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PRECAUTION

PRECAUTIONS

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

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

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with
 a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing
 serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution for Trouble Diagnosis

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AV COMMUNICATION SYSTEM

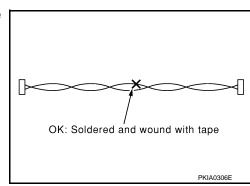
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

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AV COMMUNICATION SYSTEM

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

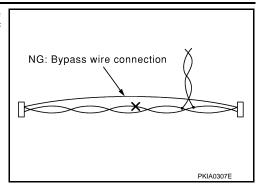


PRECAUTIONS

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[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.)



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Commercial Service Tools

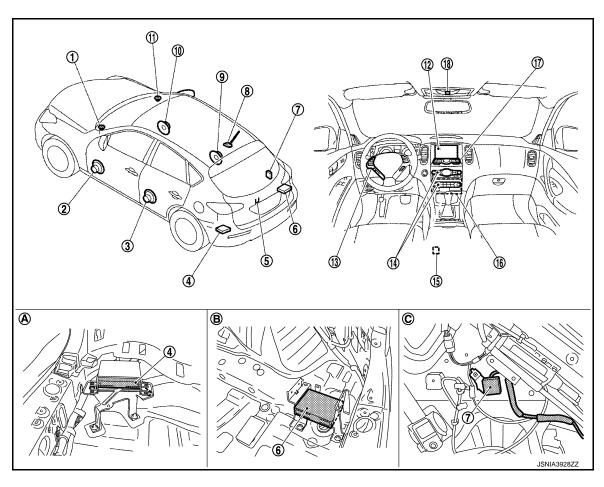
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Tool name		Description
Power tool	PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



- 1. Front squawker LH
- 4. TEL adapter unit
- 7. TEL antenna
- 10. Front door speaker RH
- 13. Steering switch
- 16. AV control unit
- A. Luggage floor (LH side)

- 2. Front door speaker LH
- 5. Rear view camera
- 8. Antenna base (antenna amp. and satellite antenna)
- 11. Front squawker RH
- 14. Preset switch
- 17. Multifunction switch
- B. Luggage floor (RH side)

- B. Rear door speaker LH
- 6. Satellite radio tuner
- 9. Rear door speaker RH
- 12. Display unit
- 15. USB connector
- 18. Microphone
- C. Luggage side RH

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COMPONENT PARTS

[BASE AUDIO WITHOUT NAVIGATION]

Component Description

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

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT NAVIGATION]

Part name	Description	
TEL adapter unit	 Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit. It is connected with the AV control unit via AV communication and controlled with the AV control unit. 	
TEL antenna	Receives the TEL voice signal and outputs it to the TEL adapter unit.	

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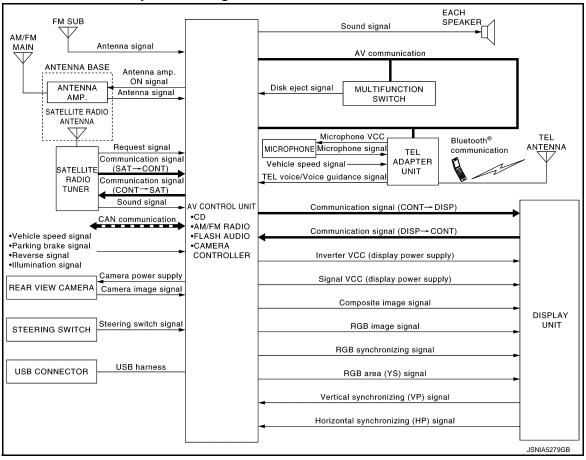
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SYSTEM MULTI AV SYSTEM

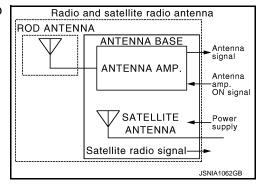
MULTI AV SYSTEM: System Diagram

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NOTE:

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



MULTI AV SYSTEM: System Description

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Multi AV system means that the following systems are integrated.

FUNCTION NAME
Audio function
Hands-free phone function*1
Rear view monitor function
Vehicle information function

[BASE AUDIO WITHOUT NAVIGATION]

*1: With Hands-free phone system

COMMUNICATION SIGNAL

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

AUDIO FUNCTION

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

FUNCTION
AM/FM radio
Satellite radio
CD
USB connection

Operating Signal

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

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

Screen Display

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

AM/FM Radio Mode

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

Satellite Radio Mode

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

CD Mode

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

USB Connection Function

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

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

NOTE:

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

HANDS-FREE PHONE SYSTEM

TEL adapter unit is controlled with AV communication from AV control unit.

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SYSTEM

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[BASE AUDIO WITHOUT NAVIGATION]

- The connection between cellular phone and TEL adapter unit is performed with Bluetooth® communication.
- The voice guidance signal is input from the TEL adapter unit to the AV control unit and output to the front speaker when operating the cellular phone.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-34, "Diagnosis Description".

When A Call Is Originated

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

When Receiving A Call

- Voice sound is input to own cellular phone from the other party.
- TEL voice signal is input to TEL adapter unit by establishing Bluetooth® communication from cellular phone, and the signal is output to front speaker.

REAR VIEW MONITOR FUNCTION

Camera Image Operation Principle

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

VEHICLE INFORMATION FUNCTION

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

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DIAGNOSIS SYSTEM (AV CONTROL UNIT)

On Board Diagnosis Function

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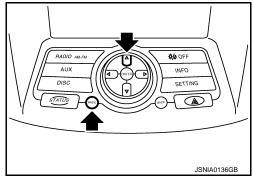
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-diagnosis Mode

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

The hazard switch and disk eject switch cannot be checked.



Finishing Self-diagnosis Mode

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

MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

ON BOARD DIAGNOSIS

Description

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

On Board Diagnosis Item

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

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Revision: 2013 March AV-21 2014 QX50

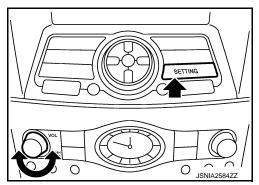
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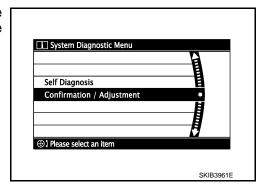
Mode		Description
	Display Diagnosis	The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display.
Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition and reverse.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

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.



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



SELF-DIAGNOSIS MODE

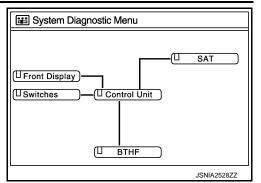
- 1. Start the self-diagnosis function and select "Self Diagnosis".
- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

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[BASE AUDIO WITHOUT NAVIGATION]

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

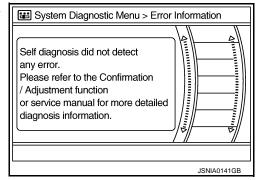
Diagnosis results	Unit	Connection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
Unit malfunction Note	Red	Green



NOTE:

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

- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to <u>AV-128</u>, "<u>Exploded View</u>".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.
- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

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

SELF-DIAGNOSIS RESULTS

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

Only Unit Part Is Displayed In Red.

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

A Connecting Cable Between Units Is Displayed In Yellow.

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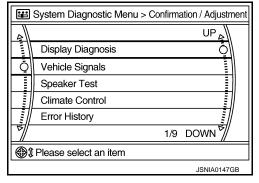
< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT NAVIGATION]

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

CONFIRMATION/ADJUSTMENT MODE

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



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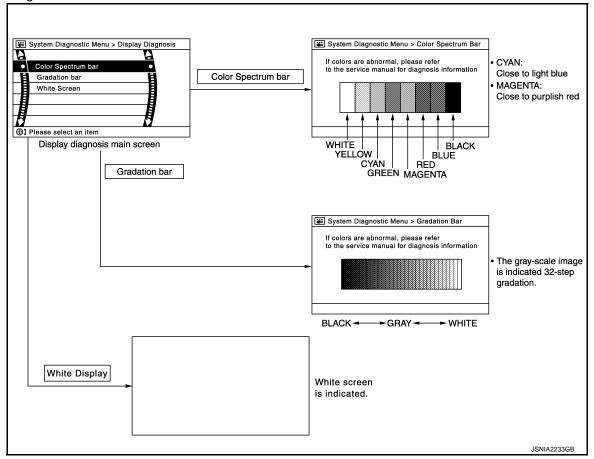
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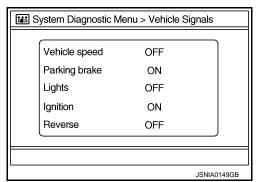
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Display Diagnosis



Vehicle Signals

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



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

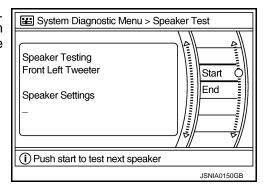
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Diagnosis item	Display	Vehicle status	Remarks	
Reverse	ON	Shift the selector lever to "R" position	Changes in indication may be deleved. This is normal	
Neverse	OFF	Shift the selector lever other than "R" position	Changes in indication may be delayed. This is nor	

Speaker Test

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



Climate Control

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

Error History

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

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

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

Count up method A

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

Count up method B

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

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

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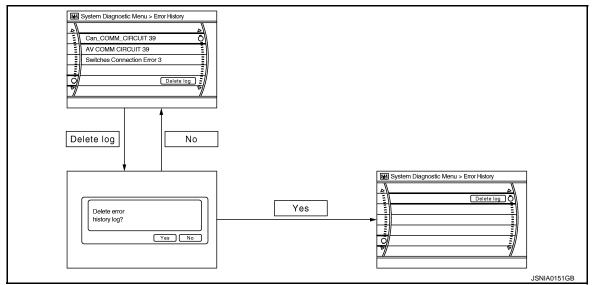
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Error item

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

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-30, "CONSULT Function (MULTI AV)".
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	
FLASH-ROM Error Of Control Unit		Replace the AV control unit if the malfunc-
CAN Controller Memory Error		tion occurs constantly.
Sub CPU Connection Error	AV control unit malfunction is detected.	
iPod authentification chip error		
Audio connection error		
DSP Connection Error DSP Communication Error	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
Unfinished configuration	The writing of configuration data is incomplete.	Write configuration data with CONSULT.
USB Controller Communication Error	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
Steer. Angle Sensor Calibration	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to AV-30, "CONSULT Function (MULTI AV)".
Front Display Connection Error	 When either one of the following items is detected: display unit power supply and ground circuits malfunction is detected. malfunction is detected in communication circuits between AV control unit and display unit. 	 Display unit power supply and ground circuits. Communication circuits between AV control unit and display unit.

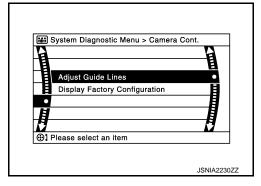
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[BASE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
XM Connection Error	When either one of the following items is detected: satellite radio tuner power supply and ground circuit malfunction is detected. malfunction is detected in communication circuits between AV control unit and satellite radio tuner. malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
USB electric current Error	Detection of overcurrent in USB connecter.	Check USB harness between the AV control unit and USB connector.
AV COMM CIRCUIT Switches Connection Error	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT H/F Unit Connection Error	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between multifunction switch and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between multifunction switch and TEL adapter unit.
AV COMM CIRCUITSwitches Connection ErrorH/F Unit Connection Error	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

Camera Cont.

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

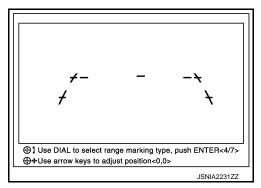


Adjust Offset of Rear view Camera

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

CAUTION:

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

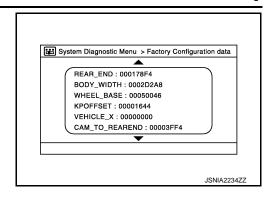


Factory Configuration Confirmation

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[BASE AUDIO WITHOUT NAVIGATION]

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



Vehicle CAN Diagnosis

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

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

NOTE:

"???" indicates UNKWN.

AV COMM Diagnosis

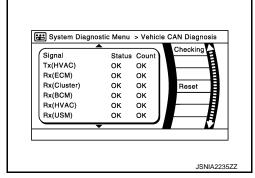
- Displays the communication status between AV control unit (master unit) and each unit.
- The error counter displays "OK" if any malfunction was not detected in the past and displays "0" if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle.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

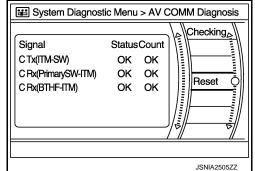
Items	Status (Current)	Counter (Past)
C Tx(ITM-SW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(BTHF-ITM)	OK / ???	OK / 0 – 39

NOTE:

"???" indicates UNKWN.

Delete Unit Connection Log





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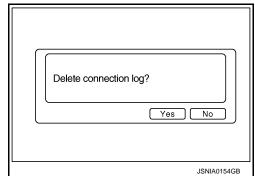
N/I

AV

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT NAVIGATION]

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

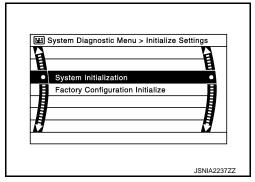


Initialize Settings

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

CAUTION:

- Never perform Accessory Number Initialization except when configuration is unsuccessful.
- Accessory Number Initialization requires configuration. For details, refer to <u>AV-71, "CONFIGURATION (AV CONTROL</u> UNIT): Description".



CONSULT Function (MULTI AV)

INFOID:0000000009061395

CONSULT FUNCTIONS

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

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

AV Communication

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

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

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

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

Self-diagnosis Results Display Item

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to AV-74, "Diagnosis Procedure".
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	
Cont Unit [U1200]		Replace the AV control unit if the malfunc-
CAN CONT [U1216]		tion occurs constantly.
SUB CPU CONN [U1228]	AV control unit malfunction is detected.	
iPod CERTIFICATION [U1229]		
Built-in AUDIO CONN [U122E]		
USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DSP CONN [U121D]		If a disc can be played, then there is a
DSP COMM [U121E]	AV control unit malfunction is detected.	possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with CONSULT.
ST ANGLE SEN CALIB [U1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".
FRONT DISP CONN [U1243]	When either one of the following items is detected: display unit power supply and ground circuits malfunction is detected. communication circuits between AV control unit and display unit.	Display unit power supply and ground circuits. Communication circuits between AV control unit and AV display unit.
SAT CONN [U1255]	When either one of the following items is detected: satellite radio tuner power supply and ground circuit malfunction is detected. malfunction is detected in communication circuits between AV control unit and satellite radio tuner. malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
USB OVERCURRENT [U1263]	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are	Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between multifunction switch and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between multifunction switch and TEL adapter unit.
AV COMM CIRCUIT [U1300]SWITCH CONN [U1240]HAND FREE CONN [U1256]	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.

DATA MONITOR

NOTE:

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

ALL SIGNALS

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

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

SELECTION FROM MENU

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

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

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION:

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

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT NAVIGATION]

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

CONFIGURATION

Configuration includes functions as follows.

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

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DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

< SYSTEM DESCRIPTION >

[BASE AUDIO WITHOUT NAVIGATION]

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

Diagnosis Description

INFOID:0000000009061396

HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

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

ON BOARD DIAGNOSIS ITEM

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

CAUTION:

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

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

Self-diagnosis results

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

NOTE:

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

Self-diagnosis results

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

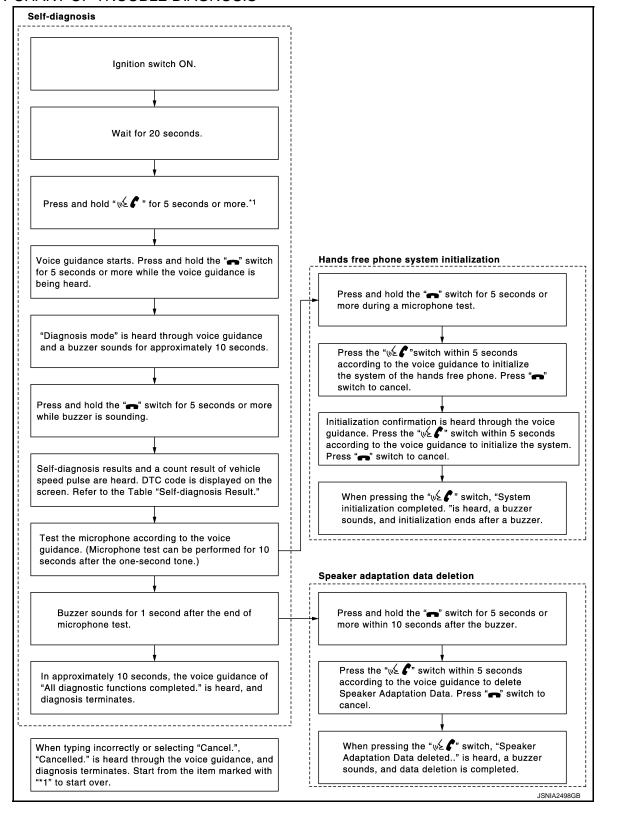
The Details of Error Count

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

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

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FLOW CHART OF TROUBLE DIAGNOSIS



Revision: 2013 March AV-35 2014 QX50

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

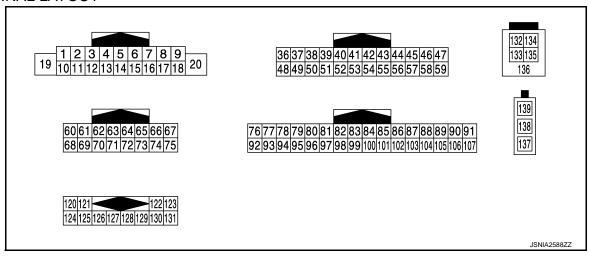
NOTE:

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

CONSULT MONITOR ITEM

Monitor Item	Condition		Value/Status
VHCL SPD SIG	Ignition switch	Vehicle speed > 0 km/h (0 MPH)	On
	ON	Vehicle speed = 0 km/h (0 MPH)	Off
PKB SIG	Ignition switch	Parking brake is applied.	On
	ON	Parking brake is released.	Off
ILLUM SIG	Ignition switch	Light switch ON	On
	ON	Light switch OFF	Off
IGN SIG	Ignition switch ON	_	On
	Ignition switch ACC	_	Off
REV SIG	Ignition switch	Selector lever in R position	On
	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	Contanton		(Approx.)
2 (BR)	3 (R)	Sound signal front LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
4 (LG)	5 (L)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 *** 2ms SKIB3609E
					Keep pressing SOURCE switch.	0 V
				lawitian	Keep pressing MENU UP switch.	0.7 V
6 (P)	15 (B)	Steering switch signal A	Input	Ignition switch ON	Keep pressing MENU DOWN switch.	1.3 V
					Keep pressing w 🗸	2.0 V
					Except for above.	3.3 V
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
9	Ground	Illumination signal	Input	Ignition switch	Lighting switch is OFF.	0 V
(R)	Giodila	iliumination signal	IIIput	OFF	Lighting switch is ON.	12.0 V
11 (L)	12 (W)	Sound signal front RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
13 (L)	14 (P)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
					Keep pressing VOL DOWN switch.	0 V
16 (L)	15 (B)	Steering switch signal B	Input	Ignition switch	Keep pressing VOL UP switch.	0.7 V
()	,			ON	Keep pressing A switch.	1.3 V
					Except for above.	3.3 V
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
20 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
36 (BG)	Ground	Signal VCC	Output	Ignition switch ACC	_	8.8 V
37 (LG)	Ground	Signal ground	_	Ignition switch OFF	_	0 V
38 (R)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON	_	(V) 4 0 → + 20µs SKIB3601E
39 (BR)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 ***1ms
					At RGB image is displayed.	5.0 V
40 (B)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At camera image is displayed.	(V) 6 4 2 0 PKIB4948J
41	_	Shield	_	_	_	——————————————————————————————————————
42 (W)	Ground	RGB synchronizing signal	Output	Ignition switch ON	_	(V) 4 0 → 20 µs SKIB3603E

	rminal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
43 (G)	Ground	RGB signal (R: red)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40μs JSNIA1029ZZ
44 (L)	Ground	RGB signal (G: green)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1030ZZ
45 (P)	Ground	RGB signal (B: blue)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1031ZZ
46 (V)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V
47 (SB)	Ground	Composite image signal	Output	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -40µs SKIB2251J
48 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	8.8 V
49 (BR)	Ground	Inverter ground	_	Ignition switch OFF	_	0 V
50 (G)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON	_	(V) 4 0 + 4ms SKIB3598E

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
51 (Y)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0
52	_	Shield	_	_	_	_
57	_	Shield	_		_	_
58	_	Shield	_	_	_	_
62 (W)	Ground	Camera image signal	Input	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -40μs SKIB2251J
71	_	Shield	_	_	_	_
72 (W)	Ground	Camera ground	_	Ignition switch ON	_	0 V
73 (R)	Ground	Camera power supply	Output	Ignition switch ON	At rear view camera image is displayed. Except for above.	6.0 V 0 V
76 (LG)	_	AV communication signal (L)	Input/ Output	_	-	_
77 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
78 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
79 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
80 (P)	_	CAN-L	Input/ Output	_	_	_
81 (L)	_	CAN-H	Input/ Output	_	_	_
82 (B)	Ground	Switch ground	_	Ignition switch ON	_	0 V
86	_	Shield	_		_	_
87 (L)	88 (P)	TEL voice signal	Input	Ignition switch ON	During voice guide output with the w≤	(V) 1 0 -1 + 2ms SKIB3609E

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITHOUT NAVIGATION]

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	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
92 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: Maximum voltage may be 12.0 V due to specifications (connected units). (V) 6 4 2 0 **20ms SKIA6649J
93	Ground	Parking brake signal	Input	Ignition switch	Parking brake is ON.	4.5 V
(V)	0.00	- and orginal		ON	Parking brake is OFF.	0 V
94	Ground	Reverse signal	Input	Ignition switch	Shift the selector lever to R position.	12.0 V
(BG)		3 T T T T T	, ,	ON	Shift the selector lever other than R position.	0 V
95 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
96	Cround	Diely eiget eigenel	lanut	Ignition	Pressing the eject switch.	0 V
(Y)	Ground	Disk eject signal	Input	switch ON	Except for above.	5.0 V
120 (B)	124 (W)	Satellite radio sound signal LH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E
121 (G)	125 (R)	Satellite radio sound signal RH	Input	Ignition switch ON	When satellite radio mode is selected	(V) 1 0 -1 + 2ms SKIB3609E
122 (B)	Ground	Communication signal (CONT→SAT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 -10 -10 -10 -10
126	_	Shield	_	_	_	_
127	_	Shield	_	_	_	

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITHOUT NAVIGATION]

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

DTC Index

INFOID:0000000009061398

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-74, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-75, "DTC Logic"
U1200	Cont Unit [U1200]	AV-76, "DTC Logic"
U1216	CAN CONT [U1216]	AV-77, "DTC Logic"
U121D	DSP CONN [U121D]	AV-78, "Diagnosis Procedure"
U121E	DSP COMM [U121E]	AV-79, "Diagnosis Procedure"
U1225	USB CONTROLLER [U1225]	AV-80, "DTC Logic"
U1228	SUB CPU CONN [U1228]	AV-81, "DTC Logic"
U1229	iPod CERTIFICATION [U1229]	AV-82, "DTC Logic"
U122A	CONFIG UNFINISH [U122A]	AV-83, "Diagnosis Procedure"
U122E	Built-in AUDIO CONN [U122E]	AV-84, "DTC Logic"
U1232	ST ANGLE SEN CALIB [1232]	AV-85, "Diagnosis Procedure"
U1243	FRONT DISP CONN [U1243]	AV-86, "DTC Logic"

< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITHOUT NAVIGATION]

DTC	Display item	Refer to
U1255	SAT CONN [U1255]	AV-88, "DTC Logic"
U1263	USB OVERCURRENT [U1263]	AV-90, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-92, "DTC Logic"
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-91, "Description"
U1300 U1256	AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	AV-91, "Description"
U1300 U1240 U1256	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] HAND FREE CONN [U1256]	AV-91, "Description"

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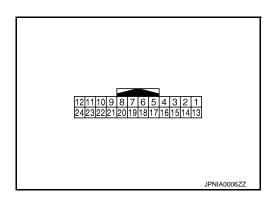
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INFOID:00000000009061399

DISPLAY UNIT

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	8.8 V
3 (BG)	Ground	Signal VCC	Input	Ignition switch ACC	_	8.8 V
4 (V)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V
5	_	Shield	_	_	_	_
6 (L)	Ground	RGB signal (G: green)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 * 40μs JSNIA1030ZZ
7	_	Shield	_	—	_	_
8 (R)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3601E

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description				Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
9 (B)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At RGB image is displayed. At camera image is displayed.	5.0 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 PKIB5039J
13 (BR)	Ground	Inverter ground	_	Ignition switch ON	_	0 V
14 (LG)	Ground	Signal ground	_	Ignition switch ON	_	0 V
15 (SB)	Ground	Composite image signal	Input	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4
17 (G)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40μs JSNIA1029ZZ
18 (P)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start Confirmation/Adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

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

SATELLITE RADIO TUNER

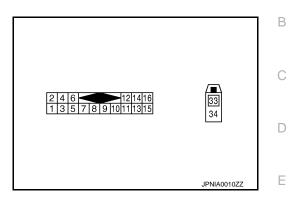
< ECU DIAGNOSIS INFORMATION >

[BASE AUDIO WITHOUT NAVIGATION]

SATELLITE RADIO TUNER

Reference Value

TERMINAL LAYOUT



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INFOID:0000000009061400

PHYSICAL VALUES

Terminal Description					Deference value	
+	_	Signal name	Input/ Output		Condition	Reference value (Approx.)
2 (R)	1 (G)	Satellite radio sound signal LH	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 + 2ms SKIB3609E
4 (B)	3 (W)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	(V) 1 0 -1 → 2ms SKiB3609E
5	_	Shield	_	_	_	_
6	_	Shield	_	_	_	_
8 (L)	Ground	Request signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 10ms SKIA9299J
9 (P)	Ground	Communication signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected.	10 0 -10 *** 1ms

SATELLITE RADIO TUNER

< ECU DIAGNOSIS INFORMATION >

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

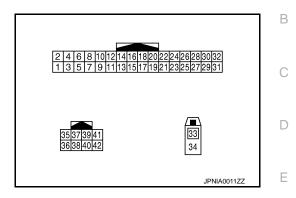
TEL ADAPTER UNIT

[BASE AUDIO WITHOUT NAVIGATION]

TEL ADAPTER UNIT

Reference Value

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PHYSICAL VALUES

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

TEL ADAPTER UNIT

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
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 approx. 40 km/h (25 MPH)	NOTE: Maximum voltage may be 12.0 V due to specifications (connected units). (V) 6 4 2 0 SKIA6649J
29 (Y)	8	Microphone VCC	Output	Ignition switch ON	_	5.0 V
33	_	TEL antenna signal	Input	_	_	_
34	_	Shield	_	_	_	_
35 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
36 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_

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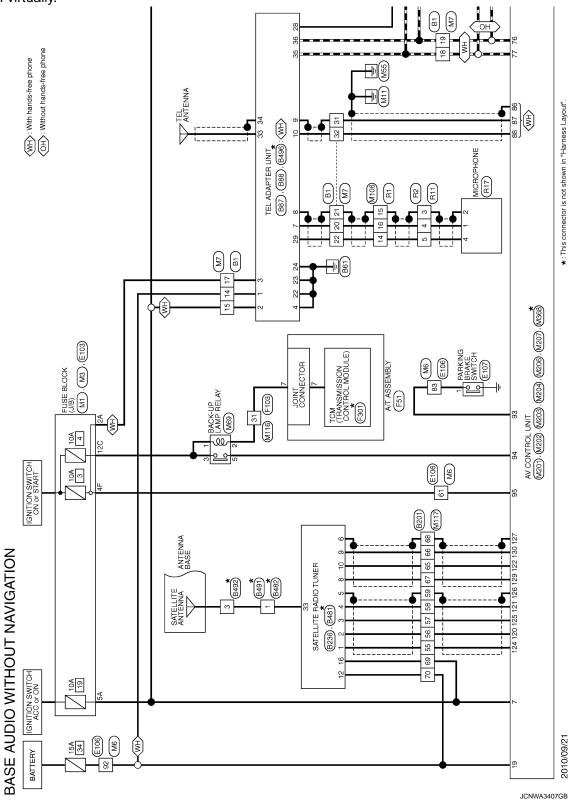
WIRING DIAGRAM

BASE AUDIO WITHOUT NAVIGATION

Wiring Diagram

NOTE:

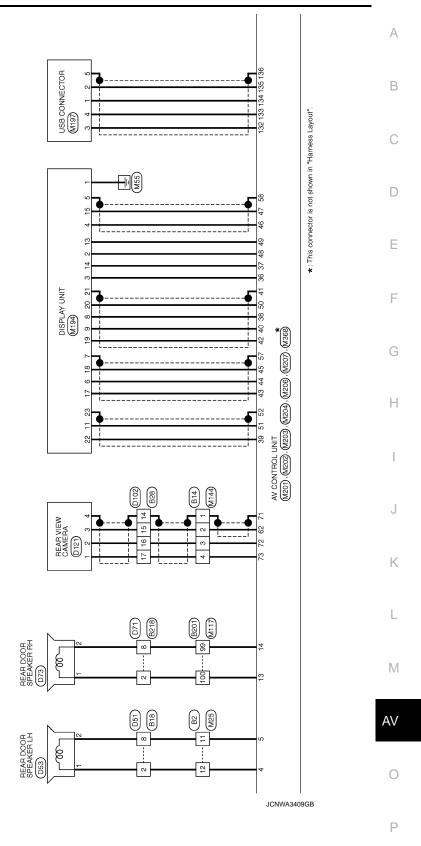
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

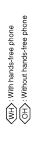


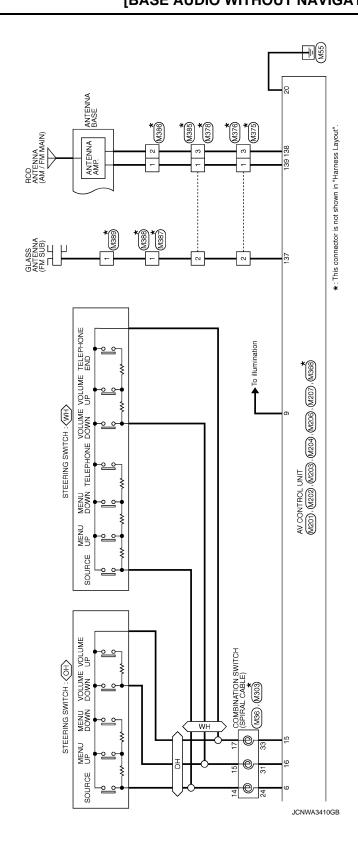
(WH): With hands-free phone
OH): Without hands-free phone

(B3 20 FRONT SQUAWKER RH *: This connector is not shown in "Harness Layout". M5 01 SPEAKER LH 32 FRONT SQUAWKER LH (M13) To CAN system * (M204), (M206), (M207), (M368) STEERING ANGLE SENSOR (M37) DATA LINE DATA LINE 56 72 UNIFIED METER AND A/C AMP. (M66), (M67) AV CONTROL UNIT (M201), (M203), (M203) ECM M107 BCM (BODY CONTROL MODULE) (M122) DATA LINK CONNECTOR (M24) DATA LINE DATA LINE MULTIFUNCTION SWITCH (M72) 13

JCNWA3408GB







[BASE AUDIO WITHOUT NAVIGATION]

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73 SB	+	73
Н	74 L	Н
76 BR	+	- 76
Н	Н	- 4
+	78 P	+
33 BG	+	88
35 V	85 V	
96 LG	Н	98
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Revision: 2013 March AV-55 2014 QX50

BASE AUDIO WITHOUT NAVIGATION								
Connector No. B28	onnector No.	B87	Connector No.		B201	73	BR	
Connector Name WIRE TO WIRE	Connector Name	TEL ADAPTER LINIT	Journa	Connector Name	WIRE TO WIRE	75	>	
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Connector Type TH24MW-NH	Connector Type 1	TH32FW-NH	Connec	Connector Type	TH80FW-CS16-TM4	81	SB	
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No. Wire Signal Name [Specification]	No. Wire	Signal Name [Specification]	ģ	Wire	Signal Name [Specification]	94	ď	
1 GR	1 GR	BATTERY	-	×		92	g	
3 W	2 LG	ACC	7	œ	•	96	O	
╁	3	IGNITION SIGNAL	က	GR	,	97	O	
H	4 B	GROUND	4	BG	•	86	œ	
	7 BR	MICROPHONE SIGNAL	7	97	,	66	а	,
╁	C IIII	MICBOPHONE GND	Ç	×		100	-	
+	T	TEL VOICE SIGNAL (+)	15	S.				
C IIII	T	TEL VOICE SIGNAL (-)	4	>				
14 SITILED [Without around view monitor]	+	CONTROL SIGNAL (*)	2 5	> 0		On actoon	or Mo	B240
n :	+	CONTROL SIGNAL	=	K	•	Cormec	OF NO.	DZ 10
4	Z3	CONTROL SIGNAL	56	BR		Connect	Connector Name	WIRE TO WIRE
W		CONTROL SIGNAL	27	L	-			
L - [With aroun	28 P	VEHICLE SPEED (8-PULSE)	28	Υ		Connect	Connector Type	NH10FW-CS10
17 R - [Without around view monitor]	Z9 Y	MICROPHONE VCC	59	X				
18 SHIELD -			30	GR		_	1	
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;	4 4	9	17	18	19	50	2 22	1 %	24	52	56	27	28	59	30	31	32	33	¥ %	8 8	37	38	g \$	40	14	43	43	44	44	45	45	46	46	49	20	52	53	25	22	3
	Terminal Color Of Signal Name [Specification]	S .			Connector No. B496	Connector Name TEL ADAPTER UNIT	_	٦.	•			=======================================	Ġ.E	5		lal	Wire	33 - IEL AN IENNA SIGNAL			Connector No. D1	Connector Name WIRE TO WIRE	LIVO MILOTITE	Connector Type TH40FW-CST5	-		S M S C M S S T S S T S S T S T S T S T S T S T	28				la		+	2 B .	4	4 W		- 0 9	8 B B C B B B B B B B B B B B B B B B B
		Connector Name WIRE TO WIRE	Connector Type GT16C-1S-HU					i i			Terminal Color Of	No. Wire Signal Name [Specification]	t			Connector No. B491	Connector Name WIRE TO WIRE	C C C C C C C C C C C C C C C C C C C	_							Terminal Color Of	No. Wire Signal Name [Specification]	H			Connector No. B492	Connector Name ANTENNA BASE	- 1	Connector Type GT16C-1PP-HU						2. 2.
BASE AUDIO WITHOUT NAVIGATION	B236	Connector Name SATELLITE RADIO TUNER	Connector Type A16FW				2 4 6 7 12 16	1358970			Terminal Color Of	Wire Signal Name [Specification]	G SATELLITE RADIO SOUND SIGNAL LH (-)	Т	Г	SATELLITE RAI	SHIELD SHIELD	3	P COMM (SAT-CONT)	G COMM (CONT-SAT)		V ACC			Connector No. B481	Connector Name SATELLITE RADIO TUNER	Connector Type FAKRA			1	33	<u> </u>	3]		Terminal Color Of Signal Name (Specification)	Wire Ognan warms [opcompanon]	- SATELLITE ANTENNA SIGNAL		

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Connector No.	No. D6	Н	Connector No. D51	Connector No. D71
Connector Name	Name FRONT DOOR SPEAKER LH	26 R	Connector Name WIRE TO WIRE	Connector Name WIRE TO WIRE
Connector	Connector Type NS02FW-CS	30 W	Connector Type NH10MW-CS10	Connector Type NH10MW-CS10
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O	Wire Signal Name [Specification]	H	No. Wire Signal Name [Specification]	No. Wire Signal Name [Specification]
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Connector No.	No. D31		. 9	7 B
	LOW CH LOW	Connector No. D36		۵
COLLECTO	WINE IO WINE	The division of the state of th	8 G - [With BOSE audio]	8 Y - [Without BOSE audio]
Connector Type	Type TH40FW-CS15		8 Y - [Without BOSE audio]	
		Connector Type NS02FW-CS	19 G	20 V -
			20 V -	
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•			C	Connector No.
7		_	Confriector No.	Connector Name REAR DOOR SPEAKER RH
		H.S.	Connector Name REAR DOOR SPEAKER LH	Connector Type NS02EW.CS
			Connector Type NS02EWLCS	
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N N	Wire Signal Name [Specification]	Terminal Color Of	-	
t	2	No. Wire Signal Name [Specification]		
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Connector No.	D102	Connector No.	D121	Connector No.	r No. E106	106	43		
Connector Name	Connector Name WIRE TO WIRE	Connector Name	REAR VIEW CAMERA	Connector Name		WIRE TO WIRE	45	+	
Connector Type	TH24FW-NH	Connector Type	TH04MW-NH	Connector Type		TH80FW-CS16-TM4	92	9	
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+		2 5	CAMERA GND	2	3 4		67	SHIELD	-
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+	- [With around view monitor]	Connector No	E103	σ	. 62			t	
ď.	- Mithout around view monitor			5	<u> </u>		1	+	
75		Connector Name	FUSE BLOCK (J/B)	÷	S SS		74	Ŧ	- [With ICC]
16	- [With around view monitor]	Connector Type	NS16FW-CS	12	88		1	+	- IWithout ICCI
+	- [Without around view monitor]			£	-		7,5	+	- IWith ICCI
+	- Mithout around view monitor	•		14	α		75	M	- IWithout ICCI
17 W	- [With around view monitor]			. 4	: 0		92	+	- IWith ICCI
ď,	L	•		16	. >		1	+	- [Without ICC]
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97 R	Connector No.	F103	Connector No. F301	Ö	Connector No.	M3
	Connector Name	WIDE TO WIDE	Compositor Name TCM/TBANSMISSION CONTROL MODILLE		amold roton	(B)) NOO IS IS IS
		WINE IO WINE			medical realise	(SE DECCE (SE)
- 100 P	Connector Type	TK36FW-NS10	Connector Type SP10FG	S	nector Type	Connector Type NS12FW-CS
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Connector No. E10/						
Connector Name PARKING BRAKE SWITCH	Į	2 S S S S S S S S S S S S S S S S S S S	(1 2 3 4 5		Ę	
Connector Type TR01FW	i,S.		L.S.		Ź	126 116 106 9C 7C 6C
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	1	7	No. wife	I	NO. VVIII.	
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	+		2 - BALLERY POWER SUPPLY	1	+	
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ē	6		5 - GROUND			
	Н		6 - IGNITION POWER SUPPLY		9C BG	-
1 BG	19 BG	- [Without ICC]	7 - BACK-UP LAMP RELAY	AY		
	19	- [With ICC]	8 - CAN-L			
	20 Y		9 - STARTER RELAY	Cor	Connector No.	M5
Connector No. F51	28 B		- GROUND			- C - C - C - C - C - C - C - C - C - C
LOCK HA	29 LG			3	Connector Name	WIRE IO WIRE
Comrector Name Avil Assembly	31 R			Ö	Connector Type	TH40MW-CS15
Connector Type RK10FG-DGY	Ľ	-	Connector No. M1			
	34 B				7	
•	╀		Connector Name FUSE BLOCK (J/B)		•	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
	36 P		Connector Type NS06FW-M2			
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4 V K-LINE			1A GR -		2 2	
5 B GROUND			2A G		9 R	
6 Y IGNITION POWER SUPPLY			3A L		7 R	
7 R BACK-UP LAMP RELAY			4A P		8 W	
8 LG CAN-L			5A V		9 6	
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10 B GROUND			7A R		11 G	
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< WIRING DIAGRAM >

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	- [With ICC] - [Without ICC] - [Without ICC] - [With ICC] - [With ICC]	- (Without Incol	
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M6 WIRE TO WIRE TH80MW-CS16-TM Col Signal Name	q	> N N N N N N N N N N N N N N N N N N N	C W W W W W W W W W W W W W W W W W W W
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		- [Without automatic drive positioner] - [Without automatic drive positioner]	
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Terminal Color Of Signal Name (Specification) Terminal Color Of Signal Nam	Terminal Color Of Supul Name Specification Corrector Name Correcto	ı Iö) @	Conr	ector Nam	IE FRONT SQUAWKER LH	Connector Name	WIRE TO WIRE	$^{+}$
Ferminal Code Of Signal Name [Specification] Ferminal Code Of Signal	Function Other Office Signal Name Steedfeathor Function Steedfeathor Functio	ı-I	-	Conr	ector Type	П	Connector Type	NS16MW-CS	Н
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Terminal Code Of Signal Name (Specification) Terminal Name (Specification)	Terminal Calcus Of National Ca	≡I	ELD -						
Note of the control	No.	ιώl	8:						Ш
No. With the Connector Name Connec	Cornector Name Corn	-1	>	Ter	ninal Color		Terminal Color Of		
1	Cornector No. M24	ات	,	ž	\dashv		┪	licenson and a miles	
Cornector No. M24 Cornector No. M25	Corrector Numerical Particles Corrector Numerical Particle	≝I	ELD .	_	\dashv		\dashv		П
Corrector No. M24	Corrector Nume District Nu	>		. 4	\dashv	-	\dashv		•
Corrector No. M24 6 C C	Corrector Nume DATA LINK CONNECTOR Corrector Nume Corrector Nu	ان					\dashv		
Corrector Name DATA LINK CONNECTOR Signal Name Specification Terminal Cotor Of Signal Name Specification Tild Specification Ti	Corrector No. M24 Corrector No. M25	-	or.				\dashv	,	K
Corrector Name DATA LINK CONNECTOR Corrector Type BD16FW	Corrector Name DATA LINK CONNECTOR Corrector Type BD16FW Corrector Type Corrector Type Corrector Type Corrector Type Terminal Color Off Terminal Col	>		Conr	ector No.	M24	-		
Corrector Type BD15FW Corr	Corrector Type BOTEFW Corrector Type BOTEFFW C	>	- N	000	molu rotoo		Н		7 2
Corrector Type BD16FW 9 Y Fermical Color Of 10 Signal Mane Specification 16 Y Fermical Color Of 17 X Y Fermical Color Of 18 X Y Fermical Color Of 19 X Y Fermical Color Of 19 X Y Fermical Color Of 19 X X Y Fermical Color Of 19 X X X X X X X X X	Corrector Type BD16FW 9 8 8	ш		3	פכוסו		7 L		-
Terminal Color Of No. Wire Signal Name Specification 11 14 18 14 18 14 14 1	Terminal Color Office Term	4		Conr	ector Type		H		
10 Similar Color Off 11 14 14 14 14 14 14	Terminal Color Of Name Signal Name Specification Terminal Color Of Name	(O	ŭ.				. 6		
11 14 14 14 14 14 14 14	11 1 14 19 19 12 19 10 10 10 10 10 10 10	ım		_			Т		Color Of
11 V	11 14 14 19 14 15 7 8 8	11					11 L	- [Without BOSE audio]	Wire
Terminal Color Of	Terminal Color Off 1 1 1 1 1 1 1 1 1	1	·				_	- [With BOSE audio]	1 L CAN-H
Terminal Color Of No. Wire Signal Name (Specification) Terminal Color Of No. Wire Sig	Terminal Color Of Signal Name (Specification) Terminal Color Of No. Wire Signal Name (Specifi	1	-	_	Ų		┝	- [Without BOSE audio]	а.
Terminal Color Off Signal Name (Specification)	Terminal Color Off Signal Name (Specification) 13 Y 14 V 15 L/G 15 V 16 V 16 V 16 V 17	خ،			1	7	H	- [With BOSE audio]	
14 Y	15 17	ım	ů.				13 Y		9
Terminal Color Of Pages Name (Specification) 15 LG P Corrector No. M36 Corrector Name Correc	Terminal Color Of Wire Signal Name (Specification) 15 LG P Corrector No. M26 Corrector No. M	ım					74 Y		
16 P Corrector No. M36 Corrector Type Tros Fox. Los E) Corrector Type Tros Fox. Los	16 P	10		Tern	inal Color		╀		
3 LG Corrector Name Corrector Name Corrector Name Corrector Name Corrector Name Corrector Type TKG0FGY-1V 11 SB Corrector Type TKG0FGY-1V TKG0FG	3 LG Corrector No. M36 Corrector No. M36 Corrector Name Corrector Type TKO8F CY-1V TKO8			ž			L		
Cornector No. M/36 Connector Name (Connector Name (Connector Name) (Connector Type TK/08FGV-1V) Connector Name (Connector Name) (Connector Name) (Connector Type TK/08FGV-1V) Lid Sp	Corrector No. M/36 Corrector No. W/36 Correc			69	H				Competer Nome
Corrector Type I TKOBF CV-1 V 11 SB C CORRECTOR Type I TKOBF CV-1 V 14 P CORRECTOR Type I TKOBF CV-1 V 16 Y C CORRECTOR Type I TKOBF CV-1 V 16 Y C CORRECTOR Type I TKOBF CV-1 V 17 CRITICAL ED I CORRECTOR Type I TKOBF CV-1 V 18 C CORRECTOR Type I TKOBF CV-1 V 19 C CRITICAL ED I CORRECTOR Type I TKOBF CV-1 V 10 V V V V V V V V V V V V V V V V V V V	Corrector Type TKUBFGV-1V T		- A	4					
Commetor Name Commetor Name Commetor Name Commetor Type TKG9FGY-1V	Commettor Name Commettor Type TKGGFGY-1V Termical Color Off Te			47	Н		Ш	M36	
H.S. Emiral Color Office Connector Type Trost-EV-1V Trost-EV-1V	11 SB	~	· ·	9	٦	-	Connector Name		
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No. Wire No.	H.S. P P P P P P P P P P P P P P P P P P	4		w	-	-	Connector Type	TK08FGY-1V	
H.S.	H.S. (1429 28) Terminal Color Of No. Wive Color Of Color			1	_				
Y	Y			Ť	L		_		5
23 23 4 Terminal Color Of No. Wire No. 1 CR No.	23 33 4 Terminal Color Of No. Wire S No. Wir			Ĕ	<u>۲</u>				22 22 23
23 33 34 Terminal Color Of No. Wire No. Wire S S S S S S S S S S S S S S S S S S S	13 3 3 3 Terminal Color Of No. Wire Color Of No.						•		
25.33.24 No. 1 No. 2 No.	25.3.3.4 No. Wire Co.						S T V	97 57	
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_ 88	J & S								GR
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[BASE AUDIO WITHOUT NAVIGATION]

COMMUNICATION SIGNAL (LCD-AMP.)	Connector No. M69 Connector Name RACK-LIP LAMP RFL AY	Connector No. M106	M106 WIRE TO WIRE	Terminal No.	გ >	
П		Connector Name WIRE	O WIRE	97	œ	ACCELERATOR PEDAL POSITION SENSOR 1
AT SNOW SWITCH SIGNAL MANUAL MODE SHIFT DOWN SIGNAL	Connector Type MS0ZFL-MZ-LC	Connector Type NH10MW-CS10	w-cs10	8 8	۲ ۲	ACCELERATOR PEDAL POSITION SENSOR 2 [Without ICC] ACCELERATOR PEDAL POSITION SENSOR 2 [With ICC]
COMMUNICATION SIGNAL (METER-AMP.)	<u></u>			66	G	SENSOR POWER SUPPLY [With ICC]
SIGNAL (8-PULSE)	<u></u>	Ţ	2 3 4 5	98	ار س	SENSOR POWER SUPPLY [Without ICC]
SIGNAL (AMPLCD)		Į		101	SB	ASCD/ICC STEERING SWITCH
CONTROL SIGNAL		2	10 11 12	102	LG	EVAP CONTROL SYSTEM PRESS SENSOF
			14 15 16 18	103	<u>ق</u> -	SENSOR POWER SUPPLY [Without ICC]
	Terminal Color Of	Terminal Color Of		104	, W	SENSOR GROUND [With ICC]
CANA CANA CONTRACTOR	No. Wire Signal Name [Specification]	No. Wire	Signal Name [Specification]	104	GR	SENSOR GROUND [Without ICC]
WC AWIF.	1 L	1 6		105	_	REFRIGERANT PRESS SENSOR
	\dashv	2 SHIELD		106	Μ	FUEL TANK TEMPERATURE SENSOR
	+	+		107	BG	SENSOR POWER SUPPLY
	5 BG -	W :		80 9	× (SENSOR GROUND
7		- 0		5 6	םפ	PNP SIGNAL ENGINE SPEED OF TRIFF SIGNAL
88 88 88 88	Connector No M72	- ∞		112	<u> </u>	SENSOR GROUND
22		8	,	113	۵	CAN COMMUNICATION LINE
	Connector Name MULTIFUNCTION SWITCH	10 R		114	_	CAN COMMUNICATION LINE
<u> </u>	Connector Type TH16FW-NH	۱۱ ۸		117	>	DATA LINK CONNECTOR
Consideration		12 R	,	121	PT	EVAP CANISTER VENT CONTROL VALVE
oignal name [opecindation]		13 LG		122	Ь	STOP LAMP SWITCH
ACC POWER SUPPLY		14 R	- [With NAVI]	123	В	ECM GROUND
FUEL LEVEL SENSOR SIGNAL		┪	- [Without NAVI]	124	В	ECM GROUND
INTAKE SENSOR SIGNAL	4 6 8 14 16	σ		125	ď	POWER SUPPLY FOR ECM
SENSOR SIGNAL	1359	_	- [Without NAVI]	126	BR.	ASCD/ICC BRAKE SWITCH
AMBIENT SENSOR SIGNAL		+	- [With NAVI]	127	8	ECM GROUND
SUNLOAD SENSOR SIGNAL	-	18 B	1	128	В	ECM GROUND
EXHAUST GAS / OUTSIDE ODOR DETECTING SENSOR SIGNAL	曺					
BATTERY BOWER SUPPLY	NO. VVIII.	Connector No M407		Connector No		M44.14
GBOLIND		ı			ı	
CAN-H		Connector Name ECM		Connect	Connector Name	FRONT SQUAWKER RH
BRAKE FLUID LEVEL SWITCH SIGNAL	5 Y ILL CONT	Connector Type RH24FG	RH24FGY-RZ8-R-LH-Z	Connect	Connector Type	TK02FBR
FUEL LEVEL SENSOR GROUND	6 SB AV COMM (H)					
INTAKE SENSOR GROUND	8 LG AV COMM (L)	_		_	1	
SENSOR GROUND	9 B SW GND				•	
AMBIENT SENSOR GROUND	14 Y DISK EJECT SIGNAL		124	_	Į	<u> </u>
SUNLOAD SENSOR GROUND	16 G HAZARD ON	υE		5	g	2 1
		11.5	121 117 113 109 105 101	•	ù	
ECV SIGNAL		า				
A/C LAN SIGNAL						
EACH DOOR MOTOR POWER SUPPLY						
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Terminal	Terminal Color Of		Connec	Connector No.	M117	73	g		8	۵	CAN-L	
ġ.	Wire	Signal Marile [Specification]		;		75	8		91	Ľ	CANH	
-	_	- [Without BOSE audio]	Connec	Connector Name	WIRE TO WIRE	80	>		92	PP	KEY SLOT ILL CONT	
-	>	- [With BOSE audio]	Connec	Connector Type	TH80MW-CS16-TM4	81	SB		93	>	ON IND	
2	97					82	>		96	>	PUDDLE LAMP CONT	
2	×	- [Without BOSE audio]		1		83	۵		95	BG	ACC RELAY CONT	
				1		84	ď		96	H	A/T SHIFT SELECTOR POWER SUPPLY	
			_	Į		82	_		66	œ	SHIFT P	
Connector No.		M116	1	9		98	BG		100	┝	PASSENGER DOOR REQUEST SW	
Jones	Monacotor Monaco	DOWN OF BOIN	1	Ì		87	_		101	SB	DRIVER DOOR REQUEST SW	
		ine 10 wine			PP	88	Ь	•	102		BLOWER FAN MOTOR RELAY CONT	
Connector Type		TK36MW-NS10				91	^		103	H	KEYLESS ENTRY RECEIVER POWER SUPPLY	
			Terminal	al Color Of	JC	85	9		107	9T .	COMBI SW INPUT 1	
_	7		2	Wire		94	9		108	~	COMBI SW INPUT 4	
			-	_	•	98	Μ		109	<u></u>	COMBI SW INPUT 2	
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5	C F	i	က	GR		26	>					
1	Ц		4	SB		86	æ					
			7	>		66	۵	- [Without BOSF audio]	Conne	Connector No.	M124	
			4	>		8	>	[With BOSE andio]			Т	
T.	0-1-0		2 ų	9		200	-	Interest BOSE and Interest BOSE	Conne	Connector Name	WIRE TO WIRE	
erminal	l erminal Color Of	Signal Name [Specification]	0 6	8 3		3 8	7 6	- [without book audio]	d	-	1500	
O. C	wire		9 1	> 8		901	SB	- [with BOSE audio]		Connector Type	ITHUMW-CS19	
7	<u>.</u>		-	ž į					-			
က	7		56	HH.			-			`		
4	œ		27	PC		Connector No.		M122	-	•		
2	В		28	>		Omple Monac		(STINOD NODINE)			00	
6	Я		58	Α		COLLECTO		BOW (BOD) CONTROL MODULE)	_	Ø	2 2 2 2	
10	œ		30	^		Connector Type	Type .	TH40FB-NH	•	ì	3 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
19	BG		31	Я								
20	*		32	BR	•		7					
28	В		33	G		_	•		Terminal	0)t	
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31	M		22	٨		Ę	C	26 90 98 92 92 93 93 73 73 73 73 73 73 73 73 73 73 73 73 73	7	Υ		
33	ш		29	ω	,	-	2	TE TO	80	PLG		
34	В		25	œ					6	>		
35	_		28	Ø					12	-	-	
36	۵		29	SHELD		Terminal	Color Of		13	>		
37	>		9	>			Wire	Signal Name [Specification]	4	B		
38	9		61	9		74	SB	PASSENGER DOOR ANT-	15	╁		
43	۵		6	â		75	a	PASSENCEP DOOR ANT+	4	Ŧ		
ç ş	-		3 8	ś -		2 6	5	PASSEINGEN DOOR AND	2 2	+		
44	,	-	3	-		ę.	>	DRIVER DOOR AINI:	-	+		
45	BR		8	၅		11	2	DRIVER DOOR ANT+	8	+		
46	BG	-	92	В	-	78	Υ	ROOM ANT1-	19		-	
			99	œ		79	æ	ROOM ANT1+	20	>	 [Without BOSE audio] 	
			29	≥	•	80	GR	NATS ANT AMP.	20	>	- [With BOSE audio]	
			99	SHIELD		81	W	NATS ANT AMP.	21	9	- [With BOSE audio]	
			69	>		82	œ	IGN RELAY (F/B) CONT	21	-	 [Without BOSE audio] 	
			20	>	-	83	≻	KEYLESS ENTRY RECEIVER COMM	22	SB	-	
			71	SB		87	BR	COMBI SW INPUT 5	23	H		
			72	^		88	>	COMBI SW INPUT 3	24	9	-	

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H.S.				_
H.S.	l		Connector Name USB COINNECTOR	
Fig. 10 Color Co	L	г	Connector Type HAA04FG	Г
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The control of the	+			7
Fig. 10 1 1 1 1 1 1 1 1 1	+		13	
H.S.	4		-1	36 37 38 39 40 41 42 43 44 45
Terminal Clark Cla		11 9 8 / 6 5	2	
Common Specification Control Signature C	L	27 07 07 00 70 00]`	48 49 50 51 52
1	ļ	1 9 1 1 1 1		
The control of color of colo	1			
Terminal Chart Of Signal Name (Specification) Terminal Chart Of Signal Nam	_			
1		Color Of	Color Of	Color Of
1	H	Wire	Wire	Wire
Commetor Num Signature Commetor Num Commeto	ļ		N N	O
1	+	2	+	200
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1	ctor Name WIRE TO WIRE	T	Γ	9
1 V COMM/CONTON-TOPPO 1 1 V COMM/CONTON-TOPPO 1 1 V COMM/CONTON-TOPPO 1 1 1 V COMM/CONTON-TOPPO 1 1 1 1 1 1 1 1 1			Τ	-
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1234 17		20		-
Signal Name [Specification] 22 SHELD SHELD Shell S	1 2 3	o		BR
19 W ROB SYNC SIGNAL Part P	0 7 1	۵		H
Signat Name [Specification] 22 SHELD 24 15 16 16 17 18 27 SHELD 27 SHE		. ///		>
Signal Name Specification 22 SHELD S		^^	2 3 4 5 6 7 9	- 1
Signal Name [Specification] 22 SHELD			19 44 45 48 46 48	SHIELD
Signal Name (Specification) 22 BR COMM (Disp-CONT)		SHELD	0 0 0 14 10 10	SHELD
Signal Name Specification Same Same Specification Same Sa				
Shelb Terminal Color Signal Name (Specification) Terminal Color Signal Name (Specification) Terminal Color Signal Name (Specification) Signa	- 1	Vio		SHIELD
Wire SOUND SIGNAL FRONT LH (+) Cornector No. M203	SHELD	SHELD	Color Of	
Corrector No. M2033 Corr	- M		Wire	
- [Without around view monitor]			ļ	ı
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W - [With around view monitor]			ഉ	
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COUND SIGNAL FRONT RH (+)			œ	
Council State Council Stat			-	7
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BASE AUDIO WITHOUT NAVIGATION	NOI		
Terminal Color Of Sinnal Name (Snecification)	Connector No. M206	Connector No. M303	Connector No. M375
No. Wire Camero Communication	Connector Name AV CONTROL UNIT	Connector Name COMBINATION SWITCH (SPIRAL CABLE)	Connector Name WIRE TO WIRE
SHIELD	Connector Type A12FW	Connector Type TK08FGY	Connector Type GT13SC-2_1S-HU
W			
73 R CAMERA POWER SUPPLY			
	120 12		
Connector No. M204	124 128 128 128 128 130	20 19 18 17 16 15 14 13	
Connector Name AV CONTROL UNIT			<u>e</u>
Connector Type TH32FW-NH			
	Terminal Color Of Signal Name [Specification] No. Wire	Terminal Color Of Signal Name [Specification] No. Wire	Terminal Color Of Signal Name [Specification] No. Wire
	В	13 R -	1
	G SATELLITE	14 W -	2
76 77 78 79 80 81 82 86 87 88	122 B COMM (CONT-SAT)	15 L	3
_	s œ	Ŧ	
	SHELD	18 Y	Connector No. M376
a	127 SHIELD SHIELD	19 P	Owner More TO WIE
No. Wire Signal Name [Specification]	128 SB MODE CHANGE SIGNAL	20 Y -	
Pl	×		Connector Type GT13SCN-2_1PP-HU
SB	130 R COMM (SAT-CONT)	-	
†		Connector No. M368	
25	ſ	Connector Name AV CONTROL UNIT	
80 P CAN-L	Connector No. M207		
1 0	Connector Name AV CONTROL UNIT	7	7
9	Connector Type HAA04FL		3
87 L TEL VOICE SIGNAL (+)			
TEL VOIC	[_	<u> </u>	Terminal Color Of Signal Name (Specification)
R VEH		\$ 5 E	No. Wire olgnar varie [opecindation]
PA	132 134	2	1
BG	134 138		2
9			3
96 Y DISK EJECT SIGNAL	901	Terminal Color Of Signal Name [Specification]	
	F F	+	
	No. Wire Signal Name [Specification]		
	132 G USB GND	139 - ANTENNA AMP. ON SIGNAL	
	W		
	- USB		
	136 SHIELD SHIELD		

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COLLINGUE INC. MIGTO	Connector No. M386	Connector No. M388	la	Simpl Name (Specification)
Editor OT Editor	Competer Name ANTENNIA BASE	All MIDE TO MIDE	No. Wire	orginal ivanire [opecinication]
Office Contract of Winds To Winds	CONTRECTOR NAME AND ENNA BASE	Connector Iname VVINE 10 VVINE	1 ق	
Connector Type GT13SC-2_1S-HU	Connector Type GT13SSN-1_1PP-HU	Connector Type JASO_PLUG	2 SHIELD	
-	(3	-
			4 BR	 [With automatic drive positioner]
			+	- [Without automatic drive positioner]
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\(\frac{1}{2}\)			A RK	-
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<u></u>	Terminal Color Of Signal Nama [Sacaification]	Terminal Color Of Signal Nama (Specification)	11	
No. Wire ogner reme (Specimental)	No. Wire ognarivanie poedinoanorij	No. Wire Ogna realing Johanning	12 BR	
	1 - ANTENNA AMP. ON SIGNAL		13	
2	2 - AM-FM MAIN		14 W	
3	2 - AM-FM MAIN_1		15 SHIELD	
-	2 - AM-FM MAIN_2	Connector No. M389	16 B	
			F	
Connector No. M385		Connector Name (GLASS ANI ENNA (FM SUB)		
Omerand Agence Allowed Avided TO WHEE	Connector No. M387	Connector Type P01FB-A		
	Ownertor Name TO WIDE TO WIDE		Connector No.	R2
Connector Type GT13SCN-2_1PP-HU	7000		Connector Name	WIRE TO WIRE
(Connector Type JASO_JACK			
		<u>-</u>	Connector Type	TH12FW-NH
			_	
	<u></u>			
Ą				/ / \ - -
m		Terminal Color Of	Ę	6 5 4 3 2 1
		No. Wire Signal Name [Specification]	2	
Terminal Color Of				_11
No. Wire Signal Name [Specification]	Terminal Color Of		-	
	No. Wire olgital rearie [opecilication]		Terminal Color Of	
2		Connector No. R1	No. Wire	ognal Name [opecification]
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		Connector Name Wirks 10 Wirks	2 B	,
		Connector Type NH10FW-CS10	3 SHIELD	
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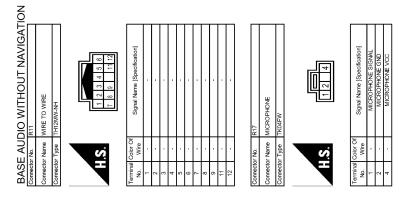
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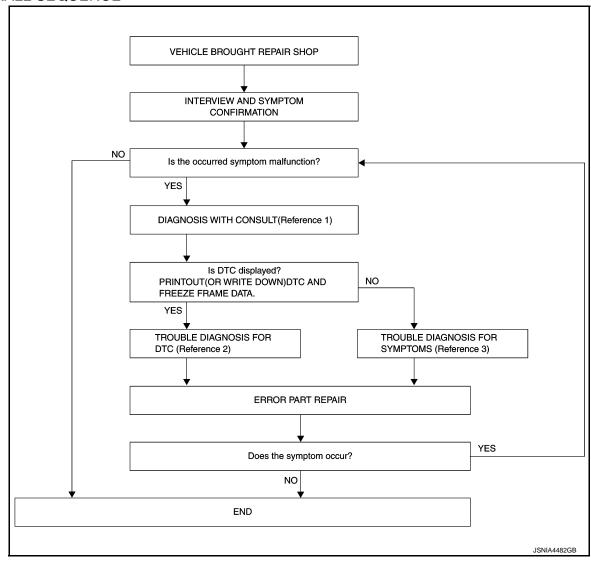
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow | INFOID:0000000000061403 | B

OVERALL SEQUENCE



- Reference 1... Refer to <u>AV-30, "CONSULT Function (MULTI AV)"</u>.
- Reference 2··· Refer to <u>AV-42, "DTC Index"</u>.
- Reference 3··· Refer to AV-121, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

2. DIAGNOSIS WITH CONSULT

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BASE AUDIO WITHOUT NAVIGATION]

 Connect CONSULT and perform a self-diagnosis for "MULTI AV". Refer to <u>AV-30, "CONSULT Function</u> (<u>MULTI AV)"</u>.

NOTE:

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

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

Is DTC displayed?

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

3.trouble diagnosis for dtc

- 1. Check the DTC indicated in the "Self-Diagnosis Results".
- 2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-42, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-121, "Symptom Table"</u>.

>> GO TO 5.

5. ERROR PART REPAIR

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

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

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[BASE AUDIO WITHOUT NAVIGATION]

INSPECTION AND ADJUSTMENT Α ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Description INFOID:0000000009061404 BEFORE REPLACEMENT When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement. AFTER REPLACEMENT D CAUTION: When replacing AV control unit, you must perform "After Replace ECU" or "Manual configuration" with CONSULT. Complete the procedure of "After Replace ECU" or "Manual Configuration" in order. Е If you set incorrect "After Replace ECU" or "Manual Configuration", incidents might occur. • Configuration is different for each vehicle model. Confirm configuration of each vehicle model. ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure F INFOID:0000000009061405 1. SAVING VEHICLE SPECIFICATION (P)CONSULT Configuration Perform "Before Replace ECU" to save or print current vehicle specification. Refer to AV-71, "CONFIGURA-TION (AV CONTROL UNIT): Description". Н NOTE: If "Before Replace ECU" can not be used, use the "Manual Configuration". >> GO TO 2. 2 .REPLACE AV CONTROL UNIT Replace AV control unit, Refer to AV-128, "Exploded View", >> GO TO 3. K 3. WRITING VEHICLE SPECIFICATION ©CONSULT Configuration Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to AV-72, "CON-FIGURATION (AV CONTROL UNIT): Work Procedure". M >> GO TO 4. 4. OPERATION CHECK Check that the operation of the AV control unit is normal. ΑV >> WORK END CONFIGURATION (AV CONTROL UNIT) CONFIGURATION (AV CONTROL UNIT): Description INFOID:0000000009061406

 Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT. The AV control unit configuration includes functions as follows.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[BASE AUDIO WITHOUT NAVIGATION]

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

CONFIGURATION (AV CONTROL UNIT): Work Procedure

INFOID:0000000009061407

1. WRITE VEHICLE SPECIFICATION

©CONSULT Configuration

Write vehicle specification into AV control unit.

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

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

2. WRITE STORED DATA

(P)CONSULT Configuration

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

>> GO TO 4.

3.manually write vehicle specification

(P)CONSULT Configuration

Perform "Manual Configuration". Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-72, "CONFIGURATION (AV CONTROL UNIT): Configuration List".

NOTE:

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

>> GO TO 4.

4. OPERATION CHECK

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

>> WORK END

CONFIGURATION (AV CONTROL UNIT): Configuration List

INFOID:00000000009061408

CAUTION:

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

NOTE:

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

MANUAL SE	ETTING ITEM
Items	Setting value
STEERING	LHD
STEENING	RHD

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[BASE AUDIO WITHOUT NAVIGATION]

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MANUAL SETTING ITEM	
Items	Setting value
	NONE/AVM
CAMERA SYSTEM	REAR CAMERA
	REAR+SIDE
SOUND SYSTEM	BASE
	BOSE
AUXILIARY INPUT	WITHOUT
JACKS	WITH
NOTE: AVM: Around view me	

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Revision: 2013 March AV-73 2014 QX50

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

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

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

DTC Logic

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000009061411

1. PERFORM SELF-DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

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

NO >> Refer to GI section. Refer to GI-42, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BASE ÁUDIO WITHOUT NAVIGATION]

U1010 CONTROL UNIT (CAN)

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction factor
U1010	CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-128, "Exploded View".

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U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1200 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1200	Cont Unit [U1200]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-128</u> , "Exploded View".

U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1216 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1216	CAN CONT [U1216]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-128</u> , "Exploded View".

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U121D AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U121D AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121D	DSP CONN [U121D]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061416

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

U121E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U121E AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121E	DSP COMM [U121E]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061418

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

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U1225 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1225 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1225	USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.

U1228 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1228 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1228	SUB CPU CONN [U1228]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-128, "Exploded View".

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U1229 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1229 AV CONTROL UNIT

DTC Logic INFOID:0000000000000001421

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1229	iPod CERTIFICATION [U1229]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-128, "Exploded View".

U122A AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U122A AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Action to take
U122A	CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with "MULTI AV" of CONSULT.

Diagnosis Procedure

INFOID:0000000009061423

1.PERFORM THE SELF-DIAGNOSIS

When U122A is detected, write configuration data with "MULTI AV" of CONSULT.

>> Write configuration data with "MULTI AV" of CONSULT. Refer to AV-72, "CONFIGURATION (AV CONTROL UNIT): Work Procedure".

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U122E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U122E AV CONTROL UNIT

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U122E	Built-in AUDIO CONN [U122E]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-128, "Exploded View".

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1232 STEERING ANGLE SENSOR

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061426

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

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

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

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U1243 DISPLAY UNIT

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061428

${f 1.}$ CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-93, "DISPLAY UNIT: Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK CONTINUITY COMMUNICATION CIRCUIT

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

Display unit		AV control unit		Continuity	
Connector	Terminals	Connector	Terminals	Continuity	
M194	11	M202	51	Existed	
W194	22	IVIZUZ	39	Existed	

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

Displa	ay unit		Continuity
Connector	Terminals	Ground	Continuity
M404	11		Not existed
M194	22		ivoi 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]

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M194	11	Ground	When adjusting display brightness.	(V) 6 4 2 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M194	22	Ground	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to AV-129, "Exploded View".

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U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1255 SATELLITE RADIO TUNER

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061430

1.CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to <u>AV-94, "SATELLITE RADIO TUNER: Diagnosis Procedure"</u>.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2.CHECK CONTINUITY COMMUNICATION CIRCUIT AND REQUEST SIGNAL CIRCUIT

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

AV control unit		Satellite radio tuner		Continuity
Connector	Terminals	Connector	Terminals	Continuity
	129		8	
M206	122	B236	10	Existed
	130		9	

4. Check continuity between AV control unit harness connector.

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. CHECK AV CONTROL UNIT VOLTAGE

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

(+)				Defenses value
AV control unit		(-)	Condition	Reference value (Approx.)
Connector	Terminals			V 11 - 2 /

U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

M206	129	Ground	When satellite radio mode is select-	(V) 10 0 -10 + 10ms SKIA9299J
MZOO	122	Ground	ed.	(V) 10 0 -10 -10 -1ms SKIA9300J

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

4. CHECK SATELLITE RADIO TUNER

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

(+) Satellite radio tuner		(-)	Condition	Reference value (Approx.)
Connector	Terminal			, , ,
B236	10	Ground	When satellite radio mode is selected.	(V) 10 0 -10 → 1ms SKIA9301J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace satellite radio tuner. Refer to AV-133, "Exploded View".

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U1263 USB

[BASE AUDIO WITHOUT NAVIGATION]

U1263 USB

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1263	USB OVERCURRENT [U1263]	Detection of overcurrent in USB connecter.	Check USB harness between the AV control unit and USB connector.

Diagnosis Procedure

INFOID:0000000009061432

1. CHECK USB HARNESS

Visually check USB harness.

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-128, "Exploded View".

NO >> Replace USB harness.

U1300 AV COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1300 AV COMM CIRCUIT

Description INFOID:000000000061433

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

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

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

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U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

U1310 AV CONTROL UNIT

DTC Logic INFOID:00000000000001434

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit. Refer to AV-128, "Exploded View".

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

POWER SUPPLY AND GROUND CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000009061435

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1.CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Turn ignition switch OFF.

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

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT: Diagnosis Procedure

1. CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M194	2	ACC	8.8 V
Signal VCC	WI194	3	ACC	0.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.check power supply circuit (continuity)

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

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INFOID:00000000009061436

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POWER SUPPLY AND GROUND CIRCUIT

[BASE AUDIO WITHOUT NAVIGATION]

INFOID:0000000009061437

< DTC/CIRCUIT DIAGNOSIS >

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	2	M202	48	Existed
101134	3	IVIZUZ	36	Existed

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

Displa	ay unit		Continuity	
Connector Terminal		Ground	Continuity	
M194	2	Giodila	Not existed	
101194	3		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.

(+)		(–)	Ignition switch	Voltage (Approx.)
AV control unit				
Connector	Terminal		•	(11 /
M202	48	Ground	ACC	8.8 V
IVIZUZ	36	Ground	ACC	8.8 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	M194	1	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

SATELLITE RADIO TUNER

SATELLITE RADIO TUNER: 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.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

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.

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

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B87	1	OFF	Battery voltage
ACC power supply	B87	2	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B87	4	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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INFOID:0000000009061438

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RGB (R: RED) SIGNAL CIRCUIT

[BASE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

RGB (R: RED) SIGNAL CIRCUIT

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

Diagnosis Procedure

INFOID:0000000009061440

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

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

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	17	M202	43	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	17		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

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

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M194	17	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 • • 40μs JSNIA1029ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-129, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-128</u>, "<u>Exploded View</u>".

RGB (G: GREEN) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

RGB (G: GREEN) SIGNAL CIRCUIT

Description INFOID:0000000000000001441

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

Diagnosis Procedure

INFOID:00000000009061442

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

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

Displ	Display unit		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	6	M202	44	Existed

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

	Display unit			Continuity
-	Connector	Terminal	Ground	Continuity
	M194	6		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

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

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M194	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 → 40µs JSNIA1030ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-129, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-128</u>, "Exploded View".

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Revision: 2013 March AV-97 2014 QX50

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RGB (B: BLUE) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS > [BASE AUDIO WITHOUT NAVIGATION]

RGB (B: BLUE) SIGNAL CIRCUIT

Description INFOID:000000000001443

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

Diagnosis Procedure

INFOID:0000000009061444

$\hbox{\bf 1.} \text{check continuity RGB (B: BLUE) SIGNAL CIRCUIT}$

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

Displa	Display unit		trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	18	M202	45	Existed

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

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M194	18		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

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

	+) ay unit	(–)	Condition	Reference value
Connector	Terminal			
M194	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 + 40μs JSNIA1031ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-129, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-128</u>, "Exploded View".

RGB SYNCHRONIZING SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

RGB SYNCHRONIZING SIGNAL CIRCUIT

Description INFOID:0000000009061445

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

Diagnosis Procedure

INFOID:00000000009061446

1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

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

Displa	ay unit	AV cor	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M194	19	M202	42	Existed

Check continuity between display unit harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB SYNCHRONIZING SIGNAL

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

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

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-129, "Exploded View".

NO >> Replace AV control unit. Refer to AV-128, "Exploded View". M

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RGB AREA (YS) SIGNAL CIRCUIT

| BASE AUDIO WITHOUT NAVIGATION

< DTC/CIRCUIT DIAGNOSIS > RGB AREA (YS) SIGNAL CIRCUIT

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

Diagnosis Procedure

INFOID:0000000009061448

1. CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

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

Displa	ay unit	AV con	trol unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	9	M202	40	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB AREA (YS) SIGNAL

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

(+) Display unit		(–)	Condition	Reference value (Approx.)
Connector	Terminal			, , ,
			At RGB image is displayed.	5.0 V
M194	9	Ground	At camera image is displayed.	(V) 6 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-129, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-128, "Exploded View"</u>.

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

COMPOSITE IMAGE SIGNAL CIRCUIT

Description INFOID:0000000000001449

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

Diagnosis Procedure

1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

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

AV cor	AV control unit		ay unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M202	47	M194	15	Existed

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

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M202	47		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMPOSITE IMAGE SIGNAL

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

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

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-129, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-128</u>, "<u>Exploded View</u>".

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INFOID:0000000009061450

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT DIAGNOSIS > [BASE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

In composite 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:0000000009061452

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

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

Displa	ay unit AV control unit		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M194	8	M202	38	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

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

(+)			
Display unit		(-)	Reference value
Connector	Terminal		
M194	8	Ground	(V) + *20µs SKIB3601E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-128, "Exploded View".

NO >> Replace display unit. Refer to AV-129, "Exploded View".

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

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INFOID:0000000009061454

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

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

Diagnosis Procedure

1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

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

Displa	Display unit		trol unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M194	20	M202	50	Existed

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

Display unit		Display unit	
Connector	Terminal	Ground	Continuity
M194	20		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

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

(+)				
Display unit		(–)	Reference value	
Connector	Terminal			
M194	20	Ground	(V) 4 0 ++4ms SKIB3598E	

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-128, "Exploded View".

NO >> Replace display unit. Refer to AV-129, "Exploded View".

Reference value

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to AV-128, "Exploded View".
AV-129, "Exploded View".

Revision: 2013 March AV-103 2014 QX50

DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

DISK EJECT SIGNAL CIRCUIT

Description INFOID.00000000000001455

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

Diagnosis Procedure

INFOID:0000000009061456

1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

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

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

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

Multifunction switch			Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AV CONTROL UNIT VOLTAGE

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

(+) AV control unit		(-)	Condition	Voltage (Approx.)	
Connector	Terminal			(11 - 7	
M204	96	Ground	Pressing the eject switch	0 V	
101204	101204 90		Except for above	5.0 V	

Is the inspection result normal?

YES >> Replace preset switch. Refer to AV-136, "Exploded View".

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

MICROPHONE SIGNAL CIRCUIT

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

Diagnosis Procedure

1. CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

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

TEL adapter unit		Microphone		Continuity
Connector	Terminals	Connector Terminals		Continuity
	7		1	
B87	8	R17	2	Existed
	29		4	

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

TEL adapter unit			Continuity
Connector	Terminals	Ground	Continuity
B87	7	Ground	Not existed
D01	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.
- Check voltage between TEL adapter unit harness connector.

(+)		(–)	N/ 1/
TEL adapter unit		TEL adapter unit		Voltage (Approx.)
Connector	Terminal	Connector Terminal		、 11
B87	29	B87	8	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace TEL adapter unit. Refer to AV-141, "Exploded View".

3. CHECK MICROPHONE SIGNAL

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

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Revision: 2013 March AV-105 2014 QX50

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

(+)	(–)			
TEL ada	apter unit	TEL adapter unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B87	7	B87	8	give a voice.	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0

Is the inspection result normal?

>> Replace TEL adapter unit. Refer to <u>AV-141, "Exploded View"</u>. >> Replace microphone. <u>AV-138, "Exploded View"</u>. YES

NO

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

CAMERA IMAGE SIGNAL CIRCUIT

Description INFOID:000000000001459

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

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

Diagnosis Procedure

INFOID:0000000009061460

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1. CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

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

AV control unit		Rear view camera		Continuity
Connector	Terminal	Connector Terminal		Continuity
M203	73	D121	1	Existed

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

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

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE CAMERA POWER SUPPLY

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

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

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit.

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

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

AV control unit		Rear vie	w camera	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M203	62	D121	3	Existed	

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

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CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

AV control unit			Continuity	
Connector	Terminal	Ground	Continuity	
M203	62		Not existed	

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK CAMERA IMAGE SIGNAL

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

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

Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-128, "Exploded View".

NO >> Replace rear view camera. Refer to AV-139, "Exploded View".

COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

Description INFOID:0000000009061461

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

1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

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

Satellite r	adio tuner	AV con	trol unit	Continuity
Connector	Terminals	Connector	Terminals	Continuity
B236	9	M206	122	Existed
B230	10	IVIZUO	130	Existed

Check continuity between satellite radio tuner harness connector and ground.

Satellite r	adio tuner		Continuity
Connector	Terminals	Ground	Continuity
B236	9	Glound	Not existed
D230	10		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMMUNICATION SIGNAL

- Connect satellite radio tuner connector and AV control unit connector.
- Turn ignition switch ON. 2.
- 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 -1ms

Is the inspection result normal?

YES >> GO TO 3.

>> Replace satellite radio tuner. Refer to AV-133, "Exploded View". NO

3.CHECK COMMUNICATION SIGNAL

Check signal between satellite radio tuner harness connector and ground.

AV-109 Revision: 2013 March 2014 QX50 Α

INFOID:0000000009061462

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COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

(+) Satellite radio tuner		(-)	Condition	Reference value
Connector	Terminal			
B236	10	Ground	When satellite radio mode is selected.	(V) 10 0 -10 + 1ms SKIA9301J

Is the inspection result normal?

YES >> Replace satellite radio tuner. Refer to <u>AV-133, "Exploded View"</u>.

NO >> Replace AV control unit. AV-128, "Exploded View".

REQUEST SIGNAL CIRCUIT (SAT→CONT)

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

REQUEST SIGNAL CIRCUIT (SAT→CONT)

Description INFOID:00000000000001463

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

Diagnosis Procedure

INFOID:0000000009061464

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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 harness connector and AV control unit harness connector.

	Satellite radio tuner		AV control unit		Continuity
•	Connector	Terminal	Connector	Terminal	Continuity
٠	B236	8	M206	129	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

- 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. Refer to <u>AV-128</u>, "Exploded View".

NO >> Replace satellite radio tuner. Refer to AV-133, "Exploded View".

AV

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH SIGNAL A CIRCUIT WITH HANDS-FREE PHONE SYSTEM

WITH HANDS-FREE PHONE SYSTEM: Description

INFOID:0000000009061465

Transmits the steering switch signal to AV control unit.

WITH HANDS-FREE PHONE SYSTEM: Diagnosis Procedure

INFOID:0000000009061466

1. CHECK STEERING SWITCH SIGNAL A CIRCUIT

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

AV cor	itrol unit	Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	6	M36	24	Existed

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

AV con	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M201	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK AV CONTROL UNIT VOLTAGE

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

(-	+)	(–)		
AV con	trol unit	AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(44)
M201	6	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-113, "WITH HANDS-FREE PHONE SYSTEM: Component Inspec-</u> tion".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15</u>, "Exploded View".

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

WITH HANDS-FREE PHONE SYSTEM: Component Inspection

INFOID:0000000009061467

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

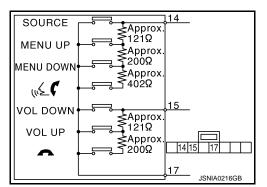
Standard

Between terminals 14 and 17

Between terminals 15 and 17

 $\begin{tabular}{lll} \bf \sim & \text{switch ON} & : Approx. 318 - 324 \ \Omega \\ & \text{VOL UP switch ON} & : Approx. 120 - 122 \ \Omega \\ \end{tabular}$

VOL DOWN switch ON $$\rm : Approx.~0~\Omega$



WITHOUT HANDS-FREE PHONE SYSTEM

WITHOUT HANDS-FREE PHONE SYSTEM: Description

INFOID:0000000009061468

Transmits the steering switch signal to AV control unit.

WITHOUT HANDS-FREE PHONE SYSTEM: Diagnosis Procedure

INFOID:0000000009061469

1. CHECK STEERING SWITCH SIGNAL A CIRCUIT

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

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

Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

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.

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STEERING SWITCH SIGNAL A CIRCUIT

[BASE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

(+)		(–)		
AV cor	trol unit	AV cor	trol unit	Voltage (Approx.)
Connector	Terminal	Connector	Terminal	() 1 - 7
M201	6	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-128, "Exploded View"</u>.

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-114, "WITHOUT HANDS-FREE PHONE SYSTEM: Component Inspection".</u>

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15, "Exploded View"</u>.

WITHOUT HANDS-FREE PHONE SYSTEM: Component Inspection

INFOID:0000000009061470

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

Standard

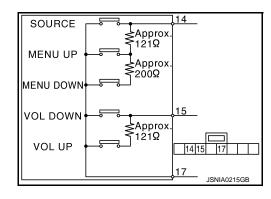
Between terminals 14 and 17 MENU DOWN switch ON : Approx. $318-324~\Omega$ MENU UP switch ON : Approx. $120-122~\Omega$

SOURCE switch ON : Approx. 0 Ω

Between terminals 15 and 17

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

VOL DOWN switch ON : Approx. 0 Ω



STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH SIGNAL B CIRCUIT WITH HANDS-FREE PHONE SYSTEM

INFOID:0000000009061471

WITH HANDS-FREE PHONE SYSTEM: Description

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Transmits the steering switch signal to AV control unit.

WITH HANDS-FREE PHONE SYSTEM: Diagnosis Procedure

INFOID:0000000009061472

1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

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

Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3 . CHECK AV CONTROL UNIT VOLTAGE

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

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

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to AV-116, "WITH HANDS-FREE PHONE SYSTEM: Component Inspec-

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15, "Exploded View"</u>.

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2014 QX50

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

WITH HANDS-FREE PHONE SYSTEM: Component Inspection

INFOID:0000000009061473

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

Standard

Between terminals 14 and 17

Between terminals 15 and 17

Switch ON: Approx. $318 - 324 \Omega$ VOL UP switch ON: Approx. $120 - 122 \Omega$ VOL DOWN switch ON: Approx. 0Ω

MENU UP

MENU DOWN

MENU DOWN

Approx.

Approx.

402Ω

VOL DOWN

VOL UP

Approx.

15

Approx.

121Ω

Approx.

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WITHOUT HANDS-FREE PHONE SYSTEM

WITHOUT HANDS-FREE PHONE SYSTEM: Description

INFOID:0000000009061474

Transmits the steering switch signal to AV control unit.

WITHOUT HANDS-FREE PHONE SYSTEM: Diagnosis Procedure

INFOID:0000000009061475

1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

- 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		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	16	M36	31	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3. CHECK AV CONTROL UNIT VOLTAGE

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

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

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

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to <u>AV-128, "Exploded View"</u>.

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-117</u>, "WITHOUT HANDS-FREE PHONE SYSTEM: Component <u>Inspection"</u>.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15</u>, "<u>Exploded View</u>".

WITHOUT HANDS-FREE PHONE SYSTEM: Component Inspection

INFOID:0000000009061476

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

Standard

Between terminals 14 and 17

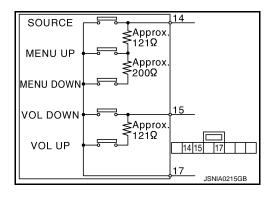
MENU DOWN switch ON : Approx. $318 - 324 \Omega$ MENU UP switch ON : Approx. $120 - 122 \Omega$

SOURCE switch ON : Approx. 0 Ω

Between terminals 15 and 17

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

VOL DOWN switch ON : Approx. 0 Ω



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STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH GROUND CIRCUIT WITH HANDS-FREE PHONE SYSTEM

WITH HANDS-FREE PHONE SYSTEM: Description

INFOID:0000000009061477

Transmits the steering switch signal to AV control unit.

WITH HANDS-FREE PHONE SYSTEM: Diagnosis Procedure

INFOID:0000000009061478

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

AV cor	trol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK GROUND CIRCUIT

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	15		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-118</u>, "WITH HANDS-FREE PHONE SYSTEM: Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15, "Exploded View"</u>.

WITH HANDS-FREE PHONE SYSTEM : Component Inspection

INFOID:0000000009061479

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

STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

Standard

Between terminals 14 and 17

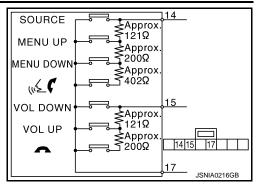
√ switch ON : Approx. $716 - 730 \Omega$ MENU DOWN switch ON : Approx. $318 - 324 \Omega$ MENU UP switch ON : Approx. $120 - 122 \Omega$

SOURCE switch ON : Approx. 0 Ω

Between terminals 15 and 17

: Approx. 318 - 324 Ω switch ON VOL UP switch ON : Approx. $120 - 122 \Omega$

VOL DOWN switch ON : Approx. 0 Ω



WITHOUT HANDS-FREE PHONE SYSTEM

WITHOUT HANDS-FREE PHONE SYSTEM: Description

Transmits the steering switch signal to AV control unit.

WITHOUT HANDS-FREE PHONE SYSTEM: Diagnosis Procedure

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

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

Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK GROUND CIRCUIT

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	15		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-128, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to AV-120, "WITHOUT HANDS-FREE PHONE SYSTEM: Component Inspection".

Is the inspection result normal?

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STEERING SWITCH GROUND CIRCUIT

[BASE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS > YES

>> INSPECTION END

NO >> Replace steering switch. Refer to ST-15, "Exploded View".

WITHOUT HANDS-FREE PHONE SYSTEM: Component Inspection

INFOID:0000000009061482

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

Standard

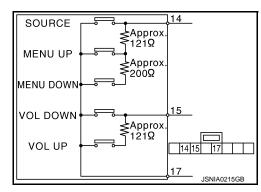
Between terminals 14 and 17 MENU DOWN switch ON : Approx. 318 - 324 Ω MENU UP switch ON : Approx. $120 - 122 \Omega$

SOURCE switch ON : Approx. 0 Ω

Between terminals 15 and 17

VOL UP switch ON : Approx. 120 – 122 Ω

: Approx. 0 Ω VOL DOWN switch ON



< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000009061483

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OPERATION

Symptoms	Check items	Possible malfunction location / Action to take
	All switches cannot be operated. "MULTI AV" is displayed on system selection screen when the CONSULT is started.	Multifunction switch power supply and ground circuit. AV communication circuit between AV control unit and multifunction switch. Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-30, "CONSULT Function (MULTI AV)".
Multifunction switch and preset switch operation does not work.	All switches cannot be operated. "MULTI AV" is not displayed on system selection screen when the CONSULT is initialized.	AV control unit power supply and ground circuit malfunction. Refer to AV-93, "AV CONTROL UNIT : Diagnosis Procedure".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-21, "On Board Diagnosis Function".
Fuel economy display, vehicle set-	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-30, "CONSULT Function (MULTI AV)".	Perform detected DTC diagnosis. Refer to AV-42, "DTC Index".
ting operation is abnormal.	There is no malfunction in the self-diagnosis results. Refer to AV-30, "CONSULT Function (MULTI AV)".	Ignition signal circuit malfunction. (AV control unit)

RELATED TO HANDS-FREE PHONE

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

Check Compatibility

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

NOTE:

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

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

NOTE:

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

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

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[BASE AUDIO WITHOUT NAVIGATION]

Perform diagnosis as per the following table.

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Repeat the registration of cellular phone.	TEL adapter unit malfunction. Refer to AV-141, "Exploded View".
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	 Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-30, "CONSULT Function (MULTI AV)". No malfunction. TEL adapter unit malfunction. Refer to AV-141, "Exploded View". Malfunction is detected. Perform detected DTC diagnosis. Refer to AV-42, "DTC Index".
The other party's voice cannot be heard by hands-free phone.	The operation of the "ws " switch can be performed.	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
	The operation of the "ws " switch cannot be performed.	Control signal circuit.
Originating sound is not heard by the other party with handsfree phone communication.	Sound operation function is normal.	TEL adapter unit. Refer to AV-141, "Exploded View".
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-105, "Diagnosis Procedure".
The system cannot be operated.	"SOURCE", "MENU UP", and "MENU DOWN" switches are operated. But " "" switch is not operated.	Check steering switch. Refer to AV-113, "WITH HANDS-FREE PHONE SYSTEM: Component Inspection". Malfunction is detected. Replace steering switch. Refer to ST-15, "Exploded View".
	"SOURCE", "MENU UP", "MENU DOWN" and " 🖟 🌈" switches are not operated.	Steering switch signal A circuit malfunction. Refer to AV-112, "WITH HANDS-FREE PHONE SYS-TEM: Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-118, "WITH HANDS-FREE PHONE SYS-TEM: Diagnosis Procedure".

RELATED TO RGB IMAGE

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-30, "CONSULT Function (MULTI AV)".	Perform detected DTC diagnosis. Refer to AV-42, "DTC Index".
	There is no malfunction in CONSULT self-diagnosis results. Refer to AV-30, "CONSULT Function (MULTI AV)".	Vertical synchronizing (VP) signal circuit. Refer to AV-103, "Diagnosis Procedure".
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to AV-96, "Diagnosis Procedure".
	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to AV-97, "Diagnosis Procedure".
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to AV-98, "Diagnosis Procedure".
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to <u>AV-99</u> , " <u>Diagnosis Procedure</u> ".

Check items

< SYMPTOM DIAGNOSIS >

Symptoms

[BASE AUDIO WITHOUT NAVIGATION]

Possible malfunction location / Action to take

Fuel economy display is mal-	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-30, "CONSULT Function (MULTI AV)".	Perform detected DTC diagnosis. Refer to AV-42, "DTC Index".
functioning.	There is no malfunction in CONSULT self-diagnosis results. Refer to AV-30, "CONSULT Function (MULTI AV)".	Ignition signal circuit malfunction.
ELATED TO AUDIO		
Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit. Refer to AV-104, "Diagnosis Procedure".
	No sound from all speakers.	AV control unit power supply and ground circuits malfunction. Refer to AV-93, "AV CONTROL UNIT : Diagnosis Procedure".
No sound comes out or the level of the sound is low.	Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and speaker. Malfunction in speaker. Malfunction in AV control unit.
	Noise comes out from all speakers.	Malfunction in AV control unit.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.).	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in AV control unit.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	 Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-134</u>. "<u>Exploded View</u>".
Radio is not received or poor reception.	Other audio sounds are normal. Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-134</u>. "Exploded View".
Cotallita andio in the transfer of	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-30, "CONSULT Function (MULTI AV)".	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-42, "DTC Index". Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder.
Satellite radio is not received.	There is no malfunction in the CONSULT self-diagnosis result. Refer to AV-30, "CONSULT Function (MULTI AV)".	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut. NOTE:
		Tightening torque: 6.5 N⋅m (0.66 kg-m, 58 in-lb.)

RELATED TO USB

NOTE:

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

[BASE AUDIO WITHOUT NAVIGATION]

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

 $iPod^{\textcircled{\scriptsize 8}}$ is a trademark of Apple inc., registered in the U.S. and other countries.

RELATED TO STEERING SWITCH (WITH HANDS-FREE PHONE SYSTEM)

Symptoms	Probable malfunction location
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to AV-118, "WITH HANDS-FREE PHONE SYSTEM: Diagnosis Procedure".
Only specified switch cannot be operated.	Check steering switch. Refer to AV-118, "WITH HANDS-FREE PHONE SYSTEM: Component Inspection". Malfunction is detected. Replace steering switch. Refer to ST-15, "Exploded View".
"SOURCE", "MENU UP", "MENU DOWN" and "	Steering switch signal A circuit. Refer to AV-112, "WITH HANDS-FREE PHONE SYSTEM: Diagnosis Procedure".
"VOL UP", "VOL DOWN" and "~" switches are not operated.	Steering switch signal B circuit. Refer to AV-115, "WITH HANDS-FREE PHONE SYSTEM: Diagnosis Procedure".

RELATED TO STEERING SWITCH (WITHOUT HANDS-FREE PHONE SYSTEM)

Symptoms	Inspection location / Probable malfunction location
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to AV-119, "WITHOUT HANDS-FREE PHONE SYSTEM: Diagnosis Procedure".
Only specified switch cannot be operated.	Check steering switch. Refer to AV-114, "WITHOUT HANDS-FREE PHONE SYSTEM: Component Inspection". Malfunction is detected. Replace steering switch. Refer to ST-15, "Exploded View".
"SOURCE", "MENU UP" and "MENU DOWN" switches are not operated.	Steering switch signal A circuit. Refer to AV-113, "WITHOUT HANDS-FREE PHONE SYSTEM: Diagnosis Procedure".
"VOL UP" and "VOL DOWN" switches are not operated.	Steering switch signal B circuit. Refer to AV-116, "WITHOUT HANDS-FREE PHONE SYSTEM: Diagnosis Procedure".

RELATED TO CAMERA

Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Probable malfunction location
Camera image is not shown. (Vehicle width and possible route line is displayed.)	_	 Camera image signal circuit. Refer to <u>AV-107</u>, "<u>Diagnosis Procedure</u>". Composite image signal circuit. Refer to <u>AV-101</u>, "<u>Diagnosis Procedure</u>".
Camera image does not switch.	"Reverse" is not turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment".	Reverse signal circuit malfunction.
	"Reverse" is turned ON on "Vehicle Signals" screen of "Confirmation/Adjustment".	AV control unit malfunction. Replace AV control unit. Refer to AV-128, "Exploded View".

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

NORMAL OPERATING CONDITION

BASIC OPERATIONS

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

RELATED TO VOICE RECOGNITION

Related to Telephone

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

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

Symptom	Solution	
System fails to interpret the command correctly.	Ensure that the command is valid.	
	2. Ensure that the command is spoken after the tone.	
	3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle.	
	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). NOTE: If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.	
	5. If more than one command was said at a time, try saying the commands separately.	
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. See "Speaker adaptation (SA) mode" earlier in this section. Refer to "OWNER'S MANUAL".	
The system consistently selects the wrong voicetag	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, AAC, M4A) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

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NORMAL OPERATING CONDITION

[BASE AUDIO WITHOUT NAVIGATION]

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

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

NOTE:

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

RELATED TO HANDS-FREE PHONE

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BASE AUDIO WITHOUT NAVIGATION]

Symptom	Cause and Counter measure
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Some Bluetooth [®] enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" of MULTI AV SYSTEM SYMPTOM.
Cannot use hands-free phone	Customer will not be able to use a hands-free phone under the following conditions. The vehicle is outside of the telephone service area. The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. The cellular phone is locked to prevent it from being dialed. NOTE:
	While a cellular phone is connected through the Bluetooth [®] wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth [®] Hands-Free Phone System cannot charge cellular phones.
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

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REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

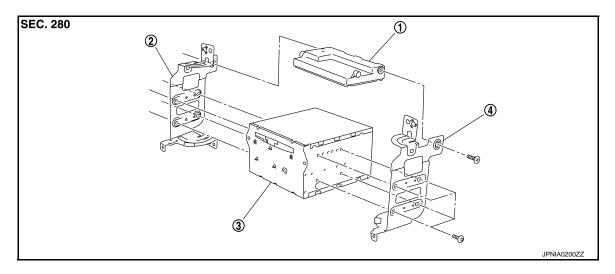
CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-71, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure".</u>

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



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

3. AV control unit

4. Bracket RH

Removal and Installation

INFOID:0000000009061486

REMOVAL

CAUTION:

- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-71</u>, "<u>ADDITIONAL SERVICE WHEN REPLACING AV CONTROL</u> <u>UNIT</u>: <u>Work Procedure</u>".
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.
- Remove display unit. Refer to <u>AV-129</u>, "<u>Exploded View</u>"
- 2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

- Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to AV-72, "CONFIGURATION (AV CONTROL UNIT): Work Procedure".
- 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

Exploded View

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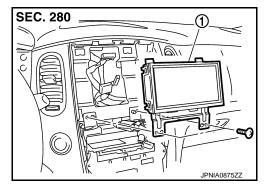
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1. Display unit



Removal and Installation

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REMOVAL

- Remove cluster lid D. Refer to <u>IP-12, "Exploded View"</u>.
- 2. Remove display unit mounting screws.
- 3. Remove display unit.

INSTALLATION

Install in the reverse order of removal.

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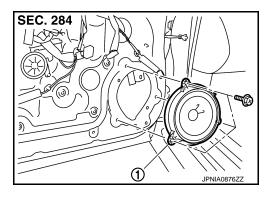
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FRONT DOOR SPEAKER

Exploded View

1. Front door speaker



Removal and Installation

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REMOVAL

- 1. Remove front door finisher. Refer to <u>INT-11</u>, "<u>DRIVER SIDE</u>: <u>Exploded View</u>" (driver side) or <u>INT-14</u>, "<u>PASSENGER SIDE</u>: <u>Exploded View</u>" (passenger side).
- 2. Remove front door speaker mounting bolts, disconnect the front door speaker connector.
- 3. Remove front door speaker.

INSTALLATION

Install in the reverse order of removal.

REAR DOOR SPEAKER

REAR DOOR SPEAKER

Exploded View

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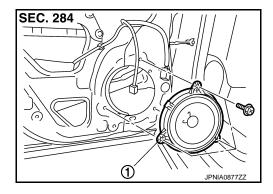
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Rear door speaker



Removal and Installation

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REMOVAL

- 1. Remove rear door finisher. Refer to INT-17, "Exploded View".
- 2. Remove rear door speaker mounting bolts, disconnect the rear door speaker connector.
- 3. Remove rear door speaker.

INSTALLATION

Install in the reverse order of removal.

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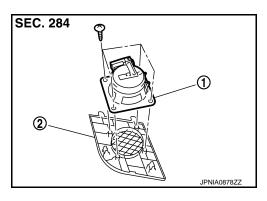
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FRONT SQUAWKER

Exploded View

- 1. Front squawker
- 2. Speaker grille



Removal and Installation

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REMOVAL

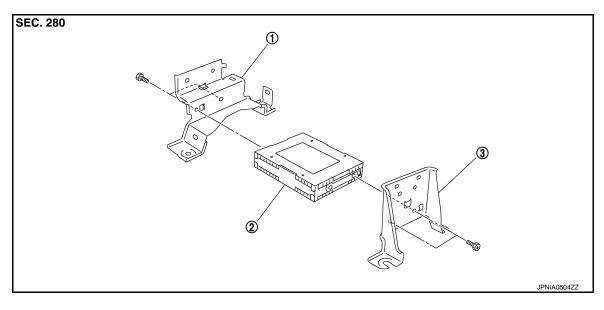
- 1. Lift up the speaker grille with squawker. Refer to IP-12, "Exploded View".
- 2. Disconnect the front squawker connector.
- 3. Remove front squawker mounting screws.
- 4. Remove front squawker.

INSTALLATION

Install in the reverse order of removal.

SATELLITE RADIO TUNER

Exploded View



1. Bracket (front)

Satellite radio tuner

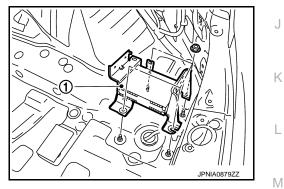
3. Bracket (rear)

Removal and Installation

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REMOVAL

- Remove luggage floor spacer (RH). Refer to <u>INT-36, "Exploded View"</u>.
- 2. Remove nuts, and then satellite radio tuner (1).



INSTALLATION

Install in the reverse order of removal.

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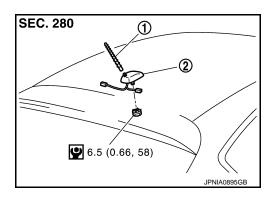
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ANTENNA BASE

Exploded View

- 1. Antenna rod
- 2. Antenna base

Refer to GI-4, "Components" for symbols in the figure.



Removal and Installation

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REMOVAL

- 1. Remove headlining (rear). Keep a service area. Refer to INT-28, "NORMAL ROOF: Exploded View" (normal roof) or INT-32, "SUNROOF: Exploded View" (sunroof).
- 2. Remove antenna base mounting nut.
- Remove antenna base.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

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

MULTIFUNCTION SWITCH

MULTIFUNCTION SWITCH

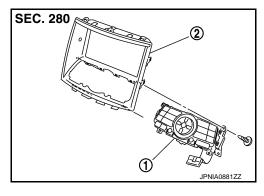
Exploded View

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY

- 1. Multifunction switch
- 2. Cluster lid D



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Removal and Installation

REMOVAL

- 1. Remove cluster lid D. Refer to IP-12, "Exploded View".
- 2. Remove multifunction switch mounting screws.
- 3. Remove multifunction switch.

INSTALLATION

Install in the reverse order of removal.

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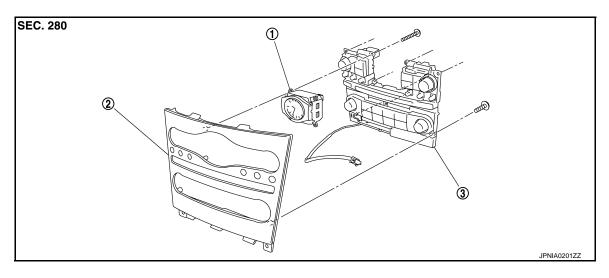
PRESET SWITCH

Exploded View

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



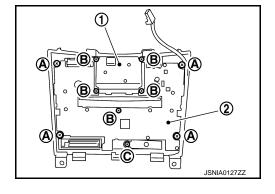
1. Clock 2. Cluster lid C 3. Preset switch

Removal and Installation

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REMOVAL

- Remove cluster lid C. Refer to <u>IP-12. "Exploded View"</u>.
- 2. Remove preset switch mounting screws (A), (B) and (C).
- 3. Remove preset switch (2).
 - 1. Clock
 - Preset switch



INSTALLATION

Install in 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 audio unit and preset switch.

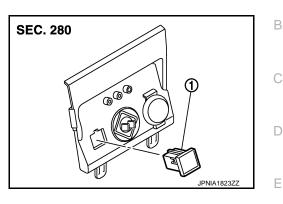
USB CONNECTOR

[BASE AUDIO WITHOUT NAVIGATION]

USB CONNECTOR

Exploded View

1. USB connector



Removal and Installation

REMOVAL

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

INSTALLATION

Install in the reverse order of removal.

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[BASE AUDIO WITHOUT NAVIGATION]

MICROPHONE

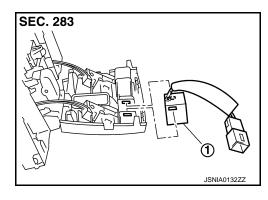
Exploded View

REMOVAL

Refer to <u>INT-28</u>, "NORMAL ROOF: Exploded View" (normal roof) or <u>INT-32</u>, "SUNROOF: Exploded View" (sunroof).

DISASSEMBLY

1. Microphone



Removal and Installation

INFOID:0000000009061506

REMOVAL

- 1. Remove map lamp assembly. Refer to INT-28, "NORMAL ROOF: Exploded View" (normal roof) or INT-32, "SUNROOF: Exploded View" (sunroof).
- 2. Remove microphone, stretching pawls of map lamp assembly.

INSTALLATION

Install in the reverse order of removal.

REAR VIEW CAMERA

Exploded View

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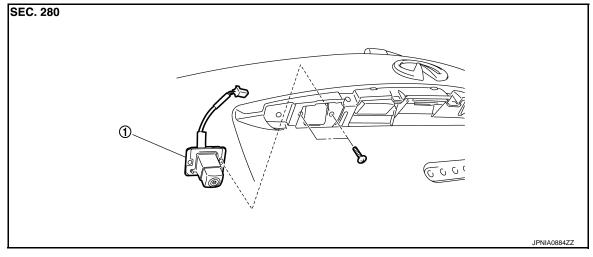
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DISASSEMBLY



1. Rear view camera

Removal and Installation

REMOVAL

- 1. Remove back door finisher inner. Refer to INT-40, "Exploded View".
- 2. Remove back door outside finisher upper. Refer to EXT-48. "Exploded View".
- 3. Remove back door outside finisher lower. Refer to EXT-48, "Exploded View".
- 4. Remove rear view camera mounting screws and rear view camera harness connector.
- 5. Remove rear view camera.

INSTALLATION

Install in the reverse order of removal.

Adjustment INFOID:0000000000001509

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

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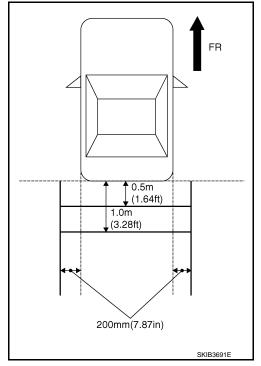
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REAR VIEW CAMERA

< REMOVAL AND INSTALLATION >

[BASE AUDIO WITHOUT NAVIGATION]

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

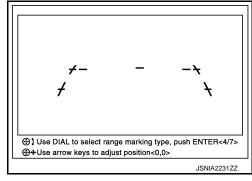


3. Rotate the center dial, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

Selected pattern : 7

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

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



CALITION

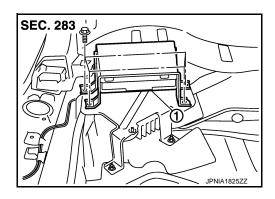
After the adjustment, never perform other operations for one minute.

TEL ADAPTER UNIT

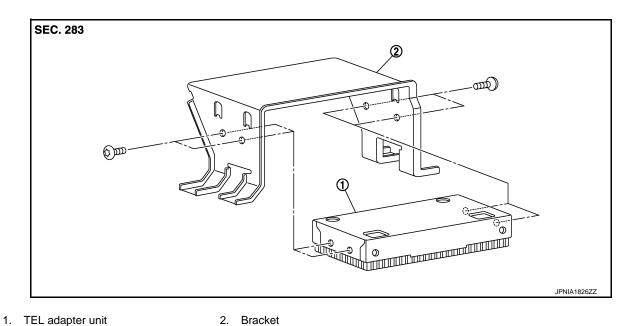
Exploded View

REMOVAL

1. TEL adapter unit



DISASSEMBLY



Removal and Installation

Remove luggage floor spacer (LH). Refer to <u>INT-36, "Exploded View"</u>.

2. Remove TEL adapter unit screws, disconnect TEL adapter unit connector and remove the TEL adapter unit.

INSTALLATION

REMOVAL

Install in the reverse order of removal.

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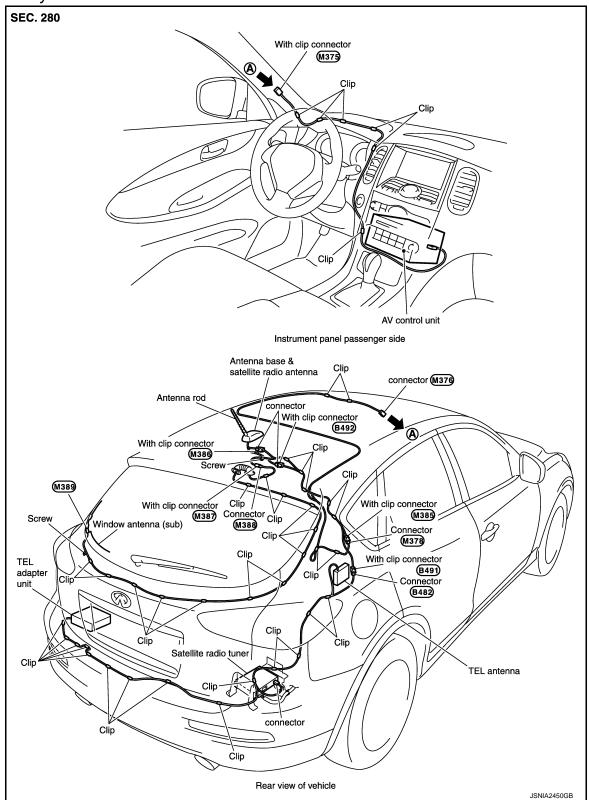
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TEL ANTENNA

Feeder Layout

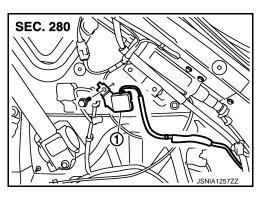


TEL ANTENNA

[BASE AUDIO WITHOUT NAVIGATION]

Exploded View

TEL antenna



Removal and Installation

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REMOVAL

- 1. Remove luggage floor spacer (RH). Refer to INT-36, "Exploded View".
- 2. Remove luggage side finisher upper (RH). Refer to INT-36, "Exploded View".
- 3. Remove TEL antenna from vehicle.

INSTALLATION

Install in the reverse order of removal.

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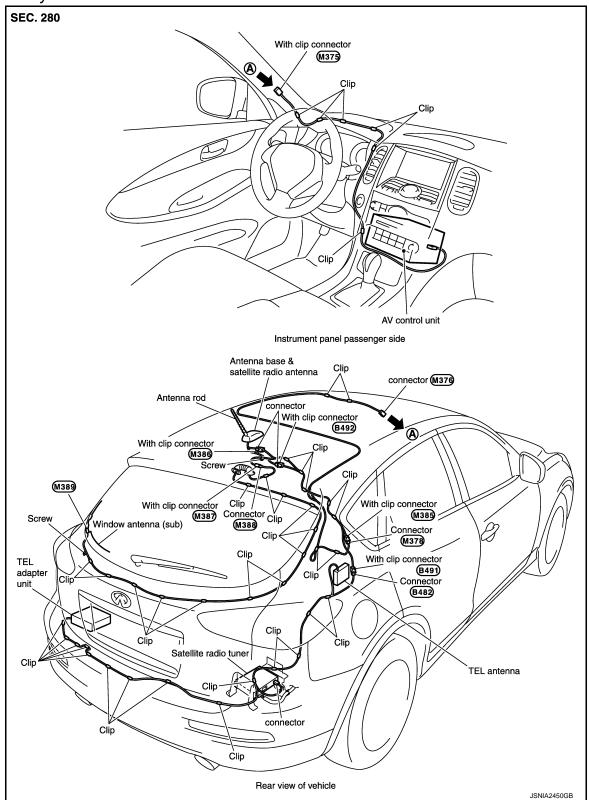
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ANTENNA FEEDER

Feeder Layout



PRECAUTION

PRECAUTIONS

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

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

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with
 a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing
 serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution for Trouble Diagnosis

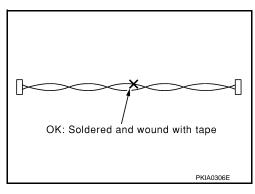
AV COMMUNICATION SYSTEM

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

Precaution for Harness Repair

AV COMMUNICATION SYSTEM

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



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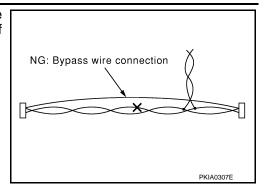
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PRECAUTIONS

< PRECAUTION >

[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.)



PREPARATION

< PREPARATION >

[BOSE AUDIO WITHOUT NAVIGATION]

PREPARATION

PREPARATION

Commercial Service Tools

Tool name		Description
Power tool		Loosening screws
	PBIC0191E	

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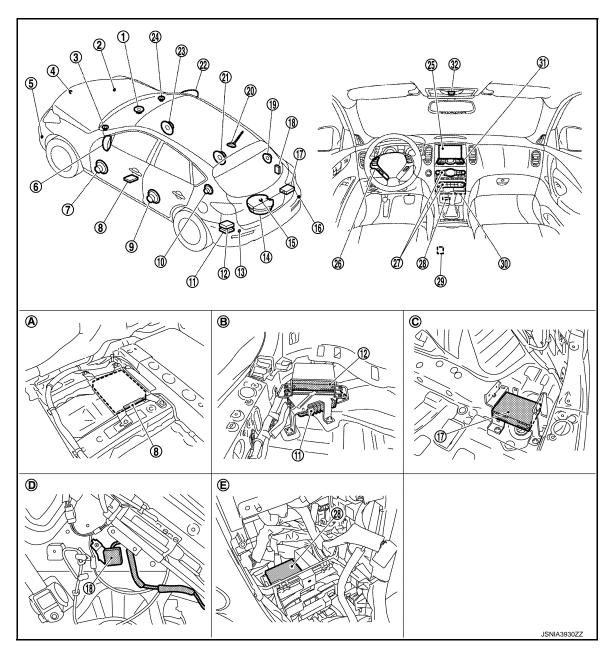
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



- 1. Center speaker
- 4. Front camera
- 7. Front door speaker LH
- 10. Rear squawker LH
- 13. Corner sensor rear LH
- 16. Corner sensor rear RH
- 19. Rear squawker RH
- 22. Side camera RH
- 25. Display unit

- 2. Corner sensor front RH
- 5. Corner sensor front LH
- 8. Around view monitor control unit
- 11. BOSE amp.
- 14. Woofer
- 17. Satellite radio tuner
- 20. Antenna base (antenna amp. and satellite antenna)
- 23. Front door speaker RH
- 26. Steering switch

- 3. Front squawker LH
- 6. Side camera LH
- 9. Rear door speaker LH
- 12. TEL adapter unit
- 15. Rear camera
- 18. TEL antenna
- 21. Rear door speaker RH
- 24. Front squawker RH
- 27. Preset switch

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

- Sonar control unit (with around view 28. monitor)
- 31. Multifunction switch
- A. Under front seat (LH side)
- D. Luggage side RH

29. USB connector

B. Luggage floor (LH side)

32. Microphone

- 30. AV control unit
- C. Luggage floor (RH side)
- Console pocket assembly removed

condition

Component Description

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

COMPONENT PARTS

[BOSE AUDIO WITHOUT NAVIGATION]

Part name	Description	
Around view monitor control unit	 It supplies power to front camera, rear camera, and side camera. And then it superimposes the images from each camera and outputs them to display unit. Superimpose the guiding line, predicted course line and sonar indicator to the camera image that outputs to display unit through AV control unit. It performs the reception/transmission of communication signal with each camera. It transmits the sonar operation signal from sonar control unit and receives the sonar information from sonar control unit via AV communication. It transmits the information received/transmitted with sonar control unit via AV communication to AV control unit. 	
Front camera	 It inputs the power supply from around view monitor control unit and outputs the image of the vehicle front to around view monitor control unit. It performs the reception/transmission of the communication signal with around view monitor control unit. 	
Rear camera	 It inputs the power supply from around view monitor control unit and outputs the image of the vehicle rear to around view monitor control unit. It performs the reception/transmission of the communication signal with around view monitor control unit. 	
Side camera LH	 It inputs the power supply from around view monitor control unit and outputs the image of the vehicle LH to around view monitor control unit. It performs the reception/transmission of the communication signal with around view monitor control unit. 	
Side camera RH	 It inputs the power supply from around view monitor control unit and outputs the image of the vehicle RH to around view monitor control unit. It performs the reception/transmission of the communication signal with around view monitor control unit. 	
Sonar control unit (Camera assistance sonar system)	 It is connected with around view monitor control unit via AV communication and receives the sonar operation signal from around view monitor control unit. It transmits the sonar detection status to around view monitor control unit via AV communication. It judges the warning level according to the signal from corner sensor. A warning buzzer built in the sonar control unit sounds according to signals from each corner sensors. 	
Corner sensor	The obstacle distance is detected. The signal is transmitted to the sonar control unit.	
Microphone	 Used for hands-free phone operation. Microphone signal is transmitted to TEL adapter unit. Power (Microphone VCC) is supplied from TEL adapter unit. 	
USB connector	Sound signal of USB input is transmitted to AV control unit.	
Antenna base	An antenna base integrated with radio antenna amp. and satellite radio antenna is adopted. ANTENNA AMP. Radio signal received by rod antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit. SATELLITE RADIO ANTENNA Receives the satellite radio waves and outputs it to satellite radio tuner.	
Satellite radio tuner	 Inputs the satellite radio signal from satellite radio antenna and outputs the sound signal to the AV control unit. It is controlled with the AV control unit and serial communication (communication signal and request signal). 	
TEL adapter unit	 Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit. It is connected with the AV control unit via AV communication and controlled with the AV control unit. 	
TEL antenna	Receives the TEL voice signal and outputs it to the TEL adapter unit.	

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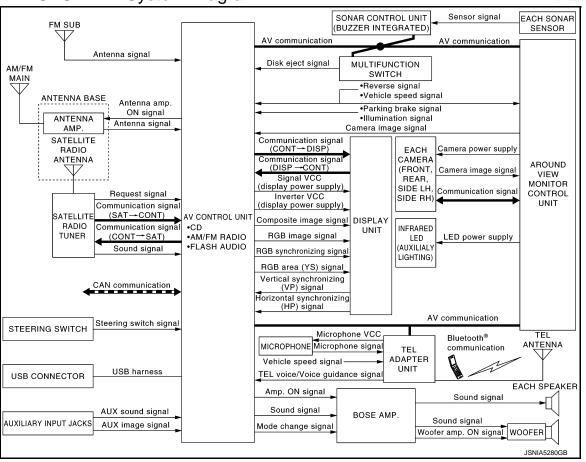
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SYSTEM MULTI AV SYSTEM

MULTI AV SYSTEM: System Diagram

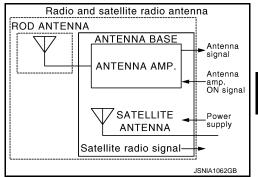


NOTE:

- Infrared LED (auxiliary lighting) is not used.
- · Flash audio is not used.
- · Auxiliary input jacks is not used.

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

 An antenna base integrated with radio antenna and satellite radio antenna is adopted.



MULTI AV SYSTEM: System Description

Multi AV system means that the following systems are integrated.

FUNCTION NAME
Audio function
Hands-free phone function

FUNCTION NAME	
Around view monitor function	
Camera assistance sonar system	
Vehicle information function	

COMMUNICATION SIGNAL

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

AUDIO FUNCTION

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

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

Operating Signal

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

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

Screen Display

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

AM/FM Radio Mode

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

Satellite Radio Mode

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

CD Mode

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

USB Connection Function

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

SYSTEM

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

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

NOTE:

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

Driver's Audio Stage

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

HANDS-FREE PHONE SYSTEM

- TEL adapter unit is controlled with AV communication from AV control unit.
- The connection between cellular phone and TEL adapter unit is performed with Bluetooth® communication.
- The voice guidance signal is input from the TEL adapter unit to the AV control unit and output via BOSE amp. to the front speaker when operating the cellular phone.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-173, "Diagnosis Description".

When A Call Is Originated

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

When Receiving A Call

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

AROUND VIEW MONITOR FUNCTION

- This system is equipped with wide-angle high-resolution cameras on the front and rear of the vehicle and on both right and left door mirrors. The images from front view, rear view, front-side view (RH side), and birdseye view that shows the view from the top of the vehicle are displayed to monitor the vehicle surroundings.
- Around view monitor control unit cuts out and expands the image received from each camera to create each view.
- The sonar indicator is displayed on display (superimposed on the camera image) in combination with the camera assistance sonar system to warm of the approach of an obstacle.
- In front view and rear view, the vehicle width, distance lines and predictive course lines are superimposed and displayed. In front-side view, the vehicle distance guiding line and vehicle width guiding line are displayed.
- The Birds-Eye view converts the images from 4 cameras into the overhead view and displays the status of the vehicle on display. The vehicle icon and sonar indicator that are displayed on the Birds-Eye view display are rendered by around view monitor control unit.

Around View Monitor Screen

- Around view monitor combines and displays the travel direction view and "Birds-Eye view", "Front-Side view", and then it displays the sonar indicator on the "Birds-Eye view", "Front-Side view" and "Rear-side view"
- AV control unit renders the "Top" switch, "Side" switch, "Wide" switch, view icon, and warning message on display.

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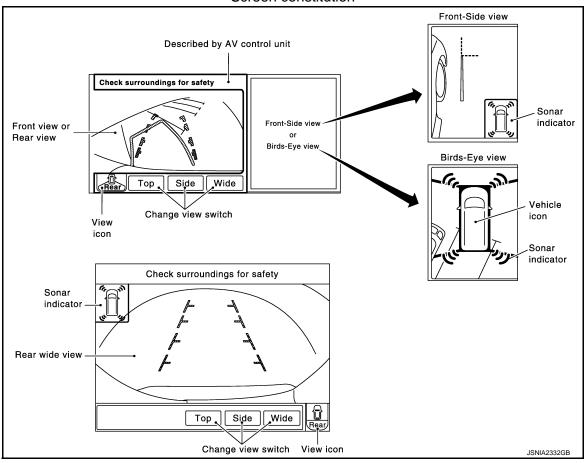
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Revision: 2013 March AV-153 2014 QX50

Screen constitution



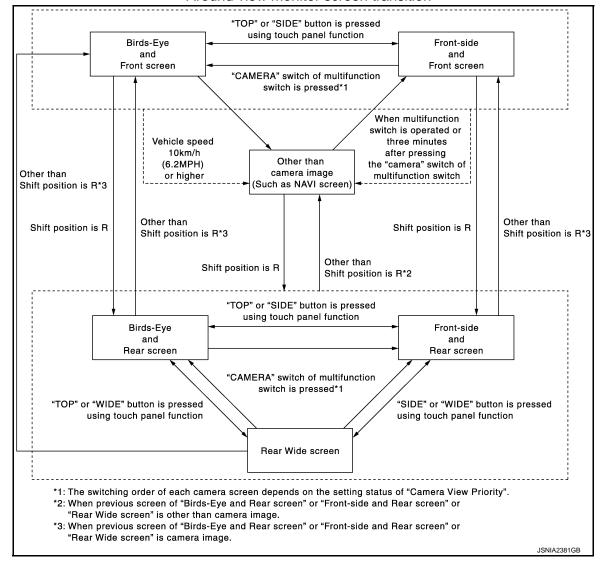
Operation Description

- Around view monitor operates by pressing the "CAMERA" switch of multifunction switch and shifting the selector lever to the reverse position.
- When the selector lever is in any position other than the reverse position, the screen is switched to the around view monitor by pressing the "CAMERA" switch of multifunction switch.
- The screen is switched to the around view monitor by shifting the selector lever to the reverse position.
- In the around view monitor, Birds-Eye view, Front-side view and wide view (rear only) can be switched by pressing the "CAMERA" switch of multifunction switch.
- The around view monitor is cancelled 3 minutes after pressing the "CAMERA" switch, and then the screen returns to the screen before displaying the around view monitor when selector lever is in a position other than the reverse position.
- ON/OFF setting of sonar indicator display on the Front-Side view screen can be performed.
- In the Birds-Eye view, the invisible area is displayed on the image to specify the boundary of the 4 cameras. The invisible area is displayed in yellow in the Birds-Eye view after turning the ignition switch ON.
- The sonar (both of buzzer and indicator) operates only when the camera screen is displayed.

NOTE:

The first, second, and third camera image displayed when switched to the camera image display depends on the settings of "Camera View Priority".

Around view monitor screen transition



FRONT VIEW

- The front view image is from the front camera.
- When the selector lever is in any position other than the reverse position, the front view is displayed by
 pressing the "CAMERA" switch. It improves the visibility of obstacles in front of the vehicle and helps driving
 by the images displayed from Birds-Eye view and Front-Side view.
- Display the vehicle width guiding line and vehicle distance guiding line in front view and display the predictive course line according to the steering angle.
- If the steering angle is within approximately 90 degrees, the predictive course lines on the left/right side are displayed. If the steering angle is exceeding approximately 90 degrees, only the predictive course line on the outside (in the opposite side of steering direction) is displayed.
- AV control unit is connected to the steering angle sensor and receives the steering angle signal via CAN communication. AV control unit is transmits steering angle signal to around view monitor control unit via AV communication.
- Around view monitor control unit controls the direction and distance of the predictive course line according to the sensor signal from steering angle sensor.

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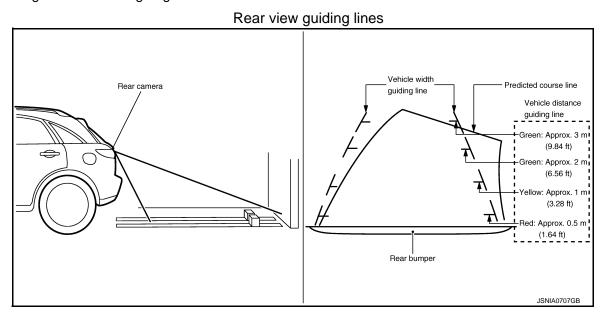
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Predicted course line Vehicle width guiding line Vehicle distance guiding line Green: Approx. 3 m (9.84 ft) Green: Approx. 1 m (3.28 ft) Yellow: Approx. 1 m (3.28 ft) Red: Approx. 0.5 m (1.64 ft)

REAR VIEW

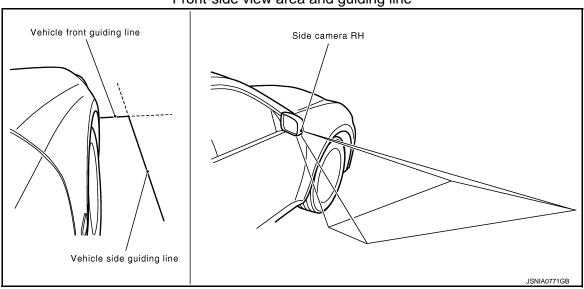
- The rear view image is from the rear camera.
- When the selector lever is in the reverse position, the rear view is displayed. Backing and parking are improved by the images from Birds-Eye view and Front-Side view. The rear wide view function allows the display of an image with a 180 degrees horizontal angle.
- Display the vehicle width guiding line and vehicle distance guiding line in Rear view and display the predictive course line according to the steering angle (except when using the rear wide view function).
- The predictive course line is displayed by turning the steering wheel and not displayed when steering wheel is in neutral position.
- The vehicle width guiding line is displayed on the rear view screen.
- AV control unit is connected to the steering angle sensor and receives the steering angle signal via CAN
 communication. AV control unit is transmits steering angle signal to around view monitor control unit via AV
 communication.
- Around view monitor control unit controls the direction and distance of predicted course line according to the sensor signal from steering angle sensor.



FRONT-SIDE VIEW

- The front-side view image is from the side camera RH.
- In Front-Side view, display the vehicle front guiding line and vehicle side guiding line.

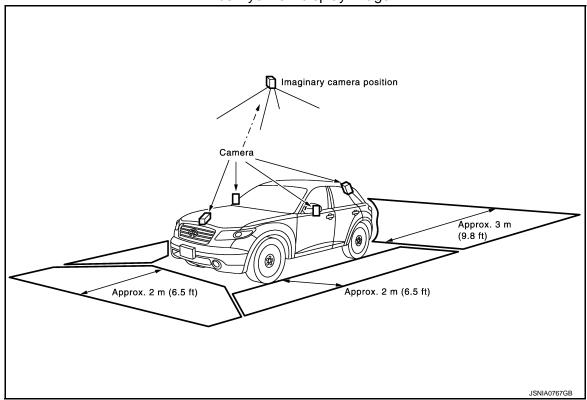
Front-side view area and guiding line



BIRDS-EYE VIEW

- The image from the 4 cameras is cut out and converted into the overhead view, and the surroundings of the vehicle is displayed in birds-eye view.
- In Birds-Eye view, the invisible area is displayed on the image to specify the boundary of the 4 cameras.
- The invisible area is displayed in yellow in the Birds-Eye view after turning the ignition switch ON as an information for the user. (OFF setting can be performed)

Birds-Eye view display image



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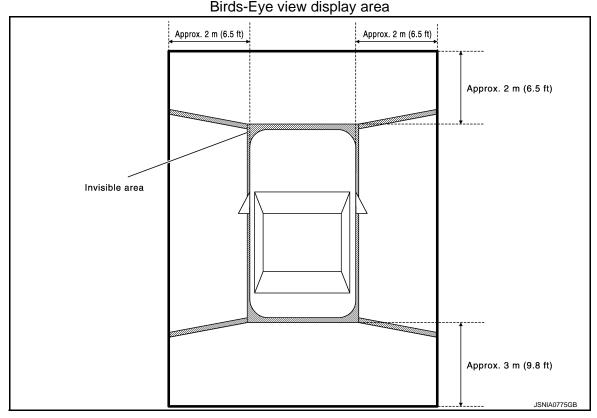
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Camera Image Operation Principle

- If the information writing to around view monitor control unit and the information from the camera are not matched, the applicable camera position is indicated as an error on the Birds-Eye view display. (Calibration operation is necessary when replacing each camera or when replacing around view monitor control unit.)
- Around view monitor control unit receives the camera switch signal from AV control unit via AV communication by pressing the "CAMERA" switch of multifunction switch.
- Around view monitor control unit that receives the camera switch signal supplies the power to each camera and inputs the camera image from each camera.
- When the selector lever is in the reverse position, around view monitor control unit receives the reverse signal, supplies the power to each camera, and inputs the camera image from each camera.
- Around view monitor control unit that receives the camera image signal from each camera cuts out the
 required screen for each view, superimposes the camera image, vehicle icon, guiding lines, sonar indicator,
 and outputs them to the display unit.

CAMERA ASSISTANCE SONAR FUNCTION

- Install the corner sensor on the front bumper and rear bumper. It detects the obstacles around the vehicle when the around view monitor is displayed. It warns of the approach to the obstacles with the buzzer (built into sonar control unit) and indicator in the display linked with the around view monitor system.
- It displays the distance between the bumper and obstacle with the color of sonar indicator in the display and the blinking cycle of indicator in 3 stages.
- The buzzer warns of the distance to the obstacles with the cycle in 3 stages.

System Operation Description

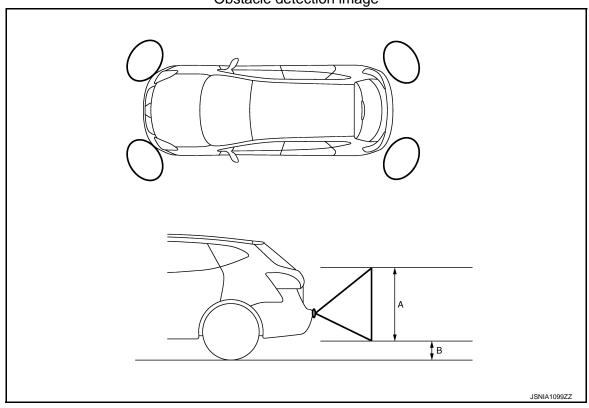
- The around view monitor control unit transmits a sonar operating signal to the sonar control unit via AV communication to control the operations of the sonar indicator and sonar buzzer.
- When receiving a sonar operating signal from the around view monitor control unit, the sonar control unit transmits detection signals and detected distance signals to the around view monitor control unit via AV communication. The around view monitor control unit turns on the applicable sonar indicator.
- After receiving a sonar operation signal from the around view monitor control unit, the sonar control unit sounds its built-in buzzer according to detected distance signals received from each corner sensor.
- Sonar control unit has the diagnosis function. It can detect the corner sensor malfunction or sensor harness
 open circuit. It transmits the diagnosis results to around view monitor control unit and always displays the
 sonar indicator in red to inform the user.

Obstacle Detection Distance

[BOSE AUDIO WITHOUT NAVIGATION]

- Sonar control unit changes the outputs of the sonar indicator and warning buzzer in 3 stages according to the obstacle detection distance from the corner sensor.
- The sonar control unit can change the setting of obstacle detection distance in 4 stages.





A. Approx. 50 cm (19.6 in)

B. Approx. 15 cm (5.9 in)

Detection distance

Warning item	Sensitivity level 1 (Faster warning)	Sensitivity level 2 (Default value)	Sensitivity level 3 (Slower warning)	Sensitivity level 4 (Slowest warning)
First stage warning	70 – 80 cm (27.5 – 31.4 in)	60 - 70 cm (23.6 - 27.5 in)	50 - 60 cm (19.6 - 23.6 in)	40 – 50 cm (15.7 – 19.6 in)
Second stage warning	50 - 70 cm (19.6 - 27.5 in)	40 – 60 cm (15.7 – 23.6 in)	30 – 50 cm (11.8 – 19.6 in)	30 – 40 cm (11.8 – 15.7 in)
Third stage warning	Less than 50 cm (19.6 in)	Less than 40 cm (15.7 in)	Less than 30 cm (11.8 in)	Less than 30 cm (11.8 in)

Sonar Indicator Display

- Around view monitor control unit that receives the detection signal and detection distance signal from sonar control unit displays the sonar indicator on display.
- Around view monitor control unit changes the color or blinking cycle of the indicator according to the detection distance.

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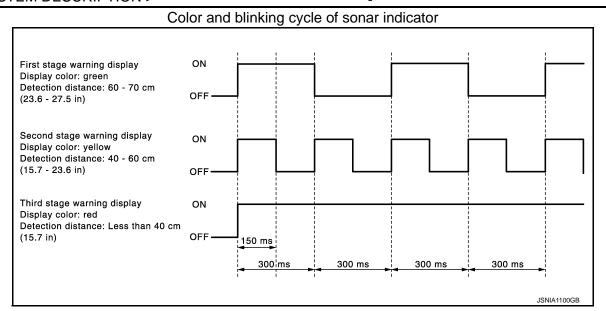
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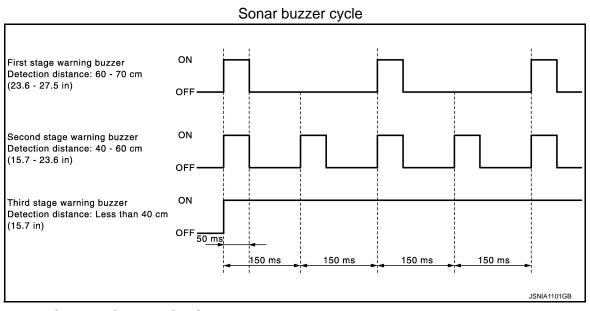
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Sonar Buzzer Operation

- Each sonar sensor transmits a sensor signal to the sonar control unit when detecting an obstacle.
- The sonar control unit sounds the built-in buzzer according to detected distance signals from each corner sensor.
- The buzzer cycle changes in 3 stages according to the detection distance.



VEHICLE INFORMATION FUNCTION

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

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[BOSE AUDIO WITHOUT NAVIGATION]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

On Board Diagnosis Function

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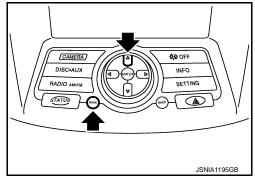
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-diagnosis Mode

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

The hazard switch and disk eject switch cannot be checked.



Finishing Self-diagnosis Mode

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

MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

ON BOARD DIAGNOSIS

Description

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

On Board Diagnosis Item

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

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Revision: 2013 March AV-161 2014 QX50

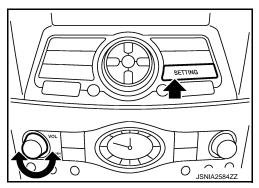
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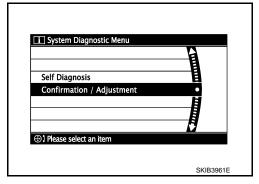
Mode		Description	
	Display Diagnosis	The following check functions are available: color tone check by color ba display and white display, light and shade check by gray scale display.	
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition and reverse.	
	Speaker Test	The connection of a speaker can be confirmed by test tone.	
	Climate Control	Start auto air conditioner system self-diagnosis.	
Confirmation/ Adjustment	Error History	The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.	
	Camera Cont.	It can perform the confirmation of a signal connection to around view monitor control unit, the calibration of each camera, Correct Draw Line of Camera Image, and Fine Tuning of Birds-Eye View.	
	Vehicle CAN Diagnosis	The transmitting/receiving of CAN communication can be monitored.	
	AV COMM Diagnosis	The communication condition of each unit of Multi AV system can be monitored.	
	Delete Unit Connection Log	Erase the connection history of unit and error history.	
	Initialize Settings	Initializes the AV control unit memory.	

STARTING PROCEDURE

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



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



SELF-DIAGNOSIS MODE

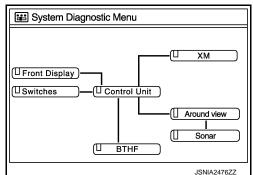
- 1. Start the self-diagnosis function and select "Self Diagnosis".
- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.

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[BOSE AUDIO WITHOUT NAVIGATION]

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

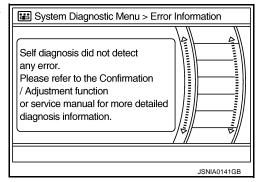
Diagnosis results	Unit	Connection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
Unit malfunction Note	Red	Green



NOTE:

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

- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to <u>AV-315</u>, "<u>Exploded View</u>".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.
- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

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

SELF-DIAGNOSIS RESULTS

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

Only Unit Part Is Displayed In Red.

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

A Connecting Cable Between Units Is Displayed In Yellow.

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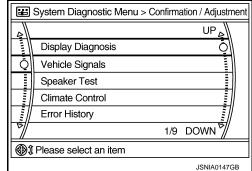
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[BOSE AUDIO WITHOUT NAVIGATION]

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

CONFIRMATION/ADJUSTMENT MODE

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



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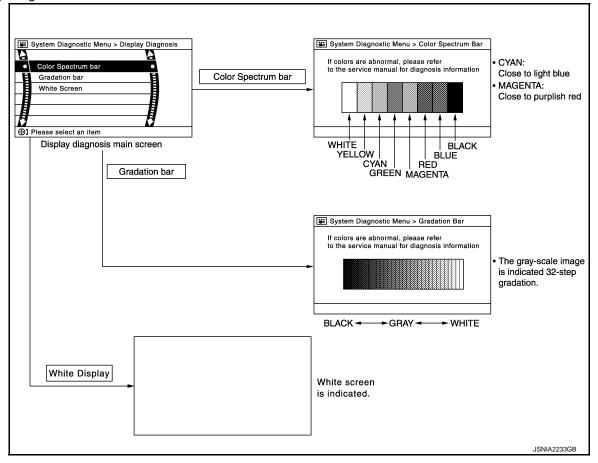
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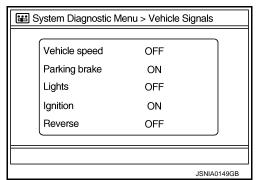
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Display Diagnosis



Vehicle Signals

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



Diagnosis item	Display	Vehicle status	Remarks	AV
Materia and I	ON	Vehicle speed > 0 km/h (0 MPH)		
Vehicle speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Q	
Doubing 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		Р
Lights	OFF	Light switch OFF	_	
Ignition	ON	Ignition switch ON		
Igriition	OFF	Ignition switch in ACC position	_	

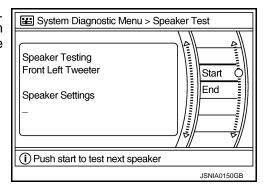
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[BOSE AUDIO WITHOUT NAVIGATION]

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

Speaker Test

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



Climate Control

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

Error History

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

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

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

Count up method A

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

Count up method B

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

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

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[BOSE AUDIO WITHOUT NAVIGATION]

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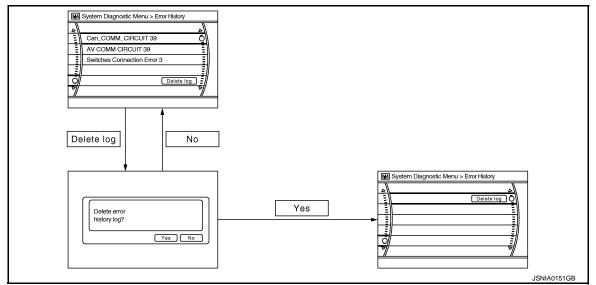
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Error item

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

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-170, "CONSULT Function (MULTI AV)".
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	
FLASH-ROM Error Of Control Unit		Replace the AV control unit if the malfunc-
CAN Controller Memory Error		tion occurs constantly.
Sub CPU Connection Error	AV control unit malfunction is detected.	
iPod authentification chip error		
Audio connection error		
DSP Connection Error DSP Communication Error	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
Unfinished configuration	The writing of configuration data is incomplete.	Write configuration data with CONSULT.
USB Controller Communication Error	USB connection malfunction is detected.	Check that the connection to the USB con nector is normal.
Steer. Angle Sensor Calibration	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to AV-170. "CONSULT Function (MULTI AV)".
Front Display Connection Error	When either one of the following items is detected: display unit power supply and ground circuits malfunction is detected. malfunction is detected in communication circuits between AV control unit and display unit.	 Display unit power supply and ground circuits. Communication circuits between AV con trol unit and display unit.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
XM Connection Error	When either one of the following items is detected: satellite radio tuner power supply and ground circuit malfunction is detected. malfunction is detected in communication circuits between AV control unit and satellite radio tuner. malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
USB electric current Error	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.
AV COMM CIRCUIT Switches Connection Error	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT AVM Connection Error	Around view monitor control unit power supply and ground circuits are malfunctioning.	Around view monitor control unit power supply and ground circuits.
AV COMM CIRCUIT AVM Sonar Connection Error	 When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between around view monitor control unit and sonar control unit are malfunctioning. 	 Sonar control unit power supply and ground circuits. AV communication circuits between around view monitor control unit and sonar control unit.
AV COMM CIRCUIT H/F Unit Connection Error	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between around view monitor control unit and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between around view monitor control unit and TEL adapter unit.
AV COMM CIRCUITAVM Connection ErrorH/F Unit Connection Error	AV communication circuits between multi- function switch and around view monitor control unit are malfunctioning.	AV communication circuits between multi- function switch and around view monitor control unit.
 AV COMM CIRCUIT Switches Connection Error AVM Connection Error H/F Unit Connection Error 	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

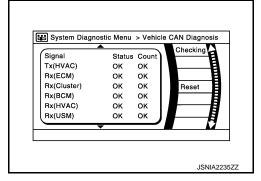
Camera Cont.

Refer to AV-175, "Diagnosis Description".

Vehicle CAN Diagnosis

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

Items	Display (Current)	Malfunction counter (Past)
Tx(HVAC)	OK / ???	OK / 0 – 39
Rx(ECM)	OK / ???	OK / 0 – 39



< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

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

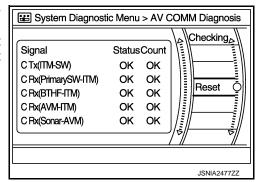
NOTE:

"???" indicates UNKWN.

AV COMM Diagnosis

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

Items	Status (Current)	Counter (Past)
C Tx(ITM-SW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(BTHF-ITM)	OK / ???	OK / 0 – 39
C Rx(AVM-ITM)	OK / ???	OK / 0 – 39
C Rx(Sonar-AVM)	OK / ???	OK / 0 – 39

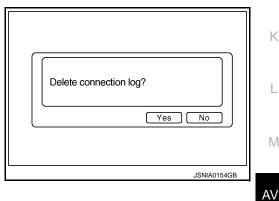


NOTE:

"???" indicates UNKWN.

Delete Unit Connection Log

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

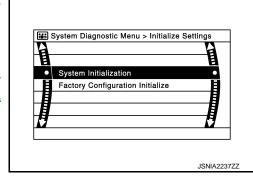


Initialize Settings

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

CAUTION:

- Never perform Accessory Number Initialization except when configuration is unsuccessful.
- Accessory Number Initialization requires configuration. For details, refer to AV-232, "CONFIGURATION (AV CONTROL **UNIT)**: Description".



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[BOSE AUDIO WITHOUT NAVIGATION]

CONSULT Function (MULTI AV)

INFOID:0000000009061525

CONSULT FUNCTIONS

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

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

AV Communication

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

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

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

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

Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to AV-240, "Diagnosis Procedure".
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	
Cont Unit [U1200]		Replace the AV control unit if the malfunc-
CAN CONT [U1216]		tion occurs constantly.
SUB CPU CONN [U1228]	AV control unit malfunction is detected.	
iPod CERTIFICATION [U1229]		
Built-in AUDIO CONN [U122E]		
USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DSP CONN [U121D]		If a disc can be played, then there is a
DSP COMM [U121E]	AV control unit malfunction is detected.	possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with CONSULT.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
ST ANGLE SEN CALIB [U1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".
FRONT DISP CONN [U1243]	When either one of the following items is detected: Display unit power supply and ground circuits malfunction is detected. Communication circuits between AV control unit and display unit.	 Display unit power supply and ground circuits. Communication circuits between AV control unit and AV display unit.
SAT CONN [U1255]	When either one of the following items is detected: satellite radio tuner power supply and ground circuit malfunction is detected. malfunction is detected in communication circuits between AV control unit and satellite radio tuner. malfunction is detected in request signal circuit between AV control unit and satellite radio tuner.	 Satellite radio tuner power supply and ground circuit. Communication circuit between AV control unit and satellite radio tuner. Request signal circuit between AV control unit and satellite radio tuner.
USB OVERCURRENT [U1263]	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items is detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B]	Around view monitor control unit power supply and ground circuits are malfunctioning.	Around view monitor control unit power supply and ground circuits.
AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between around view monitor control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between around view monitor control unit and sonar control unit.
AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between around view monitor control unit and TEL adapter unit are malfunctioning.	 TEL adapter unit power supply and ground circuits. AV communication circuits between around view monitor control unit and TEL adapter unit.
 AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B] HAND FREE CONN [U1256] 	AV communication circuits between multi- function switch and around view monitor control unit are malfunctioning.	AV communication circuits between multi- function switch and around view monitor control unit.
 AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] AROUND CAMERA CONN [U125B] HAND FREE CONN [U1256] 	Malfunction is detected in AV communication circuits between AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.

DATA MONITOR

NOTE

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

ALL SIGNALS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

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

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

SELECTION FROM MENU

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

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

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION:

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

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

CONFIGURATION

Configuration includes functions as follows.

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

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

Diagnosis Description

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HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

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

ON BOARD DIAGNOSIS ITEM

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

CAUTION:

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

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

NOTE:

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

Self-diagnosis results

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

The Details of Error Count

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

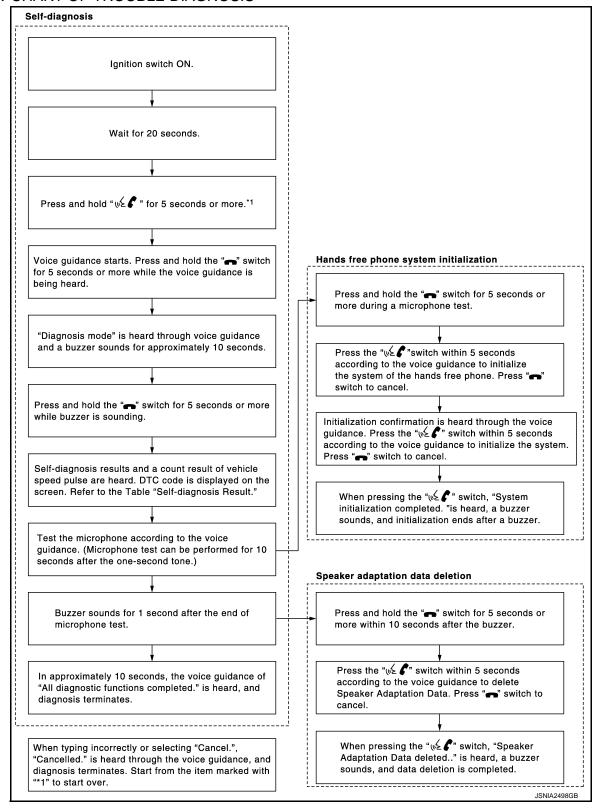
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FLOW CHART OF TROUBLE DIAGNOSIS



DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT) [BOSE AUDIO WITHOUT NAVIGATION]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

Diagnosis Description

The diagnosis function of around view monitor control unit is displayed when selecting "Camera Cont." of Confirmation/Adjustment mode in the multi AV system.

Around view monitor control unit diagnosis item

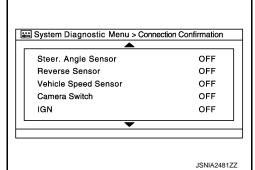
AV control unit Confirmation/Adjustment mode			Function
	Connection Confirmation		The status of signals input to around view monitor control unit can be checked.
		Rear Camera	Performs the calibration of rear camera.
		Pass-Side Camera	Performs the calibration of side camera RH.
	Calibrating Cam-	Front Camera	Performs the calibration of front camera.
	era Image Camera Cont.	Dr-Side Camera	Performs the calibration of side camera LH.
Camera Cont.		Initialize Camera Image Calibration*	The calibration can be initialized to NISSAN factory shipment condition.
Fine Tuning of Birds Correct Draw Line of Wide View		-Eye View	 The confirmation and adjustment of the difference between each camera can be performed. The system changes to the ZOOM function by the operation of shift and the ZOOM ratio of each camera can be changed
		Rear-Wide View	The position of rear wide view guideline can be changed.

CAUTION:

*: Never perform other operations for approximately 10 seconds after performing "Initialize Camera Image Calibration".

Connection Confirmation

The status of signals inputted to around view monitor control unit can be checked.



Connection Confirmation item list

Diagnosis item	Display	Description
Steer. Angle Sensor	ON/OFF	Input status of steering angle sensor is displayed by ON/OFF.
Reverse Sensor	ON/OFF	Input status of reverse signal inputted to around view monitor control unit is displayed by ON/OFF in real time.
Vehicle Speed Sensor	ON/OFF	 Input status of vehicle speed signal inputted to around view monitor control unit is displayed by ON/OFF. When the vehicle speed signal is input, it is turned ON. It remains ON until connection confirmation mode is stopped.
Camera Switch	ON/OFF	 The status of camera switch signal received via AV communication from AV control unit is displayed by ON/OFF. When the camera switch signal is received once, it is turned ON. It remains ON until connection confirmation mode is stopped.
IGN	ON/OFF	Input status of ignition signal inputted to around view monitor control unit is displayed by ON/OFF in real time.
ILL	ON/OFF	Input status of illumination signal inputted to around view monitor control unit is displayed by ON/OFF in real time.

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DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT) [BOSE AUDIO WITHOUT NAVIGATION]

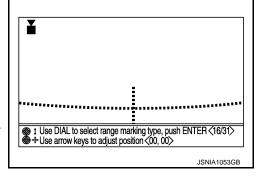
< SYSTEM DESCRIPTION >

Diagnosis item	Display	Description
Type of Steer. Angle Sensor	Abslt.	The input type of steering angle sensor is displayed. ("Abslt." is displayed on this model.)
Type of Steer. Gear ratio	1	The type of steering gear ratio is displayed. ("1" is displayed on this model.)
Left or Right Steer.	Right/Left	The steering position is displayed.
Rear Camera Image Output signal	OK/NG	The input status of rear camera image signal is displayed by OK/NG in real time.
Rear Camera COMM Status	OK/NG	The communication status with rear camera is displayed by OK/NG in real time.
Rear Camera COMM Line	OK/NG	The status of communication line with rear camera is displayed by OK/NG in real time.
Front Camera Image Output signal	OK/NG	The input status of front camera image signal is displayed by OK/NG in real time.
Front Camera COMM Status	OK/NG	The communication status with front camera is displayed by OK/NG in real time.
Front Camera COMM Line	OK/NG	The status of communication line with front camera is displayed by OK/NG in real time.
Pass-Side Camera Image Output signal	OK/NG	The input status of side camera (passenger side) image signal is displayed by OK/NG in real time.
Pass-Side Camera COMM Status	OK/NG	The communication status with side camera (passenger side) is displayed by OK/NG in real time.
Pass-Side Camera COMM Line	OK/NG	The status of communication line with side camera (passenger side) is displayed by OK/NG in real time.
Dr-Side Camera Image Output signal	OK/NG	The input status of side camera (driver side) image signal is displayed by OK/NG in real time.
Dr-Side Camera COMM Status	OK/NG	The communication status with side camera (driver side) is displayed by OK/NG in real time.
Dr-Side Camera COMM Line	OK/NG	The status of communication line with side camera (driver side) is displayed by OK/NG in real time.

Calibrating Camera Image

- Perform the calibration of camera image caused by the incorrect mounting position of each camera, etc. Always perform calibration after performing the following work.
- When each camera or each camera mount (door mirror, front grille, etc.) is removed
- When replacing around view monitor control unit
- When performing the calibration initialization, it can be set to the NISSAN factory shipment condition.

Refer to AV-234, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Special Repair Requirement" for the calibration procedure.



Adjustment range

Rotating direction : 31 patterns (16 on the center)

Upper/lower direction : -99 - 99 Left/right direction : -99 - 99

Calibrating Camera Image item

Items	Description
Rear Camera	Performs the calibration of rear camera.
Pass-Side Camera	Performs the calibration of side camera RH.
Front Camera	Performs the calibration of front camera.
Dr-Side Camera	Performs the calibration of side camera LH.
Initialize Camera Image Calibration*	The calibration can be initialized to the factory shipment setting.

CAUTION:

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

*: Never perform other operations for approximately 10 seconds after performing "Initialize Camera Image Calibration".

Fine Tuning of Birds-Eye View

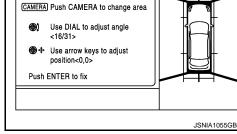
- The fine adjustment function of camera calibration can check and adjust the difference between each camera.
- Fine adjustments can be performed for each camera. Move the "+"-mark to select the camera by pressing the "CAMERA" switch.
- Perform the adjustment with the center dial and upper/lower/left/ right switches.

CAUTION:

Operate the center dial slowly because the changing of the screen takes approximately 1 second.

NOTE

- It can be initialized to the NISSAN factory shipment setting with "Initialize Camera Image Calibration" of "Calibrating Camera Image".
- The adjustment value is cancelled in this mode by performing "Initialize Camera Image Calibration".



Adjustment range

Rotating direction : 31 patterns (16 on the center)

Upper/lower direction : -99 - 99Left/right direction : -99 - 99

ZOOM function

- The ZOOM ratio of camera can be changed when calibrating the camera.
- It shifts to ZOOM function mode by shifting the selector lever to a
 position other than the "R" position → "R" position → other than "R"
 position in the "Fine Tuning of Birds-Eye View" mode.
- The changing of ZOOM ratio can be performed for each camera.
 Move the "+"-mark to select the camera by pressing "CAMERA" switch and press the left/right switch to change the ZOOM ratio.

NOTE:

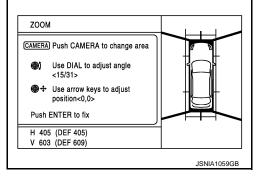
- When the position is not correct in "Fine Tuning of Birds-Eye View" mode, use this "ZOOM" function to adjust it.
- If this function is used, always adjust the upper/lower/left/right position again on the "Fine Tuning of Birds-Eye View" screen.

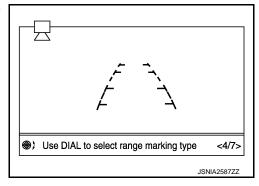
Correct Draw Line of Wide View

The display position of guiding lines when displayed on the rear-wide view can be changed.

Adjustment range

Rotating direction : 7 patterns





Correct Draw Line of Camera Image item

Items	Description
Rear-Wide View	The position of rear wide view guideline can be changed.

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DIAGNOSIS SYSTEM [SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)]

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

DIAGNOSIS SYSTEM [SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)]

CONSULT Function (SONAR)

INFOID:0000000009061528

DESCRIPTION

CONSULT can display each diagnostic item using the diagnostic test modes shown as follows:

Test mode	Function
Ecu Identification	Sonar control unit part number can be read.
Self Diagnostic Result	Sonar control unit checks the conditions and displays memorized error.
Data Monitor	Sonar control unit input/output data in real time.
Active Test	Gives a drive signal to a load to check the operation.
Work support	Changes setting of each function.

ECU IDENTIFICATION

Displays the part number of sonar control unit.

SELF-DIAGNOSTIC RESULTS

For details, refer to AV-204, "DTC Index".

DATA MONITOR

NOTE:

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

Monitor Item	Display	Description		
SONAR OPE	On	Around view monitor is ON. (sonar system is ON)		
	Off	Around view monitor is OFF. (sonar system is OFF)		
BUZZER OUTPUT	On	Buzzer is output condition.		
	Off	Buzzer is not output condition.		
CR SEN [FL] CR SEN [FR] CR SEN [RL] CR SEN [RR]	ERROR	When a sensor is abnormal.		
	LV.0	When a sensor is not detection.		
	LV.2	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).		
	LV.3	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more a less then 60 cm (23.6 in).		
	LV.4	The distance between corner sensor and an obstacle less than 40 cm (15.7 in).		

ACTIVE TEST

Active test item	Function	
BUZZER	This test is able to check buzzer operation.	
SONAR SENSOR	This test is able to check each sonar sensor operation.	

WORK SUPPORT

Work support item	Function	
CORNER SEN DISTANCE SET	Corner sensor warning buzzer distance is adjustable to 4 phases.	

CORNER SEN DISTANCE SET

Corner sensor warning buzzer distance can be set to 4 phases as follows.

DIAGNOSIS SYSTEM [SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)]

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITHOUT NAVIGATION]

Warning item	FARTHER	FAR	NORMAL	NEAR
Second warning	70 – 80 cm (27.5 – 31.4 in)	60 - 70 cm (23.6 - 27.5 in)	50 - 60 cm (19.6 - 23.6 in)	40 – 50 cm (15.7 – 19.6 in)
Third warning	50 - 70 cm (19.6 - 27.5 in)	40 – 60 cm (15.7 – 23.6 in)	30 - 50 cm (11.8 - 19.6 in)	30 – 40 cm (11.8 – 15.7 in)
Fourth warning	Less than 50 cm (19.6 in)	Less than 40 cm (15.7 in)	Less than 30 cm (11.8 in)	Less than 30 cm (11.8 in)

The default of this model is "FAR".

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ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

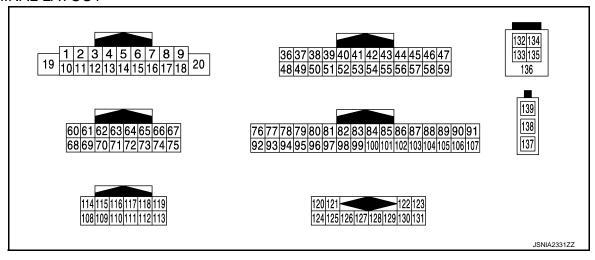
NOTE:

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

CONSULT MONITOR ITEM

Monitor Item		Condition	Value/Status
VHCL SPD SIG	Ignition switch ON	Vehicle speed > 0 km/h (0 MPH)	On
		Vehicle speed = 0 km/h (0 MPH)	Off
PKB SIG	Ignition switch ON	Parking brake is applied.	On
		Parking brake is released.	Off
ILLUM SIG	Ignition switch ON	Light switch ON	On
		Light switch OFF	Off
IGN SIG	Ignition switch ON	_	On
IGN SIG	Ignition switch ACC	_	Off
REV SIG	Ignition switch ON	Selector lever in R position	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		Condition	(Approx.)
					Keep pressing SOURCE switch.	0 V
				Ignition	Keep pressing MENU UP switch.	0.7 V
6 (P)	15 (B)	Steering switch signal A	Input	switch ON	Keep pressing MENU DOWN switch.	1.3 V
					Keep pressing w∕∠ 🥊 switch	2.0 V
					Except for above.	3.3 V
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
9	0	III and a standard and		Ignition	Lighting switch is OFF.	0 V
(R)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12.0 V
					Keep pressing VOL DOWN switch.	0 V
16 (L)	15 (B)	Steering switch signal B	Input	Ignition switch	Keep pressing VOL UP switch.	0.7 V
				ON	Keep pressing A switch.	1.3 V
					Except for above.	3.3 V
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
20 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
36 (BG)	Ground	Signal VCC	Output	Ignition switch ACC	_	8.8 V
37 (LG)	Ground	Signal ground	_	Ignition switch OFF	_	0 V
38 (R)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON	_	(V) 4 0 → 20μs SKIB3601E
39 (BR)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + + 1ms

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
40 (B)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At RGB image is displayed. At camera image is displayed.	5.0 V
41	_	Shield	_			+ + 200μs PKIB4948J
42 (W)	Ground	RGB synchronizing signal	Output	Ignition switch ON	_	(V) 4 0 + + 20 µs SKIB3603E
43 (G)	Ground	RGB signal (R: red)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1029ZZ
44 (L)	Ground	RGB signal (G: green)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 + 40µs JSNIA1030ZZ
45 (P)	Ground	RGB signal (B: blue)	Output	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 +40µs JSNIA1031ZZ
46 (V)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V
47 (SB)	Ground	Composite image signal	Output	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 +40\(\mu\)s SKIB2251J

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
48 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	8.8 V
49 (BR)	Ground	Inverter ground	_	Ignition switch OFF	_	0 V
50 (G)	Ground	Vertical synchronizing (VP) signal	Input	Ignition switch ON		(V) 4 0 ++4ms SKIB3598E
51 (Y)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 +-1ms PKIB5039J
52	_	Shield	_	_	_	— FNB50593
57	_	Shield	_	_	_	_
58	_	Shield	_	_	_	_
62 (W)	Ground	Camera image signal	Input	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 -0. 8 SKIB2251J
71		Shield	_	_	_	_
76 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
77 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
78 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
79 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
80 (P)	_	CAN-L	Input/ Output	_	_	_
81 (L)	_	CAN-H	Input/ Output	_	_	_
82 (B)	Ground	Switch ground	_	Ignition switch ON	_	0 V
86		Shield	_	_	_	_

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
87 (L)	88 (P)	TEL voice signal	Input	Ignition switch ON	During voice guide output with the v ressed.	(V) 1 0 -1 + 2ms SKIB3609E
92 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: Maximum voltage may be 12.0 V due to specifications (connected units).
93		5		Ignition	Parking brake is ON.	4.5 V
(V)	Ground	Parking brake signal	Input	switch ON	Parking brake is OFF.	0 V
94	Ground	Reverse signal	Input	Ignition switch ON	Shift the selector lever to R position.	12.0 V
(BG)	Cround	Trovolog digital	put		Shift the selector lever other than R position.	0 V
95 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
96	Ground	Disk eject signal	logut	Ignition switch	Pressing the eject switch.	0 V
(Y)	Giouna	Disk eject signal	Input	ON	Except for above.	5.0 V
108 (V)	114 (LG)	Sound signal rear RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
109 (P)	115 (L)	Sound signal front RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
110 (W)	Ground	Amp. ON signal	Output	Ignition switch ACC	_	12.0 V
111 (B)		Shield	_	_	_	_

Terminal Description (Wire color)						
+	- color)	Signal name	Input/ Output		Condition	Reference value (Approx.)
112 (BR)	118 (Y)	Sound signal rear LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 → 2ms SKIB3609E
113 (R)	119 (G)	Sound signal front LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 → 2ms SKiB3609E
120 (B)	124 (W)	Satellite radio sound signal LH	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 → + 2ms SKIB3609E
121 (G)	125 (R)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	(V) 1 0 -1 → +2ms SKIB3609E
122 (B)	Ground	Communication signal (CONT→SAT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 1ms SKIA9300J
126	_	Shield	_	_	_	_
127	_	Shield	_	_	_	_
128 (SB)	Ground	Mode change signal	Output	Ignition switch ON	Driver's Audio Stage ON Driver's Audio Stage OFF	0 V 8.5 V
129 (W)	Ground	Request signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 +10ms SKIA9299J

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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

DTC Index

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-240, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-241, "DTC Logic"
U1200	Cont Unit [U1200]	AV-242, "DTC Logic"
U1216	CAN CONT [U1216]	AV-243, "DTC Logic"
U121D	DSP CONN [U121D]	AV-244, "Diagnosis Procedure"
U121E	DSP COMM [U121E]	AV-245, "Diagnosis Procedure"
U1225	USB CONTROLLER [U1225]	AV-246, "DTC Logic"
U1228	SUB CPU CONN [U1228]	AV-247, "DTC Logic"
U1229	iPod CERTIFICATION [U1229]	AV-248, "DTC Logic"
U122A	CONFIG UNFINISH [U122A]	AV-249, "Diagnosis Procedure"
U122E	Built-in AUDIO CONN [U122E]	AV-250, "DTC Logic"
U1232	ST ANGLE SEN CALIB [1232]	AV-251, "Diagnosis Procedure"
U1243	FRONT DISP CONN [U1243]	AV-252, "DTC Logic"
U1255	SAT CONN [U1255]	AV-254, "DTC Logic"
U1263	USB OVERCURRENT [U1263]	AV-256, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-258, "DTC Logic"
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-257, "Description"
U1300 U125B	AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B]	AV-257, "Description"

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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DTC	Display item	Refer to
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	AV-257, "Description"
U1300 U1256	AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	AV-257, "Description"
U1300 U125B U1256	AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B] HAND FREE CONN [U1256]	AV-257, "Description"
U1300 U1240 U125B U1256	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] AROUND CAMERA CONN [U125B] HAND FREE CONN [U1256]	AV-257, "Description"

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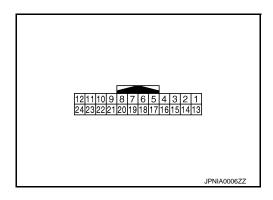
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DISPLAY UNIT

Reference Value

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TERMINAL LAYOUT



PHYSICAL VALUES

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	8.8 V
3 (BG)	Ground	Signal VCC	Input	Ignition switch ACC	_	8.8 V
4 (V)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V
5	_	Shield	_		_	_
6 (L)	Ground	RGB signal (G: green)	Input	Ignition switch ON	Start Confirmation/Adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1030ZZ
7	_	Shield	_	_	_	_
8 (R)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	_	(V) 4 0 → 20µs SKIB3601E

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
9 (B)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At RGB image is displayed. At camera image is displayed.	5.0 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 PKIB5039J
13 (BR)	Ground	Inverter ground	_	Ignition switch ON	_	0 V
14 (LG)	Ground	Signal ground	_	Ignition switch ON	_	0 V
15 (SB)	Ground	Composite image signal	Input	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -40μs SKIB2251J
17 (G)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1029ZZ
18 (P)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start Confirmation/Adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on Display Diagnosis screen.	(V) 0.8 0.4 0 → 40µs JSNIA1031ZZ

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

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

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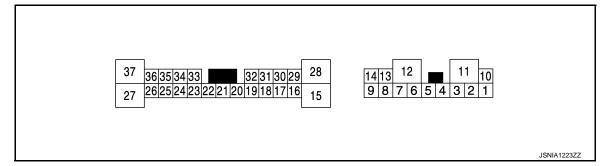
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BOSE AMP.

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (Y)	10 (G)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
2 (SB)	3 (V)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
4 (B)	5 (P)	Sound signal front door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 → 2ms SKIB3609E
6 (L)	7 (W)	Sound signal front squawk- er LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 ** 2ms SKIB3609E

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
8 (LG)	13 (Y)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
9 (G)	14 (R)	Sound signal woofer and rear squawker (LH and RH)	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 2ms SKIB3609E	
11 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
12 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
15 (B)	28 (G)	Sound signal center speaker	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 *** 2ms SKIB3609E	
17 (W)	Ground	Mode change signal	Input	Ignition switch	Driver's Audio Stage ON	0 V	
				ON	Driver's Audio Stage OFF	8.5 V	
18 (R)	32 (G)	Sound signal front LH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 → +2ms SKIB3609E	
19 (P)	20 (L)	Sound signal front RH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 × 2ms SKIB3609E	

BOSE AMP.

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
21 (BR)	22 (Y)	Sound signal rear LH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
23 (V)	33 (SB)	Sound signal rear RH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
25 (GR)	Ground	Woofer amp. ON signal	Output	Ignition switch ACC	_	12.0 V	
31 (W)	Ground	BOSE amp. ON signal	Input	Ignition switch ACC	_	12.0 V	
37 (BR)	27 (R)	Sound signal front squawk- er RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	

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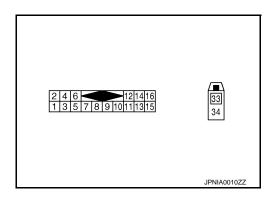
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SATELLITE RADIO TUNER

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Terr	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 0 -1 *** 2ms SKIB3609E	
5	_	Shield	_	_	_	_	
6	_	Shield	_	_	_	_	
8 (L)	Ground	Request signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 → +10ms SKIA9299J	
9 (P)	Ground	Communication signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 1ms SKIA9300J	

SATELLITE RADIO TUNER

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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

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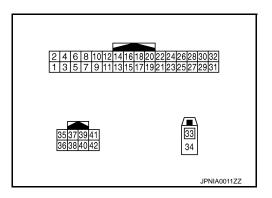
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TEL ADAPTER UNIT

Reference Value

TERMINAL LAYOUT



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PHYSICAL VALUES

	minal color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
2 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
3 (W)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
4 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
7 (BR)	8	Microphone signal	Input	Ignition switch ON	Give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 PKIB5037J
9	10 (W)	TEL voice signal	Output	Ignition switch ON	During voice guide output with the vs witch pressed.	(V) 1 0 -1 + 2ms SKIB3609E
22 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V
23 (B)	Ground	Control signal	Input	Ignition switch ON	_	0 V

TEL ADAPTER UNIT

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
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 approx. 40 km/h (25 MPH)	NOTE: Maximum voltage may be 12.0 V due to specifications (connected units). (V) 6 4 2 0 **20ms SKIA6649J
29 (Y)	8	Microphone VCC	Output	Ignition switch ON	_	5.0 V
33	_	TEL antenna signal	Input	_	_	
34	_	Shield	_	_	_	_
35 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
36 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_

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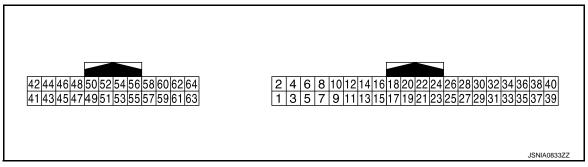
< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

AROUND VIEW MONITOR CONTROL UNIT

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
2 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
3 (P)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
4 (GR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
5	Ground	Ground Illumination signal Input		Ignition switch	Lighting switch is OFF.	0 V
(BG)	Ground	Illumination signal	OFF		Lighting switch is ON.	12.0 V
6 (SB)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH).	NOTE: The maximum voltage varies depending on the specification (destination unit).
7 (V)	Ground	Reverse signal	Input	Ignition switch	Shift the selector lever to "R" position. Shift the selector lever other	12.0 V
(*)				ON	than "R" position.	0 V
9 (V)	Ground	Control signal	_	Ignition switch ON	_	0 V
13 (B)	Ground	Control signal	_	Ignition switch ON	_	0 V

< ECU DIAGNOSIS INFORMATION >

	rminal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
17 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
18 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
21 (SB)	_	AV communication signal (H)	Input/ Output		_	_
22 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
23 [*] (LG)	_	_	_	_	_	_
24 [*] (G)	_	_	_	_	_	_
27 (W)	Ground	Camera image signal	Output	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4 -0. 4
28	_	Shield (camera image signal ground)	_	_	_	_
29 (Y)	30 (G)	Side camera RH image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 40 μ s JSNIA0834GB
31	_	Shield	_		_	
32 (B)	Ground	Side camera RH ground	_	Ignition switch ON	_	0 V
33 (W)	Ground	Side camera RH communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 + 1.0 \(\mu\) SNIA0836GB
34 (R)	Ground	Side camera RH power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V
35 (L)	Ground	Rear camera communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 μ s JSNIA0836GB

< ECU DIAGNOSIS INFORMATION >

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	rminal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
36 (BR)	Ground	Rear camera power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V	
37	_	Shield	_	_	_		
38 (R)	Ground	Rear camera ground	_	Ignition switch ON	_	0 V	
39 (Y)	40 (W)	Rear camera image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 -40 μ s JSNIA0834GB	
41 (Y)	42 (G)	Front camera image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 +40 μ s JSNIA0834GB	
43	_	Shield	_	_	_	_	
44 (B)	Ground	Front camera ground	_	Ignition switch ON	_	0 V	
45 (W)	Ground	Front camera communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1 3 2 1 3 3 3 3 3 3 3 3 3 3 3 3 3	
46 (R)	Ground	Front camera power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V	
47 (L)	Ground	Side camera LH communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 μs JSNIA0836GB	
48 (BR)	Ground	Side camera LH power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V	
49	_	Shield	_	_	_	_	
	1		1	1	l .		

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

	rminal e color)	Description		Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)
50 (R)	Ground	Side camera LH ground	_	Ignition switch ON	_	0 V
51 (Y)	52 (W)	Side camera LH image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 40 μ s JSNIA0834GB

^{*:} This harness is not used.

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SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR) NOSIS INFORMATION > [BOSE AUDIO WITHOUT NAVIGATION]

< ECU DIAGNOSIS INFORMATION >

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

Reference Value

VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

CONSULT MONITOR ITEM

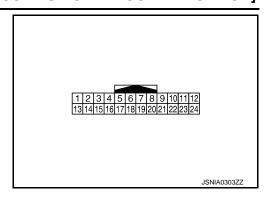
Monitor Item		Condition	Value/Status
	Ignition quitob	Around view monitor operating (sonar operating).	On
SONAR OPE	Ignition switch ON	Around view monitor non-operating (sonar non-operating).	Off
BUZZER OUTPUT	Ignition switch	Buzzer is output condition.	On
BOZZEN GOTT OT	ON	Buzzer is not output condition.	Off
		When a sensor is abnormal.	ERROR
		When a sensor is not detection.	LV.0
CR SEN [FL]	Ignition switch	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
, , , , , , , , , , , , , , , , , , ,	ON	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4
		When a sensor is abnormal.	ERROR
	Ignition switch	When a sensor is not detection.	LV.0
CR SEN [FR]		The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
5.K 52.K [1 K]	ON	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4
		When a sensor is abnormal.	ERROR
		When a sensor is not detection.	LV.0
CR SEN [RL]	Ignition switch	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
	ON	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4
		When a sensor is abnormal.	ERROR
		When a sensor is not detection.	LV.0
CR SEN [RR]	Ignition switch ON	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
2 52 []		The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITHOUT NAVIGATION]

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PHYSICAL VALUES

	nal No. e color)	Description			Condition	Value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
3 (R)	12 (B)	Corner sensor signal front LH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 +10ms JSNIA0837GB	
4 (W)	12 (B)	Corner sensor signal front RH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 10ms JSNIA0837GB	
5 (W)	12 (B)	Corner sensor signal rear LH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 ***10ms JSNIA0837GB	
6 (R)	12 (B)	Corner sensor signal rear RH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 + 10ms JSNIA0837GB	
12 (B)	Ground	Sensor ground	_	Ignition switch ON	_	0 V	
13 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
18 (V)	_	K-line (CONSULT)	_	_	_	_	

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR) [BOSE AUDIO WITHOUT NAVIGATION]

< ECU DIAGNOSIS INFORMATION >

	nal No. color)	Description			Condition	Value
+	_	Signal name	Input/ Output		Condition	(Approx.)
19 (G)	_	AV communication signal (H)	Input/ Output	_	_	_
20 (R)	_	AV communication signal (L)	Input/ Output	_	_	_
24 (B)	Ground	Ground	_	Ignition switch ON	_	0 V

Fail-Safe INFOID:00000000009061537

- · Sonar control unit has diagnosis function which can detect corner sensor malfunction and sensor harness
- It transmits the malfunction status to around view monitor control unit and informs the malfunction to the user by displaying continuously red sonar indicator.

DTC Index INFOID:0000000009061538

DTC	Display item	Malfunction is detected when	Reference
B2700	CORNER SENSOR [FL] [B2700]	Corner sensor front LH is malfunctioning.	AV-259, "DTC Logic"
B2701	SENSOR HARNESS OPEN [CR-FL] [B2701]	Corner sensor front LH harness circuit is open.	AV-260, "Diagnosis Procedure"
B2702	CORNER SENSOR [FR] [B2702]	Corner sensor front RH is malfunctioning.	AV-261, "DTC Logic"
B2703	SENSOR HARNESS OPEN [CR-FR] [B2703]	Corner sensor front RH harness circuit is open.	AV-262, "Diagnosis Procedure"
B2704	CORNER SENSOR [RL] [B2704]	Corner sensor rear LH is malfunctioning.	AV-263, "DTC Logic"
B2705	SENSOR HARNESS OPEN [CR-RL] [B2705]	Corner sensor rear LH harness circuit is open.	AV-264, "Diagnosis Procedure"
B2706	CORNER SENSOR [RR] [B2706]	Corner sensor rear RH is malfunctioning.	AV-265, "DTC Logic"
B2707	SENSOR HARNESS OPEN [CR- RR] [B2707]	Corner sensor rear RH harness circuit is open.	AV-266, "Diagnosis Procedure"

"TIME" means the following.

- 0: Means detected malfunction at present. (From malfunction detection to turning ignition switch OFF)
- 1–39: Means detected malfunction in past.

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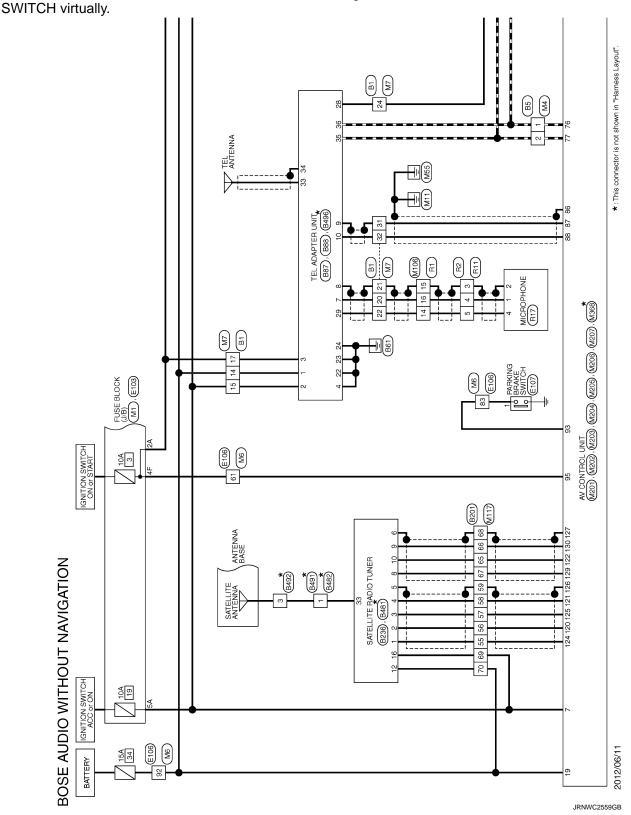
WIRING DIAGRAM

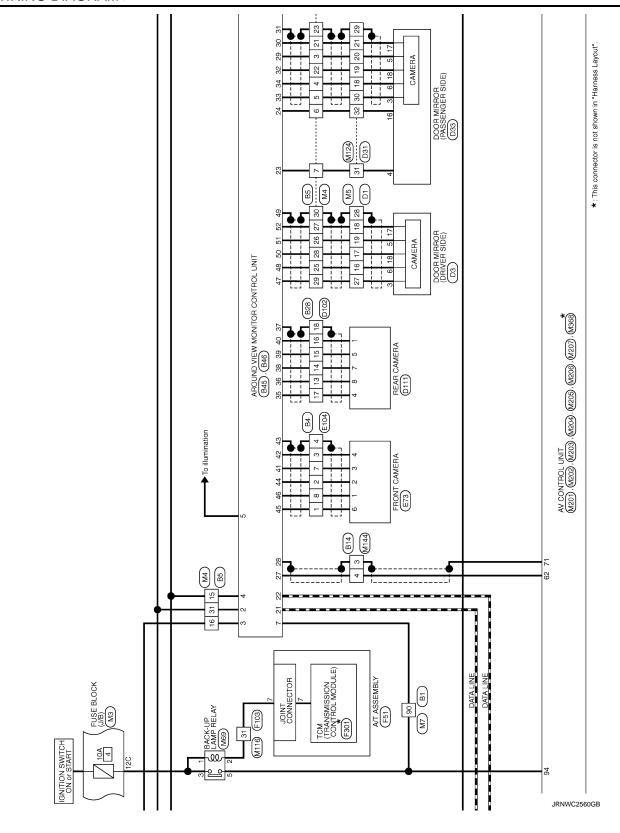
BOSE AUDIO WITHOUT NAVIGATION

Wiring Diagram

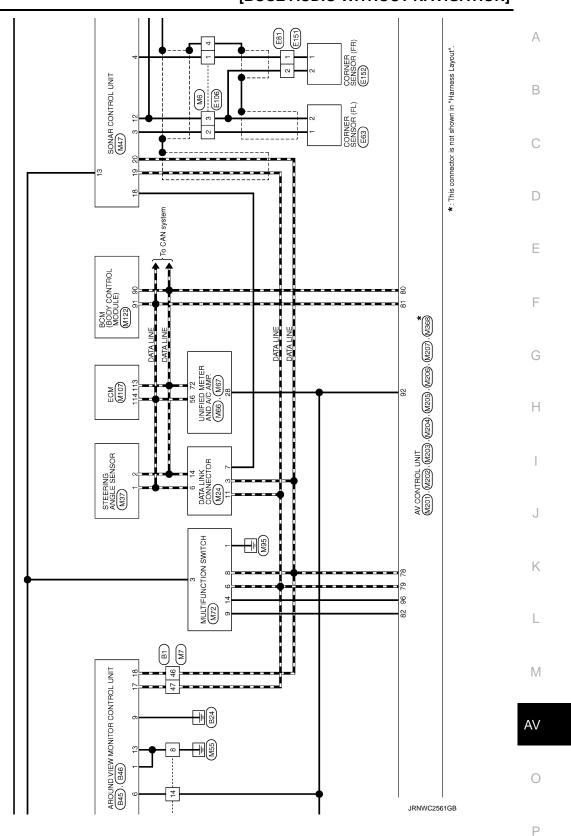
NOTE:

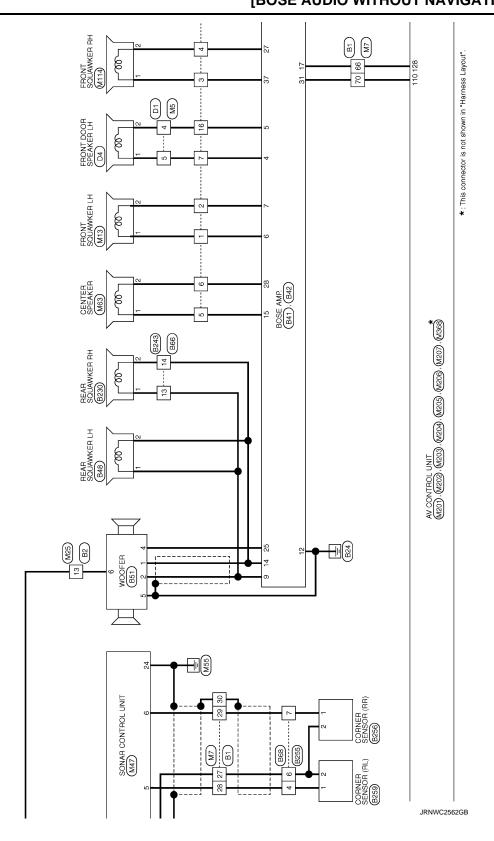
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually



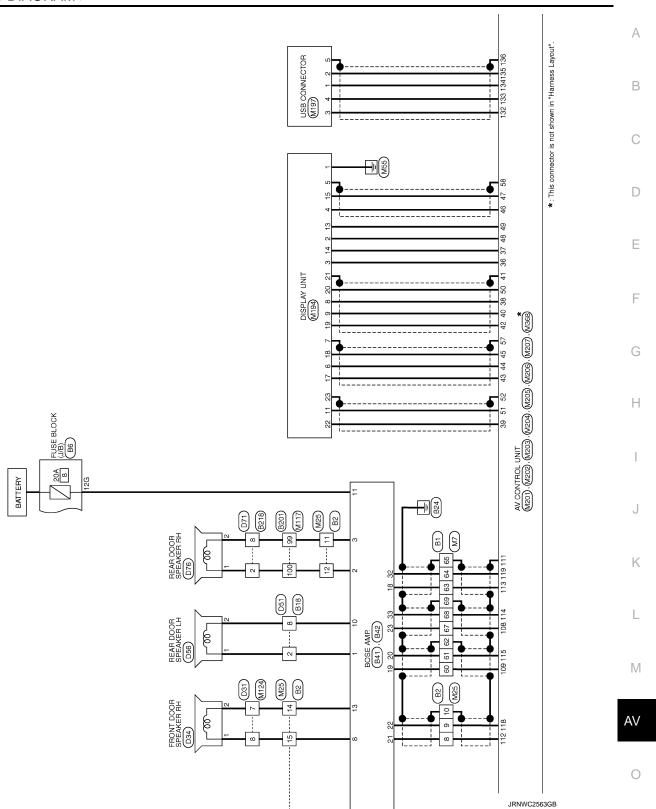


BOSE AUDIO WITHOUT NAVIGATION [BOSE AUDIO WITHOUT NAVIGATION]

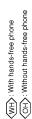


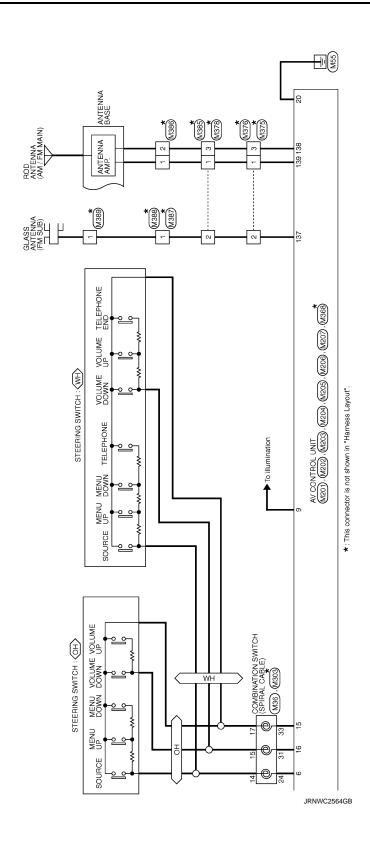


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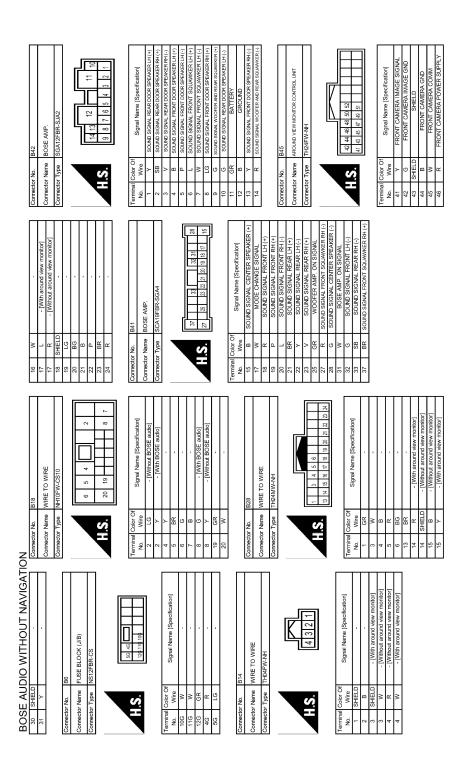
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[BOSE AUDIO WITHOUT NAVIGATION]

Connector No. B87	Connector Name TEL ADAPTER UNIT	Connector Type TH32FW-NH		\$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Signal N	GR LG	3 W IGNITION SIGNAL 4 B GROUND	7 BR MICROPHONE SIGNAL	SHIELD	≫ a	23 B CONTROL SIGNAL		P VE	29 Y MICROPHONE VCC		Connector No. B88	Connector Name TEL ADAPTER UNIT	Connector Type TH08FW-NH				7. S		30	Frminal Color Of Signal Name [Specification]	t	PC				
Connector No. B66	Connector Name WIRE TO WIRE	Connector Type TH24MW-NH		H.S. (12 3 13 14 15 16 17 18	Terminal Color Of Signal Name [Specification]	\mathbb{H}	13 E	14 W -	16 BR .	+			Connector No. B68	Connector Name WIRE TO WIRE	Connector Type RH08MB			7	H.S. ((1234))	9	0	No. Wire Signal Name [Specification]		2 B	20 A	╁	- M 2				
N REAR CAMERA IMAGE GND		Connector No. B48	Connector Name REAR SQUAWKER LH Connector Type TK02FBR		H.S.	lal	No. Wire	2 W -		Connector No. B51	Connector Name WOOFER	Connector Type RS06FGY-PR							Terminal Color Of Signal Name [Specification]	w w	2 G SOUND SIGNAL WOOFER (+)	<u></u>	6 V BATTERY								
BOSE AUDIO WITHOUT NAVIGATION	BR SIDE CAMER	50 R SIDE CAMERA LH GND	51 Y SIDE CAMERA LH IMAGE SIGNAL 52 W SIDE CAMERA LH IMAGE GND				1 5 5 7 9 13 7 27 28 77 28 78 78 78 78 78 78 78 78 78 78 78 78 78		Terminal Color Of Simple (Specification)	60	2 Y BATTERY	P IGNITION:		5 BG ILLUMINATION SIGNAL	╁	>	13 B CONTROL SIGNAL 17 SB AV COMM (H)	97	21 SB AV COMM (H)	2 2	24 G .	SHIELD	Н	30 G SIDE CAMERA RH IMAGE GND	B SIDE C	Α	R SIDE CAMERA RH	٦	BR REAR CAI	REAR CAMI	39 Y REAR CAMERA IMAGE SIGNAL.

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Connector No. D1 Connector Name WIRE TO WIRE Connector Type I H40FW-CS15	H.S. English of the control of the c	Terminal Cook Of No. Wire Signal Name [Specification] 1	
Terminal Color Of Signal Name [Specification] No. Wire 1	Corrector No. B492 Connector Type GT16C-1PP-HU	Terminal Color Of No. Signal Name [Specification] No. Write Connector No. B196 Connector Name TEL ADAPTER UNIT Connector Type GT16C-15.HU Terminal Color Of Signal Name [Specification] No. Write Signal Name [Specification] Signal Name [Specification] Signal Name [Specification] Signal Name [Specification]	
TON Corrector No. B491 Corrector Name SATELLITE RADIO TUNER Corrector Type FAKRA	H.S.	Terminal Color Off Signal Name [Specification] No. Wire SATELLITE ANTENNA SIGNAL Corrector No. B482 Corrector No. B482 Corrector No. B482 Corrector No. B481 Corrector Type GT16C-15-HU	
BOSE AUDIO WITHOUT NAVIGATION Connector No. R256 Connector No. Connector No. Connector Name CORNER SENSOR (RR) Connector Name Connector Type YOX027EB Connector Type	H.S.	Terminal Color Of Nore Signal Name [Specification] Virginal Connector Name CORNER SENSOR (RL.) Connector Name CORNER SENSOR (RL.) Connector Type YDX02FB Terminal Color Of Nore Signal Name [Specification] Norm Nore Signal Name [Specification]	
			JRNWC3660GB

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	+	+	>		Connector No. D34	Ed dryving dood FMOdr		Connector Type NS02FBR-CS]	2 1				O	Wire	BR -			Connector No. D51	Connector Name TO WIRE		Connector Type INFLUMW-CSTU		2	, 	7 8 19 20		000000000000000000000000000000000000000	Wire Signal Name [Specification]	t	Y - [With BOSE audio]	,	^	. 9		O	Y - [Without BOSE audio]		>			
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	- [With BOSE audio]		,		,									-			-	•	-	-		D33	DOOR MIRROR (PASSENGER SIDE)	SOOK WILLIAMS (FASSERGER) SIDE)	Connector Type THZ4MW-INH			7 8 5 4 3	21 19 18 17 16			Signal Name [Specification]	SIDE CAMERA RH COMM	SIDE CAMERA RH IMAGE SIGNAL	SIDE CAMERA RH POWER SUPPLY	,						SIDE CAMERA RH IMAGE GND	SIDE CAMERA RH GND		
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	23	57		Connector No.		Connector Name	Connector Type			•	\	ij	Ì			Terminal Color Of	No.	1	2		Connector No.		Connector Name	Connector Type				Ę		F	P S	<u> </u>	80	6	12	13	14	15	16	17	18	19	20	20	21
BOSE AUDIO WITHOUT NAVIGATION						atic drive positioner]	natic drive positioner]	- [Without automatic drive positioner]	- [With automatic drive positioner]	- [Without automatic drive positioner]	- [With automatic drive positioner]	 [With automatic drive positioner] 	- [Without automatic drive positioner]						-		D3		DOOR MIRROR (DRIVER SIDE)	TH24MW-NH				10 7 6	24 23 22 27 19 18 17 14		Signal Name [Specification]		SIDE CAMERA LH COMM	SIDE CAMERA LH IMAGE SIGNAL	SIDE CAMERA LH POWER SUPPLY							SIDE CAMERA LH GND			
3OSE AL	4	+	39 O	+	ľ	43 BR	Н	Ė	44 W	45 G	45 Y	46 G	\dashv		20 B	_	_	54 0	55 Y		Connector No.		Connector Name	Connector Type	•	\		E S		20	No Miro	+	+	5 Y	9 R	W	H	11 P	12 0	14 LG	17 G	18 W	19 B	21 GR	H

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Corrector No. E73	
23 BR	
Corrector No. O'16 Corrector Name REAR DOOR SPEAKER RH	
Corrector No. D71	
	JRNWC3662GB

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BOSE AUDIO WITHOUT NAVIGATION	NOI						
Connector No. E103	Connector No.	or No.	E106	43	Н		П
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Connector Name FUSE BLOCK (J/B)	Connecto	or Name		49	_		7 66
Connector Type NS16FW-CS	Connector Type	or Type	TH80FW-CS16-TM4	20	۵		100 P
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[BOSE AUDIO WITHOUT NAVIGATION]

< WIRING DIAGRAM >

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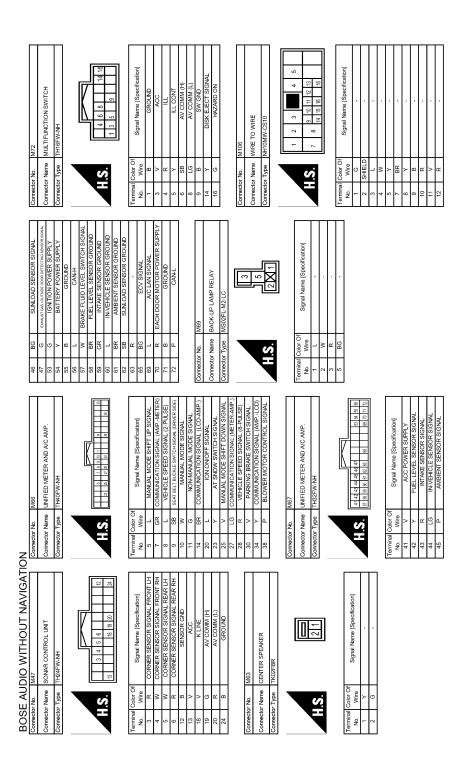
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Revision: 2013 March AV-221 2014 QX50



JRNWC3667GB

[BOSE AUDIO WITHOUT NAVIGATION]

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۵	Connector No. M206			
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Y INVERTER VCC 78 LG	AV COMM (L)			
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Y COMM (CONT-DISP) 81 L	No. Wire	Signal Name [Specification]	F	
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SHIELD 86 SHIELD	121 G	SATELLITE RADIO SOUND SIGNAL RH (+)	19 P	
87 L	122 B	COMM (CONT-SAT)	20 Y -	
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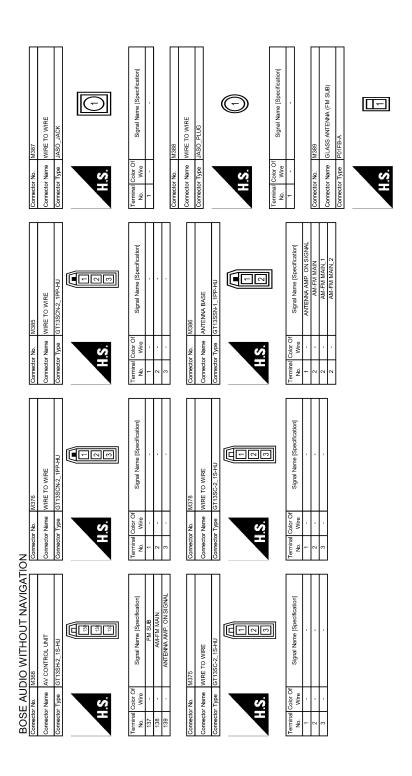
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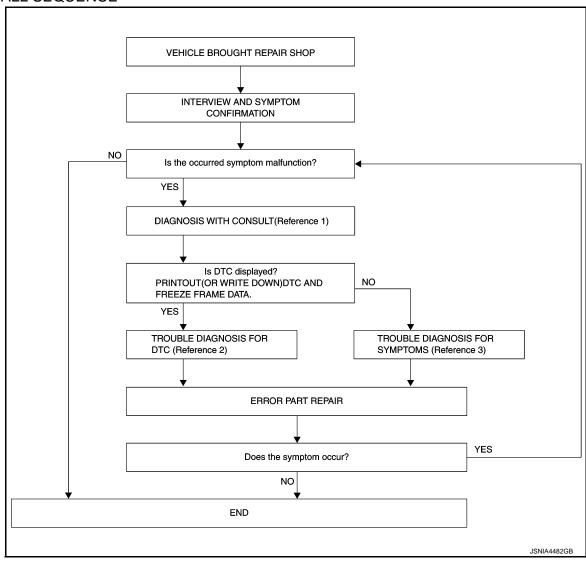
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow (Multi AV)

INFOID:0000000009061540

OVERALL SEQUENCE



- Reference 1... Refer to <u>AV-170, "CONSULT Function (MULTI AV)"</u>.
- Reference 2··· Refer to <u>AV-186</u>, "<u>DTC Index</u>".
- Reference 3... Refer to AV-306, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

2.DIAGNOSIS WITH CONSULT

DIAGNOSIS AND REPAIR WORKFLOW

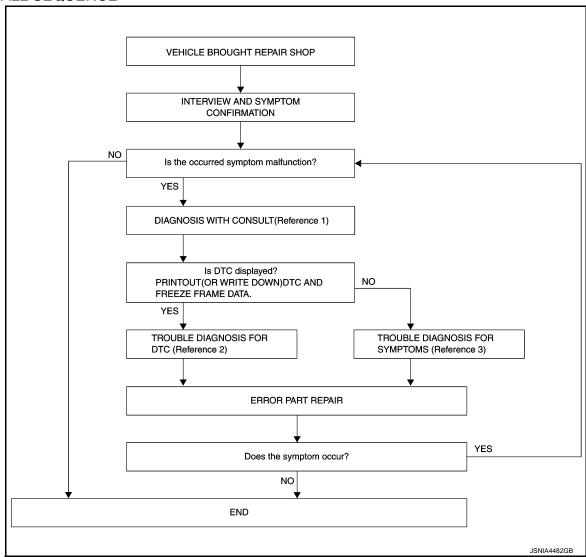
< BASIC INSPECTION >	[BOSE AUDIO WITHOUT NAVIGATION]
 Connect CONSULT and perform a self-diagnosis for "MUL (MULTI AV)". NOTE: 	_TI AV". Refer to <u>AV-170, "CONSULT Function</u> A
Skip to step 4 of the diagnosis procedure if "MULTI AV" is r When DTC is detected, follow the instructions below: Record DTC and Freeze Frame Data.	not displayed.
Is DTC displayed?	
YES >> GO TO 3.	C
NO >> GO TO 4.	
3.trouble diagnosis for dtc	
 Check the DTC indicated in the "Self-Diagnosis Results". Perform the relevant diagnosis referring to the DTC Index. 	Refer to AV-186, "DTC Index".
>> GO TO 5.	E
4.TROUBLE DIAGNOSIS FOR SYMPTOMS	
	ort by symptom Defer to AV 206 "Symptom
Perform the relevant diagnosis referring to the diagnosis charable".	art by symptom. Refer to <u>AV-306, Symptom</u> _F
>> GO TO 5.	G
5.error part repair	
 Repair or replace the identified malfunctioning parts. Perform a self-diagnosis for "MULTI AV" with CONSULT. 	Н
NOTE: Erase the stored self-diagnosis results after repairing or r has been indicated in the "Self-Diagnosis Results". Check that the symptom does not occur.	eplacing the relevant components if any DTC
Does the symptom occur?	
YES >> GO TO 1. NO >> INSPECTION END	J
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Work Flow (Camera Assistance Sonar)

INFOID:0000000009061541

OVERALL SEQUENCE



- Reference 1... Refer to AV-178, "CONSULT Function (SONAR)".
- Reference 2··· Refer to AV-204, "DTC Index".
- Reference 3... Refer to AV-306, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

DIAGNOSIS WITH CONSULT

 Connect CONSULT and perform a self-diagnosis for "SONAR". Refer to <u>AV-178, "CONSULT Function</u> (<u>SONAR</u>)".

NOTE:

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

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BOSE AUDIO WITHOUT NAVIGATION]

2.	When	DTC is	detected,	follow	the	instructions	below
----	------	--------	-----------	--------	-----	--------------	-------

Record DTC and Freeze Frame Data.

Is DTC displayed?

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

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3.trouble diagnosis for dtc

- 1. Check the DTC indicated in the "Self-Diagnosis Results".
- 2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-204, "DTC Index".

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>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-306, "Symptom Table"</u>.

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>> GO TO 5.

5. ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.

2. Perform a self-diagnosis for "SONAR" with CONSULT.

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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.

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Does the symptom occur?

YES >> GO TO 1.

NO >> INSPECTION END

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< BASIC INSPECTION >

[BOSE AUDIO WITHOUT NAVIGATION]

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Description

-INFOID:0000000009061542

BEFORE REPLACEMENT

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

AFTER REPLACEMENT

CAUTION:

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

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

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure

INFOID:0000000009061543

1. SAVING VEHICLE SPECIFICATION

© CONSULT Configuration

Perform "Before Replace ECU" to save or print current vehicle specification. Refer to <u>AV-232</u>, "CONFIGURATION (AV CONTROL UNIT): Description".

NOTE:

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

>> GO TO 2.

2. REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to AV-315, "Exploded View".

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

(E)CONSULT Configuration

Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to <u>AV-233, "CON-FIGURATION</u> (AV CONTROL UNIT): Work Procedure".

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit is normal.

>> WORK END

CONFIGURATION (AV CONTROL UNIT)

CONFIGURATION (AV CONTROL UNIT): Description

INFOID:0000000009061544

- Since vehicle specifications are not included in the AV control unit after replacement, it is required to write vehicle specifications with CONSULT.
- The AV control unit configuration includes functions as follows.

< BASIC INSPECTION >

[BOSE AUDIO WITHOUT NAVIGATION]

1.0	unction	Description
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in AV control unit to store the specification in CONSULT.
Read/White Configuration	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the AV control unit.
Manual Configuration		Allows the writing of the vehicle specification into the AV control unit by hand.
CONFIGURATION (AV CONTROL UNI	T): Work Procedure
1.WRITE VEHICLE SPE	CIFICATION	
CONSULT Configuration		
To write vehicle specifica	ation into the AV control u	into the AV control unit>>GO TO 2. nit by hand>>GO TO 3.
2.WRITE STORED DATA	4	
CONSULT Configuratio Select "After Replace EC Replace ECU" function int	ເປ" in "Read/Write Confiç	guration". Write data stored in CONSULT with the "Before
>> GO TO 4.		
3.manually write ve	EHICLE SPECIFICATION	l .
rol unit. Refer to AV-233.	ration". Refer to the Conf	figuration List to write vehicle specification into the AV con- CONTROL UNIT): Configuration List".
NOTE: If selection items are not o	displayed on the CONSU	LT screen, touch "NEXT".
>> GO TO 4.		
4. OPERATION CHECK		
Check that the operation ines) are normal.	of the AV control unit ar	nd camera images (fixed guide lines and predictive course
>> WORK END		
CONFIGURATION (AV CONTROL UNI	T): Configuration List

tions are misread.

NOTE:

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

MANUAL SETTING ITEM		
Items Setting value		
STEERING	LHD	
STEERING	RHD	

AV-233 Revision: 2013 March 2014 QX50

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[BOSE AUDIO WITHOUT NAVIGATION]

< BASIC INSPECTION >

MANUAL SETTING ITEM		
Items	Setting value	
	NONE/AVM	
CAMERA SYSTEM	REAR CAMERA	
	REAR+SIDE	
OOLIND OVOTEM	BASE	
SOUND SYSTEM	BOSE	
AUXILIARY INPUT JACKS	WITHOUT	
	WITH	

NOTE:

AVM: Around view monitor

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Description

INFOID:0000000009061547

Adjust the center position of the predictive course line of the rear view monitor if it is shifted.

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT: Work Procedure

INFOID:0000000009061548

1.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

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Description

INFOID:0000000009061549

- Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.
- Align the white lines on the road near the vehicle at the boundary of each camera image by this camera calibration. The white lines far from the vehicle may not be aligned at the boundary of each camera image. The
 farther the line, the greater the difference is.

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Special Repair Requirement

Calibration flowchart

[BOSE AUDIO WITHOUT NAVIGATION]

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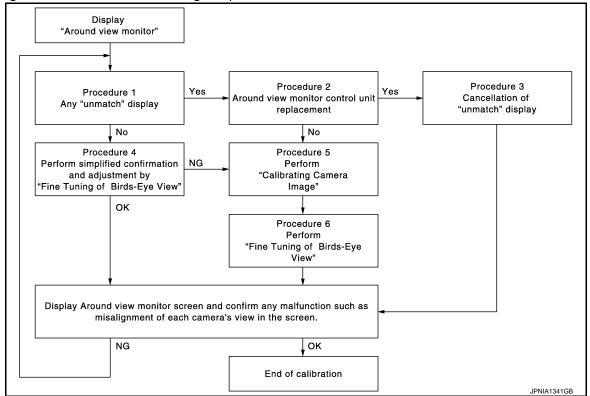
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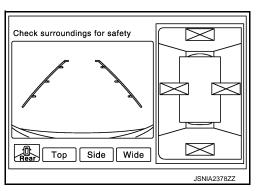
< BASIC INSPECTION >

Following the flowchart shown in the figure, perform the calibration.



NOTE:

In the un-match display, the un-match camera position is indicated as " \boxtimes " on the birds-eye view.



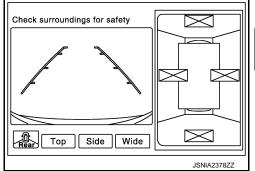
Calibration procedure

1. AROUND VIEW MONITOR SCREEN CONFIRMATION

Check that there is the un-match display in any camera.

Is the un-match display visible?

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



2. CHECK THAT AROUND VIEW MONITOR CONTROL UNIT IS REPLACED

Check that the around view monitor control unit is replaced.

Is the around view monitor control unit replaced?

YES >> GO TO 3.

NO >> GO TO 5.

$3.\mathsf{release}$ un-match display (perform only when the around view monitor control UNIT IS REPLACED)

- Select "Camera Cont." of Confirmation/Adjustment mode, and then set to "Calibrating Camera Image" mode.
- Press the "ENTER" switch of the multifunction switch on each screen of "Rear Camera", "Front Camera", "Dr-Side Camera", "Pass-Side Camera".

CAUTION:

- · Do never operate the center dial and up/down/left/right switches. Only press the "ENTER" switch.
- Never perform "Initialize Camera Image Calibration".
- Display the around view monitor screen, and check that there is no malfunction such as a difference between each camera image.

t Use DIAL to select range marking type, push ENTER <16/31> + Use arrow keys to adjust position <00, 00> JSNIA1053GE

Is there a malfunction?

YES >> Calibration end

NO >> GO TO 1.

$oldsymbol{4}.$ PERFORM SIMPLIFIED CONFIRMATION/ADJUSTMENT BY "FINE TUNING OF BIRDS-EYE VIEW"

- 1. Put target line 1 on the ground beside each axle using packing tape, etc.
- Put target lines 2 equal to the vehicle total length + approximately 1.0 m (39.3 in) from the vehicle side (right and left) at approximately 30 cm (11.8 in) away from the vehicle (make the line as parallel with the vehicle as possible)

① В В 2 JSNIA092777

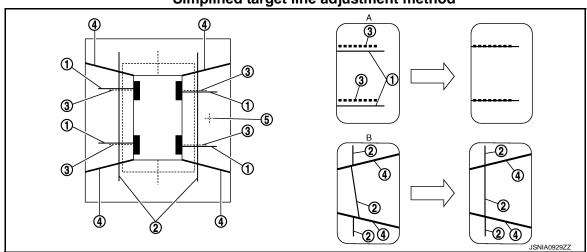
Preparation of simplified target line

1. Target lines 1

- 2. Target lines 2
- Approx. 30 cm (11.8 in)
- B. Approx. 1.0 m (39.3 in)
- 3. Select "Camera Cont." of Confirmation/Adjustment mode, and then set to "Fine Tuning of Birds-Eye View"
- 4. Select left and right cameras by pressing the "CAMERA" switch, and perform the following confirmation.
- Check that target line 1 is aligned with the marker on the screen. Overlap the line aligned to the marker with the upper/lower switches of multifunction switch if necessary.
- Check if there is a difference between target lines 2 between cameras. Adjust target lines 2 to be straight lines by operating the center dial and left/right switches of multifunction switch if necessary.

- Never adjust the front camera and rear camera. Only adjust the right and left cameras.
- Operate the center dial slowly because the changing of the screen takes approximately 1 second.

Simplified target line adjustment method



- 1. Target lines 1
- 4. Boundary between cameras
- A. Adjustment method for target lines 1 (right)
- 2. Target lines 2
- 5. Crosshairs cursor (mark indicated the selected camera)
- Adjustment method for target lines 2 (right)
- Marker for target line 1
- 5. Adjust left and right cameras. Check that the difference between target line 1 and the marker on the screen, and between target lines 2 is solved.

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration" of "Calibrating Camera Image".
- The adjustment value is cancelled on this mode by performing "Initialize Camera Image Calibration".

Is the difference corrected?

YES >> Finish the writing to around view monitor control unit by pressing "ENTER" switch.

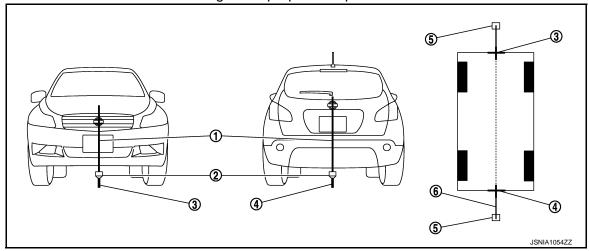
NO >> GO TO 5.

PERFORM "CALIBRATING CAMERA IMAGE"

Preparation of target line

- 1. Hang a string with a weight as shown in the figure. Put the points FM0, RM0 (mark) on the ground at the center of the vehicle front end and rear end with white packing tape or a pen.
- 2. Route the vinyl string under the vehicle, and then pull and fix it on the point approximately 1.0 m (39.9 in) to the front and rear of the vehicle through the points FM0 and RM0 using packing tape.

Target line preparation procedure 1



- 1. Thread
- 4. Point RM0 (mark)
- Weight
- 5. Packing tape (to fix the vinyl string)
- Point FM0 (mark)
- Vinyl string

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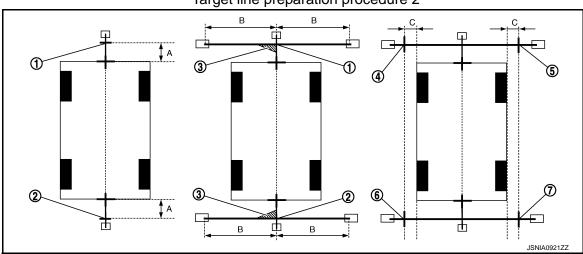
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- 3. Put the points FM and RM (mark) 75 cm (29.5 in) from the points FM0 and RM0 individually.
- 4. Route the vinyl string through the points FM and RM using a triangle scale, and then fix it at approximately 1.5 m (59 in) on both sides with packing tape.
- 5. Put the points FL, FR, RL, and RR (mark) to both right and left [vehicle width / 2 + 30 cm (11.8 in)] from the points FM and RM.

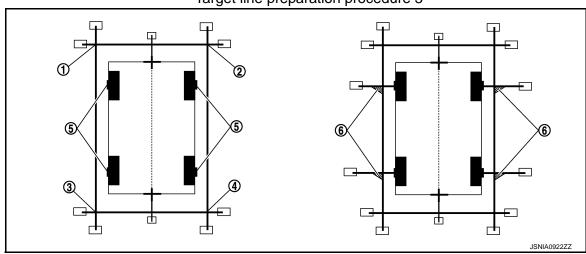
Target line preparation procedure 2



- 1. Point FM
- 4. Point FL (mark)
- 7. Point RR (mark)
- A. 75 cm (29.5 in)

- 2. Point RM
- 5. Point FR (mark)
- B. Approx. 1.5 m (59 in)
- 3. Triangle scale
- 6. Point RL (mark)
 - 30 cm (11.8 in)
- C. [Vehicle width/ 2 + 30 cm (11.8 in) from the points FM and RM]
- 6. Draw the lines of the points FL RL and FR RR with vinyl string, and fix it with packing tape.
- 7. Put a mark on the center of each axle, draw vertical lines to the lines of the points FL RL and FR RR from the marks on the center of the axle using a triangle scale, and then fix the lines using packing tape.

Target line preparation procedure 3



- 1. Point FL
- 4. Point RR

- 2. Point FR
- 5. Center position of axle
- 3. Point RL
- Triangle scale

Perform "Calibrating Camera Image"

 Select "Camera Cont." of "Confirmation/ Adjustment" mode, and then set to "Calibrating Camera Image" mode.

< BASIC INSPECTION >

[BOSE AUDIO WITHOUT NAVIGATION]

 Overlap the target lines drawn on the ground with the calibration marker on the screen by operating the center dial and upper/ lower/left/right switches of multifunction switch on each screen of "Rear Camera", "Pass-Side Camera", "Front Camera", "Dr-Side Camera".

Adjustment range

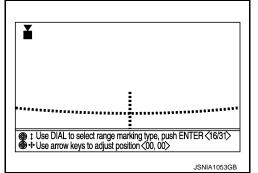
Rotation direction (Center dial) : 31 patterns (16 on the center)

Upper/lower direction (upper/lower

: -99 - 99

switch)

Left/right direction (left/right switch) : -99 - 99



3. "Writing..." is displayed by pressing the "ENTER" switch, and then the adjustment result is written to the around view monitor control unit.

CAUTION:

Check that "Writing..." is displayed. Do never perform other operations while "Writing..." is displayed.

>> GO TO 6.

6.PERFORM "FINE TUNING OF BIRDS-EYE VIEW"

This mode is designed to align the boundary between each camera image that could not be aligned in the "Calibrating Camera Image" mode.

- 1. Select "Camera Cont." of "Confirmation/Adjustment" mode, and then set to "Fine Tuning of Birds-Eye View" mode.
- Operate the center dial and upper/lower/left/right switches of multifunction switch to overlap the marker on the screen and the target lines on the ground.

CAUTION:

Operate the center dial slowly because the changing of the screen takes approximately 1 second.

NOTE:

Move the "+"- mark on the camera position to adjustment by pressing the "CAMERA" switch.

3. When the target line is overlapped on the marker, press the "ENTER" switch to write the adjustment result to the around view monitor control unit.

"+"-Mark CAMERA Push CAMERA to change area Use DIAL to adjust angle <16/31> + Use arrow keys to adjust position<0,0> Push ENTER to fix JSNIA1055GB

CAUTION:

Check that "Writing..." is displayed. Do never perform other operations while "Writing..." is displayed.

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration" of "Calibrating Camera Image".
- The adjustment value is cancelled on this mode by performing "Initialize Camera Image Calibration".

>> Calibration end

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

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

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

DTC Logic

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000009061553

1.PERFORM SELF-DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

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

NO >> Refer to GI section. Refer to GI-42, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BOSE ÁUDIO WITHOUT NAVIGATION]

U1010 CONTROL UNIT (CAN)

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction factor
U1010	CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-315, "Exploded View".

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U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1200 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1200	Cont Unit [U1200]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-315</u> , "Exploded View".

U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1216 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1216	CAN CONT [U1216]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-315</u> , "Exploded View".

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U121D AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U121D AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121D	DSP CONN [U121D]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061558

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

U121E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U121E AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121E	DSP COMM [U121E]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061560

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

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U1225 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1225 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1225	USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.

U1228 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1228 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1228	SUB CPU CONN [U1228]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-315, "Exploded View".

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U1229 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1229 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1229	iPod CERTIFICATION [U1229]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-315, "Exploded View".

U122A AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U122A AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Action to take
U122A	CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with "MULTI AV" of CONSULT.

Diagnosis Procedure

INFOID:0000000009061565

1.PERFORM THE SELF-DIAGNOSIS

When U122A is detected, write configuration data with "MULTI AV" of CONSULT.

>> Write configuration data with "MULTI AV" of CONSULT. Refer to AV-233, "CONFIGURATION (AV CONTROL UNIT): Work Procedure".

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U122E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U122E AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U122E	Built-in AUDIO CONN [U122E]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-315, "Exploded View".

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1232 STEERING ANGLE SENSOR

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061568

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

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

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

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U1243 DISPLAY UNIT

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061570

1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-267, "DISPLAY UNIT: Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK CONTINUITY COMMUNICATION CIRCUIT

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

Display unit		AV control unit		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M194	11	M202	51	Existed
WH94	22		39	

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

Displa	ay unit		Continuity
Connector	Terminals	Ground	
M194	11		Not existed
IVI 194	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

[BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M194	11	Ground	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M194	22	Ground	When adjusting display brightness.	(V) 6 4 2 0 → • 1ms PKIB5039J

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to AV-316, "Exploded View".

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U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1255 SATELLITE RADIO TUNER

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061572

1.CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to <u>AV-268, "SATELLITE RADIO TUNER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2.CHECK CONTINUITY COMMUNICATION CIRCUIT AND REQUEST SIGNAL CIRCUIT

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

AV control unit		Satellite radio tuner		Continuity
Connector	Terminals	Connector	Terminals	Continuity
	129		8	
M206	122	B236	10	Existed
	130		9	

4. Check continuity between AV control unit harness connector.

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. CHECK AV CONTROL UNIT VOLTAGE

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

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AV con	trol unit	(–)	Condition	Reference value (Approx.)
Connector	Terminals			(11 - /

U1255 SATELLITE RADIO TUNER

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

M206	129	Ground	When satellite radio mode is select-	(V) 10 0 -10 + 10ms SKIA9299J
MZOO	122	Ground	ed.	(V) 10 0 -10 → 1ms SKIA9300J

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

4. CHECK SATELLITE RADIO TUNER

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

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace satellite radio tuner. Refer to AV-324, "Exploded View".

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U1263 USB

[BOSE AUDIO WITHOUT NAVIGATION]

U1263 USB

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1263	USB OVERCURRENT [U1263]	Detection of overcurrent in USB connecter.	Check USB harness between the AV control unit and USB connector.

Diagnosis Procedure

INFOID:0000000009061574

1. CHECK USB HARNESS

Visually check USB harness.

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-315, "Exploded View".

NO >> Replace USB harness.

U1300 AV COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1300 AV COMM CIRCUIT

Description INFOID:000000000061575

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

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items is detected: Multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
U1300 U125B	AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B]	Around view monitor control unit power supply and ground circuits are malfunctioning.	Around view monitor control unit power supply and ground circuits.
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	 When either one of the following items are detected: Sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between around view monitor control unit and sonar control unit are malfunctioning. 	Sonar control unit power supply and ground circuits. AV communication circuits between around view monitor control unit and sonar control unit.
U1300 U1256	AV COMM CIRCUIT [U1300] HAND FREE CONN [U1256]	When either one of the following items is detected: TEL adapter unit power supply and ground circuits are malfunctioning. AV communication circuits between around view monitor control unit and TEL adapter unit are malfunctioning.	TEL adapter unit power supply and ground circuits. AV communication circuits between around view monitor control unit and TEL adapter unit are malfunctioning.
U1300 U125B U1256	AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B] HAND FREE CONN [U1256]	AV communication circuits between multifunction switch and around view monitor control unit are malfunctioning.	AV communication circuits between multifunction switch and around view monitor control unit are malfunctioning.
U1300 U1240 U125B U1256	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] AROUND CAMERA CONN [U125B] HAND FREE CONN [U1256]	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

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U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

U1310 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit. Refer to AV-315, "Exploded View".

B2700 CORNER SENSOR [FL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2700 CORNER SENSOR [FL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2700	CORNER SENSOR [FL] [B2700]	Corner sensor front LH is malfunctioning.	Replace corner sensor front LH. Refer to AV-336, "FRONT: Exploded View".

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B2701 SENSOR HARNESS OPEN [CR-FL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2701 SENSOR HARNESS OPEN [CR-FL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2701	SENSOR HARNESS OPEN [CR-FL] [B2701]	Corner sensor front LH harness circuit is open.	Check corner sensor front LH circuit.

Diagnosis Procedure

INFOID:0000000009061579

1. CHECK HARNESS CORNER SENSOR FRONT LH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect sonar control unit connector and corner sensor front LH connector.
- Check continuity between sonar control unit harness connector and corner sensor front LH harness connector.

Sonar control unit		Corner sensor front LH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	3	E63	1	Existed

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

Sonar control unit			Continuity
Connector	Terminal	Ground	Continuity
M47	3		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK HARNESS CORNER SENSOR FRONT LH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and corner sensor front LH harness connector.

Sonar control unit		Corner sensor front LH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	12	E63	2	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

B2702 CORNER SENSOR [FR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2702 CORNER SENSOR [FR]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2702	CORNER SENSOR [FR] [B2702]	Corner sensor front RH is malfunctioning.	Replace corner sensor front RH. Refer to AV-336, "FRONT: Exploded View".

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B2703 SENSOR HARNESS OPEN [CR-FR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2703 SENSOR HARNESS OPEN [CR-FR]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2703	SENSOR HARNESS OPEN [CR-FR] [B2703]	Corner sensor front RH harness circuit is open.	Check corner sensor front RH circuit.

Diagnosis Procedure

INFOID:0000000009061582

1. CHECK HARNESS CORNER SENSOR FRONT RH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect sonar control unit connector and corner sensor front RH connector.
- Check continuity between sonar control unit harness connector and corner sensor front RH harness connector.

Sonar control unit		Corner sensor front RH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	4	E152	1	Existed

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

Sonar control unit			Continuity
Connector	Terminal	Ground	Continuity
M47	4		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK HARNESS CORNER SENSOR FRONT RH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and corner sensor front RH harness connector.

Sonar control unit		Corner sensor front RH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	12	E152	2	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

B2704 CORNER SENSOR [RL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2704 CORNER SENSOR [RL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2704	CORNER SENSOR [RL] [B2704]	Corner sensor rear LH is malfunctioning.	Replace corner sensor rear LH. Refer to AV-337, "REAR : Exploded View".

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B2705 SENSOR HARNESS OPEN [CR-RL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2705 SENSOR HARNESS OPEN [CR-RL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2705	SENSOR HARNESS OPEN [CR-RL] [B2705]	Corner sensor rear LH harness circuit is open.	Check corner sensor rear LH circuit.

Diagnosis Procedure

INFOID:0000000009061585

1. CHECK HARNESS CORNER SENSOR REAR LH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect sonar control unit connector and corner sensor rear LH connector.
- Check continuity between sonar control unit harness connector and corner sensor rear LH harness connector.

Sonar control unit		Corner sensor rear LH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	5	B259	1	Existed

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

Sonar control unit			Continuity
Connector	Terminal	Ground	Continuity
M47	5		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK HARNESS CORNER SENSOR REAR LH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and corner sensor rear LH harness connector.

Sonar co	ontrol unit	Corner sensor rear LH		Continuity
Connector	Terminal	Connector Terminal		Continuity
M47	12	B259	2	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

B2706 CORNER SENSOR [RR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2706 CORNER SENSOR [RR]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2706	CORNER SENSOR [RR] [B2706]	Corner sensor rear RH is malfunctioning.	Replace corner sensor rear RH. Refer to AV-337, "REAR : Exploded View".

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B2707 SENSOR HARNESS OPEN [CR-RR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

B2707 SENSOR HARNESS OPEN [CR-RR]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2707	SENSOR HARNESS OPEN [CR-RR] [B2707]	Corner sensor rear RH harness circuit is open.	Check corner sensor rear RH circuit.

Diagnosis Procedure

INFOID:0000000009061588

1. CHECK HARNESS CORNER SENSOR REAR RH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect sonar control unit connector and corner sensor rear RH connector.
- Check continuity between sonar control unit harness connector and corner sensor rear RH harness connector.

Sonar co	Sonar control unit		sor rear RH	Continuity
Connector	Terminal	Connector Terminal		Continuity
M47	6	B256	1	Existed

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

Sonar co	ontrol unit		Continuity
Connector	Terminal	Ground	Continuity
M47	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK HARNESS CORNER SENSOR REAR RH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and corner sensor rear RH harness connector.

Sonar co	ontrol unit	Corner sensor rear RH		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M47	12	B256	2	Existed	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

POWER SUPPLY AND GROUND CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

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1.CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Turn ignition switch OFF.

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

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT : Diagnosis Procedure

1. CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Inverter VCC	M194	2	ACC	8.8 V
Signal VCC	101194	3	ACC	0.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.check power supply circuit (continuity)

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

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[BOSE AUDIO WITHOUT NAVIGATION]

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< DTC/CIRCUIT DIAGNOSIS >

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	2	M202	48	Existed
101134	3	IVIZUZ	36	Existed

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

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M194	2	Giodila	Not existed
W194	3		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.

(+)		(–)	Ignition switch	Voltage (Approx.)
AV control unit				
Connector	Terminal			(11 /
M202	48	Ground	ACC	8.8 V
IVIZUZ	36	Giodila	ACC	8.8 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	M194	1	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

SATELLITE RADIO TUNER

SATELLITE RADIO TUNER: 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.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

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.

BOSE AMP.

BOSE AMP.: Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	8

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B42	11	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect BOSE amp. connector.
- Check continuity between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B42	12	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

>> Repair harness or connector.

TEL ADAPTER UNIT

TEL ADAPTER UNIT: Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

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

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[BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B87	1	OFF	Battery voltage
ACC power supply	B87	2	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B87	4	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT: Diagnosis Procedure

INFOID:0000000009061594

1.CHECK FUSE

Check for blown fuses.

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

Is inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUITS

Check voltage between around view monitor control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B46	2	OFF	Battery voltage
ACC power supply	B46	4	ACC	Battery voltage

Is inspection result normal?

YES >> GO TO 3.

NO >> Check harness between around view monitor control unit and fuse.

3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector.
- 3. Check continuity between around view monitor control unit harness connector and ground.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

			Ignition switch position	Continuity
Ground	B46	1	OFF	Existed

Is inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR): Diagnosis Procedure

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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

1. Turn ignition switch ON.

2. Check voltage between sonar control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M47	13	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace sonar control unit power supply harness.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect sonar control unit connector.

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M47	24	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace sonar control unit ground harness.

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RGB (R: RED) SIGNAL CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

RGB (R: RED) SIGNAL CIRCUIT

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

Diagnosis Procedure

INFOID:0000000009061597

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

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

Displa	Display unit		trol unit	Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M194	17	M202	43	Existed	

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	17		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

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

	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M194	17	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 • • 40μs JSNIA1029ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to <u>AV-316, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to <u>AV-315</u>, "Exploded View".

RGB (G: GREEN) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

RGB (G: GREEN) SIGNAL CIRCUIT

Description INFOID:0000000009061598

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

Diagnosis Procedure

INFOID:0000000009061599

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

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

Displa	Display unit		trol unit	Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M194	6	M202	44	Existed	

Check continuity between display unit harness connector and ground.

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

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

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

(+)			
Display unit		(–)	Condition	Reference value
Connector	Terminal			
M194	6	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 + 40µs JSNIA1030ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-316, "Exploded View".

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

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RGB (B: BLUE) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

RGB (B: BLUE) SIGNAL CIRCUIT

Description INFOID:0000000000016000

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

Diagnosis Procedure

INFOID:0000000009061601

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

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

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M194	18	M202	45	Existed

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

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M194	18		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

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

	+) ay unit	(–)	Condition	Reference value
Connector	Terminal			
M194	18	Ground	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spec- trum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 + 40μs JSNIA1031ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-316, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-315, "Exploded View"</u>.

RGB SYNCHRONIZING SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

RGB SYNCHRONIZING SIGNAL CIRCUIT

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

Diagnosis Procedure

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- 1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT
- Turn ignition switch OFF.
 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
M194	19	M202	42	Existed

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

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB SYNCHRONIZING SIGNAL

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

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

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-316, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

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RGB AREA (YS) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

RGB AREA (YS) SIGNAL CIRCUIT

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

Diagnosis Procedure

INFOID:0000000009061605

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		trol unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M194	9	M202	40	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB AREA (YS) SIGNAL

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

(+) Display unit		(–)	Condition	Reference value (Approx.)	
Connector	Terminal			, , ,	
			At RGB image is displayed.	5.0 V	
M194	9	Ground	At camera image is displayed.	(V) 6 4 2 0 → + 200 \(\mu\) s PKIB4948J	

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-316, "Exploded View".

NO >> Replace AV control unit. Refer to <u>AV-315</u>, "Exploded View".

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

COMPOSITE IMAGE SIGNAL CIRCUIT

Description

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

Diagnosis Procedure

1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

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

AV cor	AV control unit		ay unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M202	47	M194	15	Existed

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

AV con	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M202	47		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMPOSITE IMAGE SIGNAL

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

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

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-316, "Exploded View".

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

Revision: 2013 March AV-277 2014 QX50

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

< DTC/CIRCUIT DIAGNOSIS >

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

In composite 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:0000000009061609

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	Display unit		trol unit	Continuity
Connector	Terminal	Connector Terminal		Continuity
M194	8	M202	38	Existed

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

Display unit			Continuity
Connector	Terminal	Ground	Continuity
M194	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

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

(+)			Reference value	
Displa	Display unit			
Connector	Terminal			
M194	8	Ground	(V) 4 0 → 20µs SKIB3601E	

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-315, "Exploded View".

NO >> Replace display unit. Refer to AV-316, "Exploded View".

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

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INFOID:0000000009061611

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

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

Diagnosis Procedure

1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

- 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.

Displ	Display unit AV control unit		Continuity	
Connector	Terminal	Connector Terminal		Continuity
M194	20	M202	50	Existed

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

Displa	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M194	20		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

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

(-	+)		
Display unit		(–)	Reference value
Connector	Terminal		
M194	20	Ground	(V) 4 0 ++4ms SKIB3598E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-315, "Exploded View".

NO >> Replace display unit. Refer to AV-316, "Exploded View".

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DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

DISK EJECT SIGNAL CIRCUIT

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

Diagnosis Procedure

INFOID:0000000009061613

1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

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

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

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

Multifunction switch			Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AV CONTROL UNIT VOLTAGE

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

(+) AV control unit		(-)	Condition	Voltage (Approx.)	
Connector	Terminal			(11 -)	
M204	96	Ground	Pressing the eject switch	0 V	
101204	30	Ground	Except for above	5.0 V	

Is the inspection result normal?

YES >> Replace preset switch. Refer to AV-327, "Exploded View".

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

MODE CHANGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

MODE CHANGE SIGNAL CIRCUIT

Description INFOID:000000000000001614

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

Diagnosis Procedure

1. CHECK CONTINUITY MODE CHANGE SIGNAL CIRCUIT

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

AV cor	AV control unit		E amp.	Continuity
Connector	Terminal	Connector Terminal		Continuity
M206	128	B41	17	Existed

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

BOSE amp.			Continuity
Connector	Terminal	Ground	Continuity
B41	17		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK MODE CHANGE SIGNAL

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

(+) BOSE amp.		(–)	Condition	Voltage (Approx.)	
Connector	Terminal			(+ +)	
B41	17	Ground	Driver's Audio Stage ON.	0 V	
D41	D41 17		Driver's Audio Stage OFF.	8.5 V	

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-323, "Exploded View".

NO >> Replace AV control unit. AV-315, "Exploded View".

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INFOID:0000000009061615

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MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

MICROPHONE SIGNAL CIRCUIT

Description INFOID:0000000000001616

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

Diagnosis Procedure

INFOID:0000000009061617

1.CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

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

TEL ada	TEL adapter unit		phone	Continuity
Connector	Terminals	Connector Terminals		Continuity
	7		1	
B87	8	R17	2	Existed
	29		4	

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

TEL adapter unit			Continuity
Connector	Terminals	Ground	Continuity
D07	7	Giodila	Not existed
B87 -	29		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE MICROPHONE VCC

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

(+)		(-)	
TEL ada	apter unit	TEL adapter unit		Voltage (Approx.)
Connector	Terminal	Connector Terminal		(11 -)
B87	29	B87	8	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace TEL adapter unit. Refer to AV-338, "Exploded View".

${f 3.}$ CHECK MICROPHONE SIGNAL

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

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

	+)	(-) TEL adapter unit		Condition	Reference value
	apter unit		-	Condition	Reference value
Connector	Terminal	Connector	Terminal		
B87	7	B87	8	give a voice.	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0 → 2ms

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-338, "Exploded View".

NO >> Replace microphone. <u>AV-329</u>, "Exploded View".

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CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

CAMERA IMAGE SIGNAL CIRCUIT

Description INFOID:00000000000001618

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061619

1. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

AV control unit			monitor control nit	Continuity
Connector	Terminal	Connector	Terminal	
M203	62	B46	27	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M203	62		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK CAMERA IMAGE SIGNAL

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

(+) Display unit		()	Condition	Reference value
Displi	ay uriit	(–)	Condition	Reference value
Connector	Terminal			
M203	62	Ground	At camera image is displayed.	(V) 0. 4 0 -0. 4 -40μs SKIB2251J

Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-315, "Exploded View".

NO >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

FRONT CAMERA COMMUNICATION SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

FRONT CAMERA COMMUNICATION SIGNAL CIRCUIT

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:00000000009061621

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1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and front camera connector.
- 3. Check continuity between around view monitor control unit harness connector and front camera harness connector.

Around view monitor control unit		Front	camera	Continuity
Connector	Terminal	Connector Terminal		
B45	45	E73	6	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B45	45		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMMUNICATION SIGNAL

- 1. Connect around view monitor control unit connector and front camera connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B45	45	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 μs JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

NO >> Replace front camera. Refer to AV-331, "Exploded View".

FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS > [BOSE AUDIO WITHOUT NAVIGATION]

FRONT CAMERA IMAGE SIGNAL CIRCUIT

Description

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061623

1.CHECK CONTINUITY FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT

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

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector Terminals		
B45	44	E73	2	Existed
D40	46	⊑ 73	1	EXISTEC

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B45	46		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE FRONT CAMERA POWER SUPPLY

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

(+) Around view monitor control unit		(–)	Condition	Voltage (Approx.)
Connector	Terminal			
B45	46	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

$3. \mathsf{CHECK}$ CONTINUITY FRONT CAMERA IMAGE SIGNAL CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and front camera connector.
- Check continuity between around view monitor control unit harness connector and front camera harness connector.

FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector Terminals		
B45	41	E73	3	Existed
	42		4	LAISIGU

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		Od	Continuity
Connector	Terminals	Ground	
B45	41, 42		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK FRONT CAMERA IMAGE SIGNAL

- 1. Connect around view monitor control unit connector and front camera connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector.

(+)		(-)		Condition	Reference value
Around view monitor control unit		Around view monitor control unit			
Connector	Terminal	Connector	Terminal		
B45	41	B45	42	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 + 40 μ s JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

NO >> Replace front camera. Refer to <u>AV-331, "Exploded View"</u>.

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REAR CAMERA COMMUNICATION SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

REAR CAMERA COMMUNICATION SIGNAL CIRCUIT

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061625

1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

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

Around view monitor control unit		Rear camera		Continuity
Connector	Terminal	Connector	Terminal	
B46	35	D111	4	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity	
Connector	Terminal	Ground		
B46	35		Not existed	

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMMUNICATION SIGNAL

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

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B46	35	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 + 1.0 μs JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

NO >> Replace rear camera. Refer to AV-332, "Exploded View".

REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

REAR CAMERA IMAGE SIGNAL CIRCUIT

Description INFOID:00000000000001626

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061627

1. CHECK CONTINUITY REAR CAMERA POWER SUPPLY AND GROUND CIRCUIT

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

Around view monitor control unit		Rear camera		Continuity
Connector	Terminals	Connector Terminals		
B46	36	D111	8	Existed
D40	38	וווט	7	LXISIGU

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B46	36		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE REAR CAMERA POWER SUPPLY

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

Around view r	+) nonitor control nit	(–)	Condition	Voltage (Approx.)
Connector	Terminal			
B46	36	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

3.check continuity rear camera image signal circuit

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

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REAR CAMERA IMAGE SIGNAL CIRCUIT

[BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

Around view monitor control unit		Rear camera		Continuity
Connector	Terminals	Connector Terminals		
B46	39	D111	5	Existed
D40	40	וווט	1	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		01	Continuity
Connector	Terminals	Ground	
B46	39, 40		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK REAR CAMERA IMAGE SIGNAL

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

(-	+)	(-)			
	Around view monitor control unit		nonitor control nit	Condition	Reference value
Connector	Terminal	Connector	Terminal		
B46	39	B46	40	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 +40 μ s JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330, "Exploded View"

NO >> Replace rear camera. Refer to <u>AV-332, "Exploded View"</u>.

SIDE CAMERA LH COMMUNICATION SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

SIDE CAMERA LH COMMUNICATION SIGNAL CIRCUIT

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:00000000009061629

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1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
- 3. Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

	w monitor control Door mirror (driver side)		Continuity	
Connector	Terminal	Connector Terminal		
B45	47	D3	3	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B45	47		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (driver side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B45	47	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 μs JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330. "Exploded View".

NO >> Replace side camera LH. Refer to AV-333, "Exploded View".

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SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061631

1.check continuity side camera LH power supply and ground circuit

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
- Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

Around view monitor control unit		Door mirror (driver side)		Continuity	
Connector	Terminals	Connector Terminals			
H45 48		D3	6	Existed	
D40	50	D3	18	Existed	

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B45	48		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE SIDE CAMERA LH POWER SUPPLY

- 1. Connect around view monitor control unit connector and door mirror (driver side) connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Voltage (Approx.)
Connector	Terminal			
B45	48	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

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

- Turn ignition switch OFF.
- Disconnect around view monitor control unit connector and door mirror (driver side) connector.
- Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Around view monitor control unit		Door mirror (driver side)		Continuity
Connector	Terminals	Connector	Terminals	
B45	51	D3	5	Existed
D40	52	DS	17	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminals	Ground	
B45	51, 52		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK SIDE CAMERA LH IMAGE SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (driver side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector.

(+)	(-)			
	nonitor control nit	Around view monitor control unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B45	51	B45	52	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 + 40 μ s JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

NO >> Replace side camera LH. Refer to AV-333, "Exploded View".

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SIDE CAMERA RH COMMUNICATION SIGNAL CIRCUIT [BOSE AUDIO WITHOUT NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

SIDE CAMERA RH COMMUNICATION SIGNAL CIRCUIT

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061633

1.check continuity communication signal circuit

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
- Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

Around view monitor control unit			mirror ger side)	Continuity
Connector	Terminal	Connector Terminal		
B46	33	D33	3	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B46	33		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMMUNICATION SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B46	33	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1 1.0 μs JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330. "Exploded View".

NO >> Replace side camera RH. Refer to AV-334, "Exploded View".

SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

Description INFOID:00000000000061634

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the AV control unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the AV control unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061635

1. CHECK CONTINUITY SIDE CAMERA RH POWER SUPPLY AND GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
- 3. Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

Around view monitor control unit		Door mirror (passenger side)		Continuity
Connector	Terminals	Connector Terminals		
B46	34	D33	6	Existed
D40	32	D33	18	LAISIEU

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B46	34		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE SIDE CAMERA RH POWER SUPPLY

- 1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between around view monitor control unit harness connector and ground.

Around view r	+) nonitor control nit	(–)	Condition	Voltage (Approx.)	
Connector	Terminal				
B46	34	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V	

Is inspection result normal?

YES >> GO TO 3.

Revision: 2013 March

NO >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

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

- Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
- Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

AV-295

side) harness connector.

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SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

Around view monitor control unit		Door mirror (passenger side)		Continuity
Connector	Terminals	Connector Terminals		
B46	29	D33	5	Existed
D40	30	D33	17	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminals	Ground	
B46	29, 30		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK SIDE CAMERA RH IMAGE SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector.

((+) (-)				
Around view monitor control unit		Around view monitor control unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B46	29	B46	30	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 + 40 μ s JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-330, "Exploded View".

NO >> Replace side camera RH. Refer to AV-334, "Exploded View".

COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

Description INFOID:0000000009061636

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

1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

- Turn ignition switch OFF.
- Disconnect satellite radio tuner connector and AV control unit connector.
- 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	M206	122	Existed
	D230	10	IVIZOO	130	LAISIGU

Check continuity between satellite radio tuner harness connector and ground.

Satellite r	adio tuner		Continuity
Connector	Terminals	Ground	Continuity
B236	9	Glodila	Not existed
5230	10		NOT CAISTED

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMMUNICATION SIGNAL

- Connect satellite radio tuner connector and AV control unit connector.
- Turn ignition switch ON. 2.
- 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 -1ms

Is the inspection result normal?

YES >> GO TO 3.

Revision: 2013 March

>> Replace satellite radio tuner. Refer to AV-324, "Exploded View". NO

3.CHECK COMMUNICATION SIGNAL

Check signal between satellite radio tuner harness connector and ground.

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COMMUNICATION SIGNAL CIRCUIT (CONT-SAT)

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

(+) Satellite radio tuner Connector Terminal		(-)	Condition	Reference value
B236	10	Ground	When satellite radio mode is selected.	(V) 10 0 -10 + 1ms SKIA9301J

Is the inspection result normal?

YES >> Replace satellite radio tuner. Refer to AV-324, "Exploded View".

NO >> Replace AV control unit. AV-315, "Exploded View".

REQUEST SIGNAL CIRCUIT (SAT→CONT)

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

REQUEST SIGNAL CIRCUIT (SAT→CONT)

Description INFOID:00000000000061638

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

Diagnosis Procedure

INFOID:0000000009061639

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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 harness connector and AV control unit harness connector.

	Satellite r	Satellite radio tuner		AV control unit	
•	Connector	Terminal	Connector	Terminal	Continuity
•	B236	8	M206	129	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	Deference value
		(–)	Condition	Reference value
Connector	Terrilliai			
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. Refer to AV-315, "Exploded View".

NO >> Replace satellite radio tuner. Refer to AV-324, "Exploded View".

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH SIGNAL A CIRCUIT

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000009061641

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	cable	Continuity
Connector	Terminal	Connector Terminal		Continuity
M201	6	M36	24	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK AV CONTROL UNIT VOLTAGE

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

((+)		-)	V 1/
AV cor	ntrol unit	AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 -)
M201	6	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-300, "Component Inspection"</u>.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15</u>, "Exploded View".

Component Inspection

INFOID:0000000009061642

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

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

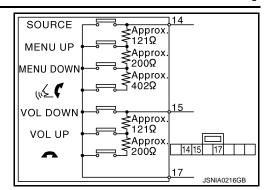
Standard

Between terminals 14 and 17

Between terminals 15 and 17

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

VOL DOWN switch ON : Approx. 0 Ω



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STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH SIGNAL B CIRCUIT

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000009061644

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 con	AV control unit		cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	16	M36	31	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M201	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK AV CONTROL UNIT VOLTAGE

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

(+)		(–)		V 1/
AV control unit		AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	(11 -)
M201	16	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-302</u>, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15</u>, "Exploded View".

Component Inspection

INFOID:0000000009061645

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

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

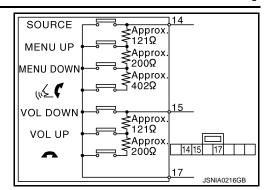
Standard

Between terminals 14 and 17

Between terminals 15 and 17

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

VOL DOWN switch ON : Approx. 0 Ω



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STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

STEERING SWITCH GROUND CIRCUIT

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000009061647

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

AV cor	ntrol unit	Spira	cable	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M201	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

CHECK GROUND CIRCUIT

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

AV con	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M201	15		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-315, "Exploded View".

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-304, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15, "Exploded View"</u>.

Component Inspection

INFOID:0000000009061648

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

STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

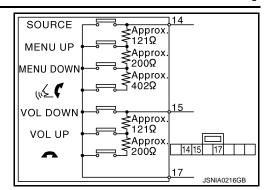
Standard

Between terminals 14 and 17

Between terminals 15 and 17

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

VOL DOWN switch ON : Approx. 0 Ω



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SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table

OPERATION

Symptoms	Check items	Probable malfunction location
	All switches cannot be operated. "MULTI AV" is displayed on system selection screen when the CONSULT is started.	Multifunction switch power supply and ground circuit. AV communication circuit between AV control unit and multifunction switch. Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-170, "CONSULT Function (MULTI AV)".
Multifunction switch and preset switch operation does not work.	All switches cannot be operated. "MULTI AV" is not displayed on system selection screen when the CONSULT is initialized.	AV control unit power supply and ground circuit malfunction. Refer to AV-267, "AV CONTROL UNIT : Diagnosis Procedure".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-161, "On Board Diagnosis Function".
Fuel economy display, vehicle setting operation is abnormal.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-170, "CONSULT Function (MULTI AV)".	Perform detected DTC diagnosis. Refer to AV-186, "DTC Index".
	There is no malfunction in the self-diagnosis results. Refer to AV-170, "CONSULT Function (MULTI AV)".	Ignition signal circuit malfunction. (AV control unit)

RELATED TO HANDS-FREE PHONE

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

Check Compatibility

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

NOTE:

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

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

NOTE:

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

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

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

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Perform diagnosis as per the following table.

Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Repeat the registration of cellular phone.	TEL adapter unit malfunction. Refer to AV-338, "Exploded View".
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-170, "CONSULT Function (MULTI AV)". No malfunction. TEL adapter unit malfunction. Refer to AV-338, "Exploded View". Malfunction is detected. Perform detected DTC diagnosis. Refer to AV-186, "DTC Index".
The other party's voice cannot be heard by hands-free phone.	The operation of the " [" switch can be performed.	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
	The operation of the " [" switch cannot be performed.	Control signal circuit.
Originating sound is not heard by the other party with hands-	Sound operation function is normal.	TEL adapter unit. Refer to AV-338, "Exploded View".
free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-282, "Diagnosis Procedure".
The system cannot be operated.	"SOURCE", "MENU UP", and "MENU DOWN" switches are operated. But "w\(\infty \)	Check steering switch. Refer to AV-300, "Component Inspection". Malfunction is detected. Replace steering switch. Refer to ST-15, "Exploded View".
	"SOURCE", "MENU UP", "MENU DOWN" and " [" " switches are not operated.	Steering switch signal A circuit malfunction. Refer to AV-300, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to <u>AV-304</u> , " <u>Diagnosis Procedure</u> ".

RELATED TO AROUND VIEW MONITOR

Symptoms	Check items	Probable malfunction location / Action to take
	"Camera Cont." of "Confirmation/Adjustment" can be selected.	Ignition signal circuit malfunction (around view monitor control unit).
It does not switch to camera image even when the "CAMERA" switch is pressed or the selector lever is in the reverse position.	"Camera Cont." of "Confirmation/Adjustment" cannot be selected.	Around view monitor control unit power supply and ground circuits malfunction. Refer to AV-270, "AROUND VIEW MONITOR CONTROL UNIT: Diagnosis Procedure". AV communication circuits malfunction. Refer to AV-170, "CONSULT Function (MULTI AV)".

Revision: 2013 March AV-307 2014 QX50

[BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Ch	neck items	Probable malfunction location / Action to take
The screen switches when pressing the "CAMERA" switch or shifting the selector lever to the reverse position, however, all views are not dis-	Only superimposing is displayed. (Only the image displayed by AV control unit is displayed)		 Camera image signal circuit between around view monitor control unit and AV control unit malfunction. Refer to AV-284, "Diagnosis Procedure". Composite image signal circuit malfunction. Refer to AV-277, "Diagnosis Procedure".
played.	Superimposing is not displayed.		Communication circuit between AV control unit and display unit malfunction. Refer to AV-170, "CONSULT Function (MULTI AV)".
Camera image is rolling.	_		Communication circuit between AV control unit and display unit malfunction. Refer to AV-170, "CONSULT Function (MULTI AV)".
It cannot be switched to rear view monitor even when the selector lever is in the reverse position.	The front view is displa	yed normally.	Reverse signal circuit malfunction (around view monitor control unit).
The predictive course line display in front view and rear view is malfunctioning.	The "Steer. Angle Sensor" is not turned ON at "Connection Confirmation" of "Camera Cont."		Perform "Self diagnosis Result" of "MULTI AV"with CONSULT. Refer to AV-170, "CONSULT Function (MULTI AV)".
The predictive course line display in front view and rear view is not displayed.	_		Perform "Self diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-170, "CONSULT Function (MULTI AV)".
 The front view screen is not displayed. The front of Birds-Eye view 	Check the item Front Camera in "Connec- tion Confirmation" mode of "Camera	Image Output Signal: NG COMM Status: NG COMM Line: NG	Front camera image signal circuit malfunction. Front camera power supply and ground circuits malfunction. Refer to AV-286, "Diagnosis Procedure".
screen is not displayed.	Cont."	Image Output Signal: OK COMM Status: NG COMM Line: NG	Front camera communication signal circuit malfunction. Refer to AV-285, "Diagnosis Procedure".
 The rear view screen is not displayed. The rear of Birds-Eye view screen 	Check the item Rear Camera in "Connec- tion Confirmation" mode of "Camera	Image Output Signal: NG COMM Status: NG COMM Line: NG	Rear camera image signal circuit malfunction. Rear camera power supply and ground circuits malfunction. Refer to AV-289, "Diagnosis Procedure".
is not displayed.	Cont."	Image Output Signal: OK COMM Status: NG COMM Line: NG	Rear camera communication signal circuits malfunction. Refer to AV-288, "Diagnosis Procedure".
 The front-side screen is not displayed. The passenger side of Birds-Eye view screen is not displayed. 	Check the item Pass- Side Camera in "Con- nection Confirmation" mode of "Camera	Image Output Signal: NG COMM Status: NG COMM Line: NG	Side camera RH image signal circuit malfunction. Side camera RH power supply and ground circuits malfunction. Refer to AV-295, "Diagnosis Procedure".
view screen is not displayed.	Cont."	Image Output Signal: OK COMM Status: NG COMM Line: NG	Side camera RH communication circuit malfunction. Refer to AV-294, "Diagnosis Procedure".

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items		Probable malfunction location / Action to take
The driver side of Birds-eye view screen is not displayed.	Check the item Dr- Side Camera at "Con- nection Confirmation" mode of "Camera	Image Output Signal: NG COMM Status: NG COMM Line: NG	Side camera LH image signal circuit malfunction. Side camera LH power supply and ground circuits malfunction. Refer to AV-292, "Diagnosis Procedure".
	Cont." • Image Output Signal: OK • COMM Status: NG • COMM Line: NG		Side camera LH communication circuit malfunction. Refer to AV-291. "Diagnosis Procedure". "Diagnosis Procedure".
When shift position is other than "R" the front-side and front screen or the Birds-Eye view and front screen remain displaying even if the vehicle speed increases.		_	Vehicle speed signal circuit malfunction (around view monitor control unit).

RELATED TO CAMERA ASSISTANCE SONAR

Symptoms	Check items	Probable malfunction location / Action to take
	The malfunction is detected in only 1 indicator (Always displayed in red).	Corner sensor malfunction in corresponding area. Corner sensor harness circuit in corresponding area. Perform "Self Diagnosis Result" of "SONAR" with CONSULT. Refer to AV-178. "CONSULT Function (SONAR)".
The malfunction is detected in the sonar indicator (Always displayed in red)	The malfunction is detected in all 4 indicators (Always displayed in red).	Corner sensor ground circuit malfunction. Perform "Self Diagnosis Result" of "SONAR" with CONSULT. Refer to AV-178, "CONSULT Function (SONAR)". Sonar control unit power supply and ground circuits malfunction. AV communication circuits malfunction. Perform "Self Diagnosis Result" of "MULTI AV" with CONSULT. Refer to AV-170. "CONSULT Function (MULTI AV)".
The sonar indicator is normal, but the buzzer does not sound	_	Replace sonar control unit. Refer to AV-335, "Exploded View".

RELATED TO RGB IMAGE

Symptoms	Check items	Possible malfunction location / Action to take
RGB image is not shown.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-170, "CONSULT Function (MULTI AV)".	Perform detected DTC diagnosis. Refer to AV-186, "DTC Index".
NOB illiage is not shown.	There is no malfunction in CONSULT self-diagnosis results. Refer to AV-170, "CONSULT Function (MULTI AV)".	Vertical synchronizing (VP) signal circuit. Refer to AV-279, "Diagnosis Procedure".
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to AV-272, "Diagnosis Procedure".
	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to AV-273, "Diagnosis Procedure".
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to AV-274, "Diagnosis Procedure".

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< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Possible malfunction location / Action to take
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to AV-275, "Diagnosis Procedure".
Fuel economy display is mal-	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-170, "CONSULT Function (MULTI AV)".	Perform detected DTC diagnosis. Refer to AV-186, "DTC Index".
functioning.	There is no malfunction in CONSULT self-diagnosis results. Refer to AV-170, "CONSULT Function (MULTI AV)".	Ignition signal circuit malfunction.

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-280, "Diagnosis Procedure".
	No sound from all speakers.	BOSE amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to AV-269, "BOSE AMP.: Diagnosis Procedure".
No sound comes out or the lev-	Sound is not heard from woofer.	 Woofer power supply and ground circuit malfunction. Sound signal (woofer) circuit malfunction. Woofer amp. ON signal circuit malfunction.
el of the sound is low.	Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Malfunction in AV control unit. Malfunction in BOSE amp.
	Noise comes out from all speakers.	Malfunction in AV control unit. Malfunction in BOSE amp.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.).	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in AV control unit. Malfunction in BOSE amp.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	 Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-325</u>. "<u>Exploded View</u>".
Radio is not received or poor reception.	Other audio sounds are normal. Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-325</u>. "Exploded View".

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Symptoms	Check items	Probable malfunction location
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-170, "CONSULT Function (MULTI AV)".	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-186, "DTC Index". Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder.
	There is no malfunction in the CONSULT self-diagnosis result. Refer to AV-170, "CONSULT Function	Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose satellite radio antenna mounting nut.
	(MULTI AV)".	NOTE: Tightening torque: 6.5 N·m (0.66 kg·m, 58 in·lb.)

RELATED TO USB

NOTE:

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

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

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

RELATED TO STEERING SWITCH

Symptoms	Probable malfunction location	
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to AV-304, "Diagnosis Procedure".	
Only specified switch cannot be operated.	Check steering switch. Refer to AV-300, "Component Inspection". Malfunction is detected. Replace steering switch. Refer to ST-15, "Exploded View".	
"SOURCE", "MENU UP", "MENU DOWN" and " 🕊 🌈 " switches are not operated.	Steering switch signal A circuit. Refer to AV-300, "Diagnosis Procedure".	
"VOL UP", "VOL DOWN" and " witches are not operated.	Steering switch signal B circuit. Refer to AV-302, "Diagnosis Procedure".	

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NORMAL OPERATING CONDITION

NORMAL OPERATING CONDITION

BASIC OPERATIONS

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

RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Some Bluetooth [®] enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" of MULTI AV SYSTEM SYMPTOM.
Cannot use hands-free phone	Customer will not be able to use a hands-free phone under the following conditions. The vehicle is outside of the telephone service area. The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. The cellular phone is locked to prevent it from being dialed. NOTE: While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

RELATED TO VOICE RECOGNITION

Related to Telephone

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

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

NORMAL OPERATING CONDITION

[BOSE AUDIO WITHOUT NAVIGATION]

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

RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD/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, AAC, M4A) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

Symptom	Cause and Counter measure	
Cannot play	Check if the CD was inserted correctly.	
	Check if the CD is scratched or dirty.	
	Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.	
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.	
	If there is a mixture of music CD files (CD-DA data) and MP3/WMA/AAC/M4A files on a CD, only the music CD files (CD-DA data) will be played.	
	Files with extensions other than ".MP3", ".WMA", ".AAC", ".M4A", ".mp3", ".wma", ".aac" or ".m4a" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.	
	Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA/AAC/M4A writing applications or other text editing applications.	
	Check if the finalization process, such as session close and disc close, is done for the disc.	
	Check if the CD is protected by copyright.	
	Discs recorded in live file system format are not supported. (For Microsoft Windows Vista, check the settings.)	
Poor sound quality	Check if the CD is scratched or dirty.	
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA/AAC/M4A CD, or if it is a multisession disc, some time may be required before the music starts playing.	
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed.	
Skipping with high bit rate files	Skipping may occur with large quantities if data such as for high bit rate data.	

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITHOUT NAVIGATION]

Symptom	Cause and Counter measure	
Move immediately to the next song when playing	When a non-MP3/WMA/AAC/M4A file has been given an extension of ".MP3", ".WMA", ".AAC", ".M4A", ".mp3", ".wma", ".aac" or ".m4a" or when play is prohibited by copyright protection, the player will skip to the next song.	
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files might not play in the desired order.	
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.	
Buzz/rattle sound from speaker	The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle.	

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

NOTE:

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

RELATED TO SONAR

Symptom	Possible cause	
Unstable object detection	 The vehicle is on a rough surface, such as stone or gravel. When used in poor weather conditions, such as heavy snow/rain or strong wind. When subjected to an ultrasonic noise generated from exhaust muffler or brakes. When left standing in the hot sun or in a cold climate. When the surface of the sensor is frozen or covered with snow/dirt/moisture. When a retrofitted xenon lamp, lighted license plate, or harness is close to the sensor body or sensor harness. When subjected to loop coil noises generated from a vehicle detector placed at an intersection or coin parking area. 	
Object undetectable	 Air-containing objects, such as cloth, cotton, glass wool, dust, and snow. Thin objects, such as rope, chain, and wire. Smooth-faced objects placed in a slanting direction. Fast-moving small animals. A corner of an angular object. NOTE: If the sensor detection part is scratched, obstacles cannot be detected. 	

REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

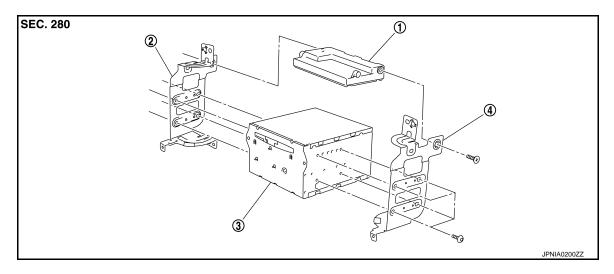
CAUTION:

- Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-232, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL</u> UNIT: Work Procedure".
- Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



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

3. AV control unit

4. Bracket RH

Removal and Installation

REMOVAL

CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-232, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure"</u>.

- Remove display unit. Refer to <u>AV-316, "Exploded View"</u>
- 2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

- Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to <u>AV-233, "CONFIGURATION (AV CONTROL UNIT): Work Procedure"</u>.
- 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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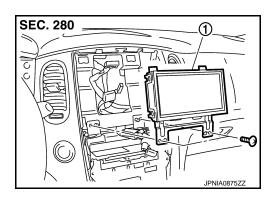
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[BOSE AUDIO WITHOUT NAVIGATION]

DISPLAY UNIT

Exploded View

1. Display unit



Removal and Installation

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REMOVAL

- 1. Remove cluster lid D. Refer to IP-12, "Exploded View".
- 2. Remove display unit mounting screws.
- 3. Remove display unit.

INSTALLATION

Install in the reverse order of removal.

FRONT DOOR SPEAKER

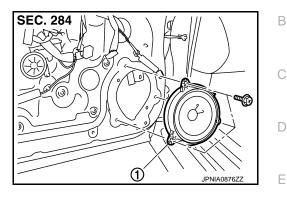
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

FRONT DOOR SPEAKER

Exploded View

1. Front door speaker



Removal and Installation

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REMOVAL

- 1. Remove front door finisher. Refer to <u>INT-11</u>, "<u>DRIVER SIDE</u>: <u>Exploded View</u>" (driver side) or <u>INT-14</u>, "<u>PASSENGER SIDE</u>: <u>Exploded View</u>" (passenger side).
- 2. Remove front door speaker mounting bolts, disconnect the front door speaker connector.
- 3. Remove front door speaker.

INSTALLATION

Install in the reverse order of removal.

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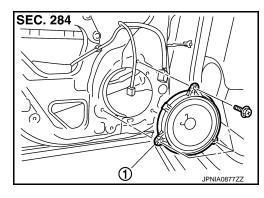
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REAR DOOR SPEAKER

Exploded View

1. Rear door speaker



Removal and Installation

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REMOVAL

- 1. Remove rear door finisher. Refer to INT-17, "Exploded View".
- 2. Remove rear door speaker mounting bolts, disconnect the rear door speaker connector.
- 3. Remove rear door speaker.

INSTALLATION

Install in the reverse order of removal.

FRONT SQUAWKER

[BOSE AUDIO WITHOUT NAVIGATION]

FRONT SQUAWKER

Exploded View

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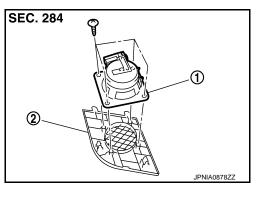
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- 1. Front squawker
- 2. Speaker grille



Removal and Installation

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REMOVAL

- 1. Lift up the speaker grille with squawker. Refer to IP-12, "Exploded View".
- 2. Disconnect the front squawker connector.
- 3. Remove front squawker mounting screws.
- 4. Remove front squawker.

INSTALLATION

Install in the reverse order of removal.

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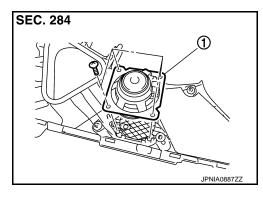
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REAR SQUAWKER

Exploded View

1. Rear squawker



Removal and Installation

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REMOVAL

- 1. Remove luggage side finisher upper. Refer to INT-36, "Exploded View".
- 2. Remove rear squawker mounting screws.
- 3. Remove rear squawker.

INSTALLATION

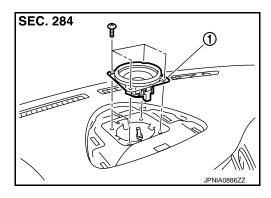
Install in the reverse order of removal.

CENTER SPEAKER

Exploded View

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1. Center speaker



Removal and Installation

INFOID:0000000009061664

REMOVAL

- 1. Remove center speaker grille. Refer to IP-12, "Exploded View".
- 2. Remove center speaker mounting screws, lift up the center speaker and disconnect center speaker connector.
- 3. Remove center speaker.

INSTALLATION

Install in reverse order of removal.

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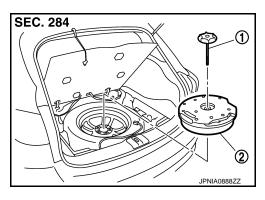
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[BOSE AUDIO WITHOUT NAVIGATION]

WOOFER

Exploded View

- 1. Woofer clamp
- 2. Woofer



Removal and Installation

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REMOVAL

- 1. Remove luggage finisher center. Refer to INT-36, "Exploded View".
- 2. Remove woofer clamp.
- 3. Remove harness clip and woofer connector.
- 4. Remove woofer.

INSTALLATION

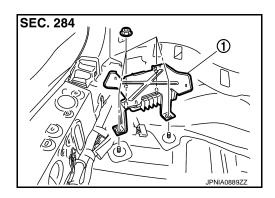
Install in the reverse order of removal.

[BOSE AUDIO WITHOUT NAVIGATION]

BOSE AMP.

Exploded View

BOSE amp.



Removal and Installation

REMOVAL

- 1. Remove luggage floor spacer (LH). Refer to INT-36, "Exploded View".
- 2. Remove BOSE amp. mounting nuts.
- 3. Remove BOSE amp.

INSTALLATION

Install in reverse order of removal.

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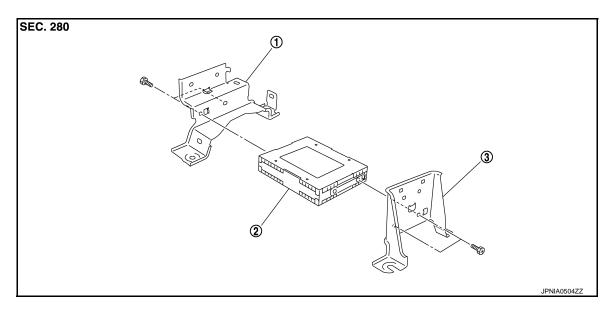
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SATELLITE RADIO TUNER

Exploded View



1. Bracket (front)

2. Satellite radio tuner

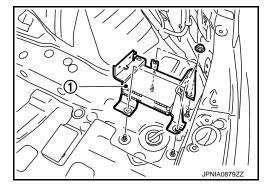
3. Bracket (rear)

Removal and Installation

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REMOVAL

- 1. Remove luggage floor spacer (RH). Refer to INT-36, "Exploded View".
- 2. Remove nuts, and then satellite radio tuner (1).



INSTALLATION

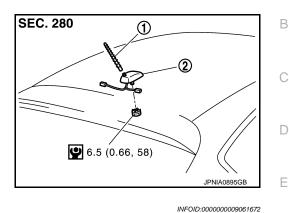
Install in the reverse order of removal.

ANTENNA BASE

Exploded View

- 1. Antenna rod
- 2. Antenna base

Refer to GI-4, "Components" for symbols in the figure.



Removal and Installation

REMOVAL

- Remove headlining (rear). Keep a service area. Refer to <u>INT-28, "NORMAL ROOF: Exploded View"</u> (normal roof) or <u>INT-32, "SUNROOF: Exploded View"</u> (sunroof).
- 2. Remove antenna base mounting nut.
- 3. Remove antenna base.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

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

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MULTIFUNCTION SWITCH

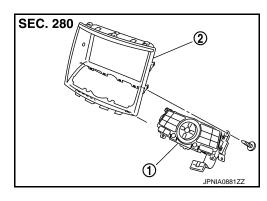
Exploded View

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY

- 1. Multifunction switch
- 2. Cluster lid D



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Removal and Installation

REMOVAL

- 1. Remove cluster lid D. Refer to IP-12, "Exploded View".
- 2. Remove multifunction switch mounting screws.
- 3. Remove multifunction switch.

INSTALLATION

Install in the reverse order of removal.

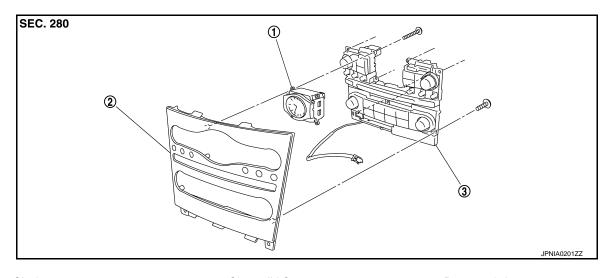
PRESET SWITCH

Exploded View

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY

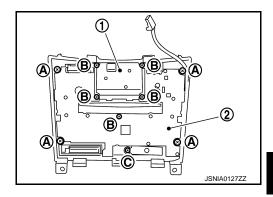


1. Clock 2. Cluster lid C 3. Preset switch

Removal and Installation

REMOVAL

- 1. Remove cluster lid C. Refer to IP-12, "Exploded View".
- 2. Remove preset switch mounting screws (A), (B) and (C).
- 3. Remove preset switch (2).
 - 1. Clock
 - Preset switch



INSTALLATION

Install in 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 audio unit and preset switch.

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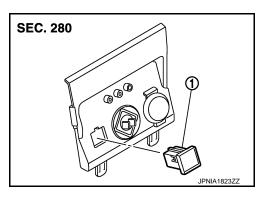
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USB CONNECTOR

Exploded View

1. USB connector



Removal and Installation

INFOID:0000000009061678

REMOVAL

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

INSTALLATION

Install in the reverse order of removal.

MICROPHONE

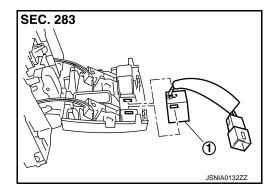
Exploded View

REMOVAL

Refer to <u>INT-28</u>, "NORMAL ROOF: Exploded View" (normal roof) or <u>INT-32</u>, "SUNROOF: Exploded View" (sunroof).

DISASSEMBLY

1. Microphone



Removal and Installation

REMOVAL

1. Remove map lamp assembly. Refer to INT-28, "NORMAL ROOF: Exploded View" (normal roof) or INT-32, "SUNROOF: Exploded View" (sunroof).

2. Remove microphone, stretching pawls of map lamp assembly.

INSTALLATION

Install in the reverse order of removal.

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AROUND VIEW MONITOR CONTROL UNIT

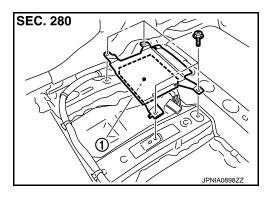
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

AROUND VIEW MONITOR CONTROL UNIT

Exploded View

1. Around view monitor control unit



Removal and Installation

INFOID:0000000009061682

REMOVAL

- 1. Remove front seat (LH side). Refer to <u>SE-129, "Exploded View"</u>.
- 2. Remove floor carpet. Keep a service area.
- Remove around view monitor control unit.

INSTALLATION

- 1. Install in the reverse order of removal.
- 2. Perform camera image calibration. Refer to <u>AV-234</u>, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Special Repair Requirement".
- 3. Perform predictive course line center position adjustment. Refer to AV-234, "PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT: Work Procedure".

CAUTION

FRONT CAMERA

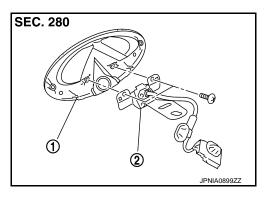
Exploded View

REMOVAL

Refer to EXT-20, "Exploded View".

DISASSEMBLY

- 1. Front emblem
- 2. Front camera



Removal and Installation

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REMOVAL

- 1. Remove harness clip and connector clip from front camera bracket.
- 2. Remove front emblem. Refer to EXT-20, "Exploded View".
- 3. Remove front emblem mounting screws.
- Remove front camera.

INSTALLATION

- Install in the reverse order of removal.
- 2. Perform camera image calibration. Refer to <u>AV-234</u>, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Special Repair Requirement".

CAUTION

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

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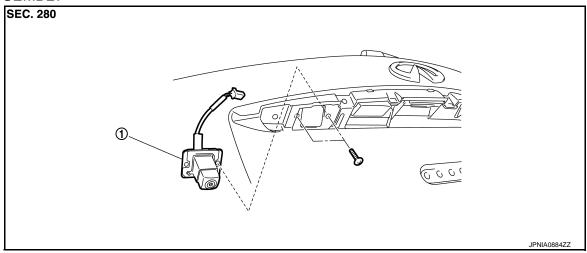
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REAR CAMERA

Exploded View

DISASSEMBLY



1. Rear camera

Removal and Installation

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REMOVAL

- Remove back door finisher inner. Refer to <u>INT-40, "Exploded View"</u>.
- 2. Remove back door outside finisher upper. Refer to EXT-48, "Exploded View".
- Remove back door outside finisher lower. Refer to <u>EXT-48</u>, "<u>Exploded View</u>".
- 4. Remove rear camera mounting screws and rear camera harness connector.
- 5. Remove rear camera.

INSTALLATION

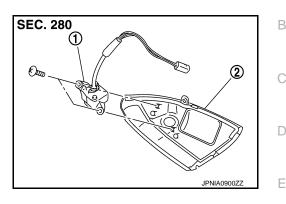
- Install in the reverse order of removal.
- 2. Perform camera image calibration. Refer to <u>AV-234</u>, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Special Repair Requirement".

CAUTION:

SIDE CAMERA LH

Exploded View

- 1. Side camera (LH)
- 2. Side camera finisher assembly



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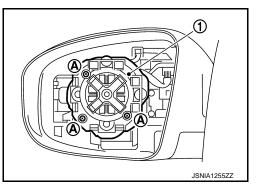
INFOID:0000000009061688

Removal and Installation

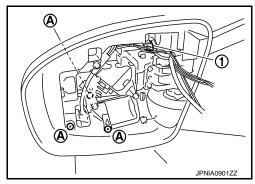
REMOVAL

1. Remove door mirror glass (driver side). Refer to MIR-121, "Exploded View" (with ADP) or MIR-141, "Exploded View" (without ADP).

2. Remove screws (A), and door mirror actuator connector, and then door mirror actuator (1).



- Remove door mirror under cover. Refer to <u>MIR-121, "Exploded View"</u> (with ADP) or <u>MIR-141, "Exploded View"</u> (without ADP).
- Remove screws (A) and connector (1), and then remove side camera (LH).



INSTALLATION

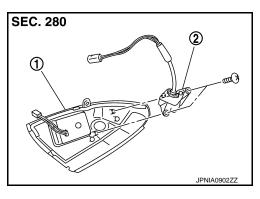
- Install in the reverse order of removal.
- Perform camera image calibration. Refer to <u>AV-234</u>, "<u>CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)</u>: <u>Special Repair Requirement</u>".

CAUTION:

SIDE CAMERA RH

Exploded View

- 1. Side camera finisher assembly
- 2. Side camera (RH)

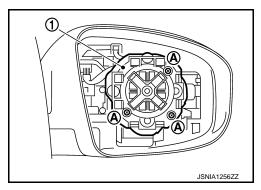


Removal and Installation

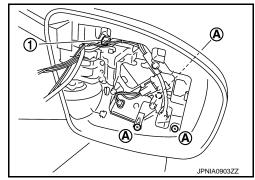
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REMOVAL

- 1. Remove door mirror glass (passenger side). Refer to MIR-121, "Exploded View" (with ADP) or MIR-141, "Exploded View" (without ADP).
- 2. Remove screws (A) and door mirror actuator connector, and then door mirror actuator (1).



- 3. Remove door mirror under cover. Refer to MIR-121, "Exploded View" (with ADP) or MIR-141, "Exploded View" (without ADP).
- 4. Remove screws (A) and connector (1), and then remove side camera (RH).



INSTALLATION

- 1. Install in the reverse order of removal.
- Perform camera image calibration. Refer to <u>AV-234</u>, "<u>CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR</u>): <u>Special Repair Requirement</u>".

CAUTION:

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

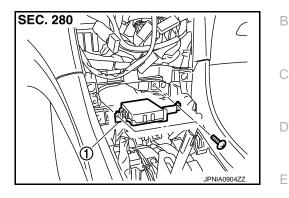
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITHOUT NAVIGATION]

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

Exploded View

1. Sonar control unit



Removal and Installation

- 1. Remove AV control unit. Refer to AV-315, "Exploded View".
- 2. Remove screws and connector, and then sonar control unit.

INSTALLATION

REMOVAL

Install in the reverse order of removal.

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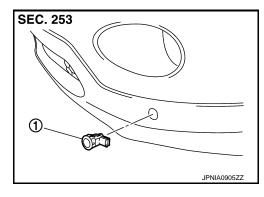
SONAR SENSOR

FRONT

FRONT: Exploded View

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1. Sonar sensor (front)

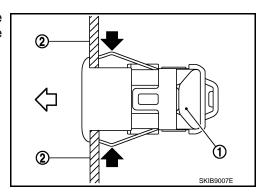


FRONT: Removal and Installation

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REMOVAL

- 1. Remove fender protector. Keep a service area. Refer to EXT-25, "FENDER PROTECTOR: Exploded View".
- 2. Remove sonar sensor connector.
- 3. Push the sonar sensor (1) outside (direction of white arrow) the front bumper (2), pressing the metal clips on the back to the direction of black arrows.



INSTALLATION

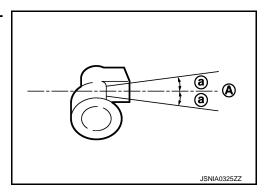
Install the bumper when the pawl engages.

CAUTION:

The connector direction is within $\pm 10^{\circ}$ from the horizontal position when assembling the bumper.

A : Horizontal position

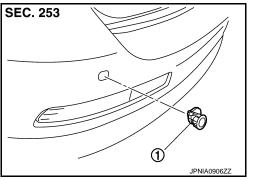
a : 10°



REAR

REAR: Exploded View

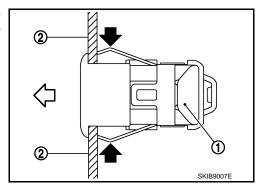
1. Sonar sensor (rear)



REAR: Removal and Installation

REMOVAL

- 1. Remove sonar sensor connector.
- 2. Push the sonar sensor (1) outside (direction of white arrow) the rear bumper (2), pressing the metal clips on the back to the direction of black arrows.



INSTALLATION

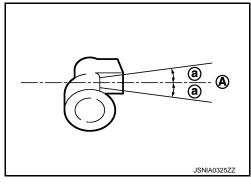
Install the bumper when the pawl engages.

CAUTION:

The connector direction is within ±10° from the horizontal position when assembling the bumper.

A : Horizontal position

: 10°



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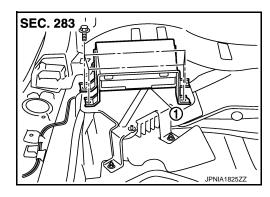
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TEL ADAPTER UNIT

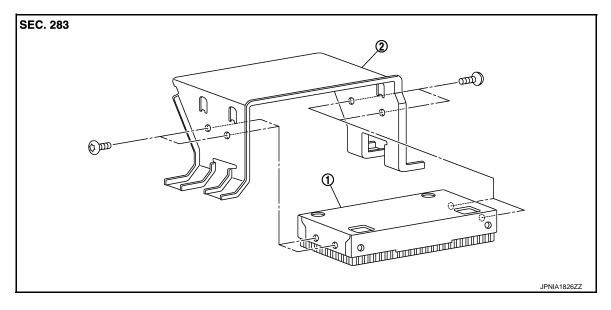
Exploded View

REMOVAL

1. TEL adapter unit



DISASSEMBLY



1. TEL adapter unit

2. Bracket

Removal and Installation

INFOID:0000000009061698

REMOVAL

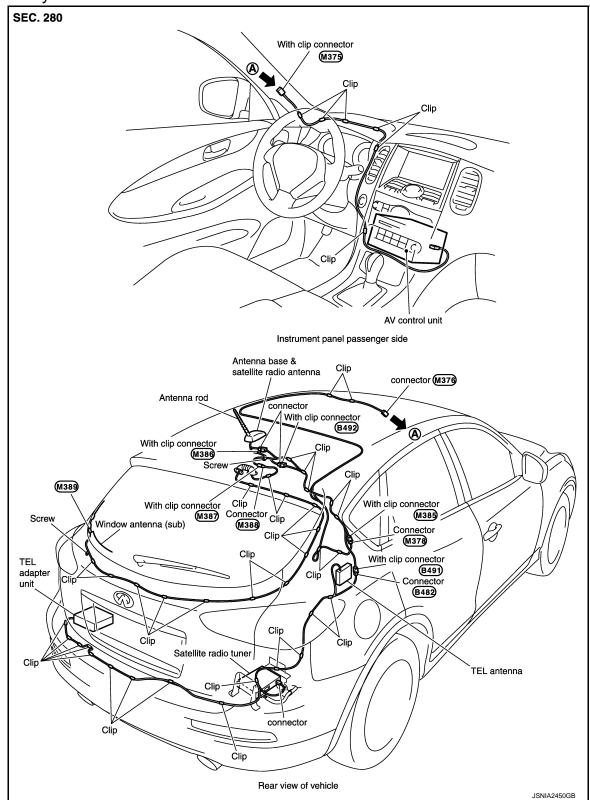
- Remove luggage floor spacer (LH). Refer to <u>INT-36, "Exploded View"</u>.
- Remove TEL adapter unit screws, disconnect TEL adapter unit connector and remove the TEL adapter unit.

INSTALLATION

Install in the reverse order of removal.

TEL ANTENNA

Feeder Layout



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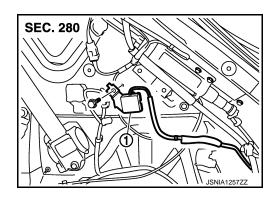
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Exploded View

TEL antenna



Removal and Installation

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REMOVAL

- 1. Remove luggage floor spacer (RH). Refer to INT-36, "Exploded View".
- 2. Remove luggage side finisher upper (RH). Refer to INT-36. "Exploded View".
- 3. Remove TEL antenna from vehicle.

INSTALLATION

Install in the reverse order of removal.

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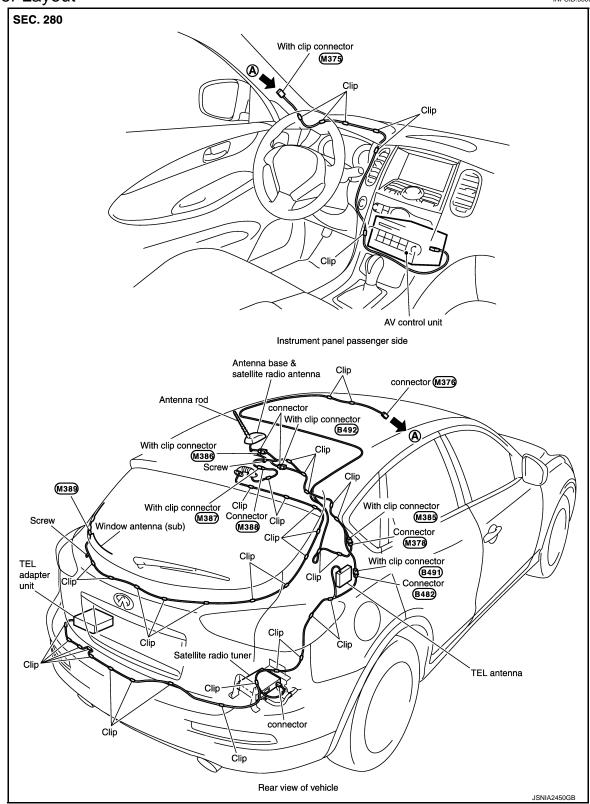
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ANTENNA FEEDER

Feeder Layout



Revision: 2013 March AV-341 2014 QX50

PRECAUTION

PRECAUTIONS

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

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

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with
 a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing
 serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution for Trouble Diagnosis

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AV COMMUNICATION SYSTEM

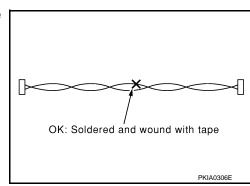
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

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AV COMMUNICATION SYSTEM

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

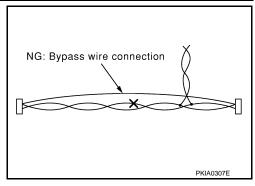


PRECAUTIONS

< PRECAUTION >

[BOSE AUDIO WITH 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

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[BOSE AUDIO WITH NAVIGATION]

PREPARATION

PREPARATION

Commercial Service Tools

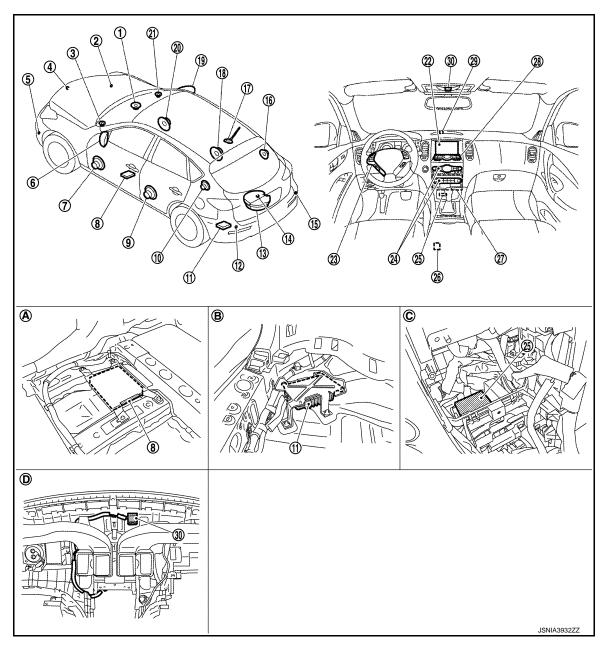
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Tool name		Description
Power tool	PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



- Center speaker
- Front camera
- Front door speaker LH
- 10. Rear squawker LH
- 13. Woofer
- 16. Rear squawker RH
- 19. Side camera RH
- 22. Display unit
- Sonar control unit (with around view 25. monitor)

- 2. Corner sensor front RH
- Corner sensor front LH
- Around view monitor control unit
- 11. BOSE amp.
- 14. Rear camera
- Antenna base (antenna amp. and satellite antenna)
- 20. Front door speaker RH
- 23. Steering switch
- 26. USB connector

- 3. Front squawker LH
- Side camera LH
- Rear door speaker LH
- 12. Corner sensor rear LH
- Corner sensor rear RH
- 18. Rear door speaker RH
- 21. Front squawker RH
- 24. Preset switch
- 27. AV control unit

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COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

- 28. Multifunction switch
- A. Under front seat (LH side)
- D. Instrument panel rear side
- 29. GPS antenna
- B. Luggage floor (LH side)
- 30. Microphone
- Console pocket assembly removed condition

Component Description

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Part name	Description		
AV control unit	 Integrates hard disk drive (HDD) allowing map data to be stored. It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit. The AV control unit includes the audio, hands-free phone, voice control, navigation, USB connection, DVD play, satellite radio and vehicle information functions. It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function. It inputs the illumination signals that are required for the display dimming control. It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). The RGB digital image signal and composite image signal are output to display unit. Amp. ON signal, sound signal and mode change signal transmitted to BOSE amp. Update of map data is performed with the DVD-ROM. 		
Display unit	 Display image is controlled by the serial communication from AV control unit. RGB digital image signal is input from AV control unit. Composite image signal is input from AV control unit. Camera image signal is input from around view monitor control unit. Touch panel function can be operated for each system by touching a display directly. 		
BOSE amp.	 Inputs sound signal from AV control unit, and outputs sound signal to each speaker. Input mode change signal from AV control unit. 		
Front door speaker	Outputs sound signal from BOSE amp. Outputs high, mid and low range sounds.		
Rear door speaker	Outputs sound signal from BOSE amp.Outputs high, mid and low range sounds.		
Front squawker	Outputs sound signal from BOSE amp.Outputs mid range sounds.		
Rear squawker	Outputs sound signal from BOSE amp.Outputs mid range sounds.		
Center speaker	Outputs sound signal from BOSE amp.Outputs high and mid range sounds.		
Woofer	 Inputs power (woofer amp. ON) and sound signal from BOSE amp. Outputs low range sounds. 		
Multifunction switch	 Operation panel is equipped with the centralized switch where audio and navigation, etc. operations are integrated. Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication. 		
Preset switch	 Operation panel is equipped with the centralized switch where audio and air conditioner, etc. operations are integrated. Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication. The disk ejection operating signal is performed by hardwire. 		

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

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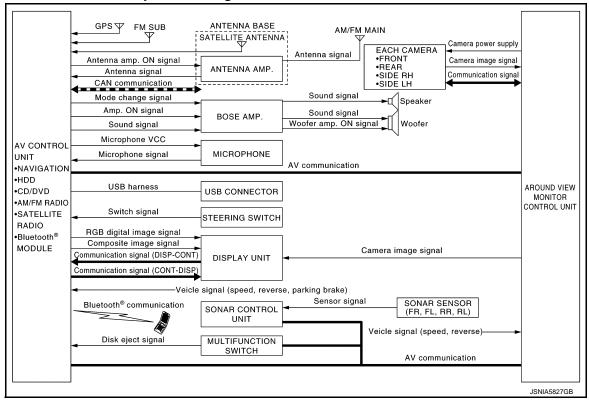
Part name	Description		
Around view monitor control unit	 It supplies power to front camera, rear camera, and side camera. And then it superimposes the images from each camera and outputs them to display unit. Superimpose the guiding line, predicted course line and sonar indicator to the camera image that outputs to display unit. It performs the reception/transmission of communication signal with each camera It transmits the sonar operation signal from sonar control unit and receives the sonar information from sonar control unit via AV communication. It transmits the information received/transmitted with sonar control unit via AV communication to AV control unit. 		
Front camera	 It inputs the power supply from around view monitor control unit and outputs the image of the vehicle front to around view monitor control unit. It performs the reception/transmission of the communication signal with around view monitor control unit. 		
Rear camera	 It inputs the power supply from around view monitor control unit and outputs image of the vehicle rear to around view monitor control unit. It performs the reception/transmission of the communication signal with arou view monitor control unit. 		
Side camera LH	 It inputs the power supply from around view monitor control unit and outputs the image of the vehicle LH to around view monitor control unit. It performs the reception/transmission of the communication signal with around view monitor control unit. 		
Side camera RH	 It inputs the power supply from around view monitor control unit and outputs the image of the vehicle RH to around view monitor control unit. It performs the reception/transmission of the communication signal with around view monitor control unit. 		
Sonar control unit	 It is connected with around view monitor control unit via AV communication and receives the sonar operation signal from around view monitor control unit. It transmits the sonar detection status to around view monitor control unit via AV communication. It judges the warning level according to the signal from corner sensor. 		
Corner sensor	The obstacle distance is detected. The signal is transmitted to sonar control unit.		
Steering switch	 Operations for audio, hands-free phone, voice control and navigation, etc. are possible. Steering switch signal (operation signal) is output to AV control unit. 		
Microphone	 Used for hands-free phone operation and voice recognition. Microphone signal is transmitted to AV control unit. Power (Microphone VCC) is supplied from AV control unit. 		
GPS antenna	GPS signal is received and transmitted to AV control unit.		
Antenna base	 A radio antenna base integrated with radio antenna amp. and satellite radio antenna is adopted. ANTENNA AMP. Radio signal received by rod antenna is amplified and transmitted to AV control unit. Power (antenna amp. ON signal) is supplied from AV control unit. SATELLITE RADIO ANTENNA Receives satellite radio waves and outputs it to AV control unit. 		
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^{*1:} Image signals cannot be received from iPod®.

SYSTEM MULTI AV SYSTEM

MULTI AV SYSTEM: System Diagram

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NOTE:

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

MULTI AV SYSTEM: System Description

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Multi AV system means that the following systems are integrated.

FUNCTION NAME		
Navigation system function		
Audio function		
DVD play function		
Hands-free phone function		
USB connection function		
Voice recognition function		
Touch panel function		
Around view monitor function		
Camera assistance sonar system		
Vehicle information function		

COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures
 them completely as a master unit by connecting between units that configure MULTI AV system with two AV
 communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.

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

NAVIGATION SYSTEM FUNCTION

Description

- The AV control unit controls navigation function while GPS tuner has built-in map data, GYRO (angle speed sensor), on the HDD (Hard Disk Drive).
- The AV control unit inputs operation signal with communication signal, through display (touch panel) and multifunction switch and steering switch.
- Guide sound is output to front speaker through BOSE amp. from AV control unit when operating navigation system.
- A vehicle position is calculated with the GYRO (angle speed sensor), vehicle sensor, signal from GPS satellite and map data stored on HDD (Hard Disk Drive), and transmits the map image signal (RGB image, RGB area, RGB image synchronizing) to the display.

Position Detection Principle

The navigation system periodically calculates the current vehicle position according to the following three types of signals.

- Travel distance of the vehicle as determined by the vehicle speed sensor
- Vehicle turning angle determined by the gyroscope (angular speed sensor)
- The travel direction of the vehicle determined by the GPS antenna (GPS information)

The current position of the vehicle is then identified by comparing the calculated vehicle position with map data, which is stored in the HDD (Hard Disk Drive) (map-matching), and indicated on the screen with a current location mark. More accurate data is used by comparing position detection results from GPS to the map-matching.

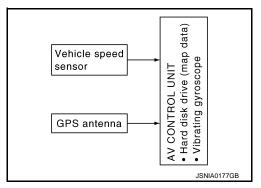
The current position is calculated by detecting the travel distance from the previous calculation point, and its direction change.

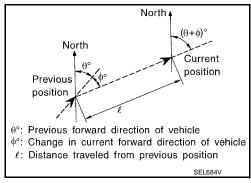
Travel distance

The travel distance is generated from the vehicle speed sensor input signal. The automatic distance correction function is adopted for preventing a miss-detection of the travel distance because of tire wear etc.

Travel direction

The gyroscope (angular velocity sensor) and GPS antenna (GPS information) generate the change of the travel direction. Both have advantages and disadvantages as per the following descriptions.





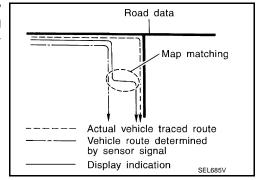
Туре	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	The turning angle is precisely detected.	Errors are accumulated when driving a long distance without stopping.
GPS antenna (GPS information)	The travel direction (North/South/East/West) is detected.	The travel direction is not precisely detected when driving slowly.

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

Map-matching P

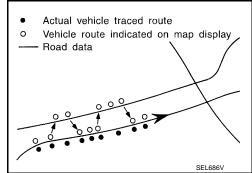
Revision: 2013 March AV-349 2014 QX50

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

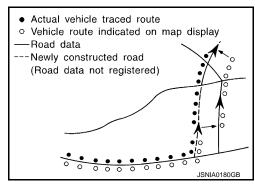


There is a possibility that the vehicle position may not be corrected in the following case, and when vehicle is driven over a certain distance or time in which GPS information is hard to receive. Correct manually the current location mark on the screen.

- In map-matching, several alternative routes are prepared and prioritized in addition to the road judged as currently driving on.
 Therefore, due to errors in the distance and/or direction, an incorrect road may be prioritized, and the current location mark may be repositioned to the incorrect road.
 - If two roads are running in parallel, they are of the same priority. Therefore, the current location mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road, etc.



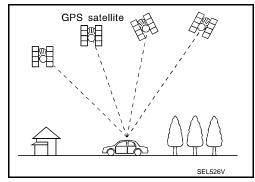
- Map-matching does not function correctly when road on which the vehicle is driving is new, etc. and not recorded in the map data. Also, map-matching does not function correctly when road pattern stored in the map data and the actual road pattern are different due to repair, etc.
 - Therefore, the map-matching function judges other road as a currently driving road if the road is not in the map, and displays the current location mark on it. Later, the current location mark may be repositioned to the road if the correct road is detected.
- Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position and the position on the map.



GPS (Global Positioning System)

GPS (Global Positioning System) is developed for and is controlled by the US Department of Defense. The system utilizes GPS satellites (NAVSTAR), transmitting out radio waves while flying on an orbit around the earth at an altitude of approximately 21,000 km (13,049 mile).

The receiver calculates the travel position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves that four or more GPS satellites transmit (three-dimensional positioning). The GPS receiver calculates the travel position in two dimensions (latitude/longitude) with the previous altitude data if the GPS receiver receives only three radio waves (two-dimensional positioning). GPS position correction is not performed while stopping the vehicle.



Accuracy of the GPS will deteriorate under the following conditions:

- In two-dimensional positioning, GPS accuracy will deteriorate when altitude of the vehicle position changes.
- The position of GPS satellite affects GPS detection precision. The position detection may not be precisely performed.

 The position detection is not performed if GPS receiver does not receive radio waves from GPS satellites. (Inside a tunnel, parking in a building, under an elevated highway etc.) GPS receiver may not receive radio waves from GPS satellites if any object is placed on the GPS antenna.

NOTE:

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

AUDIO FUNCTION

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

FUNCTION		
AM/FM radio		
Satellite radio		
CD		
Bluetooth [®] audio		
Driver's Audio Stage		

Operating Signal

Audio system operation can be performed with multifunction switch, preset switch, steering switch, touch panel function or voice recognition function.

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

Screen Display

Switching of display is performed with serial communication between display unit and AV control unit.

AM/FM Radio Mode

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

Satellite Radio Mode

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

CD Mode

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

Bluetooth® Audio Mode

- Bluetooth[®] audio function is built into AV control unit.
- Bluetooth[®] audio can play music data in the portable audio by means of Bluetooth[®] communications between the portable audio and the AV control unit.
- AV control unit outputs audio signal to BOSE amp., and BOSE amp. outputs to each speaker.

Driver's Audio Stage

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

DVD PLAY FUNCTION

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< SYSTEM DESCRIPTION >

- DVD is played by inserting DVD into the AV control unit.
- DVD image signals are transmitted to the display unit and DVD sound signals are transmitted to each speaker via BOSE amp.

HANDS-FREE PHONE FUNCTION

- AV control unit includes hands-free phone function.
- Hands-free communication can be operated by connecting using Bluetooth[®] communication with cellular phone.
- Operation is performed by steering switch, and operating condition is indicated on display.
- Guide sound that is heard during operation is input from AV control unit to BOSE amp., and is output from front speaker and center speaker.

When A Call Is Originated

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

When Receiving A Call

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

USB CONNECTION FUNCTION

- Connecting iPod[®] or USB memory allows the driver to play iPod[®] music files or USB memory-stored music files, video data, and image viewer data.
- Sound signals of music files stored in iPod[®] or USB memory are transmitted from the USB connector to the AV control unit. The AV control unit transmits the sound signals to the woofer and each speaker via BOSE amp.
- Video signals and image viewer file signals are transmitted from the USB connector to the AV control unit. The data and files are displayed on the front display unit screen.
- iPod[®] is recharged when connected to USB connector.
- Only files that meet the following conditions will be played.

	Music file	Video file	Image viewer file
File format	"MP3", "WMA", "AAC", "M4A"	"DivX", "MPEG4 (ASF)"	"JPEG"
File extension	".mp3", ".wma", ".aac", ".m4a"	".divx", ".afs", ".avi"	".jpg", ".jpeg"
Maximum file size	2 GB	2 GB	2 MB

NOTE:

- iPod® is a trademark of Apple inc., registered in the U.S. and other countries.
- Image signals cannot be received from iPod[®].

VOICE RECOGNITION FUNCTION

- Each operation of multi AV system can be performed by inputting sound to microphone.
- Start of sound recognition system can be performed by steering switch.

TOUCH PANEL SYSTEM

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

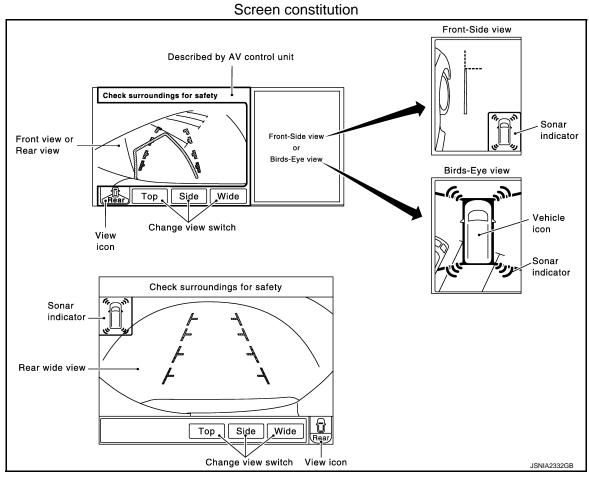
AROUND VIEW MONITOR FUNCTION

- This system is equipped with wide-angle high-resolution cameras on the front and rear of the vehicle and on both right and left door mirrors. The images from front view, rear view, front-side view (RH side), and birdseye view that shows the view from the top of the vehicle are displayed to monitor the vehicle surroundings.
- Around view monitor control unit cuts out and expands the image received from each camera to create each view.
- The sonar indicator is displayed on display (superimposed on the camera image) in combination with the camera assistance sonar system to warm of the approach of an obstacle.
- In front view and rear view, the vehicle width, distance lines and predictive course lines are superimposed and displayed. In front-side view, the vehicle distance guiding line and vehicle width guiding line are displayed.

 The Birds-Eye view converts the images from 4 cameras into the overhead view and displays the status of the vehicle on display. The vehicle icon and sonar indicator that are displayed on the Birds-Eye view display are rendered by around view monitor control unit.

Around View Monitor Screen

- Around view monitor combines and displays the travel direction view and "Birds-Eye view", "Front-Side view" and then it displays the sonar indicator on the "Birds-Eye view", "Front-Side view" "Rear wide view".
- AV control unit renders the "Change View" switch, view icon, warning message on display.



Operation Description

- Around view monitor operates by pressing the "CAMERA" switch of multifunction switch and shifting the selector switch to the reverse position.
- When the selector lever is in any position other than the reverse position, the screen is switched to the around view monitor by pressing the "CAMERA" switch.
- The screen is switched to the around view monitor by shifting the selector lever to the reverse position.
- In the around view monitor, Birds-Eye view, Front-side view and rear wide view (rear only) can be switched by pressing the "CAMERA" switch.
- The around view monitor is cancelled 3 minutes after pressing the "CAMERA" switch, and then the screen returns to the screen before displaying the around view monitor when selector lever is in a position other than the reverse position.
- ON/OFF setting of sonar indicator display on the Front-Side view screen can be performed.
- In the Birds-Eye view, the invisible area is displayed on the image to specify the boundary of the 4 cameras.
 The invisible area is displayed in yellow in the Birds-Eye view after turning the ignition switch ON.
- The sonar (both of buzzer and indicator) operates only when the camera screen is displayed.
 NOTE:

The first, second, and third camera image displayed when switched to the camera image display depends on the settings of "Camera View Priority".

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Around view monitor screen transition "TOP" or "SIDE" button is pressed using touch panel function Birds-Eve Front-side and and Front screen Front screen "CAMERA" switch of multifunction switch is pressed*1 When multifunction switch is operated or Vehicle speed three minutes 10km/h after pressing Other than (6.2MPH) the "camera" switch of camera image Other than or higher multifunction switch (Such as NAVI screen) Shift position is R*3 Other than Other than Shift position is R Shift position is R Shift position is R*3 Shift position is R*3 Other than Shift position is R Shift position is R*2 "TOP" or "SIDE" button is pressed using touch panel function Birds-Eye Front-side and and Rear screen Rear screen "CAMERA" switch of multifunction switch is pressed*1 "TOP" or "WIDE" button is pressed "SIDE" or "WIDE" button is pressed using touch panel function using touch panel function Rear Wide screen 1: The switching order of each camera screen depends on the setting status of "Camera View Priority". *2: When previous screen of "Birds-Eye and Rear screen" or "Front-side and Rear screen" or "Rear Wide screen" is other than camera image. *3: When previous screen of "Birds-Eye and Rear screen" or "Front-side and Rear screen" or "Rear Wide screen" is camera image. JSNIA2381GB

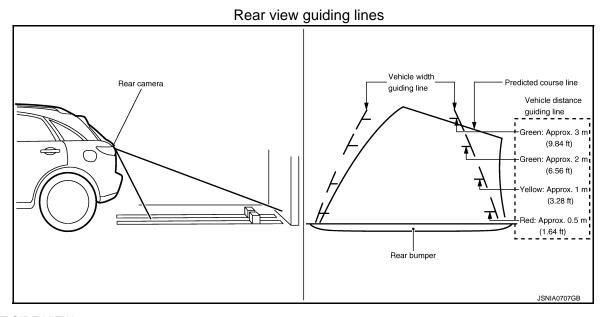
FRONT VIEW

- The front view image is from the front camera.
- When the selector lever is in any position other than the reverse position, the front view is displayed by
 pressing the "CAMERA" switch. It improves the visibility of obstacles in front of the vehicle and helps driving
 by the images displayed from Birds-Eye view and Front-Side view.
- Display the vehicle width guiding line and vehicle distance guiding line in front view and display the predictive course line according to the steering angle.
- If the steering angle is within approximately 90 degrees, the predictive course lines on the left/right side are
 displayed. If the steering angle is exceeding approximately 90 degrees, only the predictive course line on the
 outside (in the opposite side of steering direction) is displayed.
- AV control unit is connected to the steering angle sensor and receives the steering angle signal via CAN communication. AV control unit is transmits steering angle signal to around view monitor control unit via AV communication.
- Around view monitor control unit controls the direction and distance of the predictive course line according to the sensor signal from steering angle sensor.

Predicted course line Vehicle width guiding line Vehicle distance guiding line Green: Approx. 3 m (9.84 ft) Green: Approx. 2 m (6.56 ft) Yellow: Approx. 1 m (3.28 ft) Red: Approx. 0.5 m (1.64 ft) JSNIA0770GB

REAR VIEW

- The rear view image is from the rear camera.
- When the selector lever is in the reverse position, the rear view is displayed. Backing and parking are improved by the images from Birds-Eye view and Front-Side view. The rear wide view function allows the display of an image with a 180° horizontal angle.
- Display the vehicle width guiding line and vehicle distance guiding line in Rear view and display the predictive course line according to the steering angle (except when using the rear wide view function).
- The predictive course line is not displayed at the steering neutral position.
- AV control unit is connected to the steering angle sensor and receives the steering angle signal via CAN communication. AV control unit is transmits steering angle signal to around view monitor control unit via AV communication.
- Around view monitor control unit controls the direction and distance of predictive course line according to the sensor signal from steering angle sensor.



FRONT-SIDE VIEW

- The front-side view image is from the side camera RH.
- In Front-Side view, display the vehicle distance guiding line and vehicle width guiding line.

Revision: 2013 March AV-355 2014 QX50

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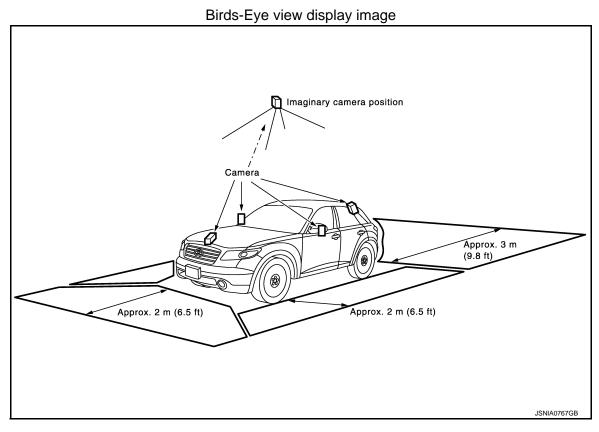
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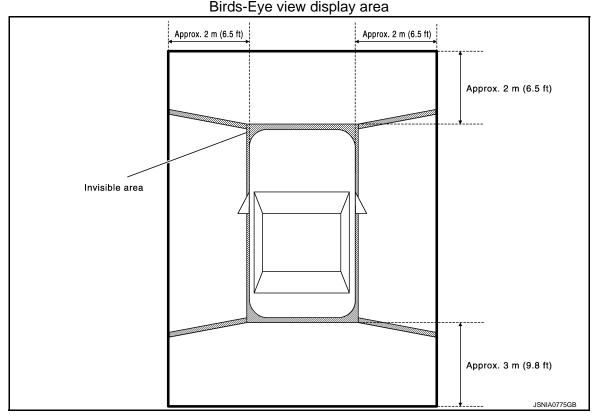
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Vehicle front guiding line Side camera RH Vehicle side guiding line

BIRDS-EYE VIEW

- The image from the 4 cameras is cut out and converted into the overhead view, and the surroundings of the vehicle is displayed in birds-eye view.
- In Birds-Eye view, the invisible area is displayed on the image to specify the boundary of the 4 cameras.
- The invisible area is displayed in yellow in the Birds-Eye view after turning the ignition switch ON as an information for the user. (OFF setting can be performed)





Camera Image Operation Principle

- If the information writing to around view monitor control unit and the information from the camera are not matched, the applicable camera position is indicated as an error on the Birds-Eye view display. (Calibration operation is necessary when replacing each camera or when replacing around view monitor control unit.)
- Around view monitor control unit receives the camera switch signal from AV control unit via AV communication by pressing the "CAMERA" switch of multifunction switch.
- Around view monitor control unit that receives the camera switch signal supplies the power to each camera and inputs the camera image from each camera.
- When the selector lever is in the reverse position, around view monitor control unit receives the reverse signal, supplies the power to each camera, and inputs the camera image from each camera.
- Around view monitor control unit that receives the camera image signal from each camera cuts out the
 required screen for each view, superimposes the camera image, vehicle icon, guiding lines, sonar indicator,
 and outputs them to the display unit.

CAMERA ASSISTANCE SONAR FUNCTION

- Install the corner sensor on the front bumper and rear bumper. It detects the obstacles around the vehicle when the around view monitor is displayed. It warns of the approach to the obstacles with the buzzer and indicator in the display linked with the around view monitor system.
- It displays the distance between the bumper and obstacle with the color of sonar indicator in the display and the blinking cycle of indicator in 3 stages.
- The buzzer warns of the distance to the obstacles with the cycle in 3 stages.

System Operation Description

- Around view monitor control unit transmits the sonar operation signal via AV communication to sonar control
 unit to control the operation of sonar indicator and sonar buzzer.
- Sonar control unit that receives the sonar operation signal from around view monitor control unit transmits
 the detection signal and detection distance signal according to the signal from corner sensor via AV communication to around view monitor control unit. Around view monitor control unit operates the applicable sonar
 indicator.
- When receiving a sonar operation signal from the around view monitor control unit, the sonar control unit converts a signal transmitted from the corner sensor into a detection distance signal and transmits it to the AV control unit via AV communication. When receiving the detection signal, the AV control unit activates each speaker via BOSE amp.

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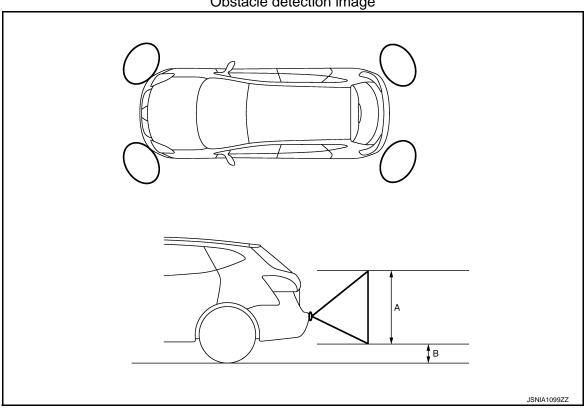
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• Sonar control unit has the diagnosis function. It can detect the corner sensor malfunction or sensor harness open circuit. It transmits the diagnosis results to around view monitor control unit and always displays the sonar indicator in red to inform the user.

Obstacle Detection Distance

- Sonar control unit changes the outputs of the sonar indicator and warning buzzer in 3 stages according to the obstacle detection distance from the corner sensor.
- The sonar control unit can change the setting of obstacle detection distance in 4 stages.





A. Approx. 50 cm (19.6 in)

B. Approx. 15 cm (5.9 in)

Detection distance

Warning item	Sensitivity level 1 (Faster warning)	Sensitivity level 2 (Default value)	Sensitivity level 3 (Slower warning)	Sensitivity level 4 (Slowest warning)
First stage warning	70 - 80 cm (27.5 - 31.4 in)	60 - 70 cm (23.6 - 27.5 in)	50 - 60 cm (19.6 - 23.6 in)	40 – 50 cm (15.7 – 19.6 in)
Second stage warning	50 - 70 cm (19.6 - 27.5 in)	40 – 60 cm (15.7 – 23.6 in)	30 - 50 cm (11.8 - 19.6 in)	30 – 40 cm (11.8 – 15.7 in)
Third stage warning	Less than 50 cm (19.6 in)	Less than 40 cm (15.7 in)	Less than 30 cm (11.8 in)	Less than 30 cm (11.8 in)

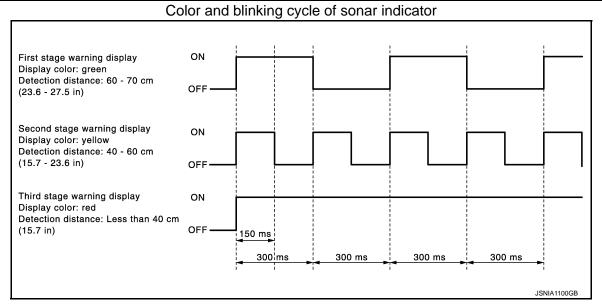
Sonar Indicator Display

- · Around view monitor control unit that receives the detection signal and detection distance signal from sonar control unit displays the sonar indicator on display.
- · Around view monitor control unit changes the color or blinking cycle of the indicator according to the detection distance.

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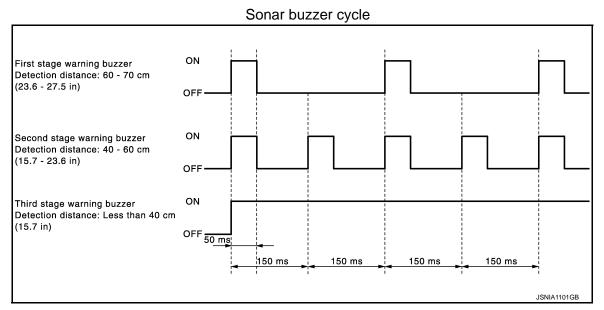
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Sonar Buzzer Operation

- Each sonar sensor transmits a sensor signal to the sonar control unit when detecting an obstacle.
- The sonar control unit converts a signal received from each sonar sensor into distance and transmits detection distance signal to the AV control unit via AV communication.
- The AV control unit transmits a buzzer signal to the BOSE amp. corresponding to each sonar sensor based on the received signal.
- When receiving a buzzer signal, the BOSE amp. transmits the buzzer signal to the each speaker. When each speaker receives a buzzer signal, a buzzer sounds.
- When the front corner sensor detects an obstacle, a buzzer is heard from the speakers on the front side.
- When the rear corner sensor detects an obstacle, a buzzer is heard from the speakers on the rear side.
- It changes the buzzer cycle in 3 stages according to the detection distance.



VEHICLE INFORMATION FUNCTION

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

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

On Board Diagnosis Function

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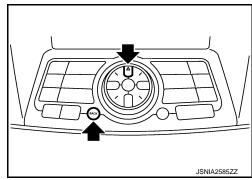
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-diagnosis Mode

- Press the "BACK" switch and the "UP" switch of the 8-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
 NOTE:

The hazard switch and disk eject switch cannot be checked.



Finishing Self-diagnosis Mode

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

MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- The self-diagnosis mode performs diagnoses on the AV control unit, connections between system components as well as connections between AV control unit and GPS antenna. Then it displays the diagnosis results on the display.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

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

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

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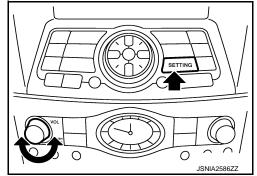
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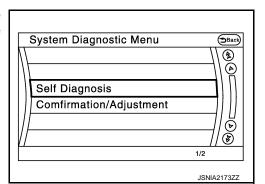
Mode			Description
	Display Diagnosis		The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display and touch panel calibration response check.
	Vehicle Signals		Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition, reverse, side view switch and room lamp.
	Climate Control		Start auto air conditioner system self-diagnosis.
	Steering Angle Adjustment		When there is a difference between the actual turning angle and the vehicle mark turning angle, it can be adjusted.
	Navigation	Speed Calibration	When there is a difference between the current location mark and the actual location, it can be adjusted.
	Error History		The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.
Confirmation/ Adjustment	Synchronizer FES Clock		-
rajuotinont	Speaker Test		The connection of a speaker can be confirmed by test tone.
	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.
	Hands-free Phone		The received volume adjustment of hands-free phone, microphone speaker check, and erase memory can be performed.
	Camera Cont.		It can perform the confirmation of a signal connection to around view monitor control unit, the calibration of each camera, Correct Draw Line of Camera Image, and Fine Tuning of Birds-Eye View.
	Delete Unit Connection Log		Erase the connection history of unit and error history.
	Initialize Settings		Initializes the AV control unit memory.
	Version Information		Version information of the AV control unit is displayed.

STARTING PROCEDURE

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



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



SELF-DIAGNOSIS MODE

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

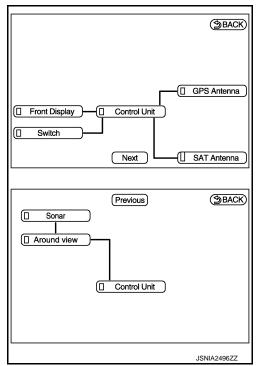
- 1. Start the self-diagnosis function and select "Self Diagnosis".
- Self-diagnosis subdivision screen is displayed, and the self-diagnosis mode starts.
- The bar graph visible on the center of the self-diagnosis subdivision screen indicates progress of the trouble diagnosis.
- Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

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

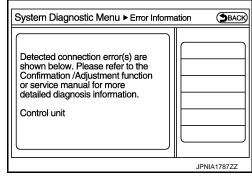
NOTE:

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

- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to AV-519, "Exploded View".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.



The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



Detection Range of Self-diagnosis Mode

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

SELF-DIAGNOSIS RESULTS

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

Only Unit Part Is Displayed In Red.

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

< SYSTEM DESCRIPTION >

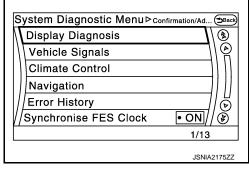
[BOSE AUDIO WITH NAVIGATION]

A Connecting Cable Between Units Is Displayed In Yellow.

Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communication circuits between AV control unit and front display unit.	Serial communication circuits between AV control unit and front display unit.
Control unit ⇔ GPS Antenna	GPS antenna connection malfunctions detected.	GPS antenna
Control unit ⇔ Around view	When either one of the following items are detected: around view monitor control unit power supply and ground circuits are malfunctioning. AV communication circuits between around view monitor control unit and multifunction switch are malfunctioning.	 Around view monitor control unit power supply and ground circuits. AV communication circuits between around view monitor control unit and multifunction switch.
Control unit ⇔ SAT Antenna	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection
Around view ⇔ Sonar	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.

CONFIRMATION/ADJUSTMENT MODE

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

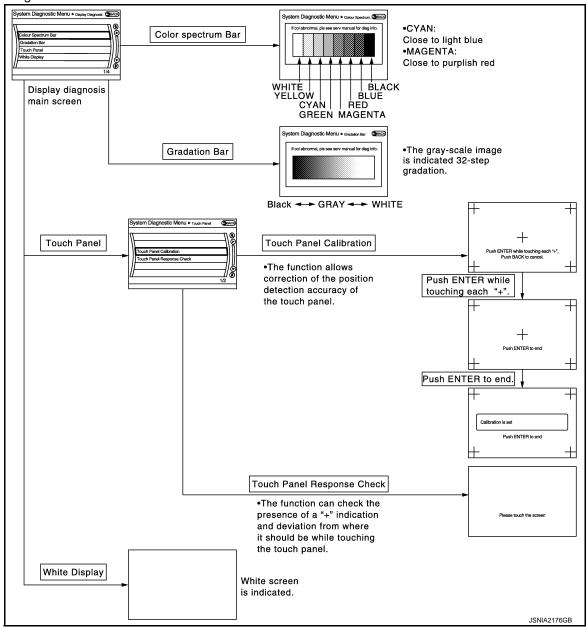


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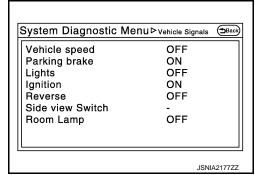
[BOSE AUDIO WITH NAVIGATION]

Display Diagnosis



Vehicle Signals

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



< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Diagnosis item	Display	Vehicle status	Remarks	
Vahiala anaad	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed. This is norma	
Vehicle speed	OFF	Vehicle speed = 0 km/h (0 MPH)		
Darking broke	ON	Parking brake is applied.		
Parking brake	OFF	Parking brake is released.		
Lighto	ON	Light switch ON		
Lights	OFF	Light switch OFF	_	
Innition	ON	Ignition switch ON		
Ignition	OFF	Ignition switch in ACC position	_	
Reverse	ON	Shift the selector lever to "R" position	Changes in indication may be delayed. This is normal.	
1/2/2192	OFF	Shift the selector lever other than "R" position		
SIDE VIEW SW	_	_	This item is displayed, but cannot be monitored.	
ROOM LAMP	OFF	_	This item is displayed, but cannot be monitored.	

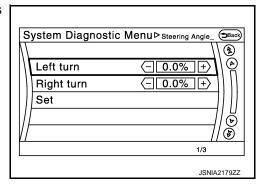
Climate Control

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

Navigation

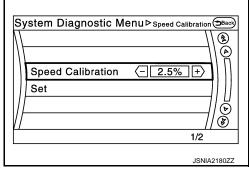
STEERING ANGLE ADJUSTMENT

The steering angle output value detected with the gyroscope is adjusted.



SPEED CALIBRATION

During normal driving, distance error caused by tire wear and tire pressure change is automatically adjusted for by the automatic distance correction function. This function, on the other hand, is for immediate adjustment, in cases such as driving with tire chain fitted on tires.



Error History

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

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

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

• If there is a malfunction with the GPS antenna circuit board in the AV control unit, the correct date and time of occurrence may not be able to be displayed.

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[BOSE AUDIO WITH NAVIGATION]

- Place of the error occurrence is represented by the position of the current location mark at the time an error occurred. If current location mark has deviated from the correct position, then the place of the error occurrence cannot be located correctly.
- The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

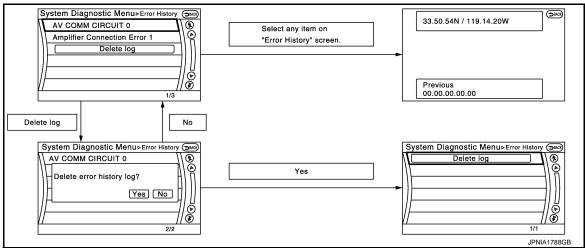
Count up method A

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

Count up method B

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

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



Error item

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

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-370, "CONSULT Function (MULTI AV)".

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Error item	Description	Possible malfunction factor/Action to take
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	
FLASH-ROM Error Of Control Unit		
Connection Of Gyro		Darland the AV control with it the marks are
Connection of G Sensor		Replace the AV control unit if the malfunction occurs constantly.
CAN Controller Memory Error		
Bluetooth Module Connection Error	AV control unit malfunction is detected.	
Sub CPU Connection Error		
iPod authentification chip error		
Audio connection error		
DSP Connection Error		If a disc can be played, then there is a
DSP Communication Error	AV control unit malfunction is detected.	 possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
HDD Connection Error		
HDD Read Error		
HDD Write Error	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly.
HDD Communication Error		
HDD Access Error		
GPS Communication Error		An intermittent error caused by strong radio
GPS ROM Error		interference may be detected unless any symptom (GPS reception error, etc.) oc-
GPS RAM Error	GPS malfunction is detected.	curs.
GPS RTC Error		Replace the AV control unit if the malfunction occurs constantly.
Unfinished configuration	The writing of configuration data is incomplete.	Write configuration data with CONSULT.
USB Controller Communication Error	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DVD Mechanism Communication Error	AV control unit malfunction is detected.	 If DVD can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
Steer. Angle Sensor Calibration	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to AV-370, "CONSULT Function (MULTI AV)".
Front Display Connection Error	When either one of the following items are detected: display unit power supply and ground circuits malfunction is detected. malfunction is detected in communication circuits between AV control unit and front display unit.	 Display unit power supply and ground circuits. Communication circuits between AV control unit and front display unit.
GPS Antenna Error	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.
XM Antenna Connection Error	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection.
USB electric current Error	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.

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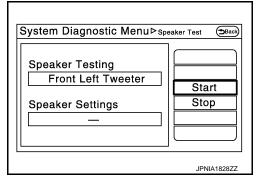
< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
AM/FM antenna amp	Radio antenna amp. ON signal circuit mal- function is detected.	Radio antenna amp. ON signal circuit between AV control unit and antenna base.
Ext_Amp_ON	BOSE amp. ON signal circuit malfunction is detected.	BOSE amp. ON signal circuit between AV control unit and BOSE amp.
AV COMM CIRCUIT Switches Connection Error	When either one of the following items are detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT AVM Connection Error	When either one of the following items are detected: around view monitor control unit power supply and ground circuits are malfunctioning. AV communication circuits between multifunction switch and around view monitor control unit are malfunctioning.	 Around view monitor control unit power supply and ground circuits. AV communication circuits between multifunction switch and around view monitor control unit.
AV COMM CIRCUIT AVM Sonar Connection Error	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
AV COMM CIRCUITSwitches Connection ErrorAVM Connection Error	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

Speaker Test

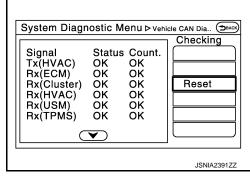
Select "SPEAKER DIAGNOSIS" to display the Speaker Diagnosis screen. Press "Start" to generate a test tone in a speaker. Press "Start" to generate a test tone in the next speaker. Press "Stop" to stop the test tones.



Vehicle CAN Diagnosis

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

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



< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Items	Display (Current)	Malfunction counter (Past)
Rx(TPMS)	OK / ???	OK / 0 - 39
Rx(STRG)	OK / ???	OK / 0 – 39

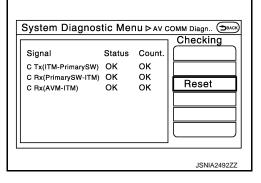
NOTE:

"???" indicates UNKWN.

AV COMM Diagnosis

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

Items	Status (Current)	Counter (Past)
C Tx(ITM-PrimarySW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(AVM–ITM)	OK / ???	OK / 0 – 39

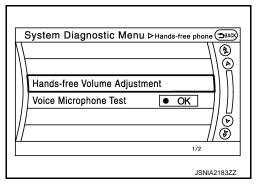


NOTE:

"???" indicates UNKWN

Hands-Free Phone

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

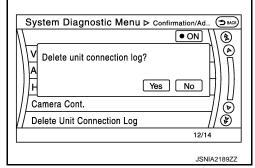


Camera Cont.

Refer to AV-374, "On Board Diagnosis Function".

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.)



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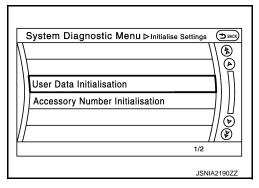
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Initialize Settings

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

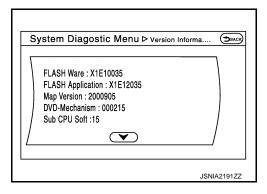
CAUTION:

- Never perform Accessory Number Initialization except when configuration is unsuccessful.
- Accessory Number Initialization requires configuration. For details, refer to <u>AV-425</u>, "<u>CONFIGURATION (AV CONTROL</u> UNIT): <u>Description</u>".



Version Information

Version information of the AV control unit is displayed.



CONSULT Function (MULTI AV)

INFOID:0000000009061712

CONSULT FUNCTIONS

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

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

AV COMMUNICATION

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

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

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".

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[BOSE AUDIO WITH NAVIGATION]

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• The timing is displayed as "0" if any of the error codes [U1000], [U1010], [U1300] and [U1310] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to AV-434, "Diagnosis Procedure".
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	
Cont Unit [U1200]		
GYRO NO CONN [U1201]		Penlace the AV central unit if the malfune
G-SENSOR NO CONN [U1202]		Replace the AV control unit if the malfunction occurs constantly.
CAN CONT [U1216]	AV control unit moltiunation is datasted	
BLUETOOTH MODULE [U1217]	AV control unit malfunction is detected.	
SUB CPU CONN [U1228]		
iPod CERTIFICATION [U1229]		
Built-in AUDIO CONN [U122E]		
HDD CONN [U1218]		
HDD READ [U1219]		
HDD WRITE [U121A]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly.
HDD COMM [U121B]		
HDD ACCESS [U121C]		
GPS COMM [U1204]		An intermittent error caused by strong ra-
GPS ROM [U1205]		dio interference may be detected unless
GPS RAM [U1206]	GPS malfunction is detected.	any symptom (GPS reception error, etc.) occurs.
GPS RTC [U1207]		Replace the AV control unit if the malfunction occurs constantly.
USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DSP CONN [U121D]		If a disc can be played, then there is a
DSP COMM [U121E]	AV control unit malfunction is detected.	possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
DVD COMM [U1227]	AV control unit malfunction is detected.	 If DVD can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.
CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with CONSULT.
ST ANGLE SEN CALIB [U1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION: Special Repair Requirement".
FRONT DISP CONN [U1243]	 When either one of the following items are detected: front display unit power supply and ground circuits malfunction is detected. communication circuits between AV control unit and front display unit. 	Front display unit power supply and ground circuits. Communication circuits between AV control unit and AV front display unit.

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Error item	Description	Possible malfunction factor/Action to take
GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.
XM ANTENNA CONN [U1258]	Satellite radio antenna connection mal- function is detected.	Satellite radio antenna disconnection.
USB OVERCURRENT [U1263]	Detection of overcurrent in USB connecter.	Check USB harness between the AV control unit and USB connector.
ANTENNA AMP TERMINAL [U1264]	Radio antenna amp. ON signal circuit mal- function is detected.	Radio antenna amp. ON signal circuit between AV control unit and antenna base.
AMP ON TERMINAL [U1265]	BOSE amp. ON signal circuit malfunction is detected.	BOSE amp. ON signal circuit between AV control unit and BOSE amp.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items are detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B]	When either one of the following items are detected: around view monitor control unit power supply and ground circuits are malfunctioning. AV communication circuits between multifunction switch and around view monitor control unit are malfunctioning.	 Around view monitor control unit power supply and ground circuits. AV communication circuits between multifunction switch and around view monitor control unit.
AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] AROUND CAMERA CONN [U125B]	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

DATA MONITOR

NOTE:

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

ALL SIGNALS

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

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

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

Display Item	Display	Vehicle status	Remarks
	On	Block the light beam from the auto light optical sensor when the light SW is ON.	
ILLUM SIG Of		Expose the auto light optical sensor to light when the light SW is OFF or ON.	_
IGN SIG	On	Ignition switch ON	
	Off	Ignition switch in ACC position	
	On	Selector lever in R position	Changes in indication may be delayed. This is
REV SIG	Off	Selector lever in any position other than R	Changes in indication may be delayed. This is normal.
SIDE VIEW SW	Off	This item is displayed, but cannot be monitored.	_
ROOM LAMP	Off This item is displayed, but cannot be monitored.		_

SELECTION FROM MENU

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

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

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION:

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

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

CONFIGURATION

Configuration includes functions as follows.

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

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DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT) [BOSE AUDIO WITH NAVIGATION]

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DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

On Board Diagnosis Function

INFOID:0000000009061713

The diagnosis function of around view monitor control unit is displayed when selecting "Camera Cont." of Confirmation/Adjustment mode in the multi AV system.

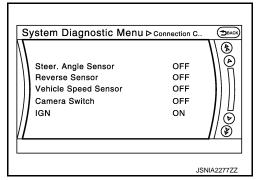
Around view monitor control unit diagnosis item

AV control unit Confirmation/Adjustment mode		djustment mode	Function
	Connection Confirmation		The status of signals input to around view monitor control unit can be checked.
		Rear Camera	Performs the calibration of rear camera.
		Pass-Side Camera	Performs the calibration of side camera RH.
	Calibrating Cam-	Front Camera	Performs the calibration of front camera.
Camera Cont. Fine Tuning of Bird	era Image	Dr-Side Camera	Performs the calibration of side camera LH.
		Initialize Camera Image Calibration*	The calibration can be initialized to NISSAN factory shipment condition.
	Fine Tuning of Birds-Eye View		 The confirmation and adjustment of the difference between each camera can be performed. The system changes to the ZOOM function by the operation of shift and the ZOOM ratio of each camera can be changed.
	Correct Draw Line of Wide View	Rear-Wide View	The position of rear wide view guideline can be changed.

CAUTION:

Connection Confirmation

The status of signals inputted to around view monitor control unit can be checked.



Connection Confirmation item list

Diagnosis item	Display	Description
Steer. Angle Sensor	ON/OFF	 Input status of steering angle sensor is displayed by ON/OFF. When all of steering signals 1, 2, and 3 are input, it is turned ON. It remains ON until connection confirmation mode is stopped.
Reverse Sensor	ON/OFF	Input status of reverse signal inputted to around view monitor control unit is displayed by ON/OFF in real time.
Vehicle Speed Sensor	ON/OFF	 Input status of vehicle speed signal inputted to around view monitor control unit is displayed by ON/OFF. When the vehicle speed signal is input, it is turned ON. It remains ON until connection confirmation mode is stopped.
Camera Switch	ON/OFF	 The status of camera switch signal received via AV communication from NAVI control unit is displayed by ON/OFF. When the camera switch signal is received once, it is turned ON. It remains ON until connection confirmation mode is stopped.
IGN	ON/OFF	Input status of ignition signal inputted to around view monitor control unit is displayed by ON/OFF in real time.

^{*:} Never perform other operations for approximately 10 seconds after performing "Initialize Camera Image Calibration".

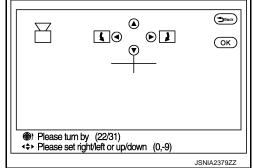
DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT) < SYSTEM DESCRIPTION > [BOSE AUDIO WITH NAVIGATION]

Diagnosis item	Display	Description
ILL	ON/OFF	Input status of illumination signal inputted to around view monitor control unit is displayed by ON/OFF in real time.
Type of Steer. Angle Sensor	Abslt.	The input type of steering angle sensor is displayed. ("Abslt." is displayed on this model.)
Type of Steer. Gear ratio	1	The type of steering gear ratio is displayed. ("1" is displayed on this model.)
Left or Right Steer.	Right/Left	The steering position is displayed.
Rear Camera Image Output signal	OK/NG	The input status of rear camera image signal is displayed by OK/NG in real time.
Rear Camera COMM Status	OK/NG	The communication status with rear camera is displayed by OK/NG in real time.
Rear Camera COMM Line	OK/NG	The status of communication line with rear camera is displayed by OK/NG in real time.
Front Camera Image Output signal	OK/NG	The input status of front camera image signal is displayed by OK/NG in real time.
Front Camera COMM Status	OK/NG	The communication status with front camera is displayed by OK/NG in real time.
Front Camera COMM Line	OK/NG	The status of communication line with front camera is displayed by OK/NG in real time.
Pass-Side Camera Image Output signal	OK/NG	The input status of side camera RH image signal is displayed by OK/NG in real time.
Pass-Side Camera COMM Status	OK/NG	The communication status with side camera RH is displayed by OK/NG in real time.
Pass-Side Camera COMM Line	OK/NG	The status of communication line with side camera RH is displayed by OK/NG in real time.
Dr-Side Camera Image Output signal	OK/NG	The input status of side camera LH image signal is displayed by OK/NG in real time.
Dr-Side Camera COMM Status	OK/NG	The communication status with side camera LH is displayed by OK/NG in real time.
Dr-Side Camera COMM Line	OK/NG	The status of communication line with side camera LH is displayed by OK/NG in real time.

Calibrating Camera Image

- Perform the calibration of camera image caused by the incorrect mounting position of each camera, etc. Always perform calibration after performing the following work.
- When each camera or each camera mount (door mirror, front grille, etc.) is removed
- When replacing around view monitor control unit
- When performing the calibration initialization, it can be set to the NISSAN factory shipment condition.

Refer to <u>AV-428</u>, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Work <u>Procedure</u>" for the calibration procedure.



Adjustment range

Rotating direction : 31 patterns (16 on the center)

Upper/lower direction : -99 - 99Left/right direction : -99 - 99

Calibrating Camera Image item

Items	Description				
Rear Camera	Performs the calibration of rear camera.				
Pass-Side Camera	Performs the calibration of side camera RH.				
Front Camera	Performs the calibration of front camera.				
Dr-Side Camera	Performs the calibration of side camera LH.				
Initialize Camera Image Calibration*	The calibration can be initialized to the factory shipment setting.				

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DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

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CAMERA Push CAMERA to change area

Use DIAL to adjust angle<15/31>

Push ENTER to fix

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⊕ Use arrow keys to adjust position<0,0>

CAUTION:

*: Never perform other operations for approximately 10 seconds after performing "Initialize Camera Image Calibration".

Fine Tuning of Birds-Eye View

- The fine adjustment function of camera calibration can check and adjust the difference between each camera.
- Fine adjustments can be performed for each camera. Move the "+"-mark to select the camera by pressing the "CAMERA" switch.
- Perform the adjustment with the center dial and upper/lower/left/ right switches.

CAUTION:

Operate the center dial slowly because the changing of the screen takes approximately 1 second.

NOTE:

- It can be initialized to the NISSAN factory shipment setting with "Initialize Camera Image Calibration" of "Calibrating Camera Image".
- The adjustment value is cancelled in this mode by performing "Initialize Camera Image Calibration".



Rotating direction : 31 patterns (16 on the center)

Upper/lower direction : -99 - 99Left/right direction : -99 - 99

ZOOM function

- The ZOOM ratio of camera can be changed when calibrating the camera.
- It shifts to ZOOM function mode by shifting the selector lever to a
 position other than the "R" position → "R" position → other than "R"
 position in the "Fine Tuning of Birds-Eye View" mode.
- The changing of ZOOM ratio can be performed for each camera.
 Move the "+"-mark to select the camera by pressing "CAMERA" switch and press the left/right switch to change the ZOOM ratio.

NOTE:

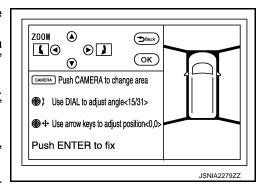
- When the position is not correct in "Fine Tuning of Birds-Eye View" mode, use this "ZOOM" function to adjust it.
- If this function is used, always adjust the upper/lower/left/right position again on the "Fine Tuning of Birds-Eye View" screen.

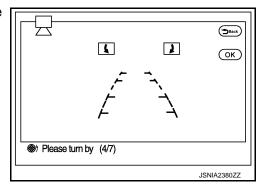
Correct Draw Line of Wide View

The display position of guiding lines when displayed on the rear-wide view can be changed.

Adjustment range

Rotating direction : 7 patterns





Correct Draw Line of Camera Image item

Items	Description		
Rear-Wide View	The position of rear wide view guideline can be changed.		

DIAGNOSIS SYSTEM [SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)]

< SYSTEM DESCRIPTION >

[BOSE AUDIO WITH NAVIGATION]

DIAGNOSIS SYSTEM [SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)]

CONSULT Function (SONAR)

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DESCRIPTION

CONSULT can display each diagnostic item using the diagnostic test modes shown as follows:

Test mode	Function
Ecu Identification	Sonar control unit part number can be read.
Self Diagnostic Result	Sonar control unit checks the conditions and displays memorized error.
Data Monitor	Sonar control unit input/output data in real time.
Active Test	Gives a drive signal to a load to check the operation.
Work support	Changes setting of each function.

ECU IDENTIFICATION

Displays the part number of sonar control unit.

SELF-DIAGNOSTIC RESULTS

For details, refer to AV-397, "DTC Index".

DATA MONITOR

NOTE:

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

Monitor Item	Display	Description			
SONAR OPE	On	Around view monitor is ON. (sonar system is ON)			
SONAR OFE	Off	Around view monitor is OFF. (sonar system is OFF)			
BUZZER OUTPUT	On	Buzzer is output condition.			
BUZZER OUTFUT	Off	Buzzer is not output condition.			
	ERROR	When a sensor is abnormal.			
00 000 100	LV.0	When a sensor is not detection.			
CR SEN [FL] CR SEN [FR] CR SEN [RL]	LV.2	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).			
CR SEN [RR]	LV.3	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).			
	LV.4	The distance between corner sensor and an obstacle less than 40 cm (15.7 in).			

ACTIVE TEST

Active test item	Function
BUZZER	This test is able to check buzzer operation.
SONAR SENSOR	This test is able to check each sonar sensor operation.

WORK SUPPORT

Work support item	Function
CORNER SEN DISTANCE SET	Corner sensor warning buzzer distance is adjustable to 4 phases.

CORNER SEN DISTANCE SET

Corner sensor warning buzzer distance can be set to 4 phases as follows.

DIAGNOSIS SYSTEM [SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)]

< SYSTEM DESCRIPTION >

Warning item	FARTHER	FARTHER FAR		NEAR	
Second warning	70 – 80 cm (27.5 – 31.4 in)	60 - 70 cm (23.6 - 27.5 in)	50 - 60 cm (19.6 - 23.6 in)	40 – 50 cm (15.7 – 19.6 in)	
Third warning	50 - 70 cm (19.6 - 27.5 in)	40 - 60 cm (15.7 - 23.6 in)	30 - 50 cm (11.8 - 19.6 in)	30 – 40 cm (11.8 – 15.7 in)	
Fourth warning	Less than 50 cm (19.6 in)	Less than 40 cm (15.7 in)	Less than 30 cm (11.8 in)	Less than 30 cm (11.8 in)	

The default of this model is "FAR".

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

VALUES ON THE DIAGNOSIS TOOL

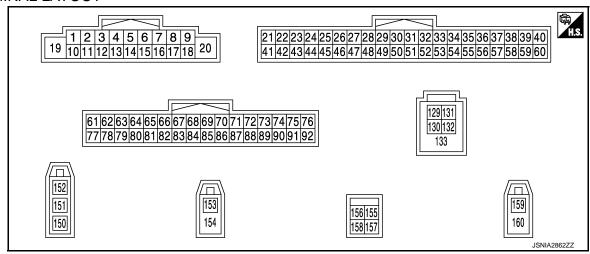
NOTE:

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

CONSULT MONITOR ITEM

Monitor Item		Condition	Value/Status
VHCL SPD SIG	Ignition switch	Vehicle speed > 0 km/h (0 MPH)	On
VHCL SPD SIG	ON	Vehicle speed = 0 km/h (0 MPH)	Off
PKB SIG	Ignition switch	Parking brake is applied.	On
PND SIG	ON	Parking brake is released.	Off
ILLUM SIG	Ignition switch	Light switch ON	On
ILLUIVI SIG	ON	Light switch OFF	Off
IGN SIG	Ignition switch ON	_	On
IGN SIG	Ignition switch ACC	_	Off
REV SIG	Ignition switch ON	Selector lever in R position	On
KEV 3IG		Selector lever in any position other than R	Off
SIDE VIEW SW	Ignition switch ON	This item is displayed, but cannot be monitored.	Off
ROOM LAMP	Ignition switch ON	This item is displayed, but cannot be monitored.	Off

TERMINAL LAYOUT



PHYSICAL VALUES

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< ECU DIAGNOSIS INFORMATION >

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

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

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	minal color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
				Keep pressing VOL DOWN switch.	0 V	
16	15	Ctacring quitch signal D	lmmust	Ignition	Keep pressing VOL UP switch.	1.0 V
(L)	(B)	Steering switch signal B	Input	switch ON	Keep pressing 🗸 switch.	2.0 V
					Keep pressing 5 switch.	3.0 V
					Except for above.	5.0 V
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
20 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
29		8:1 :		Ignition	Pressing the eject switch.	0 V
(Y)	Ground	Disk eject signal	Input	switch ON	Except for above.	5.0 V
30			0	Ignition	Driver's Audio Stage ON	0 V
(SB)	Ground	Mode change signal	Output	switch ON	Driver's Audio Stage OFF	8.5 V
49 (B)	Ground	Switch ground	_	Ignition switch ON	_	0 V
65				Ignition	Parking brake is ON.	4.5 V
(V)	Ground	Parking brake signal	Input	switch ON	Parking brake is OFF.	0 V
67 (G)	Ground	Composite image signal ground	_	Ignition switch ON	_	0 V
68 (R)	Ground	Composite image signal	Output	Ignition switch ON	At DVD image is displayed.	0. 4 0 -0. 4 -0. 4 -0. 4 -0. 4
71	_	Microphone shield	_		_	_
72 (R)	Ground	Microphone VCC	Output	Ignition switch ON	_	5.0 V
73 (R)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 1ms PKIB5039J
74 (P)	_	CAN-L	Input/ Output	_	_	_
75 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_

Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
76 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
79	Cround	Illumination aignal	Innut	Ignition	Lighting switch is OFF.	0 V
(R)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12.0 V
80 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
81 (BG)	Ground	Reverse signal	Input	Ignition switch	R position. Other than R position.	12.0 V 0 V
82 (R)	Ground	Vehicle speed signal (8- pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	NOTE: Maximum voltage may be 12.0 \ due to specifications (connected units).
83	_	Shield	_		_	_
87 (G)	71	Microphone signal	Input	Ignition switch ON	Give a voice.	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0 PKIB5037J
89 (G)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 +-1ms PKIB5039J
90 (L)	_	CAN-H	Input/ Output	_	_	_
91 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
92 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
129 (G)	_	USB ground	_	_	_	_
130 (R)	_	USB D- signal	Input/ Output	_	_	_
131 (W)	_	V BUS signal	Output	_	_	_

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
132 (L)	_	USB D+ signal	Input/ Output	_		_
133	_	Shield	_	_	_	_
150	_	FM sub	Input	_	_	_
151	_	AM-FM main	Input	_	_	_
152	Ground	Antenna amp. ON signal	Input	Ignition switch ON	_	12.0 V
153	Ground	GPS antenna signal	Input	Ignition switch ON	Not connected GPS antenna connector.	5.0 V
154	_	Shield	_	_	_	_
157	Ground	RGB digital image signal (-)	Output	Ignition switch ON	Not connected connector.	1.3 V
158	Ground	RGB digital image signal (+)	Output	Ignition switch ON	Not connected connector.	1.3 V
159	Ground	Satellite antenna signal	Input	Ignition switch ON	Not connected to satellite antenna connector.	5.0 V

Fail-Safe

When the ambiance temperature becomes extremely low or extremely high, AV control unit displays the message and limits the AV control unit function.

FAIL-SAFE CONDITIONS

When the ambiance temperature is –20°C (–4°F) or lower, or when it is 70°C (158°F) or higher

Display

The messages displayed on fail-safe conditions are as shown below:

Fail-safe mode	Display (display of the fail-safe condition)
When HDD temperature is low	HDD system is experiencing problems due to extreme low temperature. Normal operation will resume when temperature rises.
When HDD temperature is high	HDD system is experiencing problems due to extreme high temperature. Normal operation will resume when temperature drops.

DESCRIPTION OF CONTROLS

Function		When Fail-safe Function is activated			
	Operation	Only multifunction switch (preset switch) can be operated.			
Air conditioner	Display	 LED of multifunction switch (preset switch) illuminates. Aimed temperature, blow angle, and flow rate are displayed in simplified mode. 			
Audio	Operation	Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible.			
Audio	Display	No display ("Fail-safe mode" is displayed)			
Camera	Operation	Image tone cannot be controlled.			
Calliela	Display	Cannot be superimposed. (warning display, tone control display)			
Hands-free phone Operation Cannot be operated.		Cannot be operated.			
Navigation Operation Cannot be operated.					

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< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

Function	When Fail-safe Function is activated
Self diagnosis	The display in simplified mode of fail-safe condition
CONSULT diagnosis	Cannot be operated.

Ability Operation Mode

There is an ability operation mode for Fail-safes due to low or high ambiance temperature.

If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

RELEASE CONDITIONS OF FAIL-SAFE

Fail-safe is released on following conditions and normal mode is restored.

When The Temperature of HDD Is Low or High

If the ambient temperature becomes out of fail-safe condition range, normal mode is restored.

DTC Index

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-434, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-435, "DTC Logic"
U1200	Cont Unit [U1200]	AV-436, "DTC Logic"
U1201	GYRO NO CONN [U1201]	AV-437, "DTC Logic"
U1202	G-SENSOR NO CONN [U1202]	AV-438, "DTC Logic"
U1204	GPS COMM [U1204]	AV-439, "Diagnosis Procedure"
U1205	GPS ROM [U1205]	AV-440, "Diagnosis Procedure"
U1206	GPS RAM [U1206]	AV-441, "Diagnosis Procedure"
U1207	GPS RTC [U1207]	AV-442, "Diagnosis Procedure"
U1216	CAN CONT [U1216]	AV-443, "DTC Logic"
U1217	BLUETOOTH MODULE [U1217]	AV-444, "DTC Logic"
U1218	HDD CONN [U1218]	AV-445, "DTC Logic"
U1219	HDD READ [U1219]	AV-446, "DTC Logic"
U121A	HDD WRITE [U121A]	AV-447, "DTC Logic"
U121B	HDD COMM [U121B]	AV-448, "DTC Logic"
U121C	HDD ACCESS [U121C]	AV-449, "DTC Logic"
U121D	DSP CONN [U121D]	AV-450, "Diagnosis Procedure"
U121E	DSP COMM [U121E]	AV-451, "Diagnosis Procedure"
U1225	USB CONTROLLER [U1225]	AV-452, "DTC Logic"
U1227	DVD COMM [U1227]	AV-453, "Diagnosis Procedure"
U1228	SUB CPU CONN [U1228]	AV-454, "DTC Logic"
U1229	iPod CERTIFICATION [U1229]	AV-455, "DTC Logic"
U122A	CONFIG UNFINISH [U122A]	AV-456, "Diagnosis Procedure"
U122E	Built-in AUDIO CONN [U122E]	AV-457, "DTC Logic"
U1232	ST ANGLE SEN CALIB [1232]	AV-458, "Diagnosis Procedure"
U1243	FRONT DISP CONN [U1243]	AV-459, "Diagnosis Procedure"
U1244	GPS ANTENNA CONN [U1244]	AV-461, "Diagnosis Procedure"
U1258	XM ANTENNA CONN [U1258]	AV-462, "Diagnosis Procedure"
U1263	USB OVERCURRENT [U1263]	AV-463, "Diagnosis Procedure"
U1264	ANTENNA AMP TERMINAL [U1264]	AV-464, "Diagnosis Procedure"

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

DTC	Display item	Refer to
U1265	AMP ON TERMINAL [U1265]	AV-465, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-467, "DTC Logic"
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	AV-466, "Description"
U1300 U125B	AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B]	AV-466, "Description"
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	AV-466, "Description"
U1300 U1240 U125B	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] AROUND CAMERA CONN [U125B]	AV-466, "Description"

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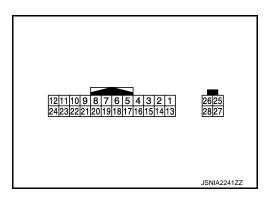
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DISPLAY UNIT

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
6	_	Shield	_	_	_	_
7	_	Shield (camera image signal ground)	_	-	_	_
8 (W)	Ground	Camera image signal	Input	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 SKIB2251J
9 (G)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0
10 (R)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + 1ms PKIB5039J
11 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
12 (B)	Ground	Ground	_	Ignition switch ON	_	0 V

DISPLAY UNIT

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

	minal color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
18 (R)	Ground	Composite image signal	Input	Ignition switch ON	At DVD image is displayed.	(V) 0. 4 0 -0. 4 -40μs SKIB2251J
19 (G)	Ground	Composite image signal ground	_	Ignition switch ON		0 V
22	_	Shield	_	_	_	_
23 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
27	_	RGB digital image signal (–)	Input	_	_	_
28	_	RGB digital image signal (+)	Input	_	_	_

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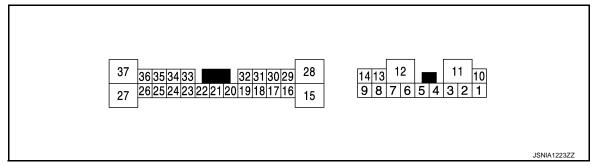
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BOSE AMP.

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	minal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
1 (Y)	10 (G)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
2 (SB)	3 (V)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
4 (B)	5 (P)	Sound signal front door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
6 (L)	7 (W)	Sound signal front squawker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	

BOSE AMP.

	minal e color)	Description		Condition		Reference value (Approx.)	
+	_	Signal name	Input/ Output				
8 (LG)	13 (Y)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 ****2ms SKIB3609E	
9 (G)	14 (R)	Sound signal woofer and rear squawker (LH and RH)	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
11 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
12 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
15 (B)	28 (G)	Sound signal center speak- er	Output	Ignition switch ON	Sound output.	(V) 0 -1 + 2ms SKIB3609E	
17 (W)	Ground	Mode change signal	Input	Ignition switch	Driver's Audio Stage ON	0 V	
(۷۷)				ON	Driver's Audio Stage OFF	8.5 V	
18 (R)	32 (G)	Sound signal front LH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	
19 (P)	20 (L)	Sound signal front RH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	

BOSE AMP.

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
21 (BR)	22 (Y)	Sound signal rear LH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 × 2ms SKIB3609E	
23 (V)	33 (SB)	Sound signal rear RH	Input	Ignition switch ON	Sound output.	(V) 1 0 -1 *** 2ms SKIB3609E	
25 (GR)	Ground	Woofer amp. ON signal	Output	Ignition switch ACC	_	12.0 V	
31 (W)	Ground	BOSE amp. ON signal	Input	Ignition switch ACC	_	12.0 V	
37 (BR)	27 (R)	Sound signal front squawk- er RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 ** 2ms SKIB3609E	

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

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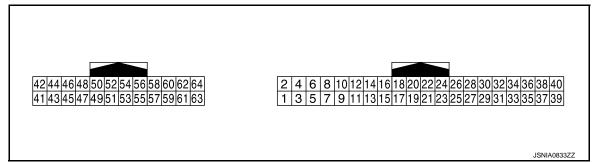
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AROUND VIEW MONITOR CONTROL UNIT

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	rminal e color)	Description			Condition	Reference value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
2 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
3 (P)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
4 (GR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
5	0	IIIi. atia a aisaa a	la a cot	Ignition	Lighting switch is OFF.	0 V	
(BG)	Ground		switch OFF	Lighting switch is ON.	12.0 V		
6 (SB)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH).	NOTE: The maximum voltage varies depending on the specification (destination unit).	
7 (V)	Ground	Reverse signal	Input	Ignition switch	Shift the selector lever to "R" position. Shift the selector lever other	12.0 V	
(*/				ON	than "R" position.	0 V	
9 (V)	Ground	Control signal	_	Ignition switch ON	_	0 V	
13 (B)	Ground	Control signal	_	Ignition switch ON		0 V	

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< ECU DIAGNOSIS INFORMATION >

	rminal e color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output			(Approx.)
17 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
18 (LG)	_	AV communication signal (L)	Input/ Output	_		_
21 (SB)	_	AV communication signal (H)	Input/ Output	_	_	_
22 (LG)	_	AV communication signal (L)	Input/ Output	_	_	_
23 [*] (LG)	_	_	_	_	_	_
24 [*] (G)	_	_	_	_	_	_
27 (W)	Ground	Camera image signal	Output	Ignition switch ON	At camera image is displayed.	(V) 0. 4 0 -0. 4 -0. 4 SKIB2251J
28	_	Shield (camera image signal ground)	_	_	_	_
29 (Y)	30 (G)	Side camera RH image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 +40 μs JSNIA0834GB
31	_	Shield			<u> </u>	_
32 (B)	Ground	Side camera RH ground	_	Ignition switch ON	_	0 V
33 (W)	Ground	Side camera RH communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 μs JSNIA0836GB
34 (R)	Ground	Side camera RH power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V
35 (L)	Ground	Rear camera communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 JSNIA0836GB

< ECU DIAGNOSIS INFORMATION >

Terminal (Wire color) Description			Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)
36 (BR)	Ground	Rear camera power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V
37	_	Shield	_	_	_	_
38 (R)	Ground	Rear camera ground	_	Ignition switch ON	_	0 V
39 (Y)	40 (W)	Rear camera image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 -40 μ s JSNIA0834GB
41 (Y)	42 (G)	Front camera image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 40 μs JSNIA0834GB
43	_	Shield	_	_	_	_
44 (B)	Ground	Front camera ground	_	Ignition switch ON	_	0 V
45 (W)	Ground	Front camera communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 µs JSNIA0836GB
46 (R)	Ground	Front camera power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V
47 (L)	Ground	Side camera LH communication signal	Input/ Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 μs JSNIA0836GB
48 (BR)	Ground	Side camera LH power supply	Output	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	6.0 V
49	_	Shield				

< ECU DIAGNOSIS INFORMATION >

	minal e color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
50 (R)	Ground	Side camera LH ground	_	Ignition switch ON	_	0 V
51 (Y)	52 (W)	Side camera LH image signal	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 40 μ s JSNIA0834GB

^{*:} This harness is not used.

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

< ECU DIAGNOSIS INFORMATION >

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SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

Reference Value

VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

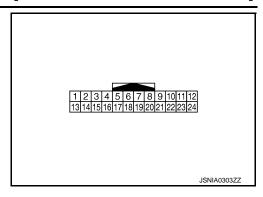
Monitor Item		Condition	Value/Status
	Ignition switch	Around view monitor operating (sonar operating).	On
SONAR OPE	ON ON	Around view monitor non-operating (sonar non-operating).	Off
BUZZER OUTPUT	Ignition switch	Buzzer is output condition.	On
BOZZEN OOTFOT	ON	Buzzer is not output condition.	Off
		When a sensor is abnormal.	ERROR
		When a sensor is not detection.	LV.0
CR SEN [FL]	Ignition switch	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
	ON	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4
		When a sensor is abnormal.	ERROR
		When a sensor is not detection.	LV.0
CR SEN [FR]	Ignition switch	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
	ON	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4
		When a sensor is abnormal.	ERROR
		When a sensor is not detection.	LV.0
CR SEN [RL]	Ignition switch	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
	ON	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4
		When a sensor is abnormal.	ERROR
		When a sensor is not detection.	LV.0
CR SEN [RR]	Ignition switch	The distance between the corner sensor and an obstacle is 60 cm (23.6 in) or more and less then 70 cm (27.5 in).	LV.2
51. <u>0-11 [</u> 11.1]	ON	The distance between the corner sensor and an obstacle is 40 cm (15.7 in) or more and less then 60 cm (23.6 in).	LV.3
		The distance between corner sensor and an obstacle less than 40 cm (15.7 in).	LV.4

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

< ECU DIAGNOSIS INFORMATION >

[BOSE AUDIO WITH NAVIGATION]

TERMINAL LAYOUT



PHYSICAL VALUES

	nal No. e color)	Description		Condition		Value (Approx.)	
+	_	Signal name	Input/ Output				
3 (R)	12 (B)	Corner sensor signal front LH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 **10ms	
4 (W)	12 (B)	Corner sensor signal front RH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 10ms JSNIA0837GB	
5 (W)	12 (B)	Corner sensor signal rear LH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 **10ms	
6 (R)	12 (B)	Corner sensor signal rear RH	Input	Ignition switch ON	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 → 10ms JSNIA0837GB	
12 (B)	Ground	Sensor ground	_	Ignition switch ON	_	0 V	
13 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
18 (V)	_	K-line (CONSULT)	_	_	_	_	

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR) NOSIS INFORMATION > [BOSE AUDIO WITH NAVIGATION]

< ECU DIAGNOSIS INFORMATION >

	nal No. e color)	Description			Condition	Value
+	_	Signal name	Input/ Output		Condition	(Approx.)
19 (G)	_	AV communication signal (H)	Input/ Output	_	_	_
20 (R)	_	AV communication signal (L)	Input/ Output	_	_	_
24 (B)	Ground	Ground	_	Ignition switch ON	_	0 V

Fail-Safe

- Sonar control unit has diagnosis function which can detect corner sensor malfunction and sensor harness disconnection.
- It transmits the malfunction status to around view monitor control unit and informs the malfunction to the user by displaying continuously red sonar indicator.

DTC Index

DTC	Display item	Malfunction is detected when	Reference
B2700	CORNER SENSOR [FL] [B2700]	Corner sensor front LH is malfunctioning.	AV-468, "DTC Logic"
B2701	SENSOR HARNESS OPEN [CR-FL] [B2701]	Corner sensor front LH harness circuit is open.	AV-469, "Diagnosis Procedure"
B2702	CORNER SENSOR [FR] [B2702]	Corner sensor front RH is malfunctioning.	AV-470, "DTC Logic"
B2703	SENSOR HARNESS OPEN [CR-FR] [B2703]	Corner sensor front RH harness circuit is open.	AV-471, "Diagnosis Procedure"
B2704	CORNER SENSOR [RL] [B2704]	Corner sensor rear LH is malfunctioning.	AV-472, "DTC Logic"
B2705	SENSOR HARNESS OPEN [CR-RL] [B2705]	Corner sensor rear LH harness circuit is open.	AV-473, "Diagnosis Procedure"
B2706	CORNER SENSOR [RR] [B2706]	Corner sensor rear RH is malfunctioning.	AV-474, "DTC Logic"
B2707	SENSOR HARNESS OPEN [CR-RR] [B2707]	Corner sensor rear RH harness circuit is open.	AV-475, "Diagnosis Procedure"

NOTE:

- "TIME" means the following.
- 0: Means detected malfunction at present. (From malfunction detection to turning ignition switch OFF)
- 1–39: Means detected malfunction in past.

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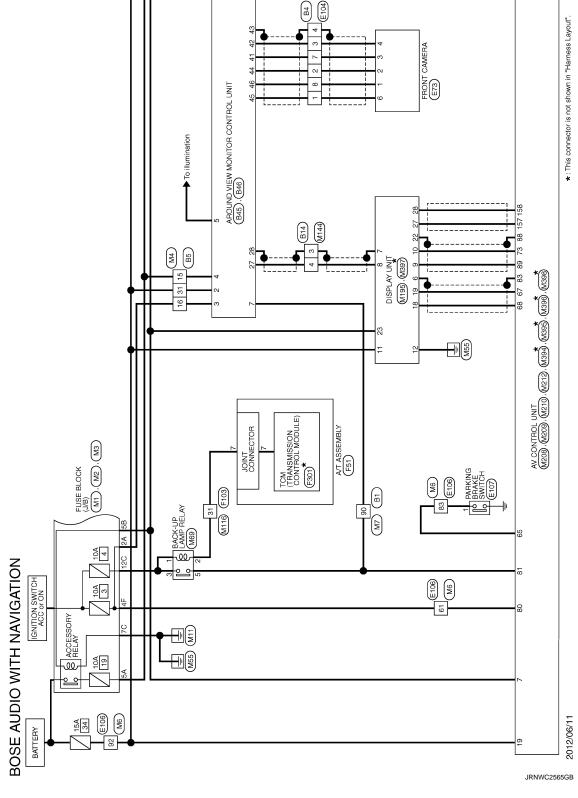
WIRING DIAGRAM

BOSE AUDIO WITH NAVIGATION

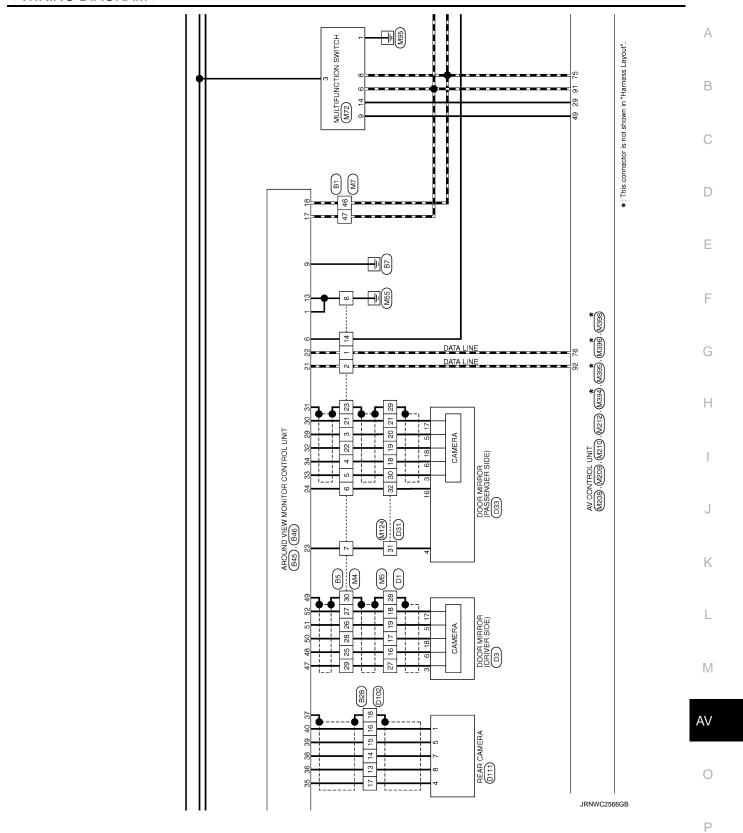
Wiring Diagram

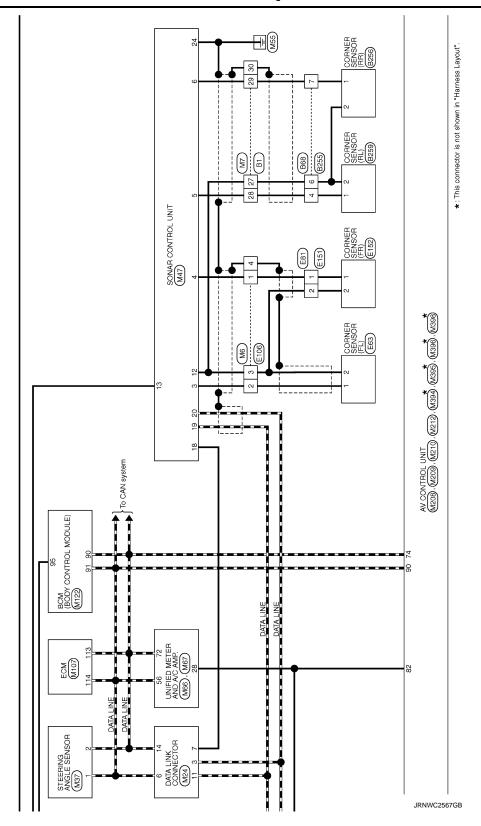
NOTE:

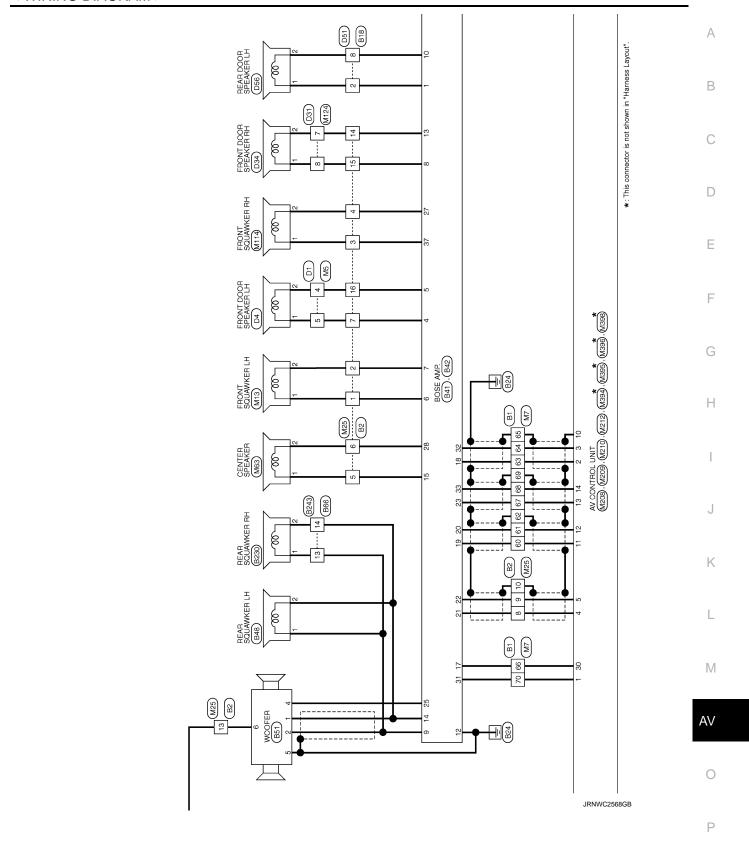
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

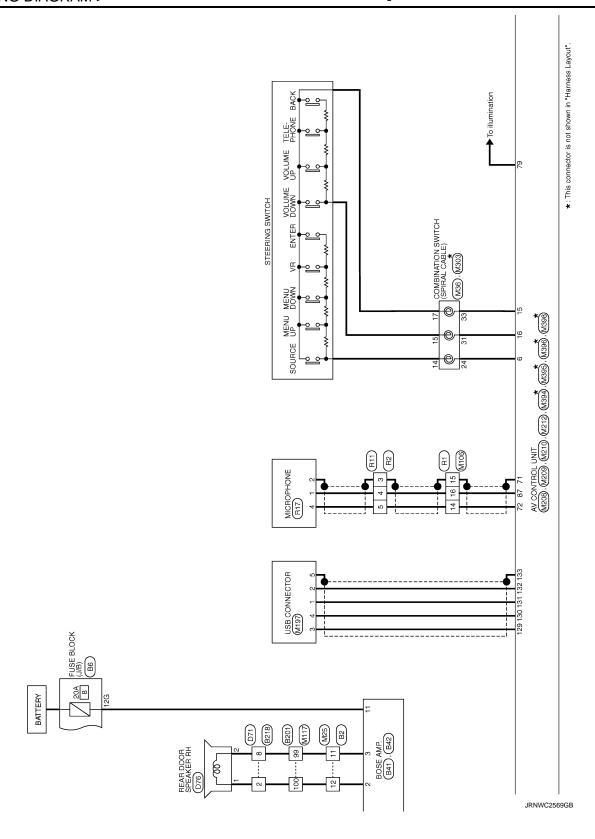


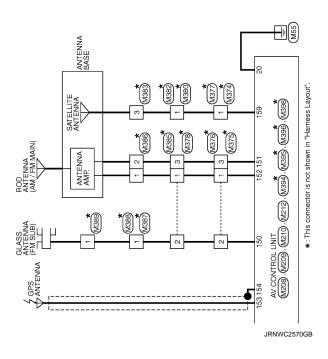
[BOSE AUDIO WITH NAVIGATION]











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< WIRING DIAGRAM >

Corrector No. 642 Corrector Type SGA12FBR-SJA2 H.S. 14 3 12 11	Terminal Code of Signal Name (Specification)	Edor Type TP2AFW.NH	12 4 46 46 52 52 62 63 64 64 64 64 64 64 64 64 64 64
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Corrector No. 618 Corrector Type NHT0FW-CS10 6 5 4	Terminal Color Of Signal Name (Specification) No. Wire Wire Signal Name (Specification) 2	Corrector No. 828 Corrector Name WIRE TO WIRE Corrector Type ITR24MW-NH 1 3 4 5 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Terminal Color Of Signal Name [Specification] No. Wire 1 GR
SOSE AUDIO WITH NAVIGATION 30 SHELD	H.S.	Connector No. B14 Connector Name WIRE TO WIRE Connector Type TH04FW-NH H.S.	Ferminal Color Of Signal Name (Specification) No. Wire Specification No. Wire Specification No. Wire Specification Specification No. Wire Specification Specification

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Connector No 1866	Law Children	WIRE TO WIRE	Connector Type TH24MW-NH Connector Type TH80FW-CS16-TM4		H.S. (12 3) (12 13) (13) (14) (15) (15) (15) (15) (15) (15) (15) (15	Terminal Color Of	No. Wire Signal Name [Specification] No. Wire Signal Name [Specification] 1 Vir. Wire Signal Name [Specification] 1 Vir	3 8	13 L - 4 BG - 14 W 7 IG - 15 I	10 10	16 BR - 15 SB - 17 BG - 16 V - 18 C -	71 - d	26 BR	- - >	250	WIRE IO WIRE	œ (32 BK	o ec		Н	w 25 W		90	Signal Name [Specification] 61	1 G 62 BR .	2 B 63 P	- 64	4 R 65 G	- d 99	7 29 - M 2	- 88 SHIELD	^ 69	
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40 W REAR CAMERA IMAGE GND		- 1	Connector No. B48	Connector Name REAR SQUAWKER LH Connector Type TK02FBR		H.S.		Terminal Color Of Signal Name [Specification]	1 L	┨	Connector No. 1851	-	П	Connector Type RS06FGY-PR	_	Ę	0 4 6				la O	0	2 SOUND SIGNAL WOOFER (-)	GR G	<u> </u>	6 V BATTERY								
AVIGATION		SHELD	Т	Connector Name	Connector No. 1846 Connector Name Arouno VEW MONITOR CONTROL UNIT	THOPWANT H.S.		Terminal Color Of No. Wire	H	┨	Γ	GROUND	COLLECCO TABLE	Connector Type	ILLUMINATION SIGNAL	VEHICLE SPEED SIGNAL (8-PULSE)		CONTROL SIGNAL	\	AV COMM (L)	Terminal Color Of	No. Wire	<u>د</u> ره	GE SIGNAL 4 GR	SE SIGNAL GND 5 B	^	SIDE CAN	SHIELD SHIELD	SIDE CAMERA RH GND	SIDE CAMERA RH COMM	SIDE CAMERA RH POWER SUPPLY	REAR CAMERA COMM	REAR CAMERA POWER SUPPLY	STIELD STIELD

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Corrector No. B259 Corrector Name CORNER SENSOR (RL) Corrector Type Y DX02FB	Terminal Color Of Signal Name (Specification) No. Wise Wise	<u></u>	16 W W W W W B G W W W W W B G W W W W W W
Corrector No. B255 Corrector Name WIRE TO WIRE Corrector Type RH08FB	Terminal Color Of New Signal Name (Specification) New New Signal Name (Specification) 2	Cornector No. B256 Cornector Name CORNER SENSOR (RR) Cornector Type YDX02FB H.S. Terminal Color Of Signal Name (Specification) No. Wive Signal Name (Specification) 1 R	
Corrector No. 8230 Corrector Name REAR SOLAWKER RH Corrector Type TK02FBR	Of Signal Na B243 WIRE TO WIRE TH24FW-NH	H.S. Terminal Color Of Nurse Signal Name (Specification) 13 2 1 18 13 14 13 14 13 14 13 14 13 14 13 14 13 14 14	
BOSE AUDIO WITH NAVIGATION 73 BR	987 L	Connector Name WIRE TO WIRE Connector Name WIRE TO W	

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Corrector Name Concept Name Co	BOSE AUDIO WITH NAVIGATION		Connector No.	D3	Connector No.		D31	Connector No.	D33
Terminal Color Off No. Winder Connector Type THEAMW-NH		<u>8</u>	nnector Name		Connect		WIRE TO WIRE	Connector Name	
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Connector No. D111	Connector Name REAR CAMERA	Connector Type TH08MW-NH	H.S.	Terminal Color Of
Connector No. D102	Connector Name WIRE TO WIRE	Connector Type TH24FW-NH	H.S. (2) (2) (3) (4) (4) (4) (4) (4) (5) (4) (4) (5) (4) (4) (5) (4) (4) (5) (4) (5) (4) (5) (4) (5) (4) (5) (5) (4) (5) (5) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6	Terminal Color Of Signal Name (Specification) 1
Connector No. D71	Connector Name WIRE TO WIRE	Connector Type NH10MW-CS10	H.S. 7 8 6 19 20	Terminal Color Of Signal Name Specification Name Wire Wire
BOSE AUDIO WITH NAVIGATION Connector No. D51	Connector Name WIRE TO WIRE	Connector Type NH10MW-CS10	7 8 7 6 9 8 0 20 0 20 0 20 0 20 0 20 0 20 0 20	Terminal Color Of Signal Name (Specification)

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BOSE AUDIO WITH NAVIGATION								
Connector No. E73	Connector No. E104	12	BG			74 L		- [Without ICC]
Commentar Name EDONT CAMEDA	DAIN OT BOWN AND TO WINDS	13	٦		_	75 G	9	- [With ICC]
COLLECTOR MAINE CONTENTS		14	Н		_		^	- [Without ICC]
Connector Type RH06FB	Connector Type NS12MW-CS	15	Ь	•	_	W 97	^	- [With ICC]
		16	H		_	λ 9		- [Without ICC]
		17	SB.			77 P		- [Without ICC]
		18	>		_	77 R	~	- [With ICC]
K	4 9 9	50	8		_	78 BR	œ	- [Without ICC]
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No. Wire Signal Marile [Specification]	No. Wire oightal harrie topecincation	56	^			2 SB	В	
1 R FRONT CAMERA POWER SUPPLY	1 W -	27	W		8	83 B(9	-
Н	2 BR -	28	9	-	80	4 G		-
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6 W FRONT CAMERA COMM		33	В			87 V	^	
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Corrector No. M1 Corrector Name FUSE BLOCK (J/B)	NS06FW-M2 3A 24 1A	Terminal Color Of Signal Name Specification 1.0 Wire Signal Name Specification 1.0 Wire Signal Name Specification 1.0 Signal Name 1.0 Signal Name
29 LG	++++++	
Connector No. F51 Connector Name AT ASSEMBLY	Corrector Type RK10FG-DGV 5 4 3 2 1 1 1 1 1 1 1 1 1 1	Terminal Color Of
BOSE AUDIO WITH NAVIGATION Connector No. E151 Connector Name WIRE TO WIRE	Corrector Type RS02FB	Terminal Color Of Wire Signal Name Specification

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BOSE AUDIO WITH NAVIGATION								
Connector No. M3	\dashv		┪	. ·		10	£	
Connector Name FLISE BLOCK (J/B)	25 R		┪	SHIELD -		7	BR	
		-	59	Υ .		12	BG -	
Connector Type NS12FW-CS	_	-	Н	٠ -		13		
		-	31	R .		14		
	29 W			BR .		15	٠.	
	30 SHIELD		Н	SB -		16	۸ .	
	31 Y		34	٠.		17	- as	
ŀ			H	· d		18	^	
126 116 106 9C 7C 8C			36	. 91		50	BG .	
	Connector No.	M5	┝	BR -		21	-	
	Company Nome	adiwi OF adiwi	38	- Н		22	w	
al Color Of	Connector Name		┝	BG .		23		
No. Wire olginal Name [opecinication]	Connector Type	TH40MW-CS15	40	SB .		24	BR .	
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ш	_		_			56	^	
		20 20 00 00 00 00 00 00 00 00 00 00 00 0	Н	BR .		27		
- BC R -		16	44	·		28	9	
7C B -	S E	第 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	H			31	- 7	
98 96	į	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	46	SB - [With automatic drive positioner]	_	32	9	
			46	V - [Without automatic drive positioner]	er]	33		
			49			34	w	
Connector No. M4	Terminal Color Of		20			32	~	
L CHANGE CHANGE	No. Wire	Signal Name [Specification]	25			Г	SHIELD -	
Collinector Natine WITNE O WITNE	←		23			37	^	
Connector Type TH32FW-NH	2 B		H	. 97			BG .	
	3 BR	-	25	SB -		39	BR -	
	4 P						- M	
		-			_	Н	BG -	
	9	•	Connector No.). M6		43	BG .	
80	7 R		Complete Monte	adiw of adiw		45		
31 30 28 27 38 25 24 23 22 21				WINE IO WINE		49	- T	
	<u>ග</u>		Connector Type	pe TH80MW-CS16-TM4		20		
	10 L					51	BR	
Terminal Color Of	11 G		_			54	· .	
No. Wire Signal Marrie [Specification]	12 ^		_	x x x x x x x x x x x x x x x x x x x		57	9	
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2 SB -	7		Ę			99	1	
3 ×	15 W		2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		19	9	
4 R	16 R					62	SB	
┝	┝					63	9	
9	╀		Terminal Color Of		Γ	49		
t	╀		S S	Wire Signal Name [Specification]	_	92	*	
80	20		t			99	~	
14 V	21 LG		2		Ι	67 S	SHIELD	
15 V -	H		m			89	, ,	
W 91	+		Т	SHELD	T	+	85	
╁	╀		Т	9	I	t	97	
22 B	25 GR		╀		Τ	7.1	91	
23 SHIELD -	26 R		Н	BR -	П	72	Υ .	

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Connector No. M24	OATA LINE CONNECTOR	П	Connector Type BD16FW	,			1	7				nal Color Of	Wire	t	t	0 0	+	: ۱	+	+	11 SB	4	7 \			Connector No. M25	TOWN OF HOME		Connector Type NS16MW-CS		•	IL	1 2 3	6	0			Terminal Color Of Signal		+	+	>	4 LG	H	(c)	+	\dashv	8 BR	★ 6	10 SHIELD	- 6
					•																			M13	H I GENTAL Nome PROGE	I KOM SCOMMEN EI	TK02FBR					2 1				Signal Name [Specification]	Transport of the same of the s														
H	W	Н	+	+	¥ 6	+	<u>ا</u>	+	+	\dashv	BR	_	O	╀	ľ	+	+	+	4	8	\dashv			Connector No.	offer Name	actor ivaline	Connector Type		7	•	Į	É	Ź			la C	+	_	┨												
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9	ognan varne [opecincation]	- [With automatic drive positioner]	 [Without automatic drive positioner] 		•					,						,		•	•	,					-		i		i							-			1	•	-		•			•					
Terminal Color Of	Wire	SB	Α.	o į	BG:	\$ (a 5	g :	9]	>	G	≥	SB	97	ä	1000	OI II C	- :	>	20	8	œ	SHELD	٦	Ь	SB	٦	Д	7	а.	R	>	_	GR	91	SB	>	ď	۵.	ا ا	SHELD	¥	O	SHELD	ď	3	>	re	SHELD	8	: (
Terminal	No.	3	က	2	9 1	٠	× 9	7 5	2	4	12	17	18	19	20	2 5	7 8	77	74	27	58	58	30	31	32	33	34	32	36	37	38	38	44	45	46	47	46	20	90	61	79	3	49	92	99	3 8					
73 SB -	- [With ICC]	- [Without ICC]		- [Without ICC]	- [With ICC]	- [without ICC]	- [with ICC]	- [with ICC]	- [Without ICC]	- [Without ICC]	- [With ICC]								•	1			•			•	•					1			M7	WIRE TO WIRE		TH80MW-CS16-TM4			X X X X X X X X X X		3 2		7 7 7						
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JDIO WITH N - [With B			46 BG 47 G	SUNLOAD SENSOR SIGNAL ENAUST GAS / GUTSECTHOS SENSOR SIGNAL
SB - [With BOSE audio]	Connector Name SONAR CONTROL UNIT	Connector Name UNIFIED METER AND A/C AMP.	+	IGNITION POWER SUPPLY
Υ.	Connector Type TH24FW-NH	Connector Type TH40FW-NH	Н	BATTERY POWER SUPPLY
· ·	•	•	55 B	GROUND
2 a			20 P	BRAKE FILID LEVEL SWITCH SIGNAL
			╀	FUEL LEVEL SENSOR GROUND
	3 4 5 6 12	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Н	INTAKE SENSOR GROUND
Connector No. M36	13 18 19 20 24			IN-VEHICLE SENSOR GROUND
Connector Name COMBINATION SWITCH (SPIRAL CABLE)			61 BR	AMBIENT SENSOR GROUND
Connector Type TK08FGY-1V	Terminal Color Of	Terminal Color Of	+	SOURCARD SERVICE GROOMS
1		Wire	F	ECV SIGNAL
	3 R CORNER SENSOR SIGNAL FRONT LH	Н	Н	A/C LAN SIGNAL
	+	A VEHICLE SPEED SIGNAL (3-PIII SE)	S 17	GROUND GROUND
	: a	as:	+	CACCAC
	· m	>	1	
	13 V ACC	11 G NON-MANUAL MODE SIGNAL		
	۸	BR COMMU	Connector No.	M69
Terminal Color Of Signal Name (Specification)	9	_	Connector Name	BACK-UP LAMP RELAY
e e	W (>		
- G	24 B GROUND	25 V MANUAL MODE SHIFT DOWN SIGNAL	Connector Type	MS02FL-M2-LC
G &		2 02	-	
- L	Connector No. M63	ź >		3
		34 Y COMMUNICATION SIGNAL (AMPLCD)		20
		38 P BLOWER MOTOR CONTROL SIGNAL	S E	, <u>,</u> , ,
. 9	Connector Type TK02FBR		5	
		Connector No. M67		
Connector No. M37		Connector Name INIEEED METER AND A/C AMD	la l	Signal Name [Specification]
STEEPING ANGLE SENSOR]		No. Wire	figure laborated of the control of t
THOSEW-NH	H.S.	Connector Type TH32FW-NH	1 2 W	
			ж Ж	
	0 - 0 - 0 - 1 - 1		5 BG	-
	I erminal color Of Signal Name [Specification] No. Wire	41 42 43 44 45 46 47		
7 2 8	t	57 58 58 68 68 68 68 68 78 78 78		
į	2 6 .			
		Terminal Color Of		
Terminal Color Of Simpl Name (Specification)		No. Wire Signal Name [Specification]		
Wire Ognal Marie [Specification]		>		
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		× 5		
B GROUND		9		
lein e		45 P AMBIENI SENSOR SIGNAL		

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BOSE AUDIO WITH NAVIGATION Commedian No. M72	13	. 91	126	BR	ASCD/ICC BRAKE SWITCH	33	В	
	╁	R - [With NAVI]	127	В	ECM GROUND	35	В	
Connector Name MOLITPUNCTION SWITCH	14 Y	- [Without NAVI]	128	В	ECM GROUND	32	7	
Connector Type TH16FW-NH	σ,	- OTE				38	۵.	•
•	+			Γ		'n	, (
	+		Connector No.		11.14	g :	ם פ	
	82		Connect	Connector Name	FRONT SQUAWKER RH	54	-	
			toonac	Toppoortor Type	TKOZEBB	4 4	- a	
0	Connector No	M407	3		NOZI BIX	46	á	
1 3 5 9 1		1	_	7		2	3	
	Connector Name			4				
al Color Of	Connector Type	e RH24FGY-RZ8-R-LH-Z	_		<u> </u>	Connector No.	Г	M117
No. Wire Signal Marine [Specification]			7	<u> </u>	2 1	Journal	Connector Name	HIM OT HIM
	_			1		2		
ACC ACC		128 124 112 109 104 109				Connec	Connector Type	TH80MW-CS16-TM4
	•	127 123				-	,	
	٧ !	126 122 114 119	Termina	Ferminal Color Of	Signal Name [Specification]		1	
SB AV COMM (H)		125 121 117 113 109 105 901 97	o No	Wire	and a second control of the second control o		•	* 5 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
			-	7	- [Without BOSE audio]	_		5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
B SW GND			-	^	- [With BOSE audio]	7	<u>ن</u>	
Y DIS	la	r Of Signal Name [Specification]	2	PC	- [With BOSE audio]	•	į	R R
16 G HAZARD ON	No. Wire	Į.	5	>	- [Without BOSE audio]			
	+	+				Terming	Ferminal Color Of	
Connector No. M106	. 86	ACCELERATOR PEDAL POSITION SENSOR 2 (With ICC)	Connector No.		M116	Š	Wire	Signal Name [Specification]
American Name of MIRE	Н	G SENSOR POWER SUPPLY [With ICC]	Journa	V Name V	WIRE TO WIRE	-	٦	-
	4	SENSOR				2	υ ¦	
Connector Type NH10MW-CS10	+		Connect	Connector Type T	TK36MW-NS10	m	GR.	
•	+	┪	-	,		4	es :	
	4	7		1		7	*	
2 4	+	G SENSOR POWER SUPPLY [Without ICC]				10	> 8	•
	+	7	_		日本 日本 日本 日本 日本 日本 日本 日本	2	9	
	+	4		7 7	8 8 8	9	>	•
14 15 16 18	104 A.S.	4				=	ž	•
	4	+				56	H :	
	+	2				7	2	
Terminal Color Of Signal Name (Specification)	+	BG SENSOR POWER SUPPLY	Termina	erminal Color Of	Signal Name (Specification)	87	>	
0	4	SE	o Z	Wire		58	>	
	109	G PNP SIGNAL	2	۵		30	>	
SHIELD -	110 F	R ENGINE SPEED OUTPUT SIGNAL	9	7		31	ď	-
	112	/ SENSOR GROUND	4	œ		32	æ	
· ·	113 F	P CAN COMMUNICATION LINE	2	æ		33	Ø	
	114	CAN COMMUNICATION LINE	6	œ		51	œ	
BR .	117	/ DATA LINK CONNECTOR	9	œ		22	>	
· ·	121 LC	LG EVAP CANISTER VENT CONTROL VALVE	19	BG		29	8	
	122 F	P STOP LAMP SWITCH	20	>		22	œ	
	123 E	B ECM GROUND	78	В		28	ŋ	1
>	L	B ECM GROUND	59	97		29	SHELD	·
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61	PI		Connector No.	r No.	M122	Connector No.		M124	Connector No.	M144
62	BR		Compartor Mama	- Nomo	GILIGOM LOGENOS VIGOS MOG	Jonna	Connector Name	Ediw OT Ediw	Connector Mame	BIN OT BIN
63	_			40110	DOM (BOD) CONTROL MODOLL)	3			COLLIGOTOR HOLLIGO	WILL IO WILL
64	97	1	Connector Type	r Type	TH40FB-NH	Connec	Connector Type	TH40MW-CS15	Connector Type	TH04MW-NH
99	В									
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89	SHIELD	-				_	Į	\$2 M CC 22	•	
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7.1	SB									
72	8									
73	Ø	,	Terminal	Color Of	L	Termina	erminal Color Of		Terminal Color Of	
75	8	,	ž	Wire	Signal Name [Specification]	ð	Wire	Signal Name [Specification]	No. Wire	Signal Name [Specification]
80	>		74	SB	PASSENGER DOOR ANT-	_	>		1 SHELD	-
81	SB		75	GR	PASSENGER DOOR ANT+	œ	9		2 W	
82	>		76	>	DRIVER DOOR ANT-	6	>		3 SHIELD	- [With around view monitor]
83	۵		77	P.	DRIVER DOOR ANT+	12	_		3	ľ
8	œ		78	>	ROOM ANT1-	13	>		4	- [Without around view monitor]
82	-	,	62	E E	ROOM ANT1+	14	<u>_</u>		╁	- [With around view monitor]
86	BG	•	80	SR	NATS ANT AMP	15	*			,
87	-		2	3	NATS ANT AMP	9	2			
à	, ,		5 6	2	TONIO TINIO DONE	2 2	á			200
8 8	: ا		7 00	د	CONTRACT (F/B) CONT	= 5	۵ ۵		COLLINECTOL INC.	CELINI
5	>		ŝ	-	RETLESS ENIRT RECEIVER COMM	2	r		Connector Name	DISPLAY UNIT
95	O	•	87	BR	COMBI SW INPUT 5	19	ш			_
96	O		88	>	COMBI SW INPUT 3	20	×	 [Without BOSE audio] 	Connector Type	TH24FW-NH
92	Μ	•	06	۵	CAN-L	50	\	- [With BOSE audio]		
96	9		91	_	CANH	21	ŋ	- [With BOSE audio]	_	
26	>		95	57	KEY SLOT ILL CONT	51	_	- [Without BOSE audio]		[
86	BR		93	>	QNINO	22	SB			
66	۵.		94	>	PUDDLE LAMP CONT	23	GR.		Ę	12 11 10 9 8 7 6
66	>		92	BG	ACC RELAY CONT	24	ტ		Ş	23 22 19 18
100	_	- [Without BOSE audio]	96	GR	A/T SHIFT SELECTOR POWER SUPPLY	52	>			2
100	SB	- [With BOSE audio]	66	œ	SHETP	56	œ			
			100	ტ	PASSENGER DOOR REQUEST SW	59	SHIELD		Terminal Color Of	
			101	SB	DRIVER DOOR REQUEST SW	30	>		No. Wire	Signal Name [Specification]
			102	BG	BLOWER FAN MOTOR RELAY CONT	31	97		9 SHIELD	SHIELD
			103	P	KEYLESS ENTRY RECEIVER POWER SUPPLY	32	9		7 SHELD	CAMERA IMAGE SIGNAL GND
			107	P	COMBI SW INPUT 1	33	BR		8	CAMERA IMAGE SIGNAL
			108	œ	COMBI SW INPUT 4	34	>		0	COMM (DISP-CONT)
			109	>	COMBI SW INPUT 2	32	Ø		10 R	COMM (CONT-DISP)
			110	O	HAZARD SW	43	_		11	BATTERY
						44	>		12 B	GROUND
						42	œ		╁	COMPOSITE IMAGE SIGNAL
						46	8		╀	COMPOSITE IMAGE SIGNAL GND
						25	ď		22 SHIELD	L
						23	9		23	ACC
						25	×			
						22	BG			

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20 Y	Cornector No. M374	Connector Name WIRE TO WIRE Connector Type GT16C-1S-HU		H.S.	Terminal Color Of Signal Name [Specification] No. Wire 1	Connector No M325	9	Connector Type GT13SC-2_15-HU		H.S.		Terminal Color Of Signal Name [Specification]	++											
G MICROPHONE SIGNAL SHIFLD SHIFLD	COMIN	SB AV COMM (H) SB AV COMM (H)	No. M212 r Name AV CONTROL UNIT	Comector Type HAA04FL	83 EXT 881 881 881 881 881 881 881 881 881 88		Wire Signal Name [Specification] G USB GND		L USB D+ SIGNAL SHIELD	N303	g.	Type TK08FGY			H.S.			Wire Signal Name [Specification]	ω ≥	: -		BR	a	
88	$\top \top$	92	Connector No. Connector Name	Connector	F	Terminal Color Of	No.	130	132	Connector No.	Connector Name	Connector Type		7	Ï		Terminal Color Of	S	13	15	16	17	<u>φ</u>	
20 B GROUND	Connector No. M209	Connector Name AV CONTROL UNIT Connector Type TF40FW-NH		S. H. S.	No. Wire Signal Name (Specification) No. Wire Signal Name (Specification) Signal Name (Specification) S.29 Y	3 @	Connector No. M210	Connector Name AV CONTROL UNIT	Connector Type TH32FW-NH		F 5 6 67 68 71 72 73 14 75 75 75 78 88 88 98 99 91 92		Ferminal Color Of Signal Name [Specification] No. Wire	Ħ	o ec	SHIELD	R COMM	а :	75 LG AV COMM (L)	er.	9	\dashv	83 SHELD SHELD	
	NECTOR		5 4	Of Signal Name (Specification)			M208	AV CONTROL UNIT TH18FW-CS2		1 2 3 4 5 6 7	19 10 11 12 13 14	L	Signal Name [Specification] AMP: ON SIGNAL	\vdash	+	SOUND SIGNAL REAR LH (-)	ACC	SHELD	SOUND SIGNAL FRONT RH (+)	SOUND SIGNAL REAR RH (+)	SOUND SIGNAL	STRG SW GND	BATTERY	
Connector No.	Connector Name USB CON Connector Type HAA04FG		H.S.	Terminal Color Of No. Wire	3 C C C S	7	Connector No.	Connector Name Connector Type		ů,	15	Terminal Color Of	No. Wire	C7 60	╁	ري د د د	H	10 B	12 7	13	H	15 B	19 6	

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BOSE AUDIO WITH NAVIGATION			
Connector No. M376	Connector No. M378	Connector No. M382	<u>Ia</u>
Connector Name WIRE TO WIRE	Connector Name WIRE TO WIRE	Connector Name WIRE TO WIRE	No. Wire
Connector Type GT13SCN-2_1PP-HU	Connector Type GT13SC-2_1S-HU	Connector Type GT16C-1PP-HU	2 -
			3 -
		<u>-</u>	Connector No. M386
H.S.	JE S.	HS	Connector Name ANTENNA BASE
			Connector Type GT13SSN-1_1PP-HU
<u>a</u>	a a	la l	
No. Wire	No. Wire	No. Wire	
2 2	2	,	2
		Connector No. M383	
Connector No. M377	Connector No. M380	Connector Name ANTENNA BASE	Terminal Color Of
Connector Name IWIRE TO WIRE	Connector Name WIRE TO WIRE	Connector Type GT16C-1PP-HU	No. Wire Signal Name [Specimoanori]
	- 1		1 - ANTENNA AMP. ON SIGNAL
Connector Type GT16C-1PP-HU	Connector Type GT16-1S-HU		
			2 - AM-FM MAIN_1
		<u> </u>	2 - AM-FM MAIN_2
		H.S.	
<u> </u>	ı ve		Connector No. M387
			Connector Name WIRE TO WIRE
		Terminal Color Of Signal Name [Specification]	JON CONT.
Terminal Color Of	Terminal Color Of	+	_
No. Wire ognering opening of the control of the con	No. Wire olginar varire [specification]		[
		Connector No. M385	<u></u>
		Connector Name WIRE TO WIRE)
		THE SECTION OF THE SE	
		Connector Type GT13SCN-2_1PP-HU	
			a
			No. Wire olginar warre [openingation]
		<u>2</u>	

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| Fig. 1 | Fig. 10 Fig. 2 Fig. 3 | 150 | 150 | 150 | Tiss
 | 155 - | 155 - | 155 - | Tisp | Tisp
 | Tisp | 155 - | 155 | 155 | 155 -
 | 155 - | Tisp | Tisp | 155 - | 155 -
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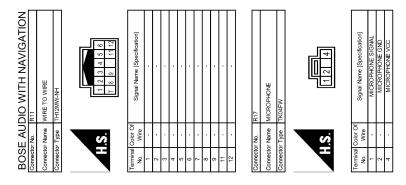
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow (Multi AV)

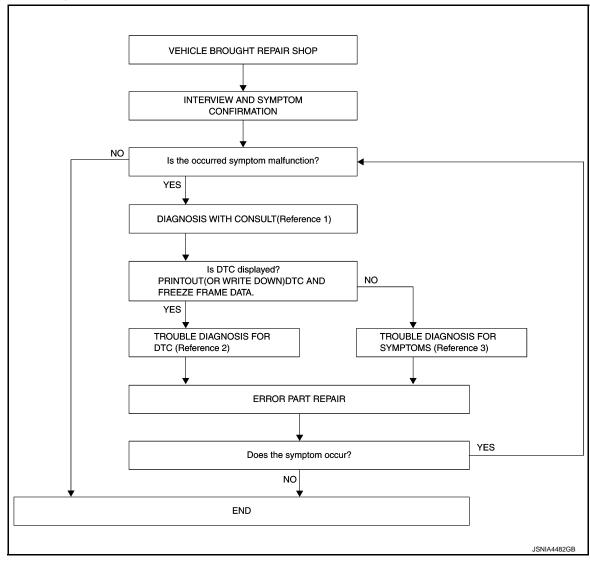
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OVERALL SEQUENCE



- Reference 1... Refer to <u>AV-370, "CONSULT Function (MULTI AV)"</u>.
- Reference 2··· Refer to <u>AV-384, "DTC Index"</u>.
- Reference 3··· Refer to AV-506, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

Is the occurred symptom malfunction?

YES >> GO TO 2.

NO >> INSPECTION END

2. DIAGNOSIS WITH CONSULT

AV

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BOSE AUDIO WITH NAVIGATION]

 Connect CONSULT and perform a self-diagnosis for "MULTI AV". Refer to <u>AV-370, "CONSULT Function</u> (<u>MULTI AV)"</u>.

NOTE:

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

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

Is DTC displayed?

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

3. TROUBLE DIAGNOSIS FOR DTC

- 1. Check the DTC indicated in the "Self-Diagnosis Results".
- 2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-384, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-506, "Symptom Table"</u>.

>> GO TO 5.

5. ERROR PART REPAIR

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

NOTE:

Erase the stored self-diagnosis results after repairing or 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

Work Flow (Camera Assistance Sonar)

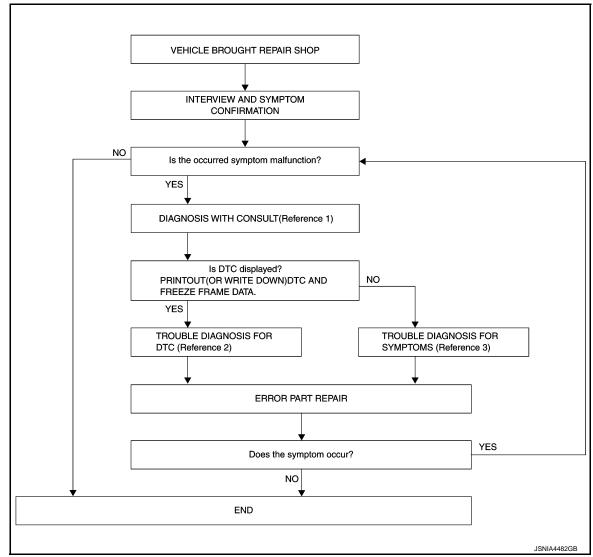
INFOID:0000000009061726

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OVERALL SEQUENCE



- Reference 1... Refer to AV-377, "CONSULT Function (SONAR)".
- Reference 2··· Refer to <u>AV-397</u>, "<u>DTC Index</u>".
- Reference 3... Refer to AV-506, "Symptom Table".

DETAILED FLOW

${f 1}$. 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

Connect CONSULT and perform a self-diagnosis for "SONAR". Refer to AV-377, "CONSULT Function (SONAR)".

NOTE:

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

AV-423 Revision: 2013 March 2014 QX50

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[BOSE AUDIO WITH NAVIGATION]

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

Is DTC displayed?

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

3.trouble diagnosis for dtc

- 1. Check the DTC indicated in the "Self-Diagnosis Results".
- 2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-397, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-506</u>, "Symptom Table".

>> GO TO 5.

5. ERROR PART REPAIR

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

NOTE:

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

3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.

NO >> INSPECTION END

< BASIC INSPECTION >

[BOSE AUDIO WITH NAVIGATION]

INSPECTION AND ADJUSTMENT ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT

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ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Description INFOID:00000000009061727

BEFORE REPLACEMENT

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

AFTER REPLACEMENT

CAUTION:

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

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

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure

INFOID:0000000009061728

1. SAVING VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "Before Replace ECU" to save or print current vehicle specification. Refer to AV-425, "CONFIGURA-TION (AV CONTROL UNIT): Description".

NOTE:

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

>> GO TO 2.

2 .REPLACE AV CONTROL UNIT

Replace AV control unit, Refer to AV-519, "Exploded View",

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

©CONSULT Configuration

Perform "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to AV-426. "CON-FIGURATION (AV CONTROL UNIT): Work Procedure".

>> GO TO 4.

4. OPERATION CHECK

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

>> WORK END

CONFIGURATION (AV CONTROL UNIT)

CONFIGURATION (AV CONTROL UNIT): Description

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

The AV control unit configuration includes functions as follows.

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< BASIC INSPECTION >

[BOSE AUDIO WITH NAVIGATION]

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

CONFIGURATION (AV CONTROL UNIT): Work Procedure

INFOID:0000000009061730

1. WRITE VEHICLE SPECIFICATION

(P)CONSULT Configuration

Write vehicle specification into AV control unit.

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

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

2. WRITE STORED DATA

(P)CONSULT Configuration

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

>> GO TO 4.

3. MANUALLY WRITE VEHICLE SPECIFICATION

(P)CONSULT Configuration

Perform "Manual Configuration". Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-426, "CONFIGURATION (AV CONTROL UNIT): Configuration List".

NOTE:

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

>> GO TO 4.

4. OPERATION CHECK

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

>> WORK END

CONFIGURATION (AV CONTROL UNIT): Configuration List

INFOID:0000000009061731

CAUTION:

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

NOTE:

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

MANUAL SE	TTING ITEM	Detail
Items	Setting value	Detail
STEERING	LHD	_
JILLINING	RHD	_

[BOSE AUDIO WITH NAVIGATION]

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< BASIC INSPECTION >

MANUAL SE	TTING ITEM	Detail
Items	Setting value	Detail
	NONE/AVM	_
CAMERA SYSTEM	REAR CAMERA	_
	REAR+SIDE	_
SOUND SYSTEM	BASE	_
SOUND STSTEM	BOSE	_
AUXILIARY INPUT JACKS	WITHOUT	_
AUXILIANT INPUT JACKS	WITH	_
MICROPHONE	DIRECTIONAL MIC	With directional microphone*
IVIIOROI FIONE	NON-DIRECTIONAL MIC	With non-directional microphone*

NOTE:

AVM: Around view monitor

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

Directional microphone	Non-directional microphone
JSNIA5541ZZ A: Microphone installation position	JSNIA5542ZZ A: Microphone installation position
	A
JSNIA5543ZZ (A): Microphone installation position	JSNIA5544ZZ (A): Microphone installation position
JSNIA5545ZZ (A): Microphone installation position	JSNIA5546ZZ (A): Microphone installation position

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Description

Adjust the center position of the predictive course line of the rear view monitor if it is shifted.

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT: Work Procedure

INFOID:0000000009061733

1.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.

Revision: 2013 March AV-427 2014 QX50

>> END

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description

INFOID:0000000009061734

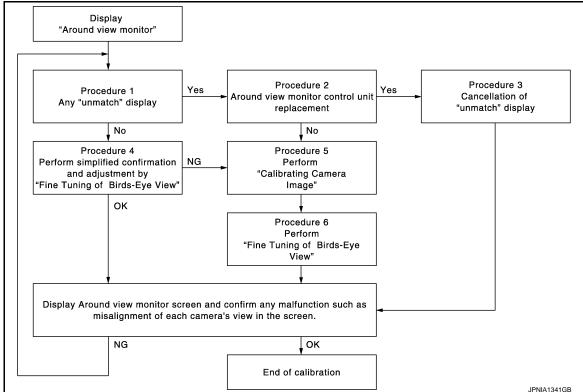
- Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.
- Align the white lines on the road near the vehicle at the boundary of each camera image by this camera calibration. The white lines far from the vehicle may not be aligned at the boundary of each camera image. The farther the line, the greater the difference is.

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Work Procedure

INFOID:0000000009061735

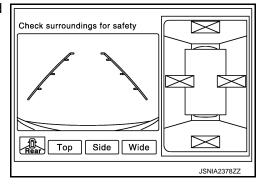
Calibration flowchart

Following the flowchart shown in the figure, perform the calibration.



NOTE:

In the un-match display, the un-match camera position is indicated as "\sum" on the birds-eye view.



Calibration procedure

1. AROUND VIEW MONITOR SCREEN CONFIRMATION

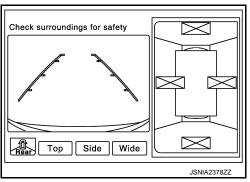
< BASIC INSPECTION >

[BOSE AUDIO WITH NAVIGATION]

Check that there is the un-match display in any camera.

Is the un-match display visible?

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



2.CHECK THAT AROUND VIEW MONITOR CONTROL UNIT IS REPLACED

Check that the around view monitor control unit is replaced.

Is the around view monitor control unit replaced?

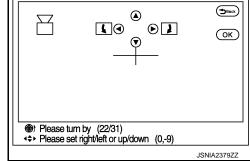
YES >> GO TO 3. NO >> GO TO 5.

3. Release un-match display (perform only when the around view monitor control unit is replaced)

- Select "Camera Cont." of Confirmation/ Adjustment mode, and then set to "Calibrating Camera Image" mode.
- 2. Press the "ENTER" switch of the multifunction switch on each screen of "Rear Camera", "Front Camera", "Dr-Side Camera", "Pass-Side Camera".

CAUTION:

- Do never operate the center dial and up/down/left/right switches. Only press the "ENTER" switch.
- Never perform "Initialize Camera Image Calibration".
- Display the around view monitor screen, and check that there is no malfunction such as a difference between each camera image.



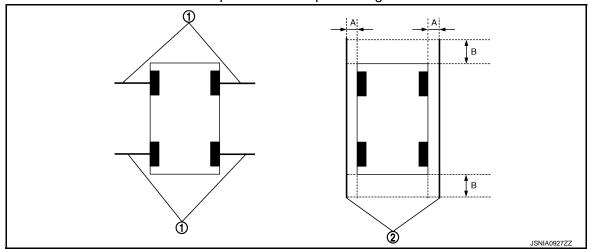
Is there a malfunction?

YES >> Calibration end NO >> GO TO 1.

4. PERFORM SIMPLIFIED CONFIRMATION/ADJUSTMENT BY "FINE TUNING OF BIRDS-EYE VIEW"

- 1. Put target line 1 on the ground beside each axle using packing tape, etc.
- Put target lines 2 equal to the vehicle total length + approximately 1.0 m (39.3 in) from the vehicle side (right and left) at approximately 30 cm (11.8 in) away from the vehicle (make the line as parallel with the vehicle as possible)

Preparation of simplified target line



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Marker for target line 1

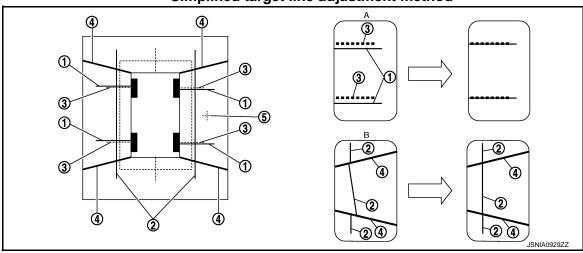
< BASIC INSPECTION >

- 1. Target lines 1
- A. Approx. 30 cm (11.8 in)
- Target lines 2
- B. Approx. 1.0 m (39.3 in)
- Select "Camera Cont." of Confirmation/ Adjustment mode, and then set to "Fine Tuning of Birds-Eye View" mode.
- 4. Select left and right cameras by pressing the "CAMERA" switch, and perform the following confirmation.
- Check that target line 1 is aligned with the marker on the screen. Overlap the line aligned to the marker with the upper/lower switches if necessary.
- Check if there is a difference between target lines 2 between cameras. Adjust target lines 2 to be straight lines by operating the center dial and left/right switches if necessary.

CAUTION:

- Never adjust the front camera and rear camera. Only adjust the right and left cameras.
- Operate the center dial slowly because the changing of the screen takes approximately 1 second.

Simplified target line adjustment method



- 1. Target lines 1
- 4. Boundary between cameras
- A. Adjustment method for target lines 1 (right)
- 2. Target lines 2
- 5. Crosshairs cursor (mark indicated the selected camera)
- B. Adjustment method for target lines 2 (right)
- Adjust left and right cameras. Check that the difference between target line 1 and the marker on the screen, and between target lines 2 is solved.

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration" of "Calibrating Camera Image".
- The adjustment value is cancelled on this mode by performing "Initialize Camera Image Calibration".

Is the difference corrected?

YES >> Finish the writing to around view monitor control unit by pressing "ENTER" switch.

NO >> GO TO 5.

5.PERFORM "CALIBRATING CAMERA IMAGE"

Preparation of target line

- 1. Hang a string with a weight as shown in the figure. Put the points FM0, RM0 (mark) on the ground at the center of the vehicle front end and rear end with white packing tape or a pen.
- 2. Route the vinyl string under the vehicle, and then pull and fix it on the point approximately 1.0 m (39.9 in) to the front and rear of the vehicle through the points FM0 and RM0 using packing tape.

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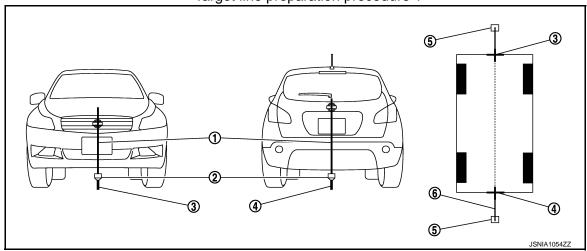
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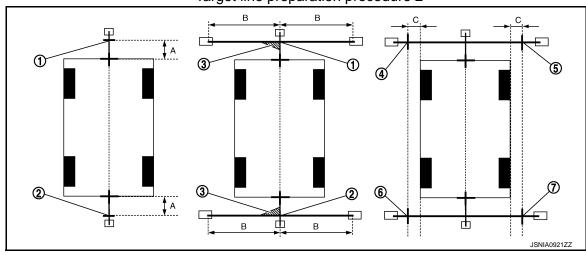
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Target line preparation procedure 1



- Thread 1.
 - Point RM0 (mark)
- Weight 2.
- Packing tape (to fix the vinyl string)
- 3. Point FM0 (mark)
- 6. Vinyl string
- Put the points FM and RM (mark) 75 cm (29.5 in) from the points FM0 and RM0 individually.
- Route the vinyl string through the points FM and RM using a triangle scale, and then fix it at approximately 1.5 m (59 in) on both sides with packing tape.
- Put the points FL, FR, RL, and RR (mark) to both right and left [vehicle width / 2 + 30 cm (11.8 in)] from the points FM and RM.

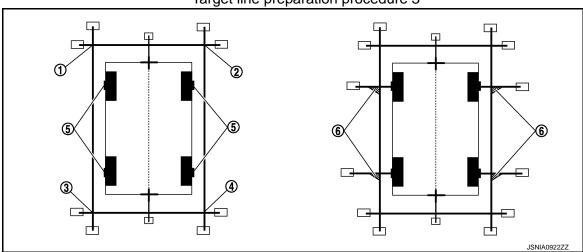
Target line preparation procedure 2



- Point FM
- Point FL (mark) 4.
- 7. Point RR (mark)
- 75 cm (29.5 in)

- Point RM 2.
- Point FR (mark)
- Approx. 1.5 m (59 in)
- Triangle scale 3.
- Point RL (mark)
 - 30 cm (11.8 in)
- [Vehicle width/ 2 + 30 cm (11.8 in) from the points FM and RM]
- Draw the lines of the points FL RL and FR RR with vinyl string, and fix it with packing tape.
- Put a mark on the center of each axle, draw vertical lines to the lines of the points FL RL and FR RR from the marks on the center of the axle using a triangle scale, and then fix the lines using packing tape.

Target line preparation procedure 3



Point FL
 Point RR

- 2. Point FR
- 5. Center position of axle
- 3. Point RL
- Triangle scale

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Perform "Calibrating Camera Image"

- Select "Camera Cont." of "Confirmation/ Adjustment" mode, and then set to "Calibrating Camera Image" mode.
- Overlap the target lines drawn on the ground with the calibration marker on the screen by operating the center dial and upper/ lower/left/right switches of multifunction switch on each screen of "Rear Camera", "Pass-Side Camera", "Front Camera", "Dr-Side Camera".

Adjustment range

Rotation direction (Center dial) : 31 patterns (16 on the center)

Upper/lower direction (upper/lower : -99 - 99

switch)

Left/right direction (left/right switch) : -99 - 99

e center)

Please turn by (22/31)

+> Please set right/left or up/down (0,-9)

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"Writing..." is displayed by pressing the "ENTER" switch, and then the adjustment result is written to the around view monitor control unit.

CAUTION:

Check that "Writing..." is displayed. Do never perform other operations while "Writing..." is displayed.

>> GO TO 6.

O.PERFORM "FINE TUNING OF BIRDS-EYE VIEW"

This mode is designed to align the boundary between each camera image that could not be aligned in the "Calibrating Camera Image" mode.

- 1. Select "Camera Cont." of "Confirmation/ Adjustment" mode, and then set to "Fine Tuning of Birds-Eye View" mode.
- 2. Operate the center dial and upper/lower/left/right switch to overlap the marker on the screen and the target lines on the ground.

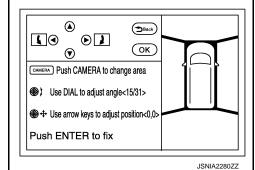
Move the "+"- mark on the camera position to adjustment by pressing the "CAMERA" switch.

3. When the target line is overlapped on the marker, press the "ENTER" switch to write the adjustment result to the around view monitor control unit.

CAUTION:

Check that "Writing..." is displayed. Do never perform other operations while "Writing..." is displayed.

NOTE:



INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[BOSE AUDIO WITH NAVIGATION]

• It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration" of "Calibrating Camera Image".

• The adjustment value is cancelled on this mode by performing "Initialize Camera Image Calibration".

>> Calibration end

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

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

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

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000009061738

1.PERFORM SELF-DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

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

NO >> Refer to GI section. Refer to GI-42, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1010 CONTROL UNIT (CAN)

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Probable malfunction factor
U1010	CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-519, "Exploded View".

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U1200 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1200 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1200	Cont Unit [U1200]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-519</u> . "Exploded View".

U1201 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1201 AV CONTROL UNIT

DTC Logic INFOID:000000000000001741

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1201	GYRO NO CONN [U1201]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-519</u> , "Exploded View".

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U1202 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1202 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1202	G-SENSOR NO CONN [U1202]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-519</u> , "Exploded View".

U1204 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1204 AV CONTROL UNIT

Description INFOID:0000000009061743

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-519. "Exploded View".

DTC Logic INFOID:0000000009061744

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1204	GPS CONN [U1204]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061745

1.PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.
- Turn ignition switch ON. Perform the self-diagnosis again.
- Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-519, "Exploded View".

NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

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AV-439 Revision: 2013 March 2014 QX50

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U1205 AV CONTROL UNIT

[BOSE AUDIO WITH NAVIGATION]

U1205 AV CONTROL UNIT

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-519. <a href="Exploded View".

DTC Logic (INFOID:000000000001747

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1205	GPS ROM [U1205]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061748

1. PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-519, "Exploded View".

NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1206 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1206 AV CONTROL UNIT

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to <u>AV-519</u>, <u>"Exploded View"</u>.

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1206	GPS RAM [U1206]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061751

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1.PERFORM THE SELF-DIAGNOSIS

1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.

2. Turn ignition switch ON. Perform the self-diagnosis again.

Check that the DTC is detected again.

Is any DTC detected?

NO

YES >> Replace AV control unit. Refer to AV-519, "Exploded View".

>> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

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U1207 AV CONTROL UNIT

[BOSE AUDIO WITH NAVIGATION]

U1207 AV CONTROL UNIT

An intermittent error caused by strong radio interference may be detected unless any symptoms (GPS reception error, etc.) occur. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-519. <a href="Exploded View".

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1207	GPS RTC [U1207]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061754

1. PERFORM THE SELF-DIAGNOSIS

- 1. Delete the "Self-Diagnosis Results" of "MULTI AV". Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-519, "Exploded View".

NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1216 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1216 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1216	CAN CONT [U1216]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-519</u> . "Exploded View".

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U1217 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1217 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1217	BLUETOOTH MODULE [U1217]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly. Refer to <u>AV-519</u> , "Exploded View".

U1218 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1218 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1218	HDD CONN [U1218]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly.

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U1219 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1219 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1219	HDD READ [U1219]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly.

U121A AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121A AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121A	HDD WRITE [U121A]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly.

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U121B AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121B AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121B	HDD COMM [U121B]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly.

U121C AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121C AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121C	HDD ACCESS [U121C]	AV control unit malfunction is detected.	Replace the AV control unit if the mal- function occurs constantly.

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U121D AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121D AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121D	DSP CONN [U121D]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061763

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

U121E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U121E AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121E	DSP COMM [U121E]	AV control unit malfunction is detected.	 If a disc can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061765

1. CHECK PLAYBACK OF A DISK (CD)

Can a disk (CD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

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U1225 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1225 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1225	USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.

U1227 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1227 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1227	DVD COMM [U1227]	AV control unit malfunction is detected.	 If DVD can be played, then there is a possibility of the detection of a temporary malfunction. Replace the AV control unit if the malfunction occurs constantly.

Diagnosis Procedure

INFOID:0000000009061768

1. CHECK PLAYBACK OF A DISK (DVD)

Can a disc (DVD) be played?

YES >> Malfunction may be detected transitory.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

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U1228 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1228 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1228	SUB CPU CONN [U1228]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-519, "Exploded View".

U1229 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1229 AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U1229	iPod CERTIFICATION [U1229]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-519, "Exploded View".

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U122A AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U122A AV CONTROL UNIT

DTC	Display contents of CONSULT	DTC detection condition	Action to take
U122A	CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with "MULTI AV" of CONSULT.

Diagnosis Procedure

INFOID:0000000009061772

1. PERFORM THE SELF-DIAGNOSIS

When U122A is detected, write configuration data with "MULTI AV" of CONSULT.

>> Write configuration data with "MULTI AV" of CONSULT. Refer to <u>AV-426, "CONFIGURATION (AV CONTROL UNIT): Work Procedure"</u>.

U122E AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U122E AV CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	DTC detection condition	Possible malfunction factor
U122E	Built-in AUDIO CONN [U122E]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-519, "Exploded View".

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U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1232 STEERING ANGLE SENSOR

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061775

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

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

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

U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1243 DISPLAY UNIT

DTC Logic

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

Diagnosis Procedure

INFOID:0000000009061777

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1. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to <u>AV-477, "DISPLAY UNIT: Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2.check continuity communication circuit

Turn ignition switch OFF.

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

Display unit		AV control unit		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M195	9	M210	89	Existed
WITES	10	IVIZIO	73	Existed

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

Displa	ay unit		Continuity
Connector	Terminals	Ground -	Continuity
M195	9		Not existed
	10		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK COMMUNICATION SIGNAL

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

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U1243 DISPLAY UNIT

< DTC/CIRCUIT DIAGNOSIS >

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M195	9	Ground	When adjusting display brightness.	(V) 6 4 2 0 + 1 ms PKIB5039J

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+) Display unit		(-)	Condition	Reference value
Connector	Terminal			
M195	10	Ground	When adjusting display brightness.	(V) 6 4 2 0 +

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace display unit. Refer to AV-520, "Exploded View".

U1244 GPS ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1244 GPS ANTENNA

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1244	GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.

Diagnosis Procedure

INFOID:0000000009061779

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1.GPS ANTENNA CHECK

Visually check GPS antenna and antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK AV CONTROL UNIT VOLTAGE

- 1. Disconnect GPS antenna connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit and ground.

(+) AV control unit	(-)	Voltage (Approx.)
Terminal		
153	Ground	5.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace AV control unit. Refer to <u>AV-519</u>, "<u>Exploded View</u>".

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U1258 SATELLITE RADIO ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1258 SATELLITE RADIO ANTENNA

DTC Logic

DTC	Display contents of CONSULT	DTC Detection Condition	Possible causes
U1258	XM ANTENNA CONN [U1258]	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection.

Diagnosis Procedure

INFOID:0000000009061781

1. SATELLITE RADIO ANTENNA CHECK

Visually check satellite radio antenna (antenna base) and antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK AV CONTROL UNIT VOLTAGE

- 1. Disconnect satellite radio antenna connector.
- 2. Turn ignition switch ON.
- Check voltage between AV control unit and ground.

(+) AV control unit Terminal	(-)	Voltage (Approx.)
159	Ground	5.0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

U1263 USB

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1263 USB

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1263	USB OVERCURRENT [U1263]	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.

Diagnosis Procedure

INFOID:0000000009061783

1. CHECK USB HARNESS

Visually check USB harness.

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-519, "Exploded View".

NO >> Replace USB harness.

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U1264 ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1264 ANTENNA AMP.

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1264	ANTENNA AMP TER- MINAL [U1264]	Radio antenna amp. ON circuit is open or shorted.	Check antenna amp. ON signal circuit between the AV control unit and antenna base.

Diagnosis Procedure

INFOID:0000000009061785

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND ANTENNA BASE

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

AV control unit		Antenna base		Continuity
Connector	Terminals	Connector	Terminals	Continuity
M394	152	M386	1	Existed

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

AV cor	trol unit		Continuity
Connector	Terminals	Ground	Continuity
M394	152		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE AV CONTROL UNIT

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

AV control unit		(-)	Voltage
Connector	Terminals	(-)	(Approx.)
M394	152	Ground	12.0 V

Is the inspection result normal?

YES >> Replace antenna base Refer to AV-528, "Exploded View" .

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

U1265 BOSE AMP.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1265 BOSE AMP.

DTC Logic INFOID:0000000009061786

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1265	AMP ON TERMINAL [U1265]	BOSE amp. ON circuit is open or shorted.	Check BOSE amp. ON signal circuit between the AV control unit and BOSE amp.

Diagnosis Procedure

INFOID:0000000009061787

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1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND BOSE AMP.

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

AV cor	itrol unit	BOSE amp.		Continuity	
Connector	Terminals	Connector	Terminals	Continuity	
M208	1	B41	31	Existed	

Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminals	Ground	Continuity
M208	1		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE AV CONTROL UNIT

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

(+)		Voltogo
AV control unit		(–)	Voltage (Approx.)
Connector	Terminals		(11 -)
M208	1	Ground	12.0 V

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-527, "Exploded View"

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

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U1300 AV COMM CIRCUIT

U1300 AV COMM CIRCUIT

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

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1300 U1240	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240]	When either one of the following items are detected: multifunction switch power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and multifunction switch are malfunctioning.	 Multifunction switch power supply and ground circuits. AV communication circuits between AV control unit and multifunction switch.
U1300 U125B	AV COMM CIRCUIT [U1300] AROUND CAMERA CONN [U125B]	 When either one of the following items are detected: around view monitor control unit power supply and ground circuits are malfunctioning. AV communication circuits between multifunction switch and around view monitor control unit are malfunctioning. 	Around view monitor control unit power supply and ground circuits. AV communication circuits between multifunction switch and around view monitor control unit.
U1300 U125C	AV COMM CIRCUIT [U1300] SONAR CONN [U125C]	When either one of the following items are detected: sonar control unit power supply and ground circuits are malfunctioning. AV communication circuits between AV control unit and sonar control unit are malfunctioning.	 Sonar control unit power supply and ground circuits. AV communication circuits between AV control unit and sonar control unit.
U1300 U1240 U125B	AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] AROUND CAMERA CONN [U125B]	AV communication circuits between AV control unit and multifunction switch are malfunctioning.	AV communication circuits between AV control unit and multifunction switch.

U1310 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

U1310 AV CONTROL UNIT

DTC Logic

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit. If the mal- function occurs constantly. Refer to <u>AV-519</u> , "Exploded View".

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B2700 CORNER SENSOR [FL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2700 CORNER SENSOR [FL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2700	CORNER SENSOR [FL] [B2700]	Corner sensor front LH is malfunctioning.	Replace corner sensor front LH. Refer to AV-541, "FRONT: Exploded View".

B2701 SENSOR HARNESS OPEN [CR-FL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2701 SENSOR HARNESS OPEN [CR-FL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2701	SENSOR HARNESS OPEN [CR-FL] [B2701]	Corner sensor front LH harness circuit is open.	Check corner sensor front LH circuit.

Diagnosis Procedure

1. CHECK HARNESS CORNER SENSOR FRONT LH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect sonar control unit connector and corner sensor front LH connector.
- Check continuity between sonar control unit harness connector and corner sensor front LH harness connector.

Sonar control unit		Corner sensor front LH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	3	E63	1	Existed

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

Sonar control unit			Continuity
Connector Terminal		Ground	Continuity
M47	3		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.check harness corner sensor front LH ground circuit

Check continuity between sonar control unit harness connector and corner sensor front LH harness connector.

Sonar control unit		Corner sensor front LH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	12	E63	2	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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B2702 CORNER SENSOR [FR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2702 CORNER SENSOR [FR]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2702	CORNER SENSOR [FR] [B2702]	Corner sensor front RH is malfunctioning.	Replace corner sensor front RH. Refer to AV-541, "FRONT: Exploded View".

B2703 SENSOR HARNESS OPEN [CR-FR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2703 SENSOR HARNESS OPEN [CR-FR]

DTC Logic INFOID:0000000009061794

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2703	SENSOR HARNESS OPEN [CR-FR] [B2703]	Corner sensor front RH harness circuit is open.	Check corner sensor front RH circuit.

Diagnosis Procedure

- 1. CHECK HARNESS CORNER SENSOR FRONT RH SIGNAL CIRCUIT
- Turn ignition switch OFF. Disconnect sonar control unit connector and corner sensor front RH connector.
- Check continuity between sonar control unit harness connector and corner sensor front RH harness con-

Sonar control unit		Corner sensor front RH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	4	E152	1	Existed

Check continuity between sonar control unit harness connector and ground.

Sonar control unit			Continuity
Connector	Terminal	Ground	Continuity
M47	4		Not existed

Is the inspection result normal?

>> GO TO 2. YES

NO >> Repair harness or connector.

2.check harness corner sensor front RH ground circuit

Check continuity between sonar control unit harness connector and corner sensor front RH harness connector.

Sonar control unit		Corner sensor front RH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	12	E152	2	Existed

Is the inspection result normal?

>> INSPECTION END YES

NO >> Repair harness or connector.

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INFOID:0000000009061795

AV-471 Revision: 2013 March 2014 QX50

B2704 CORNER SENSOR [RL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2704 CORNER SENSOR [RL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2704	CORNER SENSOR [RL] [B2704]	Corner sensor rear LH is malfunctioning.	Replace corner sensor rear LH. Refer to AV-542, "REAR: Exploded View".

B2705 SENSOR HARNESS OPEN [CR-RL]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2705 SENSOR HARNESS OPEN [CR-RL]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2705	SENSOR HARNESS OPEN [CR-RL] [B2705]	Corner sensor rear LH harness circuit is open.	Check corner sensor rear LH circuit.

Diagnosis Procedure

INFOID:000000009061798

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1. CHECK HARNESS CORNER SENSOR REAR LH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect sonar control unit connector and corner sensor rear LH connector.
- Check continuity between sonar control unit harness connector and corner sensor rear LH harness connector.

Sonar control unit		Corner sensor rear LH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M47	5	B259	1	Existed

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

Sonar control unit Connector Terminal			Continuity
		Ground	Continuity
M47	5		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.check harness corner sensor rear LH ground circuit

Check continuity between sonar control unit harness connector and corner sensor rear LH harness connector.

Sonar co	Sonar control unit		sor rear LH	Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M47	12	B259	2	Existed	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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B2706 CORNER SENSOR [RR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2706 CORNER SENSOR [RR]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting
B2706	CORNER SENSOR [RR] [B2706]	Corner sensor rear RH is malfunctioning.	Replace corner sensor rear RH. Refer to AV-542, "REAR: Exploded View".

B2707 SENSOR HARNESS OPEN [CR-RR]

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

B2707 SENSOR HARNESS OPEN [CR-RR]

DTC Logic

DTC DETECTION LOGIC

DTC No.	CONSULT indication	DTC detection condition	Troubleshooting	
B2707	SENSOR HARNESS OPEN [CR-RR] [B2707]	Corner sensor rear RH harness circuit is open.	Check corner sensor rear RH circuit.	

Diagnosis Procedure

1. CHECK HARNESS CORNER SENSOR REAR RH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect sonar control unit connector and corner sensor rear RH connector.
- Check continuity between sonar control unit harness connector and corner sensor rear RH harness connector.

Sonar co	Sonar control unit		sor rear RH	Continuity
Connector	Terminal	Connector Terminal		Continuity
M47	6	B256	1	Existed

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

Sonar control unit			Continuity
Connector	Terminal	Ground	Continuity
M47	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK HARNESS CORNER SENSOR REAR RH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and corner sensor rear RH harness connector.

Sonar control unit		t Corner sensor rear RH		Continuity
Connector	Terminal	Connector Terminal		Continuity
M47	12	B256	2	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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INFOID:0000000009061801

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< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

AV CONTROL UNIT: Diagnosis Procedure

INFOID:0000000009061802

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34

Is the inspection result normal?

YES >> GO TO 2.

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

2. CHECK BATTERY POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M208	19	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK ACC POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M208	7	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK ACC POWER SUPPLY CIRCUIT

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

AV cor	ntrol unit	В	СМ	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M208	7	M122	95	Existed

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

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M208	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5. CHECK GROUND CIRCUIT

Check continuity between AV control unit harness connector and ground.

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					VITH NAVIGATION]
AV con	trol unit	Ground	Continu	ity	
M208	20	Giodila	Not existed		
Is the inspection i	-				
	ECTION END iir harness or conne IT	ctor.			
DISPLAY UNI	IT : Diagnosis P	rocedure			INFOID:0000000009061803
1.CHECK FUSE					
Check for blown f	uses.				
	Power source			Fuse No.	
	Battery			34	
_	ure to eliminate caus ERY POWER SUPF		before installir	g new fuse.	
2.CHECK BATT	ure to eliminate caus ERY POWER SUPF tween display unit h	PLY CIRCUIT		g new fuse.	
2.CHECK BATT	ERY POWER SUPP	PLY CIRCUIT	r and ground.	g new fuse.	Value (Approx.)
2.CHECK BATT Check voltage be Signal name Battery power sup	tween display unit h	PLY CIRCUIT narness connector	r and ground.		Value (Approx.) Battery voltage
2.CHECK BATT Check voltage be Signal name Battery power sup Is the inspection I YES >> GO T NO >> Check 3.CHECK ACC I	tween display unit h Connector N ply M195 result normal?	PLY CIRCUIT narness connector No. Termi	r and ground. nal No. I	gnition switch position	
2.CHECK BATT Check voltage be Signal name Battery power sup Is the inspection I YES >> GO T NO >> Check 3.CHECK ACC I	Connector Notes Burger POWER SUPFLITTED TO 3. Sek harness between POWER SUPPLY Control of the supplement of the suppleme	PLY CIRCUIT narness connector do. Termi display unit and f EIRCUIT narness connector	r and ground. nal No. 19 11 use. r and ground.	gnition switch position	
2.CHECK BATT Check voltage be Signal name Battery power sup Is the inspection if YES >> GOT NO >> Check Check voltage be	Connector Notes the connec	PLY CIRCUIT narness connector display unit and for sire connector narness connector lo. Termi	r and ground. nal No. 19 11 use. r and ground.	gnition switch position OFF	Battery voltage

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

Displ	Display unit		ВСМ	
Connector	Terminal	Connector	Connector Terminal	
M195	7	M122	95	Existed

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

Displa	ay unit	Ground	Continuity
Connector	Terminal		
M195	7		Not existed

Is the inspection result normal?

[BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 5.

NO >> Repair harness or connector.

5. CHECK GROUND CIRCUIT

Check continuity between display unit harness connector and ground.

Displ	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M195	12		Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

BOSE AMP.

BOSE AMP.: Diagnosis Procedure

INFOID:0000000009061804

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	8

Is the inspection result normal?

YES >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B42	11	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

- 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	12	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT: Diagnosis Procedure

INFOID:0000000009061805

1. CHECK FUSE

Check for blown fuses.

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

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

Is inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUITS

Check voltage between around view monitor control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B46	2	OFF	Battery voltage
ACC power supply	B46	4	ACC	Battery voltage

Is inspection result normal?

YES >> GO TO 3.

NO >> Check harness between around view monitor control unit and fuse.

3.CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- Disconnect around view monitor control unit connector. 2.
- Check continuity between around view monitor control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B46	1	OFF	Existed

Is inspection result normal?

YES >> INSPECTION END

>> Repair harness or connector.

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR): Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition switch ACC or ON	19

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch ON.
- Check voltage between sonar control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M47	13	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace sonar control unit power supply harness.

3.CHECK GROUND CIRCUIT

Turn ignition switch OFF.

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< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

- 2. Disconnect sonar control unit connector.
- 3. Check continuity between sonar control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M47	24	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace sonar control unit ground harness.

RGB DIGITAL IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

RGB DIGITAL IMAGE SIGNAL CIRCUIT

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

Diagnosis Procedure

1. CHECK CONTINUITY RGB DIGITAL IMAGE SIGNAL CIRCUIT

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

Display unit		AV control unit		Continuity
Connector	Terminals	Connector Terminals		Continuity
M397	27	M396	157	Existed
IVIST	28	MISSO	158	Existed

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

Display unit			Continuity
Connector	Terminals	Ground	Continuity
M397	27	Giodila	Not existed
	28		NOI existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB DIGITAL IMAGE SIGNAL

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

(+) Display unit				Voltage (Approx.)	
		(–)	Condition		
Connector	Terminal			(11 233)	
M397	27	Ground	_	1.3 V	
IVISƏT	28		_	1.5 V	

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-520, "Exploded View".

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

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INFOID:0000000009061808

COMPOSITE IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

COMPOSITE IMAGE SIGNAL CIRCUIT

AV control unit transmits the playback DVD image signal to the display unit.

Diagnosis Procedure

INFOID:0000000009061810

1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

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

AV con	AV control unit		ay unit	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M210	68	M195	18	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M210	68		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMPOSITE IMAGE SIGNAL

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

(+) AV control unit Connector Terminal		(-)	Condition	Reference value
Connector	Terrilliai			
M210	68	Ground	At DVD image is displayed.	(V) 0. 4 0 -0. 4 → 40µs SKiB2251J

Is the inspection result normal?

YES >> Replace display unit. Refer to <u>AV-520, "Exploded View"</u>.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

DISK EJECT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

DISK EJECT SIGNAL CIRCUIT

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

Diagnosis Procedure

INFOID:0000000009061812

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1. CHECK CONTINUITY DISK EJECT SIGNAL CIRCUIT

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

Multifunction switch		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M72	14	M209	29	Existed

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

Multifunc	tion switch		Continuity
Connector	Terminal	Ground	Continuity
M72	14		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK AV CONTROL UNIT VOLTAGE

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

(+) AV control unit		(–)	Condition	Voltage	
Connector	Terminal			(Approx.)	
M209	29	Ground	Pressing the eject switch	0 V	
101209	29	Ground	Except for above	5.0 V	

Is the inspection result normal?

NO

YES >> Replace preset switch. Refer to AV-530, "Exploded View".

>> Replace AV control unit. Refer to AV-519, "Exploded View".

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Revision: 2013 March AV-483 2014 QX50

MODE CHANGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

MODE CHANGE SIGNAL CIRCUIT

Description INFOID:00000000000001813

AV control unit transmits the mode change signal to BOSE amp.

 Driver's Audio Stage controls the speaker's output characteristic by BOSE amp. so that the driver's seat is to be the center of sounds.

Diagnosis Procedure

INFOID:0000000009061814

1. CHECK CONTINUITY MODE CHANGE SIGNAL CIRCUIT

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

AV con	AV control unit		E amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M209	30	B41	17	Existed

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

BOSE	amp.		Continuity
Connector	Terminal	Ground	Continuity
B41	17		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK MODE CHANGE SIGNAL

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

(+) BOSE amp.		(-)	Condition	Voltage (Approx.)	
Connector	Terminal			(Approxi)	
B41	17	Ground	Driver's Audio Stage ON.	0 V	
D41 17		Ground	Driver's Audio Stage OFF.	8.5 V	

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-527, "Exploded View".

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

MICROPHONE SIGNAL CIRCUIT

Description INFOID:0000000009061815

Supply power from AV control unit to microphone. The microphone transmits the sound/voice to the AV control unit.

Diagnosis Procedure

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT

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

AV control unit		Microphone		Continuity
Connector	Terminals	Connector	Terminals	Continuity
	71		2	
M210	72	R17	4	Existed
	87		1	

Check continuity between AV control unit harness connector and ground.

AV control unit			Continuity
Connector	Terminals	0	Continuity
M210	72	Ground	Not existed
	87		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE MICROPHONE VCC

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

(+)	(–)		N/ 1/
AV control unit		AV control unit		Voltage (Approx.)
Connector	Terminal	Connector	Terminal	、 11
M210	72	M210	71	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

3. CHECK MICROPHONE SIGNAL

- Connect microphone connector.
- Check signal between AV control unit harness connector.

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INFOID:0000000009061816

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

-	+)	(-)		_	
AV cor	trol unit	AV con	itrol unit	Condition	Reference value
Connector	Terminal	Connector	Terminal		
M210	87	M210	71	Give a voice.	(V) 2. 5 2. 0 1. 5 1. 0 0. 5 0

Is the inspection result normal?

YES

>> Replace AV control unit. Refer to <u>AV-519</u>, "<u>Exploded View</u>". >> Replace microphone. Refer to <u>AV-532</u>, "<u>Exploded View</u>". NO

CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

CAMERA IMAGE SIGNAL CIRCUIT

Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.

Diagnosis Procedure

1. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

Display unit			monitor control nit	Continuity
Connector	Terminal	Connector	Terminal	
M195	8	B46	27	Existed

Check continuity between display unit harness connector and ground.

Displ	ay unit		Continuity
Connector	Terminal	Ground	Continuity
M195	8		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK CAMERA IMAGE SIGNAL

- Connect display unit connector and around view monitor control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between display unit harness connector and ground.

-	+) ay unit	(-)	Condition	Reference value
Connector	Terminal			
M195	8	Ground	At camera image is displayed.	(V) 0. 4 0 -0. 4 → 40µs SKIB2251J

Is inspection result normal?

YES >> Replace display unit. Refer to AV-520, "Exploded View".

NO >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

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FRONT CAMERA COMMUNICATION SIGNAL CIRCUIT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

FRONT CAMERA COMMUNICATION SIGNAL CIRCUIT

• Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061820

1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

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

Around view monitor control unit		Front camera		Continuity
Connector	Terminal	Connector Terminal		
B45	45	E73	6	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

	nonitor control nit		Continuity
Connector	Terminal	Ground	
B45	45		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMMUNICATION SIGNAL

- 1. Connect around view monitor control unit connector and front camera connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B45	45	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 1.0 μs JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

NO >> Replace front camera. Refer to AV-536, "Exploded View".

FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

FRONT CAMERA IMAGE SIGNAL CIRCUIT

Description INFOID:0000000009061821

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061822

- ${f 1.}$ CHECK CONTINUITY FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT
- Turn ignition switch OFF. Disconnect around view monitor control unit connector and front camera connector.
- Check continuity between around view monitor control unit harness connector and front camera harness connector.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector Terminals		
B45	44	E73	2	Existed
B45	46	L/3	1	LXISIGU

Check continuity between around view monitor control unit harness connector and ground.

	nonitor control nit		Continuity
Connector	Terminal	Ground	
B45	46		Not existed

Is inspection result normal?

YFS >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE FRONT CAMERA POWER SUPPLY

- Connect around view monitor control unit connector and front camera connector.
- Turn ignition switch ON. 2.
- Check voltage between around view monitor control unit harness connector.

(+) Around view monitor control unit		(–)	Condition	Voltage (Approx.)
Connector	Terminal			
B45	46	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

3.check continuity front camera image signal circuit

- Turn ignition switch OFF.
- Disconnect around view monitor control unit connector and front camera connector.
- Check continuity between around view monitor control unit harness connector and front camera harness connector.

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FRONT CAMERA IMAGE SIGNAL CIRCUIT

[BOSE AUDIO WITH NAVIGATION]

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector Terminals		
B45	41	E73	3	Existed
D40	42	⊑ 73	4	EXISTEC

4. Check continuity between around view monitor control unit harness connector and ground.

	nonitor control nit		Continuity
Connector	Terminals	Ground	
B45	41, 42		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK FRONT CAMERA IMAGE SIGNAL

- 1. Connect around view monitor control unit connector and front camera connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector.

(-	+)	(-)			
Around view monitor control unit		Around view monitor control unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B45	41	B45	42	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 + 40 μ s JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

NO >> Replace front camera. Refer to AV-536, "Exploded View".

REAR CAMERA COMMUNICATION SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

REAR CAMERA COMMUNICATION SIGNAL CIRCUIT

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061824

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1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

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

Around view monitor control unit		Rear camera		Continuity
Connector	Terminal	Connector Terminal		
B46	35	D111	4	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

	nonitor control nit		Continuity
Connector	Terminal	Ground	
B46	35		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL

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

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B46	35	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535. "Exploded View".

NO >> Replace rear camera. Refer to AV-537, "Exploded View".

REAR CAMERA IMAGE SIGNAL CIRCUIT

[BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

REAR CAMERA IMAGE SIGNAL CIRCUIT

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061826

1. CHECK CONTINUITY REAR CAMERA POWER SUPPLY AND GROUND CIRCUIT

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

Around view monitor control unit		Rear camera		Continuity
Connector	Terminals	Connector Terminals		
B46	36	D111	8	Existed
D40	38	וווט	7	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

	nonitor control nit		Continuity
Connector	Terminal	Ground	
B46	36		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE REAR CAMERA POWER SUPPLY

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

(+) Around view monitor control unit		(–)	Condition	Voltage (Approx.)
Connector	Terminal			
B46	36	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

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

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

REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Around view monitor control unit		Rear camera		Continuity
Connector	Terminals	Connector Terminals		
B46	39	D111	5	Existed
B40	40	וווט	1	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		0	Continuity
Connector	Terminals	Ground	
B46	39, 40		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK REAR CAMERA IMAGE SIGNAL

- 1. Connect around view monitor control unit connector and rear camera connector.
- 2. Turn ignition switch ON.

3. Check signal between around view monitor control unit harness connector.

(+) Around view monitor control unit		(-) Around view monitor control unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B46	39	B46	40	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 +40 μs JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535, "Exploded View"

NO >> Replace rear camera. Refer to <u>AV-537, "Exploded View"</u>.

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SIDE CAMERA LH COMMUNICATION SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

SIDE CAMERA LH COMMUNICATION SIGNAL CIRCUIT

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061828

1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
- 3. Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

Around view monitor control unit			mirror r side)	Continuity
Connector	Terminal	Connector Terminal		
B45	47	D3	3	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B45	47		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (driver side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B45	47	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 + 1.0 \(\psi \) JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

NO >> Replace side camera LH. Refer to AV-538, "Exploded View".

SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

Description INFOID:0000000000001829

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061830

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1. CHECK CONTINUITY SIDE CAMERA LH POWER SUPPLY AND GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
- 3. Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

Around view monitor control unit		Door mirror	(driver side)	Continuity
Connector	Terminals	Connector	Terminals	
B45	48	D3	6	Existed
D40	50	טט	18	LAISIEU

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminal	Ground	
B45	48		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE SIDE CAMERA LH POWER SUPPLY

- 1. Connect around view monitor control unit connector and door mirror (driver side) connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Voltage (Approx.)	
Connector	Terminal				
B45	48	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V	

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

3.check continuity side camera LH image signal circuit

- Turn ignition switch OFF.
- Disconnect around view monitor control unit connector and door mirror (driver side) connector.
- Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

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SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

[BOSE AUDIO WITH NAVIGATION]

Around view monitor control unit		Door mirror	(driver side)	Continuity
Connector	Terminals	Connector	Terminals	
B45	51	D3	5	Existed
B4 3	52	DS	17	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit			Continuity
Connector	Terminals	Ground	
B45	51, 52		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK SIDE CAMERA LH IMAGE SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (driver side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector.

((+) (-)				
Around view monitor control unit		Around view monitor control unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B45	51	B45	52	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 +40 μ s JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

NO >> Replace side camera LH. Refer to <u>AV-538, "Exploded View"</u>.

SIDE CAMERA RH COMMUNICATION SIGNAL CIRCUIT [DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION]

< DTC/CIRCUIT DIAGNOSIS >

SIDE CAMERA RH COMMUNICATION SIGNAL CIRCUIT

Description INFOID:00000000000001831

- Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.
- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

1. CHECK CONTINUITY COMMUNICATION SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
- 3. Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

Around view monitor control unit			mirror ger side)	Continuity
Connector	Terminal	Connector Terminal		
B46	33	D33	3	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

	nonitor control nit		Continuity
Connector	Terminal	Ground	
B46	33		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK COMMUNICATION SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Reference value
Connector	Terminal			
B46	33	Ground	"CAMERA" switch is ON or shift position is "R".	(V) 5 4 3 2 1 0 JSNIA0836GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535. "Exploded View".

NO >> Replace side camera RH. Refer to AV-539, "Exploded View".

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SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION]

SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

 Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the display unit.

- Superimpose the guiding lines, predictive course line and sonar indicator to the camera image that outputs to the display unit.
- Around view monitor control unit performs the reception/transmission of communication signal with each camera.

Diagnosis Procedure

INFOID:0000000009061834

1. CHECK CONTINUITY SIDE CAMERA RH POWER SUPPLY AND GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
- Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

Around view monitor control unit		Door mirror (passenger side)		Continuity
Connector	Terminals	Connector Terminals		
D/16	34	D33	6	Existed
B46	32	ددر	18	EXISIEU

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		0	Continuity
Connector	Terminal	Ground	
B46	34		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

$2.\mathsf{CHECK}$ VOLTAGE SIDE CAMERA RH POWER SUPPLY

- 1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between around view monitor control unit harness connector and ground.

(+) Around view monitor control unit		(–)	Condition	Voltage (Approx.)
Connector	Terminal			
B46	34	Ground	"CAMERA" switch is ON or shift position is "R".	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

3.CHECK CONTINUITY SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
- Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Around view monitor control unit		Door mirror (passenger side)		Continuity
Connector	Terminals	Connector Terminals		
B46	29	D33	5	Existed
D40	30	DSS	17	Existed

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		01	Continuity
Connector	Terminals	Ground	
B46	29, 30		Not existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK SIDE CAMERA RH IMAGE SIGNAL

- 1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
- 2. Turn ignition switch ON.
- 3. Check signal between around view monitor control unit harness connector.

(+)	(-)			
	nonitor control nit	Around view monitor control unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B46	29	B46	30	"CAMERA" switch is ON or shift position is "R".	(V) 1 0 -1 + 40 μ s JSNIA0834GB

Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-535, "Exploded View".

NO >> Replace side camera RH. Refer to AV-539, "Exploded View".

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STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION]

STEERING SWITCH SIGNAL A CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000009061836

1. CHECK STEERING SWITCH SIGNAL A CIRCUIT

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

AV cor	AV control unit		cable	Continuity
Connector	Terminal	Connector Terminal		Continuity
M208	6	M36	24	Existed

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

AV cor	trol unit		Continuity
Connector	Terminal	Ground	Continuity
M208	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK AV CONTROL UNIT VOLTAGE

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

(+)		(–)		V 16
AV control unit		AV control unit		Voltage (Approx.)
Connector	Terminal	Connector Terminal		(11 -)
M208	6	M208	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View"

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-500, "Component Inspection"</u>.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15</u>, "Exploded View".

Component Inspection

INFOID:0000000009061837

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

STEERING SWITCH SIGNAL A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

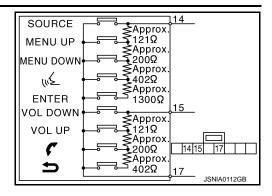
Standard

Between terminals 14 and 17

ENTER switch ON : $2003 - 2043 \Omega$ \swarrow switch ON : $716 - 730 \Omega$ MENU DOWN switch ON : $318 - 324 \Omega$ MENU UP switch ON : $120 - 122 \Omega$ SOURCE switch ON : 0Ω

Between terminals 15 and 17

Switch ON : $716 - 730 \Omega$ **Switch ON** : $318 - 324 \Omega$ **VOL UP switch ON** : $120 - 122 \Omega$ **VOL DOWN switch ON** : 0Ω



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STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

STEERING SWITCH SIGNAL B CIRCUIT

Description

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000009061839

1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

AV cor	AV control unit Spiral cable		cable	Continuity
Connector	Terminal	Connector Terminal		Continuity
M208	16	M36	31	Existed

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M208	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK AV CONTROL UNIT VOLTAGE

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

(+)		(–)		Voltage (Approx.)
AV control unit		AV control unit		
Connector	Terminal	Connector	Terminal	(11 -)
M208	16	M208	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View".

4. CHECK STEERING SWITCH

- Turn ignition switch OFF.
- Check steering switch. Refer to <u>AV-502</u>, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to <u>ST-15</u>, "Exploded View".

Component Inspection

INFOID:0000000009061840

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

STEERING SWITCH SIGNAL B CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Standard

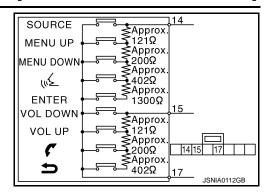
Between terminals 14 and 17

 $\begin{array}{lll} \text{ENTER switch ON} & : 2003 - 2043 \ \Omega \\ \\ \text{w} \not \leq \text{ switch ON} & : 716 - 730 \ \Omega \\ \\ \text{MENU DOWN switch ON} & : 318 - 324 \ \Omega \\ \\ \text{MENU UP switch ON} & : 120 - 122 \ \Omega \\ \end{array}$

SOURCE switch ON : 0 Ω

Between terminals 15 and 17

Switch ON : $716 - 730 \Omega$ **Switch ON** : $318 - 324 \Omega$ **VOL UP switch ON** : $120 - 122 \Omega$ **VOL DOWN switch ON** : 0Ω



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STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS > [BOSE AUDIO WITH NAVIGATION]

STEERING SWITCH GROUND CIRCUIT

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000009061842

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M208	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

3.CHECK GROUND CIRCUIT

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

AV control unit			Continuity
Connector	Terminal	Ground	Continuity
M208	15		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit. Refer to AV-519, "Exploded View"

4. CHECK STEERING SWITCH

- 1. Turn ignition switch OFF.
- 2. Check steering switch. Refer to AV-504, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch. Refer to ST-15, "Exploded View"

Component Inspection

INFOID:0000000009061843

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

STEERING SWITCH GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

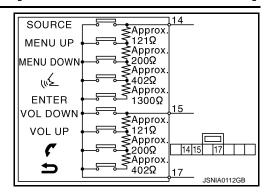
Standard

Between terminals 14 and 17

ENTER switch ON : $2003 - 2043 \Omega$ \swarrow switch ON : $716 - 730 \Omega$ MENU DOWN switch ON : $318 - 324 \Omega$ MENU UP switch ON : $120 - 122 \Omega$ SOURCE switch ON : 0Ω

Between terminals 15 and 17

S switch ON $: 716 - 730 \Omega$ \checkmark switch ON $: 318 - 324 \Omega$ VOL UP switch ON $: 120 - 122 \Omega$ VOL DOWN switch ON $: 0 \Omega$



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SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table INFOID:0000000000001844

RELATED TO NAVIGATION

Symptoms	Check items	Probable malfunction location
	All switches cannot be operated. "MULTI AV" is displayed on system selection screen when the CONSULT is started.	 Multifunction switch power supply and ground circuit malfunction. AV communication circuit between AV control unit and multifunction switch. Perform CONSULT self-diagnosis. Refer to AV-370. "CONSULT Function (MULTI AV)".
Multifunction switch and preset switch operation does not work.	All switches cannot be operated. "MULTI AV" is not displayed on system selection screen when the CONSULT is initialized.	AV control unit power supply and ground circuit malfunction. Refer to AV-476, "AV CONTROL UNIT : Diagnosis Procedure".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-diagnosis function. Refer to AV-360, "On Board Diagnosis Function".
	There is malfunction in the CONSULT "self-diagnosis result" of "MULTI AV". Refer to AV-370, "CONSULT Function (MULTI AV)".	Perform detected DTC diagnosis. Refer to AV-384, "DTC Index".
Fuel economy display is abnormal.	There is no malfunction in the CON- SULT "self-diagnosis results" of "MULTI AV". Refer to AV-370, "CONSULT Function (MULTI AV)".	Ignition signal circuit malfunction.
Start of the AV control unit takes time.	_	Front door switch signal circuit malfunction.
Guide sound is not heard or too low.	On the setting display select "system sound (guide sound volume, etc.)," and confirm that guide sound is ON.	AV control unit malfunction. Replace AV control unit. Refer to AV-519, "Exploded View".

RELATED TO HANDS-FREE PHONE

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

Check Compatibility

- Make sure the customer's Bluetooth[®] related concern is understood.
- 2. Verify the customer's concern.

NOTE:

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

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

NOTE:

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

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

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Stop diagnosis here. The customer needs to obtain a Bluetooth[®] phone that is on the approved list before any further action.

- c. If the feature related to the customer's concern shows as "N" (not compatible): Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as "Y" (compatible) in the "Basic Features" list.
- d. If the feature related to the customer's concern shows as "Y" (compatible): Perform diagnosis as per the following table.

Symptoms	Check items	Probable malfunction location	
Does not recognize cellular phone connection. (no connection is displayed on the display at the guide.)	Repeat the registration of cellular phone.		
Hands-free phone cannot be established.	 Hands-free phone operation can be made, but the communication cannot be established. Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation. 	AV control unit malfunction. Replace AV control unit. Refer to AV-519, "Exploded View".	
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in Inspection & Adjustment Mode if sound is heard.		
Originating sound is not heard	Sound operation function is normal.		
by the other party with hands- free phone communication.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-485. "Diagnosis Procedure".	
	Steering switch's "VOL UP", "VOL DOWN", "" switch works, but "" it does not work.	Steering switch malfunction. Replace steering switch. Refer to ST-15, "Exploded View".	
The system cannot be operated.	Steering switch's " (", "VOL UP", "VOL DOWN", " switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-502, "Diagnosis Procedure".	
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-504, "Diagnosis Procedure".	

RELATED TO AROUND VIEW MONITOR

Symptoms	Check items	Probable malfunction location / Action to take
	"Camera Cont." of "Confirmation/Adjustment" can be selected.	Ignition signal circuit malfunction (around view monitor control unit).
It does not switch to camera image even when the "CAMERA" switch is pressed or the selector lever is in the reverse position.	"Camera Cont." of "Confirmation/Adjustment" cannot be selected.	 Around view monitor control unit power supply and ground circuits malfunction. Refer to AV-478, "AROUND VIEW MONITOR CONTROL UNIT: Diagnosis Procedure". AV communication circuits malfunction. Refer to AV-370, "CONSULT Function (MULTI AV)".

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[BOSE AUDIO WITH NAVIGATION]

Symptoms	Cr	neck items	Probable malfunction location / Action to take
The screen switches when pressing the "CAMERA" switch or shifting the selector lever to the reverse posi-	Only superimposing is displayed. (Only the image displayed by AV control unit is displayed)		Camera image signal circuit between around view monitor control unit and display unit malfunction. Refer to AV-487, "Diagnosis Procedure".
tion, however, all views are not displayed.	Superimposing is not displayed.		Communication circuit between AV control unit and display unit malfunction. Refer to AV-370, "CONSULT Function (MULTI AV)".
Camera image is rolling.	_		Communication circuit between AV control unit and display unit malfunction. Refer to AV-370, "CONSULT Function (MULTI AV)".
It cannot be switched to rear view screen even when the selector lever is in the reverse position.	The front view is displayed normally.		Reverse signal circuit malfunction. (AV control unit)
 The front view screen is not displayed. The front of Birds-Eye view screen is not displayed. 	Check the item Front Camera in "Connec- tion Confirmation" mode of "Camera Cont."	Image Output Signal: NG COMM Status: NG COMM Line: NG	Front camera image signal circuit malfunction. Front camera power supply and ground circuits malfunction. Refer to AV-489, "Diagnosis Procedure".
		Image Output Signal: OK COMM Status: NG COMM Line: NG	Front camera communication signal circuit malfunction. Refer to AV-488, "Diagnosis Procedure".
 The rear view screen is not displayed. The rear of Birds-Eye view screen is not displayed. 	Camera in "Connec-	Image Output Signal: NG COMM Status: NG COMM Line: NG	Rear camera image signal circuit malfunction. Rear camera power supply and ground circuits malfunction. Refer to AV-492, "Diagnosis Procedure".
is not displayed.	Cont."	Image Output Signal: OK COMM Status: NG COMM Line: NG	Rear camera communication signal circuits malfunction. Refer to AV-491, "Diagnosis Procedure".
 The front-side screen is not displayed. The passenger side of Birds-Eye 	Check the item Pass- Side Camera in "Con- nection Confirmation" mode of "Camera	Image Output Signal: NG COMM Status: NG COMM Line: NG	Side camera RH image signal circuit malfunction. Side camera RH power supply and ground circuits malfunction. Refer to AV-498, "Diagnosis Procedure".
view screen is not displayed.	Cont."	Image Output Signal: OK COMM Status: NG COMM Line: NG	Side camera RH communication circuit malfunction. Refer to AV-497, "Diagnosis Procedure".

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items		Probable malfunction location / Action to take
The driver side of Birds-eye view screen is not displayed.	Check the item Dr- Side Camera at "Con- nection Confirmation" mode of "Camera	Image Output Signal: NG COMM Status: NG COMM Line: NG	Side camera LH image signal circuit malfunction. Side camera LH power supply and ground circuits malfunction. Refer to AV-495, "Diagnosis Procedure".
	Cont."	Image Output Signal: OK COMM Status: NG COMM Line: NG	Side camera LH communication circuit malfunction. Refer to <u>AV-494</u> , " <u>Diagnosis Procedure"</u> .
When shift position is other than "R" the front-side and front screen or the Birds-Eye view and front screen remain displaying even if the vehicle speed increases.		_	Vehicle speed signal circuit malfunction (around view monitor control unit).

RELATED TO CAMERA ASSISTANCE SONAR

Symptoms	Check items	Probable malfunction location / Action to take
The malfunction is detected in the sonar indicator (Always displayed in red)	The malfunction is detected in only 1 indicator (Always displayed in red).	Corner sensor malfunction in corresponding area. Corner sensor harness circuit in corresponding area. Perform CONSULT "self-diagnosis" of "SONAR". Refer to AV-377, "CONSULT Function (SONAR)".
	The malfunction is detected in all 4 indicators (Always displayed in red).	Corner sensor ground circuit malfunction. Perform CONSULT "self-diagnosis" of "SONAR". Refer to AV-377, "CONSULT Function (SONAR)". Sonar control unit power supply and ground circuits malfunction. AV communication circuits malfunction. Perform CONSULT "self-diagnosis" of "MULTI AV". Refer to AV-370, "CONSULT Function (MULTI AV)".
The sonar indicator is normal, but the buzzer does not sound	_	Replace sonar control unit. Refer to AV-540, "Exploded View".

RELATED TO RGB IMAGE

Symptoms	Check items	Probable malfunction location
RGB image is not shown.	_	RGB digital image signal circuit malfunction. Refer to AV-481, "Diagnosis Procedure".

RELATED TO VOICE CONTROL

Symptoms	Check items	Probable malfunction location
The voice cannot be controlled even if the voice control screen	Voice sounds at "Voice Microphone Test" of Confirmation/Adjustment mode.	AV control unit malfunction. Replace AV control unit. Refer to AV-519, "Exploded View".
is displayed.	Voice does not sound at "Voice Micro- phone Test" of Confirmation/Adjustment mode.	Microphone circuit malfunction. Refer to AV-485, "Diagnosis Procedure".

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< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptoms	Check items	Probable malfunction location
	Steering switch's "SOURCE", "MENU UP", "MENU DOWN", "ENTER" switch works, but "	Steering switch malfunction. Replace steering switch. Refer to ST-15, "Exploded View".
The voice cannot be controlled (Voice control screen is not displayed).	Steering switch's "SOURCE", "MENU UP", "MENU DOWN", " " "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to AV-500, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-504, "Diagnosis Procedure".

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-483, "Diagnosis Procedure".
	No sound from all speakers.	BOSE amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to AV-478, "BOSE AMP. : Diagnosis Procedure".
No sound comes out or the lev-	Sound is not heard from woofer.	 Woofer power supply and ground circuit malfunction. Sound signal (woofer) circuit malfunction. Woofer amp. ON signal circuit malfunction.
el of the sound is low.	Only a certain speaker (front right, front left, rear right, or rear left, etc.) does not output sound.	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Malfunction in AV control unit. Malfunction in BOSE amp.
	Noise comes out from all speakers.	Malfunction in AV control unit. Malfunction in BOSE amp.
Noise is mixed with audio.	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left, etc.).	 Poor connector connection of speaker. Sound signal circuit malfunction between AV control unit and BOSE amp. Sound signal circuit malfunction between BOSE amp. and speaker. Malfunction in speaker. Poor installation of speaker (e.g. backlash and looseness) Malfunction in AV control unit. Malfunction in BOSE amp.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to AV-528. "Exploded View".
Radio is not received or poor reception.	Other audio sounds are normal. Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	 Antenna amp. ON signal circuit malfunction. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-528</u>. "Exploded View".

< SYMPTOM DIAGNOSIS >

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Symptoms	Check items	Probable malfunction location
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-370, "CONSULT Function (MULTI AV)".	 Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-384, "DTC Index". Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder.
	There is no malfunction in the CONSULT self-diagnosis result. Refer to AV-370, "CONSULT Function (MULTI AV)".	 Poor continuity in antenna feeder. Poor connector connection of antenna or antenna feeder. Loose antenna base mounting nut. Refer to <u>AV-528</u>, "<u>Exploded View</u>".

RELATED TO STEERING SWITCH

Symptoms	Probable malfunction location
None of the steering switch operations work.	Steering switch ground circuit malfunction. Refer to AV-504, "Diagnosis Procedure".
Only specified switch cannot be operated.	Steering switch malfunction. Replace steering switch. Refer to ST-15, "Exploded View".
Steering switch's "SOURCE", "MENU UP", "MENU DOWN", " "", "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to AV-500, "Diagnosis Procedure".
Steering switch's "", "VOL UP", "VOL DOWN", "" switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-502, "Diagnosis Procedure".

RELATED TO USB

NOTE:

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

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

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

RELATED TO DVD MODE

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	_	Disk eject signal circuit malfunction. Refer to AV-483, "Diagnosis Procedure".
DVD image is not displayed.	_	Perform CONSULT self-diagnosis. Refer to AV-370. "CONSULT Function (MULTI AV)". When detecting no malfunction in those components, the following items are a possible cause. • Composite image signal circuits malfunction. Refer to AV-482, "Diagnosis Procedure".
	No sound from all speakers.	Amp. ON signal circuit malfunction. BOSE amp. power supply and ground circuits malfunction. Refer to AV-478, "BOSE AMP.: Diagnosis Procedure".
DVD sound is not heard.	Sound is not heard from woofer.	 Woofer power supply and ground circuit malfunction. Sound signal (woofer) circuit malfunction. Woofer amp. ON signal circuit malfunction.
	Sound is heard only from specific places.	Sound signals circuit of suspect system.

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NOTE:

For Navigation system operation information, refer to Navigation system Owner's Manual.

BASIC OPERATIONS

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
	The systems in the video mode.	Press "DISC-AUX" to change the mode.
No image is displayed.	The display is turned off.	Press "*/->" to turn on the display.
,	The interior of the vehicle becomes the a little less than 80°C (176°F) or high temperature, and the protection of the display acts, and a display is turned off.	Wait until the interior of the vehicle has cooled down.
Screen not clear.	Contrast setting is not appropriate.	Adjust the contrast of the display.
No voice quidance is available Or	The volume is not set correctly, or it is turned off.	Adjust the volume of voice guidance.
No voice guidance is available. Or The volume is too high or too low.	Voice guidance is not provided for certain streets (roads displayed in gray).	This is not a malfunction.
No map is displayed on the screen.	A screen other than map screen is displayed.	Press "MAP".
The screen is too dim. The movement is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be selected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the navigation system.

NOTE:

Locations stored in the Address Book and other memory functions may be lost if the vehicle's battery is disconnected or becomes discharged. If this occurs, service the vehicle's battery as necessary and re-enter the information in the Address Book.

RELATED TO VOICE RECOGNITION

Related to Basic Operation

Symptom	Possible cause	Possible solution
	The interior of the vehicle is too noisy.	Close the windows or have other occupants quiet.
	The volume of your voice is too low.	Speak louder.
	The volume if your voice is too loud.	Speak softer.
	Your pronunciation is unclear.	Speak clearly.
The system does not recognize your com- mand. or	You are speaking before the voice recognition is ready	Press and release "v\sum_v\subsetex" switch on the steering switch, and speak a command after the tone sounds.
The system recognizes your command incorrectly	8 seconds or more have passed after you pressed and released "√∠" switch on the steering switch.	Make sure to speak a command within 8 seconds after you press and release ""½" switch on the steering switch.
	Only a limited range of voice commands is usable for each screen.	Use a correct voice command appropriate for the current screen.
	The fan of the air conditioner is too loud.	Lower the fan speed as necessary as voice command can be recognized more easily.

Related to Item Choice

The system should respond correctly to all voice commands without difficulty. If problems are encountered, follow the solutions given in this guide for the appropriate error.

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

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

Symptom/ error message	Solution	
	Ensure that the command format is valid.	
	2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level.	
Displays "COMMAND NOT REC- OGNIZED" or the system fails to in- terpret the command correctly.	3. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on. NOTE: If it is too noisy to use the phone, it is likely that voice commands will not be recognized.	
	4. If optional words of the command have been omitted, then command should be tried with these in place.	
The system consistently selects	1. Ensure that the voicetag requested matches what was originally stored. This can be confirmed by giving the "Addressbook" Directory or Phone Directory command.	
the wrong voicetag	2. Replace one of the voicetags being confused with a different voicetag.	

Related to Telephone

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

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

Symptom	Solution	
	Ensure that the command is valid.	
	2. Ensure that the command is spoken after the tone.	
	3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle.	
System fails to interpret the command correctly.	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). NOTE: If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.	
	5. If more than one command was said at a time, try saying the commands separately.	
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. See "Speaker adaptation (SA) mode" earlier in this section. Refer to "OWNER'S MANUAL".	
The system consistently selects	Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the "List Names" command.	
the wrong voicetag	2. Replace one of the names being confused with a new name.	

RELATED TO AUDIO

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

NOTE:

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

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[BOSE AUDIO WITH NAVIGATION]

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

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

NOTE:

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from a time difference between the broadcast waves directly from the station arriving at the antenna and the waves reflected by mountains or buildings.

RELATED TO DVD

Symptom	Possible cause	Possible solution
Not working as operated	Some operations may be rejected or may not function as intended because of the manufacturer's intent, depending on DVD.	This is not a malfunction.
Operation not accepted	If a requested operation is prohibited, then a message is displayed on the screen. (Message display depends on DVD.)	This is not a malfunction.

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptom	Possible cause	Possible solution	
	Check that the DVD is inserted in the right place.	Upturn the DVD (facing the title upward).	
	Check that there is no condensation inside the player.	Wait until the condensation evaporates (approximately one hour).	
DVD can not be played	DVD menu is displayed.	Select item to touch "ENTER".	
2 · 2 · cam not so played	Insertion of a DVD with a different region code.	DVDs with a different region code can not be played. Check DVD.	
	Some DVD softwares may not be played because not all DVD softwares fully comply in the standard.	This is not a malfunction.	
Interruption during play- back or flicker in the dis-	Check that the DVD has no scratches and dirt.	Errors may not be corrected depending on the size of scratches.	
play		Wipe and clean the dirt on the disc.	
Subtitles not shown	Subtitle setting is OFF.	Set subtitle.	
Subtitles not snown	Subtitle is not included in the software.	Check DVD.	
Not played in set language	If a language is not included in the DVD, then the DVD is played in a recommended language.	Check DVD.	
Not played with set subtitle	If a set subtitle is not included in the DVD, then the DVD is played with a recommended subtitle.	Check DVD.	
Angle unchangeable	Plural angles are not recorded in the software.	Check if the DVD is multi–angle capable.	
Unusual screen display	Display mode to the output aspect ratio for the DVD software is inappropriate.	Switch to the appropriate display mode.	
Distortion in picture	In the process of fast–forward or fast–reverse.	This is not a malfunction.	
Low sound quality	Check that the DVD has no scratches and dirt.	Wipe and clean the dirt on the disc.	
Subtitle and language not selectable (not played with set subtitle or in set language)	The DVD is not multilanguage-capable.	The inclusion of the number of languages depends on DVD. Languages may be selectable on the Menu screen. Check DVD.	
	The DVD has a priority language or setting.	If the DVD has a priority language or settings, then settings changed with this device are not reflected.	
Playback time is indicated, but no sound comes out.	Playback of Mix mode Truck 1. (Mix mode: Format including Truck 1 with data other than music and Trucks from Truck 2 with music data.)	Play music data included in trucks from Truck 2.	

RELATED TO VEHICLE ICON

Symptom	Possible cause	Possible solution
Names of roads differ between Plan View and Birdview [®] .	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 displayed multiple times, and the names appearing on the screen may be different because of a processing procedure.	This is not a malfunction.
	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 environments and the levels of positioning accuracy of the navigation system.	This is not a malfunction. Drive the vehicle for a while to automatically correct the position and direction of the vehicle icon.
When the vehicle is traveling on a new road, the vehicle icon is located on another road nearby	Because the new road is not stored in the map data, the system automatically places the vehicle icon on the pearest 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 using <day night=""> when you turn on the headlights.</day>
The map does not scroll even when the vehicle is moving.	The current location map screen is not displayed.	Press "MAP".
The vehicle icon is not displayed.	The current location map screen is not displayed.	Press "MAP".
The location of the vehicle icon is misaligned from the actual position.	When using tire chains or replacing the tires, speed calculations based on the speed sensor may be incorrect.	Drive the vehicle for a while [at approximately 30 km/h (19 MPH) for about 30 minutes] to automatically correct the vehicle icon position. If this does not correct the vehicle icon position, contact an INFINITI dealer.
	The map data has a mistake or is incomplete (the vehicle icon position is always misaligned in the same area).	Updated road information will be included in the next version of the map data.

RELATED TO ROUTE CALCULATION AND VISUAL GUIDANCE

Symptom	Possible cause	Possible solution
Waypoints are not included in the auto reroute calculation.	Waypoints that you have already passed are not included in the auto reroute calculation.	If you want to go to that waypoint again, you need to edit the route.
	Route calculation has not yet been performed.	Set the destination and perform route calculation.
Route information is not dis-	You are not driving on the suggested route.	Drive on the suggested route.
played.	Route guidance is set to off.	Turn on route guidance.
	Route information is not provided for certain types of roads (roads displayed in gray).	This is not a malfunction.
The auto reroute calculation (or detour calculation) suggests the same route as the one previously suggested.	Route calculations took priority conditions into consideration, but the same route was calculated.	This is not a malfunction.
A waypoint cannot be added.	Five waypoints are already set on the route, including ones that you have already passed.	A maximum of 5 waypoints can be set on the route. If you want to go to 6 or more waypoints, perform route calculations multiple times as necessary.
	Roads near the destination cannot be calculated.	Reset the destination to a main or ordinary 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.
	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 ordinary road, and recalculate the route.

< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptom	Possible cause	Possible solution
The landmark information does not correspond to the actual information.	This may be caused by insufficient or incorrect map data.	Updated information will be included in the next version of the data.
The suggested route does not exactly connect to the starting point, waypoints, or destination.	There is no data for route calculation closes to these locations.	Set the starting point, waypoints and destination on a main road, and perform route calculation.

RELATED TO VOICE GUIDANCE

Symptom	Possible cause	Possible solution
Voice guidance is not available	Voice guidance is only available at certain intersections marked with? In some case, voice guidance is not available even when the vehicle should make a turn.	This is not a malfunction.
	The vehicle has deviated from the suggested route.	Go back to the suggested route or request route calculation again
	Voice guide is set to off.	Turn on voice guidance.
	Route guidance is set to off.	Turn on voice guidance.
The guidance contact does not correspond to the actual condition.	The contact of voice guidance may vary, depending on the types of intersections at which turn are made.	Follow all traffic rules and regulations.

RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection. (No connection is displayed on the display at the guide.)	Some Bluetooth [®] enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" of MULTI AV SYSTEM SYMPTOM.
Cannot use hands-free phone	Customer will not be able to use a hands-free phone under the following conditions. The vehicle is outside of the telephone service area. The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. The cellular phone is locked to prevent it from being dialed. NOTE: While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

RELATED TO SONAR

Revision: 2013 March AV-517 2014 QX50

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< SYMPTOM DIAGNOSIS >

[BOSE AUDIO WITH NAVIGATION]

Symptom	Possible cause	
Unstable object detection	 The vehicle is on a rough surface, such as stone or gravel. When used in poor weather conditions, such as heavy snow/rain or strong wind. When subjected to an ultrasonic noise generated from exhaust muffler or brakes. When left standing in the hot sun or in a cold climate. When the surface of the sensor is frozen or covered with snow/dirt/moisture. When a retrofitted xenon lamp, lighted license plate, or harness is close to the sensor body or sensor harness. When subjected to loop coil noises generated from a vehicle detector placed at an intersection or coin parking area. 	
Object undetectable	 Air-containing objects, such as cloth, cotton, glass wool, dust, and snow. Thin objects, such as rope, chain, and wire. Smooth-faced objects placed in a slanting direction. Fast-moving small animals. A corner of an angular object. NOTE: If the sensor detection part is scratched, obstacles cannot be detected. 	

REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

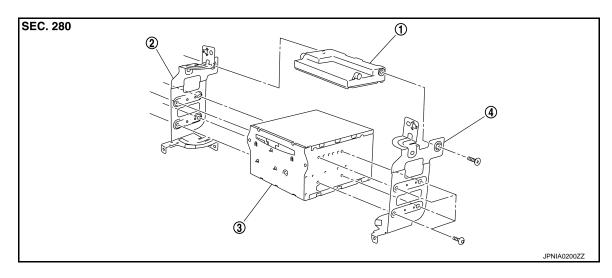
CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-425, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure".</u>

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



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

3. AV control unit

4. Bracket RH

Removal and Installation

REMOVAL

CAUTION:

Before replacing AV control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>AV-425, "ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT: Work Procedure"</u>.

- Remove display unit. Refer to <u>AV-520, "Exploded View"</u>
- 2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
- 3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

- Be sure to perform "Read/Write Configuration" when replacing AV control unit. For details, refer to <u>AV-426, "CONFIGURATION (AV CONTROL UNIT): Work Procedure"</u>.
- 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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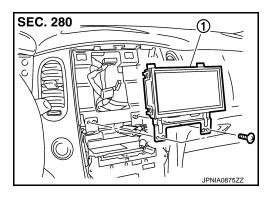
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DISPLAY UNIT

Exploded View

INFOID:0000000009061848

1. Display unit



Removal and Installation

INFOID:0000000009061849

REMOVAL

- 1. Remove cluster lid D. Refer to IP-12, "Exploded View".
- 2. Remove display unit mounting screws.
- 3. Remove display unit.

INSTALLATION

Install in the reverse order of removal.

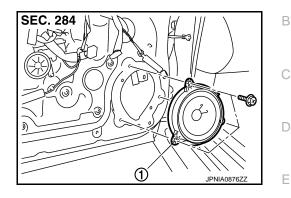
FRONT DOOR SPEAKER

[BOSE AUDIO WITH NAVIGATION]

FRONT DOOR SPEAKER

Exploded View

1. Front door speaker



Removal and Installation

REMOVAL

- 1. Remove front door finisher. Refer to <u>INT-11</u>, "<u>DRIVER SIDE</u>: <u>Exploded View</u>" (driver side) or <u>INT-14</u>, "<u>PASSENGER SIDE</u>: <u>Exploded View</u>" (passenger side).
- 2. Remove front door speaker mounting bolts, disconnect the front door speaker connector.
- 3. Remove front door speaker.

INSTALLATION

Install in the reverse order of removal.

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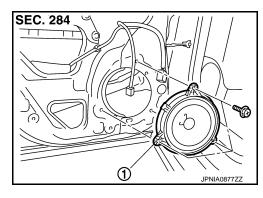
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REAR DOOR SPEAKER

Exploded View

1. Rear door speaker



Removal and Installation

INFOID:0000000009061853

REMOVAL

- 1. Remove rear door finisher. Refer to INT-17, "Exploded View".
- 2. Remove rear door speaker mounting bolts, disconnect the rear door speaker connector.
- 3. Remove rear door speaker.

INSTALLATION

Install in the reverse order of removal.

FRONT SQUAWKER

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

FRONT SQUAWKER

Exploded View

INFOID:0000000009061854

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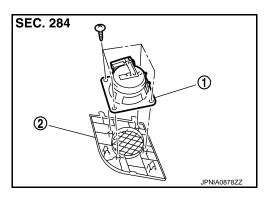
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- 1. Front squawker
- 2. Speaker grille



Removal and Installation

Val and Installation

REMOVAL

- 1. Lift up the speaker grille with squawker. Refer to IP-12, "Exploded View".
- 2. Disconnect the front squawker connector.
- 3. Remove front squawker mounting screws.
- 4. Remove front squawker.

INSTALLATION

Install in the reverse order of removal.

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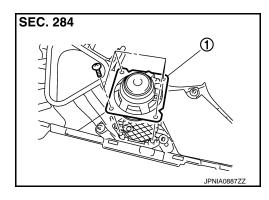
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REAR SQUAWKER

Exploded View

1. Rear squawker



Removal and Installation

INFOID:0000000009061857

REMOVAL

- 1. Remove luggage side finisher upper. Refer to INT-36, "Exploded View".
- 2. Remove rear squawker mounting screws.
- 3. Remove rear squawker.

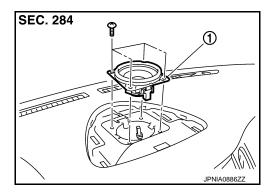
INSTALLATION

Install in the reverse order of removal.

CENTER SPEAKER

Exploded View

1. Center speaker



Removal and Installation

INFOID:0000000009061859

REMOVAL

- 1. Remove center speaker grille. Refer to IP-12, "Exploded View".
- Remove center speaker mounting screws, lift up the center speaker and disconnect center speaker connector.
- 3. Remove center speaker.

INSTALLATION

Install in reverse order of removal.

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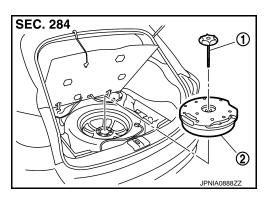
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WOOFER

Exploded View

- 1. Woofer clamp
- 2. Woofer



Removal and Installation

INFOID:0000000009061861

REMOVAL

- 1. Remove luggage finisher center. Refer to INT-36, "Exploded View".
- 2. Remove woofer clamp.
- 3. Remove harness clip and woofer connector.
- 4. Remove woofer.

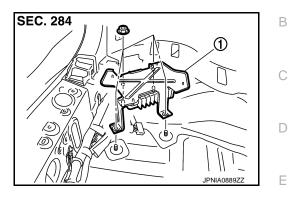
INSTALLATION

Install in the reverse order of removal.

BOSE AMP.

Exploded View

BOSE amp.



Removal and Installation

REMOVAL

- 1. Remove luggage floor spacer (LH). Refer to INT-36, "Exploded View".
- Remove BOSE amp. mounting nuts.
- 3. Remove BOSE amp.

INSTALLATION

Install in reverse order of removal.

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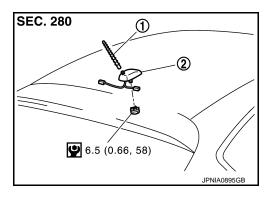
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ANTENNA BASE

Exploded View

- 1. Antenna rod
- 2. Antenna base

Refer to GI-4, "Components" for symbols in the figure.



Removal and Installation

INFOID:0000000009061865

REMOVAL

- 1. Remove headlining (rear). Keep a service area. Refer to INT-28, "NORMAL ROOF: Exploded View" (normal roof) or INT-32, "SUNROOF: Exploded View" (sunroof).
- 2. Remove antenna base mounting nut.
- 3. Remove antenna base.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

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

MULTIFUNCTION SWITCH

< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

MULTIFUNCTION SWITCH

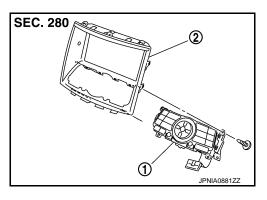
Exploded View

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY

- 1. Multifunction switch
- 2. Cluster lid D



INFOID:0000000009061867

Removal and Installation

REMOVAL

- 1. Remove cluster lid D. Refer to IP-12, "Exploded View".
- 2. Remove multifunction switch mounting screws.
- 3. Remove multifunction switch.

INSTALLATION

Install in the reverse order of removal.

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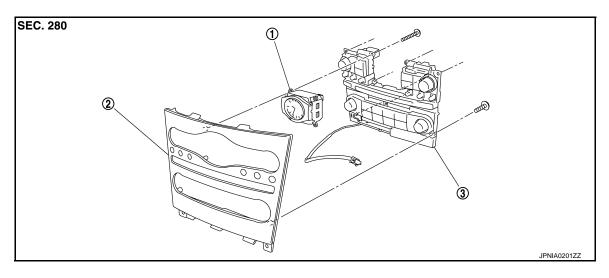
PRESET SWITCH

Exploded View

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



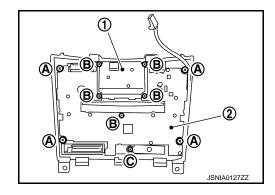
1. Clock 2. Cluster lid C 3. Preset switch

Removal and Installation

INFOID:0000000009061869

REMOVAL

- Remove cluster lid C. Refer to <u>IP-12, "Exploded View"</u>.
- 2. Remove preset switch mounting screws (A), (B) and (C).
- 3. Remove preset switch (2).
 - 1. Clock
 - Preset switch



INSTALLATION

Install in the reverse order of removal.

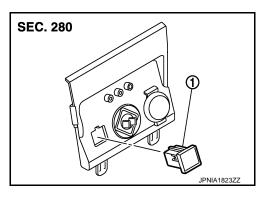
NOTE:

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

USB CONNECTOR

Exploded View

1. USB connector



Removal and Installation

INFOID:0000000009061871

REMOVAL

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

INSTALLATION

Install in the reverse order of removal.

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MICROPHONE

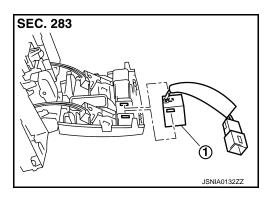
Exploded View

REMOVAL

Refer to <u>INT-28</u>, "NORMAL ROOF: Exploded View" (normal roof) or <u>INT-32</u>, "SUNROOF: Exploded View" (sunroof).

DISASSEMBLY

1. Microphone



Removal and Installation

INFOID:0000000009061873

REMOVAL

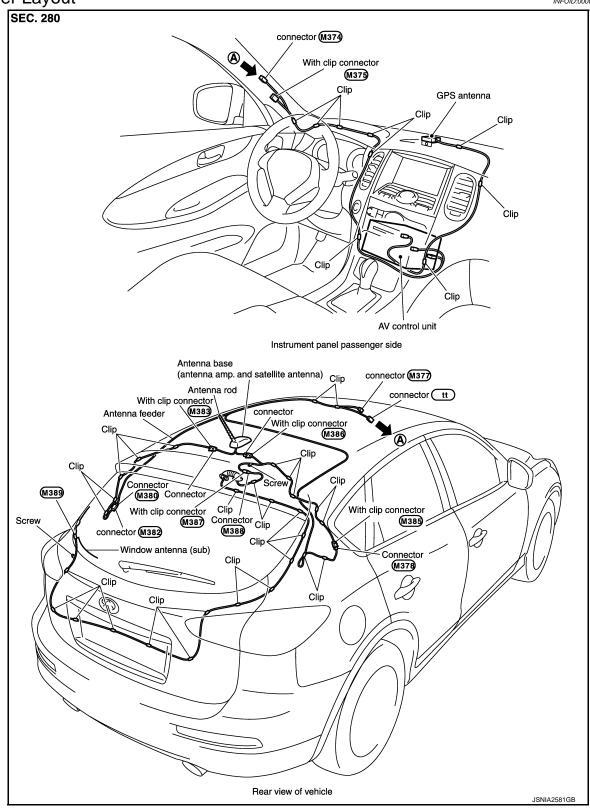
- 1. Remove map lamp assembly. Refer to INT-28, "NORMAL ROOF: Exploded View" (normal roof) or INT-32, "SUNROOF: Exploded View" (sunroof).
- 2. Remove microphone, stretching pawls of map lamp assembly.

INSTALLATION

Install in the reverse order of removal.

GPS ANTENNA

Feeder Layout



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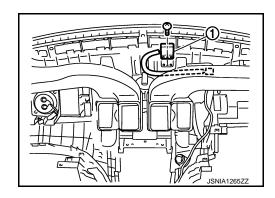
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Exploded View

1. GPS antenna



Removal and Installation

INFOID:0000000009061876

REMOVAL

- 1. Remove instrument panel. Refer to IP-12, "Exploded View".
- 2. Remove GPS antenna mounting screw and disconnect GPS antenna connector.
- 3. Remove GPS antenna.

INSTALLATION

Install in the reverse order of removal.

AROUND VIEW MONITOR CONTROL UNIT

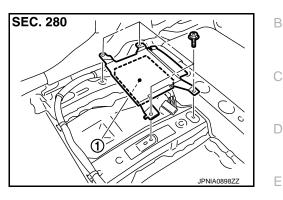
< REMOVAL AND INSTALLATION >

[BOSE AUDIO WITH NAVIGATION]

AROUND VIEW MONITOR CONTROL UNIT

Exploded View

1. Around view monitor control unit



Removal and Installation

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REMOVAL

- Remove front seat (LH side). Refer to <u>SE-129, "Exploded View"</u>.
- Remove floor carpet. Keep a service area.
- 3. Remove around view monitor control unit.

INSTALLATION

- 1. Install in the reverse order of removal.
- 2. Perform camera image calibration. Refer to <u>AV-428, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Work Procedure"</u>.
- 3. Perform predictive course line center position adjustment. Refer to <u>AV-427, "PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT: Work Procedure"</u>.

CAUTION:

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

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Revision: 2013 March AV-535 2014 QX50

FRONT CAMERA

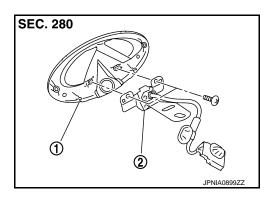
Exploded View

REMOVAL

Refer to EXT-20, "Exploded View".

DISASSEMBLY

- 1. Front emblem
- 2. Front camera



Removal and Installation

INFOID:0000000009061880

REMOVAL

- 1. Remove harness clip and connector clip from front camera bracket.
- 2. Remove front emblem. Refer to EXT-20, "Exploded View".
- 3. Remove front emblem mounting screws.
- Remove front camera.

INSTALLATION

- 1. Install in the reverse order of removal.
- Perform camera image calibration. Refer to <u>AV-428, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)</u>: Work Procedure".

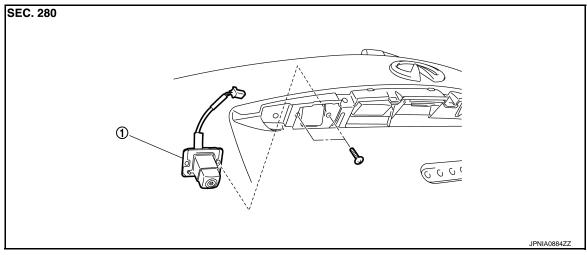
CAUTION

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

REAR CAMERA

Exploded View

DISASSEMBLY



Rear camera

Removal and Installation

REMOVAL

- 1. Remove back door finisher inner. Refer to INT-40, "Exploded View".
- 2. Remove back door outside finisher upper. Refer to EXT-48, "Exploded View".
- 3. Remove back door outside finisher lower. Refer to EXT-48, "Exploded View".
- 4. Remove rear camera mounting screws and rear camera harness connector.
- 5. Remove rear camera.

INSTALLATION

- Install in the reverse order of removal.
- 2. Perform camera image calibration. Refer to <u>AV-428, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)</u>: Work Procedure".

CAUTION:

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

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INFOID:0000000009061882

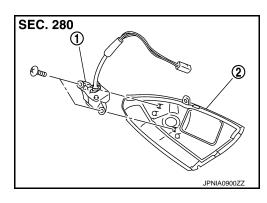
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SIDE CAMERA LH

Exploded View

- 1. Side camera (LH)
- 2. Side camera finisher assembly

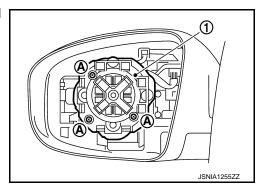


Removal and Installation

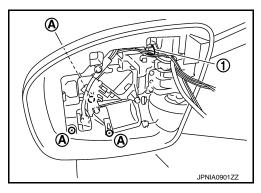
INFOID:0000000009061884

REMOVAL

- 1. Remove door mirror glass (driver side). Refer to MIR-121, "Exploded View" (with ADP) or MIR-141, "Exploded View" (without ADP).
- 2. Remove screws (A), and door mirror actuator connector, and then door mirror actuator (1).



- 3. Remove door mirror under cover. Refer to MIR-121, "Exploded View" (with ADP) or MIR-141, "Exploded View" (without ADP).
- 4. Remove screws (A) and connector (1), and then remove side camera (LH).



INSTALLATION

- 1. Install in the reverse order of removal.
- Perform camera image calibration. Refer to <u>AV-428, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Work Procedure"</u>.

CAUTION:

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

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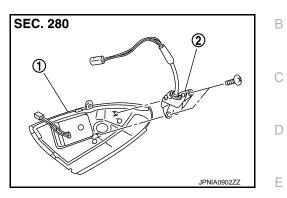
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SIDE CAMERA RH

Exploded View

- 1. Side camera finisher assembly
- 2. Side camera (RH)

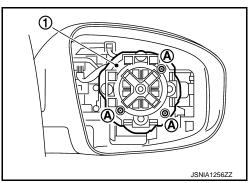


Removal and Installation

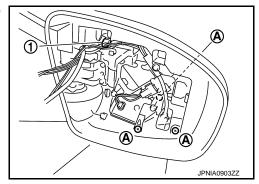
REMOVAL

1. Remove door mirror glass (passenger side). Refer to MIR-121, "Exploded View" (with ADP) or MIR-141, "Exploded View" (without ADP).

2. Remove screws (A) and door mirror actuator connector, and then door mirror actuator (1).



- Remove door mirror under cover. Refer to <u>MIR-121, "Exploded View"</u> (with ADP) or <u>MIR-141, "Exploded View"</u> (without ADP).
- Remove screws (A) and connector (1), and then remove side camera (RH).



INSTALLATION

- Install in the reverse order of removal.
- Perform camera image calibration. Refer to <u>AV-428, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR): Work Procedure"</u>.

CAUTION:

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

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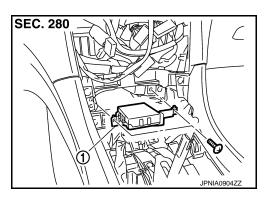
SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR) [BOSE AUDIO WITH NAVIGATION]

< REMOVAL AND INSTALLATION >

SONAR CONTROL UNIT (WITH AROUND VIEW MONITOR)

Exploded View INFOID:0000000009061887

Sonar control unit



Removal and Installation

INFOID:0000000009061888

REMOVAL

- 1. Remove AV control unit. Refer to AV-519, "Exploded View".
- Remove screws and connector, and then sonar control unit.

INSTALLATION

Install in the reverse order of removal.

SONAR SENSOR

FRONT

FRONT: Exploded View

INFOID:0000000009061889

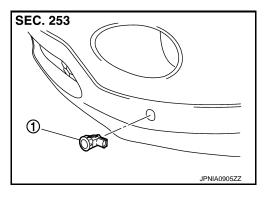
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1. Sonar sensor (front)

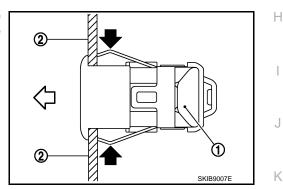


FRONT: Removal and Installation

INFOID:0000000009061890

REMOVAL

- 1. Remove fender protector. Keep a service area. Refer to EXT-25, "FENDER PROTECTOR: Exploded View".
- 2. Remove sonar sensor connector.
- 3. Push the sonar sensor (1) outside (direction of white arrow) the front bumper (2), pressing the metal clips on the back to the direction of black arrows.



INSTALLATION

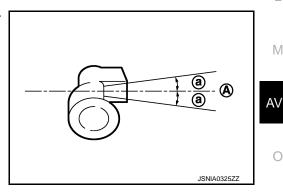
Install the bumper when the pawl engages.

CAUTION:

The connector direction is within ±10° from the horizontal position when assembling the bumper.

: Horizontal position

: 10°



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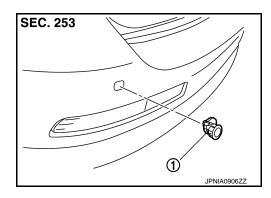
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AV-541 Revision: 2013 March 2014 QX50

REAR: Exploded View

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Sonar sensor (rear)

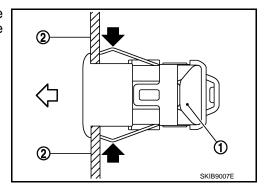


REAR: Removal and Installation

INFOID:0000000009061892

REMOVAL

- 1. Remove sonar sensor connector.
- 2. Push the sonar sensor (1) outside (direction of white arrow) the rear bumper (2), pressing the metal clips on the back to the direction of black arrows.



INSTALLATION

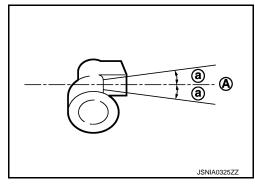
Install the bumper when the pawl engages.

CAUTION:

The connector direction is within $\pm 10^{\circ}$ from the horizontal position when assembling the bumper.

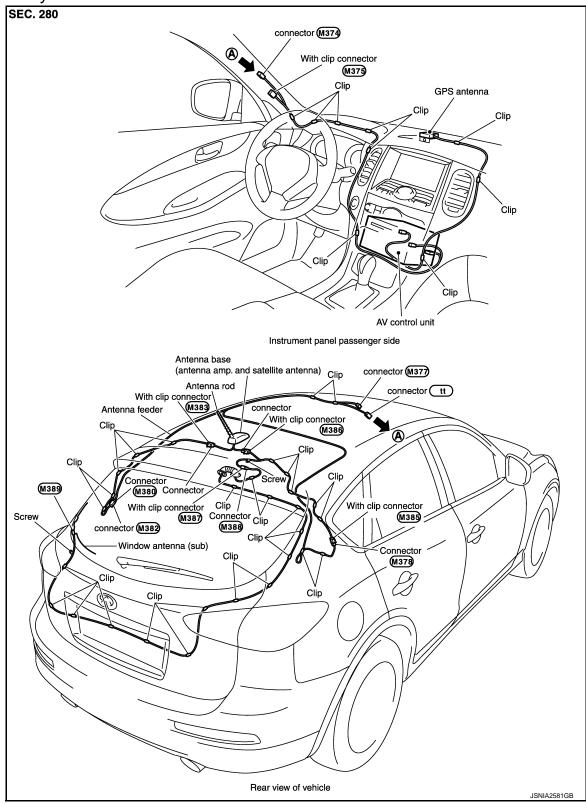
A : Horizontal position

a : 10°



ANTENNA FEEDER

Feeder Layout



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