SECTION AV
AUDIO, VISUAL & NAVIGATION SYSTEM

CONTENTS

BOSE AUDIO WITH NAVIGATION

PRECAUTION

PRECAUTIONS

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

INFOID:0000000010990823

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:

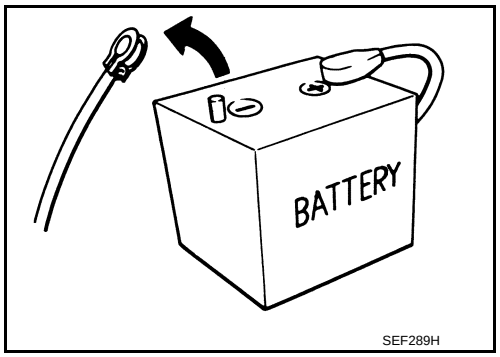
Always observe the following items for preventing accidental activation.

- **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.**

Precautions for Removing Battery Terminal

INFOID:0000000011429314

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
  NOTE:
  ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.



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- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

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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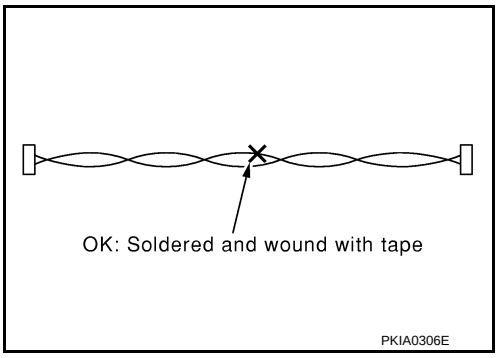
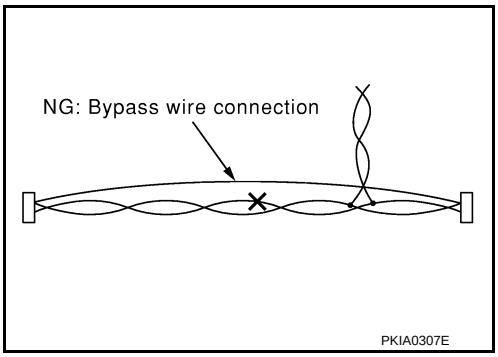
AV COMMUNICATION SYSTEM

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



- 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.)

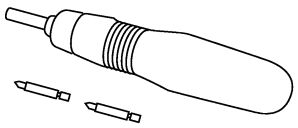


PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000010990827

Tool		Description
Power tool	 PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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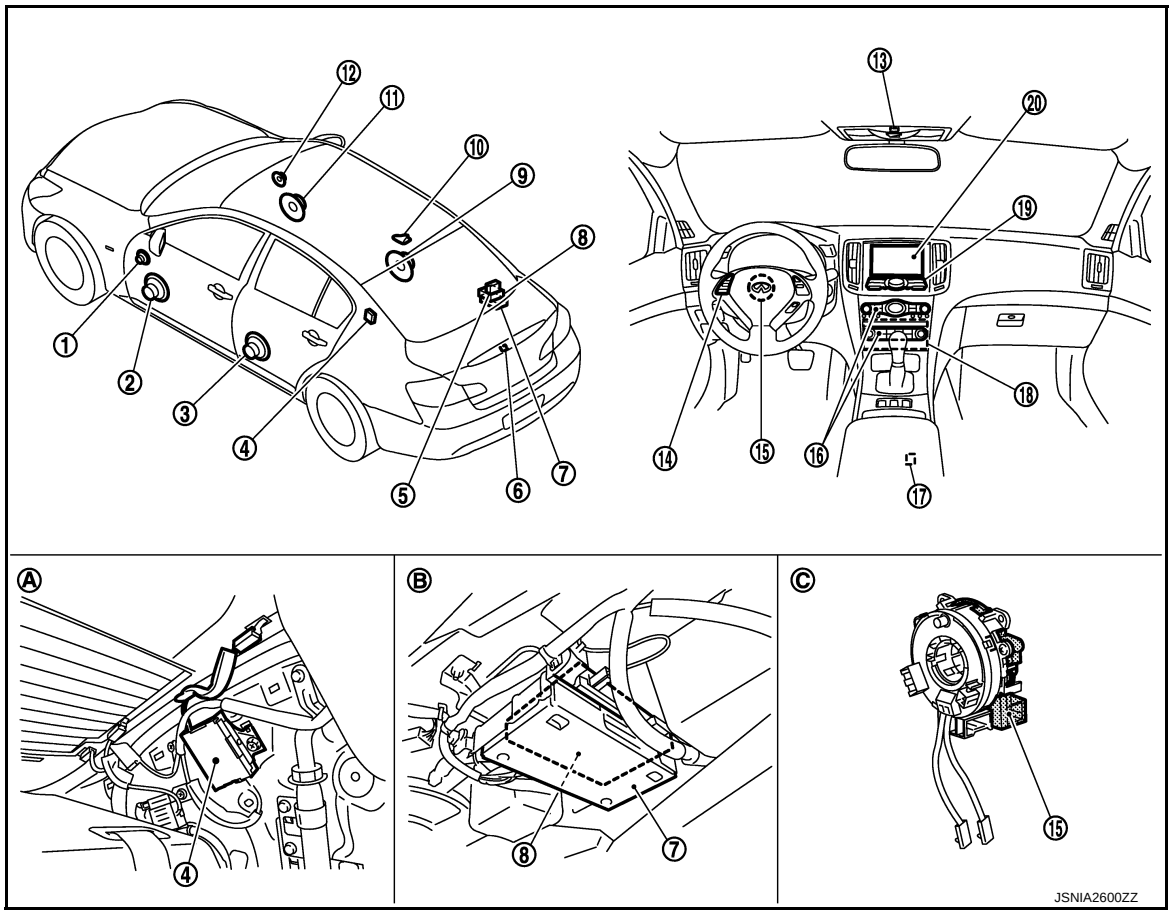

1. Tweeter LH
2. Front door speaker LH
3. Rear door speaker LH
4. Antenna amp.
5. TEL antenna
6. Rear view camera
7. TEL adapter unit
8. Satellite radio tuner
9. Rear door speaker RH
10. Satellite radio antenna
11. Front door speaker RH
12. Tweeter RH
13. Microphone
14. Steering switch
15. Steering angle sensor
16. Preset switch
17. USB connector
18. AV control unit
19. Multifunction switch
20. Display unit

A. Within rear pillar finisher LH
B. Lower part of rear parcel shelf (on the right side)
C. Spiral cable removed condition

Component Description

INFOID:0000000010990829

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

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

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

SYSTEM

MULTI AV SYSTEM

MULTI AV SYSTEM : System Diagram

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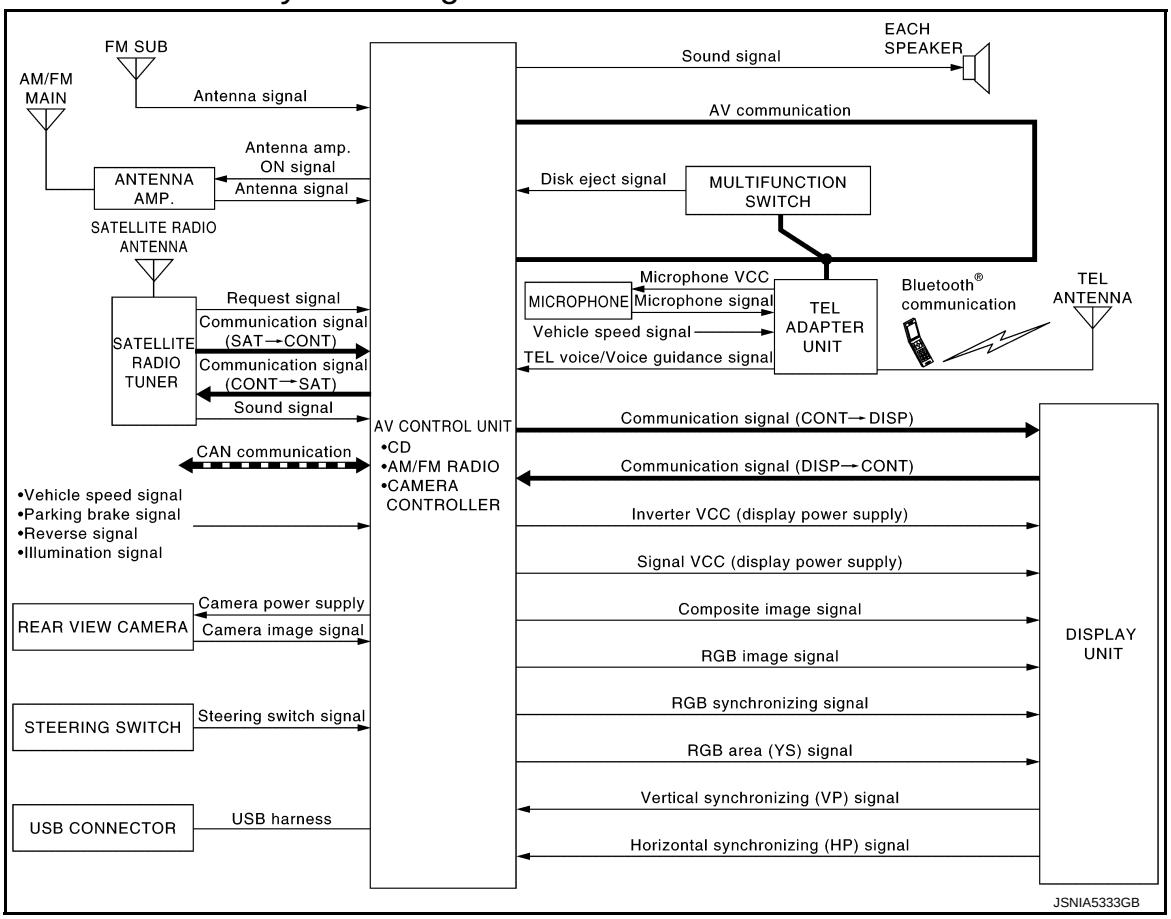

NOTE:
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

MULTI AV SYSTEM : System Description

INFOID:0000000010990831

Multi AV system means that the following systems are integrated.

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

COMMUNICATION SIGNAL

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

AUDIO FUNCTION

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

Operating Signal

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

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

Screen Display

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

AM/FM Radio Mode

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

Satellite Radio Mode

- Satellite radio tuner is controlled by communication signal and request signal with AV control unit.
- Sound signal (satellite radio) is received by satellite 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 the sound signal to each speaker when inserting the CD 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.
- 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-28, "On Board Diagnosis Function".

When A Call Is Originated

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

When Receiving A Call

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

REAR VIEW MONITOR FUNCTION

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

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

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.

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description

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

On Board Diagnosis Function

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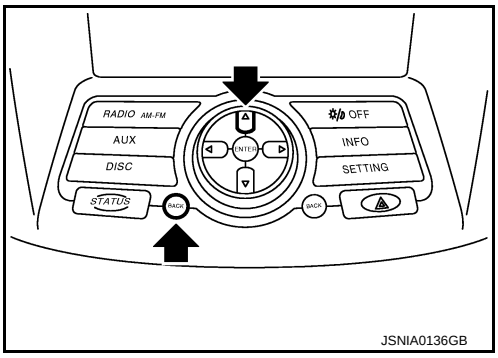
MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-diagnosis Mode

- Press the “BACK” switch and the “UP” switch of the 4-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
  NOTE:
  The hazard switch and disk eject switch cannot be checked.



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Finishing Self-diagnosis Mode

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

ON BOARD DIAGNOSIS ITEM

Description

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

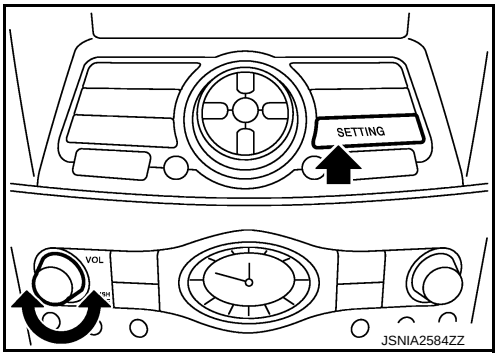
On Board Diagnosis Item

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

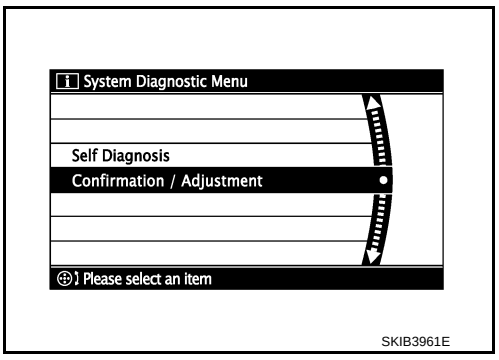
Mode		Description
Confirmation/ Adjustment	Display Diagnosis	The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display.
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights,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

METHOD OF STARTING

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



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

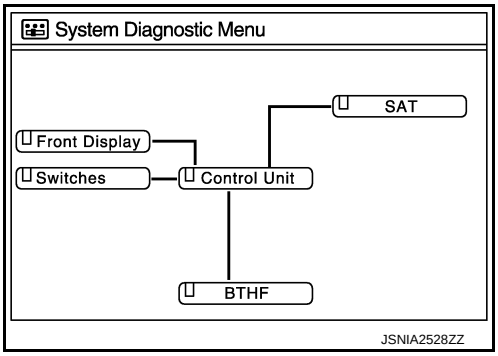


SELF-DIAGNOSIS MODE

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.

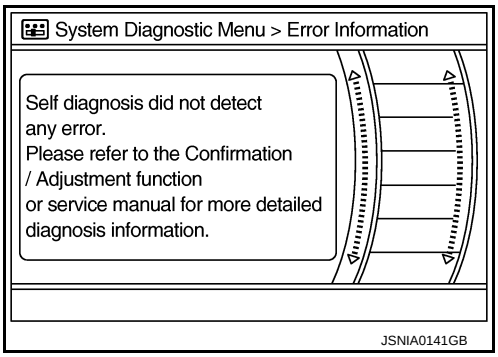
2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.



Diagnosis results	Unit	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-106, "Exploded View".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.

- The comments of the self-diagnosis results can be viewed with a component in the diagnosis result screen.



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

SELF-DIAGNOSIS RESULTS

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

Only Unit Part Is Displayed In Red.

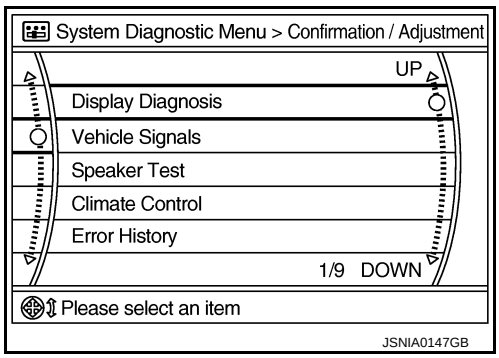
Screen switch	Description	Possible malfunction location / Action to take
Control unit	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit. Refer to AV-106, "Exploded View".

A Connecting Cable Between Units Is Displayed In Yellow.

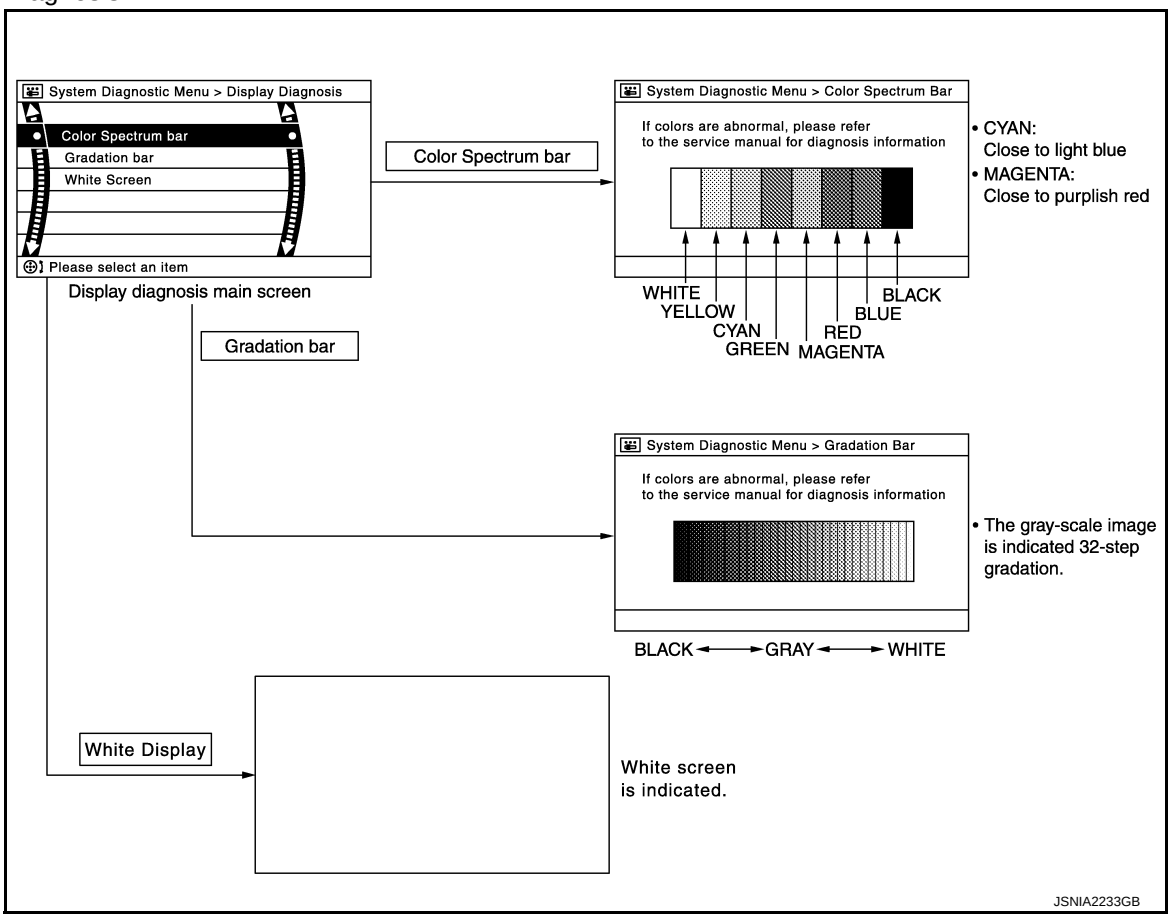
Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communication circuits between AV control unit and display unit.	Serial communication circuits between AV control unit and display unit.
Control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

CONFIRMATION/ADJUSTMENT MODE

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

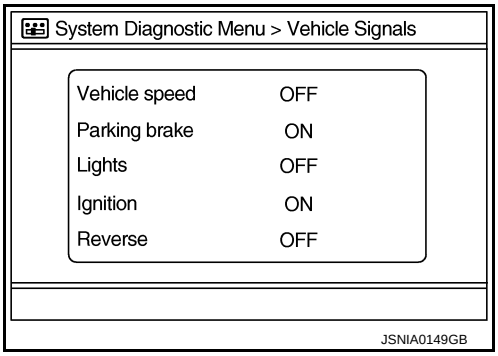


Display Diagnosis



Vehicle Signals

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

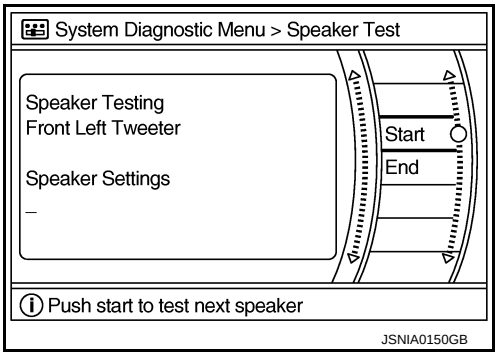


Diagnosis item	Display	Vehicle status	Remarks
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
Parking brake	ON	Parking brake is applied.	
	OFF	Parking brake is released.	
Lights	ON	Light switch ON	—
	OFF	Light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

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	

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.

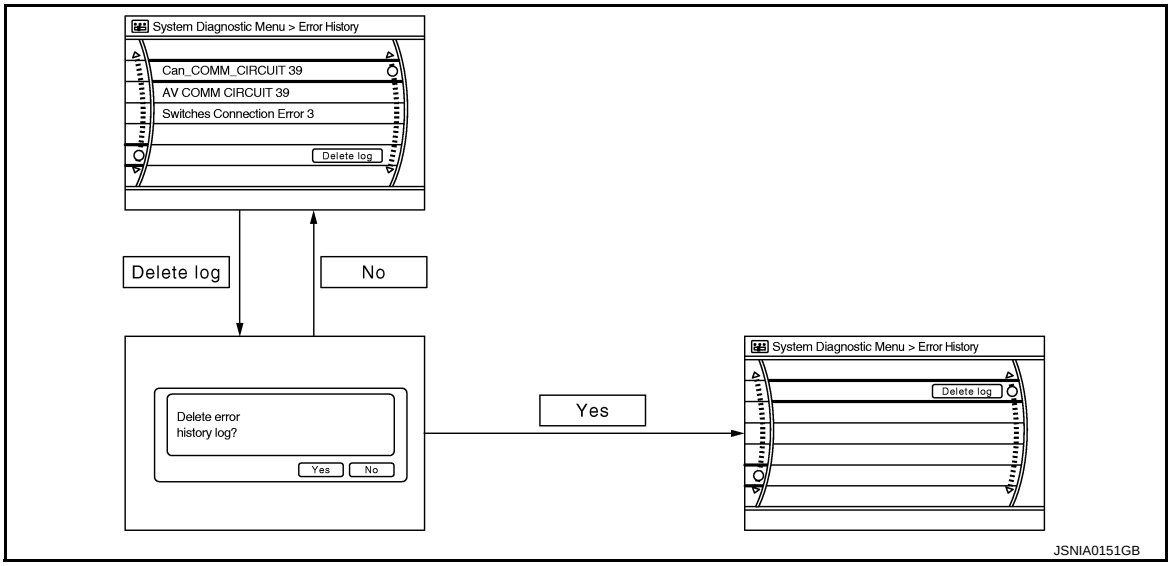
Count up method A

- 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 occurrence 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

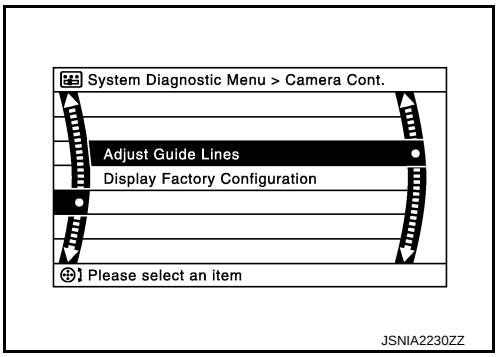
Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

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-25, "CONSULT Function".
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-106, "Exploded View".
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	
FLASH-ROM Error Of Control Unit	AV control unit malfunction is detected.	
CAN Controller Memory Error		
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-25, "CONSULT Function".
Front Display Connection Error	When either one of the following items is detected: • display unit power supply and ground circuits are malfunctioning. • communication circuits between AV control unit and display unit are malfunctioning.	• Display unit power supply and ground circuits. • Communication circuits between AV control unit and display unit.
XM Connection Error	When either one of the following items is detected: • satellite radio tuner power supply and ground circuit are malfunctioning. • communication circuits between AV control unit and satellite radio tuner are malfunctioning. • request signal circuit between AV control unit and satellite radio tuner are malfunctioning.	• Satellite radio tuner power supply and ground circuit. • Communication circuit between AV control unit and satellite radio tuner. • Request signal circuit between AV control unit and satellite radio tuner.
• AV COMM CIRCUIT • Switches Connection Error	When either one of the following items is detected: • multifunction switch power supply and ground circuits are malfunctioning. • AV communication circuits between AV control unit and multifunction switch are malfunctioning.	• Multifunction switch power supply and ground circuits. • AV communication circuits between AV control unit and multifunction switch.

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

Camera Cont.

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

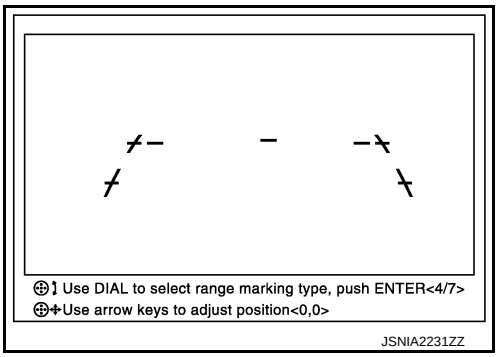


Adjust Offset of Rear view Camera

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

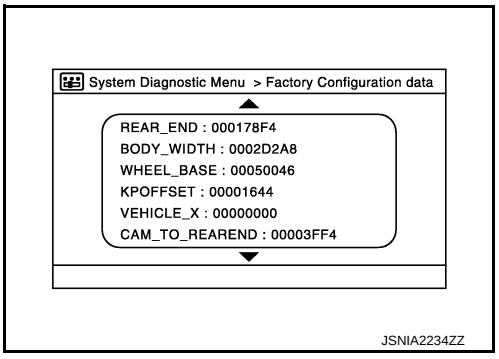
CAUTION:

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



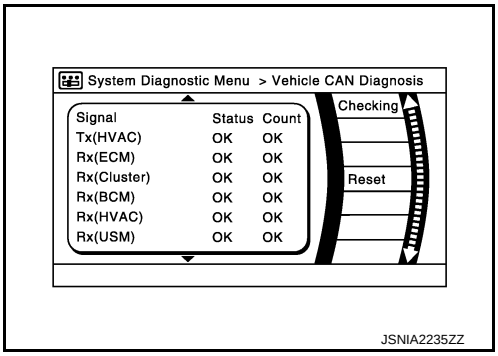
Factory Configuration Confirmation

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



Vehicle CAN Diagnosis

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

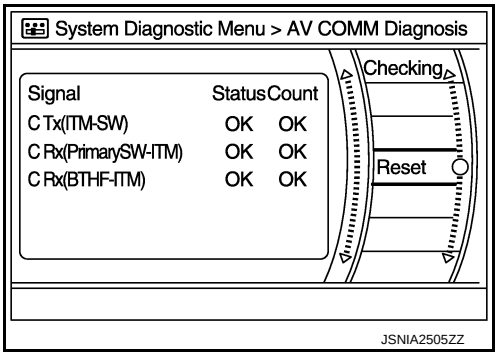


Items	Display (Current)	Malfunction counter (Past)
Tx(HVAC)	OK / ???	OK / 0 – 39
Rx(ECM)	OK / ???	OK / 0 – 39
Rx(Cluster)	OK / ???	OK / 0 – 39
Rx(BCM)	OK / ???	OK / 0 – 39
Rx(HVAC)	OK / ???	OK / 0 – 39
Rx(USM)	OK / ???	OK / 0 – 39
Rx(VDC)	OK / ???	OK / 0 – 39
Rx(STRG)	OK / ???	OK / 0 – 39

NOTE:
“???” indicates UNKWN.

AV COMM Diagnosis

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

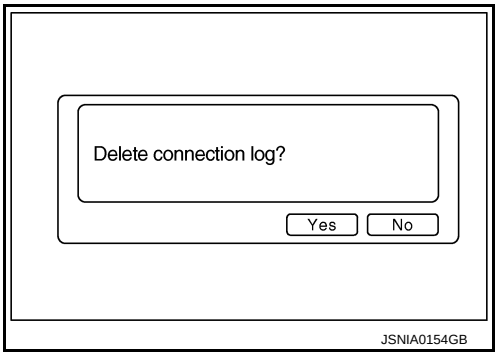


Items	Status (Current)	Counter (Past)
C Tx(ITM-SW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW-ITM)	OK / ???	OK / 0 – 39
C Rx(BTHF-ITM)	OK / ???	OK / 0 – 39

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.)

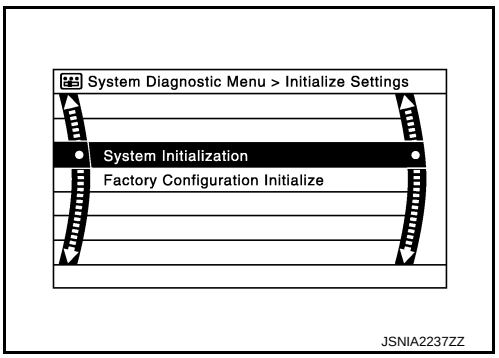


Initialize Settings

"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-63, "Description".**



CONSULT Function

INFOID:0000000010990834

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-65, "Diagnosis Procedure".
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-106, "Exploded View".
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	
Cont Unit [U1200]	AV control unit malfunction is detected.	
CAN CONT [U1216]		
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-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement".

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

DATA MONITOR

NOTE:

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

ALL SIGNALS

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

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

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

SELECTION FROM MENU

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

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

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION:

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

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

CONFIGURATION

Configuration has three functions as follows.

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)

On Board Diagnosis Function

INFOID:0000000010990835

HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

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

ON BOARD DIAGNOSIS ITEM

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

CAUTION:

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

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

Self-diagnosis results

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

NOTE:

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

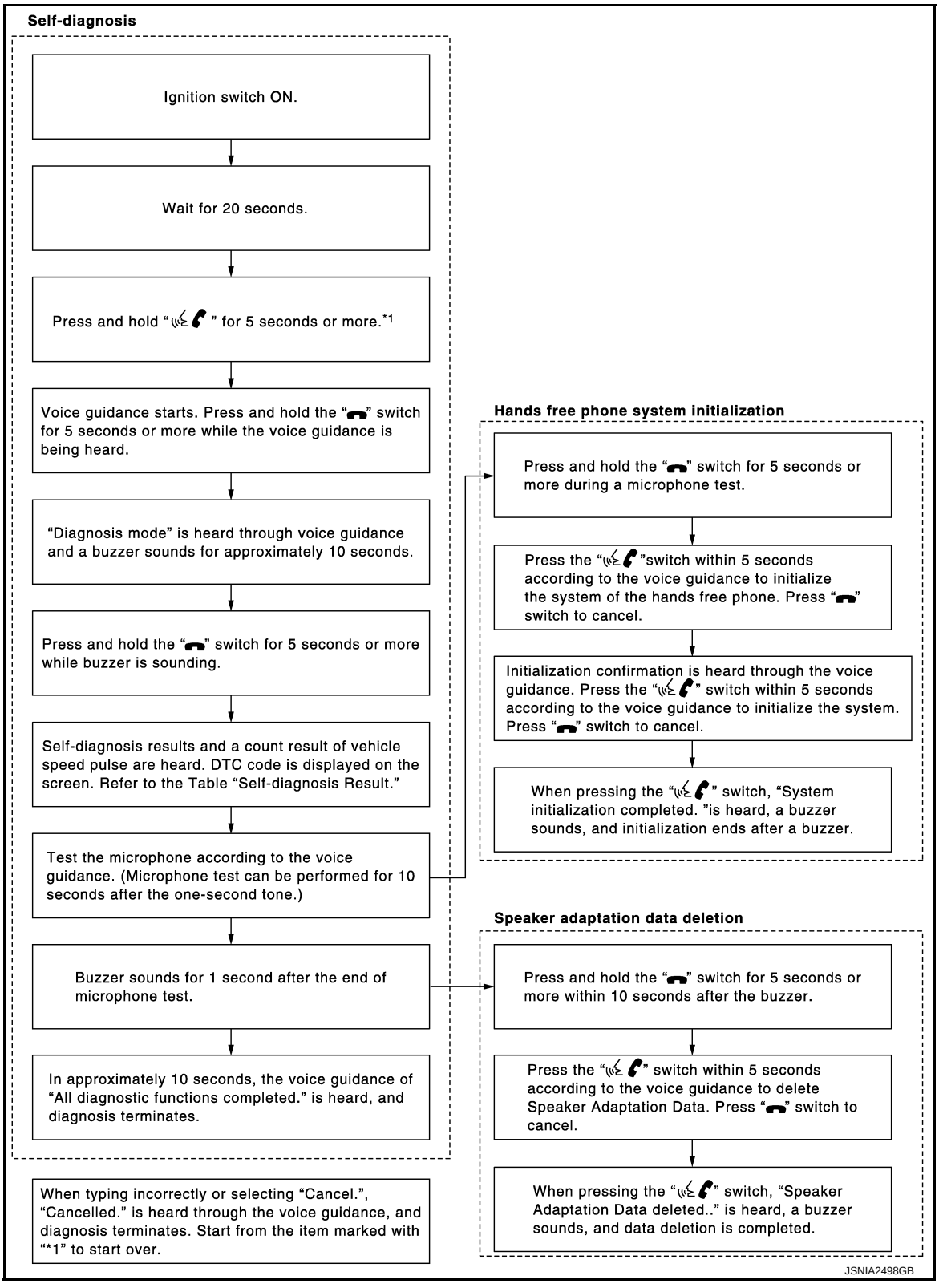
Self-diagnosis results

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

The Details of Error Count

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

FLOW CHART OF TROUBLE DIAGNOSIS



ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

INFOID:0000000010990836

VALUES ON THE DIAGNOSIS TOOL

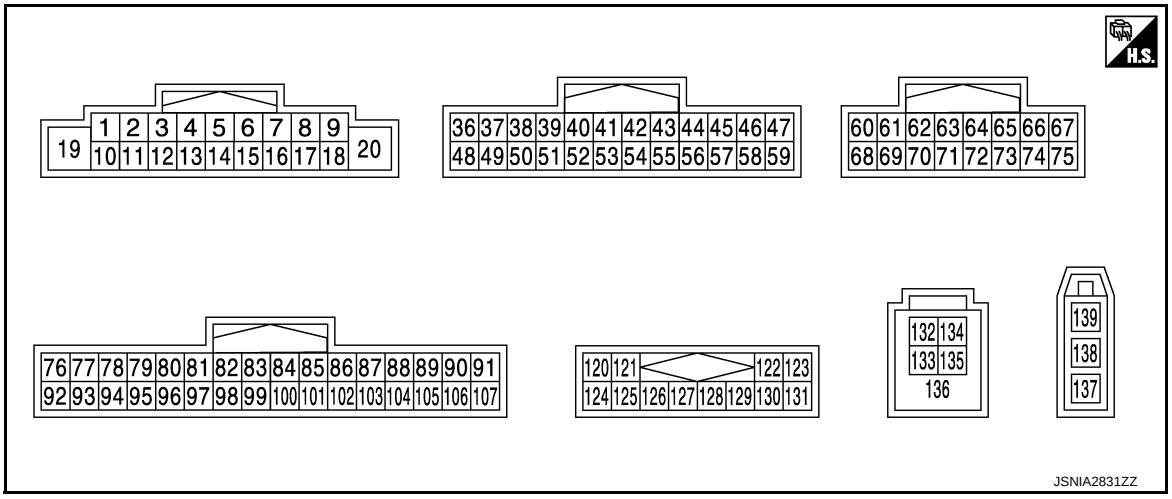
NOTE:

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

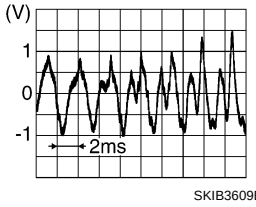
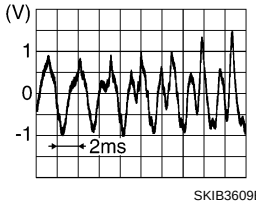
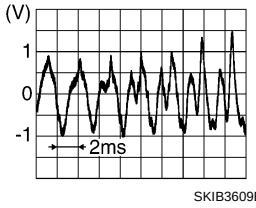
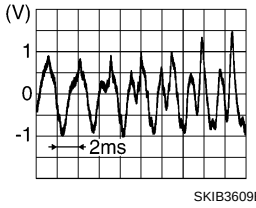
CONSULT MONITOR ITEM

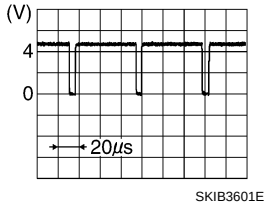
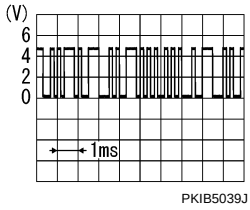
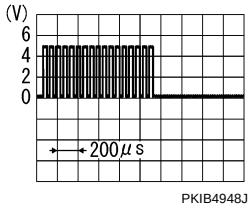
Monitor Item	Condition		Value/Status
VHCL SPD SIG	Ignition switch ON	Vehicle speed > 0 km/h (0 MPH)	On
		Vehicle speed = 0 km/h (0 MPH)	Off
PKB SIG	Ignition switch ON	Parking brake is applied.	On
		Parking brake is released.	Off
ILLUM SIG	Ignition switch ON	Light switch ON	On
		Light switch OFF	Off
IGN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

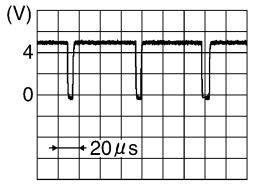
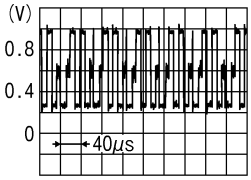
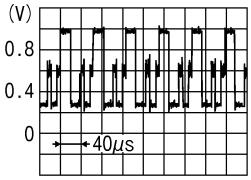
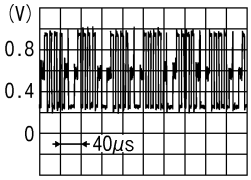
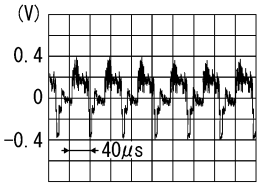
TERMINAL LAYOUT

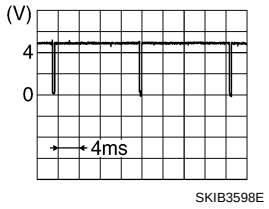
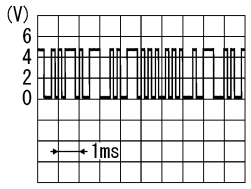
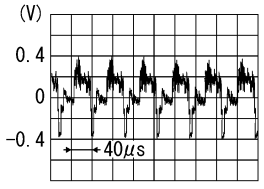


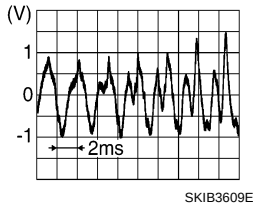
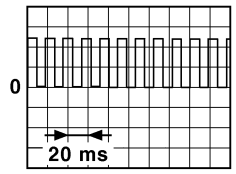
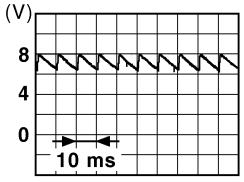
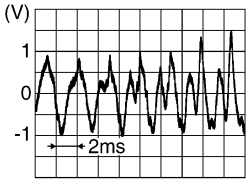
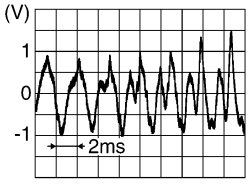
PHYSICAL VALUES

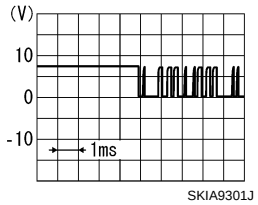
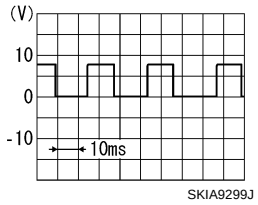
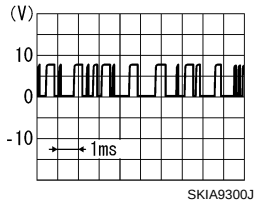
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
2 (L)	3 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	 SKIB3609E
4 (LG)	5 (SB)	Sound signal rear LH	Output	Ignition switch ON	Sound output	 SKIB3609E
6 (P)	15 (B)	Steering switch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

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
16 (L)	15 (B)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL DOWN switch.	0 V
					Keep pressing VOL UP switch.	0.7 V
					Keep pressing switch.	1.3 V
					Except for above.	3.3 V
18 (G)	Ground	Ground	—	Ignition switch ON	—	0 V
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
20 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
36 (BG)	Ground	Signal VCC	Output	Ignition switch ACC	—	9.0 V
37 (LG)	Ground	Signal ground	—	Ignition switch OFF	—	0 V
38 (R)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON	—	 SKIB3601E
39 (L)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	 PKIB5039J
40 (B)	Ground	RGB area (YS) signal	Output	Ignition switch ON	At RGB image is displayed.	5.0 V
					At DVD image is displayed.	 PKIB4948J
41	—	Shield	—	—	—	—

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
42 (W)	Ground	RGB synchronizing signal	Output	Ignition switch ON	—	 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.	 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.	 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.	 JSNIA1031ZZ
46 (Y)	Ground	Composite image ground	—	Ignition switch ON	—	0 V
47 (BR)	Ground	Composite image signal	Output	Ignition switch ON	At rear view camera image is displayed.	 SKIB2251J
48 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	—	9.0 V
49 (BR)	Ground	Inverter ground	—	Ignition switch OFF	—	0 V

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

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
87 (L)	88 (P)	TEL voice signal	Input	Ignition switch ON	During voice guide output with the switch pressed.	 SKIB3609E
92 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB
93 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake is ON.	0 V
					Parking brake is OFF.	 JSNIA0007GB
94 (BG)	Ground	Reverse signal	Input	Ignition switch ON	R position	12.0 V
					Other than R position	0 V
95 (G)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
96 (V)	Ground	Disk eject signal	Input	Ignition switch ON	Pressing the eject switch.	0 V
					Except for above.	3.3 V
120 (B)	124 (W)	Satellite radio sound signal LH	Input	Ignition switch ON	When satellite radio mode is selected.	 SKIB3609E
121 (G)	125 (R)	Satellite radio sound signal RH	Input	Ignition switch ON	When satellite radio mode is selected.	 SKIB3609E

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

DTC Index

INFOID:0000000010990837

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-65, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-66, "DTC Logic"
U1200	Cont Unit [U1200]	AV-67, "DTC Logic"
U1216	CAN CONT [U1216]	AV-68, "DTC Logic"
U1232	ST ANGLE SEN CALIB [1232]	AV-69, "Diagnosis Procedure"

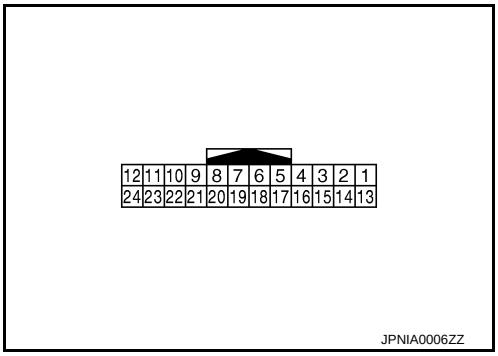
DTC	Display item	Refer to
U1243	FRONT DISP CONN [U1243]	AV-70, "Diagnosis Procedure"
U1255	SAT CONN [U1255]	AV-72, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-75, "DTC Logic"
U1300 U1240	• AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240]	AV-74, "Description"
U1300 U1256	• AV COMM CIRCUIT [U1300] • HAND FREE CONN [U1256]	AV-74, "Description"
U1300 U1240 U1256	• AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240] • HAND FREE CONN [U1256]	AV-74, "Description"

DISPLAY UNIT

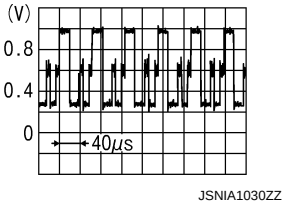
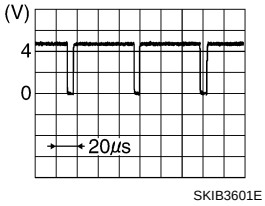
Reference Value

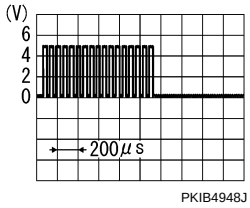
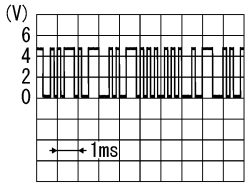
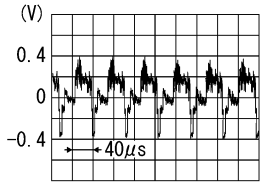
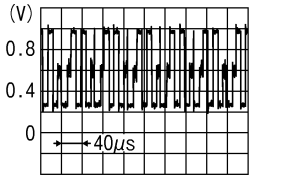
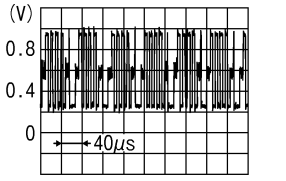
INFOID:0000000010990838

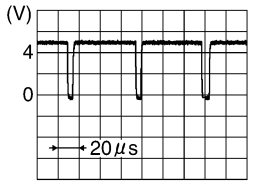
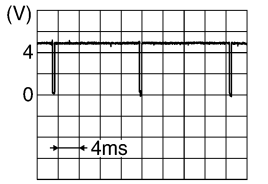
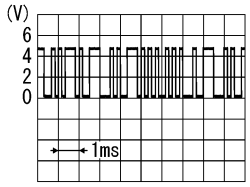
TERMINAL LAYOUT



PHYSICAL VALUES

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

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
9 (B)	Ground	RGB area (YS) signal	Input	Ignition switch ON	At RGB image is displayed.	5.0 V
					At DVD image is displayed.	 PKIB4948J
11 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	 PKIB5039J
13 (BR)	Ground	Inverter ground	—	Ignition switch ON	—	0 V
14 (LG)	Ground	Signal ground	—	Ignition switch ON	—	0 V
15 (BR)	Ground	Composite image signal	Input	Ignition switch ON	At rear view camera image is displayed.	 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.	 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.	 JSNIA1031ZZ

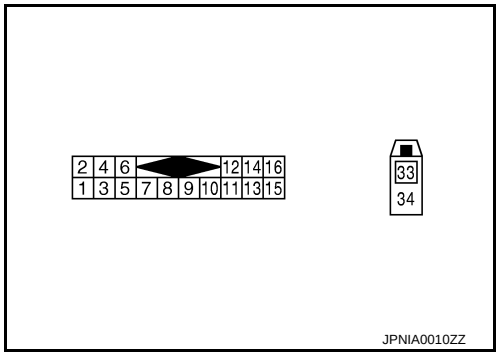
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
19 (W)	Ground	RGB synchronizing signal	Input	Ignition switch ON	—	 SKIB3603E
20 (G)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch On	—	 SKIB3598E
21	—	Shield	—	—	—	—
22 (L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	 PKIB5039J
23	—	Shield	—	—	—	—

SATELLITE RADIO TUNER

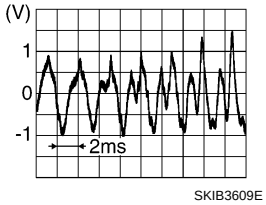
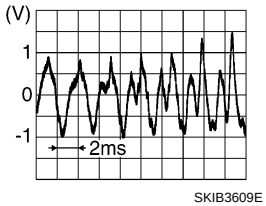
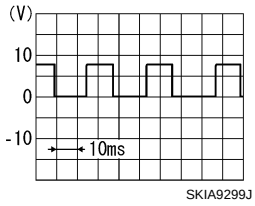
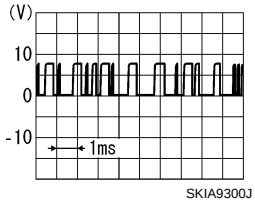
Reference Value

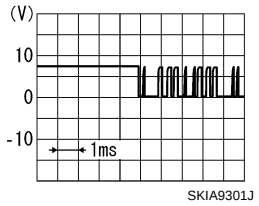
INFOID:0000000010990839

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
2 (R)	1 (G)	Satellite radio sound signal LH	Output	Ignition switch ON	When satellite radio mode is selected.	
4 (B)	3 (W)	Satellite radio sound signal RH	Output	Ignition switch ON	When satellite radio mode is selected	
5	—	Shield	—	—	—	—
6	—	Shield	—	—	—	—
8 (G)	Ground	Request signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	
9 (L)	Ground	Communication signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected	

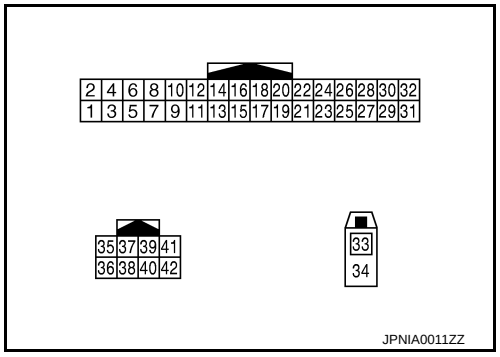
Terminal		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
10 (P)	Ground	Communication signal (CONT→SAT)	Input	Ignition switch ON	When satellite radio mode is selected	 SKIA9301J
12 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
16 (BG)	Ground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

TEL ADAPTER UNIT

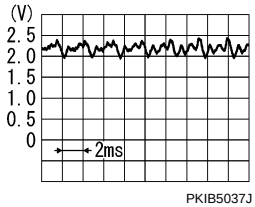
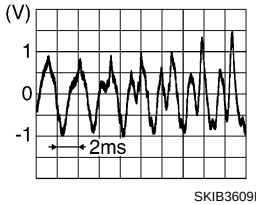
Reference Value

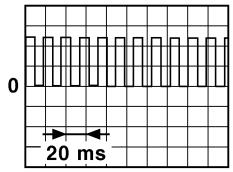
INFOID:0000000010990840

TERMINAL LAYOUT



PHYSICAL VALUES

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

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
28 (W)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB
29 (G)	8	Microphone VCC	Output	Ignition switch ON	—	5.0 V
33	—	TEL antenna	Input	—	—	—
34	—	Shield	—	—	—	—
35 (SB)	—	AV communication signal (H)	Input/ Output	—	—	—
36 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—

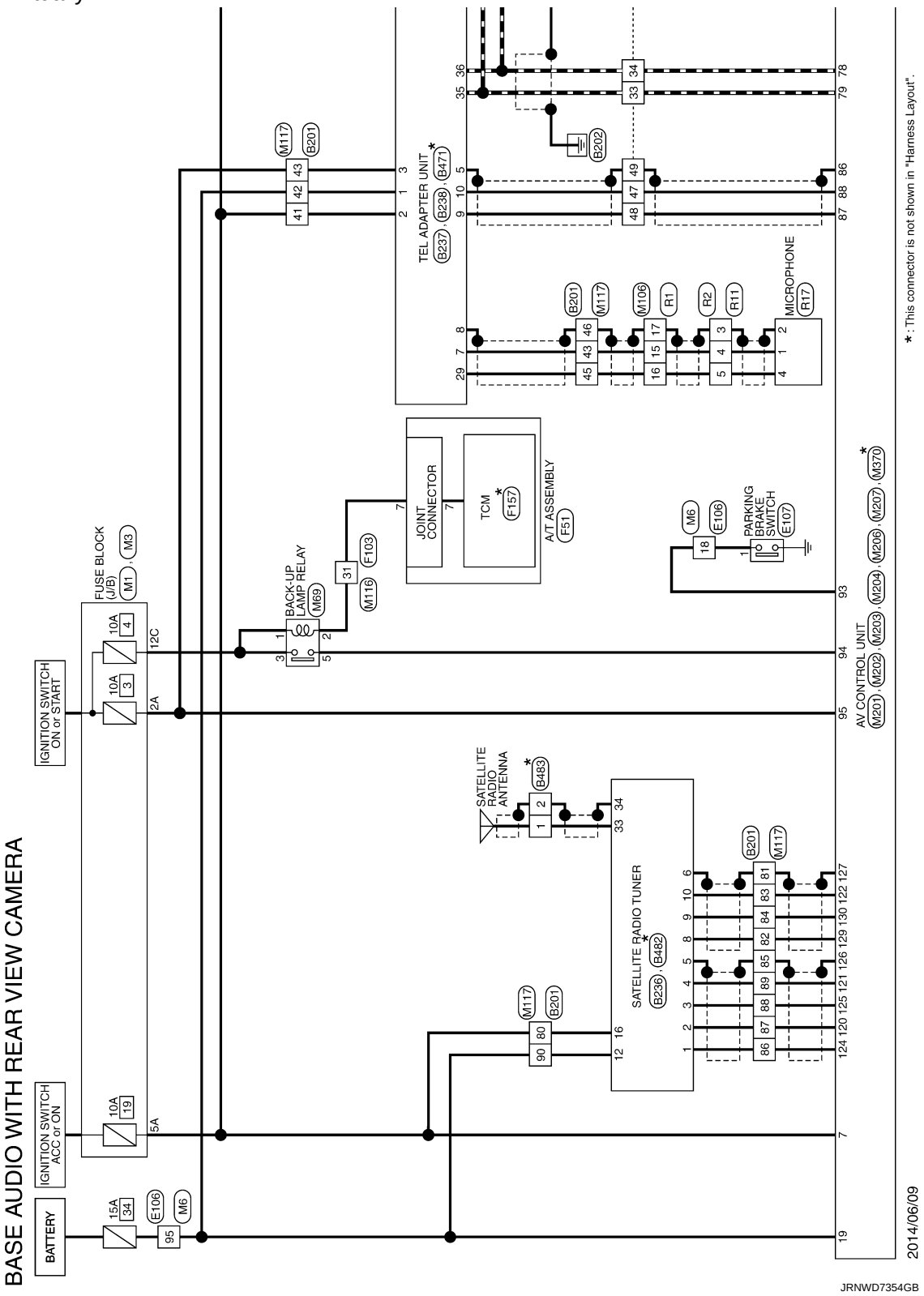
WIRING DIAGRAM

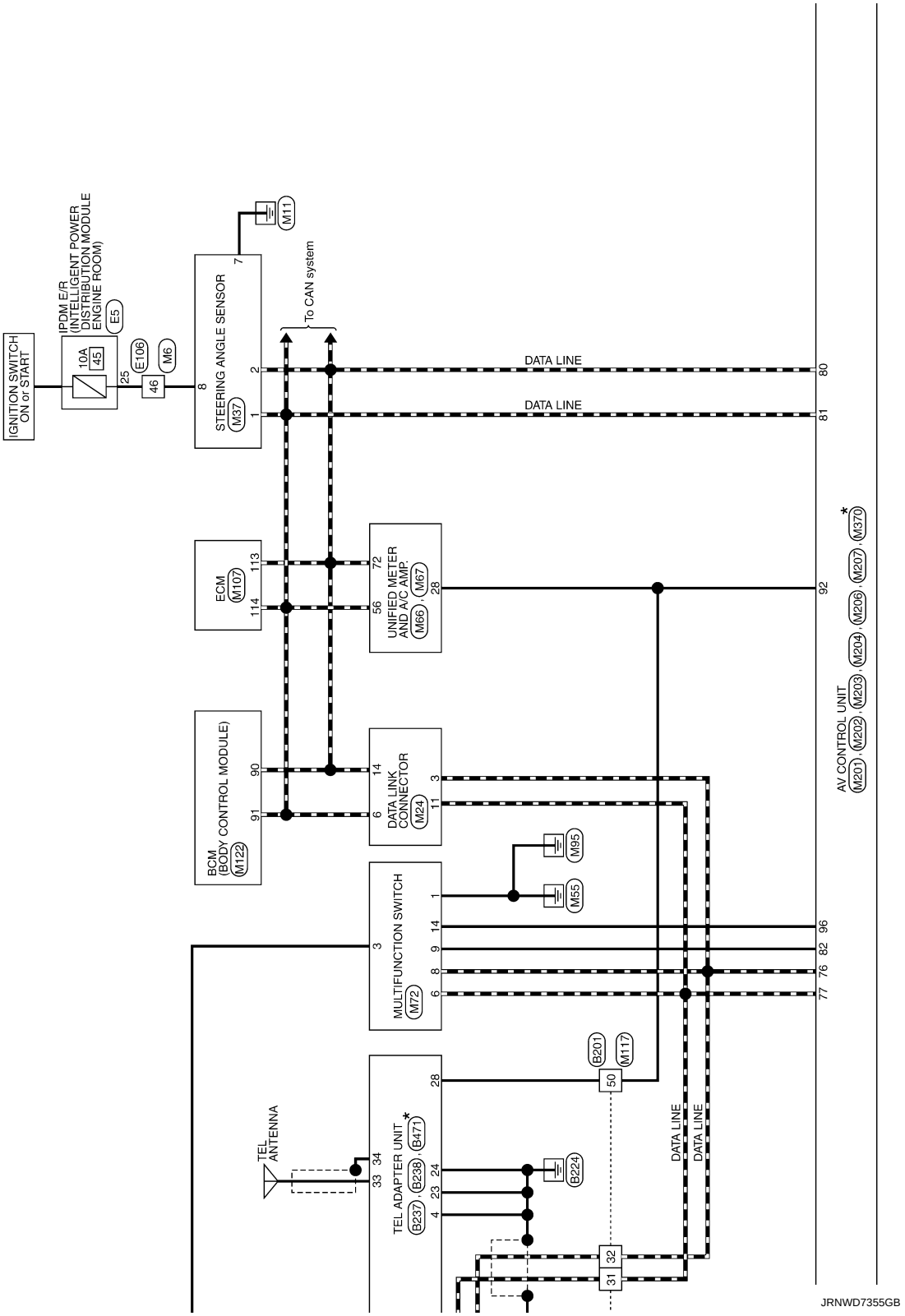
BASE AUDIO WITH REAR VIEW CAMERA

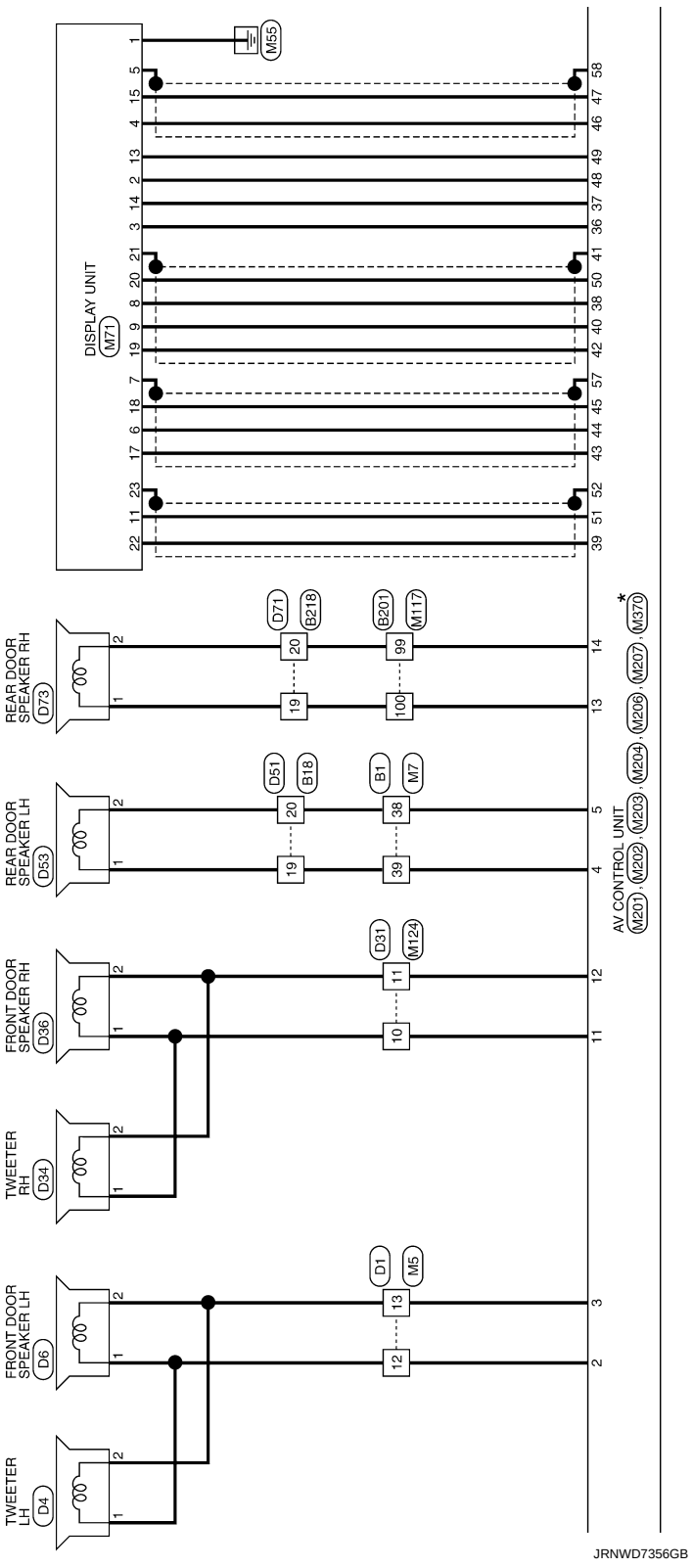
Wiring Diagram

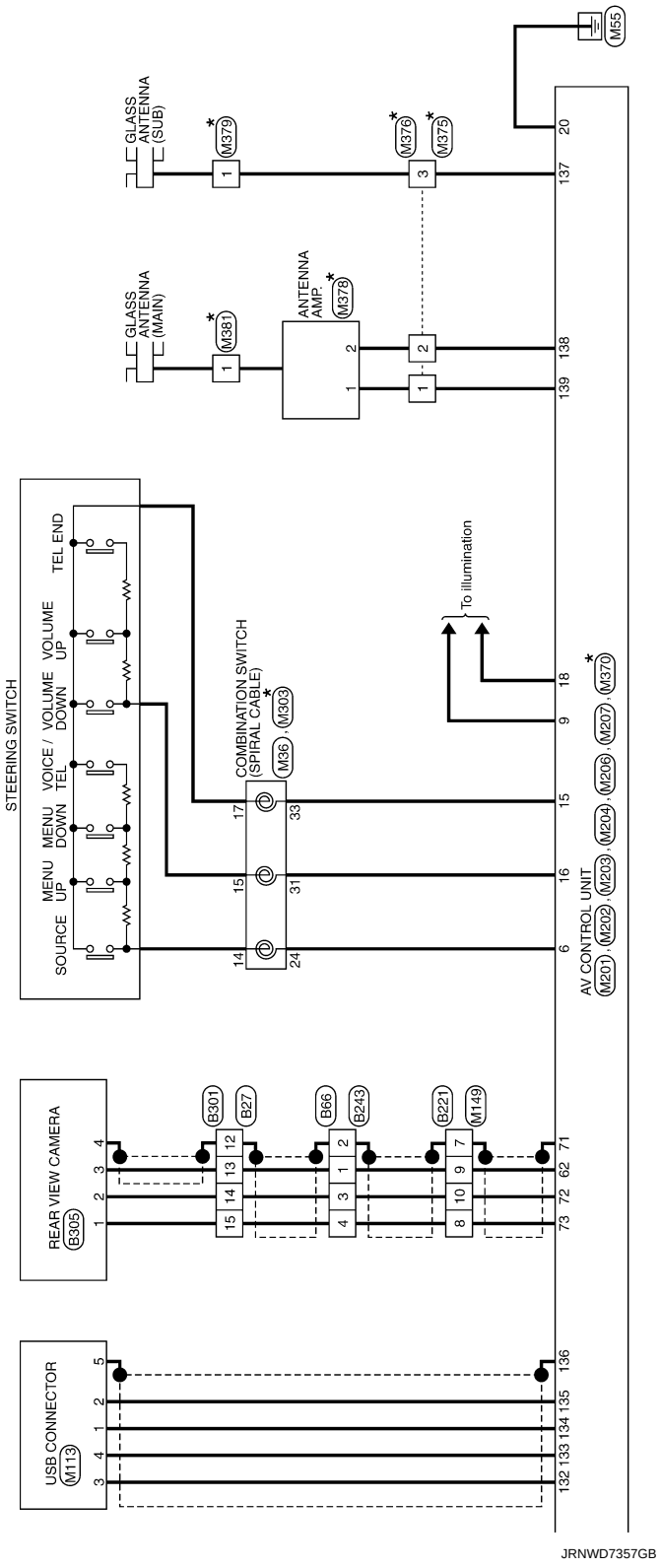
INFOID:0000000010990841

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




IGNITION SWITCH ON or START
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E5
10A 45
25
E106
46
M6
8
STEERING ANGLE SENSOR
M37
7
M11
To CAN system
2
1
DATA LINE
DATA LINE
80
81
ECM
M107
113
114
UNIFIED METER AND A/C AMP.
M66, M67
72
56
28
92
BCM (BODY CONTROL MODULE)
M122
90
91
DATA LINK CONNECTOR
M24
14
6
3
11
M95
M55
MULTIFUNCTION SWITCH
M72
1
3
14
9
8
6
96
82
76
77
AV CONTROL UNIT
M201, M202, M203, M204, M206, M207, M370
*
B201
M117
50
28
TEL ANTENNA
TEL ADAPTER UNIT *
B237, B238, B471
33
34
24
23
4
B224
DATA LINE
DATA LINE
32
31
JRNWD7355GB


DISPLAY UNIT
M71
M55
REAR DOOR SPEAKER RH
D73
REAR DOOR SPEAKER LH
D53
FRONT DOOR SPEAKER RH
D36
TWEETER RH
D34
FRONT DOOR SPEAKER LH
D6
TWEETER LH
D4
D71
B218
B201
M117
D51
B18
B1
M7
D31
M124
D1
M5
AV CONTROL UNIT
M201, M202, M203, M204, M206, M207, M370
JRNWD7356GB


M55
GLASS ANTENNA (SUB)
M379
M376
M375
GLASS ANTENNA (MAIN)
M381
ANTENNA AMP.
M378
STEERING SWITCH
TEL END
VOLUME UP
VOLUME DOWN
VOICE / TEL
MENU DOWN
MENU UP
SOURCE
COMBINATION SWITCH (SPIRAL CABLE)
M36
M303
To illumination
AV CONTROL UNIT
M201, M202, M203, M204, M206, M207, M370
REAR VIEW CAMERA
B305
B301
B27
B66
B243
B221
M149
USB CONNECTOR
M113
JRNWD7357GB

BASE AUDIO WITH REAR VIEW CAMERA

Connector No.	B1
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

Terminal No.	Color Of Wire	Signal Name [Specification]
1	GR	–
2	BG	–
3	L	–
4	Y	–
6	R	–
8	W	–
9	LG	–
24	V	–
25	SB	–
26	G	–
27	W	–
28	R	–
31	V	–
32	SB	–
33	SHIELD	–
34	W	–
35	BR	–
36	Y	–
37	SHIELD	–
38	Y	–
39	SB	–
40	P	–
41	L	–
42	SHIELD	–
43	R	–
44	G	–
45	SHIELD	–
46	SB	–
55	BR	–
56	R	–
58	V	–
59	SB	–
71	BG	–
72	GR	–
73	P	–
74	L	–
81	V	–
82	B	–
84	Y	–
85	G	–
86	W	–
87	R	–
88	BR	–
89	Y	–
90	SB	–
92	BR	–
93	P	–
95	BG	–

Connector No.	B18
Connector Name	WIRE TO WIRE
Connector Type	NH10FW-CS10

Terminal No.	Color Of Wire	Signal Name [Specification]
2	LG	–
3	W	–
5	P	–
6	BR	–
7	B	–
19	L	– [With BOSE system]
19	SB	– [Without BOSE system]
20	P	– [With BOSE system]
20	Y	– [Without BOSE system]

Connector No.	B27
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS

Terminal No.	Color Of Wire	Signal Name [Specification]
2	BG	–
3	B	–
4	Y	–
5	B	–
6	W	–
11	G	–
12	SHIELD	–
13	B	–
14	W	–
15	R	–

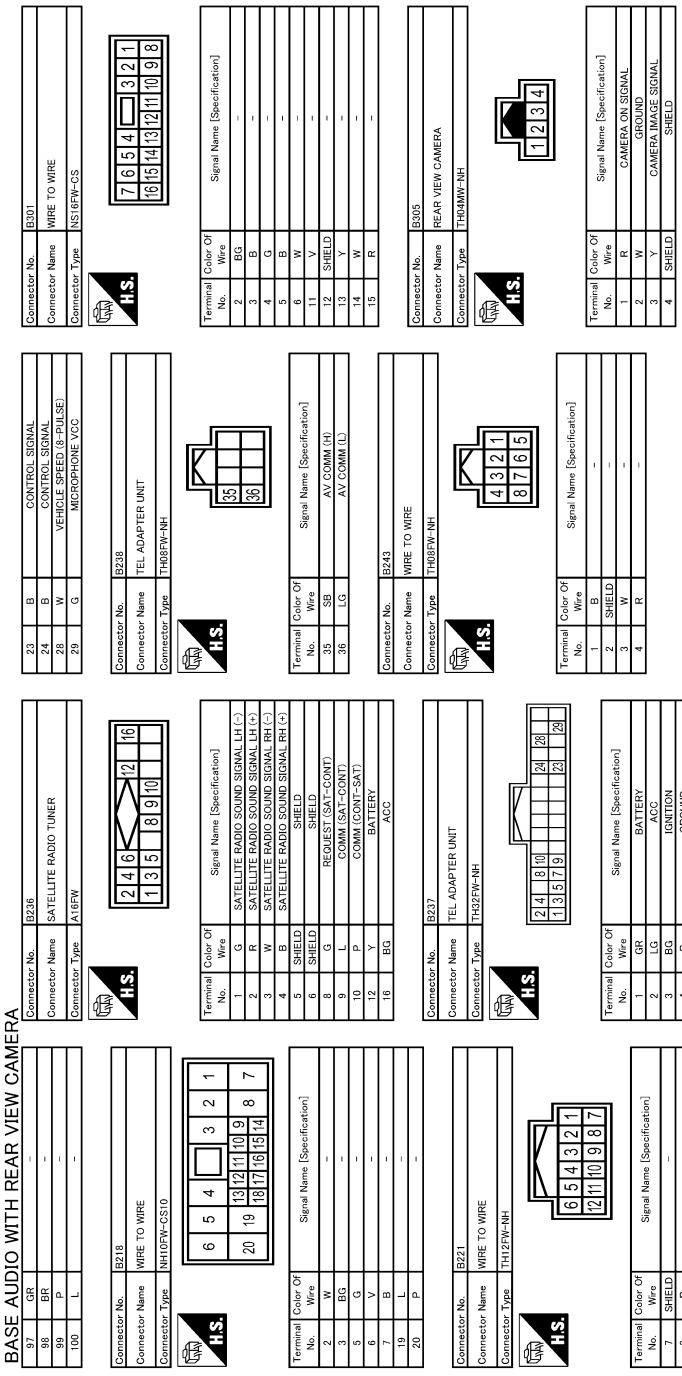
Connector No.	B66
Connector Name	WIRE TO WIRE
Connector Type	TH08MW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
1	B	–
2	SHIELD	–
3	W	–
4	R	–

Connector No.	B201
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

Terminal No.	Color Of Wire	Signal Name [Specification]
1	BR	–
6	L	–
7	V	–
31	L	–
32	P	–
33	G	–
34	R	–
40	GR	–
41	LG	–
42	BG	–
43	R	–
45	G	–
46	SHIELD	–
47	G	–
48	Y	–
49	SHIELD	–
50	W	–
71	R	–
80	BG	–
81	SHIELD	–
82	G	–
83	P	–
84	L	–
85	SHIELD	–
86	G	–
87	R	–
88	W	–
89	B	–
90	Y	–
91	V	–
92	W	–
93	BG	–
94	R	–
95	SB	–
96	G	–

JRNWD7408GB



JRNWD7409GB

BASE AUDIO WITH REAR VIEW CAMERA

Connector No.	B471
Connector Name	TEL ADAPTER UNIT
Connector Type	GT18C-1S-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
33	SHIELD	TEL ANTENNA
34	SHIELD	SHIELD

Connector No.	B482
Connector Name	SATELLITE RADIO TUNER
Connector Type	FAKRA CONNECTOR

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
33	SHIELD	SATELLITE ANTENNA
34	SHIELD	SHIELD

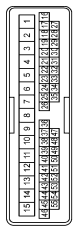
Connector No.	B483
Connector Name	SATELLITE RADIO ANTENNA
Connector Type	GT18C-1PP-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	SHIELD	-

Connector No.	D1
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-CS15

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
2	B	-
3	SB	-
4	V	-
8	L	-
9	P	-
10	LG	-
12	GR	- [With BOSE system]
12	L	- [Without BOSE system]
13	W	-
14	G	-
15	R	-
25	V	-
26	R	-
33	B	-
42	G	-
43	GR	-
44	BG	-

Terminal No.	Color Of Wire	Signal Name [Specification]
47	V	-
48	R	-
49	SB	-
50	W	-
51	P	-
52	V	-
53	G	-
54	R	-
55	SHIELD	-

Connector No.	D31
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-CS15

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
2	V	-
3	B	-
7	LG	-
8	P	-
10	L	-
11	W	-
12	G	-
13	R	-
24	R	-
25	G	-
26	SHIELD	-
42	L	-
47	R	-
48	SB	-
49	W	-
50	P	-
51	V	-
52	GR	-
53	BG	-
54	G	-

Connector No.	D4
Connector Name	TWEETER LH
Connector Type	TK02FBR

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	W	-

Connector No.	D6
Connector Name	FRONT DOOR SPEAKER LH
Connector Type	NS02FW-CS

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	W	-

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BASE AUDIO WITH REAR VIEW CAMERA

Connector No.	D34
Connector Name	TWEETER RH
Connector Type	TK02FBR

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	–
2	W	–

Connector No.	D36
Connector Name	FRONT DOOR SPEAKER RH
Connector Type	NS02FW-CS

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	–
2	W	–

Connector No.	D51
Connector Name	WIRE TO WIRE
Connector Type	NH10MW-CS10

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
2	Y	–
3	W	–
5	G	–
6	V	–
7	B	– [Without BOSE system]
19	L	– [With BOSE system]
20	P	– [Without BOSE system]
20	Y	– [With BOSE system]

Connector No.	D53
Connector Name	REAR DOOR SPEAKER LH
Connector Type	NS02FW-CS

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	–
2	P	–

Connector No.	D71
Connector Name	WIRE TO WIRE
Connector Type	NH10MW-CS10

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
2	Y	–
3	W	–
5	P	–
6	LG	–
7	B	–
19	L	–
20	P	–

Connector No.	D73
Connector Name	REAR DOOR SPEAKER RH
Connector Type	NS02FW-CS

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	–
2	P	–

Connector No.	E5
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH20FW-CS12-M4-1V

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
4	V	–
5	L	–
6	SB	–
7	P	–
12	B/W	–
13	Y	–
16	LG	–
19	R	–
25	G	–
27	BG	–
28	L	–
30	GR	–
36	G	–

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	GR	–
3	BG	–
5	G	–
6	V	–
7	V	–
9	R	–
11	V	–

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BASE AUDIO WITH REAR VIEW CAMERA

12	R	-
13	L	-
14	GR	-
15	P	-
16	W	-
17	SB	-
18	BG	-
20	LG	-
31	L	-
32	BG	-
36	SB	-
37	Y	-
38	R	-
39	B	-
41	R	-
42	LG	-
43	G	-
44	GR	-
45	BR	-
46	LG	-
47	V	-
48	P	-
49	L	-
66	GR	-
67	LG	-
80	R	-
81	P	-
82	G	-
83	V	-
84	L	-
85	W	-
89	V	-
91	W	-
93	GR	-
95	LG	-
97	SB	-
98	SHIELD	-
99	L	-
100	P	-

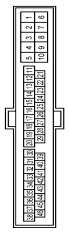
Connector No.	E107
Connector Name	PARKING BRAKE SWITCH
Connector Type	TB01FW

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	BG	-

Connector No.	F103
Connector Name	WIRE TO WIRE
Connector Type	TK36FW-NS10

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2	G	-
3	W	-
4	R	-
5	B	-
9	Y	-
10	GR	-
19	O	-
20	Y	-
28	B	-
29	LG	-
31	R	-
33	B	-
34	B	-
35	L	-
36	P	-
37	Y	-
38	G	-
43	P	-
44	L	-
45	G	-
46	V	-

Connector No.	F51
Connector Name	A/T ASSEMBLY
Connector Type	RK10FG-DGY

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
2	R	-
3	L	-
4	V	-
5	B	-
6	G	-
7	R	-
8	P	-
9	GR	-
10	B	-

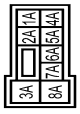
Connector No.	F157
Connector Name	TCM
Connector Type	SP10FG

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	SHIELD	VIGN
3	SHIELD	BATT
4	SHIELD	CAN-H
5	SHIELD	K-LINE
6	SHIELD	GROUND
7	SHIELD	VIGN
8	SHIELD	REV LAMP RLY
9	SHIELD	CAN-L
10	SHIELD	STARTER RLY
		GROUND

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS06FW-M2

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1A	V	-
2A	G	-
3A	L	-
4A	P	-
5A	L	-
6A	Y	-
7A	R	-
8A	L	-

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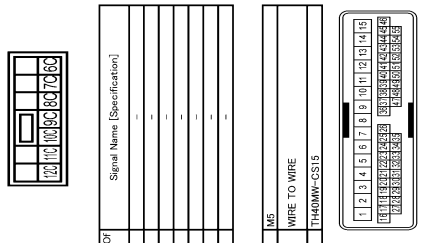
BASE AUDIO WITH REAR VIEW CAMERA

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS12FW-CS

Terminal No.	Color Of Wire	Signal Name [Specification]
10C	L	–
11C	LG	–
12C	G	–
6C	SB	–
7C	B	–
8C	W	–
9C	BG	–

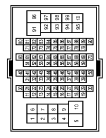
Connector No.	M5
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-CS15



Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	–
2	B	–
3	BG	–
4	V	–
8	SB	–
9	G	–
10	V	–
12	L	–
13	W	–
14	B	–
15	W	–
25	Y	–
26	G	–

33	B	–
42	Y	–
43	L	–
44	L	–
47	L	–
48	GR	–
49	SB	–
50	P	–
51	LG	–
52	V	–
53	BR	–
54	Y	–
55	SHIELD	–

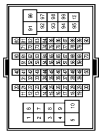
Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4



Terminal No.	Color Of Wire	Signal Name [Specification]
1	BG	–
3	R	–
5	G	–
6	LG	–
7	W	–
9	G	–
11	V	–
12	R	–
13	L	–
14	GR	–
15	P	–
16	W	–
17	BR	–
18	P	–
20	L	–
31	L	–
32	Y	–
36	R	–
37	Y	–
38	R	–
39	SB	–

41	V	–
42	LG	–
43	P	–
44	B	–
45	BG	–
46	G	–
47	L	–
48	P	–
49	L	–
66	Y	–
67	G	–
80	SB	–
81	B	–
82	V	–
83	W	–
84	L	–
85	GR	–
89	LG	–
91	W	–
93	Y	–
95	Y	–
97	GR	–
98	SHIELD	–
99	V	–
100	SB	–

Connector No.	M7
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4



Terminal No.	Color Of Wire	Signal Name [Specification]
1	GR	–
2	P	–
3	P	–
4	Y	–
6	L	–
8	G	–
9	Y	–
24	V	–
25	LG	–

26	BR	–
27	BG	–
28	LG	–
31	V	–
32	LG	–
33	SHIELD	–
34	GR	–
35	BR	–
36	Y	–
37	SHIELD	–
38	SB	–
39	LG	–
40	G	–
41	W	–
42	SHIELD	–
43	R	–
44	G	–
45	SHIELD	–
46	SB	–
55	W	–
56	B	–
58	V	–
59	Y	–
71	V	–
72	P	–
73	SB	–
74	V	–
81	W	–
82	BR	–
84	LG	–
85	BG	–
86	SB	–
87	G	–
88	GR	–
89	L	–
90	P	–
92	L	–
93	P	–
95	BG	–

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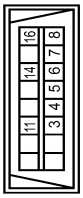
BASE AUDIO WITH REAR VIEW CAMERA

Connector No.	M24
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW-P

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
3	LG	-
4	B	-
5	B	-
6	L	-
7	V	-
8	G	-
11	SB	-
14	P	-
16	R	-

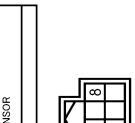
Connector No.	M37
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FW-NH

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	CAN-H
2	P	CAN-L
7	B	GROUND
8	G	IGN

Connector No.	M66
Connector Name	UNIFIED METER AND A/C AMP.
Connector Type	TH40FW-NH

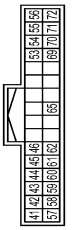
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
4	G	STOP LAMP SWITCH SIGNAL
5	L	MANUAL MODE SHIFT UP SIGNAL
7	GR	COMMUNICATION SIGNAL (AMP.-METER)
8	L	VEHICLE SPEED SIGNAL (2-PULSE)
9	SB	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)
10	W	MANUAL MODE SIGNAL
11	G	NON-MANUAL MODE SIGNAL
14	BR	COMMUNICATION SIGNAL (LCD-AMP.)
23	Y	A/T SNOW SWITCH SIGNAL
25	V	MANUAL MODE SHIFT DOWN SIGNAL
27	LG	COMMUNICATION SIGNAL (METER-AMP.)
28	R	VEHICLE SPEED SIGNAL (8-PULSE)
30	V	PARKING BRAKE SWITCH SIGNAL
34	Y	COMMUNICATION SIGNAL (AMP.-LCD)
38	P	BLOWER MOTOR CONTROL SIGNAL

Connector No.	M67
Connector Name	UNIFIED METER AND A/C AMP.
Connector Type	TH32FW-NH

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
41	L	ACC POWER SUPPLY
42	BR	FUEL LEVEL SENSOR SIGNAL
43	BR	INTAKE SENSOR SIGNAL
44	LG	IN-VEHICLE SENSOR SIGNAL
45	V	AMBIENT SENSOR SIGNAL
46	Y	SUNLOAD SENSOR SIGNAL
53	W	IGNITION POWER SUPPLY
54	SB	BATTERY POWER SUPPLY
55	B	GROUND
56	L	CAN-H
57	LG	BRAKE FLUID LEVEL SWITCH
58	Y	FUEL LEVEL SENSOR GROUND
59	GR	INTAKE SENSOR GROUND
60	W	IN-VEHICLE SENSOR GROUND
61	B	AMBIENT SENSOR GROUND
62	SB	SUNLOAD SENSOR GROUND
65	BG	ECV SIGNAL
69	P	A/C LAN SIGNAL
70	R	EACH DOOR MOTOR POWER SUPPLY
71	GR	GROUND
72	P	CAN-L

Connector No.	M69
Connector Name	BACK-UP LAMP RELAY
Connector Type	MS02FL-M2-LC

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
2	W	-
3	LG	-
5	BG	-

Connector No.	M71
Connector Name	DISPLAY UNIT
Connector Type	TH24FW-NH

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	B	GROUND
2	Y	INVERTER VCC
3	BG	SIGNAL VCC
4	Y	COMPOSITE IMAGE GND
5	SHIELD	SHIELD
6	L	RGB (G.GREEN) SIGNAL
7	SHIELD	SHIELD
8	R	HP
9	B	RGB AREA (VS) SIGNAL
11	P	COMM (CONT-DISP)
13	BR	INVERTER GND
14	LG	SIGNAL GND
15	BR	COMPOSITE IMAGE SIGNAL
17	G	RGB (R.RED) SIGNAL
18	P	RGB (B.BLUE) SIGNAL
19	W	RGB SYNC

Connector No.	M38
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY-1V

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
24	P	-
25	SB	-
26	B	-
31	L	-
32	Y	-
33	B	-
34	LG	-

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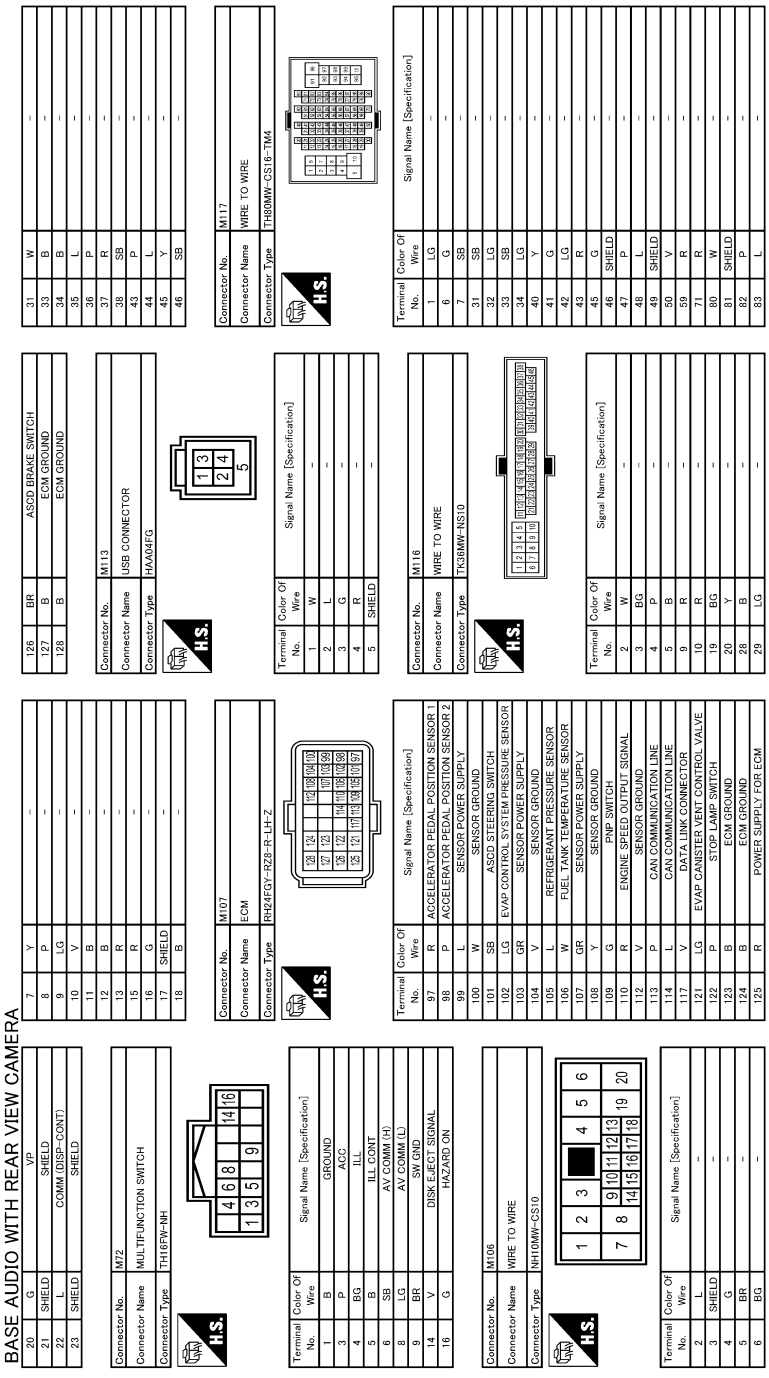

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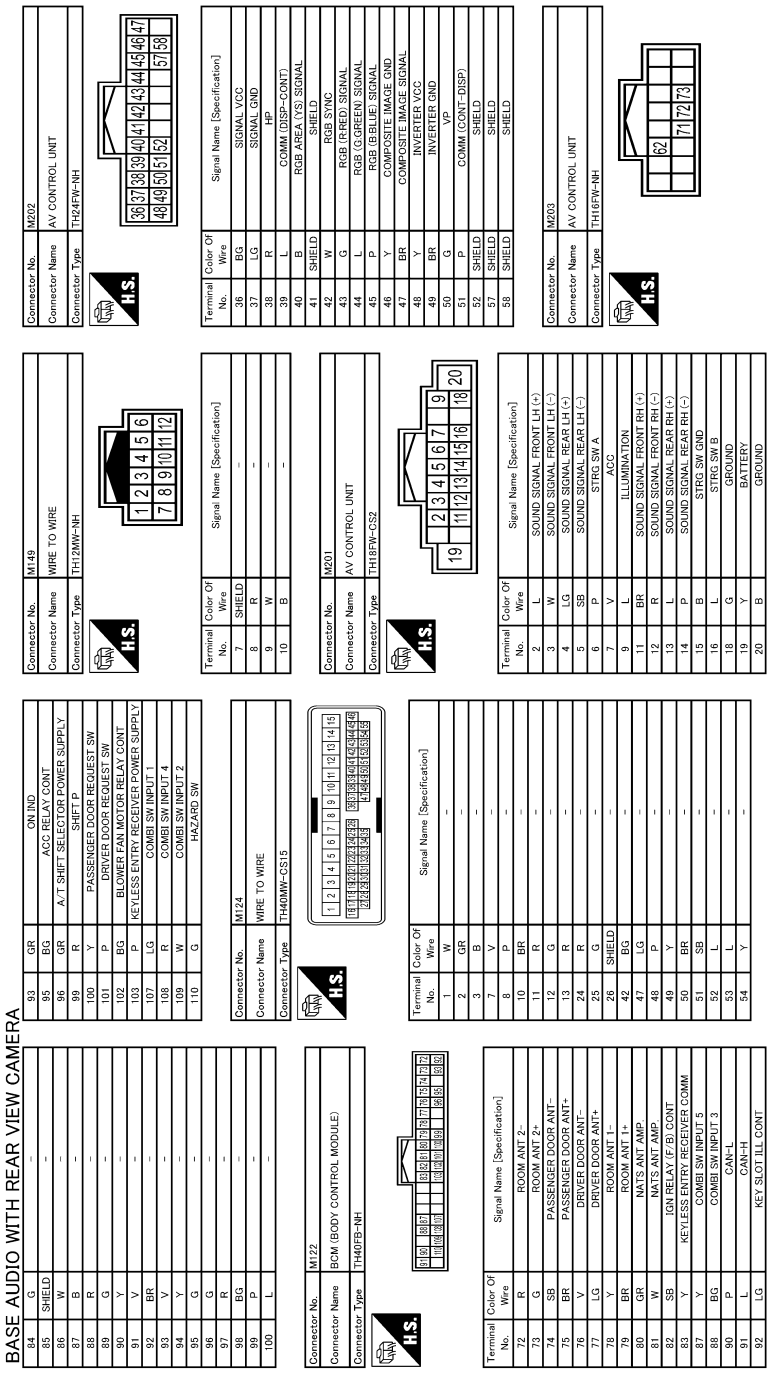

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BASE AUDIO WITH REAR VIEW CAMERA

Terminal No.	Color Of Wire	Signal Name [Specification]
62	W	CAMERA IMAGE SIGNAL
71	SHIELD	SHIELD
72	B	CAMERA GND
73	R	CAMERA POWER SUPPLY

Connector No.	M204
Connector Name	AV CONTROL UNIT
Connector Type	TH32FW-NH

H.S.

76 77 78 79 80 81 82 86 87 88
92 93 94 95 96

Terminal No.	Color Of Wire	Signal Name [Specification]
76	LG	AV COMM (-L)
77	SB	AV COMM (+H)
78	LG	AV COMM (-L)
79	SB	AV COMM (+H)
80	P	CAN-L
81	L	CAN-H
82	BR	SW GND
86	SHIELD	SHIELD
87	L	TEL VOICE SIGNAL (+)
88	P	TEL VOICE SIGNAL (-)
92	R	VEHICLE SPEED (8-PULSE)
93	SB	PARKING BRAKE
94	BG	REVERSE
95	G	IGNITION
96	V	EJECT SIGNAL

Connector No.	M206
Connector Name	AV CONTROL UNIT
Connector Type	A12FW

H.S.

120 121 122 123 124 125 126 127 128 129 130

Terminal No.	Color Of Wire	Signal Name [Specification]
120	B	SATELLITE SOUND SIGNAL LH (+)
121	G	SATELLITE SOUND SIGNAL RH (+)
122	L	COMM (CONT-SAT)
124	W	SATELLITE SOUND SIGNAL LH (-)
125	R	SATELLITE SOUND SIGNAL RH (-)
126	SHIELD	SHIELD
127	SHIELD	SHIELD
129	P	REQUEST (SAT-CONT)
130	G	COMM (SAT-CONT)

Connector No.	M207
Connector Name	AV CONTROL UNIT
Connector Type	HAA04FL

H.S.

132 133 134 135 136

Terminal No.	Color Of Wire	Signal Name [Specification]
132	G	USB GND
133	R	USB D- SIGNAL
134	W	V BUS SIGNAL
135	L	USB D+ SIGNAL
136	SHIELD	SHIELD

Connector No.	M003
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY

H.S.

20 19 18 17 16 15 14 13

Terminal No.	Color Of Wire	Signal Name [Specification]
13	SHIELD	–
14	SHIELD	–
15	SHIELD	–
16	SHIELD	–
17	SHIELD	–
18	SHIELD	–
19	SHIELD	–
20	SHIELD	–

Connector No.	M370
Connector Name	AV CONTROL UNIT
Connector Type	GT13SH-2.1S-HU

H.S.

139 138 137

Terminal No.	Color Of Wire	Signal Name [Specification]
137	SHIELD	FM SUB
138	SHIELD	AM-FM MAIN
139	SHIELD	ANTENNA AMP. ON SIGNAL

Connector No.	M375
Connector Name	WIRE TO WIRE
Connector Type	GT13SC-2.1S-HU

H.S.

1 2 3

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–
2	SHIELD	–
3	SHIELD	–

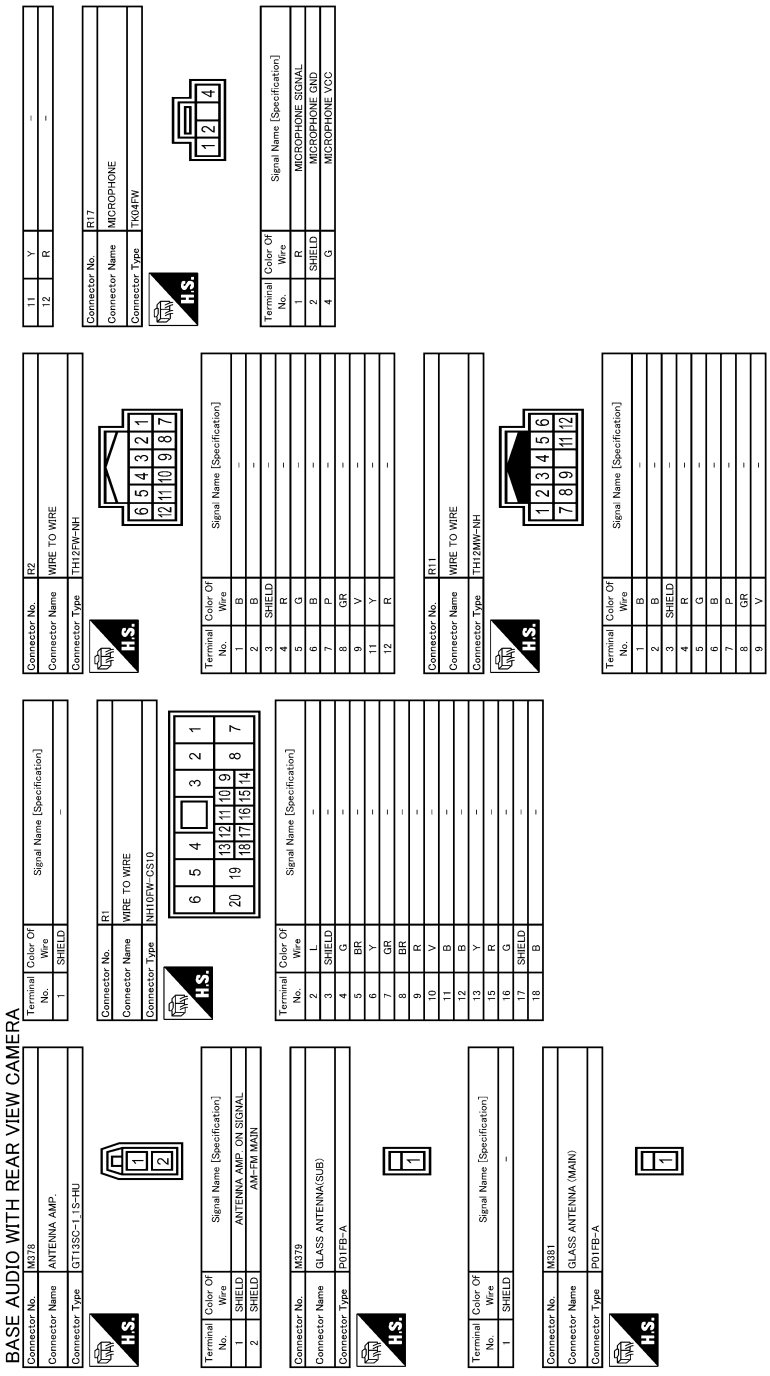
Connector No.	M376
Connector Name	WIRE TO WIRE
Connector Type	GT13SCN-2.1PP-HU

H.S.

1 2 3

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–
2	SHIELD	–
3	SHIELD	–

JRNWD7417GB



JRNWD7418GB

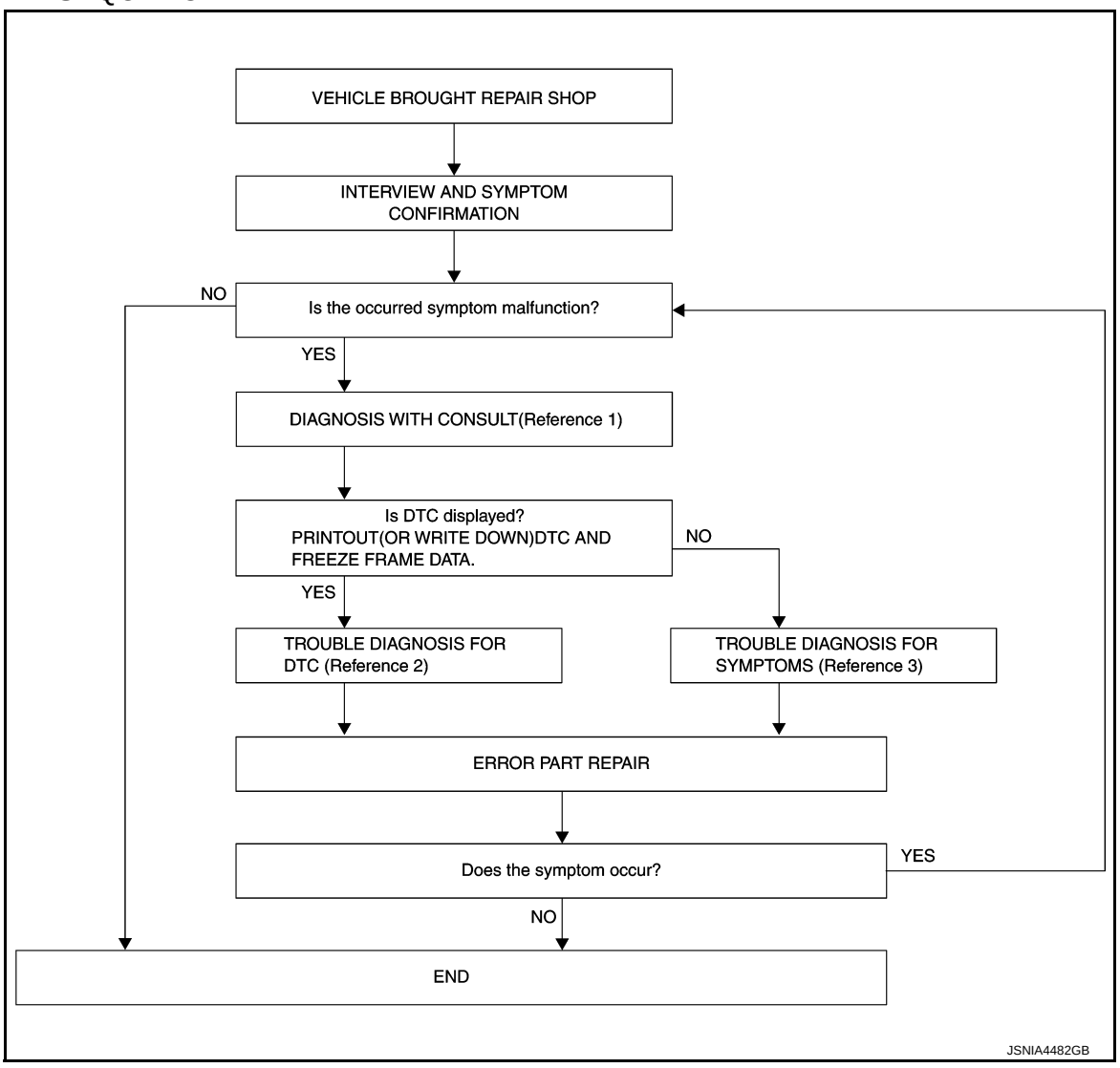
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010990842

OVERALL SEQUENCE



- Reference 1··· Refer to AV-25, "CONSULT Function".
- Reference 2··· Refer to AV-36, "DTC Index".
- Reference 3··· Refer to AV-99, "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

1. Connect CONSULT and perform a self-diagnosis for “MULTI AV”. Refer to AV-25, "CONSULT Function".
   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-36, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-99, "Symptom Table".

>> 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

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

Description

INFOID:0000000010990843

BEFORE REPLACEMENT

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

AFTER REPLACEMENT

CAUTION:

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

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

Work Procedure

INFOID:0000000010990844

1. SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “Before Replace ECU” to save or print current vehicle specification. Refer to AV-63, "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-106, "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-63, "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)

Description

INFOID:0000000010990845

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

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

Work Procedure

INFOID:0000000010990846

1.WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.
To write vehicle specification into the AV control unit by hand>>GO TO 3.

2.WRITE STORED DATA

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

>> GO TO 4.

3.MANUALLY WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Manual Configuration.” Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-63, "Configuration List".
NOTE:
If selection items are not displayed on the CONSULT screen, touch “NEXT.”

>> GO TO 4.

4.OPERATION CHECK

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

>> WORK END

Configuration List

INFOID:0000000010990847

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

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010990848

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-22, "CAN Communication Signal Chart".

DTC Logic

INFOID:0000000010990849

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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:0000000010990850

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-13, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI section. Refer to GI-41, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000010990851

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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-106, "Exploded View".

U1200 AV CONTROL UNIT

DTC Logic

INFOID:0000000010990852

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 malfunction occurs constantly. Refer to AV-106, "Exploded View".

U1216 AV CONTROL UNIT

DTC Logic

INFOID:0000000010990853

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 malfunction occurs constantly. Refer to AV-106, "Exploded View".

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010990854

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:0000000010990855

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-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement".

U1243 DISPLAY UNIT

DTC Logic

INFOID:0000000010990856

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

Diagnosis Procedure

INFOID:0000000010990857

1.CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to AV-76, "DISPLAY UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

2.CHECK CONTINUITY COMMUNICATION CIRCUIT

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

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

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

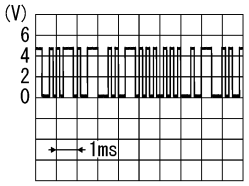
Display unit		Ground	Continuity
Connector	Terminals		
M71	11		Not existed
	22		

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.

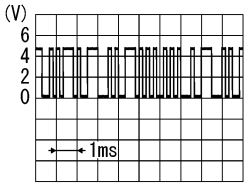
(+)		(–)	Condition	Reference value
Display unit				
Connector	Terminal			
M71	11	Ground	When adjusting display brightness.	 PKIB5039J

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+)		(–)	Condition	Reference value
Display unit				
Connector	Terminal			
M71	22	Ground	When adjusting display brightness.	 PKIB5039J

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace display unit. Refer to AV-108, "Exploded View".

U1255 SATELLITE RADIO TUNER

DTC Logic

INFOID:0000000010990858

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

Diagnosis Procedure

INFOID:0000000010990859

1.CHECK SATELLITE RADIO TUNER POWER SUPPLY AND GROUND CIRCUIT

Check satellite radio tuner power supply and ground circuit. Refer to AV-77, "SATELLITE RADIO TUNER : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

2.CHECK CONTINUITY COMMUNICATION CIRCUIT AND REQUEST SIGNAL CIRCUIT

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	
M206	129	B236	8	Existed
	122		10	
	130		9	

4. Check continuity between AV control unit harness connector.

AV control unit			Continuity
Connector	Terminals		
M206	129	Ground	Not existed
	122		
	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.

(+)		(–)	Reference value (Approx.)
AV control unit			
Connector	Terminals		

M206	129	Ground	7.0 V
	130	Ground	7.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

4. CHECK SATELLITE RADIO TUNER VOLTAGE

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace satellite radio tuner. Refer to AV-113, "Exploded View".

U1300 AV COMM CIRCUIT

Description

INFOID:0000000010990860

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

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

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

U1310 AV CONTROL UNIT

DTC Logic

INFOID:0000000010990861

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 malfunction occurs constantly. Refer to AV-106, "Exploded View".

POWER SUPPLY AND GROUND CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010990862

1.CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between AV control unit and fuse.

3.CHECK GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000010990863

1.CHECK POWER SUPPLY CIRCUIT (DISPLAY SIDE)

Check voltage between display unit harness connector and ground.

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

Is the inspection result normal?

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

2.CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

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

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

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

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replacement of AV control unit.

4.CHECK GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

SATELLITE RADIO TUNER

SATELLITE RADIO TUNER : Diagnosis Procedure

INFOID:0000000010990864

1.CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between satellite radio tuner harness connector and ground.

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check harness between satellite radio tuner and fuse.

TEL ADAPTER UNIT

TEL ADAPTER UNIT : Diagnosis Procedure

INFOID:0000000010990865

1.CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between TEL adapter unit and fuse.

3.CHECK GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

RGB (R: RED) SIGNAL CIRCUIT

Description

INFOID:0000000010990866

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

Diagnosis Procedure

INFOID:0000000010990867

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

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

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M71	17	M202	43	Existed

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

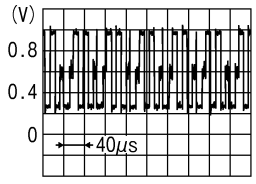
Display unit		Ground	Continuity
Connector	Terminal		
M71	17		Not existed

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

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

(+) Display unit		(–)	Condition	Reference value
Connector	Terminal			
M71	17	Ground	Start confirmation/adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen.	 JSNIA1029ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-108, "Exploded View".
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

RGB (G: GREEN) SIGNAL CIRCUIT

Description

INFOID:0000000010990868

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

Diagnosis Procedure

INFOID:0000000010990869

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.

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M71	6	M202	44	Existed

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

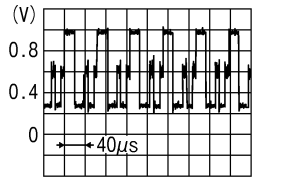
Display unit		Ground	Continuity
Connector	Terminal		
M71	6		Not existed

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

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

(+) Display unit		(–)	Condition	Reference value
Connector	Terminal			
M71	6	Ground	Start confirmation/adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen.	 JSNIA1030ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-108, "Exploded View".
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

RGB (B: BLUE) SIGNAL CIRCUIT

Description

INFOID:0000000010990870

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

Diagnosis Procedure

INFOID:0000000010990871

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

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

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M71	18	M202	45	Existed

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

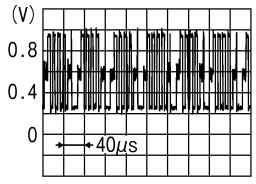
Display unit		Ground	Continuity
Connector	Terminal		
M71	18		Not existed

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

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

(+) Display unit		(–)	Condition	Reference value
Connector	Terminal			
M71	18	Ground	Start confirmation/adjustment mode, and then display color bar by selecting “Color Spectrum Bar” on DISPLAY DIAGNOSIS screen.	 JSNIA1031ZZ

Is inspection result normal?

YES >> Replace display unit. Refer to AV-108, "Exploded View".
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

RGB SYNCHRONIZING SIGNAL CIRCUIT

Description

INFOID:0000000010990872

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

Diagnosis Procedure

INFOID:0000000010990873

1.CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

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

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M71	19	M202	42	Existed

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

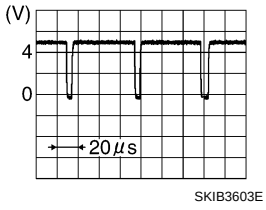
Display unit		Ground	Continuity
Connector	Terminal		
M71	19		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK RGB SYNCHRONIZING SIGNAL

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

(+)		(–)	Reference value
Display unit			
Connector	Terminal		
M71	19	Ground	

SKIB3603E

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-108, "Exploded View".
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

RGB AREA (YS) SIGNAL CIRCUIT

Description

INFOID:0000000010990874

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

Diagnosis Procedure

INFOID:0000000010990875

1.CHECK CONTINUITY RGB AREA (YS) SIGNAL CIRCUIT

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

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

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

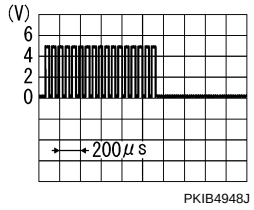
Display unit		Ground	Continuity
Connector	Terminal		
M71	9		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK RGB AREA (YS) SIGNAL

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

(+) Display unit		(–)	Condition	Reference value (Approx.)
Connector	Terminal			
M71	9	Ground	At RGB image is displayed.	5.0 V
			At camera image is displayed.	

PKIB4948J

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-108, "Exploded View".
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

CAMERA IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000010990876

- 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:0000000010990877

1.CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

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

AV control unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M203	73	B305	1	Existed

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

AV control unit		Ground	Continuity
Connector	Terminal		
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.

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

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

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

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

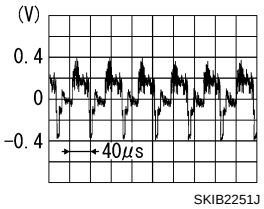
AV control unit		Ground	Continuity
Connector	Terminal		
M203	62		Not existed

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

4. CHECK CAMERA IMAGE SIGNAL

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

(+)		(–)	Condition	Reference value
AV control unit				
Connector	Terminal			
M203	62	Ground	At rear view camera image is displayed.	

SKIB2251J

Is inspection result normal?

YES >> Replace AV control unit. Refer to AV-106, "Exploded View".
NO >> Replace rear view camera. Refer to AV-122, "Exploded View".

COMPOSITE IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000010990878

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

Diagnosis Procedure

INFOID:0000000010990879

1.CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

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

AV control unit		Display unit		Continuity
Connector	Terminal	Connector	Terminal	
M202	47	M71	15	Existed

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

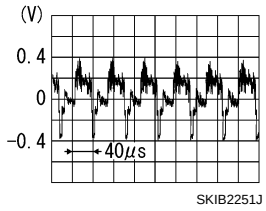
AV control unit		Ground	Continuity
Connector	Terminal		
M202	47		Not existed

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.

(+)		(–)	Condition	Reference value
AV control unit				
Connector	Terminal			
M202	47	Ground	At camera image is displayed.	

SKIB2251J

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-108, "Exploded View".
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

Description

INFOID:0000000010990880

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

Diagnosis Procedure

INFOID:0000000010990881

1. CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

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

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M71	8	M202	38	Existed

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

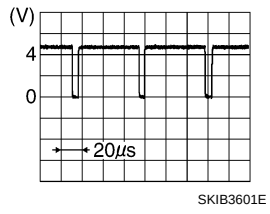
Display unit		Ground	Continuity
Connector	Terminal		
M71	8		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2. CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

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

(+)		(–)	Reference value
Display unit			
Connector	Terminal		
M71	8	Ground	

SKIB3601E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-106, "Exploded View".
NO >> Replace display unit. Refer to AV-108, "Exploded View".

VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

Description

INFOID:0000000010990882

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

Diagnosis Procedure

INFOID:0000000010990883

1.CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

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

Display unit		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M71	20	M202	50	Existed

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

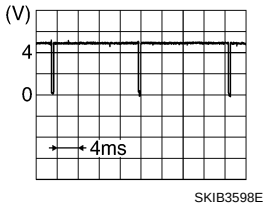
Display unit		Ground	Continuity
Connector	Terminal		
M71	20		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

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

(+)		(–)	Reference value
Display unit			
Connector	Terminal		
M71	20	Ground	

SKIB3598E

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-106, "Exploded View".
NO >> Replace display unit. Refer to AV-108, "Exploded View".

DISK EJECT SIGNAL CIRCUIT

Description

INFOID:0000000010990884

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

Diagnosis Procedure

INFOID:0000000010990885

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	
M72	14	M204	96	Existed

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

Multifunction switch		Ground	Continuity
Connector	Terminal		
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.

(+)		(–)	Condition	Voltage (Approx.)
AV control unit				
Connector	Terminal			
M204	96	Ground	Pressing the eject switch	0 V
			Except for above	3.3 V

Is the inspection result normal?

YES >> Replace preset switch. Refer to AV-116, "Exploded View".
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

MICROPHONE SIGNAL CIRCUIT

Description

INFOID:0000000010990886

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

Diagnosis Procedure

INFOID:0000000010990887

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	
B237	7	R17	1	Existed
	8		2	
	29		4	

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

TEL adapter unit		Ground	Continuity
Connector	Terminals		
M237	7		Not existed
	29		

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK VOLTAGE MICROPHONE VCC

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

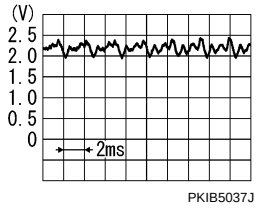
(+)		(–)		Voltage (Approx.)
TEL adapter unit		TEL adapter unit		
Connector	Terminal	Connector	Terminal	
B237	29	B237	8	5.0 V

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace TEL adapter unit. Refer to AV-121, "Exploded View".

3.CHECK MICROPHONE SIGNAL

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

(+)		(–)		Condition	Reference value
TEL adapter unit		TEL adapter unit			
Connector	Terminal	Connector	Terminal		
B237	7	B237	8	give a voice.	

PKIB5037J

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-121, "Exploded View".
NO >> Replace microphone. Refer to AV-119, "Exploded View".

CONTROL SIGNAL CIRCUIT

Description

INFOID:0000000010990888

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

Diagnosis Procedure

INFOID:0000000010990889

1.CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

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

TEL adapter unit		Ground	Continuity
Connector	Terminals		
B237	23		Existed
	24		

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-121, "Exploded View".
NO >> Repair harness or connector.

STEERING SWITCH SIGNAL A CIRCUIT

Description

INFOID:0000000010990890

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000010990891

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		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M201	6	M36	24	Existed

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

AV control unit		Ground	Continuity
Connector	Terminal		
M201	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-14, "Exploded View".

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	
M201	6	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-93, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to ST-14, "Exploded View".

Component Inspection

INFOID:0000000010990892

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

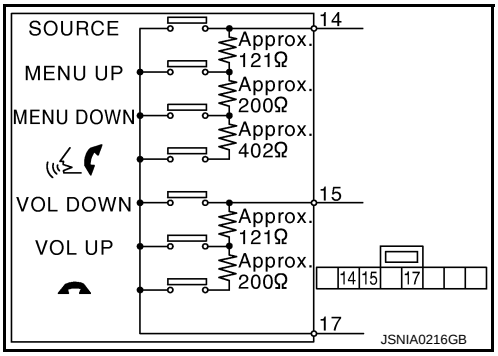
Standard

Between terminals 14 and 17

switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	: 0 Ω

Between terminals 15 and 17

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



STEERING SWITCH SIGNAL B CIRCUIT

Description

INFOID:0000000010990893

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000010990894

1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M201	16	M36	31	Existed

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

AV control unit		Ground	Continuity
Connector	Terminal		
M201	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-14, "Exploded View".

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	
M201	16	M201	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-95, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to ST-14, "Exploded View".

Component Inspection

INFOID:0000000010990895

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

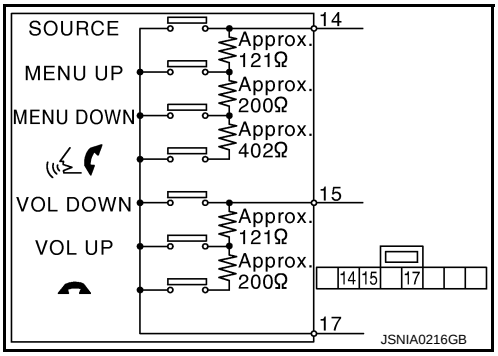
Standard

Between terminals 14 and 17

switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	: 0 Ω

Between terminals 15 and 17

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



STEERING SWITCH GROUND CIRCUIT

Description

INFOID:0000000010990896

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000010990897

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	
M201	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-14, "Exploded View".

3.CHECK GROUND CIRCUIT

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

AV control unit		Ground	Continuity
Connector	Terminal		
M201	15		Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-106, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-97, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to ST-14, "Exploded View".

Component Inspection

INFOID:0000000010990898

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

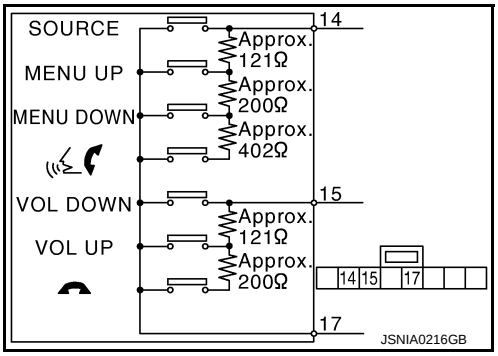
Standard

Between terminals 14 and 17

switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	: 0 Ω

Between terminals 15 and 17

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



SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010990899

OPERATION

Symptoms	Check items	Possible malfunction location / Action to take
Multifunction switch and preset switch operation does not work.	• All switches cannot be operated. • “MULTI AV” is displayed on system selection screen when the CONSULT is started.	• Multifunction switch power supply and ground circuit. • AV communication circuit between AV control unit and multifunction switch. Perform “Self diagnosis Result” of “MULTI AV” with CONSULT. Refer to AV-25, "CONSULT Function".
	• 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-76, "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-16, "On Board Diagnosis Function".
Fuel economy display, vehicle setting operation is abnormal.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-25, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-36, "DTC Index".
	There is no malfunction in the self-diagnosis results. Refer to AV-25, "CONSULT Function".	Ignition signal circuit malfunction. (AV control unit)

RELATED TO HANDS-FREE PHONE

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

Check Compatibility

1. Make sure the customer's Bluetooth® related concern is understood.
2. Verify the customer's concern.
   NOTE:
   The customer's phone may be required, depending upon their concern.
3. Write down the customer's phone brand, model, and service provider.
   NOTE:
   It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
4. Go to ”www.infinitiusa.com/bluetooth/”.

a. Using the website's search engine, find out if the customer's phone is on the approved list.

b. If the customer's phone is NOT on the approved list:
   Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.

c. If the feature related to the customer's concern shows as “N” (not compatible):
   Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as “Y” (compatible) in the “Basic Features” list.

d. If the feature related to the customer's concern shows as “Y” (compatible):
   Perform diagnosis as per the following table.

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-121, "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-25, "CONSULT Function". • No malfunction. TEL adapter unit malfunction. Refer to AV-121, "Exploded View". • Malfunction is detected. Perform detected DTC diagnosis. Refer to AV-36, "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-free phone communication.	Sound operation function is normal.	TEL adapter unit. Refer to AV-121, "Exploded View".
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-90, "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-93, "Component Inspection". • Malfunction is detected. Replace steering switch. Refer to AV-117, "Exploded View".
	“SOURCE”, “MENU UP”, “MENU DOWN” and “ ” switches are not operated.	Steering switch signal A circuit malfunction. Refer to AV-93, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-97, "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-25, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-36, "DTC Index".
	There is no malfunction in CONSULT self-diagnosis results. Refer to AV-25, "CONSULT Function".	Vertical synchronizing (VP) signal circuit. Refer to AV-88, "Diagnosis Procedure".
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to AV-79, "Diagnosis Procedure".
	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to AV-80, "Diagnosis Procedure".
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to AV-81, "Diagnosis Procedure".
RGB screen is rolling.	—	RGB synchronizing signal circuit. Refer to AV-82, "Diagnosis Procedure".

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	—	Disk eject signal circuit malfunction. Refer to AV-89, "Diagnosis Procedure".
No sound comes out or the level of the sound is low.	No sound from all speakers.	AV control unit power supply and ground circuits malfunction. Refer to AV-76, "AV CONTROL UNIT : Diagnosis Procedure".
	Only a certain speaker (front right, front left, rear right, or rear left) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and speaker. • Malfunction in speaker. • Malfunction in AV control unit.
Noise is mixed with audio.	Noise comes out from all speaker.	Malfunction in AV control unit.
	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left).	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and speaker. • Malfunction in speaker. • Poor installation of speaker (e.g. backlash and looseness) • Malfunction in AV control unit.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.
Radio is not received or poor reception.	• Other audio sounds are normal. • Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	• Antenna amp. ON signal circuit malfunction. • Poor connector connection of antenna or antenna feeder.
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-25, "CONSULT Function".	• Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-36, "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-25, "CONSULT Function".	• Poor continuity in antenna feeder. • Poor connector connection of antenna or antenna feeder. • Loose satellite radio antenna mounting nut. Refer to AV-114, "Exploded View".

RELATED TO USB

NOTE:

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

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

iPod® 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-97, "Diagnosis Procedure".
Only specified switch cannot be operated.	• Check steering switch. Refer to AV-93, "Component Inspection". • Malfunction is detected. Replace steering switch. Refer to AV-117, "Exploded View".

Symptoms	Probable malfunction location
“SOURCE”, “MENU UP”, “MENU DOWN” and “ ” switches are not operated.	Steering switch signal A circuit. Refer to AV-93, "Diagnosis Procedure".
”VOL UP“, “VOL DOWN” and “ ” switches are not operated.	Steering switch signal B circuit. Refer to AV-95, "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 AV-84, "Diagnosis Procedure". • Composite image signal circuit. Refer to AV-86, "Diagnosis Procedure".
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-106, "Exploded View".

NORMAL OPERATING CONDITION

Description

INFOID:0000000010990900

BASIC OPERATIONS

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

RELATED TO VOICE RECOGNITION

Related to Telephone

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

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

Symptom	Solution
System fails to interpret the command correctly.	1. Ensure that the command is valid.
	2. Ensure that the command is spoken after the tone.
	3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle.
	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). **NOTE:** If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.
	5. If more than one command was said at a time, try saying the commands separately.
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. See “Speaker adaptation (SA) mode” earlier in this section. Refer to “OWNER’S MANUAL”.
The system consistently selects the wrong voicetag	1. Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the “List Names” command.
	2. Replace one of the names being confused with a new name.

RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, 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.
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

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

REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

INFOID:0000000010990901

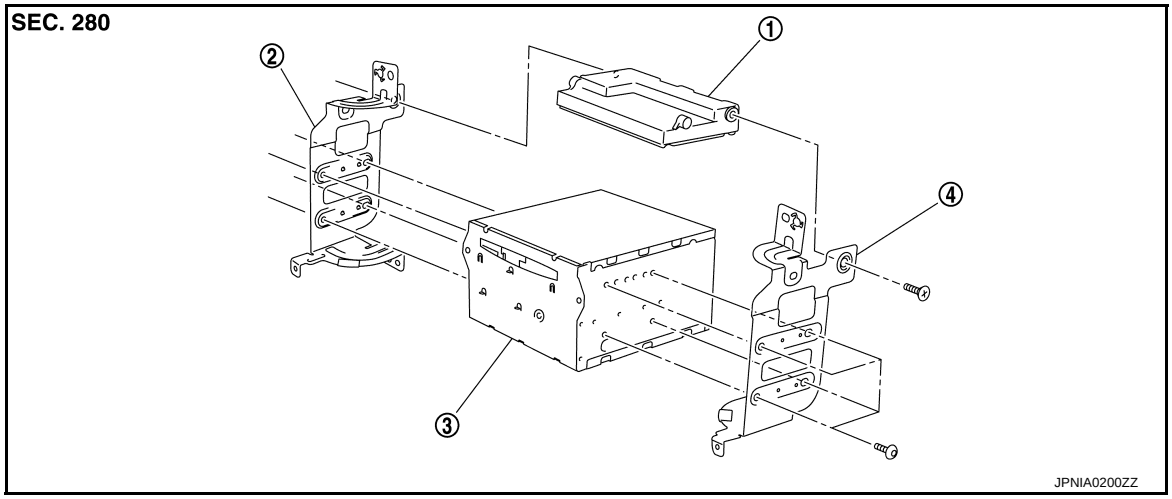
CAUTION:
- **Before replacing AV control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-62, "Description".**
- **Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.**

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

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:0000000010990902

REMOVAL

CAUTION:
- **Before replacing AV control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-62, "Work Procedure".**
- **Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.**

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

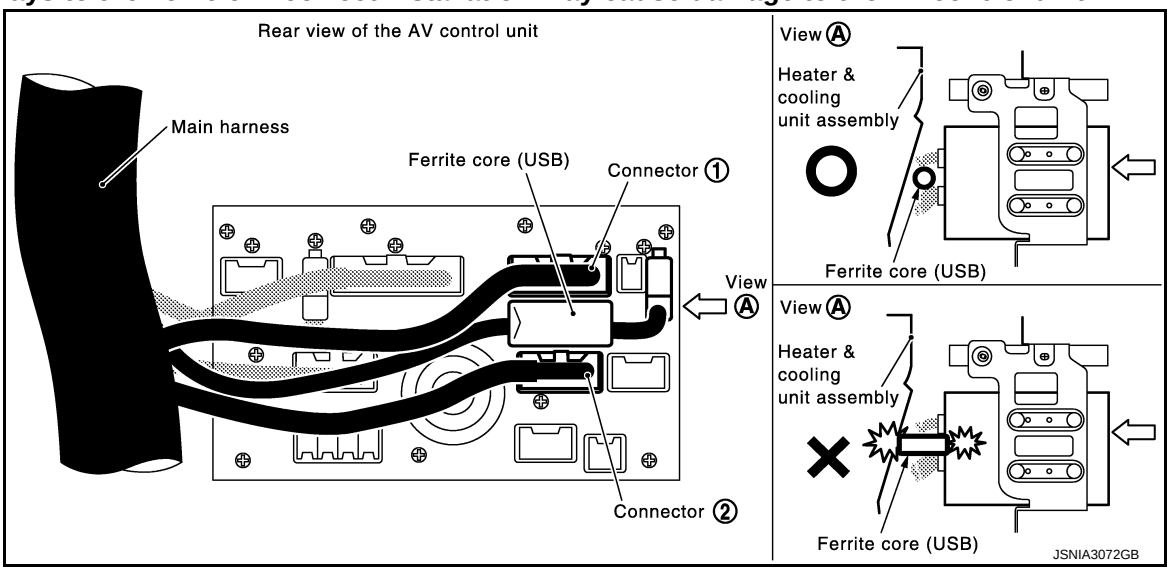
1. Remove display unit. Refer to AV-108, "Exploded View".
2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Installation is the reverse order of removal.

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

- **Be sure to perform “Read/Write Configuration” when replacing AV control unit. For details, refer to AV-63, "Work Procedure".**
- **Install AV control unit between connector (1) and connector (2) with the ferrite core (USB) orientated sideways to the vehicle. Incorrect installation may cause damage to the AV control unit.**



DISPLAY UNIT

Exploded View

INFOID:0000000010990903

Refer to IP-12, "Exploded View".

Removal and Installation

INFOID:0000000010990904

REMOVAL

1. Remove cluster lid D. Refer to IP-12, "Exploded View".
2. Remove display unit with bracket as a single unit.

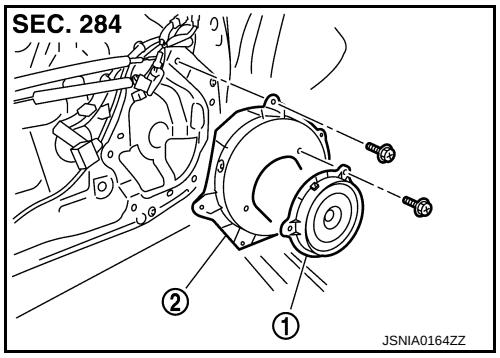
INSTALLATION

Installation is the reverse order of removal.

FRONT DOOR SPEAKER

Exploded View

INFOID:0000000010990905



1. Front door speaker
2. Speaker bracket

Removal and Installation

INFOID:0000000010990906

REMOVAL

1. Remove front door finisher. Refer to INT-12, "Exploded View".
2. Remove the front door speaker from speaker bracket.

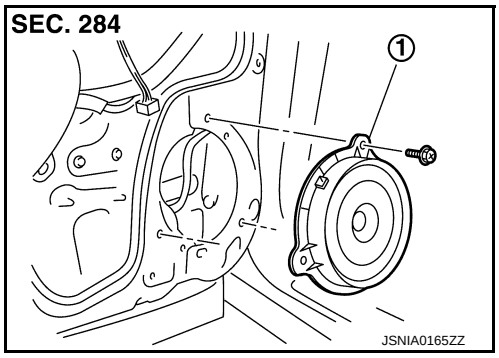
INSTALLATION

Installation is the reverse order of removal.

REAR DOOR SPEAKER

Exploded View

INFOID:0000000010990907



1. Rear door speaker

Removal and Installation

INFOID:0000000010990908

REMOVAL

1. Remove rear door finisher. Refer to INT-12, "Exploded View".
2. Remove rear door speaker from rear door.

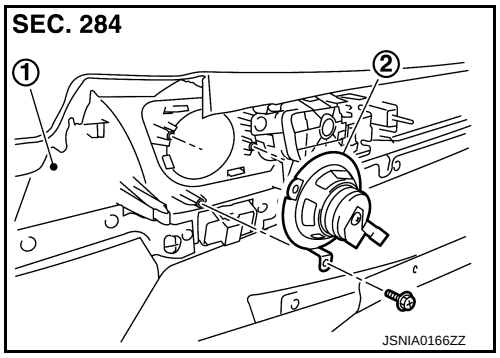
INSTALLATION

Installation is the reverse order of removal.

TWEETER

Exploded View

INFOID:0000000010990909



1. Door finisher
2. Tweeter

Removal and Installation

INFOID:0000000010990910

REMOVAL

1. Remove front door finisher. Refer to INT-12, "Exploded View".
2. Remove the tweeter from the front door finisher.

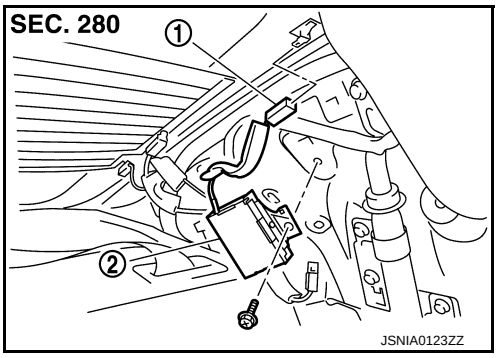
INSTALLATION

Installation is the reverse order of removal.

ANTENNA AMP.

Exploded View

INFOID:0000000010990911



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

Removal and Installation

INFOID:0000000010990912

REMOVAL

1. Remove rear pillar finisher LH. Refer to INT-15, "Exploded View".
2. Remove antenna amp. from rear pillar LH.

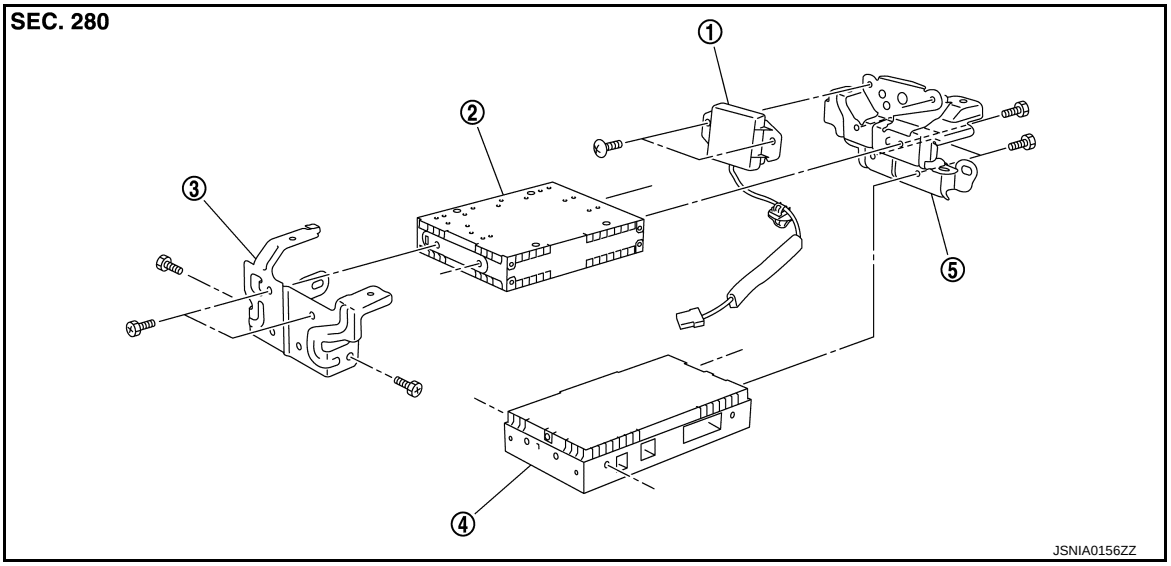
INSTALLATION

Installation is the reverse order of removal.

SATELLITE RADIO TUNER

Exploded View

INFOID:0000000010990913



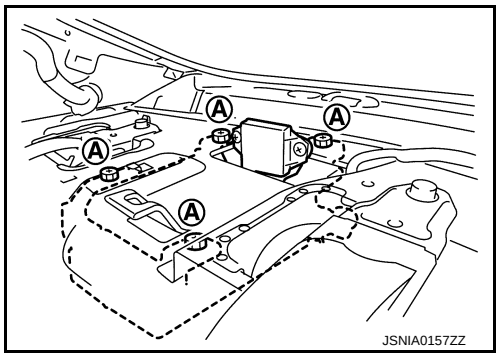
1. TEL antenna
2. Satellite radio tuner
3. Bracket (front)
4. TEL adapter unit
5. Bracket (rear)

Removal and Installation

INFOID:0000000010990914

REMOVAL

1. Remove trunk front finisher. Refer to INT-30, "Exploded View".
2. Remove rear parcel shelf finisher. Refer to INT-20, "Exploded View".
3. Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
4. Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



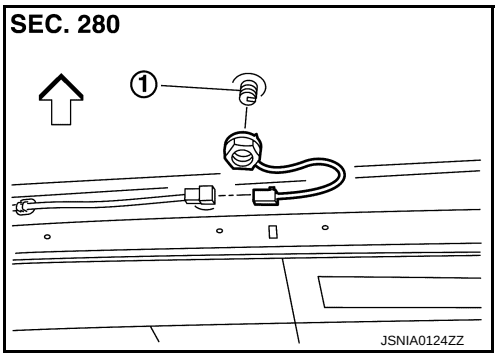
INSTALLATION

Installation is the reverse order of removal.

SATELLITE RADIO ANTENNA

Exploded View

INFOID:0000000010990915



1. Satellite radio antenna

⇦: Vehicle front

Removal and Installation

INFOID:0000000010990916

REMOVAL

1. Remove head lining assembly (rear) to secure work space between vehicle and headlining. Refer to INT-24, "NORMAL ROOF : Exploded View" (normal roof models) or INT-27, "SUNROOF : Exploded View" (sunroof models).
2. Remove nut, and then remove satellite radio antenna from roof panel.

INSTALLATION

Installation is the reverse order of removal.

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

CAUTION:

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

MULTIFUNCTION SWITCH

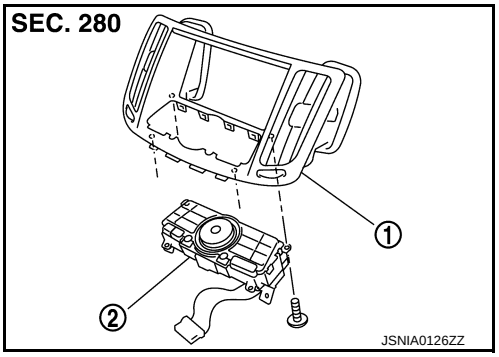
Exploded View

INFOID:0000000010990917

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



1. Center ventilator grille
2. Multifunction switch

Removal and Installation

INFOID:0000000010990918

REMOVAL

1. Remove cluster lid D. Refer to IP-12, "Exploded View".
2. Remove multi function switch with center ventilator grille as a single unit.
3. Remove multi function switch from center ventilator.

INSTALLATION

Installation is the reverse order of removal.

PRESET SWITCH

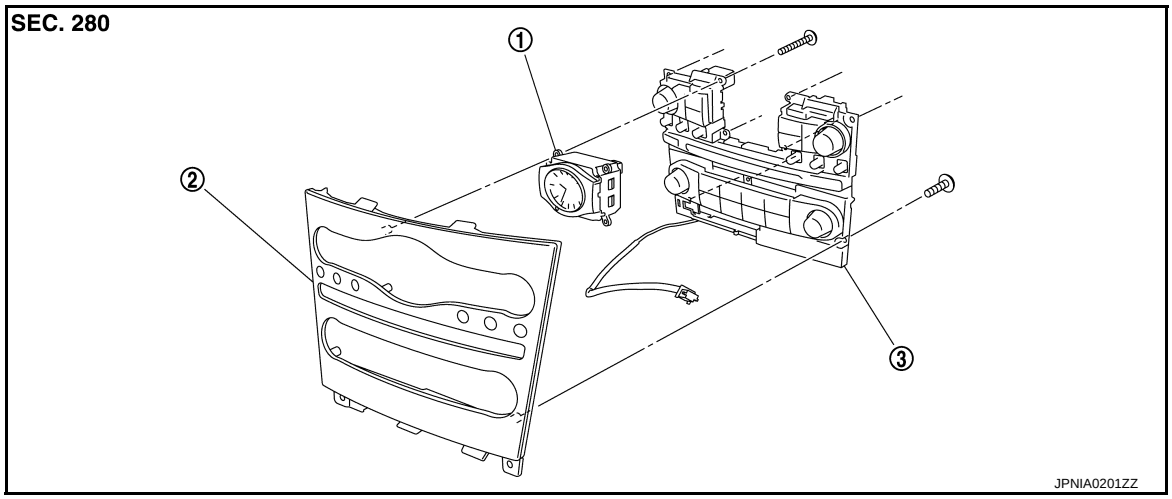
Exploded View

INFOID:0000000010990919

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



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

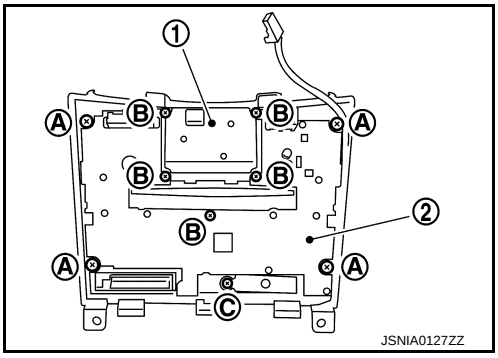
Removal and Installation

INFOID:0000000010990920

REMOVAL

1. Remove cluster lid C. Refer to IP-12, "Exploded View".
2. Remove preset switch screws (A), (B), and (C), and then remove preset switch (2) from cluster lid C.

1. Clock



INSTALLATION

Installation is the reverse order of removal.

NOTE:

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

STEERING SWITCH

Exploded View

INFOID:0000000010990921

Refer to ST-14, "Exploded View".

Removal and Installation

INFOID:0000000010990922

REMOVAL

Refer to ST-14, "Removal and Installation".

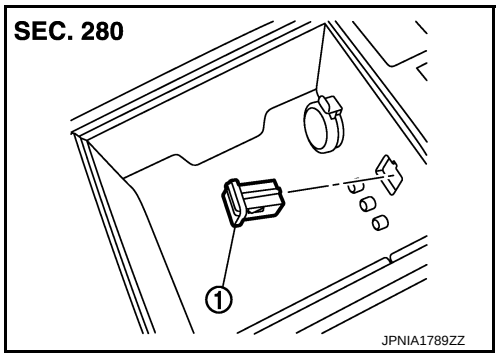
INSTALLATION

Installation is the reverse order of removal.

USB CONNECTOR

Exploded View

INFOID:0000000010990923



1. USB connector

Removal and Installation

INFOID:0000000010990924

REMOVAL

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

INSTALLATION

Install in the reverse order of removal.

MICROPHONE

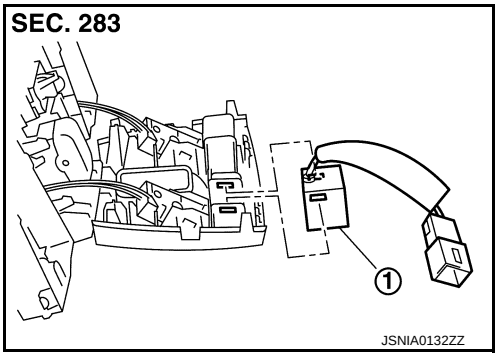
Exploded View

INFOID:0000000010990925

REMOVAL

Refer to INL-97, "Exploded View".

DISASSEMBLY



1. Microphone

Removal and Installation

INFOID:0000000010990926

REMOVAL

1. Remove map lamp. Refer to INL-97, "Exploded View".
2. Remove microphone from map lamp.

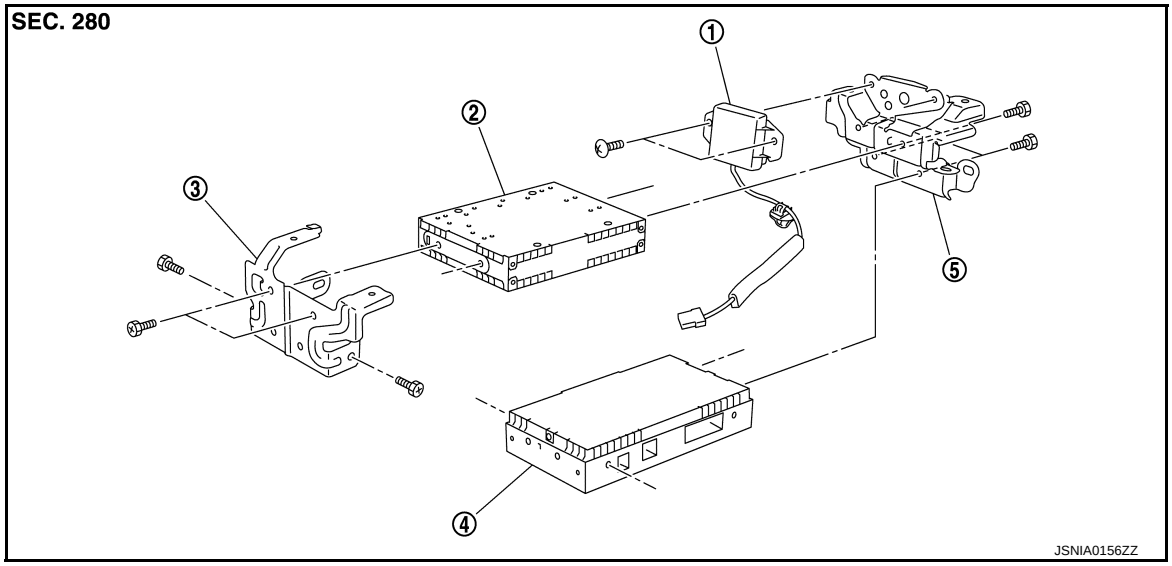
INSTALLATION

Installation is the reverse order of removal.

TEL ANTENNA

Exploded View

INFOID:0000000010990927



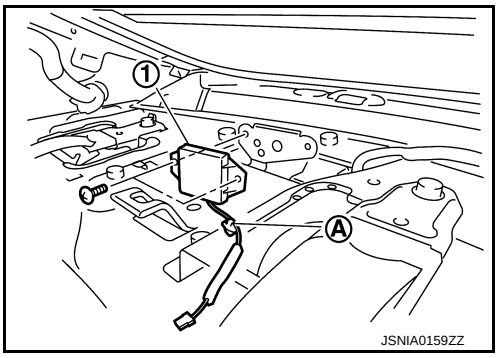
1. TEL antenna
2. Satellite radio tuner
3. Bracket (front)
4. TEL adapter unit
5. Bracket (rear)

Removal and Installation

INFOID:0000000010990928

REMOVAL

1. Remove trunk front finisher. Refer to INT-30, "Exploded View".
2. Remove rear parcel shelf finisher. Refer to INT-20, "Exploded View".
3. Remove screws and clip (A) from inside the cabin and remove TEL antenna (1) connector from trunk room side.



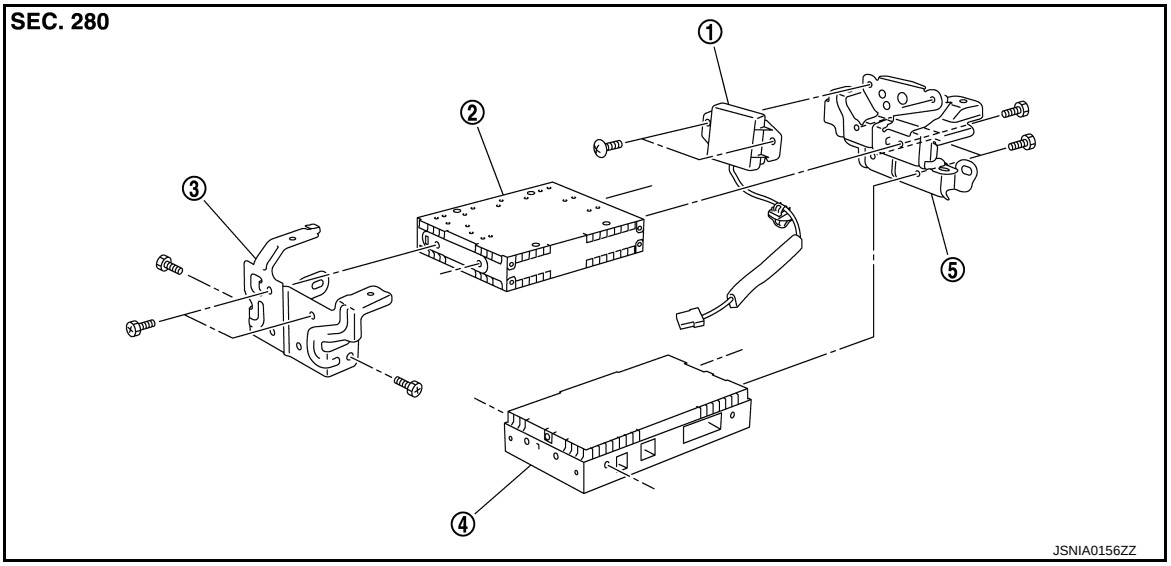
INSTALLATION

Installation is the reverse order of removal.

TEL ADAPTER UNIT

Exploded View

INFOID:0000000010990929



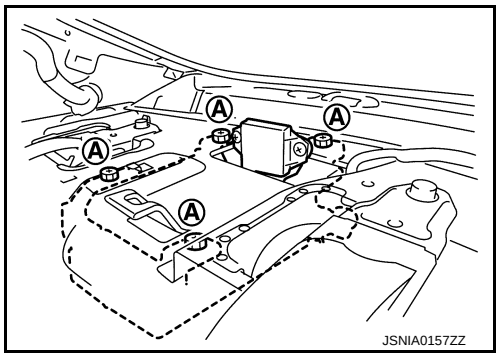
1. TEL antenna
2. Satellite radio tuner
3. Bracket (front)
4. TEL adapter unit
5. Bracket (rear)

Removal and Installation

INFOID:0000000010990930

REMOVAL

1. Remove trunk front finisher. Refer to INT-30, "Exploded View".
2. Remove rear parcel shelf finisher. Refer to INT-20, "Exploded View".
3. Remove screws (A) from inside the cabin, and remove TEL adapter unit and TEL antenna as a single unit from trunk room side.
4. Remove bracket screws and remove TEL adapter unit and satellite radio tuner.



INSTALLATION

Installation is the reverse order of removal.

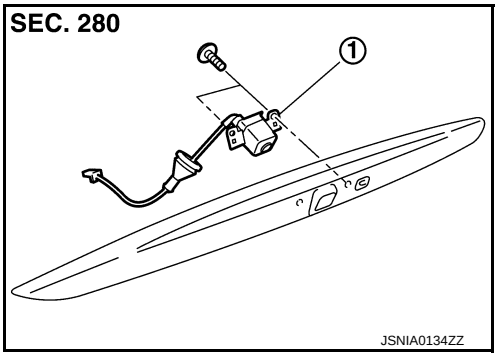
REAR VIEW CAMERA

Exploded View

INFOID:0000000010990931

REMOVAL
Refer to EXT-41, "Exploded View".

DISASSEMBLY



1. Rear view camera

Removal and Installation

INFOID:0000000010990932

REMOVAL

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

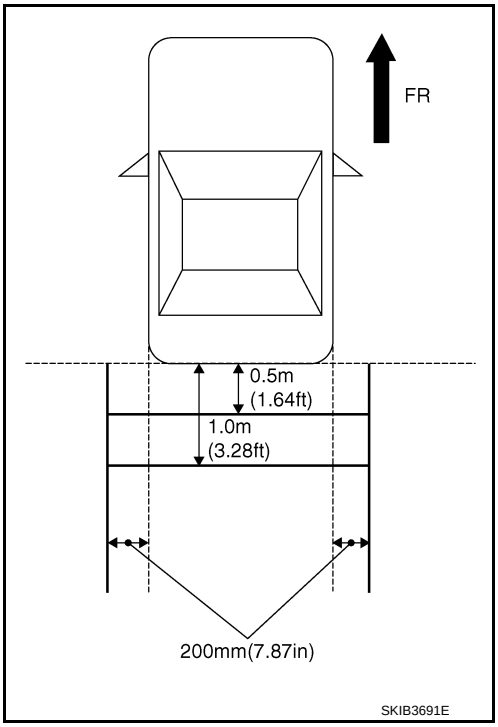
INSTALLATION
Installation is the reverse order of removal.

Adjustment

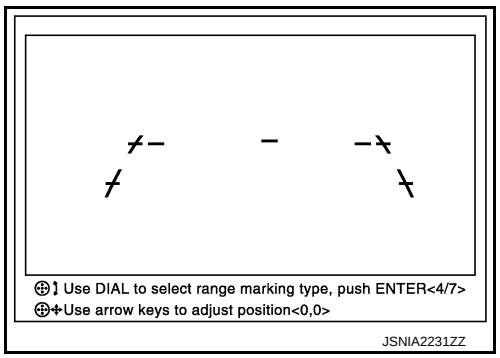
INFOID:0000000010990933

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

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



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°

CAUTION:

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

STEERING ANGLE SENSOR

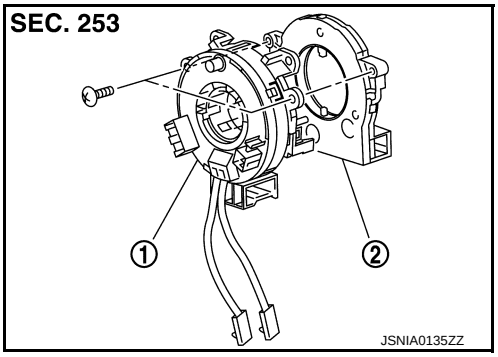
Exploded View

INFOID:0000000010990934

REMOVAL

Refer to SR-14, "Exploded View".

DISASSEMBLY



1. Spiral cable
2. Steering angle sensor

Removal and Installation

INFOID:0000000010990935

REMOVAL

1. Remove spiral cable. Refer to SR-14, "Exploded View".
2. Remove steering angle sensor from spiral cable.

INSTALLATION

Installation is the reverse order of removal.

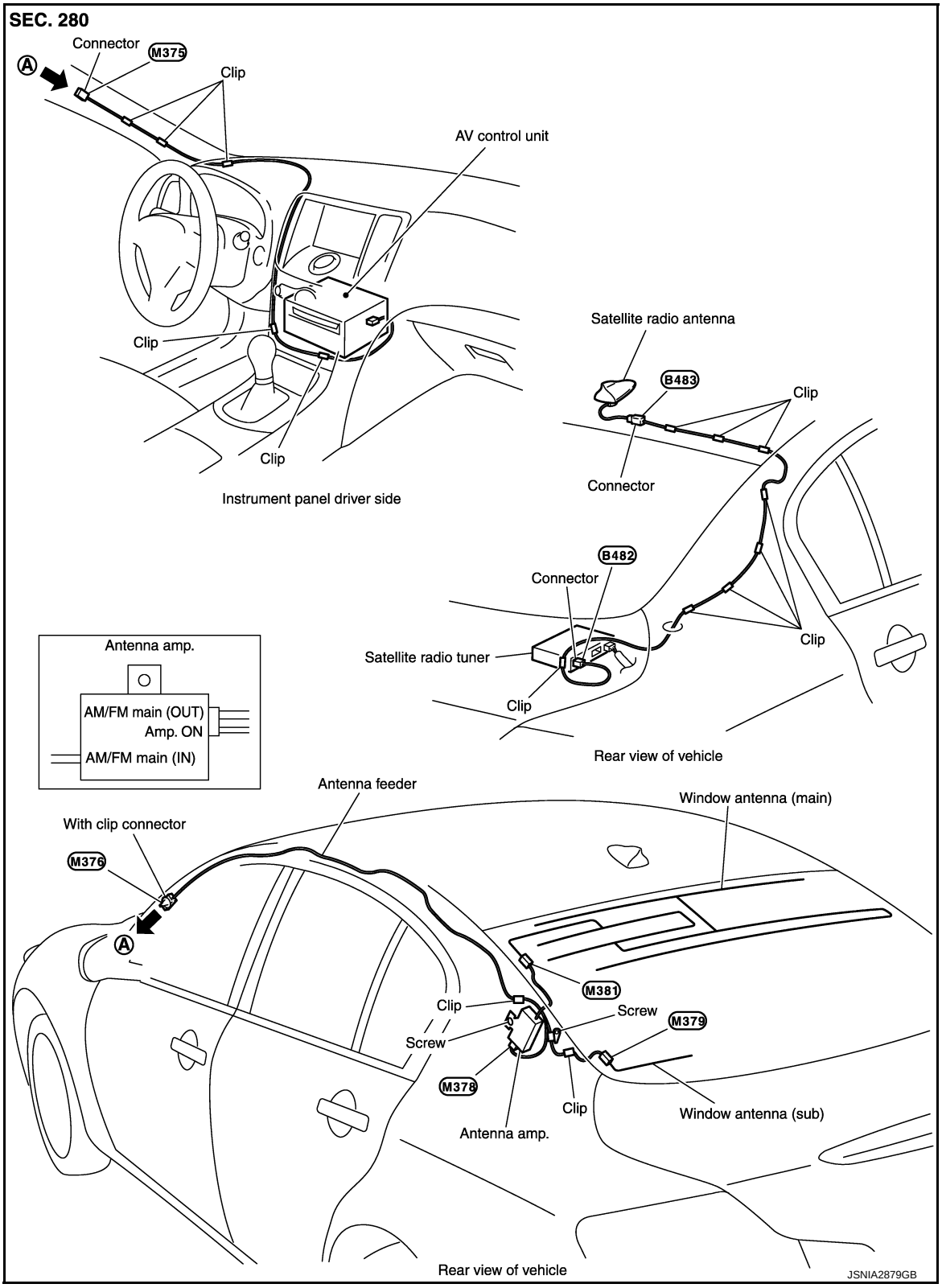
CAUTION:

After work, make sure to adjust neutral position of steering angle sensor. Refer to BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Description".

ANTENNA FEEDER

Feeder Layout

INFOID:0000000010990936



PRECAUTION

PRECAUTIONS

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

INFOID:0000000010991065

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

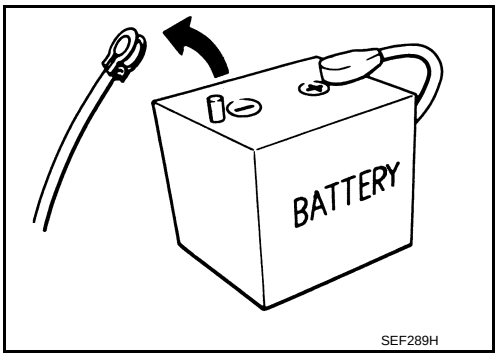
WARNING:

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.**

Precautions for Removing Battery Terminal

INFOID:0000000011429375



- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
  NOTE:
  ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

Precaution for Trouble Diagnosis

INFOID:0000000010991067

AV COMMUNICATION SYSTEM

- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.

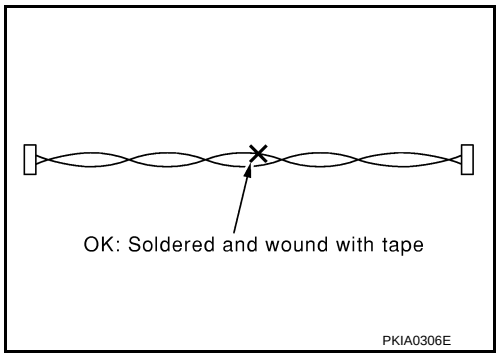
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

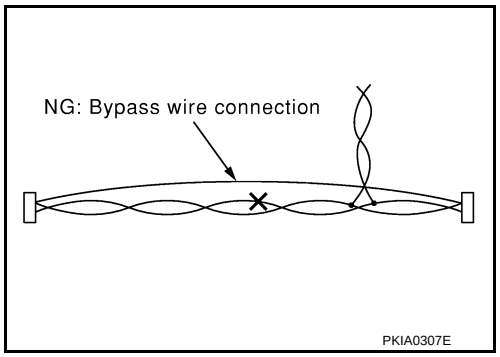
INFOID:0000000010991068

AV COMMUNICATION SYSTEM

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



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

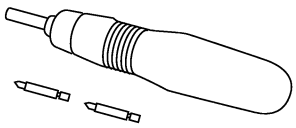


PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000010991069

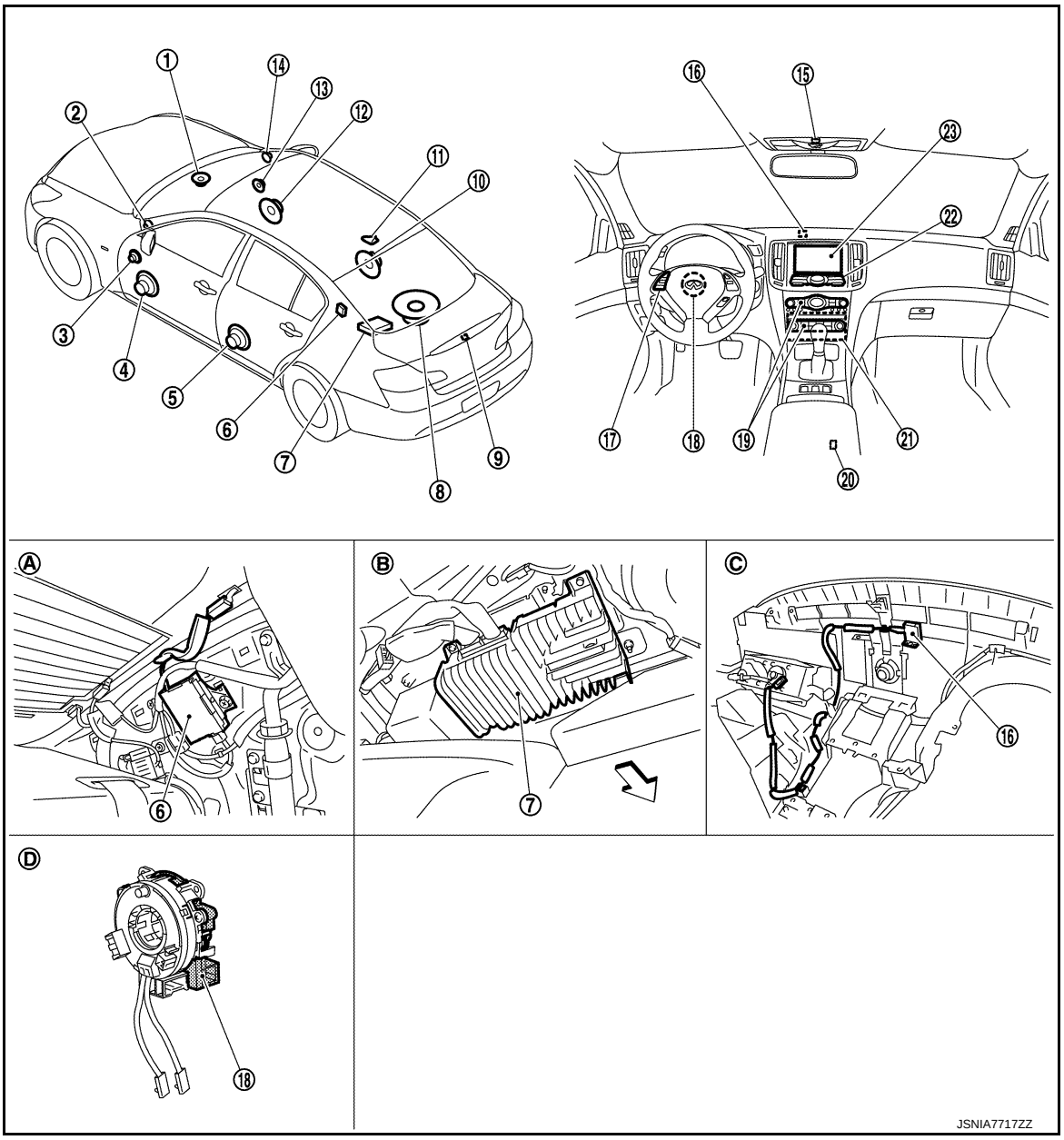
Tool	Description
Power tool  PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010991070



1. Center speaker
2. Tweeter LH
3. Front door squawker LH
4. Front door woofer LH
5. Rear door speaker LH
6. Antenna amp.
7. BOSE amp.
8. Rear woofer
9. Rear view camera
10. Rear door speaker RH
11. Satellite radio antenna
12. Front door woofer RH
13. Front door squawker RH
14. Tweeter RH
15. Microphone
16. GPS antenna
17. Steering switch
18. Steering angle sensor
19. Preset switch
20. USB connector
21. AV control unit
22. Multifunction switch
23. Display unit

A. Within rear pillar finisher LH
B. Lower part of rear parcel shelf
C. Instrument panel rear side

D. Spiral cable removed condition

⇦: Vehicle front

Component Description

INFOID:0000000010991071

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 is connected to the steering angle sensor and receives the steering angle sensor signal via CAN communication. • It inputs the illumination signals that are required for the display dimming control. • It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). • The RGB digital image signal and composite image signal are output to display unit. • Amp. ON signal, sound signal and mode change signal transmitted to BOSE amp. • Update of map data is performed with the DVD-ROM.
Display unit	• Display image is controlled by the serial communication from AV control unit. • RGB digital image signal is input from AV control unit. • Composite image signal is input from AV control unit. • Camera image signal is input from rear view camera. • Touch panel function can be operated for each system by touching a display directly.
BOSE amp.	• Inputs sound signal from AV control unit, and outputs sound signal to each speaker. • Input mode change signal from AV control unit.
Front door woofer	• Outputs sound signal from BOSE amp. • Outputs low range sound.
Front door squawker	• Outputs sound signal from BOSE amp. • Outputs mid range sound.
Rear door speaker	• Outputs sound signal from BOSE amp. • Outputs high, mid and low range sounds.
Tweeter	• Outputs sound signal from BOSE amp. • Outputs high range sound.
Center speaker	• Outputs sound signal from BOSE amp. • Outputs high, mid and low range sounds.
Rear woofer	• Outputs sound signal from BOSE amp. • Outputs low-pitched sound. • Power (woofer amp. ON signal) is supplied from BOSE amp.
Multifunction switch	• Operation panel is equipped with the centralized switch where audio, auxiliary input and navigation, etc. operations are integrated. • Connected with preset switch via cable, and operation signal is transmitted to AV control unit via AV communication.
Preset switch	• Operation panel is equipped with the centralized switch where audio and air conditioner, etc. operations are integrated. • Connected with multifunction switch via cable, and operation signal is transmitted to AV control unit via AV communication. • The disk ejection operating signal is performed by hardwire.
Rear view camera	• Camera power supply is input from AV control unit. • The image of vehicle rear view is transmitted to display unit.
Steering angle sensor	It is connected to the AV control unit and transmits the steering angle sensor signal via CAN communication.

Part name	Description
Steering switch	• Operations for audio, hands-free phone, voice control and navigation, etc. are possible. • Steering switch signal (operation signal) is output to AV control unit.
Microphone	• Used for hands-free phone operation and voice recognition. • Microphone signal is transmitted to AV control unit. • Power (Microphone VCC) is supplied from AV control unit.
GPS antenna	GPS signal is received and transmitted to AV control unit.
Antenna amp.	• Radio signal received by glass antenna is amplified and transmitted to AV control unit. • Power (antenna amp. ON signal) is supplied from AV control unit.
Satellite radio antenna	Satellite radio signal is received and transmitted to AV control unit.
USB connector	Image signal*1 and sound signal of USB input is transmitted to AV control unit.

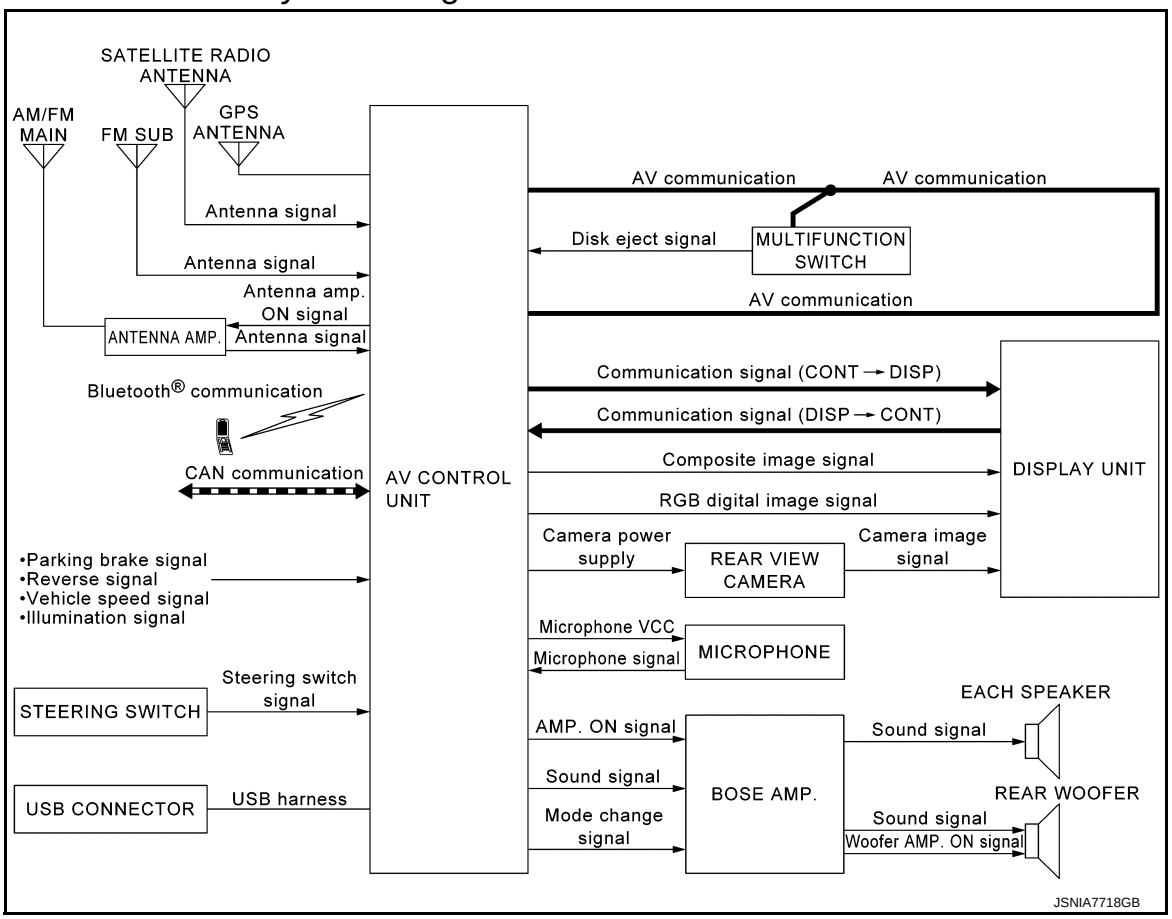
*1: Image signals cannot be received from iPod®.

SYSTEM

MULTI AV SYSTEM

MULTI AV SYSTEM : System Diagram

INFOID:0000000010991072



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

MULTI AV SYSTEM : System Description

INFOID:0000000010991073

Multi AV system means that the following systems are integrated.

FUNCTION NAME
Navigation system function
Audio function
DVD playback function
Hands-free phone function
USB connection function
Voice recognition function
Touch panel function
Rear view monitor function
Vehicle information function

COMMUNICATION SIGNAL

- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.

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

NAVIGATION SYSTEM FUNCTION

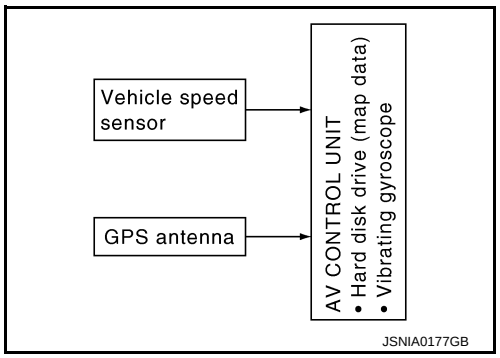
Description

- The AV control unit controls navigation function while GPS tuner has built-in map data, GYRO (angle speed sensor), on the HDD (Hard Disk Drive).
- The AV control unit inputs operation signal with communication signal, through display (touch panel) and multifunction switch and steering switch.
- Guide sound is output to front speaker through BOSE amp. from AV control unit when operating navigation system.
- A vehicle position is calculated with the GYRO (angle speed sensor), vehicle sensor, signal from GPS satellite and map data stored on HDD (Hard Disk Drive), and transmits the map image signal (RGB image, RGB area, RGB image synchronizing) to the display.

Position Detection Principle

The navigation system periodically calculates the current vehicle position according to the following three types of signals.

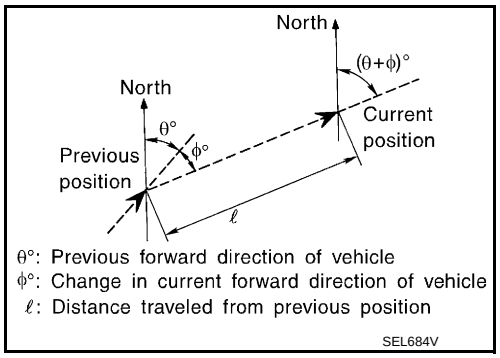
- Travel distance of the vehicle as determined by the vehicle speed sensor
- Vehicle turning angle determined by the gyroscope (angular speed sensor)
- The travel direction of the vehicle determined by the GPS antenna (GPS information)



The current position of the vehicle is then identified by comparing the calculated vehicle position with map data, which is stored in the HDD (Hard Disk Drive) (map-matching), and indicated on the screen with a current location mark. More accurate data is used by comparing position detection results from GPS to the map-matching.

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

- Travel distance
  The travel distance is generated from the vehicle speed sensor input signal. The automatic distance correction function is adopted for preventing a miss-detection of the travel distance because of tire wear etc.
- Travel direction
  The gyroscope (angular velocity sensor) and GPS antenna (GPS information) generate the change of the travel direction. Both have advantages and disadvantages as per the following descriptions.

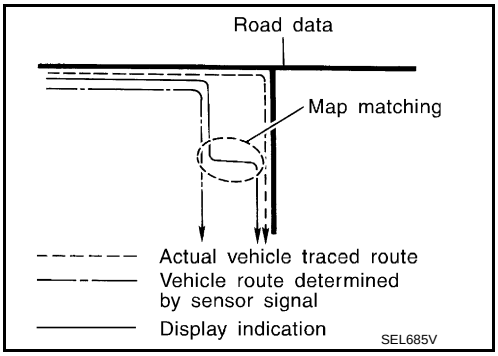


Type	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	The turning angle is precisely detected.	Errors are accumulated when driving a long distance without stopping.
GPS antenna (GPS information)	The travel direction (North/South/East/West) is detected.	The travel direction is not precisely detected when driving slowly.

Input signals are prioritized in each situation. However, this order of priority may change in accordance with more detailed travel conditions so that the travel direction is detected more accurately.

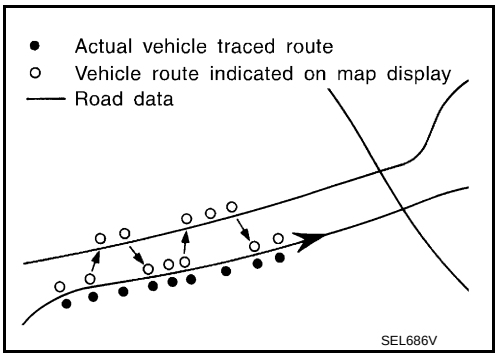
Map-matching

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

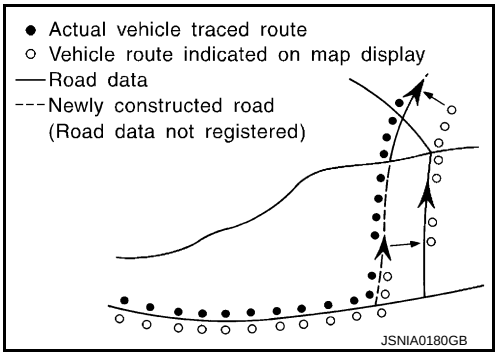


There is a possibility that the vehicle position may not be corrected in the following case, and when vehicle is driven over a certain distance or time in which GPS information is hard to receive. Correct manually the current location mark on the screen.

- In map-matching, several alternative routes are prepared and prioritized in addition to the road judged as currently driving on.
  Therefore, due to errors in the distance and/or direction, an incorrect road may be prioritized, and the current location mark may be repositioned to the incorrect road.
  If two roads are running in parallel, they are of the same priority. Therefore, the current location mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road, etc.



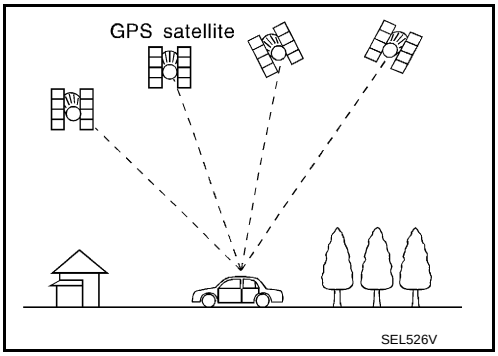
- Map-matching does not function correctly when road on which the vehicle is driving is new, etc. and not recorded in the map data. Also, map-matching does not function correctly when road pattern stored in the map data and the actual road pattern are different due to repair, etc.
  Therefore, the map-matching function judges other road as a currently driving road if the road is not in the map, and displays the current location mark on it. Later, the current location mark may be repositioned to the road if the correct road is detected.
- Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position 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 glass antenna, next it is amplified by antenna amp, and finally it is input to AV control unit. Audio signal is input to BOSE amp., and BOSE amp. outputs to each speaker.

Satellite Radio Mode

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

CD Mode

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

Bluetooth® Audio Mode

- Bluetooth® audio function is built into AV control unit.
- Bluetooth® audio can play music data in the portable audio by means of Bluetooth® communications between the portable audio and the AV control unit.
- AV control unit outputs audio signal to BOSE amp., and BOSE amp. outputs to each speaker.

Driver's Audio Stage

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

DVD PLAYBACK FUNCTION

- DVD is played by inserting DVD into the AV control unit.
- DVD image signals are transmitted to the display unit and DVD sound signals are transmitted to each speaker via BOSE amp.

HANDS-FREE PHONE FUNCTION

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

When A Call Is Originated

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

When Receiving A Call

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

USB CONNECTION FUNCTION

- Connecting iPod® or USB memory allows the driver to play iPod® music files or USB memory-stored music files, video data, and image viewer data.
- Sound signals of music files stored in iPod® or USB memory are transmitted from the USB connector to the AV control unit. The AV control unit transmits the sound signals to the each speaker via BOSE amp.
- Video signals and image viewer file signals are transmitted from the USB connector to the AV control unit. The data and files are displayed on the display unit screen.
- iPod® is recharged when connected to USB connector.
- Only files that meet the following conditions will be played.

	Music file	Video file	Image viewer file
File format	“MP3”, “WMA”, “AAC”, “M4A”	“DivX”, “MPEG4 (ASF)”	“JPEG”
File extension	“.mp3”, “.wma”, “.aac”, “.m4a”	“.divx”, “.afs”, “.avi”	“.jpg”, “.jpeg”
Maximum file size	2 GB	2 GB	2 MB

NOTE:

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

VOICE RECOGNITION FUNCTION

- Each operation of multi AV system can be performed by inputting sound to microphone.
- Start of sound recognition system can be performed by steering switch.

TOUCH PANEL SYSTEM

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

REAR VIEW MONITOR FUNCTION

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

VEHICLE INFORMATION FUNCTION

- Status of audio, climate control system, fuel economy, maintenance and navigation are displayed.

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

MULTI AV SYSTEM : Fail-Safe

INFOID:0000000010991074

When the ambiance temperature becomes extremely low or extremely high, AV control unit displays the message and limits the AV control unit function.

FAIL-SAFE CONDITIONS

When the ambiance temperature is –20°C (–4°F) or lower, or when it is 70°C (158°F) or higher

Display

The messages displayed on fail-safe conditions are as shown below:

Fail-safe mode	Display (display of the fail-safe condition)
When HDD temperature is low	HDD system is experiencing problems due to extreme low temperature. Normal operation will resume when temperature rises.
When HDD temperature is high	HDD system is experiencing problems due to extreme high temperature. Normal operation will resume when temperature drops.

DESCRIPTION OF CONTROLS

Function		When Fail-safe Function is activated
Air conditioner	Operation	Only multifunction switch (preset switch) can be operated.
	Display	• LED of multifunction switch (preset switch) illuminates. • Aimed temperature, blow angle, and flow rate are displayed in simplified mode.
Audio	Operation	Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible.
	Display	No display (“Fail-safe mode” is displayed)
Camera	Operation	Image tone cannot be controlled.
	Display	Cannot be superimposed. (warning display, tone control display)
Hands-free phone	Operation	Cannot be operated.
Navigation	Operation	Cannot be operated.
Self diagnosis		The display in simplified mode of fail-safe condition
CONSULT diagnosis		Cannot be operated.

Ability Operation Mode

There is an ability operation mode for Fail-safes due to low or high ambiance temperature.
If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

RELEASE CONDITIONS OF FAIL-SAFE

Fail-safe is released on following conditions and normal mode is restored.

When The Temperature of HDD Is Low or High

If the ambient temperature becomes out of fail-safe condition range, normal mode is restored.

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description

INFOID:0000000010991075

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

On Board Diagnosis Function

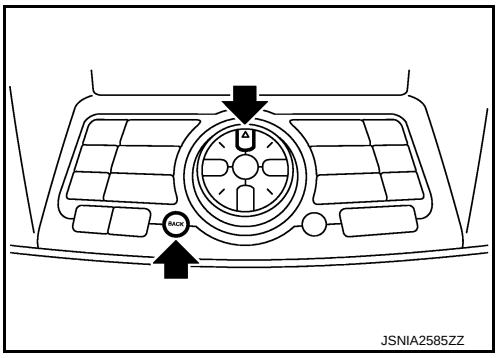
INFOID:0000000010991076

MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-diagnosis Mode

- Press the “BACK” switch and the “UP” switch of the 8-direction switches within 10 seconds after turning the ignition switch from OFF to ACC and hold them for 3 seconds or more. Then the buzzer sounds, all indicators of the preset switch illuminate, and the self-diagnosis mode starts.
- The continuity of each switch at the ON position can be checked by pressing the switch. The buzzer sounds if the switch is normal.
  NOTE:
  The hazard switch and disk eject switch cannot be checked.



Finishing Self-diagnosis Mode

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

ON BOARD DIAGNOSIS ITEM

Description

- 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).

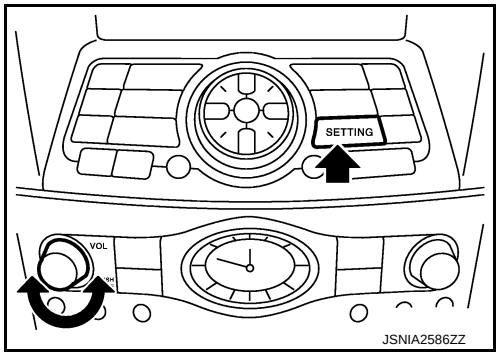
On Board Diagnosis Item

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

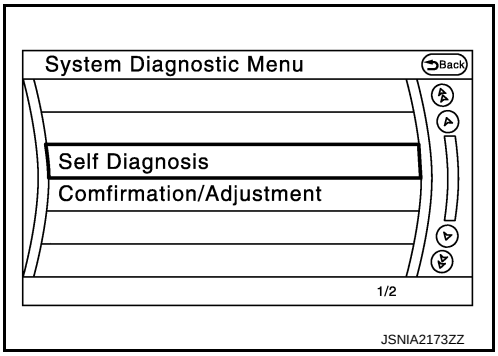
Mode			Description
Confirmation/ Adjustment	Display Diagnosis		The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display and touch panel calibration response check.
	Vehicle Signals		Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition, reverse, side view switch and room lamp.
	Climate Control		Start auto air conditioner system self-diagnosis.
	Navigation	Steering Angle Adjustment	When there is a difference between the actual turning angle and the vehicle mark turning angle, it can be adjusted.
		Speed Calibration	When there is a difference between the current location mark and the actual location, it can be adjusted.
		XM SAT Subscription Status	The XM NavTraffic subscription status can be checked.
	Error History		The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.
	Synchronizer FES Clock		–
	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.		The signal connected to camera control unit can be checked and the guiding line position that overlaps rear view camera image can be adjusted.
	XM	XM NaviTrffic	Change Channel • Any necessary channels required to receive traffic information from the satellite radio system can be set. Change Application ID • Any application ID'-s required to receive traffic information from the satellite radio system can be set.
		XM NavWeather	
		XM CGS	
		Diag	
	Delete Unit Connection Log		Erase the connection history of unit and error history.
	Initialize Settings		Initializes the AV control unit memory.
	Version Information		Version information of the AV control unit is displayed.

METHOD OF STARTING

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



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

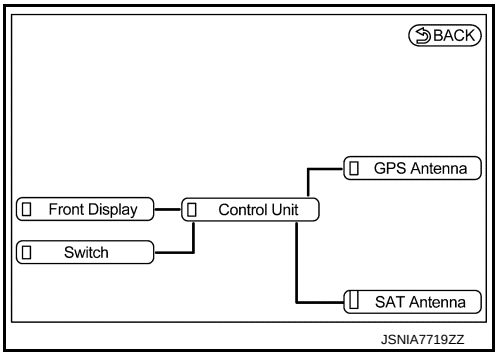


SELF-DIAGNOSIS MODE

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.

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

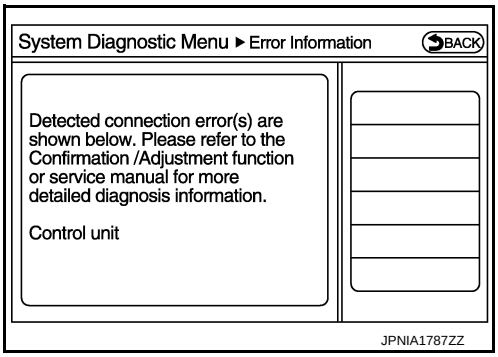


Diagnosis results	Unit	Connection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
Unit malfunction Note	Red	Green

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-249, "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.

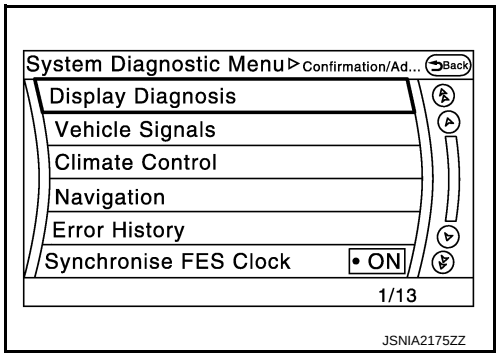
Screen switch	Description	Possible malfunction location / Action to take
Control Unit	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit.

A Connecting Cable Between Units Is Displayed In Yellow.

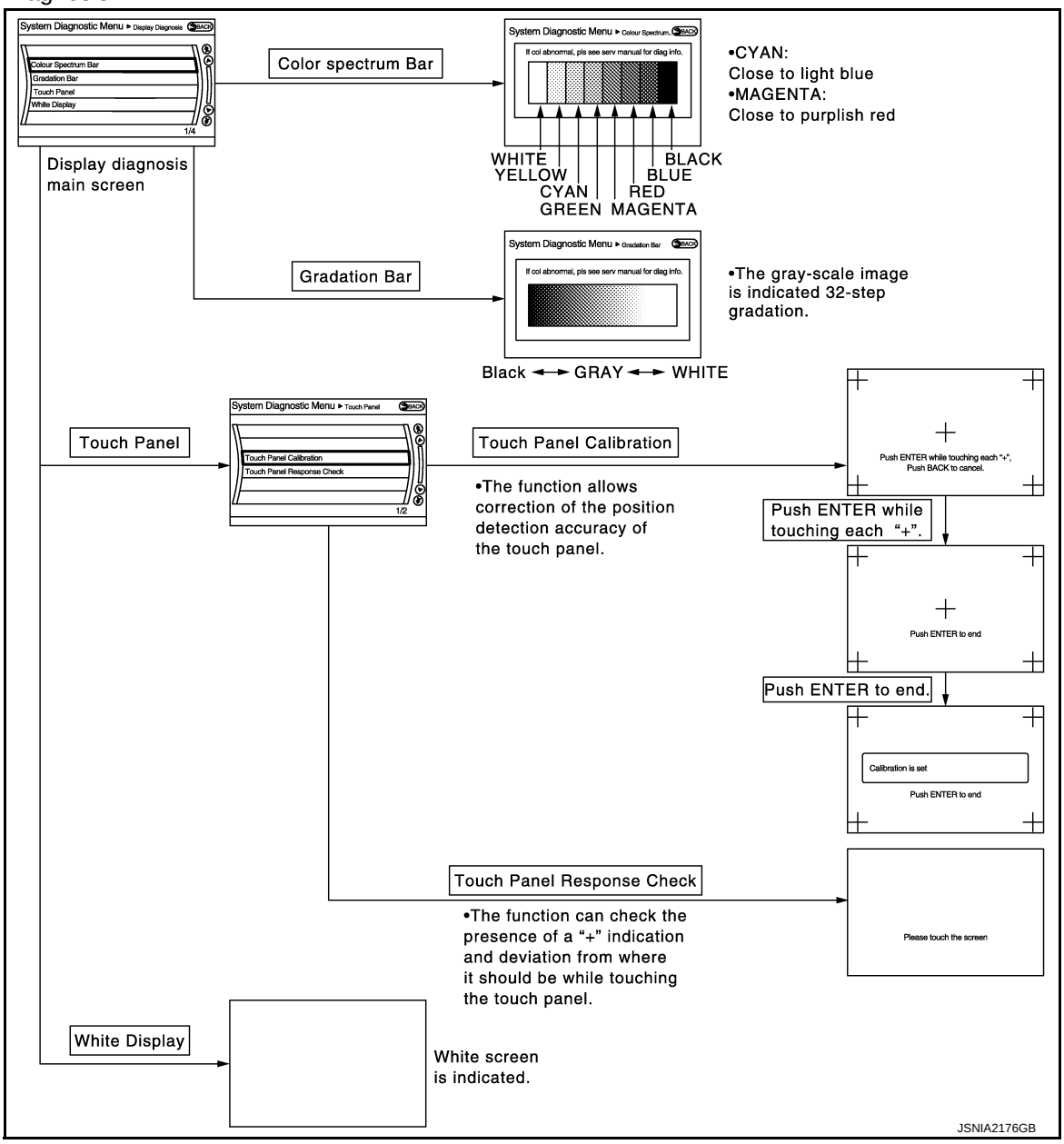
Area with yellow connection lines	Description	Possible malfunction location / Action to take
Control unit ⇔ Front Display	Malfunction is detected in serial communication circuits between AV control unit and display unit.	Serial communication circuits between AV control unit and display unit.
Control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

CONFIRMATION/ADJUSTMENT MODE

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

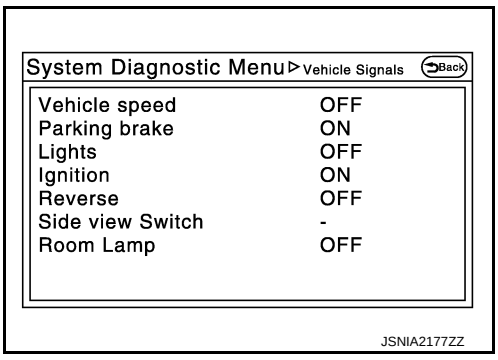


Display Diagnosis



Vehicle Signals

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



Diagnosis item	Display	Vehicle status	Remarks
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
Parking brake	ON	Parking brake is applied.	
	OFF	Parking brake is released.	
Lights	ON	Light switch ON	—
	OFF	Light switch OFF	
Ignition	ON	Ignition switch ON	—
	OFF	Ignition switch in ACC position	
Reverse	ON	Shift the selector lever to “R” position	Changes in indication may be delayed. This is normal.
	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.

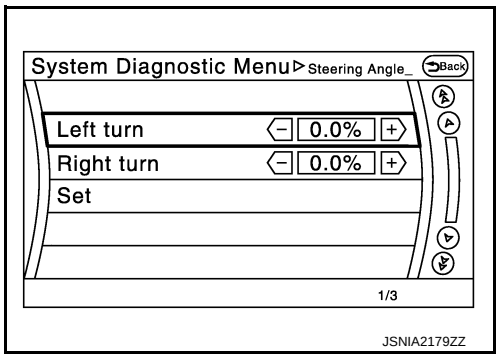
Climate Control

Refer to “HEATER & AIR CONDITIONING CONTROL SYSTEM” for details.

Navigation

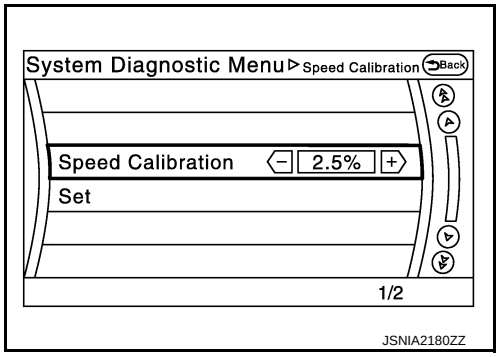
STEERING ANGLE ADJUSTMENT

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.



XM SAT SUBSCRIPTION STATUS

The XM NavTraffic subscription status can be checked.

Error History

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

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

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

- If there is a malfunction with the GPS antenna circuit board in the AV control unit, the correct date and time of occurrence may not be able to be displayed.
- Place of the error occurrence is represented by the position of the current location mark at the time an error occurred. If current location mark has deviated from the correct position, then the place of the error occurrence cannot be located correctly.
- The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

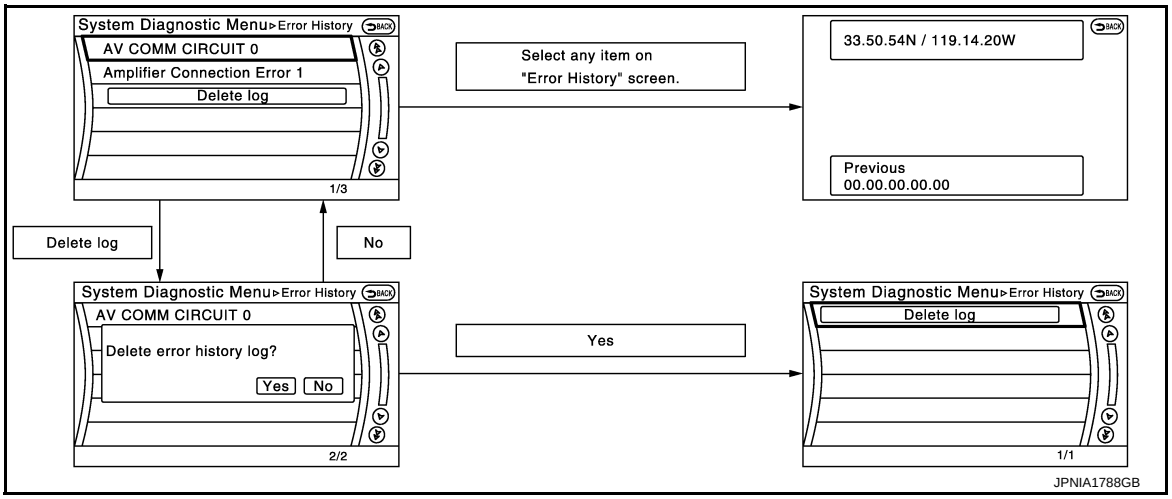
Count up method A

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

Count up method B

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

Display type of occurrence 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

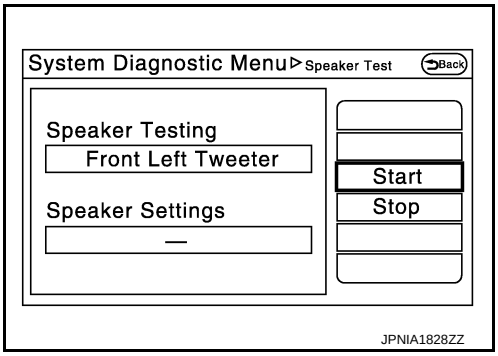
Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT	CAN communication malfunction is detected.	Perform diagnosis with CONSULT, and then repair the malfunctioning parts according to the diagnosis results. Refer to AV-150, "CONSULT Function".

Error item	Description	Possible malfunction factor/Action to take
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	
FLASH-ROM Error Of Control Unit	AV control unit malfunction is detected.	
Connection Of Gyro		
Connection of G Sensor		
CAN Controller Memory Error		
Bluetooth Module Connection Error		
Sub CPU Connection Error		
iPod authentification chip error		
Audio connection error		
DSP Connection 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. Refer to AV-249, "Exploded View".
DSP Communication Error		
HDD Connection Error	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
HDD Read Error		
HDD Write Error		
HDD Communication Error		
HDD Access Error		
GPS Communication Error	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
GPS ROM Error		
GPS RAM Error		
GPS RTC Error		
Unfinished configuration	The writing of configuration data is incomplete.	Write configuration data with CONSULT. Refer to AV-150, "CONSULT Function".
USB Controller Communication Error	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DVD Mechanism Communication Error	AV control unit malfunction is detected.	• If DVD can be played, then there is a possibility of the detection of a temporary malfunction. • Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
Steer. Angle Sensor Calibration	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to AV-150, "CONSULT Function".
Front Display Connection Error	When either one of the following items are detected: • display unit power supply and ground circuits are malfunctioning. • communication circuits between AV control unit and display unit are malfunctioning.	• Display unit power supply and ground circuits. • Communication circuits between AV control unit and display unit.
GPS Antenna Error	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.
XM Antenna Connection Error	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection.

Error item	Description	Possible malfunction factor/Action to take
USB electric current Error	Detection of overcurrent in USB connector.	Check USB harness between the AV control unit and USB connector.
AM/FM antenna amplifier short to ground	Radio antenna amp. ON signal circuit malfunction is detected.	Radio antenna amp. ON signal circuit between AV control unit and antenna amp.
AM/FM antenna amplifier open		
Ext_Amp_ON output terminal short to ground	BOSE amp. ON signal circuit malfunction is detected.	BOSE amp. ON signal circuit between AV control unit and BOSE amp.
Ext_Amp_ON output terminal :open		
• 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.

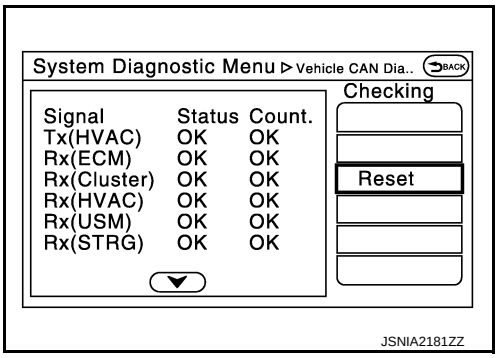
Speaker Test

Select “SPEAKER DIAGNOSIS” to display the Speaker Diagnosis screen. Press “Start” to generate a test tone in a speaker. Press “Start” to generate a test tone in the next speaker. Press “Stop” to stop the test tones.



Vehicle CAN Diagnosis

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

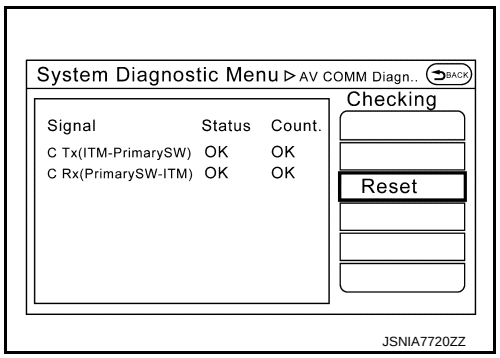


Items	Display (Current)	Malfunction counter (Past)
Tx(HVAC)	OK / ???	OK / 0 – 39
Rx(ECM)	OK / ???	OK / 0 – 39
Rx(Cluster)	OK / ???	OK / 0 – 39
Rx(HVAC)	OK / ???	OK / 0 – 39
Rx(USM)	OK / ???	OK / 0 – 39
Rx(STRG)	OK / ???	OK / 0 – 39

NOTE:
“???” indicates UNKWN.

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.

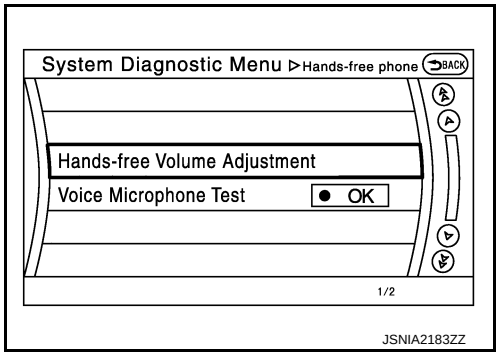


Items	Status (Current)	Counter (Past)
C Tx(ITM–PrimarySW)	OK / ???	OK / 0 – 39
C Rx(PrimarySW–ITM)	OK / ???	OK / 0 – 39

NOTE:
“???” indicates UNKWN

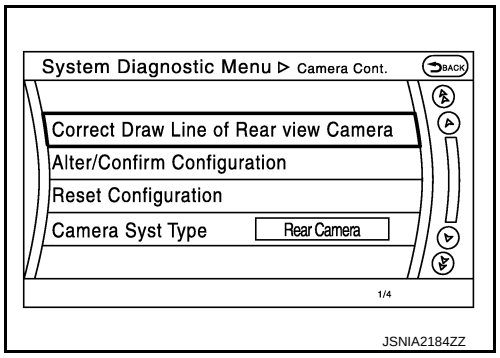
Hands-Free Phone

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



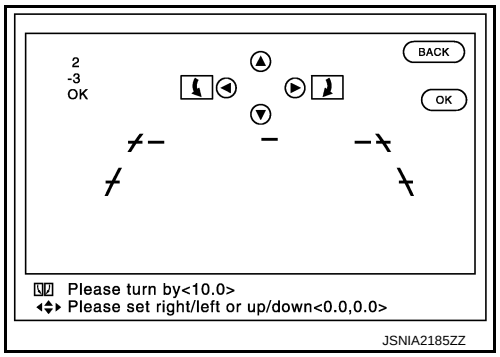
Camera Cont.

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



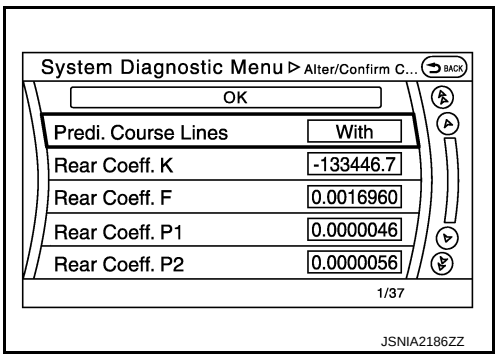
Correct Draw Line of Rear view Camera

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



Alter/Confirm Configuration

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

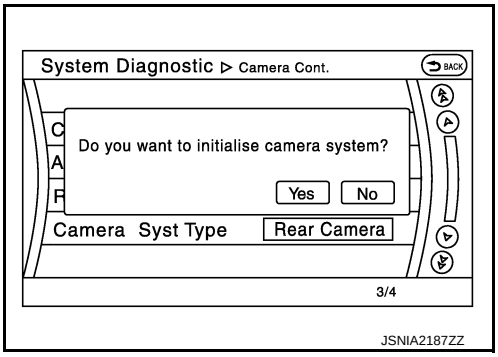


Configuration list

Setting item	Setting	Setting item	Setting
Predi. Course Lines	With	Wheelbase	2.8499999
Rear Coeff. K	-38009.06	Total Length	0.0000000
Rear Coeff. F	0.0014620	Steering Gear Ratio	16.884000
Rear Coeff. P1	0.0000062	Side Coeff. K	0.0000000
Rear Coeff. P2	0.0000056	Side Coeff. F	0.0000000
Rear Coeff. C1	823.00000	Side Coeff. P1	0.0000000
Rear Coeff. C2	480.00000	Side Coeff. P2	0.0000000
Rear Coeff. D1	800.00000	Side Coeff. C1	0.0000000
Rear Coeff. D2	494.00000	Side Coeff. C2	0.0000000
Car Width	1.7729000	Side Coeff. D1	0.0000000
Rear Offset	0.0000000	Side Coeff. D2	0.0000000
Rear Height	1.0200800	Side Offset	0.0000000
Rear L/R Angle	0.0000000	Overall Height	0.0000000
Rear Up/Dn Angle	46.330001	Side L/R Angle	0.0000000
Rear Roll Angle	0.0000000	Side Up/Dn Angle	0.0000000
Bumper Rear Dist.	0.1384900	Side Roll Angle	0.0000000
Bumper Rear Ax Dist	1.0918000	Side Front End Dist	0.0000000
Steer. Max Angle	563.58789	Total Width	0.0000000
Min. Turning Red.	5.5000000	—	—

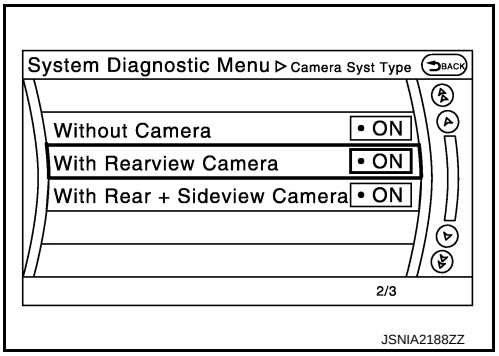
Reset Configuration

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



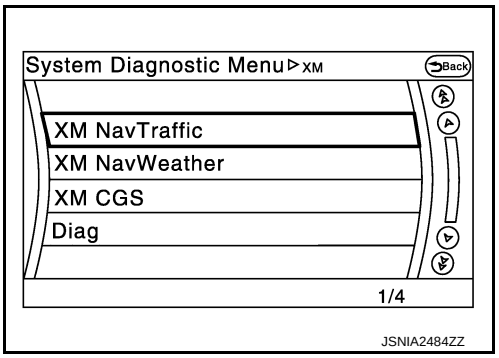
Camera Syst Type

- Type of camera system is selectable.



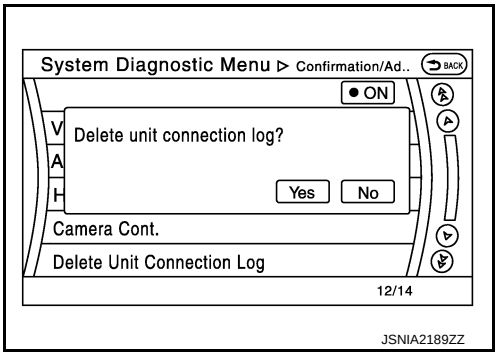
XM

- Change Channel
  - Any necessary channels required to receive traffic information from the satellite radio system can be set.
- Change Application ID
  - Any application ID'-s required to receive traffic information from the satellite radio system can be set.



Delete Unit Connection Log

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

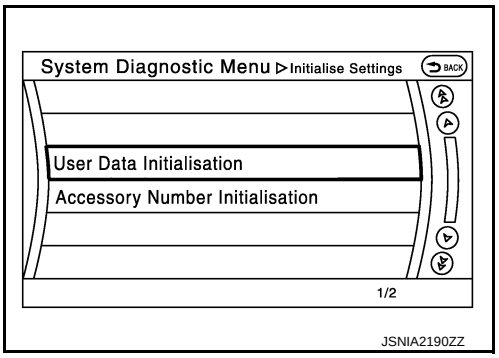


Initialize Settings

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

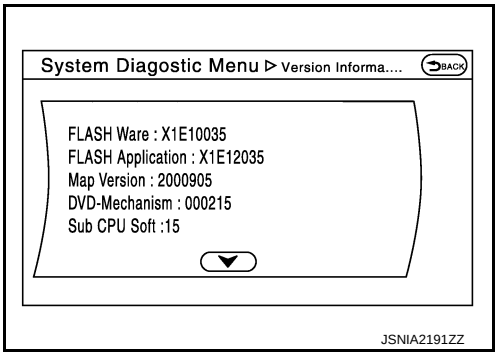
CAUTION:

- **Never perform Accessory Number Initialization except when configuration is unsuccessful.**
- **Accessory Number Initialization requires configuration. For details, refer to AV-186, "Description".**



Version Information

Version information of the AV control unit is displayed.



CONSULT Function

INFOID:0000000010991077

APPLICATION ITEMS

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

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

AV communication

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

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

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSIS RESULT

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

Self-diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detected.	Refer to AV-188, "Diagnosis Procedure".

Error item	Description	Possible malfunction factor/Action to take
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	
Cont Unit [U1200]	AV control unit malfunction is detected.	
GYRO NO CONN [U1201]		
G-SENSOR NO CONN [U1202]		
CAN CONT [U1216]		
BLUETOOTH MODULE [U1217]		
SUB CPU CONN [U1228]		
iPod CERTIFICATION [U1229]		
Built-in AUDIO CONN [U122E]		
HDD CONN [U1218]	AV control unit malfunction is detected.	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
HDD READ [U1219]		
HDD WRITE [U121A]		
HDD COMM [U121B]		
HDD ACCESS [U121C]		
GPS COMM [U1204]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
GPS ROM [U1205]		
GPS RAM [U1206]		
GPS RTC [U1207]		
USB CONTROLLER [U1225]	USB connection malfunction is detected.	Check that the connection to the USB connector is normal.
DSP CONN [U121D]	AV control unit malfunction is detected.	• If a disc can be played, then there is a possibility of the detection of a temporary malfunction. • Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
DSP COMM [U121E]		
DVD COMM [U1227]	AV control unit malfunction is detected.	• If DVD can be played, then there is a possibility of the detection of a temporary malfunction. • Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".
CONFIG UNFINISH [U122A]	The writing of configuration data is incomplete.	Write configuration data with CONSULT. Refer to AV-186, "Description".
ST ANGLE SEN CALIB [U1232]	Predictive course line center position adjustment of the steering angle sensor is incomplete.	Adjust the predictive course line center position of the steering angle sensor. Refer to BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement".
FRONT DISP CONN [U1243]	When either one of the following items are detected: • display unit power supply and ground circuits are malfunctioning. • communication circuits between AV control unit and display unit are malfunctioning.	• Display unit power supply and ground circuits. • Communication circuits between AV control unit and display unit.
GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	Check the connection of the GPS antenna connector.

Error item	Description	Possible malfunction factor/Action to take
XM ANTENNA CONN [U1258]	Satellite radio antenna connection malfunction is detected.	Satellite radio antenna disconnection.
USB OVERCURRENT [U1263]	Detection of overcurrent in USB connecter.	Check USB harness between the AV control unit and USB connector.
ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264]	Radio antenna amp. ON signal circuit malfunction is detected.	Radio antenna amp. ON signal circuit between AV control unit and antenna amp.
AMP ON TERMINAL [GND-SHORT or VB-SHORT] [U1265]	BOSE amp. ON signal circuit malfunction is detected.	BOSE amp. ON signal circuit between AV control unit and BOSE amp.
• AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240]	When either one of the following items are detected: • multifunction switch power supply and ground circuits are malfunctioning. • AV communication circuits between AV control unit and multifunction switch are malfunctioning.	• Multifunction switch power supply and ground circuits. • AV communication circuits between AV control unit and multifunction switch.

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.
	Off	Vehicle speed = 0 km/h (0 MPH)	
PKB SIG	On	Parking brake is applied.	
	Off	Parking brake is released.	
ILLUM SIG	On	Block the light beam from the auto light optical sensor when the light SW is ON.	—
	Off	Expose the auto light optical sensor to light when the light SW is OFF or ON.	
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 normal.
	Off	Selector lever in any position other than R	
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	The same as when “ALL SIGNALS” is selected.
PKB SIG	
ILLUM SIG	
IGN SIG	
REV SIG	
SIDE VIEW SW	
ROOM LAMP	

WORK SUPPORT

Adjusts the neutral position of the steering angle sensor.

CAUTION:

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

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

CONFIGURATION

Configuration has three functions as follows.

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.

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

Reference Value

INFOID:0000000010991078

VALUES ON THE DIAGNOSIS TOOL

NOTE:

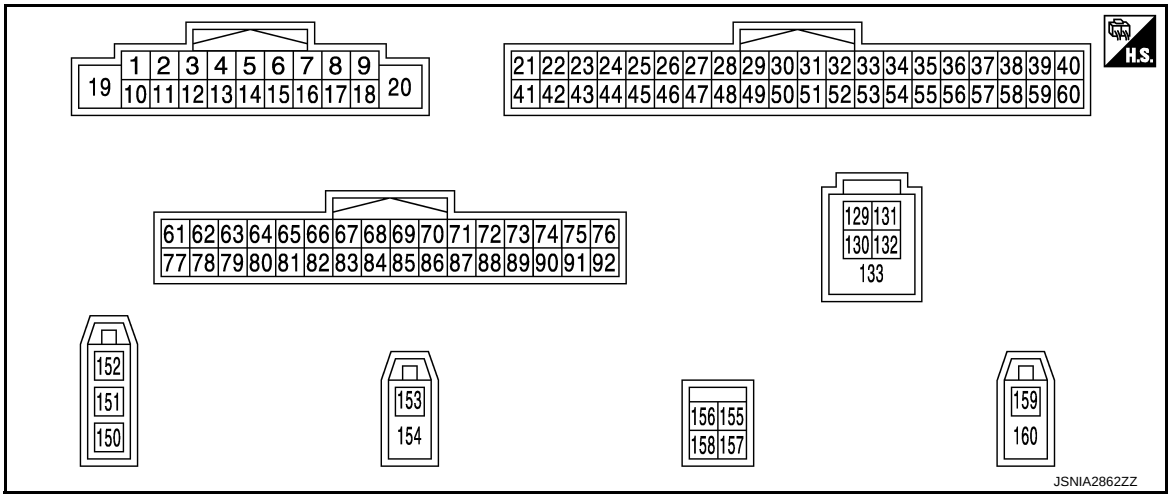
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

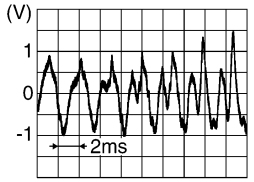
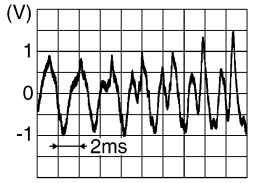
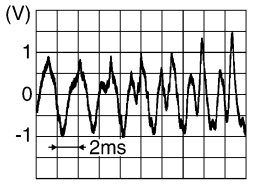
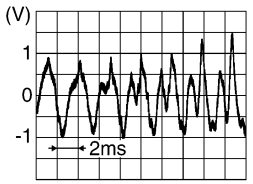
Monitor Item	Condition		Value/Status
VHCL SPD SIG	Ignition switch ON	Vehicle speed > 0 km/h (0 MPH)	On
		Vehicle speed = 0 km/h (0 MPH)	Off
PKB SIG	Ignition switch ON	Parking brake is applied.	On
		Parking brake is released.	Off
ILLUM SIG	Ignition switch ON	Light switch ON	On
		Light switch OFF	Off
IGN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

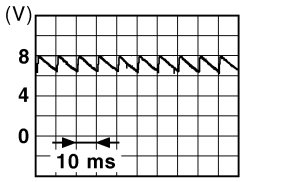
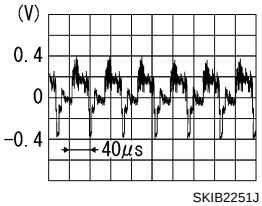
*: This item is displayed, but cannot be monitored.

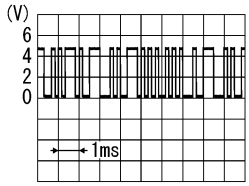
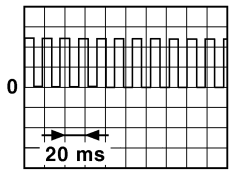
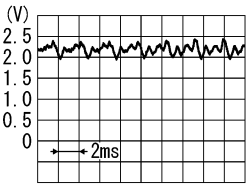
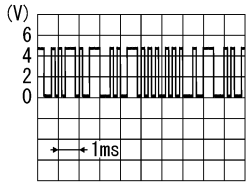
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (GR)	Ground	Amp. ON signal	Output	Ignition switch ON	—	10.0 V
2 (O)	3 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	 SKIB3609E
4 (V)	5 (LG)	Sound signal rear LH	Output	Ignition switch ON	Sound output	 SKIB3609E
6 (P)	15 (B)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch.	0 V
					Keep pressing MENU UP switch.	1.0 V
					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	—	—	—	—
11 (R)	12 (G)	Sound signal front RH	Output	Ignition switch ON	Sound output	 SKIB3609E
13 (BR)	14 (Y)	Sound signal rear RH	Output	Ignition switch ON	Sound output	 SKIB3609E

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
16 (L)	15 (B)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL DOWN switch.	0 V
					Keep pressing VOL UP switch.	1.0 V
					Keep pressing switch.	2.0 V
					Keep pressing switch.	3.0 V
					Except for above.	5.0 V
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
20 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
22 (R)	Ground	Camera power supply	Output	Ignition switch ON	At rear view camera image is displayed.	6.0 V
					Except for above.	0 V
29 (V)	Ground	Disk eject signal	Input	Ignition switch ON	Pressing the eject switch.	0 V
					Except for above.	5.0 V
30 (SB)	Ground	Mode change signal	Output	Ignition switch ON	Driver's Audio Stage ON	0 V
					Driver's Audio Stage OFF	8.5 V
42 (B)	Ground	Camera ground	—	Ignition switch ON	—	0 V
49 (BR)	Ground	Switch ground	—	Ignition switch ON	—	0 V
65 (SB)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake is ON.	0 V
					Parking brake is OFF.	 JSNIA0007GB
67 (P)	Ground	Composite image signal ground	—	Ignition switch ON	—	0 V
68 (L)	Ground	Composite image signal	Output	Ignition switch ON	At DVD image is displayed.	 SKIB2251J
72 (G)	Ground	Microphone VCC	Output	Ignition switch ON	—	5.0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
73 (P)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	 PKIB5039J
74 (P)	—	CAN–L	Input/ Output	—	—	—
75 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—
76 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—
79 (L)	Ground	Illumination signal	Input	Ignition switch OFF	Lighting switch is OFF.	0 V
					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 ON	R position	12.0 V
					Other than R position	0 V
82 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB
83	—	Shield	—	—	—	—
87 (R)	71	Microphone signal	Input	Ignition switch ON	Give a voice	 PKIB5037J
88	—	Shield	—	—	—	—
89 (L)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	 PKIB5039J
90 (L)	—	CAN–H	Input/ Output	—	—	—

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	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	—	—	—	—
131 (W)	—	V BUS signal	—	—	—	—
132 (L)	—	USB D+ signal	—	—	—	—
133	—	Shield	—	—	—	—
150	—	FM sub	Input	—	—	—
151	—	AM-FM main	Input	—	—	—
152	Ground	Antenna amp. ON signal	Input	Ignition switch ON	—	12.0 V
153	Ground	GPS antenna signal	Input	Ignition switch ON	Not connected GPS antenna connector.	5.0 V
154	—	Shield	—	—	—	—
157	Ground	RGB digital image signal (–)	Output	Ignition switch ON	Not connected connector.	1.3 V
158	Ground	RGB digital image signal (+)	Output	Ignition switch ON	Not connected connector.	1.3 V
159	Ground	Satellite antenna signal	Input	Ignition switch ON	Not connected satellite antenna connector.	5.0 V
160	—	Shield	—	—	—	—

Fail-Safe

INFOID:0000000010991079

When the ambiance temperature becomes extremely low or extremely high, AV control unit displays the message and limits the AV control unit function.

FAIL-SAFE CONDITIONS

When the ambiance temperature is –20°C (–4°F) or lower, or when it is 70°C (158°F) or higher

Display

The messages displayed on fail-safe conditions are as shown below:

Fail-safe mode	Display (display of the fail-safe condition)
When HDD temperature is low	HDD system is experiencing problems due to extreme low temperature. Normal operation will resume when temperature rises.
When HDD temperature is high	HDD system is experiencing problems due to extreme high temperature. Normal operation will resume when temperature drops.

DESCRIPTION OF CONTROLS

Function		When Fail-safe Function is activated
Air conditioner	Operation	Only multifunction switch (preset switch) can be operated.
	Display	• LED of multifunction switch (preset switch) illuminates. • Aimed temperature, blow angle, and flow rate are displayed in simplified mode.
Audio	Operation	Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible.
	Display	No display (“Fail-safe mode” is displayed)
Camera	Operation	Image tone cannot be controlled.
	Display	Cannot be superimposed. (warning display, tone control display)
Hands-free phone	Operation	Cannot be operated.
Navigation	Operation	Cannot be operated.
Self diagnosis		The display in simplified mode of fail-safe condition
CONSULT diagnosis		Cannot be operated.

Ability Operation Mode

There is an ability operation mode for Fail-safes due to low or high ambiance temperature.
If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

RELEASE CONDITIONS OF FAIL-SAFE

Fail-safe is released on following conditions and normal mode is restored.

When The Temperature of HDD Is Low or High

If the ambient temperature becomes out of fail-safe condition range, normal mode is restored.

DTC Index

INFOID:0000000010991080

SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-188, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-189, "DTC Logic"
U1200	Cont Unit [U1200]	AV-190, "DTC Logic"
U1201	GYRO NO CONN [U1201]	AV-191, "DTC Logic"
U1202	G-SENSOR NO CONN [U1202]	AV-192, "DTC Logic"
U1204	GPS COMM [U1204]	AV-193, "Diagnosis Procedure"
U1205	GPS ROM [U1205]	AV-194, "Diagnosis Procedure"
U1206	GPS RAM [U1206]	AV-195, "Diagnosis Procedure"
U1207	GPS RTC [U1207]	AV-196, "Diagnosis Procedure"
U1216	CAN CONT [U1216]	AV-197, "DTC Logic"
U1217	BLUETOOTH MODULE [U1217]	AV-198, "DTC Logic"
U1218	HDD CONN [U1218]	AV-199, "DTC Logic"
U1219	HDD READ [U1219]	AV-200, "DTC Logic"
U121A	HDD WRITE [U121A]	AV-201, "DTC Logic"
U121B	HDD COMM [U121B]	AV-202, "DTC Logic"
U121C	HDD ACCESS [U121C]	AV-203, "DTC Logic"
U121D	DSP CONN [U121D]	AV-204, "Diagnosis Procedure"
U121E	DSP COMM [U121E]	AV-205, "Diagnosis Procedure"
U1225	USB CONTROLLER [U1225]	AV-206, "DTC Logic"
U1227	DVD COMM [U1227]	AV-207, "Diagnosis Procedure"
U1228	SUB CPU CONN [U1228]	AV-208, "DTC Logic"

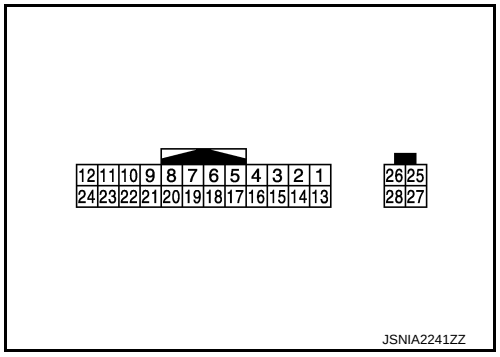
DTC	Display item	Refer to
U1229	iPod CERTIFICATION [U1229]	AV-209, "DTC Logic"
U122A	CONFIG UNFINISH [U122A]	AV-210, "Diagnosis Procedure"
U122E	Built-in AUDIO CONN [U122E]	AV-211, "DTC Logic"
U1232	ST ANGLE SEN CALIB [1232]	AV-212, "Diagnosis Procedure"
U1243	FRONT DISP CONN [U1243]	AV-213, "Diagnosis Procedure"
U1244	GPS ANTENNA CONN [U1244]	AV-215, "Diagnosis Procedure"
U1258	XM ANTENNA CONN [U1258]	AV-216, "Diagnosis Procedure"
U1263	USB OVERCURRENT [U1263]	AV-217, "Diagnosis Procedure"
U1264	ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264]	AV-218, "Diagnosis Procedure"
U1265	AMP ON TERMINAL [GND-SHORT or VB-SHORT] [U1265]	AV-219, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-221, "DTC Logic"
U1300 U1240	• AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240]	AV-220, "Description"

DISPLAY UNIT

Reference Value

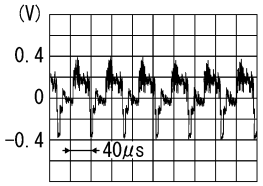
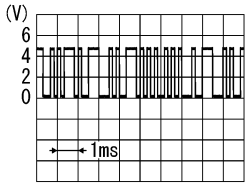
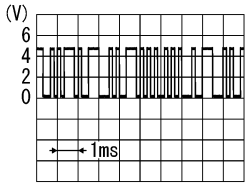
INFOID:0000000010991081

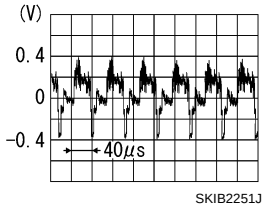
TERMINAL LAYOUT



JSNIA2241ZZ

PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
6	—	Shield	—	—	—	—
7	—	Shield	—	—	—	—
8 (W)	Ground	Camera image signal	Input	Ignition switch ON	At rear view camera image is displayed.	 SKIB2251J
9 (L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	 PKIB5039J
10 (P)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	 PKIB5039J
11 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
12 (B)	Ground	Ground	—	Ignition switch ON	—	0 V

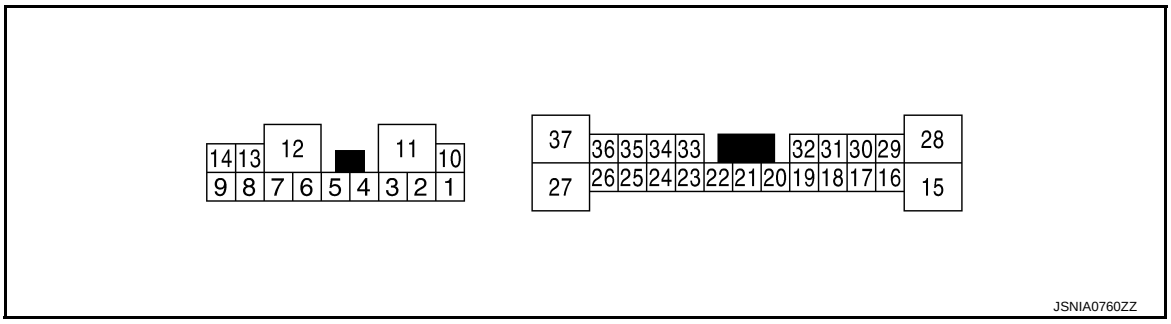
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
18 (L)	Ground	Composite image signal	Input	Ignition switch ON	At DVD image is displayed.	 SKIB2251J
19 (P)	Ground	Composite image ground	—	Ignition switch ON	—	0 V
22	—	Shield	—	—	—	—
23 (LG)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage
27	—	RGB digital image signal (–)	Input	—	—	—
28	—	RGB digital image signal (+)	Input	—	—	—

BOSE AMP.

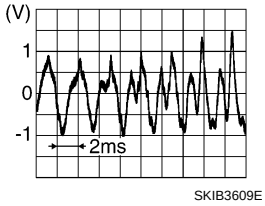
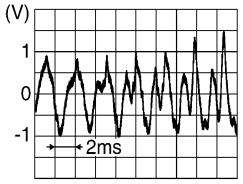
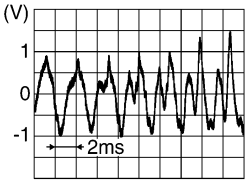
Reference Value

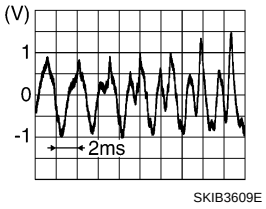
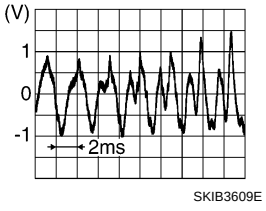
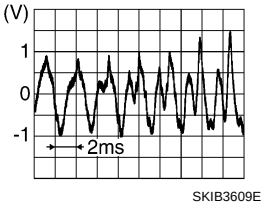
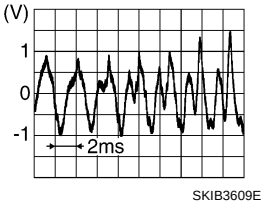
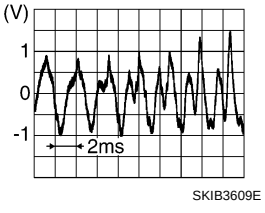
INFOID:0000000010991082

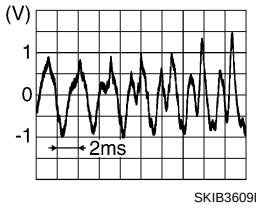
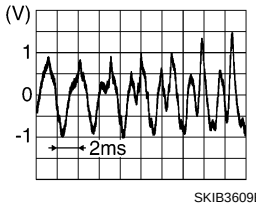
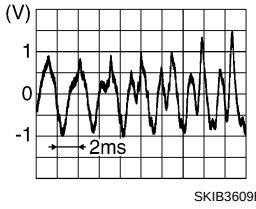
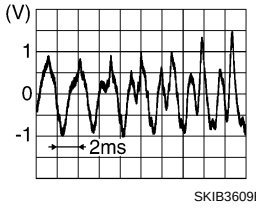
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (L)	2 (W)	Sound signal front LH	Output	Ignition switch ON	Sound output	 SKIB3609E
4 (V)	3 (LG)	Sound signal front RH	Output	Ignition switch ON	Sound output	 SKIB3609E
5 (G)	6 (R)	Sound signal door woofer RH	Output	Ignition switch ON	Sound output	 SKIB3609E
7 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
10 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
11 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
12 (B)	Ground	Ground	—	Ignition switch ON	—	0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
14 (B)	9 (W)	Sound signal front door woofer LH	Output	Ignition switch ON	Sound output	 SKIB3609E
16 (SB)	17 (V)	Sound signal woofer	Output	Ignition switch ON	Sound output	 SKIB3609E
18 (L)	19 (P)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output	 SKIB3609E
20 (W)	Ground	Amp. ON signal	Input	Ignition switch ACC	—	10.0 V
21	—	Shield	—	—	—	—
22 (GR)	Ground	Woofer Amp. ON signal	Output	Ignition switch ACC	—	10.0 V
24 (V)	23 (SB)	Sound signal rear LH	Input	Ignition switch ON	Sound output	 SKIB3609E
26 (BR)	25 (Y)	Sound signal rear RH	Input	Ignition switch ON	Sound output	 SKIB3609E

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
29 (L)	30 (BG)	Sound signal center speaker	Output	Ignition switch ON	Sound output	 SKIB3609E
31 (LG)	32 (Y)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output	 SKIB3609E
33 (R)	34 (G)	Sound signal front RH	Input	Ignition switch ON	Sound output	 SKIB3609E
35 (P)	36 (L)	Sound signal front LH	Input	Ignition switch ON	Sound output	 SKIB3609E
37 (SB)	Ground	Mode change signal	Input	Ignition switch ON	Driver's Audio Stage ON	0 V
					Driver's Audio Stage OFF	8.5 V

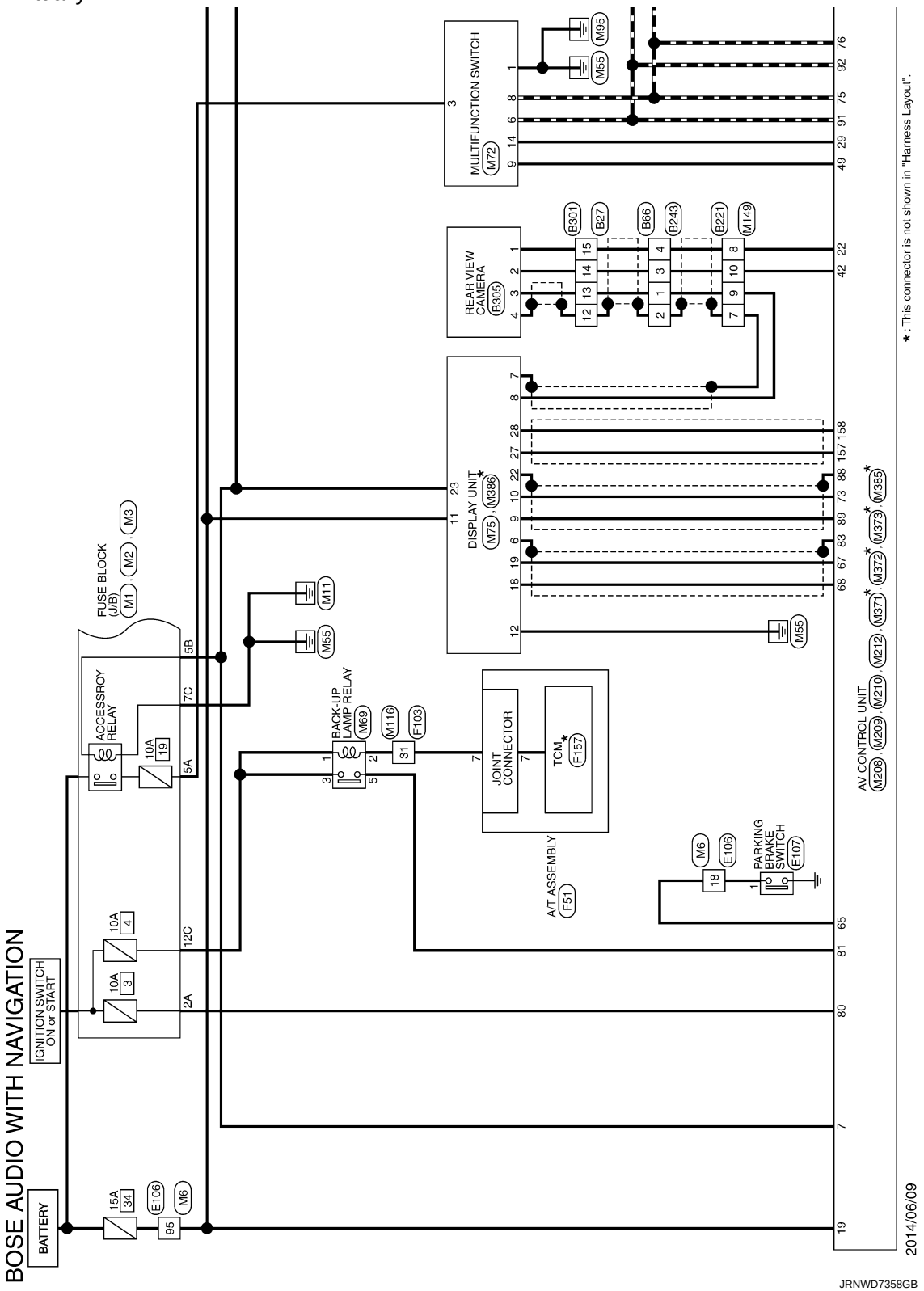
WIRING DIAGRAM

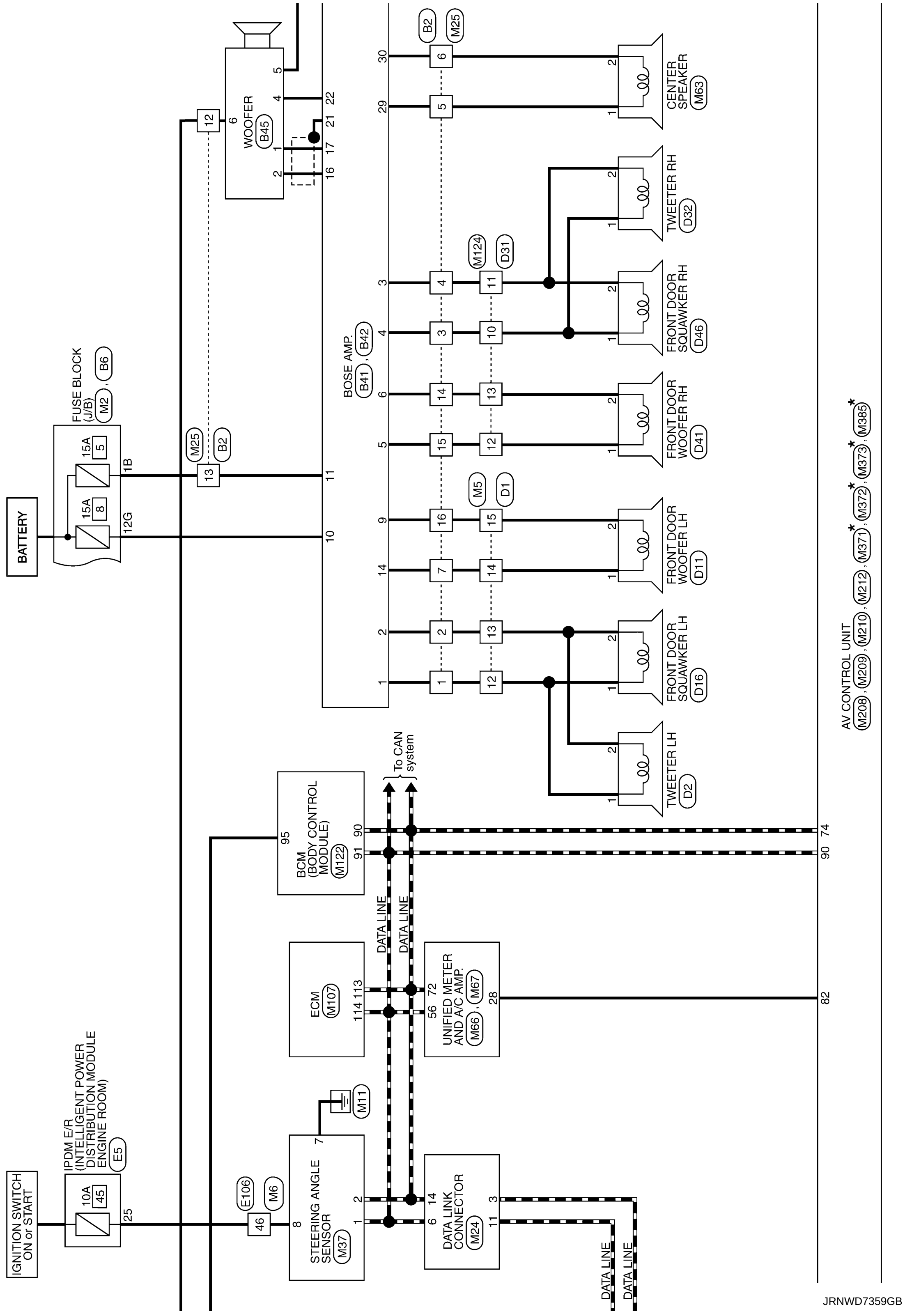
BOSE AUDIO WITH NAVIGATION

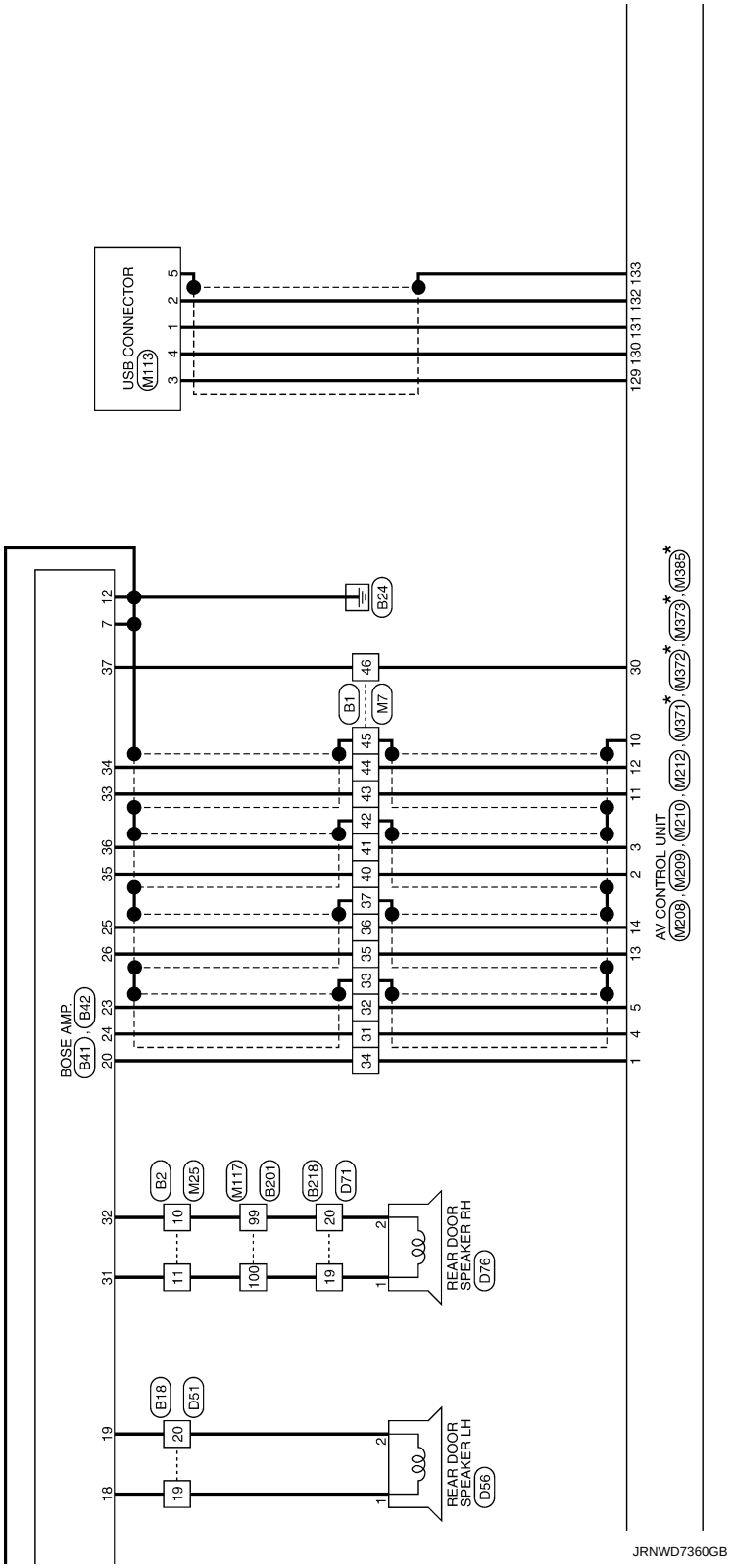
Wiring Diagram

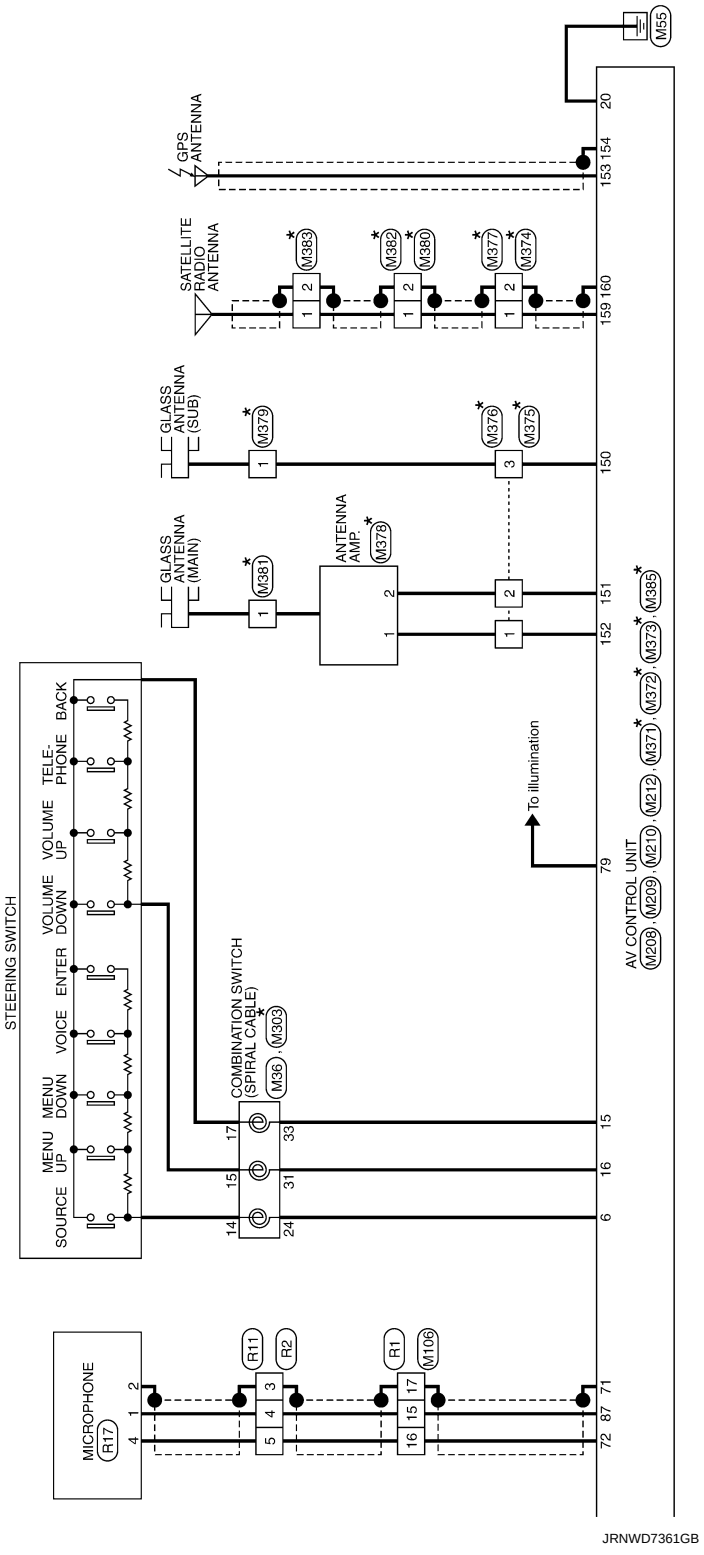
INFOID:0000000010991083

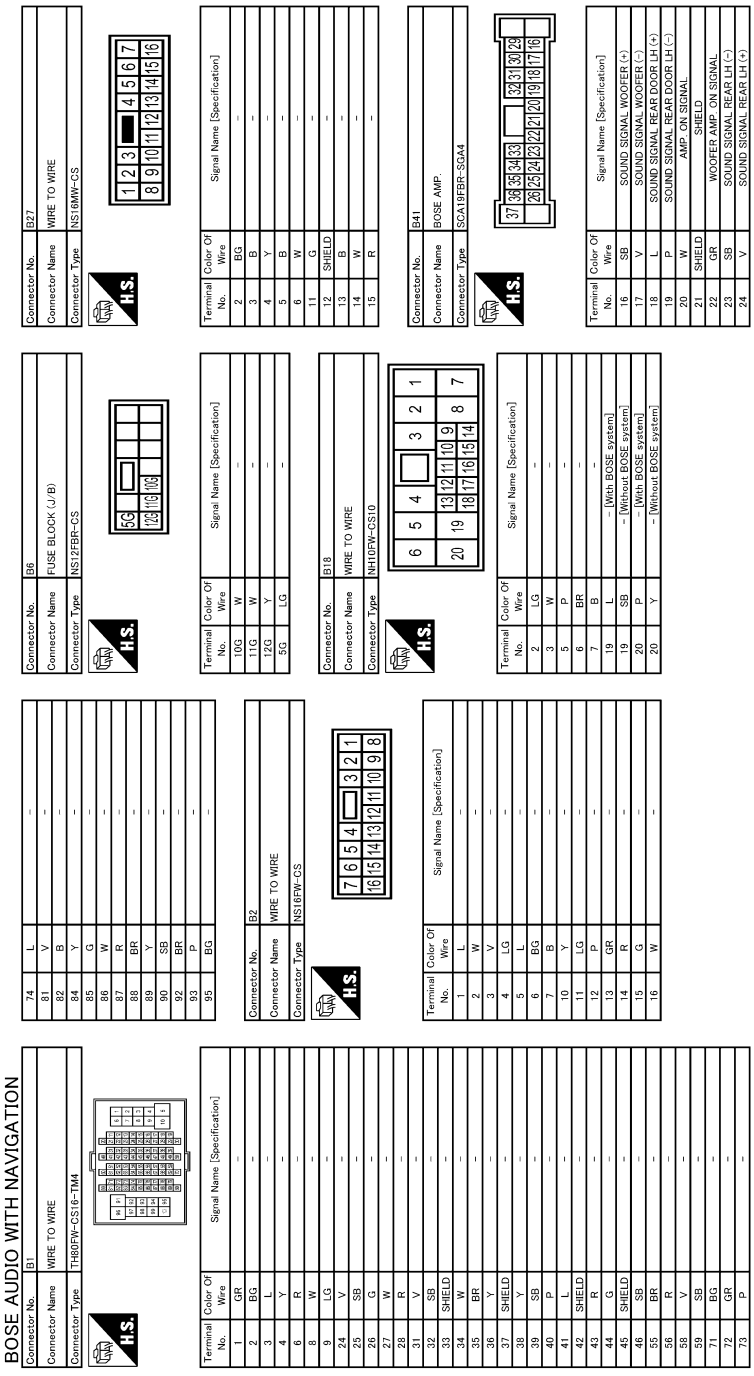
NOTE:
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



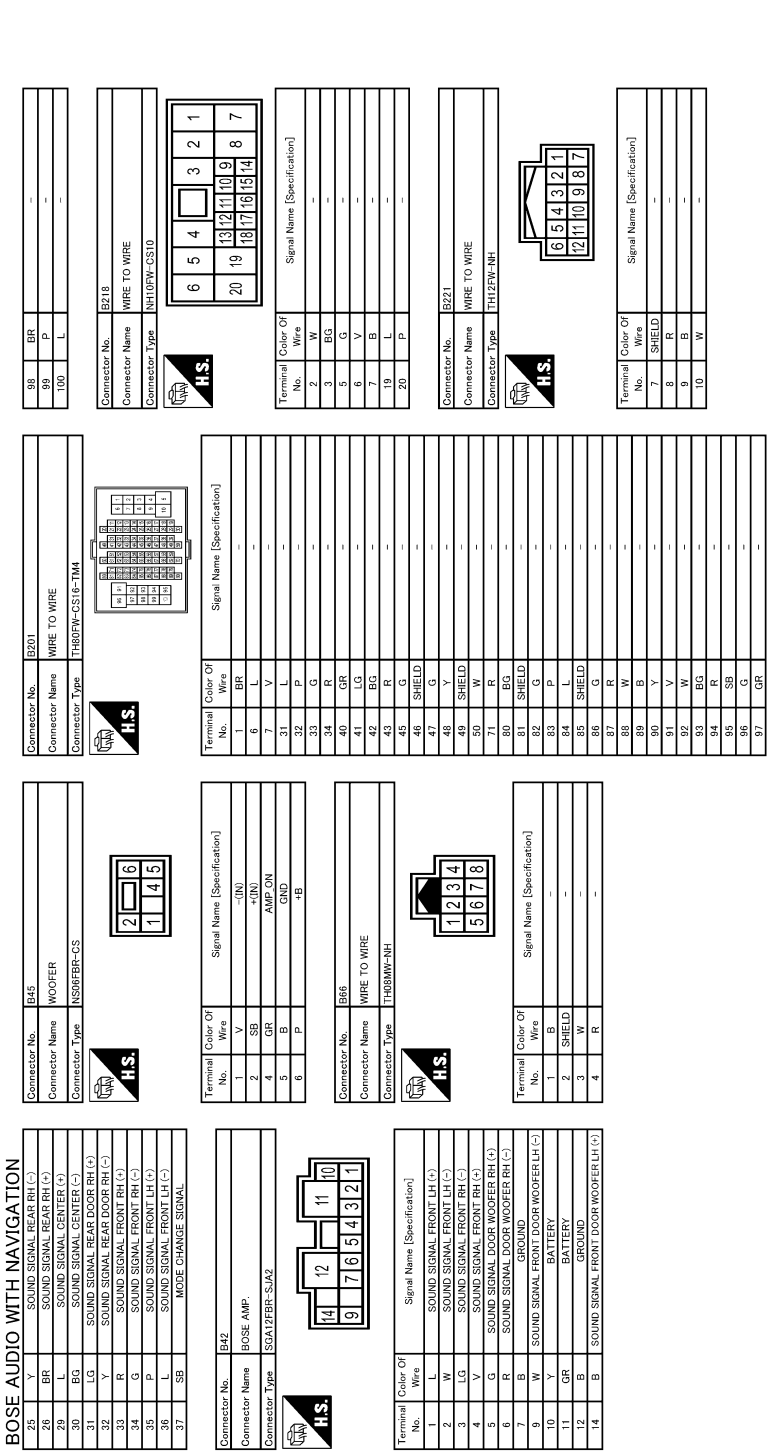

BATTERY
FUSE BLOCK (J/B)
M2, B6
15A
5
15A
8
1B
12G
IGNITION SWITCH ON or START
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E5
10A
45
25
E106
M6
46
STEERING ANGLE SENSOR
M37
M11
ECM
M107
BCM (BODY CONTROL MODULE)
M122
UNIFIED METER AND A/C AMP.
M66, M67
DATA LINK CONNECTOR
M24
DATA LINE
To CAN system
WOOFER
B45
BOSE AMP.
B41, B42
M25
B2
M5
D1
M124
D31
CENTER SPEAKER
M63
TWEETER RH
D32
FRONT DOOR SQUAWKER RH
D46
FRONT DOOR WOOFER RH
D41
FRONT DOOR WOOFER LH
D11
FRONT DOOR SQUAWKER LH
D16
TWEETER LH
D2
AV CONTROL UNIT
M208, M209, M210, M212, M371*, M372*, M373*, M385*
JRNWD7359GB


USB CONNECTOR
M113
BOSE AMP
B41, B42
AV CONTROL UNIT
M209, M209, M210, M212, M371*, M372*, M373*, M385*
B24
B1
M7
B2
M25
M117
B201
B218
D71
REAR DOOR SPEAKER RH
D76
B18
D51
REAR DOOR SPEAKER LH
D56
JRNWD7360GB

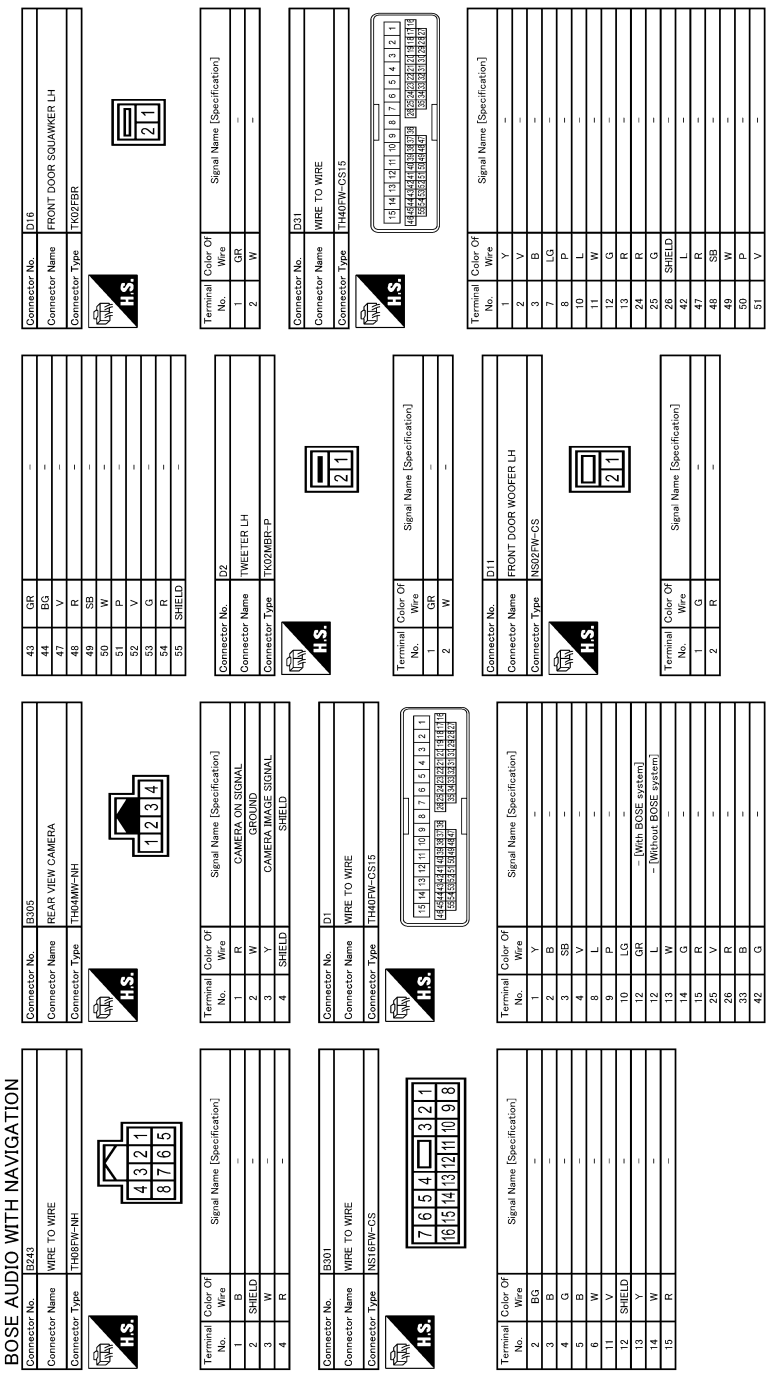

M55
GPS ANTENNA
SATELLITE RADIO ANTENNA
M383
M382
M380
M377
M374
GLASS ANTENNA (SUB)
M379
M376
M375
GLASS ANTENNA (MAIN)
M381
ANTENNA AMP.
M378
M385
M373
M372
M371
M212
M210
M209
M208
AV CONTROL UNIT
To illumination
STEERING SWITCH
SOURCE
MENU UP
MENU DOWN
VOICE
ENTER
VOLUME DOWN
VOLUME UP
TELE-PHONE
BACK
COMBINATION SWITCH (SPIRAL CABLE)
M36
M303
MICROPHONE
R17
R11
R2
R1
M106
JRNWD7361GB



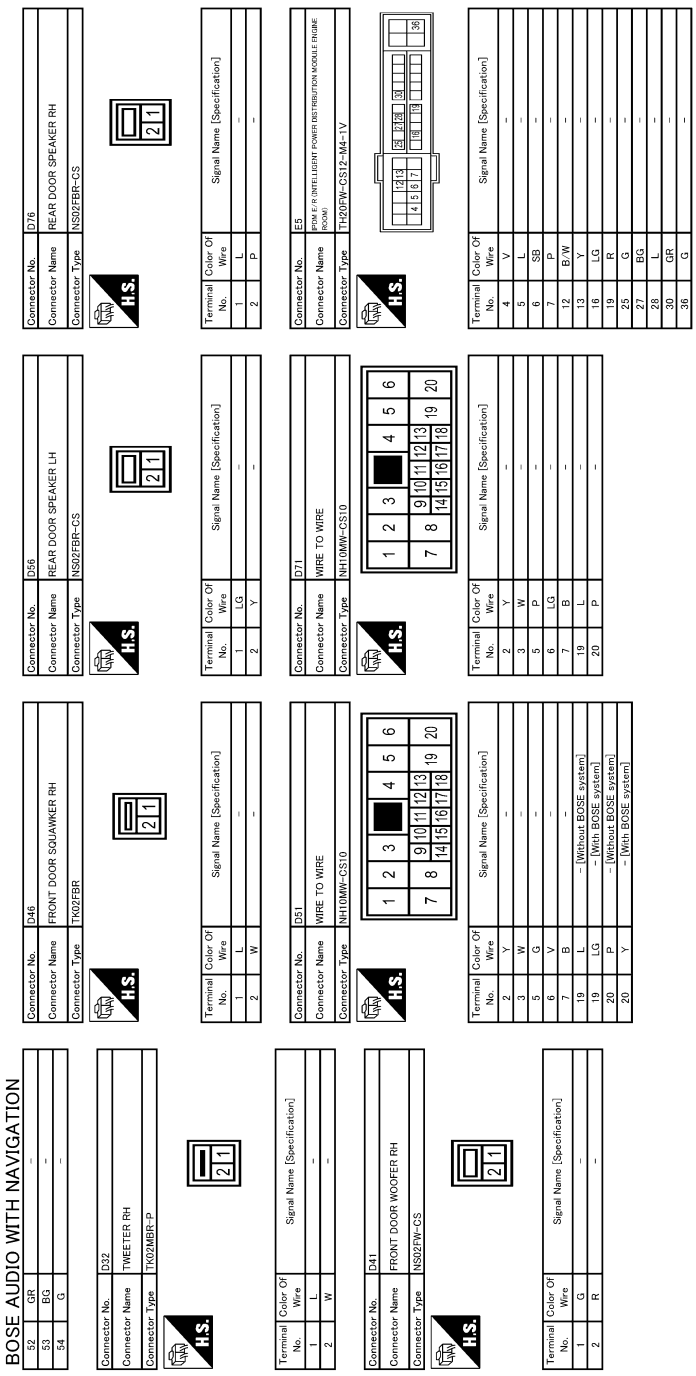
JRNWD7419GB



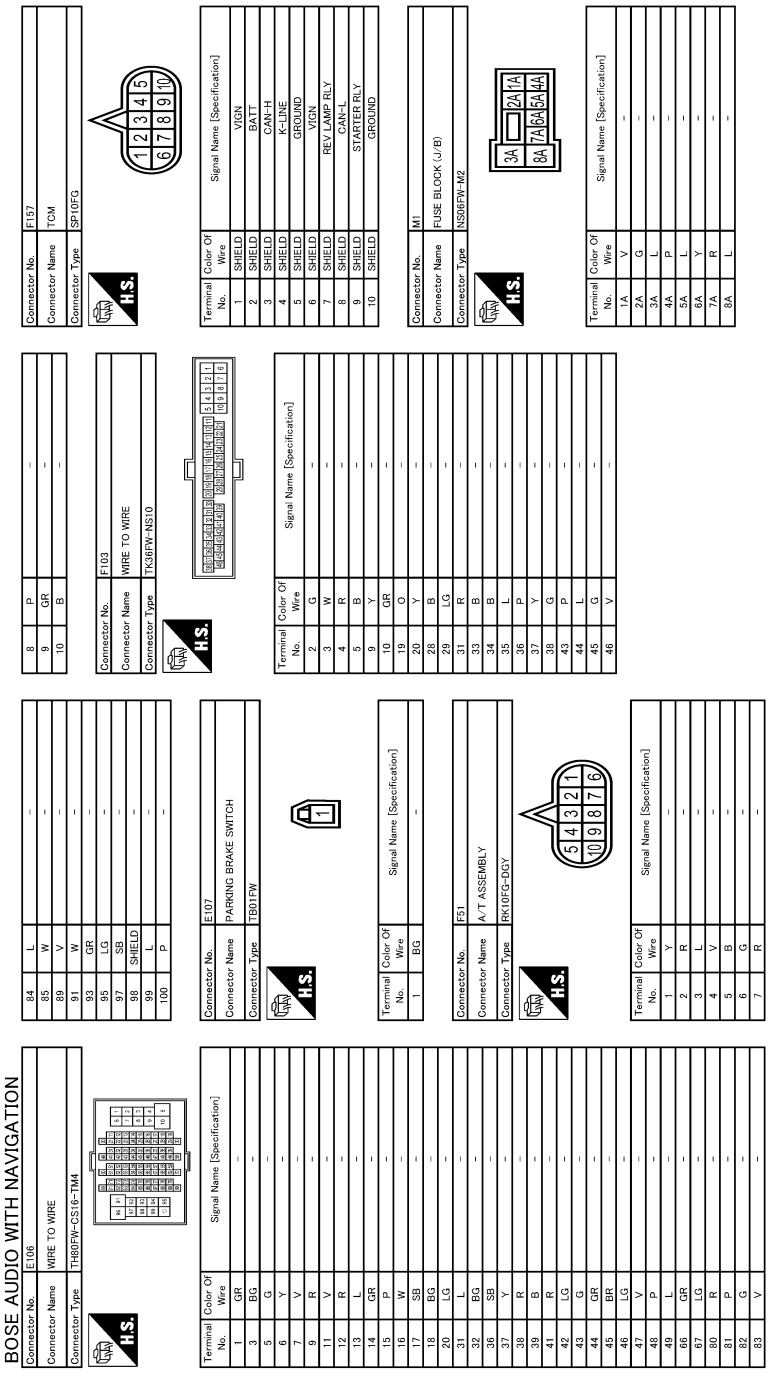
JRNWD7420GB



JRNWD7421GB



JRNWD7422GB

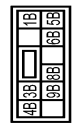


JRNWD7423GB

BOSE AUDIO WITH NAVIGATION

Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1B	SB	-
3B	P	-
4B	G	-
5B	BG	-
6B	Y	-
8B	R	-
9B	SB	-

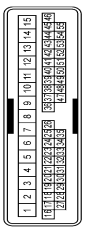
Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS12FW-CS

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
10C	L	-
11C	LG	-
12C	G	-
6C	SB	-
7C	B	-
8C	W	-
9C	BG	-

Connector No.	M5
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-CS15

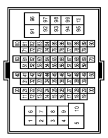
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
2	B	-
3	BG	-
4	V	-
8	SB	-
9	G	-
10	V	-
12	L	-
13	W	-
14	B	-
15	W	-
25	Y	-
26	G	-
33	B	-
42	Y	-
43	L	-
44	L	-
47	L	-
48	GR	-
49	SB	-
50	P	-
51	LG	-
52	V	-
53	BR	-
54	Y	-
55	SHIELD	-

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

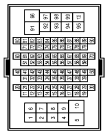
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	BG	-
3	R	-
5	G	-
6	LG	-
7	W	-
9	G	-
11	V	-
12	R	-
13	L	-
14	GR	-
15	P	-
16	W	-
17	BR	-
18	P	-
20	L	-
31	L	-
32	Y	-
36	R	-
37	Y	-
38	R	-
39	SB	-
41	V	-
42	LG	-
43	P	-
44	B	-
45	BG	-
46	G	-
47	L	-
48	P	-
49	L	-
66	Y	-
67	G	-
80	SB	-
81	B	-
82	V	-
83	W	-
84	L	-
85	GR	-
89	LG	-
91	W	-
93	Y	-
95	Y	-
97	GR	-
98	SHIELD	-
99	V	-
100	SB	-

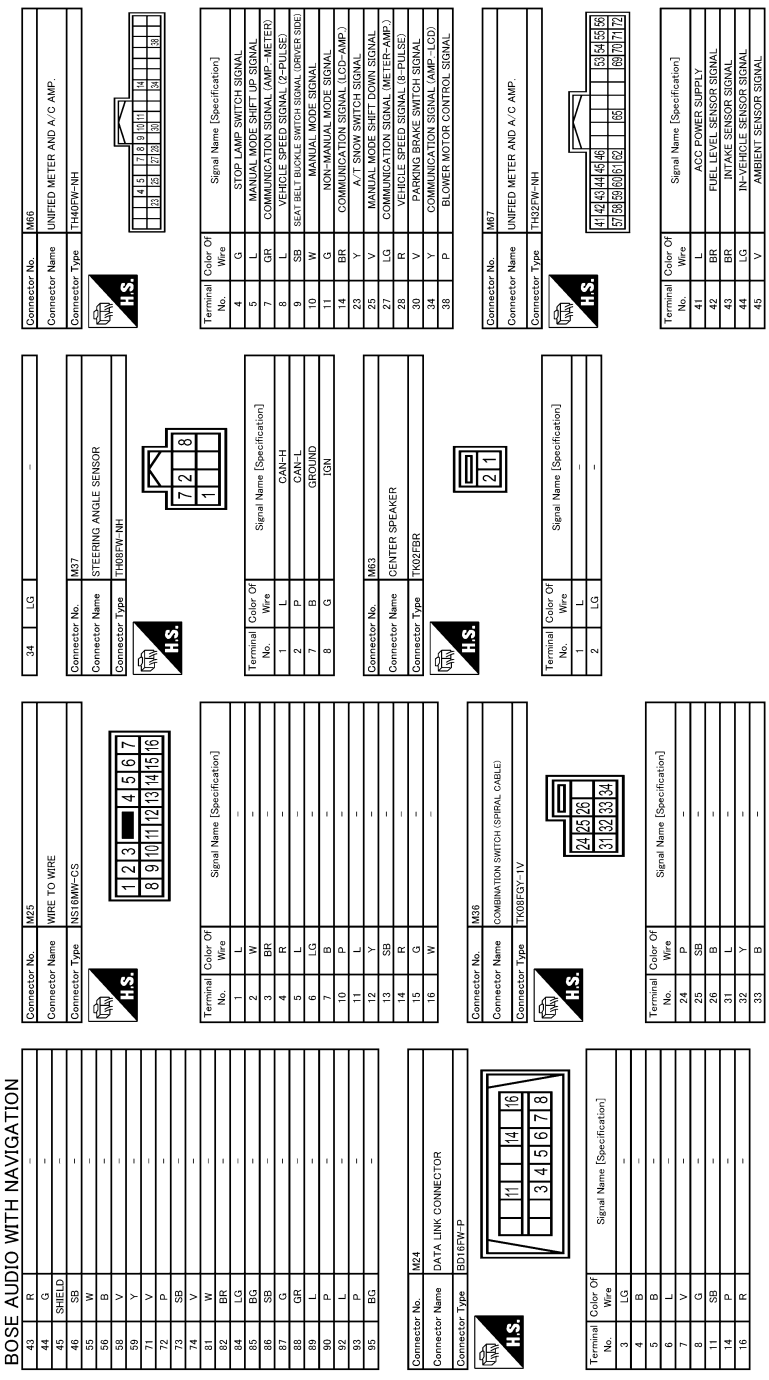
Connector No.	M7
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.

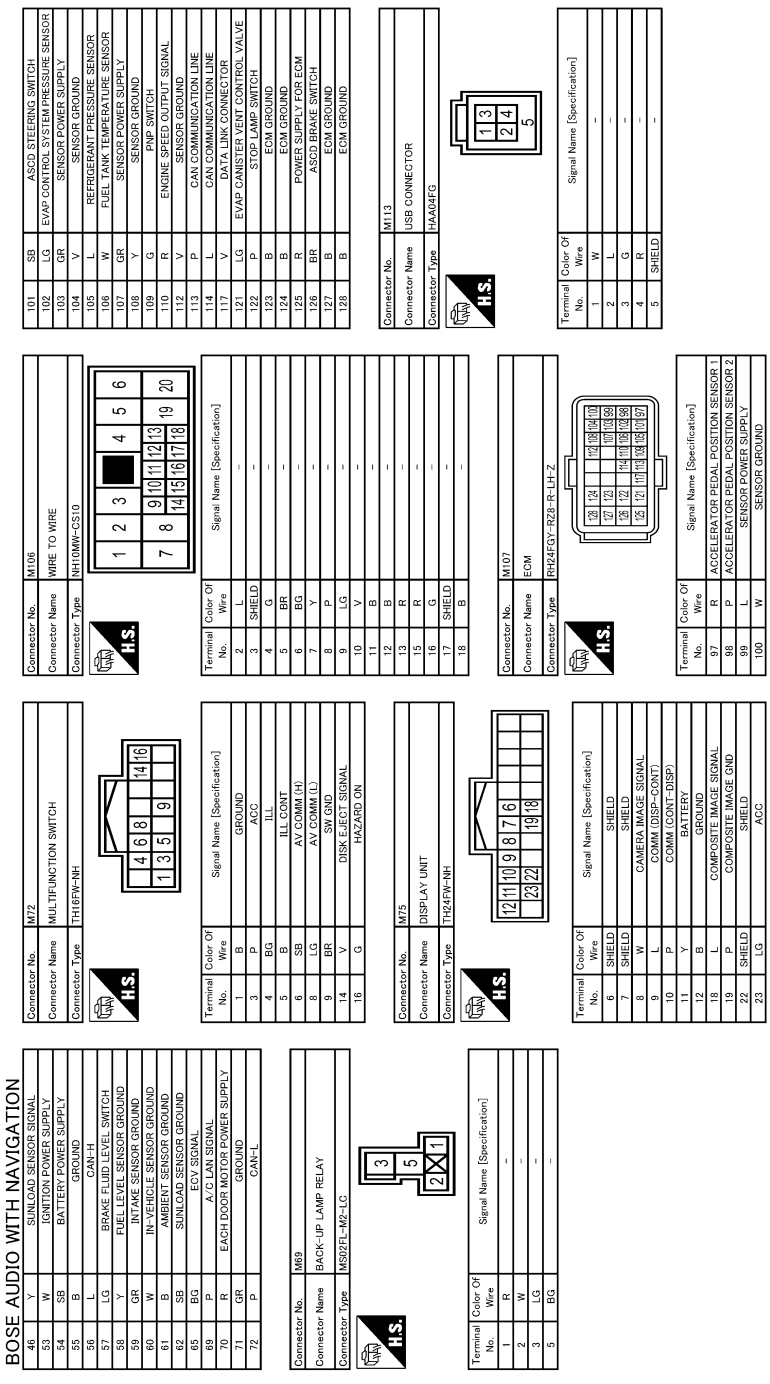


Terminal No.	Color Of Wire	Signal Name [Specification]
1	GR	-
2	P	-
3	P	-
4	Y	-
6	L	-
8	G	-
9	Y	-
24	V	-
25	LG	-
26	BR	-
27	BG	-
28	LG	-
31	V	-
32	LG	-
33	SHIELD	-
34	GR	-
35	BR	-
36	Y	-
37	SHIELD	-
38	SB	-
39	LG	-
40	O	-
41	W	-
42	SHIELD	-

JRNWD7424GB



JRNWD7425GB



JRNWD7426GB

BOSE AUDIO WITH NAVIGATION

Connector No.	M116
Connector Name	WIRE TO WIRE
Connector Type	TK36MW-NS10

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	–
3	BG	–
4	P	–
5	B	–
9	R	–
10	R	–
19	BG	–
20	Y	–
28	B	–
29	LG	–
31	W	–
33	B	–
34	B	–
35	L	–
36	P	–
37	R	–
38	SB	–
43	P	–
44	L	–
45	Y	–
46	SB	–

Connector No.	M117
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	LG	–
6	G	–
7	SB	–
31	SB	–
32	LG	–
33	SB	–
34	LG	–
40	Y	–
41	G	–
42	LG	–
43	R	–
45	G	–
46	SHIELD	–
47	P	–
48	L	–
49	SHIELD	–
50	V	–
59	R	–
71	R	–
80	W	–
81	SHIELD	–
82	P	–
83	L	–
84	G	–
85	SHIELD	–
86	W	–
87	B	–
88	R	–
89	G	–
90	Y	–
91	V	–
92	BR	–
93	V	–
94	Y	–
95	G	–
96	G	–

97	R	–
98	BG	–
99	P	–
100	L	–

Connector No.	M122
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

H.S.

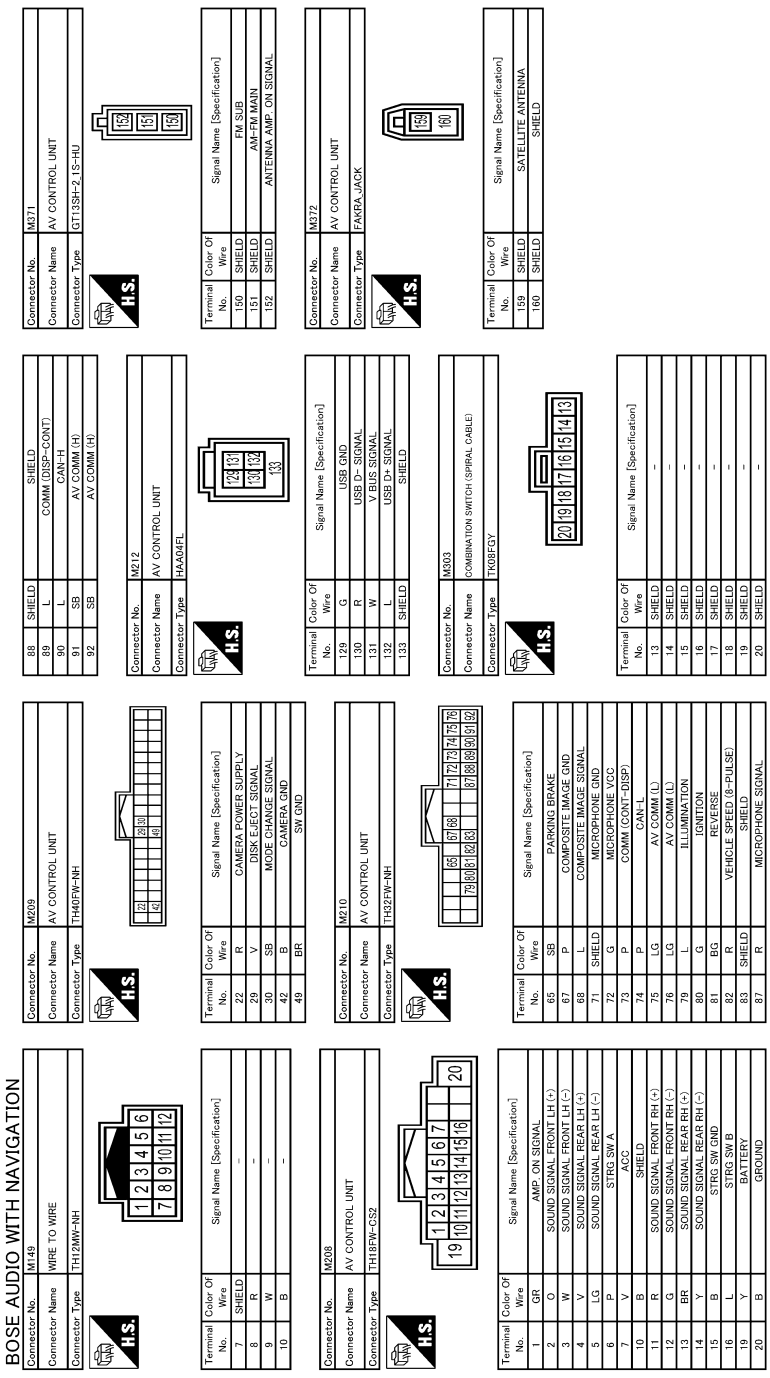
Terminal No.	Color Of Wire	Signal Name [Specification]
72	R	ROOM ANT 2–
73	G	ROOM ANT 2+
74	SB	PASSENGER DOOR ANT–
75	BR	PASSENGER DOOR ANT+
76	V	DRIVER DOOR ANT–
77	LG	DRIVER DOOR ANT+
78	Y	ROOM ANT 1–
79	BR	ROOM ANT 1+
80	GR	NATS ANT AMP
81	W	NATS ANT AMP
82	SB	IGN RELAY (F/B) CONT
83	Y	KEYLESS ENTRY RECEIVER COMM
87	Y	COMBI SW INPUT 5
88	BG	COMBI SW INPUT 3
90	P	CAN–L
91	L	CAN–H
92	LG	KEY SLOT ILL CONT
93	GR	ON IND
95	BG	ACC RELAY CONT
96	GR	A/T SHIFT SELECTOR POWER SUPPLY
99	R	SHIFT P
100	Y	PASSENGER DOOR REQUEST SW
101	P	DRIVER DOOR REQUEST SW
102	BG	BLOWER FAN MOTOR RELAY CONT
103	P	KEYLESS ENTRY RECEIVER POWER SUPPLY
107	LG	COMBI SW INPUT 1
108	R	COMBI SW INPUT 4
109	W	COMBI SW INPUT 2
110	G	HAZARD SW

Connector No.	M124
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-CS15

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	–
2	GR	–
3	B	–
7	V	–
8	P	–
10	BR	–
11	R	–
12	G	–
13	R	–
24	R	–
25	G	–
26	SHIELD	–
42	BG	–
47	LG	–
48	P	–
49	Y	–
50	BR	–
51	SB	–
52	L	–
53	L	–
54	Y	–

JRNWD7427GB



JRNWD7428GB

BOSE AUDIO WITH NAVIGATION

Connector No.	M373
Connector Name	AV CONTROL UNIT
Connector Type	GT5-1S-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
153	SHIELD	GPS ANTENNA
154	SHIELD	SHIELD

Connector No.	M374
Connector Name	WIRE TO WIRE
Connector Type	GT16C-1PP-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–
2	SHIELD	–

Connector No.	M375
Connector Name	WIRE TO WIRE
Connector Type	GT13SC-2_1S-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–
2	SHIELD	–
3	SHIELD	–

Connector No.	M376
Connector Name	WIRE TO WIRE
Connector Type	GT13SCN-2_1PP-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–
2	SHIELD	–
3	SHIELD	–

Connector No.	M377
Connector Name	WIRE TO WIRE
Connector Type	GT16C-1S-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–
2	SHIELD	–

Connector No.	M378
Connector Name	ANTENNA AMP.
Connector Type	GT13SC-1_1S-HU

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	ANTENNA AMP. ON SIGNAL
2	SHIELD	AM-FM MAIN

Connector No.	M379
Connector Name	GLASS ANTENNA(SUB)
Connector Type	P01FB-A

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–

Connector No.	M380
Connector Name	WIRE TO WIRE
Connector Type	GT16-1PP-HU

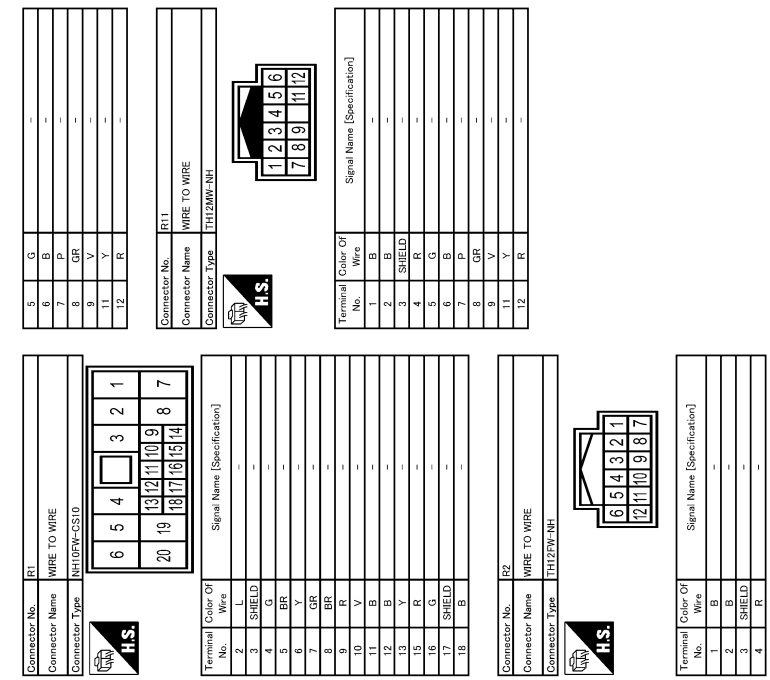
H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	–
2	SHIELD	–

Connector No.	M381
Connector Name	GLASS ANTENNA (MAIN)
Connector Type	P01FB-A

H.S.

JRNWD7429GB



JRNWD7430GB

BOSE AUDIO WITH NAVIGATION

Connector No.	R17
Connector Name	MICROPHONE
Connector Type	TK04FW

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	MICROPHONE SIGNAL
2	SHIELD	MICROPHONE GND
4	G	MICROPHONE VCC

JRNWD7431GB

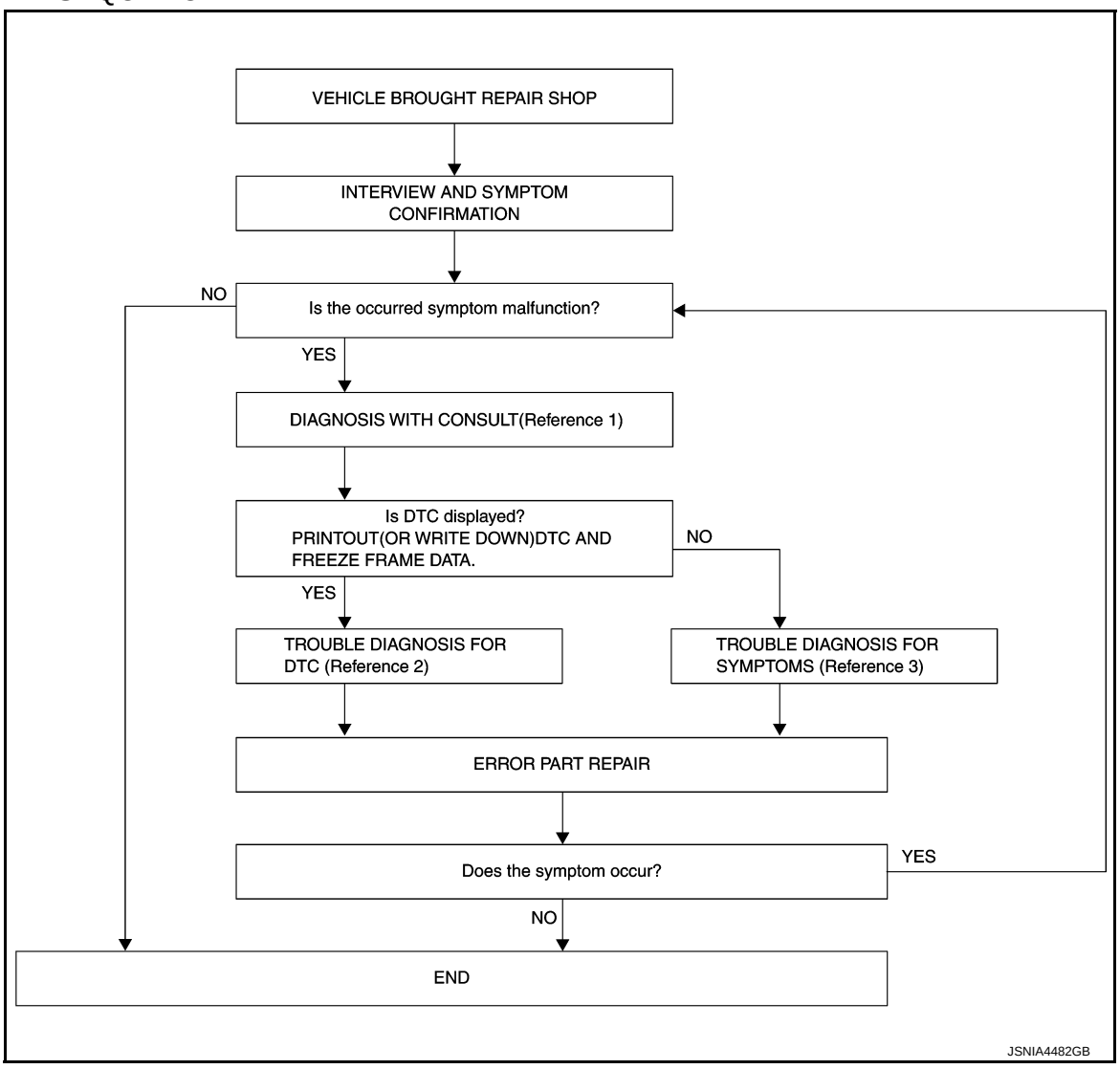
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010991084

OVERALL SEQUENCE



- Reference 1··· Refer to AV-150, "CONSULT Function".
- Reference 2··· Refer to AV-159, "DTC Index".
- Reference 3··· Refer to AV-239, "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

1. Connect CONSULT and perform a self-diagnosis for “MULTI AV”. Refer to AV-150, "CONSULT Function".
   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-159, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-239, "Symptom Table".

>> 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

ADDITIONAL SERVICE WHEN REPLACING (AV CONTROL UNIT)

Description

INFOID:0000000010991085

BEFORE REPLACEMENT

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

AFTER REPLACEMENT

CAUTION:

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

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

Work Procedure

INFOID:0000000010991086

1. SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “Before Replace ECU” to save or print current vehicle specification. Refer to AV-186, "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-249, "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-186, "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)

Description

INFOID:0000000010991087

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

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

Work Procedure

INFOID:0000000010991088

1.WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Write vehicle specification into AV control unit.

To write vehicle specification stored in CONSULT into the AV control unit>>GO TO 2.
To write vehicle specification into the AV control unit by hand>>GO TO 3.

2.WRITE STORED DATA

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

>> GO TO 4.

3.MANUALLY WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Manual Configuration.” Refer to the Configuration List to write vehicle specification into the AV control unit. Refer to AV-186, "Configuration List".
NOTE:
If selection items are not displayed on the CONSULT screen, touch “NEXT.”

>> GO TO 4.

4.OPERATION CHECK

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

>> WORK END

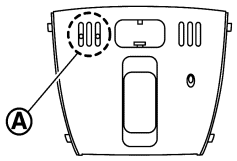
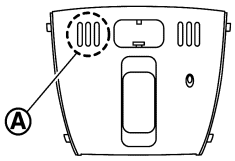
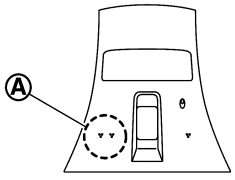
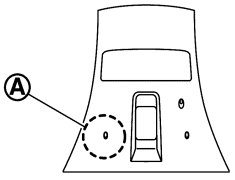
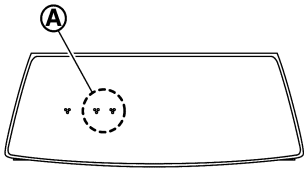
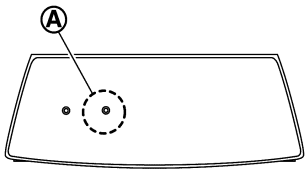
Configuration List

INFOID:0000000010991089

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 SETTING ITEM		NOTE
Items	Setting value	
STEERING	LHD	—
	RHD	—
GRADE	MODE 1	SPORT premium grade with 4WAS
	MODE 3	SPORT premium grade 2WD models without 4WAS
	MODE 2	Except for above
4WAS	WITHOUT	—
	WITH	—
SOUND SYSTEM	BASE	—
	BOSE	—
MICROPHONE	DIRECTIONAL MIC	With directional microphone*
	NON-DIRECTIONAL MIC	With non-directional microphone*

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

Directional microphone	Non-directional microphone
 JSNIA5541ZZ	 JSNIA5542ZZ
Ⓐ: Microphone installation position	Ⓐ: Microphone installation position
 JSNIA5543ZZ	 JSNIA5544ZZ
Ⓐ: Microphone installation position	Ⓐ: Microphone installation position
 JSNIA5545ZZ	 JSNIA5546ZZ
Ⓐ: Microphone installation position	Ⓐ: Microphone installation position

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010991090

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-22, "CAN Communication Signal Chart".

DTC Logic

INFOID:0000000010991091

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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:0000000010991092

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-13, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI section. Refer to GI-41, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000010991093

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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-249, "Exploded View".

U1200 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991094

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U1201 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991095

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U1202 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991096

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U1204 AV CONTROL UNIT

Description

INFOID:0000000010991097

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-249, "Exploded View".

DTC Logic

INFOID:0000000010991098

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1204	GPS CONN [U1204]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".

Diagnosis Procedure

INFOID:0000000010991099

1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self-Diagnosis Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-249, "Exploded View".
NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1205 AV CONTROL UNIT

Description

INFOID:0000000010991100

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-249, "Exploded View".

DTC Logic

INFOID:0000000010991101

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1205	GPS ROM [U1205]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".

Diagnosis Procedure

INFOID:0000000010991102

1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self-Diagnosis Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-249, "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

Description

INFOID:0000000010991103

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-249, "Exploded View".

DTC Logic

INFOID:0000000010991104

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1206	GPS RAM [U1206]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".

Diagnosis Procedure

INFOID:0000000010991105

1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self-Diagnosis Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-249, "Exploded View".
NO >> An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs.

U1207 AV CONTROL UNIT

Description

INFOID:0000000010991106

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-249, "Exploded View".

DTC Logic

INFOID:0000000010991107

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1207	GPS RTC [U1207]	GPS malfunction is detected.	An intermittent error caused by strong radio interference may be detected unless any symptom (GPS reception error, etc.) occurs. Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".

Diagnosis Procedure

INFOID:0000000010991108

1.PERFORM THE SELF-DIAGNOSIS

1. Delete the “Self-Diagnosis Results” of “MULTI AV”. Turn ignition switch OFF.
2. Turn ignition switch ON. Perform the self-diagnosis again.
3. Check that the DTC is detected again.

Is any DTC detected?

YES >> Replace AV control unit. Refer to AV-249, "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 Logic

INFOID:0000000010991109

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U1217 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991110

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U1218 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991111

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U1219 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991113

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U121A AV CONTROL UNIT

DTC Logic

INFOID:0000000010991115

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U121B AV CONTROL UNIT

DTC Logic

INFOID:0000000010991117

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U121C AV CONTROL UNIT

DTC Logic

INFOID:0000000010991119

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

U121D AV CONTROL UNIT

DTC Logic

INFOID:0000000010991121

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121D	DSP CONN [U121D]	AV control unit malfunction is detected.	• If a disc can be played, then there is a possibility of the detection of a temporary malfunction. • Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".

Diagnosis Procedure

INFOID:0000000010991122

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-249, "Exploded View".

U121E AV CONTROL UNIT

DTC Logic

INFOID:0000000010991123

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U121E	DSP COMM [U121E]	AV control unit malfunction is detected.	• If a disc can be played, then there is a possibility of the detection of a temporary malfunction. • Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".

Diagnosis Procedure

INFOID:0000000010991124

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-249, "Exploded View".

U1225 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991125

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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 Logic

INFOID:0000000010991126

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1227	DVD COMM [U1227]	AV control unit malfunction is detected.	• If DVD can be played, then there is a possibility of the detection of a temporary malfunction. • Replace the AV control unit if the malfunction occurs constantly. Refer to AV-249, "Exploded View".

Diagnosis Procedure

INFOID:0000000010991127

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-249, "Exploded View".

U1228 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991128

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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-249, "Exploded View".

U1229 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991129

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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-249, "Exploded View".

U122A AV CONTROL UNIT

DTC Logic

INFOID:0000000010991130

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:0000000010991131

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-185, "Description".

U122E AV CONTROL UNIT

DTC Logic

INFOID:0000000010991132

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	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-249, "Exploded View".

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010991133

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:0000000010991134

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-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement".

U1243 DISPLAY UNIT

DTC Logic

INFOID:0000000010991135

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

Diagnosis Procedure

INFOID:0000000010991136

1.CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to AV-223, "DISPLAY UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

2.CHECK CONTINUITY COMMUNICATION CIRCUIT

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

Display unit		AV control unit		Continuity
Connector	Terminals	Connector	Terminals	
M75	9	M210	89	Existed
	10		73	

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

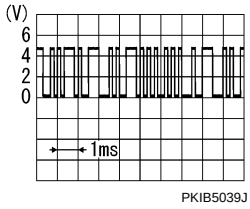
Display unit		Ground	Continuity
Connector	Terminals		
M75	9		Not existed
	10		

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.

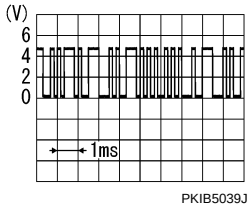
(+)		(–)	Condition	Reference value
Display unit				
Connector	Terminal			
M75	9	Ground	When adjusting display brightness.	 PKIB5039J

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

4. CHECK COMMUNICATION SIGNAL

Check signal between display unit harness connector and ground.

(+)		(–)	Condition	Reference value
Display unit				
Connector	Terminal			
M75	10	Ground	When adjusting display brightness.	 PKIB5039J

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace display unit. Refer to AV-251, "Exploded View".

U1244 GPS ANTENNA

DTC Logic

INFOID:0000000010991137

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:0000000010991138

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.

(+)	(–)	Voltage (Approx.)
AV control unit		
Terminal		
153	Ground	5.0 V

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

U1258 SATELLITE RADIO ANTENNA

DTC Logic

INFOID:0000000010991139

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:0000000010991140

1. SATELLITE RADIO ANTENNA CHECK

Visually check satellite radio antenna (antenna base) and antenna feeder.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair malfunctioning parts.

2. CHECK AV CONTROL UNIT VOLTAGE

1. Disconnect satellite radio antenna connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit and ground.

(+)		
AV control unit	(–)	Voltage (Approx.)
Terminal		
159	Ground	5.0 V

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

U1263 USB

DTC Logic

INFOID:0000000010991141

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:0000000010991142

1.CHECK USB HARNESS

Visually check USB harness.

Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-249, "Exploded View".
NO >> Replace USB harness.

U1264 ANTENNA AMP.

DTC Logic

INFOID:0000000010991143

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1264	ANTENNA AMP TERMINAL [OPEN or SHORT] [U1264]	Radio antenna amp. ON circuit is open or shorted.	Check antenna amp. ON signal circuit between the AV control unit and antenna amp.

Diagnosis Procedure

INFOID:0000000010991144

1.CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND ANTENNA AMP.

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

AV control unit		Antenna amp		Continuity
Connector	Terminals	Connector	Terminals	
M371	152	M378	1	Existed

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

AV control unit		Ground	Continuity
Connector	Terminals		
M371	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 (Approx.)
Connector	Terminals		
M371	152	Ground	12.0 V

Is the inspection result normal?

YES >> Replace antenna amp. Refer to AV-259, "Exploded View" .
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

U1265 BOSE AMP.

DTC Logic

INFOID:0000000010991145

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1265	AMP ON TERMINAL [GND-SHORT or VB-SHORT] [U1265]	BOSE amp. ON circuit is open or shorted.	Check BOSE amp. ON signal circuit between the AV control unit and BOSE amp.

Diagnosis Procedure

INFOID:0000000010991146

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND BOSE AMP.

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

AV control unit		BOSE amp.		Continuity
Connector	Terminals	Connector	Terminals	
M208	1	B41	20	Existed

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

AV control unit		Ground	Continuity
Connector	Terminals		
M208	1		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.

(+)		(–)	Voltage (Approx.)
AV control unit			
Connector	Terminals		
M208	1	Ground	10.0 V

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-258, "Exploded View".
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

U1300 AV COMM CIRCUIT

Description

INFOID:0000000010991147

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.

U1310 AV CONTROL UNIT

DTC Logic

INFOID:0000000010991148

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 malfunction occurs constantly. Refer to AV-249, "Exploded View".

POWER SUPPLY AND GROUND CIRCUIT
AV CONTROL UNIT
AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010991149

1.CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK BATTERY POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M208	19	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between AV control unit and fuse.

3.CHECK ACC POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M208	7	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK ACC POWER SUPPLY CIRCUIT

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

AV control unit		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M208	7	M122	95	Existed

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

AV control unit		Ground	Continuity
Connector	Terminal		
M208	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connectors.

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M208	20	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

DISPLAY UNIT

DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000010991150

1.CHECK FUSE

Check for blown fuses.

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK BATTERY POWER SUPPLY CIRCUIT

Check voltage between display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M75	11	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between Display unit and fuse.

3.CHECK ACC POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connectors and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
ACC power supply	M75	23	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK ACC POWER SUPPLY CIRCUIT

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

Display unit		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M75	23	M122	95	Existed

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

Display unit		Ground	Continuity
Connector	Terminal		
M75	23		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M75	12	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

BOSE AMP.

BOSE AMP. : Diagnosis Procedure

INFOID:0000000010991151

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	5, 8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BOSE amp. harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B42	10, 11	OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between BOSE amp. and fuse.

3.CHECK GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

RGB DIGITAL IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000010991152

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

Diagnosis Procedure

INFOID:0000000010991153

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	
M386	27	M385	157	Existed
	28		158	

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

Display unit		Ground	Continuity
Connector	Terminals		
M386	27		Not existed
	28		

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK RGB DIGITAL IMAGE SIGNAL

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

(+)		(–)	Condition	Voltage (Approx.)
Display unit				
Connector	Terminals			
M386	27	Ground	—	1.3 V
	28			

Is the inspection result normal?

YES >> Replace display unit. Refer to AV-251, "Exploded View".
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

COMPOSITE IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000010991154

AV control unit transmits the playback DVD image signal to the display unit.

Diagnosis Procedure

INFOID:0000000010991155

1.CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

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

AV control unit		Display unit		Continuity
Connector	Terminal	Connector	Terminal	
M210	68	M75	18	Existed

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

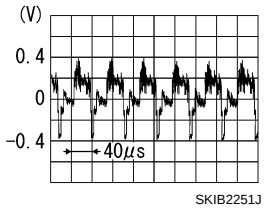
AV control unit		Ground	Continuity
Connector	Terminal		
M210	68		Not existed

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.

(+)		(–)	Condition	Reference value
AV control unit				
Connector	Terminal			
M210	68	Ground	At DVD image is displayed.	

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Is the inspection result normal?

YES >> Replace display unit. Refer to AV-251, "Exploded View".
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

DISK EJECT SIGNAL CIRCUIT

Description

INFOID:0000000010991156

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

Diagnosis Procedure

INFOID:0000000010991157

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	
M72	14	M209	29	Existed

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

Multifunction switch		Ground	Continuity
Connector	Terminal		
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.

(+)		(–)	Condition	Voltage (Approx.)
AV control unit				
Connector	Terminal			
M209	29	Ground	Pressing the eject switch	0 V
			Except for above	5.0 V

Is the inspection result normal?

YES >> Replace preset switch. Refer to AV-262, "Exploded View".
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

MODE CHANGE SIGNAL CIRCUIT

Description

INFOID:0000000010991158

- 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:0000000010991159

1.CHECK CONTINUITY MODE CHANGE SIGNAL CIRCUIT

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

AV control unit		BOSE amp.		Continuity
Connector	Terminal	Connector	Terminal	
M209	30	B41	37	Existed

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

BOSE amp.		Ground	Continuity
Connector	Terminal		
B41	37		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK MODE CHANGE SIGNAL

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

(+)		(–)	Condition	Voltage (Approx.)
BOSE amp.				
Connector	Terminal			
B41	37	Ground	Driver's Audio Stage ON.	0 V
			Driver's Audio Stage OFF.	8.5 V

Is the inspection result normal?

YES >> Replace BOSE amp. Refer to AV-258, "Exploded View".
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

MICROPHONE SIGNAL CIRCUIT

Description

INFOID:0000000010991160

Supply power from AV control unit to microphone. The microphone transmits the sound/voice to the AV control unit.

Diagnosis Procedure

INFOID:0000000010991161

1.CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT

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

AV control unit		Microphone		Continuity
Connector	Terminals	Connector	Terminals	
M210	71	R17	2	Existed
	72		4	
	87		1	

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

AV control unit		Ground	Continuity
Connector	Terminals		
M210	72		Not existed
	87		

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK VOLTAGE MICROPHONE VCC

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

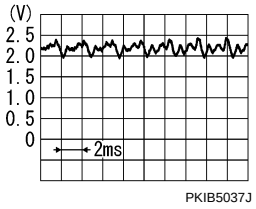
(+)		(–)		Voltage (Approx.)
AV control unit		AV control unit		
Connector	Terminal	Connector	Terminal	
M210	72	M210	71	5.0 V

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.
2. Check signal between AV control unit harness connector.

(+)		(–)		Condition	Reference value
AV control unit		AV control unit			
Connector	Terminal	Connector	Terminal		
M210	87	M210	71	Give a voice.	

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Is the inspection result normal?

YES >> Replace AV control unit. Refer to AV-249, "Exploded View".
NO >> Replace microphone. Refer to AV-265, "Exploded View".

CAMERA IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000010991162

- The AV control unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the display unit when power is supplied from the AV control unit.

Diagnosis Procedure

INFOID:0000000010991163

1.CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

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

AV control unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M209	22	B305	1	Existed

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

AV control unit		Ground	Continuity
Connector	Terminal		
M209	22		Not existed

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK VOLTAGE CAMERA POWER SUPPLY

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

(+)		(–)	Condition	Voltage (Approx.)
AV control unit				
Connector	Terminal			
M209	22	Ground	Shift position is “R”.	6.0 V

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace AV control unit.

3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

Display unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M75	8	B305	3	Existed

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

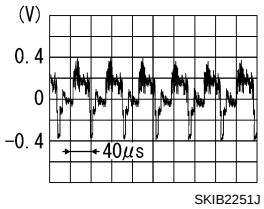
Display unit		Ground	Continuity
Connector	Terminal		
M75	8		Not existed

Is inspection result normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

4. CHECK CAMERA IMAGE SIGNAL

1. Connect display unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to “R”.
4. Check signal between display unit harness connector and ground.

(+)		(–)	Condition	Reference value
Display unit				
Connector	Terminal			
M75	8	Ground	At rear view camera image is displayed.	

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Is inspection result normal?

YES >> Replace display unit. Refer to AV-251, "Exploded View".
NO >> Replace rear view camera. Refer to AV-268, "Exploded View".

STEERING SWITCH SIGNAL A CIRCUIT

Description

INFOID:0000000010991164

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000010991165

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		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M208	6	M36	24	Existed

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

AV control unit		Ground	Continuity
Connector	Terminal		
M208	6		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-14, "Exploded View".

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	
M208	6	M208	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-233, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to ST-14, "Exploded View".

Component Inspection

INFOID:0000000010991166

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

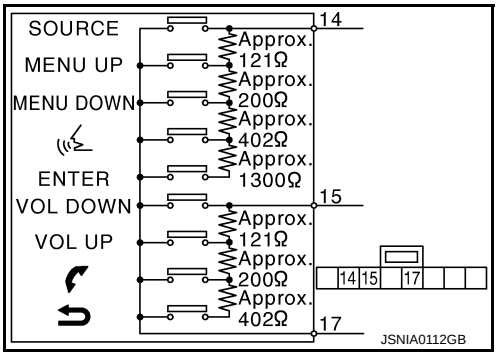
Standard

Between terminals 14 and 17

ENTER switch ON	: 2003 – 2043 Ω
switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	: 0 Ω

Between terminals 15 and 17

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



STEERING SWITCH SIGNAL B CIRCUIT

Description

INFOID:0000000010991167

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000010991168

1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

AV control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M208	16	M36	31	Existed

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

AV control unit		Ground	Continuity
Connector	Terminal		
M208	16		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-14, "Exploded View".

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	
M208	16	M208	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-249, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-235, "Component Inspection".

Is the inspection result normal?

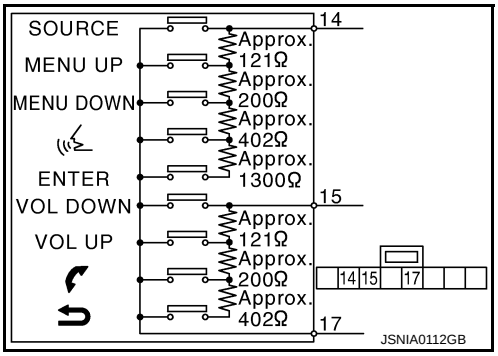
YES >> INSPECTION END
NO >> Replace steering switch. Refer to ST-14, "Exploded View".

Component Inspection

INFOID:0000000010991169

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

Standard



Between terminals 14 and 17

ENTER switch ON	: 2003 – 2043 Ω
switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	: 0 Ω

Between terminals 15 and 17

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

STEERING SWITCH GROUND CIRCUIT

Description

INFOID:0000000010991170

Transmits the steering switch signal to AV control unit.

Diagnosis Procedure

INFOID:0000000010991171

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	
M208	15	M36	33	Existed

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-14, "Exploded View".

3.CHECK GROUND CIRCUIT

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

AV control unit		Ground	Continuity
Connector	Terminal		
M208	15		Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace AV control unit. Refer to AV-249, "Exploded View"

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-237, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to ST-14, "Exploded View"

Component Inspection

INFOID:0000000010991172

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

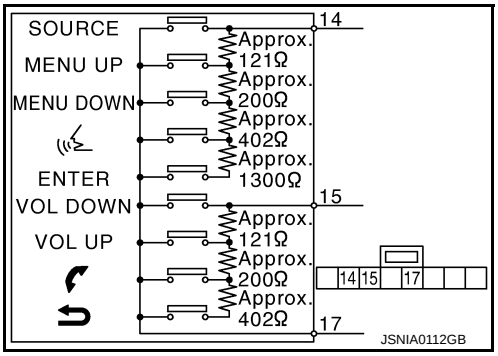
Standard

Between terminals 14 and 17

ENTER switch ON	: 2003 – 2043 Ω
switch ON	: 716 – 730 Ω
MENU DOWN switch ON	: 318 – 324 Ω
MENU UP switch ON	: 120 – 122 Ω
SOURCE switch ON	: 0 Ω

Between terminals 15 and 17

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



SYMPTOM DIAGNOSIS

MULTI AV SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010991173

RELATED TO NAVIGATION

Symptoms	Check items	Probable malfunction location
Multifunction switch and preset switch operation does not work.	• All switches cannot be operated. • “MULTI AV” is displayed on system selection screen when the CONSULT is started.	• Multifunction switch power supply and ground circuit malfunction. • AV communication circuit between AV control unit and multifunction switch. Perform CONSULT self-diagnosis. Refer to AV-150, "CONSULT Function".
	• 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-222, "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-138, "On Board Diagnosis Function".
Fuel economy display, vehicle setting operation is abnormal.	There is malfunction in the CONSULT “self-diagnosis result” of “MULTI AV”. Refer to AV-150, "CONSULT Function".	Perform detected DTC diagnosis. Refer to AV-159, "DTC Index".
	There is no malfunction in the CONSULT “self-diagnosis results” of “MULTI AV”. Refer to AV-150, "CONSULT Function".	Ignition signal circuit malfunction.
Guide sound is not heard or too low.	On the setting display select “system sound (guide sound volume, etc.),” and confirm that guide sound is ON.	AV control unit malfunction. Replace AV control unit. Refer to AV-249, "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

1. Make sure the customer's Bluetooth® related concern is understood.
2. Verify the customer's concern.
   NOTE:
   The customer's phone may be required, depending upon their concern.
3. Write down the customer's phone brand, model, and service provider.
   NOTE:
   It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
4. Go to ”www.infinitiusa.com/bluetooth/”.

a. Using the website's search engine, find out if the customer's phone is on the approved list.

b. If the customer's phone is NOT on the approved list:
   Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.

c. If the feature related to the customer's concern shows as “N” (not compatible):

Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as “Y” (compatible) in the “Basic Features” list.

d. If the feature related to the customer's concern shows as “Y” (compatible):
Perform diagnosis as per the following table.

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.	AV control unit malfunction. Replace AV control unit. Refer to AV-249, "Exploded View".
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.	
The other party's voice cannot be heard by hands-free phone.	Check the “microphone speaker” in Inspection & Adjustment Mode if sound is heard.	
Originating sound is not heard by the other party with hands-free phone communication.	Sound operation function is normal.	
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-229, "Diagnosis Procedure".
The system cannot be operated.	Steering switch's ”VOL UP”, “VOL DOWN”, “↩” switch works, but “📞” it does not work.	Steering switch malfunction. Replace steering switch. Refer to AV-263, "Exploded View".
	Steering switch's “📞”, ”VOL UP”, “VOL DOWN”, “↩” switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-235, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-237, "Diagnosis Procedure".

RELATED TO RGB IMAGE

Symptoms	Check items	Probable malfunction location
RGB image is not shown.	—	RGB digital image signal circuit malfunction. Refer to AV-225, "Diagnosis Procedure".

RELATED TO VOICE CONTROL

Symptoms	Check items	Probable malfunction location
The voice cannot be controlled even if the voice control screen is displayed.	Voice sounds at “Voice Microphone Test” of Confirmation/Adjustment mode.	AV control unit malfunction. Replace AV control unit. Refer to AV-249, "Exploded View".
	Voice does not sound at “Voice Microphone Test” of Confirmation/Adjustment mode.	Microphone circuit malfunction. Refer to AV-229, "Diagnosis Procedure".
The voice cannot be controlled (Voice control screen is not displayed).	Steering switch's “SOURCE”, “MENU UP”, “MENU DOWN”, “ENTER” switch works, but “🎤” it does not work.	Steering switch malfunction. Replace steering switch. Refer to AV-263, "Exploded View".
	Steering switch's “SOURCE”, “MENU UP”, “MENU DOWN”, “🎤”, “ENTER” switches do not work.	Steering switch signal A circuit malfunction. Refer to AV-233, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-237, "Diagnosis Procedure".

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	—	Disk eject signal circuit malfunction. Refer to AV-227, "Diagnosis Procedure".
No sound comes out or the level of the sound is low.	No sound from all speakers.	• BOSE amp. ON signal circuit malfunction. • BOSE amp. power supply and ground circuits malfunction. Refer to AV-224, "BOSE AMP. : Diagnosis Procedure".
	Sound is not heard from woofer.	• Woofer power supply and ground circuit malfunction. • Sound signal (woofer) circuit malfunction. • Woofer amp. ON signal circuit malfunction.
	Only a certain speaker (center, front right, front left, rear right, or rear left) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and BOSE amp. • Sound signal circuit malfunction between BOSE amp. and speaker. • Malfunction in speaker. • Malfunction in AV control unit. • Malfunction in BOSE amp.
Noise is mixed with audio.	Noise comes out from all speaker.	• Malfunction in AV control unit. • Malfunction in BOSE amp.
	Noise comes out only from a certain speaker (center, front right, front left, rear right, or rear left).	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and BOSE amp. • Sound signal circuit malfunction between BOSE amp. and speaker. • Malfunction in speaker. • Poor installation of speaker (e.g. backlash and looseness) • Malfunction in AV control unit. • Malfunction in BOSE amp.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.
Radio is not received or poor reception.	• Other audio sounds are normal. • Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	• Antenna amp. ON signal circuit malfunction. • Poor connector connection of antenna or antenna feeder.
Satellite radio is not received.	There is malfunction in the CONSULT self-diagnosis result. Refer to AV-150, "CONSULT Function".	• Malfunction in antenna, antenna feeder, or AV control unit. Perform DTC diagnosis. Refer to AV-159, "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-150, "CONSULT Function".	• Poor continuity in antenna feeder. • Poor connector connection of antenna or antenna feeder. • Loose satellite radio antenna mounting nut. Refer to AV-260, "Exploded View".

RELATED TO DVD MODE

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	—	Disk eject signal circuit malfunction. Refer to AV-227, "Diagnosis Procedure".
DVD image is not displayed.	—	Perform CONSULT self-diagnosis. Refer to AV-150, "CONSULT Function". When detecting no malfunction in those components, the following items are a possible cause. • Composite image signal circuits malfunction. Refer to AV-226, "Diagnosis Procedure".
DVD sound is not heard.	No sound from all speakers.	• Amp. ON signal circuit malfunction. • BOSE amp. power supply and ground circuits malfunction. Refer to AV-224, "BOSE AMP. : Diagnosis Procedure".
	Sound is not heard from rear woofer.	• Woofer power supply and ground circuit malfunction. • Sound signal (rear woofer) circuit malfunction. • Woofer amp. ON signal circuit malfunction.
	Sound is heard only from specific places.	Sound signals circuit of suspect system.

RELATED TO CAMERA

Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Probable malfunction location
Camera image is not shown. (Vehicle width and predictive course line are displayed.)	—	Camera image signal circuit. Refer to AV-231, "Diagnosis Procedure".
Camera image does not switch.	Select “Camera Cont.” of Confirmation/ Adjustment mode, Reverse Sensor is not turned ON at “Connection Confirmation”.	Reverse signal circuit malfunction.
	Select “Camera Cont.” of Confirmation/ Adjustment mode, Reverse Sensor is turned ON at “Connection Confirmation”.	AV control unit malfunction. Replace AV control unit. Refer to AV-249, "Exploded View".

RELATED TO USB

NOTE:

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

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

iPod® 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-237, "Diagnosis Procedure".
Only specified switch cannot be operated.	Steering switch malfunction. Replace steering switch. Refer to AV-263, "Exploded View".
Steering switch's “SOURCE”, “MENU UP”, “MENU DOWN”,“ ”, “ENTER”switches do not work.	Steering switch signal A circuit malfunction. Refer to AV-233, "Diagnosis Procedure".
Steering switch's “ ”, “VOL UP”, “VOL DOWN”, “ ” switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-235, "Diagnosis Procedure".

NORMAL OPERATING CONDITION

Description

INFOID:0000000010991174

NOTE:
For Navigation system operation information, refer to Navigation system Owner's Manual.

BASIC OPERATIONS

Symptom	Possible cause	Possible solution
No image is displayed.	The brightness is at the lowest setting.	Adjust the brightness of the display.
	The systems in the video mode.	Press “DISC-AUX” to change the mode.
	The display is turned off.	Press “☀/☽” to turn on the display.
	The interior of the vehicle becomes the a little less than 80°C (176°F) or high temperature, and the protection of the display acts, and a display is turned off.	Wait until the interior of the vehicle has cooled down.
Screen not clear.	Contrast setting is not appropriate.	Adjust the contrast of the display.
No voice guidance is available. Or The volume is too high or too low.	The volume is not set correctly, or it is turned off.	Adjust the volume of voice guidance.
	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 system does not recognize your command. or The system recognizes your command incorrectly	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.
	You are speaking before the voice recognition is ready	Press and release “” switch on the steering switch, and speak a command after the tone sounds.
	8 seconds or more have passed after you pressed and released “” switch on the steering switch.	Make sure to speak a command within 8 seconds after you press and release “” switch on the steering switch.
	Only a limited range of voice commands is usable for each screen.	Use a correct voice command appropriate for the current screen.
	The fan of the air conditioner is too loud.	Lower the fan speed as necessary as voice 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.

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

Symptom/ error message	Solution
Displays “COMMAND NOT RECOGNIZED” or the system fails to interpret the command correctly.	1. Ensure that the command format is valid.
	2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level.
	3. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on. **NOTE:** If it is too noisy to use the phone, it is likely that voice commands will not be recognized.
	4. If optional words of the command have been omitted, then command should be tried with these in place.
The system consistently selects the wrong voicetag	1. Ensure that the voicetag requested matches what was originally stored. This can be confirmed by giving the “Addressbook” Directory or Phone Directory command.
	2. Replace one of the voicetags being confused with a different voicetag.

Related to Telephone

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

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

Symptom	Solution
System fails to interpret the command correctly.	1. Ensure that the command is valid.
	2. Ensure that the command is spoken after the tone.
	3. Speak clearly without pausing between words and at level appropriate to the ambient noise level in the vehicle.
	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). **NOTE:** If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.
	5. If more than one command was said at a time, try saying the commands separately.
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. See “Speaker adaptation (SA) mode” earlier in this section. Refer to “OWNER’S MANUAL”.
The system consistently selects the wrong voicetag	1. Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the “List Names” command.
	2. Replace one of the names being confused with a new name.

RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD, 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.
	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	Possible cause	Possible solution
DVD can not be played	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 menu is displayed.	Select item to touch “ENTER”.
	Insertion of a DVD with a different region code.	DVDs with a different region code can not be played. Check DVD.
	Some DVD softwares may not be played because not all DVD softwares fully comply in the standard.	This is not a malfunction.
Interruption during playback or flicker in the display	Check that the DVD has no scratches and dirt.	Errors may not be corrected depending on the size of scratches.
		Wipe and clean the dirt on the disc.
Subtitles not shown	Subtitle setting is OFF.	Set subtitle.
	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 icon is not displayed in the correct position.	The vehicle was transported after the ignition switch was pressed off, for example, by a ferry or car transporter.	Drive the vehicle for a while on a road where GPS signals can be received.
	The position and direction of the vehicle icon may be incorrect depending on the driving environments and the levels of positioning accuracy of the navigation system.	This is not a malfunction. Drive the vehicle for a while to automatically correct the position and direction of the vehicle icon.
When the vehicle is traveling on a new road, the vehicle icon is located on another road nearby.	Because the new road is not stored in the map data, the system automatically places the vehicle icon on the nearest road available.	Updated road information will be included in the next version of the map data.

Symptom	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.
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 information is not displayed.	Route calculation has not yet been performed.	Set the destination and perform route calculation.
	You are not driving on the suggested route.	Drive on the suggested route.
	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.
The suggested route is not displayed.	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 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	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.

REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

INFOID:0000000010991175

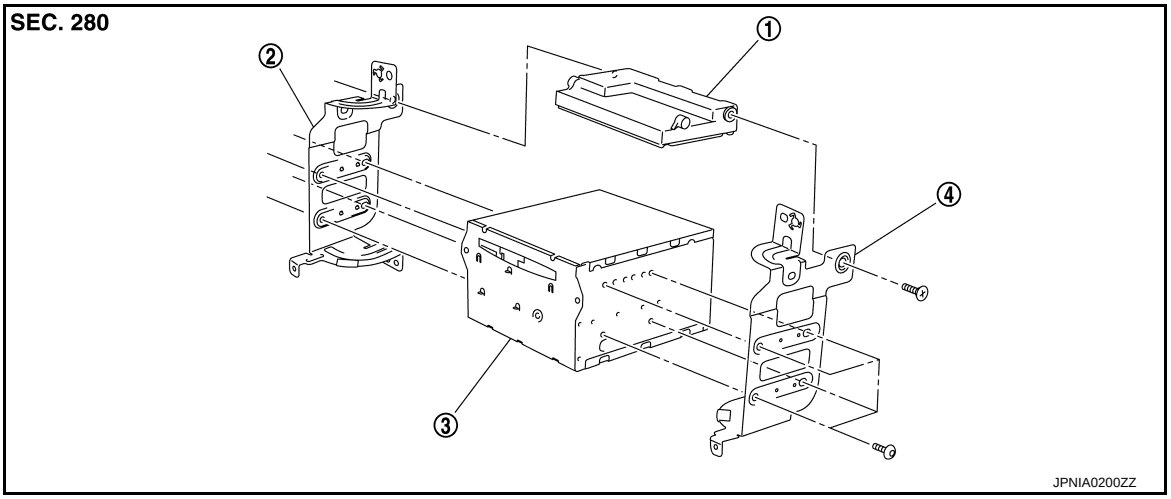
CAUTION:
- **Before replacing AV control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-185, "Description".**
- **Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.**

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

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:0000000010991176

REMOVAL

CAUTION:
- **Before replacing AV control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-185, "Work Procedure".**
- **Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.**

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

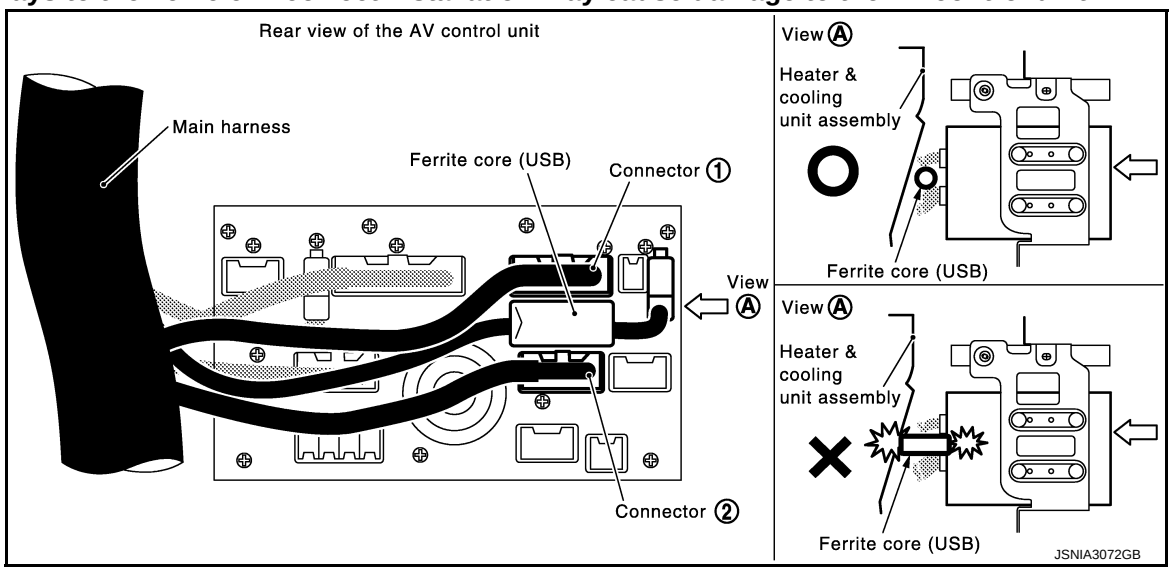
1. Remove display unit. Refer to AV-251, "Exploded View".
2. Remove AV control unit with a unified meter and A/C amp. as a single unit from the body.
3. Remove bracket screws, and then remove AV control unit.

INSTALLATION

Installation is the reverse order of removal.

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

- **Be sure to perform “Read/Write Configuration” when replacing AV control unit. For details, refer to AV-186, "Work Procedure".**
- **Install AV control unit between connector (1) and connector (2) with the ferrite core (USB) orientated sideways to the vehicle. Incorrect installation may cause damage to the AV control unit.**



DISPLAY UNIT

Exploded View

INFOID:0000000010991177

Refer to IP-12, "Exploded View".

Removal and Installation

INFOID:0000000010991178

REMOVAL

1. Remove cluster lid D. Refer to IP-12, "Exploded View".
2. Remove display unit with bracket as a single unit.

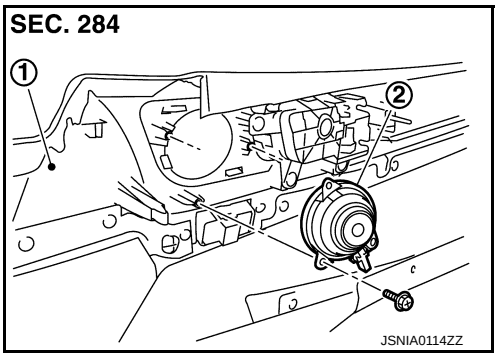
INSTALLATION

Installation is the reverse order of removal.

FRONT DOOR SQUAWKER

Exploded View

INFOID:0000000010991179



1. Door finisher
2. Front door squawker

Removal and Installation

INFOID:0000000010991180

REMOVAL

1. Remove front door finisher. Refer to INT-12, "Exploded View".
2. Remove front door squawker from door finisher.

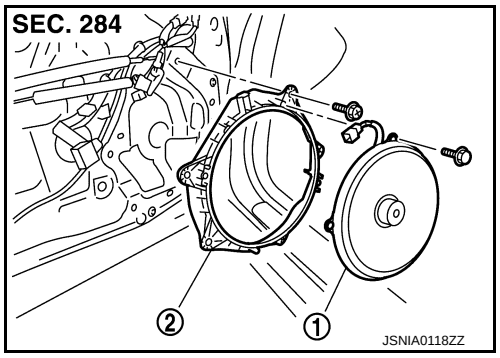
INSTALLATION

Installation is the reverse order of removal.

FRONT DOOR WOOFER

Exploded View

INFOID:0000000010991181



1. Front door woofer
2. Woofer bracket

Removal and Installation

INFOID:0000000010991182

REMOVAL

1. Remove front door finisher. Refer to INT-12, "Exploded View".
2. Remove front door woofer from woofer bracket.

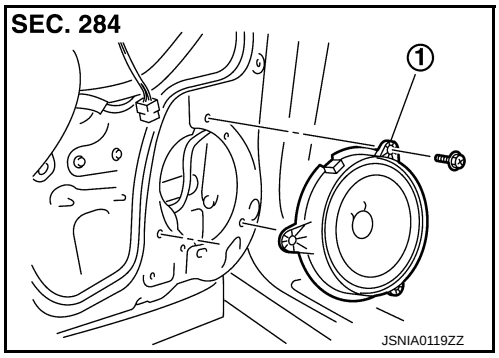
INSTALLATION

Installation is the reverse order of removal.

REAR DOOR SPEAKER

Exploded View

INFOID:0000000010991183



1. Rear door speaker

Removal and Installation

INFOID:0000000010991184

REMOVAL

1. Remove rear door finisher. Refer to INT-12, "Exploded View".
2. Remove rear door speaker from rear door.

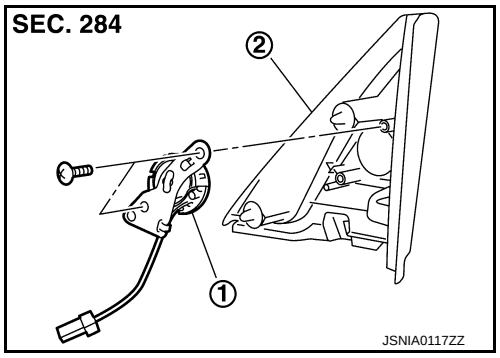
INSTALLATION

Installation is the reverse order of removal.

TWEETER

Exploded View

INFOID:0000000010991185



1. Tweeter
2. Corner cover inner

Removal and Installation

INFOID:0000000010991186

REMOVAL

1. Remove front door finisher, and then remove corner cover inner. Refer to INT-12, "Exploded View".
2. Remove tweeter from corner cover inner.

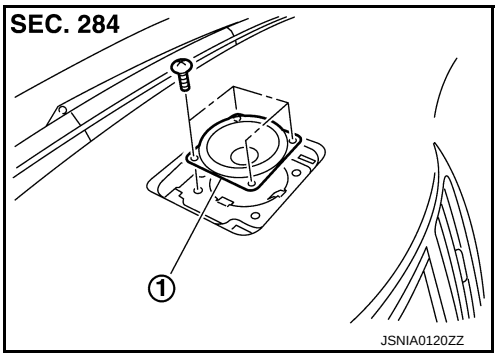
INSTALLATION

Installation is the reverse order of removal.

CENTER SPEAKER

Exploded View

INFOID:0000000010991187



1. Center speaker

Removal and Installation

INFOID:0000000010991188

REMOVAL

1. Remove upper grille, and then remove center speaker. Refer to IP-12, "Exploded View".

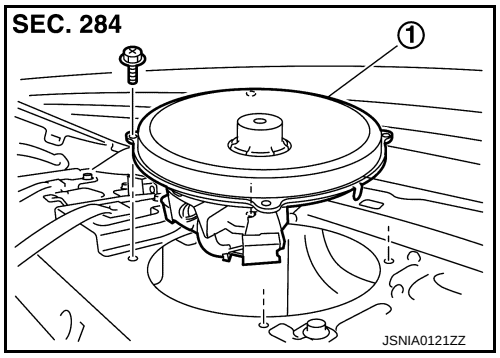
INSTALLATION

Installation is the reverse order of removal.

REAR WOOFER

Exploded View

INFOID:0000000010991189



1. Rear woofer

Removal and Installation

INFOID:0000000010991190

REMOVAL

1. Remove rear parcel shelf finisher. Refer to INT-20, "Exploded View".
2. Remove rear woofer from rear parcel shelf.

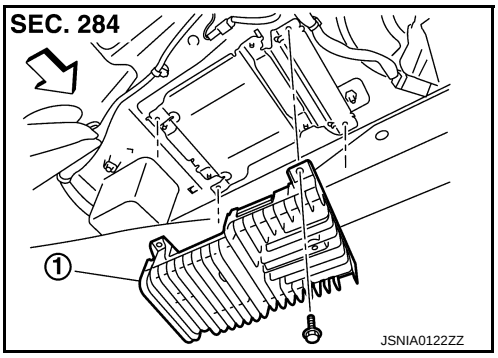
INSTALLATION

Installation is the reverse order of removal.

BOSE AMP.

Exploded View

INFOID:0000000010991191



1. BOSE amp.

⇦: Vehicle front

Removal and Installation

INFOID:0000000010991192

REMOVAL

1. Remove trunk front finisher. Refer to INT-30, "Exploded View".
2. Remove BOSE amp. from rear parcel shelf.

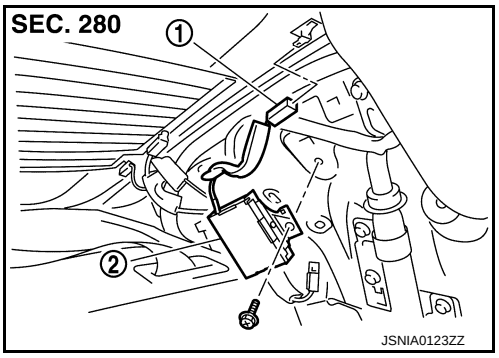
INSTALLATION

Installation is the reverse order of removal.

ANTENNA AMP.

Exploded View

INFOID:0000000010991193



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

Removal and Installation

INFOID:0000000010991194

REMOVAL

1. Remove rear pillar finisher LH. Refer to INT-15, "Exploded View".
2. Remove antenna amp. from rear pillar LH.

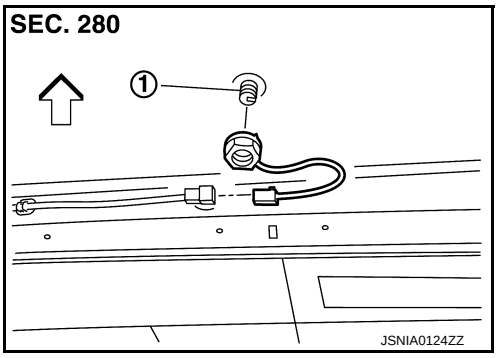
INSTALLATION

Installation is the reverse order of removal.

SATELLITE RADIO ANTENNA

Exploded View

INFOID:0000000010991195



1. Satellite radio antenna

⇦: Vehicle front

Removal and Installation

INFOID:0000000010991196

REMOVAL

1. Remove head lining assembly (rear) to secure work space between vehicle and headlining. Refer to INT-24, "NORMAL ROOF : Exploded View" (normal roof models) or INT-27, "SUNROOF : Exploded View" (sunroof models).
2. Remove nut, and then remove satellite radio antenna from roof panel.

INSTALLATION

Installation is the reverse order of removal.

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

CAUTION:

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

MULTIFUNCTION SWITCH

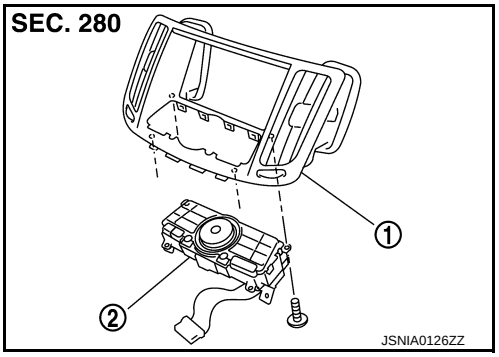
Exploded View

INFOID:0000000010991197

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



1. Center ventilator grille
2. Multifunction switch

Removal and Installation

INFOID:0000000010991198

REMOVAL

1. Remove cluster lid D. Refer to IP-12, "Exploded View".
2. Remove multi function switch with center ventilator grille as a single unit.
3. Remove multi function switch from center ventilator.

INSTALLATION

Installation is the reverse order of removal.

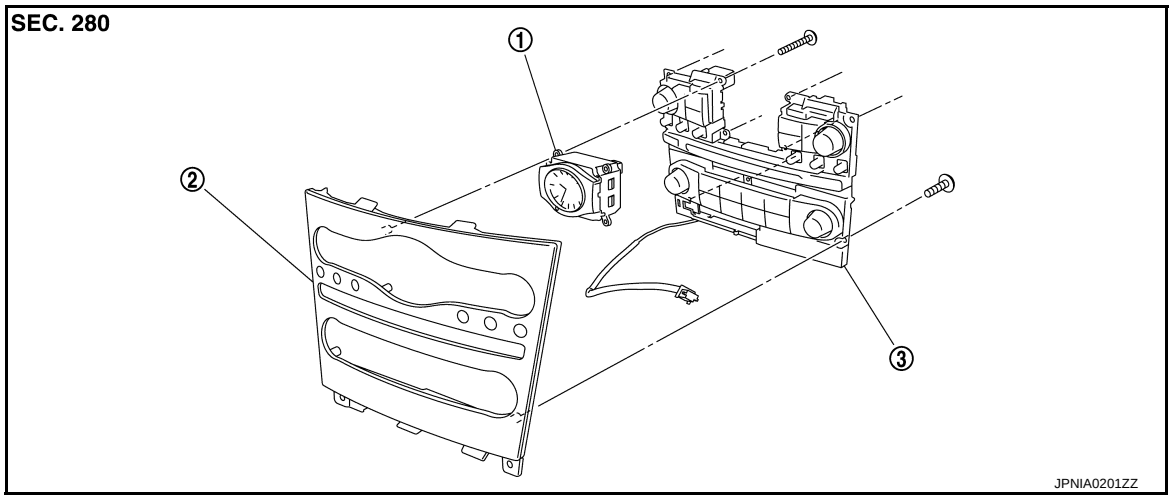
PRESET SWITCH

Exploded View

INFOID:0000000010991199

REMOVAL
Refer to IP-12, "Exploded View".

DISASSEMBLY



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

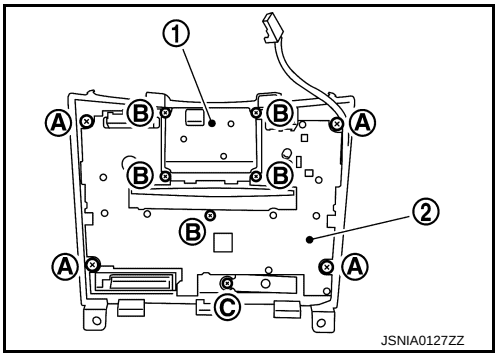
Removal and Installation

INFOID:0000000010991200

REMOVAL

1. Remove cluster lid C. Refer to IP-12, "Exploded View".
2. Remove preset switch screws (A), (B), and (C), and then remove preset switch (2) from cluster lid C.

1. Clock



INSTALLATION
Installation is the reverse order of removal.
NOTE:
When installing preset switch, do not allow the print wire that connects preset switch and multifunction switch to get caught in between AV control unit and preset switch.

STEERING SWITCH

Exploded View

INFOID:0000000010991201

Refer to ST-14, "Exploded View".

Removal and Installation

INFOID:0000000010991202

REMOVAL

Refer to ST-14, "Removal and Installation".

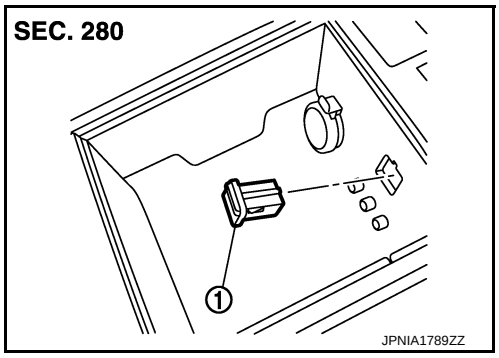
INSTALLATION

Installation is the reverse order of removal.

USB CONNECTOR

Exploded View

INFOID:0000000010991203



1. USB connector

Removal and Installation

INFOID:0000000010991204

REMOVAL

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

INSTALLATION

Install in the reverse order of removal.

MICROPHONE

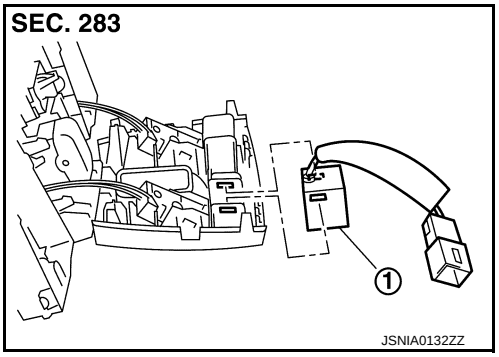
Exploded View

INFOID:0000000010991205

REMOVAL

Refer to INL-97, "Exploded View".

DISASSEMBLY



1. Microphone

Removal and Installation

INFOID:0000000010991206

REMOVAL

1. Remove map lamp. Refer to INL-97, "Exploded View".
2. Remove microphone from map lamp.

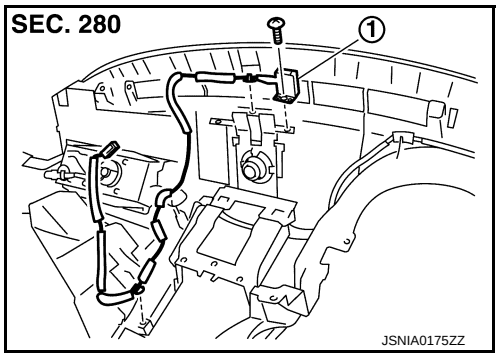
INSTALLATION

Installation is the reverse order of removal.

GPS ANTENNA

Exploded View

INFOID:0000000010991207



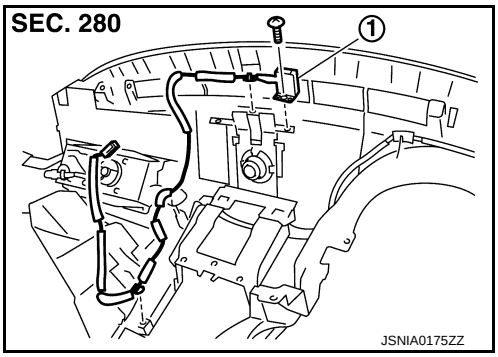
1. GPS antenna

Removal and Installation

INFOID:0000000010991208

REMOVAL

1. Remove instrument panel. Refer to IP-12, "Exploded View".
2. Remove GPS antenna (1) from instrument panel.

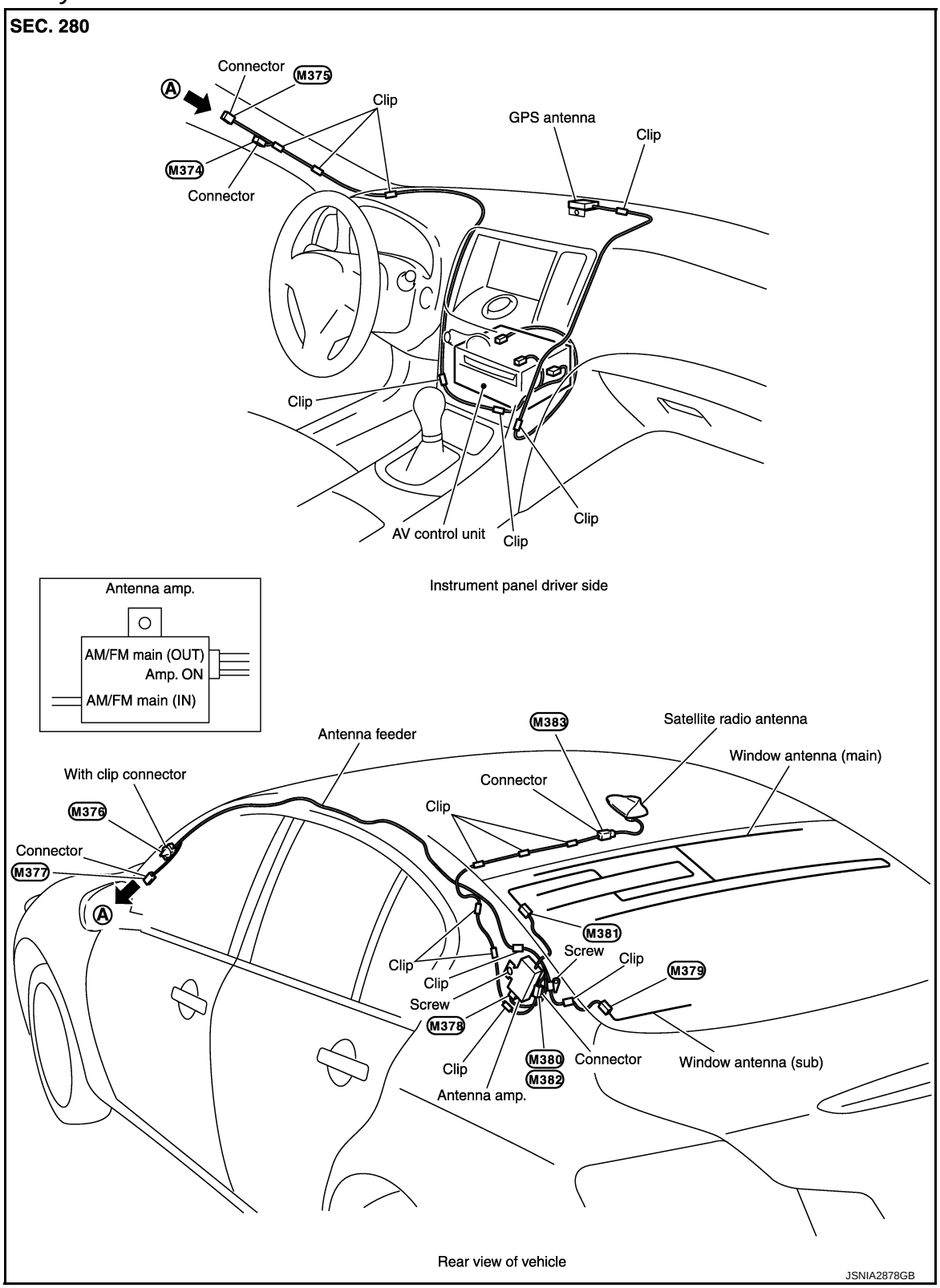


INSTALLATION

Installation is the reverse order of removal.

Feeder Layout

INFOID:0000000010991209



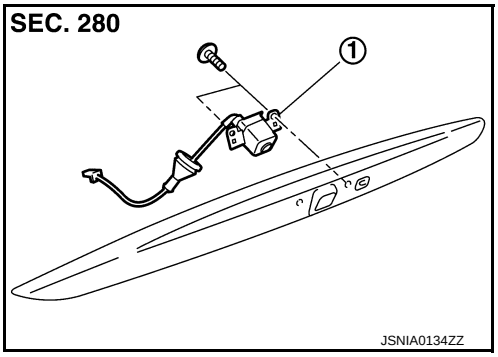
REAR VIEW CAMERA

Exploded View

INFOID:0000000010991210

REMOVAL
Refer to EXT-41, "Exploded View".

DISASSEMBLY



1. Rear view camera

Removal and Installation

INFOID:0000000010991211

REMOVAL

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

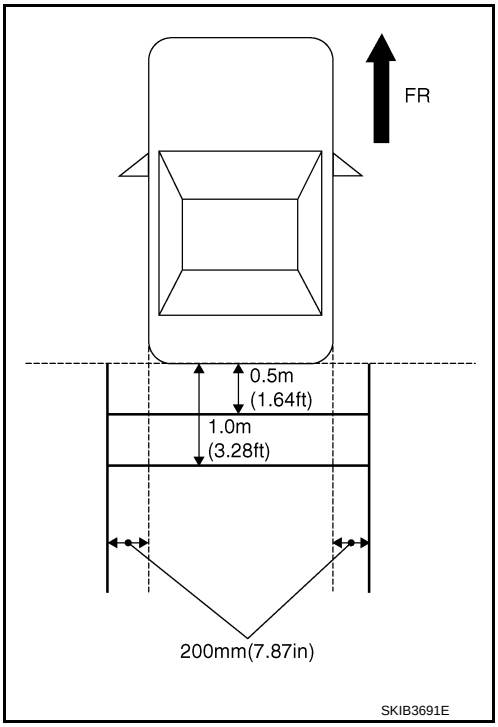
INSTALLATION
Installation is the reverse order of removal.

Adjustment

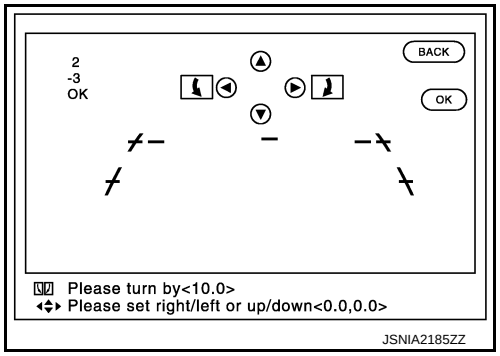
INFOID:0000000010991212

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

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



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



Selected pattern : –10° to 10°

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

Up/Down adjustment range : –10° to 10°

Left/Right adjustment range : –10° to 10°

CAUTION:

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

STEERING ANGLE SENSOR

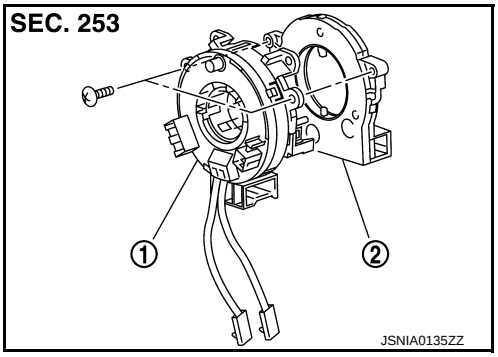
Exploded View

INFOID:0000000010991215

REMOVAL

Refer to SR-14, "Exploded View".

DISASSEMBLY



1. Spiral cable
2. Steering angle sensor

Removal and Installation

INFOID:0000000010991216

REMOVAL

1. Remove spiral cable. Refer to SR-14, "Exploded View".
2. Remove steering angle sensor from spiral cable.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

After work, make sure to adjust neutral position of steering angle sensor. Refer to BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Description".

ANTENNA FEEDER

Feeder Layout

INFOID:0000000010991217

SEC. 280