# SECTION AVIGATION SYSTEM C

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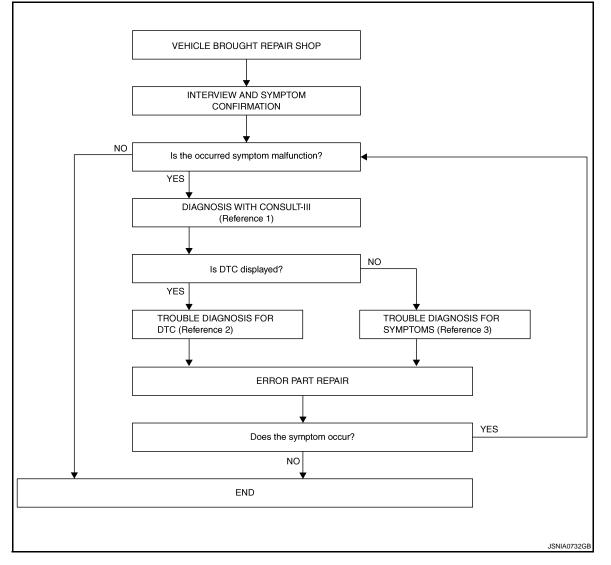
# [BASE AUDIO WITHOUT NAVIGATION]

# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

#### Work Flow

INFOID:000000004238441

# **OVERALL SEQUENCE**



- Reference 1... Refer to AV-26, "CONSULT III Function (MULTI AV)".
- Reference 2... Refer to <u>AV-78, "DTC Index"</u>.
- Reference 3... Refer to <u>AV-107, "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-III

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

# [BASE AUDIO WITHOUT NAVIGATION]

<ol> <li>Connect CONSULT-III and perform a self-diagnosis for "MULTI AV". Refer to <u>AV-26, "CONSULT - III Func-tion (MULTI AV)"</u>. NOTE:</li> </ol>	A
<ul><li>Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed.</li><li>Check if any DTC is displayed in the self-diagnosis results.</li></ul>	В
<u>Is DTC displayed?</u> YES >> GO TO 3. NO >> GO TO 4.	
<b>3.</b> TROUBLE DIAGNOSIS FOR DTC	С
<ol> <li>Check the DTC indicated in the self-diagnosis results.</li> <li>Perform the relevant diagnosis referring to the DTC Index. Refer to <u>AV-78, "DTC Index"</u>.</li> </ol>	D
>> GO TO 5.	_
4.TROUBLE DIAGNOSIS FOR SYMPTOMS	Е
Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-107, "Symptom</u> <u>Table"</u> .	F
>> GO TO 5.	
5. ERROR PART REPAIR	G
NOTE.	Н
<ul><li>Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.</li><li>Check that the symptom does not occur.</li></ul>	
Does the symptom occur?         YES       >> GO TO 1.         NO       >> INSPECTION END	J
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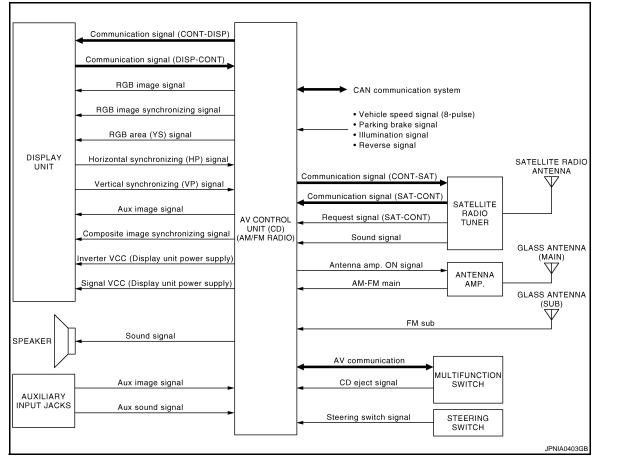
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# < SYSTEM DESCRIPTION > SYSTEM DESCRIPTION MULTI AV SYSTEM

# System Diagram



#### NOTE:

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

# System Description

INFOID:000000004238443

INFOID:000000004238442

Multi AV system means that the following systems are integrated.

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

 AV control unit functions by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).

• Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.

 AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information. Transmitting/receiving of data signal is performed by BCM. Also, it transmits the required signal of vehicle setting and receives the response signal.

# **MULTI AV SYSTEM**

#### < SYSTEM DESCRIPTION >

#### [BASE AUDIO WITHOUT NAVIGATION]

 AV control unit is connected with display and serial communication, and it transmits the required signal of display and display control and receives the response signal from front display. Also, it is connected with satellite radio by serial communication, and it transmits the operating signal and receives the display signal.

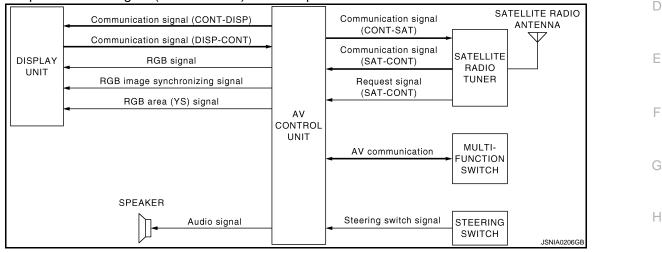
#### NOTE:

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

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

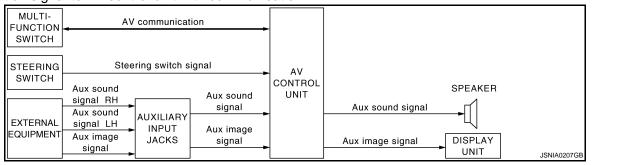
#### SATELLITE RADIO SYSTEM

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



#### AUXILIARY INPUT SYSTEM

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



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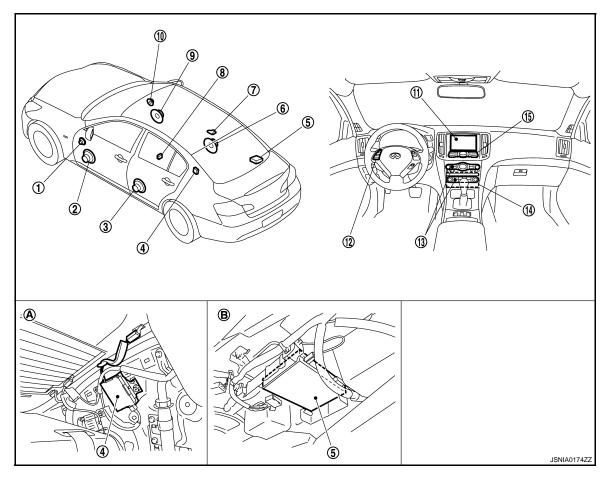
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# **Component Parts Location**

INFOID:000000004238444



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

#### < SYSTEM DESCRIPTION >

# Comp

[BASE AUDIO WITHOUT NAVIGATION]

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Component Description	INFOID:00000004238445
Part name	Description
AV CONTROL UNIT	<ul> <li>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.</li> <li>AV control unit includes audio function and vehicle information function.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Auxiliary image signal is input from the auxiliary input jacks.</li> </ul>
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing).</li> <li>Synchronizing signal (HP, VP) is output to AV control unit.</li> <li>Auxiliary image signal is input from the AV control unit.</li> </ul>
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high, mid and low range sounds.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high range sound.</li></ul>
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and auxiliary input operations are integrated.</li> <li>Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> </ul>
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> <li>The CD ejection operating signal is performed by hardwire.</li> </ul>
STEERING SWITCH	<ul> <li>The operation of Audio, etc. can be performed.</li> <li>Steering switch signal (operation signal) is output to AV control unit.</li> </ul>
AUXILIARY INPUT JACKS	The image signal of the auxiliary input is output via the AV control unit to the display, and it outputs the sound signal to the AV control unit.
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>
SATELLITE RADIO TUNER	Inputs the satellite radio signal from satellite radio antenna and outputs the sound signal to the AV control unit.

**MULTI AV SYSTEM** 

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SATELLITE RADIO ANTENNA

cation signal and request signal).

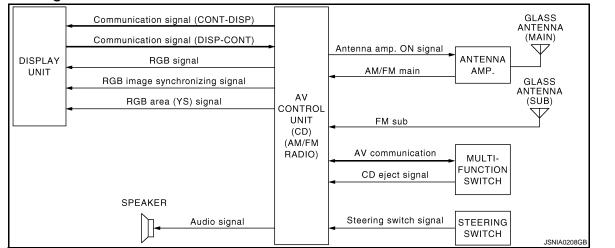
• It is controlled with the AV control unit and serial communication (communi-

Receives the satellite radio signal and outputs it to the satellite radio tuner.

# AUDIO SYSTEM

# < SYSTEM DESCRIPTION > AUDIO SYSTEM

# System Diagram



# System Description

INFOID:000000004238447

INFOID:000000004238446

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

Function AM/FM radio CD

#### FUNCTION DESCRIPTION

#### **Operating Signal**

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

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

#### Screen Display

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

#### AM/FM Radio Mode

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

#### CD Mode

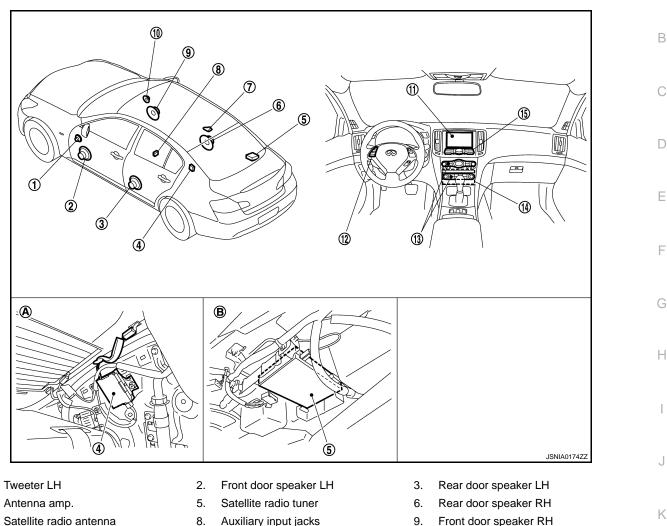
- CD function is built into AV control unit.
- AV control unit outputs the audio signal to each speaker when inserting the CD to AV control unit.

# < SYSTEM DESCRIPTION >

# **Component Parts Location**

INFOID:000000004238448

А



10. Tweeter RH

1.

4.

7.

- 13. Preset switch
- Α. Within rear pillar finisher LH

# **Component Description**

- Auxiliary input jacks
- 11. Display unit
- 14. AV control unit
- Β. Rear parcel shelf lower part (left side)
- 9. Front door speaker RH
- Steering switch 12.
- 15. Multifunction switch

INFOID:000000004238449

Part name	Description
AV CONTROL UNIT	<ul> <li>The AM/FM receiving function and the CD playing function are equipped.</li> <li>Outputs the audio signal from each function to each speaker.</li> </ul>
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal (audio operation condition) is input from AV control unit.</li> </ul>
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high, mid and low range sounds.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high range sound.</li></ul>
MULTIFUNCTION SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> </ul>

# AUDIO SYSTEM

#### < SYSTEM DESCRIPTION >

#### [BASE AUDIO WITHOUT NAVIGATION]

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

# < SYSTEM DESCRIPTION > **DIAGNOSIS SYSTEM (AV CONTROL UNIT)**

# **Diagnosis Description**

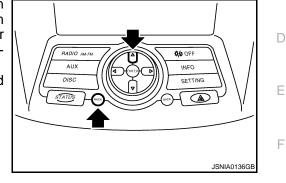
#### MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-diagnosis Mode

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

#### The hazard switch and CD eject switch cannot be checked.



Finishing Self-diagnosis Mode

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

#### MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

#### ON BOARD DIAGNOSIS

Description

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

On Board Diagnosis Item

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

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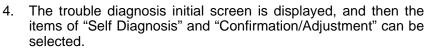
#### < SYSTEM DESCRIPTION >

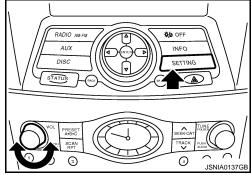
# [BASE AUDIO WITHOUT NAVIGATION]

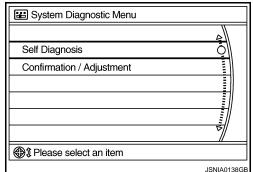
Mode		Description		
	Display Diagnosis	The confirmations of the tint with the color spectrum bar display and shading of color with the gradation bar display can be performed.		
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition switch, and reverse.		
	Speaker Test	The connection of a speaker can be confirmed by test tone.		
	Climate Control	Start auto air conditioner system self-diagnosis.		
Confirmation/ Adjustment	Error History	The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.		
	Vehicle CAN Diagnosis	The transmitting/receiving of CAN communication can be monitored.		
	AV COMM Diagnosis	The communication condition of each unit of Multi AV system can be monitored.		
	Delete Unit Connection Log	Erase the connection history of unit and error history		
	Initialize Settings	Initializes the AV control unit memory.		

#### STARTING PROCEDURE

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

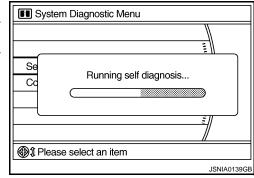






#### SELF-DIAGNOSIS MODE

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

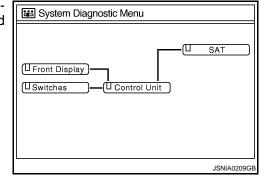


#### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [BASE AUDIO WITHOUT NAVIGATION]

#### < 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	Con- nection line	
Normal	Green	Green	
Connection malfunction	Gray	Yellow	
Unit malfunction <sup>Note</sup>	Red	Green	



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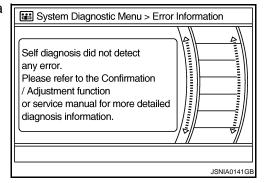
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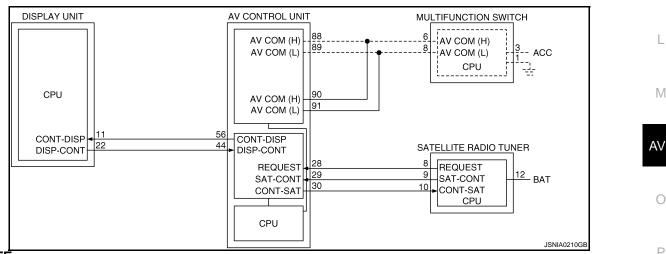
NOTE:

- Only the control unit (AV control unit) is displayed in red.
- · Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error.
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.
- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

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



#### NOTE:

On board self-diagnosis cannot be started when an error occurs on the dotted-line part above.

#### SELF-DIAGNOSIS RESULTS

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

Self-diagnosis Result Chart

#### < SYSTEM DESCRIPTION >

# [BASE AUDIO WITHOUT NAVIGATION]

Area with yellow connection lines	Description	Possible malfunction location / Action to take
System Diagnostic Menu	AV control unit malfunction is detected.	Replace the AV control unit.
System Diagnostic Menu	<ul> <li>Malfunction is detected in communication circuit between AV control unit and display unit.</li> <li>Malfunction is detected in communication signal between AV control unit and display unit.</li> </ul>	Communication circuit between AV control unit and display unit.
System Diagnostic Menu  Front Display  SAT  SAT  SAT  SAT  SAT  SAT  SAT  SA	<ul> <li>Satellite radio tuner power supply and ground circuit malfunction is de- tected.</li> <li>Malfunction is detected in communi- cation circuits between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in communi- cation signal between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground.</li> <li>Communication circuit between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>

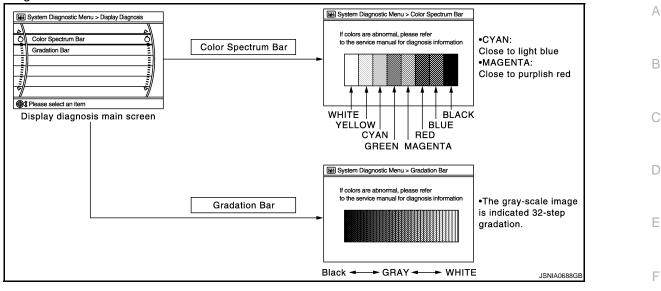
#### CONFIRMATION/ADJUSTMENT MODE

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

	System Diagnostic Menu > Confirmation / Adjustment
4	UP
	Display Diagnosis
Ō	Vehicle Signals
	Speaker Test
	Climate Control
	Error History
$\nabla$	1/9 DOWN
<b>@</b> 1	Please select an item
	JSNIA0147G

#### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [BASE AUDIO WITHOUT NAVIGATION] < SYSTEM DESCRIPTION >

#### **Display Diagnosis**



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

- R (red) signal error
- : Light blue (Cyan) tint
- G (green) signal error : Purple (Magenta) tint : Yellow tint
- **B** (blue) signal error

#### Vehicle Signals

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

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

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Diagnosis item	Display	Vehicle status	Remarks	M
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.	
venicie speed	OFF	Vehicle speed = 0 km/h (0 MPH)		
Parking brake	ON	Parking brake is applied.		
Farking blake	OFF	Parking brake is released.		
Lights	ON	Light switch ON		0
Lights	OFF	Light switch OFF		
Ignition	ON	Ignition switch ON		
Ignition	OFF	Ignition switch in ACC position		Ρ
Reverse	ON	Shift the selector lever to "R" posi- tion	- Changes in indication may be delayed. This is normal.	
Reverse	OFF	Shift the selector lever other than "R" position	Changes in indication may be delayed. This is normal.	

#### Speaker Test

#### < SYSTEM DESCRIPTION >

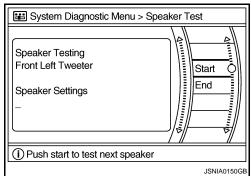
#### (AV CONTROL UNIT) [BASE AUDIO WITHOUT NAVIGATION]

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

#### NOTE:

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

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



#### Climate Control

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

#### 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 SW is turned ON and then no error has occurred until the self-diagnosis start. Check the "Error Record" to detect any error that may have occurred before the self-diagnosis start because of this situation.

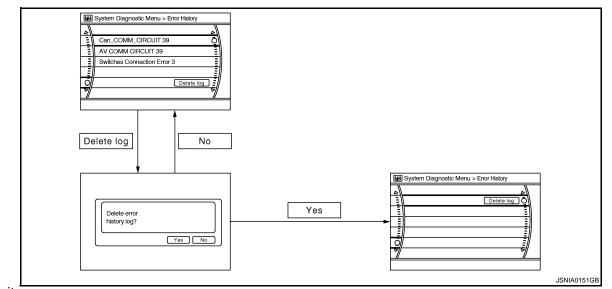
#### Count up method A

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

Count up method B

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

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



#### 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

#### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [BASE AUDIO WITHOUT NAVIGATION] < SYSTEM DESCRIPTION >

Error item Description Possible malfunction factor/Action to take Perform diagnosis with CONSULT-III, and CAN communication malfunction is detectthen repair the malfunctioning parts accord-CAN COMM CIRCUIT ed. ing to the diagnosis results. Refer to AV-29, "Diagnosis Procedure". CAN initial diagnosis malfunction is detect-CONTROL UNIT (CAN) ed. AV communication circuit initial diagnosis CONTROL UNIT (AV) Replace the AV control unit. malfunction is detected. FLASH-ROM Error Of Control Unit AV control unit malfunction is detected. CAN Controller Memory Error · Display unit power supply and ground circuit malfunction is detected. Malfunction is detected in communica-· Display unit power supply and ground tion circuit between AV control unit and circuit. Front Display Connection Error display unit. Communication circuit between AV con-Malfunction is detected in communicatrol unit and display unit. tion signal between AV control unit and display unit. Satellite radio tuner power supply and ground circuit malfunction is detected. Malfunction is detected in communica-· Satellite radio tuner power supply and tion circuit between AV control unit and ground circuit. satellite radio tuner. Communication circuit between AV con-SAT Connection Error Malfunction is detected in communicatrol unit and satellite radio tuner. tion signal between AV control unit and · Request signal circuit between AV consatellite radio tuner. trol unit and satellite radio tuner. Malfunction is detected in request signal circuit between AV control unit and satellite radio tuner. • Multifunction switch power supply and ground circuit malfunction is detected. Malfunction is detected in AV communi-· Multifunction switch power supply and AV COMM CIRCUIT cation circuit between AV control unit and ground circuits.

multifunction switch.

multifunction switch.

 AV communication circuit between AV Malfunction is detected in AV communicontrol unit and multifunction switch. cation signal between AV control unit and

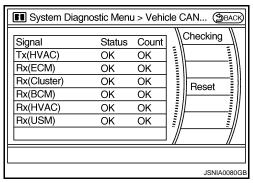
Vehicle CAN Diagnosis

Switches Connection Error

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

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

AV COMM Diagnosis



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#### < SYSTEM DESCRIPTION >

# [BASE AUDIO WITHOUT NAVIGATION]

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

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

System Diagnostic Menu > AV COMM Diagnosis				
Signal C Tx(ITM-SW) C Tx(ITM-SW) C Rx(PrimarySW-ITM) C Rx(BTHF-ITM)	Status OK OK	Count OK OK	Checking	
			JSNIA0213GE	

#### 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)

Delete connection log?	
Yes No	ЭB

Initialize Settings Initializes the AV control unit memory.

The memory of a system is eliminated. Are you sure? Yes No
JSNIA0155G

# CONSULT - III Function (MULTI AV)

INFOID:000000004238451

# CONSULT-III FUNCTIONS

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

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

#### AV COMMUNICATION

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

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

[BASE AUDIO WITHOUT NAVIGATION]

#### < SYSTEM DESCRIPTION >

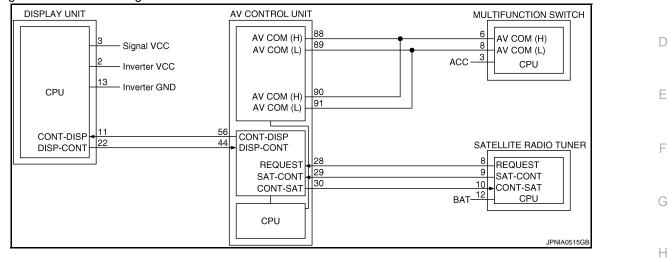
# ECU IDENTIFICATION

The part number of AV control unit is displayed.

#### SELF DIAGNOSIS RESULT

- In CONSULT-III 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 Detection Range



#### Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take	
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-29, "Diagnosis Procedure"</u> .	J
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detect- ed.	Replace the AV control unit.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.		K
Cont Unit FLASH-ROM [U1200]	AV control unit malfunction is detected.		
CAN CONT [U1216]			L
FRONT DISP CONN [U1243]	<ul> <li>Display unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communication circuit between AV control unit and display unit.</li> </ul>	<ul> <li>Display unit power supply and ground circuit.</li> <li>Communication circuit between AV con-</li> </ul>	N
	<ul> <li>Malfunction is detected in communica- tion signal between AV control unit and display unit.</li> </ul>	trol unit and display unit.	A۷

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#### < SYSTEM DESCRIPTION >

# [BASE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
SAT CONN [U1255]	<ul> <li>Satellite radio tuner power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communica- tion circuit between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in communica- tion signal between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in request signal circuit between AV control unit and satel- lite radio tuner.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuit.</li> <li>Communication circuit between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>
<ul><li>AV COMM CIRCUIT [U1300]</li><li>SWITCH CONN [U1240]</li></ul>	<ul> <li>Multifunction switch power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuit between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> </ul>

#### DATA MONITOR

ALL SIGNALS

• Displays the status of the following vehicle signals inputted into the AV control unit.

• For each signal, actual signal can be compared with the condition recognized on the system.

Display Item	Dis- play	Vehicle status	Remarks
VHCL SPD SIG	On	Vehicle speed >0 km/h (0 MPH)	
VHCL SFD SIG	Off	Vehicle speed =0 km/h (0 MPH)	Changes in indication may be delayed. This is nor-
	On	Parking brake is applied.	mal.
PKB SIG	Off	Parking brake is released.	
ILLUM SIG IGN SIG	On	Light switch ON	
	Off	Light switch OFF	
	On	Ignition switch ON	—
	Off	Ignition switch in ACC position	
	On	Shift the selector lever to "R" position	Changes in indication may be delayed. This is par
REV SIG	Off	Shift the selector lever other than "R" position	Changes in indication may be delayed. This is nor- mal.

#### SELECTION FROM MENU

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

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

# DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

# Description

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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-III	Diagnostic item is detected when	Probable malfunction location	F
U1000	CAN COMM CIRCUIT	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.	G

# 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 system". Refer to LAN-19, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI section. Refer to GI-41, "Intermittent Incident".

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# U1010 CONTROL UNIT (CAN)

# Description

Initial diagnosis of AV control unit.

#### **DTC** Logic

INFOID:000000004238456

INFOID:000000004238457

#### DTC DETECTION LOGIC

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

# **Diagnosis Procedure**

# **1.**REPLACE AV CONTROL UNIT

When DTC U1010 is detected, replace AV control unit.

>> INSPECTION END

# **U1310 AV CONTROL UNIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# **U1310 AV CONTROL UNIT**

# Description

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Replace the AV control unit if this DTC is displayed	d. Refer to <u>AV-114, "Exploded View"</u> .
--	--

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

Auxiliary image signal is input from the auxiliary input jacks.

# **DTC Logic**

INFOID:000000004238459

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

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[BASE AUDIO WITHOUT NAVIGATION]

# **U1200 AV CONTROL UNIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# U1200 AV CONTROL UNIT

# Description

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Replace the AV control unit if this DTC is displayed. Refer to AV-114, "Exploded View".

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

# DTC Logic

INFOID:000000004238461

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

#### **U1216 AV CONTROL UNIT** [BASE AUDIO WITHOUT NAVIGATION]

#### < DTC/CIRCUIT DIAGNOSIS >

# U1216 AV CONTROL UNIT

# Description

INFOID:000000004238462

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

# DTC Logic

INFOID:000000004238463

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

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# < DTC/CIRCUIT DIAGNOSIS >

# U1243 DISPLAY UNIT

# Description

INFOID:000000004238464

[BASE AUDIO WITHOUT NAVIGATION]

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

# DTC Logic

INFOID:000000004238465

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

# **Diagnosis Procedure**

INFOID:000000004460709

# 1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-39, "DISPLAY UNIT : Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

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		t AV control unit		Continuity
Connector	Terminals	Connector	Terminals	Continuity
1	11	M83	56	Existed
M71	22	IVIOS	44	Existed

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

Display unit			Continuity	
Connector	Terminals	Ground	Continuity	
M71	11	Giodila	Not existed	
	22		NOT EXISTED	

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

**3.**CHECK COMMUNICATION SIGNAL

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

2. Turn ignition switch ON.

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

# **U1243 DISPLAY UNIT**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [BASE AUDIO WITHOUT NAVIGATION]

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

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

	+)				G		
Display unit		(-)	(–) Condition	Condition Reference value	(-) Condition Referen	Reference value	
Connector	Terminal						
M71	22	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 • • • 1ms PKIE5039J	H I J		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit.

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#### U1255 SATELLITE RADIO TUNER [BASE AUDIO WITHOUT NAVIGATION]

# < DTC/CIRCUIT DIAGNOSIS >

# U1255 SATELLITE RADIO TUNER

# Description

INFOID:000000004238467

Part name	Description	
SATELLITE RADIO TUNER	<ul> <li>Inputs the satellite radio signal from satellite radio antenna and outputs it to the AV control unit.</li> <li>It is controlled with the communication (communication signal, request signal) from AV control unit.</li> </ul>	

# DTC Logic

INFOID:000000004238468

INFOID:000000004460216

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1255	SAT CONN [U1255]	<ul> <li>Satellite radio tuner power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communication circuit between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in communication signal between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuit.</li> <li>Communication circuit between AV control unit and satellite radio tun- er.</li> <li>Request signal circuit between AV control unit and satellite radio tun- er.</li> </ul>

# **Diagnosis Procedure**

1. CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to <u>AV-41, "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
M82	28	B236	8	Existed
	29		9	
	30		10	

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

AV control unit			Continuity
Connector	Terminals	<b>†</b>	Continuity
M82	28	Ground	
	29		Not existed
	30		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

Revision: 2009 October

### **U1255 SATELLITE RADIO TUNER**

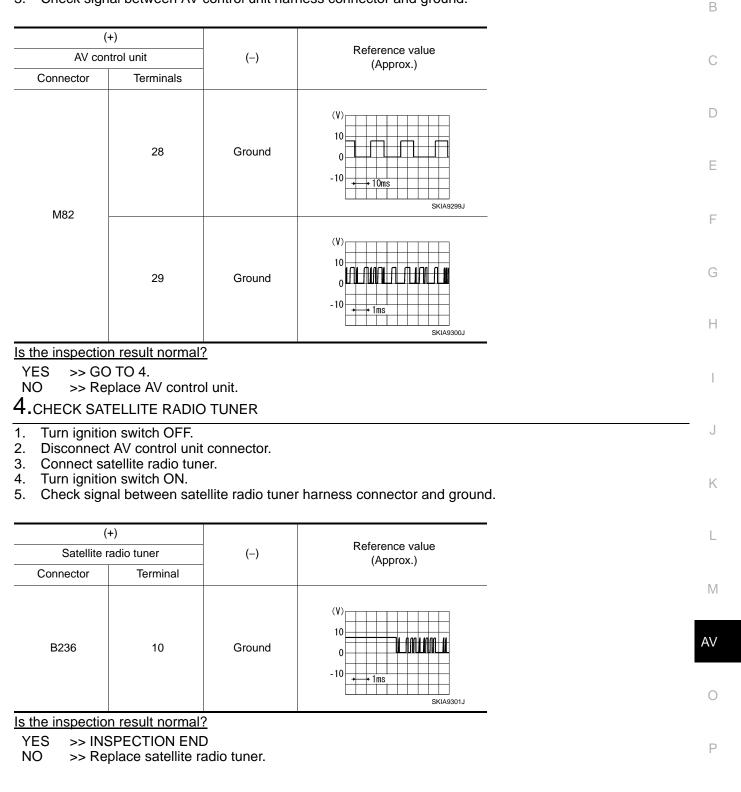
#### < DTC/CIRCUIT DIAGNOSIS >

## [BASE AUDIO WITHOUT NAVIGATION]

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# 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.



#### < DTC/CIRCUIT DIAGNOSIS >

### U1300 AV COMM CIRCUIT

### Description

INFOID:000000004238470

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-III	DTC Detection Condition	Possible causes
U1300 U1240	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communication circuit between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communication signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> </ul>

POWER SUPF AV CONTROL L	PLY AND GROU	JND CIRC	CUIT		
	INIT : Diagnosis I	Procedure			INFOID:00000000423847;
1.CHECK FUSE					
Check for blown fuse	S.				
	Power source			Fuse No.	
	Battery			34	
Ignit	ion switch ACC or ON			19	
Ignitic	on switch ON or START			3	
2.CHECK POWER	2. to eliminate cause of r			_	
Signal name	Connector No.	Termina	l No.	Ignition switch position	Value (Approx.)
Battery power supply	M81	19	-	OFF	Battery voltage
ACC power supply	M81	7		ACC	Battery voltage
Ignition signal	M85	104	104 ON		Battery voltage
			onnectors a	nd ground.	
Signal name	Connector No.	Terminal No.	Ignitic	on switch position	Continuity
Ground	M81 M85	20 85		OFF	Existed
DISPLAY UNIT DISPLAY UNIT : 1.check power :		SPLAY SIDE	and ground.	Ignition switch position	INFOID:00000004238472 Value (Approx.)
Inverter VCC		2			
Signal VCC	M71	3		ACC	9 V
-		1			

POWER SUPPLY AND GROUND CIRCUIT

### POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

## 2. CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

- 1. Turn ignition switch OFF.
- 2. Disconnect the harness connector between display unit and AV control unit.
- Check continuity between display unit harness connector M71 and AV control unit harness connector M83.

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

#### 4. Check continuity between display unit harness connector M71 and ground.

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replacement of AV control unit.
- **4.**CHECK GROUND CIRCUIT
- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector.
- 3. Check continuity between display unit harness connectors and ground.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

### MULTIFUNCTION SWITCH

### MULTIFUNCTION SWITCH : Diagnosis Procedure

INFOID:000000004238473

### **1.**CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

#### AV-40

### POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

## [BASE AUDIO WITHOUT NAVIGATION]

#### 2. CHECK POWER SUPPLY CIRCUIT А Check voltage between multifunction switch harness connector and ground. Signal name Connector No. Terminal No. Ignition switch position Value (Approx.) В M72 3 ACC ACC power supply Battery voltage Is the inspection result normal? YES >> GO TO 3. NO >> Check harness between multifunction switch and fuse. 3. CHECK GROUND CIRCUIT 1. Turn ignition switch OFF. Disconnect multifunction switch connector. 2. Check continuity between multifunction switch harness connector and ground. 3. Ε Signal name Connector No. Terminal No. Ignition switch position Continuity Ground M72 1 OFF Existed Is the inspection result normal? YES >> INSPECTION END NO >> Repair harness or connector. SATELLITE RADIO TUNER SATELLITE RADIO TUNER : Diagnosis Procedure INFOID:000000004238474 Н 1.CHECK FUSE Check for blown fuses. Power source Fuse No. 34 Battery Ignition switch ACC or ON 19 Is the inspection result normal? >> GO TO 2. YES Κ NO >> Be sure to eliminate cause of malfunction before installing new fuse. 2.CHECK POWER SUPPLY CIRCUIT Check voltage between satellite radio tuner harness connector and ground. Signal name Connector No. Terminal No. Ignition switch position Value (Approx.) Μ 12 OFF Battery power supply B236 Battery voltage 16 ACC ACC power supply B236 Battery voltage Is the inspection result normal? AV YFS >> INSPECTION END NO >> Check harness between satellite radio tuner and fuse.

#### < DTC/CIRCUIT DIAGNOSIS >

### RGB (R: RED) SIGNAL CIRCUIT

### Description

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

#### Diagnosis Procedure

INFOID:000000004460197

INFOID:000000004238475

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

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

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

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

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	17		Not existed
		10	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

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

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

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

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### **RGB (G: GREEN) SIGNAL CIRCUIT**

[BASE AUDIO WITHOUT NAVIGATION]

## < DTC/CIRCUIT DIAGNOSIS >

## RGB (G: GREEN) SIGNAL CIRCUIT

### Description

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

#### **Diagnosis** Procedure

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

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

Displ	ay unit	it AV	ontrol unit	Continuity
Connector	Terminal	erminal Connect	Terminal	Continuity
M71	6	h IV/83	39	Existed

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

Displa	y unit			Continuity	
Connector	Terminal	Gro		Sommuny	(
M71	6		Ν	ot existed	
NO >> F	GO TO 2. Repair harne	ess or conne			F
2.CHECK R	GB (G: GR	EEN) SIGNA	L		
2. Turn igni	tion switch	ON.	nd AV control unit it harness connec		J
(+ Displa	·	(-)	Condition	Reference value	K

Connector	Terminal			
M71	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	$(V) \\ 0.4 \\ 0 \\ -0.4 \\ -0.4 \\ -0.4 \\ -0.4 \\ -0.5 \\ -0.4 \\ -0.5 $

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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INFOID:000000004238477

INFOID:000000004460198



### **RGB (B: BLUE) SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

## RGB (B: BLUE) SIGNAL CIRCUIT

### Description

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

#### Diagnosis Procedure

INFOID:000000004460199

INFOID:000000004238479

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

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

Displa	ay unit	AV con	itrol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	18	M83	38	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	18		Not existed
1 4 1		10	•

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB (B: BLUE) SIGNAL

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

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

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M71	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 $m + 341$

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### **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 В AV control unit.

#### **Diagnosis** Procedure

## 1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

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

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

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	19		Not existed
Is the inspec	ction result n	ormal?	

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB SYNCHRONIZING SIGNAL

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

2. Turn ignition switch ON.

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

	(+) Display unit		Reference value
Connector	Terminal		
M71	19	Ground	(V) 4 0 + 20µs SKIB3603E
1 41 1		10	

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit. [BASE AUDIO WITHOUT NAVIGATION]

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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:000000004460201

INFOID:000000004238483

[BASE AUDIO WITHOUT NAVIGATION]

### **1.**CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

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

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

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK RGB AREA (YS) SIGNAL

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

2. Turn ignition switch ON.

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

(+) Display unit		(-)	Condition	Reference value (Approx.)
Connector	Terminal			
			At RGB image displayed	5 V
M71	9	Ground	At AUX image is dis- played.	(V) 6 4 2 0 + + + 200 µ s → + 200 µ s

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

### HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

### Description

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

### **Diagnosis Procedure**

## $1. {\sf CHECK} \ {\sf CONTINUITY} \ {\sf HORIZONTAL} \ {\sf SYNCHRONIZING} \ ({\sf HP}) \ {\sf SIGNAL} \ {\sf CIRCUIT}$

- 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		
Connector	Terminal	Connector	Terminal	Continuity		
M71	8	M83	45	Existed		
	ontinuity bei	tween display	y unit harnes	ss connector an	ground.	
Connector	Terminal	Gro	ound	Continuity		
M71	8			Not existed		
	tion result n	ormal?			_	
NO >>		ess or conne		P) SIGNAL		
					· ·	
. Connect . Turn ign	display unit	t connector a ON.	and AV contro	ol unit connecto		
. Connect . Turn ign	display unit	t connector a ON.	and AV contro			
. Connect . Turn ign . Check s	display unit ition switch ignal betwee	t connector a ON.	and AV contro	ol unit connecto		
. Connect . Turn ign . Check s (-	display unit ition switch ignal betwee	t connector a ON.	ind AV contro hit harness c	ol unit connecto		
. Connect . Turn ign . Check s	display unit ition switch ignal betwee	t connector a ON. en display ur	ind AV contro hit harness c	ol unit connecto onnector and gi		
. Connect . Turn ign . Check s (- Displa	display unit ition switch ignal betwee +) ay unit	t connector a ON. en display ur	ind AV contro hit harness c	ol unit connecto onnector and gi		
. Connect . Turn ign . Check s (- Displa Connector	display unit ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display ur (-) Ground	ind AV contro nit harness co Refe	ol unit connector onnector and gr rence value		
. Connect . Turn ign . Check s (- Displa Connector M71 M71 s the inspec YES >>	tion switch ignal betwee ay unit Terminal 8 8	t connector a ON. en display ur (–) Ground <u>ormal?</u> control unit.	ind AV contro nit harness co Refe	ol unit connector onnector and gr rence value		

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INFOID:000000004460202

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### VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

### VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

### Description

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

### **Diagnosis Procedure**

INFOID:000000004460203

INFOID:000000004238487

### 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.

-	Displa	ay unit	AV con	itrol unit	Continuity
	Connector	Terminal	Connector	Terminal	Continuity
	M71	20	M83	57	Existed

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

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M71	20		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

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

2. Turn ignition switch ON.

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

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

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace display unit.

### 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 inputted to the display unit.

### **Diagnosis Procedure**

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

Auxiliary i	Auxiliary input jacks		ntrol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M154 <sup>*1</sup>	7	M84	66	Existed
M362 <sup>*2</sup>	ľ	10104	00	LAIsted

• \*1: A/T models

• \*2: M/T models

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

Connector Terminal Ground Continuity
Ground
M154 <sup>*1</sup> 7 Not existed
M362 <sup>*2</sup>

• \*1: A/T models

\*2: M/T models

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	(-)	Condition	Reference value	
Connector	Terminal				AV
M154 <sup>*1</sup>				(V)	
	7	Ground	At AUX image displayed.		0
M362 <sup>*2</sup>				-0.4	Р
				311022313	

• \*1: A/T models

• \*2: M/T models

Is the inspection result normal?

YES >> GO TO 3.

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

### AUX IMAGE SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### [BASE AUDIO WITHOUT NAVIGATION]

# 3. CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT AND DISPLAY UNIT)

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

Displa	ay unit	AV con	trol unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M71	15	M83	36	Existed

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

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

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

**4.**CHECK AUX IMAGE SIGNAL

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

2. Turn ignition switch ON.

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

	(+) Display unit		Condition	Reference value
Connector	Terminal	-		
M71	15	Ground	At AUX image displayed.	(V) 0.4 0 −0.4 • • • 40µs SKiB2251J

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### CD EJECT SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

### **CD 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:000000004460205

INFOID:000000004238491

А

В

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[BASE AUDIO WITHOUT NAVIGATION]

## 1. CHECK CONTINUITY CD EJECT SIGNAL CIRCUIT

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

Multifunc	tion switch	AV con	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M72	14	M85	103	Existed

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

Multifunct	tion switch		Continuity		
Connector	Terminal	Ground	Continuity		
M72	14		Not existed		
s the inspec	ction result n	ormal?			
	GO TO 2.				
-		ess or connector			
	AV CONTRO	L UNIT VOLTAG	jE		
			tor and AV control unit c	connector.	
0	ition switch		nit harness connector ar	nd around.	
	g			g conta	
(-	+)				•
AV con	trol unit	()	Condition	Voltage (Approx.)	
Connector	Terminal			(. (pprov.)	
M85	103	Ground	Pressing the eject switch	0 V	-
M85 103 G	Giounu	Except for above	3.3 V	=	

Is the inspection result normal?

YES >> Replace preset switch.

NO >> Replace AV control unit.

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#### COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

#### < DTC/CIRCUIT DIAGNOSIS >

## COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

#### Description

Satellite radio tuner and AV control unit are connected with a serial communication. They transmit the operation signal from AV control unit to satellite radio tuner, and transmit the display signal from satellite radio tuner to AV control unit.

### **Diagnosis Procedure**

INFOID:000000004460206

INFOID:000000004238493

[BASE AUDIO WITHOUT NAVIGATION]

### 1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

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

Satellite radio tuner		AV control unit		Continuity
Connector	Terminals	Connector	Terminals	Continuity
B236	9	9 M82		Existed
6230	10	IVIOZ	30	LAISIEU

4. Check continuity between satellite radio tuner harness connector and ground.

Satellite r	adio tuner		Continuity	
Connector	Terminals	Ground	Continuity	
B236	9	Giodina	Not existed	
B230	10		NOT EXISTED	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL

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

(+) Satellite radio tuner		(-)	Condition	Reference value
Connector	Terminal	-		
B236	9	Ground	When satellite radio mode is selected.	(V) 10 0 -10 → 1ms SKIA9300J

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace satellite radio tuner.

**3.**CHECK COMMUNICATION SIGNAL

Check signal between satellite radio tuner harness connector and ground.

### COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

#### < DTC/CIRCUIT DIAGNOSIS >

# [BASE AUDIO WITHOUT NAVIGATION]

(	+)				А
Satellite radio tuner		(-)	Condition	Reference value	
Connector	Terminal				В
B236	10	Ground	When satellite radio mode is selected.	(V) 10 0 -10 • • 1ms SKIA9301J	C
		llite radio tune	er.		E
					F

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AV

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### **REQUEST SIGNAL CIRCUIT (SAT→CONT)**

#### < DTC/CIRCUIT DIAGNOSIS >

## REQUEST SIGNAL CIRCUIT (SAT→CONT)

### Description

Request signal transmits the signal to recognize the connection of satellite radio tuner from satellite radio tuner to AV control unit.

### Diagnosis Procedure

INFOID:000000004460207

INFOID:000000004238495

[BASE AUDIO WITHOUT NAVIGATION]

## 1. CHECK CONTINUITY REQUEST SIGNAL CIRCUIT

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

Satellite r	adio tuner	AV con	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
B236	8	M82	28	Existed

4. Check continuity between satellite radio tuner harness connector and ground.

Satellite r	adio tuner		Continuity
Connector	Terminal	Ground	Continuity
B236	8	*	Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK COMMUNICATION SIGNAL

1. Connect satellite radio tuner connector and AV control unit connector.

2. Turn ignition switch ON.

3. Check signal between satellite radio tuner harness connector and ground.

(+) Satellite radio tuner Connector Terminal		()	Condition	Reference value
B236	8	Ground	When satellite radio mode is selected.	(V) 10 0 -10 + 10ms SKIA9299J

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace satellite radio tuner.

### **STEERING SWITCH SIGNAL A CIRCUIT**

< DTC/CIRC					[BASE AUDIO WITHOUT NAVIGATION]	
STEERIN	NG SWIT	CH SIG	NAL A C	IRCUIT		А
Descriptio	n				INFOID:000000004238497	~
Transmits th	e steering sv	witch signal t	o AV control	unit.		В
Diagnosis	Procedu	re			INFOID:000000004460208	_
1.снеск в	STEERING S	SWITCH SIG	NAL A CIRC	CUIT		С
2. Check c	ontinuity bet	ween AV coi	ntrol unit har	ral cable conne ness connector	ctor. and spiral cable harness connector.	D
AV con	trol unit	Spiral	cable	Continuity		
Connector	Terminal	Connector	Terminal	Continuity		Е
M81	6	M36	24	Existed		
	-	ween AV co	ntrol unit har	ness connector	and ground.	F
	trol unit			Continuity		
Connector	Terminal	Gro	und			G
M81	6			Not existed		0
Is the inspec	tion result n	ormal?				
NO >>	•	ess or conne	ctor.			Н

#### **Z**.CHECK SPIRAL CABLE Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

## **3.**CHECK AV CONTROL UNIT VOLTAGE

Connect AV control unit connector and spiral cable connector. 1.

2. Turn ignition switch ON.

3. Check voltage between AV control unit harness connector.

(+)	)	(-		
AV control unit		AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	× 11 - 7
M81 6		M81	15	3.3 V

#### Is the inspection result normal?

YES	>> GO TO 4.
NO	>> Replace AV control unit.

**4.**CHECK STEERING SWITCH

#### Turn ignition switch OFF. 1.

Check steering switch. Refer to AV-55, "Component Inspection". 2.

#### Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace steering switch.

### Component Inspection

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

### **AV-55**

INFOID:000000004238499

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### **STEERING SWITCH SIGNAL A CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >		[BASE AUDIO WITHOUT NAVIGATION]
Standard Between terminals 14 and 17 MENU DOWN switch ON MENU UP switch ON SOURCE switch ON	: 318 – 324 Ω : 120 – 122 Ω : 0 Ω	SOURCE MENU UP MENU UP MENU DOWN
Between terminals 15 and 17 VOL UP switch ON VOL DOWN switch ON	: <b>120 – 122</b> Ω : <b>0</b> Ω	VOL DOWN

### **STEERING SWITCH SIGNAL B CIRCUIT**

STEERING SWITCH SIGN	AL B CIRCUIT				
< DTC/CIRCUIT DIAGNOSIS >	[BASE AUDIO WITHOUT NAVIGATION]				
STEERING SWITCH SIGNAL B CIRCUIT					
Description	INFOID:000000004238500				
Transmits the steering switch signal to AV control unit.					
Diagnosis Procedure	INFOID:000000004460209				
<b>1.</b> CHECK STEERING SWITCH SIGNAL B CIRCUIT					
<ol> <li>Disconnect AV control unit connector and spiral cable conr</li> <li>Check continuity between AV control unit harness connector</li> </ol>					

AV con	trol unit	Spiral	cable		
Connector	Terminal	Connector	Terminal	Continuity	E
M81	16	M36	31	Existed	L
3. Check c	continuity be	tween AV cor	ntrol unit har	mess connector and	d ground. F
AV con	itrol unit			Continuity	
Connector	Terminal	Gro	und		G
M81	16			Not existed	9
	GO TO 2. Repair harn	ess or conne	ctor.		Н
Check spiral		ormal?			1
YES >> NO >>					J
	ition switch oltage betwo		ol unit harne	ess connector.	L
(·	+)	(-	-)	Voltage	
AV con	trol unit	AV con	trol unit	(Approx.)	
Connector	Terminal	Connector	Terminal		M
M81	16	M81	15	3.3 V	
	GO TO 4. Replace AV	control unit.			AV
	ition switch teering swite		AV-57, "Com	ponent Inspection".	
	INSPECTIO				Ρ
Compone	nt Inspec	tion			INFOID:00000004238502

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

### AV-57

А

В

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D

### **STEERING SWITCH SIGNAL B CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >		[BASE AUDIO WITHOUT NAVIGATION]
Standard Between terminals 14 and 17 MENU DOWN switch ON MENU UP switch ON SOURCE switch ON	: 318 – 324 Ω : 120 – 122 Ω : 0 Ω	SOURCE Approx. MENU UP Approx. MENU DOWN 1210 MENU DOWN 15
Between terminals 15 and 17 VOL UP switch ON VOL DOWN switch ON	: <b>120 – 122</b> Ω : <b>0</b> Ω	VOL DOWN

< DTC/CIRC		-	IG SWITC	CH SIGNAL G	ND CIRCUIT ASE AUDIO WITHOUT NAVIGATION]	
			NAL GN	D CIRCUIT		٨
Descriptio	n				INF01D:00000004238503	A
Transmits the	e steering s	witch signal t	o AV control	unit.		В
Diagnosis	Procedu	re			INFOID:000000004460210	
<b>1.</b> CHECK S		SWITCH SIG	NAL GND C	CIRCUIT		С
				ral cable connecto ness connector an	r. d spiral cable harness connector.	D
AV cont	trol unit	Spiral	cable			
Connector	Terminal	Connector	Terminal	Continuity		Е
M81	15	M36	33	Existed		
3. Connect	AV control	unit connecto	or.			
Is the inspec		ormal?				F
-	GO TO 2. Repair barn	ess or conne	ctor			
2.CHECK S	-					G
Check spiral						
Is the inspec	<u>tion result n</u>	ormal?				Н
	GO TO 3.					
NO >> F <b>3.</b> CHECK G	Replace spi					I
						I
		unit connecto tween AV cor		ness connector an	d ground.	
						J
AV cont				Continuity		
Connector M81	Terminal 15	Gro	und	Not existed		Κ
Is the inspec		ormal?		Not existed		
•	<u>GO TO 4.</u>					L
	•	control unit.				
4.CHECK S	TEERING S	SWITCH				в. 4
	tion switch					Μ
	•		<u>4V-59, "Com</u>	ponent Inspection"		
<u>Is the inspec</u> YES >> I	NSPECTIO					AV
-		ering switch.				
Compone	nt Inspec	tion			INFOID:00000004238505	0

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

### STEERING SWITCH SIGNAL GND CIRCUIT

#### [BASE AUDIO WITHOUT NAVIGATION] < DTC/CIRCUIT DIAGNOSIS > Standard ]14 SOURCE Between terminals 14 and 17 Approx 121Ω **MENU DOWN switch ON : 318 – 324** Ω MENU UP Approx. 200Ω **MENU UP switch ON : 120 – 122** Ω MENU DOWN **SOURCE switch ON : 0** Ω 15 VOL DOWN Approx 121Ω Between terminals 15 and 17 VOL UP 17 14 15

**: 120 – 122** Ω

**: 0** Ω

**VOL UP switch ON** 

**VOL DOWN switch ON** 

17

JSNIA0215GE

### < ECU DIAGNOSIS INFORMATION >

## ECU DIAGNOSIS INFORMATION AV CONTROL UNIT

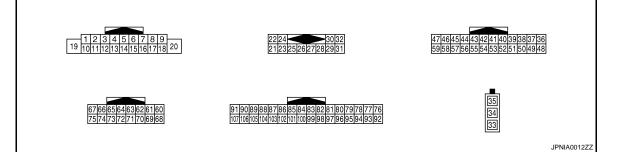
### **Reference Value**

### VALUES ON THE DIAGNOSIS TOOL

#### CONSULT-III MONITOR ITEM

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

#### TERMINAL LAYOUT



#### PHYSICAL VALUES

	minal e color)	Description		Condition		Reference value	D. A
+	_	Signal name	Input/ Output		Condition	(Approx.)	Μ
							AV
2 (L)	3 (W)	Sound signal door speaker LH	Output	Ignition switch ON	Voice output	o -1 -1	0
						SKIB3609E	Ρ
4 (LG)	5 (SB)	Sound signal rear speaker LH	Output	lgnition switch ON	Voice output	(V) 1 0 -1 2ms SKIB3609E	

### AV-61

#### 2009 G37 Sedan

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INFOID:000000004238506

#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output			(Approx.)
			Keep pressing SOURCE switch.	0 V		
6 (P)	15 (B)	Steering switch signal A	Input	Ignition switch	Keep pressing $\Delta$ switch.	0.7 V
(Г)	(В)			ON	Keep pressing $ abla$ switch.	1.3 V
					Except for above.	3.3 V
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
9	Onerred		la a st	Ignition	Lighting switch is OFF.	0 V
(L)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12 V
11 (BR)	12 (R)	Sound signal door speaker RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E
13 (L)	14 (P)	Sound signal rear speaker RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E
15 (B)	Ground	Steering switch signal GND		Ignition switch ON	_	0 V
					Keep pressing VOL DOWN switch.	0 V
16 (L)	15 (B)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL UP switch.	0.7 V
					Except for above.	3.3 V
19 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage
20 (B)	Ground	GND	_	Ignition switch ON	_	0 V
22 (B)	21 (W)	Satellite radio sound signal LH	Input	Ignition switch ON	When satellite radio mode is selected	(V) 1 0 -1 • • 2 ms SKIB3609E

# < ECU DIAGNOSIS INFORMATION >

Terminal (Wire color)		Description		Condition		Reference value	А
+	-	Signal name	Input/ Output		Condition	(Approx.)	
24 (G)	23 (R)	Satellite radio sound signal RH	Input	lgnition switch ON	When satellite radio mode is selected	(V) 1 0 -1 • 2ms SKIB3609E	B C D
25		Shield					
26		Shield	_	_	_	_	Е
28 (P)	Ground	Request signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 + 10ms SKIA9299J	F
29 (G)	Ground	Communication signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected	(V) 10 -10 -10 -10 -10 -10 -10 -10	H
30 (L)	Ground	Communication signal (CONT→SAT)	Output	Ignition switch ON	When satellite radio mode is selected	(V) 10 0 -10 • • 1ms SKIA9301J	J K L
33	—	FM sub	Input		—	_	
34	_	AM–FM main	Input	_	_	_	M
35	Ground	Antenna amp. ON signal	Output	Ignition switch ACC		12 V	AV
36 (SB)	Ground	AUX image signal	Output	Ignition switch ON	At AUX image is displayed	(V) 0.4 0 -0.4 ••••••••••••••••••••••••••••••••••••	O
37 (V)	Ground	AUX image GND	_	Ignition switch ON	_	0 V	

#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	- Condition		(Approx.)
38 (P)	Ground	RGB signal (B: blue)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{pmatrix} (V) \\ 0.4 \\ 0 \\ -0.4 \\ \hline \\ + + 40\mu s \\ \hline \\ SKiB2237J \\ \hline \\ SKiB2237J \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $
39 (L)	Ground	RGB signal (G: green)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{pmatrix} (V) \\ 0.4 \\ 0 \\ -0.4 \\ \hline + + 40 \mu s \\ \hline + + 40 \mu s \\ \hline \\ SKIB2236J \\ \hline \\ SKIB2236J \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $
40 (G)	Ground	RGB signal (R: red)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 -0.4 (V) 0 0 0 0 0 0 0 0 0 0 0 0 0
41 (W)	Ground	RGB synchronizing signal	Output	Ignition switch ON	_	(V) 4 0 ↓ 20µs SKIB3603E
42	—	Shield	_	—	— At RGB image is displayed	5 V
43 (V)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At AUX image is displayed	(V) 6 4 2 0 +++200µs − PKIB4948J
44 (BR)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 • • • 1 ms • • • 1 ms • • • • 1 ms • • • • 1 ms • • • • • • • • • • • • • • • • • • •

#### < ECU DIAGNOSIS INFORMATION >

### [BASE AUDIO WITHOUT NAVIGATION]

Terminal (Wire color)		Description		Condition		Reference value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	
45 (R)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON		(V) 4 0 → 20µs SKIB3601E	(
46 (LG)	Ground	Signal GND		Ignition switch ON	_	0 V	I
47 (O)	Ground	Signal VCC	Output	Ignition switch ACC	_	9 V	
48 (BR)	Ground	Composite synchronizing signal	Output	Ignition switch ON		(V) 64 20 20 µ s SKIA0187E	(
49	_	Shield		_	—	—	
50		Shield			_	_	
55		Shield	—	—	—	_	
56 (Y)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ••••1ms PKIB5039J	
57 (G)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON	_	(V) 4 0 • • • 4 ms SKIB3598E	A
58 (BR)	Ground	Inverter GND	_	Ignition switch ON	_	0 V	
59 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	—	9 V	

Revision: 2009 October

#### < ECU DIAGNOSIS INFORMATION >

color)	Description		Condition		Reference value	
_	Signal name	Input/ Output		Condition	(Approx.)	
Ground	AUX image signal	Input	Ignition switch ON	When AUX mode is select- ed	(V) 0.4 0 −0.4 •••40µs SKIB2251J	
_	Shield		_	_	_	
Ground	AUX image signal GND	_	Ignition switch ON	_	0 V	
—	Shield	—		—	—	
Ground	GND	_	Ignition switch ON	_	0 V	
	CAN-H	Input/ Output		_	_	
—	CAN-L	Input/ Output		_	_	
—	AV communication signal (H)	Input/ Output	_	_	_	
—	AV communication signal (L)	Input/ Output	—	_	_	
_	AV communication signal (H)	Input/ Output	_	_	_	
_	AV communication signal (L)	Input/ Output	—	_	_	
Ground	AUX sound signal RH	Input	Ignition switch ON	When AUX mode is select- ed	(V) 1 0 -1 -1 -2ms SKIB3609E	
Ground	AUX sound signal LH	Input	Ignition switch ON	When AUX mode is select- ed	(V) 1 0 -1 • 2ms SKIB3609E	
—	Shield	—		_	_	
Ground	SW GND	_	Ignition switch ON	_	0 V	
Ground	Eject signal	Input		Pressing the eject switch	0 V 3.3 V	
	Ground Ground Ground  Ground  Ground Ground Ground	GroundAUX image signal—ShieldGroundAUX image signal GND—ShieldGroundGND—CAN-H—CAN-L—AV communication signal (H)—AV communication signal (L)—AV communication signal (L)GroundAV communication signal (L)GroundAUX sound signal RHGroundAUX sound signal LH—ShieldGroundSW GND	-Signal nameOutputGroundAUX image signalInput-ShieldGroundAUX image signal GNDShieldShieldCAN-HInput/-CAN-HInput/-AV communication signalInput/-AV communication signalInput/-AU sound signal RHInputGroundAUX sound signal LHInput-ShieldGroundSW GND	-     Signal Harrie     Output       Ground     AUX image signal     Input     Ignition switch ON       -     Shield         Ground     AUX image signal GND      Ignition switch ON       -     Shield         Ground     GND      Ignition switch ON       -     Shield         Ground     GND      Ignition switch ON       -     CAN-H     Input/ Output        -     CAN-L     Input/ Output        -     AV communication signal (H)     Input/ Output        -     AV communication signal (L)     Input/ Output        -     AV communication signal (L)     Input/ Output        Ground     AUX sound signal RH     Input     ginition switch ON       Ground     AUX sound signal LH     Input     Ignition switch ON       -     Shield      -       Ground     SW GND      Ignition switch ON	-     Signal name     Output       Ground     AUX image signal     Input     Ignition switch ON     When AUX mode is select- ed       -     Shield     -     -       -     CAN-H     Input' Output     -       -     CAN-H     Input' Output     -       -     AV communication signal (H)     Input' Output     -       -     AV communication signal (L)     Input' Output </td	

#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

Terminal (Wire color)		Description			Condition	Reference value (Approx.)	
+	_	Signal name	Input/ Output	Condition			
104 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	В
105	Ground		lanut	Ignition switch	R position	12 V	С
(O)	Ground	Reverse signal	Input	ON	Other than R position	0 V	
					Parking brake ON	0 V	D
106 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake OFF	(V) 8 4 0 10 ms JSNIA0007GB	E
				les ities		NOTE: Maximum voltage may be 12 V due to specifications (connected units).	G
107 (GR)	Ground	d Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25MPH)	(0) 4 2 0 →→+20ms	H
						SKIA6649J	

Wiring Diagram - BASE AUDIO -

#### NOTE:

INFOID:000000004238507 J

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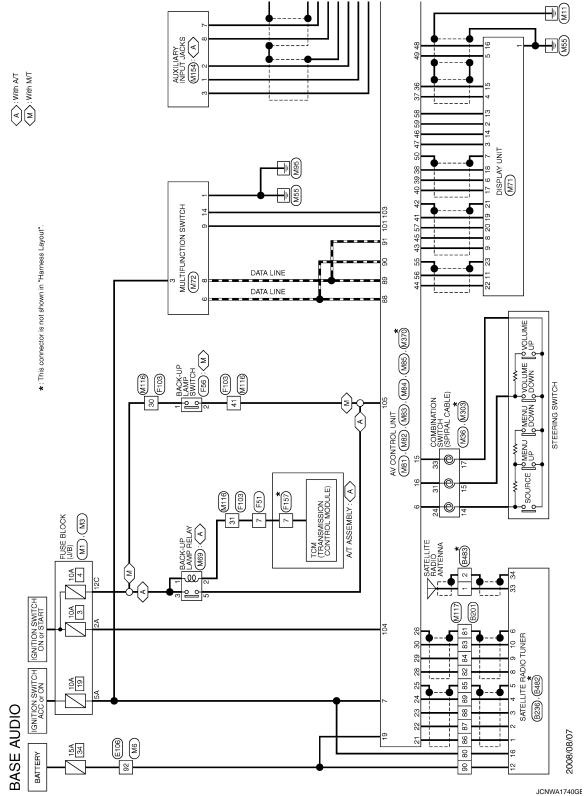
0

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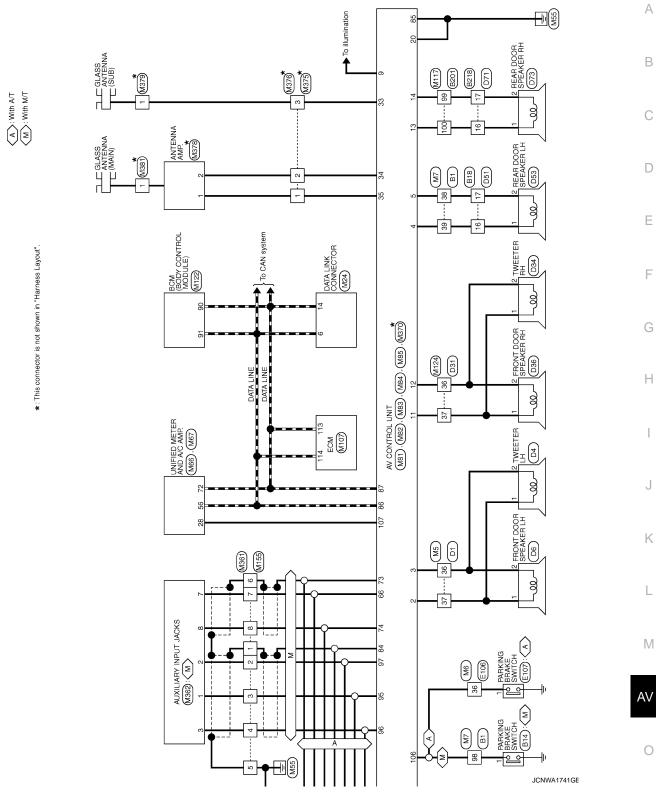
#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

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



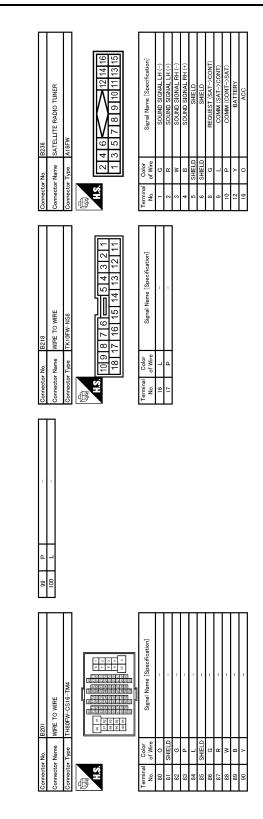
### [BASE AUDIO WITHOUT NAVIGATION]



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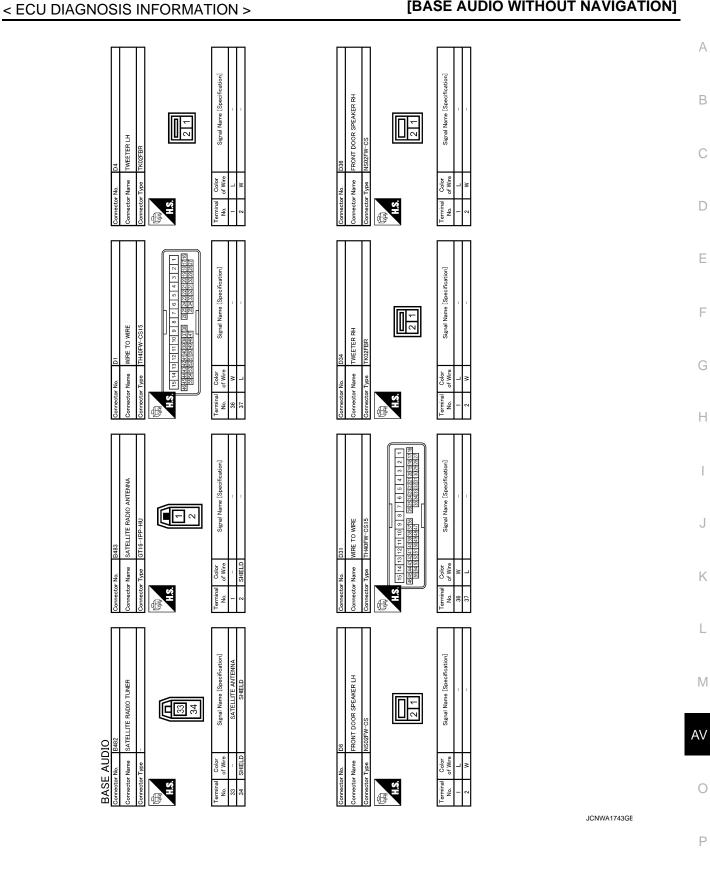
### **AV CONTROL UNIT**

### [BASE AUDIO WITHOUT NAVIGATION]



JCNWA1742GE

BASE AUDIO Connector Name Ocnector Name WEE TO WIEE Connector Type The Start of the Start Name Signal Name (Sheerfication)		Connector No. B14 Connector No. B18	Connector Name PARKING BRAKE SWITCH (WITH M/T) Connector Name WIRE TO WIRE	Connector Type P01FB-A Connector Type TK10FW-NS8	(13) 12 14 13 12 14 13 12 15 15 15 15 15 15 15 15 15 15 15 15 15	Terminal Color Signal Name [Specification] Terminal Color of Wire Signal Name [Specification] No. of Wire	1 V - [Mithout BOSE system]	17 Y – [Without BOSE system]
Image: Construction of the co		814	PARKING BRAKE SWITCH (WITH M/T)	P01FB-A	F	Signal Name [Specification]	T	
UDIO e WIFE TO WIE mere the second			nnector Name		H.S.		-	
		ŏ	ŏ	ŏ	<u>ط</u>	Ĥ		
BASE AUC Connector No. Connector Name Connector Name Connector Type Connector Type Connector Type Connector Type Connector Type Connector Type Connector Type Connector Type Connector Type Connector Connector Connecto	OIC	B1	WIRE TO WIRE	TH80FW-CS16-TM4			I	1
BAS Connect Connect HS HS No.			or Name	Y Type			7	ΓC
	BASE	Connecto	Connecto	Connecto	H.S.	Terminal No.	38	39

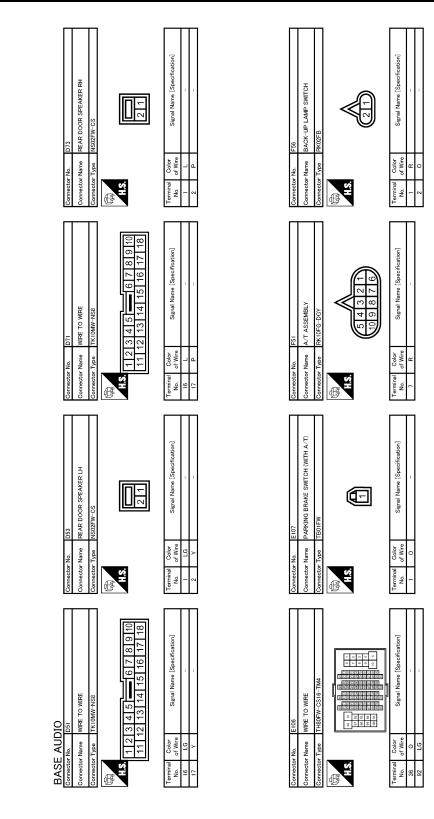


### [BASE AUDIO WITHOUT NAVIGATION]

Revision: 2009 October

#### < ECU DIAGNOSIS INFORMATION >

### [BASE AUDIO WITHOUT NAVIGATION]

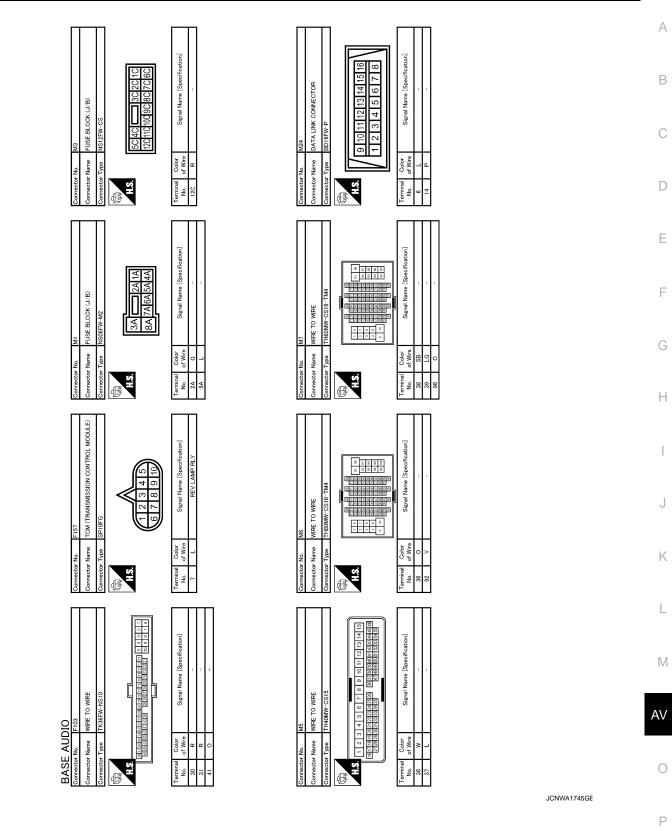


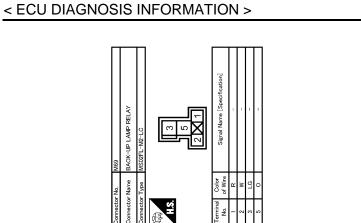
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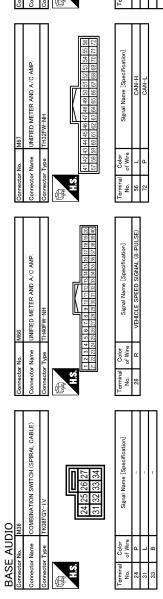
# **AV CONTROL UNIT**

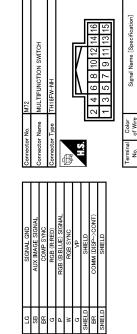
#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]









12         11         10         9         8         7         6         4         3         2           24         23         22         120         13         17         16         15         14           Color         Signal Name (Specification)         8         A         3         2           Prive         Signal Name (Specification)         8         A         3         2           Color         Signal Vacc         A         A         A         A         A           Color         Signal Vacc         A         A         A         A         A         A           V         A         A         A         A         A         A         A           V         A </th
- 글 경울 떠거야가거나봐요 떠거방

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DISPLAY UNIT (WITHOUT NAVI)

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Commetor No.     M2       Commetor Name     AV CONTROL UNIT (WITHOUT NAVI)       Commetors Type     AV CONTROL UNIT (WITHOUT NAVI)       Commetors Type     A/2FW       Commetors Type     A/4FLD       Commetors Type     Commetors Type	Connector Name         M84           Connector Name         AV CONTROL UNIT (WITHOUT NAVI)           Connector Type         THIEFW-NH           Time         Thiefform           Signal         Signal           Signal
I5     B     STFG SW GND       I6     L     STFG SW B       19     Y     BATTERY       20     B     GND	47         0         SIGNAL VCO           46         Y         OME           50         SHELD         SHELD           51         SHELD         SHELD           52         SHELD         SHELD           53         BR         OMM (OHL-DISP)           54         Q         OMM (OHL-DISP)           55         BR         INVERTER OND           56         Y         OMM (OHL-DISP)
BASE AUDIO Corrector Name AV CONTROL UNIT (WITHOUT NAVI) Connector Name AV CONTROL UNIT (WITHOUT NAVI) Connector Name AV CONTROL UNIT (WITHOUT NAVI) Connector Type AV CONTROL UNIT (WITHOUT NAVI) Connector Type AV CONTROL UNIT (WITHOUT NAVI) Connector Type AV CONTROL UNIT (WITHOUT NAVI) Connector Name (Specification) Control of With Control of Table AV Control Tab	Connector No.         M33           Connector Name         AV CONTROL UNIT (WITHOUT NAVI)           Connector Name         AV CONTROL UNIT (WITHOUT NAVI)           Connector Type         TH24FW-NH           Mail         Mail           Mail         Mail           Mail         Mail           Mail         Mail           Mail         Mail           Mail         Gala           Mail         Mail           Mail         Gala           Mail         Gala </td

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#### < ECU DIAGNOSIS INFORMATION >

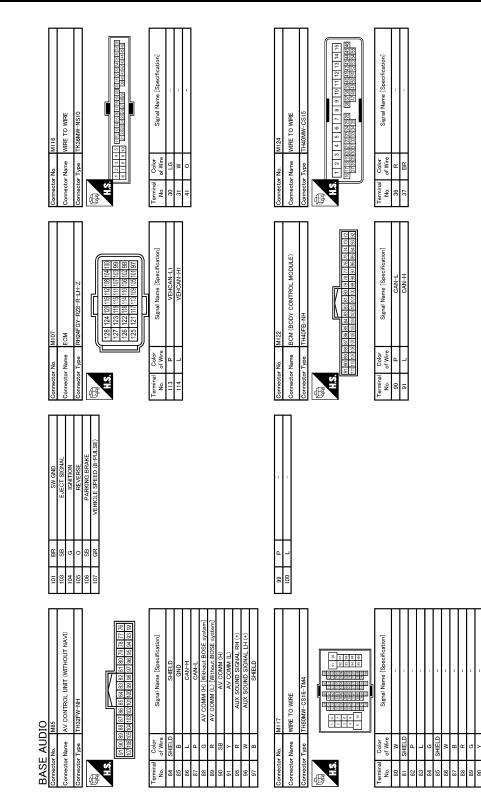
# [BASE AUDIO WITHOUT NAVIGATION]

Revision: 2009 October

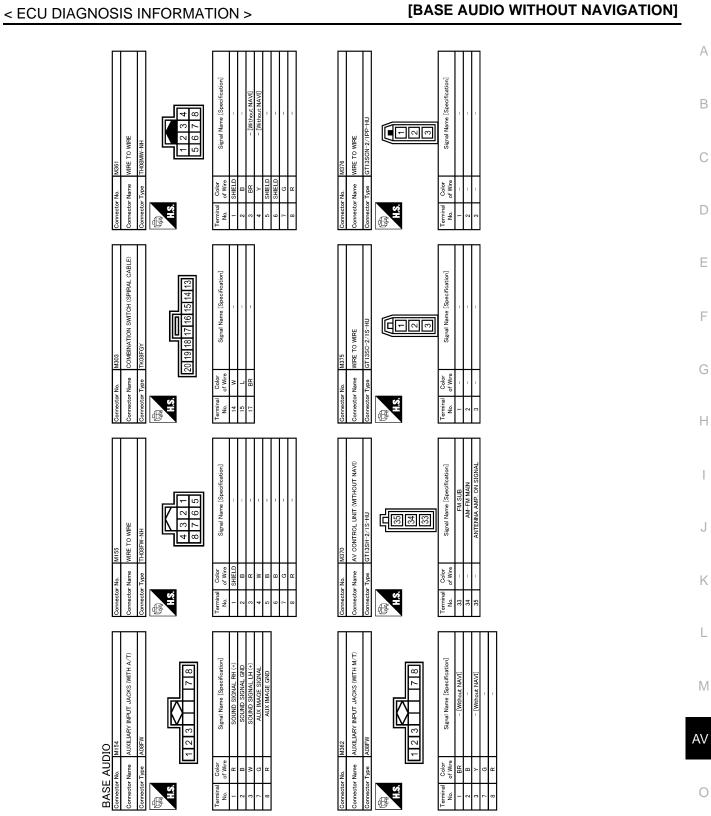
# **AV CONTROL UNIT**

#### < ECU DIAGNOSIS INFORMATION >

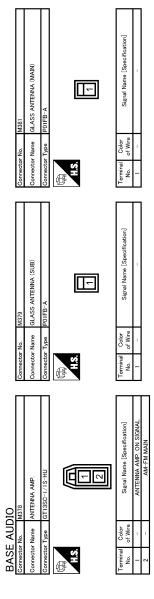
## [BASE AUDIO WITHOUT NAVIGATION]



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**AV CONTROL UNIT** 



DTC Index

#### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

JCNWA1750GE

INFOID:000000004238508

#### **AV CONTROL UNIT**

#### [BASE AUDIO WITHOUT NAVIGATION]

#### < ECU DIAGNOSIS INFORMATION >

DTC	Display item	Refer to	Α
U1000	CAN COMM CIRCUIT [U1000]	AV-29, "Diagnosis Procedure"	
U1010	CONTROL UNIT (CAN) [U1010]	AV-30. "Diagnosis Procedure"	P
U1310	CONTROL UNIT (AV) [U1310]	AV-31, "DTC Logic"	L
U1200	Cont Unit FLASH-ROM [U1200]	AV-32, "DTC Logic"	
U1216	CAN CONT [U1216]	AV-33, "DTC Logic"	C
U1243	FRONT DISP CONN [U1243]	AV-34, "Diagnosis Procedure"	
U1255	SAT CONN [U1255]	AV-36, "Diagnosis Procedure"	-
U1300 U1240	AV COMM CIRCUIT [U1300]     SWITCH CONN [U1240]	AV-38, "Description"	L

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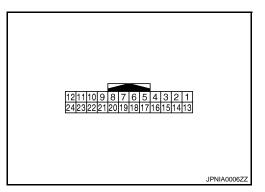
#### < ECU DIAGNOSIS INFORMATION >

# DISPLAY UNIT

**Reference Value** 

**TERMINAL LAYOUT** 

INFOID:000000004238509



#### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
1 (B)	Ground	GND	_	Ignition switch ON	_	0 V
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	9 V
3 (O)	Ground	Signal VCC	Input	Ignition switch ACC	_	9 V
4 (V)	Ground	AUX image GND	_	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 (R)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	—	(V) 4 0 ↓ ↓ 20µs SKIB3601E

Revision: 2009 October

#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description				Reference value	A
+	-	Signal name	Input/ Output		Condition	(Approx.)	
					At RGB image is displayed	5 V	В
9 (B)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At AUX image is displayed	(V) 6 2 0 ↓ ↓ ↓ 200 µ s ↓ ↓ ↓ 200 µ s ↓ ↓ ↓ 200 µ s	C
11 (Y)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••••••••••••••••••••••••••••••	E F G
13 (BR)	Ground	Inverter GND	_	Ignition switch ON	_	0 V	
14 (LG)	Ground	Signal GND	_	Ignition switch ON	_	0 V	Η
15 (SB)	Ground	AUX image signal	Input	Ignition switch ON	At AUX image is displayed	(V) 0.4 0 −0.4 •••40µs skiB2251J	I J K
16 (BR)	Ground	Composite synchronizing signal	Input	Ignition switch ON	_	(V) 64 20 20 µ s SKIA0187E	L
17 (G)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 −0.4 •••••40µs skiB2238J	AV O P

#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description			Condition	Reference value		
+	-	Signal name	Input/ Output			(Approx.)		
18 (P)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 <b>1.4 1.4 1.4 1.4 1.4 1.4 1.4</b> −0.4 <b>1.4 1</b>		
19 (W)	Ground	RGB synchronizing signal	Input	Ignition switch ON		(V) 4 0 + 20 µs SKIB3603E		
20 (G)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON		(V) 4 0 • • • 4 ms SKiB3598E		
21		Shield			_			
22 (BR)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 • • • 1ms • • • 1ms • • • 1ms • • • • 1ms		
23	_	Shield		_	—	_		

Wiring Diagram - BASE AUDIO -

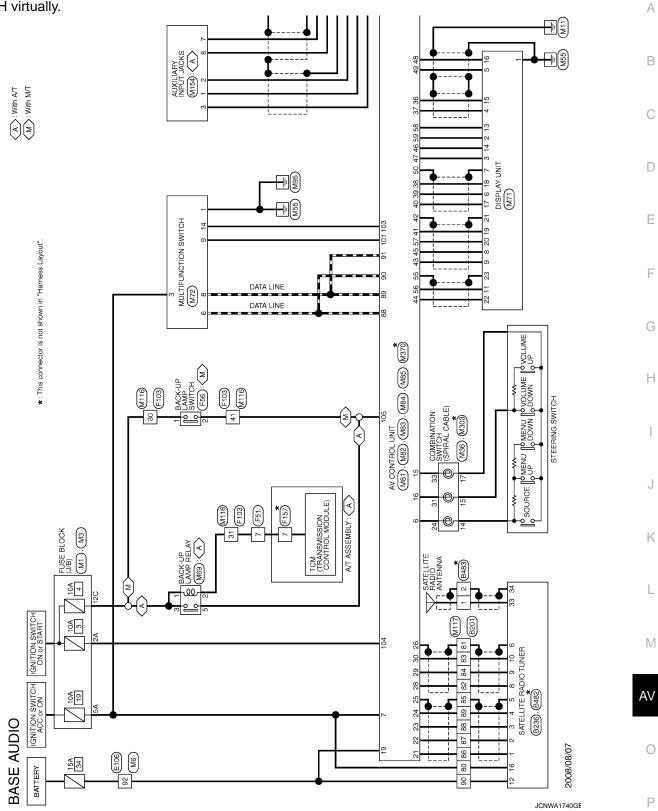
INFOID:000000004501716

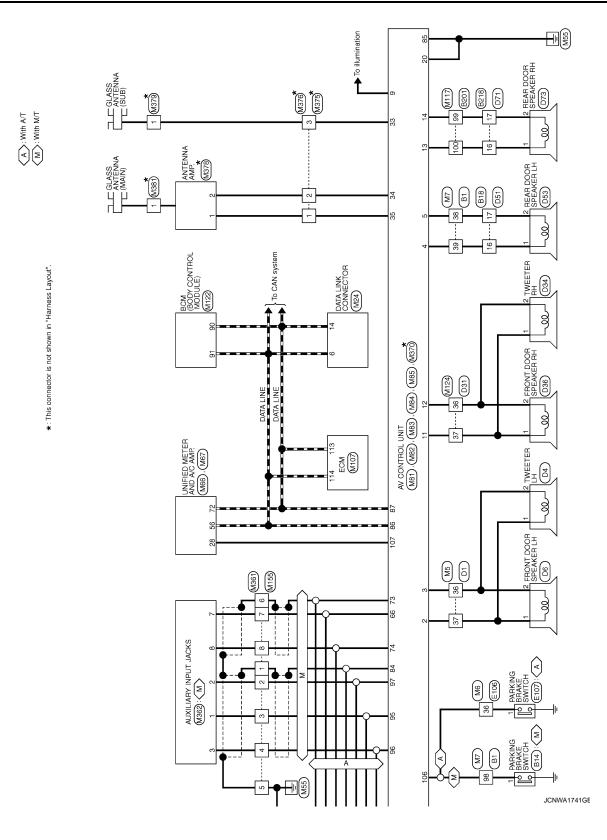
NOTE:

#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

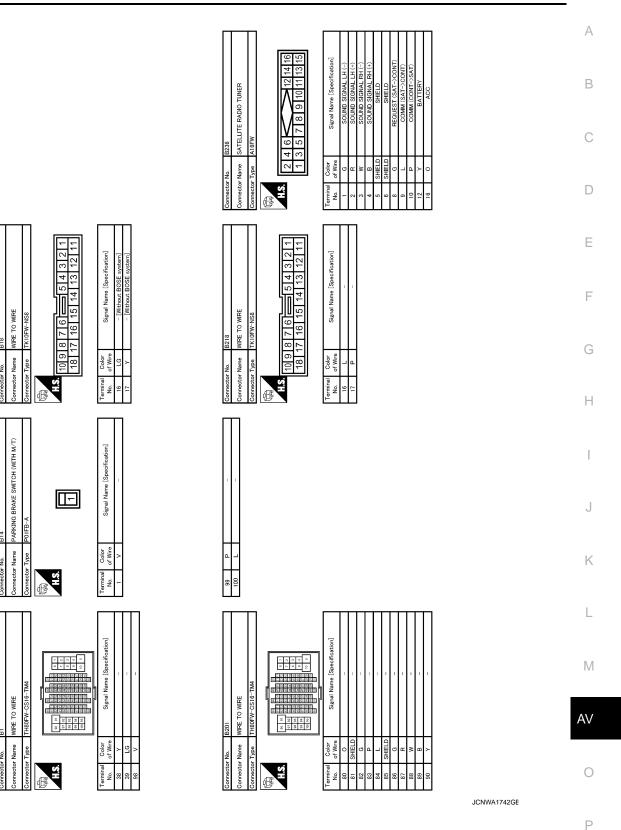
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.





Revision: 2009 October

#### [BASE AUDIO WITHOUT NAVIGATION]



< ECU DIAGNOSIS INFORMATION >

# Revision: 2009 October

**BASE AUDIO** 

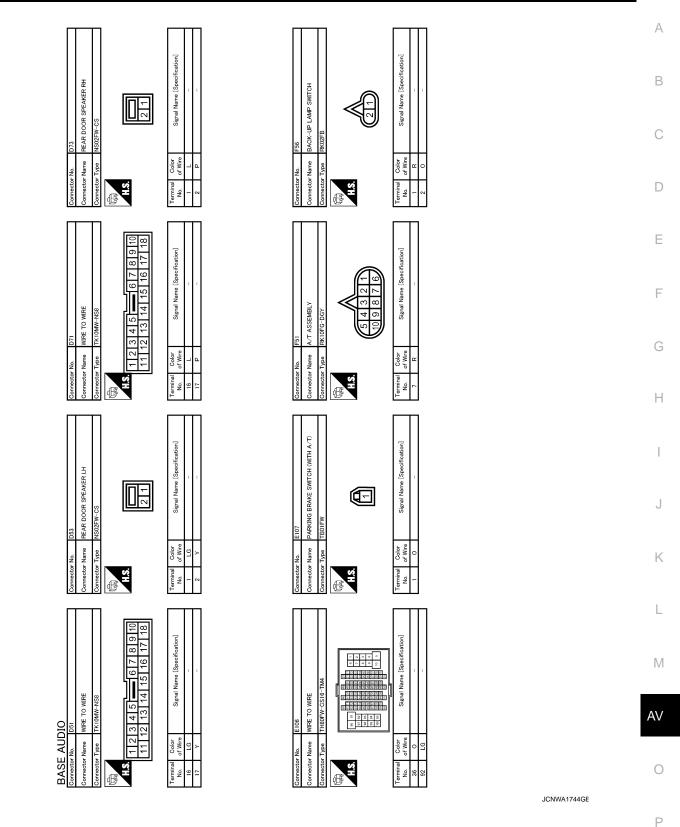
#### < ECU DIAGNOSIS INFORMATION >

#### Signal Name [Specification] Signal Name [Specification] FRONT DOOR SPEAKER RH 2 1 2 1 TWEETER LH Color of Wire Color of Wire connector Name Connector Name H.S. Terminal No. Terminal No. HS. - ~ Ŧ ß 15 14 13 12 11 10 1</ Signal Name [Specification] Signal Name [Specification] 2 1 WIRE TO WIRE TWEETER RH Color of Wire Color of Wire Connector Name inector Name H.S. Terminal No. 36 37 H.S. Terminal No. G C 464545444434247440339337359 28255242322120159181716 5555453525150434847 355359 28237303032334322232 15 14 13 12 11 10 9 8 7 6 5 4 3 2 Signal Name [Specification] Signal Name [Specification] SATELLITE RADIO ANTENNA WIRE TO WIRE B483 3T16 Color of Wire Color of Wire onnector Name Connector Name nector No. H.S.H ALS. Terminal No. Terminal No. Connecte ſ E ŏ Signal Name [Specification] Signal Name [Specification] FRONT DOOR SPEAKER LH SATELLITE RADIO TUNER 2 1 5 2 2 2 2 2 **BASE AUDIO** Color of Wire Color of Wire Connector Name inector Name H.S. H.S. Terminal No. erminal No. 倨 C

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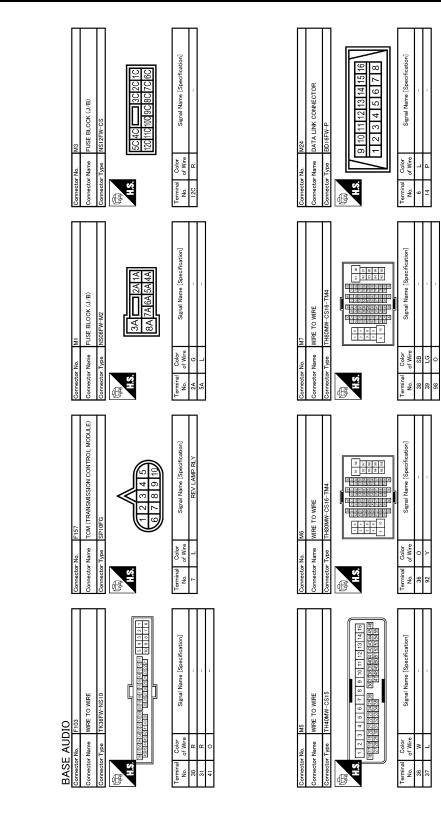
#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

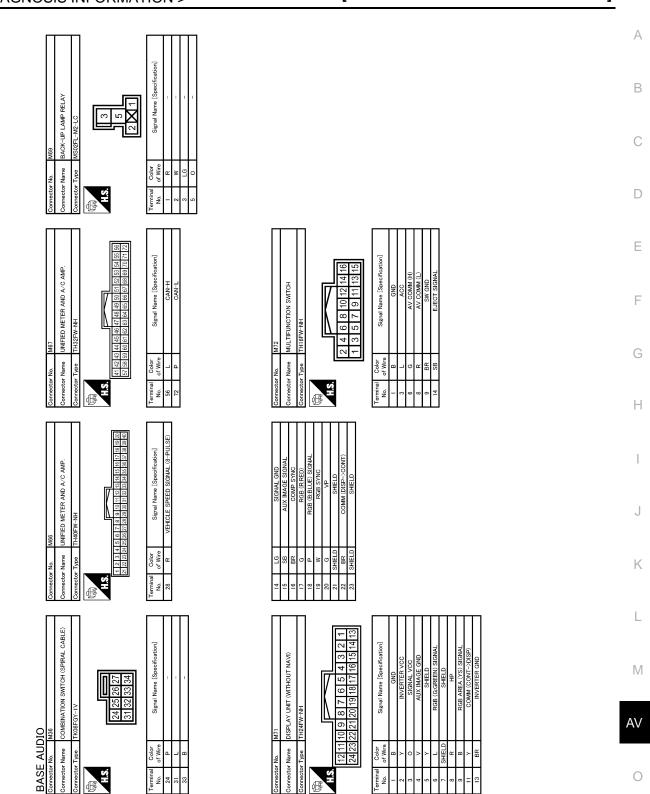


#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]



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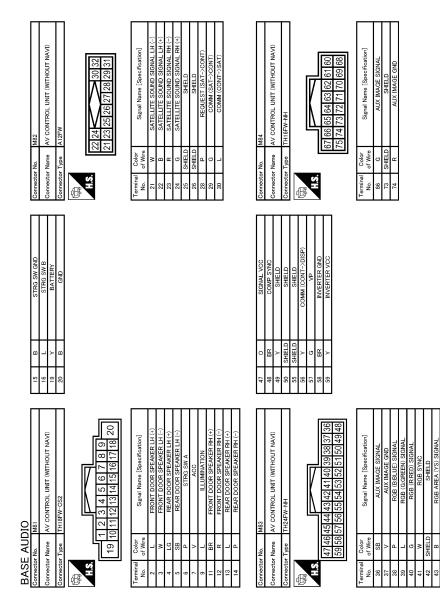


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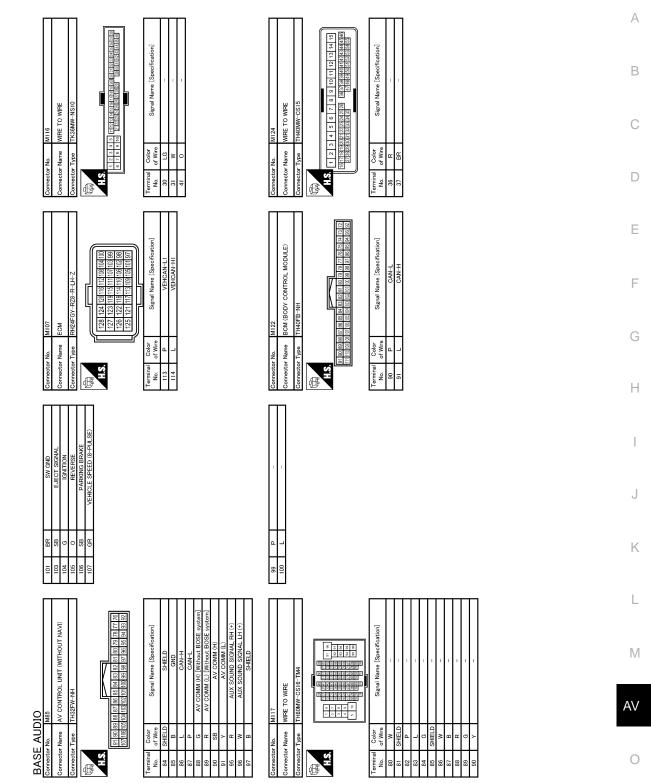
#### DISPLAY UNIT [BASE AUDIO WITHOUT NAVIGATION]

Revision: 2009 October



#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]



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#### **DISPLAY UNIT** [BASE AUDIO WITHOUT NAVIGATION]

Signal Name [Specification]

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erminal No.

Signal Name [Specification]

Color of Wire

Terminal No.

Signal Name [Specification

Color of Wire

erminal No.

Signal Name [Specification]

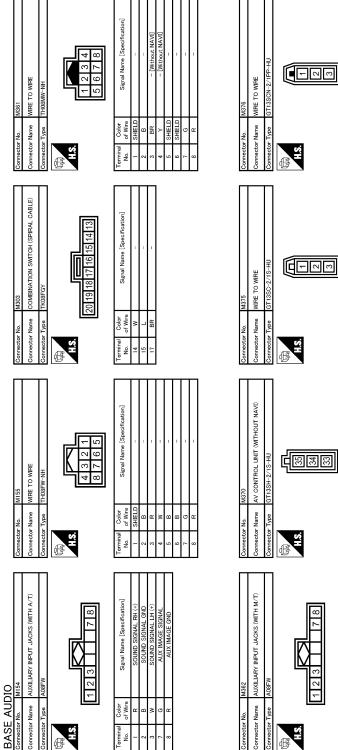
Color of Wire

erminal No.

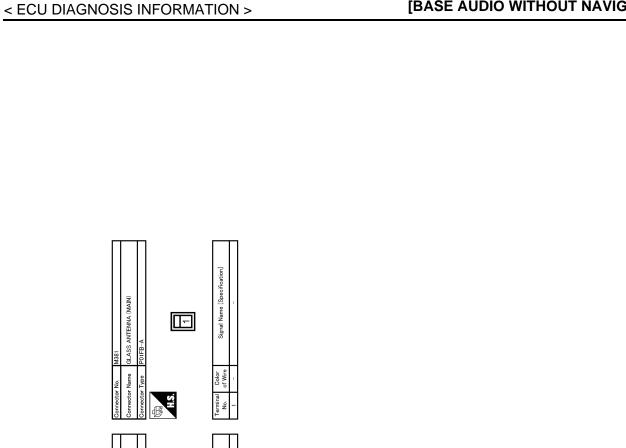
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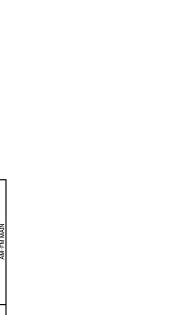
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Signal Name [Specification

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Signal Name [Specification]

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ANTENNA AMP.

**BASE AUDIO** 

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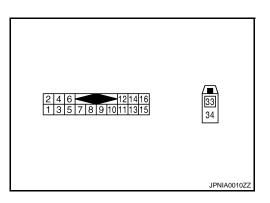
#### [BASE AUDIO WITHOUT NAVIGATION]

#### < ECU DIAGNOSIS INFORMATION >

# SATELLITE RADIO TUNER

#### **Reference Value**

INFOID:000000004238511



#### PHYSICAL VALUES

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

#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

Terr	minal	Description				Reference value	٨
+	_	Signal name	Input/ Output		Condition	(Approx.)	A
				Ignition		(V) 10	В
10 (P)	Ground	Communication signal (CONT→SAT)	Input	switch ON	When satellite radio mode is selected	0 -10 -10 -10 -10	С
12 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	D
16 (O)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	E
33	—	Satellite antenna	Input	—	—	_	F
34	—	Shield	—	_	—	—	

Wiring Diagram - BASE AUDIO -

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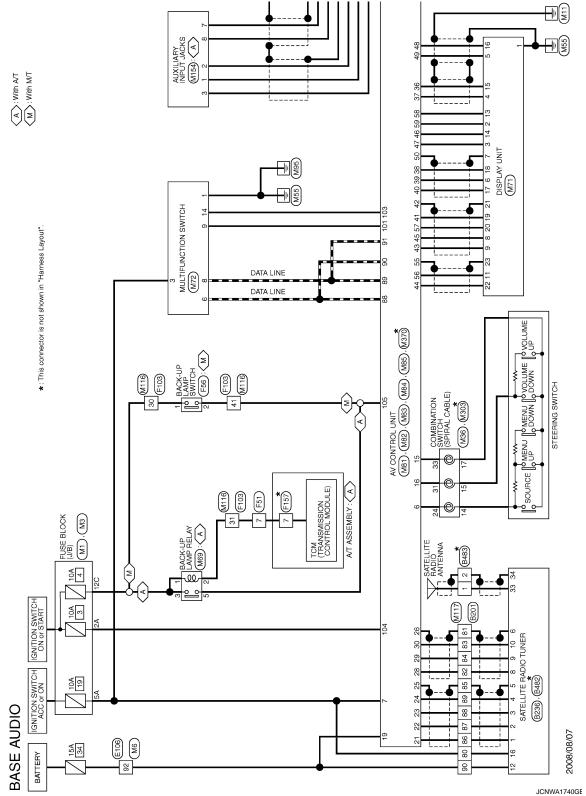
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#### < ECU DIAGNOSIS INFORMATION >

#### [BASE AUDIO WITHOUT NAVIGATION]

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



#### [BASE AUDIO WITHOUT NAVIGATION]

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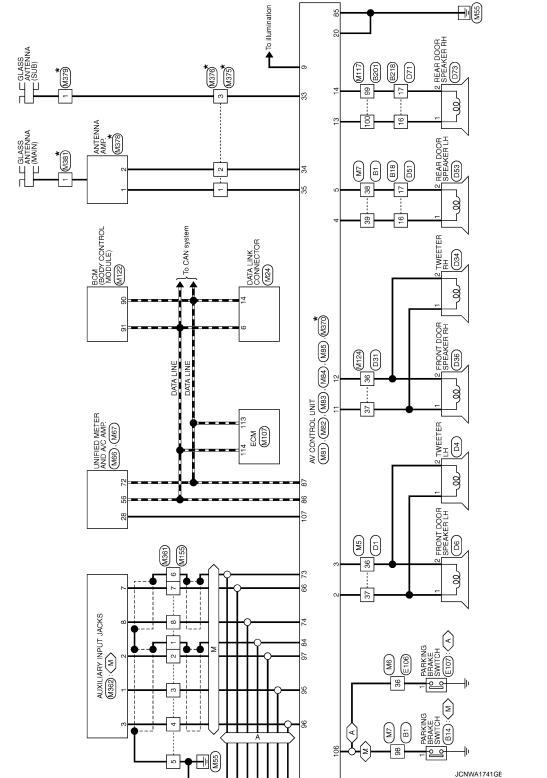
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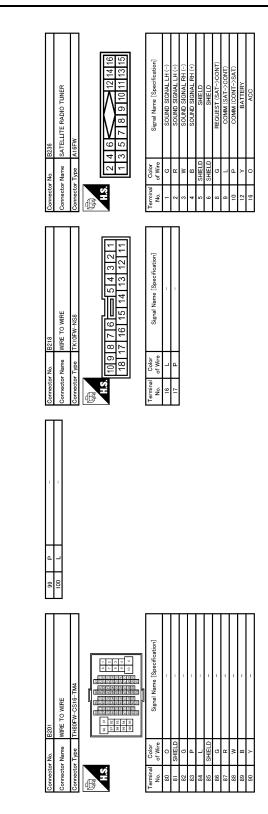


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 $\boldsymbol{\star}: This connector is not shown in "Harness Layout".$ 

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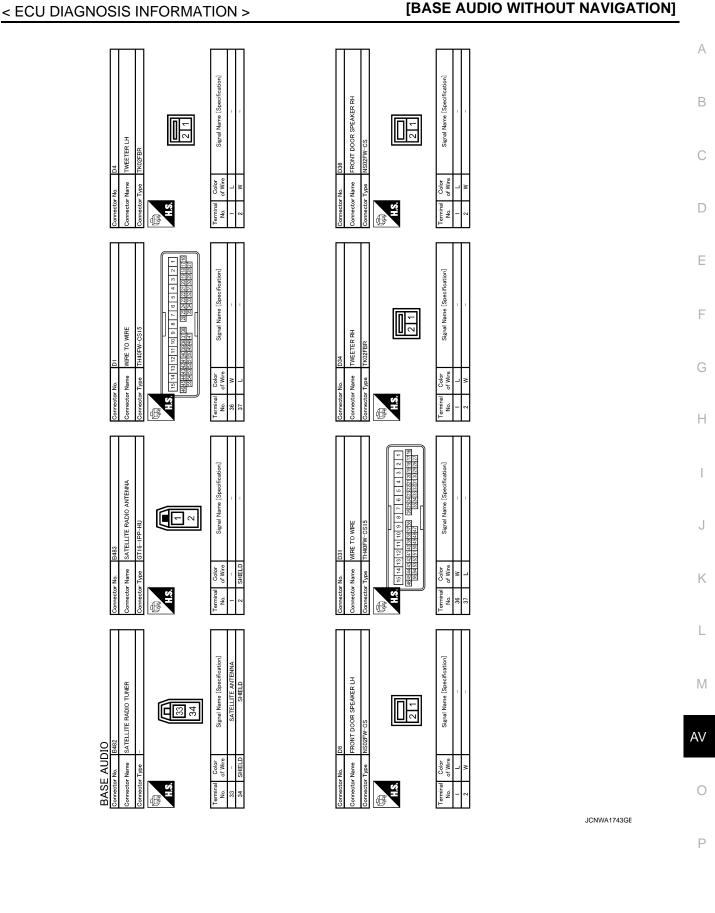


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BASE	BASE AUDIO	010				
Connector No.		B1	Connector No.	B14	Connector No.	B18
Connecto	or Name	Connector Name WIRE TO WIRE	Connector Name	PARKING BRAKE SWITCH (WITH M/T)	Connector Name WIRE TO WIRE	WIRE TO WIRE
Connector Type		TH80FW-CS16-TM4	Connector Type	P01FB-A	Connector Type	TK10FW-NS8
H.S.			H.S.		HS 109 18 1	<u>18 7   6 - 5 4 3 2 1 1</u> 17 16 15 14 13 12 11
Terminal No.	Color of Wire	Signal Name [Specification]	Terminal Color No. of Wire	e Signal Name [Specification]	Terminal Color No. of Wire	Signal Name [Specification]
38	Y	1	1 <	1	16 LG	<ul> <li>[Without BOSE system]</li> </ul>

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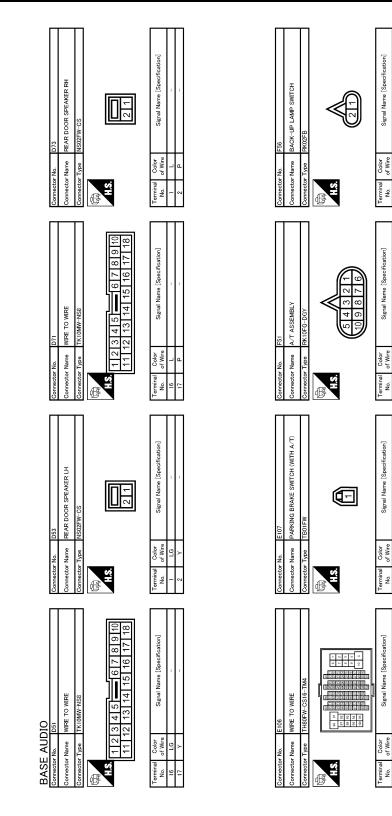
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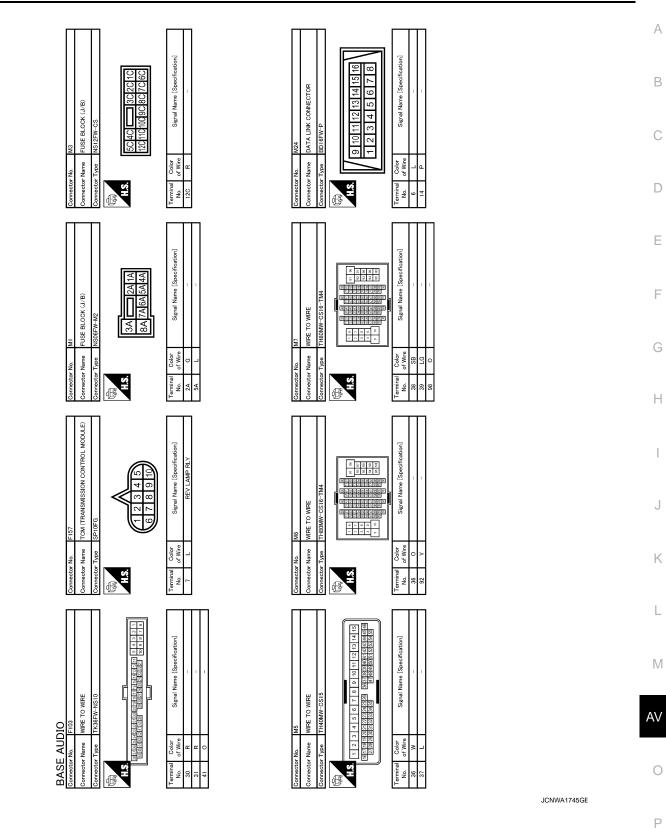
LG



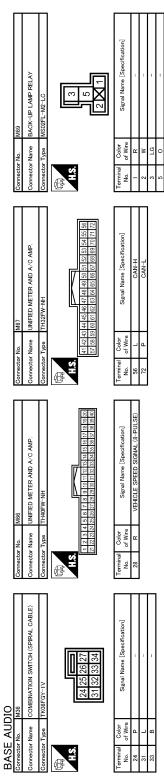
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#### < ECU DIAGNOSIS INFORMATION >

# [BASE AUDIO WITHOUT NAVIGATION]









24 23 22 21 20 19 18 17 16 15 14 13		Signal Name [Specification]	GND	INVERTER VCC	SIGNAL VCC	AUX IMAGE GND	SHIEFD	LGB (G:GREEN) SIGNAL	SHIELD	dH	RGB AREA (YS) SIGNAL	COMM (CONT->DISP)
24 23		Color of Wire		≻	0	^	Y	Г	SHIELD	Я	в	Y
	•	Terminal No	-	2	3	4	5	9	7	8	6	11

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Signal Name [Specification]

Color of Wire

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ector Name

Connector No. M82 Connector Name AV CONTROL UNIT (MITHOUT NAVI) Connector Type A12FW Connector Type 2033	Terminal No.         Color of Wire of Wire         Sanal Name (Specification)           21         w         sATELLITE SOUND SIGNAL LH (·)           22         B         SATELLITE SOUND SIGNAL LH (·)           22         B         SATELLITE SOUND SIGNAL LH (·)           23         R         SATELLITE SOUND SIGNAL LH (·)           24         G         SATELLITE SOUND SIGNAL LH (·)           25         SHELD         SHELD           28         SHELD         SHELD           28         SHELD         SHELD           28         SHELD         SHELD           28         Colom SiGNAL PH (·)         SHELD           28         SHELD         SHELD           29         G         COMM (SAT->CONT)           29         L         COMM (SAT->CONT)           30         L         COMM (CONT->SAT)	Connector No.         M84           Connector Name         AV CONTROL UNIT (WITHOUT NAV))           Connector Type         TH16FW-NH           TH16FW-NH         TH16FW-NH           Connector Type         TH16FW-NH           T116FW-NH         T11060666	Terminal No.         Calor of Wire 0.         Skinal Name [Specification]           10.         of Wire 3.         AUX IMAGE SIGNAL           73         SHELD         SHELD           74         R         AUX IMAGE GND	
I5     B     STRG SW GND       16     L     STRG SW GND       19     L     BATTERY       20     B     GND		47         0         SIGMALVCC           48         BR         COMA SYNC           49         Y         SHELD           56         SHELD         SHELD           56         SHELD         SHELD           57         COMA SYNC         SHELD           58         SHELD         SHELD           59         G         V           59         FR         NOR (CONT-DISP)           59         FR         NOR (CONT-SHER)           59         FR         NOR (CONT-SHER)           59         Y         NOR (CONT-SHER)           59         Y         NOR FITER OND		
BASE AUDIO Connector No. M61 Connector Name AV CONTROL UNIT (MTHOUT NAV) Connector Type TH18FW-CS2 Connector Type 112 3 4 5 6 7 8 9 19 10 111 12 13 14 15 16 17 18 20	Terminal No.         Color of Wire 3         Signal Name [Specification]           No.         of Wire and the second second reservent LH (-)         2           2         U         FRONT DOOR SEEAKER LH (-)           3         NG         FRONT DOOR SEEAKER LH (-)           5         SB         FRANDOOR SEEAKER LH (-)           6         P         STRA DOOR SEEAKER LH (-)           7         V         AGC           9         L         ALLORNATION           10         FRONT DOOR SEEAKER HH (-)           12         R         FRONT DOOR SEEAKER HH (-)           13         L         REAR DOOR SEEAKER HH (-)           13         L         REAR DOOR SEEAKER HH (-)           14         P         REAR DOOR SEEAKER HH (-)	Connector No. M83 Connector Name AV CONTROL UNIT (WITHOUT NAVI) Connector Type TH24FW-NH L3 L3 L3 L3 L3 L3 L3 L3 L3 L3 L3 L3 L3	Terminal No.         Color of Wive Signal Name [Specification]           30.         of Wive and Signal Name [Specification]           31         V         AUX MAGE (SIQNAL AUX MAGE (SIQNAL 33           33         P         Rob Rebuilds (SIGNAL 40           39         L         RGB (GAREW) SIGNAL 40           40         G         RGB (GAREW) SIGNAL 42           41         W         RGB (GAREW) SIGNAL 43           42         RHELD 8HELD         SHELD 8HELD           43         B         COMM (DISP-)CONT)           45         R         COMM (DISP-)CONT)           45         LG         SIGNAL (SISAL	

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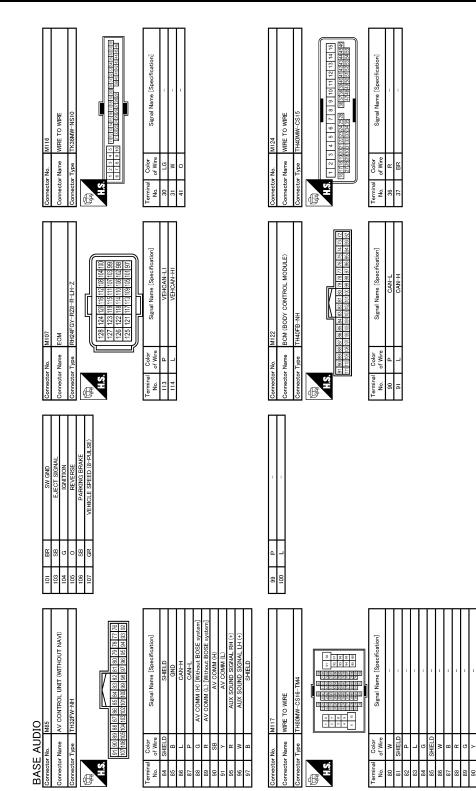
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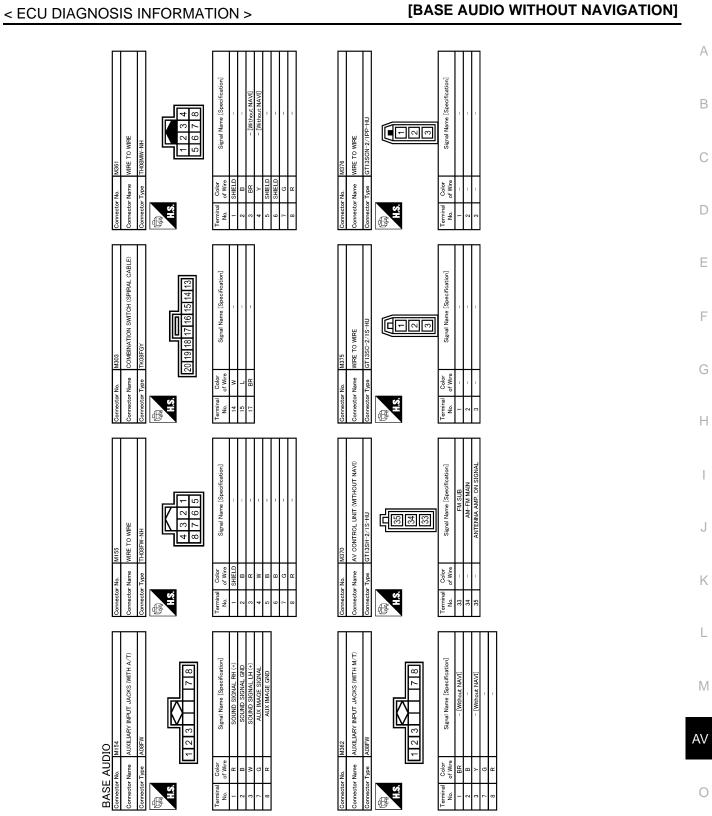
# [BASE AUDIO WITHOUT NAVIGATION]

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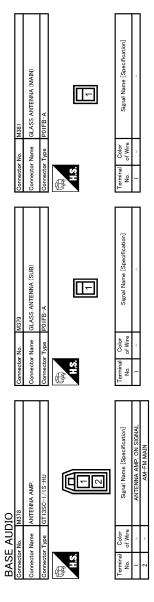


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#### MULTI AV SYSTEM SYMPTOMS [BASE AUDIO WITHOUT NAVIGATION]

# SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS

#### Symptom Table

#### **OPERATION**

INFOID:000000004238513

Symptoms	Check items	Possible malfunction location / Action to take		
	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is displayed with CON- SULT-III.</li> </ul>	Perform CONSULT-III self-diagnosis. Refer to <u>AV-26.</u> <u>"CONSULT - III Function (MULTI AV)"</u> .		
Multifunction switch and preset switch operation does not work.	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is not displayed on system selection screen the CONSULT- III is initialized.</li> </ul>	AV control unit power supply and ground circuit mal- function. Refer to <u>AV-39, "AV CONTROL UNIT : Diag-</u> nosis Procedure".		
	Only specified switch cannot be oper- ated.	Multifunction switch or preset switch malfunction. Per- form multifunction switch and preset switch self-diagno- sis function. Refer to <u>AV-19</u> , "Diagnosis Description".		

#### RELATED TO RGB IMAGE

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	There is malfunction in the CONSULT- III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-26, "CONSULT - III Function (MULTI AV)"</u> .
	There is no malfunction in CONSULT-III self-diagnosis results.	<ul> <li>Display unit power supply circuit. Refer to <u>AV-39</u>, "DISPLAY UNIT : Diagnosis Proce- <u>dure"</u>.</li> <li>Vertical synchronizing (VP) signal circuit. Refer to <u>AV-48</u>, "Diagnosis Procedure".</li> </ul>
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to <u>AV-42</u> , "Diagnosis Procedure".
	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to <u>AV-43, "Diagnosis Procedure"</u> .
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to <u>AV-44, "Diagnosis Procedure"</u> .
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to <u>AV-45</u> , "Diagnosis Procedure".
Fuel economy display is mal- functioning.	There is malfunction in the CONSULT- III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-26, "CONSULT - III Function (MULTI AV)"</u> .
	There is no malfunction in CONSULT-III self-diagnosis results.	Ignition signal circuit malfunction. Refer to <u>AV-39, "AV CONTROL UNIT : Diagnosis Proce</u> <u>dure"</u> .

#### RELATED TO AUDIO

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
The CD cannot be removed.	_	CD eject signal circuit. Refer to <u>AV-51</u> , "Diagnosis Pro- cedure".
Audio sound is not heard.	No sound from all speakers.	AV control unit. Refer to AV-114, "Exploded View".
	Sound is not heard only from the specif- ic places (RH front, RH rear, LH front and LH rear).	Sound signal circuit of malfunctioning system.

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#### **MULTI AV SYSTEM SYMPTOMS**

#### < SYMPTOM DIAGNOSIS >

#### [BASE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Possible malfunction location / Action to take
Satellite radio is not received.	"ANTENNA" is not displayed even when the channel is turned to 0 in Satellite ra- dio mode.	<ul> <li>Perform the following inspection procedure.</li> <li>1. Check satellite radio antenna mounting nut for looseness.</li> <li>NOTE: Tightening torque: 6.5 N·m (0.66 kg-m, 58 in-lb.)</li> <li>2. Visually check for satellite radio antenna feeder.</li> <li>3. Replace the satellite radio antenna. Refer to <u>AV-121</u>, "<u>Exploded View</u>".</li> <li>4. Replace the satellite radio tuner. Refer to <u>AV-120</u>, "<u>Exploded View</u>".</li> </ul>
	"ANTENNA" is displayed when the channel is turned to 0 in Satellite radio mode.	<ol> <li>Perform the following inspection procedure.</li> <li>Check the connection between Satellite radio tuner and antenna feeder.</li> <li>Check the connection between Satellite radio antenna and antenna feeder.</li> <li>Check Antenna feeder for open circuit.</li> <li>Replace the satellite radio antenna. Refer to <u>AV-121</u>, "<u>Exploded View</u>".</li> <li>Replace the satellite radio tuner. Refer to <u>AV-120</u>, "<u>Exploded View</u>".</li> </ol>
The sound of Satellite radio is not heard.	Other audio sounds are normal.	Satellite radio sound signal circuit malfunction between satellite radio tuner and AV control unit.
It does not change to Satellite radio mode.	There is malfunction in the CONSULT- III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-26, "CONSULT - III Function (MULTI AV)"</u> .
AM/FM radio is not received.	Other audio sounds are normal.	<ul><li>Antenna amp. ON signal circuit.</li><li>Antenna feeder.</li></ul>

#### RELATED TO STEERING SWITCH

#### Trouble diagnosis chart by symptom

Symptoms	Inspection location / Probable malfunction location
None of the steering switch operations work.	Steering switch signal GND circuit. Refer to <u>AV-59, "Diagnosis Procedure"</u> .
Only specified switch cannot be operated.	Steering switch. Refer to AV-124, "Exploded View".
"SOURCE", "MENU UP", "MENU DOWN" switches of steering switch are not operated.	Steering switch signal A circuit. Refer to <u>AV-55, "Diagnosis Procedure"</u> .
"VOL UP", "VOL DOWN" switches of steering switch are not operated.	Steering switch signal B circuit. Refer to <u>AV-57, "Diagnosis Procedure"</u> .

# RELATED TO AUXILIARY INPUT **NOTE**:

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

Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location
No voice sound is heard when AUX mode is selected.	Voice sound is heard when other modes are selected.	AUX sound signal circuits malfunction between auxilia- ry input jacks and AV control unit.
Image is not displayed when AUX mode is selected.		<ul> <li>AUX image signal circuit malfunction between auxiliary input jacks and AV control unit. Refer to <u>AV-49</u>. "<u>Diagnosis Procedure</u>".</li> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-47</u>. "<u>Diagnosis Procedure</u>".</li> <li>RGB area (YS) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-46</u>. "<u>Diagnosis Procedure</u>".</li> </ul>
It does not change from AUX mode to other modes.	_	Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-48, "Diagnosis Procedure"</u> .

### NORMAL OPERATING CONDITION [BASE AUDIO WITHOUT NAVIGATION]

# NORMAL OPERATING CONDITION

### Description

### **BASIC OPERATIONS**

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INFOID:000000004238514

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
No image is displayed.	The system in the video mode.	Press <b><disc></disc></b> to change the mode.
	The display is turned off.	Press <day night=""> to turn on the display.</day>
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 AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD/cassette, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and then determine the cause.

### NOTE:

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

Symptom	Cause and Counter measure	
	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.	ŀ
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.	L
Cannot play	If there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD, only the music CD files (CD-DA data) will be played.	
	Files with extensions other than ".MP3", ".WMA", ".mp3", or ".wma" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.	Ν
	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.	A١
	Check if the finalization process, such as session close and disc close, is done for the disc.	
	Check if the CD is protected by copyright.	(
Poor sound quality	Check if the CD is scratched or dirty.	
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA CD, or if it is a multisession disc, some time may be required before the music starts playing.	F
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 with high bit rate files Skipping may occur with large quantities if data such as for high bit rate data.	

### < SYMPTOM DIAGNOSIS >

# NORMAL OPERATING CONDITION

### [BASE AUDIO WITHOUT NAVIGATION]

Symptom	Cause and Counter measure
Move immediately to the next song when playing	When a non-MP3/WMA file has been given an extension of ".MP3", ".WMA", ".mp3", or ".wma", or when play is prohibited by copyright protection, the player will skip to the next song.
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.

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

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INFOID:000000004238517

# 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:

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

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

### WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

### Precaution for Trouble Diagnosis

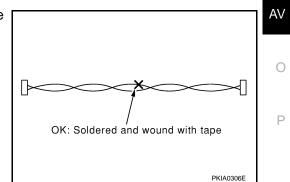
### AV COMMUNICATION SYSTEM

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

### Precaution for Harness Repair

### AV COMMUNICATION SYSTEM

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

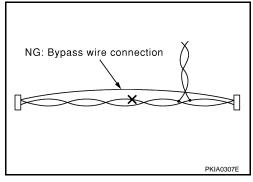


### < PRECAUTION >

### PRECAUTIONS

### [BASE AUDIO WITHOUT NAVIGATION]

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



### [BASE AUDIO WITHOUT NAVIGATION]

REPARATION				
ommercial Service To	ools			INFOID:000000004238518
Tool name			Description	
Power tool			Loosening bolts and nuts	
		PBIC0191E		

< PREPARATION >

### [BASE AUDIO WITHOUT NAVIGATION]

# REMOVAL AND INSTALLATION AV CONTROL UNIT

### **Exploded View**

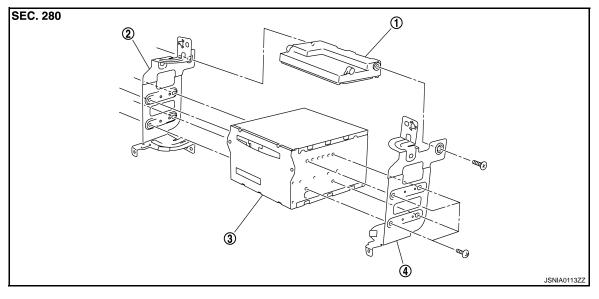
INFOID:000000004238519

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# REMOVAL

Refer to IP-11, "Exploded View".

### DISASSEMBLY



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

3. AV control unit

4. Bracket RH

### Removal and Installation

### REMOVAL

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

#### INSTALLATION

Installation is the reverse order of removal.

#### **CAUTION:**

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

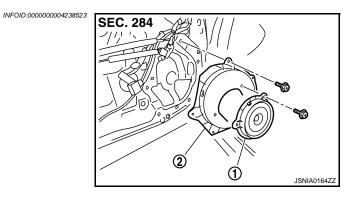
### [BASE AUDIO WITHOUT NAVIGATION]

DISPLAY UNIT		А
Exploded View	INFOID:000000004238521	A
Refer to <u>IP-11, "Exploded View"</u> . Removal and Installation	INFOID:000000004238522	В
REMOVAL 1. Remove cluster lid D. Refer to <u>IP-11, "Exploded View"</u> .		С
<ol> <li>Remove display unit with bracket as a single unit.</li> <li>INSTALLATION</li> <li>Installation is the reverse order of removal.</li> </ol>		D
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# FRONT DOOR SPEAKER

# **Exploded View**



- 1. Front door speaker
- 2. Speaker bracket

### Removal and Installation

### REMOVAL

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

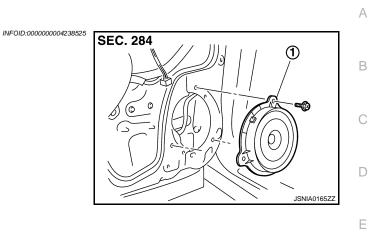
### INSTALLATION

Installation is the reverse order of removal.

# [BASE AUDIO WITHOUT NAVIGATION]

# REAR DOOR SPEAKER





1. Rear door speaker

### Removal and Installation

### REMOVAL

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

### INSTALLATION

Installation is the reverse order of removal.

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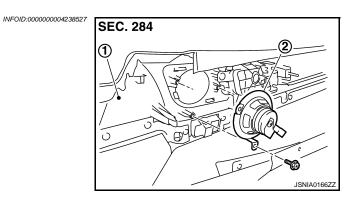
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# [BASE AUDIO WITHOUT NAVIGATION]

# TWEETER

Exploded View



- 1. Door finisher
- 2. Tweeter

### Removal and Installation

### REMOVAL

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

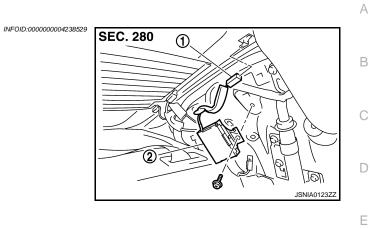
### INSTALLATION

Installation is the reverse order of removal.

### [BASE AUDIO WITHOUT NAVIGATION]

# < REMOVAL AND INSTALLATION > ANTENNA AMP.

# Exploded View



1. AM-FM main connector	
2. Antenna amp.	
Removal and Installation	INFOID:000000004238530
<ul> <li>REMOVAL</li> <li>1. Remove rear pillar finisher LH. Refer to <u>INT-14, "Exploded View"</u>.</li> <li>2. Remove antenna amp. from rear pillar LH.</li> </ul>	
INSTALLATION Installation is the reverse order of removal.	

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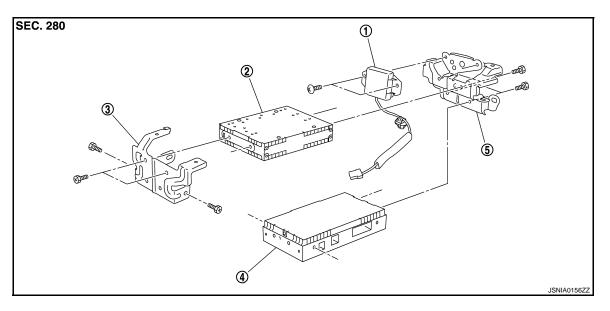
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# SATELLITE RADIO TUNER

INFOID:000000004238531





TEL antenna 1.

- 2. Satellite radio tuner Bracket (rear)
- Bracket (front) 3.

TEL adapter unit Removal and Installation

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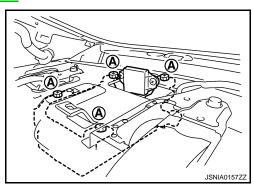
### REMOVAL

4.

- 1. Remove trunk front finisher. Refer to INT-28, "Exploded View".
- 2. Remove rear parcel shelf finisher. Refer to INT-18, "Exploded View".

5.

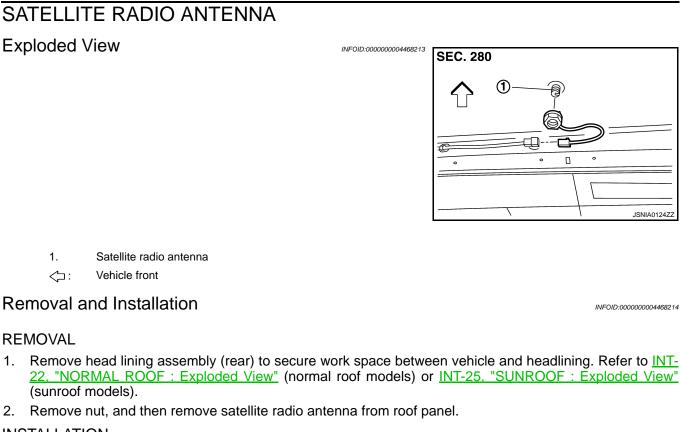
- 3. Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
- Remove bracket screws and remove TEL adapter unit and sat-4. ellite radio tuner.



INSTALLATION Installation is the reverse order of removal.

#### SATELLITE RADIO ANTENNA [BASE AUDIO WITHOUT NAVIGATION] < REMOVAL AND INSTALLATION >

# SATELLITE RADIO ANTENNA



#### **INSTALLATION**

1.

REMOVAL

1.

2.

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Installation is the reverse order of removal.

Satellite radio antenna mounting nut • : 6.5 N·m (0.66 kg-m, 58 in-lb)

#### **CAUTION:**

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

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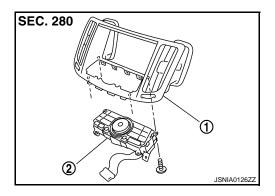
### **MULTIFUNCTION SWITCH**

# < REMOVAL AND INSTALLATION >

# MULTIFUNCTION SWITCH

**Exploded View** 

REMOVAL Refer to <u>IP-11, "Exploded View"</u>. DISASSEMBLY



- 1. Center ventilator grille
- 2. Multifunction switch

### Removal and Installation

### REMOVAL

- 1. Remove cluster lid D. Refer to IP-11, "Exploded View".
- 2. Remove multi function switch with center ventilator grille as a single unit.
- 3. Remove multi function switch from center ventilator.

### INSTALLATION

Installation is the reverse order of removal.

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### [BASE AUDIO WITHOUT NAVIGATION]

### **PRESET SWITCH**

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Cluster lid C

2.

1. Remove cluster lid C. Refer to IP-11, "Exploded View".

remove preset switch (2) from cluster lid C.

### < REMOVAL AND INSTALLATION > PRESET SWITCH

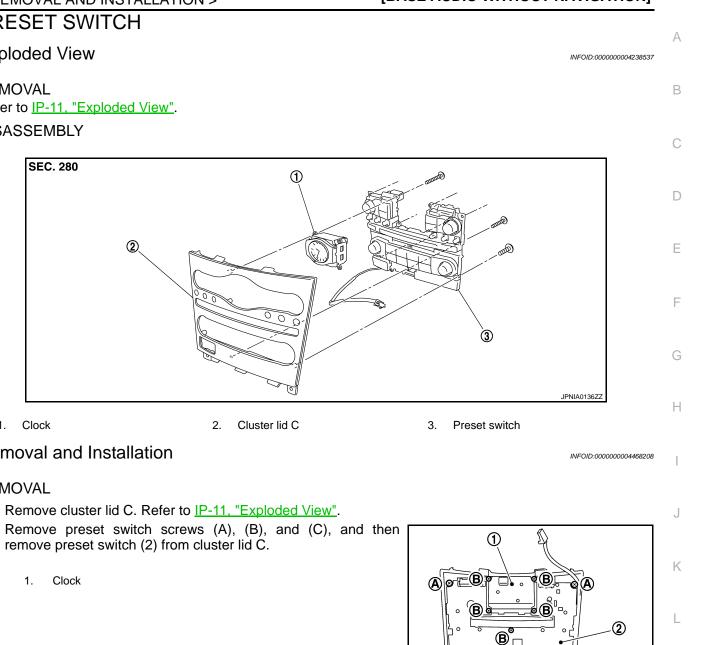
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# **Exploded View**

REMOVAL Refer to IP-11, "Exploded View".

### DISASSEMBLY

SEC. 280



### **INSTALLATION**

1.

1. Clock

REMOVAL

2.

**Removal and Installation** 

Clock

Installation is the reverse order of removal.

#### NOTE:

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

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# STEERING SWITCH

**Exploded View** 

Refer to ST-17, "Exploded View".

Removal and Installation

REMOVAL Refer to <u>ST-17, "Removal and Installation"</u>.

INSTALLATION Installation is the reverse order of removal. INFOID:000000004238539

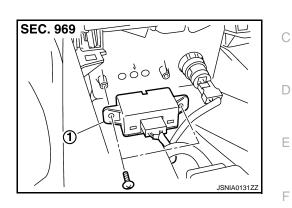
### AUXILIARY INPUT JACKS [BASE AUDIO WITHOUT NAVIGATION]

# < REMOVAL AND INSTALLATION >

# **AUXILIARY INPUT JACKS**

Exploded View

REMOVAL Refer to <u>IP-23, "Exploded View"</u>. DISASSEMBLY



# 1. Auxiliary input jacks

### Removal and Installation

RE	MOVAL	
1.	Remove center console. (M/T models) Refer to <u>IP-23, "Exploded View"</u> . Remove center console cup. (A/T models) Refer to <u>IP-23, "Exploded View"</u> .	Н
2.	Remove auxiliary input jacks from center console. (M/T models) Remove auxiliary input jacks from center console cup. (A/T models)	
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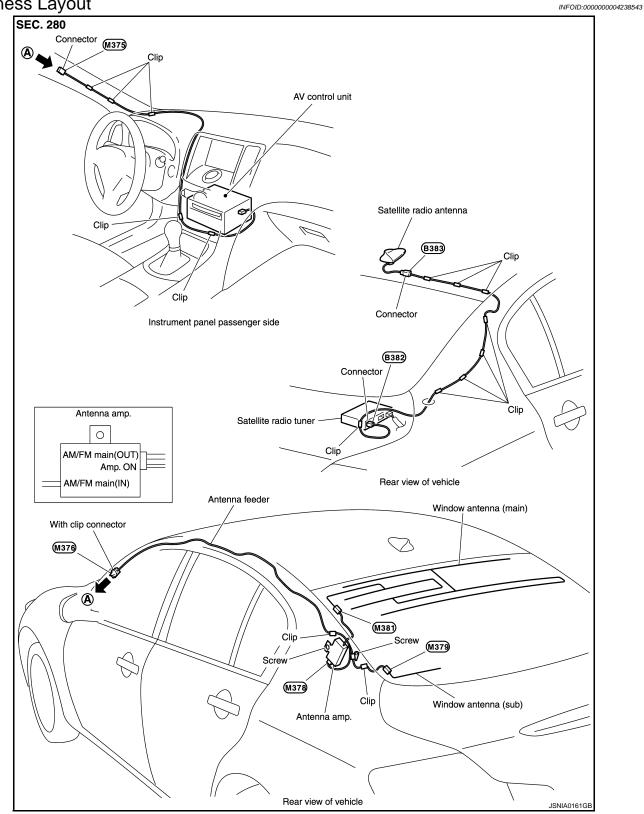
### **ANTENNA FEEDER (RADIO)**

## < REMOVAL AND INSTALLATION >

[BASE AUDIO WITHOUT NAVIGATION]

# ANTENNA FEEDER (RADIO)

Harness Layout



# ANTENNA FEEDER (SATELLITE RADIO)

### < REMOVAL AND INSTALLATION >

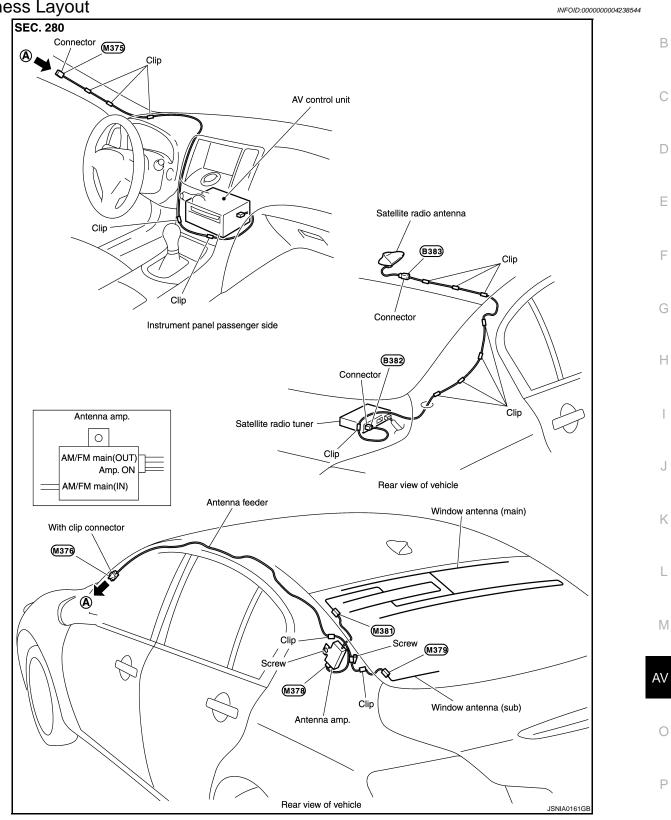
# [BASE AUDIO WITHOUT NAVIGATION]

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# ANTENNA FEEDER (SATELLITE RADIO)

Harness Layout



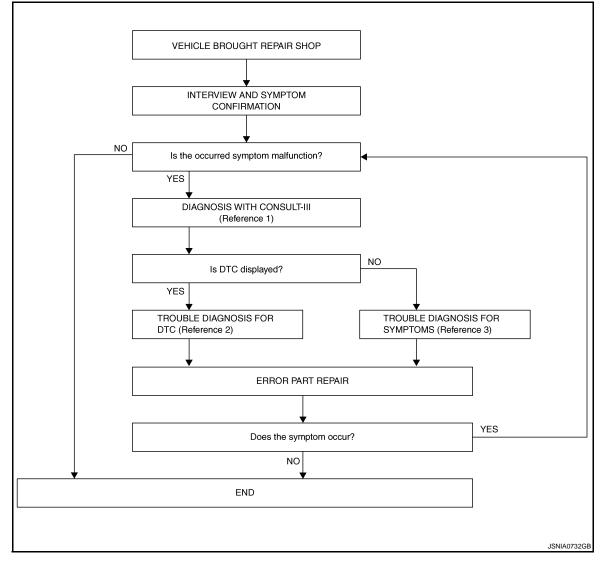
# [BOSE AUDIO WITHOUT NAVIGATION]

# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

### Work Flow

INFOID:000000004238545

### **OVERALL SEQUENCE**



- Reference 1... Refer to AV-150, "CONSULT III Function (MULTI AV)".
- Reference 2... Refer to <u>AV-217, "DTC Index"</u>.
- Reference 3... Refer to <u>AV-316, "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-III

### DIAGNOSIS AND REPAIR WORKFLOW

[BOSE AUDIO WITHOUT NAVIGATION] < BASIC INSPECTION > Connect CONSULT-III and perform a self-diagnosis for "MULTI AV". Refer to AV-150, "CONSULT - III 1. Function (MULTI AV)". А NOTE: Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed. 2. Check if any DTC is displayed in the self-diagnosis results. В Is DTC displayed? YES >> GO TO 3. NO >> GO TO 4. **3.**TROUBLE DIAGNOSIS FOR DTC 1. Check the DTC indicated in the self-diagnosis results. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-217, "DTC Index". 2. D >> GO TO 5. Е TROUBLE DIAGNOSIS FOR SYMPTOMS Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-316, "Symptom Table". F >> GO TO 5. **5.**ERROR PART REPAIR 1. Repair or replace the identified malfunctioning parts. 2. Perform a self-diagnosis for "MULTI AV" with CONSULT-III. Н 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 Κ

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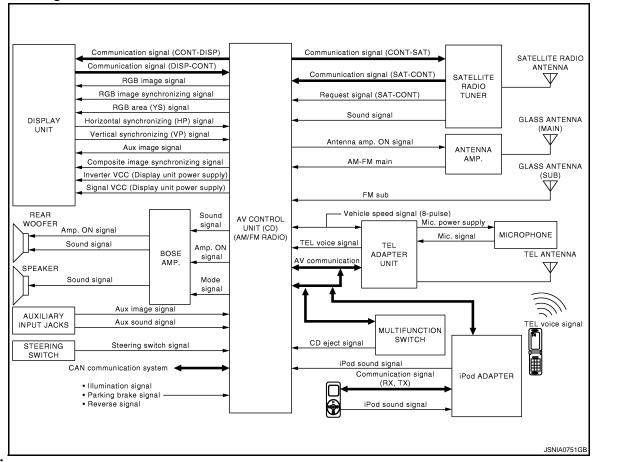
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# < SYSTEM DESCRIPTION >

# SYSTEM DESCRIPTION **MULTI AV SYSTEM**

### System Diagram



#### NOTE:

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

### System Description

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Multi AV system means that the following systems are integrated.

System name	System explanation
AUDIO SYSTEM	AV-135, "System Description"
VEHICLE INFORMATION SYSTEM	<ul> <li>Indicates the status of audio, climate control system, fuel economy and maintenance.</li> <li>AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp and BCM.</li> </ul>
HANDS-FREE PHONE SYSTEM	AV-138. "System Description"
SATELLITE RADIO SYSTEM	Refer to "SATELLITE RADIO SYSTEM" shown below.
AUXILIARY INPUT SYSTEM	Refer to "AUXILIARY INPUT SYSTEM" shown below.

 AV control unit functions by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).

Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.

 AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information. Trans-

### AV-130

### **MULTI AV SYSTEM**

### < SYSTEM DESCRIPTION >

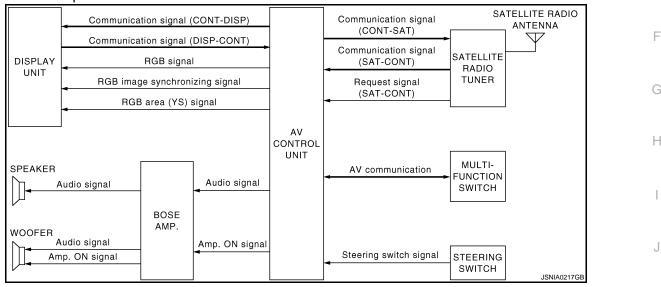
### [BOSE AUDIO WITHOUT NAVIGATION]

mitting/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 and serial communication, and it transmits the required signal of display and display control and receives the response signal from front display. Also, it is connected with satellite radio by serial communication, and it transmits the operating signal and receives the display signal. NOTE:
- AV control unit can perform CONSULT-III self-operating function and on board self-diagnosis.
- CONSULT-III self-diagnosis: refer to AV-150, "CONSULT III Function (MULTI AV)".
- On board self-diagnosis: refer to AV-141, "Diagnosis Description".
- On board self-diagnosis of TEL adapter unit can be performed.
- Refer to AV-153, "Diagnosis Description" for on board self-diagnosis.

### SATELLITE RADIO SYSTEM

- Satellite radio tuner is controlled by communication signal and request signal with AV control unit.
- Audio signal (satellite radio) is received by satellite antenna and transmitted to AV control unit. Audio signal (satellite radio) is transmitted from AV control unit to BOSE amp. and transmitted from BOSE amp. to woofer amp. and each speaker.



### AUXILIARY INPUT SYSTEM

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

MULTI- FUNCTION	AV communication		
SWITCH			
STEERING SWITCH	Steering switch signal	AV CONTROL	SPEAKER
EXTERNAL	Aux sound signal RH Aux sound signal LH INPUT	UNIT	Aux sound signal Aux sound signal AUX sound signal
EQUIPMENT	Aux image signal JACKS Aux image signal	-	Aux image signal UNIT JSNIA0172GB

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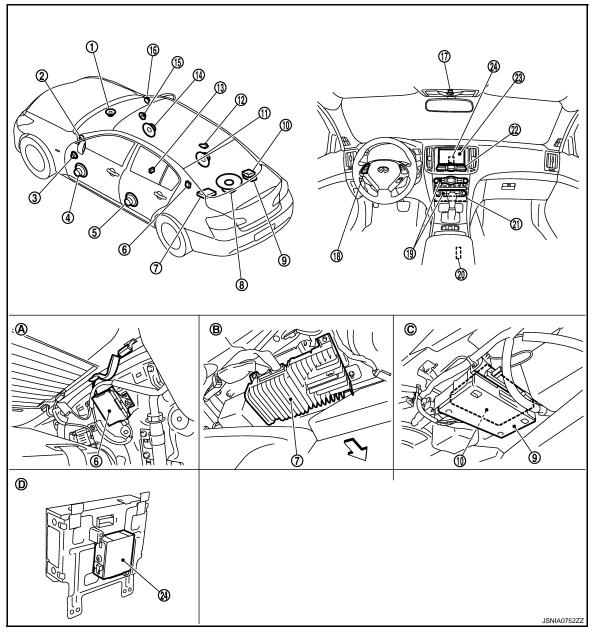
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### **MULTI AV SYSTEM**

#### [BOSE AUDIO WITHOUT NAVIGATION]

### **Component Parts Location**



- 1. Center speaker
- 4. Front door woofer LH
- 7. BOSE amp.
- 10. Satellite radio tuner
- 13. Auxiliary input jacks
- 16. Tweeter RH
- 19. Preset switch
- 22. Multifunction switch
- A. Within rear pillar finisher LH
- D. Rear view of the display
- <□: Vehicle front

- 2. Tweeter LH
- 5. Rear door speaker LH
- 8. Rear woofer
- 11. Rear door speaker RH
- 14. Front door woofer RH
- 17. Microphone
- 20. iPod connector
- 23. Display unit
- B. Rear parcel shelf lower part (left side) C.

- 3. Front door squawker LH
- 6. Antenna amp.
- 9. TEL adapter unit
- 12. Satellite radio antenna
- 15. Front door squawker RH
- 18. Steering switch
- 21. AV control unit
- 24. iPod adapter
  - . Lower part of rear parcel shelf (on the right side)

### < SYSTEM DESCRIPTION >

# **Component Description**

[BOSE AUDIO WITHOUT NAVIGATION]

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Part name	Description
AV CONTROL UNIT	<ul> <li>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.</li> <li>AV control unit includes audio function and vehicle information function.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Auxiliary image signal is input from the auxiliary input jacks.</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> </ul>
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing).</li> <li>Synchronizing signal (HP, VP) is output to AV control unit.</li> <li>Auxiliary image signal is input from AV control unit.</li> </ul>
BOSE AMP.	Inputs power (amp. ON) and sound signal from AV control unit, and outputs sound signal to each speaker.
FRONT DOOR WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>
FRONT DOOR SQUAWKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs midrange sound.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
REAR WOOFER	<ul> <li>Outputs sound signal from BOSE amp.</li> <li>Outputs low-pitched sound.</li> <li>Power (amp. ON signal) is supplied from BOSE amp.</li> </ul>
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and auxiliary input operations are integrated.</li> <li>Connected with AV control unit via cable, and operation signal is transmitted to AV control unit via AV communication.</li> </ul>
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> <li>The CD ejection operating signal is performed by hardwire.</li> </ul>
STEERING SWITCH	<ul><li> Operations such as audio and hands-free phone are possible.</li><li> Steering switch signal (operation signal) is output to AV control unit.</li></ul>
MICROPHONE	<ul> <li>Used only when hands-free phone is operated.</li> <li>Outputs Mic. signal (TEL voice signal) to the TEL adapter unit.</li> <li>The power (Mic. power supply) is supplied from the TEL adapter unit.</li> </ul>
AUXILIARY INPUT JACKS	The image signal of the auxiliary input is output via the AV control unit to the dis- play, and it outputs the sound signal to the AV control unit.
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>

**MULTI AV SYSTEM** 

# **MULTI AV SYSTEM**

### < SYSTEM DESCRIPTION >

### [BOSE AUDIO WITHOUT NAVIGATION]

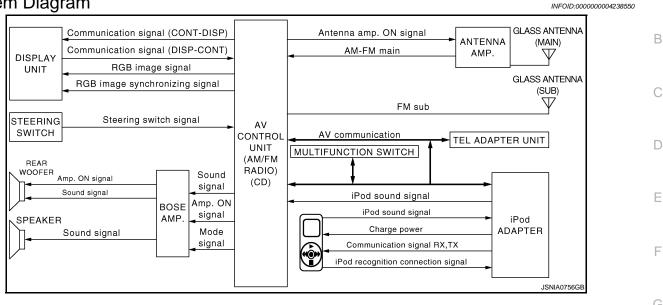
Part name	Description
TEL ADAPTER UNIT	<ul> <li>Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit.</li> <li>It is connected with the AV control unit via AV communication and controlled with the AV control unit.</li> </ul>
TEL ANTENNA	Receives the TEL voice signal and outputs it to the TEL adapter unit.
SATELLITE RADIO TUNER	<ul> <li>Inputs the satellite radio signal from satellite radio antenna and outputs the sound signal to the AV control unit.</li> <li>It is controlled with the AV control unit and serial communication (communication signal and request signal).</li> </ul>
SATELLITE RADIO ANTENNA	Receives the satellite radio signal and outputs it to the satellite radio tuner.
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>

### AUDIO SYSTEM

# < SYSTEM DESCRIPTION >

# AUDIO SYSTEM





# System Description

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

Function
AM/FM radio
CD
iPod connection
Driver's Audio Stage

### FUNCTION DESCRIPTION

#### **Operating Signal**

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

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

Screen Display

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

### AM/FM Radio Mode

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

### CD Mode

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

iPod Connection

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### **AUDIO SYSTEM**

### < SYSTEM DESCRIPTION >

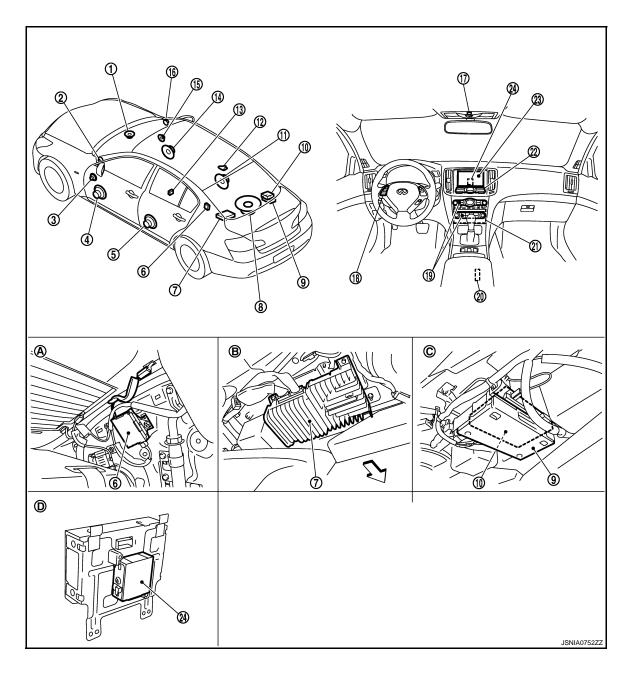
### [BOSE AUDIO WITHOUT NAVIGATION]

- Connect iPod<sup>®</sup> and iPod adapter with wire harness and iPod adapter input iPod sound signal from iPod<sup>®</sup>. When iPod mode is selected, iPod adapter output iPod sound signal to AV control unit. AV control unit output sound signal to BOSE amp., and BOSE amp. output sound signal to each speaker.
- Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:
   between AV control unit and iPod adapter: AV communication.
- between iPod<sup>®</sup> and iPod adapter: serial communication.
- The iPod<sup>®</sup> connection status can be recognized whether iPod adapter receives iPod connection recognition signal.
- The iPod adapter is possible to charge iPod<sup>®</sup>.

#### Driver's Audio Stage Mode

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

### **Component Parts Location**



### **AUDIO SYSTEM**

### < SYSTEM DESCRIPTION >

- 1. Center speaker
- Front door woofer LH 4.
- 7. BOSE amp.
- 10. Satellite radio tuner
- 13. Auxiliary input jacks
- 16. Tweeter RH
- 19. Preset switch
- 22. Multifunction switch
- Within rear pillar finisher LH Α.
- D. Rear view of the display
- : Vehicle front

# **Component Description**

- 2. Tweeter LH
- 5. Rear door speaker LH
- 8. Rear woofer
- 11. Rear door speaker RH
- 14. Front door woofer RH
- 17. Microphone
- 20. iPod connector
- 23. Display unit
- Rear parcel shelf lower part (left side) C. Β.

- 3. Front door squawker LH 6. Antenna amp.
  - 9. TEL adapter unit
  - 12. Satellite radio antenna

[BOSE AUDIO WITHOUT NAVIGATION]

- 15. Front door squawker RH
- 18. Steering switch
- 21. AV control unit С
- 24. iPod adapter
  - Lower part of rear parcel shelf (on the right side)

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Part name	Description		
AV CONTROL UNIT	<ul> <li>The AM/FM receiving function and the CD playing function are equipped.</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> </ul>		
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal (audio operation condition) is input from AV control unit.</li> </ul>		
BOSE AMP.	Inputs power (amp. ON) and sound signal from AV control unit, and outputs sound signal to each speaker.		
FRONT DOOR WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>		
FRONT DOOR SQUAWKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs midrange sound.</li></ul>		
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>		
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>		
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>		
REAR WOOFER	<ul> <li>Outputs sound signal from BOSE amp.</li> <li>Outputs low-pitched sound.</li> <li>Power (amp. ON signal) is supplied from BOSE amp.</li> </ul>		
MULTIFUNCTION SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>Connected with AV control unit via cable, and operation signal is transmitted to AV control unit via AV communication.</li> </ul>		
PRESET SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>It is connected to the multifunction switch by AV communication. The operation signal is transmitted to the AV control unit.</li> <li>The CD ejection operating signal is performed by hardwire.</li> </ul>		
STEERING SWITCH	<ul><li>Each audio operation can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>		
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>		
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>		

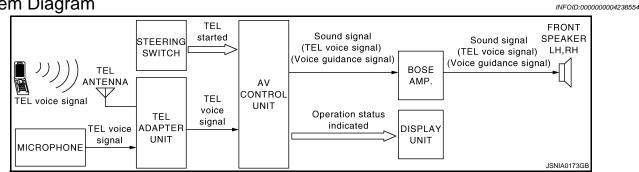
### HANDS-FREE PHONE SYSTEM

### < SYSTEM DESCRIPTION >

# [BOSE AUDIO WITHOUT NAVIGATION]

# HANDS-FREE PHONE SYSTEM

### System Diagram



### System Description

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- TEL adapter unit is controlled with AV communication from AV control unit.
- The connection between portable telephone and TEL adapter unit is performed with Bluetooth<sup>®</sup>.
- The voice guidance signal is input from the TEL adapter unit to the AV control unit and output via BOSE amp. to the front speaker and center speaker when operating the cellular phone.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-153, "Diagnosis Description".

### WHEN RECEIVING A CALL

TEL voice signal received with the portable telephone is input from TEL antenna via TEL adapter unit to AV control unit with Bluetooth communication and output via BOSE amp. to the front speaker. The operation is performed with the steering switch or voice recognition function (TEL operation only).

### WHEN A CALL IS TRANSMITTED

Speech sound (TEL voice signal) is input from the microphone to the TEL adapter unit. It is input from the TEL antenna via Bluetooth communication to the portable telephone. It is transmitted to the phone on the other side. The operation is performed with the steering switch or voice recognition function (TEL operation only).

# HANDS-FREE PHONE SYSTEM

### < SYSTEM DESCRIPTION >

# [BOSE AUDIO WITHOUT NAVIGATION]

# **Component Parts Location**

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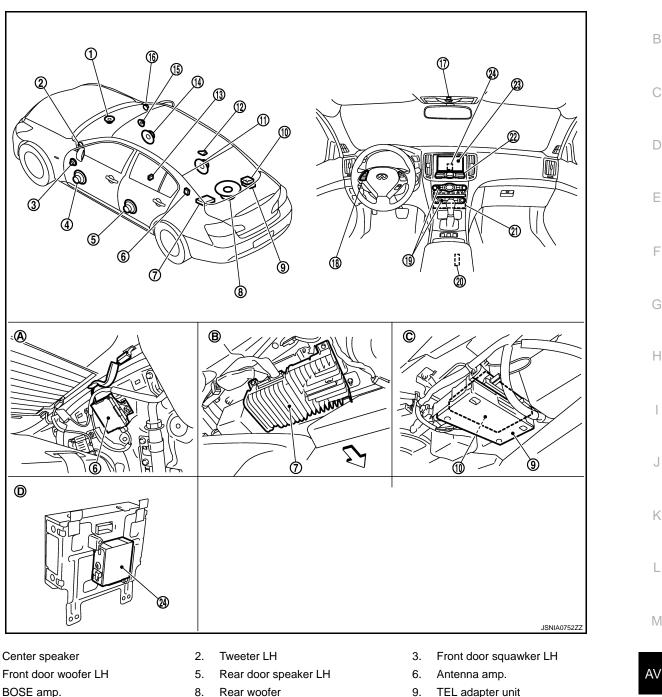
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- 7.
- 10. Satellite radio tuner
- 13. Auxiliary input jacks
- Tweeter RH 16.

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- 19. Preset switch
- 22. Multifunction switch
- Within rear pillar finisher LH Α.
- D. Rear view of the display
- ∠: Vehicle front

- Rear woofer 8.
- 11. Rear door speaker RH
- 14. Front door woofer RH
- 17. Microphone
- 20. iPod connector
- 23. Display unit
- Rear parcel shelf lower part (left side) C. В.
- TEL adapter unit 9.
- 12. Satellite radio antenna
- 15. Front door squawker RH
- 18. Steering switch
- 21. AV control unit
- 24. iPod adapter
  - Lower part of rear parcel shelf (on the right side)

< SYSTEM DESCRIPTION >

# HANDS-FREE PHONE SYSTEM

### [BOSE AUDIO WITHOUT NAVIGATION]

# **Component Description**

Part name	Description	
AV CONTROL UNIT	<ul> <li>Inputs TEL voice signal or voice guidance signal from TEL adapter unit and outputs it to BOSE amp. during reception.</li> <li>Connects with TEL adapter unit and AV communication and controls hands free phone system.</li> </ul>	
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>Inputs RGB image signal (RGB, RGB area and RGB synchronizing) from AV control unit and displays the status of hands free phone system.</li> </ul>	
BOSE AMP.	Inputs TEL voice signal or voice guidance signal from AV control unit and outputs it to front speaker and center speaker.	
FRONT DOOR WOOFER		
FRONT DOOR SQUAWKER	Outputs the TEL voice signal or voice guidance signal from Bose amp.	
TWEETER		
PRESET SWITCH	<ul> <li>Adjust the sound when using TEL.</li> <li>The operation signal is transmitted to the AV control unit via AV communication.</li> </ul>	
STEERING SWITCH	<ul><li>The hands free phone system can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>	
MICROPHONE	<ul> <li>Uses when operating the hands-free phone.</li> <li>Outputs Mic. signal (TEL voice signal) to the TEL adapter unit.</li> <li>The power (Mic. power supply) is supplied from the TEL adapter unit.</li> </ul>	
TEL ADAPTER UNIT	<ul> <li>Receives the steering switch signal (operation signal) from the steering switch</li> <li>Inputs the TEL voice signal from TEL antenna during reception and outputs it to the AV control unit.</li> <li>Inputs the TEL voice signal from microphone during speech recognition and outputs it to the TEL antenna.</li> <li>Controlled by AV communication transmitted from AV control unit.</li> </ul>	
TEL ANTENNA	Connects with the portable telephone via Bluetooth <sup>®</sup> and communicates the TEL voice signal.	

# **DIAGNOSIS SYSTEM (AV CONTROL UNIT)**

### < SYSTEM DESCRIPTION > **DIAGNOSIS SYSTEM (AV CONTROL UNIT)**

# **Diagnosis Description**

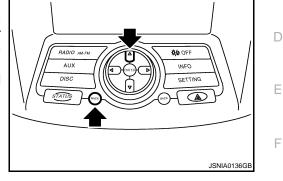
### MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-diagnosis Mode

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

### The hazard switch and CD eject switch cannot be checked.



Finishing Self-diagnosis Mode

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

### MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

### ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- Self-diagnosis mode performs the AV control unit diagnosis and the connection diagnosis between each of the units that make up the system, and it indicates the results to the display.
- Κ 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 requires human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

Mode	Description	
Self Diagnosis	<ul><li>AV control unit diagnosis</li><li>Perform the connection diagnosis between each of the units.</li></ul>	۸\/

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# DIAGNOSIS SYSTEM (AV CONTROL UNIT)

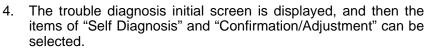
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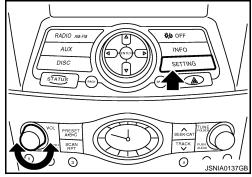
# [BOSE AUDIO WITHOUT NAVIGATION]

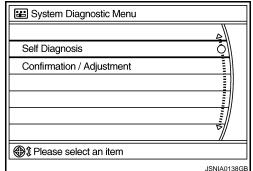
Mode		Description	
Confirmation/ Adjustment	Display Diagnosis	The confirmations of the tint with the color spectrum bar display and shading of color with the gradation bar display can be performed.	
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition switch, and reverse.	
	Speaker Test	The connection of a speaker can be confirmed by test tone.	
	Climate Control	Start auto air conditioner system self-diagnosis.	
	Error History	The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.	
	Vehicle CAN Diagnosis	The transmitting/receiving of CAN communication can be monitored.	
	AV COMM Diagnosis	The communication condition of each unit of Multi AV system can be monitored.	
	Delete Unit Connection Log	Erase the connection history of unit and error history	
	Initialize Settings	Initializes the AV control unit memory.	

### STARTING PROCEDURE

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

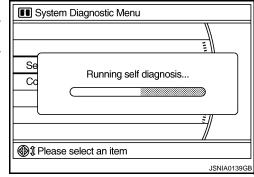






### SELF-DIAGNOSIS MODE

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

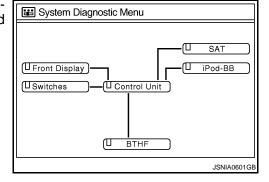


# DIAGNOSIS SYSTEM (AV CONTROL UNIT)

#### < 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.

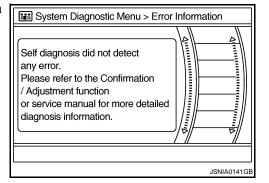
Diagnosis results	Unit	Con- nection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
Unit malfunction Note	Red	Green



[BOSE AUDIO WITHOUT NAVIGATION]

NOTE:

- Only the control unit (AV control unit) is displayed in red.
- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to <u>AV-325</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.

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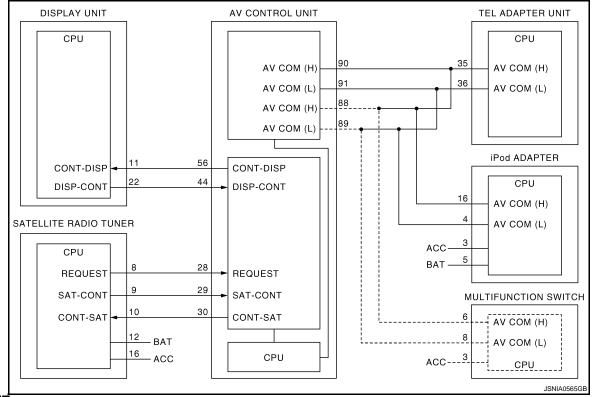
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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) ON > [BOSE AUDIO WITHOUT NAVIGATION]

### < SYSTEM DESCRIPTION >



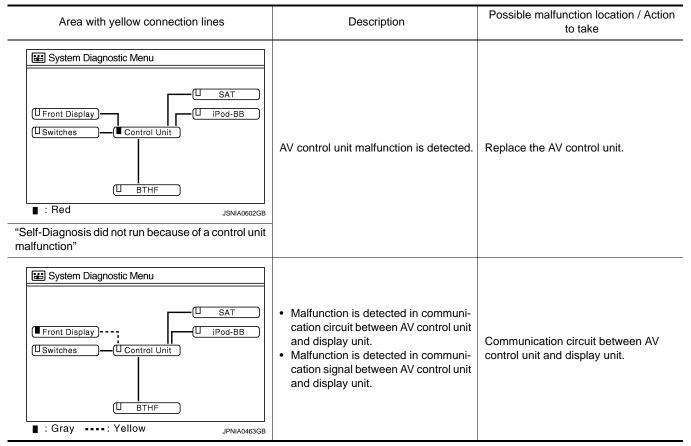
### NOTE:

On board self-diagnosis cannot be started when an error occurs on the dotted-line part above.

### SELF-DIAGNOSIS RESULTS

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

#### Self-diagnosis Result Chart



## DIAGNOSIS SYSTEM (AV CONTROL UNIT)

#### < SYSTEM DESCRIPTION >

## [BOSE AUDIO WITHOUT NAVIGATION]

Area with yellow connection lines	Description	Possible malfunction location / Action to take
System Diagnostic Menu SAT SAT I Front Display Control Unit BTHF SAT JSNIA0603GB	<ul> <li>Satellite radio tuner power supply and ground circuit malfunction is de- tected.</li> <li>Malfunction is detected in communi- cation circuits between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in communi- cation signal between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuit.</li> <li>Communication circuit between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>
System Diagnostic Menu	<ul> <li>TEL adapter unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communication circuit between AV control unit and TEL adapter unit.</li> <li>Malfunction is detected in AV communication signal between AV control unit and TEL adapter unit.</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and TEL adapter unit.</li> </ul>
System Diagnostic Menu	<ul> <li>iPod adapter power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communication circuit between AV control unit and iPod adapter.</li> <li>Malfunction is detected in AV communication signal between AV control unit and iPod adapter.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and iPod adapter.</li> </ul>

#### CONFIRMATION/ADJUSTMENT MODE

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

4		UP
	Display Diagnosis	Ō
Ō	Vehicle Signals	
	Speaker Test	
	Climate Control	Ī
	Error History	
9	1/9 DC	DWN 🕅
٩	Please select an item	

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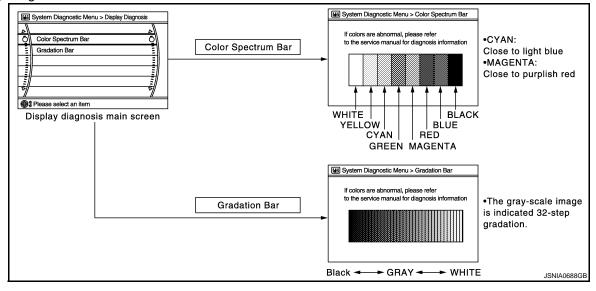
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#### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [BOSE AUDIO WITHOUT NAVIGATION] < SYSTEM DESCRIPTION >

#### **Display Diagnosis**



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

- R (red) signal error
- G (green) signal error
- **B** (blue) signal error

: Light blue (Cyan) tint : Purple (Magenta) tint

: Yellow tint

Vehicle Signals

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

E System Diagnostic N	lenu > Vehicle S	lignals
Vehicle speed	OFF	
Parking brake	ON	
Lights	OFF	
Ignition	ON	
Reverse	OFF	
		JSNIA0149GB

Diagnosis item	Display	Vehicle status	Remarks	
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)		
venicie speed	ON	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.	
Darking broke	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal	
Parking brake	OFF	Parking brake is released.		
Lights	ON	Light switch ON		
OFF		Light switch OFF		
Ignition	ON	Ignition switch ON		
OFF		Ignition switch in ACC position		
Reverse	ON	Shift the selector lever to "R" posi- tion	Changes in indication may be delayed. This is normal.	
Neverse	OFF	Shift the selector lever other than "R" position	onanges in indication may be delayed. This is holmai.	

Speaker Test

### DIAGNOSIS SYSTEM (AV CONTROL UNIT)

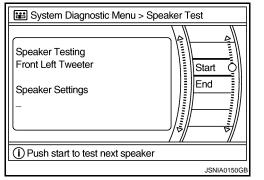
#### < SYSTEM DESCRIPTION >

# [BOSE AUDIO WITHOUT NAVIGATION]

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

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

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



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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 SW is turned ON and then no error has occurred until the self-diagnosis start. Check the "Error Record" to detect any error that may have occurred before the self-diagnosis start because of this situation.

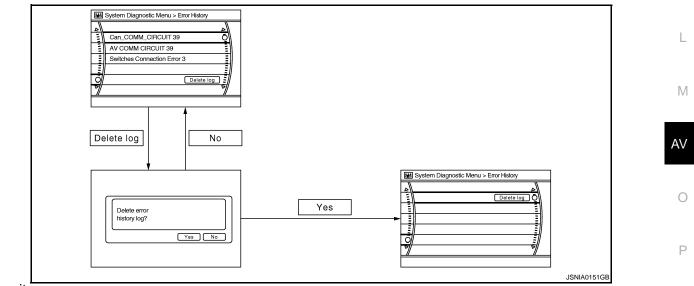
Count up method A

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

Count up method B

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

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



#### 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

## **DIAGNOSIS SYSTEM (AV CONTROL UNIT)**

#### < SYSTEM DESCRIPTION >

## [BOSE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts according to the diagnosis results. Refer to <u>AV-155, "Diagnosis Procedure"</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.
FLASH-ROM Error Of Control Unit		
CAN Controller Memory Error	<ul> <li>AV control unit malfunction is detected.</li> </ul>	
Front Display Connection Error	<ul> <li>Display unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communication circuit between AV control unit and display unit.</li> <li>Malfunction is detected in communication signal between AV control unit and display unit.</li> </ul>	<ul> <li>Display unit power supply and ground circuit.</li> <li>Communication circuit between AV control unit and display unit.</li> </ul>
SAT Connection Error	<ul> <li>Satellite radio tuner power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communication circuit between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in communication signal between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuit.</li> <li>Communication circuit between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>
<ul><li>AV COMM CIRCUIT</li><li>Switches Connection Error</li></ul>	<ul> <li>Multifunction switch power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuit between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>iPod Connection Error</li> </ul>	<ul> <li>iPod adapter unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuit between AV control unit and iPod adapter.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and iPod adapter.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and iPod adapter unit.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>H/F Unit Connection Error</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuit between AV control unit and TEL adapter unit.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and TEL adapter unit.</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and TEL adapter unit.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>Switches Connection Error</li> <li>iPod Unit Connection Error</li> <li>H/F Unit Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuit between AV control unit and the branch point multifunction switch and AV control unit.	AV communication circuit between AV con- trol unit and the branch point multifunction switch and AV control unit.

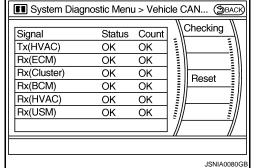
Vehicle CAN Diagnosis

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

#### < 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.

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



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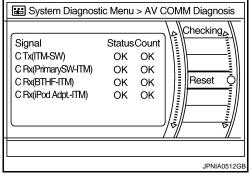
#### **AV COMM Diagnosis**

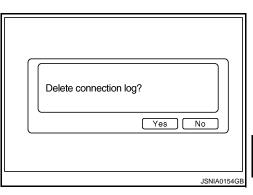
- Displays the communication status between AV control unit (master unit) and each unit.
- The error counter displays "OK" if any malfunction was not detected in the past and displays "0" if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle.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

Items	Status (Current)	Counter (Past)
C Tx(ITM–SW)	OK / UNKWN	OK / 0 - 39
C Rx(PrimarySW–ITM)	OK / UNKWN	OK / 0 - 39
C Rx(BTHF–ITM)	OK / UNKWN	OK / 0 - 39
C Rx(iPod Adpt.–ITM)	OK / UNKWN	OK / 0 - 39

#### 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)





Are you sure?



Revision: 2009 October

Initialize Settings

Initializes the AV control unit memory.

2009 G37 Sedan

## [BOSE AUDIO WITHOUT NAVIGATION]

## CONSULT - III Function (MULTI AV)

INFOID:000000004238559

## CONSULT-III FUNCTIONS

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

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

#### AV COMMUNICATION

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

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

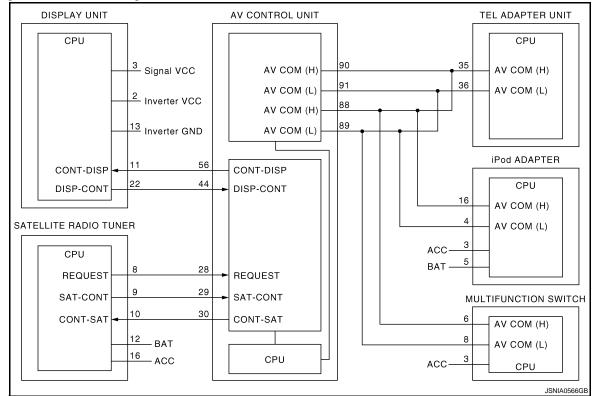
### ECU IDENTIFICATION

The part number of AV control unit is displayed.

#### SELF DIAGNOSIS RESULT

- In CONSULT-III 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 Detection Range



Self-diagnosis Results Display Item

# DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

## [BOSE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-155, "Diagnosis Procedure"</u> .
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detect- ed.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit
Cont Unit FLASH-ROM [U1200]	A)/ control unit molfunction is detected	
CAN CONT [U1216]	AV control unit malfunction is detected.	
FRONT DISP CONN [U1243]	<ul> <li>Display unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communication circuit between AV control unit and display unit.</li> <li>Malfunction is detected in communication signal between AV control unit and display unit.</li> </ul>	<ul> <li>Display unit power supply and ground circuit.</li> <li>Communication circuit between AV control unit and display unit.</li> </ul>
SAT CONN [U1255]	<ul> <li>Satellite radio tuner power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communication signal between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in communication circuit between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuit.</li> <li>Communication circuit between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuit between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>IPOD CONN [U1254]</li> </ul>	<ul> <li>iPod adapter power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communication circuit between AV control unit and iPod adapter.</li> <li>Malfunction is detected in AV communication signal between AV control unit and iPod adapter.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and iPod adapter.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>HAND FREE CONN [U1256]</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuit between AV control unit and TEL adapter unit.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and TEL adapter unit.</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuit.</li> <li>AV communication circuit between TEL adapter unit and AV control unit.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>IPOD CONN [U1254]</li> <li>HAND FREE CONN [U1256]</li> </ul>	Malfunction is detected in AV communica- tion circuit between AV control unit and the branch point multifunction switch and AV control unit.	AV communication circuit between AV con- trol unit and the branch point multifunction switch and AV control unit.

#### DATA MONITOR

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) < SYSTEM DESCRIPTION > [BOSE AUDIO WITHOUT NAVIGATION]

#### ALL SIGNALS

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

Display Item	Dis- play	Vehicle status	Remarks
VHCL SPD SIG	On	Vehicle speed >0 km/h (0 MPH)	
VIICE OF D SIG	Off	Vehicle speed =0 km/h (0 MPH)	Changes in indication may be delayed. This is nor-
PKB SIG	On	Parking brake is applied.	mal.
PKD 31G	Off	Parking brake is released.	
ILLUM SIG	On	Light switch ON	
	Off	Light switch OFF	
IGN SIG	On	Ignition switch ON	
IGN SIG	Off	Ignition switch in ACC position	
	On	Shift the selector lever to "R" position	Changes in indication may be delayed. This is nor-
REV SIG	Off	Shift the selector lever other than "R" position	mal.

#### SELECTION FROM MENU

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

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

## DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

[BOSE AUDIO WITHOUT NAVIGATION]

#### < SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

#### Diagnosis Description

#### HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

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

#### ON BOARD DIAGNOSIS ITEM

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

#### • Perform the diagnosis with the vehicle stopped.

• Perform STEP2 if necessary.

STEP	MODE	Description	I.
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.	F
OTEDO	Speaker adaptation data deleting	The speaker adaptation data deleting mode can delete the speaker adaptation data.	(
STEP2	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 and indicates DTC on the display. **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. The DTC displays are combined and displayed. For example, DTC 01100 is displayed when DTC 01000 and DTC 00100 are indicated at the same time.

DTC	DTC name	Possible causes
DTC 10000	INTERNAL FAILURE	TEL adapter unit
DTC 01000	ANT. SHORT TO BATT OR OPEN	TEL antenna
DTC 00100	ANT. SHORT TO GROUND	
DTC 00010	STEERING REMOTE BUTTON STUCK A	Steering owitch
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.

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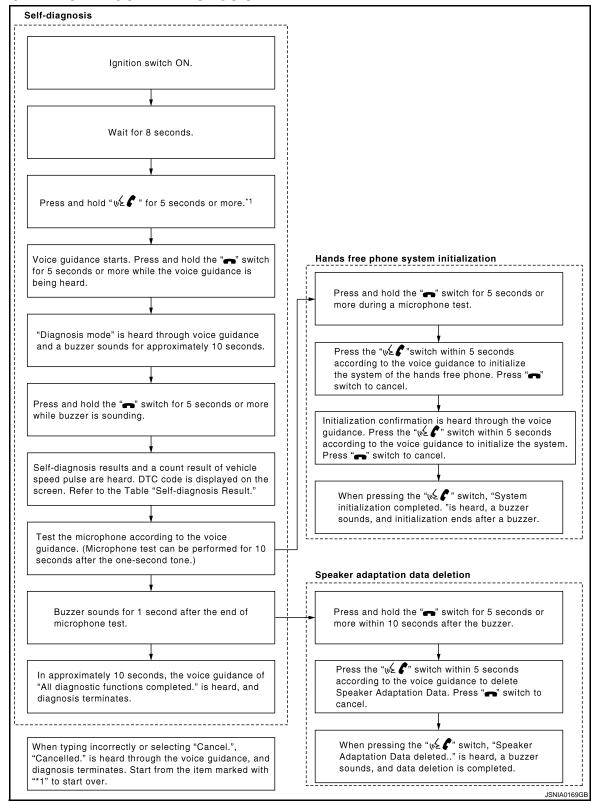
INFOID:000000004238560

### **DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)**

#### < SYSTEM DESCRIPTION >

## [BOSE AUDIO WITHOUT NAVIGATION]

#### FLOW CHART OF TROUBLE DIAGNOSIS



## DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

### Description

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INFOID:000000004238563

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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-III	Diagnostic item is detected when	Probable malfunction location	F
U1000	CAN COMM CIRCUIT	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.	G

### 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 system". Refer to LAN-19, "Trouble Diagnosis Flow Chart".
- NO >> Refer to GI section. Refer to GI-41, "Intermittent Incident".

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## U1010 CONTROL UNIT (CAN)

## Description

Initial diagnosis of AV control unit.

## DTC Logic

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INFOID:000000004238564

### DTC DETECTION LOGIC

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

## **Diagnosis Procedure**

## **1.**REPLACE AV CONTROL UNIT

When DTC U1010 is detected, replace AV control unit.

>> INSPECTION END

#### U1310 AV CONTROL UNIT [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

## U1310 AV CONTROL UNIT

## Description

INFOID:000000004238567

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Part name	Description	
AV CONTROL UNIT	<ul> <li>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.</li> <li>AV control unit includes audio function and vehicle information function.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the unities of the provide meter.</li> </ul>	
	<ul><li>vehicle settings function.</li><li>It inputs the illumination signals that are required for the display dimming control.</li></ul>	
	<ul> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Auxiliary image signal is input from the auxiliary input jacks.</li> </ul>	
	<ul> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> </ul>	

## DTC Logic

INFOID:000000004238568

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

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## **U1200 AV CONTROL UNIT**

#### < DTC/CIRCUIT DIAGNOSIS >

## U1200 AV CONTROL UNIT

## Description

INFOID:000000004238569

Replace the AV control unit if this DTC is displayed. Refer to AV-325, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>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.</li> <li>AV control unit includes audio function and vehicle information function.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Auxiliary image signal is input from the auxiliary input jacks.</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> </ul>

## DTC Logic

INFOID:000000004238570

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

#### U1216 AV CONTROL UNIT [BOSE AUDIO WITHOUT NAVIGATION]

#### < DTC/CIRCUIT DIAGNOSIS >

## U1216 AV CONTROL UNIT

## Description

INFOID:000000004238571

Replace the AV control unit if this DTC is displayed. Refer to A	AV-325, "Exploded View".
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Part name	Description	
AV CONTROL UNIT	<ul> <li>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.</li> <li>AV control unit includes audio function and vehicle information function.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> </ul>	
	<ul> <li>It inputs the illumination signals that are required for the display dimming control.</li> </ul>	
	<ul> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Auxiliary image signal is input from the auxiliary input jacks.</li> </ul>	
	<ul> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> </ul>	

## DTC Logic

INFOID:000000004238572

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

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### < DTC/CIRCUIT DIAGNOSIS >

## U1243 DISPLAY UNIT

## Description

INFOID:000000004238573

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

## DTC Logic

INFOID:000000004238574

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

### **Diagnosis Procedure**

INFOID:000000004460179

## 1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-165. "DISPLAY UNIT : Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

NO >> Repair malfunctioning parts.

2. CHECK CONTINUITY COMMUNICATION CIRCUIT

#### 1. Turn ignition switch OFF.

- 2. Disconnect display unit connector and AV control unit connector.
- 3. Check continuity between display unit harness connector and AV control unit harness connector.

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

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

Displa	ay unit		Continuity
Connector	Terminals	Ground	Continuity
M71	11	Ground	Not existed
	22		NOT EXISTED

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

**3.**CHECK COMMUNICATION SIGNAL

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

2. Turn ignition switch ON.

## AV-160

<sup>3.</sup> Check signal between display unit harness connector and ground.

### **U1243 DISPLAY UNIT**

#### < DTC/CIRCUIT DIAGNOSIS >

#### [BOSE AUDIO WITHOUT NAVIGATION]

(+) Display unit				Reference value
		()	Condition	
Connector	Terminal			
M71	11	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 •••••••••••••••••••••••••••••••••

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+)					G
Display unit		(–)	Condition	Reference value	
Connector	Terminal				
M71	22	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 • • • 1ms PKIE5039J	H

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit.

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#### U1255 SATELLITE RADIO TUNER [BOSE AUDIO WITHOUT NAVIGATION]

### < DTC/CIRCUIT DIAGNOSIS >

## U1255 SATELLITE RADIO TUNER

## Description

INFOID:000000004238576

Part name	Description
SATELLITE RADIO TUNER	<ul> <li>Inputs the satellite radio signal from satellite radio antenna and outputs it to the AV control unit.</li> <li>It is controlled with the communication (communication signal, request signal) from AV control unit.</li> </ul>

## DTC Logic

INFOID:000000004238577

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1255	SAT CONN [U1255]	<ul> <li>Satellite radio tuner power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in communication circuit between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in communication signal between AV control unit and satellite radio tuner.</li> <li>Malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuit.</li> <li>Communication circuit between AV control unit and satellite radio tun- er.</li> <li>Request signal circuit between AV control unit and satellite radio tun- er.</li> </ul>

## **Diagnosis Procedure**

INFOID:000000004460212

1. CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to <u>AV-168, "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	trol unit	Satellite radio tuner		Continuity
Connector	Terminals	Connector	Terminals	Continuity
	28		8	
M82	29	B236	9	Existed
	30		10	

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

AV cor	AV control unit		Continuity
Connector	Terminals	1	Continuity
	28	Ground	
M82	29		Not existed
	30		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

## **U1255 SATELLITE RADIO TUNER**

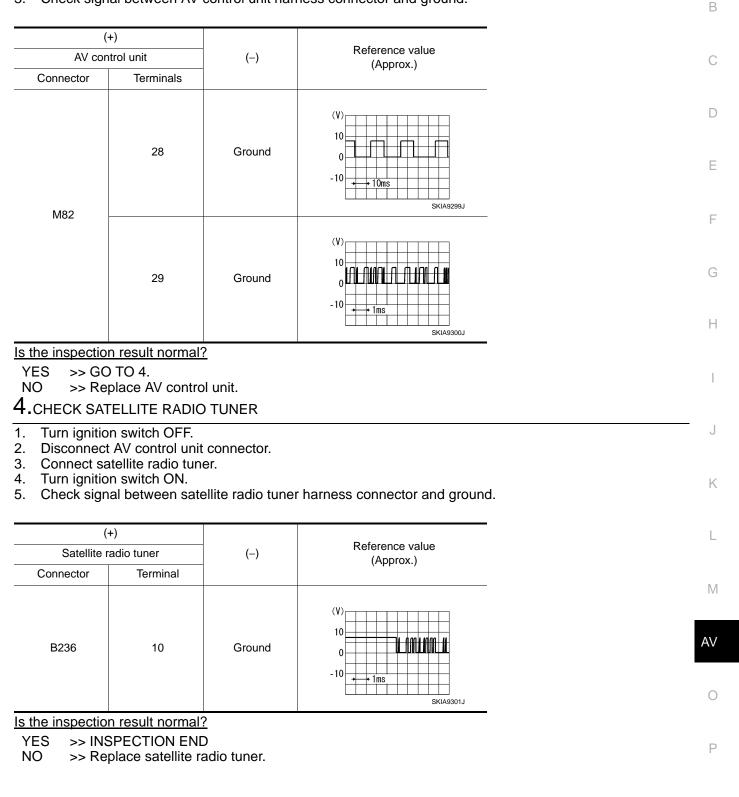
#### < DTC/CIRCUIT DIAGNOSIS >

## [BOSE AUDIO WITHOUT NAVIGATION]

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# **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.



#### < DTC/CIRCUIT DIAGNOSIS >

## U1300 AV COMM CIRCUIT

### Description

INFOID:000000004238579

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-III	DTC Detection Condition	Possible causes
U1300 U1240	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communication circuit between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communication signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> </ul>
U1300 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>iPod adapter power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communication circuit between AV control unit and iPod adapter.</li> <li>A malfunction is detected in AV communication signal between AV control unit and iPod adapter.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuit between AV control unit and iPod adapter.</li> </ul>
U1300 U1256	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>HAND FREE CONN [U1256]</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuit malfunction is detected.</li> <li>Malfunction is detected in AV communication circuit between AV control unit and TEL adapter unit.</li> <li>Malfunction is detected in AV communication signal between AV control unit and TEL adapter unit.</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and TEL adapter unit.</li> </ul>
U1300 U1240 U1254 U1256	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>IPod CONN [U1254]</li> <li>HAND FREE CONN [U1256]</li> </ul>	Malfunction is detected in AV communication circuit be- tween AV control unit and the branch point multifunction switch and AV control unit.	AV communication circuit between AV control unit and the branch point multifunction switch and AV control unit.

	PLY AND GROU	ND CIRCUIT		
AV CONTROL L	JNIT			
AV CONTROL U	INIT : Diagnosis P	rocedure		INFOID:000000004238580
<b>1.</b> CHECK FUSE				
Check for blown fuse	S.			
	Power source		Fuse No.	
	Battery		34	
ç	ion switch ACC or ON		19	
Ignitic	on switch ON or START		3	
2.CHECK POWER	to eliminate cause of m			
	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Signal name				
Signal name Battery power supply	M81	19	OFF	Battery voltage
Signal name Battery power supply ACC power supply		19 7	OFF ACC	Battery voltage Battery voltage
Battery power supply ACC power supply Ignition signal s the inspection resu YES >> GO TO 3 NO >> Check ha	M81 M81 M85 <u>ult normal?</u> 3. arness between AV con	7 104		
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha <b>3.</b> CHECK GROUND 1. Turn ignition swit 2. Disconnect AV co	M81 M81 M85 M85 M85 M85 M85 M85 M85 M85 M85 M85	7 104 htrol unit and fuse.	ACC ON	Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND 1. Turn ignition swit 2. Disconnect AV co 3. Check continuity	M81 M81 M85 M85 M85 M85 M85 M85 M85 M85 M85 M85	7 104 htrol unit and fuse.	ACC ON rs and ground.	Battery voltage Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND 1. Turn ignition swit 2. Disconnect AV co	M81 M81 M85 M85 M85 M85 M85 M85 M85 M85 M85 M85	7 104 htrol unit and fuse. hit harness connector Terminal No.	ACC ON	Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUNE 1. Turn ignition swit 2. Disconnect AV ca 3. Check continuity Signal name Ground	M81 M81 M85 M85 M85 M85 M85 M85 M81 M85	7 104 htrol unit and fuse.	ACC ON rs and ground.	Battery voltage Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha <b>3</b> .CHECK GROUNE 1. Turn ignition swit 2. Disconnect AV ca 3. Check continuity Signal name Ground Is the inspection resu YES >> INSPEC NO >> Repair ha DISPLAY UNIT DISPLAY UNIT : <b>1</b> .CHECK POWER 3	M81         M81         M85         ult normal?         3.         arness between AV control         D CIRCUIT         tch OFF.         ontrol unit connectors.         between AV control unit         Connector No.         M81         M85         ult normal?	7 104 atrol unit and fuse. atrol unit and fuse. Terminal No. 20 85 dure SPLAY SIDE)	ACC ON Ignition switch position OFF	Battery voltage Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3. CHECK GROUNE 1. Turn ignition swit 2. Disconnect AV ca 3. Check continuity Signal name Ground Is the inspection resu YES >> INSPEC NO >> Repair ha DISPLAY UNIT DISPLAY UNIT : 1.CHECK POWER 3	M81 M81 M85 M85 M85 M85 M85 M85 D CIRCUIT tch OFF. ontrol unit connectors. between AV control un Connector No. M81 M85 M81 M81 M81 M85 M81 M81 M81 M81 M81 M81 M81 M81 M81 M81	7 104 atrol unit and fuse. atrol unit and fuse. Terminal No. 20 85 dure SPLAY SIDE)	ACC ON Ignition switch position OFF	Battery voltage Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha <b>3.</b> CHECK GROUNE 1. Turn ignition swit 2. Disconnect AV co 3. Check continuity Signal name Ground Is the inspection resu YES >> INSPEC NO >> Repair ha DISPLAY UNIT DISPLAY UNIT : <b>1.</b> CHECK POWER S	M81         M81         M85         ult normal?         3.         arness between AV condition         D CIRCUIT         tch OFF.         ontrol unit connectors.         between AV control unit         Connector No.         M81         M85         ult normal?         TION END         arness or connector.         Diagnosis Procector         SUPPLY CIRCUIT (DIStending unit harness	7 104 atrol unit and fuse. it harness connector Terminal No. 20 85 dure SPLAY SIDE) s connector and grou	ACC ON Ignition switch position OFF	Battery voltage Battery voltage Continuity Existed

#### < DTC/CIRCUIT DIAGNOSIS >

# 2. CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

- 1. Turn ignition switch OFF.
- 2. Disconnect the harness connector between display unit and AV control unit.
- Check continuity between display unit harness connector M71 and AV control unit harness connector M83.

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

#### 4. Check continuity between display unit harness connector M71 and ground.

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replacement of AV control unit.
- **4.**CHECK GROUND CIRCUIT
- 1. Turn ignition switch OFF.
- 2. Disconnect display unit connector.
- 3. Check continuity between display unit harness connectors and ground.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

### MULTIFUNCTION SWITCH

## MULTIFUNCTION SWITCH : Diagnosis Procedure

INFOID:000000004238582

## **1.**CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

### AV-166

#### < DTC/CIRCUIT DIAGNOSIS >

## [BOSE AUDIO WITHOUT NAVIGATION]

## 2.CHECK POWER SUPPLY CIRCUIT Check voltage between multifunction switch harness connector and ground.

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

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between multifunction switch and fuse.

## 3. CHECK GROUND CIRCUIT

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

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

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

BOSE AMP.

### BOSE AMP. : Diagnosis Procedure

### **1.**CHECK FUSE

Check for blown fuses.

Power source	Fuse No.	
Battery	5, 8	J

Is the inspection result normal?

YES >> GO TO 2.

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

#### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)	_
Battery power supply	B42	10	OFF	Battery voltage	 N/
Dattery power supply	D42	11		Dattery voltage	IV

Is the inspection result normal?

YES >> GO TO 3.

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

**3.**CHECK GROUND CIRCUIT

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

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B42	7	OFF	Existed
Ground	D42	12	UT UT	LXISIEU

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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INFOID:000000004238583

## iPod ADAPTER

### iPod ADAPTER : Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

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

#### Is the inspection result normal?

YES >> GO TO 2.

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

#### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between iPod adapter harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M111	5	OFF	Battery voltage
ACC power supply	M111	3	ACC	Battery voltage

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Check harness between iPod adapter and fuse.

#### SATELLITE RADIO TUNER

#### SATELLITE RADIO TUNER : Diagnosis Procedure

INFOID:000000004238585

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## **1.**CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

#### YES >> GO TO 2.

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

## 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between satellite radio tuner harness connector and ground.

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

Is the inspection result normal?

#### YES >> INSPECTION END

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

#### TEL ADAPTER UNIT

## **TEL ADAPTER UNIT : Diagnosis Procedure**

**1.**CHECK FUSE

Check for blown fuses.

#### < DTC/CIRCUIT DIAGNOSIS >

## [BOSE AUDIO WITHOUT NAVIGATION]

	Power source		Fuse No.		
	Battery		34		
Ignitic	on switch ACC or ON		19		
Ignition	n switch ON or START		3		
the inspection resul	t normal?				
YES >> GO TO 2. NO >> Be sure to		alfunation hafana ing	telling a secondaria		
CHECK POWER S	eliminate cause of m	alfunction before ins	stalling new tuse.		
heck voltage betwee	en TEL adapter unit ha	rness connector and	d ground.		
Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)	
Battery power supply	B237	1	OFF	Battery voltage	
ACC power supply	B237	2	ACC	Battery voltage	
Ignition signal	B237	3	ON	Battery voltage	
YES >> GO TO 3. NO >> Check ha	rness between TEL ac	lapter unit and fuse.			
YES >> GO TO 3. NO >> Check ha CHECK GROUND Turn ignition switc Disconnect TEL a Check continuity b	rness between TEL ac CIRCUIT ch OFF. dapter unit connector. petween TEL adapter	unit harness connec	tor and ground.	Occiminate	
YES >> GO TO 3. NO >> Check ha CHECK GROUND Turn ignition switc Disconnect TEL a Check continuity b Signal name	rness between TEL ac CIRCUIT ch OFF. dapter unit connector. between TEL adapter Connector No.	unit harness connec Terminal No.	tor and ground.	Continuity	
YES >> GO TO 3. NO >> Check ha CHECK GROUND Turn ignition switc Disconnect TEL a Check continuity b	rness between TEL ac CIRCUIT ch OFF. dapter unit connector. between TEL adapter Connector No. B237	unit harness connec	tor and ground.	Continuity Existed	

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#### < DTC/CIRCUIT DIAGNOSIS >

## RGB (R: RED) SIGNAL CIRCUIT

### Description

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

#### Diagnosis Procedure

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INFOID:000000004238587

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

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

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

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	17		Not existed
		10	+

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

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

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

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

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

## **RGB (G: GREEN) SIGNAL CIRCUIT**

[BOSE AUDIO WITHOUT NAVIGATION]

## < DTC/CIRCUIT DIAGNOSIS >

## RGB (G: GREEN) SIGNAL CIRCUIT

### Description

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

#### **Diagnosis** Procedure

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

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

C	Displa	ay unit	AV con	trol unit	Continuity
Connec	tor	Terminal	Connector	Terminal	Continuity
M71		6	M83	39	Existed

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

Display	y unit		Conti	iouity.	
Connector	Terminal	Gro	ound	inuity	
M71	6		Not ex	xisted	
Is the inspect	tion result n	ormal?			
	GO TO 2.				
-		ess or conne			
2.CHECK R	GB (G: GR	EEN) SIGNA	L.		
			nd AV control unit cor	nnector.	
0	tion switch		ч. <b>т</b>		
3. Check sig	gnal betwee	en display un	it harness connector a	and ground.	
	<b>`</b>			1	
(+	·				
Display	y unit	(-)	Condition	Reference value	

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

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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#### < DTC/CIRCUIT DIAGNOSIS >

## RGB (B: BLUE) SIGNAL CIRCUIT

### Description

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

#### Diagnosis Procedure

INFOID:000000004460183

INFOID:000000004238591

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

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

Displa	Display unit		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	18	M83	38	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	18		Not existed
1 4 1		10	•

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB (B: BLUE) SIGNAL

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

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

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M71	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 $\frac{1}{100}$ $\frac{1}{10$

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### 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

## 1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

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

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

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

Displa	lay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	19		Not existed
Is the inspec	tion result no	ormal?	
\/ <b>=</b> 0			

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB SYNCHRONIZING SIGNAL

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

2. Turn ignition switch ON.

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

(	(+)			
Displ	ay unit	()	Reference value	
Connector	Connector Terminal			
M71	19	Ground	(V) 4 0 ★ 20µs SKIB3603E	

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

[BOSE AUDIO WITHOUT NAVIGATION]

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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

**1.**CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

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

Displa	Display unit		ntrol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M71	9	M83	43	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M71	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB AREA (YS) SIGNAL

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

2. Turn ignition switch ON.

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

(+) Display unit Connector Terminal		(-)	Condition	Reference value (Approx.)
			At RGB image displayed	5 V
M71	9	Ground	At AUX image is dis- played.	(V) 6 4 2 0 + + 200 µ s → + 200 µ s → + 200 µ s

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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## HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

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INFOID:000000004238597

INFOID:000000004460186

#### < DTC/CIRCUIT DIAGNOSIS >

## HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

### Description

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

## **Diagnosis Procedure**

## $1. {\sf CHECK} \ {\sf CONTINUITY} \ {\sf HORIZONTAL} \ {\sf SYNCHRONIZING} \ ({\sf HP}) \ {\sf SIGNAL} \ {\sf CIRCUIT}$

- 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			
Connector	Terminal	Connector	Terminal	Continuity		
M71	8	M83	45	Existed		
	ontinuity be	tween display	y unit harne:	ss connector and grour	1.	
Connector	Terminal	Gro	ound	Continuity		
M71	8			Not existed		
	tion result n	ormal?				
VO >>	•	ess or conne				
			(			
Connect	display uni	t connector a		ol unit connector.		
Connect Turn ign	display uni ition switch	t connector a ON.	and AV contr	ol unit connector.		
Connect Turn ign	display uni ition switch	t connector a ON.	and AV contr			
Connect Turn ign Check s	display uni ition switch	t connector a ON.	and AV contr	ol unit connector.		
Connect Turn ign Check s	t display uni ition switch ignal betwe	t connector a ON.	nd AV contr	ol unit connector.		
Connect Turn ign Check s (- Displa	t display uni ition switch ignal betwee	t connector a ON. en display un	nd AV contr	ol unit connector. onnector and ground.		
Connect Turn ign Check s (- Displa	t display uni ition switch ignal betwee +) ay unit	t connector a ON. en display un	ind AV contr hit harness c Refe	ol unit connector. onnector and ground.		
Connect Turn ign Check s (- Displa	t display uni ition switch ignal betwee +) ay unit	t connector a ON. en display un	nd AV contr	ol unit connector. onnector and ground.		
Connect Turn ign Check s (- Displa	t display uni ition switch ignal betwee +) ay unit	t connector a ON. en display un	ind AV contr hit harness c Refe	ol unit connector. onnector and ground.		
Connect Turn ign Check s (- Displa Connector	t display uni ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display un (–)	ind AV contr nit harness c Refe	ol unit connector. onnector and ground. rence value		
Connect Turn ign Check s (- Displa Connector	t display uni ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display un (–)	ind AV contr nit harness c Refe	ol unit connector. onnector and ground. rence value		
Connect Turn ign Check s (- Displa Connector	t display uni ition switch ignal betwee +) ay unit Terminal	t connector a ON. en display un (-) Ground	ind AV contr nit harness c Refe	ol unit connector. onnector and ground. rence value		
Connect Turn ign Check s (- Displa Connector M71	t display uni ition switch ignal betwee +) ay unit Terminal 8 8	t connector a ON. en display un (–) Ground ormal?	ind AV contr nit harness c Refe	ol unit connector. onnector and ground. rence value		
Connect Turn ign Check s (- Displa Connector M71 M71 the inspec (ES >>	t display uni ition switch ignal betwee +) ay unit Terminal 8 8	t connector a ON. en display un (–) Ground <u>ormal?</u> control unit.	ind AV contr nit harness c Refe	ol unit connector. onnector and ground. rence value		

## VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

## VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

### Description

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

## **Diagnosis Procedure**

INFOID:000000004460187

INFOID:000000004238599

## 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 con	itrol unit	Continuity
	Connector	Terminal	Connector	Terminal	Continuity
	M71	20	M83	57	Existed

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

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

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

2. Turn ignition switch ON.

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

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

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace display unit.

## **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 inputted to the display unit.

### **Diagnosis Procedure**

INFOID:000000004460188

INFOID:000000004238601

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- 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 control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M154 <sup>*1</sup>	7	M84	66	Existed
M362 <sup>*2</sup>	I I	10104	00	LXISTED

• \*1: A/T models

• \*2: M/T models

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

Auxiliary i	nput jacks		Continuity
Connector	Terminal	Orressed	Continuity
M154 <sup>*1</sup>	7	Ground	Not existed
M362 <sup>*2</sup>	I		NOT EXISTEN

• \*1: A/T models

\*2: M/T models

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	(-)	Condition	Reference value	
Connector	Terminal				AV
M154 <sup>*1</sup>				(V)	
	7	Ground	At AUX image displayed.		0
M362 <sup>*2</sup>				-0.4	Р
				311022313	

• \*1: A/T models

• \*2: M/T models

Is the inspection result normal?

YES >> GO TO 3.

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

#### AV-177

#### 2009 G37 Sedan

## AUX IMAGE SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### [BOSE AUDIO WITHOUT NAVIGATION]

# $\overline{\mathbf{3.}}$ CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT (AV CONTROL UNIT AND DISPLAY UNIT)

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

Displa	ay unit	AV control unit		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M71	15	M83	36	Existed	

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

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

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

**4.**CHECK AUX IMAGE SIGNAL

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

2. Turn ignition switch ON.

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

	(+) Display unit		Condition	Reference value
Connector	Terminal	-		
M71	15	Ground	At AUX image displayed.	(V) 0.4 0 −0.4 • • • 40µs SKiB2251J

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### CD EJECT SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

## CD 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:000000004460189

INFOID:000000004238603

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[BOSE AUDIO WITHOUT NAVIGATION]

## 1. CHECK CONTINUITY CD EJECT SIGNAL CIRCUIT

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

Multifunct	ion switch	AV con	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M72	14	M85	103	Existed

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

Multifunct	tion switch		Continuity	_	
Connector	Terminal	Ground	Continuity		
M72	14		Not existed		
•	<u>ction result n</u> GO TO 2.	ormal?		-	
-		ess or connector.			
<b>2.</b> CHECK <i>P</i>	AV CONTRO	L UNIT VOLTAG	Ε		
			tor and AV control unit co	nnector.	
	nition switch voltage betwe		nit harness connector and	l ground.	
	-			-	
(·	+)			Voltago	
AV con	itrol unit	(-)	Condition	Voltage (Approx.)	
Connector	Terminal				
M85	103	Ground	Pressing the eject switch	0 V	-
CON	105	Giouna	Except for above	3.3 V	-

Is the inspection result normal?

YES >> Replace preset switch.

NO >> Replace AV control unit.

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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 microphone.

## Diagnosis Procedure

INFOID:000000004460190

INFOID:000000004238605

## 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 ada	TEL adapter unit		phone	Continuity
Connector	Terminals	Connector	Terminals	Continuity
	7		1	
B237	8	R17	2	Existed
	29		4	

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

TEL ada	apter unit		Continuity
Connector	Terminals	Ground	Continuity
M237 –	7	Cround	Not existed
	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.

(+)		(-)		Voltage (Approx.)
TEL adapter unit		TEL adapter unit		
Connector	Terminal	Connector	Terminal	(
B237	29	B237	8	5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace TEL adapter unit.

**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 ada	pter unit	TEL ada	pter unit	Condition	Reference value	
Connector	Terminal	Connector	Terminal	-		
B237	7	B237	8	give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 •••• 2ms	
					PKIB5037J	

Is the inspection result normal?

YES >> Replace TEL adapter unit.

NO >> Replace microphone.

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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:000000004238608

INFOID:000000004238607

### 1. CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

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

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

Is the inspection result normal?

YES >> Replace TEL adapter unit.

NO >> Repair harness or connector.

### **MODE CHANGE SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

### MODE CHANGE SIGNAL CIRCUIT

### Description

- AV control unit transmits the mode change signal to BOSE amp.
- В Driver's Audio Stage controls the speaker's output characteristic by BOSE amp. so that the driver's seat is to be the center of sounds.

#### **Diagnosis** Procedure

### 1. CHECK CONTINUITY MODE CHANGE SIGNAL CIRCUIT

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

BOSE	E amp.	AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B41	37	M82	27	Existed
4. Check c	ontinuity bet	tween BOSE	amp. harne	ess connector and

BOSE	E amp.		Continuity
Connector	Terminal	Ground	
B41	37		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.check mode change signal

Connect BOSE amp. connector. 1.

- 2. Turn ignition switch ON.
- Check voltage between BOSE amp. harness connector and ground. 3.

	+) E amp.	(-)	Condition	Voltage (Approx.)	
Connector	Terminal			()	
B41	37	Ground	Driver's Audio Stage ON	0 V	
D41	57	Cibuld	Driver's Audio Stage OFF	8.5 V	

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace BOSE amp.

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INFOID:000000004238609

INFOID:000000004460191

#### COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

#### < DTC/CIRCUIT DIAGNOSIS >

### COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

### Description

Satellite radio tuner and AV control unit are connected with a serial communication. They transmit the operation signal from AV control unit to satellite radio tuner, and transmit the display signal from satellite radio tuner to AV control unit.

#### **Diagnosis Procedure**

INFOID:000000004238612

INFOID:000000004238611

[BOSE AUDIO WITHOUT NAVIGATION]

### 1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

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

Satellite r	adio tuner	AV con	Continuity	
Connector	Terminals	Connector	Terminals	Continuity
B236	9	9 M82		Existed
6230	10	IVIOZ	30	LAISIEU

4. Check continuity between satellite radio tuner harness connector and ground.

Satellite r	adio tuner		Continuity
Connector	Terminals	Ground	Continuity
B236	9	Giodina	Not existed
B230	10		NOT EXISTED

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL

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

	(+) Satellite radio tuner		Condition	Reference value
Connector	Terminal	-		
B236	9	Ground	When satellite radio mode is selected.	(V) 10 0 -10 → 1ms SKIA9300J

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace satellite radio tuner.

**3.**CHECK COMMUNICATION SIGNAL

Check signal between satellite radio tuner harness connector and ground.

### **COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)**

#### < DTC/CIRCUIT DIAGNOSIS >

# [BOSÈ AUDIO WITHOUT NAVIGATION]

	+) adio tuner	(-)	Condition	Reference value	A
Connector	Terminal				В
B236	10	Ground	When satellite radio mode is selected.	(V) 10 0 -10 -10 -10 -10 -10 -10 -	C
Is the inspect	tion result no	rmal?			
YES >> F	Replace satel	lite radio tune	er.		E

YES >> Replace satellite radio tuner.

>> Replace AV control unit. NO

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### **REQUEST SIGNAL CIRCUIT (SAT→CONT)**

#### < DTC/CIRCUIT DIAGNOSIS >

### REQUEST SIGNAL CIRCUIT (SAT→CONT)

#### Description

Request signal transmits the signal to recognize the connection of satellite radio tuner from satellite radio tuner to AV control unit.

### Diagnosis Procedure

INFOID:000000004238614

INFOID:000000004238613

### 1. CHECK CONTINUITY REQUEST SIGNAL CIRCUIT

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

Satellite r	Satellite radio tuner		AV control unit		
Connector	Terminal	Connector	Terminal	Continuity	
B236	8	M82	28	Existed	

4. Check continuity between satellite radio tuner harness connector and ground.

Satellite r	adio tuner		Continuity	
Connector	Terminal	Ground	Continuity	
B236	8	*	Not existed	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK COMMUNICATION SIGNAL

1. Connect satellite radio tuner connector and AV control unit connector.

2. Turn ignition switch ON.

3. Check signal between satellite radio tuner harness connector and ground.

(+) Satellite radio tuner		(-)	Condition	Reference value
Connector	Terminal			
B236	8	Ground	When satellite radio mode is selected.	(V) 10 0 -10 ★ + 10ms SKIA9299J

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace satellite radio tuner.

### STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >					[BOSE AUDIO WITHOUT NAVIGATION]
STEERI	NG SWIT	FCH SIG	NAL A C	IRCUIT	
Descriptio	n				INF0/D:00000004238615
Transmits th	e steering sv	witch signal t	o AV control	unit.	
Diagnosis	Procedu	re			INF0/D:000000004460192
<b>1.</b> снеск я	STEERING S	SWITCH SIG	NAL A CIRC	CUIT	
				ral cable conne ness connector	ctor. and spiral cable harness connector.
AV con	trol unit	Spiral	cable	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M81	6	M36	24	Existed	
3. Check c	continuity bet	tween AV co	ntrol unit har	ness connector	and ground.
AV con	trol unit				

### 2.CHECK SPIRAL CABLE

Check spiral cable.

<u>Is the in</u>	spection result normal?	
YES	>> GO TO 3.	
	<u> </u>	

NO >> Replace spiral cable.

## **3.**CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.

2. Turn ignition switch ON.

3. Check voltage between AV control unit harness connector.

(+)	(	—)	
AV control unit	AV cor	ntrol unit	Voltage (Approx.)
Connector Termina	I Connector	Terminal	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
M81 6	M81	15	3.3 V

#### Is the inspection result normal?

YES	>> GO TO 4.
NO	>> Replace AV control unit.

4. CHECK STEERING SWITCH

1. Turn ignition switch OFF.

2. Check steering switch. Refer to AV-187, "Component Inspection".

### Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace steering switch.

### **Component Inspection**

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

### AV-187

INFOID:000000004238617

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### **STEERING SWITCH SIGNAL A CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

Standard	
Between terminals 14 and 17	
🔬 🌈 switch ON	: <b>716 – 730</b> Ω
MENU DOWN switch ON	<b>: 318 – 324</b> Ω
MENU UP switch ON	<b>: 120 – 122</b> Ω
SOURCE switch ON	: <b>0</b> Ω
Between terminals 15 and 17	
switch ON	<b>: 318 – 324</b> Ω
VOL UP switch ON	: <b>120 – 122</b> Ω
VOL DOWN switch ON	<b>: 0</b> Ω

SOURCE		<u>14</u>
	Approx.	•
MENU UP		
	Approx. ≥200Ω	•
MENU DOWN		
	402Ω	•
(1125		
VOL DOWN		15
	Approx.	Ĭ
VOL UP	121Ω	
	Approx. ₹200Ω	
	∑200Ω	14 15 17
		47
		JSNIA0216GB

### **STEERING SWITCH SIGNAL B CIRCUIT**

	STEERING SWIT	CH SIGNAL B CIRCUIT
< DTC/CIRCUIT DIAG	√OSIS >	[BOSE AUDIO WITHOUT NAVIGATION]
STEERING SWI	FCH SIGNAL B CI	RCUIT
Description		INF0ID:00000004238618
Transmits the steering s	witch signal to AV control u	unit.
Diagnosis Procedu	INFOID:000000004460193	
1.CHECK STEERING	SWITCH SIGNAL B CIRC	JIT
	rol unit connector and spira tween AV control unit harn	al cable connector. ess connector and spiral cable harness connector.
AV control unit	Spiral cable	

AV con	trol unit	Spiral	cable	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M81	16	M36	31	Existed	
3. Check c	ontinuity be	tween AV cor	ntrol unit har	mess connector a	
AV con	trol unit	4		Continuity	
Connector	Terminal	Gro	und	,	
M81	16	1		Not existed	
Is the inspec	ction result n	ormal?			
YES >>	GO TO 2.				
NO >>	Repair harn	ess or conne	ctor.		
2.CHECK 8	SPIRAL CAE	BLE			
Check spiral cable.					
Is the inspec	ction result n	ormal?			
YES >>	GO TO 3.				
NO >>	Replace spi	ral cable.			
3.CHECK A	AV CONTRO	DL UNIT VOL	TAGE		
1. Connect	t AV control	unit connecto	or and spiral	cable connector.	
2. Turn ign	ition switch	ON.			
3. Check v	oltage betw	een AV contr	ol unit harne	ess connector.	

(+)     (-)       AV control unit     AV control unit		<u> </u>				
		Voltage (Approx.)				
Connector	Terminal	Connector	Terminal	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
M81	16	M81	15	3.3 V		
Is the inspect YES >>	ction result n GO TO 4.	ormal?				
<b>4.</b> CHECK	•					
2. Check's Is the inspec YES >>	teering swite <u>ction result n</u> INSPECTIO	ch. Refer to <u>/</u> ormal?		nponent Inspectic	<u>"</u> .	
Compone	nt Inspec	tion				INFOID
Measure the	e resistance	between the	steering swit	ch connector terr	inals 14 to 17 and 15 to 1	7.

### **AV-189**

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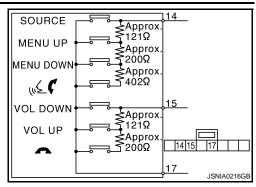
С

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### **STEERING SWITCH SIGNAL B CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

Standard	
Between terminals 14 and 17	
🔬 🌈 switch ON	: <b>716 – 730</b> Ω
MENU DOWN switch ON	<b>: 318 – 324</b> Ω
MENU UP switch ON	<b>: 120 – 122</b> Ω
SOURCE switch ON	: <b>0</b> Ω
Between terminals 15 and 17	
switch ON	<b>: 318 – 324</b> Ω
VOL UP switch ON	<b>: 120 – 122</b> Ω
VOL DOWN switch ON	<b>: 0</b> Ω



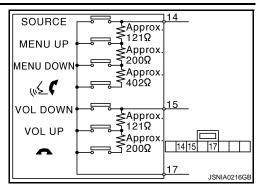
< DTC/CIR0			IG SWIT		GND CIRCUIT BOSE AUDIO WITHOUT NAVIGATION]		
STEERI	NG SWI	TCH SIG	NAL GN	D CIRCUIT		А	
Descriptio	n				INF0/D:00000004238621		
Transmits the steering switch signal to AV control unit.							
Diagnosis	Procedu	re			INFOID:000000004460194		
<b>1.</b> CHECK 8	STEERING	SWITCH SIG	NAL GND C	CIRCUIT		С	
				iral cable connec mess connector a	tor. and spiral cable harness connector.	D	
AV con	trol unit	Spiral	cable	Orationity	-		
Connector	Terminal	Connector	Terminal	Continuity		Е	
M81	15	M36	33	Existed	_		
<u>Is the inspec</u> YES >>	<u>ction result n</u> GO TO 2. Repair harn	ess or conne				F	
Check spiral							
<u>Is the inspec</u> YES >>						Η	
3.снеск с	• •						
		unit connecto tween AV co		rness connector a	and ground.	J	
AV con	trol unit			Continuity	_		
Connector	Terminal	Gro	ound	Continuity		K	
M81	15			Not existed	_		
NO >>	GO TO 4. Replace AV	control unit.				L	
4.CHECK	STEERING	SWITCH				M	
	ition switch teering swite		<u> </u>	mponent Inspecti	on".	IVI	
YES >>	Is the inspection result normal? YES >> INSPECTION END						
Compone	nt Inspec	tion			INF0/D:00000004238623	0	
		l (					

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

### **STEERING SWITCH SIGNAL GND CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

Standard	
Between terminals 14 and 17	
🔬 🌈 switch ON	: <b>716 – 730</b> Ω
MENU DOWN switch ON	<b>: 318 – 324</b> Ω
MENU UP switch ON	<b>: 120 – 122</b> Ω
SOURCE switch ON	: <b>0</b> Ω
Between terminals 15 and 17	
switch ON	<b>: 318 – 324</b> Ω
VOL UP switch ON	<b>: 120 – 122</b> Ω
VOL DOWN switch ON	<b>: 0</b> Ω



### < ECU DIAGNOSIS INFORMATION >

# ECU DIAGNOSIS INFORMATION AV CONTROL UNIT

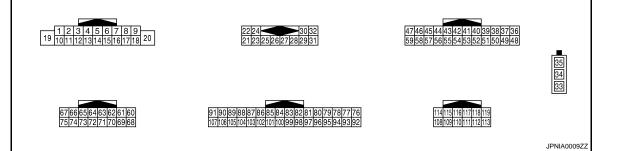
### **Reference Value**

### VALUES ON THE DIAGNOSIS TOOL

#### CONSULT-III MONITOR ITEM

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

#### TERMINAL LAYOUT



### PHYSICAL VALUES

	Terminal Description			Condition		Reference value		
+	-	Signal name	Input/ Output		Condition	(Approx.)	ſ	
					Keep pressing SOURCE switch.	0 V	A	
				Ignition	Keep pressing $\Delta$ switch.	0.7 V		
6 (P)	15 (B)	Steering switch signal A	Input	switch ON	Keep pressing $ abla$ switch.	1.3 V	0	
					Keep pressing <sub>w</sub> ≨	2 V		
					Except for above.	3.3 V		
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage		
9				Ignition	Lighting switch is OFF.	0 V		
(Ľ)		Input	switch OFF	Lighting switch is ON.	12 V			

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#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description	Description		Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
15 (B)	Ground	Steering switch signal GND	_	lgnition switch ON	_	0 V
					Keep pressing VOL DOWN switch.	0 V
16 (L)	15 (B)	Steering switch signal B	Input	lgnition switch ON	Keep pressing VOL UP switch.	0.7 V
					Keep pressing 🗪 switch.	1.3 V
					Except for above.	3.3 V
19 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage
20 (B)	Ground	GND		lgnition switch ON	_	0 V
22 (B)	21 (W)	Satellite radio sound signal LH	Input	lgnition switch ON	When satellite radio mode is selected	(V) 1 0 -1 + 2ms SKIB3609E
24 (G)	23 (R)	Satellite radio sound signal RH	Input	lgnition switch ON	When satellite radio mode is selected	(V) 1 0 -1 • 2ms SKIB3609E
25	_	Shield		_	_	_
26	_	Shield			_	_
27				Ignition	Driver's Audio Stage ON	0 V
(SB)	Ground	Mode change signal	Output	switch ON	Driver's Audio Stage OFF	8.5 V
28 (P)	Ground	Request signal (SAT→CONT)	Input	lgnition switch ON	When satellite radio mode is selected	(V) 10 -10 +10ms SKIA9299J
29 (G)	Ground	Communication signal (SAT→CONT)	Input	lgnition switch ON	When satellite radio mode is selected	(V) 10 -10 -10 -10 -10 -10 -10 -10

#### < ECU DIAGNOSIS INFORMATION >

	Terminal Description (Wire color)				Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
30 (L)	Ground	Communication signal (CONT→SAT)	Output	lgnition switch ON	When satellite radio mode is selected	(V) 10 0 -10 • • 1 ms SKIA9301J	E
33		FM sub	Input		_	_	
34	—	AM–FM main	Input	—	—	_	E
35	Ground	Antenna amp. ON signal	Output	Ignition switch ACC	_	12 V	F
36 (SB)	Ground	AUX image signal	Output	Ignition switch ON	At AUX image is displayed	$(V) \\ 0.4 \\ 0 \\ -0.4 \\ + 40 \mu s \\ -0.5 \\ + 500 \\ -0.4 \\ $	C
37 (V)	Ground	AUX image ground	_	Ignition switch ON	_	0 V	l
38 (P)	Ground	RGB signal (B: blue)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 <b>1 1 1 1 1 1 1 1 1 1</b>	ŀ
39 (L)	Ground	RGB signal (G: green)	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 −0.4 ••••••••••••••••••••••••••••••••••••	L N
40 (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.	$ \begin{pmatrix} (V) \\ 0, 4 \\ 0 \\ -0.4 \\ \hline \\ $	C F

#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
41 (W)	Ground	RGB synchronizing signal	Output	lgnition switch ON	_	(V) 4 0 ↓ 20,45 SKIB3603E
42		Shield	_	-	—	_
					At RGB image displayed	5 V
43 (B)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At AUX image is displayed	(V) 6 4 2 0 • • • 200 μ s • • • 200 μ s • • • • 200 μ s • • • • • • • • • • • • • • • • • • •
44 (BR)	Ground	Communication signal (DISP→CONT)	Input	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
45 (R)	Ground	Horizontal synchronizing (HP) signal	Input	lgnition switch ON		(V) 4 0 ★ 20µs SKIB3601E
46 (LG)	Ground	Signal GND	_	lgnition switch ON	_	0 V
47 (O)	Ground	Signal VCC	Output	Ignition switch ACC	_	9 V
48 (BR)	Ground	Composite synchronizing signal	Output	lgnition switch ON		(V) 6 20 20 20 20 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
49		Shield		l		—
50		Shield	—			_
55		Shield	_	—	—	_

### < ECU DIAGNOSIS INFORMATION >

Terminal (Wire color)		Description			Condition	Reference value	A
+	_	Signal name	Input/ Output		Condition	(Approx.)	
56 (Y)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••••••••••••••••••••••••••••••	B C D
57 (G)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON		(V) 4 0 + 4ms SKIB3598E	F
58 (BR)	Ground	Inverter GND		Ignition switch ON		0 V	G
59 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	9 V	Η
66 (G)	Ground	AUX image signal	Input	Ignition switch ON	At AUX image is displayed	(V) 0.4 0 -0.4 •••40µs SKIB2251J	J
73		Shield	_		_		K
74 (R)	Ground	AUX image signal GND		Ignition switch ON		0 V	L
80 (L)	79 (P)	TEL voice signal	Input	Ignition switch ON	During voice guide output with the 🌠 switch pressed	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	IV AV
81		Shield			—		С
83 (B)	82 (G)	iPod sound signal RH	Input	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 -1 + 2ms	F
84		Shield				SKIB3609E	

#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
85 (B)	Ground	GND	_	lgnition switch ON	_	0 V
86 (L)	_	CAN-H	Input/ Output	_	_	_
87 (P)		CAN-L	Input/ Output		_	_
88 (V)	_	AV communication signal (H)	Input/ Output		_	_
89 (LG)	_	AV communication signal (L)	Input/ Output		_	_
90 (SB)	_	AV communication signal (H)	Input/ Output		_	_
91 (Y)	_	AV communication signal (L)	Input/ Output	—	_	_
95 (R)	Ground	AUX sound signal RH	Input	lgnition switch ON	When AUX mode is select- ed	(V) 1 0 -1 2ms SKIB3609E
96 (W)	Ground	AUX sound signal LH	Input	Ignition switch ON	When AUX mode is select- ed	(V) 1 0 -1 + + 2ms SKIB3609E
97		Shield (AUX sound signal GND)			_	_
99 (R)	98 (W)	iPod sound signal LH	Input	lgnition switch ON	When iPod mode is select- ed	(V) 1 0 -1 * 2ms SKIB3609E
100		Shield			_	—
101 (BR)	Ground	SW GND		Ignition switch ON	_	0 V
103 (SB)	Ground	Eject signal	Input	_	Pressing the eject switch Except for above	0 V 3.3 V
104 (G)	Ground	Ignition signal	Input	lgnition switch ON	_	Battery voltage

### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description			Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	
105	Ground	Boyeroo eignol	loout	Ignition	R position	12 V	В
(O)	Giouna	Reverse signal	Input	switch ON	Other than R position	0 V	
					Parking brake ON	0 V	С
106 (SB)	Ground	Parking brake signal	Input	lgnition switch ON	Parking brake OFF	(V) 8 4 0 10 ms	D
						JSNIA0007GB NOTE: Maximum voltage may be 12 V due to specifications (connected units).	F
107 (GR)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	(V) 6 4 2 0 0 + + 20ms	G
						(V)	I
108 (BR)	114 (Y)	Sound signal rear RH	Output	Ignition switch ON	Voice output	1 0 -1 * * 2ms	J
						SKIB3609E	K
109 (R)	115 (G)	Sound signal front RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 + 2ms 0 0 0 0 0 0 0 0 0 0 0 0 0	L
110 (SB)	Ground	Amp. ON signal	Output	Ignition switch ON		5KIB3609E	AV
111		Shield			_		
							0

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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
112 (V)	118 (LG)	Sound signal rear LH	Output	lgnition switch ON	Voice output	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
113 (O)	119 (W)	Sound signal front LH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 + 2ms SKIB3609E

Wiring Diagram - BOSE AUDIO WITHOUT NAVIGATION SYSTEM -

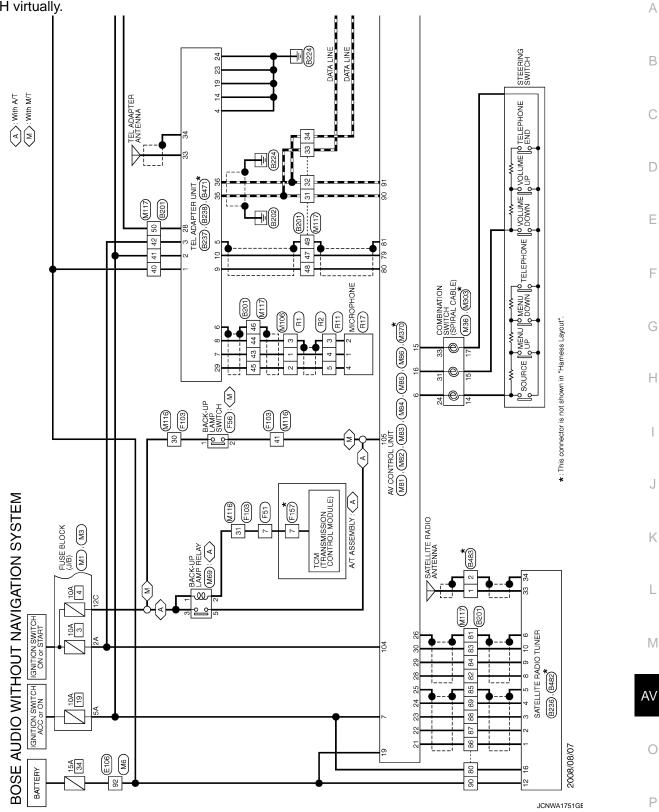
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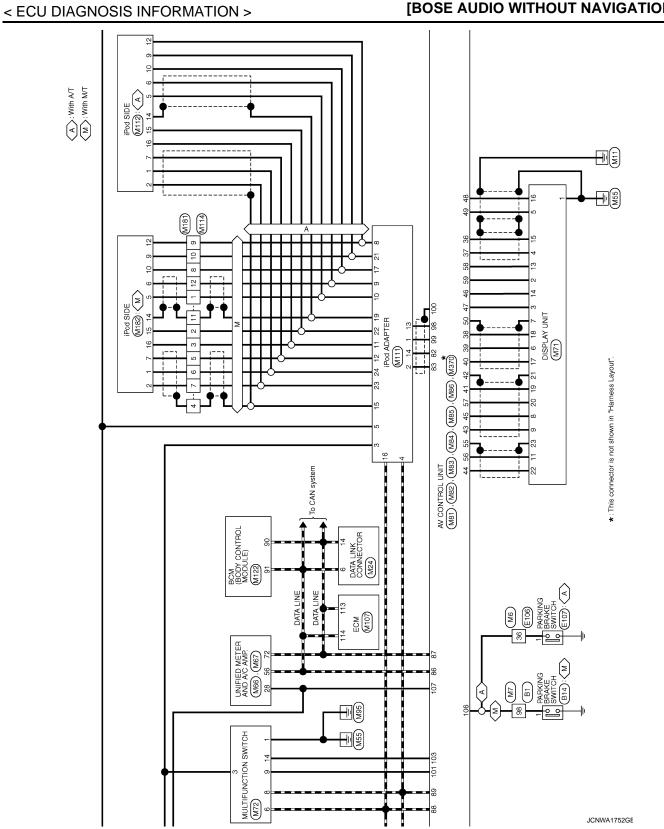
#### NOTE:

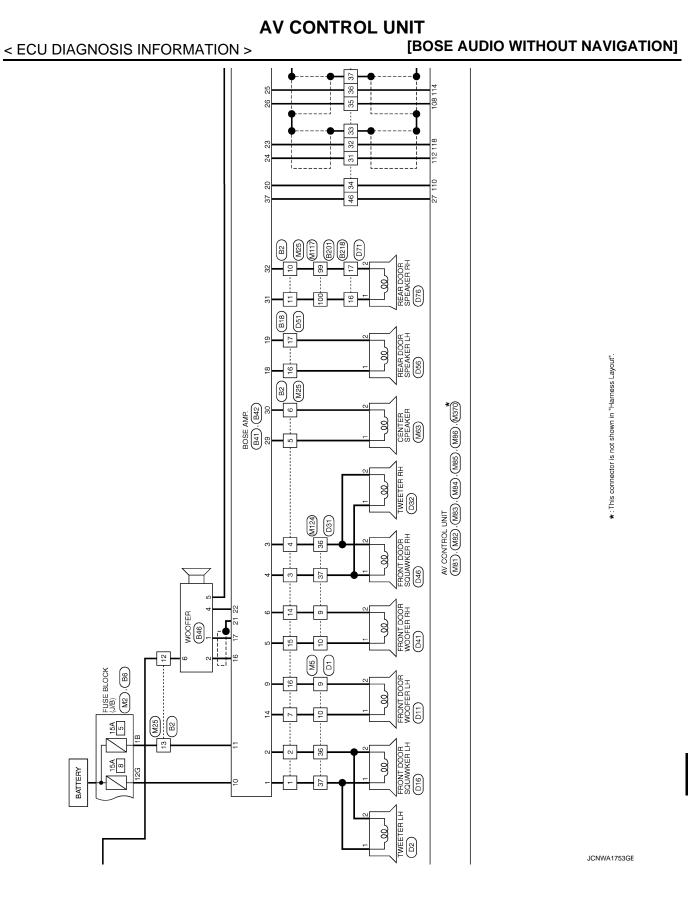
#### < ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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







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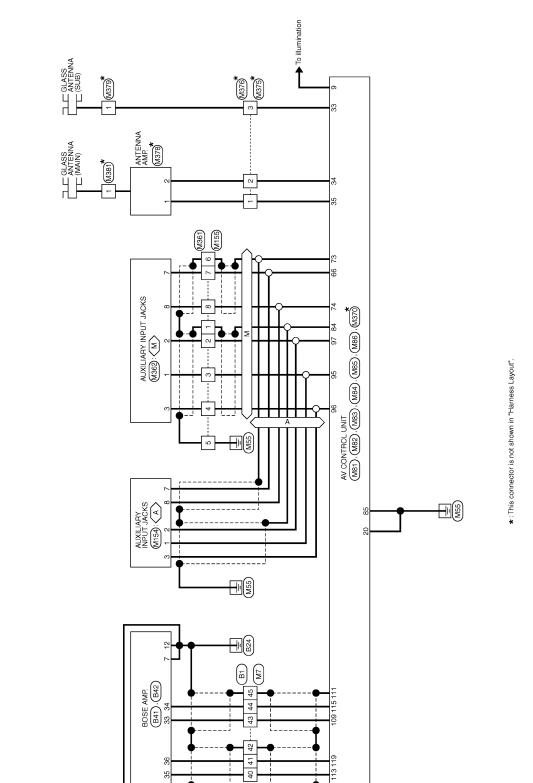
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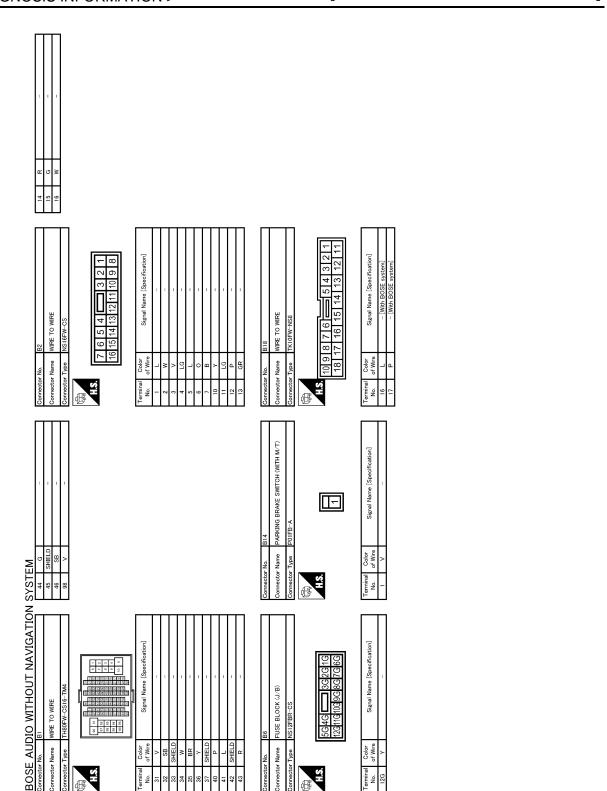
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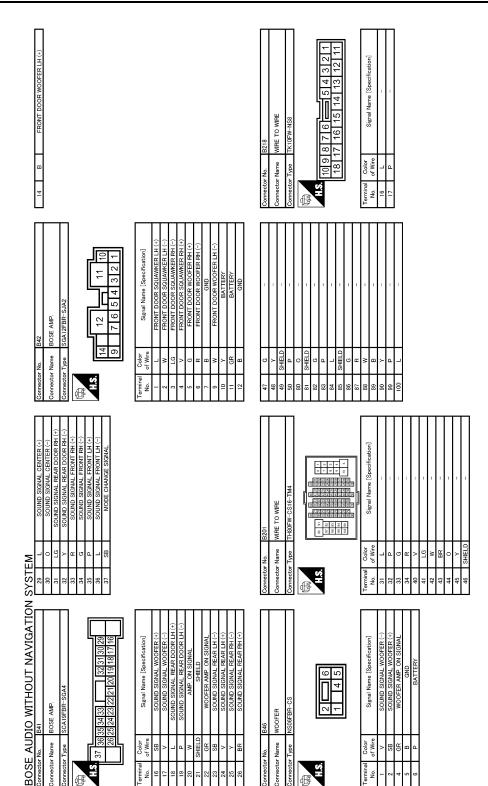
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#### AV CONTROL UNIT [BOSE AUDIO WITHOUT NAVIGATION]



### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

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Connector Name

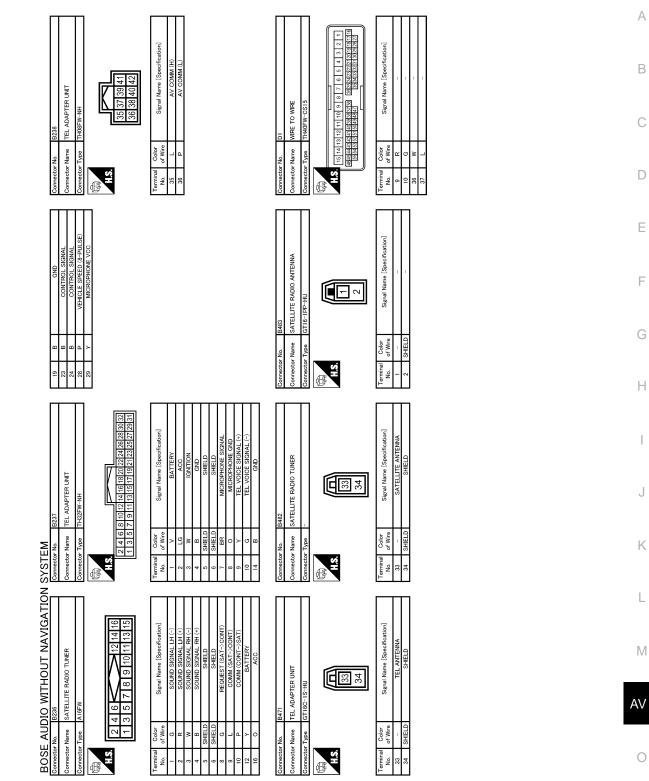
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### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]



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### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]

Signal Name [Specification]

Color of Wire

Terminal No.

Signal Name [Specification]

Color of Wire

Terminal No.

Signal Name [Specification]

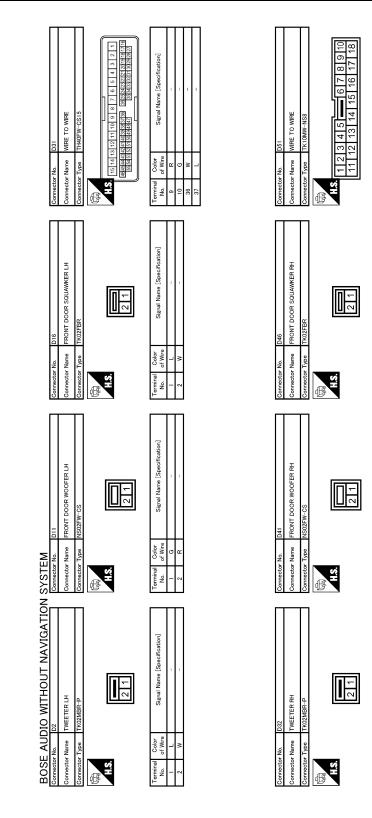
Color of Wire

Ferminal No.

Signal Name [Specification]

Color of Wire

Terminal No. s ک



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< ECU DIAGNOSIS INFO	ORMATION >	[BOSE AUDIO WITHOUT NAVIGATION]

Signal Name [Specification]

Color of Wire

Terminal No.

8 1 7 2 8 3 10 5

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H.S.

H.S.

2 1

H.S.

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**WIRE TO WIRE** 

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REAR DOOR SPEAKER RH

Name

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WIRE TO WIRE

nector Name

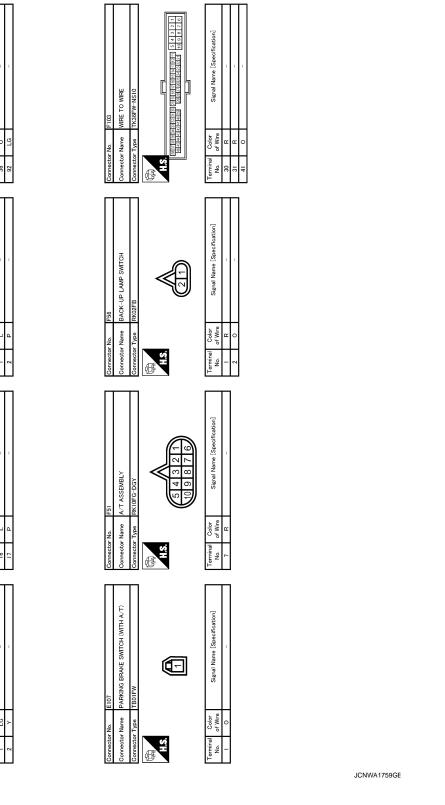
SYSTEM

BOSE AUDIO WITHOUT NAVIGATION

REAR DOOR SPEAKER LH

Connector Name

**AV CONTROL UNIT** 



Revision: 2009 October

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### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]

Signal Name [Specification]

Color of Wire V LG SHIELD

Ferminal No.

Signal Name [Specification]

Color of Wire

erminal No. 36 92

Signal Name [Specification]

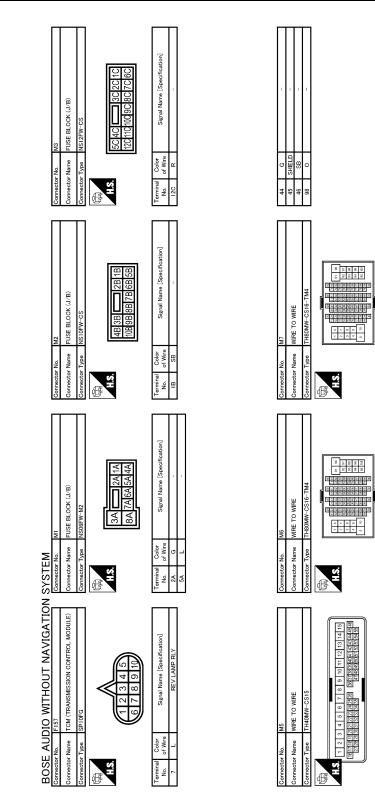
Color of Wire

Terminal No. SHELD 0 SHELD SHELD

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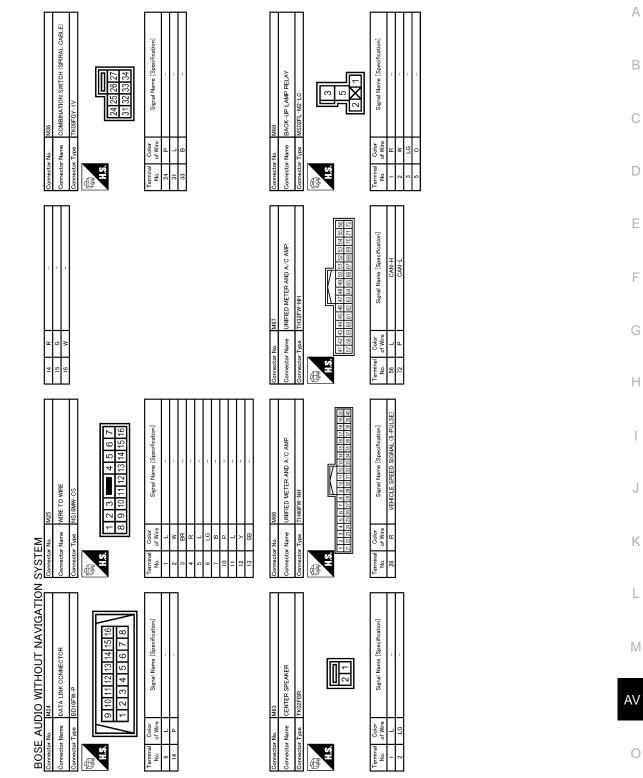
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#### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]

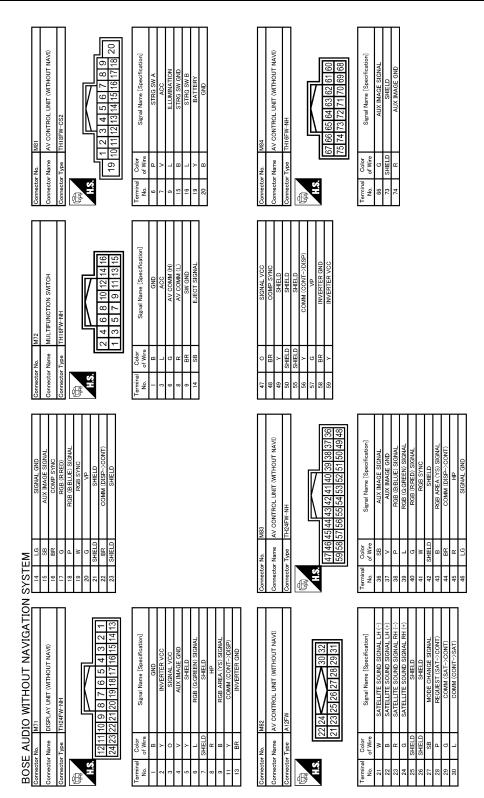


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### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]



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DIAGNOSIS INFORMATION >		
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WIRE -NSG 5 - 6 7 8 14 15 16 17 Signal Name (Specification - [Without rear view cannot - [Without	E (WITH A.T) E (WITH A.T) Signal Nume [Specificati, Baganal Nume [Specificati, Peed SOUND SIGNAL, LH Peed SOUND SIGNAL, PEED SIGNAL, LH Peed SOUND SIGNAL, LH PEED SIGNAL, LH PEED SIGNAL, PEED SIGNAL, LH PEED SIGNAL, LH PEED SIGNAL, LH PEED SIGNAL, PEED SIGNAL, LH PEED SIGNAL, LH PEED SIGNAL, PEED SIGNAL, LH PEED SIGNAL, PEED SIGNAL, PEED SIGNAL, LH PEED SIGNAL, PEED SIGNAL, LH PEED SIGNAL, PEED SIGNAL, PEED SIGNAL, LH PEED SIGNAL, LH PEED SIGNAL, PEED SIGNAL, P	В
Connector No. M106 Connector Name WIRE TC Connector Type TK100M Connector Type 17(1012) 111121334	Commetter Num         M112           Commetter Num         Pold SID           Commetter Type         Pold SID           Commetter Tope         Pold SID           Commetter SID         Pold SID           Commetter SID         Pold SID           Pold SID         <	C
T NAV() isation] isation] M LH (÷) M LH (÷) M LH (÷) M LH (÷) M LH (÷) M LH (÷) M LH (÷)	Definition Definition LLH (+)	Е
Me6 AV CONTROL UNIT (WITHOUT NAVI) TH12FW-HH TH12FW-HH (141111111111111111111111111111111111	Ped SOUND SIGNAL RH (-)       SHELD       AV COMM (H)       BND       AND       Pad SOUND SIGNAL LH (+)       Pad SOUND SIGNAL LH (+)	F
		G
Connector M Connector IV Connector IV Connec	2 <u>0</u> <u>0</u> <u>1</u>	Н
AV COMM (H) AUX SOUND SIGNAL, EH (+) AUX SOUND SIGNAL, EH (+) AUX SOUND SIGNAL, EH (+) AUX SOUND SIGNAL, LH (+) Ped SOUND	MDAPTER           FW-NH           1         5         6         7         8         9         1011112           Signal Nume (Specification)         Signal Nume (Specification)         Signal Nume (Specification)         5         6         7         11         19         20         2	I
AV OC AV OC AUX SOUND AUX SOUND AUX SOUND Pead SOUND Field SOUND FIEL SOUND		J
SYSTEM           S'STEM           91         7           92         8           93         8           93         8           93         8           93         8           93         8           93         8           93         8           101         8           103         8           104         6           103         8           104         6           103         8           103         8           104         6	Connector Num         Pod           Connector Num         Pod           Connector Num         Pod           Million         Pod	К
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BOSE AUDIO WITHOUT NAVIGATION SY Connector Name Automatic Mats Connector Name Automatic Navin Connector Navin Connecto	-722-F-LH-Z 21 10 10 11 11 10 10 11 11 10 10 10 10 10	Μ
EAUDIO WITH       No.     MES       Name     MES       Name     MES       Type     TH32FW-NH       Type     TH32FW-NH       Type     TH32FW-NH       Order     Stera       Order     Stera       P     Fed       L     TE       Color     Stera       P     Fed       L     TE       Color     Stera       N     Stera       N     AV COM	ECM 12511 1251	AV
BOSE AU Connector Na. Oonnector Name Oonnector Name	Connector Name Connector Type Connector Type Connec	0

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# **AV CONTROL UNIT**

### < ECU DIAGNOSIS INFORMATION >

WIRE TO WIRE

inector Name

BOSE AUDIO WITHOUT NAVIGATION SYSTEM

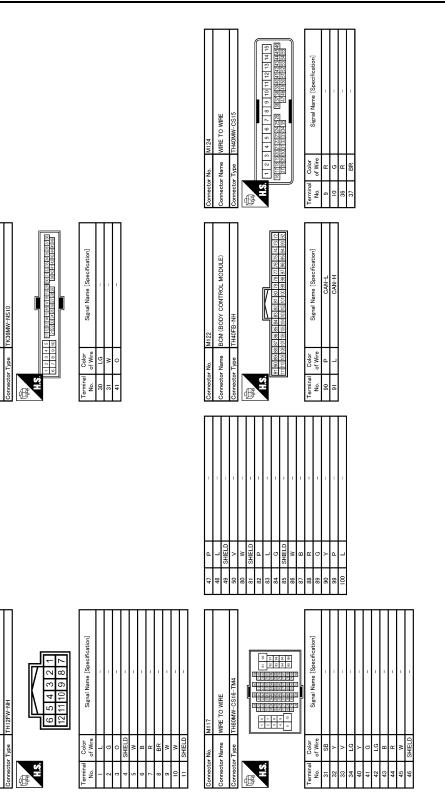
WIRE TO WIRE

Connector Name

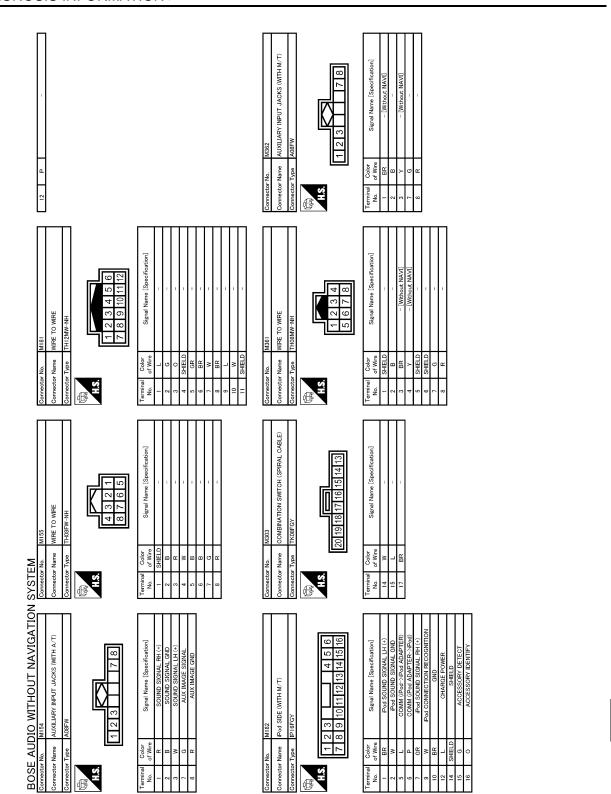
12

### **AV CONTROL UNIT**

#### [BOSE AUDIO WITHOUT NAVIGATION]



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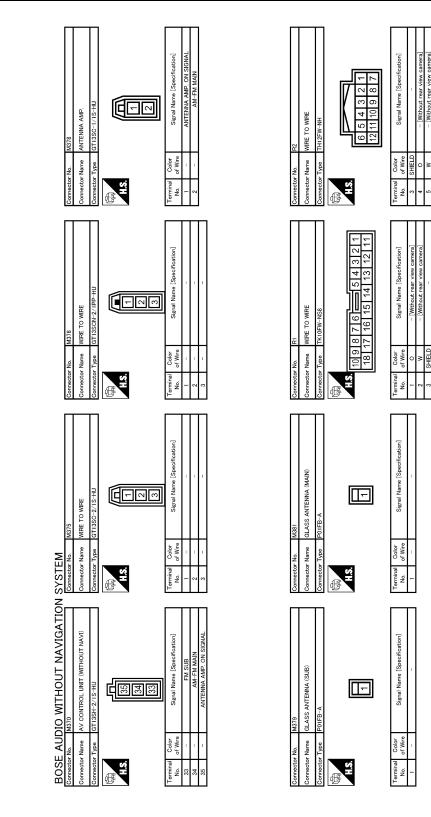
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### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]



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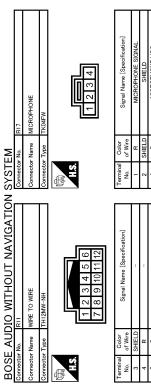
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## DTC Index

#### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

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## **AV CONTROL UNIT**

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

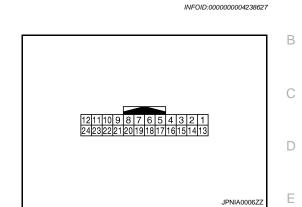
DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-155, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [U1010]	AV-156. "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-157, "DTC Logic"
U1200	Cont Unit FLASH-ROM [U1200]	AV-158, "DTC Logic"
U1216	CAN CONT [U1216]	AV-159, "DTC Logic"
U1243	FRONT DISP CONN [U1243]	AV-160, "Diagnosis Procedure"
U1255	SAT CONN [U1255]	AV-162, "Diagnosis Procedure"
U1300 U1240	AV COMM CIRCUIT [U1300]     SWITCH CONN [U1240]	AV-164, "Description"
U1300 U1254	AV COMM CIRCUIT [U1300]     IPOD CONN [U1254]	AV-164, "Description"
U1300 U1256	AV COMM CIRCUIT [U1300]     HAND FREE CONN [U1256]	AV-164, "Description"
U1300 U1240 U1254 U1256	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>IPOD CONN [U1254]</li> <li>HAND FREE CONN [U1256]</li> </ul>	AV-164, "Description"

#### < ECU DIAGNOSIS INFORMATION >

## DISPLAY UNIT

**Reference Value** 

**TERMINAL LAYOUT** 



#### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
1 (B)	Ground	GND	_	Ignition switch ON	_	0 V	
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	9 V	
3 (O)	Ground	Signal VCC	Input	Ignition switch ACC	_	9 V	
4 (V)	Ground	AUX image GND	_	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 -0.4 Frida and and and and and and and and and a	
7	_	Shield	_		—	—	
8 (R)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON		(V) 4 0 → + 20µs	

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description		Condition		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
9 (B)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At RGB image is displayed	5 V (V) 6 4 2 0 → + 200 µ s → PKIB4948J
11 (Y)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••1ms •••••1ms •••••••••••••••••••••
13 (BR)	Ground	Inverter GND	_	Ignition switch ON	_	0 V
14 (LG)	Ground	Signal GND		Ignition switch ON	_	0 V
15 (SB)	Ground	AUX image signal	Input	Ignition switch ON	At AUX image is displayed	(V) 0.4 0 −0.4 ++40µs SKiB2251J
16 (BR)	Ground	Composite synchronizing signal	Input	Ignition switch ON	_	(V) 6 4 2 0 20 μ s 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
17 (G)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 -0.4 (V) 0 0 0 0 0 0 0 0 0 0 0 0 0

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description		Condition		Reference value	А
+	-	Signal name	Input/ Output		Condition	(Approx.)	
18 (P)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 1.41 40 40 41 47 47 47 −0.4 -0.5 KKB2237J	B C D
19 (W)	Ground	RGB synchronizing signal	Input	lgnition switch ON		(V) 4 0 + 20µs SKIB3603E	E
20 (G)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON		(V) 4 0 ++4ms 5KiB3598E	G
21		Shield			_	_	I
22 (BR)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	J
23	—	Shield			—	—	L

Wiring Diagram - BOSE AUDIO WITHOUT NAVIGATION SYSTEM -

NOTE:

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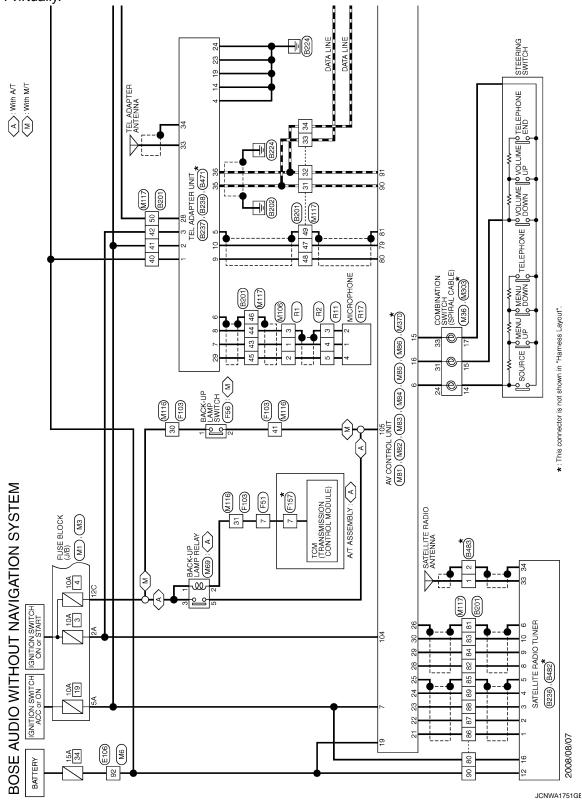
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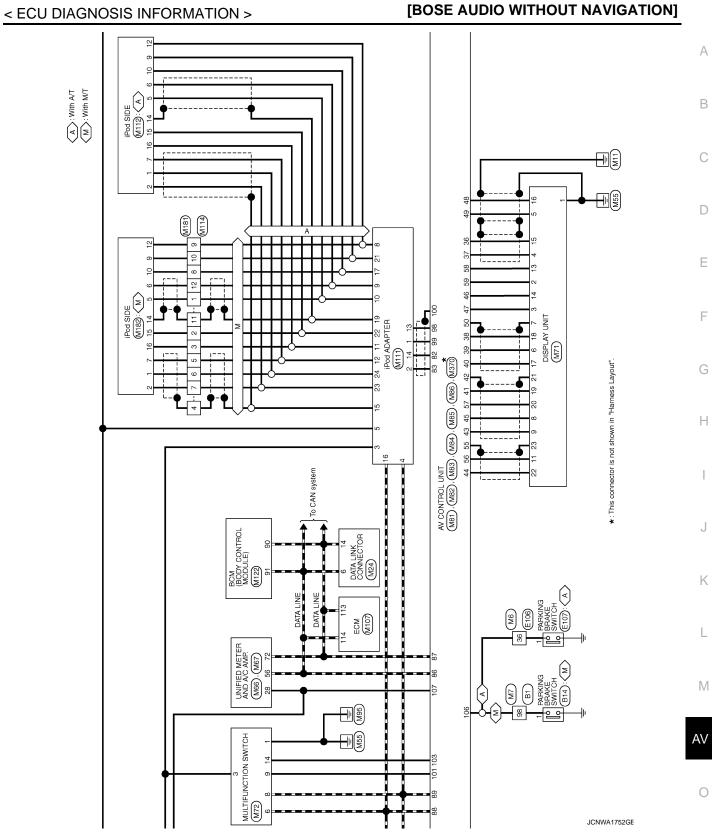
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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

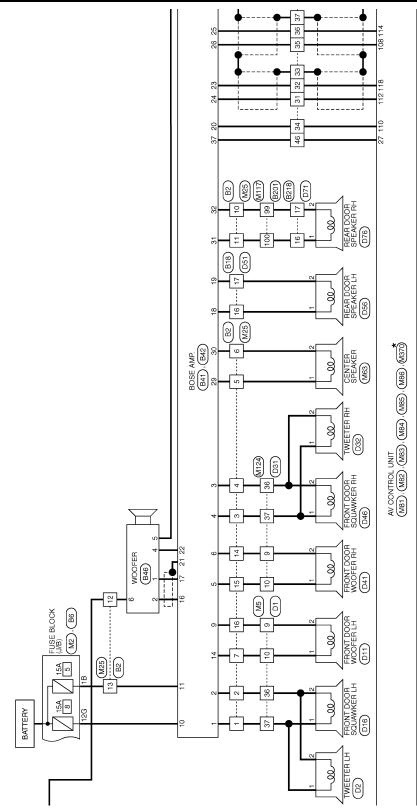
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.





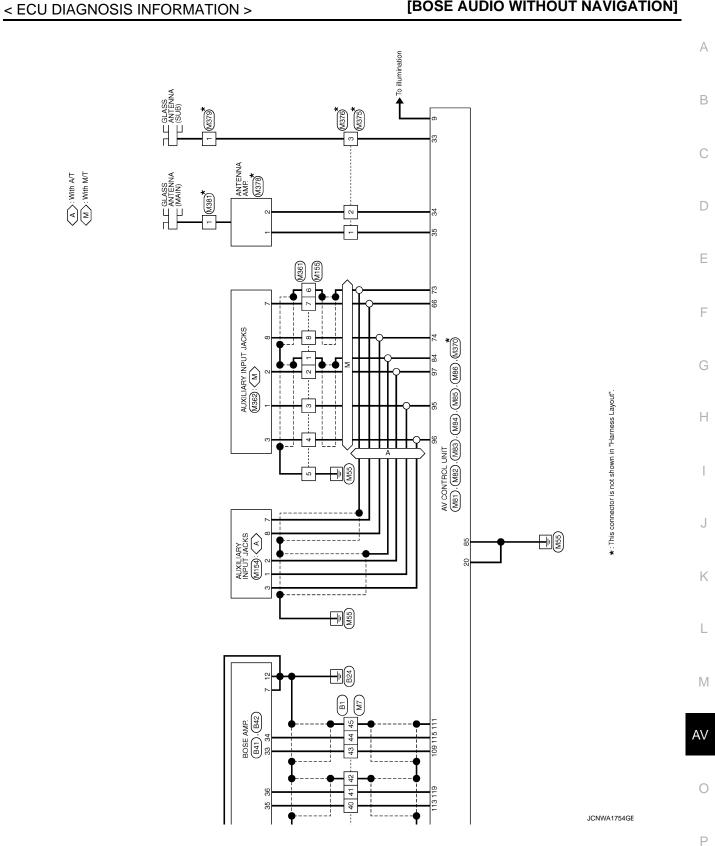
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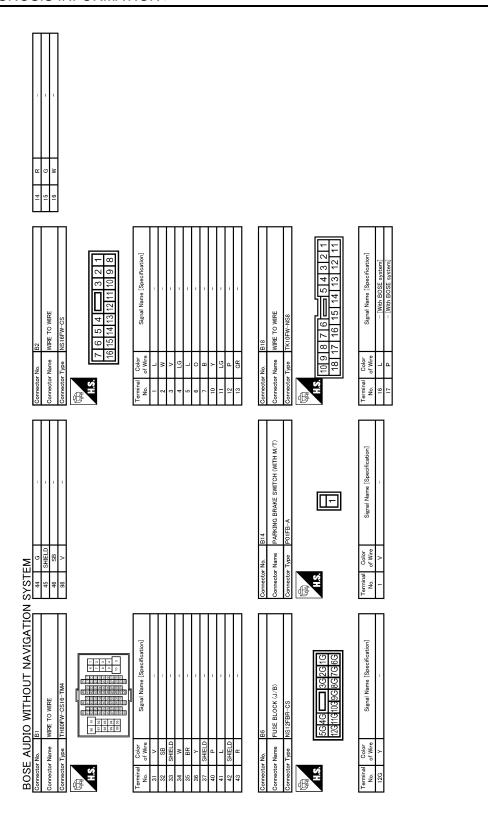
#### [BOSE AUDIO WITHOUT NAVIGATION]



★ : This connector is not shown in "Harness Layout".

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FRONT DOOR WOOFER LH (+)	No.         B218           Name         WIFE TO WIFE           Jyoe         TX (DFW-NIS)           10         9         7         6         3         2         1           11         11         12         11         12         11           Color         Signal Name (Specification)         -         -         -           P         -         -         -         -         -	A B C
2	Commetter No. Commetter Type 10 10 11 1 1 1 1 1	D
		E
SJA2 SJA2 SJA2 I 5 4 3 1 5 4 3 1 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		F
		G
Connector No. Connector Nar Connector Type LLSS Laminal Connector Type LLSS Laminal Connector Nar LLSS Connector Nar LLSS Connector Nar Connector Nar LLSS Connector Nar Connector Nar LLSS Connector Nar Connector Nar	10         9         9         9         8         3         8         4         1           10         9         9         9         9         9         1	Н
SOUND SIGNAL CENTER (+) SOUND SIGNAL CENTER (-) SOUND SIGNAL FEAR DOOR PH (-) SOUND SIGNAL FEAR DOOR PH (-) SOUND SIGNAL FEAR DOOR PH (-) SOUND SIGNAL FRONT PH (-) SOUND SIGNAL FRONT PH (-) SOUND SIGNAL FRONT PH (-) MODE CHANGE SIGNAL	8201 MrRE TO WIRE HIBORY-CSI6-TM4 HIB	l J
	Na Na Angle Color Angle Colo	K
SX 33 33 34 35 35 37 37 37 37 37 37 37 37 37 37	Commector Commector Commercian No. No. No. 33 33 33 44 41 41 45 45 45 45 45 45 45 45 45 45 45 45 45	L
BOSE AUDIO WITHOUT NAVIGATION Corrector Name BOSE AMP. Connector Name BOSE AMP. Connector Name BOSE AMP. Connector Type SCA19FBF-SGA4 Connector Type SCA19FBF-SGA4 CONECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTO	ER BR-CS Signal Name (Speedification) Signal Name (Speedification) Sourb Statut WOOFER (-) WOOFER AIA BATTERY	M
DIO MITHC Bui Bose AMP Segnal N Segnal N Segnal N Segnal N MODEFE Southo Set Southo Set		AV
BOSE AUC Connector Name Connector Name Connector Type Connector Type Connector Type Connector Type Connector Type Connector Type Connector Name Connector Na	Connector No. B16 Connector Name WOC Connector Type NS00 Lemmal Color No. of Wire Connector Color Connector Color	0

< ECU DIAGNOSIS INFORMATION >

#### **DISPLAY UNIT** [BOSE AUDIO WITHOUT NAVIGATION]

#### Revision: 2009 October

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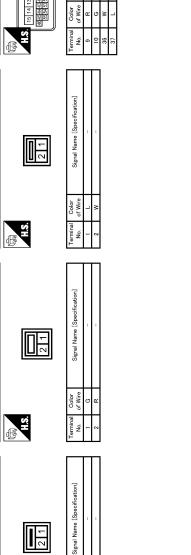
#### < ECU DIAGNOSIS INFORMATION >

#### 464544432414039333736 262524232212019181716 5554232515054494947 355323333736 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 Signal Name [Specification] Signal Name [Specification] TEL ADAPTER UNIT WIRE TO WIRE Color of Wire Color of Wire nnector Name Connector Name H.S.H H.S. Terminal No. 35 36 Terminal No. ſ 倨 Signal Name [Specification] SATELLITE RADIO ANTENNA Color of Wire nector Name SHIEL Terminal No. H.S. 50 E Signal Name [Specification] Signal Name [Specification] SATELLITE ANTEN SATELLITE RADIO TUNER TEL ADAPTER UNIT 5 9 Color of Wire Color of Wire Connector Name onnector Name Жc 2 1 3 SYSTEM HS Connector erminal No. H.S. erminal No. 4 ſ E ŏ BOSE AUDIO WITHOUT NAVIGATION Signal Name [Specification] Signal Name [Specification] EL ANTENN SATELLITE RADIO TUNER TEL ADAPTER UNIT 34 23 Color of Wire Color of Wire $\sim$ Connector Name Connector Name .S.H erminal No. erminal No. H.S. 倨

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## < ECU DIAGNOSIS INFORMATION > 4645444434241405833735 2552422221212019181716 555423525150494847 35323333233323130292827 σ Signal Name [Specification] Signal Name [Specification]



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erminal No.

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FRONT DOOR WOOFER LH

nector Name

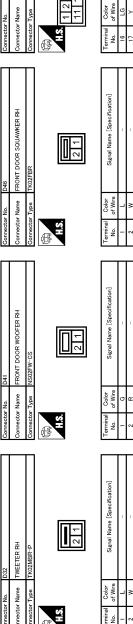
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BOSE AUDIO WITHOUT NAVIGATION

WEETER LH

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MIRE TO WIRE

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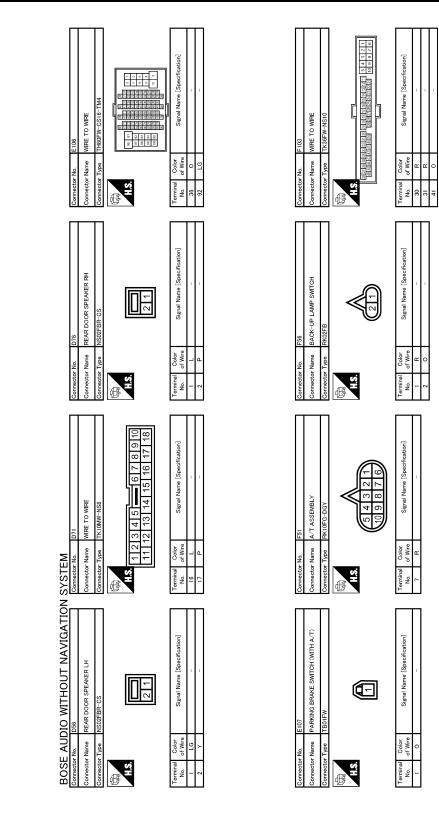
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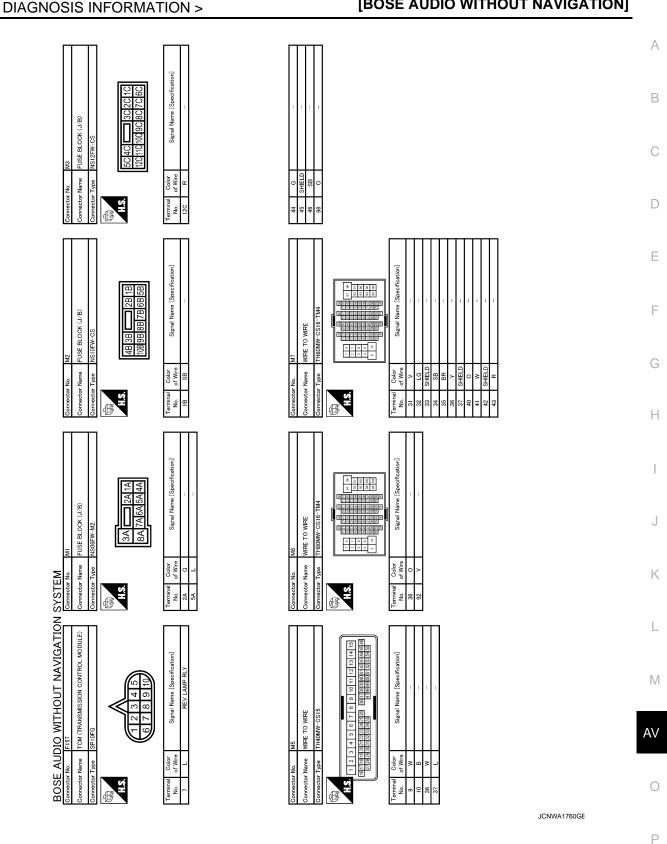
#### **DISPLAY UNIT** [BOSE AUDIO WITHOUT NAVIGATION]

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]



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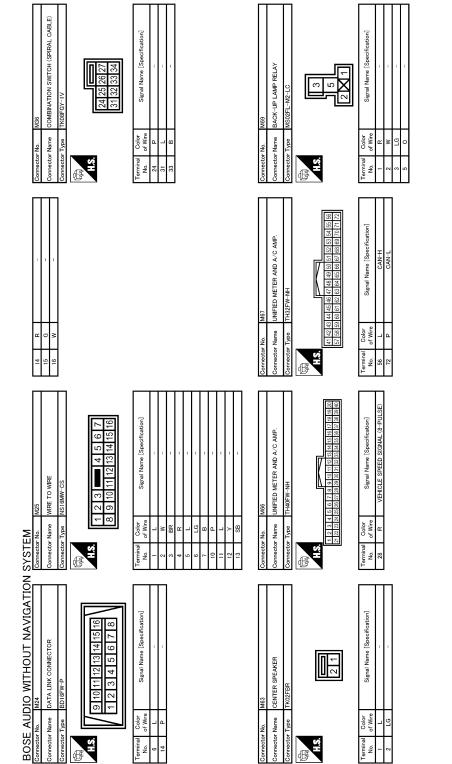
#### **DISPLAY UNIT** [BOSE AUDIO WITHOUT NAVIGATION]

Revision: 2009 October

2009 G37 Sedan

#### < ECU DIAGNOSIS INFORMATION >

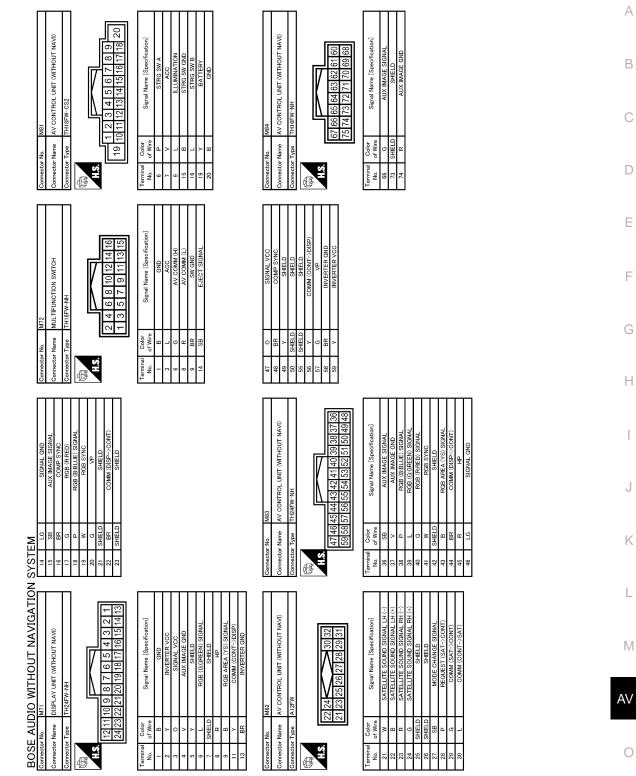
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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]



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<section-header></section-header>	
MANN         MANN           MANNN         MANN           MANNN         MANNN           MANNNN         MANNNN           MANNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN	Connector No.     MIO7     Connector       Connector Name     ECM     Connector       Connector Type     Connector     Connector       Connector Sternal Name (Specification)     No.       No.     Of Wire     VEHCAN+LI       1     Connector     Connector       Connector     Connector     Connector       Connector     Connector     Connector       Connector     Connector     Connector       Connector     Connector     Connector

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

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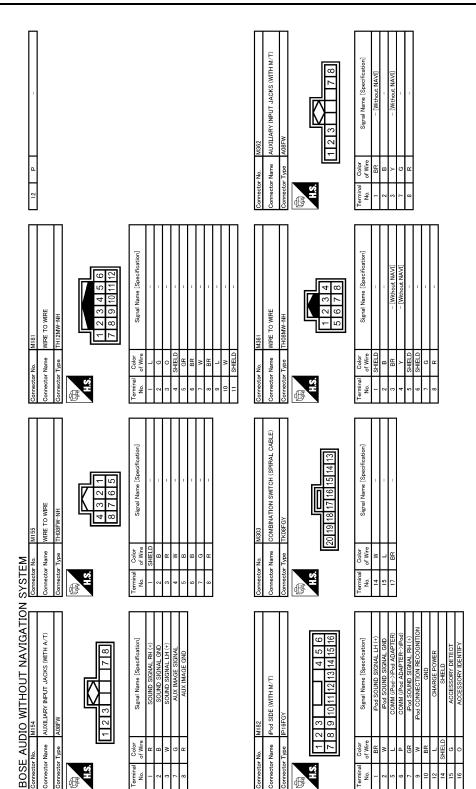
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r No. MI16 Name WRE TO WRE Type Tr38MW-NS10 Tr38MW-NS1	MI 22 BCM (BODY CONTROL MODULE) TH40FB-NH BISM (BID) TST/TST/TST/TST/TST/TST/TST/TST/TST/TST	F
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		L
BOSE AUDIO WITHOUT NAVIGATION Connector Name WITE TO WITE Connector Name WITE TO WITE Connector Name WITE TO WITE Connector Type Terminal Color No. of Wire Signal Name [Specification] Terminal Color No. of Wire Signal Name [Specification]	NW-CS16-TM4           W-CS16-TM4           Skgrat         Mane (Speecfication)	M
MILLA MIRE TO WIRE THIZEW-NH 121110		AV
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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

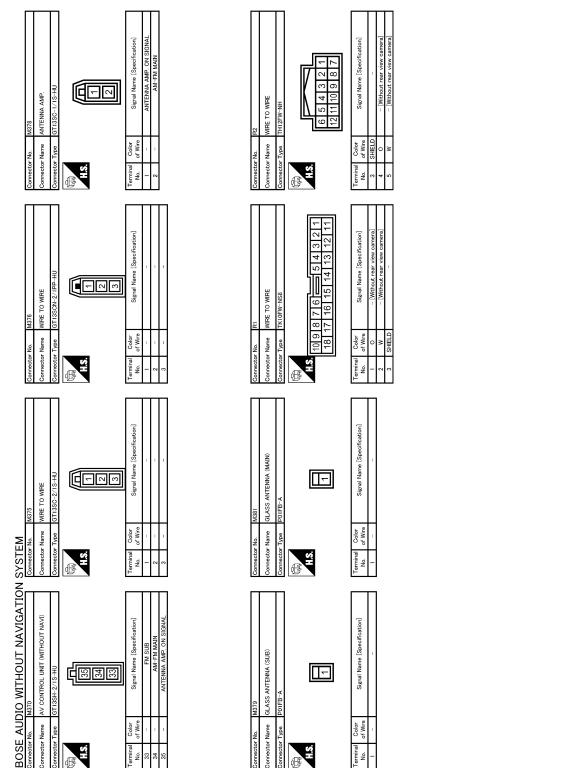


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#### [BOSE AUDIO WITHOUT NAVIGATION]

## DISPLAY UNIT RMATION > [BOSE AUDIO WITHOUT NAVIGATION]



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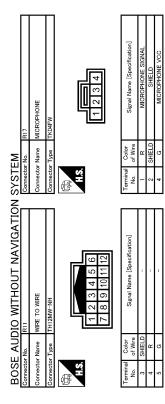
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Revision: 2009 October



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## < ECU DIAGNOSIS INFORMATION >

## BOSE AMP.

**Reference Value** 

INFOID:000000004238629

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#### **TERMINAL LAYOUT** В С 37 28 36 35 34 33 11 10 32 31 30 29 12 14 13 2625242322212019181716 27 15 987654321 D Ε JSNIA0760ZZ

#### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value	F
+	_	Signal name	Input/ Output		Condition	(Approx.)	G
1 (L)	2 (W)	Sound signal front door squawker LH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 **2ms SKIB3609E	Η
4 (V)	3 (LG)	Sound signal front door squawker RH	Output	lgnition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E	J K L
5 (G)	6 (R)	Sound signal front door woofer RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E	M
7 (B)	Ground	GND	_	Ignition switch ON		0 V	0
10 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	Ρ
11 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
12 (B)	Ground	GND	_	Ignition switch ON	_	0 V	

#### BOSE AMP.

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

	minal color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
14 (B)	9 (W)	Sound signal front door woofer LH	Output	Ignition switch ON	Voice output	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1
16 (SB)	17 (V)	Sound signal rear woofer	Output	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E
18 (L)	19 (P)	Sound signal rear door speaker LH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 2ms SKIB3609E
20 (W)	Ground	Amp. ON signal	Input	Ignition switch ACC	_	10 V
21	_	Shield		_	_	
22 (GR)	Ground	Woofer Amp. ON signal	Output	Ignition switch ACC	_	10 V
24 (V)	23 (SB)	Sound signal rear LH	Input	lgnition switch ON	Voice output	(V) 1 0 -1 + 2ms SKIB3609E
26 (BR)	25 (Y)	Sound signal rear RH	Input	Ignition switch ON	Voice output	(V) 1 0 -1 * 2ms SKIB3609E

#### BOSE AMP.

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

Terminal (Wire color)		Description			Condition	Reference value	А
+	-	Signal name	Input/ Output		Condition	(Approx.)	
29 (O)	30 (L)	Sound signal center speak- er	Output	Ignition switch ON	Voice output	(V) 1 0 -1 2ms SKIB3609E	B C D
31 (LG)	32 (Y)	Sound signal rear door speaker RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E	E
33 (R)	34 (G)	Sound signal front RH	Input	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E	G
35 (P)	36 (L)	Sound signal front LH	Input	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E	J
37 (SB)	Ground	Mode change signal	Input	Ignition switch	Driver's Audio Stage ON	0 V	I
(36)			-	ON	Driver's Audio Stage OFF	8.5 V	L_

Wiring Diagram - BOSE AUDIO WITHOUT NAVIGATION SYSTEM -

NOTE:

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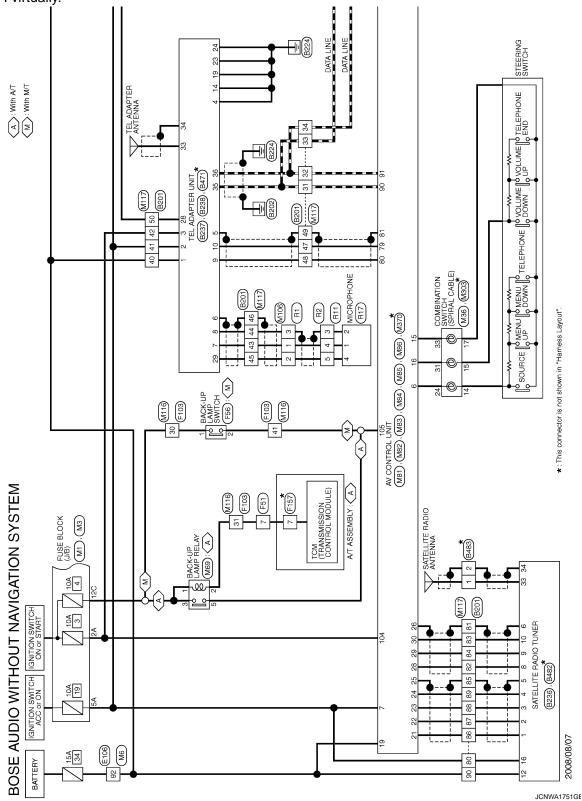
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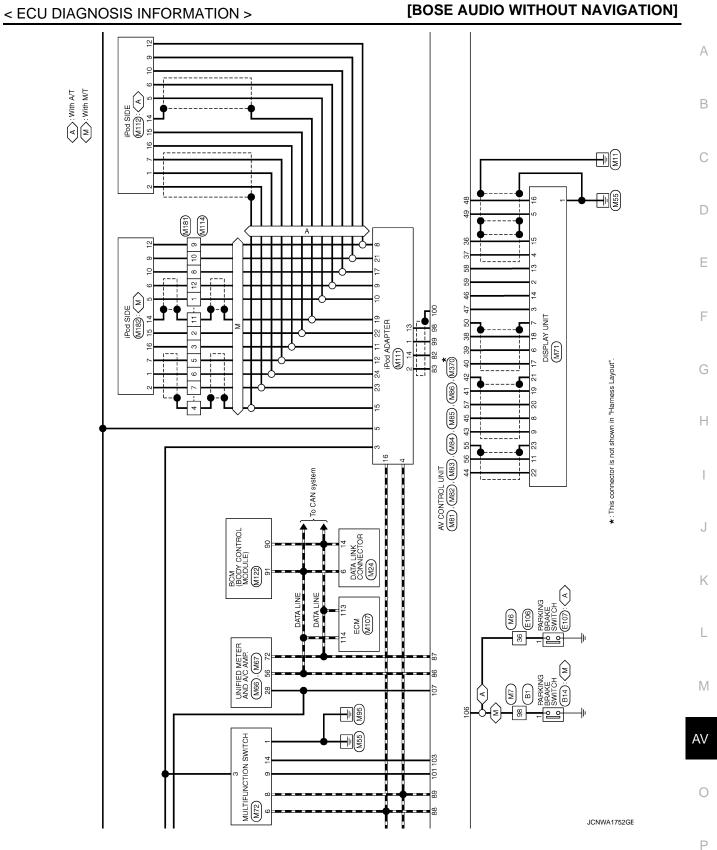
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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

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

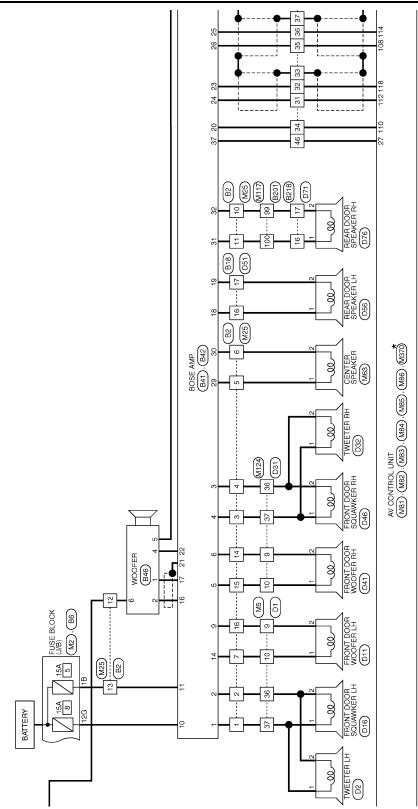




BOSE AMP.

#### < ECU DIAGNOSIS INFORMATION >

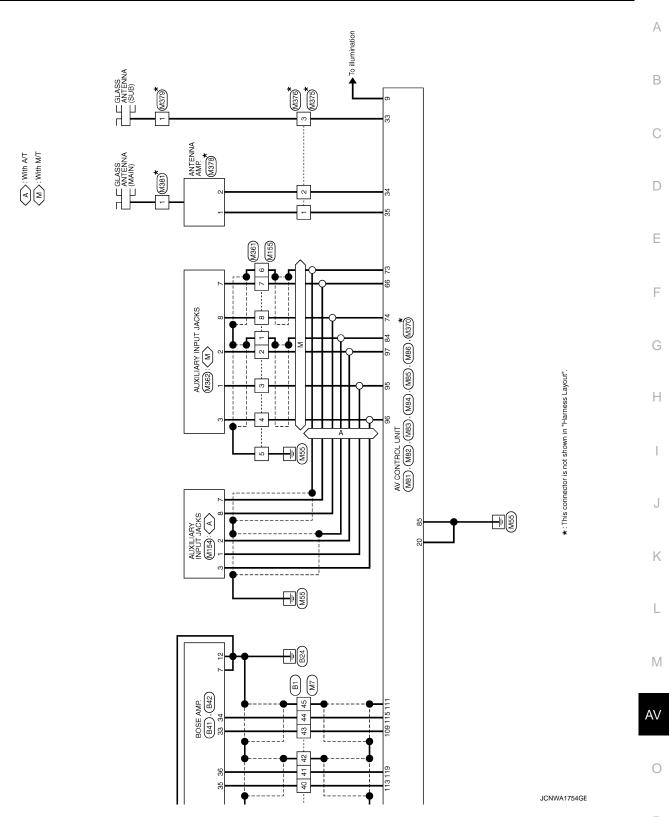
#### [BOSE AUDIO WITHOUT NAVIGATION]



BOSE AMP.

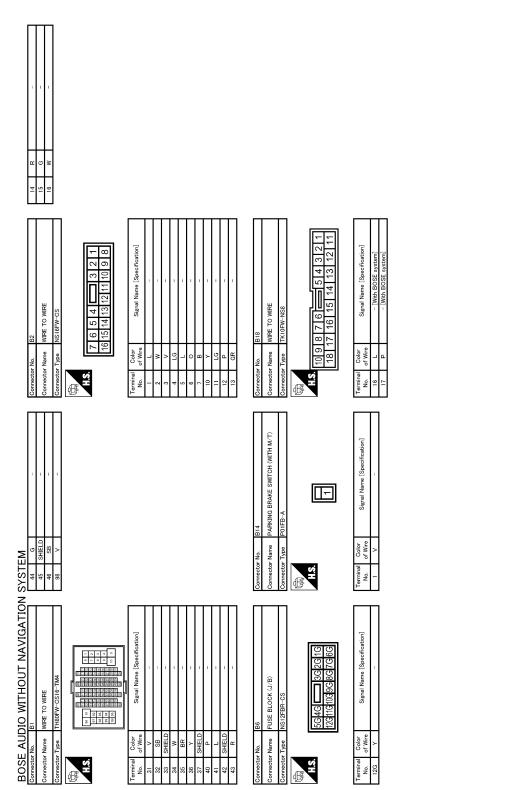
★ : This connector is not shown in "Harness Layout".

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BOSE AMP.

#### [BOSE AUDIO WITHOUT NAVIGATION]



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#### BOSE AMP. [BOSE AUDIO WITHOUT NAVIGATION]

FRONT DOOR WOOFER LH (+)	BE18 WIE TO WIEE TKOEW-HSB 7 16 15 14 13 12 11 Signal Name [Specification]	A B C
	Connector No. B218 Connector Name WIFE Connector Type Tri() H.S. 109 8 7 13 109 8 7 13 10 9 10 13 11 11 11 11	D
1111 1211 1211 1211 1211 1211 1211 1211 11111 11111 1111 1111 1111 1111 1111 1111 1111 1111 1111		Е
E AMP. 12FBR-SJA2		F
Connector No.         B42           Connector Name         B05           Connector Name         B05           Connector Type         SGA           Connector Type         SGA           Terminal         Color           Connector Type         SGA           Connector Type         SGA           Terminal         Color           Connector Type         SGA           Terminal         Color           Connector Type         SGA           Terminal         Color	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	G
NTER (+) NTER (-) NTER (-) DOOR RH (+) DOOR RH (-) NTT HI (-) NTT HI (-) SIGNAL		
SOUND SIGNAL CENTER (+) SOUND SIGNAL CENTER (-) SOUND SIGNAL TEAR DOOR FIH (-) SOUND SIGNAL FRONT FIH (-)		J
SSS 28 39 39 39 39 39 39 39 39 39 39 39 39 39	Connector No.         B201           Connector Name         WIRE           Connector Name         WIRE           Connector Name         WIRE           Connector Name         WIRE           No.         of Wire           No.         of Wire           No.         of Wire           Add         Connector Type	K
		L
O WITHOUT NAVIGATI Dise AIR: Set AIR: SATIPER-SOA4 SATIPER-SOA4 Satisfield Statistical Statisticae Statistica	B46       WOOFER       NISOFER-CS       Signal Name [Specification]       SOUND SIGNAL, WOOFER (-)       WOOFER APP. ON SIGNAL, WOOFER (-)       MODER APP. ON SIGNAL, WOOFER (-)       BATTERY	M
BOSE AUDIO WITHOUT NAVIGATION Connector Name Connector Name	Connector No. B46 Connector Name No. 00 FEX No. 00 FEX	AV O

< ECU DIAGNOSIS INFORMATION >

#### BOSE AMP.

[BOSE AUDIO WITHOUT NAVIGATION]

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#### BOSE AMP.

Connector Name

H.S.H

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#### < ECU DIAGNOSIS INFORMATION >

TEL ADAPTER UNIT

onnector Name

Signal Name [Specification]

Color of Wire

Terminal No. 35 36

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H.S.

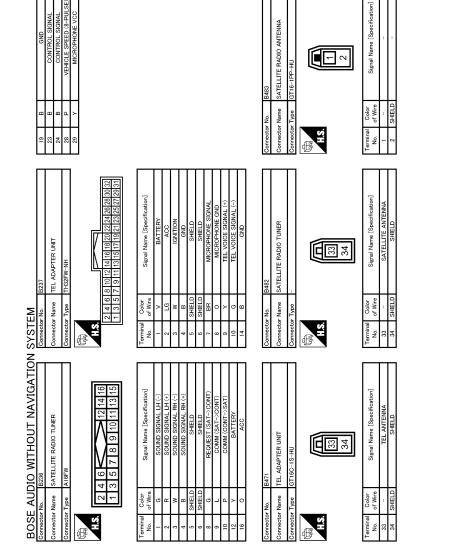
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## [BOSE AUDIO WITHOUT NAVIGATION] 464544432414039333736 262524232212019181716 5554232515054494947 355323333736 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 Signal Name [Specification] WIRE TO WIRE

Color of Wire

Terminal No.

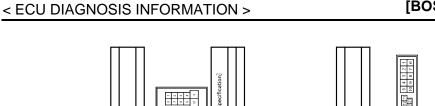
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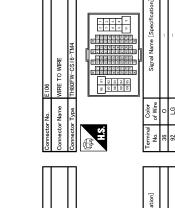
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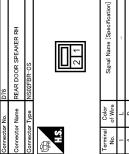
BOSE AMP.			
< ECU DIAGNOSIS INFORMATION	N > [BC	SE AUDIO WITHOUT NAVIGATION]	
		A	
No.         D31           Name         D31           Name         Wife           Name         Mife           Tope         Th40FW-CS15           Tope         Th40FW-CS15           Tope         Th40FW-CS15           Color         Signal Name (Specification)           Object         Signal Name (Specification)		Signal Name (Specification)	
No.         D31           Name         WRE TO WIFE           Name         WIE TO WIFE           Type         TH40FW-CS15           Extended additional additionadditional additionadditional additionadditionadditi	or No. D51 or Name WIRE TO WIRE or Type TrX(10M/-H33 or Type 113 14		
	10         R           36         W           36         W           36         Connector No.           Connector Name         Connector Name           Connector Name         Connector Name           M.S.         11	Terminal No. 1	
KER LH Specification]	89 	Specification]	
PII FRONT DOOR SQUAWKER LH TKOZFBR Signal Name [Specification]	bi6 FRONT DOOR SOUAWKER RH TKOZFBR	Signal Name (Sreefication)	
rector No. rector Name rector Name rector Type of Wire of Wire	ector No. w w cector Name ector Name	D C C C C C C C C C C C C C	
OOR WOOFER LH CS Signal Name [Specification]		Signal Name (Specification)	
DII FRONT D NS02FW	P P P P P P P P P P P P P P P P P P P		
A SYSTEM Connector Name Connector Name Connector Type A.S. of Wire No. of Wire	2 R Connector No. Connector Name Connector Type	X No. of Wire 2 2 R R R R R R R R R R R R R R R R R R	
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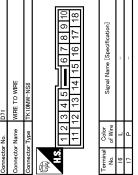
## Revision: 2009 October



BOSE AMP.

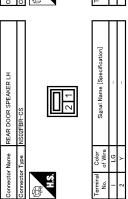




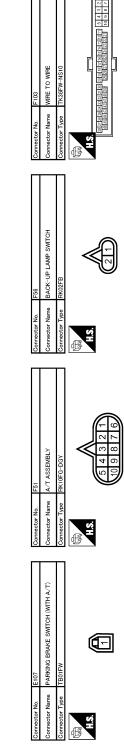


SYSTEM

BOSE AUDIO WITHOUT NAVIGATION



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#### [BOSE AUDIO WITHOUT NAVIGATION]

Signal Name [Specification]

Color of Wire

Terminal No.

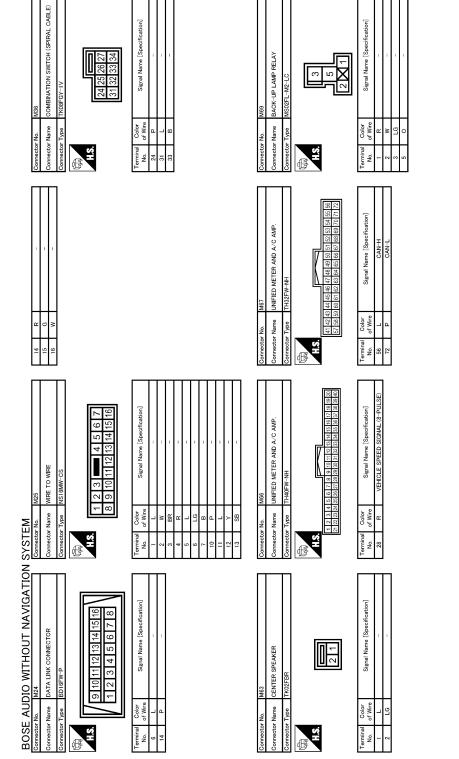
J DIAGNOSIS INFORMATION >	BOSE AMP. [BOSE AUDIO WITHOUT NAVIGATION]	
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ock (J/B) CS CS CS CS CS CS CS CS CS CS CS CS CS		В
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Connector Connector Connector H.S. No. 12C		
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M2 EUSE BLOCK (J/B) INS (J0FW-CS INS (J0FW-CS (J0B) 9B (B) 7B (6B) 5B (10B) 10B (10B) 10B (10B) 10B (10B) 10B (10B) 10B (10B) 10B) 10B (10B) 10B (10B) 10B (10B) 10B) 10B (10B) 10B (10B) 10B (10B) 10B) 10B (10B) 10B (10B) 10B (10B) 10B (10B) 10B) 10B (10B) 10B (10B		F
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MI FUSE BLOCK (J/B) NS06FW-M2 NS06FW-M2 Signal Name [Specification]	V WIRE Control of the second	J
	of Scaler <pre>Action</pre>	K
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· WODULE)		L
BOSE AUDIO WITHOUT NAVIGATION Connector Name Connector Name	r No. M5 r Name WIRE TO WIRE r Name WIRE TO WIRE r Type TH40MM-CS15 f 1 2 3 4 5 6 7 8 9 10 (11 12 (3) (4 15) 0 W F Color 0 W F Co	Μ
	Absolution         M5           Name         MFE           Name         ME           Name         ME           Name         ME	AV
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## BOSE AMP.

## Revision: 2009 October

# < ECU DIAGNOSIS INFORMATION > [E

#### BOSE AMP. [BOSE AUDIO WITHOUT NAVIGATION]



JCNWA1761GE

BUS DIAGNOSIS INFORMATION >	BOSE AUDIO WITHOUT NAVIGATION
Connector No.     M81       Connector Name     AV CONTROL UNIT (WITHOUT NAVI)       Connector Type     THI RPW-CS2       Connector Type     THI RPW-CS2	Connector No.         M84           Connector Name         AV CONTROL UNIT (WITHOUT NAVI)           Connector Type         THI IE/W-NH           Total Tot
Connector No.     M/2       Connector Name     M/L.TIE/INCTION SWITCH       Connector Type     HLI/EINCTION SWITCH       Connector Type     HLI/EINCTION SWITCH       Connector Type     HLI/EINCTION SWITCH       Connector Type     HLI/EINCTION SWITCH       Connector Type     Signal Name [Specification]       I     I     Signal Name [Specification]       I     I     AC       I     I     AC       I     Signal Name [Specification]       I     AC       I     AC       I     Signal Name [Specification]       I     AC       I     AC       I     AC       I     Signal Name [Specification]	47         0         SIGNALVCC           48         Br         COMPSYIC           49         SHELD         SHELD           49         SHELD         SHELD           56         SHELD         SHELD           57         G         SHELD           58         BR         COMPSYIC           59         Y         COMPSYIC           59         Y         COMPSYIC           59         Y         COMPSYIC           50         Y         COMPSYIC           51         Y         COMPSYIC           52         Y         MVETTER VCC
J SYSTEM       14 Display     SIGNAL GND       15 SB     ALX MAGE SIGNAL       15 SB     CMX MAGE SIGNAL       16 BR     CMX MAGE SIGNAL       17 G     CMP SYNC       19 W     RGB GRALE       20 G     VP       21 BR     CMM CP       22 BR     SHELD       23 SHELD     SHELD	Ommetore No.         MB3           Connector Name         AV CONTROL UNIT (MITHOUT NAV))           Connector Type         It24P-NH           Connector Type         It24P-NH           Mail         AV Control           Mail         AV Control           Mail         AV Connector Type         It24P-NH           Mail         AV         AV         AV           Mail         AV         AV         AV           Mail         AV         AV         AV           Mail         Control         Signal Name (Specification)         AV           Mail         Cold         Signal Name (Specification)         AV           Ma
AUDIO WITHOUT NAVIGATION SYST me bisPLAY UNIT (MITHOUT NAVI) me bisPLAY UNIT (MITHOUT NAVI) me bisPLAY UNIT (MITHOUT NAVI) me bisPLAY UNIT (MITHOUT NAVI) 22111109 8 7 6 5 4 3 2 1 4232221201918117161514113 222 222 222221201918171615 222 222 22222222222222222222222222	0     M62       mm     AV CONTROL UNIT (NITHOUT NAVI)       pm     AV SOURCL UNIT (NITHOUT NAVI)       pm     AV SOURCL UNIT (NITHOUT NAVI)       pm     Signal Name (Specification)       Vilve     30(32)       22124     30(32)       212325     25126       212325     25128       201     Signal Name (Specification)       When     SameLLITE SOUND SIGNAL, LH (-)       B     SATELLITE SOUND SIGNAL, LH (-)       C     SameLLITE SOUND SIGNAL, LH (-)       B     SATELLITE SOUND SIGNAL, LH (-)       C     SameLLITE SOUND SIGNAL, LH (-)       B     SateLLITE SOUND SIGNAL, LH (-)       C     SateLLITE SOUND SIGNAL, CH (-)       C     COMN (CONT)       C     COMN (CONT)

BOSE AMP.

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BOSE AUDIO

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Connector No.     M106       Connector Name     WIRE TO WIRE       Connector Type     TK10MM-NS3       Connector Type     TK10MM-NS3	Connector No.         M12           Connector Name         Pod SDE (MTH A/T)           Connector Type         Pod SDE           Connector Type         Signal Name [Specification]           Freminal         Colon           Colon         Signal Name [Specification]           P         Pod SOUND SIGNAL GND           P         Pod CONNECTON           P         Pod SOUND SIGNAL GND           P         Pod SOU
Connector No.         M86           Connector Name         AV CONTROL UNIT (WITHOUT NAVI)           Connector Type         TH12FW-NH           Marcine         TH12FW-NH           Marcine         Signal Name [Specification]           No.         Signal Name [Specification]           No.         Signal Name [Specification]           111         B         SoUND SIGNAL REAR FH (+)           111         B         SOUND SIGNAL REAR FH (+)           111         P         SOUND SIGNAL REAR FH (+)           113         O         SOUND SIGNAL REAR FH (+)           114         Y         SOUND SIGNAL REAR FH (+)           118         G         SOUND SIGNAL REAR FH (+)           119         Y         SOUND SIGNAL REAR FH (+)           119         W         SOUND SIGNAL REAR FH (+)           119         W         SOUND SIGNAL REAR FH (+)           119         W         SOUND SIGNAL REAR FH (+)	I4         G         Ped SOUND SIGNAL RH (-)           5         SHELD         SHELD           11         BR         SHELD           12         BR         AV CORM (4)           21         BR         SHELD           22         G         ACCONSCION FECONICION           23         R         ACCESSOPY DETECT           24         B         Ped SOUND SIGNAL LH (-)
SYSTEM         AV colmit (i)           90         SB         AV colmit (i)           91         Y         AV colmit (i)           95         R         AUX SOUND SIGNAL IH (-)           96         K         AUX SOUND SIGNAL IH (-)           97         B         SHELD           98         K         AUX SOUND SIGNAL IH (-)           99         R         Pod SOUND SIGNAL IH (-)           100         SHELD         SHELD           101         BR         SHELD           102         SHELD         SHELD           103         SHELD         SHELD           104         G         SIGNAL IH (-)           105         SIG         SHELD           106         SB         SIGNAL IH (-)           107         G         VEHCLE SECON	Opmentor         MII1           Connector Name         Pod ADAPTER           Main         Total Name           Main         Signal Name [Specification]           No.         of Wire           No.         of Wire           Signal Name [Specification]           No.         of Wire           No.         of Wire           No.         of Wire           No.         OAM (Dod SignAL, LH (c))           10         L           10         L           11         OAM (Dod ADAPTER)           12         Main           13         Main
BOSE AUDIO WITHOUT NAVIGATION Competent Name (Name) Connector Name (Name) Connector Name (Name) Connector Type TH27FW-HH Connector Type TH27FW-HH Connector Type TH27FW-HH Connector Type Connector	Connector No.         MIO7           Connector Name         ECM           Liza         122 112 114 101 100 0030           Terminal         Color           No.         of Wire           No.         VEHCAN+LI           113         P           VEHCAN+LI         VEHCAN+LI

BOSE AMP.

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

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	CS15 CS15 Signal Mame [Specification] Signal Mame [Specification]	A B
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No.         M16           Name         M116           Name         M175           Color         Type           I.13         I.12           Color         I.13           No.         I.13           No.         I.13	No.         M122           Name         BCM (BO (B))           Typea         F1140FB-           L         Color           P         Mireo	G
Connector Name Connector Type Connector Type HS HS HS HS HS HS HS HS HS HS HS HS HS	Connector Name Connector Name Connector Type Connector Type Connector Type Connector Name Connector Name Connec	Н
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BOSE AUDIO WITHOUT NAVIGATION Genetica Name MIE TO WRE Connector Name MIE TO WRE Connector Name MIE TO WRE Connector Type Terminal Color 1 2111109 8.7 12111109 8.7 12111109 8.7 12111100 8.7 1211110 1	To WIRE	Μ
DIO WITH MIII 0 WITH MIII 0 WIE TO WIE 1011110 Stevel Stevel Stevel MIII 0 WIE MIII 0 WIE MIIII 0 WIE MIIII 0 WIE MIII 0 WIE MIII 0 WIE MIII 0 WIE M		AV
BOSE AUIC Connector Name Connector Name Connector Type Name AS A A A A A A A A A A A A A A A A A A	Connector Name Connector Name Connector Type Terminal Color 10. Color 11. Color 13. Color 14. Co	0

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### [BOSE AUDIO WITHOUT NAVIGATION]

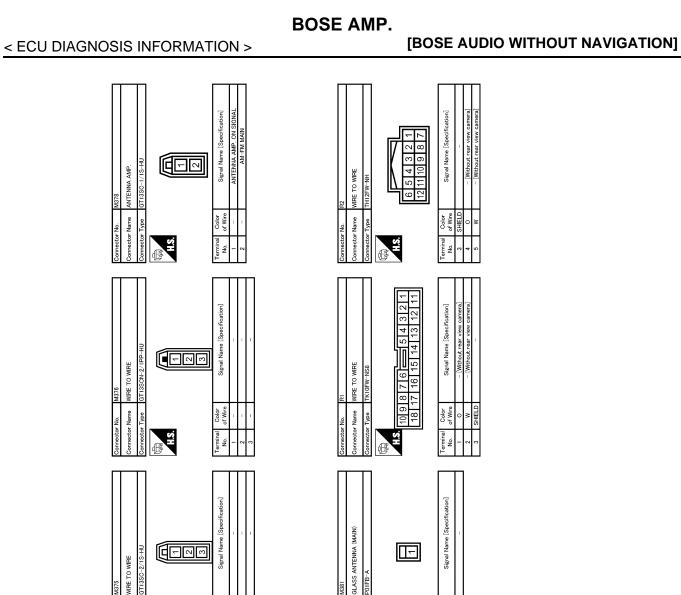
BOSE AUDIO WITHOUT NAVIGATION       Connector Num.       Number of Numb	Aligned connector Name Connector Name Connector Name Connector Name Connector Name Connector Name (4) 3     MIS5 Connector Name (4) 3       Aligned connector Name Connector Name (4) 3     Aligned connector (4) 3       Aligned connector Name (4) 3     Aligned connector (4) 4       Aligned connector Name (4) 3     Aligned connector (4) 4       Aligned connector Name (4) 3     Aligned connector (4) 4       Aligned connector Name (4) 4       Aligne conneconnector Name (4) 4       Aligne con	Connector No.         MISI           Connector Name         WIRE TO WIRE           Connector Name         WIRE TO WIRE           Connector Name         WIRE TO WIRE           Connector Name         Wire         To Wire           To No.         of Vire         Signal Name (Specification)           No.         of Vire         Signal Name (Specification)           2         G         -           3         O         -           6         GR         -           7         W         -	- d 21
Connector No.         MI62           Connector Name         Pod SIDE (WITH M.T)           Connector Type         IP16FGV           Minor         Pod SIDE (MITH M.T)	Connector No. M303 Connector Name COMBINATION SWITCH (SPIRAL CABLE) Connector Type COMBINATION SWITCH (SPIRAL CABLE)	io     w       11     SelfeLD       Connector Name     WRE 10	Connector No. M62 Connector Name AUXILIARY INPUT JACKS (WITH M.T) Connector Type A06FW
Terminal No.         Color of Wire Mission         Signal Name [Specification]           1         1         Pend SOUND SIGNAL LH (+)           2         W         Pend SOUND SIGNAL LH (+)           2         W         Pend SOUND SIGNAL CND           5         L         COMM (Pend-Pend ADARTER)           6         P         COMM (Pend-Pend ADARTER)           7         GR         Pend SOUND SIGNAL RH (+)           9         W         Pend SOUND SIGNAL RH (+)           10         Br         Pend SOUND SIGNAL RH (+)           11         SHELD         CMARE           12         COMM (Pend APPERP)         CMARE           14         SHELD         SHELD           15         G         ACCESSONY DETRECT           16         O         ACCESSONY DENTRY	Terminal     Color     Signal Name [Specification]       No.     of Mire     N       14     W     -       17     BR     -	Terminal         Color         Terminal         Color         Nu         drivina           No.         drivina         Signal Mane [Specification]         -         -         -           1         1         -         -         -         -         -           2         B         -         -         -         -         -           3         B         -         -         -         -         -         -           4         Y         - </td <td>Terminal         Color         Signal Name [Specification]           No.         0 Wee        </td>	Terminal         Color         Signal Name [Specification]           No.         0 Wee

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#### < ECU DIAGNOSIS INFORMATION >

# BOSE AMP.

#### [BOSE AUDIO WITHOUT NAVIGATION]



nector Name

GLASS ANTENNA (SUB)

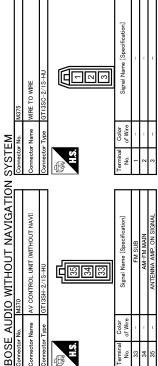
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Signal Name [Specification]

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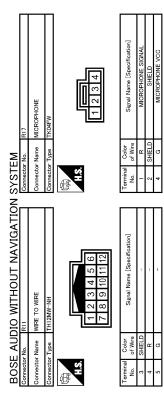
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BOSE AMP.



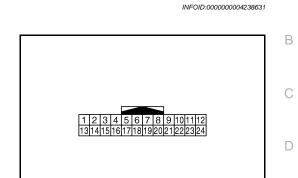
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#### < ECU DIAGNOSIS INFORMATION >

### IPOD ADAPTER

Reference Value

**TERMINAL LAYOUT** 



#### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
1 (R)	13 (W)	iPod sound signal LH	Output	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 -1 +2ms SKIB3609E
2 (B)	14 (G)	iPod sound signal RH	Output	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 −1 2 ms 5 KKB3609E
3 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
4 (R)	—	AV communication signal (L)	Input/ Output	—	—	_
5 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
8 (W)	Ground	iPod battery charge	Output	Ignition switch ON	Connected to iPod <sup>®</sup>	12 V

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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
9 (P)	Ground	Communication signal (iPod adapter→iPod <sup>®</sup> )	Output	Ignition switch ON	The wave pattern is dis- played just after iPod con- nection.	(V) 3 2 1 0 4 2 1 0 4 2 1 0 3 2 1 0 3 2 1 0 4 2 1 0 4 2 1 0 4 2 1 0 3 2 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1
10 (L)	Ground	Communication signal (iPod <sup>®</sup> →iPod adapter)	Input	Ignition switch ON	Connected to iPod <sup>®</sup>	(V) 3 1 0 + 2ms JPNIA0462GB
11 (O)	Ground	ACCESSORY-IDENTIFY		Ignition switch ON	Connected to iPod <sup>®</sup>	0 V
12 (W)	23 (R)	iPod sound signal RH	Input	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 −1 + 2ms SKIB3609E
15		Shield	_	_	_	_
16 (G)		AV communication signal (H)	Input/ Output		_	_
17 (BR)	Ground	GND	_	Ignition switch ON	_	0 V
19	—	Shield	—	_	—	_
21	0	iPod connection recogni-		Ignition	Not connected to iPod <sup>®</sup>	4 V
(W)	Ground	tion signal	Input	switch ON	Connected to iPod <sup>®</sup>	0 V
22 (G)	Ground	ACCESSORY-DETECT	_	Ignition switch ON	Connected to iPod <sup>®</sup>	0 V
24 (B)	23 (W)	iPod sound signal LH	Input	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 -1 • 2ms SKIB3609E

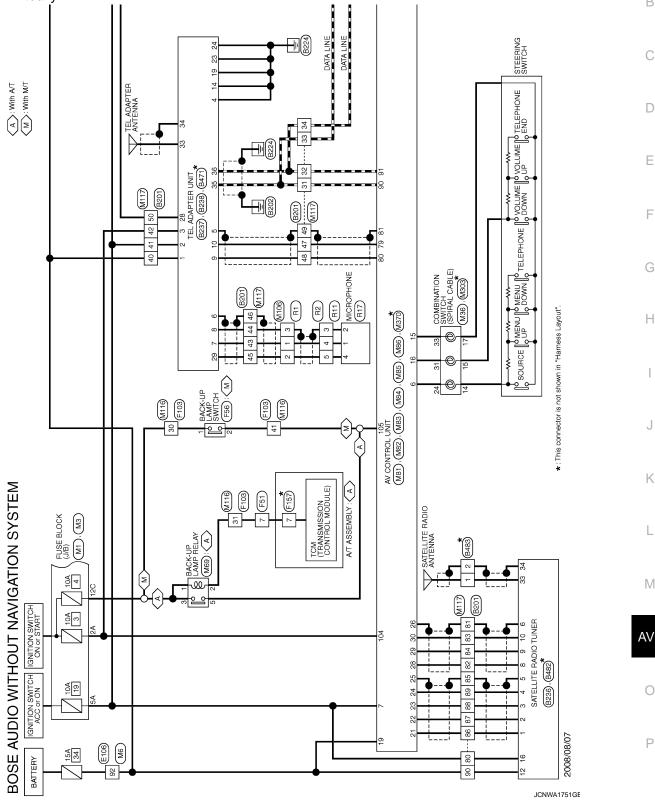
#### **IPOD ADAPTER** [BOSE AUDIO WITHOUT NAVIGATION]

### < ECU DIAGNOSIS INFORMATION >

#### Wiring Diagram - BOSE AUDIO WITHOUT NAVIGATION SYSTEM -

#### NOTE:

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



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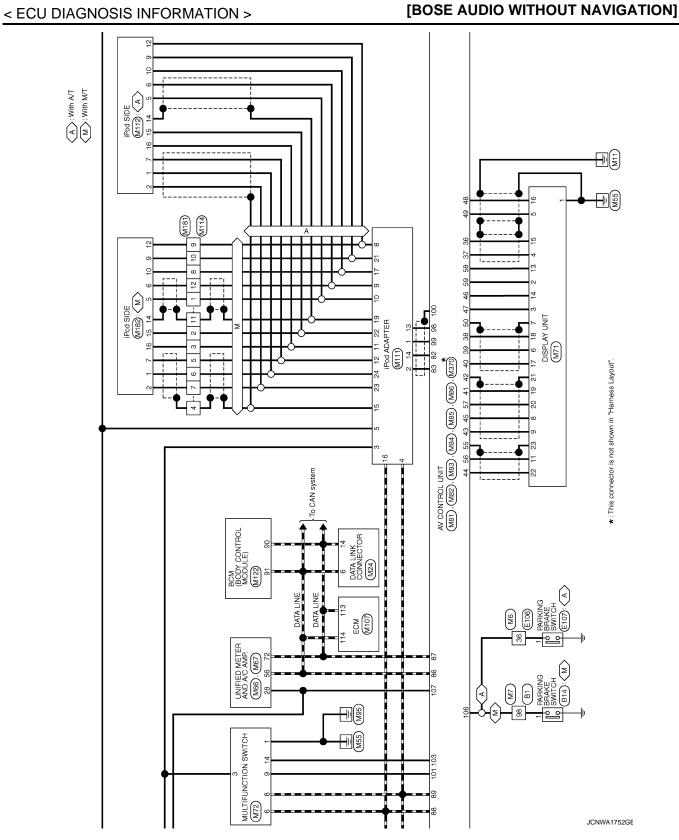
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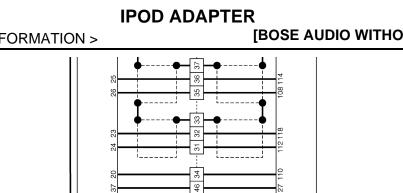
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# Revision: 2009 October



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CENTER SPEAKER (M63) J

TWEETER D32 g

FRONT DOOR

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FRONT DOOR WOOFER RH D41

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, M370

AV CONTROL UNIT (M81). (M82). (M83). (M84). (M85). (M86).

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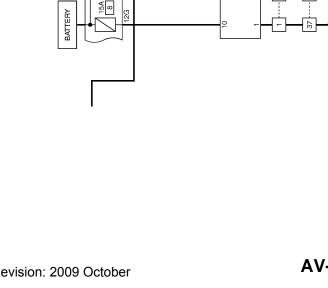
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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

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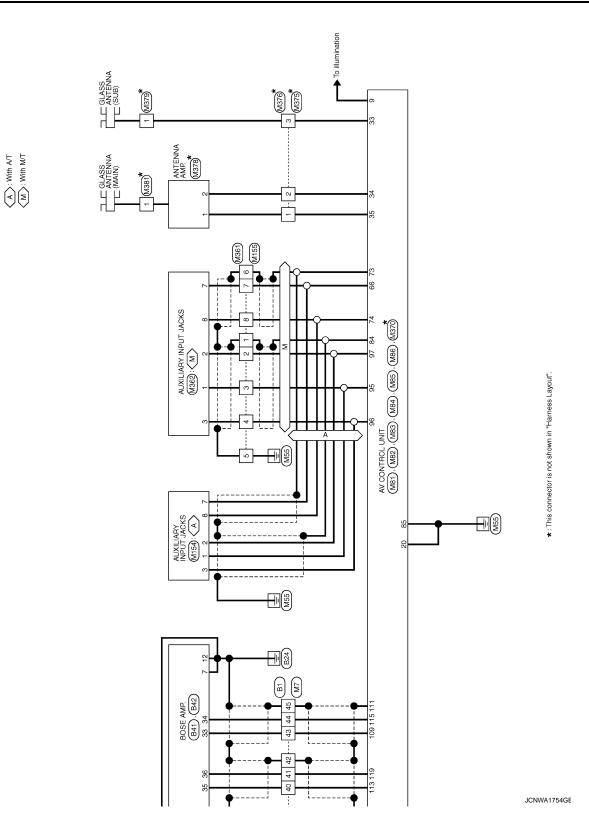
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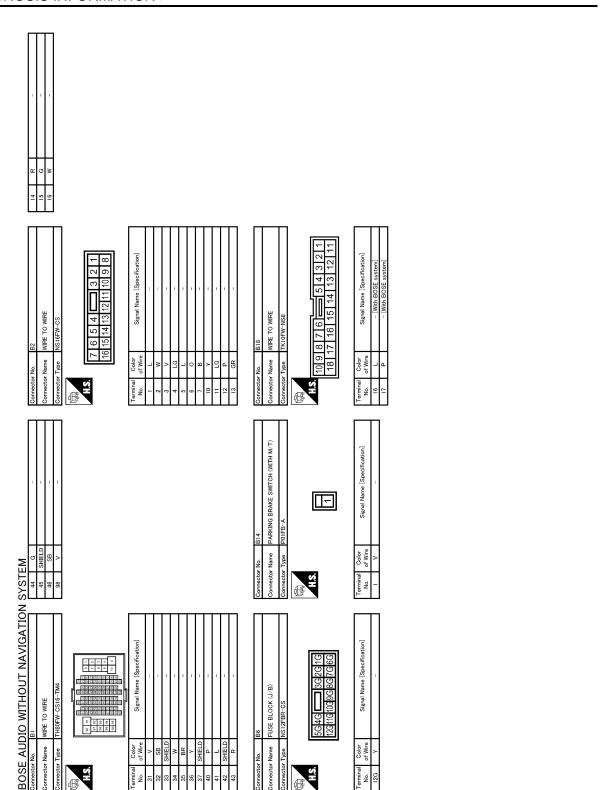
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FUSE BLOCK (J/B) M2), B6

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Revision: 2009 October





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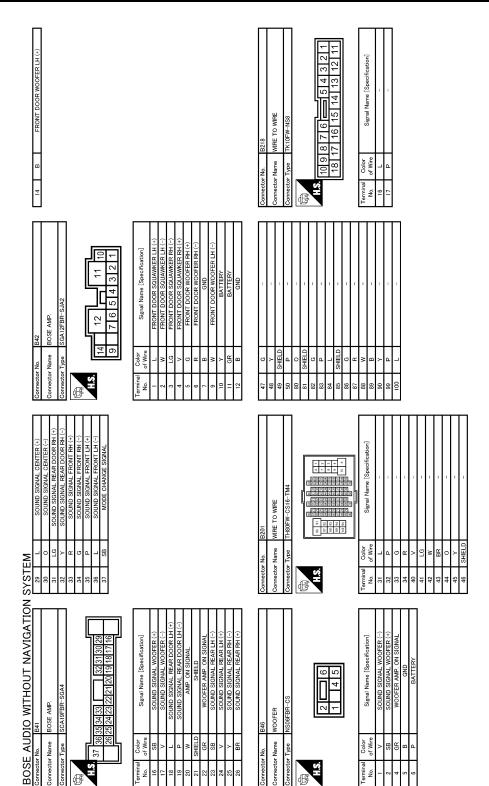
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#### **IPOD ADAPTER** [BOSE AUDIO WITHOUT NAVIGATION]

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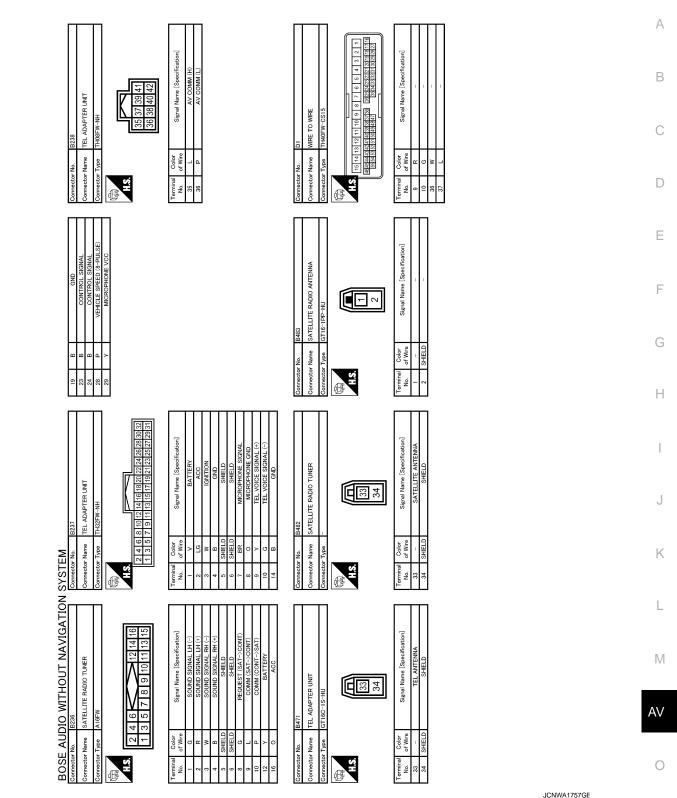
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#### [BOSE AUDIO WITHOUT NAVIGATION]

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#### [BOSE AUDIO WITHOUT NAVIGATION]



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#### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITHOUT NAVIGATION]

Signal Name [Specification]

Color of Wire

Terminal No.

Signal Name [Specification]

Color of Wire

Terminal No.

Signal Name [Specification]

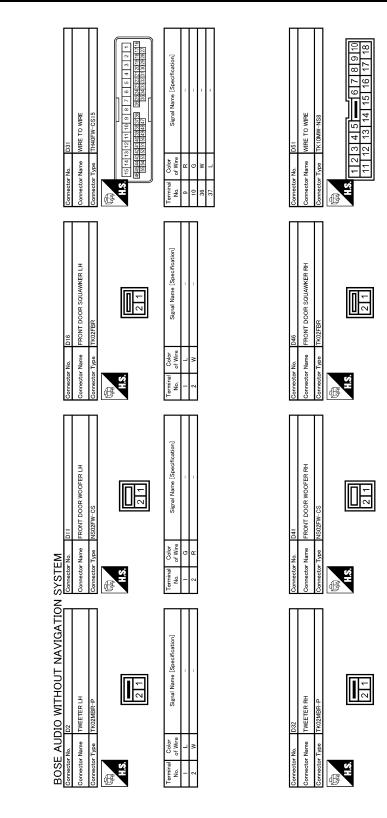
Color of Wire

Ferminal No.

Signal Name [Specification]

Color of Wire

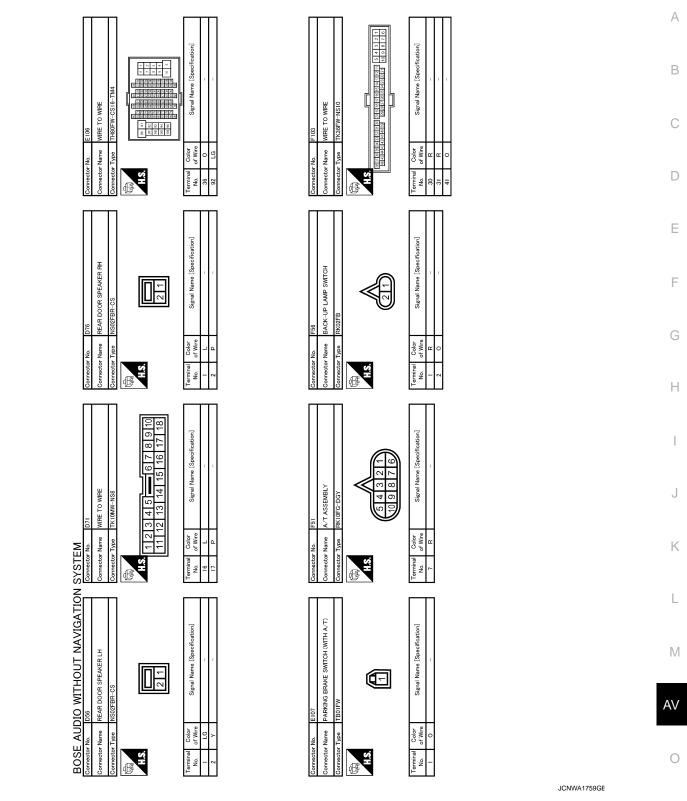
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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]



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# < ECU DIAGNOSIS INFORMATION >

### IPOD ADAPTER

#### [BOSE AUDIO WITHOUT NAVIGATION]

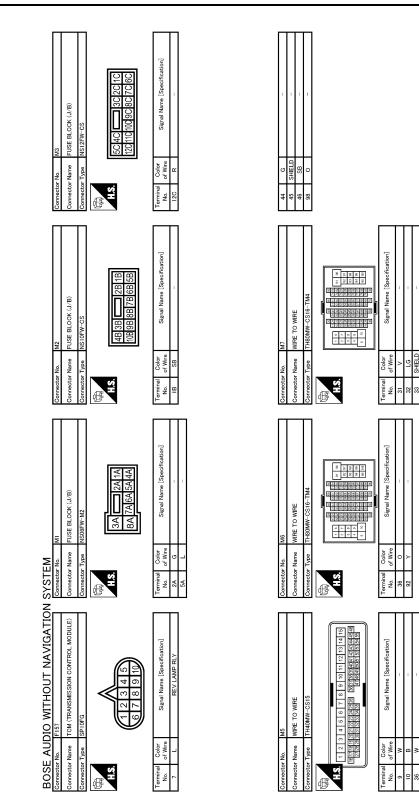
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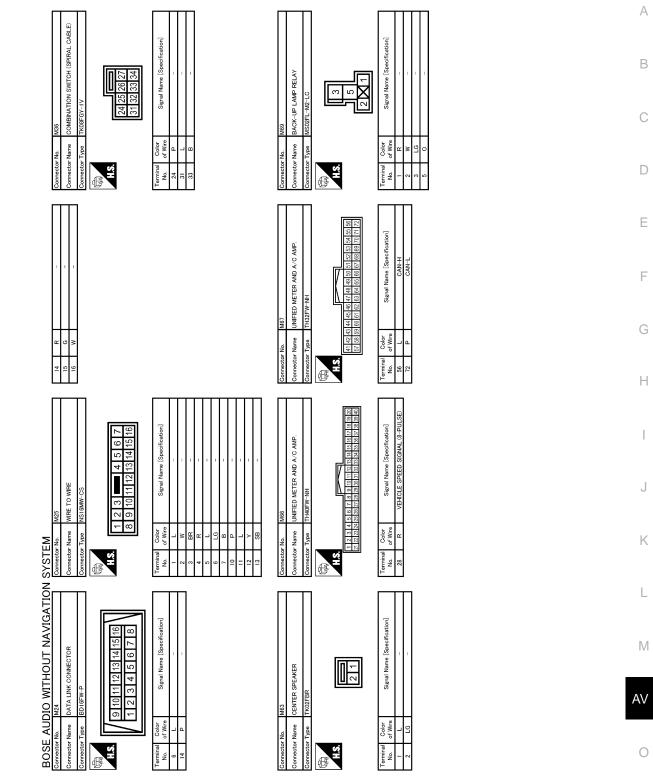
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#### [BOSE AUDIO WITHOUT NAVIGATION]

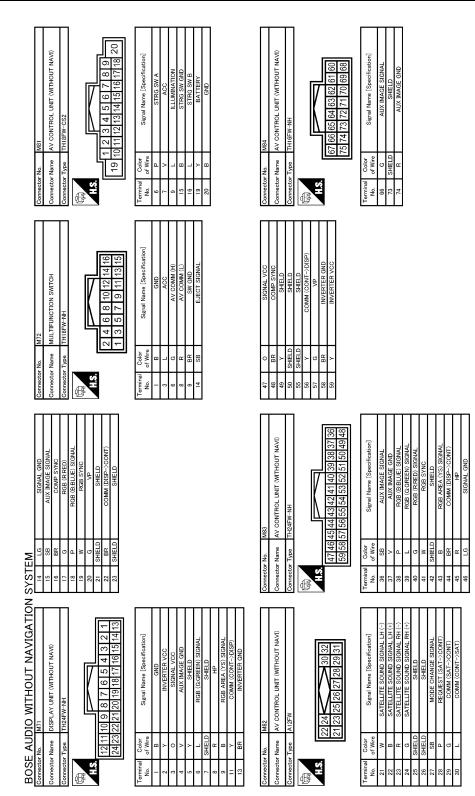


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### < ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITHOUT NAVIGATION]



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DIAGNOSIS INFORMATION >	
Connector No.     M106       Connector Name     WIPE TO WRE       Connector Type     K100Mr-NS8       Connector Type     K1010Mr-NS8	Connector No.         M112           Connector Name         Pod SIDE (WITH A.T.)           Connector Type         IP16/GY           Prod SOUND SIGNAL LH (r)         IP16/GY           Prod CONM (Port-Prod)         IP16/GY           IP16/GY         IP16/GY         IP16/GY           IP16/GY         IP16/GY
Connector No.         M86           Connector Name         AV CONTROL UNIT (WTHOUT NAVI)           Connector Type         AV CONTROL UNIT (WTHOUT NAVI)           Connector Type         TH12FW-MH           Connector Type         Signal Name [Specification]           Initial         Color           Color         Signal, EEAR RH (-)           Initial         Color           Color         Signal, EEAR RH (-)           Initial         Color           Color         Signal, EEAR RH (-)           Initial         Color           Initial         Color           Initial         Color           Initial         Color           Initi         C	Id         G         Pout SOUND SIONAL RH (-)           If         SHELD         SHELD           If         BR         AND           If         Pud         AND
A SYSTEM     A COMM (H)       90     SB     A COMM (H)       91     Y     AU COMM (H)       91     Y     AUX SOUND SIGNAL IH (+)       92     B     AUX SOUND SIGNAL IH (+)       93     W     PRELD       103     SB     SIGNAL IH (+)       103     SB     SMELD       104     C     GUND SIGNAL IH (+)       103     SB     SMELD       104     C     GUNTON       107     C     FRED       107     C     C       107     C     C       107     C     C	Connector No.         M111           Connector Name         Pod ADAPTER           Connector Name         Starter Name           Connector Name         Specification           I         P         Rave Sound Signal, FN (+)           I         P         Av colon (1)         Signal Name           I         P         Connector Name         Signal Name           I         P         Av colon (1)         Signal Name           I         Connector Name         Sound (1)         Sound (1)           I         Connector Name         Sound (1)         Sound (1)           I         Ood Micro Province Proversity         Mon         Sound (1)           I         D         Connector Name         Sound (1)         Mon           I         M         Av connector Name         Sound (1)         Mon           I         N         M<
BOSE AUDIO WITHOUT NAVIGATION       Connector Num       Connector Num     AV     CONTROL UNIT (WITHOUT NAVI)       Connector Num     Register of the state of the st	Connector Name         M(0)           Connector Name         E/M           EVA         E/M           Connector Name         E/M           Connector Name         E/M           Connector Name         E/M           Mill         E/M           Mill         E/M           Mill         E/M           Tomal         Connector Name           Mill         E/M           Tomal         Connector Name           Mill         E/M           Tomal         Color           Signal Name (Specification)         VEH/CMV-L1           113         P         VEH/CMV-L1

### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

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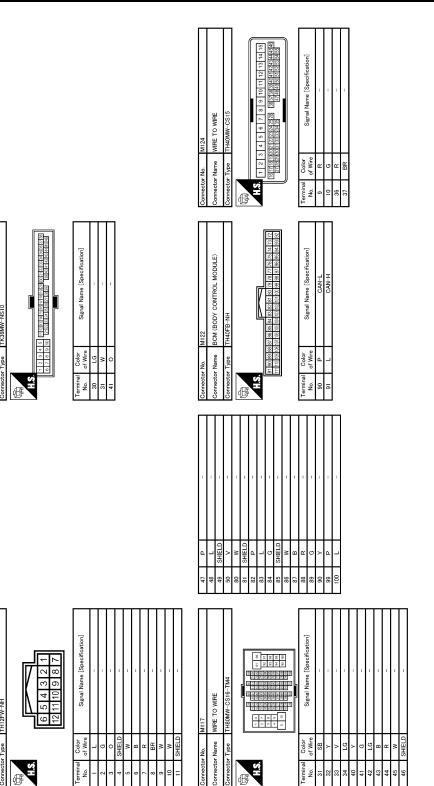
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BOSE AUDIO WITHOUT NAVIGATION SYSTEM

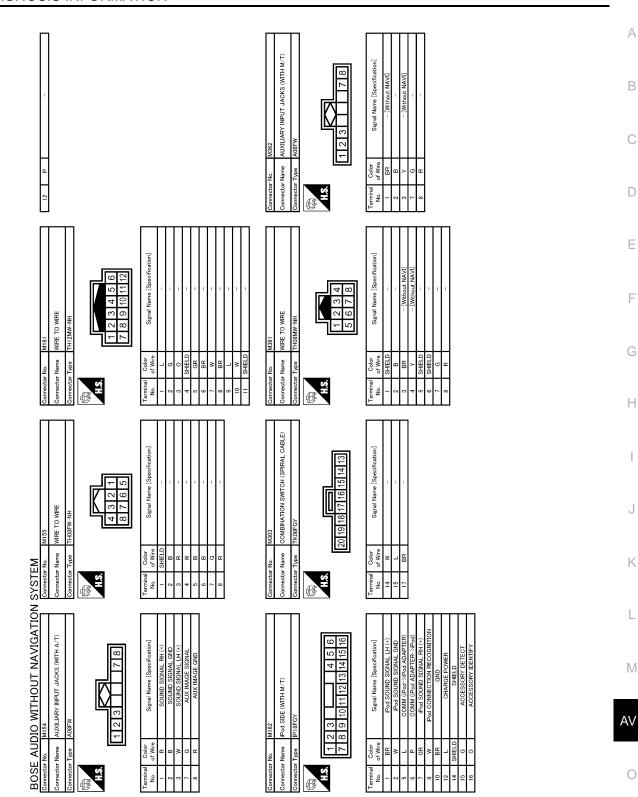
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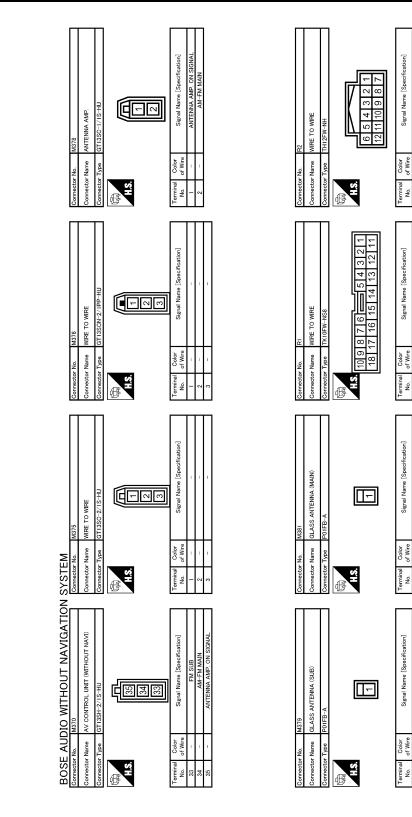
### [BOSE AUDIO WITHOUT NAVIGATION]

#### < ECU DIAGNOSIS INFORMATION >

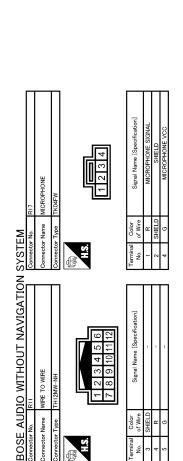
### [BOSE AUDIO WITHOUT NAVIGATION]

Vithout rear view ca

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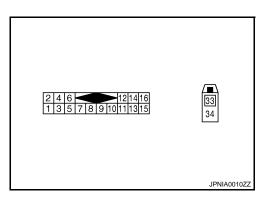
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### < ECU DIAGNOSIS INFORMATION >

## SATELLITE RADIO TUNER

### **Reference Value**

INFOID:000000004238633



#### PHYSICAL VALUES

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

### SATELLITE RADIO TUNER

#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

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

Wiring Diagram - BOSE AUDIO WITHOUT NAVIGATION SYSTEM -

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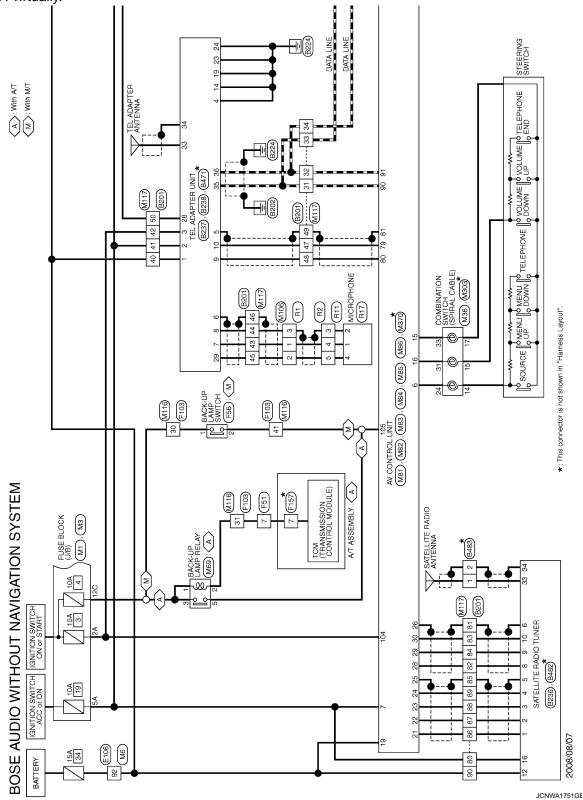
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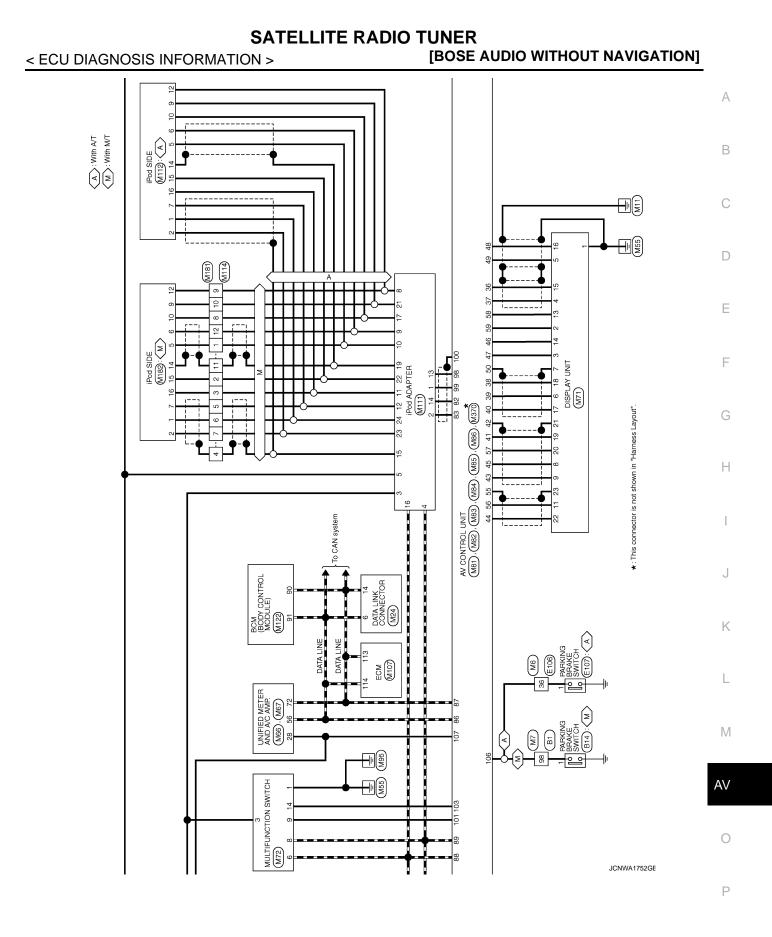
### SATELLITE RADIO TUNER

#### < ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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





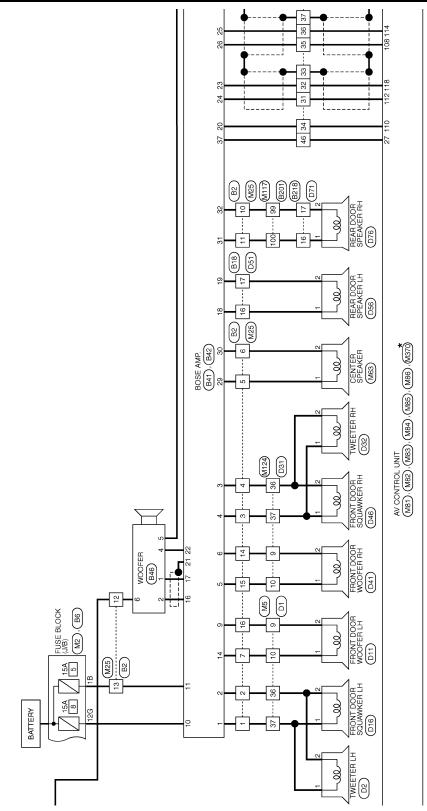
Revision: 2009 October

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### SATELLITE RADIO TUNER

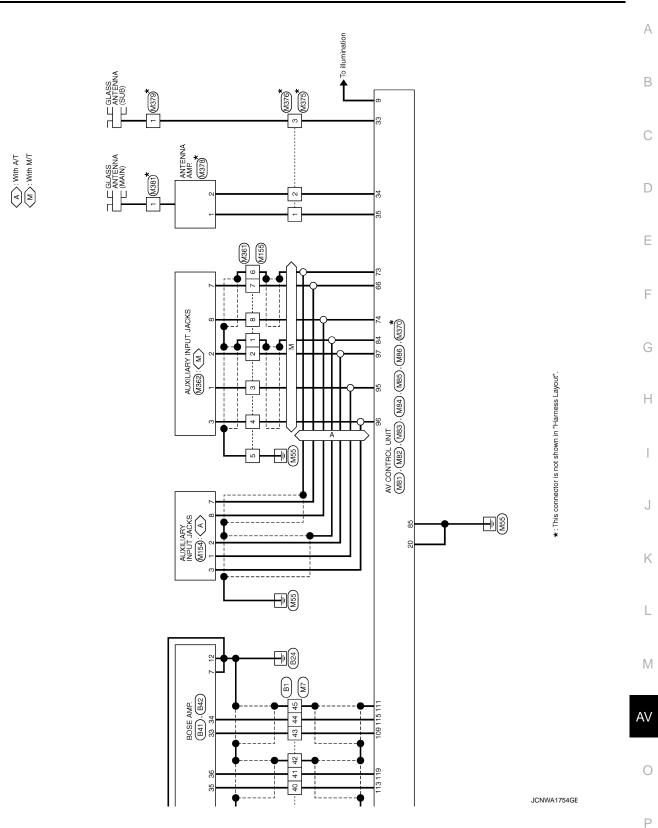
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### [BOSE AUDIO WITHOUT NAVIGATION]



★ : This connector is not shown in "Harness Layout".

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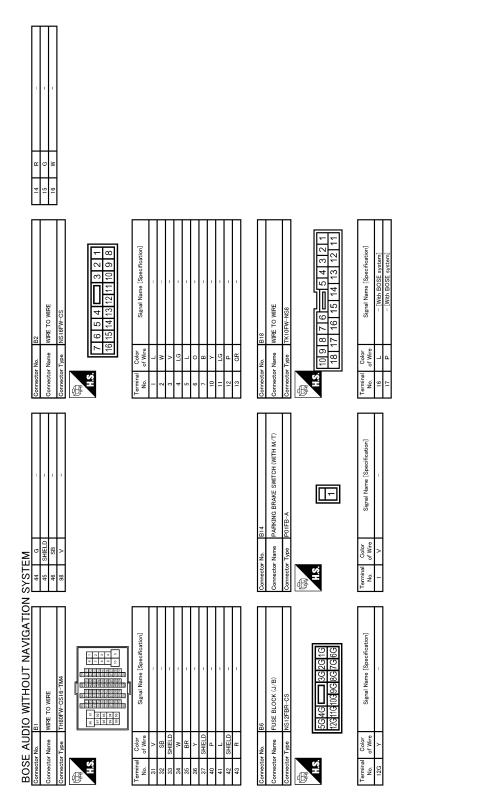
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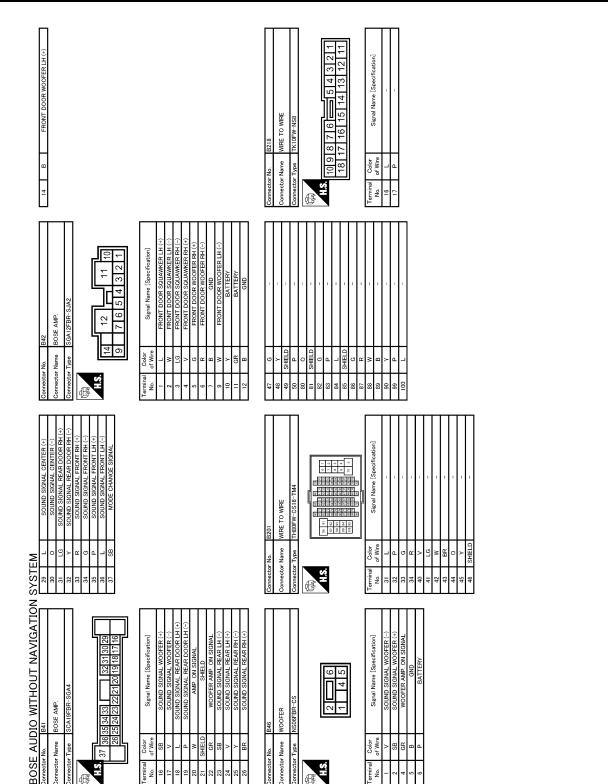
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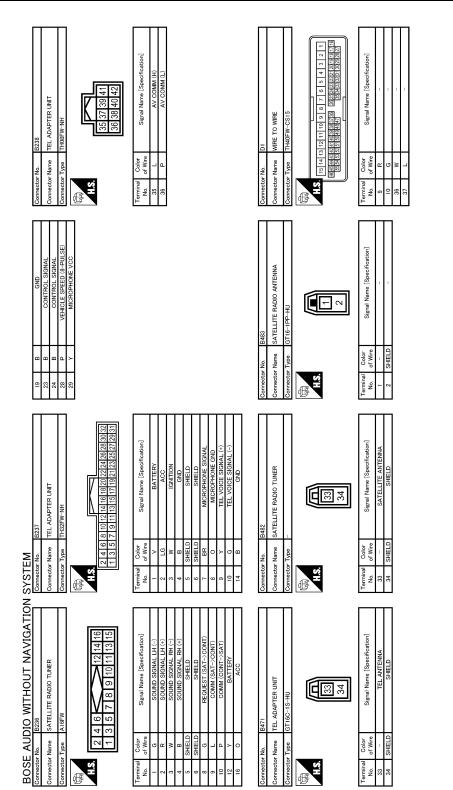
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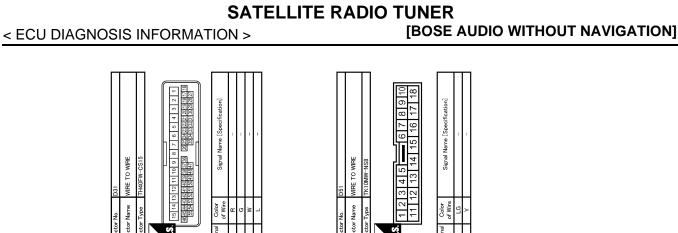
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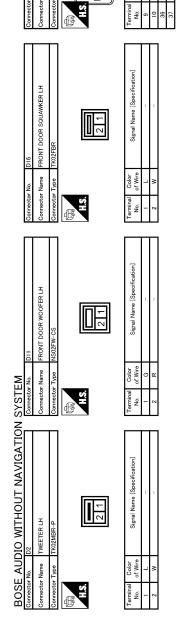
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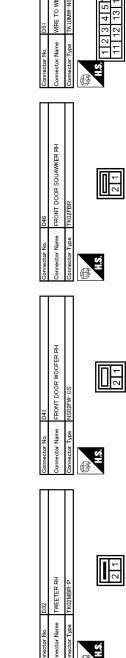




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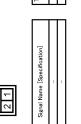


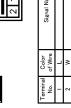




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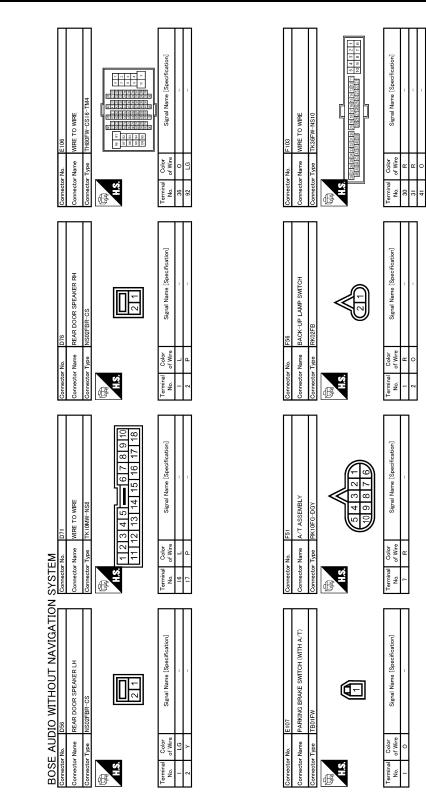
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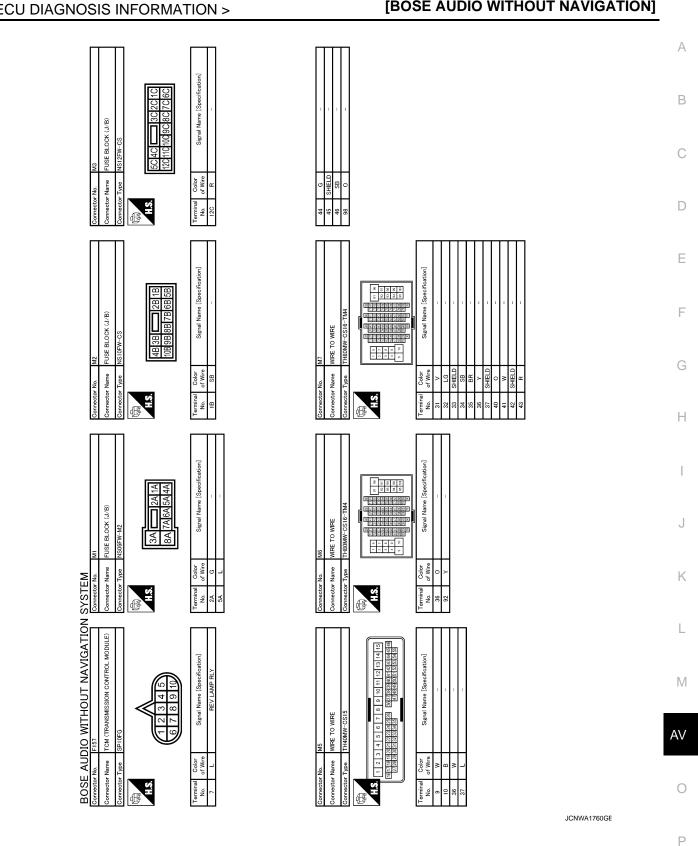
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### SATELLITE RADIO TUNER

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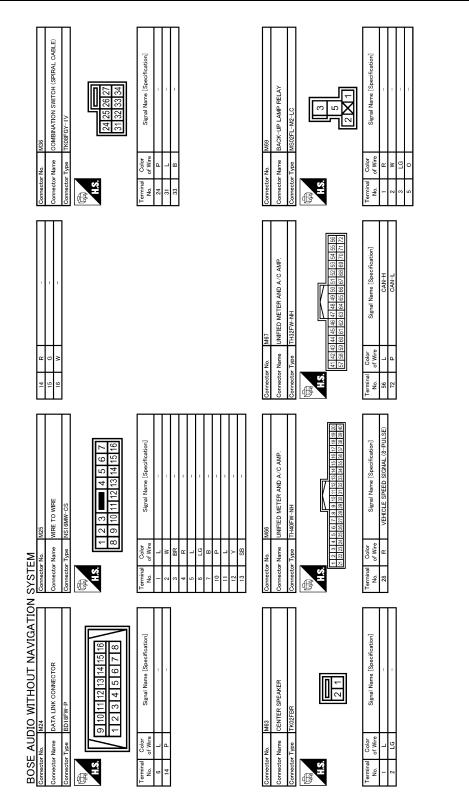
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Revision: 2009 October

# SATELLITE RADIO TUNER

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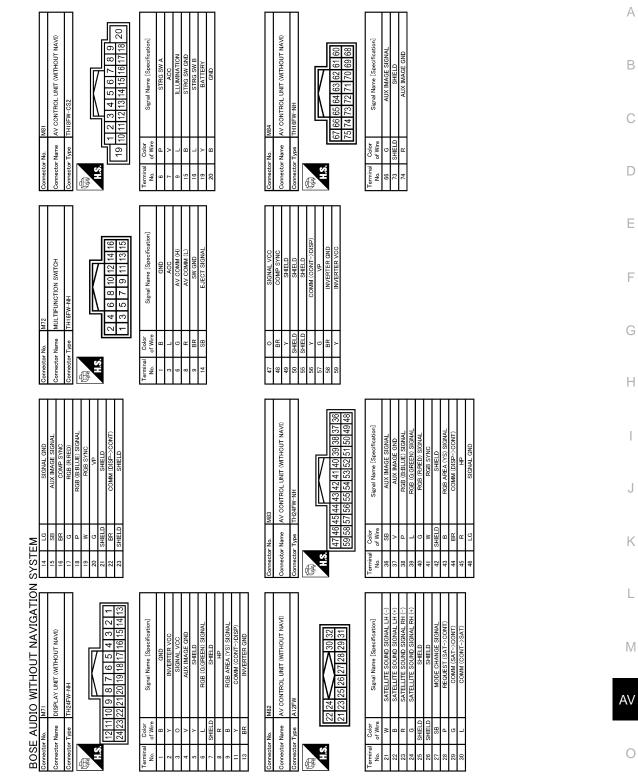


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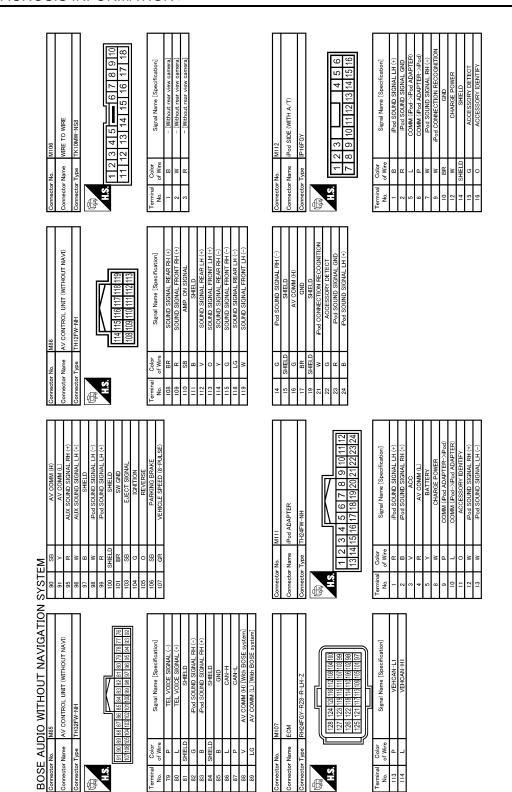
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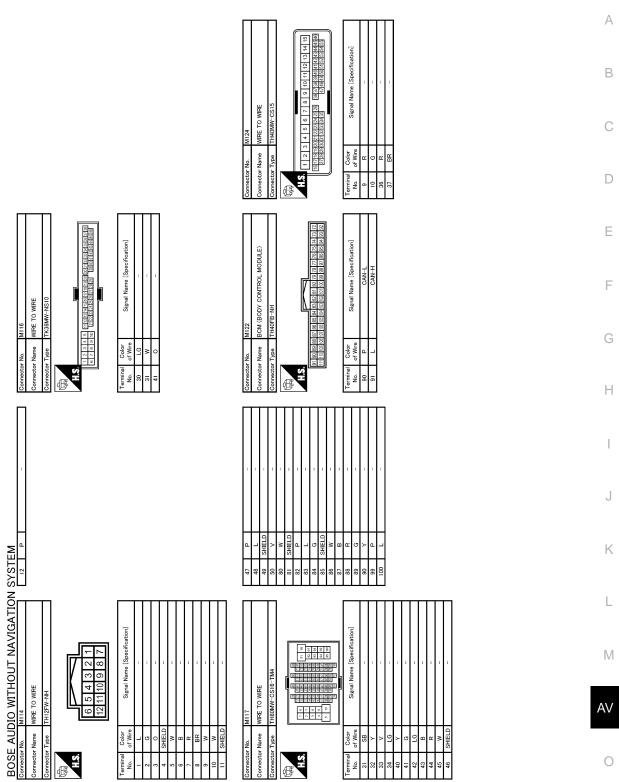
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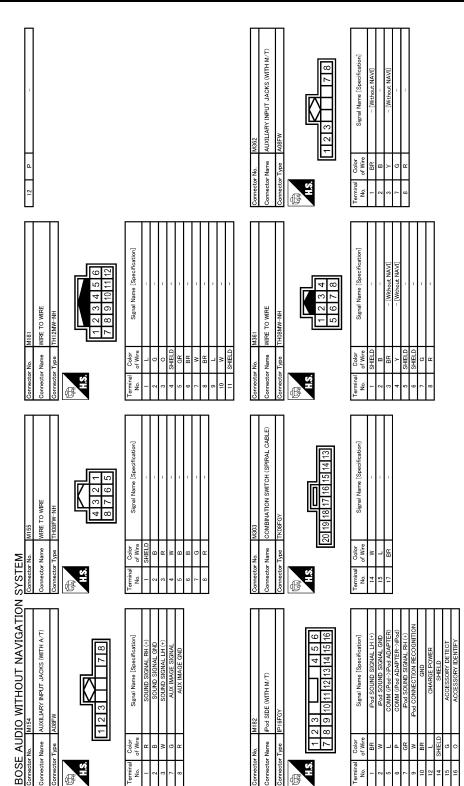
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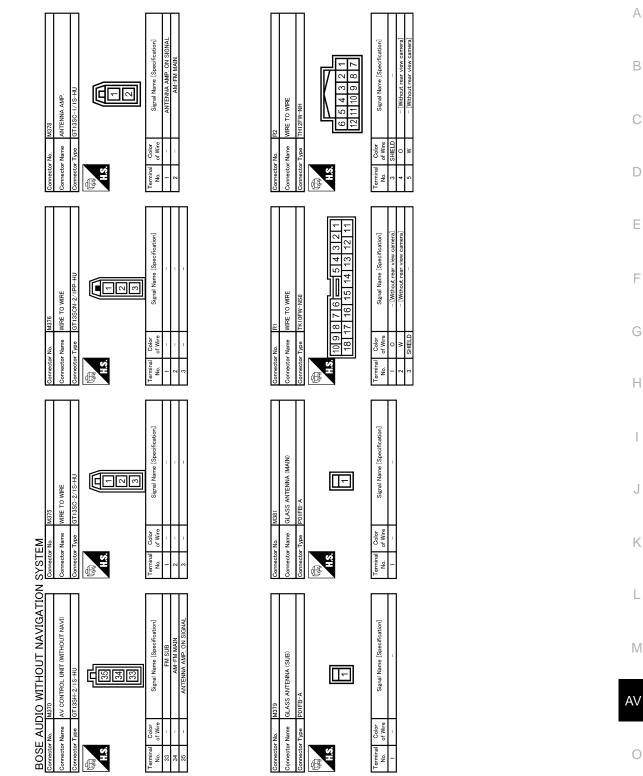
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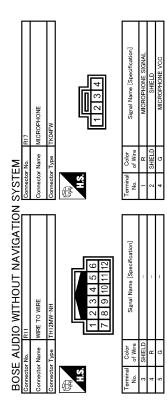
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## < ECU DIAGNOSIS INFORMATION >

# TEL ADAPTER UNIT

## **Reference Value**

2 4 6 8 1012 14 16 18 20 22 24 24 1 3 5 7 9 11 13 15 17 19 21 23 23	
35[37]39[41] 36[38[40]42]	33 34 JPNIA0011ZZ

#### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	
1 (V)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
2 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
3 (W)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
4 (B)	Ground	GND	_	Ignition switch ON	_	0 V	
5	—	Shield	—	—	—	—	
6		Shield		—	_	_	
7 (BR)	8 (O)	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0 0 + 2ms PKIB5037J	
8 (O)	Ground	Microphone GND	_	Ignition switch ON	_	0 V	
9 (Y)	10 (G)	TEL voice signal	Output	Ignition switch ON	During voice guide output with the ແຂ່ 🌈 switch pressed	(V) 1 0 -1 • 2ms SKIB3609E	

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#### < ECU DIAGNOSIS INFORMATION >

#### [BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description		Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
14 (B)	Ground	GND	_	Ignition switch ON	_	0 V	
19 (B)	Ground	GND	_	Ignition switch ON	_	0 V	
23 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V	
24 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V	
28 (P)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25MPH)	NOTE: Maximum voltage may be 12 V due to specifications (connected units). (V) 6 4 2 0 • • • 20ms SKIA6649J	
29 (Y)	8 (O)	Microphone VCC	Output	Ignition switch ON	_	5 V	
33	_	TEL antenna	Input		—	_	
34	—	Shield	—	_	—	—	
35 (L)	-	AV communication signal (H)	Input/ Output	—	_	_	
36 (P)	_	AV communication signal (L)	Input/ Output	_	_	_	

Wiring Diagram - BOSE AUDIO WITHOUT NAVIGATION SYSTEM -

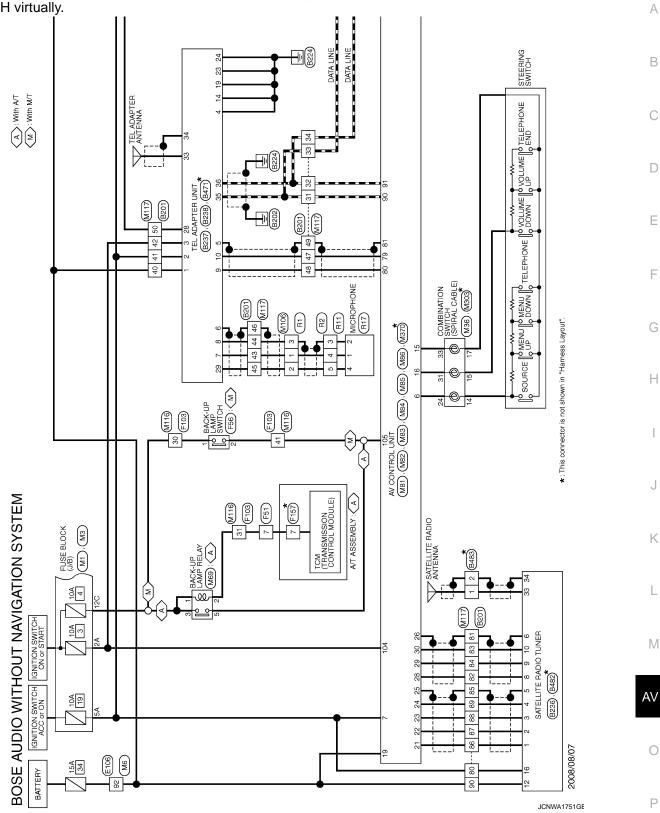
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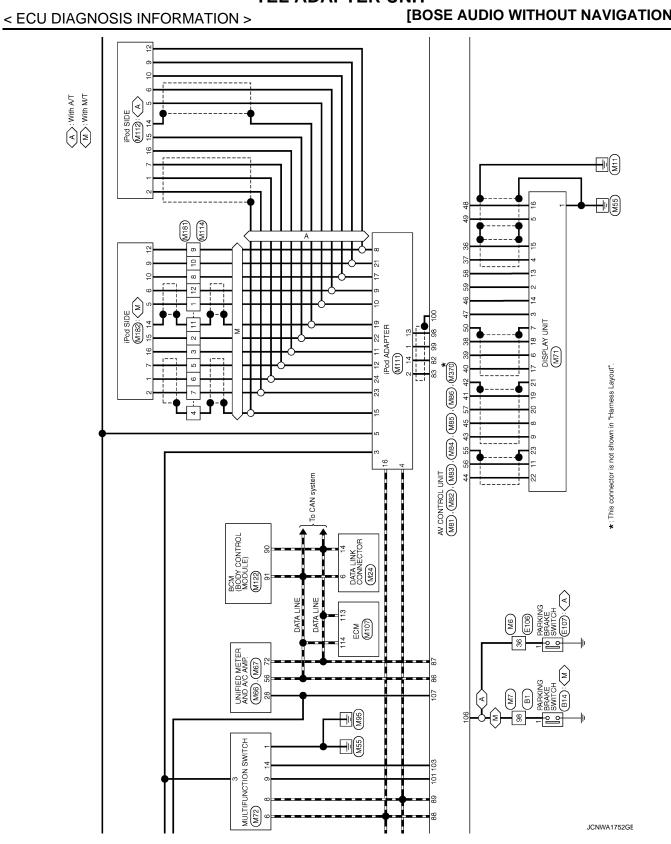
#### NOTE:

#### < ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

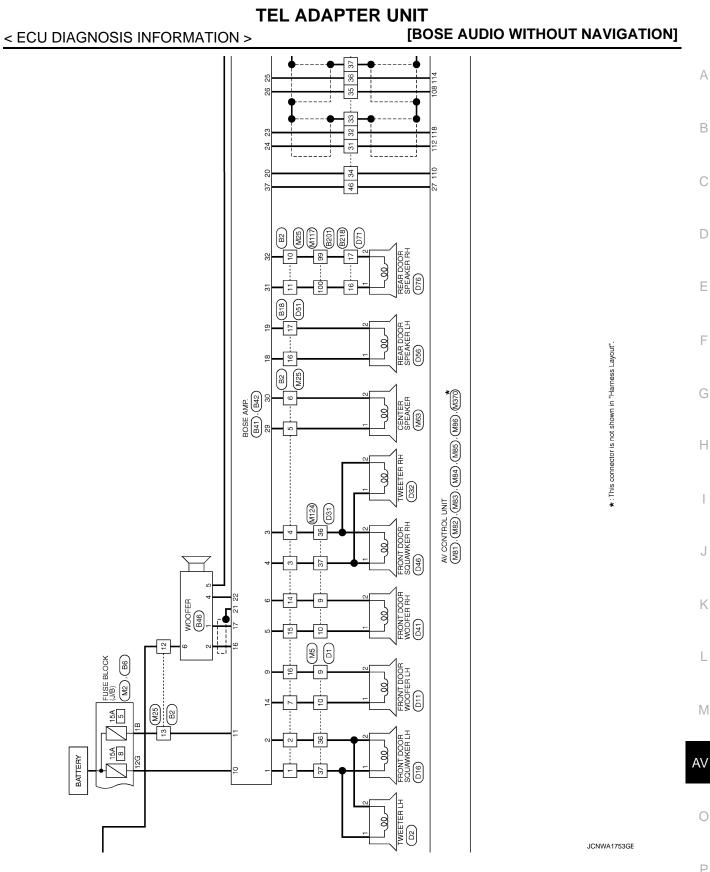
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.





#### [BOSE AUDIO WITHOUT NAVIGATION]

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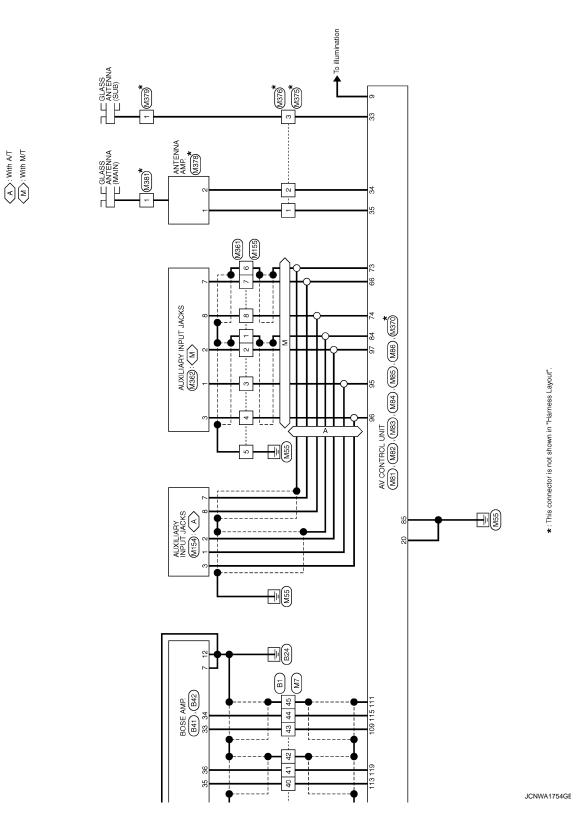
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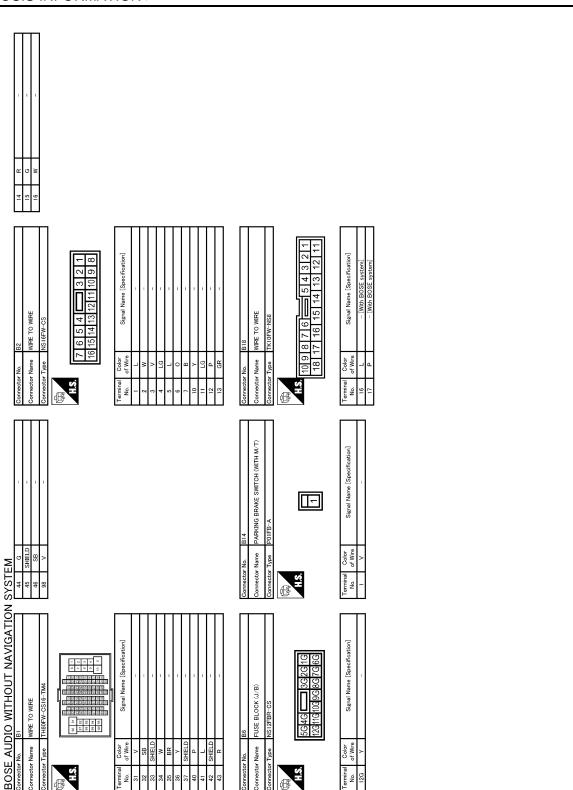
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#### **TEL ADAPTER UNIT** [BOSE AUDIO WITHOUT NAVIGATION]

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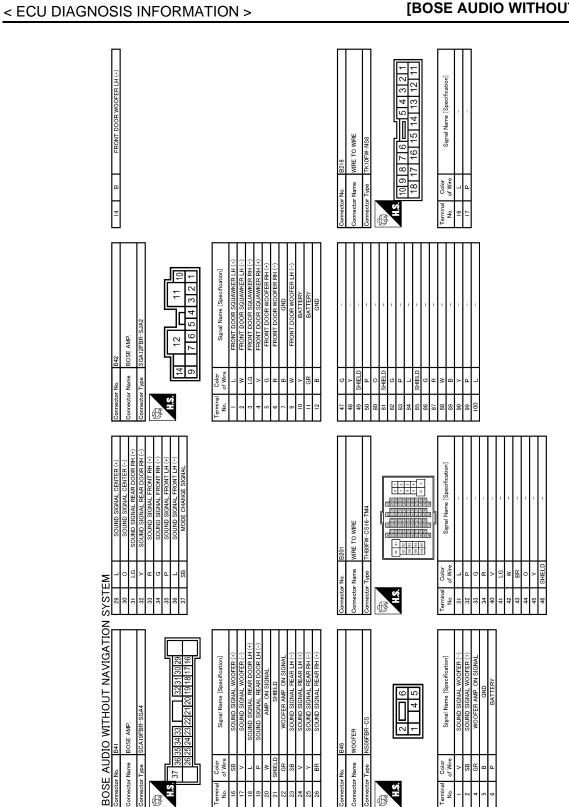
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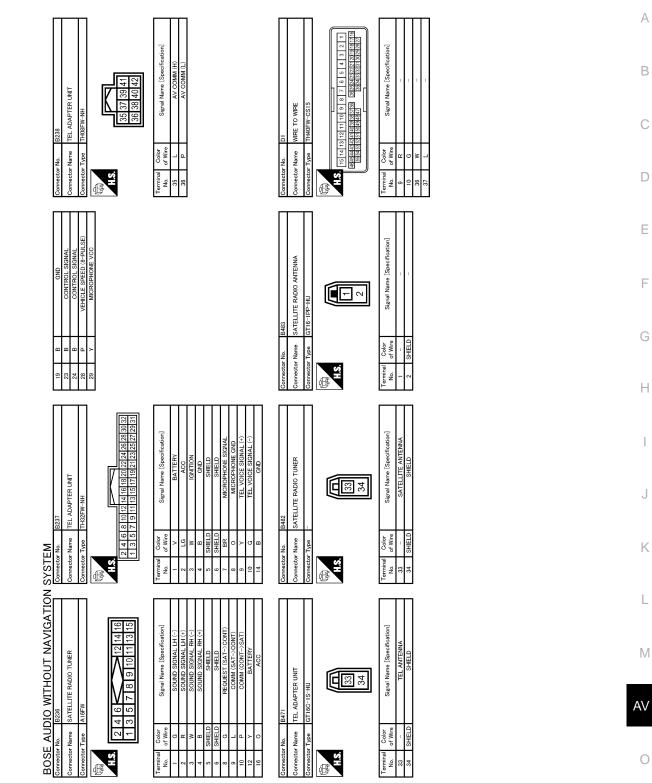
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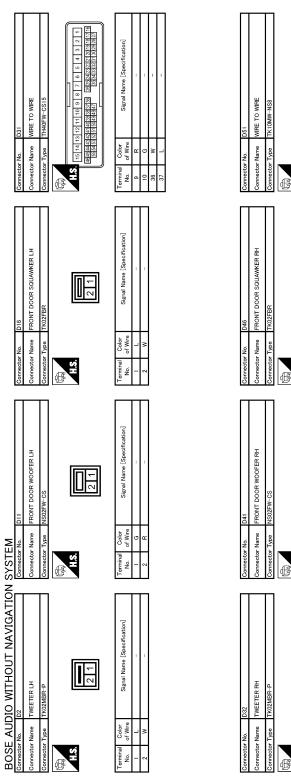
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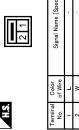


 ER H
 Connector Name
 FRONT DOOR WOOFER RH

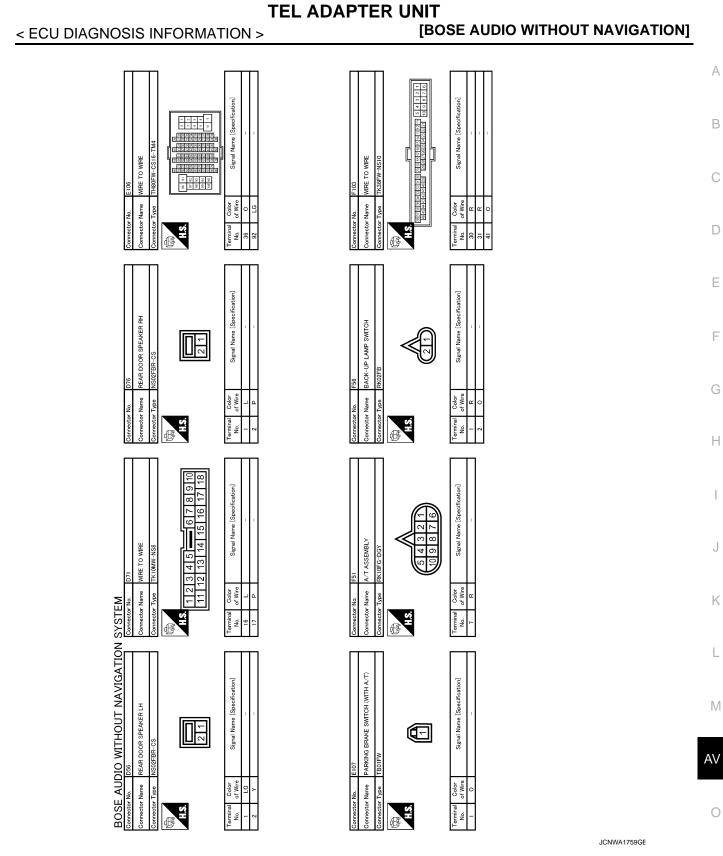
 BH-P
 Connector Name
 FRONT DOOR SOUAWKER RH

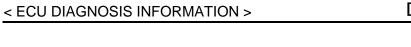
 Connector Name
 FRONT POOR SOUAWKER RH

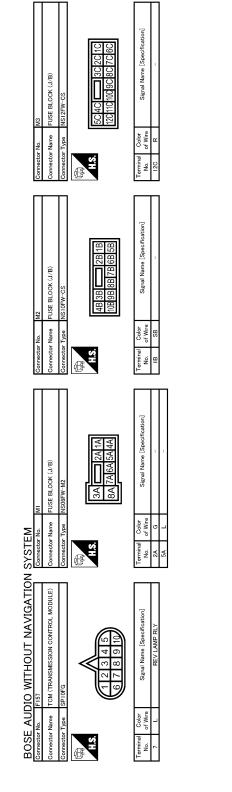
 Connector Name

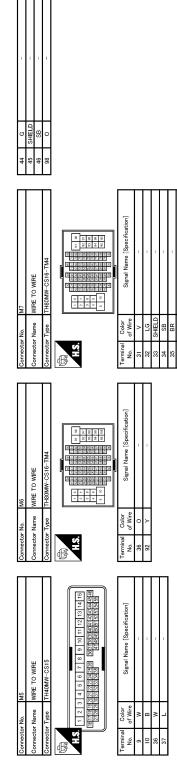


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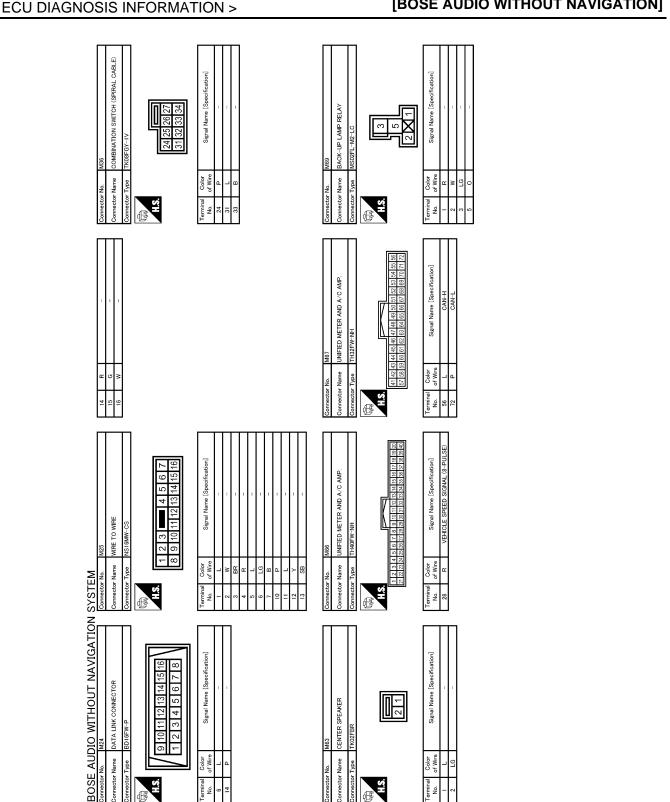
## [BOSE AUDIO WITHOUT NAVIGATION]

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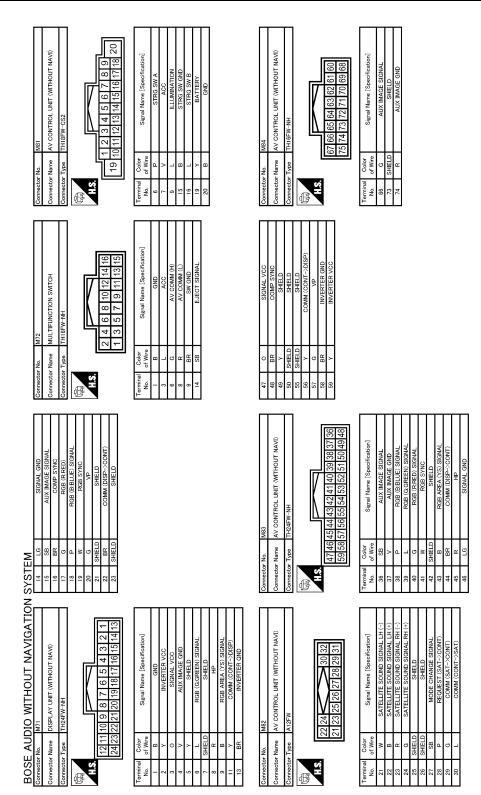
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# [BOSE AUDIO WITHOUT NAVIGATION]

Revision: 2009 October

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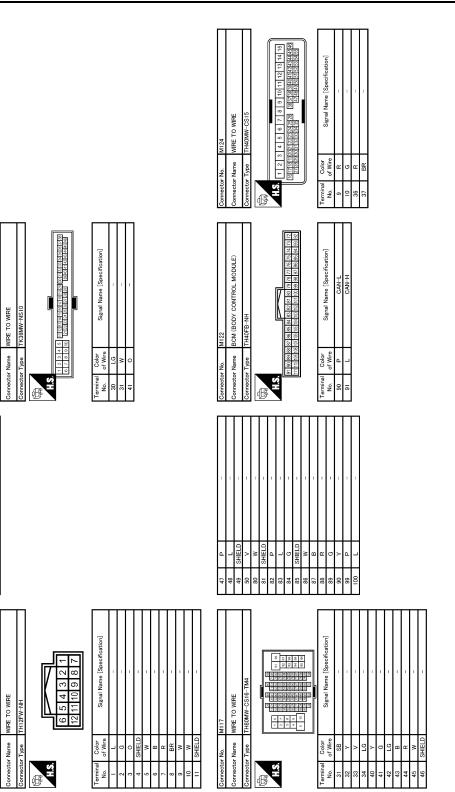
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Connector No.     M106       Connector Name     WIRE TO WIRE       Connector Name     WIRE TO WIRE       Connector Type     TK10MN-H33       Main     TK10MN-H33       Main     T12     T3       Main     Total Table       Table     Table       Main     Signal Name (Specification)       2     B     Utthout rear view canneral       3     R     - [Without rear view canneral	Connector Name         MI12           Connector Name         Pod SIDE (WITH A.T.)           Connector Type         Prioficsy           Connector Type         Signal Nume (Specification)           Color         Signal Nume (Specification)           Color         Signal Nume (Specification)           Color         Colom (Prod->Peal ADAPTER)           Color         Peal SOUND SIGNAL LIN(c)           Color         Colon (Prod->Peal ADAPTER)           Color         Colon (Prod->Peal ADAPTER)           Color         Color           C	A B C
AV CONTROL UNIT (WITHOUT NAVI) AV CONTROL UNIT (WITHOUT NAVI) THI2PW-NH THI2PW-NH THI2PW-NH Signal Name [Specification] Signal Name [Specification] Sound Signal, Reach H (+) Sound Signal, Reach (+) So	Ped SOUND SIGNAL RH (-)       A SUND SIGNAL RH (-)       A SURELD       A SURELD       A SURELD       A SURE SIGNAL RH (-)       Ped SOUND SIGNAL LH (-)       Ped SOUND SIGNAL LH (-)       Ped SOUND SIGNAL LH (-)	E
E     Terminal     Connector No.       Connector No.     Connector No.       Connector Name     Connector Name       Terminal     Connector Name       112     Connector Name       113     Connector Name       113     Connector Name		G
EM AV COMM (H) SB AV COMM (L) V V AV COMM (L) R AV DOWN SIGNAL IRI B FOLO SIGNAL LH C B FOLO SIGNAL LH C C C R FOLO SIGNAL C C C R FOLO SI	Connector Name         M111           Connector Name         Pod ADAPTER           Connector Type         TH24FW-NH           Connector Type         TH24FW-NH           Main         Fig	J
BOSE AUDIO WITHOUT NAVIGATION       SYSTEN         Connector Num       AV CONTROL UNIT (WITHOUT NAVI)         Connector Type       THOLOF         Connector Type </td <td>(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)</td> <td>L</td>	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	L
BOSE AUDIO WITHO Corrector Name AV CONTROL UI Connector Name AV CONTROL UI Connector Type AV CONTROL UI Connector Type AV CONTROL UI Connector Type Signal P	Connector No.         M107           Connector Name         E.O.M.           Connector Name         E.O.M.           Connector Type         RH24 E9Y-R28-R-LH-2           MAS         1221 123 1191 11191 11191 111           Terminal         Color         1222 123 111111111111111111111111111111	AV O

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# **TEL ADAPTER UNIT**

#### [BOSE AUDIO WITHOUT NAVIGATION]

#### [BOSE AUDIO WITHOUT NAVIGATION]



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BOSE AUDIO WITHOUT NAVIGATION SYSTEM

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		<b>L</b> -		1
- - - -		Connector No. M362 Connector Name AUXILIARY NPUT JACKS (WITH M.T.) Connector Type A08FW 12 3 7 8	Terminal         Color         Signal Marne [Specification]           No.         of Wree         Signal Marne [Specification]           1         BR         - [Without MAVI]           2         B         - [Without MAVI]           3         G         - [Without MAVI]           7         G         [Without MAVI]           8         R	
Connector No.     M181       Connector Name     WIRE TO WIRE       Connector Type     TH12MW-NH       Connector Type     TH12MM-1H       Connector Type     TH12MM-1H	Terminal         Celor         Signal Name [Specification]           No.         of Wire         Signal Name [Specification]           2         C         -           2         C         -           3         Signal Name [Specification]         -           4         SHELD         -           5         GR         -           7         W         -           7         W         -           7         W         -           9         E         -           9         H         -           10         W         -	Connector No. M361 Connector Name WIRE TO WIRE Connector Type THORM-NH1	Terminal or, wires         Color or Wires         Signal Name [Specification]           1         SHELD         -           2         B         -           3         ER         -           4         Y         -           5         SHELD         -           6         SHELD         -           7         G         -           8         R         -	
••	Terminal No.         Color of Wree         Signal Name (Specification)           1         1         No.         vin           2         B         -         -           3         R         -         -           4         W         -         -           5         B         -         -           7         G         -         -           8         R         -         -           8         R         -         -           8         R         -         -	Connector No. M303 Connector Name COMBINATION SWITCH (SPIRAL CABLE) Connector Type TroBFGY 1019161716151413	Terminal No.         Color of Wire 14         Signal Name [Specification]           15         L         -           17         BR         -	
BOSE AUDIO WITHOUT NAVIGATION Connector Name AUXILIARY INPUT JACKS (WITH A-T) Connector Type AOBFW Connector Type AOBFW 123778	Terminal         Color         Signal Name (Specification)           1         R         SOUND SIGNAL BH (c)           2         B         SOUND SIGNAL AND           3         W         SOUND SIGNAL AND           7         G         AUX MAGE SIGNAL           8         R         AUX MAGE SIGNAL	Connector No.         M82           Connector Name         Pod SIDE (WITH M.T)           Connector Type         IP16FGY           Max         12         4           T         8         10         11	Terminal No.         Color No.         Signal Name [Specification]           1         BR         Pead SOUND SIGNAL LH (+)           2         W         Pead SOUND SIGNAL LH (+)           5         L         COMM Float ADAPTER)           6         P         COMM Float ADAPTER)           7         CR         Pead SOUND SIGNAL RH (+)           9         W         Pead SOUND SIGNAL RH (+)           10         BR         COMM Float ADAPTER (+)           12         L         COMM Float ADAPTER (+)           13         H         Pead SOUND SIGNAL RH (+)           14         SHELD         CHARE FOWER           15         G         Acccessory DENTER           16         0         Acccessory DENTER	

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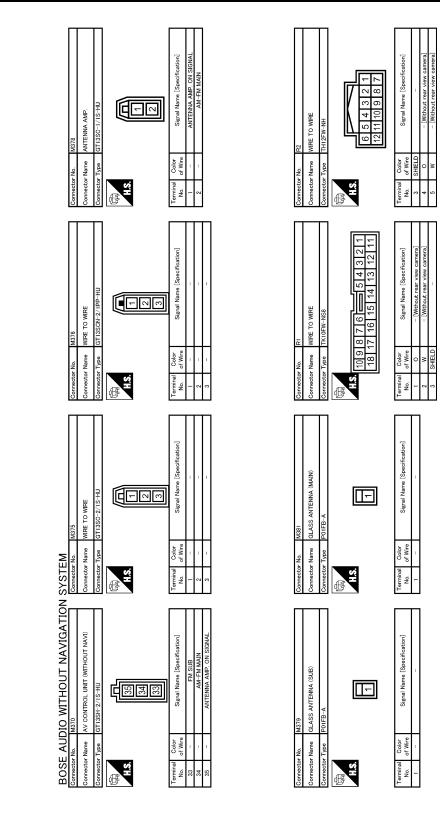
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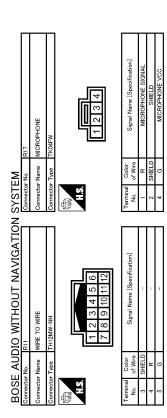
#### < ECU DIAGNOSIS INFORMATION >

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# SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS

## Symptom Table

OPERATION

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Symptoms	Check items	Possible malfunction location / Action to take
Multifunction switch and preset switch operation does not work.	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is displayed on system selection screen when the CON- SULT-III is started.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> <li>Perform CONSULT-III self-diagnosis.</li> <li>Refer to <u>AV-150, "CONSULT - III Function (MULTI AV)"</u>.</li> </ul>
	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is not displayed on system selection screen when the CON-SULT-III is started.</li> </ul>	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-165</u> , " <u>AV CONTROL UNIT : Diagnosis</u> <u>Procedure"</u> .
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Per- form multifunction switch and preset switch self-diagno- sis function. Refer to <u>AV-141</u> , "Diagnosis Description".

## RELATED TO HANDS-FREE PHONE

**Basic Inspection** 

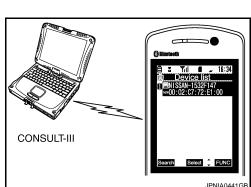
- Check that the cellular phone is corresponding type (Bluetooth® correspond) when the hands-free related malfunction vehicle is in service before performing a diagnosis.
- There is a case that malfunction occurs due to the version change of the phone type, etc. even though it is a corresponding type. Therefore, confirm it by changing the cellular phone to another corresponding type phone, and check that it operates normally. It is necessary to distinguish whether the cause is the vehicle or cellular phone.

Simple check for Bluetooth<sup>®</sup> communication

- If cellular phone and AV control unit cannot be connected with Bluetooth<sup>®</sup> communication, following procedure allows the technician to judge which device has malfunction.
- 1. Turn on a cellular phone, not connecting Bluetooth<sup>®</sup> communication.
- 2. Start CONSULT-III, then start Windows<sup>®</sup>.
- 3. Set CONSULT-III near a cellular phone.
- When operated Bluetooth<sup>®</sup> registration by cellular phone, check if CONSULT-III<sup>\*</sup> would be displayed on the device name. (If other Bluetooth<sup>®</sup> device is located near cellular phone, a name of the device would be displayed also.)
   NOTE:

\*:Displayed device name is "NISSAN-\*\*\*\*\*\*\*\*.

- If no device name is displayed, cellular phone is malfunctioning. Repair the cellular phone first, then perform diagnosis.
- If CONSULT-III is displayed on device name, cellular phone is normal. Perform diagnosis as per the following table.



On Board Self-diagnosis of Hands-free Phone System

Always perform the on board self-diagnosis at first after completing the basic inspection when the malfunction is detected on the hands-free phone system. Narrow down possible causes using the Diagnosis Chart if there is no malfunction in the on board self-diagnosis.

Trouble Diagnosis Chart by Symptom

#### < SYMPTOM DIAGNOSIS >

# **MULTI AV SYSTEM SYMPTOMS**

## [BOSE AUDIO WITHOUT NAVIGATION]

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.	TEL adapter unit malfunction. Refer to <u>AV-345, "Exploded View"</u> .
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	<ul> <li>Perform CONSULT-III self-diagnosis. Refer to <u>AV-150, "CONSULT - III Function (MULTI AV)"</u>.</li> <li>No malfunction. TEL adapter unit malfunction. Refer to <u>AV-345, "Exploded View"</u>.</li> <li>Malfunction is detected. Refer to <u>AV-150, "CONSULT - III Function (MULTI AV)"</u>.</li> </ul>
The party's voice cannot be	The operation of the " $\sqrt{2}$ $\checkmark$ " switch can be performed.	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
heard by hands-free phone.	The operation of the " $\sqrt{2}$ (" switch cannot be performed.	Control signal circuit. Refer to <u>AV-182, "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. Refer to <u>AV-345, "Exploded View"</u> .
	Sound operation function does not work.	Microphone signal circuit. Refer to <u>AV-180, "Diagnosis Procedure"</u> .

## **RELATED TO RGB IMAGE**

Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-150, "CONSULT - III Function (MULTI AV)"</u> .
	There is no malfunction in CONSULT-III self-diagnosis results.	<ul> <li>Display unit power supply and ground circuit. Refer to <u>AV-165</u>, "DISPLAY UNIT : Diagnosis Proce- <u>dure"</u>.</li> <li>Vertical synchronizing (VP) signal circuit. Refer to <u>AV-176</u>, "Diagnosis Procedure".</li> </ul>
	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to <u>AV-170. "Diagnosis Procedure"</u> .
Color of RGB image is not proper.	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to <u>AV-171, "Diagnosis Procedure"</u> .
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to <u>AV-172, "Diagnosis Procedure"</u> .
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to <u>AV-173, "Diagnosis Procedure"</u> .
Fuel economy display is mal- functioning.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-150, "CONSULT - III Function (MULTI AV)"</u> .
	There is no malfunction in CONSULT-III self-diagnosis results.	Ignition signal circuit malfunction. Refer to <u>AV-165, "AV CONTROL UNIT : Diagnosis Proce-</u> <u>dure"</u> .

#### **RELATED TO AUDIO**

#### Trouble diagnosis chart by symptom

Trouble diagnosis chart by symptom			P
Symptoms	Check items	Possible malfunction location / Action to take	
The CD cannot be removed.		CD eject signal circuit.	_

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# **MULTI AV SYSTEM SYMPTOMS**

#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Possible malfunction location / Action to take
	No sound from all speakers.	<ul> <li>BOSE amp. power supply and ground circuit. Refer to <u>AV-167, "BOSE AMP. : Diagnosis Procedure"</u>.</li> <li>Amp. ON signal circuit</li> </ul>
Audio sound is not heard.	Sound is not heard from rear woofer.	<ul> <li>Sound signal woofer circuit between BOSE amp. and rear woofer.</li> <li>Woofer amp. ON signal circuit between BOSE amp. and rear woofer.</li> </ul>
	Sound is not heard from center speaker.	Sound signal center speaker circuit.
	Sound is heard only from specific places (RH front, RH rear, LH front and LH rear).	Sound signal circuit of malfunctioning system.
It does not change to "Driver's Audio Stage" mode.	_	Mode change signal circuit. Refer to <u>AV-183, "Diagnosis Procedure"</u> .
Satellite radio is not received.	"ANTENNA" is not displayed even when the channel is turned to 0 in Satellite ra- dio mode.	<ol> <li>Perform the following inspection procedure.</li> <li>Check satellite radio antenna mounting nut for looseness. NOTE: Tightening torque: 6.5 N·m (0.66 kg-m, 58 in-lb.)</li> <li>Visually check for satellite radio antenna feeder.</li> <li>Replace the satellite radio antenna. Refer to <u>AV-336</u>, "<u>Exploded View</u>".</li> <li>Replace the satellite radio tuner. Refer to <u>AV-335</u>, "<u>Exploded View</u>".</li> </ol>
	"ANTENNA" is displayed when the chan- nel is turned to 0 in Satellite radio mode.	<ol> <li>Perform the following inspection procedure.</li> <li>Check the connection between Satellite radio tuner and antenna feeder.</li> <li>Check the connection between Satellite radio anten- na and antenna feeder.</li> <li>Check Antenna feeder for open circuit.</li> <li>Replace the satellite radio antenna. Refer to <u>AV-336, "Exploded View"</u>.</li> <li>Replace the satellite radio tuner. Refer to <u>AV-335, "Exploded View"</u>.</li> </ol>
The sound of Satellite radio is not heard.	Other audio sounds are normal.	Satellite radio sound signal circuit between AV control unit and satellite radio tuner.
It does not change to Satellite radio mode.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-150, "CONSULT - III Function (MULTI AV)"</u> .
AM/FM radio is not received.	Other audio sounds are normal.	<ul><li>Antenna amp. ON signal circuit.</li><li>Antenna feeder.</li></ul>

## RELATED TO iPod<sup>®</sup>

Trouble diagnosis chart by symptom

Connect another iPod<sup>®</sup> and check if the symptom is reproduced or not. If the symptom is reproduced, diagnose the vehicle. If no malfunction is detected, replace the iPod harness. **NOTE:** 

It is unable to check that between  $iPod^{(R)}$  and iPod harness.

Symptoms	Check items	Possible malfunction location / Action to take
The sound of iPod <sup>®</sup> is not heard.	Other audio sounds are normal.	<ul> <li>iPod sound signal circuit between AV control unit and iPod adapter.</li> <li>iPod sound signal circuit between iPod<sup>®</sup> and iPod adapter.</li> </ul>
It does not change to iPod mode.	There is malfunction in the CONSULT- III self-diagnosis.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-150, "CONSULT - III Function (MULTI AV)"</u> .
"iPod is not connected" is dis- played when it comes to iPod mode.	Connected to iPod <sup>®</sup> .	iPod connection recognition signal circuit between iP-od <sup>®</sup> and iPod adapter.

# **MULTI AV SYSTEM SYMPTOMS**

#### < SYMPTOM DIAGNOSIS >

## [BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Possible malfunction location / Action to take	
iPod <sup>®</sup> cannot charge the bat- tery.	_	iPod battery charge circuit between iPod <sup>®</sup> and iPod adapter.	A
The title of music file in the iP- $od^{\ensuremath{\mathbb{R}}}$ is not indicated.		Communication circuit between iPod <sup>®</sup> and iPod adapter.	В
Accessing the iPod <sup>®</sup> is un- available from the vehicle.	_	Communication circuit between IPod° and IPod adapter.	С

#### RELATED TO STEERING SWITCH

#### Trouble diagnosis chart by symptom

Symptoms	Probable malfunction location	
None of the steering switch operations work.	Steering switch signal GND circuit. Refer to <u>AV-191, "Diagnosis Procedure"</u> .	
Only specified switch cannot be operated.	Steering switch. Refer to AV-339, "Exploded View".	
"SOURCE", "MENU UP", "MENU DOWN", " 🖋 🌈 " switches of steering switch are not operated.	Steering switch signal A circuit. Refer to <u>AV-187, "Diagnosis Procedure"</u> .	
"VOL UP", "VOL DOWN", " " " switches of steering switch are not operated.	Steering switch signal B circuit. Refer to <u>AV-189, "Diagnosis Procedure"</u> .	

#### AUX NOTE:

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

Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location
No voice sound is heard when AUX mode is selected.	Voice sound is heard when other modes are selected.	AUX sound signal circuits malfunction between auxiliary input jacks and AV control unit.
Image is not displayed when AUX mode is selected.		<ul> <li>AUX image signal circuit malfunction between auxiliary input jacks and AV control unit. Refer to <u>AV-177. "Diagnosis Procedure"</u>.</li> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-173. "Diagnosis Procedure"</u>.</li> <li>RGB area (YS) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-174. "Diagnosis Procedure"</u>.</li> </ul>
It does not change from AUX mode to other modes.	_	Vertical synchronizing (VP) signal circuit malfunction be- tween AV control unit and display unit. Refer to <u>AV-176, "Diagnosis Procedure"</u> .

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## NORMAL OPERATING CONDITION

#### [BOSE AUDIO WITHOUT NAVIGATION]

INFOID:000000004238638

# NORMAL OPERATING CONDITION

# Description

**BASIC OPERATIONS** 

Symptom	Possible cause	Possible solution
No image is displayed.	The brightness is at the lowest setting.	Adjust the brightness of the display.
	The system is in the video mode.	Press <b><disc></disc></b> to change the mode.
	The display is turned off.	Press <day night=""> to turn on the display.</day>
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 resolves.

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.	
	<ul> <li>4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on).</li> <li>NOTE:</li> <li>If it is too noisy to use the phone, it is likely that the voice commands will be recognized.</li> </ul>	
	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.

## NORMAL OPERATING CONDITION

#### < SYMPTOM DIAGNOSIS >

## [BOSE AUDIO WITHOUT NAVIGATION]

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

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

#### NOTE:

• Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.

• Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

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# < PRECAUTION > PRECAUTION PRECAUTIONS

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

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

#### WARNING:

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

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

#### WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### **Precaution for Trouble Diagnosis**

INFOID:000000004238640

#### AV COMMUNICATION SYSTEM

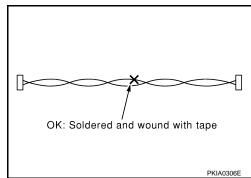
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

## Precaution for Harness Repair

#### INFOID:000000004238641

#### AV COMMUNICATION SYSTEM

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

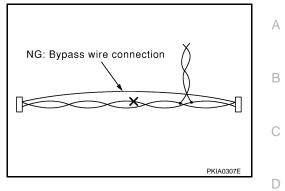


#### < PRECAUTION >

## PRECAUTIONS

#### [BOSE AUDIO WITHOUT NAVIGATION]

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



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# < PREPARATION > PREPARATION

# PREPARATION

# **Commercial Service Tools**

INFOID:000000004238642

Tool name		Description
Power tool	PBIC0191E	Loosening bolts and nuts

# < REMOVAL AND INSTALLATION > REMOVAL AND INSTALLATION

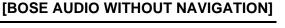
# AV CONTROL UNIT

# **Exploded View**

# REMOVAL

Refer to IP-11, "Exploded View".

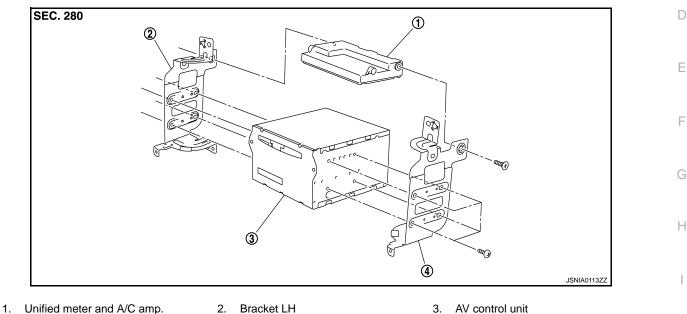
# DISASSEMBLY





INFOID:000000004238643





4. Bracket RH

# Removal and Installation

# REMOVAL

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

#### INSTALLATION

Installation is the reverse order of removal.

#### **CAUTION:**

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

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# **DISPLAY UNIT**

**Exploded** View

Refer to IP-11, "Exploded View".

Removal and Installation

# REMOVAL

- 1. Remove cluster lid D. Refer to IP-11, "Exploded View".
- 2. Remove display unit with bracket as a single unit.

## **INSTALLATION**

Installation is the reverse order of removal.

[BOSE AUDIO WITHOUT NAVIGATION]

INFOID:000000004238645

# FRONT DOOR SQUAWKER

# < REMOVAL AND INSTALLATION >

# [BOSE AUDIO WITHOUT NAVIGATION]

# FRONT DOOR SQUAWKER

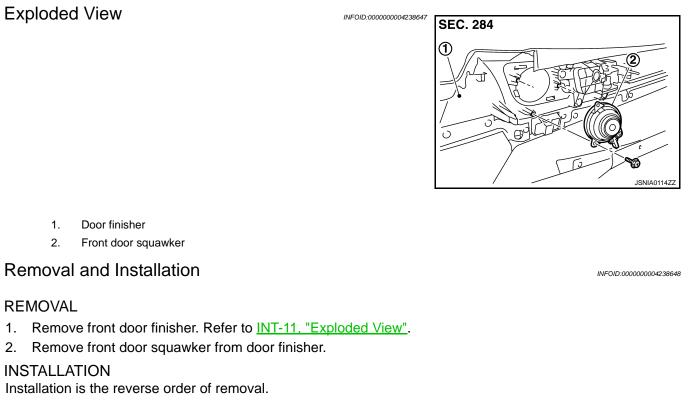
# Exploded View

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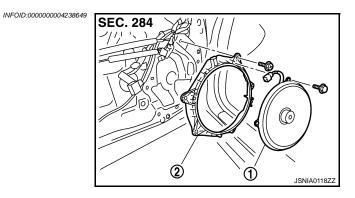
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# FRONT DOOR WOOFER

# **Exploded View**



- 1. Front door woofer
- 2. Woofer bracket

# Removal and Installation

## REMOVAL

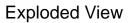
- 1. Remove front door finisher. Refer to <u>INT-11, "Exploded View"</u>.
- 2. Remove front door woofer from woofer bracket.

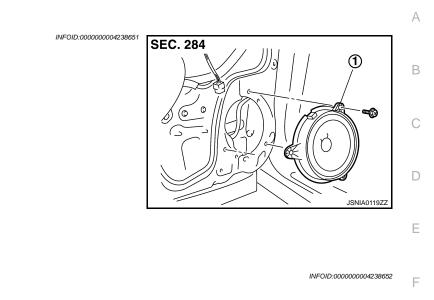
## INSTALLATION

Installation is the reverse order of removal.

# [BOSE AUDIO WITHOUT NAVIGATION]

# REAR DOOR SPEAKER





#### REMOVAL

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

#### INSTALLATION

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Installation is the reverse order of removal.

Rear door speaker

**Removal and Installation** 

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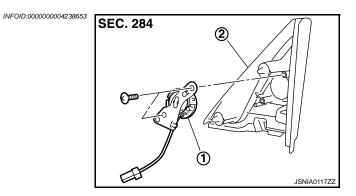
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# TWEETER

Exploded View



- 1. Tweeter
- 2. Corner cover inner

# Removal and Installation

INFOID:000000004238654

# REMOVAL

- 1. Remove front door finisher, and then remove corner cover inner. Refer to INT-11, "Exploded View".
- 2. Remove tweeter from corner cover inner.

# INSTALLATION

Installation is the reverse order of removal.

# [BOSE AUDIO WITHOUT NAVIGATION]

# < REMOVAL AND INSTALLATION > **CENTER SPEAKER**

# Exploded Vie

Exploded View	INFOID:000000004238655	SEC. 284	JSNIA0120ZZ	B C D
1. Center speaker				E
Removal and Installation			INFOID:000000004238656	F
REMOVAL 1. Remove upper grille, and then remove center sp INSTALLATION Installation is the reverse order of removal.	eaker. Refer to <u>I</u>	P-11, "Exploded View".		G
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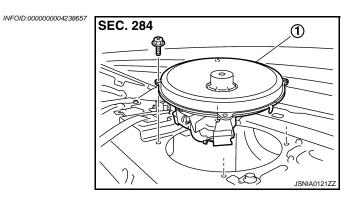
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# REAR WOOFER

Exploded View



1. Woofer

# Removal and Installation

INFOID:000000004238658

## REMOVAL

- 1. Remove rear parcel shelf finisher. Refer to INT-18, "Exploded View".
- 2. Remove woofer from rear parcel shelf.

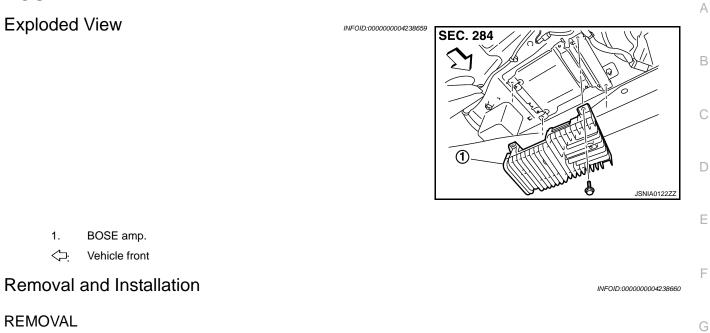
#### INSTALLATION

Installation is the reverse order of removal.

# [BOSE AUDIO WITHOUT NAVIGATION]

# < REMOVAL AND INSTALLATION > BOSE AMP.

Exp	loded	View
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- 1. Remove trunk front finisher. Refer to INT-28. "Exploded View".
- Remove BOSE amp. from rear parcel shelf. 2.

#### **INSTALLATION**

REMOVAL

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Installation is the reverse order of removal.

BOSE amp.

Vehicle front

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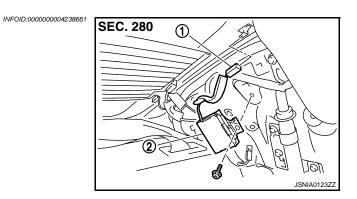
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# ANTENNA AMP.

Exploded View



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

# Removal and Installation

## REMOVAL

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

#### INSTALLATION

Installation is the reverse order of removal.

# [BOSE AUDIO WITHOUT NAVIGATION]

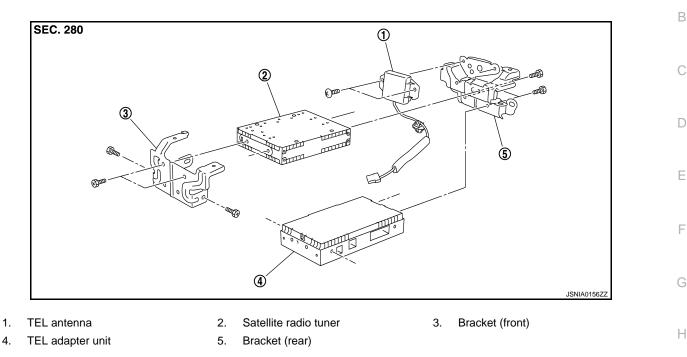
SATELLITE RADIO TUNER

**Exploded View** 

INFOID:000000004238663

INFOID:000000004238664

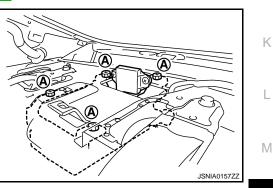
А



# Removal and Installation

#### REMOVAL

- 1. Remove trunk front finisher. Refer to INT-28, "Exploded View".
- 2. Remove rear parcel shelf finisher. Refer to INT-18, "Exploded View".
- 3. Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
- 4. Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



INSTALLATION Installation is the reverse order of removal.

AV

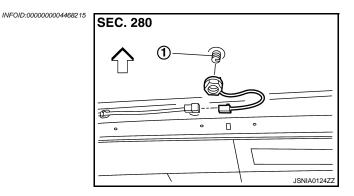
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# SATELLITE RADIO ANTENNA

# < REMOVAL AND INSTALLATION >

# SATELLITE RADIO ANTENNA

**Exploded View** 



1. Satellite radio antenna

<□: Vehicle front

# Removal and Installation

INFOID:000000004468216

## REMOVAL

- 1. Remove head lining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>INT-22, "NORMAL ROOF : Exploded View"</u> (normal roof models) or <u>INT-25, "SUNROOF : Exploded View"</u> (sunroof models).
- 2. Remove nut, and then remove satellite radio antenna from roof panel.

#### INSTALLATION

Installation is the reverse order of removal.

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

#### CAUTION:

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

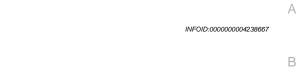
# **MULTIFUNCTION SWITCH** [BOSE AUDIO WITHOUT NAVIGATION]

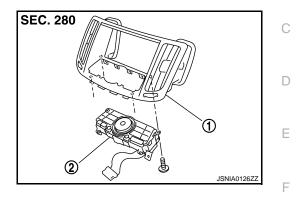
# < REMOVAL AND INSTALLATION >

# **MULTIFUNCTION SWITCH**

Exploded View

REMOVAL Refer to IP-11, "Exploded View". DISASSEMBLY





	1.	Center ventilator grille		
	2.	Multifunction switch		0
Re	mova	and Installation	INFOID:000000004238668	G
RE	MOVAI	-		Н
1.	Remo	e cluster lid D. Refer to IP-11, "Exploded View".		
2.	Remo	e multi function switch with center ventilator grille as a single unit.		
3.	Remo	e multi function switch from center ventilator.		
INS	STALLA	TION		
Ins	tallation	is the reverse order of removal.		.1
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# < REMOVAL AND INSTALLATION > PRESET SWITCH

# [BOSE AUDIO WITHOUT NAVIGATION]

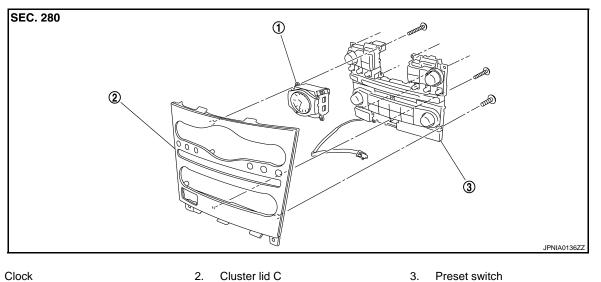
# Exploded View

INFOID:000000004238669

# REMOVAL

Refer to IP-11, "Exploded View".

# DISASSEMBLY



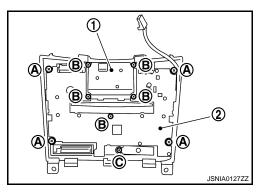
1. Clock

INFOID:000000004468209

# Removal and Installation

# REMOVAL

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



# INSTALLATION

Installation is the reverse order of removal.

#### NOTE:

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

STEERING SWITCH		А
Exploded View	INFOID:000000004238671	~
Refer to <u>ST-17, "Exploded View"</u> .		В
Removal and Installation	INFOID:000000004238672	
REMOVAL Refer to <u>ST-17, "Removal and Installation"</u> .		С
INSTALLATION Installation is the reverse order of removal.		D

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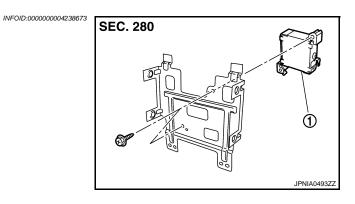
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# IPOD ADAPTER

Exploded View



1. iPod adapter

# Removal and Installation

#### REMOVAL

- 1. Remove display assy. Refer to AV-326, "Removal and Installation".
- 2. Remove display from display bracket.
- 3. Remove iPod adapter from display bracket.

## INSTALLATION

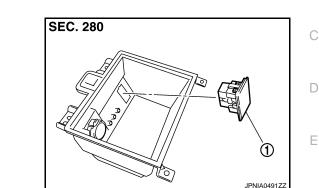
Install in the reverse order of removal.

# **IPOD CONNECTOR**

Exploded View

1.

REMOVAL Refer to <u>IP-23, "Exploded View"</u>. DISASSEMBLY



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INFOID:000000004238676 (

RE	REMOVAL				
1.	Remove center console. (M/T models) Refer to <u>IP-23, "Exploded View"</u> . Remove center console. (A/T models) Refer to <u>IP-23, "Exploded View"</u> .				
2.	Press the pawl from the back of center console to remove iPod connector.				
INS	INSTALLATION				

Install in the reverse order of removal.

iPod connector

**Removal and Installation** 

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# **AUXILIARY INPUT JACKS**

# < REMOVAL AND INSTALLATION >

# AUXILIARY INPUT JACKS

Exploded View

REMOVAL Refer to <u>IP-23, "Exploded View"</u>. DISASSEMBLY

SEC. 969

1. Auxiliary input jacks

# Removal and Installation

INFOID:000000004238678

INFOID:000000004238677

# REMOVAL

- Remove center console. (M/T models) Refer to <u>IP-23, "Exploded View"</u>. Remove center console cup. (A/T models) Refer to <u>IP-23, "Exploded View"</u>.
- 2. Remove auxiliary input jacks from center console. (M/T models) Remove auxiliary input jacks from center console cup. (A/T models)

#### INSTALLATION

Installation is the reverse order of removal.

# < REMOVAL AND INSTALLATION > MICROPHONE

Exploded View

1.

REMOVAL Refer to <u>INL-100, "Exploded View"</u>. DISASSEMBLY

Microphone

**Removal and Installation** 

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# REMOVAL 1. Remove map lamp. Refer to <u>INL-100, "Exploded View"</u>. 2. Remove microphone from map lamp. INSTALLATION Installation is the reverse order of removal.

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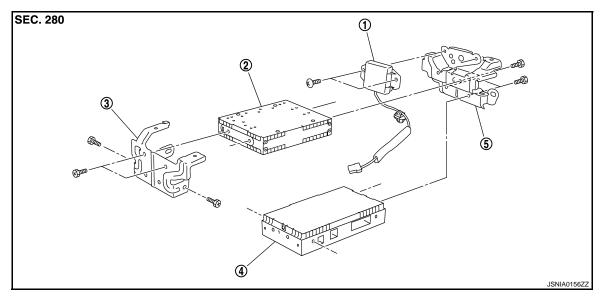
INFOID:000000004238679

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# [BOSE AUDIO WITHOUT NAVIGATION]

# TEL ANTENNA Exploded View

INFOID:000000004238681



1. TEL antenna

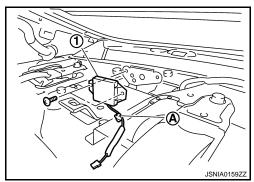
- 2. Satellite radio tuner
- 3. Bracket (front)

- 4. TEL adapter unit
- 5. Bracket (rear)

# Removal and Installation

#### REMOVAL

- 1. Remove trunk front finisher. Refer to <u>INT-28, "Exploded View"</u>.
- 2. Remove rear parcel shelf finisher. Refer to INT-18, "Exploded View".
- 3. Remove screws and clip (A) from inside the cabin and remove TEL antenna (1) connector from trunk room side.



INSTALLATION Installation is the reverse order of removal.

**TEL ADAPTER UNIT** 

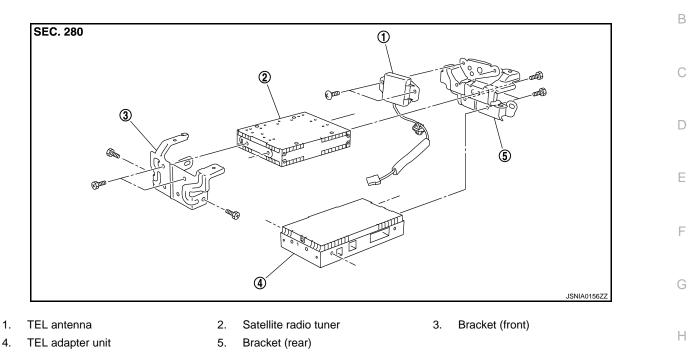
# [BOSE AUDIO WITHOUT NAVIGATION]

# Exploded View

INFOID:000000004238683

INFOID:000000004238684

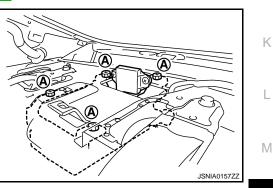
А



# Removal and Installation

#### REMOVAL

- 1. Remove trunk front finisher. Refer to INT-28, "Exploded View".
- 2. Remove rear parcel shelf finisher. Refer to INT-18, "Exploded View".
- 3. Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
- 4. Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



INSTALLATION Installation is the reverse order of removal.

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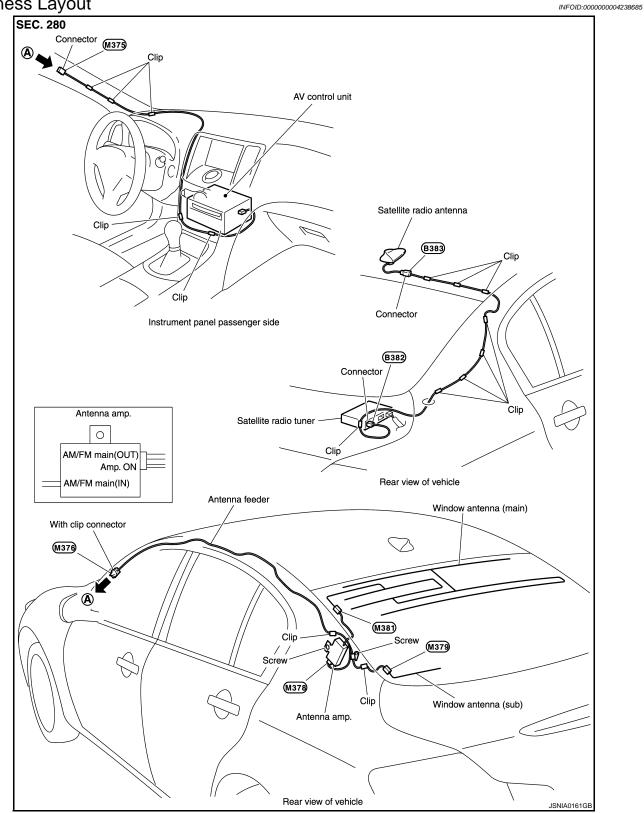
# **ANTENNA FEEDER (RADIO)**

# < REMOVAL AND INSTALLATION >

ANTENNA FEEDER (RADIO)

[BOSE AUDIO WITHOUT NAVIGATION]

Harness Layout



# **ANTENNA FEEDER (SATELLITE RADIO)**

# < REMOVAL AND INSTALLATION >

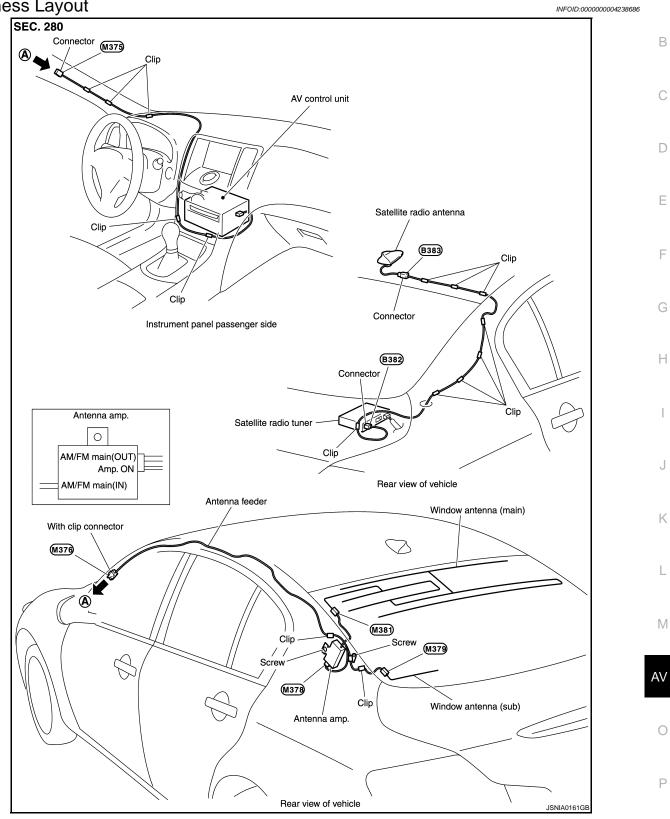
# [BOSE AUDIO WITHOUT NAVIGATION]

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# ANTENNA FEEDER (SATELLITE RADIO)

Harness Layout

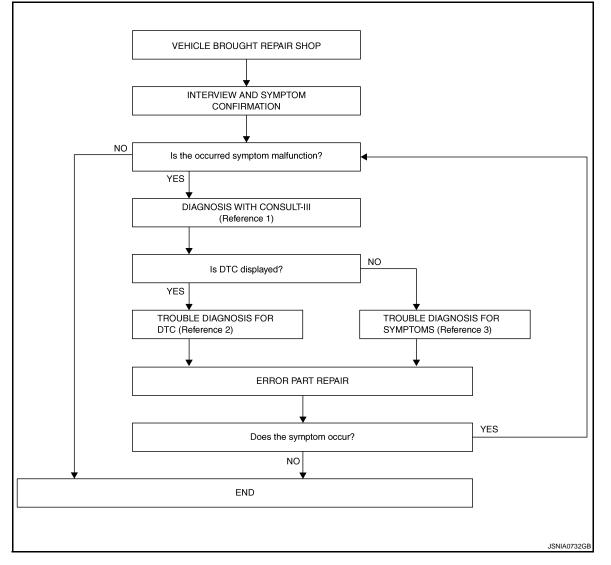


# BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

# Work Flow

INFOID:000000004238687

# OVERALL SEQUENCE



- Reference 1... Refer to AV-383, "CONSULT III Function (MULTI AV)".
- Reference 2... Refer to <u>AV-470, "DTC Index"</u>.
- Reference 3... Refer to <u>AV-562, "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-III

# DIAGNOSIS AND REPAIR WORK FLOW

[BOSE AUDIO WITH NAVIGATION] < BASIC INSPECTION > Connect CONSULT-III and perform a self-diagnosis for "MULTI AV". Refer to AV-383, "CONSULT - III 1. Function (MULTI AV)". А NOTE: Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed. 2. Check if any DTC is displayed in the self-diagnosis results. В Is DTC displayed? YES >> GO TO 3. NO >> GO TO 4. **3.**TROUBLE DIAGNOSIS FOR DTC 1. Check the DTC indicated in the self-diagnosis results. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-470, "DTC Index". 2. D >> GO TO 5. Е 4. TROUBLE DIAGNOSIS FOR SYMPTOMS Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-562, "Symptom Table". F >> GO TO 5. **5.**ERROR PART REPAIR Repair or replace the identified malfunctioning parts. 1. 2. Perform a self-diagnosis for "MULTI AV" with CONSULT-III. Н 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 Κ

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INSPECTION AND ADJUSTMENT ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

#### ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Description INFOID:000000004238688

Always correct the center position of the rear view monitor's possible route line after disconnecting the battery negative terminal.

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement INFOID:000000004238689

1. CORRECTION OF CENTER POSITION OF REAR VIEW MONITOR'S POSSIBLE ROUTE LINE

Refer to the following for details.

>> Refer to AV-350, "REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUSTMENT : Special Repair Requirement". ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:000000004238690

When camera control unit is replaced, the center position of rear view monitor possible route line is corrected.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement INFOID:000000004238691

1.CORRECTION OF CENTER POSITION OF REAR VIEW MONITOR'S POSSIBLE ROUTE LINE

Refer to the following for details.

>> Refer to AV-350, "REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUSTMENT : Special Repair Requirement".

REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST-MENT

REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST-**MENT** : Description INFOID:000000004238692

Adjust the center position of the possible route line of the rear view monitor if it is shifted.

REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST-**MENT : Special Repair Requirement** 

INFOID:000000004238693

**1.**STEERING OPERATION

Steer the steering wheel to the leftmost and rightmost ends.

>> GO TO 2

# 2.DRIVING

Drive the vehicle straight ahead 100 m (328.1 ft) or more at a speed of 30 km/h (18.6 MPH) or more.

>> END

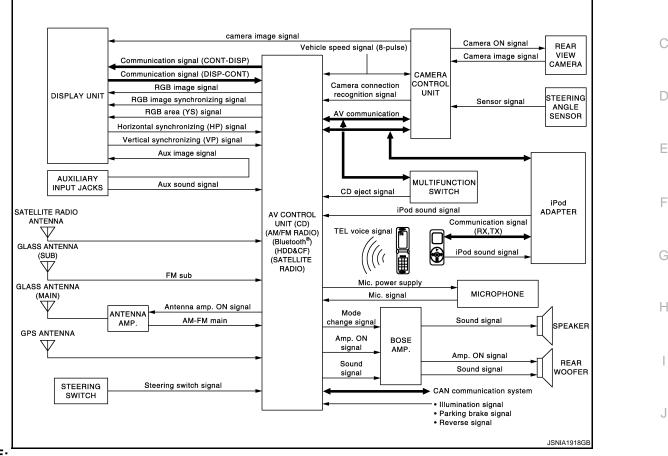
# [BOSE AUDIO WITH NAVIGATION]

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INFOID:000000004238694

# SYSTEM DESCRIPTION > SYSTEM DESCRIPTION MULTI AV SYSTEM

System Diagram



#### NOTE:

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

# System Description

Multi AV system means that the following systems are integrated.

System name	System explanation	M
NAVIGATION SYSTEM	AV-357, "System Description"	
AUDIO SYSTEM	AV-365, "System Description"	AV
REAR VIEW MONITOR SYSTEM	AV-362, "System Description"	Av
VEHICLE INFORMATION SYSTEM	<ul> <li>Status of audio, climate control system, fuel economy, maintenance and navigation is displayed.</li> <li>AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp. and BCM.</li> </ul>	0
HANDS-FREE PHONE SYSTEM	Refer to the following "HANDS-FREE PHONE SYSTEM".	Ρ
AUXILIARY INPUT SYSTEM	Refer to the following "AUXILIARY INPUT SYSTEM".	
VOICE RECOGNITION SYSTEM	Refer to the following "VOICE RECOGNITION SYSTEM".	
TOUCH PANEL SYSTEM	Refer to the following "TOUCH PANEL SYSTEM".	

• 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).



INFOID:000000004238695

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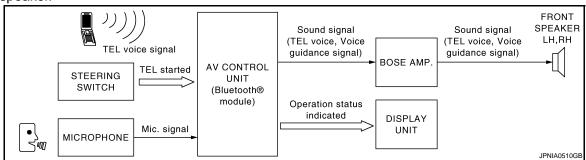
# **MULTI AV SYSTEM**

#### < SYSTEM DESCRIPTION >

- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information. Transmitting/receiving of data signal is performed by BCM. Also, it transmits the required signal of vehicle setting and receives the response signal.
- AV control unit is connected with display and serial communication, and it transmits the required signal of display and display control and receives the response signal from display. Also, it is connected with satellite radio by serial communication, and it transmits the operating signal and receives the display signal.
   NOTE:
- AV control unit can perform CONSULT-III self-operating function and on board self-diagnosis.
- CONSULT-III self diagnosis: Refer to <u>AV-383, "CONSULT III Function (MULTI AV)".</u>
- On board self diagnosis: Refer to AV-369, "Diagnosis Description".

#### HANDS-FREE PHONE SYSTEM

- Hands-free communication can be operated by connecting using Bluetooth<sup>®</sup> with cellular phone.
- Operation is performed by steering switch, and operating condition is indicated on display.
- Guide sound that is heard during operation is input from AV control unit to BOSE amp., and is output from door speaker.



#### When A Call Is Originated

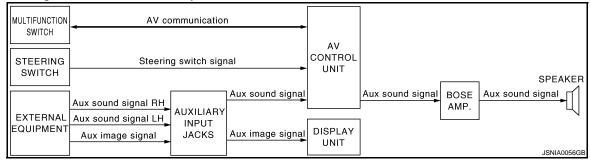
Spoken voice sound output from the microphone (Mic. Signal) is input to AV control unit. AV control unit outputs to cellular phone with Bluetooth communication as a TEL voice signal. Voice sound is then heard at the other party.

#### When Receiving A Call

Voice sound is input to own cellular phone from the other party. TEL voice signal is output to door speaker, and the signal is input to BOSE amp. via AV control unit by establishing Bluetooth communication from cellular phone.

#### AUXILIARY INPUT SYSTEM

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



#### VOICE RECOGNITION SYSTEM

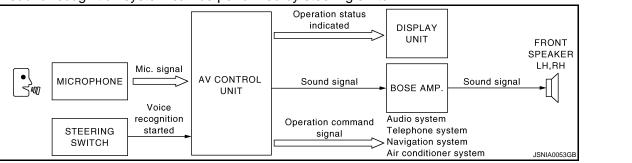
• Each operation of multi AV system can be performed by inputting sound to microphone.

# **MULTI AV SYSTEM**

# < SYSTEM DESCRIPTION >

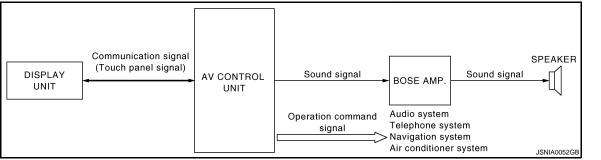
# [BOSE AUDIO WITH NAVIGATION]





#### TOUCH PANEL SYSTEM

Each operation of multi AV system can be performed by directly touching a display.



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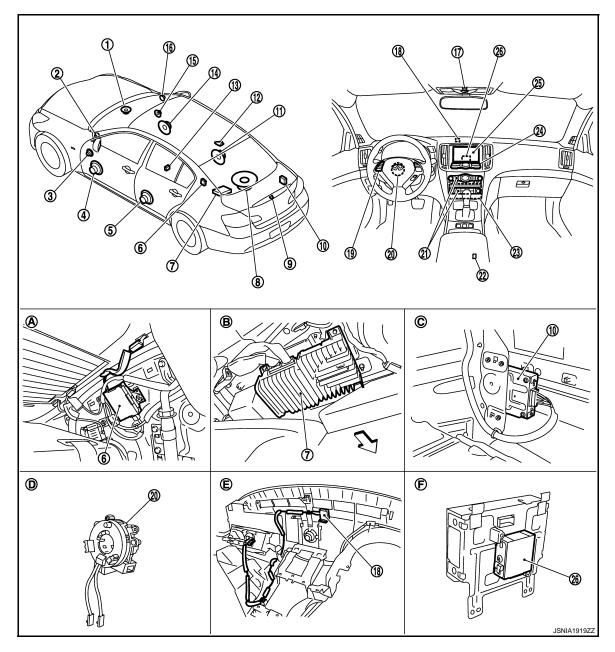
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# **Component Parts Location**



- 1. Center speaker
- 4. Front door woofer LH
- 7. BOSE amp.
- 10. Camera control unit
- 13. Auxiliary input jacks
- 16. Tweeter RH
- 19. Steering switch
- 22. iPod connector
- 25. Display unit
- A. Within rear pillar finisher LH
- D. Spiral cable part

- 2. Tweeter LH
- 5. Rear door speaker
- 8. Rear woofer
- 11. Rear door speaker RH
- 14. Front door woofer RH
- 17. Microphone
- 20. Steering angle sensor
- 23. AV control unit
- 26. iPod adapter
- B. Lower part of rear parcel shelf
- E. Instrument panel rear side

- 3. Front door squawker LH
- 6. Antenna amp.
- 9. Rear view camera
- 12. Satellite radio antenna
- 15. Front door squawker RH
- 18. GPS antenna
- 21. Preset switch
- 24. Multifunction switch
- C. Trunk room right side
- F. Rear view of the display

# **MULTI AV SYSTEM**

# < SYSTEM DESCRIPTION >

# **Component Description**

[BOSE AUDIO WITH NAVIGATION]

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Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing). Auxiliary image signal is input from the auxiliary input jack. Camera image signal is input from camera control unit.</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> </ul>
BOSE AMP.	Inputs power (amp. ON) and sound signal from AV control unit, and outputs sound signal to each speaker.
FRONT DOOR WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>
FRONT DOOR SQUAWKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs midrange sound.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
REAR WOOFER	<ul> <li>Outputs sound signal from BOSE amp.</li> <li>Outputs low-pitched sound.</li> <li>Power (amp. ON signal) is supplied from BOSE amp.</li> </ul>
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio, auxiliary input and navigation operations are integrated.</li> <li>Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> </ul>
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> <li>The CD ejection operating signal is performed by hardwire.</li> </ul>
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera. Camera image signal output to display.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>Controlled by AV communication transmitted from AV control unit.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> </ul>

# **MULTI AV SYSTEM**

#### < SYSTEM DESCRIPTION >

# [BOSE AUDIO WITH NAVIGATION]

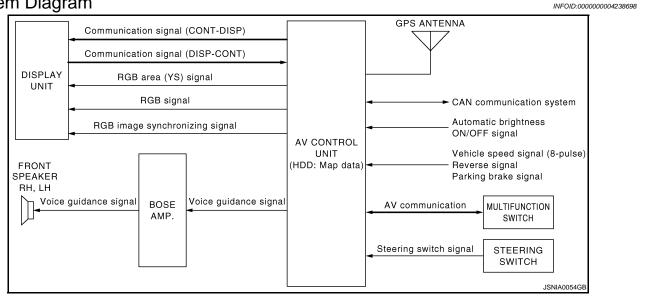
Part name	Description	
REAR VIEW CAMERA	The image of vehicle rear view is transmitted to camera control unit.	
STEERING SWITCH	<ul> <li>Operations for audio, hands-free phone, audio response and navigation, etc. are possible.</li> <li>Steering switch signal (operation signal) is output to AV control unit.</li> </ul>	
STEERING ANGLE SENSOR	Sensor signal (steering angle) is transmitted to camera control unit.	
MICROPHONE	<ul> <li>Used for hands-free phone operation and voice recognition.</li> <li>Mic signal is transmitted to AV control unit.</li> <li>Power (Mic VCC) is supplied from AV control unit.</li> </ul>	
AUXILIARY INPUT JACKS	Image signal of auxiliary input is transmitted to display, and sound signal is transmitted to AV control unit.	
GPS ANTENNA	GPS signal is received and transmitted to AV control unit.	
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>	
SATELLITE RADIO ANTENNA	Satellite radio signal is received and transmitted to AV control unit.	
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>	

# NAVIGATION SYSTEM

# < SYSTEM DESCRIPTION >

# NAVIGATION SYSTEM

# System Diagram



# System Description

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## 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.

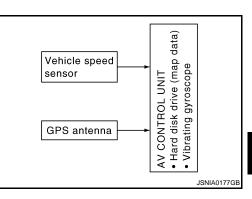
The current position is calculated by detecting the travel distance from the previous calculation point, and its direction change.

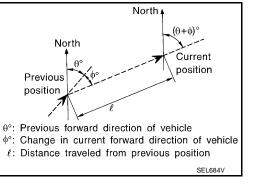
Travel distance

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.





2009 G37 Sedan

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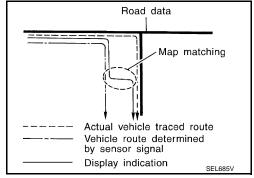
# **NAVIGATION SYSTEM**

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

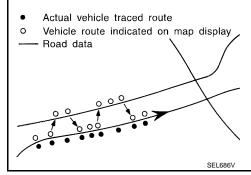
Map-matching repositions the vehicle on the road map when a new location is judged to be more accurate. This is done by comparing the current vehicle position (calculated by the normal position detection method) from the map data stored in the HDD (Hard Disk Drive).



There is a possibility that the vehicle position may not be corrected in the following case, and when vehicle is driven over a certain distance or time in which GPS information is hard to receive. Correct manually the current location mark on the screen.

 In map-matching, several alternative routes are prepared and prioritized in addition to the road judged as currently driving on. Therefore, due to errors in the distance and/or direction, an incorrect road may be prioritized, and the current location mark may be repositioned to the incorrect road.

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



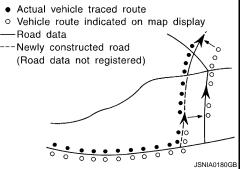
Map-matching does not function correctly when road on which the vehicle is driving is new, etc. and not recorded in the map data. Also, map-matching does not function correctly when road pattern stored in the map data and the actual road pattern are different due to repair, etc. Therefore, the map-matching function judges other road as a cur-

rently 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)

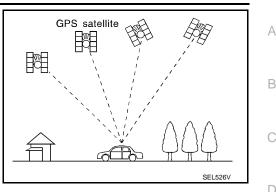


# **NAVIGATION SYSTEM**

#### < SYSTEM DESCRIPTION >

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.



[BOSE AUDIO WITH NAVIGATION]

Accuracy of the GPS will deteriorate under the following conditions:

- In two-dimensional positioning, GPS accuracy will deteriorate when altitude of the vehicle position changes.
- The position of GPS satellite affects GPS detection precision. The position detection may not be precisely performed.
- The position detection is not performed if GPS receiver does not receive radio waves from GPS satellites. (Inside a tunnel, parking in a building, under an elevated highway etc.) GPS receiver may not receive radio waves from GPS satellites if any object is placed on the GPS antenna.

#### NOTE:

- The detection result has an error of approximately 10 m (32.81 ft) even with a high-precision three dimensional positioning.
- There may be cases when the accuracy is lowered and radio waves are stopped intentionally because the GPS satellite signal is controlled by the US trace control center.

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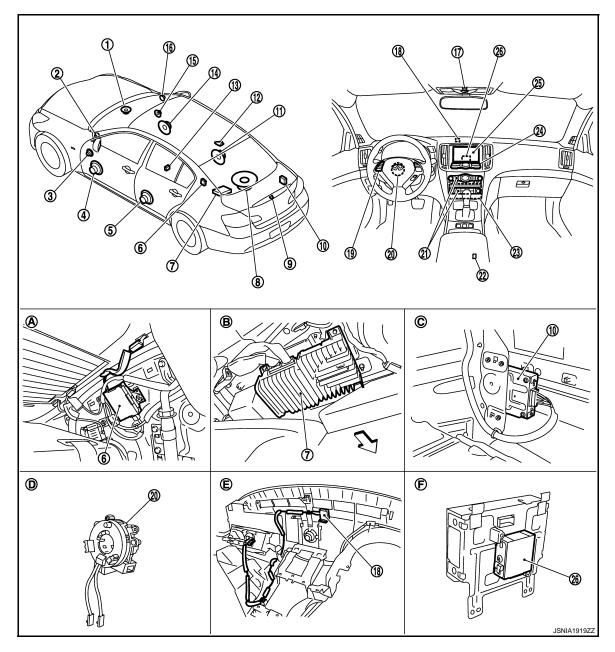
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## < SYSTEM DESCRIPTION >

# [BOSE AUDIO WITH NAVIGATION]

# **Component Parts Location**



- 1. Center speaker
- 4. Front door woofer LH
- 7. BOSE amp.
- 10. Camera control unit
- 13. Auxiliary input jacks
- 16. Tweeter RH
- 19. Steering switch
- 22. iPod connector
- 25. Display unit
- A. Within rear pillar finisher LH
- D. Spiral cable part
- < > C : Vehicle front

- 2. Tweeter LH
- 5. Rear door speaker
- 8. Rear woofer
- 11. Rear door speaker RH
- 14. Front door woofer RH
- 17. Microphone
- 20. Steering angle sensor
- 23. AV control unit
- 26. iPod adapter
- B. Lower part of rear parcel shelf
- E. Instrument panel rear side

- 3. Front door squawker LH
- 6. Antenna amp.
- 9. Rear view camera
- 12. Satellite radio antenna
- 15. Front door squawker RH
- 18. GPS antenna
- 21. Preset switch
- 24. Multifunction switch
- C. Trunk room right side
- F. Rear view of the display

### NAVIGATION SYSTEM [BOSE AUDIO WITH NAVIGATION]

### < SYSTEM DESCRIPTION >

## **Component Description**

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Part name	Description	
AV CONTROL UNIT	<ul> <li>It is the master unit that controls each operation of the Navigation system.</li> <li>The HDD (Hard Disk Drive) is built in, and the map data is stored in HDD.</li> <li>The RGB signal (map information) is output to the display.</li> <li>The voice guidance signal is output to the BOSE amp.</li> </ul>	
DISPLAY UNIT	<ul> <li>Map image signal is input from AV control unit, and it is indicated on the dis play.</li> <li>Each operation of navigation can be performed by the touch panel function.</li> </ul>	
BOSE AMP.	Voice guidance signal is input from AV control unit, and it is output to front LH, RH speakers.	
FRONT DOOR WOOFER		
FRONT DOOR SQUAWKER	Voice guidance signal from BOSE amp. is output.	
TWEETER		
MULTIFUNCTION SWITCH	<ul> <li>Each operation of navigation can be performed.</li> <li>Connected with preset switch via cable and operation signal is transmitted to AV control unit via AV communication.</li> </ul>	
STEERING SWITCH	<ul><li>Each operation of navigation, etc. can be performed.</li><li>Switch operating signal is output to AV control unit.</li></ul>	
GPS ANTENNA	GPS signal is received and is output to AV control unit.	

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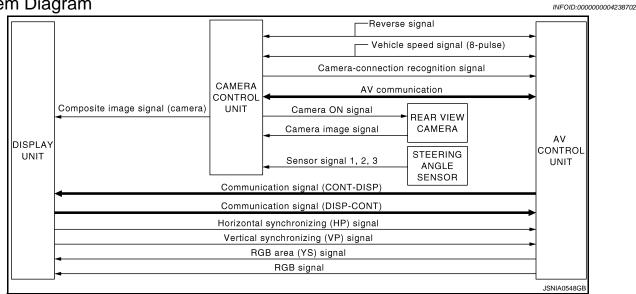
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### **REAR VIEW MONITOR SYSTEM**

#### < SYSTEM DESCRIPTION >

## REAR VIEW MONITOR SYSTEM

### System Diagram



### System Description

INFOID:000000004238703

#### CAMERA IMAGE OPERATION PRINCIPLE

- Power is supplied to rear view camera from camera control unit and outputs camera image signal to camera control unit when selector lever is set to R position and the reverse signal on camera control unit is input.
- Camera control unit synthesizes guide lines and possible route lines with camera image signal from rear view camera, and transmits camera image signal to the display. In this case, since the reverse signal is also input to AV control unit, the AV control unit recognizes the selector lever as in R position, and it switches communication signal between AV control unit and display unit, and image that is displayed on the display unit by RGB signal with rear view monitor image. In addition, possible route lines are controlled by original sensor signal from steering angle sensor.
- The AV control unit determines whether rear view camera is equipped or not, based on the presence of camera connection recognition signal. It switches to rear view monitor image at the time of reverse signal input when it is equipped.
- Warning message under the rear view monitor display is described by AV control unit.
- AV control unit is connected in communication with camera control unit and display unit, and it controls operation of rear view monitor system.

### **REAR VIEW MONITOR SYSTEM**

#### < SYSTEM DESCRIPTION >

### [BOSE AUDIO WITH NAVIGATION]

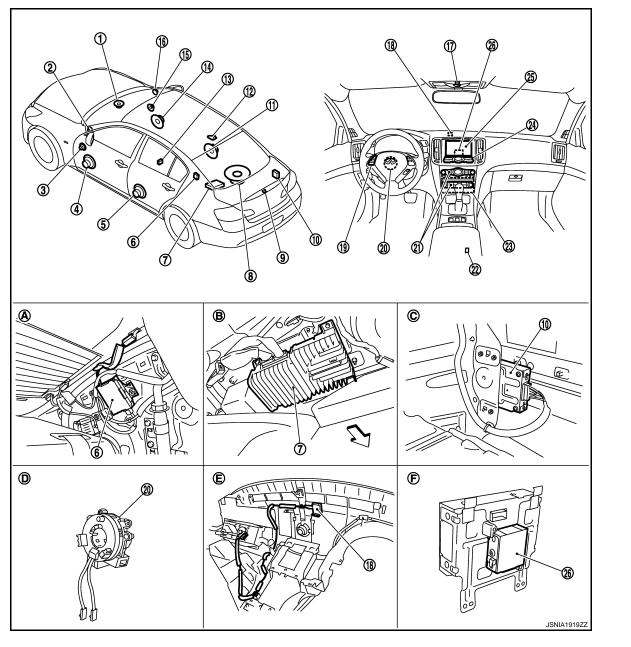
### **Component Parts Location**

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- 1. Center speaker
- 4. Front door woofer LH
- 7. BOSE amp.
- 10. Camera control unit
- 13. Auxiliary input jacks
- 16. Tweeter RH
- 19. Steering switch
- 22. iPod connector
- 25. Display unit
- A. Within rear pillar finisher LH
- D. Spiral cable part
- C: Vehicle front

- 2. Tweeter LH
- 5. Rear door speaker
- 8. Rear woofer
- 11. Rear door speaker RH
- 14. Front door woofer RH
- 17. Microphone
- 20. Steering angle sensor
- 23. AV control unit
- 26. iPod adapter
- B. Lower part of rear parcel shelf
- E. Instrument panel rear side

- 3. Front door squawker LH
- 6. Antenna amp.
- 9. Rear view camera
- 12. Satellite radio antenna
- 15. Front door squawker RH
- 18. GPS antenna
- 21. Preset switch
- 24. Multifunction switch
- C. Trunk room right side
- F. Rear view of the display

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< SYSTEM DESCRIPTION >

## **REAR VIEW MONITOR SYSTEM**

[BOSE AUDIO WITH NAVIGATION]

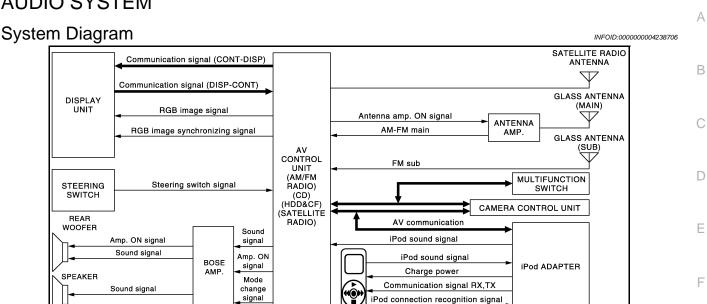
## **Component Description**

INFOID:000000004238705

Part name	Description	
AV CONTROL UNIT	<ul> <li>Image on display is changed to rear view monitor image with serial commu- nication between AV control unit and display unit.</li> <li>Warning displayed in rear view monitor image is illustrated.</li> </ul>	
DISPLAY UNIT	<ul> <li>Camera image signal is transmitted from camera control unit, and RGB signal for warning display is transmitted from AV control unit.</li> <li>Rear view monitor image is changed with the communication for AV control unit.</li> </ul>	
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera, and camera image is indicated on the display.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>Controlled by AV communication transmitted from AV control unit.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> </ul>	
REAR VIEW CAMERA	The image of vehicle rear view is transmitted to camera control unit.	
STEERING ANGLE SENSOR	Steering signal necessary for possible route line control is transmitted to camera control unit.	

### AUDIO SYSTEM

### < SYSTEM DESCRIPTION > AUDIO SYSTEM



### System Description

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

Function
AM/FM radio
Satellite radio
CD
Music Box (Hard Disk Drive)
CF (Compact Flash)
iPod connection
Driver's Audio Stage

#### FUNCTION DESCRIPTION

#### **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 CD ejection operating signal is performed by hardwire.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.
- Refer to AV-351. "System Description" for explanation of voice recognition function and touch panel function.

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 signal, RGB area signal and RGB P image synchronizing signal.

#### AM/FM Radio Mode

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

### AV-365

### < SYSTEM DESCRIPTION >

#### Satellite Radio Mode

- Satellite radio tuner is built into AV control unit.
- Audio signal (satellite radio) is received by satellite antenna, and it is input to AV control unit. AV control unit outputs audio signal to BOSE amp. The signal is also outputted from BOSE amp. to each speaker.

#### CD Mode

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

#### Music Box Mode

- Music CD data is stored on HDD that is built into AV control unit, and it can be played.
- AV control unit outputs music (audio signal) that is stored on HDD to BOSE amp., and BOSE amp. outputs to each speaker.

#### CF Mode

- AV control unit has built in CF replay function.
- Music (audio signal) that is stored in CF outputs to BOSE amp., and BOSE amp. outputs to each speaker when CF is inserted into AV control unit.

iPod Connection

- Connect iPod<sup>®</sup> and iPod adapter with wire harness and iPod adapter input iPod sound signal from iPod<sup>®</sup>. When iPod mode is selected, iPod adapter output iPod sound signal to AV control unit. AV control unit output sound signal to BOSE amp., and BOSE amp. output sound signal to each speaker.
- Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:
   between AV control unit and iPod adapter: AV communication.
- between iPod® and iPod adapter: serial communication.
- The iPod<sup>®</sup> connection status can be recognized whether iPod adapter receives iPod connection recognition signal.
- The iPod adapter is possible to charge iPod<sup>®</sup>.

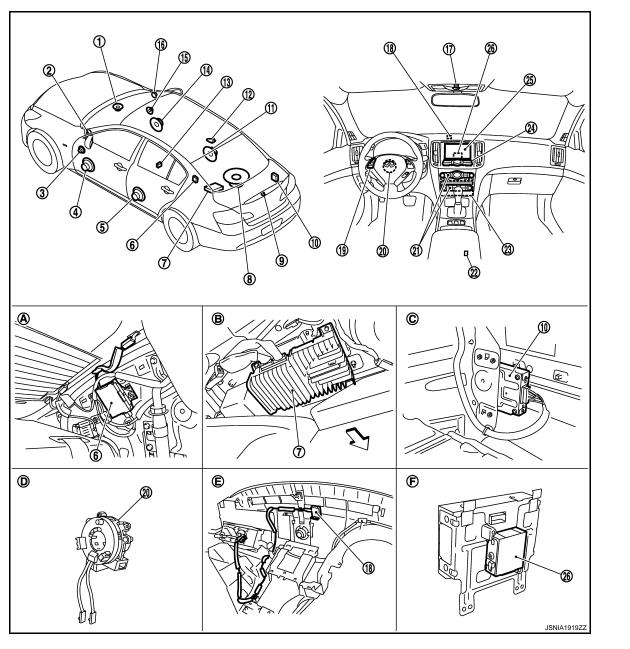
#### Driver's Audio Stage Mode

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

#### [BOSE AUDIO WITH NAVIGATION]

### < SYSTEM DESCRIPTION > Component Parts Location

INFOID:000000004468042



- 1. Center speaker
- 4. Front door woofer LH
- 7. BOSE amp.
- 10. Camera control unit
- 13. Auxiliary input jacks
- 16. Tweeter RH
- 19. Steering switch
- 22. iPod connector
- 25. Display unit
- A. Within rear pillar finisher LH
- D. Spiral cable part
- C: Vehicle front

- 2. Tweeter LH
- 5. Rear door speaker
- 8. Rear woofer
- 11. Rear door speaker RH
- 14. Front door woofer RH
- 17. Microphone
- 20. Steering angle sensor
- 23. AV control unit
- 26. iPod adapter
- B. Lower part of rear parcel shelf
- E. Instrument panel rear side

- 3. Front door squawker LH
- 6. Antenna amp.
- 9. Rear view camera
- 12. Satellite radio antenna
- 15. Front door squawker RH
- 18. GPS antenna
- 21. Preset switch
- 24. Multifunction switch
- C. Trunk room right side
- F. Rear view of the display

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### AUDIO SYSTEM

### < SYSTEM DESCRIPTION >

## **Component Description**

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[BOSE AUDIO WITH NAVIGATION]

Part name	Description
AV CONTROL UNIT	<ul> <li>Receiving function of AM/FM/satellite radio, replaying function of CD, replaying/saving function of music box (HDD), replaying function of CF and voice recognition function are integrated.</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> </ul>
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal (audio operation condition) is input from AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> </ul>
BOSE AMP.	Inputs power (amp. ON) and sound signal from AV control unit, and outputs sound signal to each speaker.
FRONT DOOR WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>
FRONT DOOR SQUAWKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs midrange sound.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
REAR WOOFER	<ul> <li>Outputs sound signal from BOSE amp.</li> <li>Outputs low-pitched sound.</li> <li>Power (amp. ON signal) is supplied from BOSE amp.</li> </ul>
MULTIFUNCTION SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> </ul>
PRESET SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication.</li> <li>The CD ejection operating signal is performed by hardwire.</li> </ul>
STEERING SWITCH	<ul><li>Each audio operation can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>
MICROPHONE	<ul> <li>It is used for voice activated operation</li> <li>Pronounced voice is converted to voice signal and transmitted to AV control unit.</li> </ul>
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>
SATELLITE RADIO ANTENNA	Audio signal (satellite radio) is received and output to AV control unit.
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> </ul>
	<ul> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>

### < SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (AV CONTROL UNIT)

### Diagnosis Description

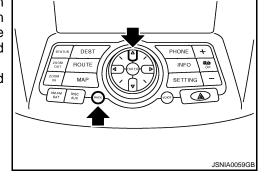
### MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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. CAUTION:

#### The hazard switch and CD eject switch cannot be checked.



Finishing Self-diagnosis Mode

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

#### MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

#### ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- 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 and between AV control unit and satellite radio 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

Mode	Description	_
Self-Diagnosis	<ul> <li>AV control unit diagnosis</li> <li>Diagnoses the connections across system components, between AV control unit and GPS antenna and between AV control unit and satellite radio antenna.</li> </ul>	AV

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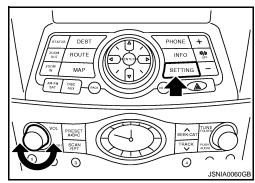
#### < SYSTEM DESCRIPTION >

### [BOSE AUDIO WITH NAVIGATION]

Mode			Description		
	Display Diagnosis		The following check functions are available: color tone check by color bar display, light and shade check by gray scale display and touch par el calibration response check.		
	Vehicle Signals		Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition switch, and reverse.		
	Speaker Test		The connection of a speaker can be confirmed by test tone.		
	Climate Control		Start auto air conditioner system self-diagnosis.		
		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 actual location, it can be adjusted.		
		XM SAT Subscrip- tion Status	The XM NavTraffic subscription status can be checked.		
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.		
Adjustment	Synchronizer FES clock		-		
	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 Cont.		The signal connected to camera control unit can be checked and the guiding line position that overlaps rear view camera image can be adjusted.		
	Bluetooth		The passkey and the device name can be checked and changed.		
	SAT	Change Channel	Any necessary channels required to receive traffic information from the satellite radio system can be set.		
		Change Application	Any application ID's required to receive traffic information from the sat- ellite radio system can be set.		
		Diag	Not used.		
	Delete Unit Connection Log		Erase the connection history of unit and error history.		
	Initialize Settings		Initializes the AV control unit memory.		

#### STARTING PROCEDURE

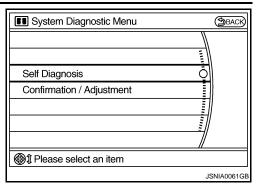
- 1. Start the engine.
- 2. Turn the audio system OFF.
- 3. While pressing the "SETTING" button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
  - Shifting from current screen to previous screen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



#### < SYSTEM DESCRIPTION >

The trouble diagnosis initial screen is displayed, and then the 4. items of "Self Diagnosis" and "Confirmation/Adjustment" can be selected.

## [BOSE AUDIO WITH NAVIGATION]



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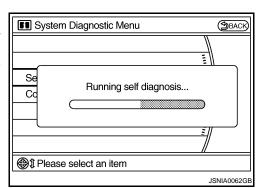
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### SELF-DIAGNOSIS MODE

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

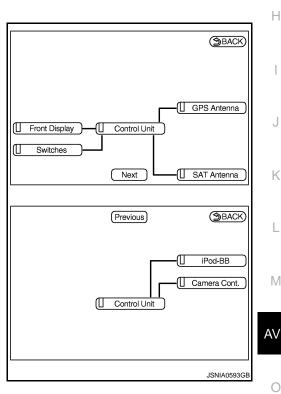


Diagnosis results are displayed after the self-diagnosis is com-2. pleted. The unit names and the connection lines are color-coded according to the diagnostic results.

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

#### NOTE:

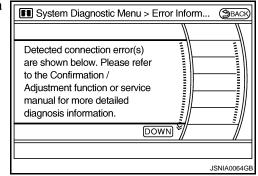
- Only the control unit (AV control unit) is displayed in red.
- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to AV-575, "Exploded View".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.



#### < SYSTEM DESCRIPTION >

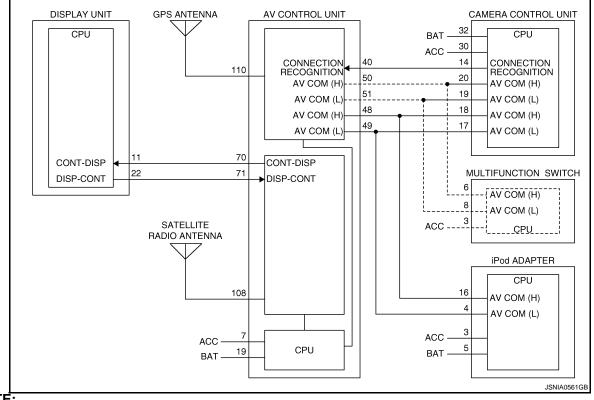
### [BOSE AUDIO WITH NAVIGATION]

 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.



#### NOTE:

On board self-diagnosis cannot be started when an error occurs on the dotted-line part above.

#### SELF-DIAGNOSIS RESULTS

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

#### Self-diagnosis Result Chart

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

#### < SYSTEM DESCRIPTION >

Possible malfunction location / Action А Area with yellow connection lines Description to take **BACK** В GPS Antenna Front Display Control Unit Π Switches D Next SAT Antenna Е (Previous) (SBACK) AV control unit malfunction is detect-AV control unit is malfunction. ed. F iPod-BB Camera Cont. Control Unit Н : Red JSNIA0594GB NOTE: The line between "Control Unit" and the other items may turn to be yellow when "Control Unit" indicator turn to be red. "Self-Diagnosis did not run because of a control unit malfunction" (SBACK) (Previous) Κ iPod-BB Malfunction is detected in camera-Camera connection recognition signal Camera Cont. L connection recognition signal circuit. circuit. Control Unit Μ 🛯 : Gray ----: Yellow JSNIA0596GB AV (SBACK) GPS antenna connection malfunction GPS Antenna GPS antenna. is detected. Front Display Control Unit Ρ Switches П [] SAT Antenna Next 🛯 : Gray ----: Yellow JSNIA0597GB

#### < SYSTEM DESCRIPTION >

## [BOSE AUDIO WITH NAVIGATION]

Area with yellow connection lines	Description	Possible malfunction location / Action to take
GPS Antenna     Switches     Next     GPS Antenna     SAT Antenna     SAT Antenna     SNIA0598GB	Poor connection is detected in satel- lite radio antenna.	<ul> <li>Satellite radio antenna feeder.</li> <li>Satellite radio antenna.</li> </ul>
Front Display (] Control Unit     Switches     Next     SAT Antenna     SNIA0599GB	<ul> <li>Malfunction is detected in communication circuit between AV control unit and display unit.</li> <li>Malfunction is detected in communication signal between AV control unit and display unit.</li> </ul>	Communication circuits between AV control unit and display unit.
Previous BACK iPod-BB Camera Cont. Control Unit SINIA0600GB	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>Malfunction is detected in AV communication circuits between camera control unit and the junction of AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communication circuits between camera control unit and iPod adapter.</li> <li>Malfunction is detected in AV communication signal between AV control unit and iPod adapter.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and the junction of AV control unit and multifunction switch.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>

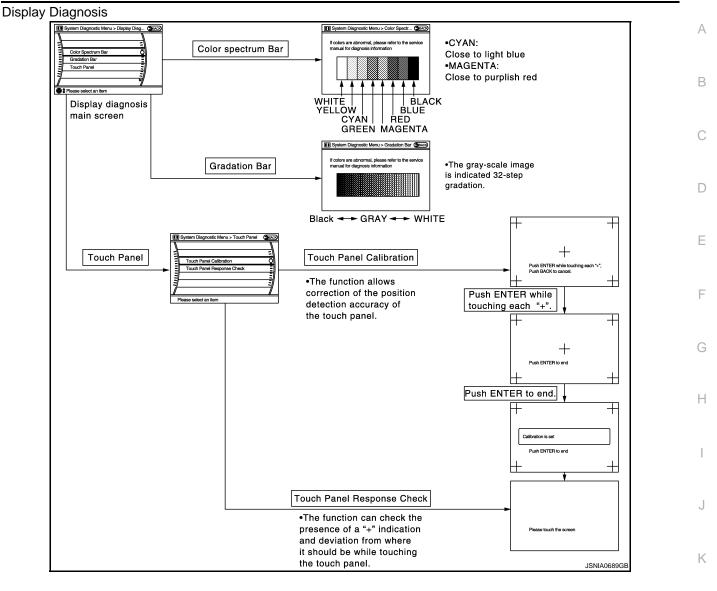
#### CONFIRMATION/ADJUSTMENT MODE

- 1. Start the diagnosis function and select "Confirmation/Adjustment". The confirmation/adjustment mode indicates where each item can be checked or adjusted.
- 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 Me	nu > Co	onfirmation	1 (Эваск) \\
	Display Diagnosis		(	5
	Vehicle Signals			
	Speaker Test			
	Climate Control			
	Navigation			
		1/15		
<b>@</b> 1	Please select an item			
				JSNIA0617G

#### < SYSTEM DESCRIPTION >

## [BOSE AUDIO WITH NAVIGATION]



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

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

```
Vehicle Signals
```

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

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

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#### < SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Diagnosis item	Display	Vehicle status	Remarks	
Vahiele encod	ON	Vehicle speed > 0 km/h (0 MPH)		
Vehicle speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal	
Derling broke	ON	Parking brake is applied.	Changes in indication may be delayed. This is norr	
Parking brake	OFF	Parking brake is released.		
Linkto	ON	Light switch ON		
Lights	OFF	Light switch OFF		
1	ON	Ignition switch ON		
Ignition	OFF	Ignition switch in ACC position		
Reverse	ON	Shift the selector lever to "R" posi- tion	Changes in indication may be delayed. This is normal.	
	OFF	Shift the selector lever other than "R" position	Changes in indication may be delayed. This is notifial.	

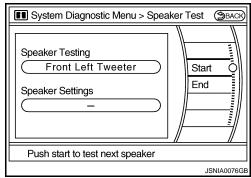
#### Speaker Test

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

#### NOTE:

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

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



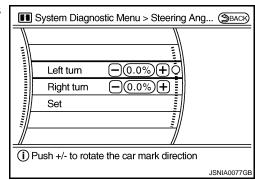
Climate Control

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

#### Navigation

STEERING ANGLE ADJUSTMENT

The steering angle output value detected with the gyroscope is adjusted.



#### SPEED CALIBRATION

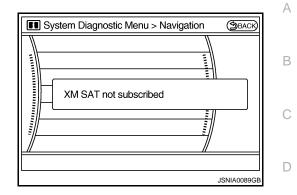
During normal driving, distance error caused by tire wear and tire pressure change is automatically adjusted for by the automatic distance correction function. This function, on the other hand, is for immediate adjustment, in cases such as driving with tire chain fitted on tires.

61	System Diagnostic Menu > Speed Calibr (SBACR)
	Speed Calibration $-(0.0\%)$
	Set
	Ē
	/
	Push +/- to move the car mark location
	JSNIA0078GE

#### < SYSTEM DESCRIPTION >

#### 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 SW is turned ON and then no error has occurred until the self-diagnosis start. Check the "Error Record" to detect any error that may have occurred before the self-diagnosis start because of this situation.

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

Count up method B

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

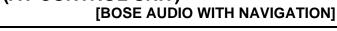
Display type of occur- rence frequency	Error history display item	L
Count up method A	CAN communication line, control unit (CAN), AV communication line, control unit (AV communication)	M
Count up method B	Other than the above	

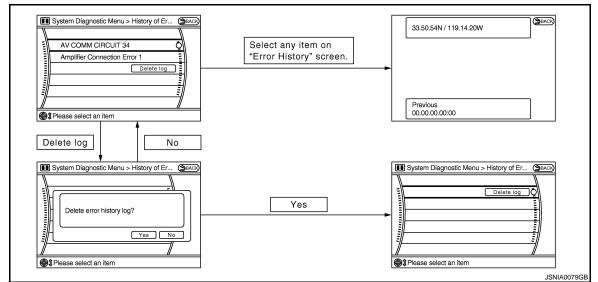
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#### < SYSTEM DESCRIPTION >





#### 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-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-387, "Diagnosis Procedure"</u> .
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detect- ed.	
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	
FLASH-ROM Error Of Control Unit		
Connection Of Gyro		
XM SERIAL COMM Error		Replace the AV control unit.
CAN Controller Memory Error		
Bluetooth Module Connection Error		
HDD CONN Error		
HDD READ Error	AV control unit malfunction is detected.	
HDD WRITE Error		
HDD COMM Error		
HDD ACCESS Error		
DSP CONN Error		
DSP COMM Error		
Internal Communication Error		AV control unit power supply and ground circuits.
GPS Communication Error		An intermittent error caused by strong radio
GPS ROM Error		interference may be detected unless any symptom (GPS reception error, etc.) oc-
GPS RAM Error	GPS malfunction is detected.	curs.
GPS RTC Error		Replace the AV control unit if the malfunc- tion occurs constantly.

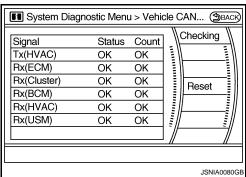
#### < SYSTEM DESCRIPTION >

### [BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
Front Display Connection Error	<ul> <li>Display unit power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in communication circuits between AV control unit and display unit.</li> <li>Malfunction is detected in communication signal between AV control unit and display unit.</li> </ul>	<ul> <li>Display unit power supply and ground circuits.</li> <li>Communication circuits between AV control unit and display unit.</li> </ul>
GPS Antenna Error	GPS antenna connection malfunction is detected.	GPS antenna.
Camera Control Unit Connection Error	Malfunction is detected in camera connec- tion recognition circuit between AV control unit and camera control unit.	Camera-connection recognition circuit be- tween AV control unit and camera control unit.
XM Antenna Connection Error	Poor connection is detected in satellite ra- dio antenna.	<ul><li>Satellite radio antenna feeder.</li><li>Satellite radio antenna.</li></ul>
AV COMM CIRCUIT     Internal Communication Error	<ul> <li>AV control unit power supply and ground circuits malfunction detected.</li> <li>AV control unit malfunction is detected.</li> </ul>	AV control unit power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT</li> <li>Switches Connection Error</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuit between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>Rearview Camera Connection Error</li> </ul>	<ul> <li>Camera control unit power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and camera control unit.</li> </ul>	Camera control unit power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT</li> <li>iPod Connection Error</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in AV communication circuits between camera control unit and iPod adapter.</li> <li>Malfunction is detected in AV communication signal between AV control unit and iPod adapter.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between AV control unit and iPod adapter.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between camera control unit and the junction of AV control unit and mul- tifunction switch.	AV communication circuits between cam- era control unit and the junction of AV con- trol unit and multifunction switch.
<ul> <li>AV COMM CIRCUIT</li> <li>Switches Connection Error</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between AV control unit and the junction of camera control unit and multi- function switch.	AV communication circuits between AV control unit and the junction of camera 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.



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

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 / UNKWN	OK / 0 – 39
C Rx(PrimarySW–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(STRG SW–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(Audio–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(Amp–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(RearCamera–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(XM–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(iPod–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(Amp–Audio)	—	—
C Rx(iPod–Audio)	OK / UNKWN	OK / 0 – 39
C Tx(Audio–ITM)	OK / UNKWN	OK / 0 – 39

System Diagnostic Menu > AV COMM Di (BBACK)					
Signal C Tx(ITM-PrimarySW) C Rx(PrimarySW-ITM) C Rx(STRG SW-ITM) C Rx(Audio-ITM) C Rx(Amp-ITM) C Rx(Amp-ITM) C Rx(RearCamera-ITM) C Rx(XM-ITM)	Status OK OK OK OK	Count. OK OK OK OK OK OK			
			JSNIA0081GB		

NOTE:

• Any units with "-" displayed have no history of vehicle connection.

• "Audio" and "Amp" indicate the same status because "Amp" indicates the status of the amplifier integrated in the AV control unit.

• "STRG SW", "Amp", and "XM" indicate the same status as "Audio".

#### Hands-Free Phone

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

	System Diagnostic Menu > Handsfree Ph 🌘 BACK)
_	
	Handsfree Volume Adjustment
	Voice Microphone Test
	Delete Handsfree Memory
	/
	JSNIA0083GB

Camera Cont.

The two functions of "Connection Confirmation" and "Adjust Offset of Rear View Camera" are available. CONNECTION CONFIRMATION

### AV-380

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#### < SYSTEM DESCRIPTION >

## [BOSE AUDIO WITH NAVIGATION]

The steering angle sensor, reverse signal and vehicle speed sensor can be inspected.

System Diagnostic Menu > Connection C (SBACK)					
	(				
	Steer. Angle Sensor	OFF			
	Reverse Sensor	OFF			
	Vehicle Speed Sensor	OFF			
	Side view Switch	_ ]			
		JSNIA	\0084GB		

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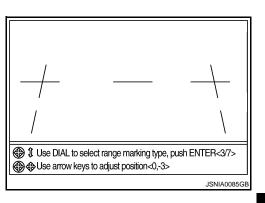
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Diagnosis item	Display	Vehicle status
	ON	When steering the vehicle with ignition switch ON (remains ON until connection mode is stopped when it is turned ON)
Steer. Angle Sensor	OFF	<ul><li>Ignition switch at ACC</li><li>No steering with ignition switch ON</li></ul>
		Malfunction detected in camera connection recognition signal
	ON	Selector lever is in "R" with ignition switch ON.
Reverse Sensor	OFF	<ul> <li>Ignition switch at ACC</li> <li>Selector lever is in position other than "R" with ignition switch ON.</li> </ul>
		Malfunction detected in camera-connection recognition signal
Vehicle Speed Sensor	ON	Vehicle speed is more than 0 km/h (0 MPH) with ignition switch ON
	OFF	<ul><li>Ignition switch at ACC</li><li>Vehicle speed is 0 km/h (0 MPH) with ignition switch ON</li></ul>
	—	Malfunction detected in camera connection recognition signal
Side view Switch	_	Not used

#### ADJUST OFFSET OF REAR VIEW CAMERA

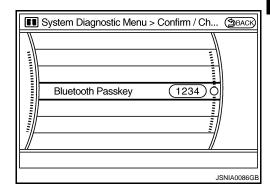
Use this mode to adjust the guide line display position of the rear view monitor if necessary after removing the rear view monitor camera.



#### Bluetooth

Passkey confirmation/change

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



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Device name check/change

#### < SYSTEM DESCRIPTION >

- The device name of Bluetooth can be confirmed and changed.
- The device name can be changed by sixteen digits within A to Z ٠ (small character can be used) and - (hyphen).
- System Diagnostic Menu > Confirm / Ch... (SBACK)

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JSNIA0087GB

**Device Name** 

### SAT

Change Channel

Change Application ID

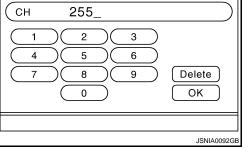
satellite radio system can be set.

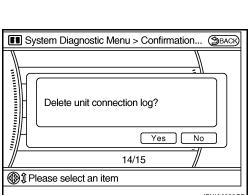
- Any necessary channels required to receive traffic information from the satellite radio system can be set.
- System Diagnostic Menu > Change Chan... СН 255 2 3 1 4 5 6 8 9 Delete 0 ΟК JSNIA0092GE
- System Diagnostic Menu > Change Appli... (SBACK) Any application ID'-s required to receive traffic information from the APPID 8 EXTID 5 2 З < 1 4 5 6 > 7 8 9 Delete 0 OK JSNIA0093GE
- Deletes any unit connection records and error records from the AV System Diagnostic Menu > Confirmation... (SBACK) control unit memory. (Clear the records of the unit that has been 1 Delete unit connection log? Yes No 14/15 🛞 🕽 Please select an item JSNIA0088GI

removed.)

Delete Unit Connection Log

**Initialize Settings** 

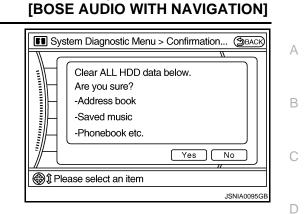




## [BOSE AUDIO WITH NAVIGATION]

#### < SYSTEM DESCRIPTION >

Deletes data stored in HDD.



### CONSULT - III Function (MULTI AV)

INFOID:000000004238711

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#### CONSULT-III FUNCTIONS

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

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

#### AV COMMUNICATION

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

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

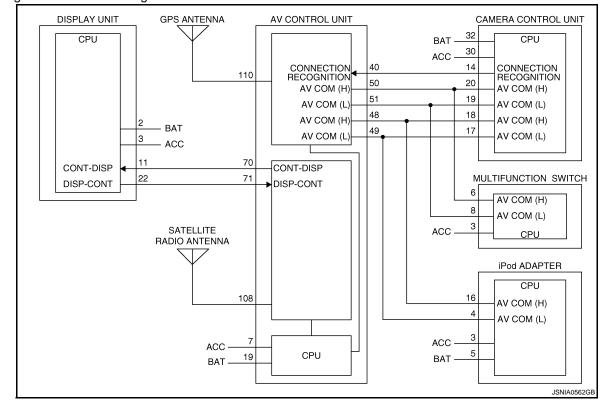
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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) < SYSTEM DESCRIPTION > [BOSE AUDIO WITH NAVIGATION]

#### Self-diagnosis Detection Range



#### Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT[U1000]	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-387, "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 FLASH-ROM [U1200]	AV control unit malfunction is detected.	
GYRO NO CONN [U1201]		Replace the AV control unit.
CAN CONT [U1216]		
BLUETOOTH MODULE CONN [U1217]		
HDD-CONN [U1218]		
HDD-READ [U1219]		
XM SERIAL COMM [U1220]		
HDD-WRITE [U121A]		
HDD-COMM [U121B]	1	
HDD-ACCESS [U121C]	1	
DSP CONN [U121D]	1	
DSP COMM [U121E]		
INTERNAL COMM [U121F]		AV control unit power supply and ground circuits.

#### < SYSTEM DESCRIPTION >

### [BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
GPS COMM [U1204]		An intermittent error caused by strong radio
GPS ROM [U1205]		interference may be detected unless any symptom (GPS reception error, etc.) oc-
GPS RAM [U1206]	GPS malfunction is detected.	curs.
GPS RTC [U1207]		Replace the AV control unit if the malfunc- tion occurs constantly.
FRONT DISP CONN [U1243]	<ul> <li>Display unit power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in communication circuits between AV control unit and display unit.</li> <li>Malfunction is detected in communication signal between AV control unit and display unit.</li> </ul>	<ul> <li>Display unit power supply and ground circuits.</li> <li>Communication circuits between AV control unit and AV display unit.</li> </ul>
GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	GPS antenna.
CAMERA CONT. CONN [U1250]	Malfunction is detected in camera connec- tion recognition circuit between AV control unit and camera control unit.	Camera-connection recognition circuit be- tween AV control unit and camera control unit.
XM ANTENNA CONN [U1258]	Poor connection is detected in satellite ra- dio antenna.	<ul><li>Satellite radio antenna feeder.</li><li>Satellite radio antenna.</li></ul>
<ul><li>AV COMM CIRCUIT [U1300]</li><li>INTERNAL COMM [U121F]</li></ul>	<ul><li>AV control unit power supply and ground circuits.</li><li>AV control unit malfunction is detected.</li></ul>	AV control unit power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation circuits between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> </ul>	<ul> <li>Camera control unit power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in AV communi- cation signal between AV control unit and camera control unit.</li> </ul>	Camera control unit power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>IPOD CONN [U1254]</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits malfunction is detected</li> <li>Malfunction is detected in AV communication circuits between camera control unit and iPod adapter</li> <li>Malfunction is detected in AV communication signal between AV control unit and iPod adapter</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits</li> <li>AV communication circuits between camera control unit and iPod adapter</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	Malfunction is detected in AV communica- tion circuits between camera control unit and the junction of AV control unit and mul- tifunction switch.	AV communication circuits between cam- era control unit and the junction of AV con- trol unit and multifunction switch.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	Malfunction is detected in AV communica- tion circuits between AV control unit and the junction of camera control unit and multi- function switch.	AV communication circuits between AV control unit and the junction of camera control unit and multifunction switch.

#### DATA MONITOR

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.

### AV-385

#### < SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Display Item	Display	Vehicle status	Remarks
VHCL SPD SIG	On	Vehicle speed >0 km/h (0 MPH)	
	Off	Vehicle speed =0 km/h (0 MPH)	Changes in indication may be delayed. This is
PKB SIG	On	Parking brake is applied.	normal.
PKD 31G	Off	Parking brake is released.	
ILLUM SIG	On	Block the light beam from the auto light optical sensor when the light SW is ON.	
	Off	Expose the auto light optical sensor to light when the light SW is OFF or ON.	
	On	Ignition switch ON	
IGN SIG	Off	Ignition switch in ACC position	
	On	Selector lever in R position	Changes in indication may be delayed. This is
REV SIG	Off	Selector lever in any position other than R	normal.

#### SELECTION FROM MENU

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

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

## DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

### Description

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INFOID:000000004238713

INFOID:000000004238714

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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-III	Diagnostic item is detected when	Probable malfunction location	F
U1000	CAN COMM CIRCUIT	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.	G

### 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 system". Refer to LAN-19, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI section. Refer to <u>GI-41, "Intermittent Incident"</u>.

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## U1010 CONTROL UNIT (CAN)

### Description

Initial diagnosis of AV control unit.

### DTC Logic

INFOID:000000004238716

INFOID:000000004238717

INFOID:000000004238715

### DTC DETECTION LOGIC

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

### **Diagnosis Procedure**

## **1.**REPLACE AV CONTROL UNIT

When DTC U1010 is detected, replace AV control unit.

>> INSPECTION END

### **U1310 AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

## **U1310 AV CONTROL UNIT**

### Description

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

INFOID:000000004238718

[BOSE AUDIO WITH NAVIGATION]

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

### DTC Logic

INFOID:000000004238719

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

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### **U1200 AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

## U1200 AV CONTROL UNIT

### Description

INFOID:000000004238720

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

### DTC Logic

INFOID:000000004238721

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

#### **U1201 AV CONTROL UNIT** [BOSE AUDIO WITH NAVIGATION]

### < DTC/CIRCUIT DIAGNOSIS >

## **U1201 AV CONTROL UNIT**

## Description

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

INFOID:000000004238722

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

### DTC Logic

INFOID:000000004238723

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	I
U1201	GYRO NO CONN [U1201]	Internal malfunction of AV control unit (gyrocompass dis- connection) is detected.	Replace AV control unit.	J

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### **U1216 AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

## U1216 AV CONTROL UNIT

### Description

INFOID:000000004238724

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

### DTC Logic

INFOID:000000004238725

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

#### **U1217 AV CONTROL UNIT** [BOSE AUDIO WITH NAVIGATION]

### < DTC/CIRCUIT DIAGNOSIS >

## **U1217 AV CONTROL UNIT**

## Description

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

INFOID:000000004238726

Part name	Description	
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable candidates and the signals candidates and the signals candidates and the applicable candidates and the signals candidates and the signals candidates and the signals candidates and the signal candidates and the signals candidates and the signals candidates and the signal candidates and the signals candidates and the signal candidates and the signals candidates and the signal candidates and the sign</li></ul>	

### DTC Logic

INFOID:000000004238727

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	I
U1217	BLUETOOTH MODULE CONN [U1217]	Internal malfunction of AV control unit (Bluetooth module connection malfunction) is detected.	Replace AV control unit.	J

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### **U1218 AV CONTROL UNIT**

### < DTC/CIRCUIT DIAGNOSIS >

## U1218 AV CONTROL UNIT

## Description

INFOID:000000004238728

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

### DTC Logic

INFOID:000000004238729

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1218	HDD-CONN [U1218]	Internal malfunction of AV control unit (HDD connection malfunction) is detected.	Replace AV control unit.

### **U1219 AV CONTROL UNIT**

### < DTC/CIRCUIT DIAGNOSIS >

## **U1219 AV CONTROL UNIT**

## Description

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

INFOID:000000004238730

[BOSE AUDIO WITH NAVIGATION]

Part name	Description	
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming con trol.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable ca ble.</li> </ul>	

### DTC Logic

INFOID:000000004238731

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	
U1219	HDD-READ [U1219]	Internal malfunction of AV control unit (HDD read malfunc- tion) is detected.	Replace AV control unit.	J

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### **U1220 AV CONTROL UNIT**

### < DTC/CIRCUIT DIAGNOSIS >

## U1220 AV CONTROL UNIT

### Description

INFOID:000000004238732

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

### DTC Logic

INFOID:000000004238733

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1220	XM SERIAL COMM [U1220]	Internal malfunction of AV control unit (satellite radio tuner communication error) is detected.	Replace AV control unit.

#### **U121A AV CONTROL UNIT** [BOSE AUDIO WITH NAVIGATION]

### < DTC/CIRCUIT DIAGNOSIS >

# **U121A AV CONTROL UNIT**

# Description

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

INFOID:000000004238734

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

## DIC Logic

INFOID:000000004238735

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	I
U121A	HDD-WRITE [U121A]	Internal malfunction of AV control unit (HDD write mal- function) is detected.	Replace AV control unit.	J

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## **U121B AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

# **U121B AV CONTROL UNIT**

# Description

INFOID:000000004238736

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

# DTC Logic

INFOID:000000004238737

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121B	HDD-COMM [U121B]	Internal malfunction of AV control unit (HDD communica- tion error) is detected.	Replace AV control unit.

#### **U121C AV CONTROL UNIT** [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

# **U121C AV CONTROL UNIT**

## Description

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

INFOID:000000004238738

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable carble.</li> </ul>

## DTC Logic

INFOID:000000004238739

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	I
U121C	HDD-ACCESS [U121C]	Internal malfunction of AV control unit (HDD access error) is detected.	Replace AV control unit.	J

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## **U121D AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

# **U121D AV CONTROL UNIT**

# Description

INFOID:000000004238740

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

# DTC Logic

INFOID:000000004238741

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121D	DSP CONN [U121D]	Internal malfunction of AV control unit (DSP connection error) is detected.	Replace AV control unit.

#### **U121E AV CONTROL UNIT** [BOSE AUDIO WITH NAVIGATION]

#### < DTC/CIRCUIT DIAGNOSIS >

# **U121E AV CONTROL UNIT**

# Description

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

INFOID:000000004238742

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

## DTC Logic

INFOID:000000004238743

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	
U121E	DSP COMM [U121E]	Internal malfunction of AV control unit (DSP communica- tion error) is detected.	Replace AV control unit.	J

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### **U121F AV CONTROL UNIT**

< DTC/CIRCUIT DIAGNOSIS >

# **U121F AV CONTROL UNIT**

## Description

INFOID:000000004238744

Replace the AV control unit if this DTC is displayed. Refer to AV-575, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>

# **DTC** Logic

INFOID:000000004238745

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121F	INTERNAL COMM [U121F]	Internal malfunction of AV control unit (internal communi- cation error) is detected.	AV control unit power supply and ground circuit.

### **Diagnosis Procedure**

INFOID:000000004238746

1. CHECK AV CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check AV control unit power supply and ground circuit. Refer to <u>AV-413, "AV CONTROL UNIT : Diagnosis</u> <u>Procedure"</u>.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

# < DTC/CIRCUIT DIAGNOSIS >

# U1204 GPS

Description

INFOID:000000004238747

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[BOSE AUDIO WITH NAVIGATION]

An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-575</u>, <u>"Exploded View"</u>.

Part name	Description	
Part name	<ul> <li>Description</li> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and</li> </ul>	
	<ul> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> </ul>	
	<ul> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>	

# **DTC** Logic

INFOID:000000004238748

INFOID:000000004238749

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1204	GPS COMM [U1204]	Internal malfunction of AV control unit (GPS malfunction) is detected.	An intermittent error caused by strong radio interference may be detected unless a symptom (GPS reception er- ror,etc.) occurs. Replace the AV con- trol unit if the malfunction occurs constantly.	K
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## **Diagnosis Procedure**

**1.**PERFORM THE SELF-DIAGNOSIS

- 1. Delete the self-diagnosis results. 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.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

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# < DTC/CIRCUIT DIAGNOSIS >

# U1205 GPS

Description

INFOID:000000004238750

[BOSE AUDIO WITH NAVIGATION]

An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-575</u>. "<u>Exploded View</u>".

Part name	Description	
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>	

# DTC Logic

INFOID:000000004238751

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1205	GPS ROM [U1205]	Internal malfunction of AV control unit (GPS malfunction) is detected.	An intermittent error caused by strong radio interference may be detected unless a symptom (GPS reception er- ror,etc.) occurs. Replace the AV con- trol unit if the malfunction occurs constantly.

# **Diagnosis Procedure**

INFOID:000000004238752

# **1.**PERFORM THE SELF-DIAGNOSIS

- 1. Delete the self-diagnosis results. 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.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

### < DTC/CIRCUIT DIAGNOSIS > U1206 GPS

# Description

INFOID:000000004238753

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[BOSE AUDIO WITH NAVIGATION]

An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-575</u>, <u>"Exploded View"</u>.

Part name	Description	
	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> </ul>	
	<ul> <li>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.</li> </ul>	
	• The AV control unit includes the audio, hands-free phone, voice control, navi- gation, satellite radio, and vehicle information functions.	
	<ul> <li>It is connected to ECM and unified meter and A/C amp. via CAN communica- tion to obtain necessary information for the vehicle information function.</li> </ul>	
AV CONTROL UNIT	<ul> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> </ul>	
	<ul> <li>It inputs the illumination signals that are required for the display dimming con- trol.</li> </ul>	
	<ul> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> </ul>	
	BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.	
	Update of map data is performed with the CONSULT-III and the applicable cable.	

# **DTC** Logic

INFOID:000000004238754

INFOID:000000004238755

U1206         GPS RAM [U1206]         Internal malfunction of AV control unit (GPS malfunction) is detected.         An intermittent error caused by strong radio interference may be detected unless a symptom (GPS reception er- ror, etc.) occurs. Replace the AV con- trol unit if the malfunction occurs constantly.	DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
	U1206		· · · · · · · · · · · · · · · · · · ·	radio interference may be detected unless a symptom (GPS reception er- ror,etc.) occurs. Replace the AV con- trol unit if the malfunction occurs	K

## **Diagnosis Procedure**

**1.**PERFORM THE SELF-DIAGNOSIS

- 1. Delete the self-diagnosis results. 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.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

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### < DTC/CIRCUIT DIAGNOSIS > U1207 GPS

## Description

INFOID:000000004238756

An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-575</u>. "<u>Exploded View</u>".

Part name	Description	
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>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.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>BOSE amp. ON signal, sound signal and mode change signal transmitted to BOSE amp.</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>	

# **DTC Logic**

INFOID:000000004238757

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1207	GPS RTC [U1207]	Internal malfunction of AV control unit (GPS malfunction) is detected.	An intermittent error caused by strong radio interference may be detected unless a symptom (GPS reception er- ror,etc.) occurs. Replace the AV con- trol unit if the malfunction occurs constantly.

## **Diagnosis Procedure**

INFOID:000000004238758

# **1.**PERFORM THE SELF-DIAGNOSIS

- 1. Delete the self-diagnosis results. 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.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

### **U1243 DISPLAY UNIT**

### < DTC/CIRCUIT DIAGNOSIS >

# U1243 DISPLAY UNIT

### Description

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Part name	Description
DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing). Auxiliary image signal is input from the auxiliary input jack. Camera image signal is input from the camera control unit.</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> </ul>

## **DTC Logic**

INFOID:000000004238760

INFOID:000000004238761

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes	F
U1243	FRONT DISP CONN [U1243]	<ul> <li>Display unit power supply and ground circuit malfunction is detected</li> <li>Malfunction is detected in communication circuit between AV control unit and display unit</li> <li>Malfunction is detected in communication signal between AV control unit and display unit</li> </ul>	<ul> <li>Display unit power supply and ground circuit.</li> <li>Communication circuit between AV control unit and display unit.</li> </ul>	G
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# **Diagnosis Procedure**

# 1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to AV-413, "DISPLAY UNIT : Diagnosis Procedure	<u>)"</u> . '
Is the inspection result normal?	

YES	>> G(	D 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.

Displ	ay unit	AV cor	trol unit	
Connector	Terminals	Connector	Terminals	Continuity
M75	11	M88	70	Existed
10175	22	IVIOO	71	EXISIED

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

Displa	ay unit		Continuity
Connector	Terminals	Ground	Continuity
M75	11	Ground	Not existed
1017 5	22		NOT EXISTED

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

## **3.**CHECK COMMUNICATION SIGNAL

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

2. Turn ignition switch ON.

## **U1243 DISPLAY UNIT**

#### < DTC/CIRCUIT DIAGNOSIS >

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

	+) ay unit	()	Condition	Reference value
Connector	Terminal			
M75	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.

**4.**CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M75	22	Ground	When adjusting display bright- ness.	(V) 6 4 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit.

## **U1244 GPS ANTENNA**

### < DTC/CIRCUIT DIAGNOSIS >

# U1244 GPS ANTENNA

# Description

INFOID:000000004238762

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	Part name		De	scription
GPS ANTE	INNA	GPS	signal is received and transmitte	ed to AV control unit.
DTC Log	gic			INFOID:000000004238
DTC	Display contents of CONSULT-III	DTC	Detection Condition	Possible causes
111.244	GPS ANTENNA CONN U1244]	GPS antenna connec	tion malfunction is detected.	GPS antenna disconnection.
Diagnos	sis Procedure			INFOID:000000042387
<b>1.</b> GPS A	NTENNA CHECK			
2.CHECH 1. Discon 2. Turn ig	<ul> <li>Repair malfunction</li> <li>AV CONTROL UN</li> <li>nnect GPS antenna</li> <li>gnition switch ON.</li> <li>voltage between A</li> </ul>	IT VOLTAGE	ground.	
	(+) control unit erminal	()	Voltage (Approx.)	
	110	Ground	5 V	
YES >	<ul> <li>&gt; INSPECTION EN</li> <li>&gt; Replace AV contri</li> </ul>	ID		

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### **U1250 CAMERA CONTROL UNIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# U1250 CAMERA CONTROL UNIT

### Description

INFOID:000000004238768

[BOSE AUDIO WITH NAVIGATION]

Part name	Description
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera, and camera image is indicated on the display.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>Controlled by AV communication transmitted from AV control unit.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> </ul>

# **DTC Logic**

INFOID:000000004238769

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1250	CAMERA CONT. CONN [U1250]	Malfunction is detected in Camera-connection recognition signal circuit.	Camera-connection recognition sig- nal circuit.

### **Diagnosis Procedure**

INFOID:000000004238770

# $1. {\sf check \ camera-connection \ recognition \ signal \ circuit}$

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

AV con	trol unit	Camera o	control unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M87	40	B241	14	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector.

2. Turn ignition switch ON.

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

(	+)		
AV cor	ntrol unit	(-)	Voltage (Approx.)
Connector	Terminal		
M87	40	Ground	5 V
1 41 1		10	

Is the inspection result normal?

YES >> Replace camera control unit.

NO >> Replace AV control unit.

#### U1258 SATELLITE RADIO ANTENNA [BOSE AUDIO WITH NAVIGATION]

#### < DTC/CIRCUIT DIAGNOSIS >

# **U1258 SATELLITE RADIO ANTENNA**

### Description

Part name	Description
SATELLITE RADIO ANTENNA	Satellite radio signal is received and transmitted to AV control unit.

## DTC Logic

D Display contents of DTC **DTC** Detection Condition Possible causes CONSULT-III XM ANTENNA CONN Satellite radio antenna connection malfunction is detect-U1258 Satellite radio antenna disconnection. Е [U1258] ed. **Diagnosis Procedure** INFOID:000000004238773 F **1**.SATELLITE RADIO ANTENNA CHECK Visually check satellite radio antenna and antenna feeder. Is the inspection result normal? >> GO TO 2. YES NO >> Repair malfunctioning parts. 2. CHECK AV CONTROL UNIT VOLTAGE Н 1. Disconnect satellite radio antenna connector. 2. Turn ignition switch ON. Check voltage between AV control unit and ground. 3. (+) Voltage AV control unit (-) (Approx.) Terminal 108 Ground 5 V Κ

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace AV control unit.

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### < DTC/CIRCUIT DIAGNOSIS >

## U1300 AV COMM CIRCUIT

### Description

INFOID:000000004238774

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-III	Description	Possible malfunction factor/Action to take
U1300 U121F	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>INTERNAL COMM [U121F]</li> </ul>	<ul> <li>Malfunction is detected in AV control unit power supply and ground circuits.</li> <li>AV control unit malfunction is detected.</li> </ul>	<ul> <li>AV control unit power supply and ground circuits.</li> <li>When there is no malfunction, AV control unit is malfunctioning.</li> </ul>
U1300 U1240	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits malfunction is detected.</li> <li>Malfunction is detected in AV communication circuits between AV control unit and multifunction switch.</li> <li>Malfunction is detected in AV communication signal between AV control unit and multifunction switch.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuits.</li> <li>AV communication circuits between AV control unit and multifunction switch.</li> </ul>
U1300 U1252	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> </ul>	<ul> <li>Malfunction is detected in camera control unit power supply and ground circuits.</li> <li>Malfunction is detected in AV communication signal between AV control unit and camera control unit.</li> </ul>	Camera control unit power supply and ground circuits.
U1300 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>IPOD CONN [U1254]</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits mal- function is detected.</li> <li>Malfunction is detected in AV communication circuits between camera control unit and iPod adapter.</li> <li>Malfunction is detected in AV communication signal between AV control unit and iPod adapter</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>
U1300 U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits between camera control unit and the junction of AV con- trol unit and multifunction switch.	AV communication circuits between camera control unit and the junction of AV control unit and multifunction switch.
U1300 U1240 U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits between AV control unit and the junction of camera con- trol unit and multifunction switch.	AV communication circuits between AV control unit and the junction of camera control unit and multifunction switch.

POWER SUPPL AV CONTROL U	NIT			
AV CONTROL UN	NIT : Diagnosis P	rocedure		INFOID:000000004238775
<b>1.</b> CHECK FUSE				
Check for blown fuses.				
	Power source		Fuse No.	
	Battery		34	
Ignition	n switch ACC or ON		19	
Ignition	switch ON or START		3	
	eliminate cause of m	alfunction before in	stalling new fuse.	
NO >> Be sure to 2.CHECK POWER SI Check voltage between	UPPLY CIRCUIT		l ground.	
NO >> Be sure to 2.CHECK POWER SI	UPPLY CIRCUIT n AV control unit harn Connector No.	ess connectors and Terminal No.		Value (Approx.)
NO >> Be sure to 2.CHECK POWER SI Check voltage between Signal name	UPPLY CIRCUIT	ess connectors and Terminal No. 19	I ground.	
NO >> Be sure to CHECK POWER SI Check voltage between	UPPLY CIRCUIT n AV control unit harn Connector No.	ess connectors and Terminal No. 19 22	l ground.	Value (Approx.) Battery voltage
NO >> Be sure to 2.CHECK POWER SI Check voltage between Signal name	UPPLY CIRCUIT n AV control unit harn Connector No. M80 M87	ess connectors and Terminal No. 19 22 24	I ground.	
NO >> Be sure to 2.CHECK POWER SI Check voltage between Signal name	UPPLY CIRCUIT n AV control unit harn Connector No. M80 M87 M80	ess connectors and Terminal No. 19 22 24 7	I ground.	
NO >> Be sure to 2.CHECK POWER SI Check voltage between Signal name Battery power supply ACC power supply	UPPLY CIRCUIT n AV control unit harn Connector No. M80 M87 M80 M87 M80	ess connectors and Terminal No. 19 22 24 7 25	I ground.  Ignition switch position OFF ACC	Battery voltage Battery voltage
NO >> Be sure to 2.CHECK POWER SI Check voltage between Signal name Battery power supply	UPPLY CIRCUIT n AV control unit harn Connector No. M80 M87 M80 M87 M87 M87	ess connectors and Terminal No. 19 22 24 7	I ground. Ignition switch position OFF	Battery voltage

Connector No.	Terminal No.	Ignition switch position	Continuity	•
M80	20			M
M07	21	OFF	Existed	
10107	23			AV
		M80 20 21 M87	M80         20           M87         21         OFF	M80         20         OFF         Existed           M87         21         OFF         Existed

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector. **DISPLAY UNIT** 

# **DISPLAY UNIT : Diagnosis Procedure**

1.CHECK FUSE

Check for blown fuses.

INFOID:000000004238776

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## POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

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

Is the inspection result normal?

YES >> GO TO 2.

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

# 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M75	2	OFF	Battery voltage
ACC power supply	M75	3	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	M75	1	OFF	Existed
Ground	1017 5	13		Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

### MULTIFUNCTION SWITCH

## MULTIFUNCTION SWITCH : Diagnosis Procedure

INFOID:000000004238777

## **1.**CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

#### 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between multifunction switch harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between multifunction switch and fuse.

**3.**CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect multifunction switch connector.

# POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

### 3. Check continuity between multifunction switch harness connector and ground.

	Connector No	Tarminal Na	Ignition quitch position	Continuity
Signal name	Connector No.	Terminal No.	3 1	Continuity
Ground	M72	1	OFF	Existed
CAMERA CONT	ION END rness or connector.	osis Proced	ure	
CHECK FUSE				INFOID:000000004238778
Check for blown fuses				
	Power source		Fuse No.	
	Battery		34	
Ignitio	n switch ACC or ON		19	
-	UPPLY CIRCUIT	narness connec	tor and ground.	
Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B241	32	OFF	Battery voltage
ACC power supply	B241	32 30	OFF ACC	Battery voltage Battery voltage
ACC power supply Is the inspection result YES >> GO TO 3. NO >> Check har 3.CHECK GROUND 1. Turn ignition switc 2. Disconnect camer	B241 <u>t normal?</u> rness between camera CIRCUIT	30 control unit and	ACC	
ACC power supply Is the inspection result YES >> GO TO 3. NO >> Check har 3.CHECK GROUND 1. Turn ignition switc 2. Disconnect camer 3. Check continuity b Signal name	B241 t normal? rness between camera CIRCUIT h OFF. a control unit connecto	30 control unit and	ACC d fuse. connector and ground.	
ACC power supply Is the inspection result YES >> GO TO 3. NO >> Check har 3. CHECK GROUND 1. Turn ignition switc 2. Disconnect camer 3. Check continuity b Signal name Ground Is the inspection result YES >> INSPECT NO >> Repair har	B241 t normal? rness between camera CIRCUIT th OFF. ra control unit connector between camera contro Connector No. B241 t normal?	30 control unit and or. ol unit harness o	ACC d fuse.	Battery voltage
ACC power supply Is the inspection result YES >> GO TO 3. NO >> Check har 3. CHECK GROUND 1. Turn ignition switc 2. Disconnect camer 3. Check continuity b Signal name Ground Is the inspection result YES >> INSPECT NO >> Repair har BOSE AMP. BOSE AMP. : Dia	B241 t normal? rness between camera CIRCUIT th OFF. ra control unit connector between camera contro Connector No. B241 t normal? ION END	30 control unit and or. ol unit harness o Terminal No. 31	ACC d fuse. connector and ground.	Battery voltage
ACC power supply Is the inspection result YES >> GO TO 3. NO >> Check har 3.CHECK GROUND 1. Turn ignition switc 2. Disconnect camer 3. Check continuity b Signal name Ground Is the inspection result YES >> INSPECT NO >> Repair har BOSE AMP. BOSE AMP. : Dia 1.CHECK FUSE	B241 t normal? rness between camera CIRCUIT th OFF. Ta control unit connector between camera control Connector No. B241 t normal? ION END rness or connector. gnosis Procedure	30 control unit and or. ol unit harness o Terminal No. 31	ACC d fuse. connector and ground.	Battery voltage Continuity Existed
ACC power supply Is the inspection result YES >> GO TO 3. NO >> Check har 3. CHECK GROUND 1. Turn ignition switc 2. Disconnect camer 3. Check continuity b Signal name Ground Is the inspection result YES >> INSPECT NO >> Repair har BOSE AMP.	B241 t normal? rness between camera CIRCUIT th OFF. Ta control unit connector between camera control Connector No. B241 t normal? ION END rness or connector. gnosis Procedure	30 control unit and or. ol unit harness o Terminal No. 31	ACC d fuse. connector and ground.	Battery voltage Continuity Existed

Is the inspection result normal?

YES >> GO TO 2.

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

### POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B42	10	OFF	Battery voltage
Dattery power supply	042	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
Ground	B42	7	OFF	Existed
Ground	DHZ	12		Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

### iPod ADAPTER

### iPod ADAPTER : Diagnosis Procedure

INFOID:000000004238781

# 1.CHECK FUSE

Check for blown fuses.

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

#### Is the inspection result normal?

YES >> GO TO 2.

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

## 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between iPod adapter harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M111	5	OFF	Battery voltage
ACC power supply	M111	3	ACC	Battery voltage

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Check harness between iPod adapter and fuse.

### **RGB (R: RED) SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# RGB (R: RED) SIGNAL CIRCUIT

### Description

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

#### **Diagnosis** Procedure

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

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

Display unit AV cor	AV control unit	
Connector Terminal Connector	Terminal	Continuity
M75 17 M88	61	Existed

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

Displa	Display unit		Continuity		
Connector	Terminal	Groun		iuity	
M75	17		Not ex	isted	
Is the inspec	ction result n	ormal?			
	GO TO 2.				
-	•	ess or connect	or.		
	RGB (R: REI	D) SIGNAL			
			d AV control unit con	nector.	
0	ition switch		harness connector a	nd around.	
	5			<b>J</b>	
(·	+)				_
Display unit		(–) Cond	Condition	Reference value	
Connector	Terminal				
					_

M75 17 Ground Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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## **RGB (G: GREEN) SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# RGB (G: GREEN) SIGNAL CIRCUIT

### Description

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

#### Diagnosis Procedure

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INFOID:000000004238784

[BOSE AUDIO WITH NAVIGATION]

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

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

Displa	ay unit	AV con	trol unit	Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M75	6	M88	62	Existed	

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M75	6		Not existed
		10	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB (G: GREEN) SIGNAL

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

2. Turn ignition switch ON.

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

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M75	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{pmatrix} (V) \\ 0.4 \\ 0 \\ -0.4 \\ \hline  + 40\mu s \\ \hline  + 40\mu s \\ \hline  + 40\mu s \\ \hline  + 80\mu s \\ \hline  $

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### **RGB (B: BLUE) SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# RGB (B: BLUE) SIGNAL CIRCUIT

### Description

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

#### **Diagnosis** Procedure

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

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

Dis	olay unit	AV con	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M75	18	M88	63	Existed

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

Display unit				ationity	
Connector	Terminal	Ground	Continuity		
M75	18		Not existed		
s the inspect	tion result nor	mal?			
YES >> 0	GO TO 2.				
NO >> F	Repair harnes	s or connector.			
NO >> F					
NO >> F 2.CHECK R	Repair harnes GB (B: BLUE		ntrol unit connector.		 
NO >> F 2.CHECK R 1. Connect	Repair harnes GB (B: BLUE	) SIGNAL onnector and AV cor	ntrol unit connector.		 

	(+) Display unit		Condition	Reference value	
Connector	Terminal				_
M75	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.		

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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INFOID:000000004238786

INFOID:000000004238787

### **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:000000004238789

INFOID:000000004238788

# 1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

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

Displa	ay unit	AV con	itrol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M75	19	M88	65	Existed

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

Displa	ay unit		Continuity	
Connector	Terminal	Ground	Continuity	
M75	19		Not existed	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB SYNCHRONIZING SIGNAL

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

(+) Display unit		(-)	Reference value
Connector	Terminal		
M75	19	Ground	(V) 4 0 ++20µs 5КІВЗ603Е

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### **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  $_{\rm B}$  unit.

## Diagnosis Procedure

# 1. CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

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

Displa	Display unit AV control unit		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M75	9	M88	67	Existed
4. Check c	ontinuity be	tween display	y unit harnes	ss connector and
Displa	w upit			
	Display unit		aund	Continuity

Connector	Terminal	Ground	
M75	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK RGB AREA (YS) SIGNAL

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

2. Turn ignition switch ON.

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

	(+) Display unit		Condition	Reference value (Approx.)	
Connector	Terminal				
			At RGB image displayed	5 V	
M75	9	Ground	At rear view camera im- age is displayed.	(V) 6 4 2 0 ++200 µ s 	

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

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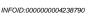
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INFOID:000000004238791

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### HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

### Description

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

# **Diagnosis Procedure**

INFOID:000000004238793

INFOID:000000004238792

[BOSE AUDIO WITH NAVIGATION]

# 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 con	itrol unit	Continuity	
-	Connector	Terminal	Connector	Terminal	Continuity	
-	M75	8	M88	68	Existed	

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M75	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

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

2. Turn ignition switch ON.

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

(+) Display unit		(-)	Reference value
Connector	Terminal		
M75	8	Ground	(V) 4 0 + 20µs SKIB3601E

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace display unit.

### **VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT**

[BOSE AUDIO WITH NAVIGATION]

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INFOID:000000004238794

INFOID:000000004238795

#### < DTC/CIRCUIT DIAGNOSIS >

# VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

### Description

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

### **Diagnosis Procedure**

# 1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

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

M75       20       M88       69       Existed         Check continuity between display unit harness connector and ground.         Display unit       Continuity         Connector       Terminal       Ground       Continuity         M75       20       Not existed       Not existed         the inspection result normal?       ES       >> GO TO 2.       Not existed         IO       >> Repair harness or connector.          .CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL       Connect display unit connector and AV control unit connector.         Connect display unit connector and AV control unit connector.       Turn ignition switch ON.         Check signal between display unit harness connector and ground.       (-)         (+)       Image: Connector Terminal       (-)         M75       20       Ground       (*)         M75       20       Ground       (*) </th <th>Displa</th> <th>ay unit</th> <th>AV con</th> <th>itrol unit</th> <th>Continuity</th> <th></th> <th></th>	Displa	ay unit	AV con	itrol unit	Continuity		
Check continuity between display unit harness connector and ground.         Display unit         Connector Terminal         M75       20       Not existed         The inspection result normal?         ES       >> GO TO 2.       Not existed         IO       >> Repair harness or connector.          CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL       Connect display unit connector and AV control unit connector.         Turn ignition switch ON.       Check signal between display unit harness connector and ground.         (+)         Display unit       (-)         Reference value          M75       20       Ground          M75       20       Ground          Scessore         the inspection result normal?         ES         Scessore	Connector	Terminal	Connector	Terminal	Continuity		
Display unit       Ground       Continuity         M75       20       Not existed         the inspection result normal?       Not existed         ES       > GO TO 2.       O         IO       >> Repair harness or connector.         CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL         Connect display unit connector and AV control unit connector.         Turn ignition switch ON.         Check signal between display unit harness connector and ground.         (+)       (-)         Display unit       (-)         M75       20         Ground       (4)         Update       (1)         M75       20         Ground       (1)         Update       (1)         Sciences       (2)         M75       20         Ground       (1)         Update       (2)         Update       (2)         Update       (3)         Update       (3)         Update       (4)         Update       (3)         Update       (4)         Update       (4)         Update       (4)         Update       (4)         U	M75	20	M88	69	Existed		
Connector       Terminal       Ground       Continuity         M75       20       Not existed         Ite inspection result normal?       Ite inspection result normal?         IES       >> GO TO 2.         IO       >> Repair harness or connector.         ICHECK VERTICAL SYNCHRONIZING (VP) SIGNAL         Connect display unit connector and AV control unit connector.         Connect display unit connector and AV control unit connector.         Turn ignition switch ON.         Check signal between display unit harness connector and ground.         (+)         Display unit       (-)         Reference value         M75       20         Ground       (*/)         (#/)       (*/)         M75       20         Ground       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/)         (*/)       (*/) <th></th> <th></th> <th>tween display</th> <th>y unit harne</th> <th>ss connector and gro</th> <th>und.</th> <th></th>			tween display	y unit harne	ss connector and gro	und.	
M75       20       Not existed         the inspection result normal?       ES >> GO TO 2.       .         IO >> Repair harness or connector.       .         .CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL       .         Connect display unit connector and AV control unit connector.       .         Turn ignition switch ON.       Check signal between display unit harness connector and ground.         (+)       .         Display unit       (-)         Reference value         M75       20         Ground       .         .       .         M75       20         Ground       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .		-	-		Continuity		
the inspection result normal?         ES       >> GO TO 2.         IO       >> Repair harness or connector.         .CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL         Connect display unit connector and AV control unit connector.         Turn ignition switch ON.         Check signal between display unit harness connector and ground.         (+)         Display unit       (-)         Reference value         M75       20         Ground       (V)         (+)       (-)         Es = x (x)       (-)         Reference value       (-)         (-)       (-)         Reference value       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)         (-)       (-)     <			Gro	ound			
ES       >> GO TO 2.         IO       >> Repair harness or connector.         ICHECK VERTICAL SYNCHRONIZING (VP) SIGNAL         Connect display unit connector and AV control unit connector.         Turn ignition switch ON.         Check signal between display unit harness connector and ground.         Image: the inspection result normal?         ES       >> Replace AV control unit.	M75	20			Not existed		
0 >> Repair harness or connector. CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL Connect display unit connector and AV control unit connector. Turn ignition switch ON. Check signal between display unit harness connector and ground. (+) Display unit (-) Reference value Connector Terminal M75 20 Ground U Ground U Ground U SKIESSOBE the inspection result normal? ES >> Replace AV control unit.	•		ormal?				
CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL Connect display unit connector and AV control unit connector. Turn ignition switch ON. Check signal between display unit harness connector and ground. (+) Display unit (-) Reference value Connector Terminal M75 20 Ground (V) Ground (V) 4 4 4 ms 4 ms 5 sciessee the inspection result normal? ES >> Replace AV control unit.				ator			
Connect display unit connector and AV control unit connector. Turn ignition switch ON. Check signal between display unit harness connector and ground. (+)       (-)       Reference value         Display unit       (-)       Reference value         Connector       Terminal       (-)         M75       20       Ground       (-)         M75       20       Ground       (-)         skillsssee       skillsssee       skillsssee		•					
Turn ignition switch ON.         Check signal between display unit harness connector and ground.         (+)         Display unit       (-)       Reference value         Connector       Terminal       (-)       Reference value         M75       20       Ground       (V)       (-)       Reference value         M75       20       Ground       (V)       (-)       Reference value         KIB3599E         SKIB3599E	CHECK \	ERTICAL S	SYNCHRONI	ZING (VP) S	SIGNAL		
Turn ignition switch ON.   Check signal between display unit harness connector and ground.     (+)   Display unit   (-)   Reference value     Connector   Terminal     M75   20   Ground     (V)   (-)   Reference value     M75   20   Ground     (V)   (-)   (-)   Reference value     (-)     Reference value     (-)     Reference value     (-)     Reference value     (-)     Reference value     (-)     Reference value     (-)     Reference value     (-)     (-)     (-)     Reference value     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-)     (-) <td>Connor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Connor						
(+)     Reference value       Display unit     (-)     Reference value       Connector     Terminal       M75     20     Ground       (V)     (V)       (u)     (u)       (u)     (u) <t< td=""><td>Connec</td><td>aispiay uni</td><td>t connector a</td><td>and Av contr</td><td>of unit connector.</td><td></td><td></td></t<>	Connec	aispiay uni	t connector a	and Av contr	of unit connector.		
Display unit       (-)       Reference value         Connector       Terminal       (-)         M75       20       Ground       (-)         Ground       (-)       (-)         M75       20       Ground       (-)         M75       20       Ground       (-)         the inspection result normal?       SKIB3598E         'ES       >> Replace AV control unit.	Turn ign	ition switch	ON.				
Display unit       (-)       Reference value         Connector       Terminal       (-)         M75       20       Ground       (-)         Ground       (-)       (-)         M75       20       Ground       (-)         M75       20       Ground       (-)         the inspection result normal?       SKIB3598E         'ES       >> Replace AV control unit.	Turn ign	ition switch	ON.				
Connector       Terminal         M75       20       Ground       Image: Connector result normal?         M75       >> Replace AV control unit.	Turn ign	ition switch	ON.				
M75 20 Ground $(V)_{4}$ $($	Turn ign Check s	ition switch ignal betwee	ON.				
M75 20 Ground Ground <i>Ground Ground Grou</i>	Turn ign Check s	ition switch ignal betwee	ON. en display ur	nit harness c	onnector and ground		
M75 20 Ground Ground <i>Ground Ground Grou</i>	Turn ign Check s	ition switch ignal betwee +) ay unit	ON. en display ur	nit harness c	onnector and ground		
the inspection result normal? ES >> Replace AV control unit.	Turn ign Check s (· Displa	ition switch ignal betwee +) ay unit	ON. en display ur	nit harness c	onnector and ground		
the inspection result normal? ES >> Replace AV control unit.	Turn ign Check s (· Displa	ition switch ignal betwee +) ay unit	ON. en display ur	nit harness c Refe	onnector and ground		
the inspection result normal? ES >> Replace AV control unit.	Turn ign Check s ( Displa Connector	ition switch ignal betwee +) ay unit	ON. en display ur	nit harness c Refe	onnector and ground		
the inspection result normal? ES >> Replace AV control unit.	Turn ign Check s ( Displa Connector	ition switch ignal betwee +) ay unit Terminal	ON. en display ur (-)	nit harness c Refe	onnector and ground		
the inspection result normal? ES >> Replace AV control unit.	Turn ign Check s ( Displa Connector	ition switch ignal betwee +) ay unit Terminal	ON. en display ur (-)	nit harness c Refe			
ES >> Replace AV control unit.	Turn ign Check s ( Displa Connector	ition switch ignal betwee +) ay unit Terminal	ON. en display ur (-)	nit harness c Refe			
	Turn ign Check s ( Displa Connector	ition switch ignal betwee +) ay unit Terminal	ON. en display ur (-)	nit harness c Refe	erence value		
IO >> Replace display unit.	Turn ign Check s (· Displa Connector M75	ition switch ignal betwee +) ay unit Terminal 20	ON. en display ur (–) Ground	nit harness c Refe	erence value		
	Turn ign Check s (· Displa Connector M75 <u>the inspec</u> ′ES >>	ition switch ignal betwee ay unit Terminal 20 tion result n Replace AV	ON. en display ur (-) Ground ormal? control unit.	nit harness c Refe	erence value		
	Turn ign Check s (· Displa Connector M75 M75	ition switch ignal betwee ay unit Terminal 20 tion result n Replace AV	ON. en display ur (-) Ground ormal? control unit.	nit harness c Refe	erence value		

#### < DTC/CIRCUIT DIAGNOSIS >

# AUX IMAGE SIGNAL CIRCUIT

### Description

Transmits the image signal of external device from auxiliary input jacks to display unit.

#### **Diagnosis** Procedure

INFOID:000000004238797

INFOID:000000004238796

# 1. CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT

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

Auxiliary	Auxiliary input jacks		ay unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M154 <sup>*1</sup>	7	M75	15	Existed
M362 <sup>*2</sup>		1017 5	15	Existed

• \*1: A/T models

• \*2: M/T models

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

Auxiliary input jacks			Continuity
Connector	Terminal		Continuity
M154 <sup>*1</sup>	7	Ground	Not existed
M362 <sup>*2</sup>	I		Not existed

• \*1: A/T models

• \*2: M/T models

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 display unit connector.

2. Turn ignition switch ON.

3. Check signal between auxiliary input jacks harness connector and ground.

(+) Auxiliary input jacks		()	Condition	Reference value
Connector	Terminal	-		
M154 <sup>*1</sup>				(11)
M362 <sup>*2</sup>	7	Ground	At AUX image displayed.	(V) 0.4 0 −0.4 -0.4 SKiB2251J

• \*1: A/T models

• \*2: M/T models

Is the inspection result normal?

YES >> Replace display unit.

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

## AV-424

### **MODE CHANGE SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# MODE CHANGE SIGNAL CIRCUIT

### Description

- AV control unit transmits the mode change signal to BOSE amp.
- В Driver's Audio Stage controls the speaker's output characteristic by BOSE amp. so that the driver's seat is to be the center of sounds.

### **Diagnosis** Procedure

# 1. CHECK CONTINUITY MODE CHANGE SIGNAL CIRCUIT

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

BOSE	E amp.		Continuity
Connector	Terminal	Ground	Continuity
B41	37		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.check mode change signal

Connect BOSE amp. connector. 1.

- Turn ignition switch ON. 2.
- Check voltage between BOSE amp. harness connector and ground. 3.

	+) E amp.	(-)	Condition	Voltage (Approx.)
Connector	Terminal			(
B41	37	Ground	Driver's Audio Stage ON	0 V
D41	57	Cibuld	Driver's Audio Stage OFF	8.5 V

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace BOSE amp.

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INFOID:000000004238799



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## CD EJECT SIGNAL CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# CD 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:000000004238801

INFOID:000000004238800

# 1. CHECK CONTINUITY CD EJECT SIGNAL CIRCUIT

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

Multifunct	tion switch	AV con	trol unit	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M72	14	M89	85	Existed	

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

Multifunc	tion switch		Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed
		10	

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.

(+)				Voltage (Approx.)	
AV control unit		(-)	Condition		
Connector	Terminal				
M89	85	Ground	Pressing the eject switch	0 V	
1009	1009 00		Except for above	5 V	

Is the inspection result normal?

YES >> Replace preset switch.

NO >> Replace AV control unit.

### **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:000000004238803

INFOID:000000004238802

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# 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.

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

AV cor	trol unit		Continuity
Connector	Terminals	Ground	Continuity
M87	26	Not existed	Not ovicted
10187	28		

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 cor	trol unit	AV control unit		Voltage (Approx.)
Connector	Terminal	Connector Terminal		
M87	26	M87	27	5 V

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit.

**3.**CHECK MICROPHONE SIGNAL

1. Connect microphone connector.

2. Check signal between AV control unit harness connector.

### **MICROPHONE SIGNAL CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

(	(+)		-)		
AV control unit		AV control unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
M87	28	M87	27	Give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 • + 2ms → → → → → → → → → → → → → → → → → → →

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace microphone.

CAMERA IMAGE SIGNAL CIRCUIT (REAR VIEW CAMERA TO CAMERA CON- TROL UNIT)							
< DTC/CIRCUIT DIAGNOSIS >	(BOSE AUDIO WITH NAVIGATION)						
CAMERA IMAGE SIGNAL CI	RCUIT (REAR VIEW CAMERA TO CAMERA						

## Description

INFOID:000000004238804 · Camera control unit outputs camera ON signal to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input. The camera control unit that inputs the camera image signal transmits the camera image signal to the display unit.

# Diagnosis Procedure

CONTROL UNIT)

# 1. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

Can	nera c	ontrol unit	Rear view	w camera	Continuity	
Conne	ctor	Terminal	Connector	Terminal	Continuity	
B24	1	6	B305	3	Existed	

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

Camera control unit			Continuity
Connector	Terminal	Ground	Continuity
B241	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

## **2.**CHECK CAMERA IMAGE SIGNAL

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

(+) Camera cor		(-)	Condition	Reference value
Connector	Terminal			
B241	6	Ground	At rear view camera im- age displayed.	(V) 0. 4 -0. 4 -0. 4 SKIB2251J

Is the inspection result normal?

YES >> Replace camera control unit.

NO >> Replace rear view camera. А

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INFOID:000000004238805

#### < DTC/CIRCUIT DIAGNOSIS >

# CAMERA ON SIGNAL CIRCUIT

### Description

- Camera control unit outputs camera ON signal to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.
- The camera control unit that inputs the camera image signal transmits the camera image signal to the display unit.

### Diagnosis Procedure

INFOID:000000004238807

INFOID:000000004238806

# 1. CHECK CONTINUITY CAMERA ON SIGNAL CIRCUIT

- 2. Disconnect camera control unit connector and rear view camera connector.
- 3. Check continuity between camera control unit harness connector and rear view camera harness connector.

-	Camera o	control unit	Rear vie	w camera	Continuity	
_	Connector	Terminal	Connector Terminal		Continuity	
-	B241	8	B305	1	Existed	

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

Camera o	control unit		Continuity
Connector	Terminal	Ground	Continuity
B241	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE CAMERA ON SIGNAL

- 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 terminal 8 and ground.

(+) Camera control unit		(-)	Condition	Voltage (Approx.)
Connector	Terminal			(, ++, -, ., )
B241	8	Ground	Shift the selector lever to "R" position	6 V

Is the inspection result normal?

YES >> Replace rear view camera.

NO >> Replace camera control unit.

<sup>1.</sup> Turn ignition switch OFF.

# CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO DISPLAY

UNIT) [BOSE AUDIO WITH NAVIGATION] < DTC/CIRCUIT DIAGNOSIS > CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO DIS-А PLAY UNIT) Description INFOID:000000004238808 В Camera control unit outputs camera ON signal to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input. The camera control unit that inputs the camera image signal transmits the camera image signal to the display unit. **Diagnosis** Procedure INFOID:000000004238809 D 1. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT 1. Turn ignition switch OFF. Ε 2. Disconnect camera control unit connector and display unit connector. 3. Check continuity between camera control unit harness connector and display unit harness connector. F Camera control unit Display unit Continuity Connector Terminal Connector Terminal M75 12 B241 12 Existed 4. Check continuity between camera control unit harness connector and ground. Camera control unit Н Continuity Connector Terminal Ground B241 12 Not existed Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2. CHECK CAMERA IMAGE SIGNAL 1. Connect camera control unit connector and display unit connector. 2. Turn ignition switch ON. Κ 3. Check signal between camera control unit harness connector and ground. (+) L Camera control unit Condition (-) Reference value Connector Terminal Μ (V)0. AV At rear view camera im-B241 12 Ground age displayed. SKIB2251.I Is the inspection result normal? >> Replace display unit. YES NO >> Replace camera control unit.

### STEERING ANGLE SENSOR SIGNAL 1, 2 CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# STEERING ANGLE SENSOR SIGNAL 1, 2 CIRCUIT

### Description

- Steering angle sensor signal 1, 2 detects the turning direction and quantity of the steering and transmits it to the camera control unit.
- Steering angle sensor signal 3 detects the neutral position of the steering and transmits it to the camera control unit.
- Camera control unit performs the correction of neutral position with sensor signal 1, 2, 3 and vehicle speed signal.

## **Diagnosis Procedure**

INFOID:000000004238811

INFOID:000000004238810

[BOSE AUDIO WITH NAVIGATION]

# 1. CHECK CONTINUITY STEERING ANGLE SENSOR SIGNAL 1, 2 CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect camera control unit connector and steering angle sensor connector.
- 3. Check continuity between camera control unit harness connector and steering angle sensor harness connector.

Camera control unit		Steering angle sensor		Continuity
Connector	Terminals	Connector	Terminals	Continuity
B241	23	M37	3	Existed
	24		4	

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

Camera o	control unit		Continuity
Connector	Terminals	Ground	
B241	23	Giouna	Not existed
	24		INDI EXISTED

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK SENSOR SIGNAL 1, 2

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

(+) Camera control unit		(-)	Voltage (Approx.)
Connector	Terminals		()
B241	23	Ground	5 V
	24	Giodila	

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace camera control unit.

**3.**CHECK SENSOR SIGNAL 1, 2

1. Connect steering angle sensor connector.

2. Check signal between camera control unit harness connector and ground.

# STEERING ANGLE SENSOR SIGNAL 1, 2 CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

(+	+)				
Camera c	control unit	(-)	Condition	Reference value	
Connector	Terminals				_
5044	22.04	Querra i	Turn the steering to the right	(V) 4 2 0 4 2 0 5 KIB3827E A: Sensor signal 1 B: Sensor signal 2	
B241	23, 24	Ground	Turn the steering to the left		-
	tion result n			A: Sensor signal 1 B: Sensor signal 2	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering angle sensor.

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# STEERING ANGLE SENSOR SIGNAL 3 CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# [BOSE AUDIO WITH NAVIGATION]

# STEERING ANGLE SENSOR SIGNAL 3 CIRCUIT

# Description

INFOID:000000004238812

- Steering angle sensor signal 1, 2 detects the turning direction and quantity of the steering and transmits it to the camera control unit.
- Steering angle sensor signal 3 detects the neutral position of the steering and transmits it to the camera control unit.
- Camera control unit performs the correction of neutral position with sensor signal 1, 2, 3 and vehicle speed signal.

# **Diagnosis Procedure**

INFOID:000000004238813

# 1. CHECK CONTINUITY STEERING ANGLE SENSOR SIGNAL 3 CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect camera control unit connector and steering angle sensor connector.
- 3. Check continuity between camera control unit harness connector and steering angle sensor harness connector.

Camera o	control unit	Steering a	ngle sensor	Continuity
Connector	Connector Terminals		Terminals	Continuity
B241	25	M37	5	Existed

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

Camera o	control unit		Continuity
Connector	Terminals	Ground	Continuity
B241	25		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

# 2. CHECK SENSOR SIGNAL 3

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

(·	+)		Mallaca
Camera o	control unit	()	Voltage (Approx.)
Connector	Terminals		
B241	25	Ground	5 V

Is the inspection result normal?

YES >> GO TO 3.

- NO >> Replace camera control unit.
- **3.**CHECK SENSOR SIGNAL 3

1. Connect steering angle sensor connector.

2. Check signal between camera control unit harness connector and ground.

# **STEERING ANGLE SENSOR SIGNAL 3 CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

	+) ontrol unit	(-)	Condition	Reference value	A
Connector	Terminals	(-)	Condition	Reference value	
Connector	Terminals				В
B241	25	Ground	Turn the steering around the neutral position	(V) 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 4 5 KIB3829E A: Sensor signal 3 B: Sensor signal 1 B: Sensor signal 1	C D

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering angle sensor.

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

-	AV control unit		Spira	Continuity	
	Connector	Terminal	Connector	Terminal	Continuity
	M80	6	M36	24	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M80	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

**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		AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	
M80	6	M80	15	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

**4.**CHECK STEERING SWITCH

1. Turn ignition switch OFF.

2. Check steering switch. Refer to AV-436, "Component Inspection".

#### Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace steering switch.

# **Component Inspection**

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

# AV-436

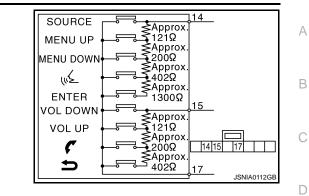
INFOID:000000004238814

INFOID:000000004238815

# **STEERING SWITCH SIGNAL A CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# [BOSE AUDIO WITH NAVIGATION]



#### Standard

#### Between terminals 14 and 17

ENTER switch ON	<b>: 2003 – 2043</b> Ω
տչ switch ON	: <b>716 – 730</b> Ω
MENU DOWN switch ON	<b>: 318 – 324</b> Ω
MENU UP switch ON	<b>: 120 – 122</b> Ω
SOURCE switch ON	<b>: 0</b> Ω

#### Between terminals 15 and 17

Switch ON	: <b>716 – 730</b> Ω
🗸 switch ON	<b>: 318 – 324</b> Ω
VOL UP switch ON	: <b>120 – 122</b> Ω
VOL DOWN switch ON	<b>: 0</b> 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

INFOID:000000004238818

INFOID:000000004238817

# **1.**CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

-	AV control unit		Spira	Continuity	
	Connector	Terminal	Connector	Terminal	Continuity
	M80	16	M36	31	Existed

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

AV con	itrol unit		Continuity
Connector	Terminal	Ground	Continuity
M80	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

**3.**CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector and spiral cable connector.

2. Turn ignition switch ON.

3. Check voltage between AV control unit harness connector.

(·	+)	(	-)			
AV con	AV control unit		trol unit	Voltage (Approx.)		
Connector	Terminal	Connector	Terminal			
M80	16	M80	15	5 V		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

**4.**CHECK STEERING SWITCH

1. Turn ignition switch OFF.

2. Check steering switch. Refer to AV-438, "Component Inspection".

#### Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace steering switch.

# **Component Inspection**

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

# AV-438

# **STEERING SWITCH SIGNAL B CIRCUIT**

: **2003 – 2043** Ω

: **716 – 730** Ω

: **318 – 324** Ω

**: 120 – 122** Ω

: **716 – 730** Ω

: **318 – 324** Ω

**: 120 – 122** Ω

**:0**Ω

**:0**Ω

#### < DTC/CIRCUIT DIAGNOSIS >

**ENTER switch ON** 

**"**∕ switch ON

**Switch ON** 

switch ON

**VOL UP switch ON** 

**VOL DOWN switch ON** 

Between terminals 14 and 17

Between terminals 15 and 17

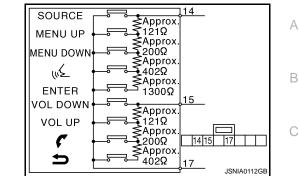
**MENU DOWN switch ON** 

**MENU UP switch ON** 

SOURCE switch ON

Standard

# [BOSE AUDIO WITH NAVIGATION]



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# STEERING SWITCH SIGNAL GND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# STEERING SWITCH SIGNAL GND CIRCUIT

# Description

Transmits the steering switch signal to AV control unit.

#### **Diagnosis** Procedure

INFOID:000000004238821

INFOID:000000004238820

# 1. CHECK STEERING SWITCH SIGNAL GND CIRCUIT

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

AV con	trol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M80	15	M36	33	Existed

#### 3. Connect AV control unit connector.

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

#### 2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

**3.**CHECK GROUND CIRCUIT

1. Connect AV control unit connector.

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

AV control unit		trol unit		
Connector	Terminal	Ground	Continuity	
M80	15		Not existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

#### **4.**CHECK STEERING SWITCH

1. Turn ignition switch OFF.

2. Check steering switch. Refer to AV-440, "Component Inspection".

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch.

#### **Component Inspection**

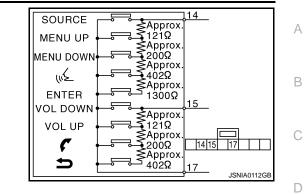
INFOID:000000004238822

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

# **STEERING SWITCH SIGNAL GND CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# [BOSE AUDIO WITH NAVIGATION]



#### Standard

#### Between terminals 14 and 17

ENTER switch ON	: <b>2003 – 2043</b> Ω
"≨ switch ON	<b>: 716 – 730</b> Ω
MENU DOWN switch ON	<b>: 318 – 324</b> Ω
MENU UP switch ON	<b>: 120 – 122</b> Ω
SOURCE switch ON	<b>: 0</b> Ω

#### Between terminals 15 and 17

<b>Switch ON</b>	: <b>716 – 730</b> Ω
switch ON	<b>: 318 – 324</b> Ω
VOL UP switch ON	<b>: 120 – 122</b> Ω
VOL DOWN switch ON	<b>: 0</b> Ω

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# < ECU DIAGNOSIS INFORMATION >

# ECU DIAGNOSIS INFORMATION AV CONTROL UNIT

# **Reference Value**

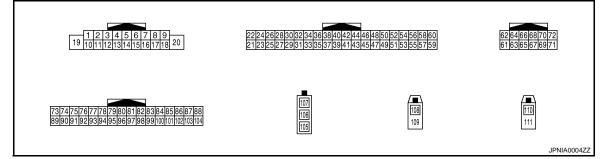
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# VALUES ON THE DIAGNOSIS TOOL

#### CONSULT-III MONITOR ITEM

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

#### **TERMINAL LAYOUT**



#### PHYSICAL VALUES

	minal e color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output			(Approx.)
1 (SB)	Ground	Amp. ON signal	Output	Ignition switch ON	_	10 V
2 (O)	3 (W)	Sound signal front LH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E

# < ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITH NAVIGATION]

	minal e color)	Description		Condition		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
4 (V)	5 (LG)	Sound signal rear LH	Output	lgnition switch ON	Voice output	(V) 1 0 -1 * 2ms SKIB3609E
					Keep pressing SOURCE switch. Keep pressing MENU UP	0 V 1 V
6 (P)	15 (B)	Steering switch signal A	Input	Ignition switch	switch. Keep pressing MENU DOWN switch.	2 V
(* /				ON	Keep pressing 🟑 switch	3 V
					Keep pressing ENTER switch.	4 V
				Except for above.	5 V	
7 (GR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
9	Crownd		lanut	Ignition	Lighting switch is OFF.	0 V
(L)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12 V
10		Shield			_	_
11 (R)	12 (G)	Sound signal front RH	Output	lgnition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E
13 (BR)	14 (Y)	Sound signal rear RH	Output	lgnition switch ON	Voice output	(V) 1 -1 +2ms 0 0 0 0 0 0 0 0 0 0 0 0 0
15 (B)	Ground	Steering switch signal GND	_	Ignition switch ON		SKIB3609E
					Keep pressing VOL DOWN switch.	0 V
16	15			Ignition	Keep pressing VOL UP switch.	1 V
16 15 (L) (B) Steering switch signal B		Steering switch signal B	Input	switch ON	Keep pressing 🌈 switch.	2 V
			· · · · · · · · · · · · · · · · · · ·			
					Keep pressing Ⴢ switch.	3 V

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#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description		Condition		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
20 (B)	Ground	GND	_	Ignition switch ON	_	0 V
21 (B)	Ground	GND	_	Ignition switch ON	_	0 V
22 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
23 (B)	Ground	GND	-	Ignition switch ON	_	0 V
24 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
25 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
26 (G)	27	Microphone VCC	Output	Ignition switch ON	_	5 V
27	Ground	Shield (Microphone ground)	_	Ignition switch ON	_	0 V
28 (R)	27	Microphone signal	Input	Ignition switch ON	Give a voice	(V) 2.5 2.0 1.5 1.5 0.5 0 • • • 2ms PKIB5037J
35 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
					Parking brake ON	0 V
36 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake OFF	(V) 8 4 0 10 ms JSNIA0007GB
37	Ground	Reverse signal	Input	Ignition switch	R position	12 V
(O)				ON	Other than R position	0 V

#### < ECU DIAGNOSIS INFORMATION >

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
38 (GR)	Ground	Vehicle speed signal (8- pulse)	Input	lgnition switch ON	When vehicle speed is ap- prox. 40 km/h (25MPH)	NOTE: Maximum voltage may be 12 V due to specifications (connected units). (V) 4 2 0 * 20ms SKIA6649J	
40 (W)	Ground	Camera-connection recog- nition signal	Input	Ignition switch ON	Connected to camera con- trol unit connector Not connected to camera	0 V 5 V	
41 (B)	Ground	Control signal 1	Input	Ignition switch ON	control unit connector	0 V	
44	Ground	Mode change signal	Output	Ignition switch	Driver's Audio Stage ON	0 V	
(SB)	Croana			ON	Driver's Audio Stage OFF	8.5 V	
48 (G)	—	AV communication signal (H)	Input/ Output	—	_	_	
49 (R)	—	AV communication signal (L)	Input/ Output	—	_	_	
50 (V)	_	AV communication signal (H)	Input/ Output		_	_	
51 (LG)	_	AV communication signal (L)	Input/ Output			_	
52 (L)	_	CAN-H	Input/ Output		_	_	
53 (P)	_	CAN-L	Input/ Output		_	_	
61 (W)	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 -0.4 -0.4 +4.44	
62 (B)	Ground	RGB signal (G: green)	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 −0.4 ••••••••••••••••••••••••••••••••••••	

#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
63 (R)	Ground	RGB signal (B: blue)	Output	lgnition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{pmatrix} (V) \\ 0.4 \\ 0 \\ -0.4 \\ -0.4 \\ \hline \end{pmatrix} \begin{pmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$
64	—	Shield	—	—	—	—
65 (G)	Ground	RGB synchronizing signal	Output	Ignition switch ON	_	(V) 4 0 → 20,μs SKIB3603E
66	—	Shield	—	—	—	_
					At RGB image displayed	5 V
67 (Y)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At rear view camera image is displayed	(V) 6 4 2 0 • • • 200 µ s • • • 200 µ s • • • • 200 µ s • • • • • • • • • • • • • • • • • • •
68 (L)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON		(V) 4 0 ★ ★ 20µs SKIB3601E
69 (GR)	Ground	Vertical synchronizing (VP) signal	Input	lgnition switch ON		(V) 4 0 ++4ms SKIB3598E
70 (P)	Ground	Communication signal (CONT→DISP)	Output	lgnition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••••••••••••••••••••••••••••••

# < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description		Condition		Reference value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	
71 (O)	Ground	Communication signal (DISP→CONT)	Input	lgnition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••••1ms •••••1ms •••••••••••••••••••••	
72	_	Shield			_	_	
79 (R)	95 (W)	iPod sound signal LH	Input	lgnition switch ON	When iPod mode is select- ed	(V) 1 0 -1 • 2ms SKIB3609E	
80 (B)	96 (G)	iPod sound signal RH	Input	lgnition switch ON	When iPod mode is select- ed	(V) 1 0 -1 • • 2ms SKIB3609E	
81		Shield	_		_	_	
85	Oneveral	Fight simpl	la a st		Pressing the eject switch	0 V	
(SB)	Ground	Eject signal	Input	_	Except for above	5 V	
87 (W)	88 (B)	AUX sound signal LH	Input	lgnition switch ON	When AUX mode is select- ed	(V) 1 0 -1 + 2ms SKIB3609E	
102 (BR)	Ground	SW GND	_	Ignition switch ON	_	0 V	
103 (R)	88 (B)	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	
105	_	FM sub	Input		—	_	
106		AM–FM main	Input	_	_	_	
107	Ground	Antenna amp. ON signal	Output	lgnition switch ON	_	12 V	

#### < ECU DIAGNOSIS INFORMATION >

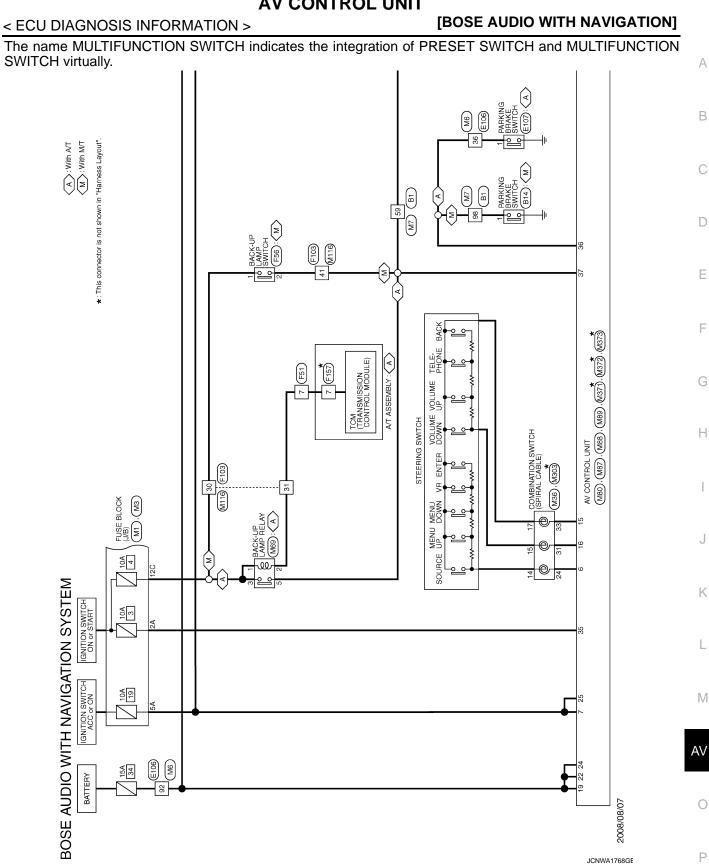
#### [BOSE AUDIO WITH NAVIGATION]

	minal e color)	Description			Condition	Reference value		
+	_	Signal name	Input/ Output		Condition	(Approx.)		
108	Ground	Satellite antenna signal	Input	Ignition switch ON	Not connected to satellite antenna connector	5 V		
109		Shield	—	—	_	_		
110	Ground	GPS antenna signal	Input	Ignition switch ON	Not connected to GPS an- tenna connector	5 V		
111		Shield	—	—		—		

Wiring Diagram - BOSE AUDIO WITH NAVIGATION SYSTEM -

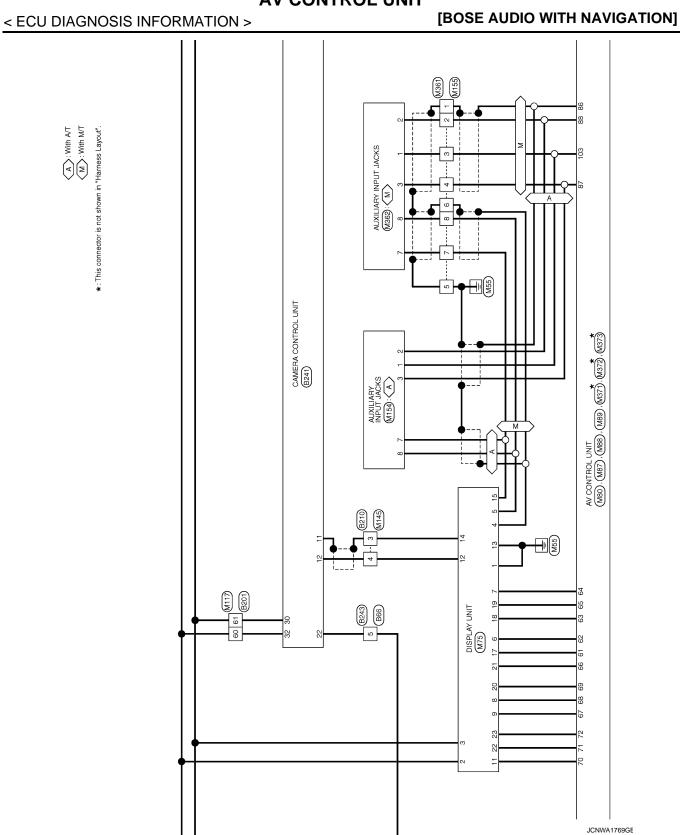
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#### NOTE:

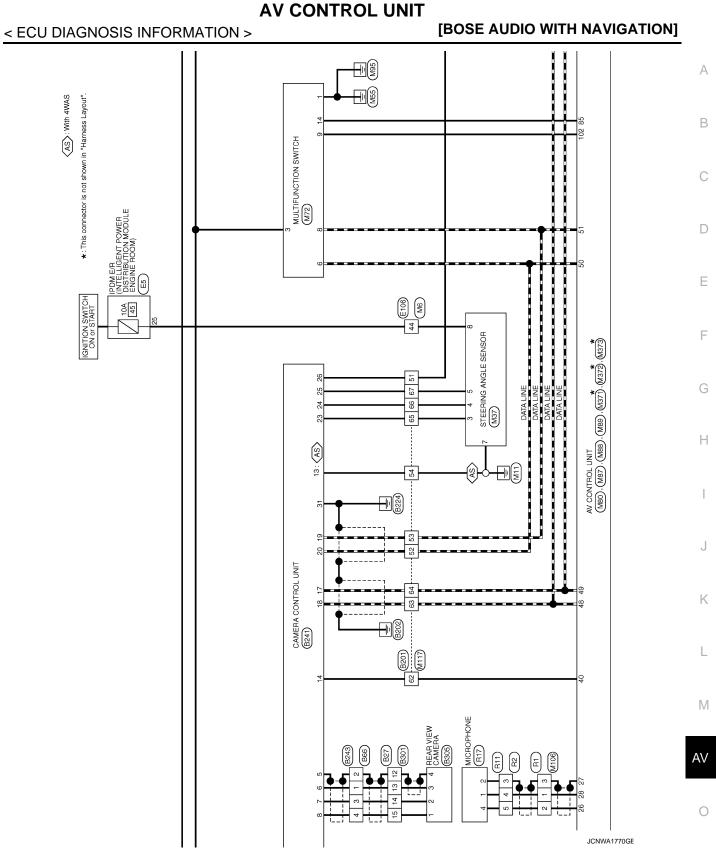


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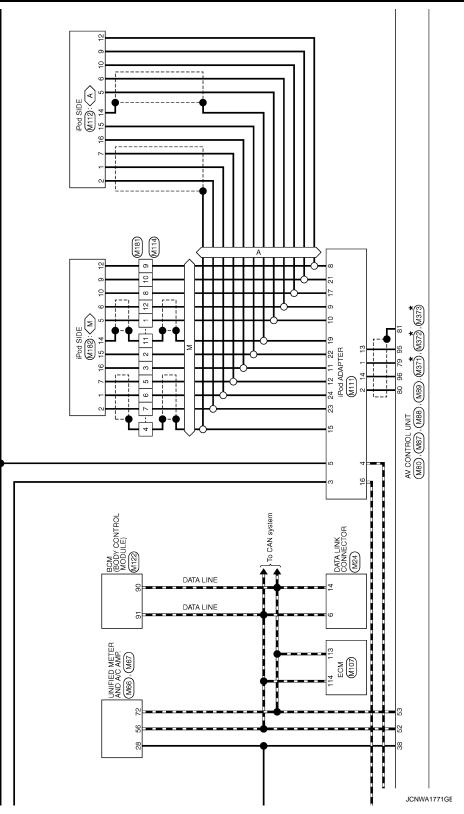


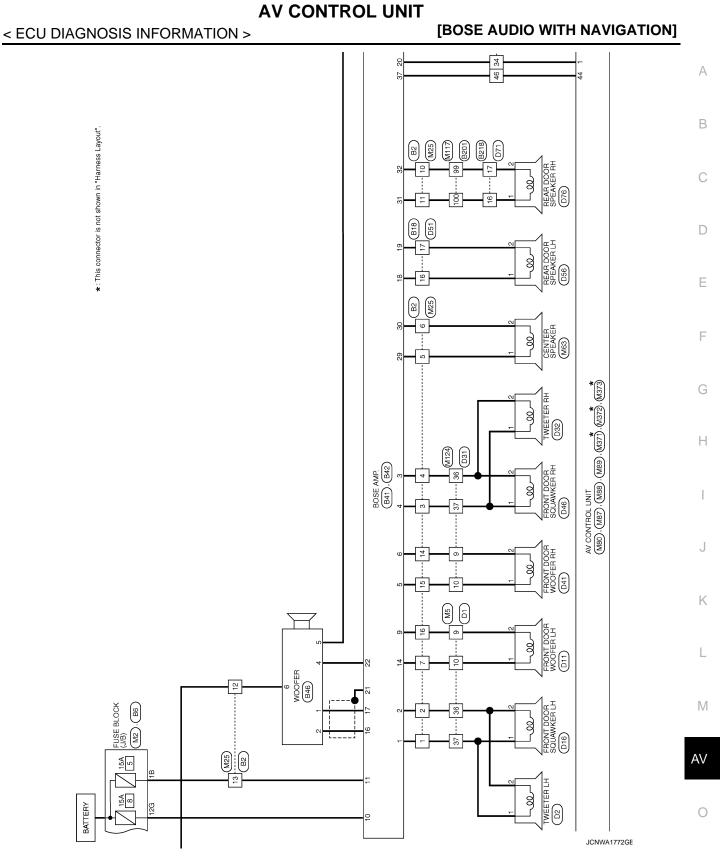
# Revision: 2009 October



# < ECU DIAGNOSIS INFORMATION >

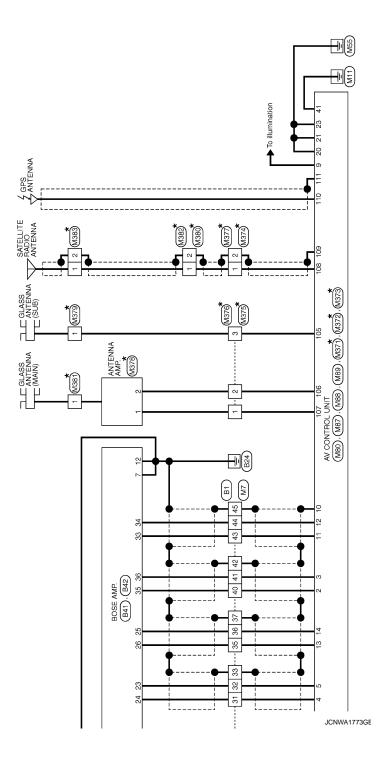
▲ → : With A/T
 ▲ → : With M/T
 ★: This connector is not shown in "Harness Layout".





# < ECU DIAGNOSIS INFORMATION >

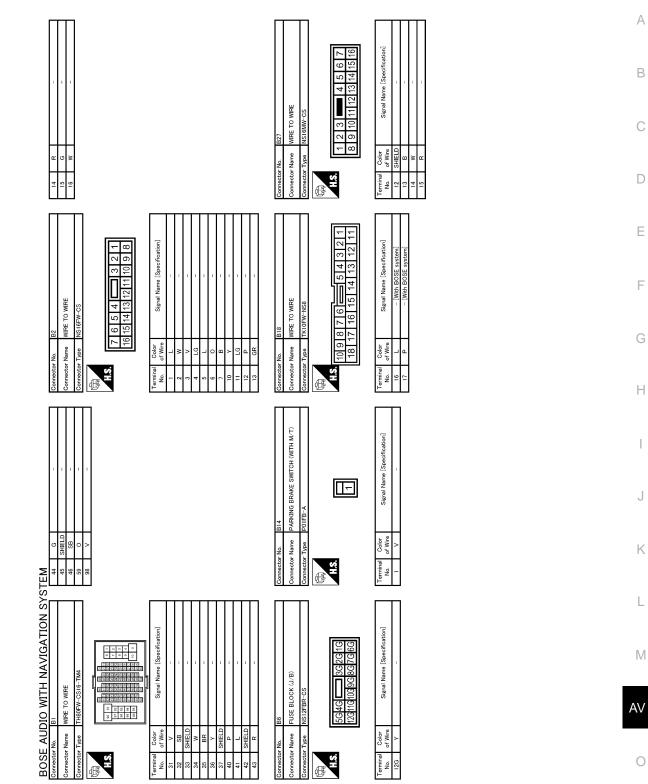
# [BOSE AUDIO WITH NAVIGATION]



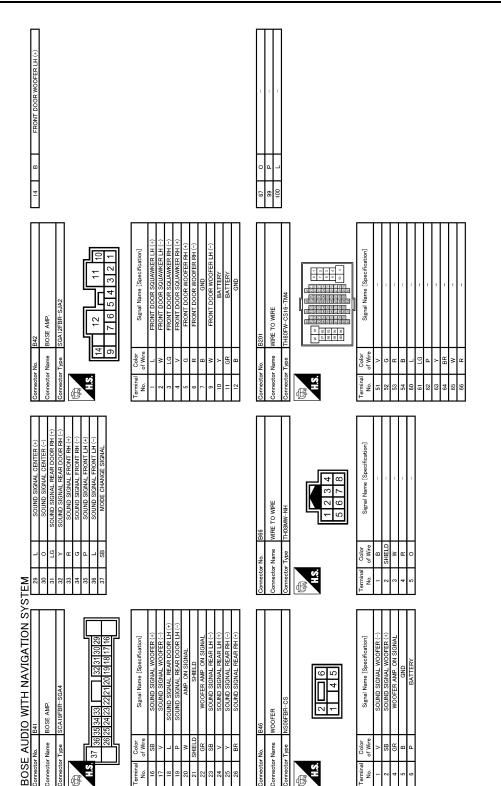
\*: This connector is not shown in "Harness Layout".

# AV CONTROL UNIT N > [BOSE A

# [BOSE AUDIO WITH NAVIGATION]



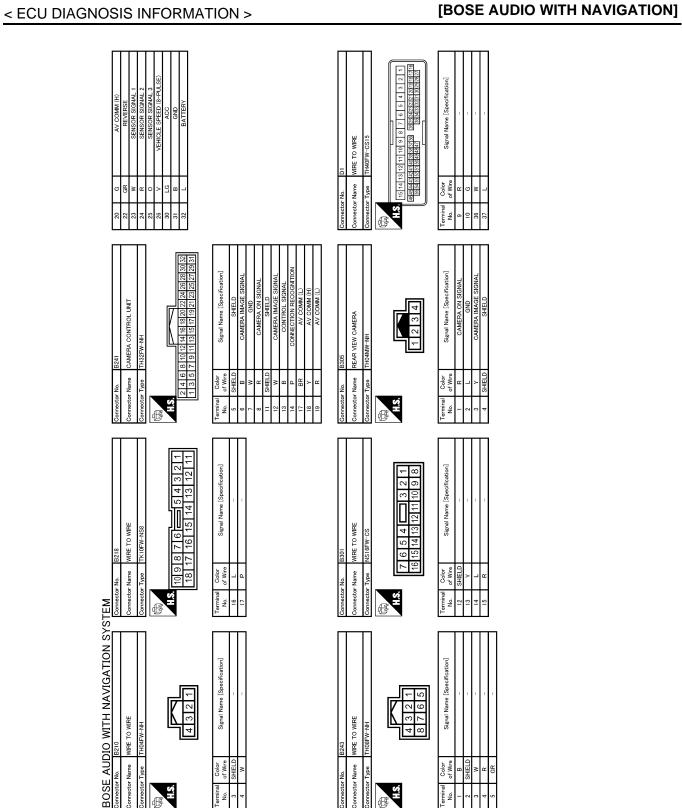
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JCNWA1775GE

# **AV CONTROL UNIT**

#### < ECU DIAGNOSIS INFORMATION >



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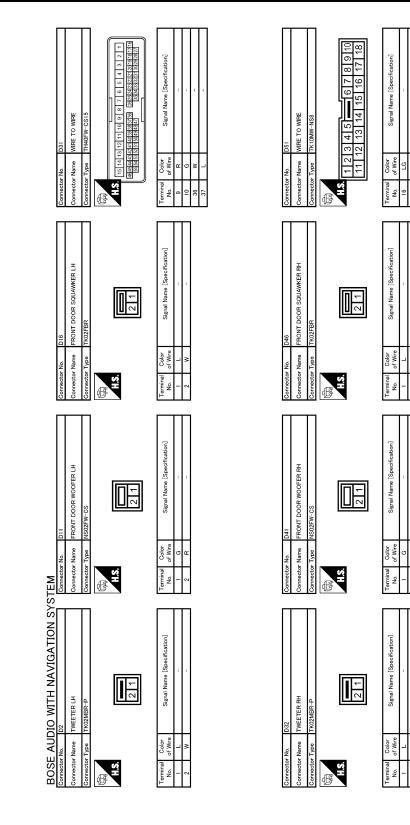
AV

# **AV CONTROL UNIT**

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#### < ECU DIAGNOSIS INFORMATION >

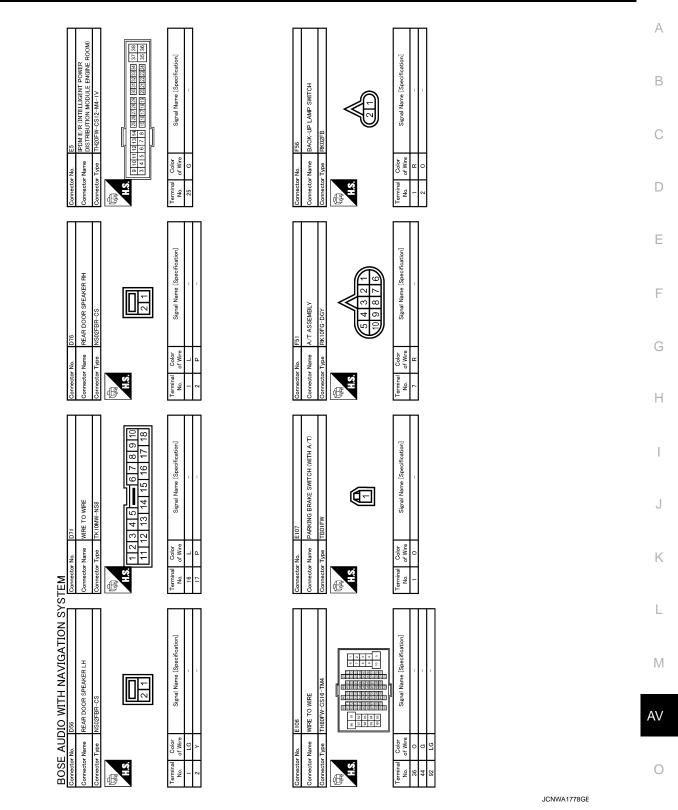
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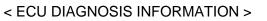


JCNWA1777GE

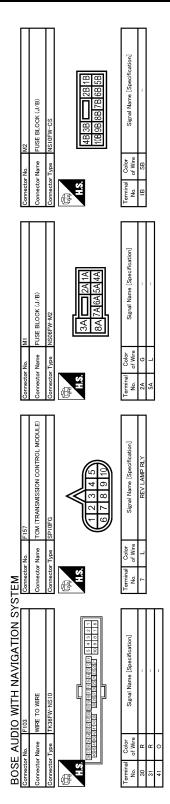
### < ECU DIAGNOSIS INFORMATION >

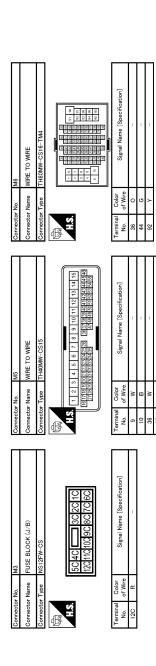
# [BOSE AUDIO WITH NAVIGATION]





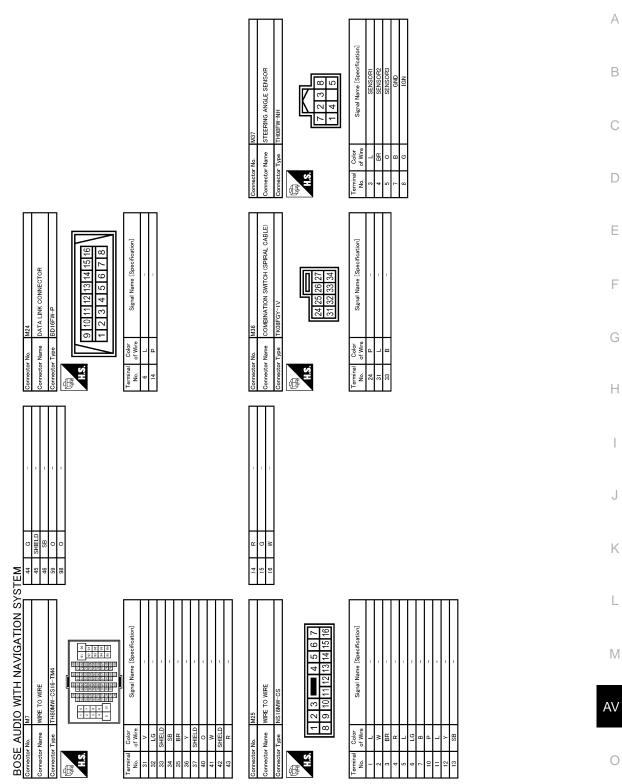
# [BOSE AUDIO WITH NAVIGATION]





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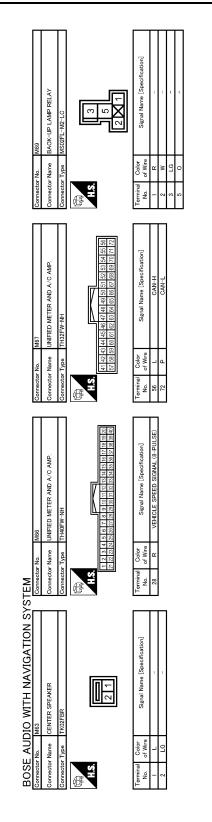
# [BOSE AUDIO WITH NAVIGATION]

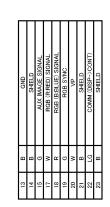


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Revision: 2009 October





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	24 23	23 22 21 20 19 18 17 16 15 14 13
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Terminal	Color of Wine	Signal Name [Specification]

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E H.S.		Terminal No.	1	2	3	4	5	9
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	4 6 8 10 12 14 16 3 5 7 9 11 13 15	Signal Name [Specification]	GND	ACC	AV COMM (H)	AV COMM (L)	SW GND	EJECT SIGNAL

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	[	lication			÷	Ŷ	٩D	GNAL					

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# **AV CONTROL UNIT**

#### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITH NAVIGATION]

MULTIFUNCTION SWITCH

ctor Name

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VEHOLE SPEED (8-PULSE) CONNECTION RECOGNITION CONTEGLI SIGNAL AN ODE CHANGE SIGNAL AV COMM (H) AV COMM (H) AV COMM (L) AV COMM (L) CAN+L		Supral Name [Specification] = [With-rear view camera] - [With-rear view camera] - [With-rear view camera]		A
38         GR         VEHI           38         GR         VEHI           40         W         OONI           41         B         CONI           50         L         C           51         L         C           53         L         C	Connector No. MIDE Connector Name WIFE TO WIFE Connector Type TK10MM-NSE MAN 12 3 4 5 11 12 3 4 5	Terminal No.         Color         Signa           1         R         - [W           2         G         - [W           3         SHIELD         - [W		C
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Connector No.         Connector Name           Connector Name         Connector Name           Connector Type         Connector Name           13         Coder           31         Coder           33         Coder	Connector No. Connector Name Connector Type	Terminal         Color           No.         of Wite           79         R           79         R           80         81           81         81           83         81           84         81           87         82           88         8           95         6           95         9           102         9           103         8		Н
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IO WITH NAVIGATION M80 AV CONTROL UNIT (WITH NAVI) THIBFW-CS2 THIBFW-CS2 2 3 4 5 6 7 8 9 2 11 12 13 14 15 16 7 18 9 2 3 4 5 6 7 8 9 2 11 12 13 14 15 16 17 18 20 2 3 4 5 6 7 8 9 2 11 12 13 14 15 16 17 18 20 2 3 4 5 6 7 8 9 2 11 12 13 14 15 16 17 18 20 2 11 12 13 14 15 16 17 18 20 2 10 10 5 16 14 1 14 (-) 2 2 2 2 3 4 5 6 7 8 9 2 11 12 13 14 15 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 12 13 14 16 16 17 18 20 2 11 10 18 16 16 17 18 16 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	M88 AV CONTROL UNIT (WTH NAVI) THI2FW-NH 62 64 66 68 70 72 61 63 65 67 69 71	Signal Name (Specification) ROB (RPRED) SIGNAL ROB (GREEN) SIGNAL ROB (GREEN) SIGNAL ROB (BBLUE) SIGNAL ROB STRELD SHELD ROB AREA (YS) SIGNAL HP COMM (CONT-DDISP) COMM (DISP-)CONT)		Μ
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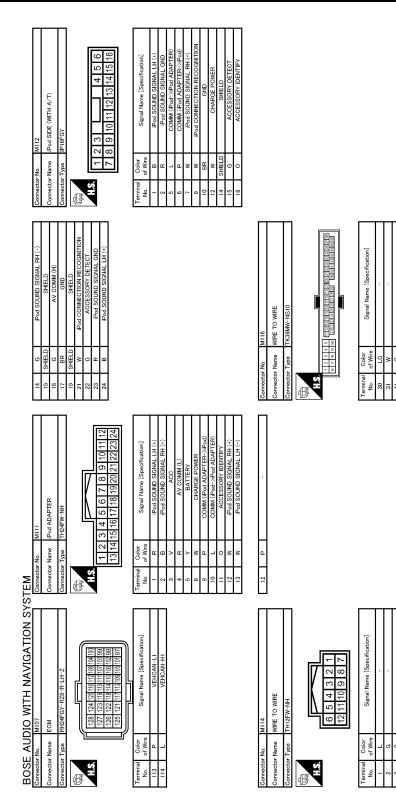
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# **AV CONTROL UNIT**

### < ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITH NAVIGATION]

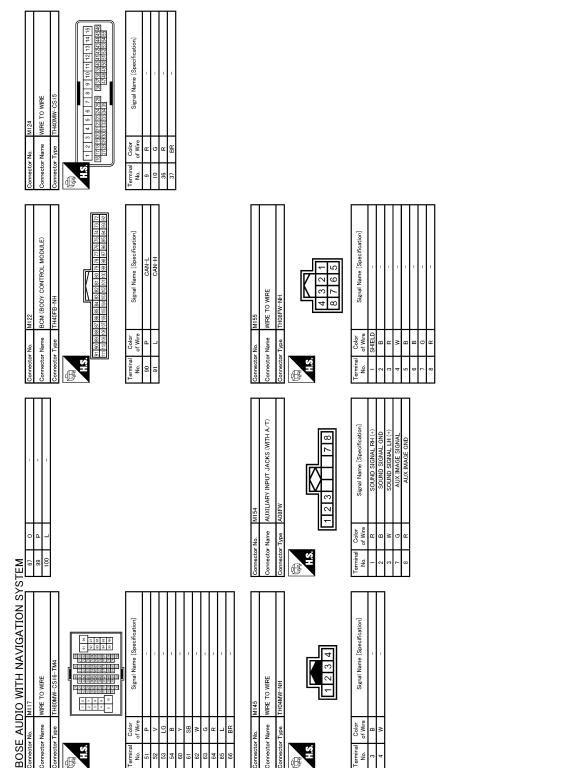
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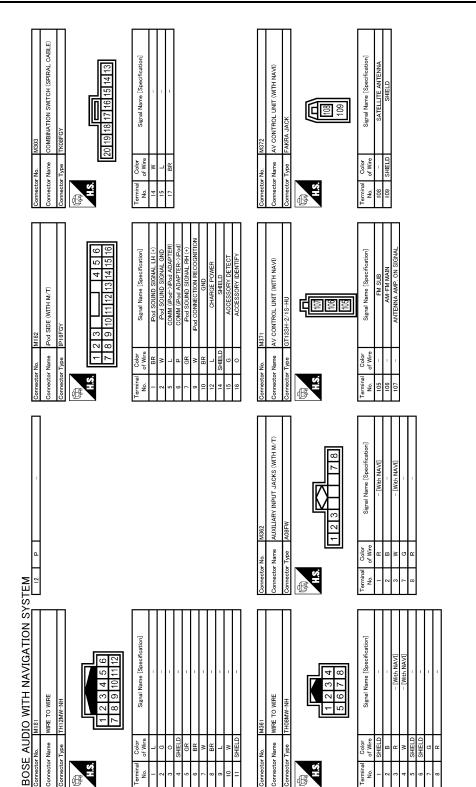
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# **AV CONTROL UNIT**

# < ECU DIAGNOSIS INFORMATION >



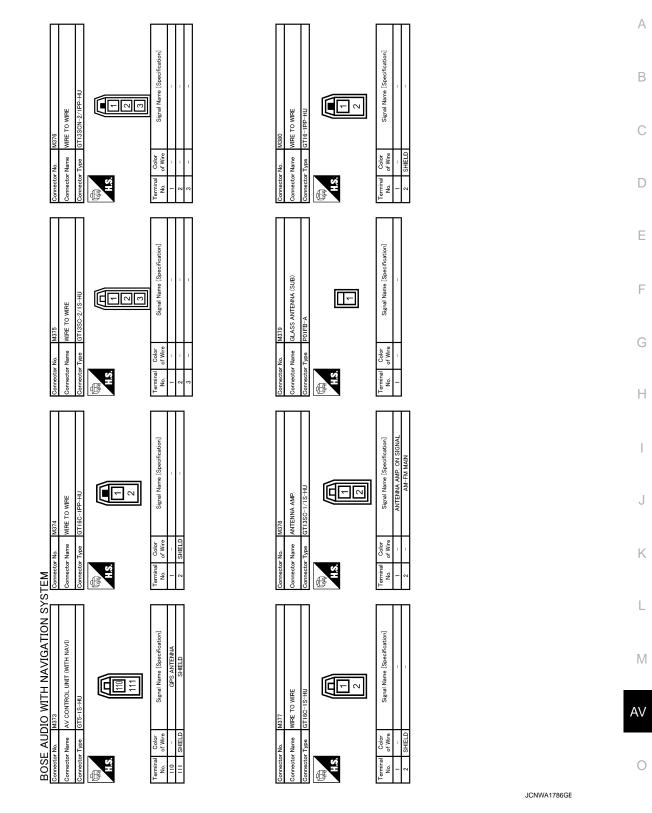
JCNWA1785GE

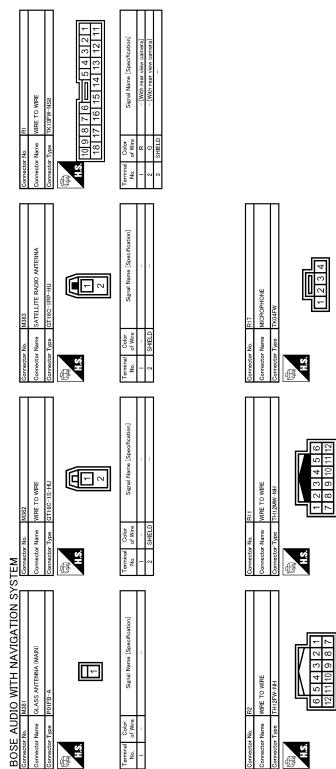
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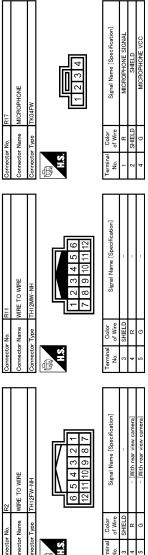
#### < ECU DIAGNOSIS INFORMATION >

# < ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITH NAVIGATION]







JCNWA1787GE

# Fail-Safe

INFOID:000000004238825

When the ambiance temperature becomes extremely low or extremely high, or when HDD is malfunctioning, 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
- when HDD is malfunctioning

# < ECU DIAGNOSIS INFORMATION >

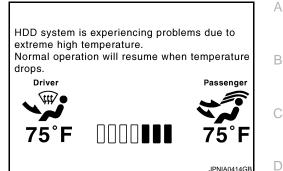
**AV CONTROL UNIT** 

# **AV-468**

#### < ECU DIAGNOSIS INFORMATION >

#### Display

The messages displayed on fail-safe conditions are as shown below:



Fail-safe mode	Display (display of the fail-safe condition)	E
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.	F
When HDD is malfunctioning	HDD system is not functioning. Please contact your dealer for assistance.	G

### DESCRIPTION OF CONTROLS

Function		When Fail-safe Function is activated					
	Operation	Only multifunction switch (preset switch) can be operated.					
Air conditioner	Display	<ul> <li>LED of multifunction switch (preset switch) illuminates.</li> <li>Aimed temperature, blow angle, and flow rate are displayed in simplified mode.</li> </ul>					
Audio Operation Display		Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible.					
		No display ("Fail-safe mode" is displayed)					
Operati		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-III 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.

#### When HDD Is Malfunctioning

If the malfunction disappears, normal mode is restored.

#### NOTE:

- If fail-safe mode due to HDD malfunction is seen continuously, replace AV control unit.
- If fail-safe mode due to HDD malfunction is seen temporarily, check the "Error History" of Confirmation/ • Adjustment mode. If this is normal, then continue the normal operation, observing the function. (It might be a temporary malfunction of HDD.)

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## [BOSE AUDIO WITH NAVIGATION]

### **DTC** Index

INFOID:000000004238826

### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-387, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-388, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-389, "DTC Logic"
U1200	Cont Unit FLASH-ROM [1200]	AV-390, "DTC Logic"
U1201	GYRO NO CONN [1201]	AV-391, "DTC Logic"
U1216	CAN CONT [U1216]	AV-392, "DTC Logic"
U1217	BLUETOOTH MODULE CONN [U1217]	AV-393, "DTC Logic"
U1218	HDD-CONN [U1218]	AV-394, "DTC Logic"
U1219	HDD-READ [U1219]	AV-395, "DTC Logic"
U1220	XM SERIAL COMM [U1220]	AV-396, "DTC Logic"
U121A	HDD-WRITE [U121A]	AV-397, "DTC Logic"
U121B	HDD-COMM [U121B]	AV-398, "DTC Logic"
U121C	HDD-ACCESS [U121C]	AV-399, "DTC Logic"
U121D	DSP CONN [U121D]	AV-400, "DTC Logic"
U121E	DSP COMM [U121E]	AV-401, "DTC Logic"
U121F	INTERNAL COMM [U121F]	AV-402, "Diagnosis Procedure"
U1204	GPS COMM [U1204]	AV-403, "Diagnosis Procedure"
U1205	GPS ROM [U1205]	AV-404, "Diagnosis Procedure"
U1206	GPS RAM [U1206]	AV-405, "Diagnosis Procedure"
U1207	GPS RTC [U1207]	AV-406, "Diagnosis Procedure"
U1243	FRONT DISP CONN [U1243]	AV-407, "Diagnosis Procedure"
U1244	GPS ANTENNA CONN [U1244]	AV-409, "Diagnosis Procedure"
U1250	CAMERA CONT. CONN [U1250]	AV-410, "Diagnosis Procedure"
U1258	XM ANTENNA CONN [U1258]	AV-411, "Diagnosis Procedure"
U1300 U121F	AV COMM CIRCUIT [U1300]     INTERNAL COMM [U121F]	AV-412, "Description"
U1300 U1240	AV COMM CIRCUIT [U1300]     SWITCH CONN [U1240]	AV-412, "Description"
U1300 U1252	AV COMM CIRCUIT [U1300]     REAR CAMERA LAN CONN [U1252]	AV-412, "Description"
U1300 U1254	<ul><li>AV COMM CIRCUIT [U1300]</li><li>IPOD CONN [U1254]</li></ul>	AV-412, "Description"
U1300 U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-412, "Description"
U1300 U1240 U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-412, "Description"

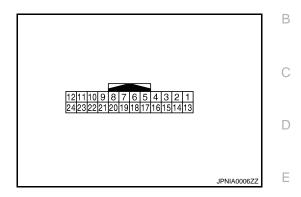
### < ECU DIAGNOSIS INFORMATION >

# DISPLAY UNIT

**Reference Value** 

**TERMINAL LAYOUT** 

INFOID:000000004238827



[BOSE AUDIO WITH NAVIGATION]

#### PHYSICAL VALUES

Terminal (Wire color)		Description			Condition	Reference value	
+	-	Signal name	Input/ Output	Contantion		(Approx.)	
1 (B)	Ground	GND	_	Ignition switch ON	_	0 V	
2 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
3 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
5 (R)	Ground	AUX image GND	_	Ignition switch ON	_	0 V	
6 (B)	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 (L)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON		(V) 4 0 + + 20µs	

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#### < ECU DIAGNOSIS INFORMATION >

	minal e color)	Description		Condition		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
9 (Y)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At RGB image is displayed At rear view camera image is displayed	5 V (V) 6 4 2 0 * * 200 µ s • * 200 µ s • • • 200 µ s
11 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ••••1ms ••••1ms ••••1ms •••••1ms •••••1ms •••••1ms •••••1ms ••••••
12 (W)	Ground	Camera image signal	Input	Ignition switch ON	At rear view camera image is displayed	(V) 0.4 0 −0.4 ••40µs skiB2251J
13 (B)	Ground	GND	_	Ignition switch ON	_	0 V
14	_	Shield	_	—	_	_
15 (G)	5 (R)	AUX image signal	Input	Ignition switch ON	At AUX image is displayed	(V) 0.4 0 -0.4 • $40\mu$ s SKIB2251J
17 (W)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 -0.4 0 0 0 0 0 0 0 0 0 0 0 0 0
18 (R)	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 4 40 40 91 91 91 91 101 101 101 101 101 101 10

#### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITH NAVIGATION]

Terminal (Wire color)		Description			Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	
19 (G)	Ground	RGB synchronizing signal	Input	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3603E	B C D
20 (GR)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON		(V) 4 0 • • 4ms SKIB3598E	E
21	_	Shield			_	_	G
22 (O)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ••••1ms PKIB5039J	H
23	- 1	Shield			_	_	
Wiring					ATION SYSTEM		J

Wiring Diagram - BOSE AUDIO WITH NAVIGATION SYSTEM -

#### NOTE:

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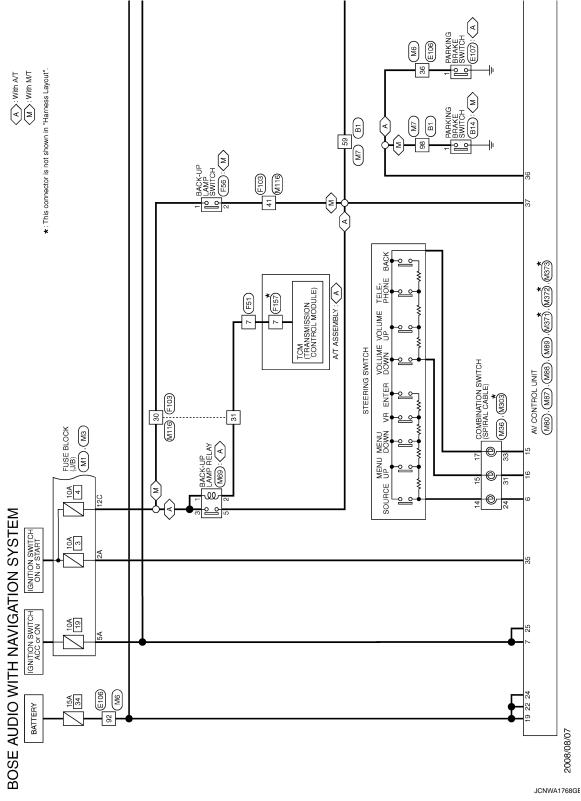
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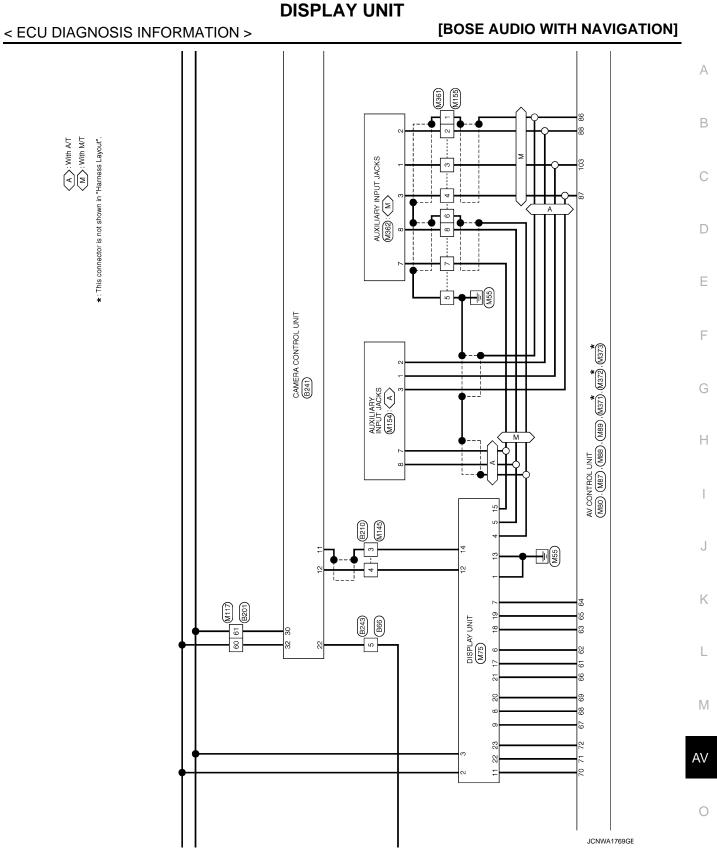
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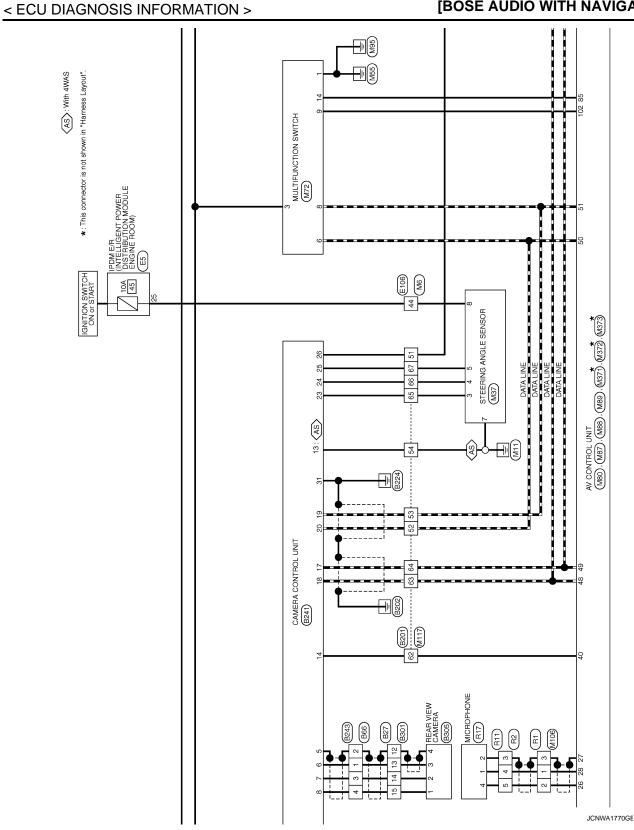
### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITH NAVIGATION]

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



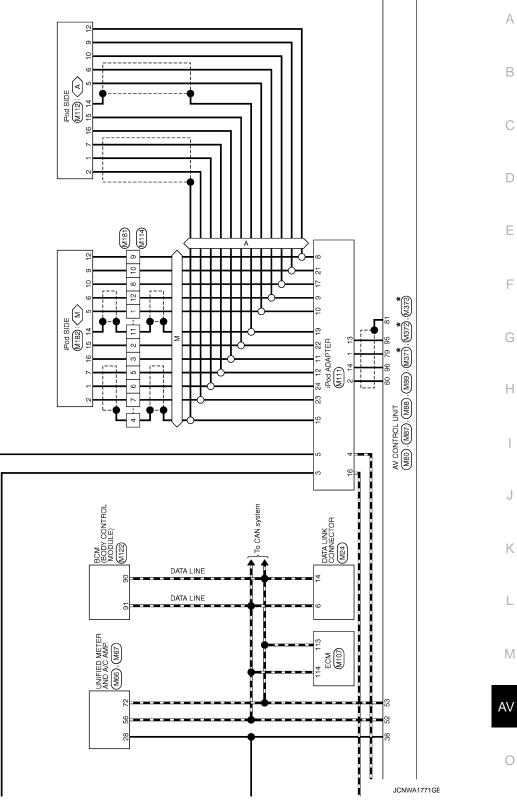


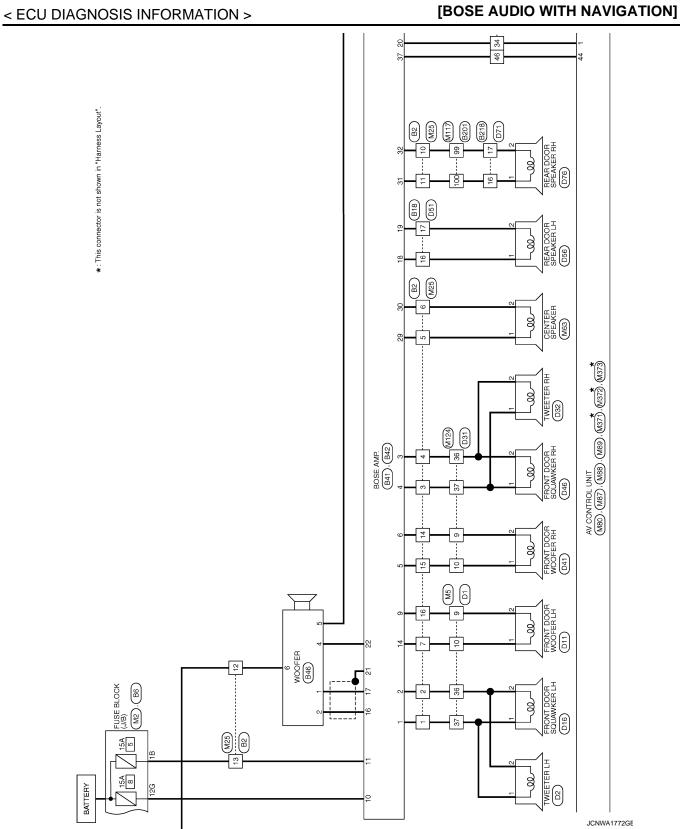


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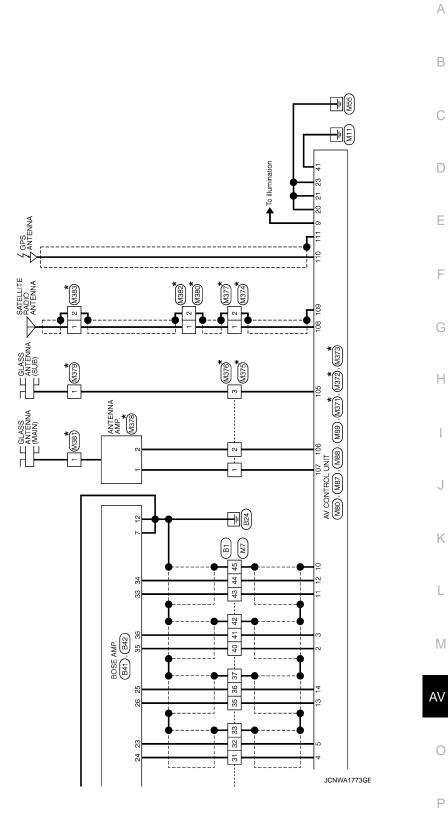
### [BOSE AUDIO WITH NAVIGATION]







# Revision: 2009 October

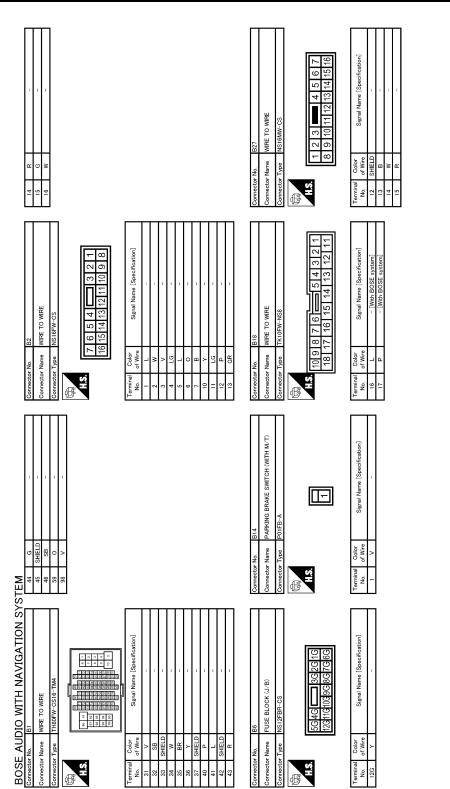


★: This connector is not shown in "Harness Layout".

DISPLAY UNIT [BOSE AUDIO WITH NAVIGATION]

#### < ECU DIAGNOSIS INFORMATION >

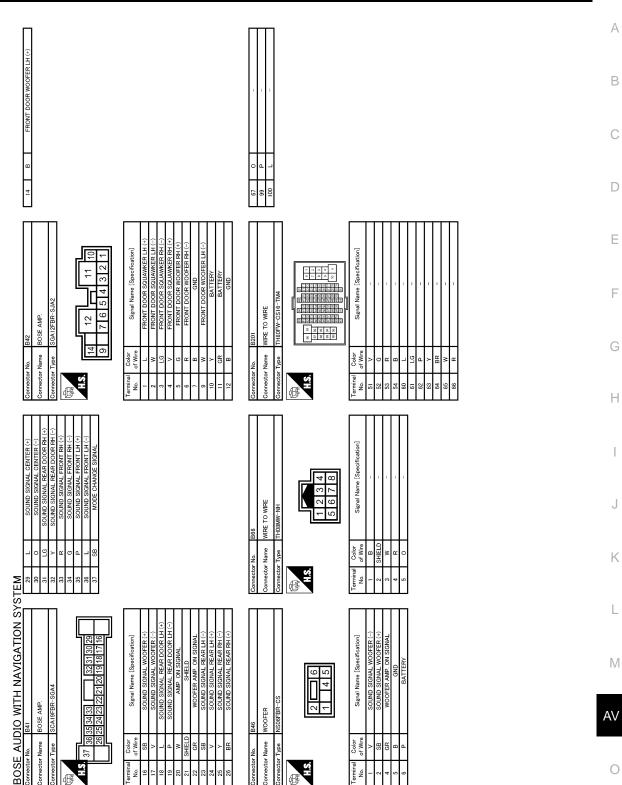
Revision: 2009 October



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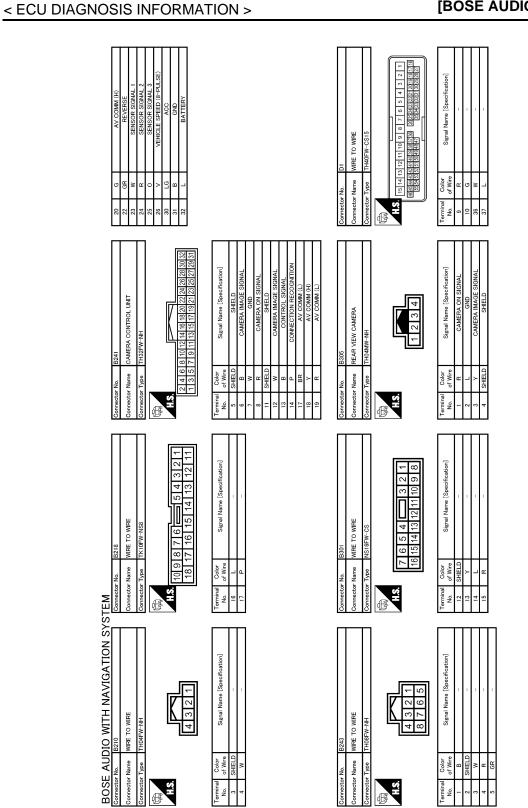
# DISPLAY UNIT

### < ECU DIAGNOSIS INFORMATION >



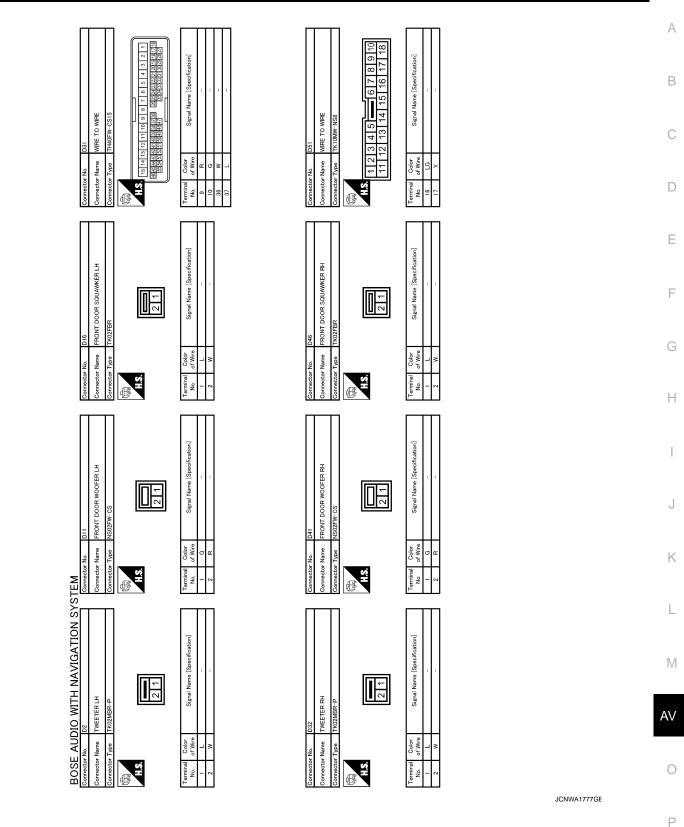
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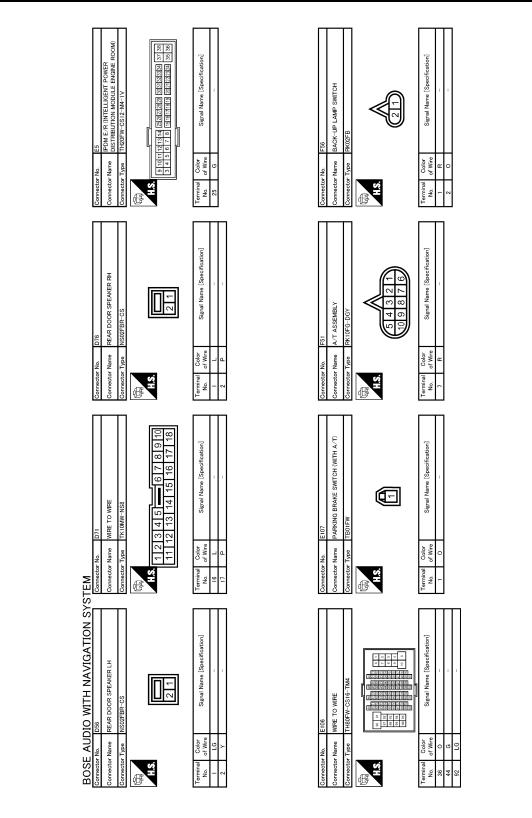
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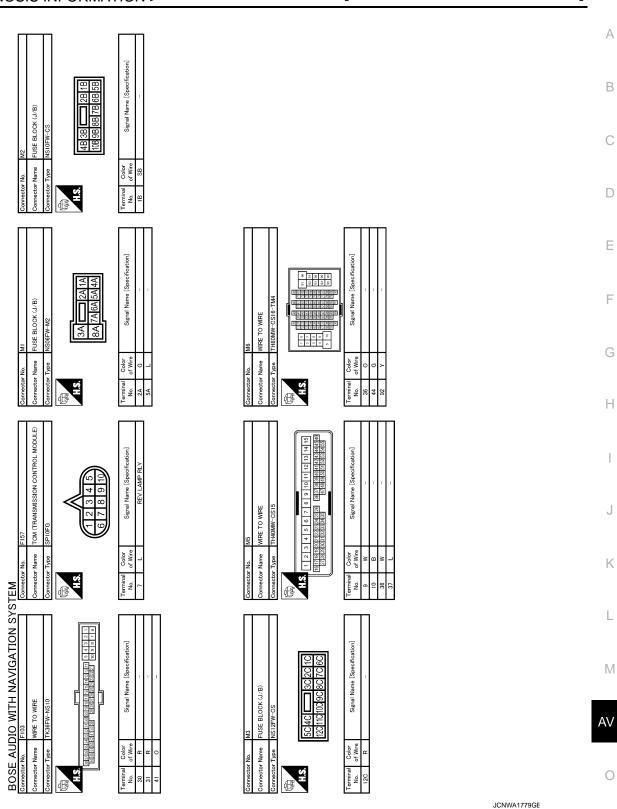


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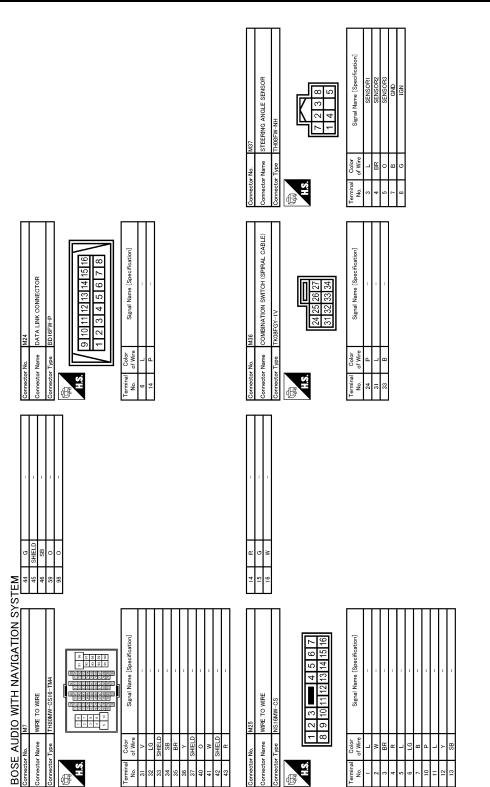
#### [BOSE AUDIO WITH NAVIGATION]



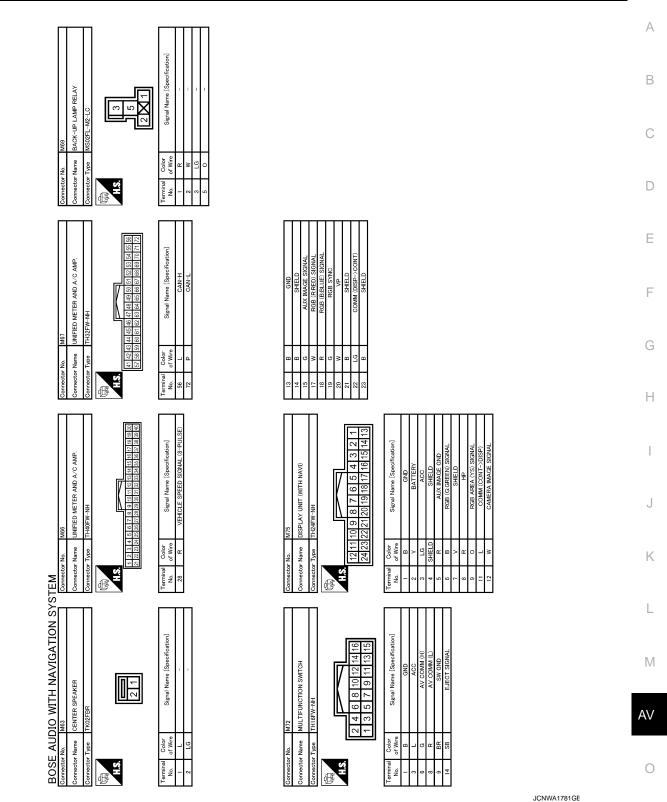
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## [BOSE AUDIO WITH NAVIGATION]

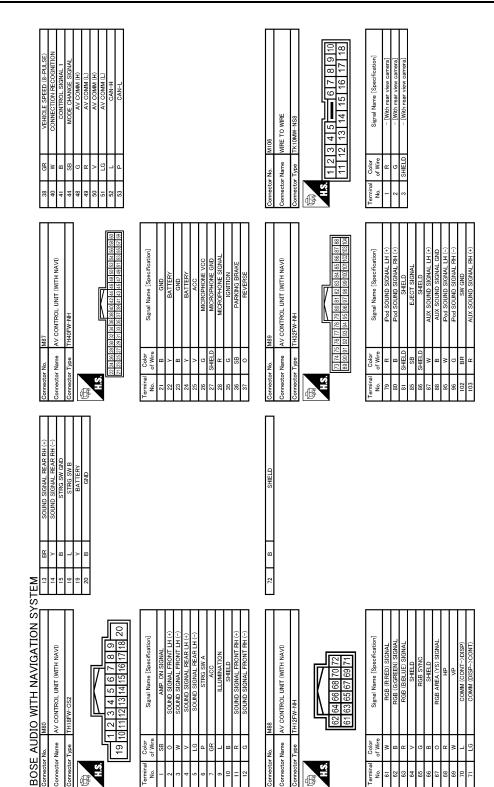


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Revision: 2009 October

**DISPLAY UNIT** 



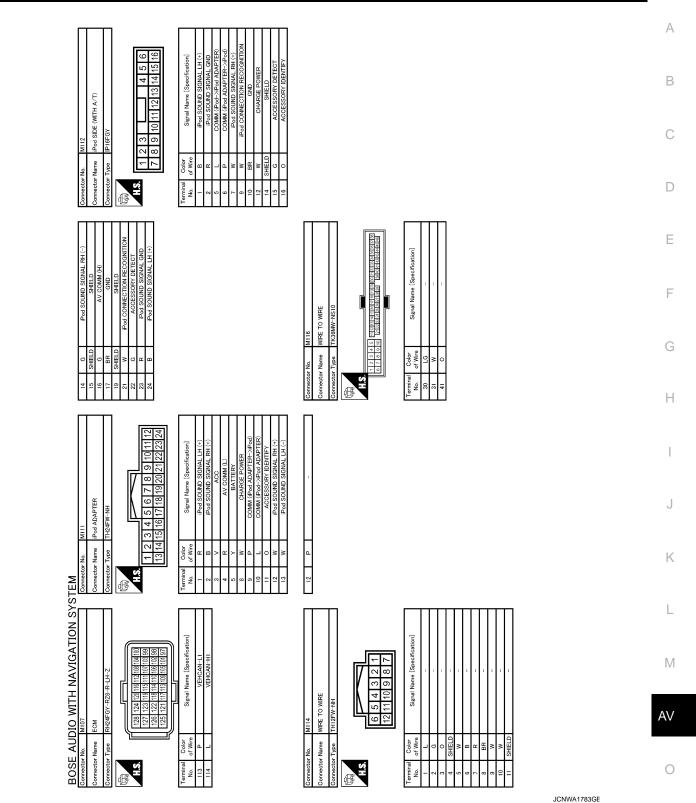
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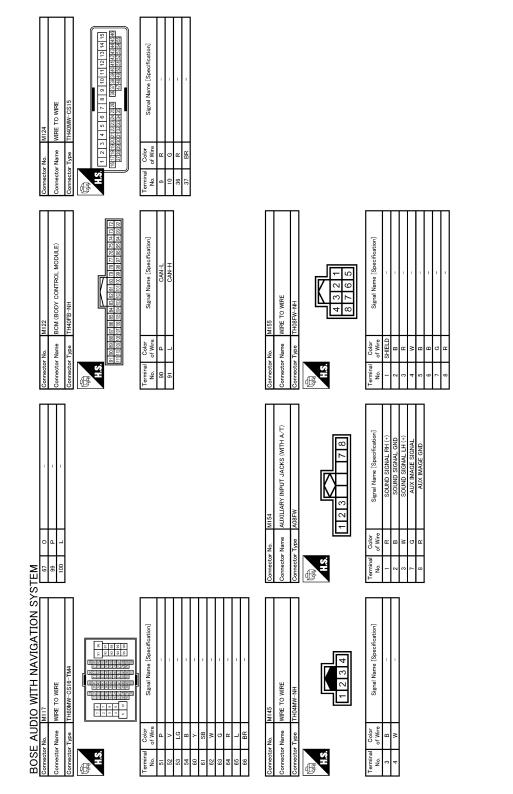
#### < ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

### < ECU DIAGNOSIS INFORMATION >



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## **DISPLAY UNIT**

#### < ECU DIAGNOSIS INFORMATION >

M303 COMBINATION SWITCH (SPIRAL CABLE) TK08FGY 1001011811711611511413 Signal Name [Specification]	ROL UNIT (WITH NAVI) AGK 100 Signal Name [Specification] SATELLITE ANTENNA SHELD	A
	M372 AV CONT FAKRA J	С
Connector No. Connector Name Connector Type H12 No. 13 No. 17 No. 17 No. 17 No.	Connector No. Connector Type H.S. H.S. H.S. I.O. SHELL 109 SHELL	D
4 5 6 14 15 16 14 15 16 14 15 16 18MAL HI (*) 18MAL HI (*) 18MAL HI (*) 14MER (*) 14MAL HI (*) 1	POWER DD DD DDEFTECT TOERTETY Decification] DD UB UB NIAIN	Е
M182 Pod SIDE (WTH M/T) IP16FQY 2 3 1 4 5 6 2 3 1 11112 113 14 15 16 2 3 2 10 111 12 13 14 15 16 2 3 2 10 111 12 13 14 15 16 2 3 2 10 111 12 13 14 15 16 2 3 2 10 111 12 13 14 15 16 2 3 2 10 111 12 13 14 15 16 2 3 2 10 111 12 13 14 15 16 2 3 2 10 111 12 13 14 15 16 2 4 5 6 6 2 5 7 10 111 12 13 14 15 16 2 6 0 00100 SIGNAL HP1 (PL) 2 6 0 00100 SIGNAL HP1 (PL) 2 7 2 10 0 0010 SIGNAL HP1 (PL) 2 8 0 00100 SIGNAL HP1 (PL) 2 9 0 00100 SIGNAL HP1 (PL) 2 10 00100 S	CHARGE POWER CHARGE POWER MA31 ACCESSORY IDENTIFY ACCESSORY ID	F
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,	M362 AUXILIARY INPUT JACKS (WTH M/T) A08FW Signal Name [Specification] - [With NAVI] - [With NAVI]	I
		J
μ Σ Ξ Ξ	Connector No.     M/82       Connector Name     4UXIL       Connector Name     4UXIL       Connector Type     408FW       H.S.     1       Terminal     Color       3     W       8     R       7     W	К
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BOSE AUC Connector No. Connector Name Connector Name Connector Type Mr. No. o of Wree 5 6 8R	R         R         W           9         1         0         U           10         L         L         L           11         SHELD         Connector Name         Connector Name           Connector Name         Connector Name         Connector Name           1         A         V         V           1         ShifeLD         I         ShifeLD           1         S         R         R           3         R         ShifeLD         ShifeLD           3         S         ShifeLD         ShifeLD	0

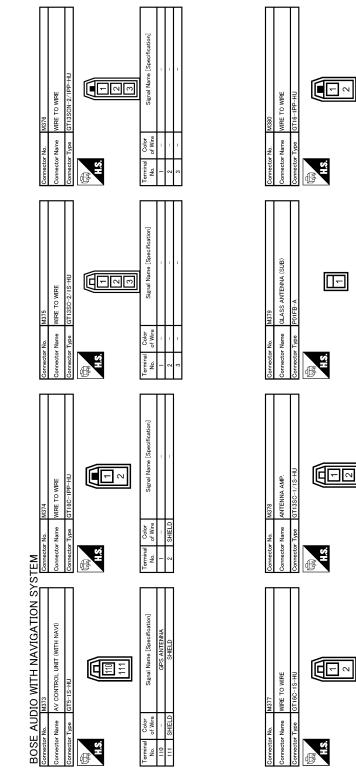
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#### < ECU DIAGNOSIS INFORMATION >

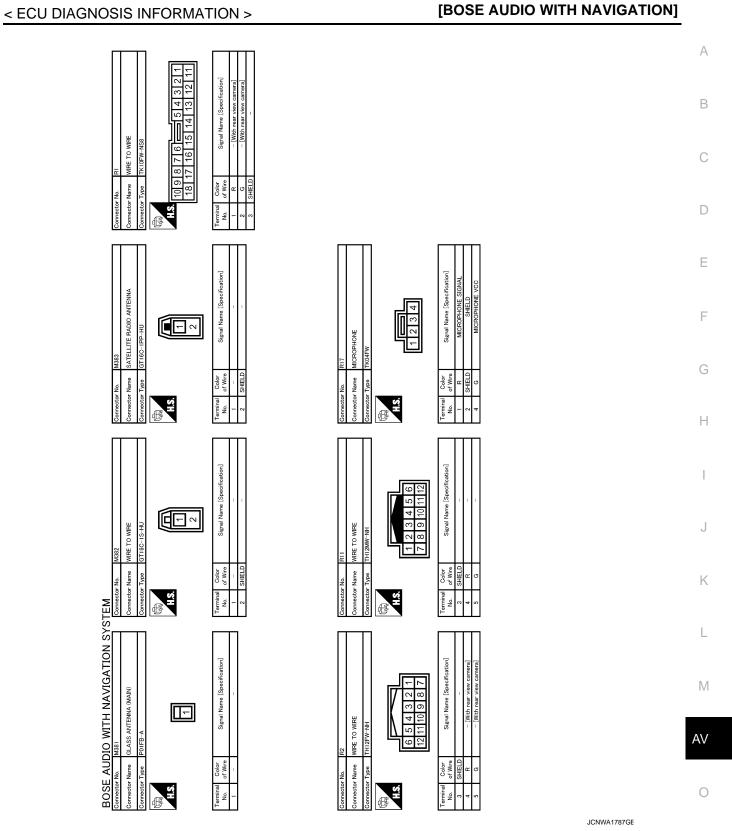
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### [BOSE AUDIO WITH NAVIGATION]



Signal Name [Specification] Color of Wire Ferminal No. HS. F Signal Name [Specification] -Color of Wire Terminal No. H.S. Signal Name [Specification VTENNA AMF Color of Wire HS. erminal No. E Signal Name [Specification] Color of Wire AHS. erminal No.

JCNWA1786GE



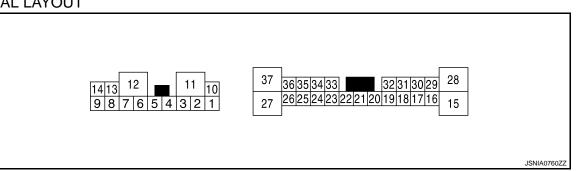
### < ECU DIAGNOSIS INFORMATION >

# BOSE AMP.

**Reference Value** 

INFOID:000000004238829





### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (L)	2 (W)	Sound signal front door squawker LH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
4 (V)	3 (LG)	Sound signal front door squawker RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 + 2ms SkiB3609E
5 (G)	6 (R)	Sound signal front door woofer RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 + 2ms SKIB3609E
7 (B)	Ground	GND	_	Ignition switch ON	_	0 V
10 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
11 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
12 (B)	Ground	GND	_	Ignition switch ON	_	0 V

## BOSE AMP.

#### < ECU DIAGNOSIS INFORMATION >

	Terminal Description			O and liticar	Reference value	A	
+	-	Signal name	Input/ Output	•	Condition	(Approx.)	
14 (B)	9 (W)	Sound signal front door woofer LH	Output	Ignition switch ON	Voice output	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	B C D
16 (SB)	17 (V)	Sound signal rear woofer	Output	Ignition switch ON	Voice output	(V) 1 -1 -1 SKIB3609E	E
18 (L)	19 (P)	Sound signal rear door speaker LH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 • 2ms SKIB3609E	G
20 (W)	Ground	Amp. ON signal	Input	Ignition switch ACC	_	10 V	I
21		Shield				_	J
22 (GR)	Ground	Woofer Amp. ON signal	Output	Ignition switch ACC	_	10 V	K
24 (V)	23 (SB)	Sound signal rear LH	Input	Ignition switch ON	Voice output	(V) 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1	L
26 (BR)	25 (Y)	Sound signal rear RH	Input	Ignition switch ON	Voice output	(V) 1 0 -1 * 2ms SKIB3609E	AV O P

## BOSE AMP.

#### < ECU DIAGNOSIS INFORMATION >

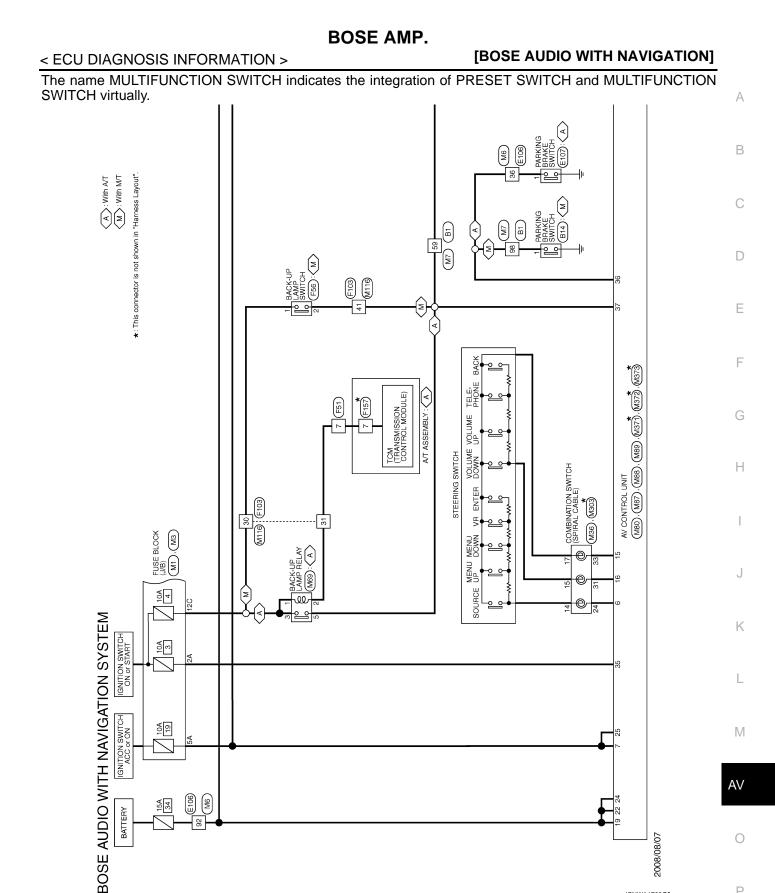
### [BOSE AUDIO WITH NAVIGATION]

	minal color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output			(Approx.)
29 (O)	30 (L)	Sound signal center speak- er	Output	Ignition switch ON	Voice output	(V) 1 0 -1 + 2ms SKIB3609E
31 (LG)	32 (Y)	Sound signal rear door speaker RH	Output	Ignition switch ON	Voice output	(V) 1 0 -1 2ms SKIB3609E
33 (R)	34 (G)	Sound signal front RH	Input	Ignition switch ON	Voice output	(V) 1 0 −1 + 2ms SKIB3609E
35 (P)	36 (L)	Sound signal front LH	Input	Ignition switch ON	Voice output	(V) 1 0 -1 * 2ms SKIB3609E
37	Ground	Mode change signal	Input	Ignition switch	Driver's Audio Stage ON	0 V
(SB)		·······		ON	Driver's Audio Stage OFF	8.5 V

Wiring Diagram - BOSE AUDIO WITH NAVIGATION SYSTEM -

NOTE:

INFOID:000000004501730



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2008/08/07

9 22

IGNITION SWITCH ACC or ON

BATTERY

10A 19

15A 34

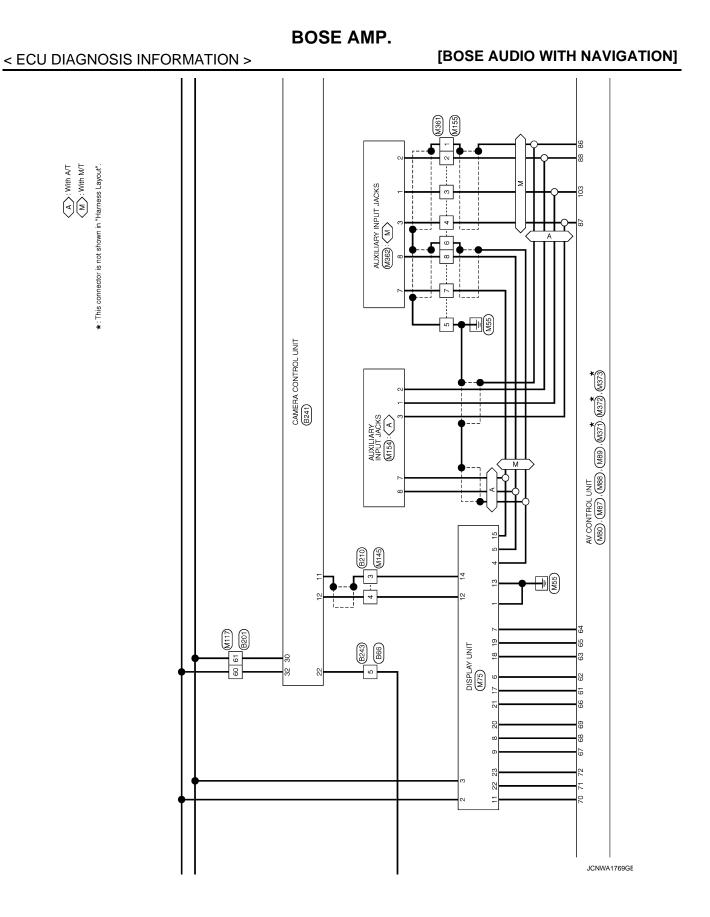
E106 M6

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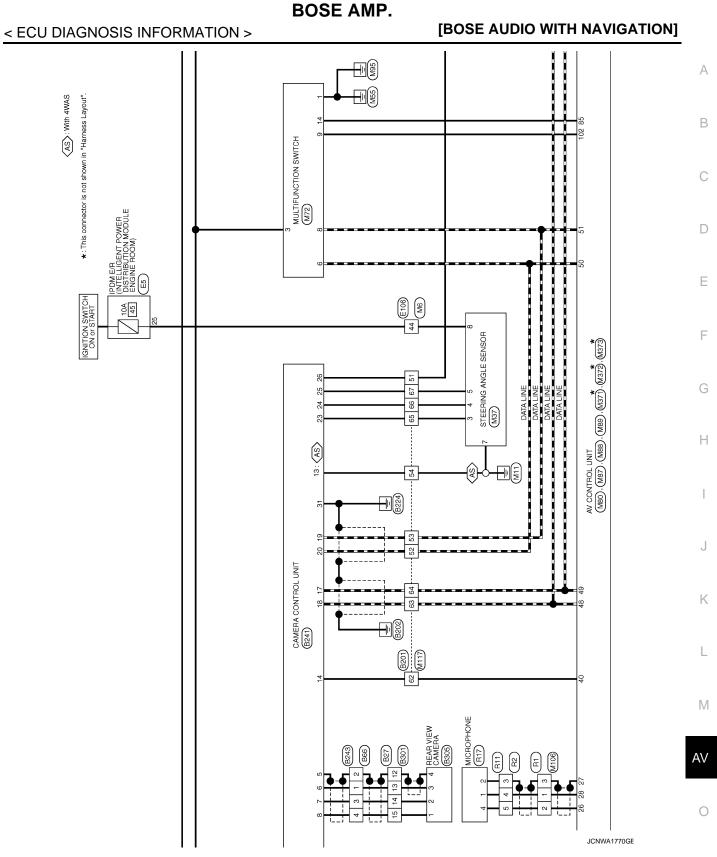
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#### Revision: 2009 October

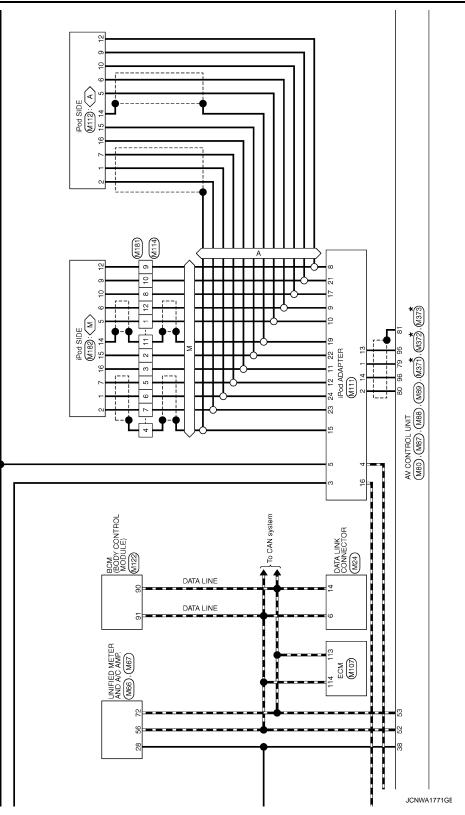
2009 G37 Sedan

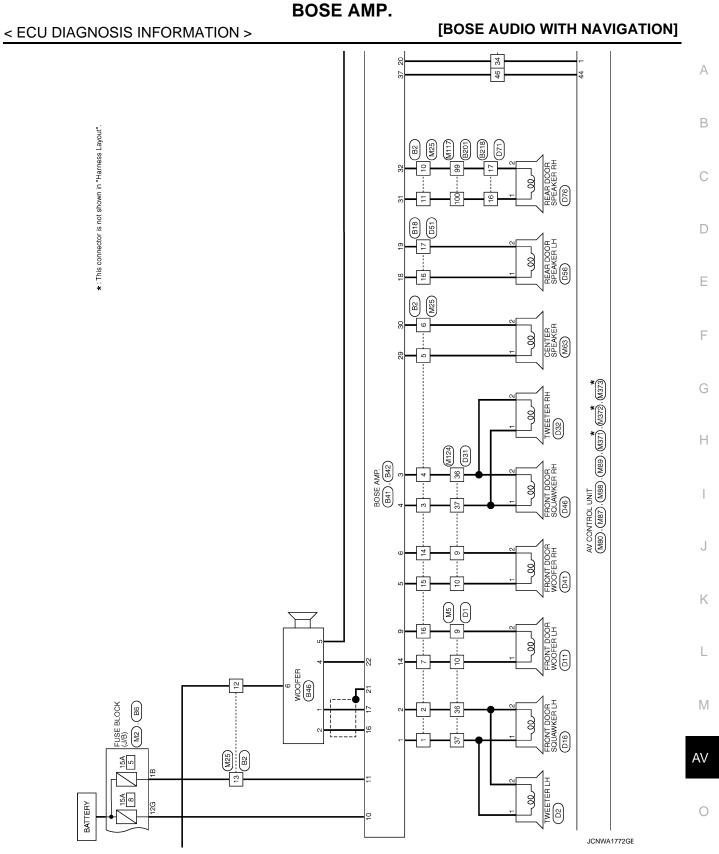


# BOSE AMP.

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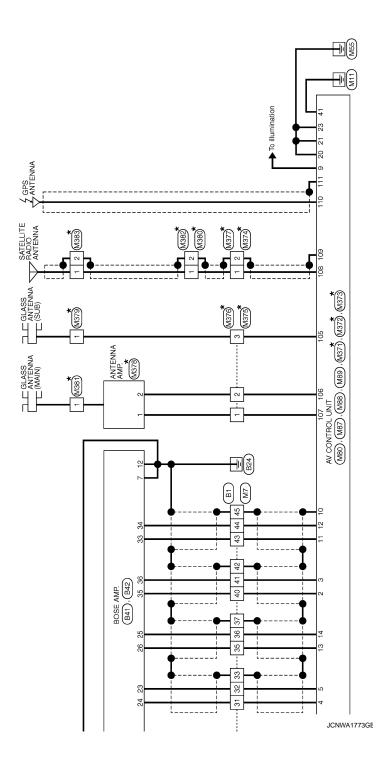
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### [BOSE AUDIO WITH NAVIGATION]

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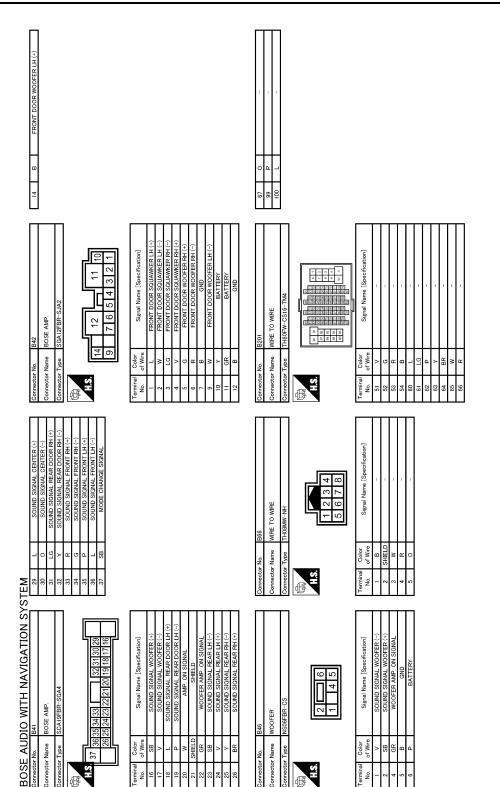


★ : This connector is not shown in "Harness Layout".

	827 WRE TO WRE NSr6MW-CS 2 3	Signal Mame [Specification]	A B C
4 12 16 α 13 2 10 α 13 2 10 α 13 1	Connector No. EX Connector Name W Connector Type NI H.S.	Terminal         Calor           No.         of Web           12         SHELD           13         E           14         W           15         R	D
3 2 1 10 9 8 Specification	14 13 12 11	Specification] E. System] S. System]	E
B2 WIRE TO WIRE NIST6FW-CS Signal Name 6 5 14 13 12 11	BI8 WRE TO WRE TKIOPH-NS8 7 16 15 14	Signal Name [Specification] - [With BOSE system] - [With BOSE system]	F
Connector No. Connector Name Connector Name Connector Type Connector Type Connect	Connector No. B18 Connector Name WRI Connector Type TKU	Terminal         Color           No.         effwor           16         L           17         P	Н
	BI4 PARKING BRAKE SWITCH (WITH M/T) PDIFB-A	Signal Name [Specification]	I
9 <u>명</u> 명 > >		Color of Wires Vires Signal N	J
₩	Connector No Connector Name Connector Type		K
BOSE AUDIO WITH NAVIGATION SYST Connector Nume Connector Num Connector Nume Connector Nume Connector Nume Connector Nume	807060 807060	Signal Name [Specification]	Μ
ADDIO WITH NAV Name write To write Type Mrite Color Signal Name (S) Signal Name (S) S	B6         FUSE BLOCK (J/B)           me         FUSE BLOCK (J/B)           pe         NS12FBR-CS           FUSE PLOCK (J/B)         FUSE PLOCK (J/B)	Signal N → ✓ Wite	AV
BOSE AL Connector Mane Connector Mane Conne	Connector Name Connector Name Connector Type	Terminal C No. of 120 120	0

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# BOSE AMP.

AGNOSIS INFORMA	HON >		[BOSE AUDIO WITH NAVIGATION]	
20         G         AV COMM (H)           22         GR         REVERSE           23         W         SENSOFS IGIALL 1           24         R         SENSOFS IGIALL 2           25         V         SENSOFS IGIALL 2           26         V         SENSOFS IGIALL 2           26         V         VEHICLE SEND (SHALL 3           26         V         VEHICLE SEND (SHALL 3           27         U         SENSOF SIGNAL 3           28         V         VEHICLE SEND (SHALL 3           31         B         GND           32         L         BATTERY		Oameter No.         D1           Oameter Name         WRE TO WIRE           Oameter Type         WRE TO WIRE           Oameter Type         TH40FW-CS15           MA         [12]12]12]12]12]12]12]12]12]12]12]12]12]1	Tarminal     Color     Signal Name [Specification]       No.     of Wire     Signal Name [Specification]       10     G     M       37     L     -	A B C D
Connector No.         B241           Connector Name         CAMERA CONTROL UNIT           Connector Type         TH32PV-NH           Connector Type         TH32PV-NH           MA         T132FV-NH           1357         272233333	Terminal on         Color of Wire Signal Name (Specification)           No.         of Wire of Wire Signal Name (Specification)           6         B         SHELD ON SIGNAL           7         W         CAMERA MAGE SIGNAL           11         SHELD         SHELD           12         W         CAMERA MAGE SIGNAL           13         W         CAMERA NO SIGNAL           14         P         CONTROL SIGNAL           17         Y         A/V COMM (L)           18         Y         A/V COMM (L)	Connector No. B305 Connector Name EEAR VIEW CAMERA Connector Type TH04MM* NH	Terminal No.         Color of Wire Mire         Signal Name (Specification)           1         R         CAMERA ON SIGNAL           2         L         CAMERA MAGE SIGNAL           3         Y         CAMERA IMAGE SIGNAL           4         SHIELD         SHIELD	E F G
STEM Corrector No. 8218 Connector Name WRE TO WRE Connector Type TKI0FW-MS8 Connector Type T6 5 4 3 2 1 18 17 16 15 14 13 12 11	Terminal     Color     Surval     Name (Specification)       No.     of Wire     L     -       1     D     L     -	Connector No.         B301           Connector Name         WRE TO WRE           Connector Type         NS16FW-CS           Connector Type         NS16FW-CS           T         6         5         4           T         16         15         14         13         2         1	Terminal No.     Color     Skynal Name [Specification]       12     StrlED     -       13     Y     -       14     L     -       15     R     -	I J
BOSE AUDIO WITH NAVIGATION SYSTEM <u>connector Name B210</u> <u>connector Name WIE</u> TO WIEE <u>connector Type</u> Market <u>connector Type</u> Market	Terminal No.         Color of Wire         Signal Name (Specification)           3         SHELD         -           4         W         -	Connector No. 8243 Connector Name WIRE TO WIRE Connector Type THGBFW-NH	Terminal No.     Calor of Wree     Signal Name [Specification]       1     2     SHELD       2     SHELD     -       3     W     -       4     R     -       5     GR     -	L M AV

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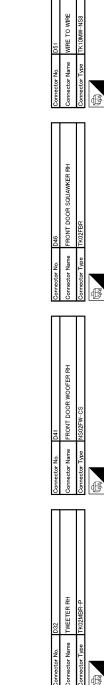
# BOSE AMP.

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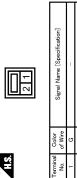
# [BOSE AUDIO WITH NAVIGATION]

### < ECU DIAGNOSIS INFORMATION >

# 15 14 12 111 100 9 8 7 6 5 4 3 2 1 464-6444-444 446 466 3 3 2 1 Signal Name [Specification] MIRE TO WIRE Color of Wire Connector Name ES. Terminal No. 37 Ē Signal Name [Specification] FRONT DOOR SQUAWKER LH 2 1 Color of Wire Connector Name H.S. Terminal No. Ē Signal Name [Specification] FRONT DOOR WOOFER LH 2 1 Color of Wire Connector Name H.S. Terminal No. BOSE AUDIO WITH NAVIGATION SYSTEM Ē Conn Signal Name [Specification] 2 1 TWEETER LH Color of Wire Connector Name H.S. erminal No. ſ





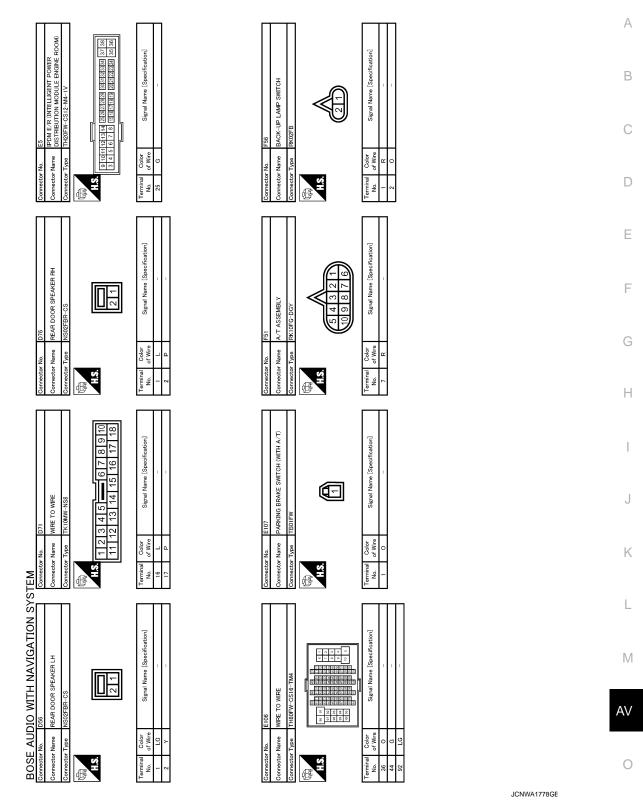




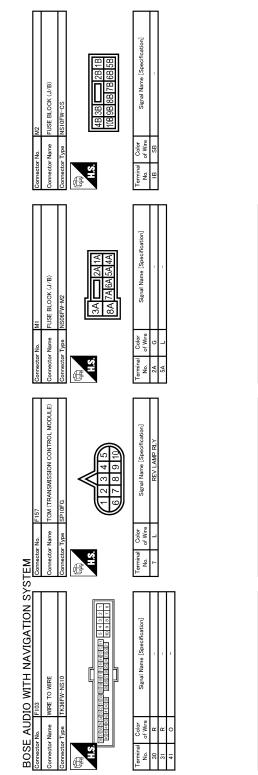
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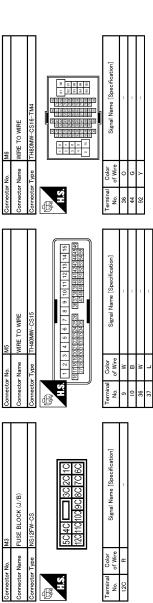
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# [BOSE AUDIO WITH NAVIGATION]



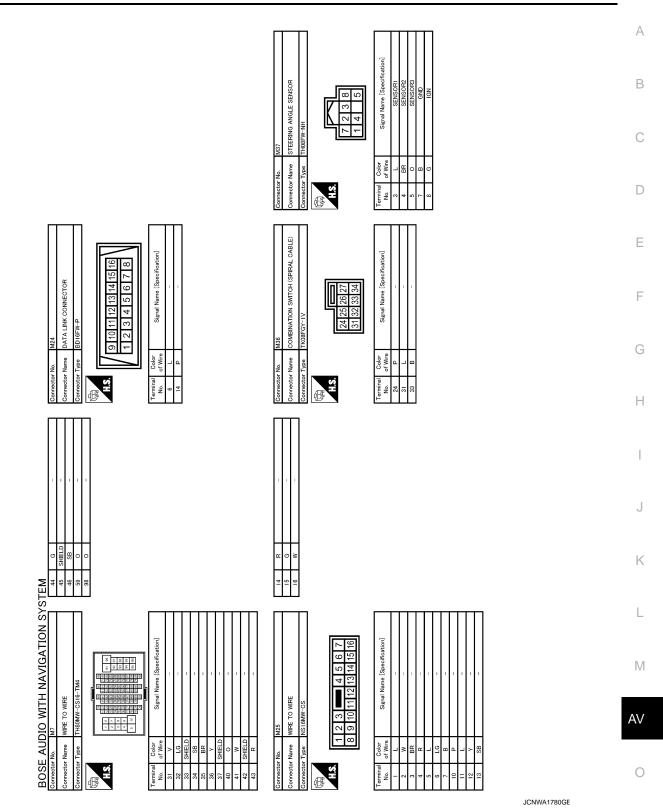
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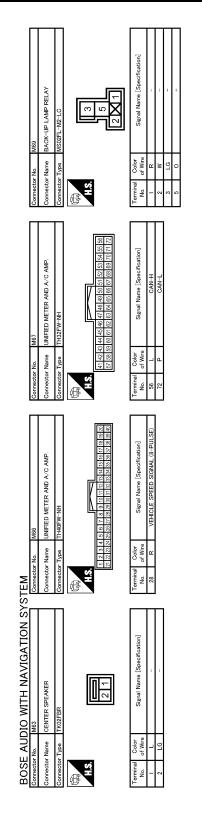
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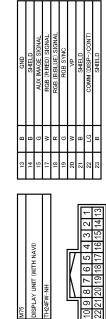
# [BOSE AUDIO WITH NAVIGATION]



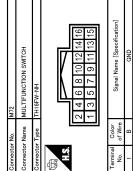
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Revision: 2009 October





	24 23	24 23 22 21 20 19 18 17 16 15 14 13
Terminal No.	Color of Wire	Signal Name [Specification]
1	в	GND
2	Y	BATTERY
e	ГG	ACC
4	SHIELD	SHIELD
5	ч	AUX IMAGE GND
9	в	RGB (G:GREEN) SIGNAL
7	~	SHIELD
8	ж	dH
6	0	RGB AREA (YS) SIGNAL
11	L	COMM (CONT->DISP)
12	W	CAMERA IMAGE SIGNAL



12 1

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Con

Connector Name

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 Color
 Steral Name [Specification]

 6
 Wite
 Specification]

 B
 GND
 C

 C
 ACC
 C

 G
 AV COMM (H)
 C

 R
 AV COMM (L)
 S

 BR
 SW GND
 S

 SB
 EJECT SIGNAL

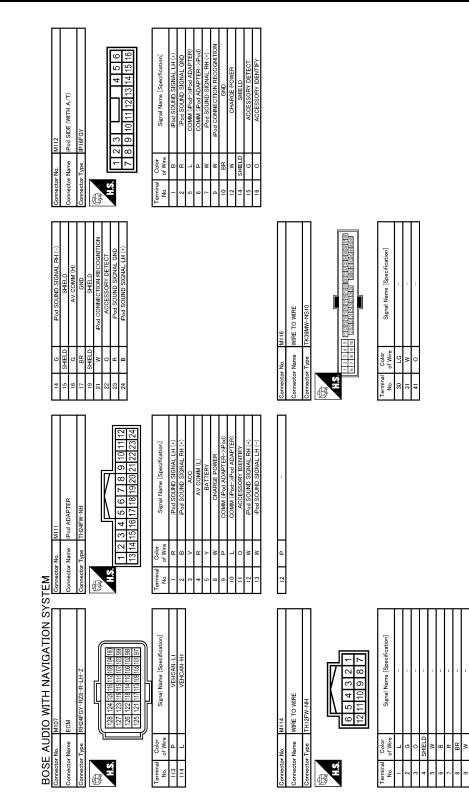
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VEHICLE SPEED (8-PULSE)       COMMETICIN RECOGNITION       COMMETICIN RECOGNITION       COMMETICIN       COMMETICIN       NOBE CHANGE SIGNAL       NOBE CHANGE SIGNAL       NOBMIN       A COMM (N)       COMM	AB
38         GR         VEHI           40         W         COM           41         B         M           52         L         G           99         R         MI06           52         L         G           60         MI06         MIRE TO WIR           11         12         3           12         3         SHELD           3         SHELD         Sign	C
V-NH V-NH Signal Name (Specification) Signal Name (Specification) P-NH P-NH NTROL UNIT (WTH NAVI) V-NH NTROL UNIT (WTH NAVI) V-NH P-NH P-NH P-NH P-NH P-NH AIX SOUND SIGNAL LH (-) P-NH AIX SOUND SIGNAL P-NH AIX SOUND	E
	G
	Н
SOUND SIGNAL FEAR PH (-) SOUND SIGNAL FEAR PH (-) SOUND SIGNAL FEAR PH (-) STRAG SW B STRAG SW B STREAV GND SHELD	l J
	K
	L
BOSE AUDIO WITH Connector Name A v CONTROL Connector Name A v CONTROL Connector Name A v CONTROL Connector Name A v CONTROL Connector Name A v CONTROL 1 1 2 3 4 1 1 1 2 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV

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# [BOSE AUDIO WITH NAVIGATION]

### < ECU DIAGNOSIS INFORMATION >



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W SHIFLD

	-
	А
No.         M124           M124         M124           M124 <td>В</td>	В
M124     M124       M124     M124 <t< td=""><td>С</td></t<>	С
Connector No. Connector Name Connector Name Connector Type Connector Type Connector Type Connector Type Connector Type Connector Name Connector Name Connect	D
The second sec	E
MI22 BCM (BOPY CONTROL MODULE) TH40FB-NH TH40FB-NH MI55 MI55 MI55 MI55 Signal Name [Specification] Signal Name [Specification] Signal Name [Specification]	F
	G
Connector Name       Connecto	Н
WITH A-T) MITH A-T)	I
MI54 MI54 AUXILIARY INPUT JACKS (MTH A.7) Signal Name [Specification] Signal Name [Specification]	J
	K
S S IEM Connector Name 3 2 2 2 8 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7	L
	M
MI17       MI17         Mi18       Mi45         Mi45       Mi45         Mi45       Mi45         Mi45       Mi45         Mi45       Mi45         Mi45       Mi45	AV
I Name Na	
BOSE Commetton Commetton Si Si Si Si Si Si Si Si Si Si Si Si Si	0

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< ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITH NAVIGATION]

Connector No.         M303           Connector Name         COMBINATION SWITCH (SPIRAL CABLE)           Connector Type         TroopFCY           Connector Type         2009F(1)           Taminal         Color           Signal Name (Specification)           14         V	BR	Connector No.         M372           Connector Name         AV CONTROL UNIT (WITH NAVI)           Connector Type         FAKRA JACK           Connector Type         FAKRA JACK	Terminal         Color         Signal Name [Specification]           No.         of Wrep         SafeLLIFF ANTENNA           109         SHIELD         SHIELD
Connector No.         M182           Connector Name         Pod SIDE (WITH M/T)           Connector Type         Pol SIDE (WITH M/T)           Mixe         Pol Signal Mane [Specification]           I         Pol Signal Mane [Specification]           No.         Signal Mane [Specification]           2         W	5         L         COMM (Peu-2)-Peid ADAPTER)           6         P         COMM (Peud ADAPTER-SPaud)           7         GR         Pod SOUND SGNAL RH (*)           9         W         Pod SOUND SGNAL RH (*)           10         BR         CONN (Peud ADAPTER-SPaud)           12         L         CHARGE POWER           14         SHIELD         SHIELD           15         G         ACCESSORY DETECT           16         O         ACCESSORY DETECT	Connector No. M371 Connector Name AV CONTROL UNIT (WITH NAVI) Connector Type GT135H-2/15-HU	Terminal     Color     Signal Name (Specification)       105     -     FM SUB       06     -     AM-FM MAIN       107     -     ANTENNA AMP. ON SIGNAL
I EM		Mag2         Mag2           Connector Name         AUXILIARY INPUT JACKS (WITH M.T)           Connector Type         AUBFW           Connector Type         AUBFW           III         III	Tarminal         Color         Signal Name [Spearfraction]           No.         of Wire         - [With MAVI]           1         R         - [With MAVI]           2         B         - [With MAVI]           3         W         - [With MAVI]           7         W         - [With MAVI]           8         R         - [With MAVI]
BOSE AUDIO WITH NAVIGATION SYSTEM Connector Name Connector N	3         0         -           4         SHELD         -           5         GR         -           6         BR         -           3         BR         -           4         H         -           6         BR         -           7         W         -           9         L         -           10         W         -           11         SHELD         -	Connector No. M361 Connector Name MRE TO WIRE Connector Type TH08MW-NH	Terminal         Celor         Signal Name [Specification]           No.         of Mire         Signal Name [Specification]           1         SHELD         -           2         B         -           3         R         -           4         W         - [With MAVI]           5         SHELD         -           6         SHELD         -           7         8         -

< ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITH NAVIGATION]

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			BOSE AMP.	
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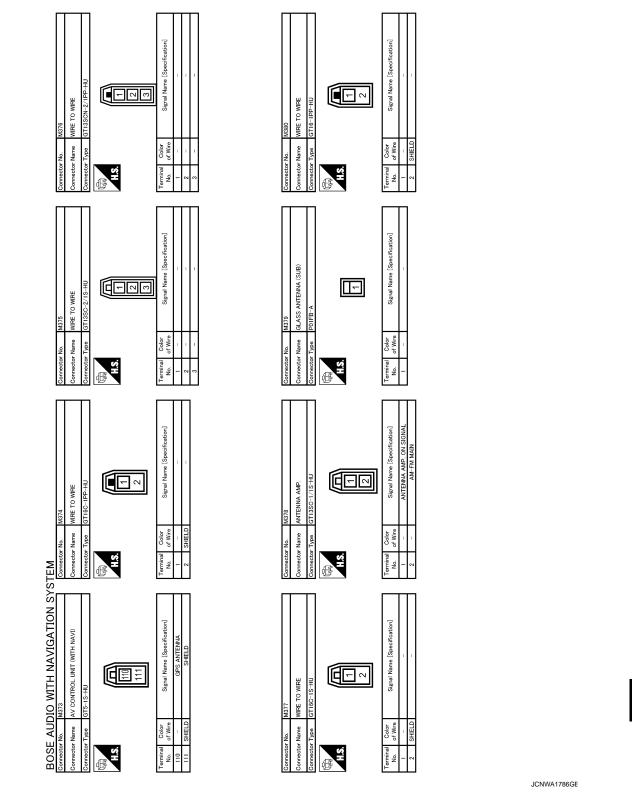
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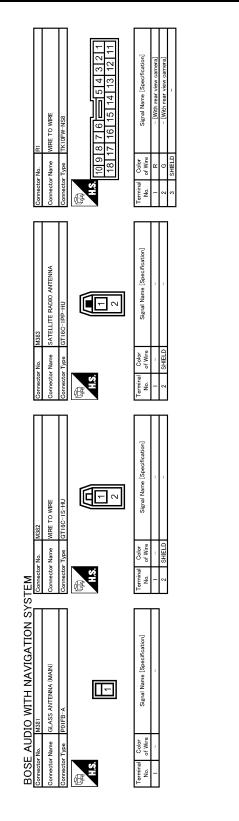
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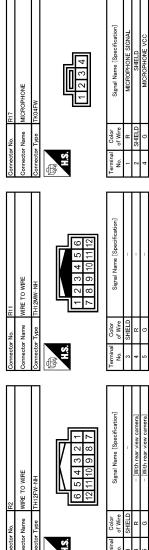
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H.S.

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BOSE AMP.



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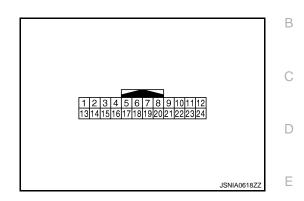
# IPOD ADAPTER

# Reference Value

**TERMINAL LAYOUT** 

INFOID:000000004238831

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[BOSE AUDIO WITH NAVIGATION]

### PHYSICAL VALUES

	erminal Description				Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (R)	13 (W)	iPod sound signal LH	Output	Ignition switch ON	When iPod mode is select- ed	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1
2 (B)	14 (G)	iPod sound signal RH	Output	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 -1 • + 2ms SKIB3609E
3 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
4 (R)	_	AV communication signal (L)	Input/ Output	_	_	_
5 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
8 (W)	Ground	iPod battery charge	Output	Ignition switch ON	Connected to iPod <sup>®</sup>	12 V

### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITH NAVIGATION]

	minal color)	Description			Condition Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)
9 (P)	Ground	Communication signal (iPod adapter→iPod <sup>®</sup> )	Output	Ignition switch ON	The wave pattern is dis- played just after iPod con- nection.	(V) 2 0 2 1 2 2 2 1 2 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 3 3 2 3 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3
10 (L)	Ground	Communication signal (iPod <sup>®</sup> →iPod adapter)	Input	Ignition switch ON	Connected to iPod <sup>®</sup>	(V) 3 2 1 0 •••2ms
11 (O)	Ground	ACCESSORY-IDENTIFY		Ignition switch ON	Connected to iPod <sup>®</sup>	0 V
12 (W)	23 (R)	iPod sound signal RH	Input	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 -1 -1 -1 -1 -1 -2ms SKIB3609E
15		Shield			_	
16 (G)		AV communication signal (H)	Input/ Output		_	_
17 (BR)	Ground	GND	_	Ignition switch ON	_	0 V
19		Shield				
21	Crowned	iPod connection recogni-	ا مەربىل	Ignition	Not connected to $iPod^{ embed{matrix}}$	4 V
(W)	Ground	tion signal	Input	switch ON	Connected to iPod <sup>®</sup>	0 V
22 (G)	Ground	ACCESSORY-DETECT	_	Ignition switch ON	Connected to iPod <sup>®</sup>	0 V
24 (B)	23 (R)	iPod sound signal LH	Input	Ignition switch ON	When iPod mode is select- ed	(V) 1 0 -1 • • 2ms SKIB3609E

### < ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

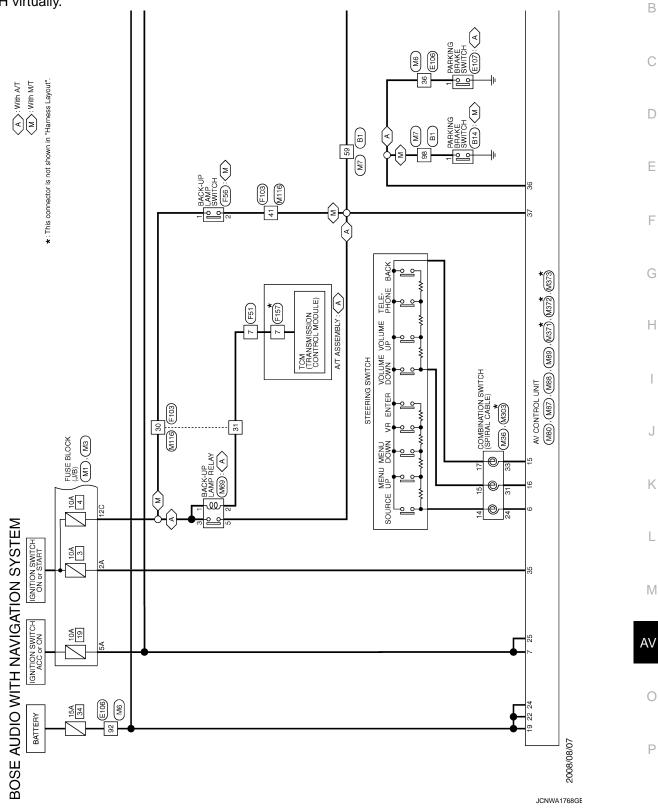
# Wiring Diagram - BOSE AUDIO WITH NAVIGATION SYSTEM -

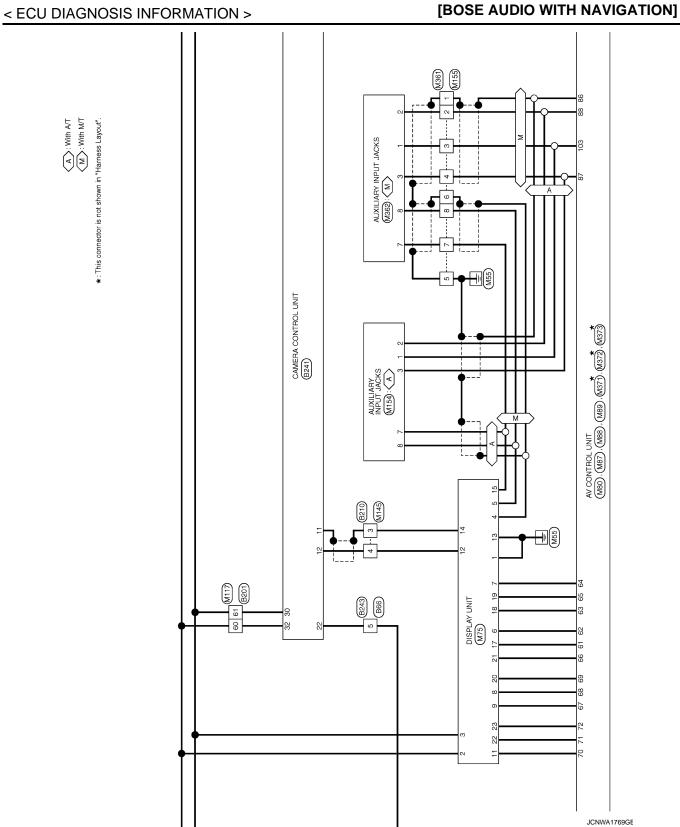
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#### NOTE:

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

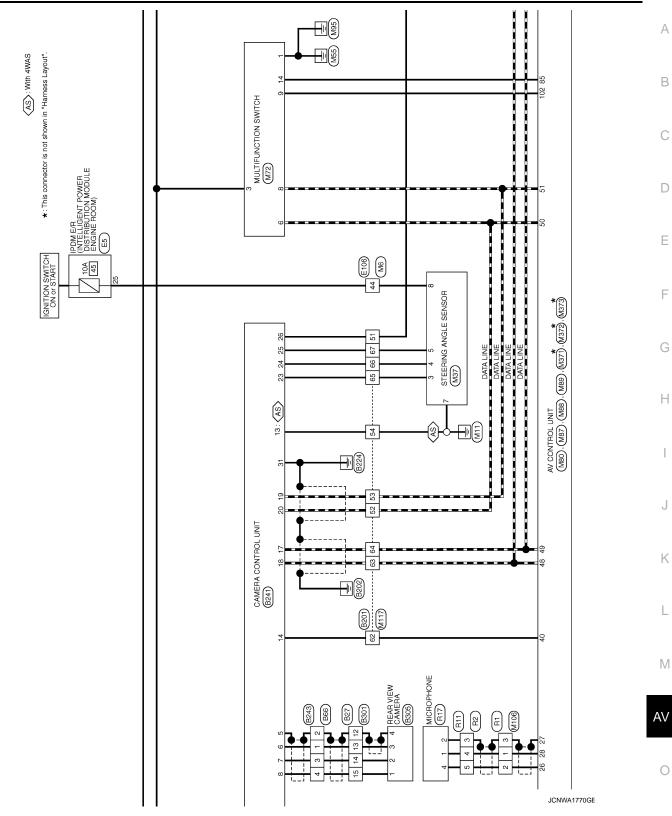




# Revision: 2009 October

< ECU DIAGNOSIS INFORMATION >

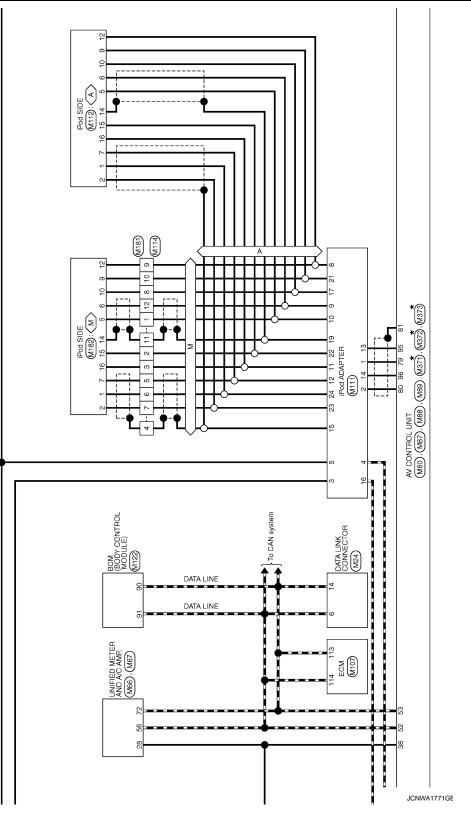
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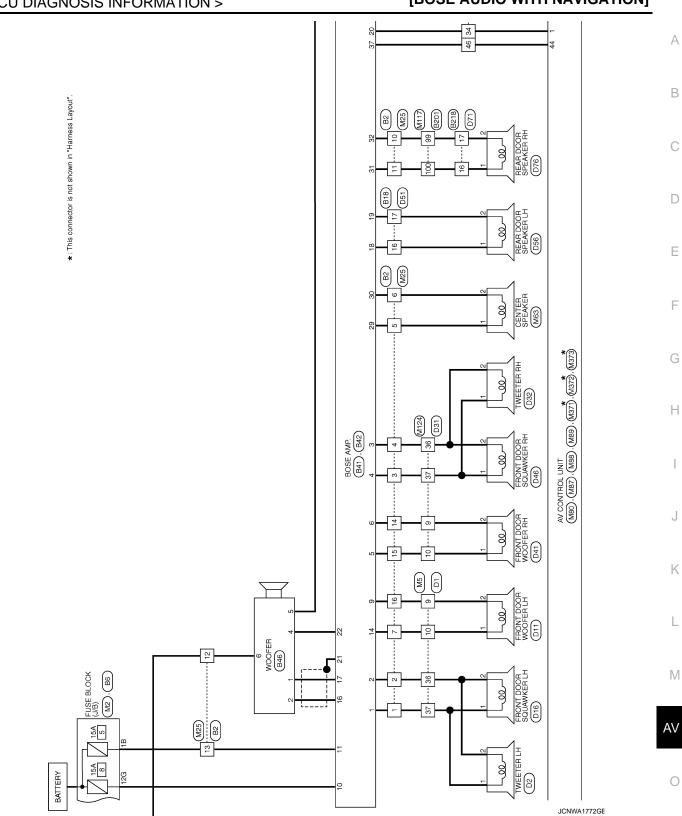


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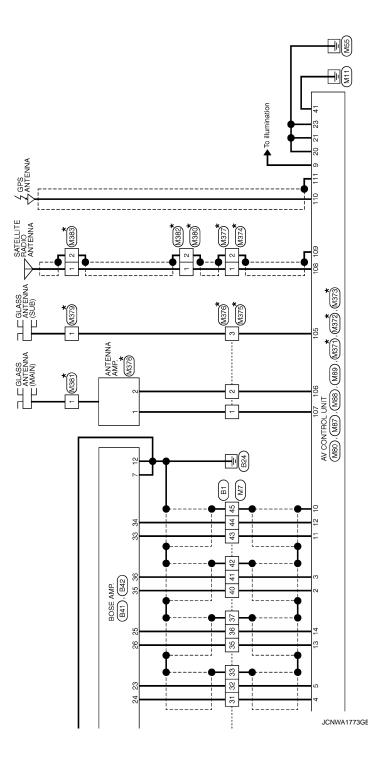




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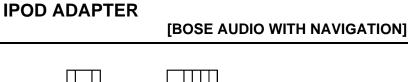
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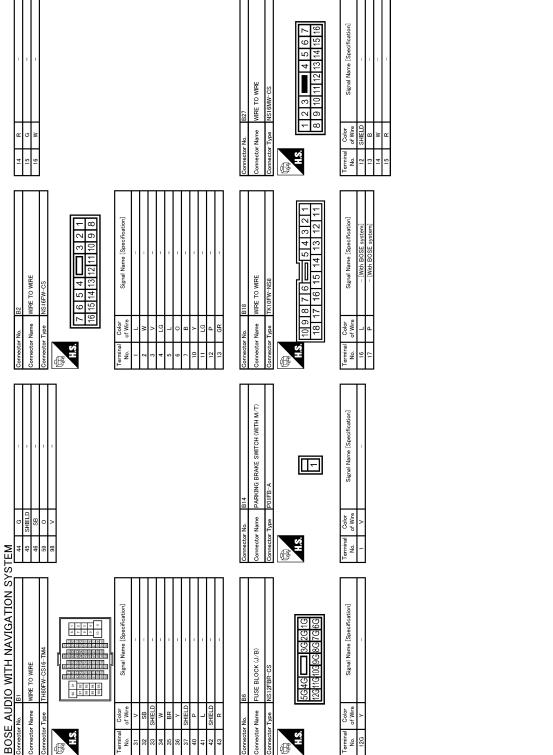
### [BOSE AUDIO WITH NAVIGATION]



\*: This connector is not shown in "Harness Layout".

### < ECU DIAGNOSIS INFORMATION >





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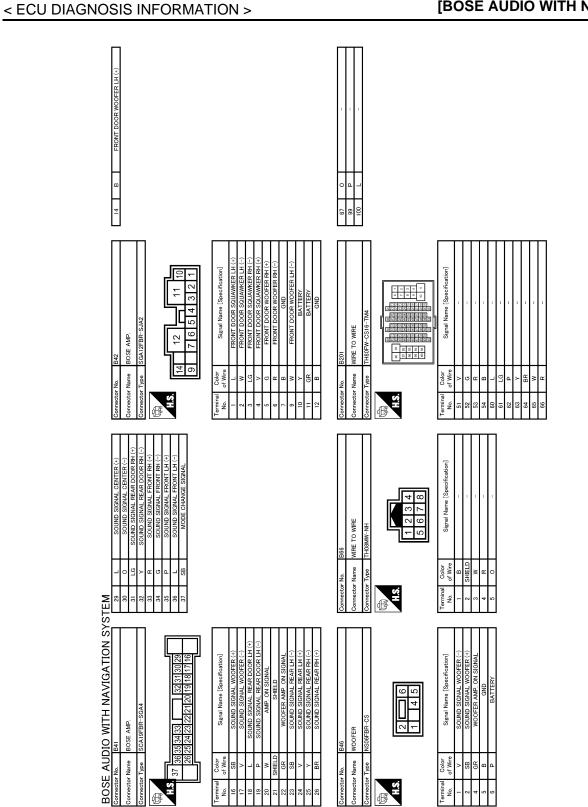
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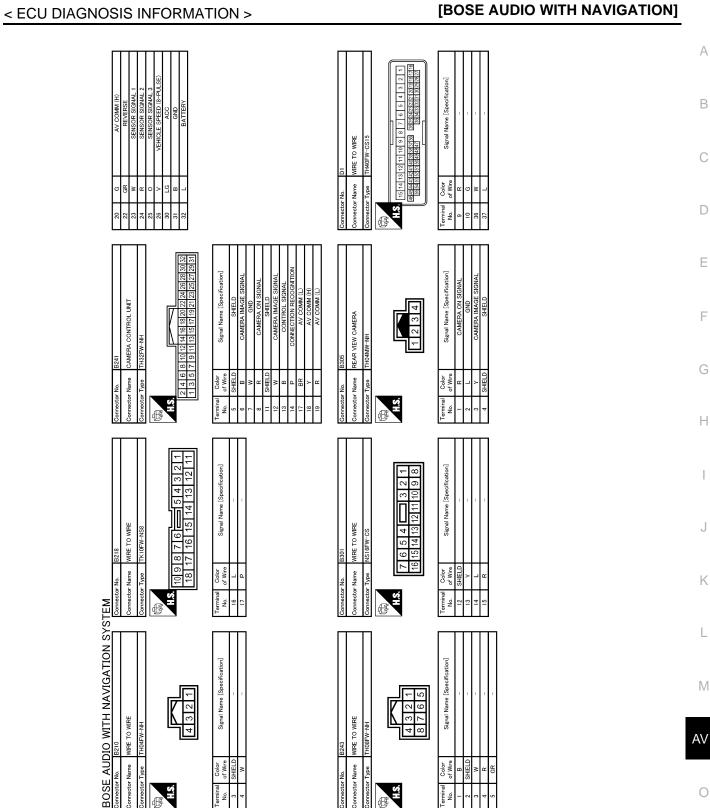
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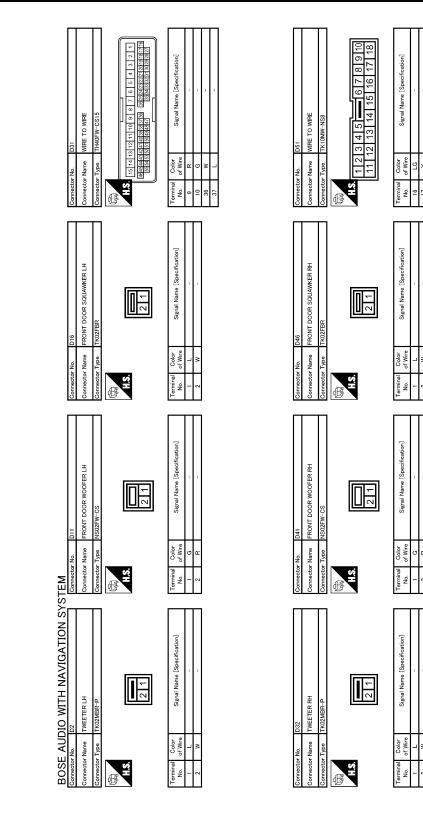
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# Revision: 2009 October

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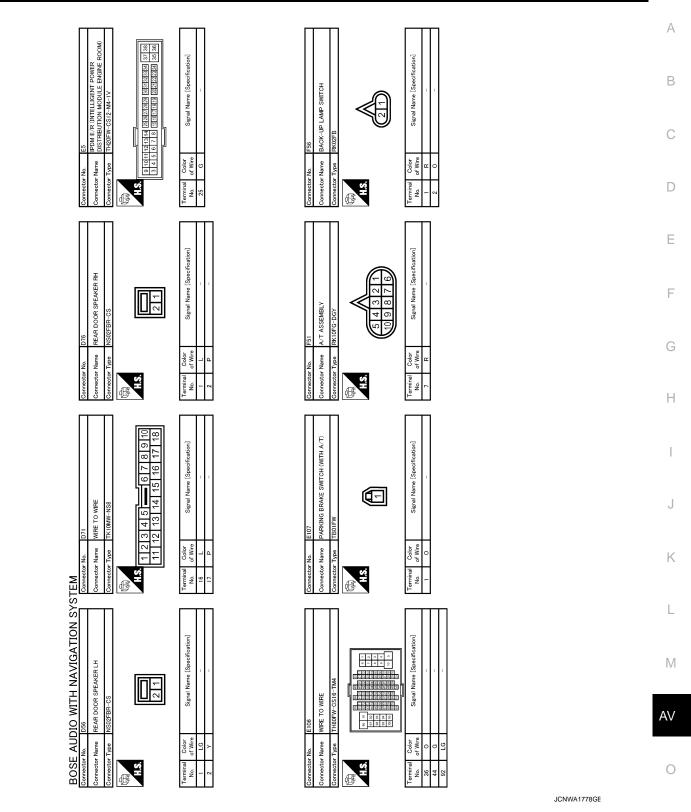
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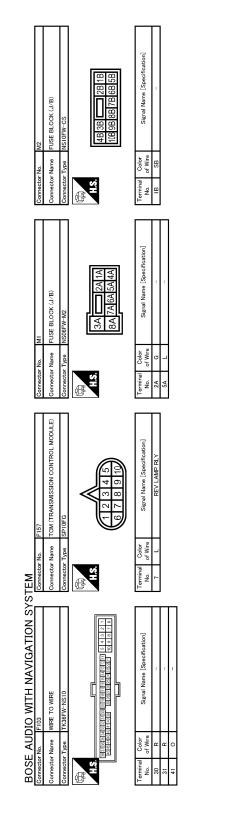
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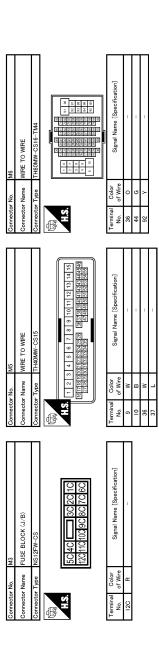
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### [BOSE AUDIO WITH NAVIGATION]



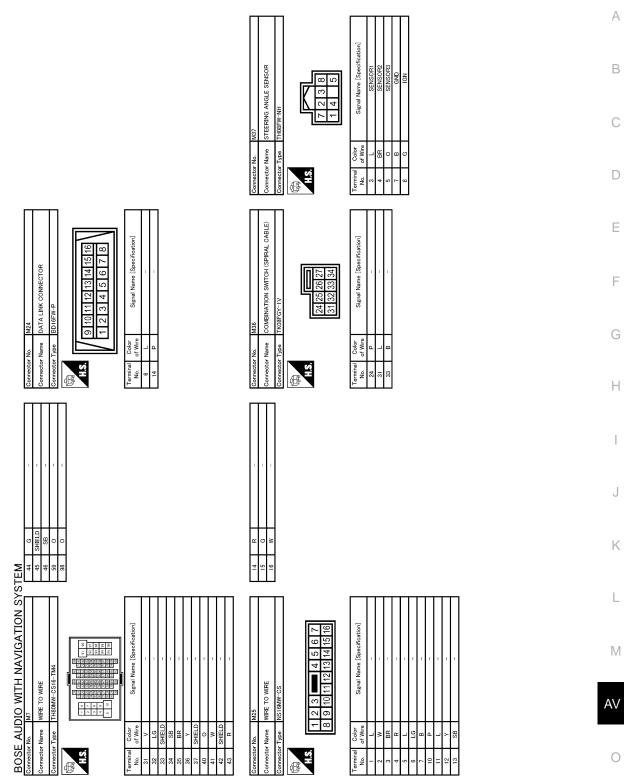
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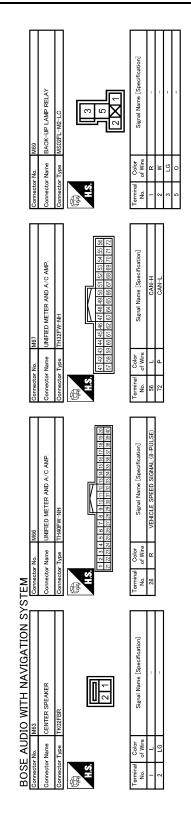
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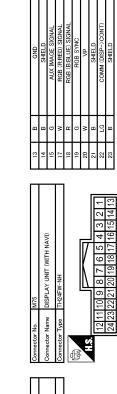
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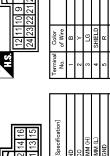


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MULTIFUNCTION SWITCH

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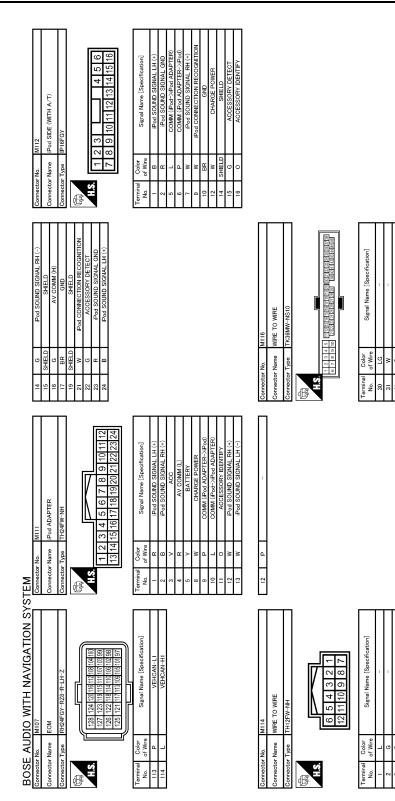
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38     38       50     4       4     4       4     4       5     5       5     5       5     5	Connector No. Connector Name Connector Type	$\frac{1}{2} \frac{1}{2} \frac{1}$	D
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#### < ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITH NAVIGATION]

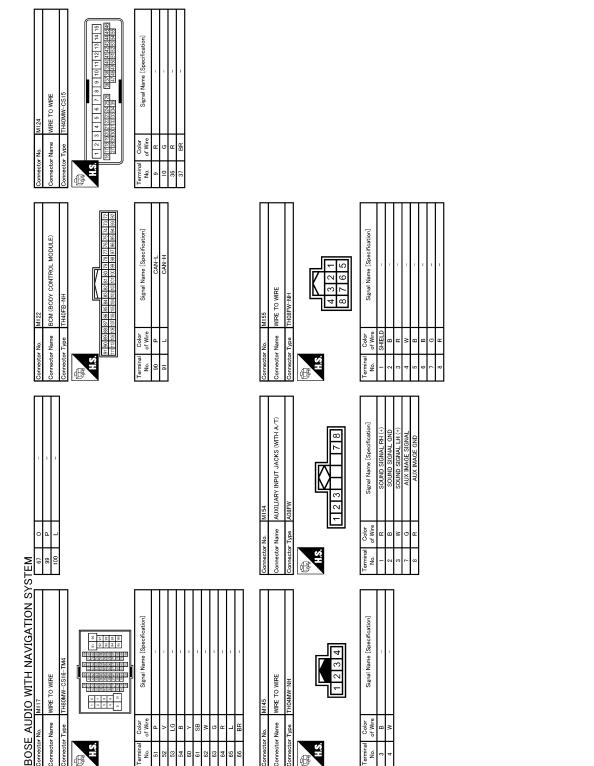
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### < ECU DIAGNOSIS INFORMATION >

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### < ECU DIAGNOSIS INFORMATION >

#### COMBINATION SWITCH (SPIRAL CABLE) Signal Name [Specification] Signal Name [Specification] AV CONTROL UNIT (WITH NAVI) ATELLITE ANT 19 Color of Wire Color of Wire Connector Name Connector Name H.S. Terminal No. Terminal No. HS. 108 ſ 仔 Signal Name [Specification] Signal Name [Specification] AV CONTROL UNIT (WITH NAVI) 14 4 iPod SIDE (WITH M/T) ω Color of Wire Color of Wire Connector Name onnector Name 0 H.S. H.S. Terminal No. erminal No. 105 106 ſ C ပိ AUXILIARY INPUT JACKS (WITH M/T) Signal Name [Specification] 2 Color of Wire Connector Name ۳ Connector 7 12 H.S. erminal No. BOSE AUDIO WITH NAVIGATION SYSTEM ⑮ ပိ Signal Name [Specification] Signal Name [Specification] 4 α 1 2 3 5 6 7 WIRE TO WIRE WIRE TO WIRE THORMW M361 GR GR BR W BR SHIELD SHIELD G Color of Wire SHIELD Color of Wire Connector Name Connector Name - ≥ eg H.S. H.S.

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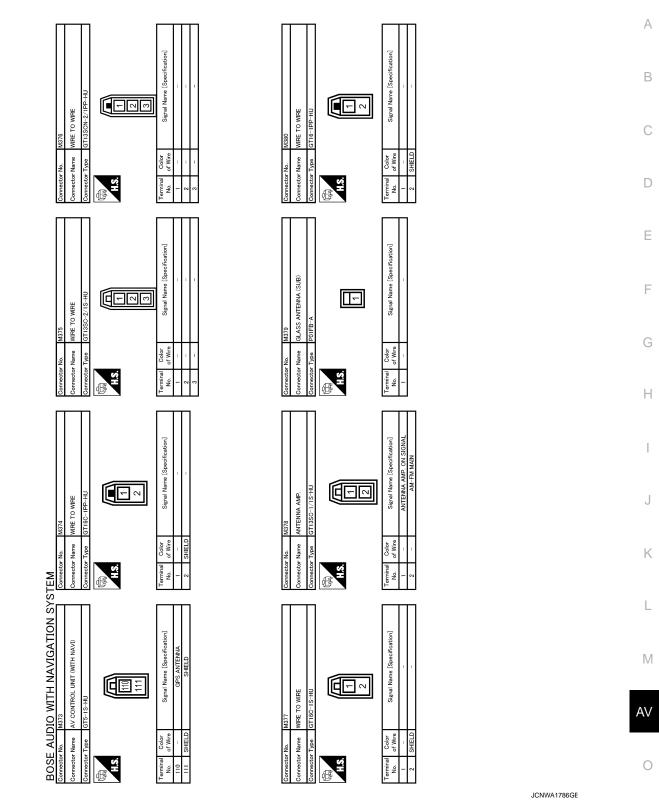
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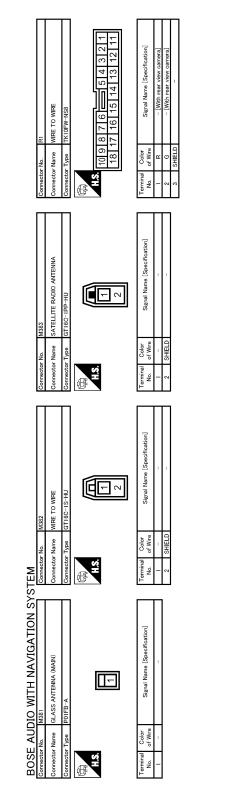
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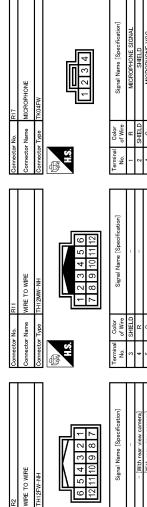
### < ECU DIAGNOSIS INFORMATION >

### [BOSE AUDIO WITH NAVIGATION]



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Color of Wire

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ector Name

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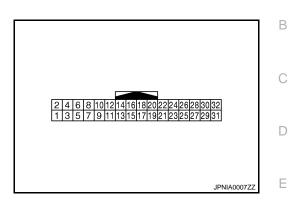
# < ECU DIAGNOSIS INFORMATION >

# CAMERA CONTROL UNIT

### **Reference Value**

INFOID:000000004238833

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### PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value
+	-	Signal name	Input/ Output			(Approx.)
5		Shield	_	_	_	—
6 (B)	Ground	Camera image signal	Input	Ignition switch ON	At rear view camera image is displayed	(V) 0.4 0 −0.4 • + 40µs SKIB2251J
7 (W)	Ground	GND	_	Ignition switch ON	_	0 V
8	Ground	Camera ON signal	Output	Ignition switch ON	R position	6 V
(R)					Other than R position	0 V
11	—	Shield	_	_	_	—
12 (W)	Ground	Camera image signal	Output	Ignition switch ON	At rear view camera image is displayed	(V) 0.4 0 -0.4 ••••••••••••••••••••••••••••••••••••
13* (B)	Ground	Control signal	_	Ignition switch ON	_	0 V
14 (P)	Ground	Camera-connection recog- nition signal	Output	Ignition switch ON	Connected to camera con- trol unit connector	0 V
					Not connected to camera control unit connector	5 V
17 (BR)	_	AV communication signal (L)	Input/ Output	_	_	

# **CAMERA CONTROL UNIT**

### < ECU DIAGNOSIS INFORMATION >

Terminal (Wire color)		Description		Orgalities		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
18 (Y)	_	AV communication signal (H)	Input/ Output	_	—	_
19 (R)	_	AV communication signal (L)	Input/ Output	_	_	_
20 (G)	_	AV communication signal (H)	Input/ Output	_	—	_
22 (GR)	Ground	Reverse signal	Input	Ignition switch	R position Other than R position	12 V 0 V
	Ground	Sensor signal 1	Input	ON Ignition switch ON	Turn the steering to the right	(V) 4 2 0 4 2 0 4 2 0 5 KIB3827E A: Sensor signal 1 B: Sensor signal 2
(W)					Turn the steering to the left	(V) 4 2 0 4 0 4 0 5 KIB3828E A: Sensor signal 1 B: Sensor signal 2
24	Ground	Sensor signal 2	Input	Ignition switch ON	Turn the steering to the right	(V) 4 0 4 0 4 0 4 0 5 KIB3827E A: Sensor signal 1 B: Sensor signal 2
(R)					Turn the steering to the left	(V) 4 2 0 4 2 0 4 5 KIB3822E A: Sensor signal 1 B: Sensor signal 2

## < ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITH NAVIGATION]

Terminal (Wire color)		Description		- Condition		Reference value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	
25 (O)	Ground	Sensor signal 3	Input	lgnition switch ON	Turn the steering around the neutral position	(V) 4 2 0 4 2 0 4 2 0 4 2 0 4 2 0 5 KIB3629E A: Sensor signal 3 B: Sensor signal 1	
26 (V)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	NOTE: Maximum voltage may be 12 V due to specifications (connected units).	
30 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
31 (B)	Ground	GND	_	Ignition switch ON	_	0 V	
32 (L)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	

\*: With 4WAS

Wiring Diagram - BOSE AUDIO WITH NAVIGATION SYSTEM -

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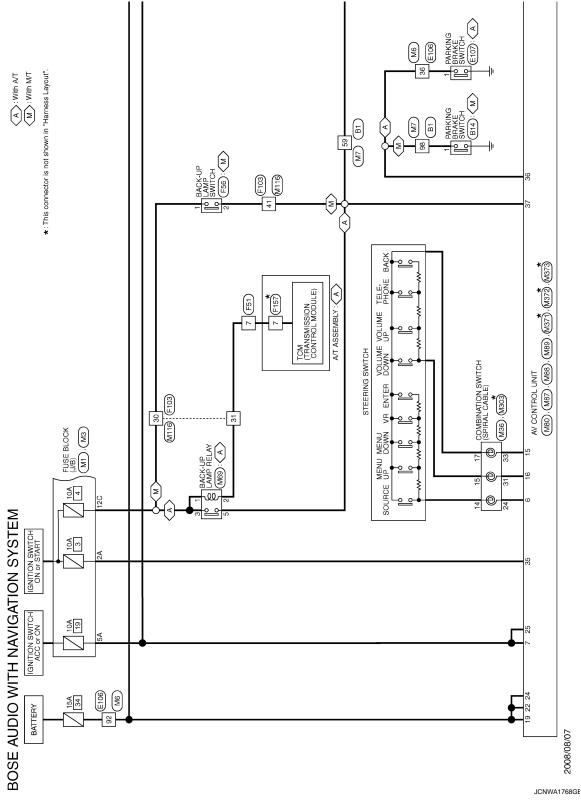
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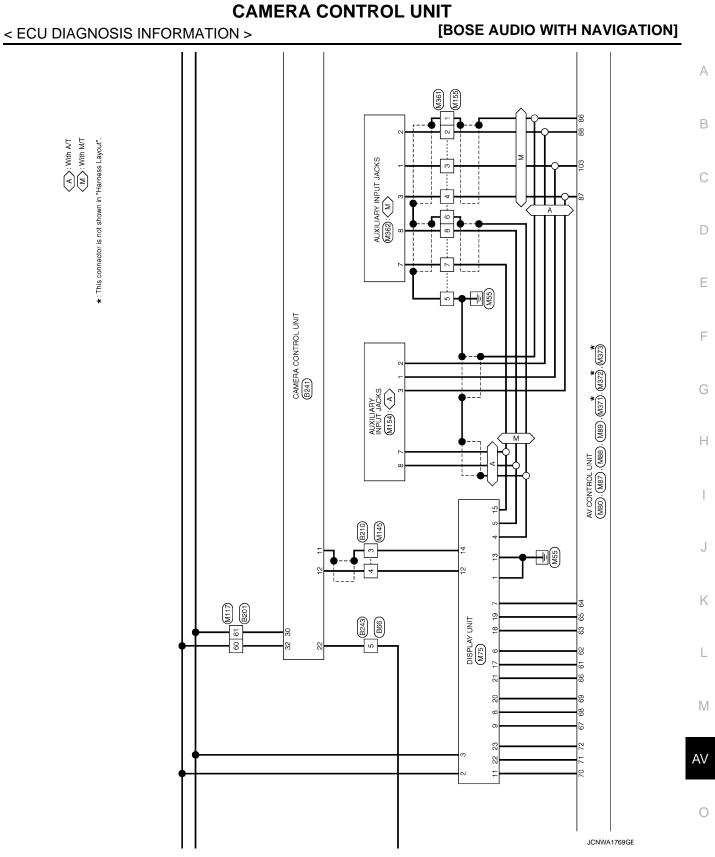
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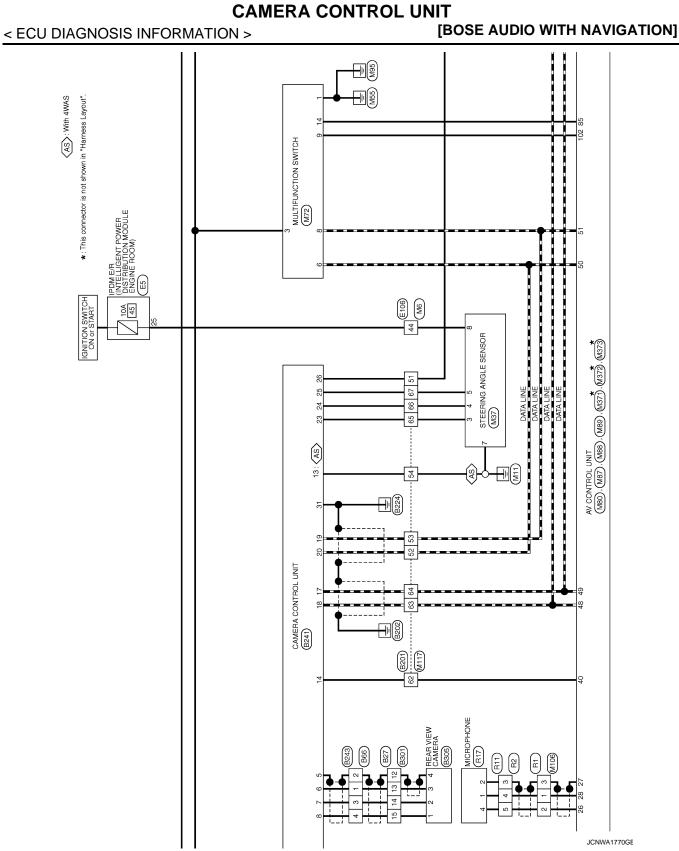
#### < ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

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



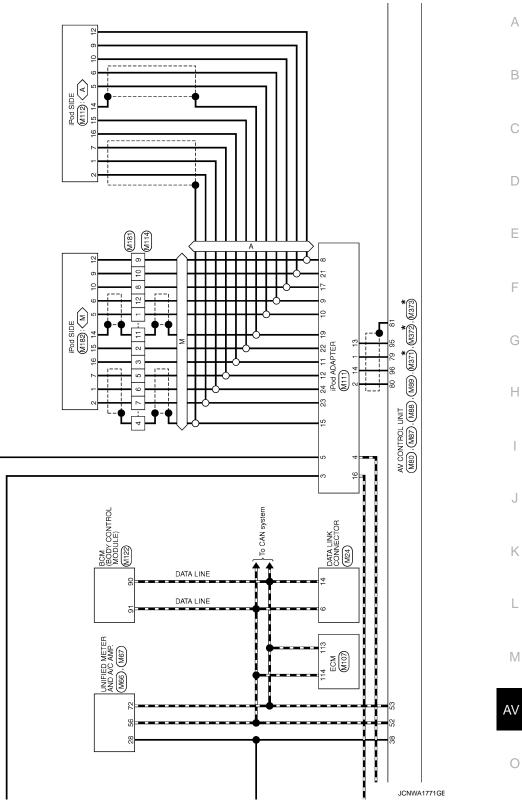


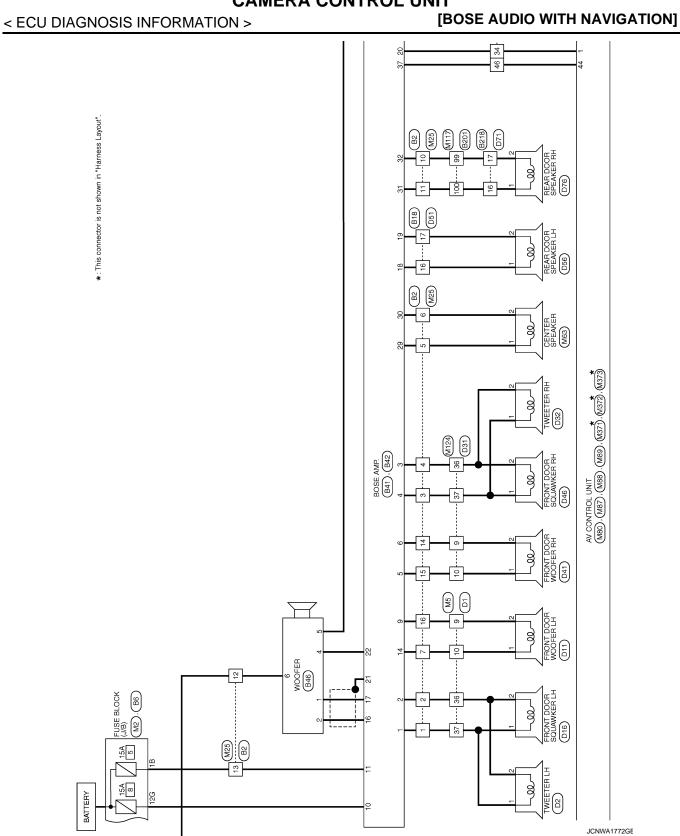


# < ECU DIAGNOSIS INFORMATION >

# [BOSE AUDIO WITH NAVIGATION]

 $\underbrace{\{A\}}_{With} \text{ M/T}$  : With M/T  $\underbrace{\{A\}}_{With} \text{ With M/T}$  \* : This connector is not shown in "Harness Layout".



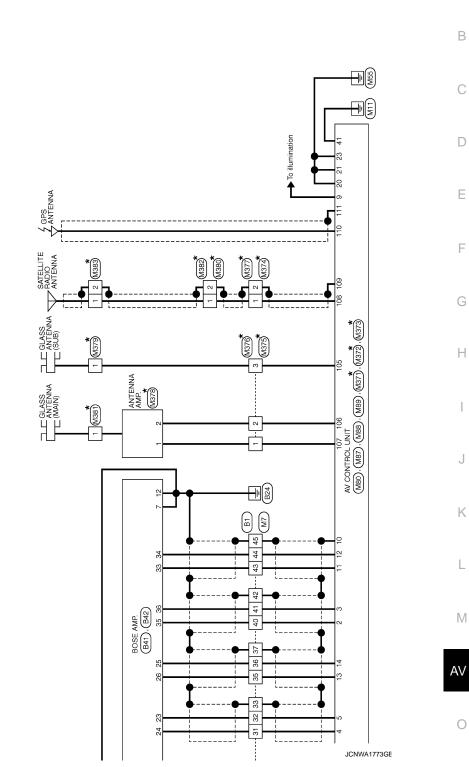


# Revision: 2009 October

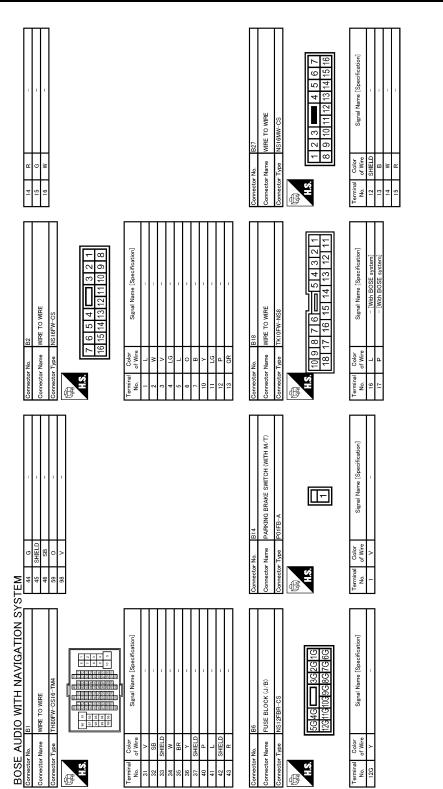
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# [BOSE AUDIO WITH NAVIGATION]

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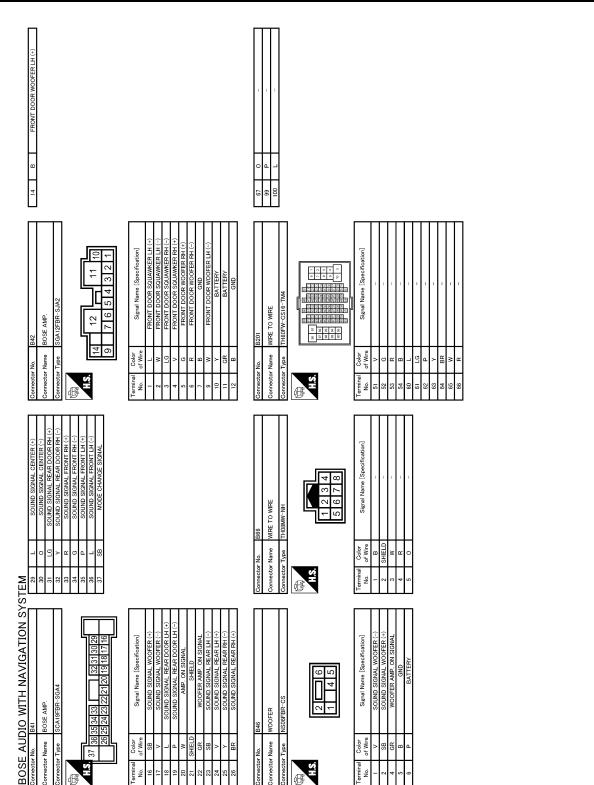


\*: This connector is not shown in "Harness Layout".



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# < ECU DIAGNOSIS INFORMATION >

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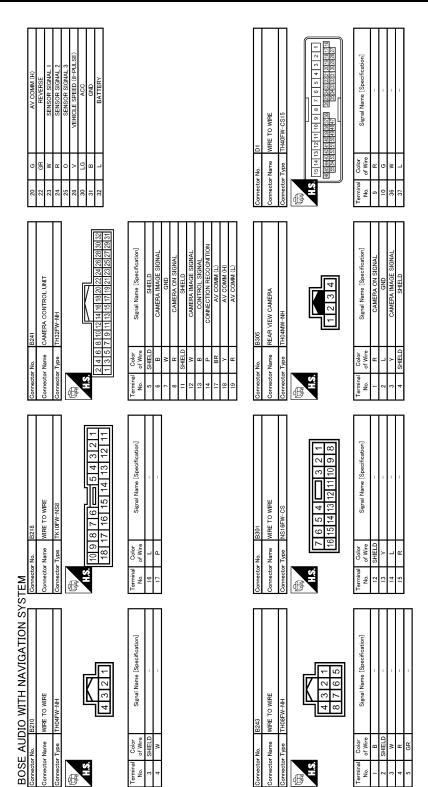
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Revision: 2009 October



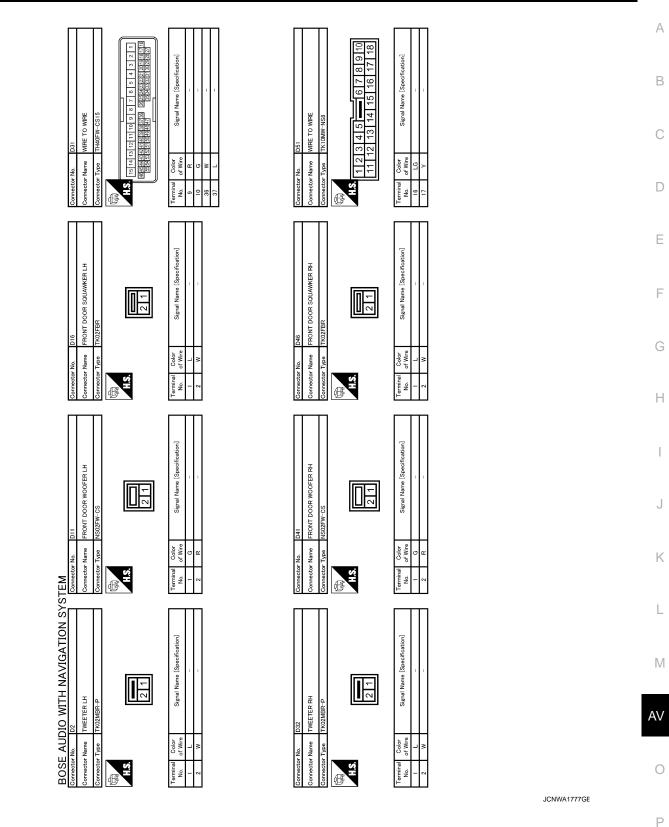
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# CAMERA CONTROL UNIT

# < ECU DIAGNOSIS INFORMATION >

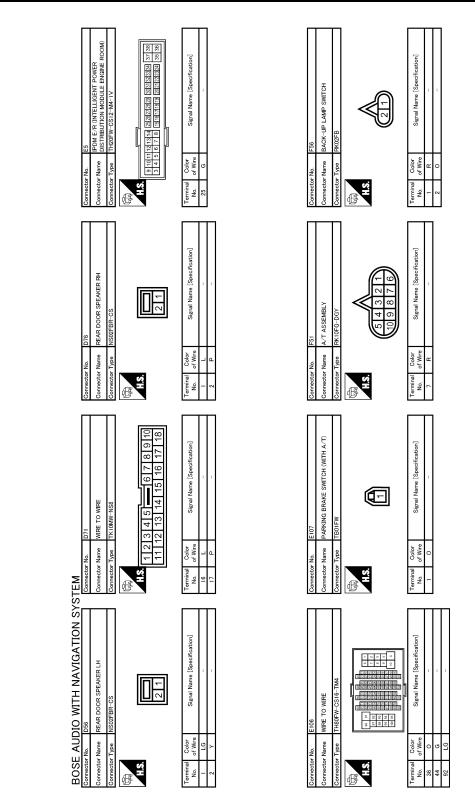
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# [BOSE AUDIO WITH NAVIGATION]



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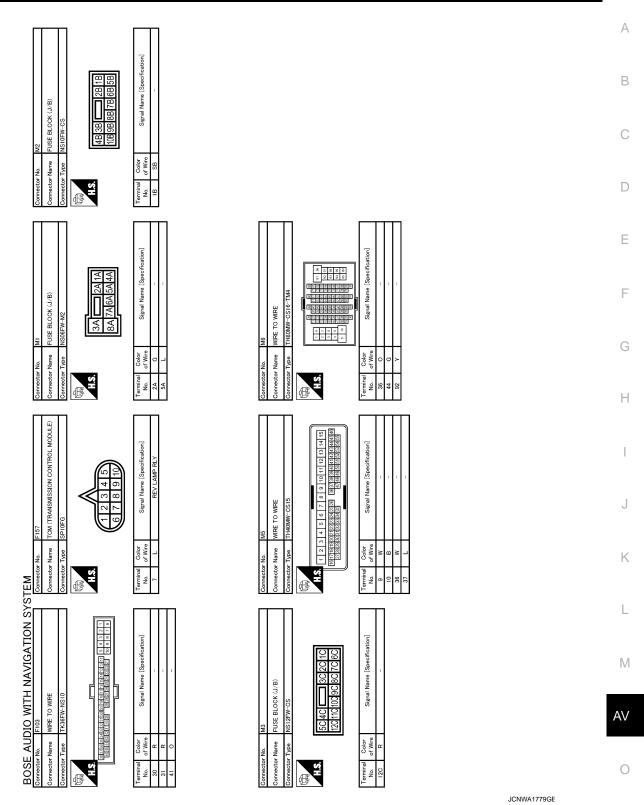
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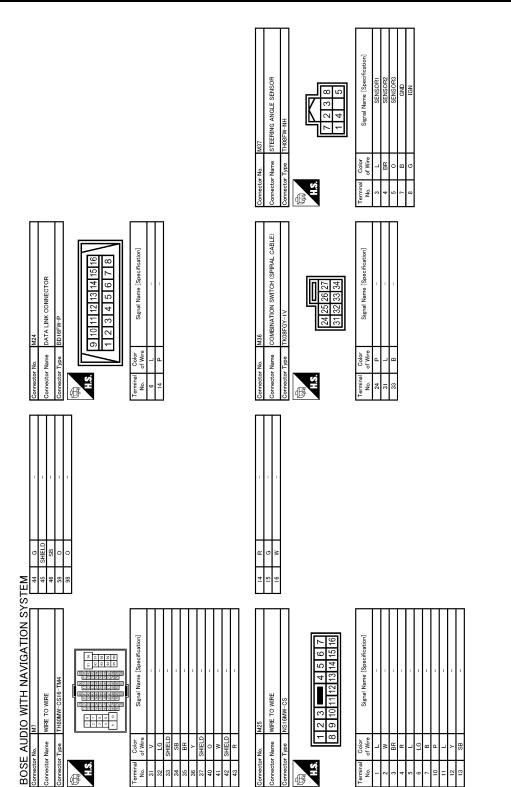
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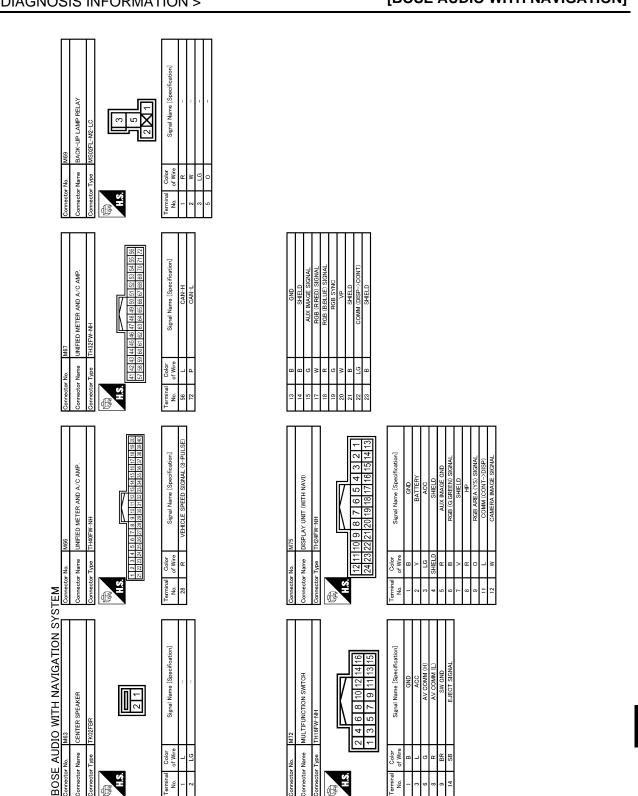
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# < ECU DIAGNOSIS INFORMATION >



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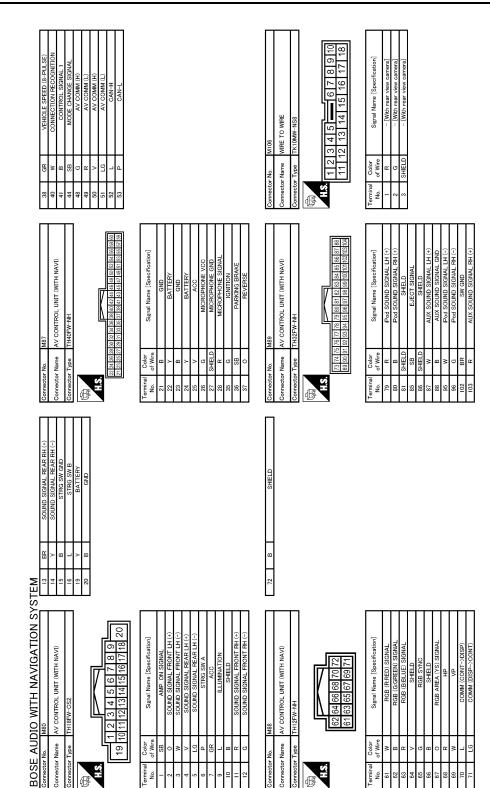
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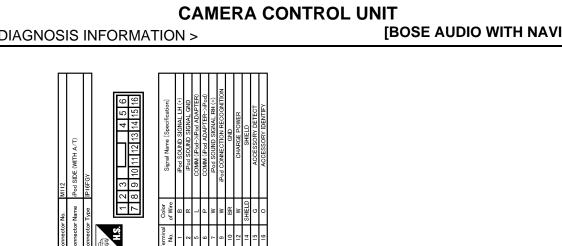
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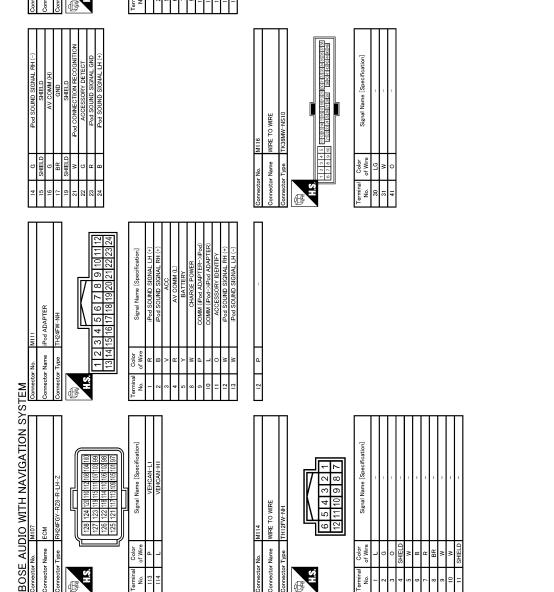
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# < ECU DIAGNOSIS INFORMATION >

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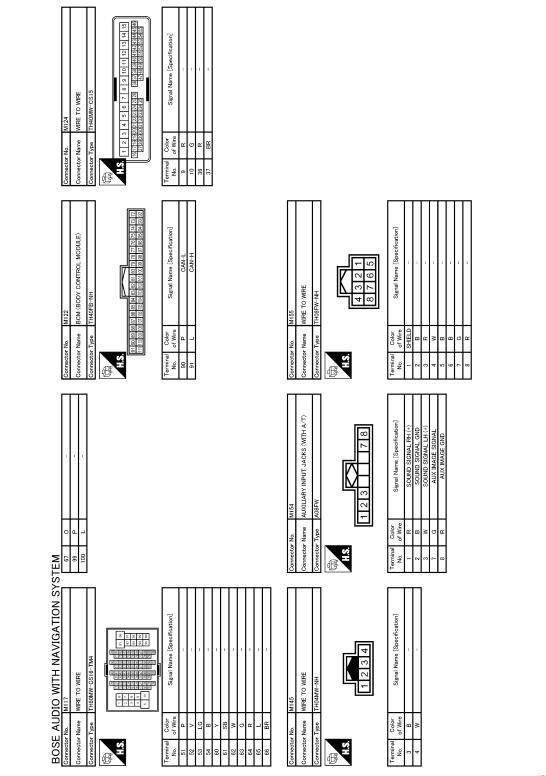
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# < ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

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U DIAGNUSIS INFORMATION >		
M00 COMBINATION SWITCH (SPIRAL CABLE) TK08FCY 011911817116151413 Signal Name (Specification)	AV CONTROL UNIT (WITH NAVI) FARTA JACK 100 Signal Name [Specification] SIRELITE ANTENNA SHELD	A B C
Connector No. M303 Connector Name COMBINATI Connector Type Tr03EGY H3 2011918 2011918 50 15 L Str05 17 BR Str05 17		D
2 Is Ib E (WITH M.T) FIGY 3 3 3 3 3 3 3 3 5 10 11 11 12 13 14 15 6 6 10 11 11 12 13 14 15 6 6 10 11 11 12 13 14 15 15 16 16 16 16 16 16 16 16 16 16	PROL UNIT (WITH NAV) 2/15-HU 100 100 100 100 100 100 100 100 100 10	Е
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EM 12 P 1	Oometor Name     JUXILIARY INPUT JACKS (WITH M.T)       Connector Type     AUBFW       Image: Start S	Γ
I NAVIGATION SYS	Name [Specification]	L
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[BOSE AUDIO WITH NAVIGATION]

# < ECU DIAGNOSIS INFORMATION >

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Signal Name [Specification]

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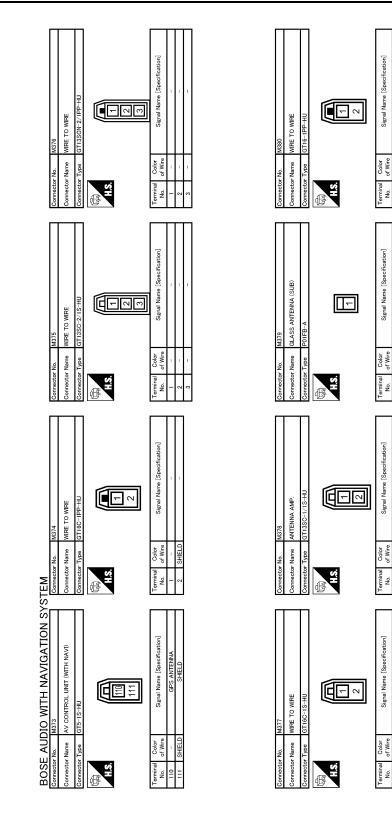
Color of Wire

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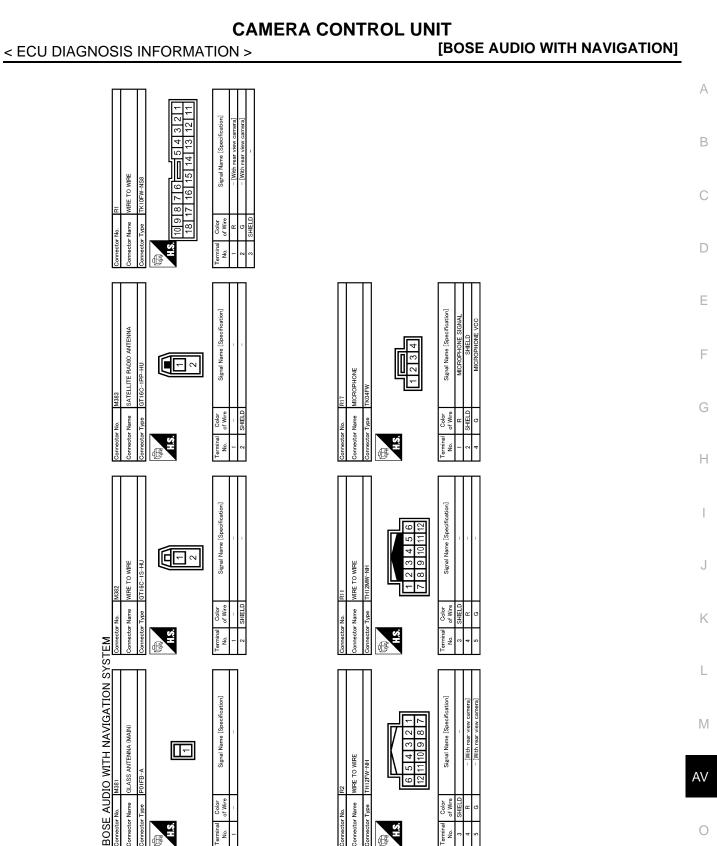
Signal Name [Specification]

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# SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS

# Symptom Table

INFOID:000000004238837

# **RELATED TO NAVIGATION**

#### Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Possible malfunction location / Action to take
	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is displayed on system selection screen when the CON-SULT-III is started.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> <li>Perform CONSULT-III self-diagnosis. Refer to <u>AV-383.</u> <u>"CONSULT - III Function (MULTI AV)"</u>.</li> </ul>
Multifunction switch and preset switch operation does not work.	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is not displayed on system selection screen when the CON- SULT-III is initialized.</li> </ul>	AV control unit power supply and ground circuit mal- function. Refer to <u>AV-413</u> , " <u>AV CONTROL UNIT : Diag- nosis Procedure</u> ".
	Only specified switch cannot be oper- ated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-di- agnosis function. Refer to <u>AV-369</u> , " <u>Diagnosis Descrip-</u> <u>tion</u> ".
	There is malfunction in the CONSULT- III self-diagnosis result.	Perform detected DTC self-diagnosis. Refer to <u>AV-383, "CONSULT - III Function (MULTI AV)"</u> .
Fuel economy display, vehicle setting operation is abnormal.	There is no malfunction in the self-di- agnosis results.	Ignition signal circuit malfunction. Refer to <u>AV-413</u> , "AV CONTROL UNIT : Diagnosis Pro- cedure".
Guide sound is not heard.	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-575, "Exploded</u> <u>View"</u> .

# RELATED TO HANDS-FREE PHONE

- Check that the cellular phone is corresponding type (Bluetooth<sup>®</sup> correspond) when the hands-free related malfunction vehicle is in service before performing a diagnosis.
- There is a case that malfunction occurs due to the version change of the phone type, etc. even though it is a corresponding type. Therefore, confirm it by changing the cellular phone to another corresponding type phone, and check that it operates normally. It is necessary to distinguish whether the cause is the vehicle or cellular phone.

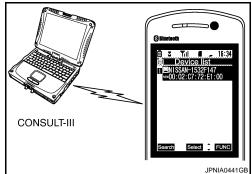
# Simple Check for Bluetooth® Communication

If cellular phone and AV control unit cannot be connected with Bluetooth<sup>®</sup> communication, following procedure allows the technician to judge which device has malfunction.

- 1. Turn on a cellular phone, not connecting Bluetooth<sup>®</sup> communication.
- 2. Start CONSULT-III, then start Windows<sup>®</sup>.
- 3. Set CONSULT-III near a cellular phone.
- When operated Bluetooth<sup>®</sup> registration by cellular phone, check if CONSULT-III<sup>\*</sup> would be displayed on the device name. (If other Bluetooth<sup>®</sup> device is located near cellular phone, a name of the device would be displayed also.)
   NOTE:

\*:Displayed device name is "NISSAN-\*\*\*\*\*\*\*.".

- If no device name is displayed, cellular phone is malfunctioning. Repair the cellular phone first, then perform diagnosis.
- If CONSULT-III is displayed on device name, cellular phone is normal. Perform diagnosis as per the following table.





2009 G37 Sedan

## < SYMPTOM DIAGNOSIS >

# [BOSE AUDIO WITH NAVIGATION]

### Trouble Diagnosis Chart by Symptom

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.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-575, "Exploded</u> <u>View"</u> .
Hands-free phone cannot be established.	<ul> <li>Hands-free phone operation can be made, but the communication cannot be established.</li> <li>Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.</li> </ul>	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-575, "Exploded</u> <u>View"</u> .
The party's voice cannot be	Check the "microphone speaker" in In- spection & Adjustment Mode if sound is heard.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-575, "Exploded</u> <u>View"</u> .
heard by hands-free phone.	Check the "microphone speaker" in In- spection & Adjustment Mode if sound is not heard.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-575, "Exploded</u> <u>View"</u> .
Originating sound is not heard by the other party with hands-	Sound operation function is normal.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-575</u> , "Exploded <u>View"</u> .
free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to <u>AV-427, "Diagnosis Procedure"</u> .

# RELATED TO CAMERA

# Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Probable malfunction location
Camera image is not dis- played (displayed in black and nothing can be displayed)	AUX image is not displayed.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-422</u>, "<u>Diagnosis Procedure</u>".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-423</u>, "<u>Diagnosis Procedure</u>".</li> </ul>
Camera image is not shown. (Vehicle width and possible route line is displayed.)	_	<ul> <li>Camera image signal circuit between camera control unit and rear view camera. Refer to <u>AV-429</u>. "Diagnosis Procedure".</li> <li>Rear view camera ON signal circuit. Refer to <u>AV-430</u>. "Diagnosis Procedure".</li> </ul>
	There is malfunction in the CONSULT-III self-diagnosis result.	Perform detected DTC self-diagnosis. Refer to <u>AV-383, "CONSULT - III Function (MULTI AV)"</u> .
Camera image is not dis-	AUX image is normal.	Camera image signal circuit malfunction between camera control unit and display unit. Refer to <u>AV-431, "Diagnosis Procedure"</u> .
played. (Only warning mes- sage under area is displayed.)	AUX image is not displayed.	RGB area (YS) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-421, "Diagnosis Procedure"</u> .
	Select "Camera Cont." of confirmation/ Adjustment mode, Reverse Sensor is not turned ON at "Connection Confirmation".	Reverse signal circuit malfunction (camera control unit).
CAMERA image is rolling.	AUX image is also rolling.	Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-423. "Diagnosis Procedure"</u> .

#### < SYMPTOM DIAGNOSIS >

### [BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items	Probable malfunction location
Camera image does not switch.	Malfunction of self-diagnosis result is in- dicated.	Camera-connection recognition signal circuit malfunc- tion between AV control unit and camera control unit. Refer to <u>AV-410. "Diagnosis Procedure"</u> .
Switch.	Malfunction of self-diagnosis result is not indicated.	Reverse signal circuit malfunction (AV control unit).
Possible route line is indicated	"Steer. Angle Sensor" turns ON at "Con- firmation/Adjustment" of on board diag- nosis item "Camera Cont." turns ON.	Sensor signal 3 circuit malfunction. Refer to <u>AV-434, "Diagnosis Procedure"</u> .
abnormally when camera im- age is displayed.	"Steer. Angle Sensor" turns ON at "Con- firmation/Adjustment" of on board diag- nosis item "Camera Cont." does not turns ON.	<ul> <li>Sensor signal 1circuit. Refer to <u>AV-432, "Diagnosis Procedure"</u>.</li> <li>Sensor signal 2 circuit. Refer to <u>AV-432, "Diagnosis Procedure"</u>.</li> </ul>

# RELATED TO RGB IMAGE

# Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	<ul> <li>All RGB images are not shown.</li> <li>"MULTI AV" is displayed on system selection screen when the CON-SULT-III is started.</li> </ul>	Perform CONSULT-III self-diagnosis. Refer to <u>AV-383, "CONSULT - III Function (MULTI AV)"</u> .
KGD image is not shown.	<ul> <li>All RGB images are not shown.</li> <li>"MULTI AV" is not displayed on system selection screen when the CON-SULT-III is started.</li> </ul>	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-413, "AV CONTROL UNIT : Diagnosis Pro-</u> <u>cedure"</u> .
	Light blue (Cyan) tint.	RGB signal (R: red) circuit malfunction between AV con- trol unit and display unit. Refer to <u>AV-417, "Diagnosis Procedure"</u> .
Color of RGB image is not proper.	Purple (Magenta) tint.	RGB signal (G: green) circuit malfunction between AV control unit and display unit. Refer to <u>AV-418, "Diagnosis Procedure"</u> .
	Screen looks yellowish.	RGB signal (B: blue) circuit malfunction between AV control unit and display unit. Refer to <u>AV-419, "Diagnosis Procedure"</u> .
RGB screen is rolling.	_	RGB synchronizing signal circuit malfunction between AV control unit and display unit. Refer to <u>AV-420, "Diagnosis Procedure"</u> .

# RELATED TO VOICE CONTROL

#### Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Probable malfunction location
The voice cannot be controlled	Voice sounds at "Voice Microphone Test" of Confirmation/Adjustment mode.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-575, "Exploded</u> <u>View"</u> .
screen is displayed.	Voice does not sound at "Voice Micro- phone Test" of Confirmation/Adjustment mode.	Microphone circuit malfunction. Refer to <u>AV-427, "Diagnosis Procedure"</u> .
	Steering switch's "SOURCE", "MENU UP", "MENU DOWN", "ENTER" switches work, but " $\sqrt{2}$ "switch does not work.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-588, "Exploded</u> <u>View"</u> .
The voice cannot be controlled (Voice control screen is not displayed).	Steering switch's "SOURCE", "MENU UP", "MENU DOWN", "v≰", "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to <u>AV-436, "Diagnosis Procedure"</u> .
	All steering switches do not work.	Steering switch signal GND circuit malfunction. Refer to <u>AV-440, "Diagnosis Procedure"</u> .

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

# **RELATED TO AUDIO**

#### Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Possible malfunction location / Action to take
The CD cannot be removed.	_	CD eject signal circuit malfunction between AV control unit and preset switch. Refer to <u>AV-426, "Diagnosis Procedure"</u> .
	No sound from all speakers.	<ul> <li>Amp. ON signal circuit.</li> <li>BOSE amp. power supply and ground circuit. Refer to <u>AV-415</u>, "<u>BOSE AMP.</u>: <u>Diagnosis Proce-dure</u>".</li> </ul>
Audio sound is not heard.	Sound is not heard from rear woofer.	<ul> <li>Sound signal woofer circuit between BOSE amp. and rear woofer.</li> <li>Woofer amp. ON signal circuit between BOSE amp. and woofer amp.</li> </ul>
	Sound is not heard from center speaker.	Sound signal center speaker circuit.
	Sound is heard only from specific places (RH front, RH rear, LH front and LH rear).	Sound signal circuit of suspect system.
It does not change to "Driver's Audio Stage" mode.	_	Mode change signal circuit. Refer to <u>AV-425. "Diagnosis Procedure"</u> .
	There is malfunction in the CONSULT- III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-383, "CONSULT - III Function (MULTI AV)"</u> .
Satellite radio is not received.	There is no malfunction in the CON- SULT-III self-diagnosis result.	<ul> <li>Perform the following inspection procedure.</li> <li>1. Check satellite radio antenna mounting nut for looseness.</li> <li>NOTE: Tightening torque: 6.5 N·m (0.66 kg-m, 58 in-lb)</li> <li>2. Visually check for satellite radio antenna feeder.</li> <li>3. Replace the satellite radio antenna. Refer to <u>AV-585</u>, "Exploded View".</li> <li>4. Replace the AV control unit. Refer to <u>AV-575</u>, "Exploded View".</li> </ul>
AM/FM radio is not received.	Other audio sounds are normal.	<ul><li>Antenna amp. ON signal circuit.</li><li>Antenna feeder.</li></ul>

# RELATED TO iPod<sup>®</sup>

Trouble Diagnosis Chart by Symptom

Connect another iPod<sup>®</sup> and check if the symptom is reproduced or not. If the symptom is reproduced, diagnose the vehicle. If no malfunction is detected, replace the iPod harness. NOTE:

It is unable to check that between iPod<sup>®</sup> and iPod harness.

Symptoms	Check items	Possible malfunction location / Action to take
The sound of iPod <sup>®</sup> is not	Other audio sounds are normal.	• iPod sound signal circuit between AV control unit and iPod adapter.
heard.	Other audio sounds are normal.	<ul> <li>iPod sound signal circuit between iPod<sup>®</sup> and iPod adapter.</li> </ul>
It does not change to iPod mode.	There is malfunction in the CONSULT- III self-diagnosis.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-383, "CONSULT - III Function (MULTI AV)"</u> .
"iPod is not connected" is dis- played when it comes to iPod mode.	Connected to iPod <sup>®</sup> .	iPod connection recognition signal circuit between iP- od <sup>®</sup> and iPod adapter.
iPod <sup>®</sup> cannot charge the bat- tery.	_	iPod battery charge circuit between iPod <sup>®</sup> and iPod adapter.

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#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items	Possible malfunction location / Action to take
The title of music file in the iP- $od^{(i)}$ is not indicated.		
Accessing the iPod <sup>®</sup> is un- available from the vehicle.		Communication circuit between iPod <sup>®</sup> and iPod adapter.

# RELATED TO STEERING SWITCH

Trouble Diagnosis Chart by Symptom

Symptoms	Probable malfunction location
None of the steering switch operations work.	Steering switch signal GND circuit malfunction. Refer to <u>AV-440</u> , " <u>Diagnosis Procedure</u> ".
Only specified switch (1) cannot be operated.	Steering switch malfunction. Refer to <u>AV-588, "Exploded View"</u> .
Steering switch's "SOURCE", "MENU UP", "MENU DOWN", "vé", "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to <u>AV-436</u> , " <u>Diagnosis Procedure</u> ".
Steering switch's "", "VOL UP", "VOL DOWN", "	Steering switch signal B circuit malfunction. Refer to <u>AV-438</u> , " <u>Diagnosis Procedure</u> ".

### RELATED TO AUXILIARY INPUT

Trouble Diagnosis Chart by Symptom

### 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 (auxiliary input jacks to AV control unit).
Image is not displayed when AUX mode is selected.	Camera image is displayed.	AUX image signal circuit malfunction. Refer to <u>AV-424, "Diagnosis Procedure"</u> .

# < SYMPTOM DIAGNOSIS >

# NORMAL OPERATING CONDITION

# Description

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[BOSE AUDIO WITH NAVIGATION]

#### 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.
No image is displayed.	The systems in the video mode.	Press < DISC-AUX> to change the mode.
	The display is turned off.	Press <day night=""> to turn on the display</day>
	The volume is not set correctly, or it is turned off.	Adjust the volume of voice guidance.
No voice guidance is available. Or The volume is too high or too low.	Voice guidance is not provided for certain streets (roads displayed in gray).	This is not a malfunction.
No map is displayed on the screen.	A screen other than map screen is displayed.	Press <b><map></map></b> .
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 selected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the navigation system.

NORMAL OPERATING CONDITION

### NOTE:

Locations stored in the Address Book and other memory functions may be lost if the vehicle's battery is disconnected or becomes discharged. If this occurs, service the vehicle's battery as necessary and re-enter the information in the Address Book.

# **RELATED TO VOICE RECOGNITION**

#### Related to Basic Operation

Symptom	Possible cause	Possible solution
	The interior of the vehicle is too noisy.	Close the windows or have other occupants quiet.
	The volume of your voice is too low.	Speak louder.
	The volume if your voice is too loud.	Speak softer.
	Your pronunciation is unclear.	Speak clearly.
The system does not recognize your com- mand. or The system recognizes your command incor- rectly	You are speaking before the voice recognition is ready	Press and release " <pre></pre>
	8 seconds or more have passed after you pressed and released " $\sqrt{2}$ " switch on the steering switch.	Make sure to speak a command within 8 seconds after you press and release " $\sqrt{2}$ " switch on the steering switch.
	Only a limited range of voice commands is usable for each screen.	Use a correct voice command appropriate for the current screen.
	The fan of the air conditioner is too loud.	If the air conditioner is set to "Auto", the fan speed is automatically lowered and voice com- mands can be recognized more easily. Lower the fan speed as necessary or set the air conditioner to "Auto".

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.

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#### < SYMPTOM DIAGNOSIS >

#### [BOSE AUDIO WITH NAVIGATION]

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

Symptom/ error message	Solution
	1. Ensure that the command format is valid.
Displays "COMMAND NOT REC- OGNIZED" or the system fails to interpret the command correctly.	2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level.
	<ul> <li>3. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on.</li> <li>NOTE:</li> <li>If it is too noisy to use the phone, it is likely that voice commands will not be recognized.</li> </ul>
	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 con- firmed 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.
	<ul> <li>4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on).</li> <li>NOTE:</li> <li>If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.</li> </ul>
	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.

#### < SYMPTOM DIAGNOSIS >

Symptom	Cause and Counter measure	
	Check if the CD/CF was inserted correctly.	
	Check if the CD/CF 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.	
Cannot play	If there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD, only the music CD files (CD-DA data) will be played.	
	Files with extensions other than ".MP3", ".WMA", ".mp3", or ".wma" cannot be played. In addi- tion, 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/CF is protected by copyright.	
Poor sound quality	Check if the CD/CF is scratched or dirty.	
It takes a relatively long time be- fore the music starts playing.	If there are many folder or file levels on the MP3/WMA CD/CF, or if it is a multisession disc, some time may be required before the music starts playing.	
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed.	
Skipping with high bit rate files	Skipping may occur with large quantities if data such as for high bit rate data.	
Move immediately to the next song when playing	When a non-MP3/WMA file has been given an extension of ".MP3", ".WMA", ".mp3", or ".wma", or when play is prohibited by copyright protection, the player will skip to the next song.	
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.	

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 VEHICLE ICON

Symptom	Possible cause	Possible solution
Names of roads differ between Plan View and Birdview <sup>™</sup> .	This is because the quantity of the displayed information 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 icen 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 vehicle icon is not displayed in 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 posi- tion 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 ve- hicle icon on the nearest road available.	Updated road information will be included in the next version of the map data.

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#### < SYMPTOM DIAGNOSIS >

# [BOSE AUDIO WITH NAVIGATION]

Symptom	Possible cause	Possible solution
The screen does not switch to the night screen even after turning on the headlights.	The daytime screen was set the last time the headlights were turned on.	Set the screen to the night screen mode us- ing <day night=""> when you turn on the head- lights.</day>
The map does not scroll even when the vehicle is moving.	The current location map screen is not displayed.	Press <b><map></map></b> .
The vehicle icon is not displayed.	The current location map screen is not displayed.	Press <b><map></map></b> .
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 approximate- ly 19 MPH for about 30 minutes) to automat- ically correct the vehicle icon position. 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	Possible cause	Possible solution
Waypoints are not included in the auto reroute calculation.	Waypoints that you have already passed are not included in the auto reroute calculation.	If you want to go to that waypoint again, you need to edit the route.
	Route calculation has not yet been performed.	Set the destination and perform route calculation.
Route information is not dis-	You are not driving on the suggested route.	Drive on the suggested route.
played.	Route guidance is set to off.	Turn on route guidance.
	Route information is not provided for certain types of roads (roads displayed in gray).	This is not a malfunction.
The auto reroute calculation (or detour calculation) sug- gests 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 calculations multiple times as neces- sary.
	Roads near the destination cannot be calculated.	Reset the destination to a main or or- dinary road, and recalculate the route.
	The starting point and destination are too close.	Set a more distant destination.
The suggested route is not displayed.	The starting point and destination are too far away.	Divide your trip by selecting one or two intermediate destinations, and perform route calculations multiple times.
	There are time restricted roads (by the day of the week, by time) near the current vehicle location or destination.	Set [Use Time Restricted Roads] to off.
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 indirect 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 ac- tual information.	This may be caused by insufficient or incorrect map data.	Updated information will be included in the next version of the data.	A
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.	В

# 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 available 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.
	You are in an area where traffic information is not available	Scroll to an area where traffic information is available
The traffic information is 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 fastest route 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.

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# < PRECAUTION > PRECAUTION PRECAUTIONS

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

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

#### WARNING:

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

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

#### WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

# Precaution for Trouble Diagnosis

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#### AV COMMUNICATION SYSTEM

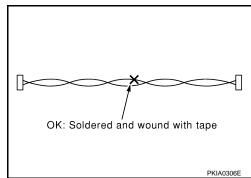
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

# Precaution for Harness Repair

#### INFOID:000000004238841

#### AV COMMUNICATION SYSTEM

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

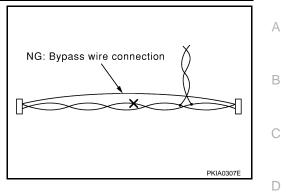


# PRECAUTIONS

#### < PRECAUTION >

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

#### [BOSE AUDIO WITH NAVIGATION]



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# < PREPARATION > PREPARATION

# PREPARATION

# **Commercial Service Tools**

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Tool name		Description
Power tool	PBIC0191E	Loosening bolts and nuts

# < REMOVAL AND INSTALLATION > REMOVAL AND INSTALLATION

# AV CONTROL UNIT

# **Exploded View**

# REMOVAL

Refer to IP-11, "Exploded View".

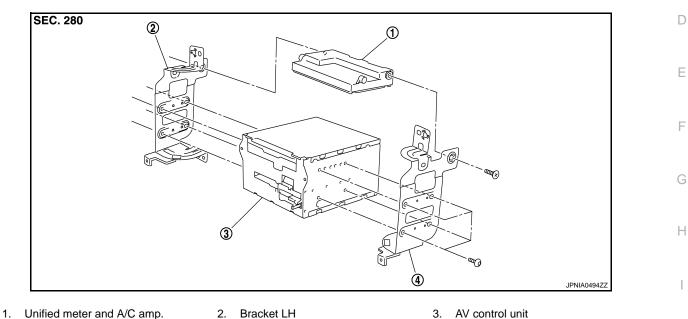
# DISASSEMBLY



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4. Bracket RH

# Removal and Installation

# REMOVAL

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

#### INSTALLATION

Installation is the reverse order of removal.

#### **CAUTION:**

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

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# < REMOVAL AND INSTALLATION >

# **DISPLAY UNIT**

**Exploded** View

Refer to IP-11, "Exploded View".

Removal and Installation

# REMOVAL

- 1. Remove cluster lid D. Refer to IP-11, "Exploded View".
- 2. Remove display unit with bracket as a single unit.

### **INSTALLATION**

Installation is the reverse order of removal.

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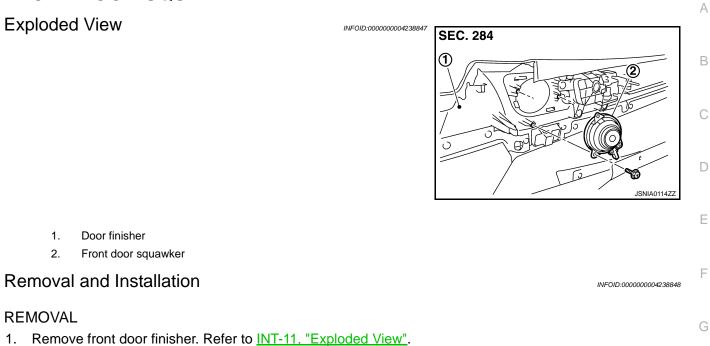
## FRONT DOOR SQUAWKER

#### < REMOVAL AND INSTALLATION >

# [BOSE AUDIO WITH NAVIGATION]

# FRONT DOOR SQUAWKER

# Exploded View



2. Remove front door squawker from door finisher.

## **INSTALLATION**

REMOVAL

1.

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2.

Installation is the reverse order of removal.

Door finisher

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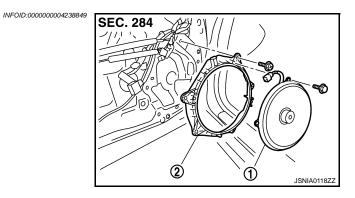
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# FRONT DOOR WOOFER

# Exploded View



- 1. Front door woofer
- 2. Woofer bracket

# Removal and Installation

#### REMOVAL

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

#### INSTALLATION

Installation is the reverse order of removal.

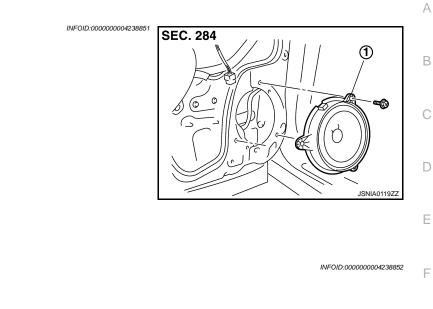
## **REAR DOOR SPEAKER**

# < REMOVAL AND INSTALLATION >

# [BOSE AUDIO WITH NAVIGATION]

# REAR DOOR SPEAKER

Exploded View



- 1. Remove rear door finisher. Refer to <u>INT-11. "Exploded View"</u>.
- 2. Remove rear door speaker from rear door.

#### INSTALLATION

1.

REMOVAL

Installation is the reverse order of removal.

Rear door speaker

**Removal and Installation** 

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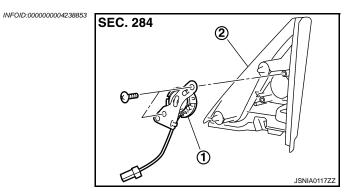
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# TWEETER

Exploded View



- 1. Tweeter
- 2. Corner cover inner

# Removal and Installation

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#### REMOVAL

- 1. Remove front door finisher, and then remove corner cover inner. Refer to INT-11, "Exploded View".
- 2. Remove tweeter from corner cover inner.

#### INSTALLATION

Installation is the reverse order of removal.

# **CENTER SPEAKER**

### [BOSE AUDIO WITH NAVIGATION]

# < REMOVAL AND INSTALLATION > **CENTER SPEAKER**

# Exploded View

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Exploded View	INFOID:000000004238855	SEC. 284	/	В
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1. Center speaker				E
Removal and Installation		1	NFOID:000000004238856	F
REMOVAL 1. Remove upper grille, and then remove center spea INSTALLATION	aker. Refer to <u>I</u>	P-11, "Exploded View".		G
Installation is the reverse order of removal.				Н

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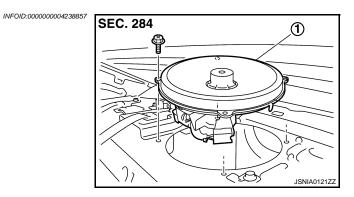
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# REAR WOOFER Exploded View



1. Rear woofer

#### Removal and Installation

REMOVAL

- 1. Remove rear parcel shelf finisher. Refer to INT-18, "Exploded View".
- 2. Remove rear woofer from rear parcel shelf.

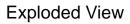
#### **INSTALLATION**

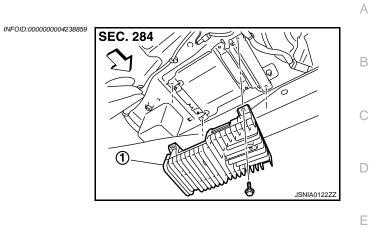
Installation is the reverse order of removal.

### [BOSE AUDIO WITH NAVIGATION]

# < REMOVAL AND INSTALLATION >

# BOSE AMP.





1.     BOSE amp.       <⊐.     Vehicle front	
Removal and Installation	INFOID:000000004238860
<ol> <li>REMOVAL</li> <li>Remove trunk front finisher. Refer to <u>INT-28. "Exploded View"</u>.</li> <li>Remove BOSE amp. from rear parcel shelf.</li> </ol>	
INSTALLATION Installation is the reverse order of removal.	

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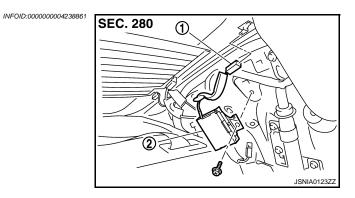
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# ANTENNA AMP.

Exploded View



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

# Removal and Installation

#### REMOVAL

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

#### INSTALLATION

Installation is the reverse order of removal.

### SATELLITE RADIO ANTENNA

#### < REMOVAL AND INSTALLATION >

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# SATELLITE RADIO ANTENNA



### **Removal and Installation**

#### REMOVAL

- Remove head lining assembly (rear) to secure work space between vehicle and headlining. Refer to INT-1. 22, "NORMAL ROOF : Exploded View" (normal roof models) or INT-25, "SUNROOF : Exploded View" (sunroof models).
- 2. Remove nut, and then remove satellite radio antenna from roof panel.

#### **INSTALLATION**

Installation is the reverse order of removal.

#### Satellite radio antenna mounting nut ● : 6.5 N·m (0.66 kg-m, 58 in-lb)

#### **CAUTION:**

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

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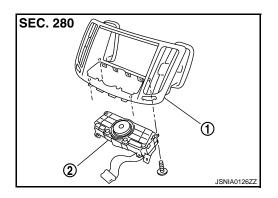
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# MULTIFUNCTION SWITCH

**Exploded View** 

REMOVAL Refer to <u>IP-11, "Exploded View"</u>. DISASSEMBLY



- 1. Center ventilator grille
- 2. Multifunction switch

## Removal and Installation

#### REMOVAL

- 1. Remove cluster lid D. Refer to IP-11, "Exploded View".
- 2. Remove multi function switch with center ventilator grille as a single unit.
- 3. Remove multi function switch from center ventilator.

#### INSTALLATION

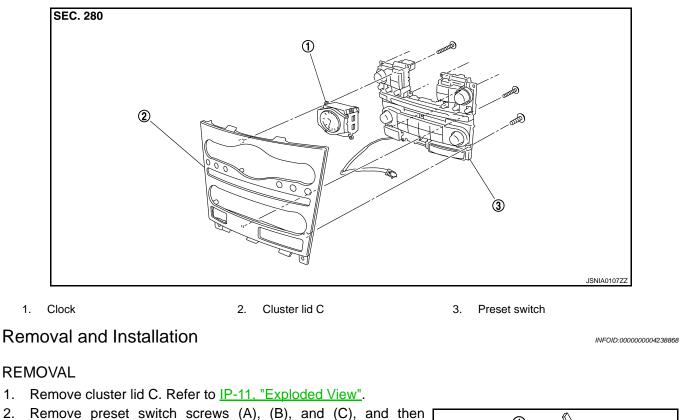
Installation is the reverse order of removal.

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### < REMOVAL AND INSTALLATION > PRESET SWITCH

# **Exploded View**

REMOVAL Refer to IP-11, "Exploded View".



- 2. remove preset switch (2) from cluster lid C.
  - 1. Clock

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**INSTALLATION** 

Installation is the reverse order of removal.

#### NOTE:

1.

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

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# STEERING SWITCH

Exploded View

Refer to ST-17, "Exploded View".

Removal and Installation

REMOVAL Refer to <u>ST-17, "Removal and Installation"</u>.

INSTALLATION Installation is the reverse order of removal. INFOID:000000004238869

#### [BOSE AUDIO WITH NAVIGATION]

### < REMOVAL AND INSTALLATION > **IPOD ADAPTER**

# Exploded View

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Exploded View	INFOID:000000004238871	SEC. 280		В
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			JPNIA0493ZZ	D
1. iPod adapter				Ε
Removal and Installation			INFOID:000000004238872	F
<ol> <li>REMOVAL</li> <li>Remove display assy. Refer to <u>AV-576. "Removal</u></li> <li>Remove display from display bracket.</li> <li>Remove iPod adapter from display bracket.</li> </ol>	and Installation	<u>"</u>		G
INSTALLATION				Н
Install in the reverse order of removal.				

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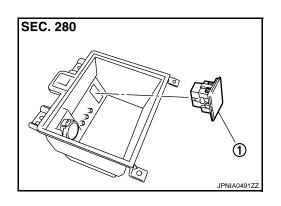
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# **IPOD CONNECTOR**

Exploded View

REMOVAL Refer to IP-23, "Exploded View". DISASSEMBLY



1. iPod connector

## **Removal and Installation**

INFOID:000000004238874

#### REMOVAL

- 1. Remove center console. (M/T models) Refer to IP-23, "Exploded View". Remove center console. (A/T models) Refer to IP-23. "Exploded View".
- 2. Press the pawl from the back of center console to remove iPod connector.

#### INSTALLATION

Install in the reverse order of removal.

# **AUXILIARY INPUT JACKS**

# < REMOVAL AND INSTALLATION >

# **AUXILIARY INPUT JACKS**

Auxiliary input jacks

**Removal and Installation** 

Exploded View

REMOVAL Refer to IP-23, "Exploded View". DISASSEMBLY

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# REMOVAL

1.

1.	Remove center console. (M/T models) Refer to <u>IP-23, "Exploded View"</u> . Remove center console cup. (A/T models) Refer to <u>IP-23, "Exploded View"</u> .	Н
2.	Remove auxiliary input jacks from center console. (M/T models) Remove auxiliary input jacks from center console cup. (A/T models)	
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# < REMOVAL AND INSTALLATION > MICROPHONE

Exploded View

REMOVAL Refer to INL-100, "Exploded View". DISASSEMBLY

SEC. 283

1. Microphone

Removal and Installation

INFOID:000000004238880

### REMOVAL

- 1. Remove map lamp. Refer to INL-100, "Exploded View".
- 2. Remove microphone from map lamp.

### INSTALLATION

Installation is the reverse order of removal.

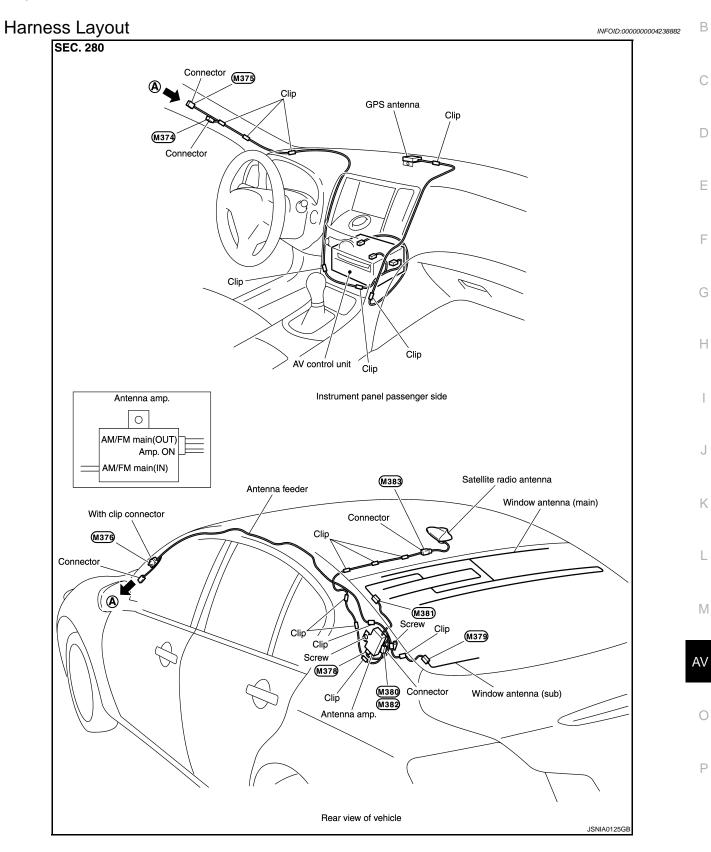
# **GPS ANTENNA**

**Exploded View** 

[BOSE AUDIO WITH NAVIGATION]

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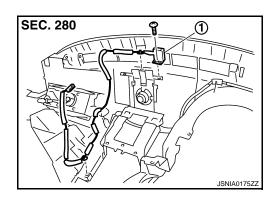


#### Removal and Installation

INFOID:000000004238883

#### REMOVAL

- 1. Remove instrument panel. Refer to <u>IP-11, "Exploded View"</u>.
- 2. Remove GPS antenna (1) from instrument panel.



[BOSE AUDIO WITH NAVIGATION]

INSTALLATION Installation is the reverse order of removal.

# < REMOVAL AND INSTALLATION > **CAMERA CONTROL UNIT**

# Е

Exploded View	INFOID.00000004238884
1. Camera control unit	
Removal and Installation	INFOID:00000004238885
REMOVAL 1. Remove trunk side finisher (RH), and then remove INSTALLATION Installation is the reverse order of removal. Adjustment	e camera control unit. Refer to <u>INT-28. "Exploded View"</u> .
ADJUSTMENT	enter position of rear view monitor after removing camera le following procedure. most ends.

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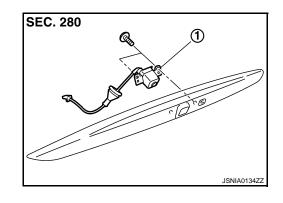
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# **REAR VIEW CAMERA**

**Exploded View** 

REMOVAL Refer to EXT-37, "Exploded View". DISASSEMBLY



1. Rear view camera

#### Removal and Installation

#### REMOVAL

- 1. Remove trunk lid finisher outer. Refer to EXT-37, "Exploded View".
- Remove rear view camera from trunk lid finisher outer. 2.

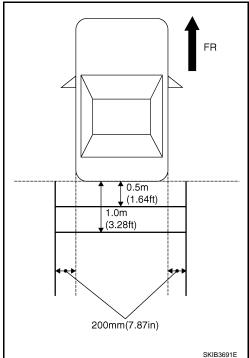
#### INSTALLATION

Installation is the reverse order of removal.

### Adjustment

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

- 1. Draw lines on rearward area of the vehicle passing through the following points: 20 cm (7.87 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1.0 m (3.28 ft) from the rear end of the bumper.
- 2. Set into "Adjust offset of rear view camera" mode of Confirmation / Adjustment mode.



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[BOSE AUDIO WITH NAVIGATION]

### **REAR VIEW CAMERA**

#### < REMOVAL AND INSTALLATION >

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 camera control unit.

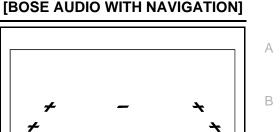
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Up/Down adjustment range	: – <b>20 – 20</b>
Left/Right adjustment range	: – <b>20 – 20</b>

#### CAUTION:

Never operate other function such as pressing BACK while writing index data. If Confirmation/Adjustment mode does not function in the above procedure, perform one of the following service to adjust the index again.

- Remove battery for five min. Then reconnect battery.
- Remove camera control unit connector for five min. Then reconnect camera control unit connector.



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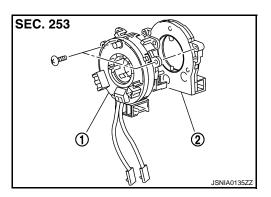
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# STEERING ANGLE SENSOR

**Exploded View** 

REMOVAL Refer to <u>SR-15, "Exploded View"</u>. DISASSEMBLY



- 1. Spiral cable
- 2. Steering angle sensor

#### Removal and Installation

#### REMOVAL

- 1. Remove spiral cable.
- 2. Remove steering angle sensor from spiral cable.

#### INSTALLATION

Installation is the reverse order of removal.

#### Adjustment

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Perform 4WAS front actuator adjustment. Refer to <u>STC-28</u>, "4WAS FRONT ACTUATOR NEUTRAL POSI-TION ADJUSTMENT : Description".

### **ANTENNA FEEDER (RADIO)**

# < REMOVAL AND INSTALLATION >

# ANTENNA FEEDER (RADIO)

[BOSE AUDIO WITH NAVIGATION]



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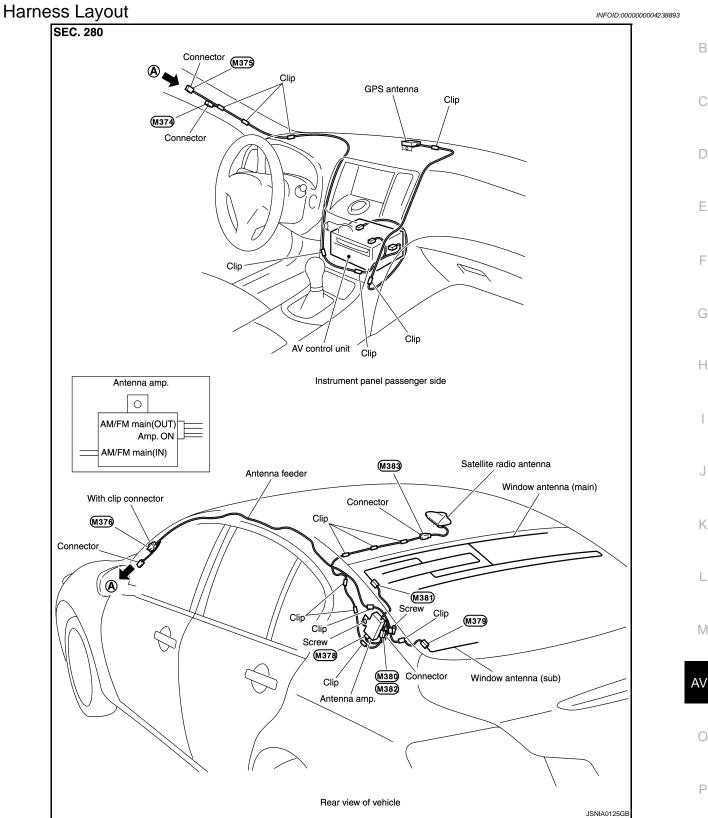
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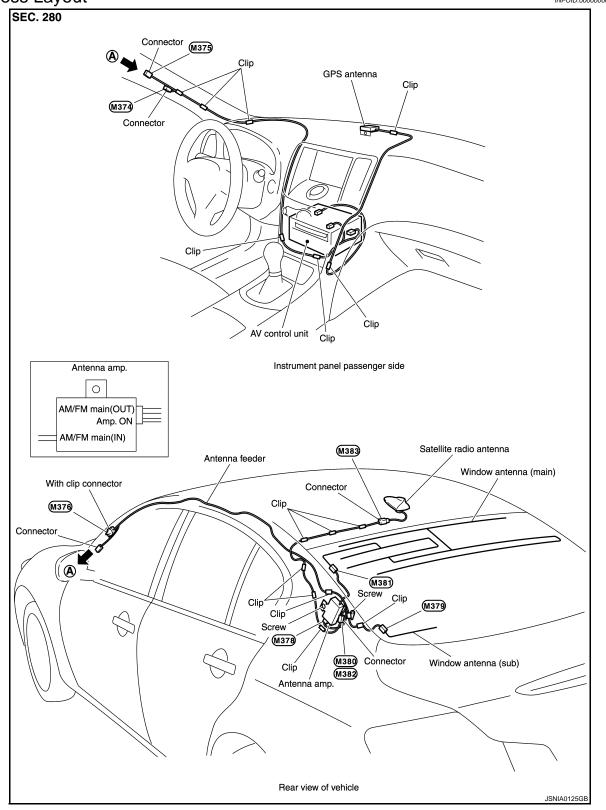
# ANTENNA FEEDER (SATELLITE RADIO)

## < REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

# ANTENNA FEEDER (SATELLITE RADIO)

Harness Layout



### **ANTENNA FEEDER (GPS)**

# < REMOVAL AND INSTALLATION >

# ANTENNA FEEDER (GPS)

**(BOSE AUDIO WITH NAVIGATION)** 

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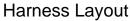
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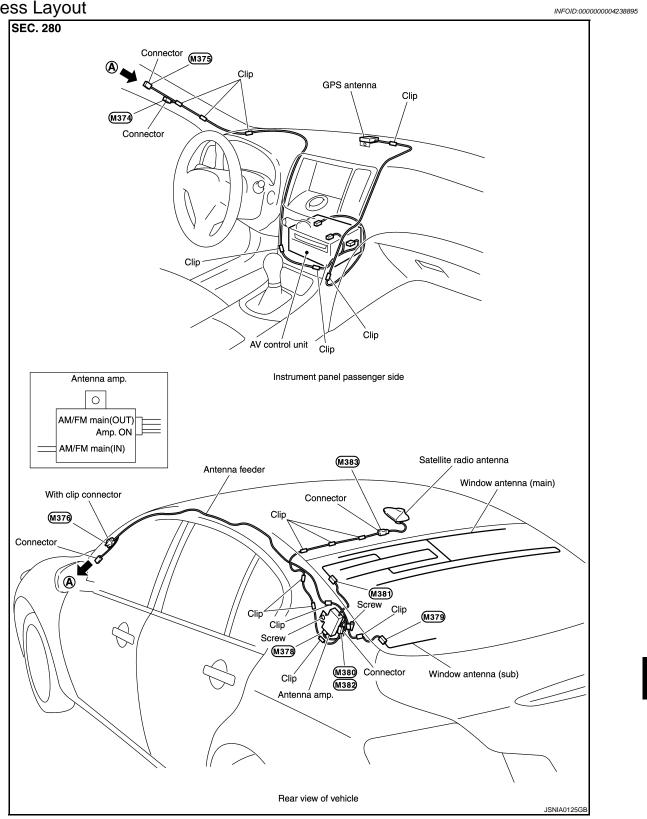
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