelterse
ACC power supply	В 39	2		ACC	Battery voltage
s the inspection resu	It normal?				
YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND	Irness between TEL ad CIRCUIT	dapter unit a	nd fuse.		
 Turn ignition swite Disconnect TEL a Check continuity 	ch OFF. adapter unit connector. between TEL adapter	unit harness	connecto	or and ground.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Continuity

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity	
Ground	B39	4	OFF	Existed	J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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< DTC/CIRCUIT DIAGNOSIS >

RGB (R: RED) SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721757

INFOID:000000009721756

[BOSE AUDIO WITHOUT NAVIGATION]

1.CHECK CONTINUITY RGB (R: RED) 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 con	AV control unit		ay unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M172	43	M194	17	Existed

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

Display unit			Continuity		
Connector	Terminal	Ground	Continuity		
M194	17		Not existed		

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

1. Connect AV control unit connector and display unit connector.

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

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal	-		
M194	17	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{array}{c} (V) \\ 0.4 \\ 0 \\ -0.4 \end{array} $

Is inspection result normal?

YES >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-276</u>, "Exploded View".

RGB (G: GREEN) SIGNAL CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

SKIB2236J

< DTC/CIRCUIT DIAGNOSIS >

RGB (G: GREEN) SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

1.CHECK CONTINUITY RGB (G: GREEN) 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 con	trol unit	Displa	ay unit	Continuity
Conne	ector	Terminal	Connector	Terminal	Continuity
M1	72	44	M194	6	Existed

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

Displa	ay unit		Oant	· · · · · ·	
Connector	Terminal	Gr	round	nuity	
M194	6		Not e	xisted	
Is inspection	result norm	al?			
YES >> NO >>	GO TO 2. Repair harne	ess or conn	ector.		
2.CHECK F	RGB (G: GR	EEN) SIGN	AL		
 Connect Turn ign Check s 	t AV control hition switch hignal betwee	unit connec ON. en display u	tor and display unit cor	inector. and ground.	
(·	+)				
Displa	ay unit	(-)	Condition	Reference val	ue
Connector	Terminal				
M194	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by		

Is inspection result normal?

YES >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.

selecting "Color Spec-

trum Bar" on DISPLAY DIAGNOSIS screen.

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INFOID:000000009721758

INFOID:000000009721759

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RGB (B: BLUE) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

RGB (B: BLUE) SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721761

INFOID:000000009721760

1.CHECK CONTINUITY RGB (B: BLUE) 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 con	trol unit	Displa	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M172	45	M194	18	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	18		Not existed
		10	

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB (B: BLUE) SIGNAL

1. Connect AV control unit connector and display unit connector.

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

(+)				
Display unit		(–)	Condition	Reference value
Connector	Terminal			
M194	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{array}{c} (V) \\ 0.4 \\ 0 \\ -0.4 \end{array} + \begin{array}{c} 0 \\ + 10 \\ + 10 \\ + 10 \\ -0.4 \end{array} + \begin{array}{c} 0 \\ + 10 \\ + 10 \\ + 10 \\ - 10 $

Is inspection result normal?

YES >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.

RGB SYNCHRONIZING SIGNAL CIRCUIT ISIS > [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

RGB SYNCHRONIZING SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

1. CHECK CONTINUITY RGB SYNCHRONIZING 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 cor	AV control unit Display unit		0			
Connector	Terminal	Connector	Terminal	Continuity		
M172	42	M194	19	Existed		
4. Check c	 Check continuity between display unit harness connector and 					
Displa	ay unit			Continuity		
Connector	Terminal	Ground		,		
M194	19			Not existed		
Is the inspect YES >> NO >> 2.CHECK I	<u>ction result n</u> GO TO 2. Repair harno RGB SYNCH	ormal? ess or conne IRONIZING	ctor. SIGNAL			

1. Connect AV control unit connector and display unit connector.

2. Turn ignition switch ON.

3. Check signal between display unit harness connector and ground.

Connector Terminal M194 19 Ground (V) 4 0 ++20 µs SKIB3603E	(+) Display unit		(-)	Reference value
M194 19 Ground (V) 4 0 + 20 µs SKIB3603E	Connector	Terminal		
	M194	19	Ground	(V) 4 0 → + 20 µs SKIB3603E

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.

INFOID:000000009721762

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RGB AREA (YS) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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:000000009721765

INFOID:000000009721764

1.CHECK CONTINUITY RGB AREA (YS) 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 cor	ntrol unit	Displa	ay unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M172	40	M194	9	Existed

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

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M194	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 AV control unit connector and display 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
M194	9	Ground	At AUX image is displayed.	(V) 6 4 2 0 ++200 µ s −+KIB4948J

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.
Display unit Reference value (-) Connector Terminal (V)M194 8 Ground SKIB3601E Is the inspection result normal? YES >> Replace AV control unit. Refer to AV-276, "Exploded View". NO >> Replace display unit. Refer to AV-277, "Exploded View".

Connect display unit connector and AV control unit connector. 1.

- 2. Turn ignition switch ON.
- 3.

AV-253

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< DTC/CIRCUIT DIAGNOSIS >	[BOSE AUDIO WIT
HORIZONTAL SYNCHRONIZING	(HP) SIGNAL CIRCUIT

Description

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4.

In composite image (AUX 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 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.
- Е Display unit AV control unit Continuity Connector Terminal Connector Terminal F M194 8 M172 38 Existed Check continuity between display unit harness connector and ground. Display unit Continuity Connector Terminal Ground Н M194 8 Not existed Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2.CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL Check signal between display unit harness connector and ground. Κ (+) Μ AV
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INFOID:000000009721766

INFOID:000000009721767

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT [BOSE AUDIO WITHOUT NAVIGATION]

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

Description

In composite image (AUX 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:000000009721769

INFOID:000000009721768

1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) 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
M194	20	M172	50	Existed

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

Displa	ay unit		Continuity	
Connector	Terminal	Ground	Continuity	
M194	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.

(· Displa	+) ay unit	(-)	Reference value
Connector	Terminal		
M194	20	Ground	(V) 4 0 • • • 4ms SKIB3598E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.

NO >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

COMPOSITE IMAGE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

$1. {\sf CHECK} \ {\sf CONTINUITY} \ {\sf COMPOSITE} \ {\sf IMAGE} \ {\sf SIGNAL} \ {\sf CIRCUIT}$

- 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 con	trol unit	Display unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M172	47	M194	15	Existed

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

Connector Terminal Ground Containing M172 47 Not existed	AV cor	AV control unit		Continuity
M172 47 Not existed	Connector	Terminal	Ground	Continuity
	M172	47		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.

(•	+)				-
AV con		(-)	Condition	Reference value	
Connector	reminal				-
M172	47	Ground	At camera image is dis- played.	(V) 0.4 0 −0.4 • + 40µs SKiB2251J	

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-277, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to AV-276, "Exploded View".

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INFOID:000000009721770

INFOID-000000009721771

AUX IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

AUX IMAGE SIGNAL CIRCUIT

Description

• Transmits the image signal of AUX device from auxiliary input jacks to AV control unit.

AV control unit transmits the image signal that is input to the display unit.

Diagnosis Procedure

INFOID:000000009721773

INFOID:000000009721772

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	input jacks	AV cor	itrol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M253	7	M173	61	Existed

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

Auxiliary i	nput jacks		Continuity	
Connector	Terminal	Ground	Continuity	
M253	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.

(+) Auxiliary input jacks Connector Terminal		(-)	Condition	Reference value
M253	7	Ground	At AUX image is displayed.	(V) 0.4 0 −0.4 ••••40 <i>μ</i> s ski62251J

Is the inspection result normal?

YES >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.

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

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

CAMERA IMAGE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

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.

						E
AV con	trol unit	Rear vie	w camera	Continuity		
Connector	Terminal	Connector	Terminal	Continuity		
M173	73	D192	1	Existed		F
4. Check c	ontinuity bet	tween AV co	ntrol unit har	ness connector	and ground.	G
AV con	trol unit			Continuity		0
Connector	Terminal	Gro	ound	Continuity		
M173	73			Not existed		Н
Is inspection	result norm	al?			_	
YES >>	GO TO 2.					
NO >>	Repair harne	ess or conne	ector.			1
2.CHECK	OLTAGE C	AMERA PO	WER SUPPL	Y		
1. Connect	AV control	unit connect	or and rear v	view camera con	nector.	J
2. Turn ign	ition switch	ON.				
4 Check v	oltage betwe	er to R.	rol unit harne	ess connector an	nd around	
	enage series					K
(-	+)					
AV con	trol unit	(-)	Condi	tion	Voltage	L
Connector	Terminal				(Approx.)	
M173	73	Ground	Selector lever	r is in "R".	6.0 V	
Is inspection	result norm	al?				M
YES >>	GO TO 3.					
NO >>	Replace AV	control unit.	Refer to AV-	276, "Exploded	<u>View"</u> .	٨١/
3. CHECK 0	CONTINUIT	Y CAMERA	IMAGE SIGN	NAL CIRCUIT		AV
1. Turn ign	ition switch	OFF.				
2. Disconn	ect AV contr	ol unit conne	ector and rea	ar view camera c	connector.	0

3. 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
M173	62	D192	3	Existed

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

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INFOID:000000009721774

INFOID:000000009721775

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Continuity		AV control unit	
Continuity	Ground	Terminal	Connector
Not existed		62	M173

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 cor	+) Itrol unit	(-)	Condition	Reference value
Connector	Terminal			
M173	62	Ground	At camera image is dis- played.	(V) 0. 4 -0. 4 • 40μs SkiB2251J

Is inspection result normal?

YES >> Replace AV control unit. Refer to <u>AV-276, "Exploded View"</u>.

NO >> Replace rear view camera. Refer to <u>AV-290, "Exploded View"</u>.

DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DISK EJECT SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721777

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1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

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

Multifunc	tion switch	AV con	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M125	14	M174	96	Existed

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

Multifunct	tion switch			-	
Connector	Terminal	Ground	d Continuity		
M125	14	-	Not existed	_	
s the inspec	ction result r	ormal?		-	
YES >> NO >>	GO TO 2. Repair harn	ess or connecto	Dr.		
2.CHECK A	AV CONTRO	DL UNIT VOLTA	GE		
 Connect Turn ign Check v 	t multifunction ition switch roltage betw	on switch conne ON. een AV control	ctor and AV control unit cor unit harness connector and	nnector. ground.	_
(-	+)	4		Voltage	
AV con	trol unit	(-)	Condition	(Approx.)	
Connector	Terminal				
M174	06	Ground	Pressing the eject switch	0 V	-
IVI I 7 4	90	Ground	Except for above	5.0 V	_
s the inspec	tion result r	ormal?			-
YES >>	Replace pre	set switch Refe	er to AV-286 "Exploded Vie	۹W"	

YES >> Replace preset switch. Refer to AV-286, "Exploded View".

>> Replace AV control unit. Refer to AV-276, "Exploded View". NO

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MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MICROPHONE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721779

INFOID:000000009721778

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	
	B39	8	R20	2	Existed
		29		4	

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

TEL adapter unit			Continuity
Connector	Terminals	Ground	Continuity
B30	7	Clound	Not oxisted
D39	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	Voltage (Approx.)	
Connector	Terminal	Connector	Terminal	(* + F · • · · ·)
B39	29	B39	8	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace TEL adapter unit. Refer to <u>AV-293, "Removal and Installation"</u>.

3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.

2. Check signal between TEL adapter unit harness connector.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

TEL adapter unit Condition Reference value Connector Terminal Connector Terminal B39 7 B39 8 give a voice.	(+	-)	(-	-)			A
Connector Terminal Connector Terminal B39 7 B39 8 give a voice.		TEL ada	apter unit		Condition	Reference value	
B39 7 B39 8 give a voice.	Connector	Terminal	Connector	Terminal			P
	B39	7	B39	8	give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 • + 2ms PKIB5037J	C

YES	>> Replace TEL adapter unit. Refer to AV-293. "Removal and Installation".
NO	>> Replace microphone. Refer to <u>AV-295, "Exploded View"</u> .

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< DTC/CIRCUIT DIAGNOSIS >

CONTROL SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721781

INFOID:000000009721780

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
B 30	20	Glound	Existed
D39	24		LAISIEU

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to <u>AV-293, "Removal and Installation"</u>.

NO >> Repair harness or connector.

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH SIGNAL A CIRCUIT

А Description INFOID:000000009721782 Transmits the steering switch signal to AV control unit. В **Diagnosis** Procedure INFOID:000000009721783 1. CHECK STEERING SWITCH SIGNAL A CIRCUIT Turn ignition switch OFF. 1. Disconnect AV control unit connector and spiral cable connector. 2. Check continuity between AV control unit harness connector and spiral cable harness connector. D 3. AV control unit Spiral cable Continuity E Connector Terminal Connector Terminal M171 6 M33 24 Existed Check continuity between AV control unit harness connector and ground. 4. AV control unit Continuity Connector Terminal Ground M171 6 Not existed Is the inspection result normal? Н 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-15. "Exploded View"</u> (except for Mexico) or <u>SR-42. "Exploded</u> View" (for Mexico). **3.**CHECK AV CONTROL UNIT VOLTAGE Κ 1. Connect AV control unit connector and spiral cable connector. 2. Turn ignition switch ON. L Check voltage between AV control unit harness connector. 3. (-) (+) Μ Voltage AV control unit (Approx.) Connector Terminal Connector Terminal AV M171 6 M171 15 3.3 V Is the inspection result normal? YES >> GO TO 4. NO >> Replace AV control unit. Refer to AV-276, "Exploded View". **4.**CHECK STEERING SWITCH Turn ignition switch OFF. 1. Check steering switch. Refer to AV-264, "Component Inspection". 2. Is the inspection result normal? YES >> INSPECTION END NO >> Replace steering switch. Refer to <u>AV-287, "Exploded View"</u>.

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

INFOID:000000009721784

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

Standard

Between terminals 14 and 17

🔬 🌈 switch ON	: Approx. 716 – 730 Ω
MENU DOWN switch ON	: Approx. 318 – 324 Ω
MENU UP switch ON	: Approx. 120 – 122 Ω
SOURCE switch ON	: Approx. 0 Ω
Between terminals 15 and 17	
switch ON	: Approx. 318 – 324 Ω
VOL UP switch ON	: Approx. 120 – 122 Ω
VOL DOWN switch ON	: Approx. 0 Ω



STEERING SWITCH SIGNAL B CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH SIGNAL B CIRCUIT

А Description INFOID:000000009721785 Transmits the steering switch signal to AV control unit. В **Diagnosis** Procedure INFOID:000000009721786 1. CHECK STEERING SWITCH SIGNAL B CIRCUIT Turn ignition switch OFF. 1. Disconnect AV control unit connector and spiral cable connector. 2. Check continuity between AV control unit harness connector and spiral cable harness connector. D 3. AV control unit Spiral cable Continuity E Connector Terminal Connector Terminal M171 31 16 M33 Existed Check continuity between AV control unit harness connector and ground. 4. AV control unit Continuity Connector Terminal Ground M171 16 Not existed Is the inspection result normal? Н 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-15. "Exploded View"</u> (except for Mexico) or <u>SR-42. "Exploded</u> View" (for Mexico). **3.**CHECK AV CONTROL UNIT VOLTAGE Κ 1. Connect AV control unit connector and spiral cable connector. 2. Turn ignition switch ON. L Check voltage between AV control unit harness connector. 3. (-) (+) M Voltage AV control unit (Approx.) Connector Terminal Connector Terminal M171 M171 15 3.3 V 16 Is the inspection result normal? YES >> GO TO 4. NO >> Replace AV control unit. Refer to AV-276, "Exploded View". **4.**CHECK STEERING SWITCH Turn ignition switch OFF. 1. Check steering switch. Refer to AV-266, "Component Inspection". 2. Is the inspection result normal? YES >> INSPECTION END NO >> Replace steering switch. Refer to <u>AV-287, "Exploded View"</u>.

< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH SIGNAL B CIRCUIT [BOSE AUDIO WITHOUT NAVIGATION]

Component Inspection

INFOID:000000009721787

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

Standard

Between terminals 14 and 17

w witch ON MENU DOWN switch ON MENU UP switch ON	: Approx. 716 – 730 Ω : Approx. 318 – 324 Ω : Approx. 120 – 122 Ω
SOURCE switch ON	: Approx. 0 Ω
Between terminals 15 and 17	
switch ON	: Approx. 318 – 324 Ω
VOL UP switch ON	: Approx. 120 – 122 Ω
VOL DOWN switch ON	: Approx. 0 Ω



STEERING SWITCH GROUND CIRCUIT SIS > [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH GROUND CIRCUIT

Description				INFOID:000000009721788	A
Transmits the steering	switch signal to	AV control	l unit.		D
Diagnosis Procedu	Ire				D
				INFOID.00000009721789	
1.CHECK STEERING	SWITCH SIGN	IAL GROU	IND CIRCUIT		С
 Trun ignition switch Disconnect AV con Check continuity be 	OFF. trol unit connec etween AV cont	ctor and spi trol unit har	iral cable connector. rness connector and spiral cable harness c	onnector.	D
AV control unit	Spiral c	able	Continuity		_
Connector Terminal	Connector	Terminal	Communy		E
M171 15	M33	33	Existed		
4. Connect AV contro	unit connector				F
Is the inspection result	normal?				
YES >> GO TO 2.	less or connec	tor			0
	RI E				G
	DEL				
Is the inspection result	oormal?				Н
YES >> GO TO 3.					
NO >> Replace sp	iral cable. Refe	er to <u>SR-18</u>	5. "Exploded View" (except for Mexico) or	<u>SR-42, "Exploded</u>	I
 Connect AV contro Check continuity be 	unit connector tween AV cont	: trol unit har	rness connector and ground.		J
AV control unit			Continuity		Κ
Connector Terminal	Grou	nd	Continuity		
M171 15			Existed		I
Is the inspection result	normal?				
YES >> GO TO 4.	control unit P	Pofor to $\Lambda /$	276 "Exploded View"		
			-270, Exploded view.		Μ
		7		_	
Le the inspection result	Refer to <u>AV-26</u>	7, Compor	nent inspection.		AV
YES >> INSPECTION					
NO >> Replace st	eering switch. F	Refer to AV	-287, "Exploded View".		
Component Inspec	ction			INFOID:000000009721790	0
Measure the resistance	between the s	teering swi	itch connector terminals 14 to 17 and 15 to	17.	Р

STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Standard

Between terminals 14 and 17

✓ ✓ switch ON
 MENU DOWN switch ON
 MENU UP switch ON
 SOURCE switch ON

Between terminals 15 and 17

switch ON

VOL UP switch ON VOL DOWN switch ON : Approx. 716 – 730 Ω : Approx. 318 – 324 Ω : Approx. 120 – 122 Ω : Approx. 0 Ω

: Approx. 318 – 324 Ω

: Approx. 120 – 122 Ω

: Approx. 0 Ω



[BOSE AUDIO WITHOUT NAVIGATION]

SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS

Symptom Table

OPERATION

INFOID:0000000009721791

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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. AV communication circuit between AV control unit and multifunction switch. Perform "Self Diagnostic Result" of "MULTI AV" with CONSULT. Refer to <u>AV-187, "CONSULT Function"</u>.
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 CON- SULT is initialized. 	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-244, "AV CONTROL UNIT : Diagnosis</u> <u>Procedure"</u> .
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-di- agnosis function. Refer to <u>AV-178, "On Board Diagnosis</u> <u>Function"</u> .
Fuel economy display is abnor- mal.	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV".	Perform detected DTC diagnosis. Refer to <u>AV-199, "DTC Index"</u> .
	There is no malfunction in the CON- SULT "self-diagnosis result" of "MULTI AV".	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 $\mathsf{Bluetooth}^{\mathbb{R}}$ 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.nissanusa.com/bluetooth/".
- a. Using the website's search engine, find out if the customer's phone is on the approved list.
- b. If the customer's phone is NOT on the approved list: Stop diagnosis here. The customer needs to obtain a Bluetooth[®] 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.

< SYMPTOM DIAGNOSIS >

MULTI AV SYSTEM SYMPTOMS

[BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection. (No con- nection is displayed on the dis- play at the guide.)	Repeat the registration of cellular phone.	TEL adapter unit malfunction. Refer to <u>AV-293, "Removal and Installation"</u> .
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	 Perform "Self Diagnostic Result" of "MULTI AV" with CONSULT. Refer to <u>AV-187</u>, "<u>CONSULT Function</u>". No malfunction. TEL adapter unit malfunction. Refer to <u>AV-293</u>, "<u>Removal and Installation</u>". Malfunction is detected. Perform detected DTC diagnosis. Refer to <u>AV-199</u>, "<u>DTC Index</u>".
The other party's voice cannot be heard by hands-free phone.	Steering switch's "丈 🌈" switch works.	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
	Steering switch's " $\sqrt{2}$ \checkmark " switch do not work.	Control signal circuit malfunction. Refer to <u>AV-262, "Diagnosis Procedure"</u> .
Originating sound is not heard by the other party with hands- free phone communication.	Sound operation function is normal.	TEL adapter unit malfunction. Refer to <u>AV-293, "Removal and Installation"</u> .
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to <u>AV-260</u> , "Diagnosis Procedure".
	Steering switch's "SOURCE", "MENU UP", and "MENU DOWN" switches works, but " $\sqrt{2}$ \checkmark " it does not work.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-287, "Exploded</u> <u>View"</u> .
The system cannot be operated.	Steering switch's "SOURCE", "MENU UP", "MENU DOWN" and " 4 7" switch- es do not work.	Steering switch signal B circuit malfunction. Refer to <u>AV-265, "Diagnosis Procedure"</u> .
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to <u>AV-267, "Diagnosis Procedure"</u> .

RELATED TO CAMERA

Symptoms	Check items	Probable malfunction location
Camera image is not shown.	AUX image is displayed.	Camera image signal circuit. Refer to <u>AV-257, "Diagnosis Procedure"</u> .
course line is displayed.)	AUX image is not displayed.	Composite image signal circuit. Refer to <u>AV-255</u> , "Diagnosis Procedure".
Camera image is not shown. (displayed in black and nothing can be displayed)		 Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-253, "Diagnosis Procedure"</u>. Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-254, "Diagnosis Procedure"</u>.
Camera image does not switch.	"Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjust- ment".	Reverse signal circuit malfunction.
	"Reverse" is turned ON on "Vehicle Sig- nals"screen of "Confirmation/Adjustment".	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-276, "Exploded</u> <u>View"</u> .

RELATED TO RGB IMAGE

< SYMPTOM DIAGNOSIS >

MULTI AV SYSTEM SYMPTOMS

[BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Possible malfunction location / Action to take	A
PCP image is not shown	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV".	Perform detected DTC diagnosis. Refer to <u>AV-199, "DTC Index"</u> .	_
KGB image is not shown.	There is no malfunction in CONSULT "self-diagnosis results" of "MULTI AV".	Vertical synchronizing (VP) signal circuit. Refer to <u>AV-254, "Diagnosis Procedure"</u> .	В
	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to <u>AV-248, "Diagnosis Procedure"</u> .	C
Color of RGB image is not proper.	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to <u>AV-249, "Diagnosis Procedure"</u> .	_
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to <u>AV-250, "Diagnosis Procedure"</u> .	D
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to <u>AV-251, "Diagnosis Procedure"</u> .	E
Fuel economy display is mal-	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV".	Perform detected DTC diagnosis. Refer to <u>AV-199, "DTC Index"</u> .	_
functioning.	There is no malfunction in CONSULT "self-diagnosis results" of "MULTI AV".	Ignition signal circuit malfunction. (AV control unit)	F

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to <u>AV-259, "Diagnosis Procedure"</u> .
	No sound from all speakers.	 BOSE amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to <u>AV-245</u>, "BOSE AMP. : Diagnosis Procedure".
No sound comes out or the lev- el of the sound is low.	Only a certain speaker (front right, front left, rear right, or rear left, etc.) 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 speakers.	Malfunction in AV control unit.Malfunction in BOSE amp.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.).	 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. Loose antenna base mounting nut. Refer to <u>AV-296,</u> <u>"Exploded View"</u>.
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 ob- stacles generating external noises). 	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-296,</u> <u>"Exploded View"</u>.

MULTI AV SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Probable malfunction location
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to <u>AV-187, "CONSULT Function"</u> .	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to <u>AV-199. "DTC In-dex"</u>. 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 <u>AV-187, "CONSULT Function"</u> .	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut. Refer to <u>AV-296, "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.

 $\mathsf{iPod}^{\texttt{®}}$ 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 <u>AV-267</u> , "Diagnosis Procedure".
Only specified switch cannot be operated.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-287, "Exploded View"</u> .
"SOURCE", "MENU UP", "MENU DOWN", " 📢 🌈 " switches are not operated.	Steering switch signal A circuit. Refer to <u>AV-263, "Diagnosis Procedure"</u> .
"VOL UP", "VOL DOWN", " " " switches are not operated.	Steering switch signal B circuit. Refer to <u>AV-265</u> , "Diagnosis Procedure".

RELATED TO AUXILIARY INPUT **NOTE**:

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

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 circuit.
Image is not displayed when	Camera image is displayed.	AUX image signal circuit malfunction. Refer to <u>AV-256, "Diagnosis Procedure"</u> .
AUX mode is selected.	Camera image is not displayed.	Composite image signal circuit malfunction. Refer to <u>AV-255, "Diagnosis Procedure"</u> .

NORMAL OPERATING CONDITION [BOSE AUDIO WITHOUT NAVIGATION]

NORMAL OPERATING CONDITION

Description

BASIC OPERATIONS

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В

INFOID:000000009721792

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.
Screen not clear.	Contrast setting is not appropriate.	Adjust the contrast of the display.
The screen is too dim. The move- ment 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 dark- er or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be se- lected.	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 com- mand correctly.	1. 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	1. 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/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.

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

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 files on a CD, only the music CD files (CD-DA data) will be played.	
Cannot play	Files with extensions other than ".MP3 (.mp3)" or ".WMA (.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.	
	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 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 (.mp3)" or ".WMA (.wma)" 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. 	
	While a cellular phone is connected through the Bluetooth [®] wire- less connection, the battery power of the cellular phone may dis- charge 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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[BOSE AUDIO WITHOUT NAVIGATION]

REMOVAL AND INSTALLATION AV CONTROL UNIT

Exploded View

INFOID:000000009721793

CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-231, "Description"</u>.

REMOVAL

Refer to IP-14, "Exploded View".

DISASSEMBLY



1. AV control unit

2. Bracket LH

3. A/C auto amp.

4. Bracket RH

Removal and Installation

INFOID:000000009721794

REMOVAL

CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-231, "Description"</u>.

- 1. Remove cluster lid C. Refer to IP-14, "Exploded View".
- 2. Remove AV control unit with an A/C auto amp. as a single unit from the vehicle.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to <u>AV-231, "Work Procedure"</u>.

< REMOVAL AND INSTALLATION > DISPLAY UNIT

Exploded View

1.

INSTALLATION

REMOVAL

2.

Display unit

1. Remove center ventilator assembly.

Install in the reverse order of removal.

Remove display unit with bracket as

Removal and Installation

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Refer to <u>IP-14, "Exploded View"</u> .	G
a single unit.	Н
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FRONT DOOR SPEAKER

Exploded View



1. Front door speaker

Removal and Installation

INFOID:000000009721798

REMOVAL

- 1. Remove front door finisher. Refer to INT-13, "FRONT DOOR FINISHER : Exploded View".
- 2. Remove front door speaker screws, then disconnect front door speaker connector and remove front door speaker.

INSTALLATION

Install in the reverse order of removal.

REAR DOOR SPEAKER

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

REAR DOOR SPEAKER





- REMOVAL
- 1. Remove rear door finisher. Refer to INT-16, "REAR DOOR FINISHER : Exploded View".
- 2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

INSTALLATION

1.

Install in the reverse order of removal.

Rear door speaker

Removal and Installation

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FRONT SQUAWKER

Exploded View



1. Front squawker

Removal and Installation

REMOVAL

- 1. Remove speaker grille. Refer to IP-14, "Exploded View".
- 2. Remove front squawker screws, lift up the front squawker and disconnect front squawker connector. Then remove the front squawker.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000009721802

[BOSE AUDIO WITHOUT NAVIGATION]

REAR SPEAKER



1.

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INSTALLATION

REMOVAL

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Rear speaker



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Exploded View

CENTER SPEAKER



1. Center speaker

Removal and Installation

REMOVAL

- 1. Remove center speaker grille. Refer to IP-14, "Exploded View".
- 2. Remove center speaker screws, lift up the center speaker and disconnect center speaker connector. Then remove the center speaker.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000009721806



INSTALLATION

2.

Install in the reverse order of removal.

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BOSE AMP.

Exploded View



- <⊐: Vehicle front
- 1. BOSE amp.

Removal and Installation

INFOID:000000009721810

REMOVAL

- 1. Remove luggage floor center finisher front. Refer to <u>INT-34, "Exploded View"</u>.
- 2. Remove BOSE amp. screws, disconnect BOSE amp. connector and remove the BOSE amp.

INSTALLATION

Install in the reverse order of removal.

MULTIFUNCTION SWITCH [BOSE AUDIO WITHOUT NAVIGATION]

< REMOVAL AND INSTALLATION >

MULTIFUNCTION SWITCH

Exploded View

REMOVAL Refer to <u>IP-14, "Exploded View"</u>. DISASSEMBLY



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	1. 2.	Multifunction switch Cluster lid D	
Re	moval	and Installation	INFOID:000000009721812
RE	MOVAL		
1.	Remov	e cluster lid D. Refer to IP-14, "Exploded View".	
2.	Remov	e multifunction switch with center ventilator grille as a single unit.	
3.	Remov	e multifunction switch screws, remove multifunction switch from cluster lid D.	
INS	TALLA	TION	
Inst	all in the	e reverse order of removal.	

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< REMOVAL AND INSTALLATION > PRESET SWITCH

[BOSE AUDIO WITHOUT NAVIGATION]

Exploded View

INFOID:000000009721813

INFOID:000000009721814

REMOVAL

Refer to IP-14, "Exploded View".

DISASSEMBLY



1. Preset switch

2. Cluster lid C

Removal and Installation

REMOVAL

- 1. Remove cluster lid C. Refer to IP-14, "Exploded View".
- 2. Remove preset switch screws (A) (B), remove preset switch (1) from cluster lid C.
 - 1. Preset switch
 - A. Screw
 - B. Screw



INSTALLATION Install in the reverse order of removal.

STEERING SWITCH		Λ
Exploded View	INFOID:000000009721815	~
Refer to ST-36, "Exploded View".		В
Removal and Installation	INFOID:000000009721816	
REMOVAL Refer to <u>ST-36, "Removal and Installation"</u> .		С
INSTALLATION Install in the reverse order of removal.		D

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AUXILIARY INPUT JACKS

Removal and Installation

REMOVAL

- 1. Remove center console assembly. Refer to IP-22. "Exploded View".
- 2. Remove auxiliary input jacks mounting screws.
- 3. Disconnect connector to remove auxiliary input jacks from lower console assembly.

INSTALLATION

Install in the reverse order of removal.

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[BOSE AUDIO WITHOUT NAVIGATION]
< REMOVAL AND INSTALLATION > [BOSE AU USB CONNECTOR

		Λ
Removal and Installation	INFOID:000000009721818	~
REMOVAL		В
 Remove console finisher assembly. Refer to <u>IP-22, "Exploded View"</u>. Press the pawl from the back of lower console assembly to remove USB connector. 		
INSTALLATION		С
Install in the reverse order of removal.		
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< REMOVAL AND INSTALLATION >

REAR VIEW CAMERA

Exploded View

INFOID:000000009721819

[BOSE AUDIO WITHOUT NAVIGATION]



- 1. Rear view camera
- 2. Finisher

Removal and Installation

INFOID:000000009721820

REMOVAL

- 1. Remove back door finisher inner. Refer to INT-38, "Exploded View".
- 2. Remove finisher.
- 3. Remove rear view camera screws, disconnect rear view camera connector and remove rear view camera from back door assembly.

INSTALLATION

Install in the reverse order of removal.

Adjustment

INFOID:000000009721821

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

REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

- 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.



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

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.

:7

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

: 20° to 20° : 20° to 20°

CAUTION:

Never operate other function such as pressing BACK while writing index data.





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[BOSE AUDIO WITHOUT NAVIGATION]

STEERING ANGLE SENSOR

< REMOVAL AND INSTALLATION >

STEERING ANGLE SENSOR

Exploded View

DISASSEMBLY

INFOID:000000009721822

INFOID:000000009721823



[BOSE AUDIO WITHOUT NAVIGATION]

- 1. Spiral cable
- 2. Steering angle sensor

Removal and Installation

REMOVAL

- 1. Remove spiral cable. Refer to <u>SR-15, "Exploded View"</u> (except for Mexico) or <u>SR-42, "Exploded View"</u> (for Mexico).
- 2. Remove steering angle sensor from spiral cable.

INSTALLATION

- 1. Install in the reverse order of removal.
- 2. Perform steering angle sensor neutral position adjustment. Refer to AV-187, "CONSULT Function".

TEL ADAPTER UNIT [BOSE AUDIO WITHOUT NAVIGATION]

< REMOVAL AND INSTALLATION >

TEL ADAPTER UNIT

Exploded View

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Removal and Installation

REMOVAL

- 1. Remove luggage floor finisher front. Refer to INT-34, "Exploded View".
- 2. Remove TEL adapter unit (1) with satellite radio tuner as a single unit from the vehicle.
- 3. Remove bracket screws, and them remove TEL adapter unit.



INSTALLATION Install in the reverse order of removal.

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< REMOVAL AND INSTALLATION >

TEL ANTENNA

Removal and Installation

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[BOSE AUDIO WITHOUT NAVIGATION]

REMOVAL

- 1. Remove luggage floor finisher center (front and rear). Refer to INT-34, "Exploded View".
- 2. Remove luggage side finisher lower RH. Refer to INT-34, "Exploded View".
- 3. Remove TEL antenna feeder clips.
- 4. Disconnect TEL antenna connector, and them remove TEL antenna.

INSTALLATION

Install in the reverse order of removal.

< REMOVAL AND INSTALLATION > **MICROPHONE**

Exploded View

REMOVAL Refer to INL-123, "Exploded View". DISASSEMBLY

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REMOVAL

1. Remove map lamp. Refer to INL-123, "Exploded View". Remove microphone from map lamp. 2. **INSTALLATION**

Install in the reverse order of removal.

[BOSE AUDIO WITHOUT NAVIGATION]

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ROOF ANTENNA

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

ROOF ANTENNA

Exploded View



1.Rod antenna2.Antenna base

Refer to <u>GI-4, "Components"</u> for symbols in the figure.

Removal and Installation

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REMOVAL

- 1. Remove headlining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>INT-26, "NORMAL ROOF : Exploded View"</u> [normal roof] or <u>INT-30, "SUNROOF : Exploded View"</u> [sunroof].
- 2. Disconnect antenna feeder connectors.
- 3. Remove antenna base mounting nut, and then remove antenna base from roof panel.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

If the antenna base mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.

< REMOVAL AND INSTALLATION >

SATELLITE RADIO TUNER

Exploded View

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4. Bracket RH

Removal and Installation

REMOVAL

- 1. Remove luggage floor finisher front. Refer to INT-34, "Exploded View".
- 2. Remove satellite radio tuner (1) with TEL adapter unit as a single unit from the body.

∠::: Vehicle front

3. Remove bracket screws, and them remove satellite tuner.



INSTALLATION Install in the reverse order of removal.

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[BOSE AUDIO WITHOUT NAVIGATION]

ANTENNA FEEDER





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< PRECAUTION > PRECAUTION PRECAUTIONS

EXCEPT FOR MEXICO

EXCEPT FOR MEXICO : 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
 H 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.

EXCEPT FOR MEXICO : Precautions for Removing of Battery Terminal

 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
 NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. **NOTE:**

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

• After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC. **NOTE:**

The removal of 12V battery may cause a DTC detection error.

EXCEPT FOR MEXICO : Precaution for Trouble Diagnosis

AV COMMUNICATION SYSTEM

• Do not apply voltage of 7.0 V or higher to the measurement terminals.



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PRECAUTIONS

< PRECAUTION >

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- 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.

EXCEPT FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

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



 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.)



FOR MEXICO

FOR MEXICO : 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. 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.

PRECAUTIONS

[BOSE AUDIO WITH NAVIGATION]

• 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.

FOR MEXICO : Precautions for Removing of Battery Terminal

 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
 NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
 NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
 NOTE:

The removal of 12V battery may cause a DTC detection error.

FOR MEXICO : Precaution for Trouble Diagnosis

AV COMMUNICATION SYSTEM

< PRECAUTION >

- 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.

FOR MEXICO : Precaution for Harness Repair

AV COMMUNICATION SYSTEM

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

 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

PREPARATION

Commercial Service Tools

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[BOSE AUDIO WITH NAVIGATION]

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SYSTEM DESCRIPTION **COMPONENT PARTS**

Component Parts Location

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- Center speaker 1.
- Rear door speaker LH 4.
- 7. Woofer
- 10. Rear speaker RH
- 13. Front door speaker RH
- 16. GPS antenna
- 19. Steering angle sensor
- 22. Preset switch
- 25. Display unit

- 2. Front squawker LH
- Rear speaker LH 5.
- 8. Rear view camera
- Antenna base (antenna amp. and 11. satellite radio antenna)
- 14. Front squawker RH
- 17. Combination meter
- 20. Auxiliary input jacks
- 23. AV control unit

- Front door speaker LH 3.
- BOSE amp. 6.
- Camera control unit (Models with 9. LDW and BSW)
- 12. Rear door speaker RH
- 15. Microphone
- 18. Steering switch
- 21. USB connector
- 24. Multifunction switch



< SYSTEM DESCRIPTION >

- A. Luggage floor center finisher removed condition
- D. Spiral cable part

Component Description

B. Luggage side finisher lower RH is removed condition C.

Combination meter removed condition

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Part name	Description
AV control unit	 Integrates hard disk drive (HDD) allowing map data and music data to be stored. (Models with music box) Integrates hard disk drive (HDD) allowing map data to be stored. (Models without music box) 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, rear view monitor, hands-free phone, voice control, navigation, USB connection, DVD play, satellite radio and vehicle information functions. It is connected to ECM and combination meter 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 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. It supplies power to rear view camera. (Models without LDW and BSW) Amp. ON signal and sound signal are 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. (Models without LDW and BSW) Camera image signal is input from camera control unit. (Models with LDW and BSW) Touch panel function can be operated for each system by touching a display directly.
Camera control unit (Models with LDW and BSW)	 It supplies power to rear view camera. The image of vehicle rear view is transmitted to display unit. Controls the LDW and BSW system. Refer to the following. LDW system: <u>DAS-12, "System Description"</u> BSW system: <u>DAS-109, "System Description"</u>
BOSE amp.	Inputs sound signal from AV control unit, and outputs sound signal to each speaker.
Front door speaker	Outputs sound signal from BOSE amp.Outputs sound (mid and low range).
Rear door speaker	Outputs sound signal from BOSE amp.Outputs sound (mid and low range).
Front squawker	Outputs sound signal from BOSE amp.Outputs sound (high and mid range).
Rear speaker	Outputs sound signal from BOSE amp.Outputs sound (high and mid range).
Center speaker	Outputs sound signal from BOSE amp.Outputs sound (high and mid range).
Woofer	Composed of two woofers.Inputs sound signal from BOSE amp.Outputs sound (low range).

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Part name	Description	
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 harness, 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 harness, and operation signal is transmitted to AV control unit via AV communication. The disk ejection operating signal is performed by hardwire. 	
Rear view camera	 Models without LDW and BSW Camera power supply is input from AV control unit. The image of vehicle rear view is transmitted to display unit. Models with LDW and BSW Camera power supply is input from camera control unit. The image of vehicle rear view is transmitted to camera 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, voice control and navigation, etc. are possible. Steering switch signal (operation signal) is output to AV control unit. 	
Microphone	 Used for hands-free phone function and voice recognition function. Microphone signal is transmitted to AV control unit. Power (Microphone VCC) is supplied from AV control unit. 	
Auxiliary input jacks	Image signal and sound signal of auxiliary input are transmitted to AV control unit.	
GPS antenna	GPS signal is received and transmitted to AV control unit.	
Antenna base	 A radio antenna base integrated with radio antenna amp. and satellite radio antenna is adopted. ANTENNA AMP. Radio signal received by rod antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit. SATELLITE RADIO ANTENNA Receives satellite radio waves and outputs it to AV control unit. 	
USB connector	Image signal ^{*1} and sound signal of USB input is transmitted to AV control unit.	
Combination meter (Models with BSW and LDW)	Receives buzzer output signal from camera control unit via CAN communication and sounds the buzzer.	

*1: Image signals cannot be received from $iPod^{\textcircled{R}}$.

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< SYSTEM DESCRIPTION >

SYSTEM MULTI AV SYSTEM

MULTI AV SYSTEM : System Diagram

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NOTE:

- The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.
- An antenna base integrated with radio antenna amp. and satellite radio antenna is adopted.



MODELS WITH LDW AND BSW



[BOSE AUDIO WITH NAVIGATION]







MULTI AV SYSTEM : System Description

Multi AV system means that the following systems are integrated.

FUNCTION NAME
Navigation system function
Audio function
DVD play function
Hands-free phone function
Auxiliary input function
USB connection function
Voice recognition function
Touch panel 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 and combination meter, and 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.

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SYSTEM

< SYSTEM DESCRIPTION >

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

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 dis- tance without stopping.
GPS antenna (GPS informa- tion)	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

< SYSTEM DESCRIPTION >

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 incor-

rect 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 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.

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GPS satellite







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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 voice recognition. Operation status of audio is indicated at display.

FUNCTION			
AM/FM radio			
Satellite radio			
CD			
Bluetooth [®] audio			
Music Box (Hard Disk Drive) [*]			
Speed sensitive volume			

*: 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.
- AM/FM radio wave is received by rod antenna, next it is amplified by antenna amp., and finally it is input to AV control unit.
- FM radio wave is received by FM sub antenna, and it is transmitted to the AV control unit directly. The FM sub antenna is installed on the back door window glass.
- Audio signal is input to BOSE amp. and BOSE amp. outputs to woofer and each speaker for AV control unit.

Satellite Radio Mode

- Satellite radio tuner is built into AV control unit.
- Sound signal (satellite radio) is received by satellite radio antenna and transmitted to AV control unit (satellite radio antenna is built into antenna base.). AV control unit outputs sound signal to BOSE amp. The signal is also outputted from BOSE amp. to 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 woofer and each speaker when CD is inserted to AV control unit.

Bluetooth[®] Audio Mode

- Bluetooth[®] audio function is built into AV control unit.
- When the Bluetooth[®] audio is connected to the portable audio equipped with the Bluetooth[®] communication compliant profile via Bluetooth[®] communication, it can be play the music data in the portable audio.
- A maximum of five Bluetooth[®] devices including the audio devices and cellular phones can be registered in the AV control unit.
- AV control unit outputs audio signal to BOSE amp., and BOSE amp. outputs to woofer and 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 woofer and each speaker. 	A
 Speed Sensitive Volume Volume level of this system gone up and down automatically in proportion to the vehicle speed. The control level can be selected by the customer. 	В
 DVD PLAY 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 woofer and each speaker via BOSE amp. 	C
 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 	Е
 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 and center speaker. 	F
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.	G
When Receiving A Call Voice sound is input to own cellular phone from the other party. TEL voice signal is output to front speaker and center speaker from BOSE amp. via AV control unit by establishing Bluetooth [®] communication from cellular phone.	H
 AUXILIARY INPUT FUNCTION Image and sound can be output from an external device by connecting a device with auxiliary input jacks. AUX image signals are transmitted to the display unit via the AV control unit. AUX sound signals are transmitted to BOSE amp. via AV control unit. The signal is also outputted from BOSE amp. to woofer and each speaker. 	J
USB CONNECTION FUNCTION	Κ
 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 woofer and each speaker via BOSE amp. Video signals and image viewer file signals are transmitted from the USB connector to the AV control unit. The AV control unit transmits the sound signals to woofer and each speaker via BOSE amp. 	L
 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"	0
Maximum file size	2 GB	2 GB	2 MB	

NOTE:

- $iPod^{\mathbb{R}}$ 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.
- If a video-sound codec combination is not satisfied, its video file may not be played.

VOICE RECOGNITION FUNCTION

< SYSTEM DESCRIPTION >

• Each operation of multi AV system can be performed by inputting sound to microphone.

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• 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 (MODELS WITHOUT LDW AND BSW)

Camera Image Operation Principle

- 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.
- The AV control unit transmits a warning message, fixed guide lines, and predictive course lines to the display unit by RGB digital image signals. Rear view monitor images are displayed by combining the RGB digital image signals 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.

REAR VIEW MONITOR FUNCTION (MODELS WITH LDW AND BSW)

- This system is equipped with wide-angle high-resolution camera on the rear of the vehicle.
- Rear-wide view function is adopted.
- AV control unit renders the "View" switch and warning message on display.

Operation Description

Rear view monitor screen transition



- Rear view monitor is displayed on the display when shifting position is reverse.
- Rear view/rear-wide view can be switched by "View" switch (touch switch) while rear view/rear-wide view is displayed.
- In permanent OFF, MOD is not operative until MOD is switched to ON by "Driver Assistance" screen.
- When camera control unit receives reverse signal, while shift position is R position, camera control unit reads image signal from rear view camera.
- When camera control unit reads image signal from rear view camera, superimposes camera image, vehicle width guide lines, predicted course line, and "MOD" icon, and then outputs them to display.

REAR VIEW

- The rear view image is from the rear view camera.
- When the selector lever is in the reverse position, the rear view is displayed. The rear-wide view function allows the display of an image with a 180° horizontal angle.

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SYSTEM

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

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- Display the vehicle width guiding line and vehicle distance guiding line in rear view and display the predictive course line according to the steering angle (except when using the rear-wide view function).
- The predictive course line is not displayed at the steering neutral position.
- Camera control unit is connected to the steering angle sensor and receives the steering angle signal via CAN communication.
- Camera control unit controls the direction and distance of predictive course line according to the sensor signal from steering angle sensor.



Moving Object Detection (MOD)

- Moving Object Detection (MOD) is a function that notifies the driver of the presence of moving objects in the area around the vehicle. MOD detects moving objects from camera image, illuminates frame of view in yellow whenever "MOD" icon is displayed in blue, and sounds buzzer in combination meter.
- MOD detects moving objects while camera image is displayed on display.
- Camera control unit performs the following process when moving objects are detected.
- Superimposes yellow frame line on camera image signal and outputs them to front display.
- Transmits buzzer output signal to combination meter via CAN communication so that buzzer in combination meter sounds.
- Camera control unit detects moving objects from camera image according to an image recognition method called optical flow.
- MOD does not detect a background as a moving object when the vehicle moves (when whole screen moves), but detects a moving object when an actual moving object is displayed on screen.
- MOD can be set to permanent OFF by the following operation.
- Permanent OFF: MOD is switched to off by "Settings"→"Driver Assistance"→"Moving Object Detection (MOD)".
- Color of "MOD" icon indicates whether or not MOD is operative. "MOD" icon is displayed as shown in the following table. When MOD is operative, "MOD" icon is displayed in blue. When MOD is not operative, "MOD" icon is displayed in gray or orange. MOD icon is not displayed when MOD is off (permanent off) by "Settings"→"Driver Assistance"→"Moving Object Detection (MOD)".
- MOD illuminates frame of view in yellow and sounds buzzer, when any of the conditions in the following table are satisfied.

Operation Condition		- View where MOD is operative	
Shift position Vehicle speed			
R position	0 km/h (0 MPH) or more - less than 8 km/h (5 MPH)	 Rear view Rear-wide view	

• MOD does not operate or stops operation when any of the conditions in the following table are satisfied. "MOD" icon is displayed in gray or orange.

SYSTEM

Operation stop condition	"MOD" icon color	Note
Back door is open.	Gray	Operation of rear view and rear-wide view stops when back door is open.
Rear view camera instal- lation angle is incorrect	Gray	Operation of rear view and rear-wide view stops when rear view camera installation angle is incorrect.
Rear view camera image is abnormal (Temporary)	Gray	Operation of rear view and rear-wide view stops when camera image is temporarily abnormal.
System malfunction	Orange	Refer to AV-352, "DTC Index"

Camera Image Operation Principle

- When the selector lever is in the reverse position, camera control unit receives the reverse signal, supplies the power to each camera, and inputs the camera image from each camera.
- Camera control unit superimposes the camera image, predicted course line, vehicle width guiding lines, "MOD" icon, and outputs them to the display unit.
- Predictive course lines are controlled by a steering angle sensor signal received the steering angle sensor via CAN communication.

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 and combination meter.
- AV control unit is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.

< SYSTEM DESCRIPTION >

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

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

Description

- 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. 	AV

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< SYSTEM DESCRIPTION >

[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 dis- play and touch panel calibration response check.	
	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.	
		Steering Angle Ad- justment	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 ac- tual location, it can be adjusted.	
		XM SAT Subscrip- tion 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.	
Confirmation/	Synchronizer FES Clock		_	
Adjustment	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.	
	Handsfree Phone		The received volume adjustment of hands-free phone, microphone speaker check, and erase memory can be performed.	
	Camera (Models without BSW and LDW)		The four functions of "Correct Draw Line of Rear view Camera", "Alter/ Confirm Configuration", "Reset Configuration" and "Camera Syst Type" are available.	
		XM NaviTrffic	Change Channel	
		XM NavWeather	 Any necessary channels required to receive traffic information from the satellite radio system can be set. 	
	XIM	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.	

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, the trouble diagnosis initial screen is displayed.)
 - Shifting from current screen to previous screen is performed by pressing "BACK" button.



< SYSTEM DESCRIPTION >

 Items of "Self Diagnosis" and "Confirmation/Adjustment" can be selected on the trouble diagnosis initial screen.



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

Diagnosis results	Unit	Connec- tion 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-448</u>, "<u>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.

System Diagnostic Menu Error Info	rma	tion SBACK	
Detected connection error(s) are shown below. Please refer to the Confirmation /Adjustment function or service manual for more detailed diagnosis information. Control unit			Ĩ
		JPNIA1787ZZ	

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.



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[BOSE	AUDIO	WITH	NAVIGA	TION]

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 mal- function 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	Serial communication circuits between AV control unit and display unit are malfunctioning.	Serial communication circuits between AV control unit and display unit.
Control unit ⇔ GPS Antenna	GPS antenna connection malfunctions detected.	GPS antenna
Control unit ⇔ XM Antenna	Satellite radio antenna connection malfunc- tion is detected.	Satellite radio antenna disconnection

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.

System Diagnostic Menu Confirmation/Ad (Back)
Display Diagnosis
Vehicle Signals
Climate Control
Navigation
│//Error History ││ 🛱 │
//Synchronise FES Clock • ON// 🖲
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< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]



Vehicle Signals

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

Vehicle speed Parking brake Lights Ignition Reverse Side view Switch Room Lamp	OFF ON OFF OFF OFF OFF	
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Revision: 2013 August

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< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Diagnosis item	Display	Vehicle status	Remarks	
Vahiela spood	ON	Vehicle speed >= 8 km/h (5 MPH)		
venicie speed	OFF	Vehicle speed < 8 km/h (5 MPH)	Changes in indication may be delayed. This is normal	
Parking broko	ON	Parking brake is applied.	- Changes in indication may be delayed. This is norm	
Faiking blake	OFF	Parking brake is released.		
Lighto	ON	Lighting switch is ON		
Lights	OFF	Lighting switch is OFF		
Ignition	ON	Ignition switch is ON		
Ignition	OFF	Ignition switch is in ACC position		
	ON	Selector lever is in R position		
Reverse	OFF	Selector lever is in any position other than R	Changes in indication may be delayed. This is normal.	
SIDE VIEW SW	OFF	_	This item is displayed, but cannot be monitored.	
ROOM LAMP	OFF	_	This item is displayed, but cannot be monitored.	

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.

System Diagnostic Menu⊳ _{spa}	eaker Test (Back)
Speaker Testing Front Left Tweeter Speaker Settings	Start Stop
	JPNIA1828ZZ

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.

System Diagnostic Menu	Steering Angle_
Left turn 🧲	
Right turn <-	
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SPEED CALIBRATION

< SYSTEM DESCRIPTION >

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.

System Diagnostic Menu≻_{Speed Calibration} Speed Calibration <u>- 2.5%</u>+ Set

[BOSE AUDIO WITH NAVIGATION]

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.

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	Ņ
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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DIAGNOSIS SYSTEM (AV CONTROL UNIT) < SYSTEM DESCRIPTION > [BOSE AUDIO WITH NAVIGATION]

System Diagnostic Menu>Error History BACK 33.50.54N / 119.14.20W AV COMM CIRCUIT 0 (1) Select any item on ً⊘ Amplifier Connection Error 1 "Error History" screen Delete log Previous 00.00.00.00 1/3 Delete log No System Diagnostic Menu > Error History System Diagnostic Menu>Error History 8) () AV COMM CIRCUIT 0 Delete log Yes Delete error history log? Yes No Ŭ B 2/2 1/1 JPNIA1788GE

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		
CAN COMM CIRCUIT	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-327, "CONSULT Function"</u> .	
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- tion occurs constantly.	
Connection of G Sensor			
CAN Controller Memory Error	I Controller Memory Error		
Bluetooth Module Connection Error	Av control unit manunction is detected.		
Sub CPU Connection Error	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 <u>AV-448</u>, "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 <u>AV-448, "Exploded View"</u> .	
GPS Communication Error		An intermittent error caused by strong ra-	
GPS ROM Error		dio interference may be detected unless any symptom (GPS reception error etc.)	
GPS RAM Error	GPS malfunction is detected.	 Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-448</u>, "<u>Exploded View</u>". 	
GPS RTC Error			

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take	
Unfinished configuration	The writing of configuration data is incomplete.	Write configuration data with CONSULT.	
USB Controller Communication Error	USB connection malfunction is detected.	Check that the connection to the USB con- nector 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 <u>AV-448</u>, "Exploded View". 	
Steer. Angle Sensor Calibration	Predictive course line center position ad- justment of the steering angle sensor is in- complete.	Adjust the predictive course line center po- sition of the steering angle sensor. Refer to <u>AV-327, "CONSULT Function"</u> .	
Front Display Connection Error	 When either one of the following items are detected: display unit power supply and ground circuits are malfunctioning. serial communication circuits between AV control unit and display unit are malfunctioning. 	 Display unit power supply and ground circuits. Serial communication circuits between AV control unit and display unit. 	
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 base.	
Ext_Amp_ON output terminal short to ground	BOSE amp. ON signal circuit malfunction is detected.	BOSE amp. ON signal circuit between AV control unit and BOSE amp.	
Ext_Amp_ON output terminal :open			
GPS Antenna Error	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.	
USB electric current Error	Detection of overcurrent in USB connector.	Check USB harness between the AV con- trol unit and USB connector.	
XM Antenna Connection Error	Satellite radio antenna connection malfunc- tion is detected.	Satellite radio antenna disconnection.	
 AV COMM CIRCUIT Switches Connection Error 	 When either one of the following items are detected: multifunction switch power supply and ground circuits were malfunctioning. AV communication circuits between AV control unit and multifunction switch were malfunctioning. 	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch. 	

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(BCM)	OK / ???	OK / 0 – 39
Rx(HVAC)	OK / ???	OK / 0 – 39



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< SYSTEM DESCRIPTION >

V	CONTROL UNIT)
	[BOSE AUDIO WITH NAVIGATION]

Items	Display (Current) Malfunction co (Past)	
Rx(USM)	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–PrimarySW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW–ITM)	OK / ???	OK / 0 – 39

Signal	Status	Count	Checking
C Tx(ITM-PrimarySW)	OK	OK	
C Rx(PrimarySW-ITM)	ок	ок	Reset
			l

NOTE:

"???" indicates UNKWN

Hands-Free Phone

The hands-free phone reception volume adjustment and microphone and speaker test functions are also available.

	System Diagnostic Menu ⊳Hands-free phone 🤆	BACK
Λ		(*
$ \rangle$		Ø
$ \rangle$	Hands-free Volume Adjustment	
	Voice Microphone Test • OK	
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Camera (Models without BSW and LDW)

The four functions of "Correct Draw Line of Rear view Camera", "Alter/Confirm Configuration", "Reset Configuration" and "Camera Syst Type" are available.

System Diagnostic Menu ⊳ Camera Cont. ⊃BACK)
Correct Draw Line of Rear view Camera
Alter/Confirm Configuration
Reset Configuration
Camera Syst Type Rear Camera
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Correct Draw Line of Rear view Camera
< SYSTEM DESCRIPTION >

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

[BOSE AUDIO WITH NAVIGATION]



Alter/Confirm Configuration

 Configuration stored in the AV control unit can be checked and modified.

System Diagnostic Mer	1U ▷ Alter/Confirm C (Эмск)
Predi. Course Lines	With
Rear Coeff. K	-133446.7
Rear Coeff. F	0.0016960
Rear Coeff. P1	0.000046
// Rear Coeff. P2	0.0000056 // 🕅
	1/37
	JSNIA2186ZZ

Configuration list

Setting item	Setting	Setting item	Setting
Predi. Course Lines	With	Total Length	0.0000000
Rear Coeff. K	-80000.00	Steering Gear Ratio	18.252000
Rear Coeff. F	0.0011760	Side Coeff. K	
Rear Coeff. P1	0.0000072	Side Coeff. F	
Rear Coeff. P2	0.0000056	Side Coeff. P1	
Rear Coeff. C1	800.0000	Side Coeff. P2	
Rear Coeff. C2	480.00000	Side Coeff. C1	
Rear Coeff. D1	485.00000	Side Coeff. C2	
Rear Coeff. D2	394.00000	Side Coeff. D1	
Car Width	1.8970000	Side Coeff. D2	0.0000000
Rear Offset	0.0260000	Side Offset	
Rear Height	0.9927000	Overall Height	
Rear L/R Angle	0.0000000	Side L/R Angle	
Rear Up/Dn Angle	47.400001	Side Up/Dn Angle	
Rear Roll Angle	0.0000000	Side Roll Angle	
Bumper Rear Dist.	0.1127000	Side Front End Dist	
Bumper Rear Ax Dist	1.0030000	Total Width	
Steer. Max Angle	560.61016	—	—
Min. Turning Rad.	5.8000002	—	—
Wheelbase	2.8250000	—	—

Reset Configuration

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< SYSTEM DESCRIPTION >

• Configuration stored in the AV control unit can be initialized.

[BOSE AUDIO WITH NAVIGATION] Γ

System Diagnostic ⊳ Camera Cont.
C Do you want to initialise camera system?
Camera Syst Type Rear Camera
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Camera Syst Type • Type of camera system is selectable.

System Diagnostic Menu ⊳ Camera Syst Type (⊃	BACK
	\mathbb{P}
Without Camera • ON	
With Rearview Camera • ON	
With Rear + Sideview Camera • ON	
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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.)

System Diagnostic Menu ▷ Confirmation/Ad ● ON ● ON <t< th=""></t<>
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Initialize Settings

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH 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 <u>AV-376, "Description"</u>.



Version Information Version information of the AV control unit is displayed.



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.	k
Work Support	Steering angle sensor can be adjusted.	
Configuration	Read and save the vehicle specification.Write the vehicle specification when replacing AV control unit.	L

AV Communication

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

	AV/&NAV/LC/LL	Displays the communication status from AV control unit to each unit as well as the error
AV communication		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

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< SYSTEM DESCRIPTION >

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to <u>AV-379, "AV CONTROL UNIT :</u> <u>Diagnosis Procedure"</u> .
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.
CAN CONT [U1216]		Relef to <u>AV-446, Exploded view</u> .
BLUETOOTH MODULE [U1217]	Av control unit manufaction 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 the detection of a temporary malfunc-
HDD WRITE [U121A]	AV control unit malfunction is detected.	tion.
HDD COMM [U121B]		Replace the AV control unit if the mal- function occurs constantly.
HDD ACCESS [U121C]		Refer to <u>AV-448, "Exploded View"</u> .
GPS COMM [U1204]		An intermittent error caused by strong
GPS ROM [U1205]		radio interference may be detected un-
GPS RAM [U1206]	GPS malfunction is detected.	etc.) occurs.
GPS RTC [U1207]		 Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-448</u>, "Exploded View".
USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB con- nector 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-448</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 <u>AV-448</u>, "Exploded View".
CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with CONSULT.
ST ANGLE SEN CALIB [U1232]	Predictive course line center position ad- justment of the steering angle sensor is in- complete.	Adjust the predictive course line center po- sition of the steering angle sensor. Refer to <u>BRC-9, "ADJUSTMENT OF</u> <u>STEERING ANGLE SENSOR NEUTRAL</u> <u>POSITION : Special Repair Requirement"</u> .
FRONT DISP CONN [U1243]	 When either one of the following items are detected: display unit power supply and ground circuits are malfunctioning. serial communication circuits between AV control unit and display unit are malfunctioning. 	 Display unit power supply and ground circuits. Serial communication circuits between AV control unit and display unit.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.
XM ANTENNA CONN [U1258]	Satellite radio antenna connection mal- function is detected.	Satellite radio antenna disconnection.
USB OVERCURRENT [U1263]	Detection of overcurrent in USB connect- er.	Check USB harness between the AV con- trol 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 be- tween 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.

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	
	On	Vehicle speed >= 8 km/h (5 MPH)		
VHCL SPD SIG	Off	Vehicle speed < 8 km/h (5 MPH)	Changes in indication may be delayed. This is	
	On	Parking brake is applied.	normal.	
PKD SIG	Off	Parking brake is released.		
	On	Lighting switch is ON		
ILLUW SIG	Off	Lighting switch is OFF		
	On	Ignition switch is ON		
IGN SIG	Off	Ignition switch is in ACC position		
	On	Selector lever is in R position	Changes is indication may be delayed. This is	
REV SIG Of	Off	Selector lever is 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.	

SELECTION FROM MENU

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

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Item to be selected	Description
VHCL SPD SIG	
PKB SIG	
ILLUM SIG	
IGN SIG	The same as when "ALL SIGNAL
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 includes functions as follows.

Function		Description	
Poad/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.	
Read/while 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.	

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

CONSULT Function

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[BOSE AUDIO WITH NAVIGATION]

CONSULT FUNCTIONS

CONSULT performs the following functions via the CAN communication with the camera control unit.

Diagnosis mode	Description	
ECU Identification	Camera control unit part number can be identified.	
Self Diagnostic Results	Camera control unit diagnosis is performed. Current and previous malfunctions are displayed collectively.	
Data Monitor	Diagnosis of vehicle signal that is received by camera control unit can be performed.	
Work Support	 Target line calibration of rear wide view can be performed. Display of predicted course line can be switched to ON/OFF. Calibration and initialization of rear view camera can be performed. Neutral position adjustment of steering angle sensor can be performed. Calibration for LDW and BSW can be performed. Displays causes of system cancellation occurred during system control. 	
Active Test	Enables an operational check of a load by transmitting a driving signal from the camera control unit to the load.	
Configuration	 The vehicle specification that is written in camera control unit can be displayed or stored. The vehicle specification can be written when camera control unit is replaced. 	

ECU IDENTIFICATION

Camera control unit part number can be identified.

SELF DIAGNOSIS RESULT

Refer to AV-352, "DTC Index".

- 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] and [U1010] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Freeze Frame Data (FFD)

The following vehicle status is recorded when DTC is detected and is displayed on CONSULT.

Item name	Display content	
IGN counter (0 to 39) Numerical is detected • When "0 • When ar detected NOTE: Each tim When nu nosis is e	Numerical value is displayed indicating the number of times that ignition switch is turned ON after the DTC is detected.	
	• When "0" is displayed, it indicates that the system is presently malfunctioning.	
	 When any numerical number other than "0" is displayed, it indicates that system malfunction in the past is detected, but the system is presently normal. NOTE: 	
	Each time when ignition switch turns OFF \rightarrow ON, numerical number increases from $1\rightarrow 2\rightarrow 338\rightarrow 39$.	
	When number of times exceeds 39, numeric display does not increase and 39 is displayed until self-diag- nosis is erased.	

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.

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

Display Item	Remarks
ST ANGLE SENSOR SIGNAL [ON/OFF]	Receiving status of steering angle signal received from steering angle sensor is switched to ON/OFF.
REVERSE SIGNAL [ON/OFF]	Receiving status of reverse signal received from AV control unit is displayed by ON/OFF.

< SYSTEM DESCRIPTION >

Display Item	Remarks	
VEHICLE SPEED SIGNAL [ON/OFF]	Receiving status of vehicle speed signal received from ABS actuator control unit is displayed by ON/OFF.	
ILL [ON/OFF]	Receiving status of dimmer signal received from BCM is displayed by ON/OFF.	
CAMERA SWITCH SIGNAL [ON/OFF]	Receiving status of camera switch signal received from AV control unit is displayed by ON/ OFF.	
CAMERA OFF SIGNAL [ON/OFF]	Receiving status of camera OFF signal received from AV control unit is displayed by ON/OFF.	
ITS SW 1 [ON/OFF]	Indicates the state of the warning system switch as seen by the camera control unit.	
ITS SW 1 IND [ON/OFF]	Indicates the state of the warning system switch indicator output.	
ST ANGLE SENSOR TYPE [ABSOLUTE]	Input type of steering angle sensor is displayed. NOTE: For this vehicle, "Absolute" is displayed.	
STEERING GEAR RATIO TYPE [TYPE1]	Type of steering gear ratio is displayed. NOTE: For this vehicle, "TYPE 1" is displayed.	
STEERING POSITION [LHD]	Steering position is displayed. NOTE: For this vehicle, "LHD" is displayed.	
WASH SW [ON/OFF]	Indicates [On/Off] status of the washer switch signal input	
REAR CAMERA IMAGE SIGNAL [OK/NG]	Input status of rear view camera image signal is displayed by OK/NG in real time.	
R-CAMERA COMM STATUS [OK/NG]	Communication status with rear camera is displayed by OK/NG in real time.	
R-CAMERA COMM LINE [OK/NG]	Status of communication line with rear camera is displayed by OK/NG in real time.	
TURN SIGNAL [ON/OFF]	Indicates [On/Off] status of the turn signal input	
ITS SW 2 [No setting]	Indicates the status of warning systems switch as seen by the camera control unit. NOTE: For this vehicle, "No setting" is displayed.	
PUMP COMM STATUS [OK/NG]	Communication status with pump control unit is displayed by OK/NG in real time.	
ITS SW 2 IND [No setting]	Indicates the status of warning systems switch indicator output. NOTE: For this vehicle, "No setting" is displayed.	

WORK SUPPORT

Display Item	Remarks
REAR WIDE-VIEW FIXED GUIDE LINE CORRECTION	The position of rear wide view guiding line can be changed.
PREDICTIVE COURSE LINE DIS- PLAY	ON/OFF setting of predictive course line can be performed.
INITIALIZE CAMERA IMAGE CALI- BRATION	The calibration can be initialized to factory shipment condition. NOTE: Calibration of camera image caused by misalignment of the camera installation position is per- formed.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

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Display Item	Remarks	Δ
STEERING ANGLE SENSOR AD- JUSTMENT	Steering angle sensor neutral position can be adjusted and registered. CAUTION: For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS ac- tuator control unit side. Refer to <u>BRC-9</u> , "ADJUSTMENT OF STEERING ANGLE SENSOR <u>NEUTRAL POSITION : Special Repair Requirement</u> ".	
REAR CAMERA ITS	Calibration for LDW/BSW can be performed.	
CAUSE OF LDW CANCEL	Displays causes of automatic system cancellation occurred during control of the LDW system.	С
CAUSE OF BSW CANCEL	Displays causes of automatic system cancellation occurred during control of the BSW system.	

NOTE:

• Causes of the maximum five cancellations (system cancel) are displayed.

• The displayed cancellation causes display the number of the ignition switch ON/OFF up to 254. It is fixed to 254 if it is over 254. It returns to 0 when the same cancellation cause is detected again.

Display Items for The Cause of LDW/BSW Cancel

Cause of cancellation	Description	
REAR CAMERA DIRTY	Rear view camera lens is dirty.	F
TRUNK OPEN	Back door is open.	
TRAILER HITCH ON	Towing (by attaching a trailer).	G
R CAMERA COMM ERR	Communication error between camera control unit and rear view camera.	
LOW WASH FLUID	Washer fluid level is low.	
LO TMP(AIR WIPING)	Ambient temperature drops to -20 °C (-4 °F) or less.	H
LO TMP(WSH WIPING)	Ambient temperature drops to -20 °C (-4 °F) or less.	
NO RECORD	-	

ACTIVE TEST

CAUTION:

- Never perform "Active Test" while driving the vehicle.
- The "Active Test" cannot be performed when the following systems warning indicator is illuminated.
- Lane departure warning lamp
- BSW warning lamp
- Shift the selector lever to "P" position, and then perform the test.

Test items	Description	
LED LH INDICATOR	BSW indicator LH can be illuminated by ON/OFF operations as necessary.	
LED RH INDICATOR	BSW indicator RH can be illuminated by ON/OFF operations as necessary.	
WASH ACTIVE	Camera washer can be operated by ON/OFF operations as necessary.	
AIR ACTIVE	Camera blower can be operated by ON/OFF operations as necessary.	
AIR & WASH ACTIVE	Camera blower and washer can be operated by ON/OFF operations as necessary.	

LED LH INDICATOR

Test item	Operation	Description	BSW indicator LH	C
LED LH INDICATOR	Off	Stops transmitting the BSW indicator LH signal below to end the test	OFF	
	On	Transmits the BSW indicator LH signal to the BSW indicator	ON	F

LED RH INDICATOR

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT) IPTION > [BOSE AUDIO WITH NAVIGATION]

< SYSTEM DESCRIPTION >

Test item	Operation	Description	BSW indicator RH
LED RH INDICATOR	Off	Stops transmitting the BSW indicator RH signal below to end the test	OFF
	On	Transmits the BSW indicator RH signal to the BSW indicator	ON

WASH ACTIVE

Test item	Operation	Description	Rear view camera washer
WASH ACTIVE	Off	Stops transmitting the rear view camera washer signal below to end the test	OFF
	On	Transmits the rear view camera washer signal to the pump control unit via communication line	ON

AIR ACTIVE

Test item	Operation	Description	Rear view camera air blower
AIR ACTIVE	Off	Stops transmitting the rear view camera air blow signal below to end the test	OFF
	On	Transmits the rear view camera air blow signal to the pump control unit via communication line	ON

AIR & WASHER ACTIVE

Test item	Operation	Description	Rear view camera air blower and washer
AIR & WASHER AC- TIVE	Off	Stops transmitting the rear view camera air blow / washer signal below to end the test	OFF
	On	Transmits the rear view camera air blow / washer signal to the pump control unit via communication line	ON

CONFIGURATION

Configuration includes functions as follows.

Fur	oction	Description	
Deed/Mrite Configuration	Before Replace ECU	Allows the reading of vehicle specification written in camera con- trol unit to store the specification in CONSULT.	
Read/White Conliguration	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the camera control unit.	
Manual Configuration		Allows the writing of the vehicle specification into the camera con- trol unit by hand.	

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

NOTE:

С 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	
	Ignition switch	Vehicle speed >= 8 km/h (5 MPH)	On	
VICE SPD SIG	ON	Vehicle speed < 8 km/h (5 MPH)	Off	E
	Ignition switch	Parking brake is applied.	On	
PKD SIG	ON	Parking brake is released.	Off	
	Ignition switch	Lighting switch is ON	On	ŀ
ILLUM SIG	ON	Lighting switch is OFF	Off	
	Ignition switch ON	_	On	(
IGN SIG	Ignition switch ACC	_	Off	-
DEV SIC	Ignition switch	Selector lever is in R position	On	
REV SIG	ON	Selector lever is in any position other than R	Off	
SIDE VIEW SW	Ignition switch ON	This item is displayed, but cannot be moni- tored.	Off	
ROOM LAMP	Ignition switch ON	This item is displayed, but cannot be moni- tored.	Off	

TERMINAL LAYOUT



PHYSICAL VALUES

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INFOID:000000009721851 В

< ECU DIAGNOSIS INFORMATION >

Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
1 (P)	Ground	Amp. ON signal	Input	Ignition switch ON	_	12.0 V
2 (G)	3 (R)	Sound signal front LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 -1 -1 SKIB3609E
4 (O)	5 (SB)	Sound signal rear LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
	6 15 (BR) (L) Steering switch				Keep pressing SOURCE switch.	0 V
		Steering switch signal A	Input	lgnition switch ON	Keep pressing MENU UP switch.	1.0 V
6 (BR)					Keep pressing MENU DOWN switch.	2.0 V
()					Keep pressing 🟑 switch	3.0 V
					Keep pressing ENTER switch.	4.0 V
					Except for above.	5.0 V
7 (W)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
10 (B)		Shield	_	_	_	_
11 (B)	12 (W)	Sound signal front RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 ••••2ms SKIB3609E
13 (V)	14 (LG)	Sound signal rear RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + + 2ms SKIB3609E

< ECU DIAGNOSIS INFORMATION >

(Wire color)		Description			Condition	Reference value	А
+	-	Signal name	Input/ Output	Condition		(Approx.)	
					Keep pressing VOL DOWN switch.	0 V	В
16	15	Steering switch signal B	Input	Ignition	Keep pressing VOL UP switch.	1.0 V	С
(G)	(L)	Steering switch signal b	mput	ON	Keep pressing 🌈 switch.	2.0 V	_
				Keep pressing 🗲 switch.	3.0 V	D	
					Except for above.	5.0 V	_
19 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	Е
20 (B)	Ground	Ground	_	lgnition switch ON	_	0 V	F
22	Ground	Camera power supply	Output	Ignition switch	Selector lever is in "R" posi- tion.	6.0 V	
(v)				ON	Except for above.	0 V	G
26 (Y)	Ground	AUX image signal	Input	Ignition switch ON	At AUX image is displayed.	(V) 0.4 0 −0.4 + 40µs SKIB2251J	H
29	0	B ill state to all		Ignition	Pressing the eject switch.	0 V	J
(W)	Ground	DISK eject signal	Input	Switch	Except for above.	5.0 V	
42 (LG)	Ground	Camera ground	_	Ignition switch ON	_	0 V	K
46 (BR)	Ground	AUX image signal ground	_	lgnition switch ON	_	0 V	L
47	—	Shield	—	—	—	—	- N.A
49 (V)	Ground	Switch ground	_	lgnition switch ON	_	0 V	IVI
65	Ground	Parking broke signal	Input	Ignition	Parking brake is applied.	4.5 V	AV
(LG)	Gibuna	Farking brake signal	input	ON	Parking brake is released.	0 V	
67 (BR)	Ground	Composite image signal ground		lgnition switch ON	_	0 V	0
68 (GR)	Ground	Composite image signal	Output	Ignition switch ON	At DVD image is displayed.	(V) 0.4 0 −0.4 ++40µs SKIB2251J	Ρ

< ECU DIAGNOSIS INFORMATION >

(Wire color)		Description		O an altiture		Reference value
+	-	Signal name	Input/ Output	Condition		(Approx.)
72 (B)	Ground	Microphone VCC	Output	Ignition switch ON	_	5.0 V
73 (R)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
74 (P)		CAN-L	Input/ Output		_	_
75 (LG)		AV communication signal (L)	Input/ Output		_	_
76 (LG)		AV communication signal (L)	Input/ Output		_	_
79	<u> </u>			Ignition	Lighting switch is OFF.	0 V
(R)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12.0 V
80 (G)	Ground	Ignition signal	Input	lgnition switch ON	_	Battery voltage
81	Ground	d Reverse signal	Input	Ignition	Selector lever is in R position.	12.0 V
(SB)	Cround	Neverse signal	input	ON	Selector lever is in other than R position.	0 V
82 (V)	Ground	Vehicle speed signal (8- pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	NOTE: The maximum voltage varies depending on the specification (destination unit).
83	—	Shield			_	_
87 (W)	71	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0 • • • 2ms PKIB5037J
88	_	Shield	_	_	_	_

< ECU DIAGNOSIS INFORMATION >

(Wire color)			Condition		Reference value		
+	_	Signal name	Input/ Output	Condition		(Approx.)	
89 (G)	Ground	Communication signal (DISP→CONT)	Input	lgnition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ••••••1ms ••••••1ms •••••••••••••••••••	C
90 (L)	_	CAN-H	Input/ Output	_	_	—	
91 (SB)	_	AV communication signal (H)	Input/ Output	_	_		E
92 (SB)	_	AV communication signal (H)	Input/ Output			_	F
104 (B)	119 (W)	AUX sound signal LH	Input	lgnition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 ••••2ms SKIB3609E	G
117		Shield			—	—	I
118 (R)	119 (W)	AUX sound signal RH	Input	lgnition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	J
129 (G)		USB ground			_		L
130 (W)	_	USB D– signal	_			_	
131 (R)	_	V BUS signal	_	_	_	_	M
132 (L)	_	USB D+ signal	_		_	_	A) /
133	_	Shield	_	_	_		AV
150	_	FM sub	Input	_	—	_	
151	_	AM-FM main	Input		_	_	0
152	Ground	Antenna amp. ON signal	Input	Ignition switch ON		12.0 V	P
153	Ground	GPS antenna signal	Input	lgnition switch ON	Not connected GPS anten- na connector.	5.0 V	
154	—	Shield	—	—	—	—	
157	Ground	RGB digital image signal (–)	Output	lgnition switch ON	Not connected connector.	3.0 V	

< ECU DIAGNOSIS INFORMATION >

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
158	Ground	RGB digital image signal (+)	Output	Ignition switch ON	Not connected connector.	3.0 V	
159	_	Satellite radio antenna sig- nal	Input	—	_	_	

Fail-Safe

INFOID:000000009721852

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
Air conditioner	Operation	Only multifunction switch (preset switch) can be operated.
	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.
Addio	Display	No display ("Fail-safe mode" is displayed)
Camora	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 operated.
Self diagnosis		The display in simplified mode of fail-safe condition
CONSULT diagnosis		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

INFOID:000000009721853

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

DTC	Display item	Refer to	_
U1000	CAN COMM CIRCUIT [U1000]	AV-379, "AV CONTROL UNIT : Diagnosis Procedure"	A
U1010	CONTROL UNIT (CAN) [1010]	AV-381, "AV CONTROL UNIT : DTC Logic"	-
U1200	Cont Unit [U1200]	AV-384, "DTC Logic"	- B
U1201	GYRO NO CONN [U1201]	AV-385, "DTC Logic"	-
U1202	G-SENSOR NO CONN [U1202]	AV-386, "DTC Logic"	С
U1204	GPS COMM [U1204]	AV-387, "Diagnosis Procedure"	_
U1205	GPS ROM [U1205]	AV-388, "Diagnosis Procedure"	_
U1206	GPS RAM [U1206]	AV-389, "Diagnosis Procedure"	D
U1207	GPS RTC [U1207]	AV-390, "Diagnosis Procedure"	-
U1216	CAN CONT [U1216]	AV-391, "DTC Logic"	E
U1217	BLUETOOTH MODULE [U1217]	AV-392, "DTC Logic"	-
U1218	HDD CONN [U1218]	AV-393, "Diagnosis Procedure"	-
U1219	HDD READ [U1219]	AV-394, "Diagnosis Procedure"	F
U121A	HDD WRITE [U121A]	AV-395, "Diagnosis Procedure"	-
U121B	HDD COMM [U121B]	AV-396, "Diagnosis Procedure"	G
U121C	HDD ACCESS [U121C]	AV-397, "Diagnosis Procedure"	0
U121D	DSP CONN [U121D]	AV-398, "Diagnosis Procedure"	-
U121E	DSP COMM [U121E]	AV-399, "Diagnosis Procedure"	Н
U1225	USB CONTROLLER [U1225]	AV-400, "DTC Logic"	_
U1227	DVD COMM [U1227]	AV-401, "Diagnosis Procedure"	-
U1228	SUB CPU CONN [U1228]	AV-402, "DTC Logic"	-
U1229	iPod CERTIFICATION [U1229]	AV-403, "DTC Logic"	_
U122A	CONFIG UNFINISH [U122A]	AV-404, "Diagnosis Procedure"	J
U122E	Built-in AUDIO CONN [U122E]	AV-405, "DTC Logic"	-
U1232	ST ANGLE SEN CALIB [1232]	AV-406, "AV CONTROL UNIT : Diagnosis Proce- dure"	K
U1243	FRONT DISP CONN [U1243]	AV-407, "Diagnosis Procedure"	-
U1244	GPS ANTENNA CONN [U1244]	AV-409, "Diagnosis Procedure"	-
U1258	XM ANTENNA CONN [U1258]	AV-410, "Diagnosis Procedure"	
U1263	USB OVERCURRENT [U1263]	AV-411, "Diagnosis Procedure"	-
U1264	ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264]	AV-412, "Diagnosis Procedure"	Μ
U1265	AMP ON TERMINAL [GND-SHORT or VB- SHORT] [U1265]	AV-413, "Diagnosis Procedure"	AV
U1310	CONTROL UNIT (AV) [U1310]	AV-418. "DTC Logic"	
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-414, "Description"	0

< ECU DIAGNOSIS INFORMATION >

DISPLAY UNIT

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Terr (Wire	minal color)	Description		Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
6	—	Shield	—	—	—	_	
7	—	Shield			_	_	
8 (R)	Ground	Camera image signal	Input	Ignition switch ON	At camera image is dis- played.	(V) 0.4 0 −0.4 ++40µs SKiB2251J	
9 (G)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ••••1ms ••••1ms •••••1ms •••••1ms	
10 (R)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••1ms •••••1ms ••••••1ms ••••••••••••••••••••••••••••••••••••	
11 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
12 (B)	Ground	Ground	—	Ignition switch ON	_	0 V	

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DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

Terr (Wire)	color)	Description			Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	_
							В
18 (GR)	Ground	Composite image signal	Input	Ignition switch ON	At DVD image is displayed.		С
						SKIB2251J	D
19 (BR)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V	E
22	—	Shield	_	—	—	—	
23 (W)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	F
27	_	RGB digital image signal (–)	Input	_	_	_	G
28		RGB digital image signal (+)	Input			_	

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< ECU DIAGNOSIS INFORMATION >

BOSE AMP.

Reference Values

INFOID:000000009721855





[BOSE AUDIO WITH NAVIGATION]



PHYSICAL VALUES

Terr (Wire	ninal color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (LG)	2 (V)	Sound signal front squawk- er LH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E
4 (P)	3 (L)	Sound signal front squawk- er RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E
7 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
10 (SB)	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
13 (GR)	8 (BR)	Sound signal woofer	Output	Ignition switch ON	Sound output	(V) 1 0 -1 * 2ms SKIB3609E

Revision: 2013 August

BOSE AMP.

< ECU DIAGNOSIS INFORMATION >

Terr (Wire)	ninal color)	Description		Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
14 (L)	9 (O)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 * 2ms SKIB3609E	C
16 (GR)	17 (BR)	Sound signal rear speaker	Output	lgnition switch ON	Sound output	(V) 1 0 -1 * 2ms SKIB3609E	E
18 (W)	19 (B)	Sound signal front door speaker LH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 -1 -1 -1 -1 SKIB3609E	G
20 (SB)	Ground	Amp. ON signal	Input	Ignition switch ACC	_	12.0 V	1
24 (GR/V)	23 (W/L)	Sound signal rear LH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	J K L
26 (GR/V)	25 (W/L)	Sound signal rear RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 • • 2ms SKIB3609E	M
28 (G)	15 (R)	Sound signal rear door speaker LH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E	O

BOSE AMP.

< ECU DIAGNOSIS INFORMATION >

Terr (Wire)	ninal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
29 (V)	30 (P)	Sound signal center speak- er	Output	Ignition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E
31 (BR)	32 (Y)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 • • 2ms SKIB3609E
33 (W/R)	34 (B/R)	Sound signal front RH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 • • 2ms SKIB3609E
35 (W/R)	36 (B/R)	Sound signal front LH	Input	Ignition switch ON	Sound output	(V) 1 0 -1 • • 2ms SKIB3609E

< ECU DIAGNOSIS INFORMATION >

CAMERA 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		
ST ANGLE SENSOR SIGNAL	Ignition switch	When steering angle sensor signal is input	ON	
[ON/OFF]	ŌN	Other than the above	OFF	
REVERSE SIGNAL	Ignition switch	Ignition switch R position		
[ON/OFF]	ON	Other than R position	OFF	
VEHICLE SPEED SIGNAL	Ignition switch	When vehicle speed is input	ON	
[ON/OFF]	ŌN	Other than the above	OFF	
ILL	Ignition switch	When lighting switch is ON	ON	
[ON/OFF]	ON	When lighting switch is OFF	OFF	
CAMERA SWITCH SIGNAL	Ignition switch	When camera switch signal is input	ON	
[ON/OFF]	ON	Other than the above	OFF	
CAMERA OFF SIGNAL	Ignition switch	When camera OFF signal is input	ON	
[ON/OFF]	ŌN	Other than the above	OFF	
ITS SW 1	Ignition switch	Warning systems switch is ON. (Warning systems ON indicator illuminates.)	ON	
[ON/OFF]	ON	Warning systems switch is OFF. (Warning systems ON indicator OFF.)	OFF	
ITS SW 1 IND	Ignition switch	Warning systems ON indicator illuminates.	ON	
[ON/OFF]	ON	Warning systems ON indicator OFF	OFF	
ST ANGLE SENSOR TYPE [Absolute]	Ignition switch ON	_	Absolute	
STEERING GEAR RATIO TYPE [TYPE1]	Ignition switch ON	_	TYPE1	
STEERING POSITION [LHD]	Ignition switch ON	_	LHD	
WASH SW	Ignition switch	When washer switch signal is input	ON	
[ON/OFF]	ON	Other than the above	OFF	
		When rear camera image signal input status is normal	ОК	
[OK/NG]	ON	When rear view camera image signal input status is not normal	NG A	
R-CAMERA COMM STATUS	Ignition switch	When communication status with rear camera is nor- mal	ОК	
[OK/NG]	ŌN	When communication status with rear camera is not normal	NG	
TURN SIGNAL	Ignition switch	Turn signal is ON	ON	
[ON/OFF]	ŌN	Turn signal is OFF	OFF	
ITS SW 2 [No setting]	Ignition switch ON	_	No setting	

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В

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< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

Monitor Item		Condition	Value/Status
PUMP COMM STATUS	Ignition switch	When communication signal is input	OK
[OK/NG]	ON	Other than the above	NG
ITS SW 2 IND [No setting]	Ignition switch ON	_	No setting

TERMINAL LAYOUT



PHYSICAL VALUES

Terr (Wire	minal color)	Description		Condition		Standard value	Reference value
+	_	Signal name	Input/ Output		Condition	Standard value	(Approx.)
1 (B)	Ground	Ground		lgnition switch ON	_	0 - 0.1 V	0 V
2 (V)	1 (B)	Battery power supply	Input	lgnition switch OFF	_	9.5 - 16 V	Battery voltage
3 (G)	1 (B)	Ignition signal	Input	Ignition switch ON	_	9.5 - 16 V	Battery voltage
7 (R)	Ground	BSW indicator LH	Output	lgnition switch ON	Approx. 2 sec. after ignition switch OFF \Rightarrow ON (bulb check).	5.5 - 16 V	6.0 V
8 (G)	Ground	BSW indicator RH	Output	Ignition switch ON	Approx. 2 sec. after ignition switch OFF \Rightarrow ON (bulb check)	5.5 - 16 V	6.0 V
15	Ground	Warning systems ON	Output	Ignition switch	Warning systems ON indi- cator ON	0 - 0.1 V	0 V
(BR)	Ground	indicator	Output	ON	Warning systems ON indi- cator OFF	9.5 - 16 V	12.0 V
17	Ground	Warning systems	loout	Ignition	When warning systems switch is not pressed	9.5 - 16 V	12.0 V
(GR)	Ground	switch	input	ON	When warning systems switch is pressed	0 - 0.1 V	0 V
25	1			Ignition	R position	9.5 - 16 V	12.0 V
(R)	(B)	Reverse signal	Input	switch ON	Other than R position	0 - 0.1 V	0 V
27 (L)	_	CAN-H	Input/ Output	_	_	_	_
28 (P)		CAN-L	Input/ Output	_	_	_	_

< ECU DIAGNOSIS INFORMATION >

lerr (Wire)	ninal color)	Description		Condition		- Condition St		Standard value	Reference value	А
+	_	Signal name	Input/ Output		Condition	Olandard Value	(Approx.)			
						Input the wavefor with the comm	orm synchronized unication status.	В		
36 (W)	Ground	Communication signal (CAMERA \rightarrow PUMP)	Output	Ignition switch ON	_			С		
						<u>→</u> + 1ms	PKIB5039J	D		
37 (SB)	Ground	COMM GND	_	Ignition switch ON		0 - 0.1 V	0 V	E		
						Input the wavefor with the comm	orm synchronized unication status.	F		
38 (V)	Ground	Communication sig- nal (PUMP → CAMERA)	Input	Ignition switch ON	_			G		
						→ + 1ms	PKIB5039J	Н		
40 (R)	Ground	Washer level switch	Input	Ignition switch	Washer is empty	0 - 0.1 V	0 V			
				ON		Input the wavefor with the came	orm synchronized ra image signal.	I		
47 (B)	48	Camera image signal	Output	Ignition switch ON				J		
						- ' → • 40 μ	JSNIA0834GB	K		
48	Ground	Camera image signal ground	_	Ignition switch ON	_	0 - 0.1 V	0 V	L		
						Input the wavefor with the comm	orm synchronized unication status.	Μ		
49 (W)	52 (R/W)	Rear camera commu- nication signal	Input/ Output	Ignition switch ON		(V) 5 4 3 2 1 0		AV		
50 (R/L)	52 (R/W)	Rear camera power supply	Output	Ignition switch ON		5.0 - 9.0 V	6.0 V	Ρ		
52 (R/W)	Ground	Rear camera ground	_	Ignition switch ON	_	0 - 0.1 V	0 V			

< ECU DIAGNOSIS INFORMATION >

Terr (Wire)	ninal color)	Description		Condition		Standard value	Reference value
+	_	Signal name	Input/ Output			(Approx	
						Input the wavefo with the came	orm synchronized a image signal.
53 (B)	54	Rear camera image signal (+)	Input	lgnition switch ON			JSNIA0834GB
54	Ground	Rear camera image signal (–)	_	Ignition switch ON	_	0 - 0.1 V	0 V

Fail-Safe

INFOID:000000009721857

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
C1A03 VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) re- ceived by the camera control unit via CAN com- munication, are inconsistent	LDW system is cancelBSW system is cancel
C1A04 ABS/TCS/VDC CIRC	If a malfunction occurs in the VDC/TCS/ABS system	LDW system is cancelBSW system is cancel
C1A39 STRG SEN CIR	If the steering angle sensor is malfunction	 LDW system is cancel BSW system is cancel
U0122 VDC P-RUN DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	LDW system is cancelBSW system is cancel
U0416 VDC CHECKSUM DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	LDW system is cancelBSW system is cancel
U0428 ST ANGLE SENSOR CALIBRA- TION	Neutral position adjustment of steering angle sensor is not complete.	 Predicted course line is not displayed. MOD (Moving Object Detection) function is stopped. LDW system is stopped. BSW system is stopped.

< ECU DIAGNOSIS INFORMATION >

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1000 CAN COMM CIRCUIT	When camera control unit cannot transmit/re- ceive CAN communication signal continuously for 2 seconds or more.	 The following functions are stopped When communication of steering angle sensor signal is not normal Predicted course line is not displayed. MOD (Moving Object Detection) function is stopped. LDW system is stopped. BSW system is stopped. Using "SETTING" menu display, switch each indicator of predicted course line dis- play and MOD switch to "OFF" (turn OFF) so that switch operation cannot be per- formed. When communication of vehicle signal, wheel speed sensor signal, and shift signal is not normal Predicted course line is not displayed. MOD (Moving Object Detection) function is stopped. LDW system is stopped. WS system is stopped. MOD (Moving Object Detection) function is stopped. USING "SETTING" menu display, switch each indicator of predicted course line dis- play and MOD switch to "OFF" (turn OFF)
		formed When communication of sonar signal is not normal Predicted course line is not displayed. MOD (Moving Object Detection) function is
U1010 CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	stopped. LDW system is stopped. BSW system is stopped.
U111A REAR CAMERA IMAGE SIGNAL	No-signal status of rear camera image signal is continued for 500 ms or more while ignition switch is ON. NOTE: Current malfunction is displayed only and is not saved.	 Camera image is not displayed (Gray screen display). LDW system is stopped. BSW system is stopped.
U1232 ST ANGLE SEN CALIB	Neutral position adjustment of steering angle sensor is performed. NG signal from steering angle sensor is received.	 Predicted course line is not displayed. MOD (Moving Object Detection) function is stopped. LDW system is stopped. BSW system is stopped. Tire icon is stopped. Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed.
U1305 CONFIG UNFINISH	The vehicle setting of camera control unit is in- complete. NOTE: Current malfunction is displayed only and is not saved.	Operation is according to the vehicle setting value as default value.
U1308 R-CAMERA (R&L) CALIB JDG- MNT	Camera image calibration is incomplete	 MOD (Moving Object Detection) function is stopped. LDW system is stopped. BSW system is stopped.

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1309 PUMP INPUT CURRENT JUDGE	Camera control unit detects the value of current from pump control unit is incorrect	 MOD (Moving Object Detection) function is stopped. LDW system is stopped. BSW system is stopped.
U130B RR CAMERA COMM ERROR	Camera control unit receives the incorrect com- munication signal from rear view camera	 MOD (Moving Object Detection) function is stopped. LDW system is stopped. BSW system is stopped.
U1310 PUMP ECU JUDGE	If the pump control unit is malfunction	LDW system is stopped.BSW system is stopped.
Other	When camera control unit is not normal.	Switch to camera screen is not allowed.
	When communication between camera control unit and each camera is not normal.	On applicable camera screen <u>A</u> marking (Red) is displayed.
	When communication line between camera control unit and each camera image line are af- fected by electromagnetic noises.	On applicable camera image screen, X display (Blue) is displayed.

DTC Inspection Priority Chart

INFOID:000000009721858

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

Priority	Detected items (DTC)	
1	U1000: CAN COMM CIRCUIT U1010: CONTROL UNIT (CAN)	
2	U1232: ST ANGLE SEN CALIB U1305: CONFIG UNFINISH	
3	U0428: ST ANGLE SENSOR CALIBRATION	
4	U130B: RR CAMERA COMM ERROR	
5	U1308: R-CAMERA (R&L) CALIB JDGMNT	
6	 C1A04: ABS/TCS/VDC CIRC C1A39: STRG SEN CIR U0122: VDC P-RUN DIAGNOSIS U0416: VDC CHECKSUM DIAGNOSIS U111A: REAR CAMERA IMAGE SIGNAL U1309: PUMP INPUT CURRENT JUDGE U1310: PUMP ECU JUDGE 	
7	C1A03: VHCL SPEED SE CIRC	

DTC Index

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		Warning lamp		"MOD" (Mov-		
DTC	CONSULT display	Lane depar- ture warning lamp	BSW warning lamp	ing Object De- tection) icon	Reference	
C1A03	VHCL SPEED SE CIRC	ON	ON	Orange	DAS-58, "DTC Logic"	
C1A04	ABS/TCS/VDC CIRC	ON	ON	Orange	DAS-59, "DTC Logic"	
C1A39	STRG SEN CIR	ON	ON	Orange	DAS-60, "DTC Logic"	
U0122	VDC P-RUN DIAGNOSIS	ON	ON	Orange	DAS-61, "DTC Logic"	
U0416	VDC CHECKSUM DIAGNOSIS	ON	ON	Orange	DAS-62, "DTC Logic"	
U0428	ST ANGLE SENSOR CALIBRATION	ON	ON	Orange	AV-378, "DTC Logic"	

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

		Warning lamp		"MOD" (Mov-	Reference	A
DTC CONSULT display		Lane depar- ture warning lamp	BSW warning lamp	ing Object De- tection) icon		
U1000	CAN COMM CIRCUIT	ON	ON	Orange	AV-379, "CAMERA CONTROL UNIT : DTC Logic"	В
U1010	CONTROL UNIT (CAN)	ON	ON	Orange	AV-381, "CAMERA CONTROL UNIT : DTC Logic"	С
U111A	REAR CAMERA IMAGE SIGNAL	ON	ON	Orange	AV-382, "DTC Logic"	D
U1232	ST ANGLE SEN CALIB	ON	ON	Orange	AV-406, "CAMERA CONTROL UNIT : DTC Logic"	F
U1305	CONFIG UNFINISH	ON	ON	Orange	AV-415, "DTC Logic"	
U1308	R-CAMERA (R&L) CALIB JDGMNT	ON	ON	Orange	DAS-70, "DTC Logic"	
U1309	PUMP INPUT CURRENT JUDGE	ON	ON	Blue	DAS-71, "DTC Logic"	F
U130B	RR CAMERA COMM ERROR	ON	ON	Orange	AV-417, "DTC Logic"	
U1310	PUMP ECU JUDGE	ON	ON	Blue	DAS-73, "DTC Logic"	G

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WIRING DIAGRAM BOSE AUDIO WITH NAVIGATION

Wiring Diagram

INFOID:000000009721860

NOTE:

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





< WIRING DIAGRAM >

[BOSE AUDIO WITH NAVIGATION]









Revision: 2013 August

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Terminal No. Color of Wree Signal Name [Specification] No. V - 1 V - 2 BR - 4 V - 5 SB - 6 P - 7 P - 8 B - 10 P -	11 1.0 12 0.0 12 0.0 12 0.0 12 0.0 13 0.0 14 0.0 15 0.0 10 0.0 11 0.0 12 0.0 1 0.0 <	
Oometer Na. 225 Ommeter Name BOSE AMP. Connector Type SCA195BR-SGA4 MAS	Twrminal Num Gene Of Num Signal Nume (Specification) 10 R SOUND SIGNAL REAR DOOR SPEAKER LH () 11 B R SOUND SIGNAL REAR EDOOR SPEAKER LH () 12 B SOUND SIGNAL REAR EDOOR SPEAKER LH () 13 B SOUND SIGNAL REAR EDOOR SPEAKER LH () 20 SB SOUND SIGNAL REAR LEAT LH () 20 B SOUND SIGNAL REAR LEAT LH ()	
7 GRV - 8 W/U - 9 SHELD - 10 GRV - 11 W/L - 12 SHELD - 13 SHE - 16 GRV - 17 W/L - 18 SH - 16 Y - 17 B - 18 W - 19 W - 28 G -	00/02 0 - <td></td>	
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[BOSE AUDIO WITH NAVIGATION]



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BOSE AUDIO WITH NAVIGATION

[BOSE AUDIO WITH NAVIGATION]

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| 82 BR IGN RELAY (F/B) CONT | 83 P KEYLESS ENTRY RECEIVER COMM | 87 R COMBI SW INPUT 5 | 88 GR COMBI SW INPUT 3 | 90 P CAN-L | 91 L CAN-H | 92 R KEY SLOT ILL CONT | 93 P ON IND | 95 L ACC RELAY CONT | 96 Y CVT SHIFT SELECTOR POWER SUPPLY | 99 V SHIFT P

 | 100 P PASSENGER DOOR REQUEST SW
 | 101 W DRIVER DOOR REQUEST SW | 102 Y BLOWER RELAY CONT | 103 L KEYLESS ENTRY RECEIVER POWER SUPPLY | 107 0 COMBI SW INPUT 1 | 108 P COMBI SW INPUT 4 | 109 SB COMBI SW INPUT 2 | 110 G HAZARD SW | | | Connector No. M124 | Connector Name WIRE TO WIRE |
 | Connector Type NS12FBR-CS | Ó

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 | 17 SHIELD - | 18 BR -

 | | | Connector No. M122 | Connector Name RCM (RODY CONTROL MODULE)

 | | Connector Type TH40FB-NH | đ
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 | 74 Y PASSENGER DOOR ANT- | 75 LG PASSENGER DOOR ANT+ | 76 V DRIVER DOOR ANT- | 77 P DRIVER DOOR ANT+ | 80 SB NATS ANT AMP. | 81 O NATS ANT AMP. | |
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| | 17 V 56 L - Connector No. M97 82 BR 101 RELAY (F/B) CONT | 17 V - 66 L - Connector No. M87 22 B.R ION RELAY (F/B) CONT 18 P - 66 Y - 06 Y 23 P KEVLESS ENTRY RECEIVER COMM | 17 V - 66 L - Connector No. M87 22 BR T ION RELAY (F/S) CONT 13 P - 66 V - 66 Y 50 PR - 10N RELAY (F/S) CONT 13 P - - 67 G - Connector Name VIPE TO WIRE 87 R COMBIS SN INPULS | 17 V - 66 L - Connector No. M87 22 BR R. Liss Ref.A/ (F/B) CONT 19 P - 66 Y - 66 Y Connector Name WPE TO WRE 87 R CONBIS SWI NPUT 3 19 P - 67 - Connector Name WPE TO WRE 87 R CONBIS SWI NPUT 3 20 LG - 67 - Connector Type THIEFW-CS2 28 GR COMBIS SWI NPUT 3 | 17 V - 66 L - Connector No. M87 20 B All ONE (API) CONT 19 P - 66 V - 21 22 22 23 P RCEUES INTER RECEIVENTION 19 P - 67 G - - 06 1 23 P RCEUES INTER RECEIVENTION 19 P - - 0 1 23 P CONNECT TYPE 11/15/Pr-CS2 29 P CONNECT TYPE CONNECT TYPE 21 Y CONNECT TYPE CONNECT TYPE | 17 V - 66 L - Connector No. M87 22 B.R TION RELIVE/F0.00MT 19 P - 66 L - - 06 Kerkssettime receiver connu 19 P - - 67 G - - 06 Connector Name 20 LG - - 67 G - - 0.0481 Stime receiver connu 20 LG - | 17 V - 60 L - Connector No. M87 Connector No. Conn | 17 V - 66 L - Connector No. M87 32 B R. IN RECIVER COMMIN 19 P - - 66 L - - 68 EN F(F) COMT 21 V - - 67 G - - 60mELG MmE F COMELG MME MOLT F COMELG MME MULT 2 P COMELG MME MULT 7 P COMELG MME MULT 2 P COMELG MME MULT 7 P COMELG MME MULT 2 P COMELG MME MULT 3 P | 17 V - 0 L - Connector No. M87 Connector No. M88 MNeUT 1 Connector No. M93 Connector No. Connector No. Connector No. Connector No. | 17 V - 66 L - Connector No. M87 2 B R. IN RECVENCIONAL 19 P - - 66 Y - - 87 B R. IN RECRETCOM. 19 P - - 67 C - - 87 P KELESS ENTER RECERCIONAL 20 LG - - 67 C - <td>17 V - - Connector No. M87 M87<</td> <td>17 V - Connector No. M87 Connector No. Connector No. M88 Connector No. Connector No. Connector No. Connector No. Connector No. Connector N</td> <td>17 V -</td> <td>17 V - Connector (lo. M87 Conn</td> <td>17 V -</td> <td>17 V - 06 L - Connector No. M87 Connector No. Conn</td> <td>1 V -</td> <td>$\begin{array}{ c c c c c c c c c c c c c c c c c c c$</td> <td>$\begin{array}{ c c c c c c c c c c c c c c c c c c c$</td> <td>$\begin{array}{ c c c c c c c c c c c c c c c c c c c$</td> <td>$\begin{array}{ c c c c c c c c c c c c c c c c c c c$</td> <td>17 V - - - Connector (k) M8T NMT SIN RECVENCION NMT NMT</td> <td>17 V - Connector No. MR: 10 MI: 10 MI</td> <td>17 V -
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BOSE AUDIO WITH NAVIGATION

JRNWC8960GB

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BOSE AUDIO WITH NAVIGATION

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BOSE AUDIO WITH NAVIGATION [BOSE AUDIO WITH NAVIGATION]



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BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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[BOSE AUDIO WITH NAVIGATION]

OVERALL SEQUENCE



- Reference 1... Refer to <u>AV-327, "CONSULT Function"</u> (AV control unit), and <u>AV-331, "CONSULT Function"</u> [Camera control unit (models with BSW and LDW)].
- Reference 2... Refer to <u>AV-340, "DTC Index"</u> (AV control unit), and <u>AV-352, "DTC Index"</u> [Camera control unit (models with BSW and LDW)].
- Reference 3... Refer to AV-436, "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

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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

2. DIAGNOSIS WITH CONSULT

1. Connect CONSULT and perform a self-diagnosis for "MULTI AV" and "AVM" (models with BSW and LDW). Refer to <u>AV-327, "CONSULT Function"</u>.

NOTE:

Skip to step 4 of the diagnosis procedure if "MULTI AV" or "AVM" (models with BSW and LDW) 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.
- 2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-340, "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-436</u>, "<u>Symptom</u> <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" and "AVM" (models with BSW and LDW) with CONSULT. **NOTE:**

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 > [BOSE AUDIO WITH NAVIGATION]
ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)
Description INFOID:00000009721862
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
 CONSULT Configuration Perform "Before Replace ECU" to save or print current vehicle specification. Refer to <u>AV-376, "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 <u>AV-448, "Exploded View"</u> .
>> GO TO 3. 3.WRITING VEHICLE SPECIFICATION
ONSULT Configuration Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to <u>AV-376, "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

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CONFIGURATION (AV CONTROL UNIT) [BOSE AUDIO WITH NAVIGATION]

< BASIC INSPECTION >

CONFIGURATION (AV CONTROL UNIT)

Description

INFOID:000000009721864

- 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	nction	Description
Road/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.
Read/write Conliguration	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:000000009721865

1.WRITE VEHICLE SPECIFICATION

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

CONSULT Configuration

Perform "Manual Configuration." Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to <u>AV-376, "Configuration List"</u>.

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:000000009721866

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-376

CONFIGURATION (AV CONTROL UNIT)

< BASIC INSPECTION >

MANUAL S	ETTING ITEM	Detail	
Items	Setting value	Detail	
STEEDING	LHD	LHD models	
STEEKING	RHD	RHD models	
	REAR CAMERA	With rear view monitor system	
CAMERA SYSTEM	REAR+SIDE	With rear view monitor system and front-side view monitor function	
	BASE	Without BOSE system	
SOUND STSTEM	BOSE	With BOSE system	
	DIRECTIONAL MIC	With directional microphone*	
MICROPHONE	NON-DIRECTIONAL MIC	With non-directional microphone*	
	WITH	With BSW and LDW	
AFFORDABLE 115	WITHOUT	Without BSW and LDW	

*: In the following table, find an illustration that the (A) part matches the vehicle and select microphone type.



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DTC/CIRCUIT DIAGNOSIS U0428 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009721867

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0428	ST ANGLE SENSOR CALIBRATION	The neutral position adjustment of the steering angle sensor is incomplete.	 Neutral position of steering angle sensor is not yet adjusted Steering angle sensor

NOTE:

If DTC "U0428" is detected along with DTC "U1232", first diagnose the DTC "U1232". Refer to <u>AV-406. "CAM-ERA CONTROL UNIT : DTC Logic"</u>.

Diagnosis Procedure

INFOID:000000009721868

1. ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U0428 is detected, adjust the neutral position of the steering angle sensor.

>> Perform adjustment of the neutral position of the steering angle sensor. Refer to <u>BRC-9</u>, <u>"ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair</u> <u>Requirement"</u>.

CAUTION:

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

U1000 CAN COMM CIRCUIT AV CONTROL UNIT

AV CONTROL UNIT : Description

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. D

CAN Communication Signal Chart. Refer to LAN-29, "CAN Communication Signal Chart".

AV CONTROL UNIT : 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.	(

AV CONTROL UNIT : Diagnosis Procedure

1.PERFORM SELF-DIAGNOSTIC

- 1 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-18, "Trouble Diagnosis Procedure".
- NO >> Refer to GI-44, "Intermittent Incident".

CAMERA CONTROL UNIT

CAMERA CONTROL UNIT : Description

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-29. "CAN Communication Signal Chart".

CAMERA CONTROL UNIT : DTC Logic

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes	0
U1000	CAN COMM CIRCUIT	Camera control unit is not transmitting or re- ceiving CAN communication signal for 2 sec- onds or more.	CAN communication system	P

NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

CAMERA CONTROL UNIT : Diagnosis Procedure

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.



INFOID:000000009721874

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INFOID:000000009721869

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INFOID:000000009721872

INFOID:000000009721873

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

- 2. Turn the LDW system ON, and then wait for 30 seconds or more.
- 3. Perform "All DTC Reading" with CONSULT.

4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "AVM". <u>Is "U1000" detected as the current malfunction?</u>

- YES >> Refer to LAN-18, "Trouble Diagnosis Flow Chart".
- NO >> Refer to GI-44, "Intermittent Incident".

< DTC/CIRCUIT DIAGNOSIS > U1010 CONTROL UNIT (CAN) AV CONTROL UNIT

AV CONTROL UNIT : DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction factor	С
U1010	CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-448, "Exploded View"</u> .	D

CAMERA CONTROL UNIT

CAMERA CONTROL UNIT : Description

CAN controller controls the communication of CAN communication signal and the error detection.

CAMERA CONTROL UNIT : DTC Logic

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1010	CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	Camera control unit
CAME	RA CONTROL UN	IIT : Diagnosis Procedure	INFOID:000000009721878
1.PERF	FORM DTC CONFIRMA	TION PROCEDURE	
 Star Turr Turr Perf Che 	t the engine. h the LDW system ON. form "All DTC Reading" ack if the "U1010" is dete	with CONSULT.	Diagnostic Result" of "AVM"
<u>Is "U101</u> YES NO	0" detected as the curre >> Replace the camera >> INSPECTION END	ent malfunction? a control unit. Refer to <u>AV-464, "Remov</u>	al and Installation".

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INFOID:000000009721875

INFOID:000000009721876

INFOID:000000009721877

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U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:000000009721879

[BOSE AUDIO WITH NAVIGATION]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U111A	REAR CAMERA IMAGE SIGNAL	Camera image signal circuit is open or shorted.	 Camera image signal circuit be- tween rear view camera and cam- era control unit Camera control unit Rear view camera

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

- 1. Turn the ignition switch ON.
- 2. Shift the selector lever to "R" position.
- 3. Perform "All DTC Reading" with CONSULT.
- 4. Check if the "U111A" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U111A" detected as the current malfunction?

- YES >> Refer to <u>AV-382, "Diagnosis Procedure"</u>.
- NO >> Refer to <u>GI-44, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000009721880

1. CHECK CONTINUITY REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT

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

Camera control unit Rear view camera		Camera control unit		w camera	Continuity
Connector	Terminals	Connector	Terminals	Continuity	
Pop	50	D168	8	Existed	
D93	52	0100	7	Existed	

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

Camera d	control unit		Continuity
Connector	Terminal	Ground	Continuity
B93	50		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE REAR VIEW CAMERA POWER SUPPLY

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

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

	Tern	ninal				•	А
(+	-)	(–)	Standard voltage	Reference voltage		
	Camera c	ontrol unit		Standard Voltage	(Approx.)		В
Connector	Terminal	Connector	Terminal				_
B93	50	B93	52	5.0 - 9.0 V	6.0 V		
Is inspection	n result no	ormal?				-	С
YES >>	GO TO 3.	Annora aon	trol unit E	Pofor to AV/ AGA "	Domoval and Insta	llotion"	
						<u>ination</u> .	D
				E SIGNAL CIRCU	11		
 Turn Ig Discon Check tor. 	nition switt nect came continuity	ch OFF. ra control u between ca	nit conneo Imera con	ctor and rear view trol unit harness c	camera connecto connector and rear	r. r view camera harness connec-	E
Camera	control unit	Rea	r view came	ra	uity		F
Connector	Terminal	s Connec	tor Tern	ninals			
B93	53	D168		5 Existe	d		G
	54	2.00		1			
4. Check	continuity	between ca	mera con	trol unit harness c	onnector and grou	und.	Ц
Camera				Continu	uity		
Connector	Terminal	S	Ground				
B93	54			Not exis	sted		
le inspectio	n result no	rmal?					J
YES >>	• GO TO 4.						0
NO >>	Repair ha	arness or co	nnector.				
4.CHECK	CAMERA	IMAGE SIG	SNAL				Κ
1. Conne	ct camera	control unit	connecto	r and rear view ca	mera connector.		
2. Turn ig	nition swite	ch ON.	ra control	unit harnaan aann	aatar		L
3. Check	signal betw	veen camer	a control	unit namess conn	lector.		
	-	Terminal					
	(+)		(-)				IVI
	Came	ra control unit		Ref	erence value		
Connector	Termina	I Connec	tor Terr	minal			AV
B93	53	B93	Ę	54 (V) 1 0			0
				-1	40 μ s		Ρ
Is inspectio	n result no	ormal?	1				

YES >> Replace camera control unit. Refer to <u>AV-464, "Removal and Installation"</u>.
 NO >> Replace rear view camera. Refer to <u>AV-466, "Removal and Installation (Models without BSW and</u>)

LDW)".

U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1200 AV CONTROL UNIT

[BOSE AUDIO WITH NAVIGATION]

DTC Logic

INFOID:000000009721881

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-448</u> , "Exploded View".

U1201 AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1201 AV CONTROL UNIT

DTC Logic

DTC

U1201

INFOID:000000009721882

Display contents of CONSULT	DTC detection condition	Possible malfunction factor
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-448, "Exploded View"</u> .

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U1202 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1202 AV CONTROL UNIT

DTC Logic

INFOID:000000009721883

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-448, "Exploded View"</u> .

U1204 AV CONTROL UNIT

Description

INFOID:000000009721884

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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 <u>AV-448</u>. "<u>Exploded View</u>".

DTC Logic

INFOID:000000009721885

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor	C
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 mal- function occurs constantly. Refer to <u>AV-448</u> , " <u>Exploded View</u> ".	F

Diagnosis Procedure

INFOID:000000009721886

1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self Diagnostic 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-448, "Exploded View"</u>.
- NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

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U1205 AV CONTROL UNIT

Description

INFOID:000000009721887

[BOSE AUDIO WITH NAVIGATION]

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 <u>AV-448</u>. "<u>Exploded View</u>".

DTC Logic

INFOID:000000009721888

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 mal- function occurs constantly. Refer to <u>AV-448, "Exploded View"</u> .

Diagnosis Procedure

INFOID:000000009721889

1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self Diagnostic 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-448, "Exploded View"</u>.
- NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1206 AV CONTROL UNIT

Description

INFOID:000000009721890

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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 <u>AV-448</u>. "<u>Exploded View</u>".

DTC Logic

INFOID:000000009721891

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor	C
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 mal- function occurs constantly. Refer to <u>AV-448</u> , " <u>Exploded View</u> ".	F

Diagnosis Procedure

INFOID:000000009721892

1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self Diagnostic 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-448, "Exploded View"</u>.
- NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

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U1207 AV CONTROL UNIT

Description

INFOID:000000009721893

[BOSE AUDIO WITH NAVIGATION]

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 <u>AV-448</u>. "<u>Exploded View</u>".

DTC Logic

INFOID:000000009721894

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 mal- function occurs constantly. Refer to <u>AV-448, "Exploded View"</u> .

Diagnosis Procedure

INFOID:000000009721895

1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self Diagnostic 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-448, "Exploded View"</u>.
- NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1216 AV CONTROL UNIT

Display contents of

CONSULT

CAN CONT

[U1216]

DTC Logic

DTC

U1216

INFOID:000000009721896

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AV control unit malfunction is detected. Replace the AV control unit if th function occurs constantly. Refer to AV-448. "Exploded Vie Refer to AV-448."	Replace the AV control unit if the m function occurs constantly. Refer to AV-448. "Exploded View".

U1217 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1217 AV CONTROL UNIT

[BOSE AUDIO WITH NAVIGATION]

INFOID:000000009721897

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-448, "Exploded View"</u> .

U1218 AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1218 AV CONTROL UNIT

DTC Logic

INFOID:000000009721898

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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 <u>AV-448</u>. "Exploded View".
Diagno	osis Procedure		INF01D:00000009721899
1.сне	CK MUSIC BOX FUN	ICTION	
	boy function normal	0	
YES NO	 >> Malfunction may >> Replace AV cont 	<u>rest for the second se</u>	

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U1219 AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1219 AV CONTROL UNIT

DTC Logic

INFOID:000000009721900

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 <u>AV-448</u>. "Exploded View".

Diagnosis Procedure

INFOID:000000009721901

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-448, "Exploded View"</u>.

U121A AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U121A AV CONTROL UNIT

DTC Logic

INFOID:000000009721902

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 <u>AV-448</u>, "Exploded View".
Diagn	osis Procedure		INFOID:00000009721903
І. сне	CK MUSIC BOX FUN	ICTION	
<u>s music</u> YES NO	<u>> box function normal</u> > Malfunction may > Replace AV cont	<u>?</u> be detected transitory. rol unit. Refer to <u>AV-448, "Exploded View"</u> .	

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U121B AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U121B AV CONTROL UNIT

DTC Logic

INFOID:000000009721904

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 <u>AV-448</u>. "Exploded View".

Diagnosis Procedure

INFOID:000000009721905

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-448, "Exploded View"</u>.
U121C AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U121C AV CONTROL UNIT

DTC Logic

INFOID:000000009721906

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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 <u>AV-448</u>, "Exploded View".
Diagn	osis Procedure		INFOID:000000009721907
1.сне	CK MUSIC BOX FUN	ICTION	
	a hav function normal	2	
YES NO	>> Malfunction may >> Replace AV cont	<u>:</u> be detected transitory. rol unit. Refer to <u>AV-448, "Exploded View"</u> .	

U121D AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U121D AV CONTROL UNIT

DTC Logic

INFOID:000000009721908

INFOID:000000009721909

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 <u>AV-448</u>, "<u>Exploded View</u>".

Diagnosis Procedure

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 <u>AV-448, "Exploded View"</u>.

U121E AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U121E AV CONTROL UNIT

DTC Logic

INFOID:000000009721910

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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 <u>AV-448</u>, "<u>Exploded View</u>".
Diagn	osis Procedure		INFOID:00000009721911

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 <u>AV-448, "Exploded View"</u>.

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U1225 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1225 AV CONTROL UNIT

DTC Logic

INFOID:000000009721912

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.

U1227 AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1227 AV CONTROL UNIT

DTC Logic

INFOID:000000009721913

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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 <u>AV-448</u>, "<u>Exploded View</u>".
Diagno	osis Procedure		INFOID:00000009721914

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 <u>AV-448, "Exploded View"</u>.

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U1228 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1228 AV CONTROL UNIT

DTC Logic

INFOID:000000009721915

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 <u>AV-448, "Exploded View"</u> .

U1229 AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1229 AV CONTROL UNIT

DTC Logic

INFOID:000000009721916

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DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor	С
U1229	iPod CERTIFICATION [U1229]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-448</u> , "Exploded View".	D

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U122A AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U122A AV CONTROL UNIT

DTC Logic

INFOID:000000009721917

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 CON-SULT.

Diagnosis Procedure

INFOID:000000009721918

1.PERFORM THE SELF-DIAGNOSIS

When U122A is detected, write configuration data with CONSULT.

>> Write configuration data with CONSULT. Refer to <u>AV-327, "CONSULT Function"</u>.

U122E AV CONTROL UNIT [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U122E AV CONTROL UNIT

DTC Logic

INFOID:000000009721919

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor	С
U122E	Built-in AUDIO CONN [U122E]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-448</u> , "Exploded View".	D

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< DTC/CIRCUIT DIAGNOSIS > U1232 STEERING ANGLE SENSOR AV CONTROL UNIT

AV CONTROL UNIT : DTC Logic

INFOID:000000009721920

[BOSE AUDIO WITH NAVIGATION]

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 cen- ter position of the steering angle sen- sor.

AV CONTROL UNIT : Diagnosis Procedure

INFOID:000000009721921

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 <u>BRC-9</u>, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : <u>Special Repair Requirement</u>".

CAMERA CONTROL UNIT

CAMERA CONTROL UNIT : DTC Logic

INFOID:000000009721922

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1232	ST ANGLE SEN CALIB	The neutral position registration of the steering angle sensor can not finish.	Steering angle sensorCamera control unit

CAMERA CONTROL UNIT : Diagnosis Procedure

INFOID:000000009721923

1.REGISTER THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

- 1. Turn the ignition switch ON.
- 2. Perform registration of the neutral position of the steering angle sensor. Refer to <u>BRC-9</u>, "ADJUSTMENT <u>OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"</u>.
- 3. Check "Self Diagnostic Result" of "AVM" with CONSULT.
- Is "U1232" detected as the current malfunction?
- YES >> GO TO 2.
- NO >> INSPECTION END

2. CHECK STEERING ANGLE SENSOR

Check steering angle sensor.

Is the inspection result normal?

- YES >> Replace the camera control unit. Refer to <u>AV-464, "Removal and Installation"</u>.
- NO >> Repair or replace malfunctioning parts.

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1243 DISPLAY UNIT

DTC Logic

INFOID:000000009721924

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DTC	Display contents CONSULT	of	DTC detection condition		Possible malfunction factor
U1243	FRONT DISP CON [U1243]	When e • displa functi • serial AV co	 When either one of the following items are detected: display unit power supply and ground circuits are mal- functioning. serial communication circuits between display unit and AV control unit are malfunctioning. 		 Display unit power supply and ground circuits. Serial communication circuits between display unit and AV control unit.
Diagno	osis Procedu	re			INFOID:00000009721925
1. CHE	CK DISPLAY UN	IIT POWER	SUPPLY AN	ID GROUND CIRCUIT	
Check c	display unit powe	r supply and	ground circu	uit. Refer to <u>AV-419, "DISPL</u>	AY UNIT : Diagnosis Procedure".
<u>s the in</u>	spection result n	ormal?			
YES	>> GO TO 2.	notioning no	vrto		
ио 2 _{СПЕ}					
2. Dise 3. Che	connect display u eck continuity bet	init connecto ween displa	or and AV co y unit harnes	ntrol unit connector. ss connector and AV control	unit harness connector.
	Display unit	AV con	trol unit	Continuity	
Conne	ctor Terminals	Connector	Terminals	Continuity	
M19	5 9	M180	89	Existed	
in ro	10	intee	73	Existed	
. Che	eck continuity bet	ween displa	y unit harnes	ss connector and ground.	
	Display unit				
Conne	ctor Terminals			Continuity	
	9	Gro	ound		
M19	5 10			Not existed	
s the in	spection result n	ormal?			
YES	>> GO TO 3.				
	>> Repair harne	ess or conne	ctor.		
NO	CK COMMUNIC	ATION SIGN	IAL		
NО 3. СНЕ				al unit connector	
NO 3.CHE	nnect display unit	connector a	ind AV contr		
NO 3.CHE 1. Cor 2. Tur 3. Che	nnect display unit	connector a ON. an display ur	ind AV control	onnector and ground	
NO 3. CHE . Cor 2. Turl 3. Che	nnect display unit n ignition switch eck signal betwee	connector a ON. en display ur	ind AV contr nit harness c	onnector and ground.	
NO B.CHE . Cor 2. Turi 3. Che	nnect display unit n ignition switch eck signal betwee	connector a ON. en display ur	ind AV contr nit harness c	onnector and ground.	
NO B.CHE . Cor 2. Turi 3. Che	nnect display unit n ignition switch eck signal betwee	connector a ON. en display ur	ind AV contr hit harness c	onnector and ground.	

[BOSE AUDIO WITH NAVIGATION]

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

(+)					
Displa	ay unit	(–)	Condition	Reference value	
Connector	Terminal				
M195	9	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 4 4 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-448</u>, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+)				
Display unit		(-)	Condition	Reference value
Connector	Terminal			
M195	10	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 ••••1ms PKIB5039J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to <u>AV-449, "Exploded View"</u>.

U1244 GPS ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

U1244 GPS ANTENNA

DTC Logic

INFOID:000000009721926

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DTC	Display contents of CONSULT	DTC o	detection condition	Possible malfunction factor
U1244	GPS ANTENNA CONN [U1244]	GPS antenna connect	ion malfunction is detected.	Check the connection of the GPS an- tenna connector.
Diagn	osis Procedure			INF0ID:000000009721927
1.gps	ANTENNA CHECK			
/isually <u>s the ir</u> YES	check GPS antenna spection result norma >> GO TO 2.	and antenna feeder al?	:	
110 2.сне	CK AV CONTROL UI	NIT VOLTAGE		
1. Tru	n ignition switch OFF.			
2. Dis 3. Tur 4. Ch	connect GPS antenna in ignition switch ON. eck voltage between <i>i</i>	a connector. AV control unit and g	ground.	
2. Dis 3. Tur 4. Ch	connect GPS antenna in ignition switch ON. eck voltage between / (+)	a connector. AV control unit and g	ground.	
2. Dis 3. Tur 4. Ch	(+) (+) (+) (+) (+) (+) (+)	a connector. AV control unit and g (-)	ground. Voltage (Approx.)	
2. Dis 3. Tur 4. Ch	(+) (+) (V control unit Terminal (53	a connector. AV control unit and g (-) Ground	Voltage (Approx.) 5.0 V	
2. Dis 3. Tur 4. Ch <u>s the ir</u> YES NO	connect GPS antenna in ignition switch ON. eck voltage between a (+) V control unit Terminal 153 ispection result norma >> INSPECTION EN >> Replace AV cont	a connector. AV control unit and g (-) Ground al? ND rol unit. Refer to <u>AV</u>	Voltage (Approx.) 5.0 V -448, "Exploded View".	
2. Dis 3. Tur 4. Ch <u>4</u> <u>5 the ir</u> YES NO	(+) (+) (+) V control unit Terminal 153 DSPECTION EN >> INSPECTION EN >> Replace AV cont	a connector. AV control unit and g (–) Ground al? ND rol unit. Refer to <u>AV</u>	ground. Voltage (Approx.) 5.0 V -448. "Exploded View".	

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U1258 SATELLITE RADIO ANTENNA [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

U1258 SATELLITE RADIO ANTENNA

DTC Logic

INFOID:000000009721928

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 feeder.Antenna base.

Diagnosis Procedure

INFOID:000000009721929

1.SATELLITE RADIO ANTENNA CHECK

Visually check antenna base and satellite radio antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK AV CONTROL UNIT VOLTAGE

1. Turn ignition switch OFF.

2. Disconnect satellite radio antenna connector.

3. Turn ignition switch ON.

4. Check voltage between AV control unit terminal and ground.

(+)		
AV control unit	()	(Approx.)
Terminal		
159	Ground	5.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace AV control unit. Refer to <u>AV-448</u>, "Exploded View".

U1263 USB

DTC detection condition

Detection of overcurrent in USB connector.

>> Replace AV control unit. Refer to AV-448, "Exploded View".

< DTC/CIRCUIT DIAGNOSIS >

Display contents of

CONSULT USB OVERCURRENT

U1263 USB

[U1263]

Diagnosis Procedure

1.CHECK USB HARNESS Visually check USB harness.

Is the inspection result normal?

>> Replace USB harness.

DTC Logic

DTC

U1263

YES

NO

INFOID:000000009721930

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Possible malfunction factor				
Check USB harness between the AV control unit and USB connector.				
	D			
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		F		
		G		
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U1264 ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

U1264 ANTENNA AMP.

DTC Logic

INFOID:000000009721932

[BOSE AUDIO WITH NAVIGATION]

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1264	ANTENNA AMP TER- MINAL [U1264]	Radio antenna amp. ON circuit is open or shorted.	Check antenna amp. ON signal circuit between the AV control unit and radio antenna amp.

Diagnosis Procedure

INFOID:000000009721933

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND ANTENNA BASE

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

AV cor	itrol unit	Anteni	na base	Continuity
Connector	Connector Terminals		Terminals	Continuity
M385	152	M394	1	Existed

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

AV cor	ntrol unit		Continuity
Connector Terminals		Ground	Continuity
M385	152		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE AV CONTROL UNIT

- 1. Connect AV control unit connector.
- 2. Turn ignition switch ON.

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

(AV cor	+) htrol unit	()	Voltage	
Connector	Terminals		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
M385	152	Ground	12.0 V	

Is the inspection result normal?

YES >> Replace antenna base. Refer to <u>AV-468, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to AV-448, "Exploded View".

U1265 BOSE AMP.

< DTC/CIRCUIT DIAGNOSIS >

U1265 BOSE AMP.

DTC Logic

INFOID:000000009721934

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[BOSE AUDIO WITH NAVIGATION]

U1265 AMP ON TERMINAL [U1265] BOSE amp. ON signal circuit is open or shorted. Check BOSE amp. ON signal boxeen the AV control unit an BOSE amp. Diagnosis Procedure ************************************	DTC	Display contents of CONSULT DTC detection condition		condition	Possible malfunction factor		
Diagnosis Procedure ####################################	U1265	AMP ON T [U1265]	AMP ON TERMINAL [U1265] BOSE amp. ON signal circuit is open or shorted.		Check BOSE amp. ON signal circuit between the AV control unit and BOSE amp.		
ACHECK CONTINUITY BETWEEN AV CONTROL UNIT AND BOSE AMP. . Turn ignition switch OFF. Disconnect AV control unit connector and BOSE amp. connector. AV control unit BOSE amp. Connector Terminals Connector Terminals Connector Terminals Connector Terminals Connector Terminals Connector Terminals Control unit BOSE amp. Connector Terminals M178 1 B225 20 Existed AV control unit Continuity Connector Terminals Ground Continuity Connector Terminals Ground Continuity Connector Terminals Ground Continuity Connector Terminals Ground NO >> Repair harness or connector. 2.CHECK VOLTAGE AV CONTROL UNIT Connector Connect AV control unit connector. Control unit connector. 2. Turn ignition switch ON. Connector Connect AV control unit (-)	Diagno	osis Pro	cedure				INFOID:00000009721935
1. Turn ignition switch OFF. 2. Disconnect AV control unit connector and BOSE amp. connector. 3. Check continuity between AV control unit harness connector and BOSE amp. harness connector. AV control unit BOSE amp. Connector Terminals Continuity M178 1 B225 20 AV control unit B255 20 Existed 4. Check continuity between AV control unit harness connector and ground. AV control unit Continuity AV control unit Ground Continuity Connector Terminals Ground Continuity M178 1 B225 Continuity Connector Terminals Ground Continuity M178 1 Continuity Not existed s the inspection result normal? YES > GO TO 2. NO NO >> Repair harness or connector. Connect AV control unit connector. 2. CHECK VOLTAGE AV CONTROL UNIT I. Connect AV control unit connector. Connector Terminals . (-) Voltage (Approx.) Voltage (Approx.) Connector Terminals 1 Ground 12.0 V	1.сне	CK CONT	INUITY BI	ETWEEN AV (NIT AND BOSE AMP.	
AV control unit BOSE amp. Continuity Connector Terminals Connector Terminals M178 1 B225 20 Existed Check continuity between AV control unit harness connector and ground. AV control unit Continuity AV control unit Ground Continuity Connector Terminals Ground Continuity M178 1 Not existed Sthe inspection result normal? YES > GO TO 2. NO >> Repair harness or connector. Control UNIT Connect AV control unit connector. Control unit connector. Check voltage between AV control unit harness connector and ground. (+) (-) Voltage (Approx.) Connector Terminals Ground 12.0 V sthe inspection result normal? YES > Replace BOSE amp. Refer to <u>AV-456, "Exploded View"</u> .	. Turi 2. Disc 3. Che	n ignition s connect A eck continu	witch OFF / control u uity betwee	- init connector en AV control i	and BOSE an unit harness c	np. connector. connector and BOSE a	amp. harness connector.
ConnectorTerminalsConnectorTerminalsControl unityM1781B22520ExistedA. Check continuity between AV control unit harness connector and ground.AV control unitGroundContinuityConnectorTerminalsGroundContinuityM1781Not existedM1781Not existeds the inspection result normal?YES>> GO TO 2.NO>> Repair harness or connector.CHECK VOLTAGE AV CONTROL UNIT.Connect AV control unit connector.2. Curn ignition switch ONControl unit(+)(-)Voltage (Approx.)M1781M1781Ground12.0 Vs the inspection result normal?YES>> Replace BOSE amp. Refer to AV-456, "Exploded View". NONO>> Replace AV control unit. Refer to AV-448, "Exploded View".		AV control u	nit	BOSE	amp.		
M178 1 B225 20 Existed 4. Check continuity between AV control unit harness connector and ground. AV control unit Continuity Connector Terminals Ground M178 1 Not existed s the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2.CHECK VOLTAGE AV CONTROL UNIT . 1. Connect AV control unit connector. 2. 2. Turn ignition switch ON. . 3. Check voltage between AV control unit harness connector and ground. (+) Voltage (Approx.) Connector Terminals M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to AV-456. "Exploded View". NO >> Replace AV control unit. Refer to AV-448. "Exploded View". .	Conne	ector T	erminals	Connector	Terminals	Continuity	
4. Check continuity between AV control unit harness connector and ground. AV control unit Continuity Connector Terminals Ground M178 1 Not existed s the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2. 2. CHECK VOLTAGE AV CONTROL UNIT . Connect AV control unit connector. 2. CHECK voltage between AV control unit harness connector and ground. . (+) Voltage (Approx.) Connector Terminals Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to AV-456. "Exploded View". NO >> Replace BOSE amp. Refer to AV-448. "Exploded View". .	M17	78	1	B225	20	Existed	
AV control unit ConnectorTerminalsGroundContinuityM1781Not existedst he 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. $(+)$ Voltage (Approx.) $(-)$ Voltage (Approx.)ConnectorTerminalsM1781M1781Ground12.0 Vst he inspection result normal?YES>> Replace BOSE amp. Refer to AV-456. "Exploded View".NO>> Replace AV control unit. Refer to AV-448. "Exploded View".	I. Che	eck continu	uity betwee	en AV control u	unit harness c	connector and ground.	
Connector Terminals Ground M178 1 Not existed s 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. (+) Voltage (Approx.) Connector Terminals M178 1 Ground M178 1 Ground M178 1 Ground YES >> Replace BOSE amp. Refer to AV-456. "Exploded View". NO >> Replace AV control unit. Refer to AV-448. "Exploded View".		AV control u	nit			Continuity	
M178 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. . . . Turn ignition switch ON. . . . Check voltage between AV control unit harness connector and ground. . . Connector unit (-) Voltage (Approx.) . Connector Terminals . M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to AV-456. "Exploded View". NO >> Replace AV control unit. Refer to AV-448. "Exploded View".	Conne	ector T	erminals	Gro	und		
s 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. 8. Check voltage between AV control unit harness connector and ground. (+) Voltage (Approx.) AV control unit (-) Voltage M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to AV-456. "Exploded View". NO >> Replace AV control unit. Refer to AV-448. "Exploded View".	M17	78	1			Not existed	
I. Connect AV control unit connector. 2. Turn ignition switch ON. 3. Check voltage between AV control unit harness connector and ground. (+) Voltage (AV control unit AV control unit (-) Voltage (Approx.) Connector Terminals M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to <u>AV-456, "Exploded View"</u> . NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u> .	YES NO 2.CHE	>> GO T >> Repai	O 2. r harness AGE AV C	or connector. ONTROL UNI	г		
(+) Voltage (Approx.) AV control unit (-) Connector Terminals M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to <u>AV-456, "Exploded View"</u> . NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u> .	. Cor 2. Turi 3. Che	nnect AV c n ignition s eck voltage	ontrol unit witch ON. between	connector. AV control uni	t harness cor	nnector and ground.	
AV control unit (-) Voltage (Approx.) Connector Terminals (-) M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to <u>AV-456, "Exploded View"</u> . NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u> .		(+)					
Connector Terminals M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to <u>AV-456, "Exploded View".</u> NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u> .		AV control unit (–)		-)	Voltage (Approx.)		
M178 1 Ground 12.0 V s the inspection result normal? YES >> Replace BOSE amp. Refer to <u>AV-456, "Exploded View"</u> . NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u> .	Conne	ector T	erminals			(TT -)	
<u>s the inspection result normal?</u> YES >> Replace BOSE amp. Refer to <u>AV-456, "Exploded View"</u> . NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u> .	M17	78	1	Gro	und	12.0 V	
 YES >> Replace BOSE amp. Refer to <u>AV-456, "Exploded View"</u>. NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u>. 	s the in	spection r	esult norm	nal?			
	YES NO	>> Repla >> Repla	ce BOSE ce AV cor	amp. Refer to trol unit. Refe	<u>AV-456, "Exp</u> to <u>AV-448, "I</u>	<u>loded View"</u> Exploded View"	

< DTC/CIRCUIT DIAGNOSIS >

U1300 AV COMM CIRCUIT

Description

INFOID:000000009721936

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.

U1305 CONFIG UNFINISH

< DTC/CIRCUIT DIAGNOSIS >

U1305 CONFIG UNFINISH

DTC Logic

INFOID:000000009721937

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1305	CONFIG UNFINISH	The vehicle specifications of camera control unit is incomplete.	Vehicle specifications for camera control unit is incomplete
IOTE: Current	malfunction is display	ed only and is not saved	
Diagno	osis Procedure		INFOID:00000009721938
	FORM CONFIGURAT	ION OF CAMERA CONTROL LINIT	
Perform	configuration of came	era control unit when DTC U1305 is detected.	
		ntion of compare control unit Defor to DAS 52 "M	/ork Drocoduro"
	>> Penorm conligura	alion of camera control unit. Refer to <u>DAS-52, w</u>	VOIK Procedure.

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U1308 REAR CAMERA

< DTC/CIRCUIT DIAGNOSIS >

U1308 REAR CAMERA

DTC Logic

INFOID:000000009721939

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1308	R-CAMERA (R&L) CAL- IB JDGMNT	Camera image calibration is incomplete	 Calibration for camera image is in- complete Camera communication line is open

NOTE:

If DTC U1308 is detected along with DTC U130B, first diagnose the DTC U130B. Refer to <u>AV-417, "DTC Logic"</u>.

Diagnosis Procedure

INFOID:000000009721940

1.PERFORM CALIBRATION OF CAMERA IMAGE

Perform calibration of camera image when DTC U1308 is detected.

>> Perform calibration of camera image. Refer to <u>DAS-53, "Work Procedure (Preparation)"</u>.

U130B REAR CAMERA

< DTC/CIRCUIT DIAGNOSIS >

U130B REAR CAMERA

DTC Logic

[BOSE AUDIO WITH NAVIGATION]

INFOID:000000009721941

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DTC	DETECTION LOC	SIC
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U130B			
0.002	ERROR	Camera control unit receives the incorrect communication signal from rear camera unit	Rear view cameraCamera control unit
TC CONFIF	MATION PROCEDU	IRE	
.PERFORM	DTC CONFIRMATION	I PROCEDURE	
. Turn the ic . Shift the s . Perform "/ . Check if th	gnition switch ON. elector lever to "R" pos All DTC Reading" with (ne "U130B" is detected	ition. CONSULT. as the current malfunction in "Self Dia	anostic Result" of "AVM".
<u>s "U130B" det</u>	ected as the current m	alfunction?	
YES >> Re NO >> Re	efer to <u>AV-417, "Diagno</u> efer to <u>GI-44, "Intermitte</u>	<u>sis Procedure"</u> . <u>ent Incident"</u> .	
Diagnosis F	Procedure		INFOID:00000009721942
REPLACE	REAR VIEW CAMERA		
. Turn igniti Replace th	on switch OFF. ne rear view camera. R	efer to AV-465, "Removal and Installat	tion (Models with BSW and LDW)".
 Lurn ignition Erases All 	on switch ON. self-diagnosis results.		
5. Shift selec	tor lever to "R" position	1.	
 Perform "A Check if the second s	All DTC Reading" again	i. in self-diagnosis results of "Δ\/M"	
s inspection r	esult normal?		
YES >> Re	efer to INSPECTION E	ND. unit. Refer to AV-464, "Removal and Ir	nstallation".

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U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

U1310 AV CONTROL UNIT

[BOSE AUDIO WITH NAVIGATION]

DTC Logic

INFOID:000000009721943

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 the AV control unit if the mal- function occurs constantly. Refer to <u>AV-448, "Exploded View"</u> .

	POWER SUP	PLY AND) GRO	UND CIRCUIT	
< DTC/CIRCUIT DIA	GNOSIS >			[BOSE AUDIO W	ITH NAVIGATION]
POWER SUPP	LY AND GROU	ND CIR	CUIT		
AV CONTROL U	NIT				
AV CONTROL UN	NIT : Diagnosis P	rocedure			INFOID:000000009721944
1.CHECK FUSE					
Check for blown fuses					
	Power source			Fuse No.	
	Battery			35	
Ignitic	on switch ACC or ON			19	
Is the inspection resultYES>> GO TO 2.NO>> Be sure to2.CHECK POWER S	<u>t normal?</u> eliminate cause of m UPPLY CIRCUIT	alfunction b	efore ins	talling new fuse.	
Check voltage betwee	n AV control unit harn	ess connect	ors and	ground.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Value (Approx.)
Battery power supply	N470	19)	OFF	Battery voltage
ACC power supply	INT 78	7		ACC	Battery voltage
 Turn ignition switc Disconnect AV co Check continuity b 	CIRCUIT h OFF. ntrol unit connectors. petween AV control un	it harness c	onnector	s and ground.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Continuity
Ground	M178	20)	OFF	Existed
Is the inspection result YES >> INSPECT NO >> Repair ha DISPLAY UNIT DISPLAY UNIT :	<u>t normal?</u> ION END rness or connector. Diagnosis Procec	dure			INF01D:000000009721945
1.CHECK FUSE					-
Check for blown fuses					
	Power source			Fuse No.	
	Battery			35	
Ignitic	on switch ACC or ON			19	
Is the inspection result YES >> GO TO 2. NO >> Be sure to 2.CHECK POWER S	t normal? eliminate cause of m UPPLY CIRCUIT	alfunction b	efore ins	talling new fuse.	
Check voltage betwee	n display unit harness	connector	and grou	nd.	

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M195	11	OFF	Battery voltage
ACC power supply	W195	23	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between display unit and fuse.

3.CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. 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	M195	12	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.
Batton	23
Ballery	24

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	B224	10	OFF	Battery voltage
Dattery power supply	0224	11		Dattery voltage

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
Cround	B224	7	OFF	Existed
Cround	DZZ4	12		LAISted

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

INFOID:000000009721946

< DTC/CIR(POWEI	R SUPPL	Y AND GI	KOUND C [B ⁱ	SIRCULI OSE AUDIO WI	TH NAVIGATION
CAMERA			-				
CAMERA	CONTRO	OL UNIT	: Diagnos	is Proced	ure		INFOID:00000000972194
1. CHECK I			Ũ				
Check for bl	own fuses.						
	Pr	ower source				Fuse No.	
	Batter	y power suppl	у			6	
	Igi	nition signal				3	
Is the inspect YES >> NO >> 2.CHECK (Check voltage	ction result n GO TO 2. Be sure to e CAMERA CO	ormal? liminate cau DNTROL UI camera con	use of malfu NIT POWER trol unit harr	nction before SUPPLY CI	installing ne RCUIT	w fuse.	
	go somoon						
Terminal Condition					Reference		
Connector	Camera o Terminal	control unit Connector	Terminal	Ignition switch	voltage	voltage (Approx.)	
	2			OFF	9.5 - 16 V	Battery volt- age	
B92		B92	. 1	OFF	0 - 0.1 V	0 V	
	3			ON	9.5 - 16 V	Battery volt- age	
Is the inspect YES >> NO >> 3. CHECK (1. Turn the	ction result n GO TO 3. Repair the c CAMERA CO gignition swi	ormal? amera cont DNTROL UI tch OFF.	rol unit powe	er supply circ D CIRCUIT	uit.		
 Disconn Check fe 	nect the cam or continuity	era control between ca	unit connect amera contro	or. ol unit harnes	s connector	and ground.	
Cam Connecto	era control unit r Terr	ninal	Ground	Continuity			
B92		1		Existed	_		
Is the inspec YES >> NO >>	<u>ction result n</u> INSPECTIO Repair the c	ormal? N END amera cont	rol unit grou	nd circuit.	-		

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

COMPOSITE IMAGE SIGNAL CIRCUIT

Description

- DVD is played by inserting DVD into the AV control unit.
- DVD image signals are transmitted to the display unit.
- AV control unit receives the image signal from the auxiliary input jacks and USB (video data) and then transmits it to the display unit.

Diagnosis Procedure

INFOID:000000009721949

INFOID:000000009721948

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 con	trol unit	Displa	ay unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M180	68	M195	18	Existed

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

AV con	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M180	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.

(*	+)			
AV con	trol unit	(—)	Condition	Reference value
Connector	Terminal			
M180	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-449</u>, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u>.

RGB DIGITAL IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

RGB DIGITAL IMAGE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

1. CHECK CONTINUITY RGB DIGITAL IMAGE 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	Terminals	Connector	Terminals	Continuity
M388	27	M397	157 Existed	
WI300	28	101307	158	LAISted

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

Displ	ay unit		Continuity
Connector	Terminals	Ground	Continuity
M388	27	- Ground	Not existed
IVISOO	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.

(Displa	+) av unit	(-)	Condition	Voltage	
Connector	Terminal			(Approx.)	L
MOOO	27	Ground		201/	
101300	28	Giouna	_	3.U V	M

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-449, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-448</u>, "Exploded View".

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INFOID:000000009721950

INFOID:000000009721951

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AUX IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

AUX IMAGE SIGNAL CIRCUIT

Description

• Transmits the image signal of AUX device from auxiliary input jacks to AV control unit.

AV control unit transmits the image signal that is input to the display unit.

Diagnosis Procedure

INFOID:000000009721953

INFOID:000000009721952

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	input jacks	AV cor	itrol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M253	7	M179	26	Existed

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

Auxiliary i	input jacks		Continuity
Connector	Terminal	Ground	Continuity
M253	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.

Auxiliary i Connector	+) input jacks Terminal	(–)	Condition	Reference value
M253	7	Ground	At AUX image is displayed.	(V) 0.4 0 −0.4 ++40µs SKIB2251J

Is the inspection result normal?

YES >> Replace AV control unit. Refer to <u>AV-448</u>, "Exploded View".

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

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

CAMERA IMAGE SIGNAL CIRCUIT

Description

- When receiving a reverse signal, the AV control unit supplies power to rear view camera.
- The rear view camera transmits a camera image signal to the display unit.

Diagnosis Procedure

INFOID:000000009721955

INFOID:000000009721954

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- 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.

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

AV cor	ntrol unit		Continuity
Connector	Terminal	Ground	Continuity
M179	22		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Disconnect display unit connector and rear view camera connector.

2. Check continuity between display unit harness connector and rear view camera harness connector.

Displa	ay unit	Rear vie	w camera	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M195	8	D192	3	Existed	

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M195	8		Not existed

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK CAMERA IMAGE SIGNAL

1. Connect display unit connector and rear view camera connector.

2. Turn ignition switch ON.

3. Check signal between display unit harness connector and ground.

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

(· Displa Connector	+) ay unit Terminal	()	Condition	Reference value
M195	8	Ground	At camera image is dis- played.	(V) 0.4 −0.4 • • • 40µs skiB2251J

Is inspection result normal?

YES

 >> Replace display unit. Refer to <u>AV-449</u>, "<u>Exploded View</u>".
 >> Replace rear view camera. Refer to <u>AV-465</u>, "<u>Exploded View</u> (<u>Models without BSW and LDW</u>)". NO

DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DISK EJECT SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

INFOID:000000009721957

INFOID:000000009721956

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1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

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

Multifunc	tion switch	unction	AV con	trol unit	Continuity
Connector	Terminal	or	Connector	Terminal	Continuity
M125	14		M179	29	Existed

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

Multifunct	ion switch		Continuity		
Connector	Terminal	Ground	Continuity		(
M125	14		Not existed	-	
Is the inspec	tion result n	ormal?			-
YES >> NO >>	GO TO 2. Repair harn	ess or connector.			
2. CHECK <i>A</i>	AV CONTRC	L UNIT VOLTAG	ε		
1. Connect 2. Turn ign	t multifunctio	on switch connect ON.	tor and AV control unit con	nector.	
3. Check v	oltage betwo	een AV control ur	nit narness connector and	ground.	
(·	+)				
AV con	trol unit	(-)	Condition	Voltage (Approx.)	ł
Connector	Terminal			(
M170	20	Ground	Pressing the eject switch	0 V	
IVI I 7 9	29	Ground	Except for above	5.0 V	
Is the inspec	tion result n	ormal?			
YES >>	Replace pre	set switch Refer	to AV-458 "Exploded Vie	w"	Ν

YES >> Replace preset switch. Refer to AV-458, "Exploded View".

>> Replace AV control unit. Refer to AV-448, "Exploded View". NO

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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:000000009721959

INFOID:000000009721958

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT

- 1. 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 control unit		Micro	phone	Continuity
Connector	Terminals	Connector	Terminals	Continuity
	71		2	
M180	72	R20	4	Existed
	87		1	

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

AV con	trol unit		Continuity
Connector	Terminals	Ground	Continuity
M180	72	Cround	Not existed
	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.

((+) (–)		
AV control unit			Voltage (Approx.)
Connector	Terminal	Ground	× 11 - 7
M180	72		5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to <u>AV-448</u>, "Exploded View".

3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.

2. Check signal between AV control unit harness connector.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

(+)	(-	_)			А
AV cor	trol unit	AV con	trol unit	Condition	Reference value	
Connector	Terminal	Connector	Terminal	-		P
M180	87	M180	71	Give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 • • • 2ms PKiB5037J	C
Is the inspec	ction result n	ormal?				
YES >> NO >>	Replace AV Replace mic	control unit. rophone. Re	Refer to <u>AV-</u> efer to <u>AV-46</u>	-448, "Exploded Vi 2, "Exploded View	<u>ew"</u> _	E
						F
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< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH SIGNAL A CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and spiral cable connector.
- 3. 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
M178	6	M33	24	Existed

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

AV cor	ntrol unit		Continuity
Connector	Terminal	Ground	Continuity
M178	6		Not existed
		10	

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-15, "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.

(+)	(-)	
	Voltage (Approx.)			
Connector	Terminal	Connector	Terminal	
M178	6	M178	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u>.

4.CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-430. "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>AV-459</u>, "Exploded View".

Component Inspection

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

AV-430

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INFOID:000000009721962

INFOID:000000009721960

INFOID:000000009721961

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]



Between terminals 14 and 17	
ENTER switch ON	: 2003 – 2043 Ω
ແ∕ຊ switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	:0Ω
Between terminals 15 and 17	
Switch ON	: 716 – 730 Ω
🗸 switch ON	: 318 – 324 Ω
VOL UP switch ON	: 120 – 122 Ω
VOL DOWN switch ON	:0Ω



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< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH SIGNAL B CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M178	16	M33	31	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M178	16		Not existed
		10	

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-15, "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 control unit		Voltage (Approx.)		
Connector	Terminal	Connector	Terminal	
M178	16	M178	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u>.

4.CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-432. "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>AV-459</u>, "Exploded View".

Component Inspection

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

AV-432

INFOID:000000009721965

INFOID:000000009721963

INFOID:000000009721964
STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]



Standard

Between terminals 14 and 17	
ENTER switch ON	: 2003 – 2043 Ω
"∕≨ switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	:0Ω
Between terminals 15 and 17	
Switch ON	: 716 – 730 Ω
🗸 switch ON	: 318 – 324 Ω
VOL UP switch ON	: 120 – 122 Ω
VOL DOWN switch ON	:0Ω

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STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH GROUND CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:000000009721967

INFOID:000000009721966

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

AV control unit		Spiral cable		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M178	15	M33	33	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-15, "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	itrol unit		Continuity
Connector	Terminal	Ground	Continuity
M178	15		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-448, "Exploded View"</u>.

4.CHECK STEERING SWITCH

Check steering switch. Refer to <u>AV-434, "Component Inspection"</u>.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>AV-459</u>, "Exploded View".

Component Inspection

INFOID:000000009721968

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]



Between terminals 14 and 17	
ENTER switch ON	: 2003 – 2043 Ω
ແ∕ຊ switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	:0Ω
Between terminals 15 and 17	
Switch ON	: 716 – 730 Ω
🗸 switch ON	: 318 – 324 Ω
VOL UP switch ON	: 120 – 122 Ω
VOL DOWN switch ON	:0Ω



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SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009721969

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 "Self Diagnostic Result" of "MULTI AV" with CONSULT. Refer to <u>AV-327</u>, "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 CON-SULT is started. 	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-419</u> , " <u>AV CONTROL UNIT</u> : <u>Diagnosis</u> <u>Procedure</u> ".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-di- agnosis function. Refer to <u>AV-315</u> , " <u>On Board Diagnosis</u> <u>Function</u> ".
Fuel economy display is about	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV".	Perform detected DTC diagnosis. Refer to <u>AV-340, "DTC Index"</u> .
mal.	There is no malfunction in the CON- SULT "self-diagnosis results" of "MULTI AV".	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 <u>AV-448</u> , " <u>Exploded</u> <u>View</u> ".

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

- 1. Make sure the customer's Bluetooth[®] related concern is understood.
- 2. Verify the customer's concern.
 - NOTE:

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

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

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

- 4. Go to "www.nissanusa.com/bluetooth/".
- a. Using the website's search engine, find out if the customer's phone is on the approved list.
- b. If the customer's phone is NOT on the approved list:

Stop diagnosis here. The customer needs to obtain a Bluetooth[®] 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):



< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Perform diagnosis as per the following table.

Symptoms	Check items	Probable malfunction location	
Does not recognize cellular phone connection. (no connec- tion 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 <u>AV-448, "Exploded</u> <u>View"</u> .	
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in In- spection & 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 <u>AV-428. "Diagnosis Procedure"</u> .	
The system cannot be operat- ed.	 The voice recognition can be controlled. Steering switch's "VOL UP", "VOL DOWN" and "" switch works, but " " it does not work. 	Steering switch malfunction. Replace steering switch. Refer to <u>AV-459, "Exploded</u> <u>View"</u> .	
	Steering switch's " (", "VOL UP", "VOL DOWN" and " " switches do not work.	Steering switch signal B circuit malfunction. Refer to <u>AV-432, "Diagnosis Procedure"</u> .	
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to <u>AV-434</u> , "Diagnosis Procedure".	

RELATED TO HANDS-FREE PHONE (FOR MEXICO)

	, , , , , , , , , , , , , , , , , , ,		J
Symptoms	Check items	Probable malfunction location	•
Does not recognize cellular phone connection. (no connec- tion is displayed on the display at the guide.)	Repeat the registration of cellular phone.		K
Hands-free phone cannot be	• Hands-free phone operation can be made, but the communication cannot be established.	AV control unit malfunction.	L
established.	 Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation. 	Replace AV control unit. Refer to <u>AV-448</u> , "Exploded <u>View"</u> .	Μ
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in In- spection & Adjustment Mode if sound is heard.		AV
Originating sound is not heard	Sound operation function is normal.		\bigcirc
by the other party with hands- free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to <u>AV-428, "Diagnosis Procedure"</u> .	

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items	Probable malfunction location
The system cannot be operat-	 The voice recognition can be controlled. Steering switch's "VOL UP", "VOL DOWN" and "" switch works, but "" it does not work. 	Steering switch malfunction. Replace steering switch. Refer to <u>AV-459, "Exploded</u> <u>View"</u> .
	Steering switch's " (", "VOL UP", "VOL DOWN" and " " switches do not work.	Steering switch signal B circuit malfunction. Refer to <u>AV-432, "Diagnosis Procedure"</u> .
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to <u>AV-434</u> , "Diagnosis Procedure".

RELATED TO CAMERA

Models without BSW and LDW

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 <u>AV-425, "Diagnosis Procedure"</u> .
Camera image does not switch.	"Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjust- ment".	Reverse signal circuit malfunction.
	"Reverse" is turned ON on "Vehicle Sig- nals"screen of "Confirmation/Adjustment".	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-448</u> , " <u>Exploded</u> <u>View</u> ".

Models with BSW and LDW

Symptoms	Check items	Probable malfunction location
Camera image is not displayed. (Only warning message under area is displayed.)	_	Reverse signal circuit malfunction (camera control unit).
Camera image does not switch.		Reverse signal circuit malfunction (AV control unit).

RELATED TO VOICE CONTROL

Symptoms	Check items	Probable malfunction location
The voice cannot be controlled even if the voice control screen is displayed.	Voice sounds at "Voice Microphone Test" of Confirmation/Adjustment mode.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-448</u> , " <u>Exploded</u> <u>View</u> ".
	Voice does not sound at "Voice Micro- phone Test" of Confirmation/Adjustment mode.	Microphone signal circuit malfunction. Refer to <u>AV-428, "Diagnosis Procedure"</u> .
The voice cannot be controlled (Voice control screen is not dis- played).	 Hands-free phone system can be operated. Steering switch's "SOURCE", "MENU UP", "MENU DOWN" and "ENTER" switch works, but "√ " it does not work. 	Steering switch malfunction. Replace steering switch. Refer to <u>AV-459, "Exploded</u> <u>View"</u> .
	Steering switch's "SOURCE", "MENU UP", "MENU DOWN", " v∕ ∑" and "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to <u>AV-430, "Diagnosis Procedure"</u> .
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to <u>AV-434, "Diagnosis Procedure"</u> .

RELATED TO RGB IMAGE

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items	Probable malfunction location	A
RGB image is not shown.	_	RGB digital image signal circuit malfunction. Refer to <u>AV-423, "Diagnosis Procedure"</u> .	
			В

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to <u>AV-427, "Diagnosis Procedure"</u> .
	No sound from all speakers.	 BOSE amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to <u>AV-420</u>, "BOSE AMP. : Diagnosis Procedure".
No sound comes out or the lev- el of the sound is low.	Only a certain speaker (front right, front left, rear right, or rear left, etc.) 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 speakers.	Malfunction in AV control unit.Malfunction in BOSE amp.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.).	 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. Loose antenna base mounting nut. Refer to <u>AV-468.</u> <u>"Exploded View"</u>
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 ob- stacles generating external noises). 	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-468.</u> <u>"Exploded View"</u>
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to <u>AV-327, "CONSULT Function"</u> .	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to <u>AV-340, "DTC Index"</u>. 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 <u>AV-327, "CONSULT Function"</u> .	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut. Refer to <u>AV-468</u>, "Exploded View".

RELATED TO STEERING SWITCH

< SYMPTOM DIAGNOSIS >

Symptoms	Probable malfunction location
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to <u>AV-434, "Diagnosis Procedure"</u> .
Only specified switch cannot be operated.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-459. "Exploded View"</u> .
Steering switch's "SOURCE", "MENU UP", "MENU DOWN", "v ² " and "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to <u>AV-430, "Diagnosis Procedure"</u> .
Steering switch's ", "VOL UP", "VOL DOWN" and "	Steering switch signal B circuit malfunction. Refer to <u>AV-432, "Diagnosis Procedure"</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.

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

RELATED TO DVD MODE

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to <u>AV-427, "Diagnosis Procedure"</u> .
DVD image is not displayed.		 Perform "Self Diagnostic Result" of "MULTI AV" with CONSULT. Refer to <u>AV-327, "CONSULT Function"</u>. When detecting no malfunction in those components, the following items are a possible cause. Composite image signal circuits malfunction. Refer to <u>AV-422, "Diagnosis Procedure"</u>.
DVD sound is not heard.	No sound from all speakers and woofer.	 Amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to <u>AV-420</u>, "BOSE AMP. : Diagnosis Procedure".
	Sound is heard only from specific places.	Sound signals circuit of suspect system.

RELATED TO AUXILIARY INPUT **NOTE**:

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

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 circuit.
Image is not displayed when AUX mode is selected.	DVD image is displayed.	AUX image signal circuit malfunction. Refer to <u>AV-424, "Diagnosis Procedure"</u> .
	DVD image is not displayed.	Composite image signal circuit between AV control unit and display unit. Refer to <u>AV-422, "Diagnosis Procedure"</u> .

NORMAL OPERATING CONDITION < SYMPTOM DIAGNOSIS > [BOSE]

NORMAL OPERATING CONDITION

Description

[BOSE AUDIO WITH NAVIGATION]

INFOID:000000009721970

А

В

J

Κ

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 quidence is available. Or	The volume is not set correctly, or it is turned off.	Adjust the volume of voice guidance.
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 move- ment 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 dark- er or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be se- lected.	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	L
	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.	N/
	The volume if your voice is too loud.	Speak softer.	IV
	Your pronunciation is unclear.	Speak clearly.	
The system does not recognize your com- mand. or The system recognizes your command incor- rectly	You are speaking before the voice recognition is ready	Press and release " $\sqrt{2}$ " switch on the steering switch, and speak a command after the tone sounds.	AV
	8 seconds or more have passed after you pressed and released " $_{w} \leq$ " switch on the steering switch.	Make sure to speak a command within 8 seconds after you press and release " \sqrt{k} " switch on the steering switch.	С
	Only a limited range of voice commands is usable for each screen.	Use a correct voice command appropriate for the current screen.	Ρ
	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	
Displays "COMMAND NOT REC- OGNIZED" or the system fails to in- terpret the command correctly.	1. Ensure that the command format is valid.	
	2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level.	
	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	
	1. Ensure that the command is valid.	
System fails to interpret the com- mand correctly.	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. Refer to "Speaker adaptation (SA) mode" in "OWNER'S MANUAL".	
The system consistently selects the wrong voicetag	1. 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.

< SYMPTOM DIAGNOSIS >

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 files on a CD, only the music CD files (CD-DA data) will be played.	
Cannot play	Files with extensions other than ".MP3 (.mp3)", ".WMA (.wma)", ".AAC (.aac)" or ".M4A (.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 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 file has been given an extension of ".MP3 (.mp3)", ".WMA (.wma)", ".AAC (.aac)" or ".M4A (.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 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, de- pending on DVD.	This is not a malfunction.	Ρ
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.	_

Μ

< 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 (approx- imately 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.
DVD-AUDIO can not be played	DVD-AUDIO may not be playable depending on the vehicle specifications.	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.
Sublities not 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 set subtitle or in set lan- guage)	The DVD is not multilanguage-capable.	The inclusion of the number of languages de- pends on DVD. Languages may be selectable on the Menu screen. Check DVD.
	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 re- flected.
Playback time is indicated, but no sound comes out.	Playback of Mix mode Truck 1. (Mix mode: Format in- cluding 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 [™] .	This is because the quantity of the displayed in- formation is reduced so that the screen does not become too crowded. There is also a chance that names of the roads may be dis- played multiple times, and the names appear- ing on the screen may be different because of a processing procedure.	This is not a malfunction.
The vehicle icon is not displayed in	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 correct position.	The position and direction of the vehicle icon may be incorrect depending on the driving en- vironments and the levels of positioning accu- racy 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 vehi- cle 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]

F

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 posi- tion. If this does not correct the vehicle icon posi- tion, 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	Symptom Possible cause	
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 consider- ation, 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 dis- played.	The starting point and destination are too far away.	Divide your trip by selecting one or two intermediate destinations, and per- form 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.
The part of the route that you have already passed is deleted.	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 depending 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.
An maneor route is suggested.	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.

< 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 destina- tion.	There is no data for route calculation closes to these loca- tions.	Set the starting point, waypoints and destination on a main road, and per- form route calculation.

RELATED TO VOICE GUIDANCE

Symptom Possible cause		Possible solution
	Voice guidance is only available at certain intersections marked with? In some case, voice guidance is not avail- able even when the vehicle should make a turn.	This is not a malfunction.
Voice guidance is not available	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 TRAFFIC INFORMATION

Symptom	Possible cause	Possible solution
	The traffic information is not set to on.	Set the traffic information to on.
The traffic information is	You are in an area where traffic information is not available	Scroll to an area where traffic information is available
not displayed	You have not subscribed to XM NavTraffic or, your sub- scription to XM NavTraffic has expired.	Check your subscription status of XM NavTraffic.
	The map scale is set at a level where the display of icons is impossible.	Check that the map scale is set at a level in which the display of icons is possible.
With the automatic de- tour route search ON, no detour route is set to avoid congested areas.	There is no faster route compared to the current route, based on the road network and traffic information.	The automatic detour search is not intended for avoiding traffic jams. It searches for the fasted rote taking into consideration such things as traffic jams.
The route does not avoid road section with traffic information stat- ing it is closed due to road construction.	The navigation system is designed not to avoid this event because the actual period of closure may differ from the declared roadwork period.	Observe the actual road condition and follow the instructions on road for detour when necessary. If the road closure is for certain, use detour function and set the detour distance to avoid the closed road section.
Traffic information dis- played differs from in- formation from other media (e.g. radio).	Other media may use different information sources.	Observe the actual road conditions and regula- tions. Always observe safe driving practices and follow all traffic regulations.

RELATED TO HANDS-FREE PHONE (EXCEPT FOR MEXICO)

< SYMPTOM DIAGNOSIS >

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	Cause and Counter measure	1
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. 	J K
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.	N
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.	۵١

Н

REMOVAL AND INSTALLATION AV CONTROL UNIT

Exploded View

INFOID:000000009721971

CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-375, "Description"</u>.

REMOVAL

Refer to IP-14, "Exploded View".

DISASSEMBLY



1. AV control unit

2. Bracket LH

3. A/C auto amp.

4. Bracket RH

Removal and Installation

INFOID:000000009721972

REMOVAL

CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-375, "Description"</u>.

- 1. Remove cluster lid C. Refer to IP-14, "Exploded View".
- 2. Remove AV control unit with an A/C auto amp. as a single unit from the vehicle.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to <u>AV-</u><u>376, "Work Procedure"</u>.

[BOSE AUDIO WITH NAVIGATION]

< REMOVAL AND INSTALLATION > **DISPLAY UNIT**

Exploded View

	Δ
Exploded View	В
	С
JPNIA0779ZZ	D
1. Display unit	Е
Removal and Installation	F
 REMOVAL Remove center ventilator assembly. Refer to <u>IP-14, "Exploded View"</u>. Remove display unit with bracket as a single unit. 	G
INSTALLATION Install in the reverse order of removal.	Н
	J
	Κ
	L
	Μ

AV

Ο

FRONT DOOR SPEAKER

Exploded View



1. Front door speaker

Removal and Installation

INFOID:000000009721976

REMOVAL

- 1. Remove front door finisher. Refer to INT-13, "FRONT DOOR FINISHER : Exploded View".
- 2. Remove front door speaker screws, then disconnect front door speaker connector and remove front door speaker.

INSTALLATION

Install in the reverse order of removal.

REAR DOOR SPEAKER

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

REAR DOOR SPEAKER





1. 2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

INSTALLATION

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REMOVAL

Install in the reverse order of removal.

Rear door speaker

Removal and Installation

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FRONT SQUAWKER

Exploded View



INFOID:000000009721980

1. Front squawker

Removal and Installation

REMOVAL

- 1. Remove speaker grille. Refer to IP-14, "Exploded View".
- 2. Remove front squawker screws, lift up the front squawker and disconnect front squawker connector. Then remove the front squawker.

INSTALLATION

Install in the reverse order of removal.

[BOSE AUDIO WITH NAVIGATION]

REAR SPEAKER Exploded View

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REMOVAL

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< REMOVAL AND INSTALLATION > CENTER SPEAKER

Exploded View



1. Center speaker

Removal and Installation

REMOVAL

- 1. Remove center speaker grille. Refer to IP-14, "Exploded View".
- 2. Remove center speaker screws, lift up the center speaker and disconnect center speaker connector. Then remove the center speaker.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000009721984

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INSTALLATION

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REMOVAL

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Install in the reverse order of removal.

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BOSE AMP.

Exploded View



- 1. BOSE amp.

Removal and Installation

INFOID:000000009721988

REMOVAL

- 1. Remove luggage floor center finisher front. Refer to <u>INT-34, "Exploded View"</u>.
- 2. Remove BOSE amp. screws, disconnect BOSE amp. connector and remove the BOSE amp.

INSTALLATION

Install in the reverse order of removal.

MULTIFUNCTION SWITCH

< REMOVAL AND INSTALLATION >

MULTIFUNCTION SWITCH

Exploded View

REMOVAL Refer to <u>IP-14, "Exploded View"</u>. DISASSEMBLY



	1.	Multifunction switch	
	2.	Cluster lid D	
Re	moval	and Installation	INFOID:000000009721990
REI	MOVAL		
1.	Remov	e cluster lid D. Refer to IP-14, "Exploded View".	
2.	Remov	e multifunction switch with center ventilator grille as a single unit.	
3.	Remov	e multifunction switch screws, remove multifunction switch from cluster lid D.	
INS	TALLA	TION	
Inst	all in the	e reverse order of removal.	

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[BOSE AUDIO WITH NAVIGATION]

< REMOVAL AND INSTALLATION > PRESET SWITCH

Exploded View

INFOID:000000009721991

INFOID:000000009721992

REMOVAL

Refer to IP-14, "Exploded View".

DISASSEMBLY



1. Preset switch

2. Cluster lid C

Removal and Installation

REMOVAL

- 1. Remove cluster lid C. Refer to IP-14, "Exploded View".
- 2. Remove preset switch screws (A) (B), remove preset switch (1) from cluster lid C.
 - 1. Preset switch
 - A. Screw
 - B. Screw



INSTALLATION Install in the reverse order of removal.

< REIVIOVAL AND INSTALLATION >	
STEERING SWITCH	
Exploded View	F INFOID:000000009721993
Refer to ST-36, "Exploded View".	E
Removal and Installation	INFOID:00000009721994
REMOVAL Refer to ST-36, "Removal and Installation".	C
INSTALLATION Install in the reverse order of removal.	E
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AUXILIARY INPUT JACKS

Removal and Installation

REMOVAL

- 1. Remove center console assembly. Refer to IP-22. "Exploded View".
- 2. Remove auxiliary input jacks mounting screws.
- 3. Disconnect connector to remove auxiliary input jacks from lower console assembly.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000009721995

[BOSE AUDIO WITH NAVIGATION]

USB CONNECTOR А **Removal and Installation** INFOID:000000009721996 REMOVAL В Remove console finisher assembly. Refer to IP-22, "Exploded View". 1. 2. Press the pawl from the back of lower console assembly to remove USB connector. С **INSTALLATION** Install in the reverse order of removal. D Ε F Н J Κ L Μ AV Ο Ρ

< REMOVAL AND INSTALLATION > MICROPHONE

Exploded View

REMOVAL Refer to <u>INL-123, "Exploded View"</u>. DISASSEMBLY

SEC. 283

1. Microphone

Removal and Installation

INFOID:000000009721998

REMOVAL

- 1. Remove map lamp. Refer to INL-123, "Exploded View".
- 2. Remove microphone from map lamp.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000009721997

GPS ANTENNA

Removal and Installation

REMOVAL

- 1. Remove combination meter. Refer to <u>MWI-105, "Exploded View"</u>.
- 2. Disconnect GPS antenna connector from AV control unit.
- 3. Remove GPS antenna (1) from instrument panel.



INSTALLATION Install in the reverse order of removal.



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CAMERA CONTROL UNIT

Exploded View

① Camera control unit



Removal and Installation

INFOID:000000009722001

INFOID:000000009722000

REMOVAL

CAUTION:

Before replacing camera control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>DAS-52, "Description"</u>.

- 1. Remove luggage side finisher lower (RH). Refer to INT-35, "Removal and Installation".
- 2. Disengage air tube clip from camera control unit bracket.
- 3. Remove camera control unit screws, disconnect camera control unit connector and remove the camera control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Must be perform additional service when replacing camera control unit. Refer to <u>DAS-51, "Work Proce-dure"</u>.

REAR VIEW CAMERA

Exploded View (Models with BSW and LDW)

INFOID:000000009722002

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1. Rear view camera 2. Finisher Removal and Installation (Models with BSW and LDW)

REMOVAL

- 1. Remove back door finisher inner. Refer to INT-38, "Exploded View".
- 2. Remove finisher.
- 3. Disconnect air tube and washer tube from rear view camera.
- 4. Remove rear view camera screws, disconnect rear view camera connector and remove rear view camera from back door assembly.

CAUTION:

To prevent a malfunction resulting from a short circuit, never allow washer fluid to drip from tube to rear view camera and connector.

INSTALLATION Install in the reverse order of removal.

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REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

Removal and Installation (Models without BSW and LDW)

REMOVAL

- 1. Remove back door finisher inner. Refer to INT-38. "Exploded View".
- 2. Remove finisher.
- 3. Remove rear view camera screws, disconnect rear view camera connector and remove rear view camera from back door assembly.

INSTALLATION

Install in the reverse order of removal.

Adjustment (Models without BSW and LDW)

- 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 "Correct Draw Line of Rear view Camera" mode of "Confirmation/Adjustment" mode.



vehicle. Selected pattern $(-10^{\circ}) - (+10^{\circ})$

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

Make fine adjustment to the correction line of the rear of the 4. 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	: (–10°) – (+10°)
Left/Right adjustment range	: (–10°) – (+10°)

CAUTION:

Never operate other function such as pressing BACK while writing index data.



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INFOID-000000009722006

STEERING ANGLE SENSOR (BOSE AUDIO WITH NAVIGATION)

< REMOVAL AND INSTALLATION >

STEERING ANGLE SENSOR

Exploded View

DISASSEMBLY

INFOID:000000009722007

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	1.	Spiral cable	
	2.	Steering angle sensor	
Re	moval	and Installation	INFOID:000000009722008
REMOVAL			
1.	Remove spiral cable. Refer to <u>SR-15, "Exploded View"</u> .		
2.	Remove steering angle sensor from spiral cable.		
INSTALLATION			
1.	Install i	n the reverse order of removal.	
2.	Perform steering angle sensor neutral position adjustment. Refer to AV-327, "CONSULT Function".		

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ROOF ANTENNA

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

ROOF ANTENNA

Exploded View



1.Rod antenna2.Antenna base

Refer to <u>GI-4, "Components"</u> for symbols in the figure.

Removal and Installation

INFOID:000000009722010

INFOID:000000009722009

REMOVAL

- 1. Remove headlining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>INT-26</u>, "NORMAL ROOF : Exploded View" [normal roof] or <u>INT-30</u>, "SUNROOF : Exploded View" [sunroof].
- 2. Disconnect antenna feeder connectors.
- 3. Remove antenna base mounting nut, and then remove antenna base from roof panel.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

If the antenna base mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.
[BOSE AUDIO WITH NAVIGATION]

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