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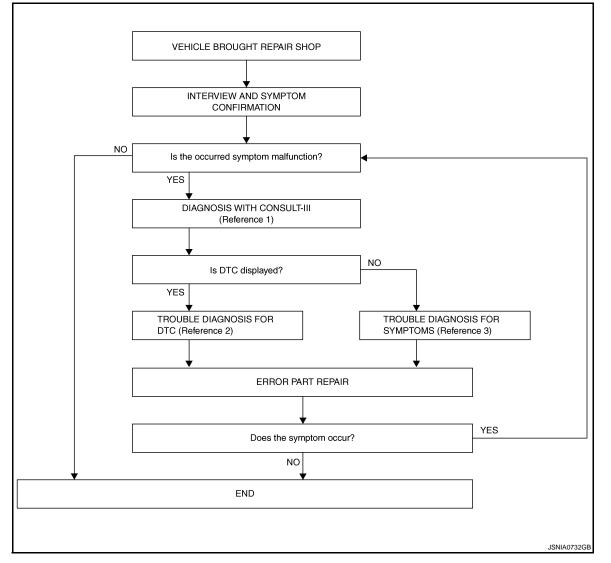
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# BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

## Work Flow

INFOID:000000004155599

## **OVERALL SEQUENCE**



Without Navigation

- Reference 1... Refer to <u>AV-55, "WITHOUT NAVIGATION : CONSULT-III Function (MULTI AV)</u>".
- Reference 2... Refer to AV-176, "WITHOUT NAVIGATION : DTC Index".
- Reference 3... Refer to AV-461, "WITHOUT NAVIGATION : Symptom Table".

With Navigation

- Reference 1... Refer to <u>AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)"</u>.
- Reference 2... Refer to <u>AV-220, "WITH NAVIGATION : DTC Index"</u>.
- Reference 3... Refer to AV-464, "WITH NAVIGATION : 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.

## DIAGNOSIS AND REPAIR WORK FLOW

## [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Is the occurred symptom malfunction?	٨
YES >> GO TO 2. NO >> INSPECTION END	А
2. DIAGNOSIS WITH CONSULT-III	
<ol> <li>Connect CONSULT-III and perform a self-diagnosis for "MULTI AV". Refer to <u>AV-55, "WITHOUT NAVIGATION : CONSULT-III Function (MULTI AV)"</u>. (without navigation) Refer to <u>AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)"</u>. (with navigation) <b>NOTE:</b> Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed.</li> </ol>	B
2. Check if any DTC is displayed in the self-diagnosis results.	
Is DTC displayed? YES >> GO TO 3. NO >> GO TO 4.	D
<b>3.</b> TROUBLE DIAGNOSIS FOR DTC	E
<ol> <li>Check the DTC indicated in the self-diagnosis results.</li> <li>Perform the relevant diagnosis referring to the DTC Index. Refer to <u>AV-176, "WITHOUT NAVIGATION : DTC Index"</u>. (without navigation) Refer to <u>AV-220, "WITH NAVIGATION : DTC Index"</u>. (with navigation)</li> </ol>	F
>> GO TO 5.	G
4. TROUBLE DIAGNOSIS FOR SYMPTOMS	
Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-461, "WITHOUT NAVIGATION : Symptom Table"</u> . (without navigation) Refer to <u>AV-464, "WITH NAVIGATION : Symptom Table"</u> . (with navigation)	Η
>> GO TO 5.	
5. ERROR PART REPAIR	J
<ol> <li>Repair or replace the identified malfunctioning parts.</li> <li>Perform a self-diagnosis for "MULTI AV" with CONSULT-III.</li> </ol>	
has been indicated in the self-diagnosis results.	AV
3. Check that the symptom does not occur.	
Does the symptom occur? YES >> GO TO 1.	L
NO >> INSPECTION END	
	M
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< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

#### ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Description INFOID:000000004155600

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

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement INFOID:000000004155601

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

Refer to the following for details.

>> Refer to AV-14, "REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUSTMENT : Special Repair Requirement". ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:000000004155602

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

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement INFOID:000000004155603

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

Refer to the following for details.

>> Refer to AV-14, "REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUSTMENT : Special Repair Requirement".

REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST-MENT

REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST-**MENT** : Description INFOID:000000004155604

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

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

INFOID:000000004155605

**1.**STEERING OPERATION

Steer the steering wheel to the leftmost and rightmost ends.

>> GO TO 2

## 2.DRIVING

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

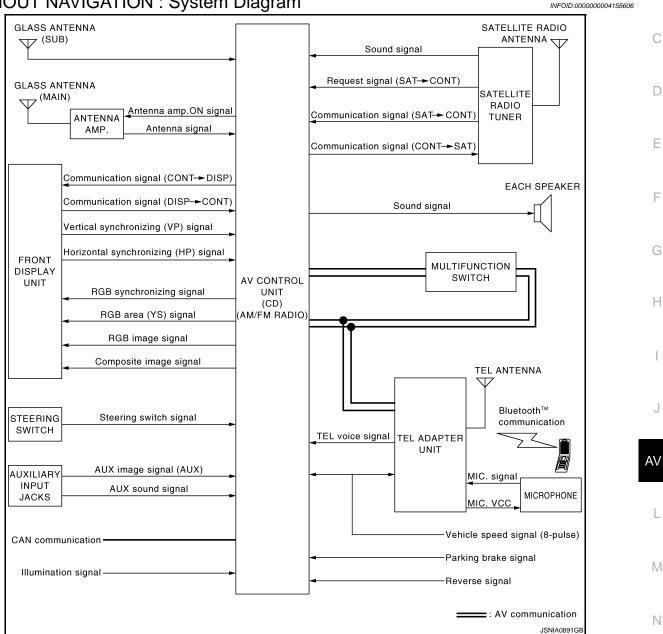
>> END

# **MULTI AV SYSTEM**

#### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# FUNCTION DIAGNOSIS **MULTI AV SYSTEM** WITHOUT NAVIGATION

## WITHOUT NAVIGATION : System Diagram



#### NOTE:

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

## WITHOUT NAVIGATION : System Description

INFOID:000000004155607

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Multi AV system means that the following systems are integrated.

System name	System explanation
AUDIO SYSTEM	AV-35, "WITHOUT NAVIGATION : System Diagram"
HANDS-FREE PHONE SYSTEM	AV-43, "WITHOUT NAVIGATION : System Diagram"

А

В

## **MULTI AV SYSTEM**

#### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

System name	System explanation
VEHICLE INFORMATION SYSTEM	<ul> <li>Status of audio, climate control system, fuel economy, maintenance and navigation is displayed.</li> <li>AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp. and BCM.</li> </ul>
AUXILIARY INPUT SYSTEM	Refer to the following "AUXILIARY INPUT SYSTEM".

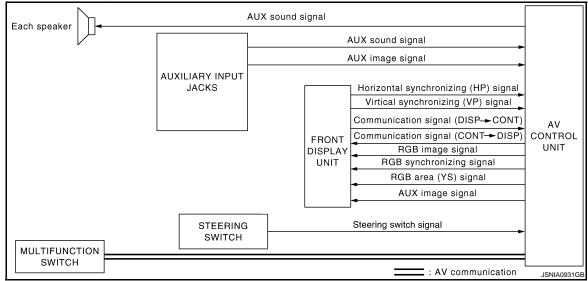
- AV control unit function by transmitting/receiving data one by one with each unit (slave unit) that configures them completely as a master unit by connecting between units that configure MULTI AV system with two AV communication lines (H, L).
- Two AV communication lines (H, L) adopt a twisted pair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

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

- CONSULT-III self diagnosis: Refer to AV-55, "WITHOUT NAVIGATION : CONSULT-III Function (MULTI AV)".
- On board self diagnosis: Refer to AV-48, "WITHOUT NAVIGATION : Diagnosis Description".

#### AUXILIARY INPUT SYSTEM

- Image and sound can be output from an external device by connecting a device with auxiliary input jacks.
- Operation can be performed with multifunction switch and steering switch. Multifunction switch transmits operation signal to AV control unit by AV communication.
- The AUX image signal is input from the auxiliary input jacks to the AV control unit. The AV control unit outputs AUX image signal to the front display unit.
- The AUX sound signal is input from the auxiliary input jacks to the AV control unit. The AV control unit outputs the AUX sound signal to each speaker.



### MULTI AV SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

## WITHOUT NAVIGATION : Component Parts Location

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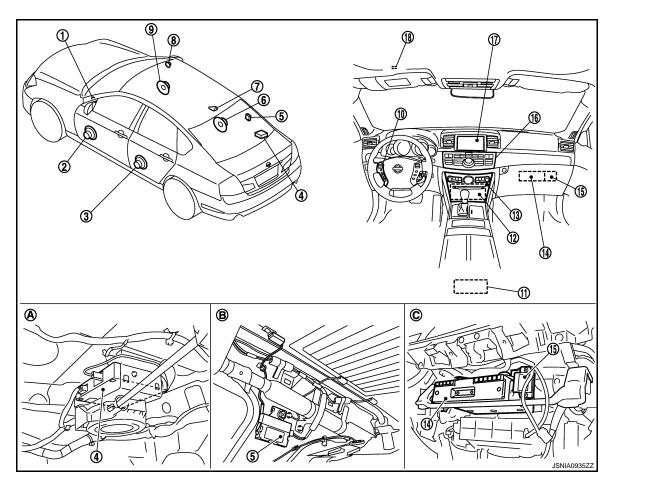
В

С

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Ε

F



- 1. Tweeter LH
- 4. Satellite radio tuner
- 7. Satellite radio antenna
- 10. Steering switch
- 13. Preset switch
- 16. Multifunction switch
- A. Under rear parcel RH side

- 2. Front door speaker LH
- 5. Antenna amp.
- 8. Tweeter RH
- 11. Auxiliary input jacks
- 14. TEL adapter unit
- 17. Front display unit
- B. Rear pillar finisher (RH) is removed
- 3. Rear door speaker
- 6. Rear door speaker RH
- 9. Front door speaker RH
- 12. AV control unit
- 15. TEL antenna
- 18. Microphone
- C. Glove box cover is removed

Ρ

## MULTI AV SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

## WITHOUT NAVIGATION : Component Description

INFOID:000000004155609

Part name	Description
AV CONTROL UNIT	<ul> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Auxiliary image and sound signal are input from the auxiliary input jacks.</li> </ul>
FRONT DISPLAY UNIT	<ul> <li>Front display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing).</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Auxiliary image signal is input from AV control unit.</li> </ul>
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high, mid and low range sounds.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high range sound.</li></ul>
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio, auxiliary input, vehicle information and vehicle settings operations are integrated.</li> <li>The multifunction switch is connected via AV communication, and it transmits the operation signals of the multifunction switch and preset switch.</li> </ul>
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>The preset switch is connected to the multifunction switch by hard-wire, and it transmits the operation signal to the multifunction switch.</li> </ul>
STEERING SWITCH	<ul><li>Operations such as audio and hands-free phone are possible.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>
MICROPHONE	<ul> <li>Used only when hands-free phone is operated.</li> <li>Outputs Mic. signal (TEL voice signal) to the TEL adapter unit.</li> <li>The power (Mic. VCC) is supplied from TEL adapter unit.</li> </ul>
AUXILIARY INPUT JACKS	Auxiliary input jacks Image and sound signal are transmitted to AV control unit.
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV con trol unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>
TEL ADAPTER UNIT	<ul> <li>It is connected with the AV control unit via AV communication and controlled with the AV control unit.</li> <li>Inputs the TEL voice signal from TEL antenna and outputs it to the AV control unit.</li> </ul>
TEL ANTENNA	Receives the TEL voice signal and outputs it to the TEL adapter unit.
SATELLITE RADIO TUNER	<ul> <li>It is controlled with the AV control unit and serial communication (communication signal and request signal).</li> <li>Inputs the satellite radio signal from satellite radio antenna and outputs the satellite radio sound signal to the AV control unit.</li> </ul>
SATELLITE RADIO ANTENNA	Satellite radio wave is received and transmitted to satellite radio tuner.

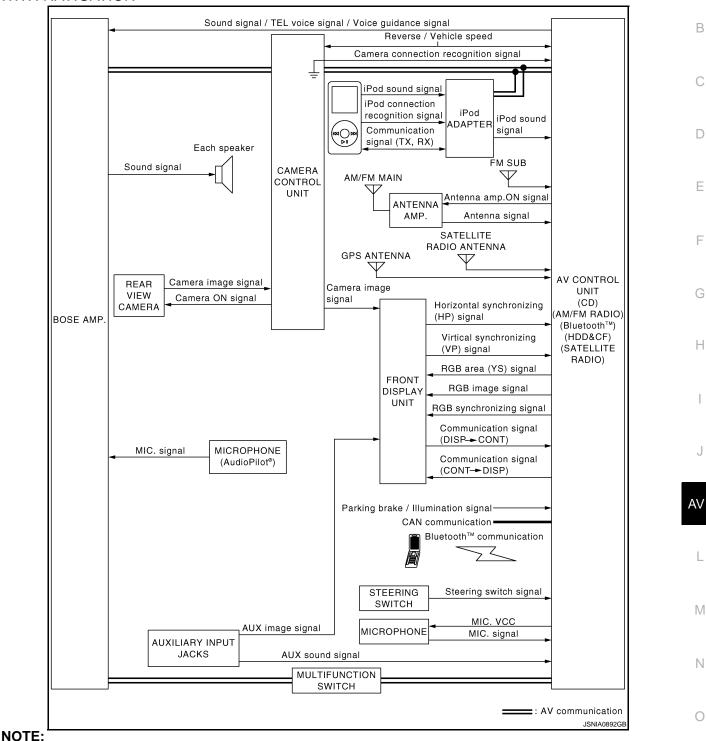
## WITH NAVIGATION : System Diagram

## **MULTI AV SYSTEM** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

INFOID:000000004155610

А

WITH NAVIGATION

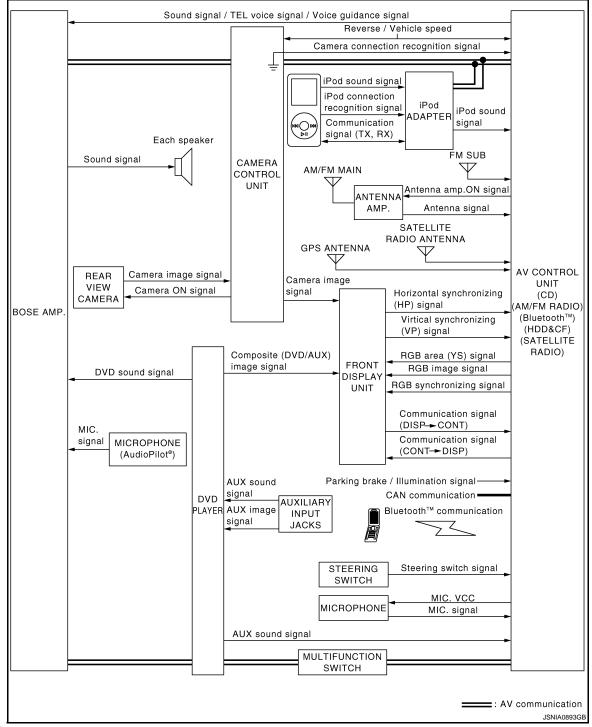


The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

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#### MULTI AV SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

## WITH NAVIGATION AND DVD PLAYER



#### NOTE:

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

## WITH NAVIGATION : System Description

INFOID:000000004155611

Multi AV system means that the following systems are integrated.

System name	System explanation
NAVIGATION SYSTEM	AV-27, "System Diagram"
AUDIO SYSTEM	AV-37, "WITH NAVIGATION : System Diagram"
REAR VIEW MONITOR SYSTEM	AV-32, "System Diagram"

## MULTI AV SYSTEM

#### < FUNCTION DIAGNOSIS >

## [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

System name	System explanation	^
HANDS-FREE PHONE SYSTEM	AV-45, "WITH NAVIGATION : System Diagram"	А
VEHICLE INFORMATION SYSTEM	<ul> <li>Status of audio, climate control system, fuel economy, maintenance and navigation is displayed.</li> <li>AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp. and BCM.</li> </ul>	В
AUXILIARY INPUT SYSTEM	Refer to the following "AUXILIARY INPUT SYSTEM".	С
VOICE RECOGNITION SYSTEM	Refer to the following "VOICE RECOGNITION SYSTEM".	
TOUCH PANEL SYSTEM	Refer to the following "TOUCH PANEL SYSTEM".	

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

#### NOTE:

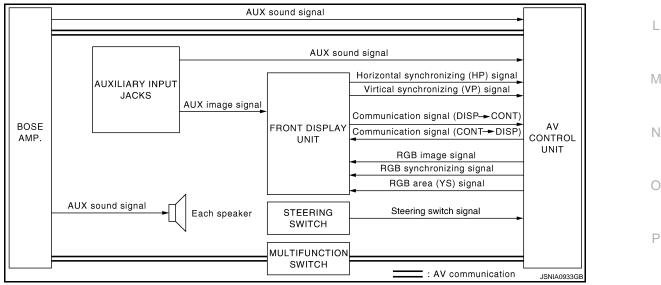
- AV control unit can perform CONSULT-III self-operating function and on board self-diagnosis.
- CONSULT-III self diagnosis: Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
- On board self diagnosis: Refer to AV-57, "WITH NAVIGATION : Diagnosis Description".

#### AUXILIARY INPUT SYSTEM

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

With Navigation

- The AUX image signal is input from the auxiliary input jacks to the front display unit.
- The AUX sound signal is input from the auxiliary input jacks to the AV control unit. The AV control unit outputs the AUX sound signal to the BOSE amp. The BOSE amp. output the AUX sound signal to each speaker.



#### With Navigation And DVD Player

• The AUX image signal is input from the auxiliary input jacks to the DVD player. The DVD player outputs the AUX image signal to the front display unit.

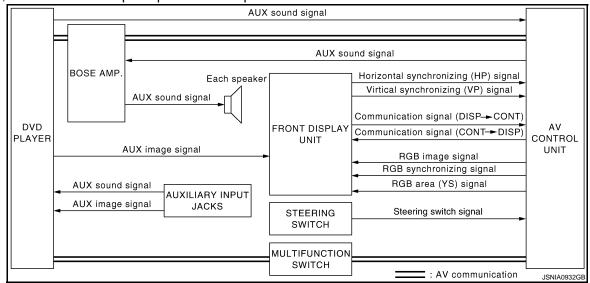
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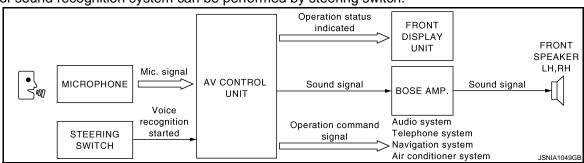
#### MULTI AV SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

 The AUX sound signal is input from the auxiliary input jacks to the DVD player. The DVD player outputs the AUX sound signal to the AV control unit. The AV control unit outputs the AUX sound signal to the BOSE amp., and the BOSE amp. outputs to each speaker.



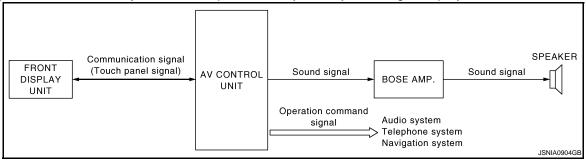
## VOICE RECOGNITION SYSTEM

- 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

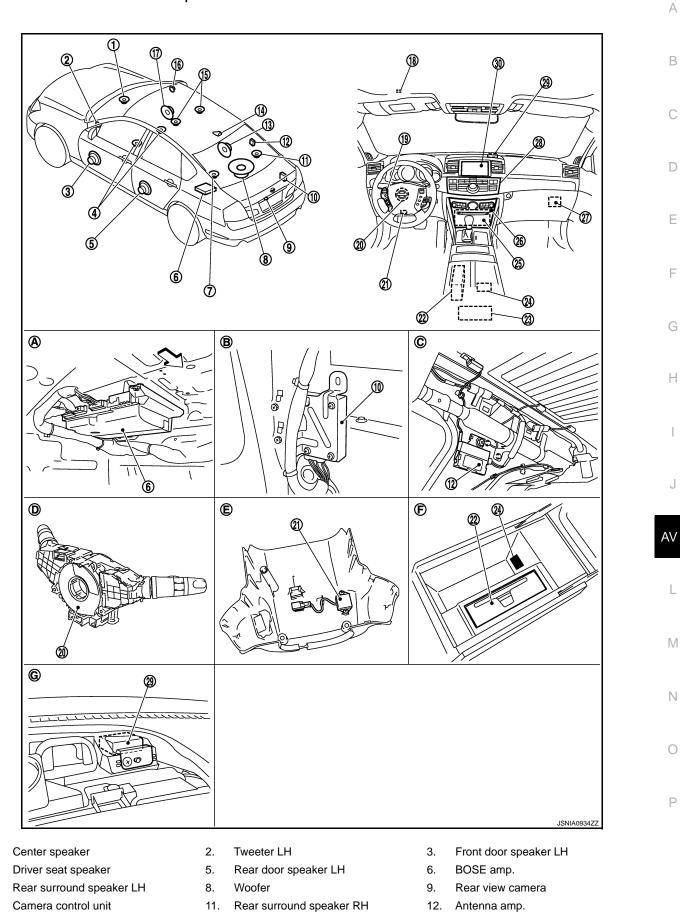
Each operation of multi AV system can be performed by directly touching a display.



## MULTI AV SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

## WITH NAVIGATION : Component Parts Location

INFOID:000000004155612



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AV-23

## MULTI AV SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Rear door speaker RH Satellite radio antenna 13. 14. 15. Passenger seat speaker 16. Tweeter RH 17. Front door speaker RH 18. Microphone Steering switch 19. 20. Steering angle sensor 21. Microphone (for AudioPilot®) 22. DVD player 23. Auxiliary input jacks 24. iPod connector Preset switch 25. AV control unit 26. 27. iPod adapter 28. Multifunction switch 29. GPS antenna 30. Front display unit Α. Under rear parcel LH side В. Trunk side finisher (RH) is removed C. Rear pillar finisher (RH) is removed Spiral cable part Ε. Steering column cover is removed F. D. In center console G. Center ventilator grille is removed

## WITH NAVIGATION : Component Description

INFOID:000000004155613

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>
FRONT DISPLAY UNIT	<ul> <li>Front display image is controlled by the serial communication from AV control unit.</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing). Camera image signal is input from camera control unit.</li> <li>Auxiliary image signal and DVD image signal are input from the DVD player (with DVD player models).</li> <li>Auxiliary image signal is input from the auxiliary input jacks. (without DVD player models)</li> </ul>

## **MULTI AV SYSTEM**

## [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Part name	Description
	<ul> <li>It is connected via AV communication and controlled by the AV control unit.</li> <li>It receives the voice guidance signal from AV control unit and output it to the front speaker.</li> <li>It controls sound volume of each speaker when outputting TEL voice and voice guidance.</li> </ul>
BOSE AMP.	<ul> <li>It subjects to AudioPilot<sup>®</sup> processing when receiving sound signal from micro- phone for AudioPilot<sup>®</sup>.</li> </ul>
	<ul><li>BOSE 2ch system (without DVD player models)</li><li>It amplifies the sound signal from the AV control unit and output it to each speaker.</li></ul>
	<ul> <li>BOSE surround audio 5.1ch system (with DVD player models)</li> <li>It amplifies the sound signal from the AV control unit and the DVD sound signal from DVD player, and then output them to each speaker.</li> </ul>
	<ul> <li>It subjects to Centerpoint<sup>®</sup> processing.</li> <li>Outputs sound signal from BOSE amp.</li> </ul>
WOOFER	<ul><li>Outputs sound signar norm BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>
SEAT SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>
REAR SURROUND SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio, auxiliary input and navigation operations are integrated.</li> <li>The multifunction switch is connected via AV communication, and it transmits the operation signals of the multifunction switch and preset switch.</li> </ul>
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>The preset switch is connected to the multifunction switch by hard-wire, and it transmits the operation signal to the multifunction switch.</li> </ul>
DVD PLAYER	<ul> <li>It transmits the playback DVD image signal and the input AUX image signal to the front display unit. It also transmits the input AUX sound signal to the AV control unit.</li> <li>It transmits the playback DVD sound signal to the BOSE amp.</li> </ul>
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera. Camera image signal output to front display unit.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> <li>Camera control unit is connected via AV communication, and it receives the control signal and steering angle signal from the AV control unit.</li> </ul>
REAR VIEW CAMERA	<ul> <li>The image of vehicle rear view is transmitted to camera control unit.</li> <li>It receives the power (camera ON signal) from the camera control unit and operates.</li> </ul>
STEERING SWITCH	<ul> <li>Operations for audio, hands-free phone, audio response and navigation, etc. are possible.</li> <li>Steering switch signal (operation signal) is output to AV control unit.</li> </ul>
MICROPHONE	<ul> <li>Used for hands-free phone operation and voice recognition.</li> <li>Mic. signal is transmitted to AV control unit.</li> <li>Power (Mic. VCC) is supplied from AV control unit.</li> </ul>

## **MULTI AV SYSTEM**

## < FUNCTION DIAGNOSIS >

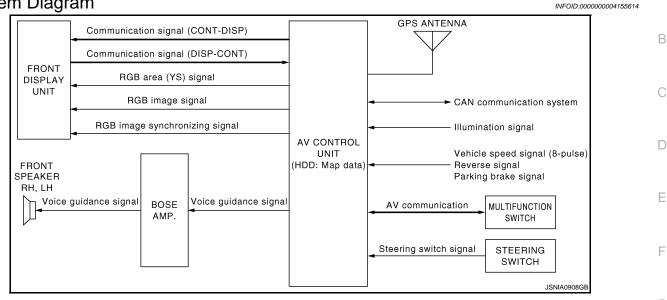
## [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Part name	Description
AUXILIARY INPUT JACKS	<ul> <li>Without DVD player models</li> <li>Image signal of auxiliary input is transmitted to front display unit, and auxiliary sound signal is transmitted to AV control unit.</li> <li>With DVD player models</li> <li>Image and sound signal of auxiliary input is transmitted to DVD player.</li> </ul>
GPS ANTENNA	GPS signal is received and transmitted to AV control unit.
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp ON signal) is supplied from AV control unit.</li> </ul>
SATELLITE RADIO ANTENNA	Satellite radio wave is received and transmitted to AV control unit.
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>
STEERING ANGLE SENSOR	It is connected to the AV control unit and transmits the steering angle signal via CAN communication.
MICROPHONE (for AudioPilot <sup>®</sup> )	<ul> <li>Used for AudioPilot<sup>®</sup>.</li> <li>Mic. signal is transmitted to BOSE amp.</li> </ul>

### NAVIGATION SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# NAVIGATION SYSTEM





## System Description

INFOID:0000000004155615

### 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.

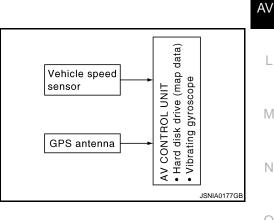
The current position is calculated by detecting the travel distance from the previous calculation point, and its direction change.

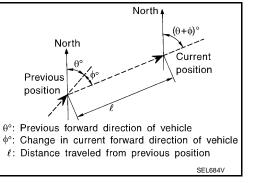
Travel distance

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.





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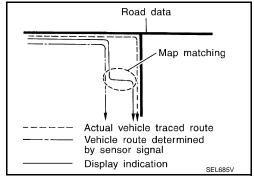
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Туре	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	The turning angle is precisely detected.	Errors are accumulated when driving a long dis- tance without stopping.
GPS antenna (GPS informa- tion)	The travel direction (North/South/East/West) is detected.	The travel direction is not precisely detected when driving slowly.

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

#### MAP-MATCHING

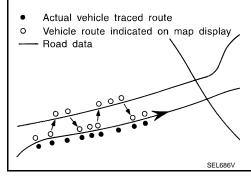
Map-matching repositions the vehicle on the road map when a new location is judged to be more accurate. This is done by comparing the current vehicle position (calculated by the normal position detection method) from the map data stored in the HDD (Hard Disk Drive).



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

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

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



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

Therefore, the map-matching function judges other road as a 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

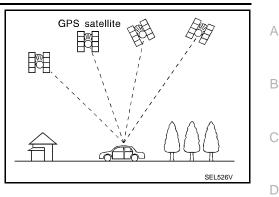
when there is an excessive gap between current vehicle position and the position on the map.

GPS (GLOBAL POSITIONING SYSTEM)

#### NAVIGATION SYSTEM [WITHOUT MOBILE ENTERTAINMENT 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.

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 even with a high-precision three dimensional positioning.
- There may be cases when the accuracy is lowered and radio waves are stopped intentionally because the GPS satellite signal is controlled by the US trace control center.

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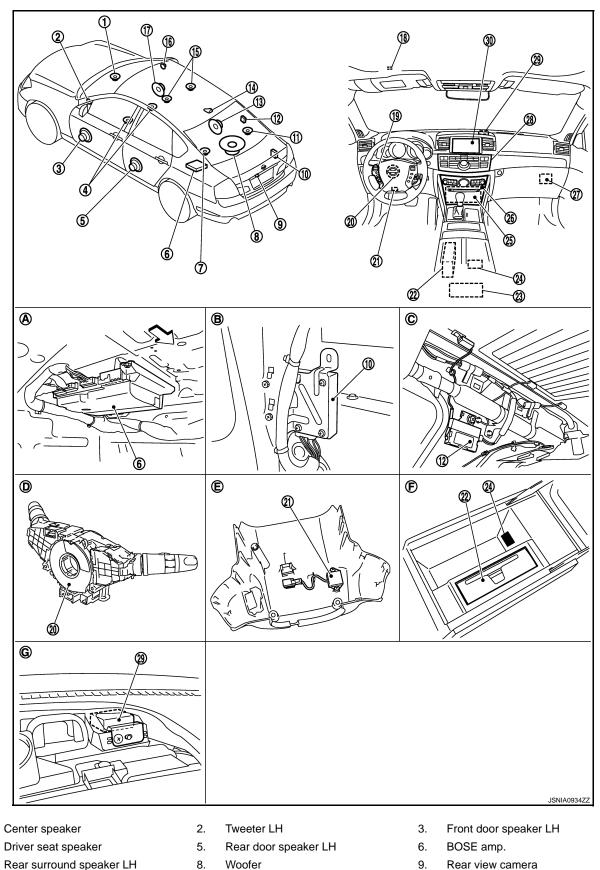
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## **NAVIGATION SYSTEM** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

## **Component Parts Location**

INFOID:000000004155616



- 7.
- 10. Camera control unit

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- 9. Rear view camera
- 12. Antenna amp.



Rear surround speaker RH

## NAVIGATION SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

- Rear door speaker RH Satellite radio antenna 13. 14. 15. Passenger seat speaker А 16. Tweeter RH 17. Front door speaker RH 18. Microphone Steering switch 20. 19. Steering angle sensor 21. Microphone (for AudioPilot®) 22. DVD player 23. Auxiliary input jacks iPod connector 24. В 25. AV control unit 26. Preset switch 27. iPod adapter 28. Multifunction switch 29. GPS antenna 30. Front display unit Α. Under rear parcel LH side Β. Trunk side finisher (RH) is removed C. Rear pillar finisher (RH) is removed Steering column cover is removed In center console D. Spiral cable part Ε. F. G. Center ventilator grille is removed
- $\Box$ : Vehicle front

## **Component Description**

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

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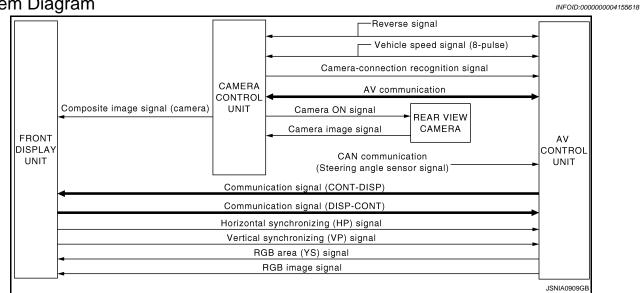
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# REAR VIEW MONITOR SYSTEM

## System Diagram



## System Description

INFOID:000000004155619

### CAMERA IMAGE OPERATION PRINCIPLE

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

## **REAR VIEW MONITOR SYSTEM** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

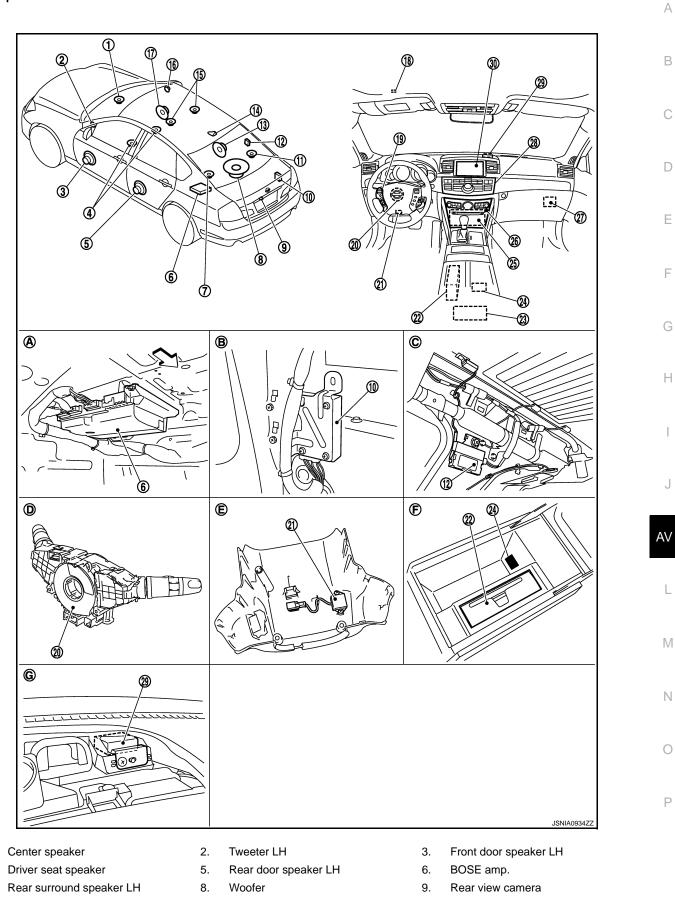
## **Component Parts Location**

INFOID:000000004155620

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Camera control unit 10.

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AV-33

Rear surround speaker RH

12.

Antenna amp.

11.

## **REAR VIEW MONITOR SYSTEM** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

- Rear door speaker RH 14. 15. Passenger seat speaker 13. 16. Tweeter RH 17. Front door speaker RH 18. Microphone Steering switch 19. 20. Steering angle sensor 21. Microphone (for AudioPilot®) 22. DVD player 23. Auxiliary input jacks 24. iPod connector Preset switch 25. AV control unit 26. 27. iPod adapter 28. Multifunction switch 29. GPS antenna 30. Front display unit Α. Under rear parcel LH side В. Trunk side finisher (RH) is removed C. Rear pillar finisher (RH) is removed Spiral cable part Steering column cover is removed F. D. Ε. In center console G. Center ventilator grille is removed

## **Component Description**

Satellite radio antenna

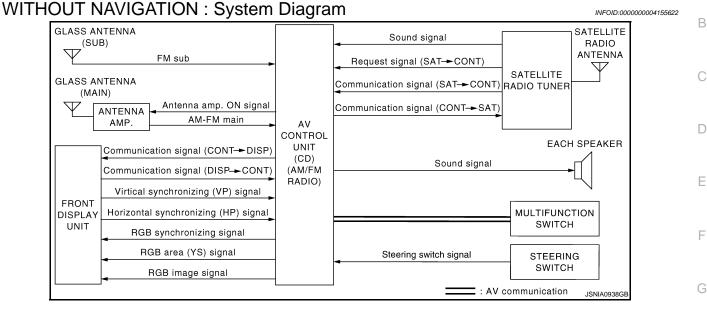
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Part name	Description
AV CONTROL UNIT	<ul> <li>Image on display is changed to rear view monitor image with serial communication between AV control unit and front display unit.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>Warning displayed in rear view monitor image is illustrated.</li> </ul>
FRONT DISPLAY UNIT	<ul> <li>Camera image signal is transmitted from camera control unit, and RGB image signal for warning display is transmitted from AV control unit.</li> <li>Rear view monitor image is changed with the communication for AV control unit.</li> </ul>
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera, and camera image is indicated on the front display unit.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>Camera control unit is connected via AV communication, and it receives the control signal and steering angle signal from the AV control unit.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> </ul>
REAR VIEW CAMERA	<ul> <li>The image of vehicle rear view is transmitted to camera control unit.</li> <li>It receives the power (camera ON signal) from the camera control unit and operates.</li> </ul>
STEERING ANGLE SENSOR	It is connected to the AV control unit and transmits the steering angle signal via CAN communication.

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## < FUNCTION DIAGNOSIS > AUDIO SYSTEM

# WITHOUT NAVIGATION



## WITHOUT NAVIGATION : System Description

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

## FUNCTION DESCRIPTION

Function
AM/FM radio
Satellite radio
CD
AUX

#### **Operating Signal**

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

- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.

#### Screen Front Display

- Switching of front display is performed with serial communication between front display unit and AV control unit.
- The image signal to front 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 audio signal to each speaker.

#### Satellite Radio Mode

- Satellite radio tuner is controlled by serial communication and request signal with AV control unit.
- Audio signal (satellite radio) is received by satellite radio antenna, and it is input to satellite radio tuner. Satellite radio tuner outputs audio signal to AV control unit. The sound signal is also outputted to each speaker.

CD Mode

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AV

### AUDIO SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

• CD function is built into AV control unit.

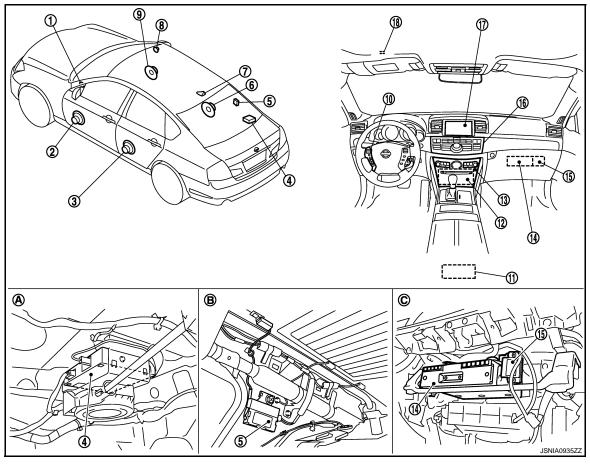
• AV control unit outputs audio signal to each speaker when CD is inserted to AV control unit.

#### AUX Mode

Refer to AV-15, "WITHOUT NAVIGATION : System Description".

WITHOUT NAVIGATION : Component Parts Location

INFOID:000000004155624



- 1. Tweeter LH
- 4. Satellite radio tuner
- 7. Satellite radio antenna
- 10. Steering switch
- 13. Preset switch
- 16. Multifunction switch
- A. Under rear parcel RH side

- 2. Front door speaker LH
- 5. Antenna amp.
- 8. Tweeter RH
- 11. Auxiliary input jacks
- 14. TEL adapter unit
- 17. Front display unit
- B. Rear pillar finisher (RH) is removed
- 3. Rear door speaker
- 6. Rear door speaker RH
- 9. Front door speaker RH
- 12. AV control unit
- 15. TEL antenna
- 18. Microphone
- C. Glove box cover is removed

## WITHOUT NAVIGATION : Component Description

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

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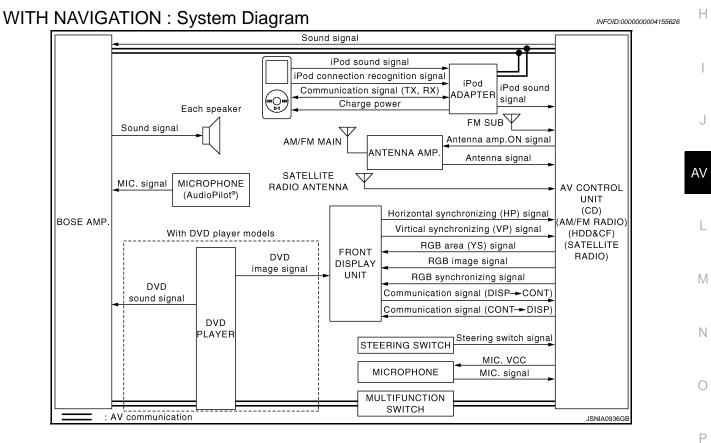
### AUDIO SYSTEM

### < FUNCTION DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Part name	Description	
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high, mid and low range sounds.</li></ul>	
TWEETER	<ul><li>Outputs sound signal from AV control unit.</li><li>Outputs high range sound.</li></ul>	
MULTIFUNCTION SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>The multifunction switch is connected via AV communication, and it transmits the operation signals of the multifunction switch and preset switch.</li> </ul>	
PRESET SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>The preset switch is connected to the multifunction switch by hard-wire, and it transmits the operation signal to the multifunction switch.</li> </ul>	
STEERING SWITCH	<ul><li>Each audio operation can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>	
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>	
SATELLITE RADIO TUNER	<ul> <li>It is controlled with the AV control unit and serial communication (communication signal and request signal).</li> <li>Inputs the satellite radio signal from satellite radio antenna and outputs the satellite radio sound signal to the AV control unit.</li> </ul>	
SATELLITE RADIO ANTENNA	Satellite radio wave is received and transmitted to satellite radio tuner.	

### WITH NAVIGATION



### WITH NAVIGATION : System Description

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 front display.

FUNCTION DESCRIPTION

INFOID:000000004155627

### AUDIO SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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 front display unit.

Function
AM/FM radio
Satellite radio
CD
Music Box (Hard Disk Drive)
CF (Compact Flash)
iPod connection
Audiopilot <sup>®</sup>
Centerpoint <sup>®</sup> (with DVD player models)
DVD (with DVD player models)
AUX

### **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.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.
- Audio system operation can be performed with multifunction switch, preset switch, steering switch, touch panel function or voice recognition function.
- Refer to <u>AV-20, "WITH NAVIGATION : System Description"</u> for explanation of voice recognition function and touch panel function.

### Screen Front Display

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

### AM/FM Radio Mode

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

### Satellite Radio Mode

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

### CD Mode

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

### Music Box Mode

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

### CF Mode

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

### AUDIO SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### iPod Connection

 Connect iPod<sup>®</sup> and iPod adapter with wire harness and iPod adapter input iPod sound signal from iPod<sup>®</sup>. А When iPod mode is selected, iPod adapter output iPod sound signal to AV control unit. AV control unit output sound signal to BOSE amp., and BOSE amp. output sound signal to each speaker. Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:
 between AV control unit and iPod adapter: AV communication. В - between iPod<sup>®</sup> and iPod adapter: serial communication. • The iPod<sup>®</sup> connection status can be recognized whether iPod adapter receives iPod connection recognition С signal. The iPod adapter is possible to charge iPod<sup>®</sup>. D Audiopilot<sup>®</sup> Audiopilot<sup>®</sup> is the sound improving system that picks up any noises and the sound of music coming into the vehicle by a microphone under the steering, and that the BOSE amp. revises the frequency feature of music at Е real time in response to the frequency feature of the noise while driving and listening to music. If low frequency area noise from vehicle is loud, it adjusts low frequency element of music to be bigger than vehicle noise. If high frequency area noise from vehicle is loud, it adjusts all frequency element of music to be bigger than F vehicle noise. Centerpoint<sup>®</sup> (with DVD player models) CD and 2ch DVD stereo sound played at audio unit and DVD player are subjected to signal processing in BOSE amp. It can play the surround sound with presence. DVD Mode (with DVD player models) Н The DVD player is connected to the AV control unit via AV communication and is controlled by the AV control unit. The DVD player sound signal is output to the BOSE amp. The BOSE amp. outputs it to each speaker. The DVD image signal is output to the front display unit. AUX Mode

Refer to AV-20, "WITH NAVIGATION : System Description".

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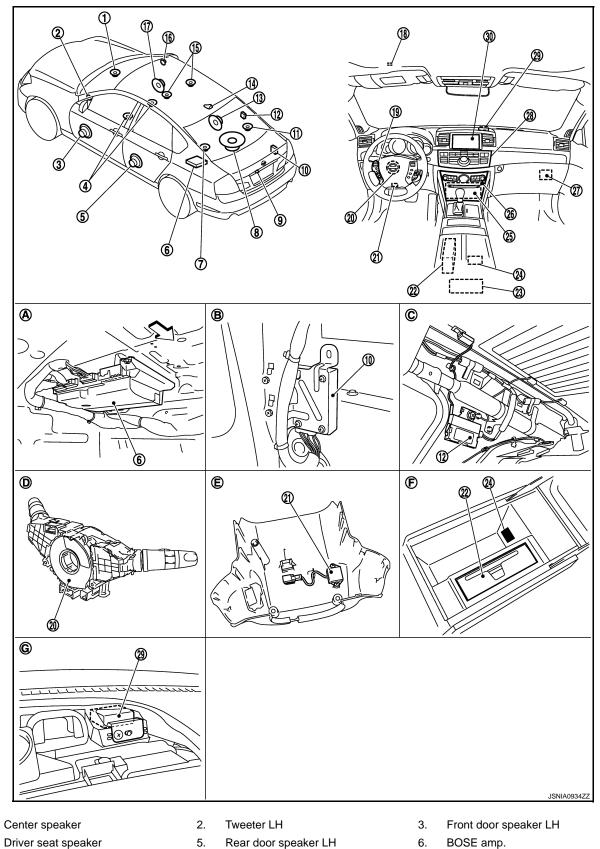
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### **AUDIO SYSTEM** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### WITH NAVIGATION : Component Parts Location

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- 7. Rear surround speaker LH
- 10. Camera control unit

1.

4.

- 8. Woofer
- 11. Rear surround speaker RH
- BOSE amp.
- 9. Rear view camera
- 12. Antenna amp.



### AUDIO SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Satellite radio antenna 13. Rear door speaker RH 14. 15. Passenger seat speaker А 16. Tweeter RH 17. Front door speaker RH 18. Microphone 19. Steering switch 20. Steering angle sensor 21. Microphone (for AudioPilot®) 22. DVD player 23. Auxiliary input jacks iPod connector 24. В 25. AV control unit 26. Preset switch 27. iPod adapter 28. Multifunction switch 29. GPS antenna 30. Front display unit Α. Under rear parcel LH side Β. Trunk side finisher (RH) is removed C. Rear pillar finisher (RH) is removed Steering column cover is removed In center console D. Spiral cable part Ε. F. G. Center ventilator grille is removed  $\Box$ : Vehicle front D

### WITH NAVIGATION : Component Description

INFOID:000000004155629

Part name	Description	
AV CONTROL UNIT	<ul> <li>Receiving function of AM/FM/satellite radio, replaying function of CD, replaying/saving function of music box (HDD), replaying function of CF and voice recognition function are integrated.</li> <li>It transmits the sound signal to the BOSE amp. with hard wire, and then transmits the control signals of AudioPilot<sup>®</sup> and Centerpoint<sup>®</sup> with AV communication.</li> </ul>	
FRONT DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal (audio operation condition) is input from AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> </ul>	
	<ul> <li>It is connected via AV communication and controlled by the AV control unit.</li> <li>It receives the sound signal from AV control unit and output it to the each speaker.</li> <li>It subjects to AudioPilot<sup>®</sup> processing when receiving sound signal from microphone for AudioPilot<sup>®</sup>.</li> </ul>	
BOSE AMP.	<ul><li>BOSE 2ch system (without DVD player models)</li><li>It amplifies the sound signal from the AV control unit and output it to each speaker.</li></ul>	
	<ul> <li>BOSE surround audio 5.1ch system (with DVD player models)</li> <li>It amplifies the sound signal from the AV control unit and the DVD sound signal from DVD player, and then output them to each speaker.</li> <li>It subjects to Centerpoint<sup>®</sup> processing.</li> </ul>	
WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>	
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>	
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>	
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>	
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>	
SEAT SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>	
REAR SURROUND SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>	
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio, auxiliary input and navigation operations are integrated.</li> <li>The multifunction switch is connected via AV communication, and it transmits the operation signals of the multifunction switch and preset switch.</li> </ul>	

## AUDIO SYSTEM

### < FUNCTION DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Part name	Description	
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>The preset switch is connected to the multifunction switch by hard-wire, and it transmits the operation signal to the multifunction switch.</li> </ul>	
STEERING SWITCH	<ul><li>Each audio operation can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>	
MICROPHONE	<ul> <li>Used for hands-free phone operation and voice recognition.</li> <li>Mic signal is transmitted to AV control unit.</li> <li>Power (Mic. VCC) is supplied from AV control unit.</li> </ul>	
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>	
SATELLITE RADIO ANTENNA	Satellite radio wave is received and output to AV control unit.	
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>	
DVD PLAYER	<ul> <li>It transmits the playback DVD image signal and the input AUX image signal to the front display unit. It also transmits the input AUX sound signal to the AV control unit.</li> <li>It transmits the playback DVD sound signal to the BOSE amp.</li> </ul>	
MICROPHONE (for AudioPilot <sup>®</sup> )	<ul> <li>Used for AudioPilot<sup>®</sup>.</li> <li>Mic signal is transmitted to BOSE amp.</li> </ul>	

#### HANDS-FREE PHONE SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM] < FUNCTION DIAGNOSIS > HANDS-FREE PHONE SYSTEM А WITHOUT NAVIGATION WITHOUT NAVIGATION : System Diagram INFOID:000000004155630 В FRONT SPEAKER **TEL** started STEERING Bluetooth™ LH,RH SWITCH Sound signal (TEL voice signal) communication (Voice guidance signal) TEL ANTENNA AV CONTROL Sound signal UNIT (TEL voice signal) TEL Operation status DAPTER (Voice guidance signal) D FRONT indicated TEL voice UNIT DISPLAY signal MICROPHONE UNIT JSNIA1051GE Е

### WITHOUT NAVIGATION : System Description

- TEL adapter unit is controlled with AV communication from AV control unit.
- The connection between portable telephone and TEL adapter unit is performed with Bluetooth<sup>™</sup> 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-76, "Diagnosis Description".

### WHEN RECEIVING A CALL

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

### WHEN A CALL IS TRANSMITTED

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

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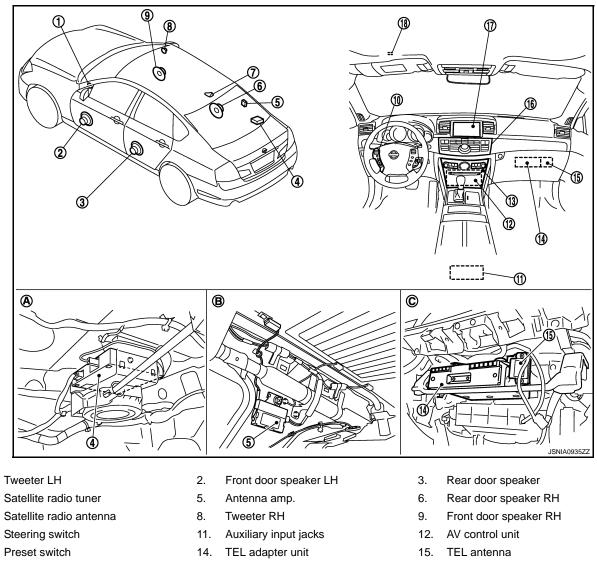
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### HANDS-FREE PHONE SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### WITHOUT NAVIGATION : Component Parts Location

INFOID:000000004155632



16. Multifunction switch

1.

4.

7.

10.

13.

- A. Under rear parcel RH side
- 17. Front display unit
- B. Rear pillar finisher (RH) is removed
- 18. Microphone
- C. Glove box cover is removed

INFOID:000000004155633

## WITHOUT NAVIGATION : Component Description

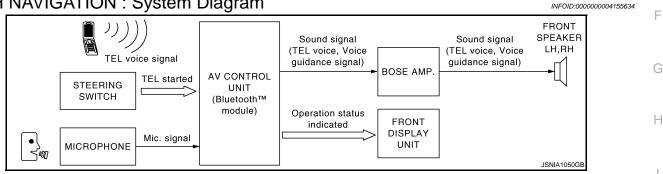
Part name	Description
AV CONTROL UNIT	<ul> <li>Inputs TEL voice signal or voice guidance signal from TEL adapter unit and outputs it to each speaker during reception.</li> <li>Connects with TEL adapter unit and AV communication and controls hands-free phone system.</li> </ul>
FRONT DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>Inputs RGB image signal (RGB, RGB area and RGB synchronizing) from AV control unit and displays the status of hands-free phone system.</li> </ul>
BOSE AMP.	Inputs TEL voice signal or voice guidance signal from AV control unit and outputs it to front door speaker.
FRONT DOOR SPEAKER	Outputs the TEL voice signal or voice guidance signal from AV control unit.
PRESET SWITCH	<ul> <li>Adjust the sound when using hands-free phone system.</li> <li>The operation signal is transmitted to the AV control unit via AV communication.</li> </ul>

### HANDS-FREE PHONE SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Part name	Description	
STEERING SWITCH	<ul><li>The hands-free phone system can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>	
MICROPHONE	<ul> <li>Uses when operating the hands-free phone.</li> <li>Outputs Mic. signal (TEL voice signal) to the TEL adapter unit.</li> <li>The power (Mic. power supply) is supplied from the TEL adapter unit.</li> </ul>	
TEL ADAPTER UNIT	<ul> <li>Receives the steering switch signal (operation signal) from the steering switch.</li> <li>Inputs the TEL voice signal from TEL antenna during reception and outputs it to the AV control unit.</li> <li>Inputs the TEL voice signal from microphone during speech recognition and outputs it to the TEL antenna.</li> <li>Controlled by AV communication transmitted from AV control unit.</li> </ul>	
TEL ANTENNA	Connects with the portable telephone via Bluetooth <sup>™</sup> communication and com- municates the TEL voice signal.	

### WITH NAVIGATION

### WITH NAVIGATION : System Diagram



### WITH NAVIGATION : System Description

- AV control unit includes hands-free phone function.
- Hands-free communication can be operated by connecting using Bluetooth<sup>™</sup> communication with cellular phone.
- Operation is performed by steering switch, and operating condition is indicated on front 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 (MIC. signal) is input to AV control unit. AV control unit outputs to cellular phone with Bluetooth<sup>™</sup> 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 front speaker, and the signal is input to BOSE amp. via AV control unit by establishing Bluetooth<sup>™</sup> communication from cellular phone.

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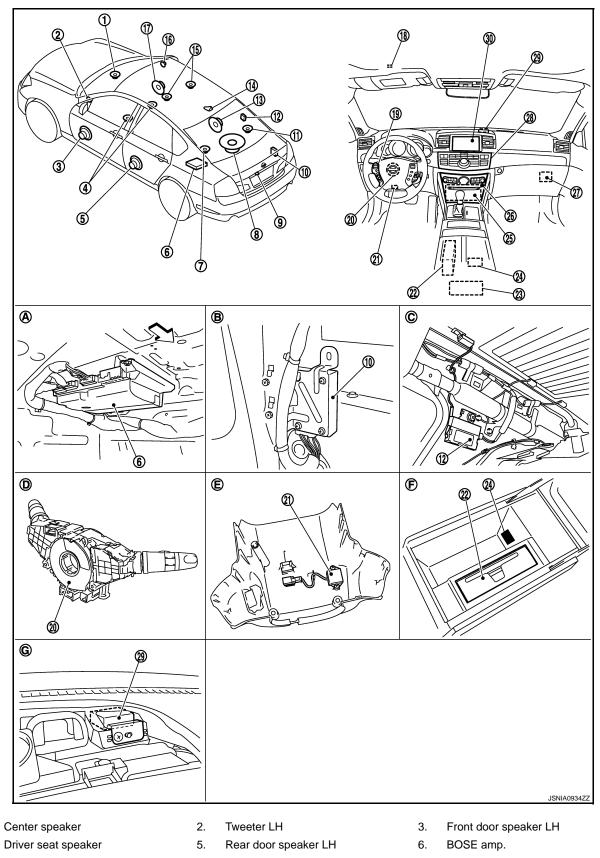
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### HANDS-FREE PHONE SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### WITH NAVIGATION : Component Parts Location

INFOID:000000004155636



- 7. Rear surround speaker LH
- 10. Camera control unit

1.

4.

- 8. Woofer
- 11. Rear surround speaker RH
- 9. Rear view camera
- 12. Antenna amp.



### HANDS-FREE PHONE SYSTEM [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

13. 16.	Rear door speaker RH Tweeter RH	14. 17.	Satellite radio antenna Front door speaker RH	15. 18.	Passenger seat speaker Microphone	A
19.	Steering switch	20.	Steering angle sensor	21.	Microphone (for AudioPilot <sup>®</sup> )	
22.	DVD player	23.	Auxiliary input jacks	24.	iPod connector	D
25.	AV control unit	26.	Preset switch	27.	iPod adapter	В
28.	Multifunction switch	29.	GPS antenna	30.	Front display unit	
Α.	Under rear parcel LH side	В.	Trunk side finisher (RH) is removed	C.	Rear pillar finisher (RH) is removed	C
D.	Spiral cable part	Ε.	Steering column cover is removed	F.	In center console	C
G.	Center ventilator grille is removed					
⊏>:	Vehicle front					D

## WITH NAVIGATION : Component Description

INFOID:000000004155637

Part name	Description	
AV CONTROL UNIT	<ul> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> <li>It outputs the TEL voice signal and voice guidance sound signal to the BOSE amp.</li> </ul>	
FRONT DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>Inputs RGB image signal (RGB, RGB area and RGB synchronizing) from AV control unit and displays the status of hands free phone system.</li> </ul>	
BOSE AMP.	Inputs TEL voice signal or voice guidance signal from AV control unit and outputs it to front speaker.	
FRONT DOOR SPEAKER	Outputs the TEL voice signal or voice guidance signal from BOSE amp.	
PRESET SWITCH	<ul> <li>Adjust the sound when using TEL.</li> <li>The operation signal is transmitted to the AV control unit via AV communication.</li> </ul>	
STEERING SWITCH	<ul><li>The hands free-phone system can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>	
MICROPHONE	<ul> <li>Uses when operating the hands-free phone.</li> <li>Outputs Mic. signal (TEL voice signal) to the AV control unit.</li> <li>The power (Mic. power supply) is supplied from the AV control unit.</li> </ul>	

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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Diagnosis Description

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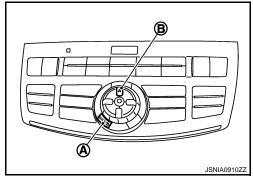
### MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-Diagnosis Mode

- Press the "BACK (A)" switch and the "
   (B)" 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 CD eject switch cannot be checked.



Finishing Self-Diagnosis Mode

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

### MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

### ON BOARD DIAGNOSIS

Description

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

On Board Diagnosis Item

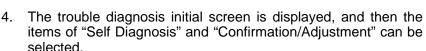
Mode	Description	
Self-Diagnosis	<ul><li>AV control unit diagnosis.</li><li>Perform the connection diagnosis between each of the units.</li></ul>	

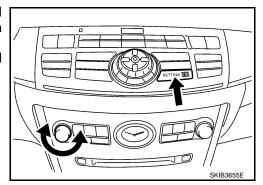
#### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITHOUT MOBILE ENTERTAINMENT SYSTEM] < FUNCTION DIAGNOSIS >

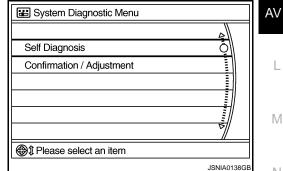
	Mode Description		
	Display Diagnosis	The confirmations of the tint with the color spectrum bar display and shading of color with the gradation bar display can be performed.	
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition switch, and reverse.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

### STARTING PROCEDURE

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

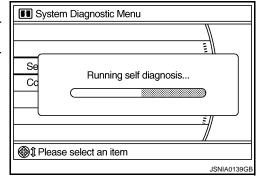






### SELF-DIAGNOSIS MODE

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



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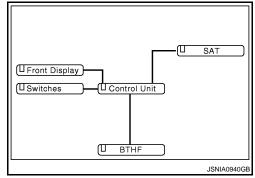
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# DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

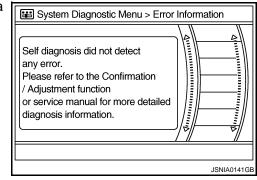
2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

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



NOTE:

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



### SELF-DIAGNOSIS RESULTS

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

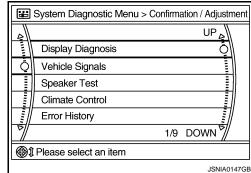
Diagnosis results	Detection logic	Possible malfunction location / Action to take	
Control Unit • unit: red <b>NOTE:</b> When a control unit malfunction is detected (red in unit display), connection malfunctions with other connection unit may be displayed.	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detectiong no malfunction in those components, replace AV control unit.	
"Self-Diagnosis did not run because of a control unit malfunction"			
Front Display • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	Serial communication circuits between AV control unit and front display unit.	

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Diagnosis results	Detection logic	Possible malfunction location / Action to take	A
SAT • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>satellite radio tuner power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and satellite radio tuner are malfunctioning.</li> <li>serial communication or request signal between AV control unit and satellite radio tuner is malfunctioning.</li> <li>request signal circuit between AV control unit and satellite radio tuner is malfunctioning.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuits.</li> <li>Serial communication circuits be- tween AV control unit and satellite ra- dio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>	B
BTHF • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>TEL adapter unit power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between multifunction switch and TEL adapter unit are malfunctioning.</li> <li>AV communication signal between AV control unit and TEL adapter unit is malfunctioning.</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuits.</li> <li>AV communication circuits between multifunction switch and TEL adapter unit.</li> </ul>	F

### CONFIRMATION/ADJUSTMENT MODE

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

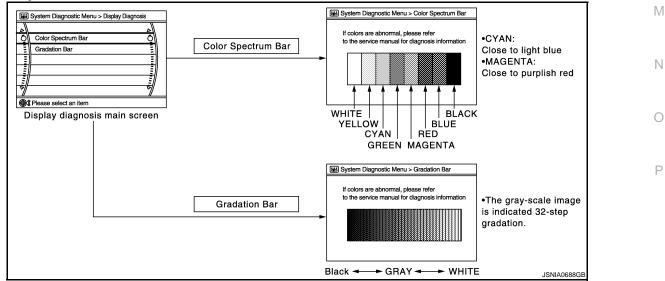


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### Display Diagnosis



### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

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

Vehicle Signals

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

	-	055	
	hicle speed	OFF	
Pa	rking brake	ON	
Lię	hts	OFF	
lgr	nition	ON	
Re	verse	OFF	
			)
			JSNIA01490

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

### Speaker Test

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

### NOTE:

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

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

E System Diagnostic Menu > Spo	eaker Test
Speaker Testing Front Left Tweeter Speaker Settings –	Ammuni Start Oumuni Start End
(j) Push start to test next speaker	
	JSNIA0150GB

### **Climate Control**

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

### Error History

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

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



### DIAGNOSIS SYSTEM (AV CONTROL UNIT) [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

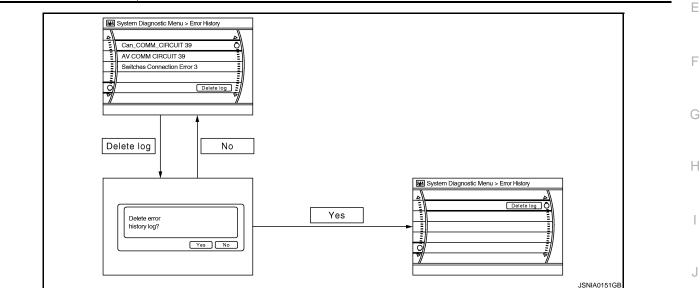
### < FUNCTION DIAGNOSIS >

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

Count up method B

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

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



### Error item

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

Error item	Detection logic	Possible malfunction factor/Action to take	
CAN COMM CIRCUIT	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-78, "Diagnosis Procedure"</u> .	
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detect- ed.		
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit.	
FLASH-ROM Error Of Control Unit	AV control unit malfunction is detected.		
CAN Controller Memory Error			
Front Display Connection Error	<ul> <li>When either one of the following items is detected:</li> <li>front display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>		

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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

< FUNCTION DIAGNOSIS >	[WITHOUT MOE	BILE ENTERTAIN
Error item	Detection logic	Possible malfunction

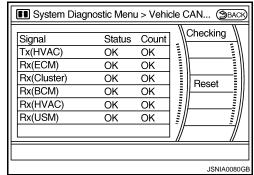
Error item	Detection logic	Possible malfunction factor/Action to take
SAT Connection Error	<ul> <li>When either one of the following items is detected:</li> <li>satellite radio tuner power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and satellite radio tuner are malfunctioning.</li> <li>serial communication or request signal between AV control unit and satellite radio tuner is malfunctioning.</li> <li>request signal circuit between AV control unit and satellite radio tuner is malfunctioning.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>
<ul><li>AV COMM CIRCUIT</li><li>Switches Connection Error</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.
<ul><li>AV COMM CIRCUIT</li><li>H/F Unit Connection Error</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>TEL adapter unit power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between multifunction switch and TEL adapter unit are malfunctioning.</li> <li>AV communication signal between AV control unit and TEL adapter unit is malfunctioning.</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuits.</li> <li>AV communication circuit between multifunction switch and TEL adapter unit.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>Switches Connection Error</li> <li>H/F Unit Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between AV control unit and multifunction switch.	<ul> <li>AV communication circuits between AV control unit and multifunction switch.</li> <li>Check and repair the short circuit in AV communication circuits.</li> </ul>

### 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.

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

AV COMM Diagnosis



### DIAGNOSIS SYSTEM (AV CONTROL UNIT) [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < FUNCTION DIAGNOSIS >

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

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

## Signal StatusCount CTx(ITM-SW) OK OK C Rx(PrimarySW-ITM) OK OK C Rx(BTHF-ITM) OK OK JSNIA0153GB

E System Diagnostic Menu > AV COMM Diagnosis

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)



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

Yes No

Delete connection log?

## WITHOUT NAVIGATION : CONSULT-III Function (MULTI AV)

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### CONSULT-III FUNCTIONS

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

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

### AV COMMUNICATION

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

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

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < FUNCTION DIAGNOSIS >

### ECU IDENTIFICATION

The part number of AV control unit is displayed.

### SELF DIAGNOSIS RESULT

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

Self-Diagnosis Results Display Item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-78, "Diagnosis Procedure"</u> .
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	Replace the AV control unit.
Control Unit FLASH-ROM [U1200]	AV control unit malfunction is detected.	
CAN CONT [U1216]	Av control unit manufaction is detected.	
FRONT DISP CONN [U1243]	<ul> <li>When either one of the following items is detected:</li> <li>front display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	<ul> <li>Front display unit power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and front display unit.</li> </ul>
SAT CONN [U1255]	<ul> <li>When either one of the following items is detected:</li> <li>satellite radio tuner power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and satellite radio tuner are malfunctioning.</li> <li>serial communication or request signal between AV control unit and satellite radio tuner is malfunctioning.</li> <li>request signal circuit between AV control unit and satellite radio tuner is malfunctioning.</li> </ul>	<ul> <li>Satellite radio tuner power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tuner.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.

# DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

	<ul> <li>AV communication signal between AV control unit and TEL adapter unit is mal- functioning.</li> </ul>		С
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>HAND FREE CONN [U1256]</li> </ul>	Malfunction is detected in AV communica- tion circuits.	<ul> <li>AV communication circuits between AV control unit and multifunction switch.</li> <li>Check and repair the short circuit in AV communication circuits.</li> </ul>	D

### DATA MONITOR

ALL SIGNALS

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

Display Item	Display	Vehicle status	Remarks	
	On	Vehicle speed >0 km/h (0 MPH)	Changes in indication may be delayed. This is	
VHCL SPD SIG	Off	Vehicle speed =0 km/h (0 MPH)		
PKB SIG	On	Parking brake is applied.	normal.	
	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.		
	On	Selector lever in R position.	Changes in indication may be delayed. This is	
REV SIG	Off	Selector lever in any position other than R.	<ul> <li>Changes in indication may be delayed. This is normal.</li> </ul>	

### SELECTION FROM MENU

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

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

WITH NAVIGATION : Diagnosis Description

MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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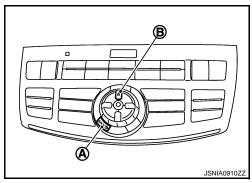
### DIAGNOSIS SYSTEM (AV CONTROL UNIT) (WITHOUT MOBILE ENTERTAINMENT SYSTEM)

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

### Self-Diagnosis Mode

- Press the "BACK (A)" switch and the "
   (B)" 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 CD eject switch cannot be checked.



### Finishing Self-Diagnosis Mode

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

### MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

### ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- The self-diagnosis mode performs diagnoses on the AV control unit, connections between system components as well as connections between AV control unit and GPS antenna and between AV control unit and satellite radio antenna. Then it displays the diagnosis results on the display.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On board diagnosis item

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

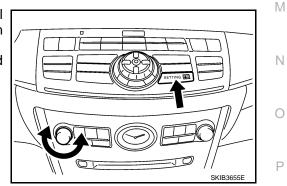
### DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

< FUNCTION DIAGNOSIS >

Mode			Description	
	Display Diagnosis		The following check functions are available: color tone check by color bar display, light and shade check by gray scale display and touch panel calibration response check.	
	Vehicle Signals		Diagnosis of signals can be performed for vehicle speed, parking brake, lights, ignition switch, and reverse.	
	Speaker Test		The connection of a speaker can be confirmed by test tone.	
	Climate Control		Start auto air conditioner system self-diagnosis.	
		Steering Angle Ad- justment	When there is a difference between the actual turning angle and the vehicle mark turning angle, it can be adjusted.	
	Navigation	Speed Calibration	When there is a difference between the current location mark and the ac- tual location, it can be adjusted.	
		XM SAT Subscrip- tion Status	The XM NavTraffic subscription status can be checked.	
Confirmation/	irmation/ Istment Vehicle CAN Diagnosis AV COMM Diagnosis Handsfree Phone		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.	
Aujustinent			The transmitting/receiving of CAN communication can be monitored.	
			The communication condition of each unit of Multi AV system can be monitored.	
			The received volume adjustment of hands-free phone, microphone speaker check, and erase memory can be performed.	
	Camera Cont.		The signal connected to camera control unit can be checked and the guiding line position that overlaps rear view camera image can be adjusted.	
	Bluetooth		The passkey and the device name can be checked and changed.	
	SAT Change Channel ID		Any necessary channels required to receive traffic information from the satellite radio system can be set.	
			Any application ID's required to receive traffic information from the satel- lite radio system can be set.	
		Diag	Not used.	
	Delete Unit Connec	tion Log	Erase the connection history of unit and error history.	
	Initialize Settings		Initializes the AV control unit memory.	

### STARTING PROCEDURE

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



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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

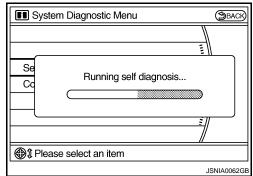
### < FUNCTION DIAGNOSIS >

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

System Diagnostic Menu	Эваск
	//
Self Diagnosis	Ō
Confirmation / Adjustment	
	/
Please select an item	
	JSNIA0061G

### SELF-DIAGNOSIS MODE

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

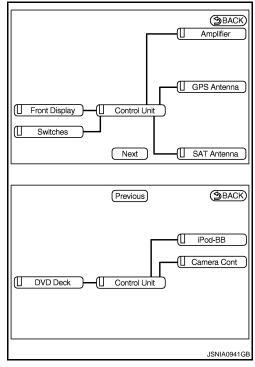


2. Diagnosis results are displayed after the self-diagnosis is completed. The unit names and the connection lines are color-coded according to the diagnostic results.

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

### NOTE:

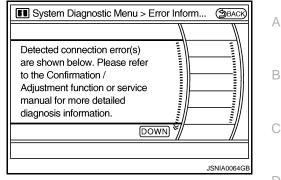
- Only the control unit (AV control unit) is displayed in red.
- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to <u>AV-482</u>, "Exploded View".
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.



### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < FUNCTION DIAGNOSIS >

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



### SELF-DIAGNOSIS RESULTS

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

Diagnosis results	Detection logic	Possible malfunction location / Action to take Check AV control unit power supply and ground circuits. When detecting no malfunction in those components, replace AV control unit.	
Control unit • unit: red <b>NOTE:</b> When a control unit malfunction is detected (red in unit display), connection malfunctions with other connection unit may be displayed. "Self-Diagnosis did not run because of a control unit malfunction"	Malfunction is detected in AV control unit power supply and ground circuits.		
Front Display • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	Serial communication circuits between AV control unit and front display unit.	
DVD Deck • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>DVD player power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and DVD player is malfunctioning.</li> </ul>	DVD player power supply and ground circuits.	
Amplifier • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>BOSE amp. power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and BOSE amp. is malfunctioning.</li> </ul>	BOSE amp. power supply and ground circuits.	
Camera Cont. • unit: gray • connection line: yellow	Malfunction is detected in Camera- connection recognition signal circuit.	Camera-connection recognition signal circuit.	

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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### Possible malfunction location / Action Detection logic **Diagnosis results** to take When either one of the following items is detected: · iPod adapter power supply and ground circuits are malfunctioning. iPod adapter power supply and AV communication circuits between ground circuits. iPod-BB camera control unit and iPod adapt-• AV communication circuits between unit: gray er are malfunctioning. BOSE amp. and camera control unit. · connection line: yellow AV communication circuits between AV communication circuits between BOSE amp. and camera control unit camera control unit and iPod adaptare malfunctioning. er. AV communication signal between AV control unit and iPod adapter is malfunctioning. **GPS** Antenna GPS antenna connection malfunction GPS antenna. · unit: gray is detected. connection line: yellow SAT Antenna Satellite radio antenna connection Satellite radio antenna feeder. unit: gray Satellite radio antenna. malfunction is detected. connection line: yellow When either one of the following items is detected: · AV communication circuits between · AV communication circuits between multifunction switch and BOSE amp. multifunction switch and BOSE amp. Amplifier and iPod-BB are malfunctioning. (without DVD (without DVD player models) unit: gray player models) AV communication circuits between · connection line: yellow AV communication circuits between DVD player and BOSE amp. (with DVD player models) DVD player and BOSE amp. are malfunctioning. (with DVD player models) Amplifier, iPod-BB and DVD Deck Malfunction is detected in AV commu-

### CONFIRMATION/ADJUSTMENT MODE

• unit: gray

· connection line: yellow

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

switch and DVD player.

nication circuits between multifunction

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

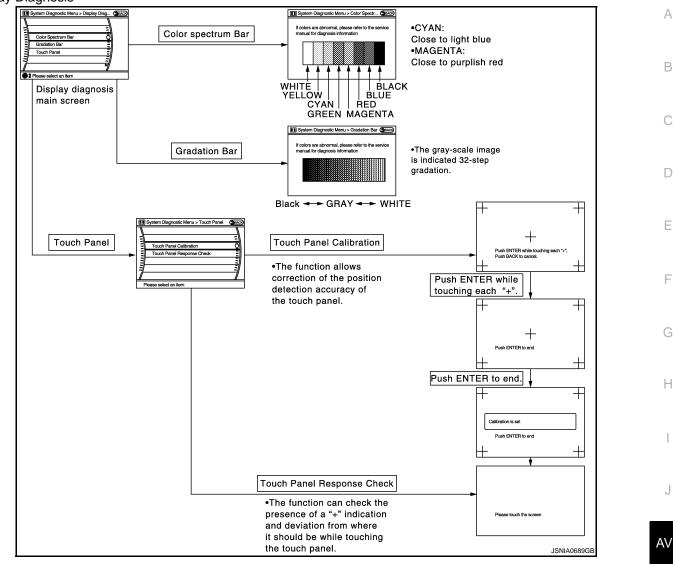
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			Ŋ	\
	Display Diagnosis		Õ	
	Vehicle Signals			
	Speaker Test			
	Climate Control			7/
	Navigation			/
		1/15		
<b>@</b> 1	Please select an item			
			J	ISNIA0617GB

AV communication circuits between

multifunction switch and DVD player.

# DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### Display Diagnosis



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

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

### Vehicle Signals

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

System Diagnostic Mer	nu > Vehicle Siç	Inal (SBACK)
Vehicle speed	OFF	
Parking brake	ON	
Lights	ON	
Ignition	ON	
Reverse	OFF	
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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Diagnosis item	Display	Vehicle status	Remarks	
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)		
venicie speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.	
Darking broke	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal.	
Parking brake	OFF	Parking brake is released.		
Lights	ON	Light switch ON.		
Lights	OFF	Light switch OFF.		
Ignition	ON	Ignition switch ON.		
Ignition	OFF	Ignition switch in ACC position.		
Reverse	ON	Shift the selector lever to "R" position.	Changes in indication may be delayed. This is normal.	
Nevel36	OFF	Shift the selector lever other than "R" position.		

#### Speaker Test

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

### NOTE:

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

Front tweeter	: 3 kHz
Front door speaker	: 300 Hz
Rear door speaker	: 1 kHz
Rear surround speaker	: 1 kHz
Center speaker	: 1 kHz
Woofer	: 100 Hz
Seat speaker	: 1 kHz

Sys	tem Diagnostic Menu > Spe	aker T	est	SBACK
	xer Testing Front Left Tweeter xer Settings 		Start End	
Push	n start to test next speaker			
			JSN	IA0076GB

### Climate Control

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

#### Navigation

STEERING ANGLE ADJUSTMENT

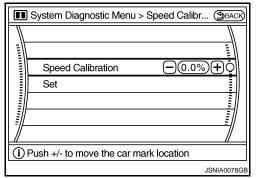
The steering angle output value detected with the gyroscope is adjusted.

	System Diagnostic Menu > Steering And	а (Эваск)
$\overline{\mathbb{N}}$		
	Left turn -0.0%+0	
	Right turn	
	Set	
	/	
	Push +/- to rotate the car mark direction	
		JSNIA0077GE

### SPEED CALIBRATION

# DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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.



А

J

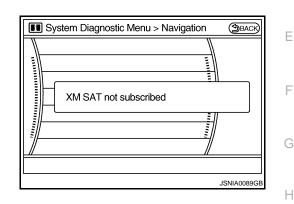
Μ

Ν

Ρ

XM SAT SUBSCRIPTION STATUS

The XM NavTraffic subscription status can be checked.



Error History

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

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

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

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

Count up method A

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

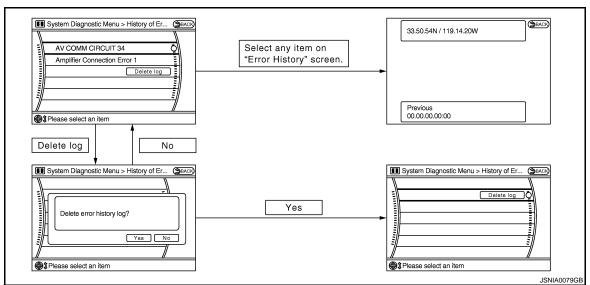
Count up method B

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

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

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#### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITHOUT MOBILE ENTERTAINMENT SYSTEM] < FUNCTION DIAGNOSIS >



### Error item

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

Error item	Description	Possible malfunction factor/Action to take	
CAN COMM CIRCUIT	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-78, "Diagnosis Procedure"</u> .	
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detect- ed.		
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.		
FLASH-ROM Error Of Control Unit			
Connection Of Gyro			
XM SERIAL COMM Error			
CAN Controller Memory Error		Replace the AV control unit.	
Bluetooth Module Connection Error			
HDD CONN Error	AV control unit malfunction is detected.		
HDD READ Error	Av control unit mailunction is detected.		
HDD WRITE Error			
HDD COMM Error			
HDD ACCESS Error			
DSP CONN Error			
DSP COMM Error			
Internal Communication Error	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no mal- function in those components, replace AV control unit.	
GPS Communication Error		An intermittent error caused by strong radio	
GPS ROM Error		interference may be detected unless any symptom (GPS reception error, etc.) oc-	
GPS RAM Error	GPS malfunction is detected.	curs.	
GPS RTC Error		Replace the AV control unit if the malfunc- tion occurs constantly.	

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

### [WITHOUT MOBILE ENTÉRTAINMENT SYSTEM] < FUNCTION DIAGNOSIS >

Error item	Description	Possible malfunction factor/Action to take
Front Display Connection Error	<ul> <li>When either one of the following items is detected:</li> <li>front display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	<ul> <li>Front display unit power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and front display unit.</li> </ul>
GPS Antenna Error	GPS antenna connection malfunction is detected.	GPS antenna.
XM Antenna Connection Error	Satellite radio antenna connection malfunc- tion is detected.	<ul><li>Satellite radio antenna feeder.</li><li>Satellite radio antenna.</li></ul>
AV COMM CIRCUIT     Internal Communication Error	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no mal- function in those components, replace AV control unit.
<ul><li>AV COMM CIRCUIT</li><li>Switches Connection Error</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>Multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT</li> <li>DVD Deck Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>DVD player power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and DVD player is malfunctioning.</li> </ul>	DVD player power supply and ground cir- cuits.
<ul> <li>AV COMM CIRCUIT</li> <li>Amplifier Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>BOSE amp. power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and BOSE amp. is malfunctioning.</li> </ul>	BOSE amp. power supply and ground cir- cuts.
<ul> <li>AV COMM CIRCUIT</li> <li>Rearview Camera Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>camera control unit power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and camera control unit is malfunctioning.</li> </ul>	Camera control unit power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT</li> <li>iPod Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>iPod adapter power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between camera control unit and iPod adapter are malfunctioning.</li> <li>AV communication signal between AV control unit and iPod adapter is malfunction.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between BOSE amp. and cam- era control unit.	AV communication circuits between BOSE amp. and camera control unit.

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Error item	Description	Possible malfunction factor/Action to take	
<ul> <li>AV COMM CIRCUIT</li> <li>Amplifier Connection Error</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	<ul> <li>Without DVD player models</li> <li>AV communication circuits between multifunction switch and BOSE amp. are malfunctioning.</li> <li>With DVD player models</li> <li>AV communication circuits between DVD player and BOSE amp. are malfunctining.</li> </ul>	<ul> <li>AV communication circuits between multifunction switch and BOSE amp. (without DVD player models)</li> <li>AV communication circuits between DVD player and BOSE amp. (with DVD player models)</li> </ul>	
<ul> <li>AV COMM CIRCUIT</li> <li>DVD Deck Connection Error</li> <li>Amplifier Connection Error</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between multifunction switch and DVD player.	AV communication circuits between multi- function switch and DVD player.	
Without DVD player models • AV COMM CIRCUIT • Switches Connection Error • Amplifier Connection Error • Rearview Camera Connection Error • iPod Connection Error	Malfunction is detected in AV communica-	AV communication circuits between multi-	
With DVD player models AV COMM CIRCUIT Switches Connection Error DVD Deck Connection Error Amplifier Connection Error Rearview Camera Connection Error iPod Connection Error	tion circuits between multifunction switch and AV control unit.	function switch and AV control unit.	
Without DVD player models AV COMM CIRCUIT Internal Communication Error Switches Connection Error Amplifier Connection Error Rearview Camera Connection Error iPod Connection Error	- Malfunction is detected in AV communica-	Check and repair the short circuit in AV	
With DVD player models AV COMM CIRCUIT Internal Communication Error Switches Connection Error DVD Deck Connection Error Amplifier Connection Error Rearview Camera Connection Error iPod Connection Error	tion circuits.	Check and repair the short circuit in AV communication circuits.	

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 / UNKWN	OK / 0 – 39
Rx (ECM)	OK / UNKWN	OK / 0 – 39
Rx (Cluster)	OK / UNKWN	OK / 0 – 39
Rx (BCM)	OK / UNKWN	OK / 0 – 39
Rx (HVAC)	OK / UNKWN	OK / 0 – 39
Rx (USM)	OK / UNKWN	OK / 0 – 39

Signal	Status	Count	Checking
Tx(HVAC)	OK	OK	
Rx(ECM)	OK	OK	Reset
Rx(Cluster)	OK	OK	Reset
Rx(BCM)	OK	OK	
Rx(HVAC)	OK	OK	
Rx(USM)	OK	OK	



### DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Items	Display (Current)	Malfunction counter (Past)
Rx (TPMS)	OK / UNKWN	OK / 0 – 39
Rx (STRG)	OK / UNKWN	OK / 0 – 39

#### AV COMM Diagnosis

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

Items	Status (Current)	Counter (Past)
C Tx(ITM–PrimarySW)	OK / UNKWN	OK / 0 – 39
C Rx(PrimarySW–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(STRG SW–ITM)	OK / UNKWN	OK / 0 – 39
C Rx (Audio–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(Amp–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(RearCamera–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(DVD–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(XM–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(iPod–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(Amp–Audio)	OK / UNKWN	OK / 0 – 39
C Rx(DVD–Audio)	OK / UNKWN	OK / 0 – 39
C Rx(iPod–Audio)	OK / UNKWN	OK / 0 – 39
C Tx(Audio–ITM)	OK / UNKWN	OK / 0 – 39

🚺 System Diagnostic Menu > AV COMM Di... (🌫 BACK) Checking Status Count. Signal CTx(ITM-PrimarySW) OK OK CRx(PrimarySW-ITM) OK OK C Rx(STRG SW-ITM) OK OK Reset C Rx(Audio-ITTM) OK OK C Rx(Amp-ITM) ΟK OK CRx(RearCamera-ITM) OK OK C Rx(XM-ITM) OK OK JSNIA0081GE

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### AV

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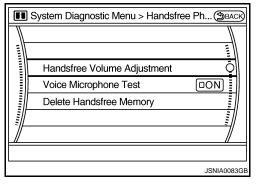
Ν

NOTE:

- Any units with "-" displayed have no history of vehicle connection.
- "Audio" and "Amp" indicate the same status because "Amp" indicates the status of the amplifier integrated in the AV control unit.
- "STRG SW", "Amp""XM" indicate the same status as "Audio".

### Hands-Free Phone

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



Camera Cont.

The two functions of "Connection Confirmation" and "Adjust Offset of Rear View Camera" are available. CONNECTION CONFIRMATION

# DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

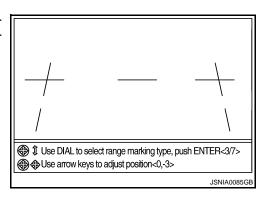
The steering angle sensor, reverse signal and vehicle speed sensor can be inspected.

J S	ystem Diagnostic Menu >	Connection	C (SBACK
	Steer. Angle Sensor	OFF	
	Reverse Sensor	OFF	
	Vehicle Speed Sensor	OFF	
	Side view Switch	_	J
			JSNIA0084G

Diagnosis item	Display	Vehicle status	
	ON	When steering the vehicle with ignition switch ON (remains ON until connection mode is stopped when it is turned ON).	
Steer. Angle Sensor	OFF	<ul><li>Ignition switch at ACC.</li><li>No steering with ignition switch ON.</li></ul>	
	_	Malfunction detected in camera connection recognition signal.	
Reverse Sensor	ON	Selector lever is in "R" with ignition switch ON.	
	OFF	<ul><li>Ignition switch at ACC.</li><li>Selector lever is in position other than "R" with ignition switch ON.</li></ul>	
	—	Malfunction detected in camera-connection recognition signal.	
	ON	Vehicle speed is more than 0 km/h (0 MPH) with ignition switch ON.	
Vehicle Speed Sensor	OFF	<ul> <li>Ignition switch at ACC.</li> <li>Vehicle speed is 0 km/h (0 MPH) with ignition switch ON.</li> </ul>	
	—	Malfunction detected in camera connection recognition signal.	
Side view Switch	-	Not used.	

### ADJUST OFFSET OF REAR VIEW CAMERA

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



### Bluetooth

Confirm / Change Passkey

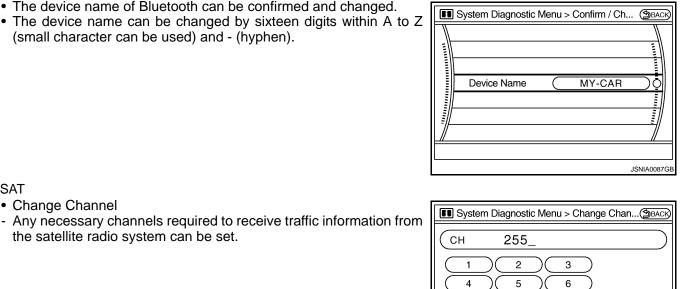
- The passkey of Bluetooth can be confirmed and changed.
- The passkey can be changed by four digits within 0 to 9.

61	System Diagnostic Menu > Confirm / Ch (SBACK)		
Mummunuu .	Bluetooth Passkey (1234)		
$\square$			
I	JSNIA0086GE		

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### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

- < FUNCTION DIAGNOSIS >
- The device name of Bluetooth can be confirmed and changed.
- The device name can be changed by sixteen digits within A to Z (small character can be used) and - (hyphen).



9

**III** System Diagnostic Menu > Change Appli... (Эваск)

EXTID

3

6

Delete

ΟK

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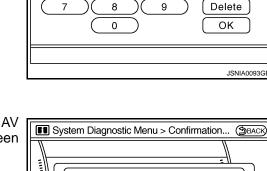
JSNIA0092GB

Change Application ID

SAT

Change Channel

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



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APPID

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Delete Unit Connection Log

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

Эваск 1 million Delete unit connection log? Yes No 14/15 I Please select an item JSNIA0088G

**Initialize Settings** 

the satellite radio system can be set.

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) GIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Deletes data stored in HDD.

🚺 Sys	stem Diagnostic Menu > Confirmation (SBACK)
	Clear ALL HDD data below.
	Are you sure?
	-Address book
	-Saved music
	-Phonebook etc.
#	Yes No
∰Ĵ Ple	ease select an item
	JSNIA0095GE

### WITH NAVIGATION : CONSULT-III Function (MULTI AV)

INFOID:000000004155641

### CONSULT-III FUNCTIONS

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

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

### AV COMMUNICATION

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

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

### ECU IDENTIFICATION

The part number of AV control unit is displayed.

### SELF DIAGNOSIS RESULT

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

Self-diagnosis results display item

Error item	Description	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-78, "Diagnosis Procedure"</u> .

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### Error item Possible malfunction factor/Action to take Description А CAN initial diagnosis malfunction is detect-CONTROL UNIT (CAN) [U1010] ed. AV communication circuit initial diagnosis CONTROL UNIT (AV) [U1310] В malfunction is detected. Control Unit FLASH-ROM [U1200] Gyro NO CONN [U1201] CAN CONT [U1216] **BLUETOOTH CONN [U1217]** Replace the AV control unit. HDD CONN [U1218] HDD READ [U1219] AV control unit malfunction is detected. XM SERIAL COMM [U1220] E HDD WRITE [U121A] HDD COMM [U121B] HDD ACCESS [U121C] DSP CONN [U121D] DSP COMM [U121E] Check AV control unit power supply and Malfunction is detected in AV control unit ground circuits. When detecting no mal-INTERNAL COMM [U121F] power supply and ground circuits. ground function in those components, replace AV circuits. control unit. Н GPS COMM [U1204] An intermittent error caused by strong radio interference may be detected unless any GPS ROM [U1205] symptom (GPS reception error, etc.) oc-GPS malfunction is detected. GPS RAM [U1206] curs. Replace the AV control unit if the malfunc-GPS RTC [U1207] tion occurs constantly. When either one of the following items is detected: · front display unit power supply and ground circuits are malfunctioning. · Front display unit power supply and AV serial communication circuits between ground circuits. FRONT DISP CONN [U1243] AV control unit and front display unit are · Serial communication circuits between malfunctioning. AV control unit and front display unit. · serial communication signal between AV control unit and front display unit is malfunctioning. GPS antenna connection malfunction is de-**GPS ANTENNA CONN [U1244]** GPS antenna. M tected. Malfunction is detected in camera connec-Camera-connection recognition circuit be-CAMERA CONT CONN [U1250] tion recognition circuit between AV control tween AV control unit and camera control unit and camera control unit. unit. Ν Poor connection is detected in satellite ra-· Satellite radio antenna feeder. XM ANTENNA CONN [U1258] dio antenna. Satellite radio antenna. Check AV control unit power supply and Malfunction is detected in AV control unit AV COMM CIRCUIT [U1300] ground circuits. When detecting no malpower supply and ground circuits. ground • INTERNAL COMM [U121F] function in those components, replace AV circuits. control unit. Ρ When either one of the following items is detected: • multifunction switch power supply and AV COMM CIRCUIT [U1300] Multifunction switch power supply and ground circuits are malfunctioning. ground circuits. SWITCH CONN [U1240] AV communication signal between AV control unit and multifunction switch is

malfunctioning.

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

# [WITHOUT MOBILE ENTERTAINMENT SYSTEM] < FUNCTION DIAGNOSIS >

Error item	Description	Possible malfunction factor/Action to take
<ul><li>AV COMM CIRCUIT [U1300]</li><li>DVD DECK CONN [U1248]</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>DVD player power supply and ground circuits.</li> <li>AV communication signal between AV control unit and DVD player.</li> </ul>	DVD player power supply and ground cir- cuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>BOSE amp. power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and BOSE amp. is malfunctioning.</li> </ul>	BOSE amp. power supply and ground cir- cuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>camera control unit power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and camera control unit is malfunctioning.</li> </ul>	Camera control unit power supply and ground circuits.
<ul><li>AV COMM CIRCUIT [U1300]</li><li>IPod CONN [U1254]</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>iPod adapter power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between camera control unit and iPod adapter are malfunctioning.</li> <li>AV communication signal between AV control unit and iPod adapter is malfunctioning.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communica- tion circuits between BOSE amp. and cam- era control unit.	AV communication circuits between BOSE amp. and camera control unit.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>Without DVD player models</li> <li>Malfunction is detected in AV communication circuits between multifunction switch and BOSE amp. are malfunctioning.</li> <li>With DVD player models</li> <li>Malfunction is detected in AV communication circuits between DVD player and BOSE amp. are malfunctioning.</li> </ul>	<ul> <li>Without DVD player models</li> <li>AV communication circuits between multifunction switch and BOSE amp.</li> <li>With DVD player models</li> <li>AV communication circuits between DVD player and BOSE amp.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communica- tion circuits between multifunction switch and DVD player.	AV communication circuits between multi- function switch and DVD player.
Without DVD player models • AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240] • AMP CONN [U124E] • REAR CAMERA LAN CONN [U1252] • IPod CONN [U1254]	Malfunction is detected in AV communica-	AV communication circuits between AV
With DVD player models • AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240] • DVD DECK CONN [U1248] • AMP CONN [U124E] • REAR CAMERA LAN CONN [U1252] • IPod CONN [U1254]	tion circuits between AV control unit and multifunction switch.	control unit and multifunction switch.

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### Error item Description Possible malfunction factor/Action to take А Without DVD player models AV COMM CIRCUIT [U1300] INTERNAL COMM [U121F] SWITCH CONN [U1240] В AMP CONN [U124E] REAR CAMERA LAN CONN [U1252] IPod CONN [U1254] Malfunction is detected in AV communica-Check and repair the short circuit in AV With DVD player models communication circuits. tion circuits. AV COMM CIRCUIT [U1300] INTERNAL COMM [U121F] SWITCH CONN [U1240] D DVD DECK CONN [U1248] AMP CONN [U124E] • REAR CAMERA LAN CONN [U1252] IPod CONN [U1254] Ε

#### DATA MONITOR

#### ALL SIGNALS

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

Display Item	Display	Vehicle status	Remarks	-
	On	Vehicle speed >0 km/h (0 MPH)		
VHCL SPD SIG	Off	Vehicle speed =0 km/h (0 MPH)	Changes in indication may be delayed. This is	
	On	Parking brake is applied.	normal.	
PKB SIG	Off	Parking brake is released.		
ILLUM SIG	On	Block the light beam from the auto light optical sensor when the light SW is ON.		
ILLOW SIG	Off	Expose the auto light optical sensor to light when the light SW is OFF or ON.		A۱
	On	Ignition switch ON.		
IGN SIG	Off	Ignition switch in ACC position.		
	On	Selector lever in R position.	Observes in indication may be delayed. This is	-
REV SIG	Off	Selector lever in any position other than R.	Changes in indication may be delayed. This is normal.	-

#### SELECTION FROM MENU

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

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

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### DIAGNOSIS SYSTEM (TEL ADAPTER UNIT) SIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < FUNCTION DIAGNOSIS >

# DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

### **Diagnosis Description**

INFOID:000000004155642

### 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 indi- cates them on the display.
STEP2	Speaker adaptation data deleting	The speaker adaptation data deleting mode can delete the speaker adaptation data.
	Hands-free phone system initialization	Hands-free phone system initialization mode can perform the initialization of hands-free phone system.

#### SELF-DIAGNOSIS RESULTS

Self-diagnosis mode reads out the self-diagnosis results and indicates DTC on the display. **NOTE:** 

- Error count is read out simultaneously when reading out the DTC name.
- The errors are read out continuously when some errors occur at the same time. The DTC displays are combined and displayed. For example, DTC 01100 is displayed when DTC 01000 and DTC 00100 are indicated at the same time.

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

#### The details of error count

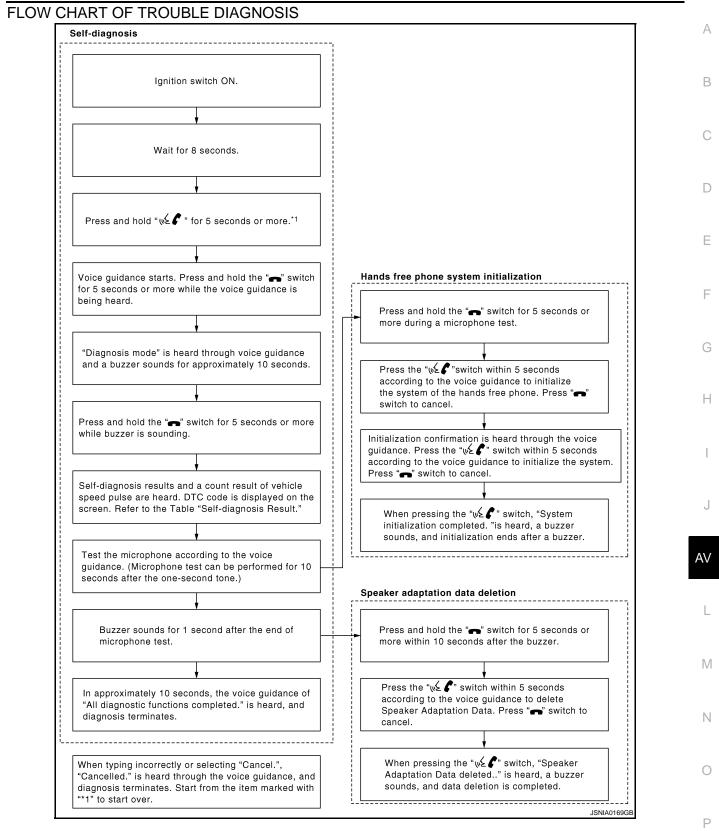
Salf-diagnosis results

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

# DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

#### < FUNCTION DIAGNOSIS >

# [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



Revision: 2009 Novemver

# COMPONENT DIAGNOSIS U1000 CAN COMM CIRCUIT

### Description

INFOID:000000004155643

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

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

# DTC Logic

INFOID:000000004155644

### DTC DETECTION LOGIC

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

### Diagnosis Procedure

INFOID:000000004155645

## **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-20, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI section. Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident".

# **U1010 CONTROL UNIT (CAN)** [WITHOUT MOBILE ENTERTAINMENT SYSTEM] < COMPONENT DIAGNOSIS > U1010 CONTROL UNIT (CAN) А Description INFOID:000000004155646 Initial diagnosis of AV control unit. В **DTC** Logic INFOID:000000004155647 С DTC DETECTION LOGIC Display contents of CON-DTC Diagnostic item is detected when... Probable malfunction location SULT-III D U1010 CONTROL UNIT (CAN) CAN initial diagnosis malfunction is detected. AV control unit. **Diagnosis Procedure** Е INFOID:000000004155648 **1.**REPLACE AV CONTROL UNIT When DTC U1010 is detected, replace AV control unit. F >> INSPECTION END Н J AV L Μ Ν Ρ

### U1310 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# U1310 AV CONTROL UNIT WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

INFOID:000000004155649

#### Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

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

## WITHOUT NAVIGATION : DTC Logic

INFOID:000000004155650

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

## WITH NAVIGATION

### WITH NAVIGATION : Description

INFOID:000000004155651

### Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## WITH NAVIGATION : DTC Logic

### U1310 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	А
U1310	CONTROL UNIT (AV) [U1310]	An initial diagnosis error is detected in AV communication circuit.	Replace AV control unit.	
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Revision: 2009 Novemver

### U1200 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# U1200 AV CONTROL UNIT WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

INFOID:000000004155653

#### Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

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

## WITHOUT NAVIGATION : DTC Logic

INFOID:000000004155654

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

# WITH NAVIGATION

### WITH NAVIGATION : Description

INFOID:000000004155655

#### Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable carble.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

### WITH NAVIGATION : DTC Logic

### U1200 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

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### U1201 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < COMPONENT DIAGNOSIS >

# U1201 AV CONTROL UNIT

# Description

INFOID:000000004155657

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1201	GYRO NO CONN [U1201]	Internal malfunction of AV control unit (gyrocompass dis- connection) is detected.	Replace AV control unit.

### U1216 AV CONTROL UNIT WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

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

# WITHOUT NAVIGATION : DTC Logic

 
 DTC
 Display contents of CONSULT-III
 DTC Detection Condition
 Action to take

 U1216
 CAN CONT [U1216]
 Internal malfunction of AV control unit (CAN controller) is detected.
 Replace AV control unit.

# WITH NAVIGATION

### WITH NAVIGATION : Description

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description	А
Part name	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> </ul>	A
	<ul> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> </ul>	
	<ul> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>	
	<ul> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>	

# WITH NAVIGATION : DTC Logic

INFOID:000000004155662

# U1216 AV CONTROL UNIT

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

INFOID:000000004155659

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### U1216 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

### **U1217 AV CONTROL UNIT** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

### < COMPONENT DIAGNOSIS >

# **U1217 AV CONTROL UNIT**

# Description

INFOID:000000004155663

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

### DTC Logic

INFOID:000000004155664

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1217	BLUETOOTH MODULE CONN [U1217]	Internal malfunction of AV control unit (Bluetooth module connection malfunction) is detected.	Replace AV control unit.	AV

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### U1218 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < COMPONENT DIAGNOSIS >

# U1218 AV CONTROL UNIT

## Description

INFOID:000000004155665

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each contro unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navi gation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable ca ble.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1218	HDD-CONN [U1218]	Internal malfunction of AV control unit (HDD connection malfunction) is detected.	Replace AV control unit.

### U1219 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

### < COMPONENT DIAGNOSIS >

# U1219 AV CONTROL UNIT

# Description

INFOID:000000004155667

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

### **DTC Logic**

INFOID:000000004155668

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	,
U1219	HDD-READ [U1219]	Internal malfunction of AV control unit (HDD read malfunc- tion) is detected.	Replace AV control unit.	

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### U1220 AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < COMPONENT DIAGNOSIS >

# U1220 AV CONTROL UNIT

# Description

INFOID:000000004155669

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each contro unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navi gation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable ca ble.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1220	XM SERIAL COMM [U1220]	Internal malfunction of AV control unit (satellite radio tuner communication error) is detected.	Replace AV control unit.

### U121A AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

### < COMPONENT DIAGNOSIS >

# U121A AV CONTROL UNIT

# Description

INFOID:000000004155671

Part name
AV CONTROL UNIT

### **DTC Logic**

INFOID:000000004155672

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	
U121A	HDD-WRITE [U121A]	Internal malfunction of AV control unit (HDD write mal- function) is detected.	Replace AV control unit.	

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### U121B AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < COMPONENT DIAGNOSIS >

# **U121B AV CONTROL UNIT**

## Description

INFOID:000000004155673

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each contro unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navi gation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable ca ble.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121B	HDD-COMM [U121B]	Internal malfunction of AV control unit (HDD communica- tion error) is detected.	Replace AV control unit.

### U121C AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

### < COMPONENT DIAGNOSIS >

# U121C AV CONTROL UNIT

# Description

INFOID:000000004155675

Part name	Description
Part name	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and</li> </ul>
	<ul> <li>parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

### DTC Logic

INFOID:000000004155676

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U121C	HDD-ACCESS [U121C]	Internal malfunction of AV control unit (HDD access error) is detected.	Replace AV control unit.	

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### U121D AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### < COMPONENT DIAGNOSIS >

# U121D AV CONTROL UNIT

## Description

INFOID:000000004155677

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121D	DSP CONN [U121D]	Internal malfunction of AV control unit (DSP connection error) is detected.	Replace AV control unit.

### U121E AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

### < COMPONENT DIAGNOSIS >

# U121E AV CONTROL UNIT

# Description

INFOID:000000004155679

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Part name	Description
	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication</li> </ul>
AV CONTROL UNIT	<ul> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> </ul>
	<ul> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>
	<ul> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

### **DTC Logic**

INFOID:000000004155680

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	
U121E	DSP COMM [U121E]	Internal malfunction of AV control unit (DSP communica- tion error) is detected.	Replace AV control unit.	

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### **U121F AV CONTROL UNIT**

### < COMPONENT DIAGNOSIS >

# **U121F AV CONTROL UNIT**

### Description

INFOID:000000004155681

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155682

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121F	INTERNAL COMM [U121F]	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.

### **Diagnosis Procedure**

INFOID:000000004155683

# 1. CHECK AV CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check AV control unit power supply and ground circuit. Refer to <u>AV-113, "AV CONTROL UNIT : Diagnosis Pro-</u> cedure".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

### **U1204 GPS** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

< COMPONENT DIAGNOSIS >

# U1204 GPS

Description

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

INFOID:000000004155684

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable carble.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155685

INFOID:000000004155686

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1204	GPS CONN [U1204]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.	
				AV

# **Diagnosis Procedure**

1.PERFORM THE SELF-DIAGNOSIS	1
1. Delete the self-diagnosis results. Turn ignition switch OFF.	L
<ol> <li>Turn ignition switch ON. Perform the self-diagnosis again.</li> <li>Check that the DTC is detected again.</li> </ol>	
Is any DTC detected?	IVI
YES >> Replace AV control unit.	
NO >> The intermittent malfunction caused by strong radio interference can be detected.	Ν
	0

# Description

**U1205 GPS** 

INFOID:000000004155687

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155688

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1205	GPS ROM [U1205]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.

# **Diagnosis Procedure**

INFOID:000000004155689

# $1. {\sf PERFORM} \text{ THE SELF-DIAGNOSIS}$

- 1. Delete the self-diagnosis results. Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- 3. Check that the DTC is detected again.

### Is any DTC detected?

- YES >> Replace AV control unit.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

# 

# < COMPONENT DIAGNOSIS > U1206 GPS

# Description

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

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INFOID:000000004155690

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Part name	Description
V CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It is numerication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>
	<ul> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155691

INFOID:000000004155692

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1206	GPS RAM [U1206]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.	

# **Diagnosis Procedure**

1.PERFORM THE SELF-DIAGNOSIS	I
<ol> <li>Delete the self-diagnosis results. Turn ignition switch OFF.</li> <li>Turn ignition switch ON. Perform the self-diagnosis again.</li> </ol>	
3. Check that the DTC is detected again.	M
<u>Is any DTC detected?</u> YES >> Replace AV control unit.	
NO >> The intermittent malfunction caused by strong radio interference can be detected.	Ν
	0

# Description

**U1207 GPS** 

INFOID:000000004155693

Replace the AV control unit if this DTC is displayed. Refer to AV-482, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the front display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155694

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1207	GPS RTC [U1207]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.

# **Diagnosis Procedure**

INFOID:000000004155695

# **1.**PERFORM THE SELF-DIAGNOSIS

- 1. Delete the self-diagnosis results. Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- 3. Check that the DTC is detected again.

### Is any DTC detected?

- YES >> Replace AV control unit.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

# U1243 DISPLAY UNIT WITHOUT NAVIGATION

# WITHOUT NAVIGATION : Description

INFOID:000000004155696

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Part name	Description
FRONT DISPLAY UNIT	<ul> <li>Front display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing).</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Auxiliary image signal is input from AV control unit.</li> </ul>

# WITHOUT NAVIGATION : DTC Logic

INFOID:000000004155697

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes	F
U1243	FRONT DISP CONN [U1243]	<ul> <li>When either one of the following item is detected:</li> <li>front display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	<ul> <li>Front display unit power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and front display unit.</li> </ul>	G

# WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155698

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

I CHECK FRONT DISPLAY UN	IT POWER SUPPLY AND GROUND CIRCUIT	
Check front display unit power su sis Procedure".	pply and ground circuit. Refer to <u>AV-114. "FRONT DISPLAY UNIT : Diagno-</u>	J
Is the inspection result normal?		
YES >> GO TO 2. NO >> Repair malfunctioning		AV
2. CHECK CONTINUITY COMM	UNICATION CIRCUIT	
	connector and AV control unit connector. ont display unit harness connector terminals 11, 22 and AV control unit har- 44.	L
11 - 56	: Continuity should exist.	Μ
22 - 44	: Continuity should exist.	
4. Check continuity between fro	nt display unit harness connector terminals 11, 22 and ground.	Ν
11, 22 - Ground	: Continuity should not exist.	0
Is the inspection result normal?		0
YES >> GO TO 3.		
NO >> Repair harness or co	nnector.	Р

**3.**CHECK COMMUNICATION SIGNAL

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

- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 11 and ground.

### U1243 DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Terminal		Condition	Reference value
11 - Ground	Ignition switch ON	When adjusting display bright- ness.	(V) 6 4 2 0 0 + 1ms

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4. CHECK COMMUNICATION SIGNAL

Check signal between front display unit harness connector terminal 22 and ground.

Terminal		Condition	Reference value	
22 - Ground	Ignition switch ON	When adjusting display bright- ness.	(V) 6 4 2 0 + 1ms 	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace front display unit.

### WITH NAVIGATION

### WITH NAVIGATION : Description

INFOID:000000004155699

Part name	Description	
FRONT DISPLAY UNIT	<ul> <li>Front display image is controlled by the serial communication from AV control unit.</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing). Camera image signal is input from camera control unit.</li> <li>Auxiliary image signal and DVD image signal are input from the DVD player (with DVD player models).</li> <li>Auxiliary image signal is input from the auxiliary input jacks. (without DVD player models)</li> </ul>	

### WITH NAVIGATION : DTC Logic

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1243	FRONT DISP CONN [U1243]	<ul> <li>When either one of the following items is detected:</li> <li>front display unit power supply and ground circuits.</li> <li>serial communication circuits between AV control unit and front display unit.</li> <li>serial communication signal between AV control unit and front display unit.</li> </ul>	<ul> <li>Front display unit power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and front display unit.</li> </ul>

### **U1243 DISPLAY UNIT**

< COMPONENT DIAGNOSIS >	WITHOUT MOBILE ENTER	RTAINMENT SYSTEM]
WITH NAVIGATION : Diag	gnosis Procedure	INFOID:000000004155701
1.CHECK FRONT DISPLAY UN	NIT POWER SUPPLY AND GROUND CIRCUIT	
Check front display unit power su sis Procedure".	upply and ground circuits. Refer to <u>AV-114, "FRONT I</u>	DISPLAY UNIT : Diagno-
Is the inspection result normal?		
YES >> GO TO 2. NO >> Repair malfunctionin	ig parts.	
2. CHECK CONTINUITY COMM	IUNICATION CIRCUIT	
	connector and AV control unit connector. ont display unit harness connector terminals 11, 22 2, 103.	and AV control unit har-
11 - 102	: Continuity should exist.	
22 - 103	: Continuity should exist.	
4. Check continuity between from	ont display unit harness connector terminals 11, 22 a	nd ground.
11, 22 - Ground	: Continuity should not exist.	
Is the inspection result normal?		
YES >> GO TO 3. NO >> Repair harness or co	onnector.	
<b>3.</b> CHECK SERIAL COMMUNIC	CATION SIGNAL	
<ol> <li>Connect front display unit co</li> <li>Turn ignition switch ON.</li> </ol>	nnector and AV control unit connector.	

Terminal	Terminal Condition		Reference value	
11 - Ground	lgnition switch ON	When adjusting front display brightness.	(V) 6 4 2 0 •••••1ms ••••1ms	AV

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4. CHECK SERIAL COMMUNICATION SIGNAL

Check signal between front display unit harness connector terminal 22 and ground.

Terminal		Condition	Reference value
22 - Ground	lgnition switch ON	When adjusting front display brightness.	(V) 6 4 2 0 ++1ms 

Is the inspection result normal?

YES >> INSPECTION END

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### U1243 DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

NO >> Replace front display unit.

# U1244 GPS ANTENNA

# Description

INFOID:000000004155702

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[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

DTC       Display contents of CONSULT-III       DTC Detection Condition       Possible causes         U1244       GPS ANTENNA CONN [U1244]       GPS antenna connection malfunction is detected.       GPS antenna disconnection.         Diagnosis Procedure       INFOLE CONDUCTION         01 .GPS ANTENNA CHECK       INFOLE CONDUCTION         Visually check GPS antenna and antenna feeder.       Is the inspection result normal?         YES       >> GO TO 2.       NO         NO       >> Repair malfunctioning parts.         2.CHECK AV CONTROL UNIT VOLTAGE       1         Disconnect GPS antenna connector.       2         1. Disconnect GPS antenna connector.       3         Check voltage between AV control unit terminal 105 and ground.       105 - Ground         : Approx. 5 V       CHECK 5 V		Part name		De	escription
DTC       Display contents of CONSULT-III       DTC Detection Condition       Possible causes         U1244       GPS ANTENNA CONN [U1244]       GPS antenna connection malfunction is detected.       GPS antenna disconnection.         Diagnosis Procedure       Import and the second s	GPS ANTENNA			GPS signal is received and transmitted to AV control unit.	
Dic       CONSULT-III       Dic Detection Condition       Possible causes         U1244       GPS ANTENNA CONN [U1244]       GPS antenna connection malfunction is detected.       GPS antenna disconnection.         Diagnosis Procedure       Import and the second and	DTC L	ogic			INFOID:00000000415570
U1244       GPS ANTENNA CONN [U1244]       GPS antenna connection malfunction is detected.       GPS antenna disconnection.         Diagnosis Procedure       Importance         1.GPS ANTENNA CHECK       Importance         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 terminal 105 and ground.         105 - Ground       : Approx. 5 V         Is the inspection result normal?         YES       >> INSPECTION END				atection Condition	Possible causes
U1244       [U1244]       GPS antenna connection malfunction is detected.       GPS antenna disconnection.         Diagnosis Procedure       Immonstrate       Immonstrate         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.         1. Disconnect GPS antenna connector.       2. Turn ignition switch ON.         3. Check voltage between AV control unit terminal 105 and ground.       105 - Ground : Approx. 5 V         Is the inspection result normal?       YES >> INSPECTION END					
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 terminal 105 and ground.         105 - Ground       : Approx. 5 V         Is the inspection result normal?         YES       >> INSPECTION END	U1244		GPS antenna connection	on malfunction is detected.	GPS antenna disconnection.
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 terminal 105 and ground. 105 - Ground : Approx. 5 V Is the inspection result normal? YES >> INSPECTION END	Diagn	osis Procedure			INFOID:00000004155704
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 terminal 105 and ground.         105 - Ground       : Approx. 5 V         Is the inspection result normal?         YES       >> INSPECTION END	1.gps	ANTENNA CHECK			
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 terminal 105 and ground.         105 - Ground       : Approx. 5 V         Is the inspection result normal?         YES       >> INSPECTION END	Visually	check GPS antenna	and antenna feeder.		
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 terminal 105 and ground.         105 - Ground       : Approx. 5 V         Is the inspection result normal?         YES       >> INSPECTION END	<u>Is the in</u>	spection result norma	<u> ?</u>		
2.CHECK AV CONTROL UNIT VOLTAGE          1. Disconnect GPS antenna connector.         2. Turn ignition switch ON.         3. Check voltage between AV control unit terminal 105 and ground.         105 - Ground       : Approx. 5 V         Is the inspection result normal?         YES       >> INSPECTION END	-				
<ol> <li>Disconnect GPS antenna connector.</li> <li>Turn ignition switch ON.</li> <li>Check voltage between AV control unit terminal 105 and ground.</li> <li>105 - Ground : Approx. 5 V</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; INSPECTION END</li> </ol>	<u> </u>	•	01		
<ul> <li>2. Turn ignition switch ON.</li> <li>3. Check voltage between AV control unit terminal 105 and ground.</li> <li>105 - Ground : Approx. 5 V</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; INSPECTION END</li> </ul>	Z.CHE	CK AV CONTROL UN	IIT VOLTAGE		
<ul> <li>Check voltage between AV control unit terminal 105 and ground.</li> <li>105 - Ground : Approx. 5 V</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; INSPECTION END</li> </ul>			connector.		
Is the inspection result normal? YES >> INSPECTION END			V control unit termin	al 105 and ground.	
YES >> INSPECTION END		105 - Ground	: Approx. 5 V		
	Is the in	spection result norma	<u>l?</u>		
NO >> Replace AV control unit.	-	>> INSPECTION EN	ID		
	NO	>> Replace AV cont	ol unit.		

**U1244 GPS ANTENNA** 

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### U1250 CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# U1250 CAMERA CONTROL UNIT

### Description

INFOID:000000004155705

Part name	Description
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera, and camera image is indicated on the front display.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>Controlled by AV communication transmitted from AV control unit.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> </ul>

# **DTC Logic**

INFOID:000000004155706

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1250	CAMERA CONT. CONN [U1250]	Malfunction is detected in Camera-connection recognition signal circuit.	Camera-connection recognition sig- nal circuit.

### **Diagnosis Procedure**

INFOID:000000004155707

# 1. CHECK CAMERA-CONNECTION RECOGNITION SIGNAL CIRCUIT

- 1. Disconnect AV control unit connector and camera control unit connector.
- 2. Check continuity between AV control unit harness connector terminal 40 and camera control unit harness connector terminal 14.

### 40 - 14

#### : Continuity should exist.

Is the inspection result normal?

YES >> GO TO 2.

NO

>> Repair harness or connector.

2. CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector terminal 40 and ground.

#### 40 - Ground

#### : Approx. 5 V

Is the inspection result normal?

- YES >> Replace camera control unit.
- NO >> Replace AV control unit.

# COMPONENT DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# U1255 SATELLITE RADIO TUNER

# Description

INFOID:000000004155708

Part name	Descri	ption
SATELLITE RADIO TUNER	<ul> <li>Inputs the satellite radio signal from sat AV control unit.</li> <li>It is controlled with the communication from AV control unit.</li> </ul>	
TC Logic		INFOID:000000004155709
DTC Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1255 SAT CONN [U1255] SAT CONN [U1255] • serial con control ur • request s	r one of the following items is detected: adio tuner power supply and ground circuits nctioning. nmunication circuits between AV control unit lite radio tuner are malfunctioning. nmunication or request signal between AV nit and satellite radio tuner is malfunctioning. ignal circuit between AV control unit and sat- o tuner is malfunctioning.	<ul> <li>Satellite radio tuner power supply and ground circuits.</li> <li>Communication circuits between AV control unit and satellite radio tuner.</li> <li>Request signal circuit between AV control unit and satellite radio tun- er.</li> </ul>
iagnosis Procedure		INFOID:00000004155710
.CHECK SATELLITE RADIO TUNER		
heck satellite radio tuner power supply		
iagnosis Procedure".		, OATELETTE RADIO TONER.
the inspection result normal?		
YES >> GO TO 2. NO >> Repair malfunctioning parts.		1
CHECK CONTINUITY COMMUNICA		NAL CIRCUIT
Turn ignition switch OFF.		
	or and satellite radio tuner connector. Il unit harness connector terminals 28 D	, 29, 30 and satellite radio tuner
	).	
28 - 8 : Cor	ntinuity should exist.	
29 - 9 : Cor	ntinuity should exist.	
29 - 9 : Cor 30 - 10 : Cor	ntinuity should exist. ntinuity should exist.	, 29, 30 and ground.
29 - 9: Cor30 - 10: CorCheck continuity between AV control	ntinuity should exist. ntinuity should exist. ntinuity should exist.	, 29, 30 and ground.
29 - 9: Cor30 - 10: CorCheck continuity between AV contro28 - Ground: Cor	ntinuity should exist. Intinuity should exist. Intinuity should exist. In unit harness connector terminals 28	, 29, 30 and ground.
29 - 9: Cor30 - 10: CorCheck continuity between AV control28 - Ground: Cor29 - Ground: Cor	ntinuity should exist. ntinuity should exist. ntinuity should exist. I unit harness connector terminals 28 ntinuity should not exist.	, 29, 30 and ground.
29 - 9: Cor30 - 10: CorCheck continuity between AV control28 - Ground: Cor29 - Ground: Cor	ntinuity should exist. Intinuity should exist. Intinuity should exist. Intinuity should exist. Intinuity should not exist. Intinuity should not exist.	, 29, 30 and ground.
29 - 9: Cor30 - 10: CorCheck continuity between AV control28 - Ground: Cor29 - Ground: Cor30 - Ground: Cor	ntinuity should exist. ntinuity should exist. ntinuity should exist. I unit harness connector terminals 28 ntinuity should not exist. ntinuity should not exist. ntinuity should not exist.	, 29, 30 and ground.

1. Connect AV control unit connector.

- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector terminal 28, 29 and ground.

# AV-107

#### 28 - Ground 29 - Ground

: Approx 7.0 V : Approx 7.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4. CHECK SATELLITE RADIO TUNER

1. Turn ignition switch OFF.

- 2. Disconnect AV control unit connector.
- 3. Connect satellite radio tuner.
- 4. Turn ignition switch ON.
- 5. Check voltage between satellite radio tuner harness connector terminal 10 and ground.

#### 10 - Ground

#### : Approx 7.0 V

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace satellite radio tuner.

# U1258 SATELLITE RADIO ANTENNA < COMPONENT DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### **U1258 SATELLITE RADIO ANTENNA**

### Description

INFOID:000000004155711

А

Part name			Descri	ption
SATELL	ITE RADIO ANTENNA		Satellite radio signal is received and tran	smitted to AV control unit.
DTC L	₋ogic			INFOID:000000004155712
DTC	DTC Display contents of CONSULT-III DTC Detection Condition		DTC Detection Condition	Possible causes
U1258	XM ANTENNA CONN [U1258]			<ul><li>Satellite radio antenna feeder.</li><li>Satellite radio antenna.</li></ul>
Diagn	osis Procedure			INFOID:000000004155713
.SAT	ELLITE RADIO ANTE		<	
	check satellite radio			
	spection result norma			
YES	>> GO TO 2.	. ,		
	>> Repair malfunctio		_	
2. Tur	connect satellite radio n ignition switch ON. eck voltage between A		inector. it terminal 110 and ground.	
	110 - Ground	: Appro	ox. 5 V	
	spection result norma			
YES NO	>> INSPECTION EN			

### U1300 AV COMM CIRCUIT WITHOUT NAVIGATION

#### WITHOUT NAVIGATION : Description

INFOID:000000004155714

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

#### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1300 U1240	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.
U1300 U1256	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>HAND FREE CONN [U1256]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>TEL adapter unit power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between AV control unit and TEL adapter unit are malfunctioning.</li> <li>AV communication signal between AV control unit and TEL adapter unit is malfunctioning.</li> </ul>	<ul> <li>TEL adapter unit power supply and ground circuits.</li> <li>AV communication circuits between multifunction switch and TEL adapter unit.</li> </ul>
U1300 U1240 U1256	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>HAND FREE CONN [U1256]</li> </ul>	Malfunction is detected in AV communication circuits.	<ul> <li>AV communication circuits be- tween AV control unit and multi- function switch.</li> <li>Check and repair the short circuit in AV communication circuits.</li> </ul>

### WITH NAVIGATION

### WITH NAVIGATION : Description

INFOID:000000004155715

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

### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT-III	Description	Possible malfunction factor/Action to take
U1300 U121F	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>INTERNAL COMM [U121F]</li> </ul>	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, re- place AV control unit.
U1300 U1240	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.
U1300 U1248	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> </ul>	<ul><li>When either one of the following items is detected:</li><li>DVD player power supply and ground circuits.</li><li>AV communication signal between AV control unit and DVD player.</li></ul>	DVD player power supply and ground circuits.

#### < COMPONENT DIAGNOSIS >

#### U1300 AV COMM CIRCUIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

DTC	Display contents of CONSULT-III	Description	Possible malfunction factor/Action to take
U1300 U124E	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>BOSE amp. power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and BOSE amp. is malfunctioning.</li> </ul>	BOSE amp. power supply and ground circuits.
U1300 U1252	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>camera control unit power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and camera control unit is malfunctioning.</li> </ul>	Camera control unit power supply and ground circuits.
U1300 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>iPod adapter power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between camera control unit and iPod adapter are malfunctioning.</li> <li>AV communication signal between AV control unit and iPod adapter is malfunctioning.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>
U1300 U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits be- tween BOSE amp. and camera control unit.	AV communication circuits between BOSE amp. and camera control unit.
U1300 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>Without DVD player models</li> <li>Malfunction is detected in AV communication circuits between multifunction switch and BOSE amp. are malfunctioning.</li> <li>With DVD player models</li> <li>Malfunction is detected in AV communication circuits between DVD player and BOSE amp. are malfunctioning.</li> </ul>	<ul> <li>Without DVD player models</li> <li>AV communication circuits between multifunction switch and BOSE amp. With DVD player models</li> <li>AV communication circuits between DVD player and BOSE amp.</li> </ul>
U1300 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits be- tween multifunction switch and DVD player.	AV communication circuits between multifunction switch and DVD player.
U1300 U124E U1252 U1254	Without DVD player models • AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240] • AMP CONN [U124E] • REAR CAMERA LAN CONN [U1252] • IPod CONN [U1254]		
U1300 U1240 U1248 U124E U1252 U1254	With DVD player models • AV COMM CIRCUIT [U1300] • SWITCH CONN [U1240] • DVD DECK CONN [U1248] • AMP CONN [U124E] • REAR CAMERA LAN CONN [U1252] • IPod CONN [U1254]	Malfunction is detected in AV communication circuits be- tween AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.

#### < COMPONENT DIAGNOSIS >

#### U1300 AV COMM CIRCUIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

DTC	Display contents of CONSULT-III	Description	Possible malfunction factor/Action to take
U1300 U121F U1240 U124E U1252 U1254	Without DVD player models • AV COMM CIRCUIT [U1300] • INTERNAL COMM [U121F] • SWITCH CONN [U1240] • AMP CONN [U124E] • REAR CAMERA LAN CONN [U1252] • IPod CONN [U1254]		
U1300 U121F U1240 U1248 U124E U1252 U1254	With DVD player models AV COMM CIRCUIT [U1300] INTERNAL COMM [U121F] SWITCH CONN [U1240] DVD DECK CONN [U1248] AMP CONN [U124E] REAR CAMERA LAN CONN [U1252] IPod CONN [U1254]	Malfunction is detected in AV communication circuits.	Check and repair the short circuit in AV communication circuits.

< COMPONENT DIA		[WITHO		
		ND CIRCUIT		
AV CONTROL L	JNH			
AV CONTROL U	NIT : Diagnosis P	rocedure		INFOID:000000004155
Without Navigation				
<b>1.</b> CHECK FUSE				
Check for blown fuses	S.			
	Power source		Fuse No.	
	Battery		37	
Igniti	on switch ACC or ON		6	
Ignitio	n switch ON or START		12	
Is the inspection resu YES >> GO TO 2 NO >> Be sure to 2.CHECK POWER S	o eliminate cause of m	alfunction before ins	stalling new fuse.	
Check voltage betwee	en AV control unit harn	ess connectors and	ground.	
	1		Ignition switch position	
Signal name	Connector No.	Terminal No.	ignition switch position	Value (Approx.)
Signal name Battery power supply	Connector No. M76	Terminal No.	OFF	value (Approx.)
-				Battery voltage
Battery power supply ACC power supply Ignition signal s the inspection resu	M76 M76 M79 It normal?	19	OFF	
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND 1. Turn ignition swite 2. Disconnect AV co 3. Check continuity	M76 M76 M79 It normal?	19 7 104	OFF ACC ON	
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND 1. Turn ignition swite 2. Disconnect AV co	M76 M76 M79 It normal?	19 7 104 htrol unit and fuse. it harness connecto Terminal No.	OFF ACC ON	
Battery power supply ACC power supply Ignition signal S the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND 1. Turn ignition swite 2. Disconnect AV co 3. Check continuity	M76 M76 M79 It normal?	19 7 104 Itrol unit and fuse.	OFF ACC ON	Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha <b>3.</b> CHECK GROUND 1. Turn ignition swite 2. Disconnect AV co 3. Check continuity Signal name Ground Is the inspection resu YES >> INSPECT	M76 M76 M79 It normal? It normal? It normal? CIRCUIT Ch OFF. Ontrol unit connectors. between AV control un Connector No. M76 M79 It normal? TION END arness or connector.	19 7 104 htrol unit and fuse. it harness connecto Terminal No. 20	OFF ACC ON rs and ground.	Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND 1. Turn ignition swite 2. Disconnect AV co 3. Check continuity Signal name Ground Is the inspection resu YES >> INSPECT NO >> Repair ha With Navigation 1.CHECK FUSE	M76 M76 M79 It normal? It normal? It normal? CIRCUIT Ch OFF. Ontrol unit connectors. between AV control un Connector No. M76 M79 It normal? TION END arness or connector.	19 7 104 htrol unit and fuse. it harness connecto Terminal No. 20	OFF ACC ON rs and ground.	Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3.CHECK GROUND 1. Turn ignition swite 2. Disconnect AV co 3. Check continuity Signal name Ground Is the inspection resu YES >> INSPECT NO >> Repair ha With Navigation 1.CHECK FUSE	M76 M76 M79 It normal? It normal? CIRCUIT ch OFF. ontrol unit connectors. between AV control un Connector No. M76 M79 It normal? FION END arness or connector.	19 7 104 htrol unit and fuse. it harness connecto Terminal No. 20	OFF ACC ON Ignition switch position OFF OFF	Battery voltage
Battery power supply ACC power supply Ignition signal Is the inspection resu YES >> GO TO 3 NO >> Check ha 3. CHECK GROUND 1. Turn ignition swite 2. Disconnect AV co 3. Check continuity Signal name Ground Is the inspection resu YES >> INSPECT NO >> Repair ha With Navigation 1. CHECK FUSE Check for blown fuses	M76 M76 M79 It normal? It normal? It normal? CIRCUIT Ch OFF. Ontrol unit connectors. between AV control un Connector No. M76 M79 It normal? TION END arness or connector.	19 7 104 htrol unit and fuse. it harness connecto Terminal No. 20	OFF ACC ON Ignition switch position OFF Filter OFF Filter OFF OFF	Battery voltage

Revision: 2009 Novemver

NO

>> Be sure to eliminate cause of malfunction before installing new fuse.

#### < COMPONENT DIAGNOSIS >

### 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.)	
	M76	19			
Battery power supply	M78	22	OFF	Battery voltage	
	WI7 8	24			
	M76	7	ACC	Pottony voltago	
ACC power supply	M78	25	ACC	Battery voltage	
Ignition signal	M78	35	ON	Battery voltage	

#### Is the inspection result normal?

YES >> GO TO 3.

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

#### ${f 3.}$ CHECK GROUND CIRCUIT

#### 1. Turn ignition switch OFF.

2. Disconnect AV control unit connectors.

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M78	21	OFF	Existed
Ciouna	WI7 O	23		Existed

#### Is the inspection result normal?

YES >> INSPECTION END

>> Repair harness or connector. NO

#### FRONT DISPLAY UNIT

### FRONT DISPLAY UNIT : Diagnosis Procedure

Without Navigation

### 1.CHECK POWER SUPPLY CIRCUIT (FRONT DISPLAY SIDE)

Check voltage between front display unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Signal VCC	M203	3	ACC	9 V
Inverter VCC	101203	2	100	5 V

Is the inspection result normal?

YES >> GO TO 4. 1

2. CHECK POWER SUPPLY CIRCUIT (CONTINUITY)

Turn ignition switch OFF. 1.

Disconnect the harness connector between front display unit and AV control unit. 2.

3. Check continuity between front display unit harness connector M203 and AV control unit harness connector M222.

Signal name	Front display unit (M203)	AV control unit (M222)	Continuity
Signal VCC	3	47	Existed
Inverter VCC	2	59	LXISIEU

Check continuity between front display unit harness connector M203 and ground. 4.

### AV-114

INFOID:000000004155717

#### POWER SUPPLY AND GROUND CIRCUIT OSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### < COMPONENT DIAGNOSIS >

Signal name	Front display ur	nit (M203)	_	Continuity
Signal VCC	3		Ground	Not existed
Inverter VCC	2		Ground	NOT EXISTED
CHECK POWER S Connect the AV c Turn ignition switc	TRESS OF CONNECTOR. SUPPLY CIRCUIT (AV ontrol unit harness cor ch ACC.	nnector.		
3. Check voltage be	tween AV control unit	harness connector a	ind ground.	
Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Signal VCC Inverter VCC	M222	47 59	ACC	9 V
CHECK GROUND	CIRCUIT			
<ol><li>Disconnect front of</li></ol>	ch OFF. display unit connector. between front display i		tor and ground.	
<ol><li>Disconnect front of</li></ol>	display unit connector.		tor and ground.	Continuity
2. Disconnect front of 3. Check continuity b Signal name Ground 5 the inspection resul	display unit connector. between front display Connector No. <u>M203</u> t normal?	unit harness connec	-	Continuity Existed
2. Disconnect front of 3. Check continuity b Signal name Ground Is the inspection resul YES >> INSPECT	display unit connector. between front display Connector No. <u>M203</u> <u>t normal?</u> ION END irness or connector.	unit harness connec Terminal No.	Ignition switch position	
2. Disconnect front of 3. Check continuity is Ground Is the inspection result YES >> INSPECT NO >> Repair ha With Navigation 1.CHECK FUSE	display unit connector. between front display Connector No. <u>M203</u> <u>t normal?</u> ION END irness or connector.	unit harness connec Terminal No.	Ignition switch position	
2. Disconnect front of 3. Check continuity by Ground s the inspection resul YES >> INSPECT NO >> Repair ha With Navigation 1.CHECK FUSE	display unit connector. between front display of <u>Connector No.</u> <u>M203</u> <u>t normal?</u> TON END irness or connector.	unit harness connec Terminal No.	Ignition switch position OFF	
<ol> <li>2. Disconnect front of 3. Check continuity is</li> <li>3. Check for plown fuses</li> <li>3. Check for blown fuses</li> </ol>	display unit connector. between front display Connector No. M203 t normal? TON END TON END TRESS or connector.	unit harness connec Terminal No.	Ignition switch position OFF Fuse No.	
2. Disconnect front of 3. Check continuity is Signal name Ground Is the inspection resul YES >> INSPECT NO >> Repair ha With Navigation 1.CHECK FUSE Check for blown fuses Ignitic Is the inspection resul YES >> GO TO 2. NO >> Be sure to 2.CHECK POWER S	display unit connector. between front display of Connector No. M203 t normal? TON END irness or connector. S. Power source Battery on switch ACC or ON t normal? b eliminate cause of m	unit harness connec	Ignition switch position         OFF         OFF         Fuse No.         37         6         stalling new fuse.	
<ul> <li>2. Disconnect front of 3. Check continuity is</li> <li>Signal name Ground</li> <li>Signal name Ground</li> <li>Sthe inspection resul</li> <li>YES &gt;&gt; INSPECT NO &gt;&gt; Repair ha</li> <li>Vith Navigation</li> <li>1. CHECK FUSE</li> <li>Check for blown fuses</li> <li>Ignitic</li> <li>S the inspection resul</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Be sure to</li> <li>2. CHECK POWER S</li> <li>Check voltage betwee</li> </ul>	display unit connector. between front display of Connector No. M203 <u>t normal?</u> TON END ress or connector. S. Power source Battery on switch ACC or ON <u>t normal?</u> D eliminate cause of m SUPPLY CIRCUIT en front display unit ha	unit harness connec Terminal No. 1 alfunction before ins rness connector and	Ignition switch position OFF OFF Fuse No. 37 6 stalling new fuse. ground.	Existed
<ul> <li>2. Disconnect front of 3. Check continuity is</li> <li>3. Check for present of the inspection result</li> <li>3. CHECK FUSE</li> <li>3. Check for blown fuses</li> <li>3. Check power to 2. Check power set of the fuse of th</li></ul>	display unit connector. between front display of Connector No. M203 t normal? TON END TON END TON END TRESS or connector. S. Power source Battery on switch ACC or ON t normal? D eliminate cause of m SUPPLY CIRCUIT	unit harness connec	Ignition switch position         OFF         OFF         Fuse No.         37         6         stalling new fuse.	

NO >> Check harness between front display unit and fuse.

### 3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

#### POWER SUPPLY AND GROUND CIRCUIT OSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### < COMPONENT DIAGNOSIS >

#### 2. Disconnect front display unit connector.

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M203	1	OFF	Existed
Ground	WZ05	13	- OIT	LXISIEU

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

### BOSE AMP.

### BOSE AMP. : Diagnosis Procedure

INFOID:000000004155718

#### BOSE 2CH SYSTEM (WITHOUT DVD PLAYER MODELS)

#### 1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	17, 18
Ignition switch ACC or ON	6

#### 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.)
Batton, power supply	Battery power supply B108	50	OFF	Battery voltage
Dattery power supply		51		Dattery voltage
ACC power supply	B109	60	ACC	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 B108	47	OFF	Existed	
Ground	BT00	52		LAISteu

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

#### BOSE SURROUND AUDIO 5.1CH SYSTEM (WITH DVD PLAYER MODELS)

#### 1.CHECK FUSE

Check for blown fuses.

#### POWER SUPPLY AND GROUND CIRCUIT DSIS S [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### < COMPONENT DIAGNOSIS >

Power source	Fuse No.	A
Battery	17, 18	
Ignition switch ACC or ON	6	
s the inspection result normal?		E

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.

					D
Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)	-
Pottory power supply	power supply B108	50	OFF	Potton ( voltogo	-
Ballery power supply		51	- OFF	Battery voltage	E
ACC power supply	B107	16	ACC	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	B108	47	OFF	Existed
Oround	Bioo	52		Existed

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

#### iPod ADAPTER

### iPod ADAPTER : Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.	$\mathbb{N}$
Battery	37	
Ignition switch ACC or ON	6	N

#### Is the inspection result normal?

YES >> GO TO 2.

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

### 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between iPod adapter harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M85	5	OFF	Battery voltage
ACC power supply	M85	3	ACC	Battery voltage

Is the inspection result normal?

YES >> INSPECTION END

NO >> Check harness between iPod adapter and fuse.

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#### < COMPONENT DIAGNOSIS >

### CAMERA CONTROL UNIT

### CAMERA CONTROL UNIT : Diagnosis Procedure

INFOID:000000004155720

### 1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6

#### 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 camera control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B481	32	OFF	Battery voltage
ACC power supply	B481	30	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

### **3.**CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect camera control unit connector.

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B481	31	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

### DVD PLAYER

### DVD PLAYER : Diagnosis Procedure

INFOID:000000004155721

### **1.**CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6

#### 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 DVD player harness connector and ground.

#### POWER SUPPLY AND GROUND CIRCUIT < COMPONENT DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### Signal name Connector No. Terminal No. Ignition switch position Value (Approx.) А Battery power supply M272 1 OFF Battery voltage 2 ACC power supply M272 ACC Battery voltage В Is the inspection result normal? YES >> GO TO 3. NO >> Check harness between DVD player and fuse. 3. CHECK GROUND CIRCUIT 1. Turn ignition switch OFF. 2. Disconnect DVD player connector. D 3. Check continuity between DVD player harness connector and ground. Terminal No. Signal name Connector No. Ignition switch position Continuity M272 17 Ground OFF Existed M292 49 Is the inspection result normal? YES >> INSPECTION END NO >> Repair harness or connector. MULTIFUNCTION SWITCH **MULTIFUNCTION SWITCH : Diagnosis Procedure** INFOID:000000004155722 Н 1.CHECK FUSE Check for blown fuses. Power source Fuse No. 37 Battery power supply Ignition switch ACC or ON 6 Is the inspection result normal? YES >> GO TO 2. AV NO >> Be sure to eliminate cause of malfunction before installing new fuse. 2.CHECK POWER SUPPLY CIRCUIT Check voltage between multifunction switch harness connector and ground. Signal name Connector No. Terminal No. Ignition switch position Value (Approx.) Μ OFF Battery power supply M69 1 Battery voltage 2 ACC ACC power supply M69 Battery voltage Is the inspection result normal? Ν YES >> GO TO 3. NO >> Check harness between multifunction switch and fuse. 3.CHECK GROUND CIRCUIT 1. Turn ignition switch OFF. Disconnect multifunction switch connector. 2. Check continuity between multifunction switch harness connector and ground. 3. Signal name Connector No. Terminal No. Ignition switch position Continuity OFF M69 14 Ground Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

### POWER SUPPLY AND GROUND CIRCUIT < COMPONENT DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### SATELLITE RADIO TUNER

### SATELLITE RADIO TUNER : Diagnosis Procedure

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6

#### 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	B461	12	OFF	Battery voltage
ACC power supply	B461	16	ACC	Dattery voltage

#### Is the inspection result normal?

YES >> INSPECTION END

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

#### TEL ADAPTER UNIT

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

INFOID:000000004155724

INFOID:000000004155723

### 1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6
Ignition switch ON or START	12

#### 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		1	OFF	
ACC power supply	M55	2	ACC	Battery voltage
Ignition signal		3	ON	

Is the inspection result normal?

YES >> GO TO 3.

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

### 3. CHECK GROUND CIRCUIT

Turn ignition switch OFF. 1.

- Disconnect TEL adapter unit connector. 2.
- Check continuity between TEL adapter unit harness connector and ground. 3.

### AV-120

# < COMPONENT DIAGNOSIS >

# POWER SUPPLY AND GROUND CIRCUIT OSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M55	4, 14, 19, 21, 23, 24	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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#### RGB (R: RED) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# RGB (R: RED) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

### WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

INFOID:000000004155725

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

### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155726

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

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 17 and AV control unit harness connector terminal 40.

#### 17 - 40

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 17 and ground.

#### 17 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

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

2. Turn ignition switch ON.

3. Check signal between front display unit harness connector terminal 17 and ground.

Terminal		Condition	Reference value
17 - Ground	Ignition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{pmatrix} V \\ 0 \\ 0 \\ -0 \\ 4 \\ \hline \\ -0 \\ -0 \\ -0 \\ -0 \\ -0 \\ -0 \\ -0 $

#### Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace AV control unit.

### WITH NAVIGATION

### WITH NAVIGATION : Description

INFOID:000000004155727

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

### WITH NAVIGATION : Diagnosis Procedure

INFOID:000000004155728

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

1. Turn ignition switch OFF.

3. Check continuity between front display unit harness connector terminal 17 and AV control unit harness connector terminal 93.

: Continuity should exist.

<sup>2.</sup> Disconnect front display unit connector and AV control unit connector.

#### RGB (R: RED) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

4. Check continuity between front display unit harness connector terminal 17 and ground.

#### 17 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (R: RED) SIGNAL

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

2. Turn ignition switch ON.

#### 3. Check signal between front display unit harness connector terminal 17 and ground.

Terminal		Condition	Reference value
17 - Ground	lgnition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$\begin{pmatrix} V \\ 0.8 \\ 0.4 \\ 0 \\ \hline \bullet \bullet \bullet 40 \\ \mu s \\ J \\$

#### Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

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#### RGB (G: GREEN) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### RGB (G: GREEN) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DIS-PLAY UNIT) WITHOUT NAVIGATION

### WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

INFOID:000000004155729

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

### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155730

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

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 6 and AV control unit harness connector terminal 39.

#### 6 - 39

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 6 and ground.

#### 6 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK RGB (G: GREEN) SIGNAL

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

- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 6 and ground.

Terminal		Condition	Reference value
6 - Ground	Ignition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 −0.4 + 40µs SKIB2236J

#### Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

### WITH NAVIGATION

### WITH NAVIGATION : Description

INFOID:000000004155731

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

### WITH NAVIGATION : Diagnosis Procedure

INFOID:000000004155732

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

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 6 and AV control unit harness connector terminal 94.

: Continuity should exist.

#### RGB (G: GREEN) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

4. Check continuity between front display unit harness connector terminal 6 and ground.

#### 6 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (G: GREEN) SIGNAL

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

2. Turn ignition switch ON.

3. Check signal between front display unit harness connector terminal 6 and ground.

Terminal		Condition	Reference value
6 - Ground	Ignition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 ••••40µs JSNIA1030ZZ

Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

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#### RGB (B: BLUE) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### RGB (B: BLUE) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DIS-PLAY UNIT) WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

INFOID:000000004155733

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

### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155734

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

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 18 and AV control unit harness connector terminal 38.

#### 18 - 38

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 18 and ground.

#### 18 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

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

2. Turn ignition switch ON.

3. Check signal between front display unit harness connector terminal 18 and ground.

Terminal		Condition	Reference value
18 - Ground	lgnition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{pmatrix} (V) \\ 0.4 \\ 0 \\ -0.4 \\ -0.4 \\ \hline \\ $

#### Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

### WITH NAVIGATION

### WITH NAVIGATION : Description

INFOID:000000004155735

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

### WITH NAVIGATION : Diagnosis Procedure

INFOID:000000004155736

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

1. Turn ignition switch OFF.

3. Check continuity between front display unit harness connector terminal 18 and AV control unit harness connector terminal 95.

: Continuity should exist.

<sup>2.</sup> Disconnect front display unit connector and AV control unit connector.

#### RGB (B: BLUE) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

4. Check continuity between front display unit harness connector terminal 18 and ground.

#### 18 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK RGB (B: BLUE) SIGNAL

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

2. Turn ignition switch ON.

#### 3. Check signal between front display unit harness connector terminal 18 and ground.

Terminal		Condition	Reference value
18 - Ground	Ignition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$\begin{pmatrix} V \\ 0.8 \\ 0.4 \\ 0 \\ \hline \hline$

#### Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

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#### RGB SYNCHRONIZING SIGNAL CIRCUIT

#### < COMPONENT DIAGNOSIS >

### RGB SYNCHRONIZING SIGNAL CIRCUIT WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

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

### WITHOUT NAVIGATION : Diagnosis Procedure

1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 19 and AV control unit harness connector terminal 41.

#### 19 - 41

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 19 and ground.

#### 19 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK RGB SYNCHRONIZING SIGNAL

- 1. Connect front display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 19 and ground.

	(V)
	₄ <mark>┍╾┥╷╓╌┽╍┼┑╎┍╍┿╍╋╍</mark> ┥┍┿╍╸
19 - Ground	0 <b>V</b>
	→ + 20µs
	SKIB3603E

Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

#### WITH NAVIGATION

### WITH NAVIGATION : Description

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

### WITH NAVIGATION : Diagnosis Procedure

INFOID:000000004155740

INFOID:000000004155739

### **1.**CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

1. Turn ignition switch OFF.

- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 19 and AV control unit harness connector terminal 97.

#### 19 - 97

: Continuity should exist.

INFOID:000000004155737

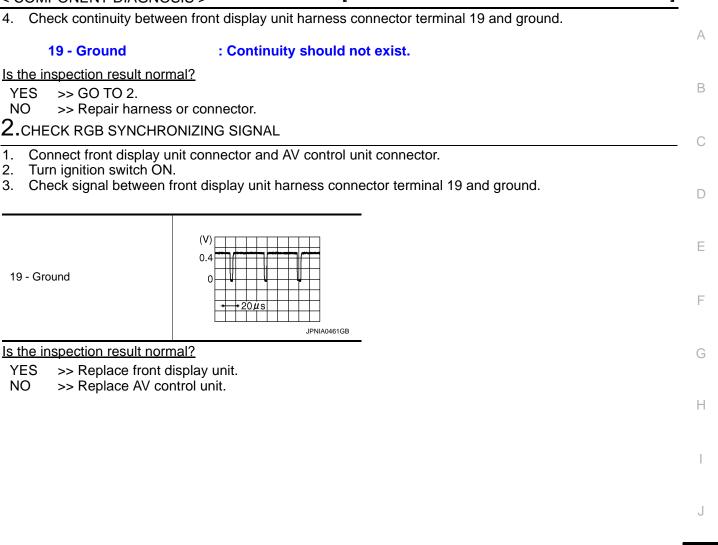
INFOID:000000004155738

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### RGB SYNCHRONIZING SIGNAL CIRCUIT

#### < COMPONENT DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



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# RGB AREA (YS) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

#### < COMPONENT DIAGNOSIS >

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### RGB AREA (YS) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DIS-PLAY UNIT) WITHOUT NAVIGATION

WITHOUT NAVIGATION : Description

INFOID:000000004155741

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

### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155742

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

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 9 and AV control unit harness connector terminal 43.

#### 9 - 43

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 9 and ground.

#### 9 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Repair harness or connector.
- **2.**CHECK RGB AREA (YS) SIGNAL
- 1. Connect front display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 9 and ground.

Terminal		Condition	Reference value	
		When RGB image is displayed.	Approx. 5 V	
9 - Ground	Ignition switch ON	When AUX image is displayed.	(V) 6 2 0 + 200 µ s + + 200 µ s PKIB4948J	

#### Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

### WITH NAVIGATION

### WITH NAVIGATION : Description

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

### WITH NAVIGATION : Diagnosis Procedure

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

1. Turn ignition switch OFF.

2. Disconnect front display unit connector and AV control unit connector.

### AV-130

INFOID:000000004155744

INFOID:000000004155743

#### RGB AREA (YS) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

#### < COMPONENT DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

<ol> <li>Check continuity be nector terminal 99.</li> </ol>	tween front display unit harness connector	terminal 9 and AV control unit harness con-
9 - 99	: Continuity should exist.	
4. Check continuity be	tween front display unit harness connector	terminal 9 and ground.
9 - Ground	: Continuity should not exist.	
Is the inspection result i	normal?	
YES >> GO TO 2.	and ar connector	
- '	ess or connector.	
2.CHECK RGB AREA	(YS) SIGNAL	
· · · · · · · · · ·	ay unit connector and AV control unit conne	ctor.
0	en front display unit harness connector terr	minal 9 and ground.
Terminal	Condition	Reference value
	When RGB image is displayed.	Approx. 5 V

		When RGB image is displayed.	Approx. 5 V	
9 - Ground	Ignition switch ON	When rear view camera image is displayed.	(V) 6 4 2 0 + 200 µ s 	G

Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

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### HP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT) < COMPONENT DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### HP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT) WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

INFOID:000000004155745

In composite image (AUX image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front 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.

### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155746

### 1. CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 8 and AV control unit harness connector terminal 45.

### 8 - 45 : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 8 and ground.

#### 8 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

- 1. Connect front display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 8 and ground.

|--|

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace front display unit.

### WITH NAVIGATION

### WITH NAVIGATION : Description

In composite image (DVD and AUX images, camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front 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.

### WITH NAVIGATION : Diagnosis Procedure

INFOID:000000004155748

INFOID:000000004155747

### 1. CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 8 and AV control unit harness connector terminal 100.

### AV-132

### HP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT)

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### < COMPONENT DIAGNOSIS >

#### 8 - 100 : Continuity should exist. А 4. Check continuity between front display unit harness connector terminal 8 and ground. В 8 - Ground : Continuity should not exist. Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. **2.**CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL 1. Connect front display unit connector and AV control unit connector. D 2. Turn ignition switch ON. 3. Check signal between front display unit harness connector terminal 8 and ground. Ε (V)F 8 - Ground SKIB3601E Is the inspection result normal? Н YES >> Replace AV control unit. NO >> Replace front display unit.

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### VP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT) < COMPONENT DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### VP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT) WITHOUT NAVIGATION

### WITHOUT NAVIGATION : Description

INFOID:000000004155749

In composite image (AUX image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front 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.

### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155750

### **1.**CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 20 and AV control unit harness connector terminal 57.

#### 20 - 57 : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 20 and ground.

#### 20 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

- 1. Connect front display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 20 and ground.

20 - Ground	(V) 4 0 • • • 4ms
	SKIB3598E

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace front display unit.

### WITH NAVIGATION

### WITH NAVIGATION : Description

In composite image (DVD and AUX images, camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front 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.

### WITH NAVIGATION : Diagnosis Procedure

#### INFOID:000000004155752

INFOID:000000004155751

### 1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 20 and AV control unit harness connector terminal 101.

### AV-134

### VP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT)

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### < COMPONENT DIAGNOSIS >

#### 20 - 101 : Continuity should exist. А 4. Check continuity between front display unit harness connector terminal 20 and ground. В 20 - Ground : Continuity should not exist. Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2. CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL 1. Connect front display unit connector and AV control unit connector. D 2. Turn ignition switch ON. 3. Check signal between front display unit harness connector terminal 20 and ground. Ε (V) F 20 - Ground 4ms SKIB3598E Is the inspection result normal? Н YES >> Replace AV control unit. NO >> Replace front display unit. AV L

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#### AUX IMAGE SIGNAL CIRCUIT

#### < COMPONENT DIAGNOSIS >

### AUX IMAGE SIGNAL CIRCUIT WITHOUT NAVIGATION

#### WITHOUT NAVIGATION : Description

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

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

### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155754

INFOID:000000004155753

### 1. CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT (AUX INPUT JACKS AND AV CONTROL UNIT)

- 1. Turn ignition switch OFF.
- 2. Disconnect auxiliary input jacks connector and AV control unit connector.
- 3. Check continuity between auxiliary input jacks harness connector terminal 7, 8 and AV control unit harness connector terminal 66, 74.
  - 7 66 : Continuity should exist.

#### 8 - 74 : Continuity should exist.

- 4. Check continuity between auxiliary input jacks harness connector terminal 7, 8 and ground.
  - 7, 8 Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK AUX IMAGE SIGNAL (AUX INPUT JACKS TO AV CONTROL UNIT)

- 1. Connect auxiliary connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between auxiliary input jacks harness connector terminal 7 and 8.

Terminal	Condition		Reference value	
7 - 8	Ignition switch ON	when AUX image is displayed.	(V) 0.4 0 −0.4 •••40µs skiB2251J	

Is the inspection result normal?

YES >> GO TO 3.

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

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

1. Turn ignition switch OFF.

- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 15 and AV control unit harness connector terminal 36.

#### 15 - 36

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 15 and ground.

#### 15 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

Revision: 2009 Novemver

#### AV-136

### < COMPONENT DIAGNOSIS >

#### AUX IMAGE SIGNAL CIRCUIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

2. Turn ignition switch ON		r and front display unit connect y unit harness connector termi	
Terminal		Condition	Reference value
15 - Ground	lgnition switch ON	When AUX image is displayed.	$ \begin{array}{c} (V) \\ 0.4 \\ 0 \\ -0.4 \\ \hline 0 \\ -0.4 \\ \hline 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$
Is the inspection result norm	nal?		
YES >> Replace front d NO >> Replace AV cor WITH NAVIGATION			
WITH NAVIGATION :	Descript	tion	INFOID:000000004155755
			t jacks to front display unit. (without DVD
player models)			it jacks to DVD player. (with DVD player
WITH NAVIGATION :	Diagnos	sis Procedure	INFOID:00000004155756
		、 、	
1.CHECK CONTINUITY A		SIGNAL CIRCUIT	
	ut jacks co	onnector and front display unit y input jacks harness connecto	connector. or terminal 7 and front display unit harness
7 - 15	: C	ontinuity should exist.	
4. Check continuity betwee connector terminal 5.	en auxilia	ry input jacks harness connec	ctor terminal 8 and front display harness
8 - 5	: C	ontinuity should exist.	
		y input jacks harness connecto	or terminal 7 and ground.
7 - Ground		ontinuity chould not ovict	
7 - Ground		ontinuity should not exist.	
<u>Is the inspection result norm</u> YES >> GO TO 2.	<u>ial :</u>		
NO >> Repair harness		tor.	
2.CHECK AUX IMAGE SIG	GNAL		
1. Connect auxiliary input	iacks conn	ector and front display unit co	nnector.

3. Check signal between front display unit harness connector terminal 5 and 15.

Terminal	Condition		Reference value	
5 - 15	Ignition switch ON	When AUX image is displayed.	(V) 0.4 −0.4 ++40µs SKIB2251J	

Is the inspection result normal?

- YES >> Replace front display unit.
- NO >> Check that there is no malfunction in the external device.
- WITH DVD PLAYER MODELS

### 1. CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect auxiliary input jacks connector and DVD player connector.
- 3. Check continuity between auxiliary input jacks harness connector terminal 7 and DVD player harness connector terminal 4.

#### 7 - 4

#### : Continuity should exist.

4. Check continuity between auxiliary input jacks harness connector terminal 8 and DVD player harness connector terminal 5.

#### 8 - 5

#### : Continuity should exist.

5. Check continuity between auxiliary input jacks harness connector terminal 7 and ground.

#### 7 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

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

2. CHECK AUX IMAGE SIGNAL

- 1. Connect auxiliary input jacks connector and DVD player connector.
- 2. Turn ignition switch ON.
- 3. Check signal between DVD player harness connector terminal 4 and 5.

Terminal	Condition		Reference value	
4 - 5	Ignition switch ON	When AUX image is displayed.	$\begin{pmatrix} (V) \\ 0.4 \\ 0 \\ -0.4 \\ \hline + 40\mu s \\ \hline s \\ s$	

#### Is the inspection result normal?

- YES >> Replace DVD player.
- NO >> Check that there is no malfunction in the external device.

### **COMPOSITE IMAGE SIGNAL CIRCUIT**

### < COMPONENT DIAGNOSIS >

### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

C	OMPOSITE IMAG	E SIGN	IAL CIRCUIT		
De	escription			INFOID:000000004155757	
DV	D player transmits the pla	yback DV	D image signal and the input	AUX image signal to the front display unit.	
Dia	agnosis Procedure			INFOID:000000004155758	
1.	CHECK CONTINUITY CC	OMPOSITE	E IMAGE SIGNAL CIRCUIT		
1. 2. 3.		connector	and front display unit connec ayer harness connector termi	tor. nal 20 and front display unit harness con-	
	20 - 15	: Co	ontinuity should exist.		
4.	Check continuity betwee nector terminal 5.	n DVD pla	ayer harness connector termi	nal 19 and front display unit harness con-	
	19 - 5	: Co	ontinuity should exist.		
5.	Check continuity betwee	n front dis	play unit harness connector t	erminal 15 and ground.	
	15 - Ground	: Co	ontinuity should not exist.		
6.	Check continuity betwee	n front dis	play unit harness connector t	erminal 5 and ground.	
	5 - Ground	: Co	ontinuity should not exist.		
	the inspection result norma	<u>al?</u>			
	ES >> GO TO 2. O >> Repair harness of	or connect	or.		
2.	CHECK COMPOSITE IM/	AGE SIGN	IAL		
1. 2.	Connect DVD player con Turn ignition switch ON.	nector an	d front display unit connector		
<u>3</u> .		ont display	harness connector terminal	15 and 5.	
	Terminal		Condition	Reference value	
15	5 - 5	Ignition switch ON	When AUX or DVD image is dis- played on front display.		

#### Is the inspection result normal?

- >> Replace front display unit. >> Replace DVD player. YES
- NO

SKIB2251J

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### MICROPHONE SIGNAL CIRCUIT

#### < COMPONENT DIAGNOSIS >

### MICROPHONE SIGNAL CIRCUIT WITHOUT NAVIGATION

#### WITHOUT NAVIGATION : Description

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

#### WITHOUT NAVIGATION : Diagnosis Procedure

INFOID:000000004155760

INFOID:000000004155759

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### $1. \mathsf{CHECK} \ \mathsf{CONTINUITY} \ \mathsf{BETWEEN} \ \mathsf{TEL} \ \mathsf{ADAPTER} \ \mathsf{UNIT} \ \mathsf{AND} \ \mathsf{MICROPHONE} \ \mathsf{CIRCUIT}$

- 1. Turn ignition switch OFF.
- 2. Disconnect TEL adapter unit connector and microphone connector.
- 3. Check continuity between TEL adapter unit harness connector terminals 7, 8, 29 and microphone harness connector terminals 1, 2, 4.

7 - 1	: Continuity should exist.
8 - 2	: Continuity should exist.
29 - 4	: Continuity should exist.

4. Check continuity between TEL adapter unit harness connector terminals 7, 29 and ground.

#### 7, 29 - Ground

#### : Continuity should not exist.

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 terminal 29 and 8.

29 - 8 : Approx. 5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace TEL adapter unit.

 ${\it 3.}$  CHECK MICROPHONE SIGNAL

1. Connect microphone connector.

2. Check signal between TEL adapter unit harness connector terminals 7 and 8.

Terminal		Condition	Reference value	
7 - 8	Ignition switch ON	Give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 ★ 2ms PKIB5037J	

Is the inspection result normal?

YES >> Replace TEL adapter unit.

NO >> Replace microphone.

WITH NAVIGATION

#### **MICROPHONE SIGNAL CIRCUIT**

[WITHOUT MOBILE ENTERTAINMENT SYSTEM] < COMPONENT DIAGNOSIS > WITH NAVIGATION : Description INFOID:000000004155761 А Supply power from AV control unit to microphone. The microphone transmits the sound/voice to the AV control unit. В WITH NAVIGATION : Diagnosis Procedure INFOID:000000004155762 1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT 1. Turn ignition switch OFF. Disconnect AV control unit connector and microphone connector. 2. Check continuity between AV control unit harness connector terminals 26, 27, 28 and microphone har-3. D ness connector terminals 4, 2, 1. 26 - 4 : Continuity should exist. Е 27 - 2 : Continuity should exist. 28 - 1 : Continuity should exist. Check continuity between AV control unit harness connector terminals 26, 28 and ground. 4 F 26, 28 - Ground : Continuity should not exist. Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2. CHECK VOLTAGE MICROPHONE VCC Н 1. Connect AV control unit connector. Turn ignition switch ON. 2. 3. Check voltage between AV control unit harness connector terminals 26 and 27. 26 - 27 : Approx. 5 V Is the inspection result normal? YES >> GO TO 3. NO >> Replace AV control unit. AV  ${\it 3.}$ CHECK MICROPHONE SIGNAL 1. Connect microphone connector. 2. Check signal between AV control unit harness connector terminals 28 and 27. Terminal Condition Reference value Μ (V) 2 0 Ignition 1.5 28 - 27 switch Give a voice. 1.0 Ν ON 0 5 2ms PKIB5037J Is the inspection result normal? YES >> Replace AV control unit.

NO >> Replace microphone.

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#### **AUDIOPILOT® MICROPHONE**

< COMPONENT DIAGNOSIS >

## AUDIOPILOT® MICROPHONE

BOSE AUDIO 2CH SYSTEM

BOSE AUDIO 2CH SYSTEM : Description

The microphone transmits the microphone signal to the BOSE amp.

BOSE AUDIO 2CH SYSTEM : Diagnosis Procedure

**1.**CHECK CONTINUITY BETWEEN BOSE AMP. AND AUDIOPILOT<sup>®</sup> MICROPHONE CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BOSE amp. connector and AudioPilot<sup>®</sup>microphone connector.
- 3. Check continuity between BOSE amp. harness connector terminals 25, 26 and AudioPilot<sup>®</sup>microphone harness connector terminals 1, 2.

25 - 1	: Continuity should exist.
26 - 2	: Continuity should exist.

4. Check continuity between BOSE amp. harness connector terminals 25, 26 and ground.

#### 25, 26 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE MICROPHONE VCC

- 1. Connect BOSE amp. connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between BOSE amp. harness connector terminals 25 and ground.

#### 25 - Ground

#### : Approx. 5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BOSE amp.

**3.**CHECK MICROPHONE SIGNAL

- 1. Turn ignition switch OFF.
- 2. Connect AudioPilot<sup>®</sup>microphone connector.
- 3. Turn ignition switch ON.
- 4. Check signal between BOSE amp. harness connector terminals 25 and 26.

Terminal	Condition		Reference value	
25 - 26	Ignition switch ON	When inputting noise.	(V) 6 2 0 + 2ms (reference value) PKIA2104E	

Is the inspection result normal?

YES >> Replace BOSE amp.

NO >> Replace AudioPilot<sup>®</sup>microphone.

BOSE SURROUND AUDIO 5.1CH SYSTEM

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

INFOID:000000004155763

INFOID:000000004155764

AUDIOPILOT®       MICROPHONE         < COMPONENT DIAGNOSIS >       [WITHOUT MOBILE ENTERTAINMENT SYSTEM]         BOSE SURROUND AUDIO 5.1CH SYSTEM : Description       INFOID:00000004155765						
The microphone transmits th	e microph	one signal to the BOSE amp				
BOSE SURROUND A				INFOID:000000004155766		
1. CHECK CONTINUITY BE	TWEEN	BOSE AMP. AND AUDIOPIL	OT <sup>®</sup> MICROPHONE CIF	RCUIT		
•	connector en BOSE	and AudioPilot <sup>®</sup> microphone amp. harness connector ter		oPilot <sup>®</sup> microphone		
31 - 1	: Co	ontinuity should exist.				
11 - 2	: Co	ontinuity should exist.				
4. Check continuity betwee	en BOSE a	mp. harness connector term	inals 31, 11 and ground.			
31, 11 - Ground	: Co	ontinuity should not exist.				
Is the inspection result norma	al?					
YES >> GO TO 2.						
NO >> Repair harness of						
2.CHECK VOLTAGE MICR		VCC				
<ol> <li>Connect BOSE amp. con</li> <li>Turn ignition switch ON.</li> </ol>	nnector.					
3. Check voltage between	BOSE am	p. harness connector termina	als 31 and ground.			
31 - Ground	: A	oprox. 5 V				
Is the inspection result norma	al?					
YES >> GO TO 3.						
NO >> Replace BOSE a	•					
3.CHECK MICROPHONE S						
<ol> <li>Turn ignition switch OFF</li> <li>Connect AudioPilot<sup>®</sup>mic</li> </ol>		onnector				
3. Turn ignition switch ON.	•					
4. Check signal between B	OSE amp	. harness connector terminal	s 31 and 11.			
Terminal		Condition	Reference	value		
31 - 11	lgnition switch ON	When inputting noise.	(V) 6 4 2 0 • • • 2ms (reference	value)		
				PKIA2104E		
Is the inspection result norma						

YES >> Replace BOSE amp. NO >> Replace AudioPilot<sup>®</sup>microphone.

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### CONTROL SIGNAL CIRCUIT

### Description

INFOID:000000004155767

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

Diagnosis Procedure

INFOID:000000004155768

### 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 terminals 21, 23, 24 and ground.

#### 21, 23, 24 - Ground : Continuity should exist.

Is the inspection result normal?

- YES >> Replace TEL adapter unit.
- NO >> Repair harness or connector.

CAMERA IMAGE SIGNA	L CIRCUIT (REAR VIEW CAMERA TO CAMERA CON- TROL UNIT)	
< COMPONENT DIAGNOSIS >	[WITHOUT MOBILE ENTERTAINMENT SYSTEM]	
CAMERA IMAGE SIGN CONTROL UNIT)	IAL CIRCUIT (REAR VIEW CAMERA TO CAMERA	A
Description	INFOID:000000004155769	В
<ul> <li>Camera control unit outputs can nal from rear view camera when</li> </ul>	nera ON signal to rear view camera and inputs rear view camera image sig-	
	uts the camera image signal transmits the camera image signal to the front	С
Diagnosis Procedure	INFOID:000000004155770	
1. CHECK CONTINUITY CAMER	A IMAGE SIGNAL CIRCUIT	D
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect camera control unit connector and rear view camera connector.</li> <li>Check continuity between camera control unit harness connector terminal 6, 5 and rear view camera harness connector terminal 3, 4.</li> </ol>		E
5 - 4	: Continuity should exist.	F
6 - 3	: Continuity should exist.	
4. Check continuity between car	nera control unit harness connector terminal 6 and ground.	G
6 - Ground	: Continuity should not exist.	
<u>Is the inspection result normal?</u> YES >> GO TO 2.		Η
NO >> Repair harness or cor 2.CHECK CAMERA IMAGE SIG		I
	connector and rear view camera connector.	_
<ol> <li>Turn ignition switch ON.</li> <li>Check signal between camera</li> </ol>	a control unit harness connector terminal 6 and 5.	J

Terminal		Condition	Reference value	A
6 - 5	lgnition switch ON	When rear view camera image is displayed.	$(V)$ $0.4$ $0$ $-0.4$ $+ 40\mu s$ $5KIB2251J$	

Is the inspection result normal?

>> Replace camera control unit. >> Replace rear view camera. YES

NO

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#### **CAMERA ON SIGNAL CIRCUIT**

#### < COMPONENT DIAGNOSIS >

# CAMERA ON SIGNAL CIRCUIT

#### Description

- Camera control unit outputs camera ON signal to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.
- The camera control unit that inputs the camera image signal transmits the camera image signal to the front display unit.

#### Diagnosis Procedure

INFOID:000000004155772

INFOID:000000004155771

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# 1. CHECK CONTINUITY CAMERA ON SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect camera control unit connector and rear view camera connector.
- 3. Check continuity between camera control unit harness connector terminal 8 and rear view camera harness connector terminal 1.

#### 8 - 1 : Continuity should exist.

4. Check continuity between camera control unit harness connector terminal 8 and ground.

#### 8 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE CAMERA ON SIGNAL

- 1. Connect camera control unit connector and rear view camera connector.
- 2. Turn ignition switch ON.
- 3. Check signal between camera control unit harness connector terminal 8 and ground.

#### 8 - Ground

#### Shift the selector lever to "R" position : Approx. 6 V

Is the inspection result normal?

- YES >> Replace rear view camera.
- NO >> Replace camera control unit.

## CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO FRONT DIS-PLAY UNIT) < COMPONENT DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM] CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO FRONT

# DISPLAY UNIT)

De	escription		INFOID:000000004155773	В
n • T	al from rear view camer	a when the reverse signal is input.	camera and inputs rear view camera image sig- transmits the camera image signal to the front	С
Dia	agnosis Procedure		INFOID:000000004155774	
1.	CHECK CONTINUITY (	CAMERA IMAGE SIGNAL CIRCUIT		D
1. 2. 3.		ntrol unit connector and front display	y unit connector. onnector terminal 12 and display unit harness	Е
	12 - 12	: Continuity should exist.		F
4.	Check continuity betwe	een camera control unit harness cor	nector terminal 12 and ground.	0
	12 - Ground	: Continuity should not ex	cist.	G
ls t	he inspection result nor	nal?		
Y	ES >> GO TO 2.			Н

NO >> Repair harness or connector.

2. CHECK CAMERA IMAGE SIGNAL

1. Connect camera control unit connector and front display unit connector.

2. Turn ignition switch ON.

3. Check signal between camera control unit harness connector terminal 12 and ground.

Terminal		Condition	Reference value	
12 - Ground	lgnition switch ON	When rear view camera image is displayed.	$(V)$ $0.4$ $0$ $-0.4$ $+40\mu s$	AV
			SKIB2251J	M

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace camera control unit.

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

< COMPONENT DIAGNOSIS >

# STEERING SWITCH SIGNAL A CIRCUIT WITHOUT NAVIGATION

#### WITHOUT NAVIGATION : Description

Transmits the steering switch signal to AV control unit.

WITHOUT NAVIGATION : Diagnosis Procedure

**1.**CHECK STEERING SWITCH SIGNAL A CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- 2. Check continuity between AV control unit harness connector terminal 6 and spiral cable harness connector terminal 33.

# 6 - 33 : Continuity should exist.

3. Check continuity between AV control unit harness connector terminals 6 and ground.

6 - Ground : Continuity should not exist.

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.

 $\mathbf{3.}$ 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 terminals 6 and 15.

6 - 15

#### : Approx. 3.3 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

**4.**CHECK STEERING SWITCH

1. Turn ignition switch OFF.

2. Check steering switch. Refer to AV-148, "WITHOUT NAVIGATION : Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch.

#### WITHOUT NAVIGATION : Component Inspection

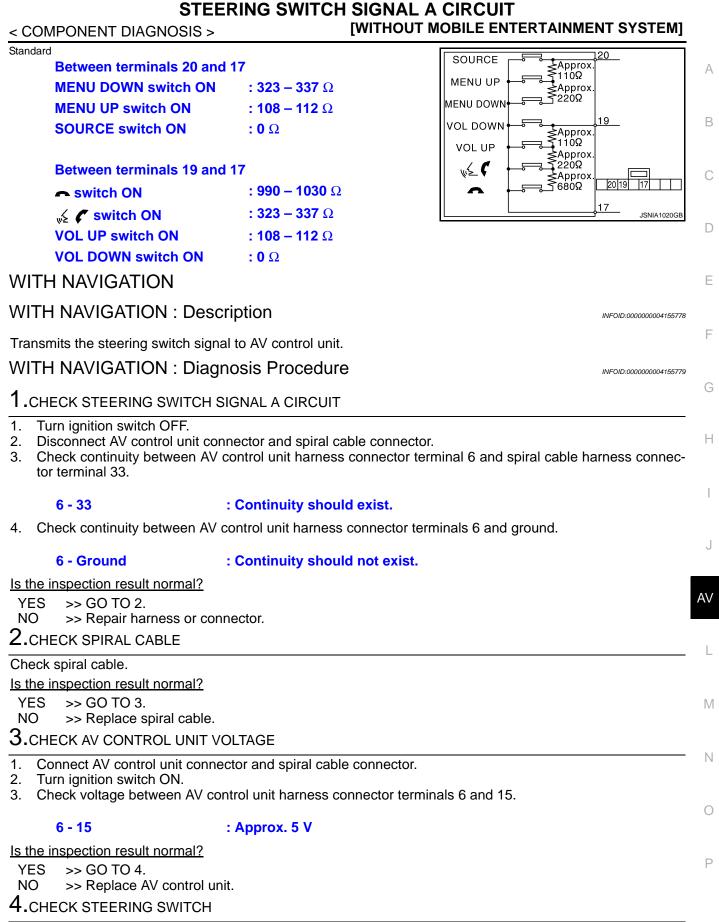
INFOID:000000004155777

Measure the resistance between the steering switch connector terminals 20 to 17 and 19 to 17.

INFOID:000000004155775

INFOID:000000004155776

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]



1. Turn ignition switch OFF.

2. Check steering switch. Refer to AV-150, "WITH NAVIGATION : Component Inspection".

Is the inspection result normal?

# STEERING SWITCH SIGNAL A CIRCUIT

< COMPONENT DIAGNOSIS >

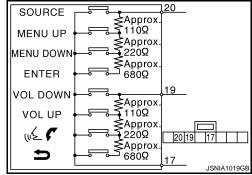
YES >> INSPECTION END NO >> Replace steering switch.

# WITH NAVIGATION : Component Inspection

INFOID:000000004155780

Measure the resistance between the steering switch connector terminals 20 to 17 and 19 to 17.

Between terminals 20 and	17		
ENTER switch ON	<b>: 990 – 1030</b> Ω		
MENU DOWN switch ON	<b>: 323 – 337</b> Ω		
MENU UP switch ON	: <b>108 – 112</b> Ω		
SOURCE switch ON	<b>: 0</b> Ω		
Between terminals 19 and 17			
Switch ON	<b>: 990 – 1030</b> Ω		
🔬 🌈 switch ON	: <b>323 – 337</b> Ω		
VOL UP switch ON	: <b>108 – 112</b> Ω		
VOL DOWN switch ON	: <b>0</b> Ω		



STEERING SWITCH S		
	VITHOUT MOBILE ENTERTAINMENT SYSTEM]	
STEERING SWITCH SIGNAL B CIRCU WITHOUT NAVIGATION	IT	Ł
WITHOUT NAVIGATION : Description	INFOID:00000004155781	
Transmits the steering switch signal to AV control unit.	В	
WITHOUT NAVIGATION : Diagnosis Proced	UIE INFOID:000000004155782	4
<b>1.</b> CHECK STEERING SWITCH SIGNAL B CIRCUIT		
<ol> <li>Disconnect AV control unit connector and spiral cable</li> <li>Check continuity between AV control unit harness co tor terminals 32.</li> </ol>		)
16 - 32 : Continuity should of	exist.	
3. Check continuity between AV control unit harness co	nnector terminal 16 and ground.	
16 - Ground : Continuity should	not exist.	
Is the inspection result normal?		
YES >> GO TO 2. NO >> Repair harness or connector.	G	j
2.CHECK SPIRAL CABLE		
Check spiral cable.	H	1
<u>Is the inspection result normal?</u> YES >> GO TO 3.		
NO >> Replace spiral cable.	1	
<b>3.</b> CHECK AV CONTROL UNIT VOLTAGE		
<ol> <li>Connect AV control unit connector and spiral cable c</li> <li>Turn ignition switch ON.</li> </ol>	onnector. J	
3. Check voltage between AV control unit harness conr		
16 - 15 : Approx. 3.3 V	AV	
Is the inspection result normal?		
YES >> GO TO 4. NO >> Replace AV control unit.	L	
4. CHECK STEERING SWITCH		
<ol> <li>Turn ignition switch OFF.</li> <li>Check steering switch. Refer to <u>AV-151</u>, "WITHOUT</li> </ol>	MAVIGATION · Component Inspection"	
Is the inspection result normal?		
YES >> INSPECTION END NO >> Replace steering switch.	Ν	
WITHOUT NAVIGATION : Component Inspe	ction INFOID:000000004155783	)
Measure the resistance between the steering switch con	-	

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# STEERING SWITCH SIGNAL B CIRCUIT

#### < COMPONENT DIAGNOSIS >

#### Standard

# Between terminals 20 and 17MENU DOWN switch ON: $323 - 337 \Omega$ MENU UP switch ON: $108 - 112 \Omega$ SOURCE switch ON: $0 \Omega$

Between terminals 19 and	17
switch ON	<b>: 990 – 1030</b> Ω
🔬 🌈 switch ON	<b>: 323 – 337</b> Ω
VOL UP switch ON	<b>: 108 – 112</b> Ω
VOL DOWN switch ON	<b>: 0</b> Ω

# WITH NAVIGATION

# WITH NAVIGATION : Description

Transmits the steering switch signal to AV control unit.

#### WITH NAVIGATION : Diagnosis Procedure

# 1. CHECK STEERING SWITCH SIGNAL B CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and spiral cable connector.
- 3. Check continuity between AV control unit harness connector terminal 16 and spiral cable harness connector terminals 32.

#### 16 - 32

#### : Continuity should exist.

4. Check continuity between AV control unit harness connector terminal 16 and ground.

#### 16 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

#### Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

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

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

- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector terminals 16 and 15.

16 - 15

#### : Approx. 5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

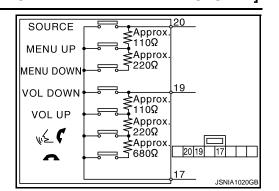
**4.**CHECK STEERING SWITCH

1. Turn ignition switch OFF.

Check steering switch. Refer to <u>AV-153</u>, "WITH NAVIGATION : Component Inspection".

Is the inspection result normal?

# AV-152



INFOID:000000004155784

INFOID:000000004155785

#### STEERING SWITCH SIGNAL B CIRCUIT

< COMPONENT DIAGNOSIS >

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

#### WITH NAVIGATION : Component Inspection

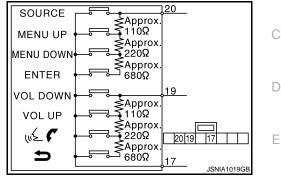
INFOID:000000004155786

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В

Measure the resistance between the steering switch connector terminals 20 to 17 and 19 to 17.

Between terminals 20 and 1	17		
ENTER switch ON	<b>: 990 – 1030</b> Ω		
MENU DOWN switch ON	<b>: 323 – 337</b> Ω		
MENU UP switch ON	<b>: 108 – 112</b> Ω		
SOURCE switch ON	<b>: 0</b> Ω		
Between terminals 19 and 17			
Switch ON	<b>: 990 – 1030</b> Ω		
🔬 🌈 switch ON	<b>: 323 – 337</b> Ω		
VOL UP switch ON	<b>: 108 – 112</b> Ω		
VOL DOWN switch ON	<b>: 0</b> Ω		





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Revision: 2009 Novemver

#### STEERING SWITCH SIGNAL GND CIRCUIT

< COMPONENT DIAGNOSIS >

## STEERING SWITCH SIGNAL GND CIRCUIT WITHOUT NAVIGATION

WITHOUT NAVIGATION : Description

Transmits the steering switch signal to AV control unit.

WITHOUT NAVIGATION : Diagnosis Procedure

1.CHECK STEERING SWITCH SIGNAL GND CIRCUIT

- 1. Disconnect AV control unit connector and spiral cable connector.
- Check continuity between AV control unit harness connector terminal 15 and spiral cable harness connector terminal 27.

15 - 27 : Continuity should exist.

3. Connect AV control unit connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace spiral cable.

**3.**CHECK GROUND CIRCUIT

1. Connect AV control unit connector.

2. Check continuity between AV control unit harness connector terminal 15 and ground.

#### 15 - Ground

#### : Continuity should exist.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

**4.**CHECK STEERING SWITCH

1. Turn ignition switch OFF.

2. Check steering switch. Refer to AV-154, "WITHOUT NAVIGATION : Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace steering switch.

#### WITHOUT NAVIGATION : Component Inspection

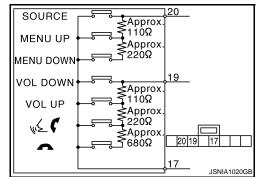
INFOID:000000004155789

Measure the resistance between the steering switch connector terminals 20 to 17 and 19 to 17.

Standard

Between terminals 20 and 17	
MENU DOWN switch ON	<b>: 323 – 337</b> Ω
MENU UP switch ON	<b>: 108 – 112</b> Ω
SOURCE switch ON	<b>: 0</b> Ω
Between terminals 19 and 17	
switch ON	<b>: 990 – 1030</b> Ω

<ul> <li>switch ON</li> </ul>	: 990 – 1030 \\
🔬 🌈 switch ON	<b>: 323 – 337</b> Ω



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INFOID:000000004155787

[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

INFOID:000000004155788

#### STEERING SWITCH SIGNAL GND CIRCUIT

< COMPONENT DIAGNOSIS >	WITHOU	JT MOBILE ENTERTAINMENT SYSTEM]
VOL UP switch ON VOL DOWN switch ON	: 108 – 112 Ω : 0 Ω	
WITH NAVIGATION		
WITH NAVIGATION : Descri	ption	INFOID:000000004155790
Transmits the steering switch signal	to AV control unit	
WITH NAVIGATION : Diagno		(
		INFOID:000000004155791
1.CHECK STEERING SWITCH SIG		
<ol> <li>Disconnect AV control unit conn</li> <li>Check continuity between AV co tor terminal 27.</li> </ol>		ctor. terminal 15 and spiral cable harness connec-
15 - 27 :	Continuity should exist.	
<u>Is the inspection result normal?</u> YES >> GO TO 2.		l
NO >> Repair harness or conne	ector.	
2.CHECK SPIRAL CABLE		(
Check spiral cable. Is the inspection result normal?		
YES >> GO TO 3.		I
NO >> Replace spiral cable.		
3.CHECK GROUND CIRCUIT		
<ol> <li>Connect AV control unit connect</li> <li>Check continuity between AV control</li> </ol>		terminal 15 and ground.
15 - Ground :	Continuity should exist.	
Is the inspection result normal?		
YES >> GO TO 4. NO >> Replace AV control unit.		Α
4.CHECK STEERING SWITCH		
1. Turn ignition switch OFF.		
2. Check steering switch. Refer to	AV-155, "WITH NAVIGATION	I : Component Inspection".
<u>Is the inspection result normal?</u> YES >> INSPECTION END		7
YES >> INSPECTION END NO >> Replace steering switch	I.	
WITH NAVIGATION : Comp	onent Inspection	INFOID:000000004155792
Measure the resistance between the	e steering switch connector te	rminals 20 to 17 and 19 to 17.
Standard	· · · · · · · · · · · · · · · · · · ·	
Between terminals 20 and 7	17	SOURCE Approx. MENU UP S 110Ω
ENTER switch ON	: <b>990 – 1030</b> Ω	MENU DOWN → 2220Ω
MENU DOWN switch ON	: <b>323 – 337</b> Ω	
MENU UP switch ON	: <b>108 – 112</b> Ω	
SOURCE switch ON	<b>: 0</b> Ω	VOL UP
Between terminals 19 and 7		Approx. ((ξ <b>Γ</b> - 220Ω 2019 17
Switch ON	: <b>990 – 1030</b> Ω	$\begin{array}{c} & & \\$

Revision: 2009 Novemver

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

< COMPONENT DIAGNOSIS >	
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[WITHOUT MOBILE ENTERTAINMENT SYSTEM]

VOL UP switch ON	: <b>108 – 112</b> Ω
VOL DOWN switch ON	<b>: 0</b> Ω

# ECU DIAGNOSIS AV CONTROL UNIT WITHOUT NAVIGATION

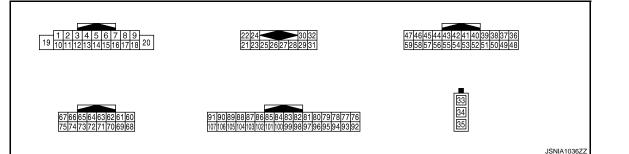
#### WITHOUT NAVIGATION : Reference Value

#### VALUES ON THE DIAGNOSIS TOOL

#### CONSULT-III MONITOR ITEM

Display Item	Dis- play	Vehicle status	Remarks
VHCL SPD SIG	On	Vehicle speed >0 km/h (0 MPH)	Changes in indication may be delayed. This is nor-
VIICE OF D OIG	Off	Vehicle speed =0 km/h (0 MPH)	mal.
PKB SIG	On	Parking brake is applied.	Changes in indication may be delayed. This is nor-
FKB 3IG	Off	Parking brake is released.	mal.
ILLUM SIG	On	Light switch ON.	
ILLUM SIG	Off	Light switch OFF.	
IGN SIG	On	Ignition switch ON.	
IGN SIG	Off	Ignition switch in ACC position.	
	On	Shift the selector lever to "R" position.	
REV SIG	Off	Shift the selector lever other than "R" position.	Changes in indication may be delayed. This is nor- mal.

#### **TERMINAL LAYOUT**



PHYSICAL VALUES

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INFOID:000000004155793

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
2 (P)	3 (W)	Sound signal front LH	Output	lgnition switch ON	Audio sound output.	(V) 1 -1 + 2ms SKIB3609E	
4 (LG)	5 (B/Y)	Sound signal rear LH	Output	lgnition switch ON	Audio sound output.	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
					Keep pressing SOURCE switch.	0 V	
6 (BR)	15 (G)	Steering switch signal A		Input	Ignition switch	Keep pressing $\Delta$ switch.	0.7 V
(BR)	(G)			ON	Keep pressing $ abla$ switch.	1.3 V	
					Except for above.	3.3 V	
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
9	Crownd		lanut	Ignition	Lighting switch is OFF.	0 V	
(LG)	Ground	Illumination signal	Input	switch OFF	Lighting switch is ON.	12 V	
11 (BR)	12 (R)	Sound signal front RH	Output	lgnition switch ON	Audio sound output.	(V) 1 0 -1 * 2ms SKIB3609E	
13 (O)	14 (B/P)	Sound signal rear RH	Output	lgnition switch ON	Audio sound output.	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
15 (G)	Ground	Steering switch signal ground	_	Ignition switch ON	_	0 V	

	minal e color)	Description			Condition	Reference value	/
+	-	Signal name	Input/ Output		Condition	(Approx.)	
					Keep pressing VOL DOWN switch.	0 V	6
16	15	Steering switch signal B	Input	Ignition switch	Keep pressing VOL UP switch.	0.7 V	(
(O)	(G)		input	ON	Keep pressing <sub>w</sub> ∕₂	1.3 V	
					Keep pressing 🗪 switch.	2.2 V	[
					Except for above.	3.3 V	
18 (R/Y)	Ground	Illumination control signal	Input	Ignition switch ON	Illumination control switch is operated by lighting switch in ON position.	Change between approx. 0 V and approx. 12 V	
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
20 (B)	Ground	Ground		Ignition switch ON	_	0 V	(
22 (R)	21 (G)	Satellite radio sound signal LH	Input	lgnition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 • 2ms SKIB3609E	
24 (B)	23 (W)	Satellite radio sound signal RH	Input	lgnition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	A
25	_	Shield			—	_	
26	_	Shield			_	_	
28 (B)	Ground	Request signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 • + 10ms SKIA9299J	
29 (R)	Ground	Communication signal (SAT→CONT)	Input	Ignition switch ON	When satellite radio mode is selected.	(V) 10 -10 -10 -10 -10 -10 -10 -10	

	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
30 (W)	Ground	Communication signal (CONT→SAT)	Output	lgnition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 • • 1 ms SKIA9301J
33	Ground	Antenna amp. ON signal	Output	Ignition switch ACC	_	12 V
34	_	AM–FM main	Input		—	_
35	—	FM sub	Input		—	_
36 (W)	37 (G)	AUX image signal	Output	lgnition switch ON	When AUX image is dis- played.	(V) 0.4 0 −0.4 •••40µs skiB2251J
37 (G)	Ground	AUX image ground	_	lgnition switch ON	_	0 V
38 (Y)	Ground	RGB image signal (B: blue)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4
39 (L)	Ground	RGB image signal (G: green)	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 −0.4 ••••••••••••••••••••••••••••••••••••
40 (G)	Ground	RGB image signal (R: red)	Output	lgnition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 −0.4 ••••••••••••••••••••••••••••••••••••

#### AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

	minal color)	Description			0	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
41 (B)	Ground	RGB synchronizing signal	Output	Ignition switch ON		(V) 4 0 + 20μs SKIB3603E
42		Shield			_	_
					When RGB image is dis- played.	5 V
43 (G)	Ground	RGB area (YS) signal	Output	Ignition switch ON	When AUX image is dis- played.	
						← ★ 200 μ s
44 (W/L)	Ground	Communication signal (DISP→CONT)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 + 1ms - 1m
45 (W)	Ground	Horizontal synchronizing (HP) signal	Input	lgnition switch ON		(V) 4 0 + 20µs SKIB3601E
46 (O)	Ground	Signal GND	_	Ignition switch ON	_	0 V
47 (L)	Ground	Signal VCC	Output	Ignition switch ACC	_	9 V
49	—	Shield	_	—	—	_
50	—	Shield	-		—	_
55	—	Shield	_	_	_	-
56 (O/L)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 •••• 1ms

Revision: 2009 Novemver

2009 M35/M45

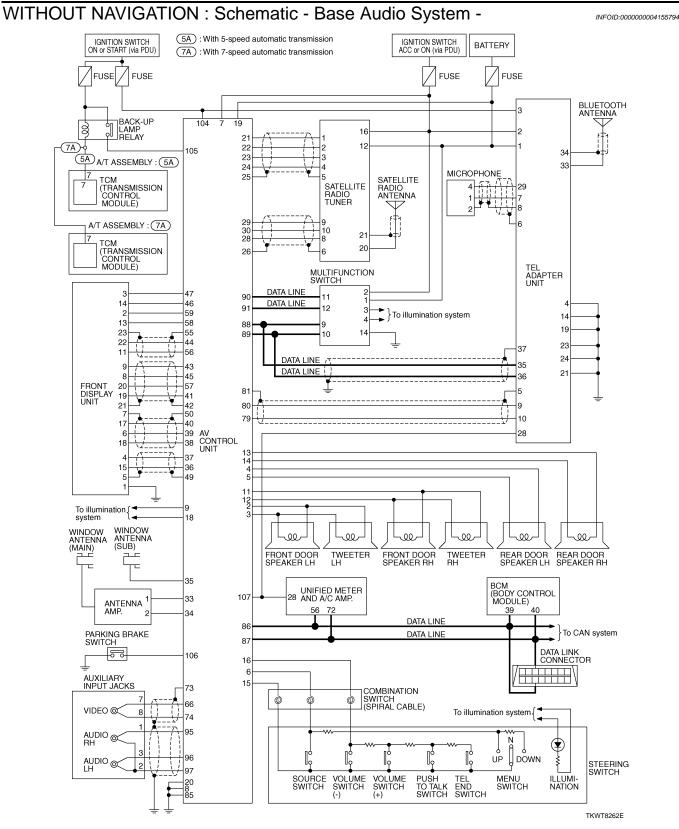
	minal e color)	Description		Condition		Reference value
+	-	Signal name	Input/ Output			(Approx.)
57 (R)	Ground	Vertical synchronizing (VP) signal	Input	lgnition switch ON	_	(V) 4 0 ••••4ms SKIB3598E
58 (W/R)	Ground	Inverter GND		lgnition switch ON	_	0 V
59 (Y)	Ground	Inverter VCC	Output	Ignition switch ACC	_	9 V
66 (LG)	74 (V)	AUX image signal	Input	lgnition switch ON	At AUX image is displayed.	(V) 0.4 0 −0.4 • • • 40µs SKIB2251J
73	_	Shield			—	_
74 (V)	Ground	AUX image signal ground	_	lgnition switch ON	_	0 V
80 (L)	79 (P)	TEL voice signal	Input	lgnition switch ON	During voice guide output with the $\sqrt{2}$ $\checkmark$ switch pressed.	(V) 1 0 -1 -1 -2ms SKIB3609E
81		Shield			_	_
85 (B)	Ground	Ground	_	lgnition switch ON	_	0 V
86 (L)	—	CAN-H	Input/ Output		—	_
87 (P)	—	CAN-L	Input/ Output		—	_
88 (BR)	_	AV communication signal (H)	Input/ Output	_	—	_
89 (B/R)	_	AV communication signal (L)	Input/ Output	_	—	_
90 (W)		AV communication signal (H)	Input/ Output		_	_
91 (R)	-	AV communication signal (L)	Input/ Output	—	_	

#### AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

	minal e color)	Description	Description		Condition	Reference value	А
+	_	Signal name	Input/ Output		Condition	(Approx.)	_
95 (R)	97 (B)	AUX sound signal RH	Input	Ignition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 2 ms SKIB3609E	B C D
96 (BR)	97 (B)	AUX sound signal LH	Input	lgnition switch ON	When AUX mode is select- ed.	(V) 1 0 -1 * 2ms SKIB3609E	E
97 (B)	Ground	AUX sound signal ground	_	Ignition switch ON	_	0 V	G
104 (YG)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	Н
105 (O)	Ground	Reverse signal	Input	Ignition switch	R position.	12 V	I
(0)				ON	Other than R position. Parking brake ON.	0 V 0 V	
106 (P)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake OFF.	(V) 8 4 0 10 ms JSNIA0007GB	J AV
107 (G)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH).	NOTE: Maximum voltage may be 12 V due to specifications (connected units). (V) 6 4 2 0 • • • 20ms SKIA6649J	M N O

Ρ



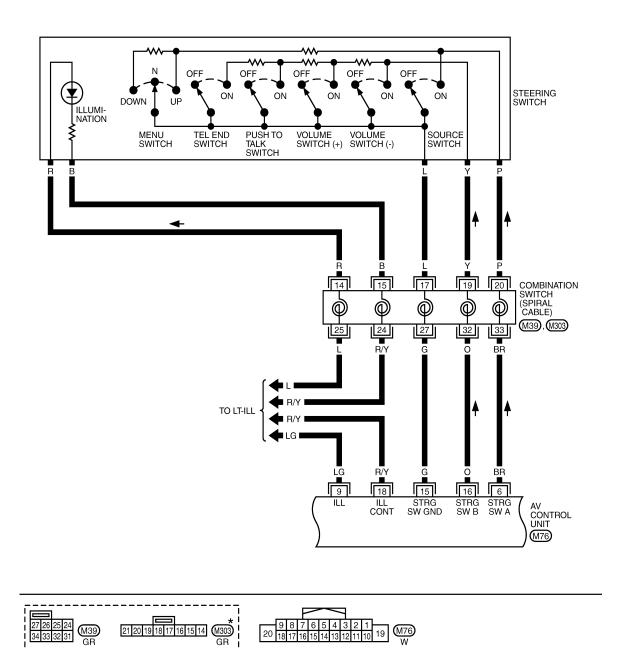


# WITHOUT NAVIGATION : Wiring Diagram - AV - / Base Audio System NOTE:

INFOID:000000004155795

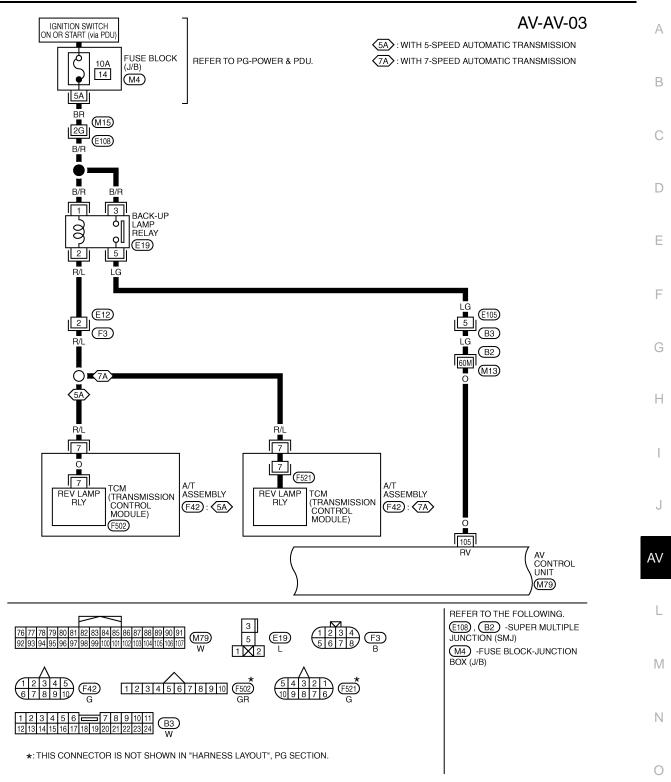
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually. А **AV-AV-01** VQ: WITH VQ ENGINE IGNITION SWITCH ACC OR ON (via PDU) IGNITION SWITCH ON OR START (via PDU) BATTERY В **VK**: WITH VK ENGINE \*1 Y: (VQ) ð FUSE BLOCK (J/B) REFER TO PG-POWER & PDU. 15A 37 10A 6 10A L: VK 12 (M4) С 12A 2A v \*1 B/R A TO AV-AV-12 D ٠ B/R \*1 (E108) TO EC-MAIN 9G Е Y/G M15 F ⋎∎₿⊃ TO AV-AV-11 Н Y/G 19 7 2 BAT ACC IGN BAT ACC AV CONTROL UNIT MULTIFUNCTION SWITCH M76, M79 (M69) ILL GND GND GND GND ILI CON J 20 14 3 85 4 8 В В R R/Y В R TO LT-ILL AV B В L M16 M70 REFER TO THE FOLLOWING. 16 14 12 10 8 6 4 2 15 13 11 9 7 5 3 1 W (E108) -SUPER MULTIPLE JUNCTION (SMJ) Μ M4 -FUSE BLOCK-JUNCTION BOX (J/B) Ν 6 5 4 3 9 8 7 6 5 4 3 2 1 18 17 16 15 14 13 12 11 10 19 W (M79) 20 92 93 94 95 96 97 98 99 100 w 0 Ρ TKWT8263E

AV-AV-02



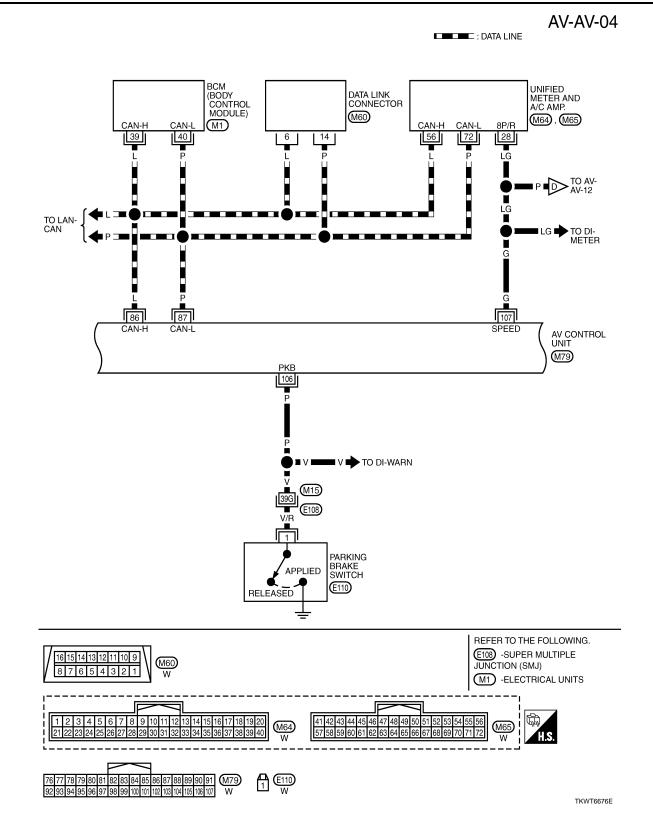


TKWT6674E



TKWT8264E

Ρ

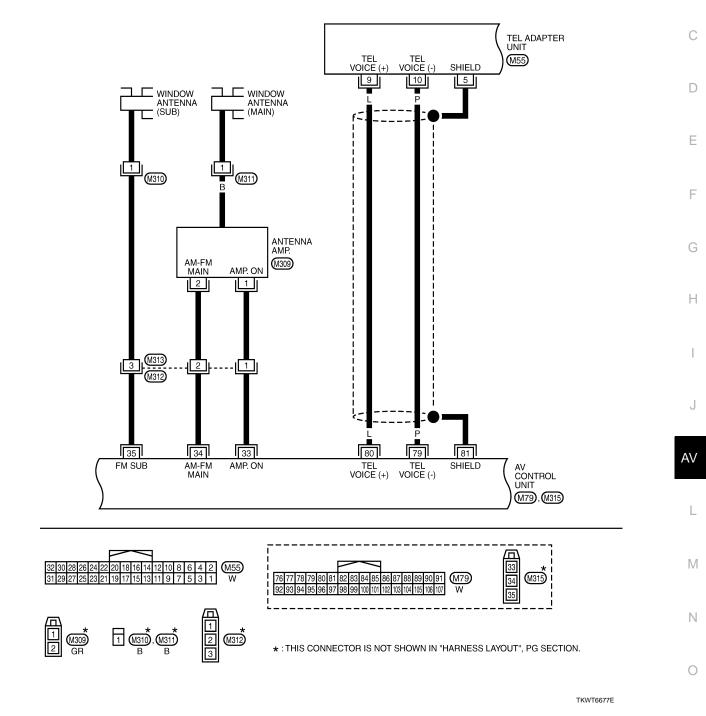


< ECU DIAGNOSIS >

AV-AV-05

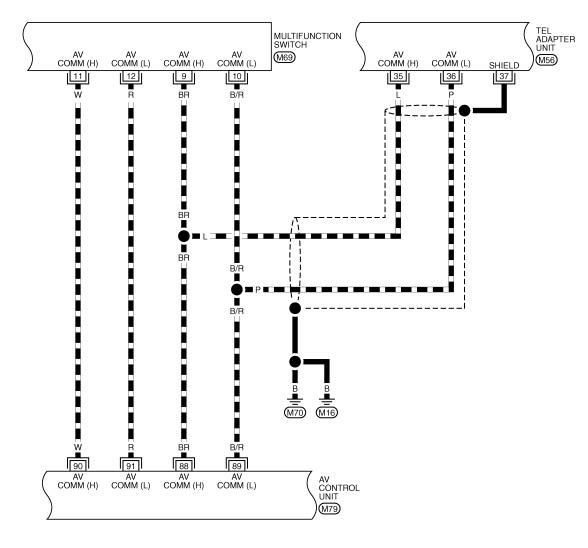


А



#### AV-AV-06

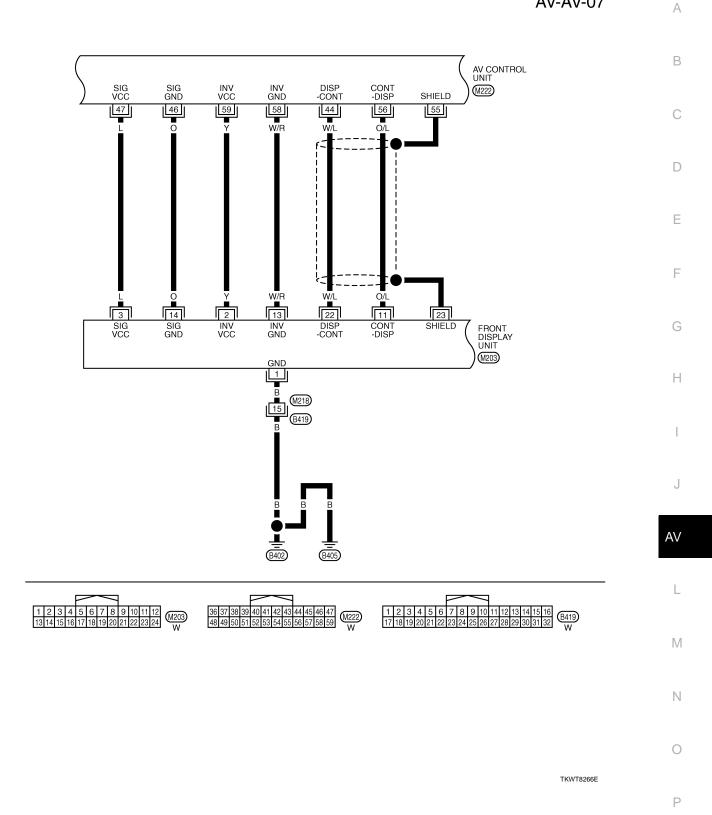
: DATA LINE



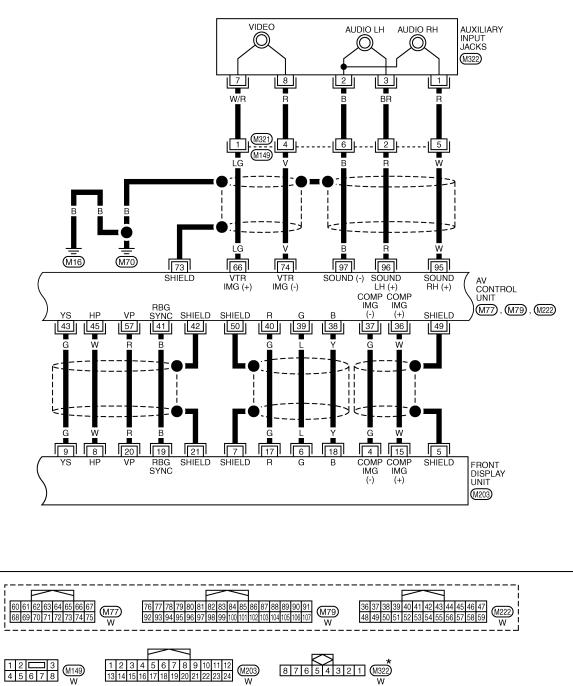
$\square$		
41 39 37 35 42 40 38 36 W56 W	16 14 12 10 8 6 4 2 15 13 11 9 7 5 3 1 W	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 W

TKWT8265E

**AV-AV-07** 

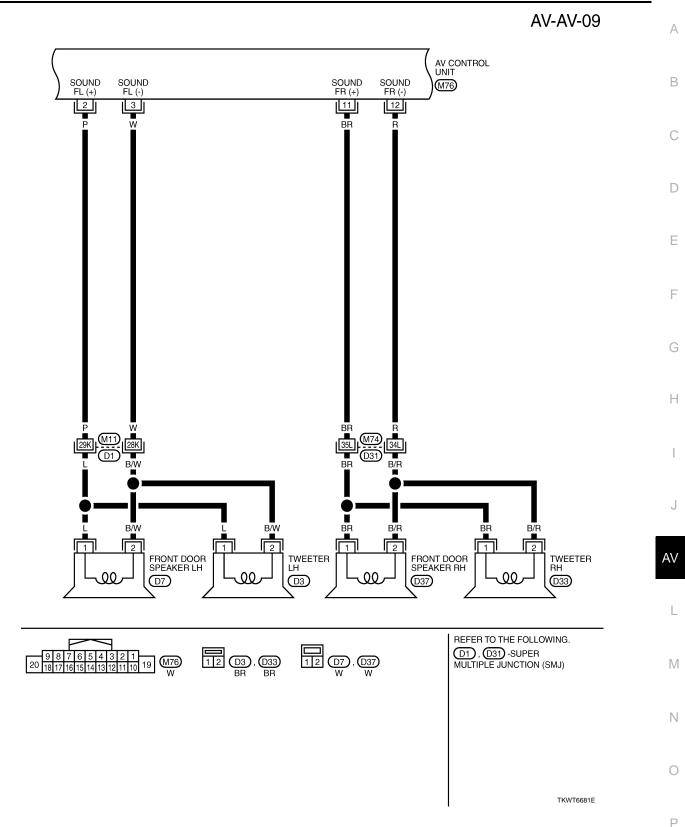


AV-AV-08

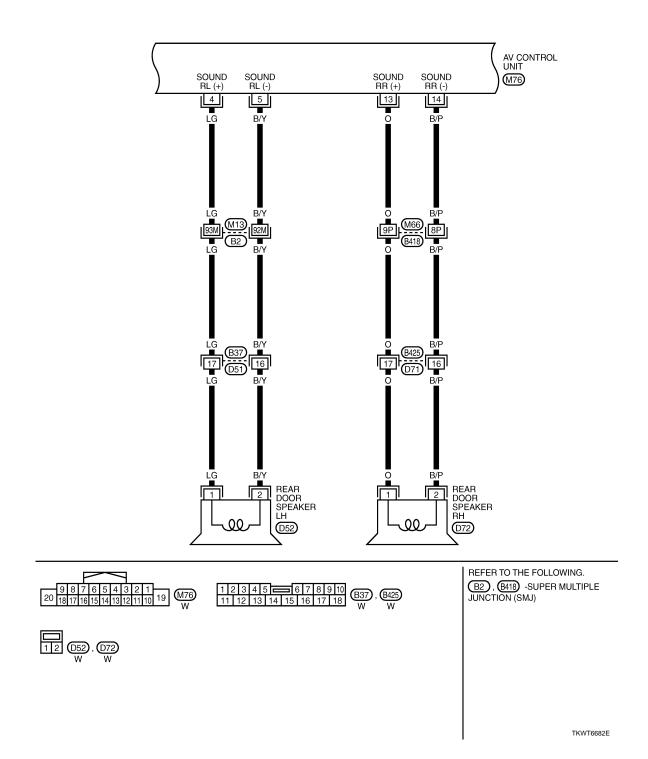


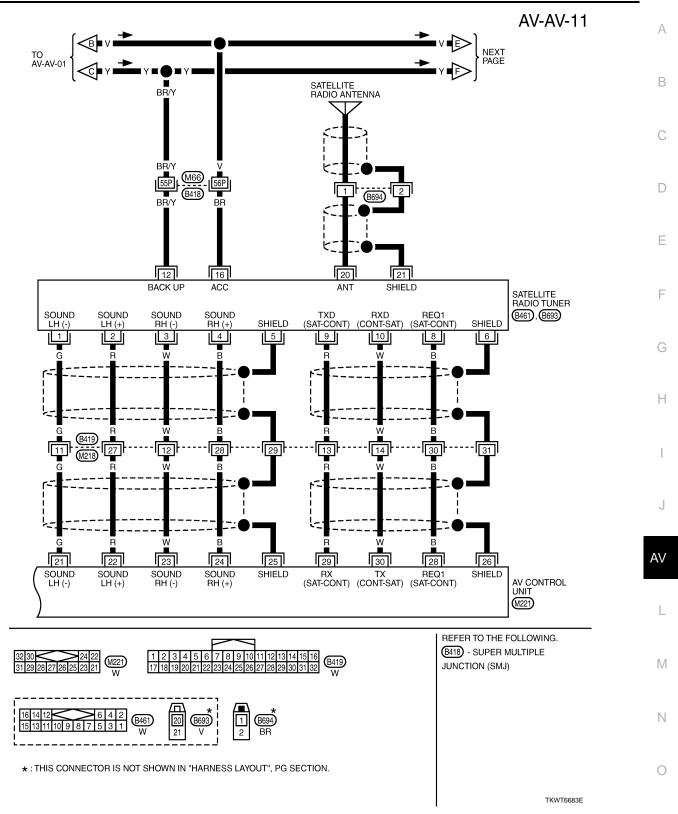
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8267E

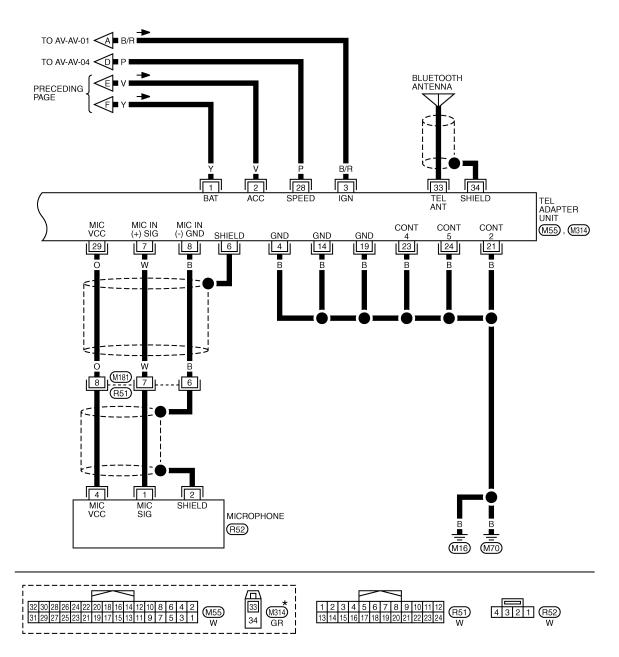


AV-AV-10





**AV-AV-12** 



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

# WITHOUT NAVIGATION : DTC Index

TKWT8268E

INFOID:000000004155796

#### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-78, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [U1010]	AV-79, "Diagnosis Procedure"

Revision: 2009 Novemver

AV-176

2009 M35/M45

# **AV CONTROL UNIT**

< ECU DIAGNOSIS >

# [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

DTC	Display item	Refer to	^
U1310	CONTROL UNIT (AV) [U1310]	AV-80, "WITHOUT NAVIGATION : DTC Logic"	A
U1200	Control Unit FLASH-ROM [U1200]	AV-82, "WITHOUT NAVIGATION : DTC Logic"	В
U1216	CAN CONT [U1216]	AV-85, "WITHOUT NAVIGATION : DTC Logic"	
U1243	FRONT DISP CONN [U1243]	AV-101, "WITHOUT NAVIGATION : Diag- nosis Procedure"	С
U1255	SAT CONN [U1255]	AV-107, "Diagnosis Procedure"	
U1300 U1240	<ul><li>AV COMM CIRCUIT [U1300]</li><li>SWITCH CONN [U1240]</li></ul>	AV-110, "WITHOUT NAVIGATION : De- scription"	D
U1300 U1256	<ul><li>AV COMM CIRCUIT [U1300]</li><li>HAND FREE CONN [U1256]</li></ul>	AV-110, "WITHOUT NAVIGATION : De- scription"	E
U1300 U1240 U1256	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>HAND FREE CONN [U1256]</li> </ul>	AV-110, "WITHOUT NAVIGATION : De- scription"	F

# WITH NAVIGATION

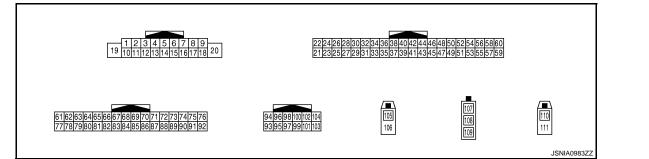
# WITH NAVIGATION : Reference Value

#### VALUES ON THE DIAGNOSIS TOOL

CONSULT-III monitor item

Display Item	Dis- play	Vehicle status	Remarks	
VHCL SPD SIG	On	Vehicle speed >0 km/h (0 MPH)	Changes in indication may be delayed. This is	
VHCL SPD SIG	Off	Vehicle speed =0 km/h (0 MPH)	normal.	
PKB SIG	On	Parking brake is applied.	Changes in indication may be delayed. This is	
PKD SIG	Off	Parking brake is released.	normal.	
ILLUM SIG	On	Light switch ON.		
	Off	Light switch OFF.		
	On	Ignition switch ON.		
IGN SIG	Off	Ignition switch in ACC position.		
REV SIG	On	Shift the selector lever to "R" position.	Changes in indication may be delayed. This is	
REV SIG	Off	Shift the selector lever other than "R" position.	normal.	

#### **TERMINAL LAYOUT**



#### PHYSICAL VALUES

INFOID:000000004155797

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Terminal (Wire color)		Description		Orgalities		Reference value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
2 (R/L)	3 (W)	Sound signal LH	Output	Ignition switch ON	Audio sound output. (except DVD mode) <sup>*1</sup>	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
4 (L/G)	5 (LY)	Voice guidance signal	Output	Ignition switch ON	Voice guidance output.	(V) 1 0 -1 • • 2ms SKIB3609E	
6 (BR)	15 (G)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch.	0 V	
					Keep pressing MENU UP switch.	1 V	
					Keep pressing MENU DOWN switch.	2 V	
					Keep pressing ENTER switch.	3 V	
					Except for above.	5 V	
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
8 (R/Y)	Ground	Illumination control signal	Input	Ignition switch ON	Illumination control switch is operated by lighting switch in ON position.	Change between approx. 0 V and approx. 12 V	
9	Ground	Illumination signal	Input	Ignition switch ON	Lighting switch is OFF.	0 V	
(LG)					Lighting switch is ON.	12 V	
11 (P)	12 (L)	Sound signal RH	Output	lgnition switch ON	Audio sound output. (except DVD mode) <sup>*1</sup>	(V) 1 0 -1 * 2ms SKIB3609E	
14		Shield			_		
15 (G)	Ground	Steering switch signal ground	_	Ignition switch ON	_	0 V	

Terminal (Wire color)		Description		Condition		Reference value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
	15 (G)	Steering switch signal B	Input		Keep pressing VOL DOWN switch.	0 V	
16				lgnition switch ON	Keep pressing VOL UP switch.	1 V	
(O)					Keep pressing <sub>w</sub> ∕₂ <b>⊄</b> switch.	2 V	
					Keep pressing Ⴢ switch.	3 V	
					Except for above.	5 V	
19 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	
21 (B)	Ground	Ground	_	lgnition switch ON	_	0 V	
22 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	
23 (B)	Ground	Ground	_	lgnition switch ON	_	0 V	
24 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	
25 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
26 (O)	27	Microphone VCC	Output	lgnition switch ON	_	5 V	
27	Ground	Shield (Microphone ground)	_	Ignition switch ON	_	0 V	
28 (W)	27	Microphone signal	Input	lgnition switch ON	Give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 •••2ms •••2ms ••••2ms ••••2ms •••••2ms ••••••••••••••••••••••••••••••••••••	
35 (Y/G)	Ground	Ignition signal	Input	lgnition switch ON	_	Battery voltage	
					Parking brake ON.	0 V	
36 (P)	Ground	Parking brake signal	Input	lgnition switch ON	Parking brake OFF.	(V) 8 4 0 10 ms	

Terminal (Wire color)		Description		Condition		Reference value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
37 (O)	Ground	Reverse signal	Input	Ignition switch ON	R position.	12 V	
					Other than R position.	0 V	
38 (G)	Ground	Vehicle speed signal (8- pulse)	Input	Ignition switch ON	When vehicle speed is ap- prox. 40 km/h (25MPH).	NOTE: Maximum voltage may be 12 V due to specifications (connected units). (V) 6 4 2 0 • • • 20ms SKIA6649J	
40	Ground	Camera-connection recog- nition signal	Input	Ignition switch ON	Connected to camera con- trol unit connector.	0 V	
(W/R)					Not connected to camera control unit connector.	5 V	
48 (W)	_	AV communication signal (H)	Input/ Output	_	_	_	
49 (R)	_	AV communication signal (L)	Input/ Output	_	_	_	
50 (BR)	_	AV communication signal (H)	Input/ Output	_	_	_	
51 (B/R)	_	AV communication signal (L)	Input/ Output		_	_	
52 (L)	_	CAN-H	Input/ Output		_	_	
53 (P)	_	CAN-L	Input/ Output	—	_	_	
	83 (BR)	iPod sound signal LH <sup>*2</sup>	Input	lgnition switch ON	Connect and play iPod <sup>®</sup> .	(V)	
67 (B/R)		Sound signal LH <sup>*1</sup> (AUX and iPod sound)			When AUX or iPod mode is selected.	(0) 1 0 -1 + 2ms SKIB3609E	
		iPod sound signal RH <sup>*2</sup>			Connect and play iPod <sup>®</sup> .	(V)	
68 (B/W)	84 (L)	Sound signal RH <sup>*1</sup> (AUX and iPod sound)	Input	lgnition switch ON	When AUX or iPod mode is selected.	1 of A A A A A A A A A A A A A A A A A A A	
69 <sup>*2</sup>		Shield	_			SKIB3609E	

## AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	-	Signal name	Input/ Output	- Condition		(Approx.)	
75 <sup>*2</sup> (R)	76 <sup>*2</sup> (B)	AUX sound signal LH	Input	lgnition switch ON	AUX sound output.	(V) 1 0 −1 + 2ms SKIB3609E	B C D
76 <sup>*2</sup> (B)	Ground	AUX sound ground	_	Ignition switch ON	_	0 V	E
91 <sup>*2</sup> (BR)	76 <sup>*2</sup> (B)	AUX sound signal RH	Input	lgnition switch ON	AUX sound output.	(V) 1 0 -1 • 2ms SKIB3609E	F
93 (G/O)	Ground	RGB image signal (R: red)	Output	lgnition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 ••••40µs	H
94 (G/R)	Ground	RGB image signal (G: green)	Output	lgnition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 •••••••••••••••••••••••••••••••••	J AV L
95 (G/Y)	Ground	RGB image signal (B: blue)	Output	lgnition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 • • • • • • • • • • • • • • • • • • •	M
96 (P)	Ground	RGB image signal ground	_	lgnition switch ON	_	0 V	0
97 (L)	Ground	RGB synchronizing signal	Output	lgnition switch ON		(V) 0.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ρ

## AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
98 (B)	Ground	RGB synchronizing signal ground	_	Ignition switch ON	_	0 V	
					When RGB image is displayed.	5 V	
99 (G)	Ground	RGB area (YS) signal	Output	Ignition switch ON	When rear view camera im- age is displayed.	(V) 6 2 0 + 200 µ s + 200 µ s PKIB4948J	
100 (W)	Ground	Horizontal synchronizing (HP) signal	Input	Ignition switch ON		(V) 4 0 + 20µs SKIB3601E	
101 (R)	Ground	Vertical synchronizing (VP) signal	Input	lgnition switch ON		(V) 4 0 • • • 4ms SKIB3598E	
102 (O/L)	Ground	Communication signal (CONT→DISP)	Output	Ignition switch ON	When adjusting front dis- play brightness.	(V) 6 4 2 0 •••••1ms •••••1ms •••••1ms ••••••1ms	
103 (W/L)	Ground	Communication signal (DISP→CONT)	Input	lgnition switch ON	When adjusting front dis- play brightness.	(V) 6 2 0 ••••1ms ••••1ms •••••1ms	
105	Ground	GPS antenna signal	Input	Ignition switch ON	Not connected to GPS an- tenna connector.	5 V	
106	—	Shield	—	—	—	_	
107	Ground	Antenna amp. ON signal	Output	Ignition switch ON	_	12 V	
108	—	AM–FM main	Input		—	_	
109	—	FM sub	Input	—	—	—	

Revision: 2009 Novemver

## AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	А
+	-	Signal name	Input/ Output	Condition		(Approx.)	
110	Ground	Satellite antenna signal	Input	lgnition switch ON	Not connected to satellite antenna connector.	5 V	В
111		Shield			_	_	С

\*1: BOSE surround audio 5.1ch system.

\*2: BOSE 2ch system models.

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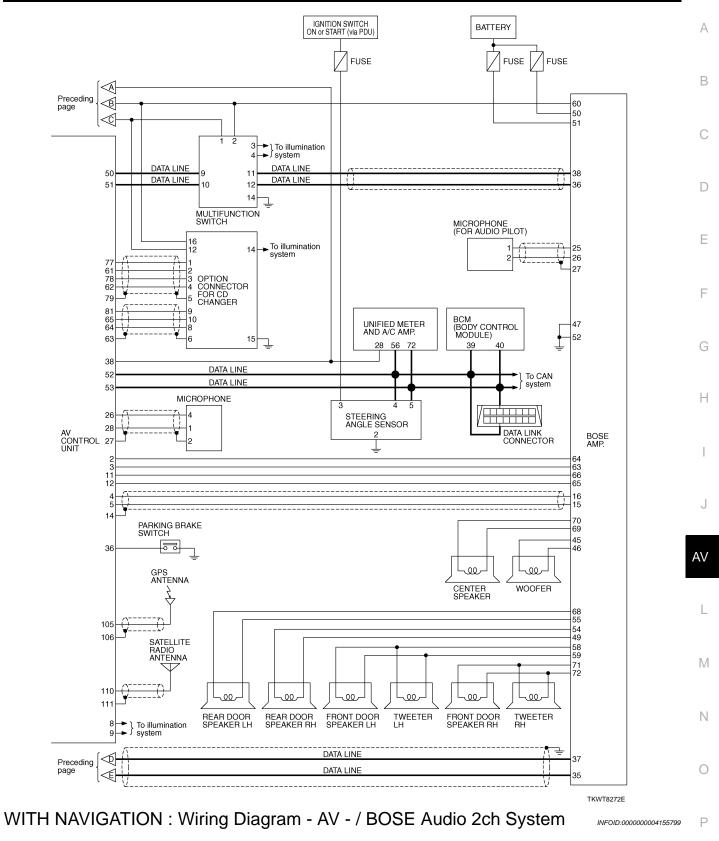
Ν

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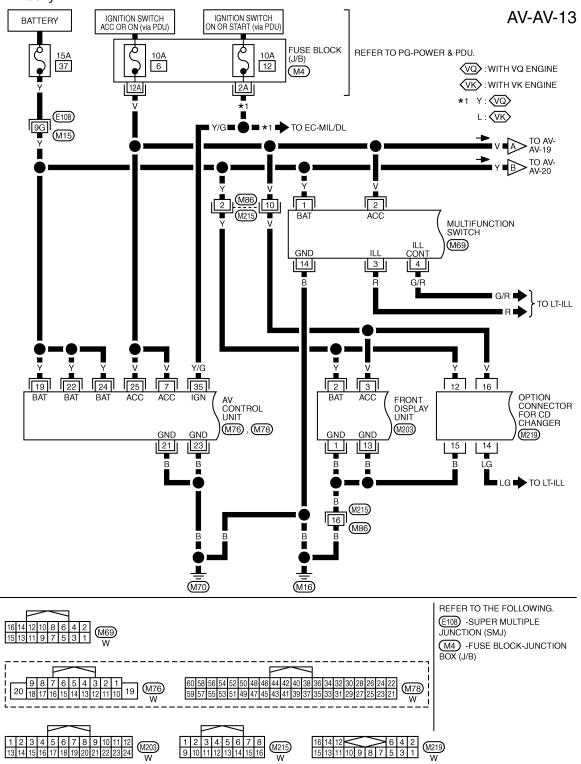
#### WITH NAVIGATION : Schematic - BOSE Audio 2ch System -INFOID:000000004155798 IGNITION SWITCH ACC or ON (via PDU) IGNITION SWITCH ON or START (via PDU) BATTERY (5A) : With 5-speed automatic transmission (7A) : With 7-speed automatic transmission FUSE / FUSE FUSE FUSE A 26 Next page ₽ 30 32 $\triangleright$ 19 22 24 +7 25 35 37 BACK-UP LAMP RELAY g 22 (5A) (7A) A/T ASSEMBLY : (7A) A/T ASSEMBLY : 5A TCM (TRANSMISSION CONTROL MODULE) TCM (TRANSMISSION CONTROL MODULE) AUXILIARY INPUT JACKS 15 8 VIDEO Ī 91 AUDIO RH @ 2 76 AUDIO LH ര 3 75 13 Ĭ FRONT DISPLAY UNIT 99 100 101 97 CAMERA CONTROL UNIT Ř 20 19 21 14 98 96 93 94 -12 12 <u>,</u> 17 6 95 102 103 18 AV CONTROL UNIT 11 22 DATA LINE 20 48 : i 49 19 • ÷ 35 67 13 83 10 17 12 8 69 $\overline{(})$ 21 22 11 с 68 84 REAR VIEW CAMERA 14 iPod ADAPTER 16 iPod SIDE 19 6 9 10 j 21 Ē 15 23 23 12 31 1 14 40 16 6 15 WINDOW ANTENNA (MAIN) DATA LINE WINDOW ANTENNA (SUB) 18 DATA LINE 17 COMBINATION SWITCH (SPIRAL CABLE) To illumination system Þ O Ø 109 107 ANTENNA AMP. 108 2 ۲ STEERING SWITCH ş ò Next ol page Þ PUSH TO TALK SWITCH VOLUME VOLUME SOURCE SWITCH SWITCH SWITCH (+) (-) ILLUMI- ENTER NATION SWITCH MENU BACK SWITCH SWITCH TKWT8271E





NOTE:

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



TKWT8273E

AV-AV-14

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^^/ Ν OFF OFF OFF OFF OFF OFF STEERING SWITCH ON ON ON ON ON ON DOWN UP ÍLLUMI-NATION PUSH TO TALK SWITCH SOURCE SWITCH VOLUME VOLUME SWITCH (+) SWITCH (-) ENTER SWITCH MENU SWITCH BACK SWITCH R E ₽ ◄ COMBI-NATION SWITCH (SPIRAL CABLE) OPTION CONNECTOR FOR CD CHANGER 15 17 20 19 14 Ø Ø Ø Ø Ø (M219) 24 33 27 32 (M39), (M303) 10 9 8 1 2 3 4 5 6 25 Ŵ w R R/Y ō BR F B G 1 TO LT-ILL I G R/` W Е LG BH Ē <u>[62]</u> [79] [81] [65] [64] 8 15 6 61 78 9 77 63 16 AV CONTROL UNIT SOUND SOUND SOUND SOUND SHIELD RX LH (-) LH (+) RH (-) RH (+) STRG SW A REQ1 SHIELD STRG SW B ТΧ ILL STRG CONT SW GND M76 (M210) AV 7 26 (M39) GR 21 20 19 18 17 16 15 14 (M303) 34 33 32 31 GR 4 765 70

\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

M76 W

20 18 17 16 15 14 13 12 11 10 19

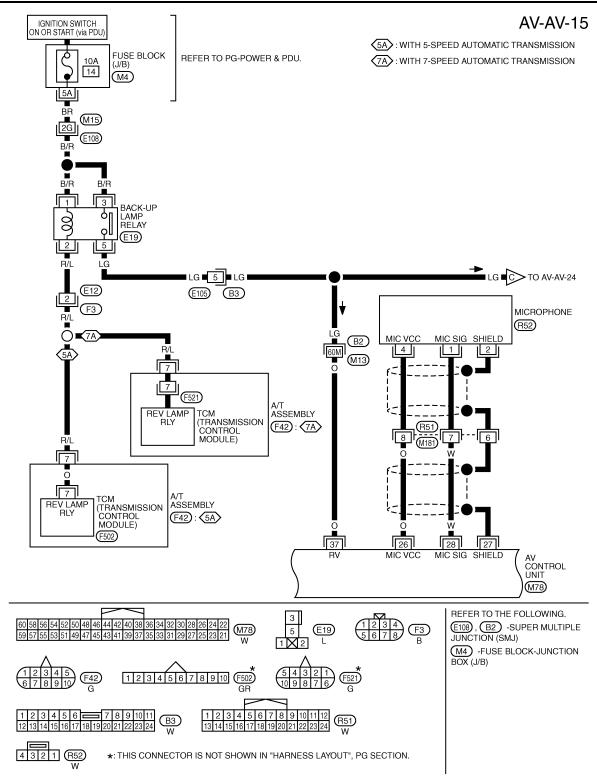
TKWT8274E

16 14 12 6 4 2 15 13 11 10 9 8 7 5 3 1 W219

M210 W

Ο

92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77



TKWT8275E

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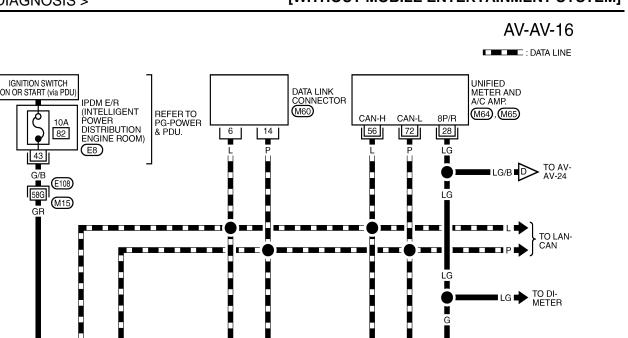
В

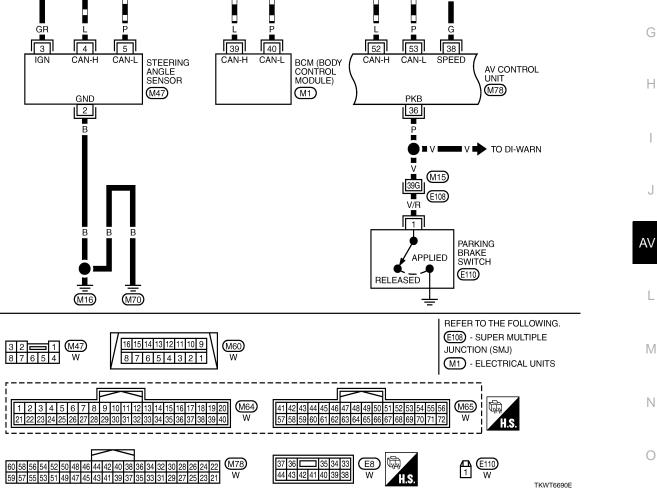
С

D

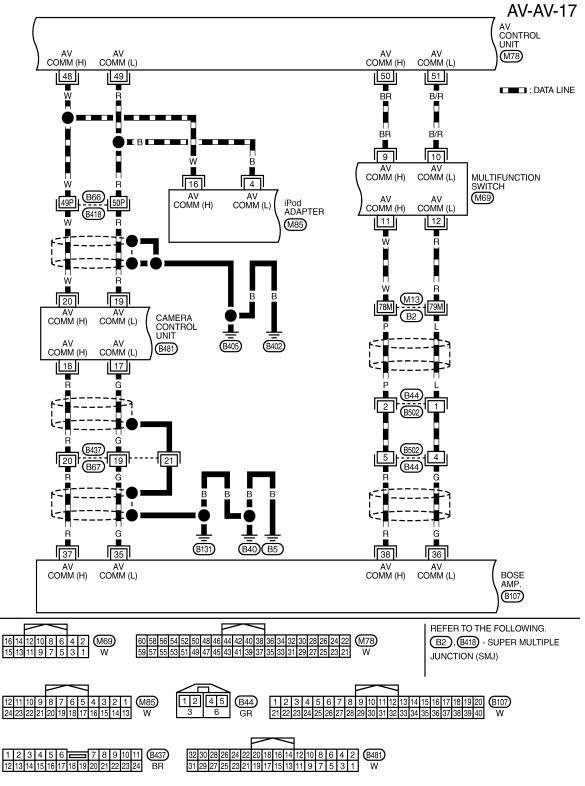
Е

F

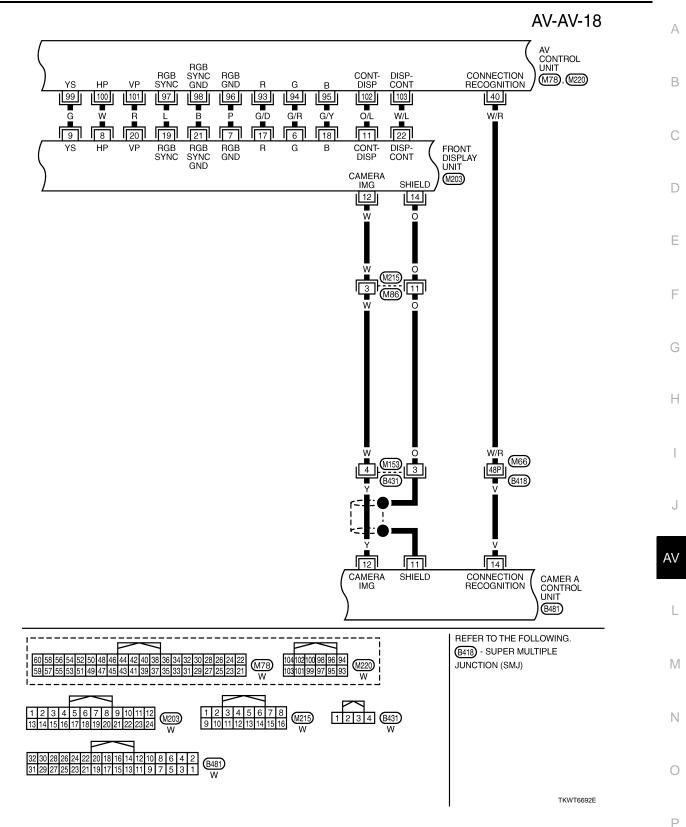


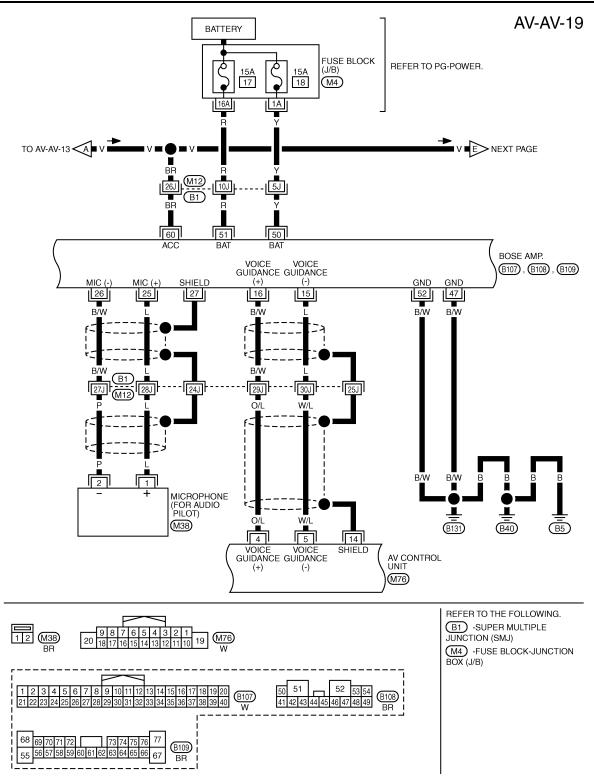


< ECU DIAGNOSIS >

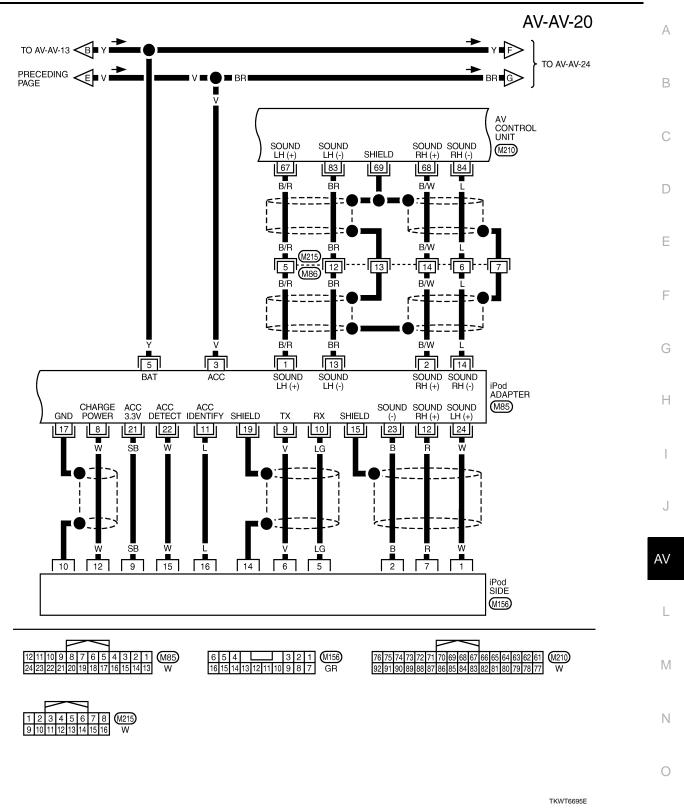


TKWT6691E

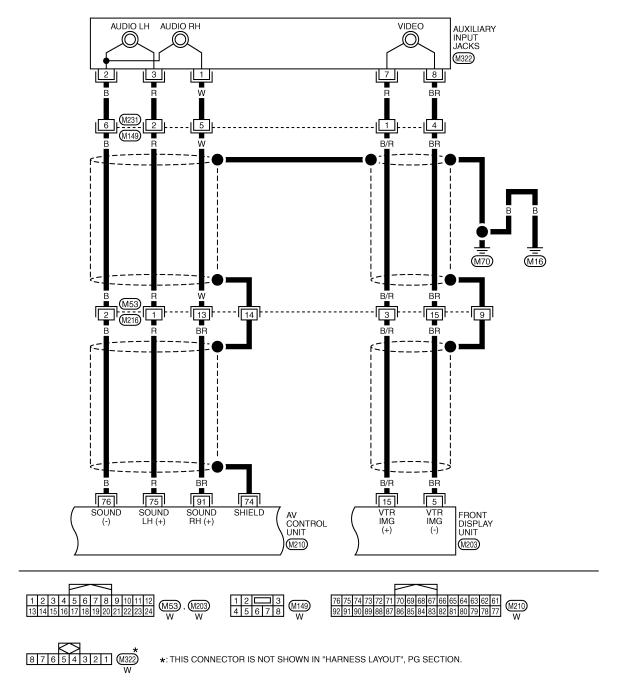




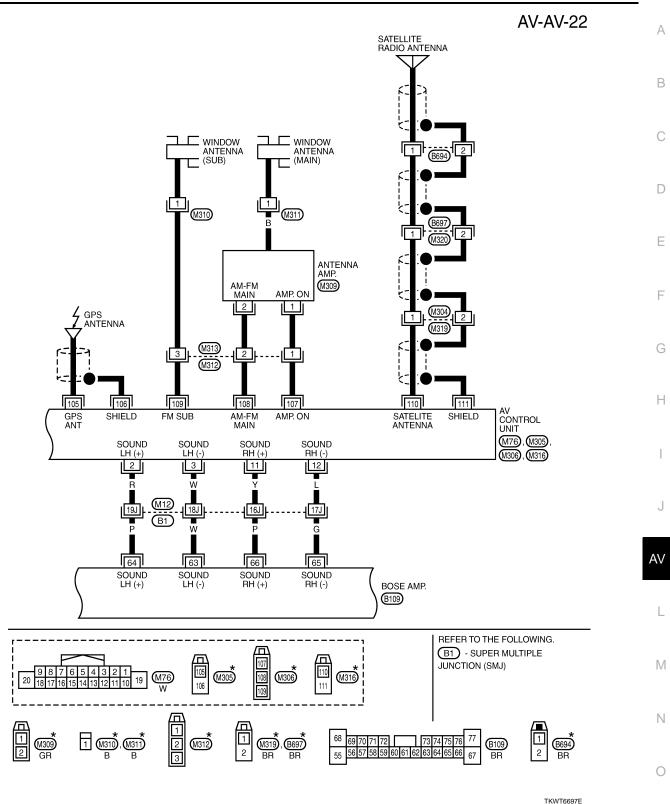
TKWT8276E

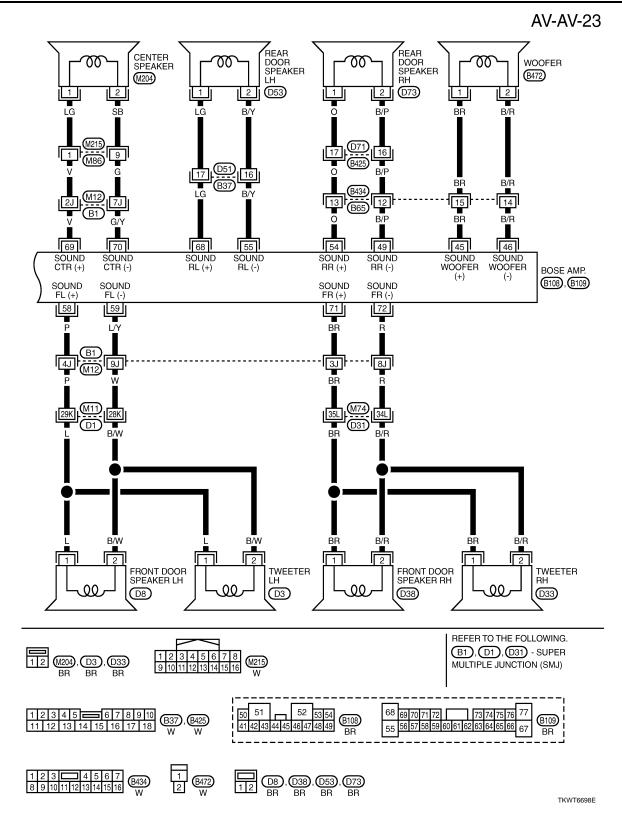


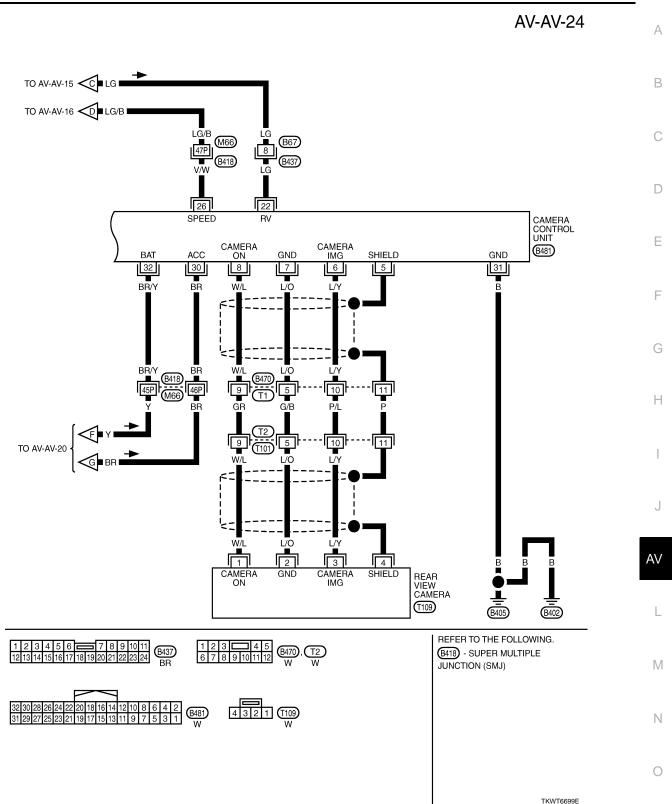
AV-AV-21



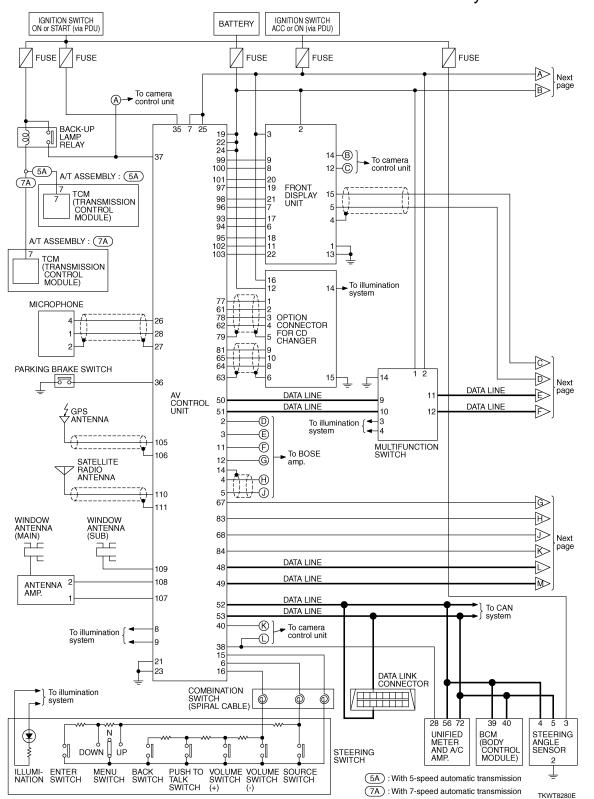
TKWT8277E

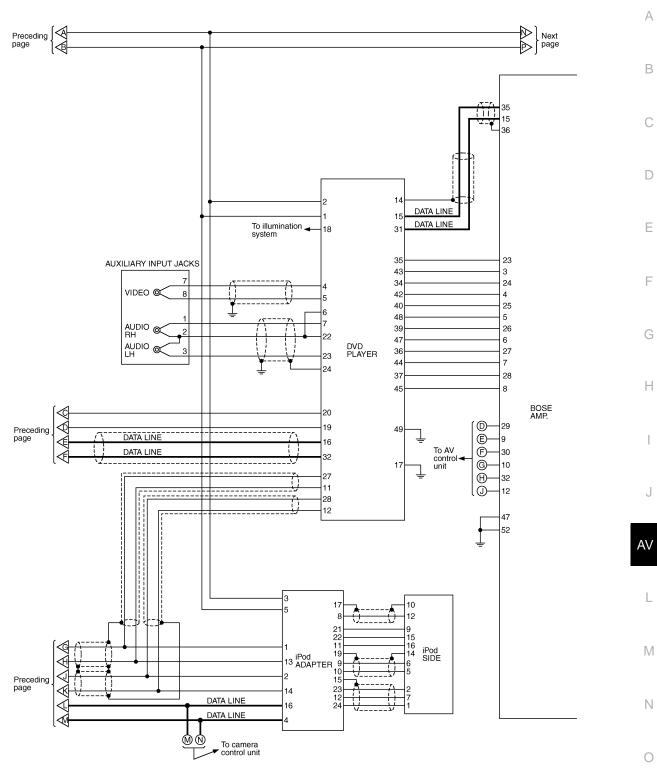




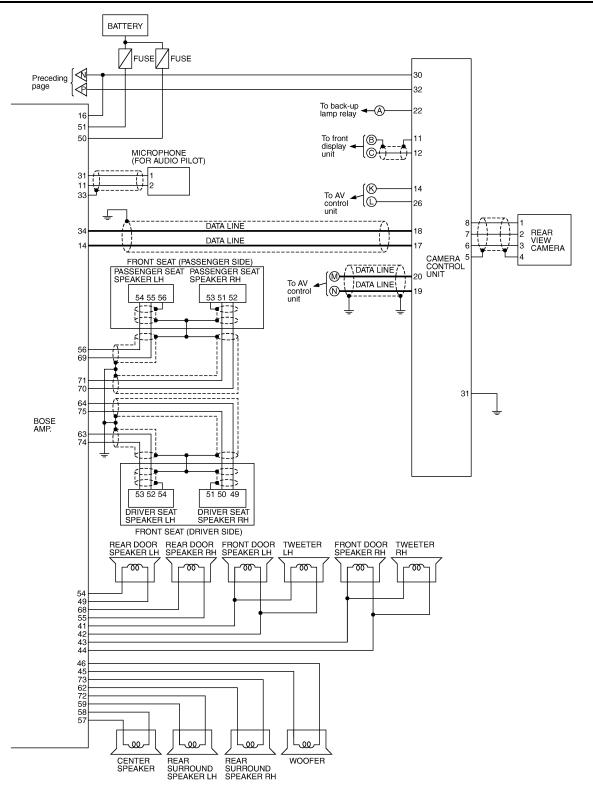


WITH NAVIGATION : Schematic - BOSE Surround Audio 5.1ch System - INFOID:00000004155800





TKWT6701E



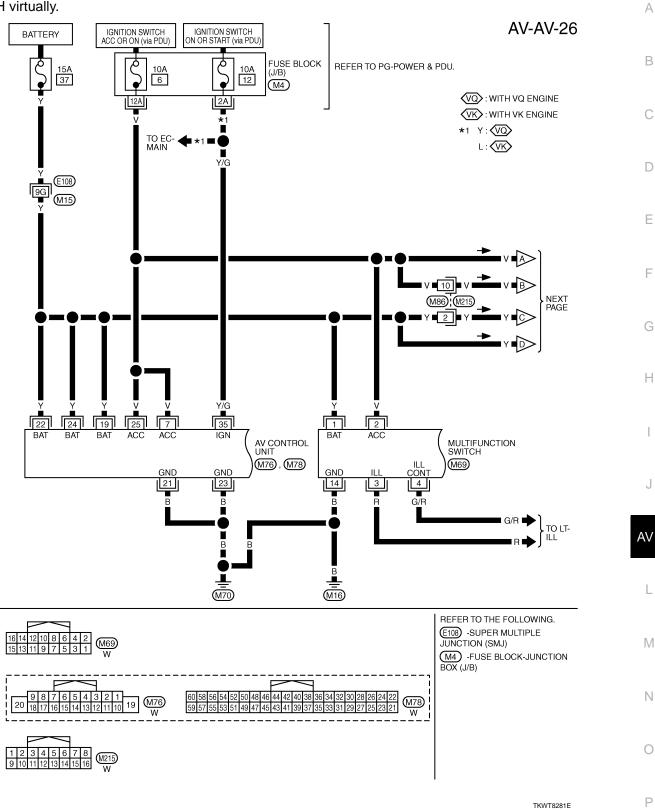
TKWT6702E

WITH NAVIGATION : Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

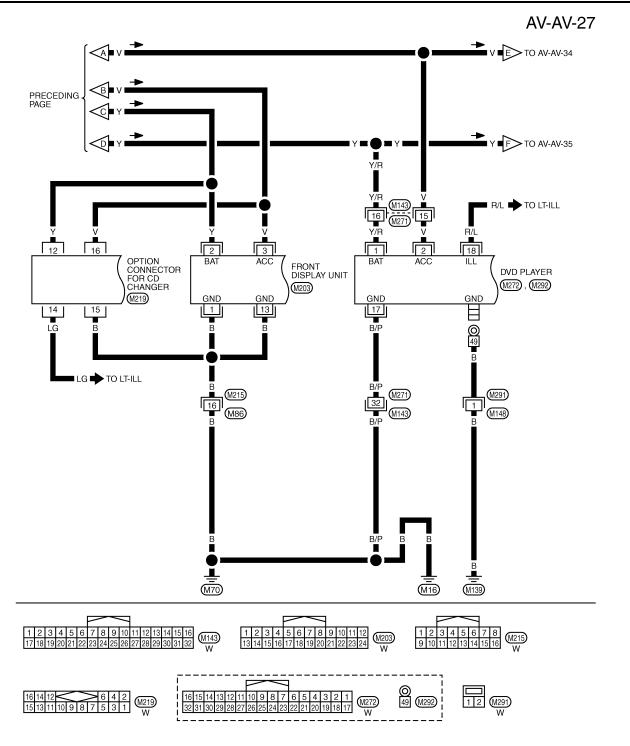
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NOTE:

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



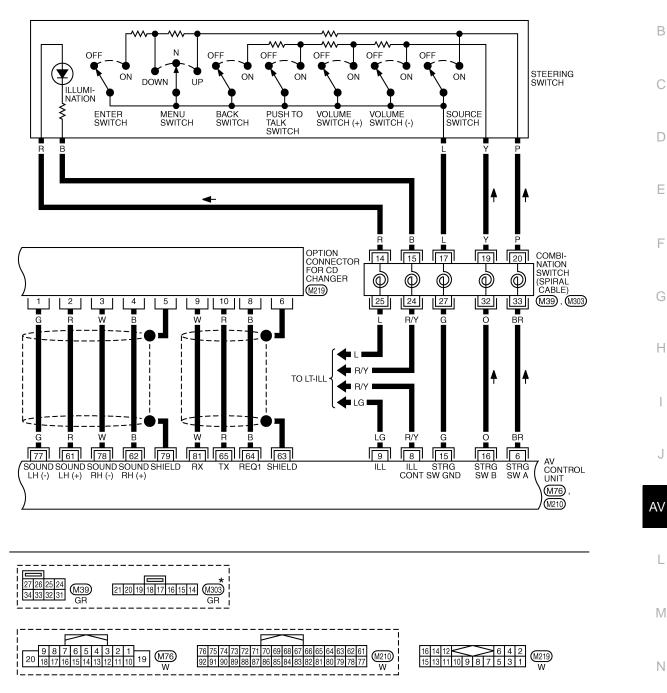
Revision: 2009 Novemver



TKWT8282E

#### AV-AV-28

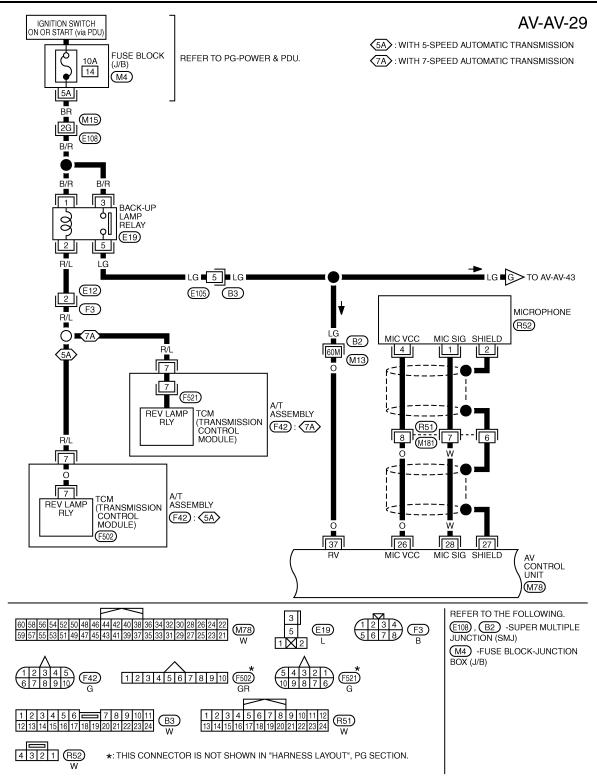
А



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

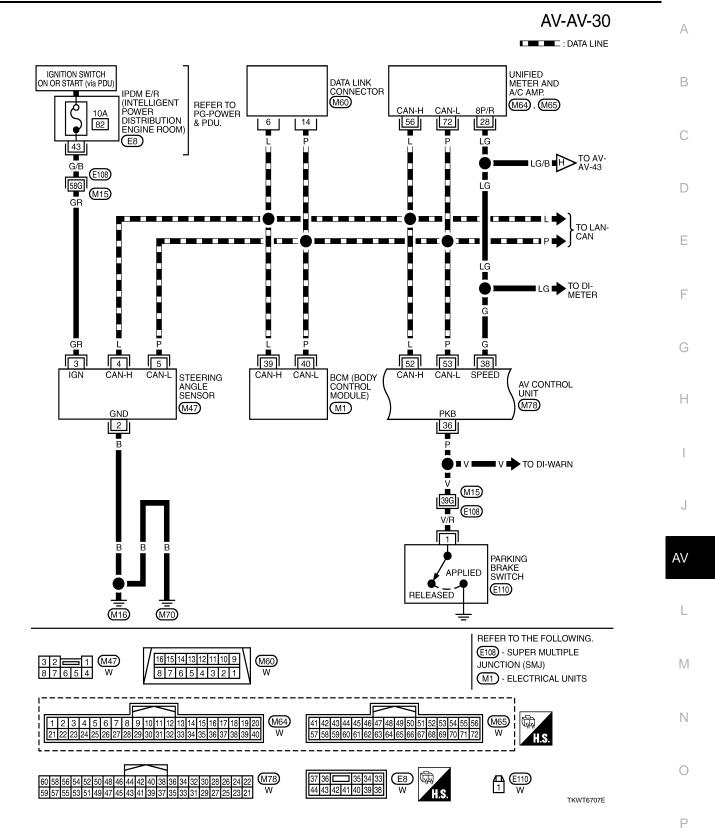
TKWT8283E

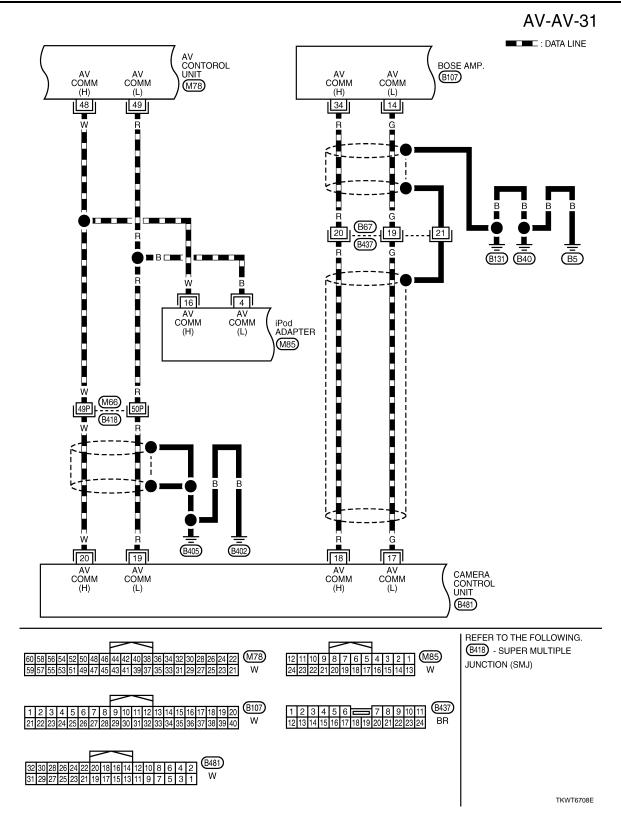
Ο

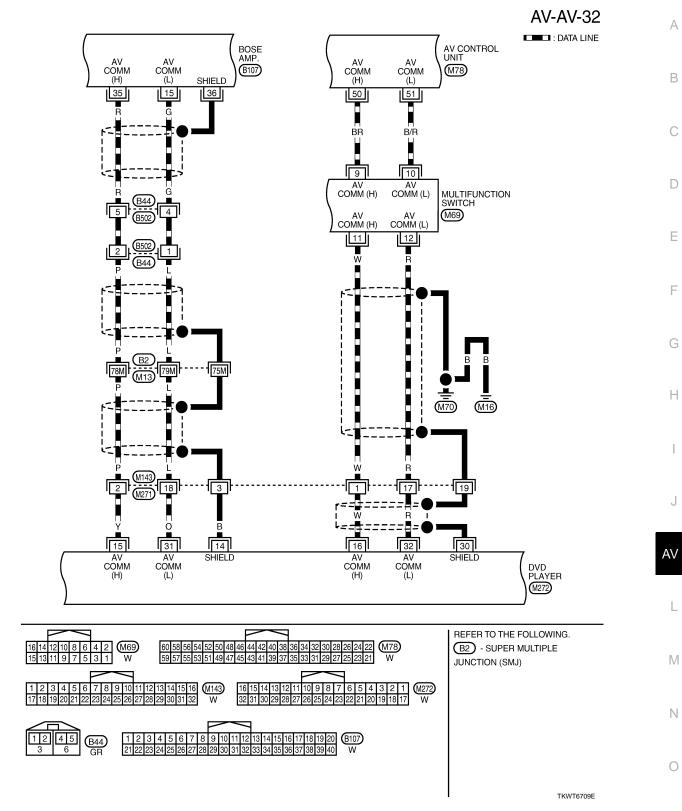


TKWT8284E

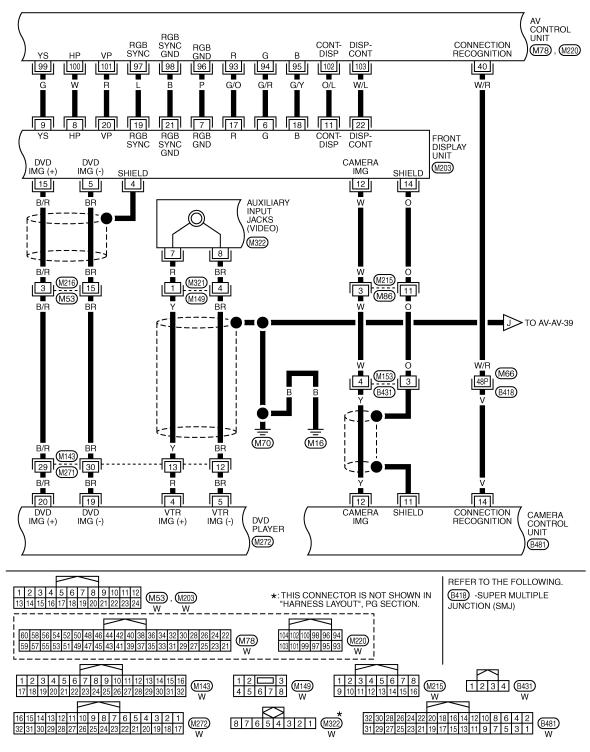
# AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]





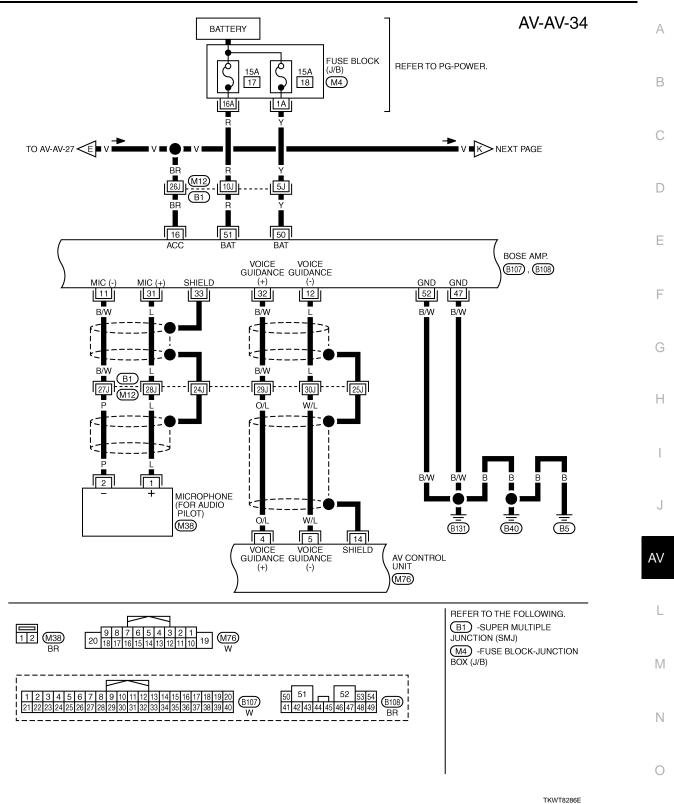






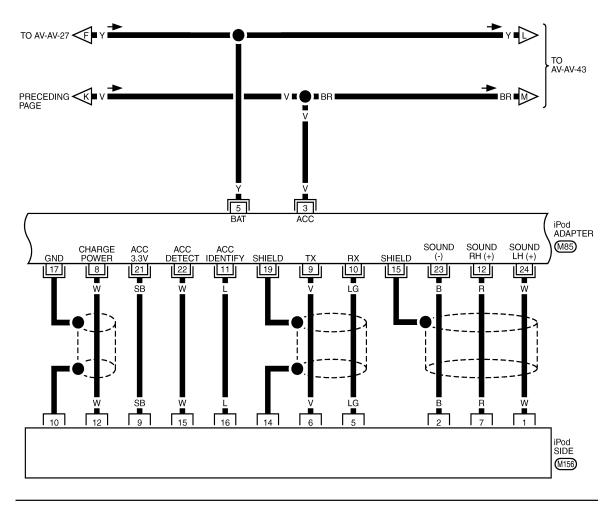
TKWT8285E

#### AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



Р

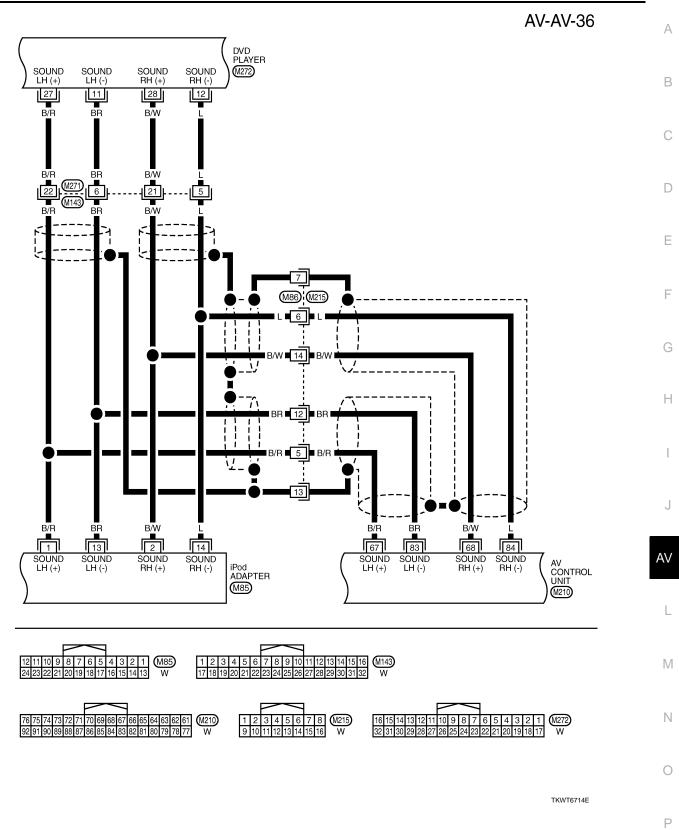
**AV-AV-35** 

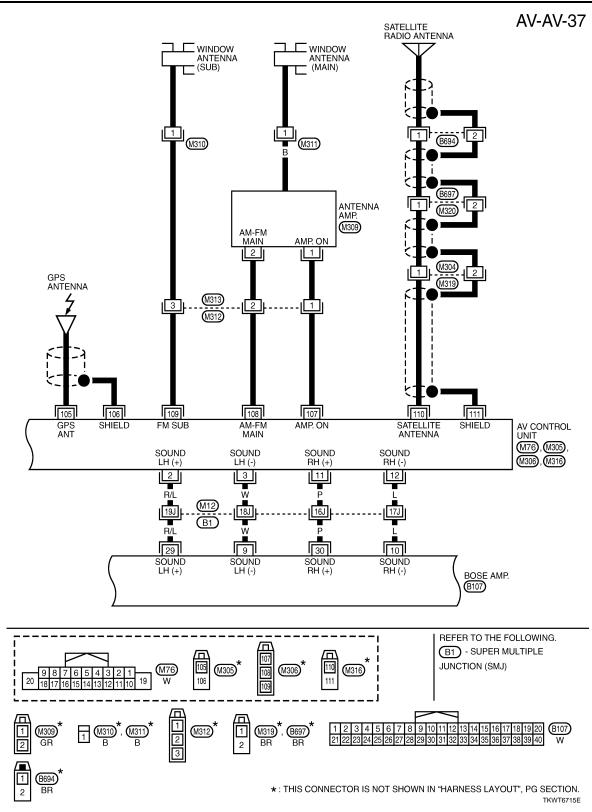




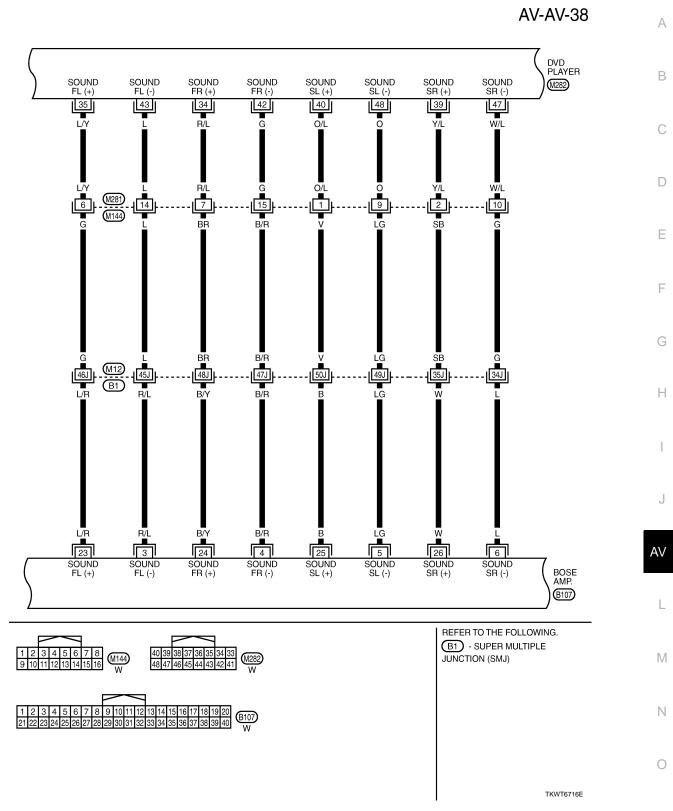
6 5 4 3 2 1 M156 16 15 14 13 12 11 10 9 8 7 GR

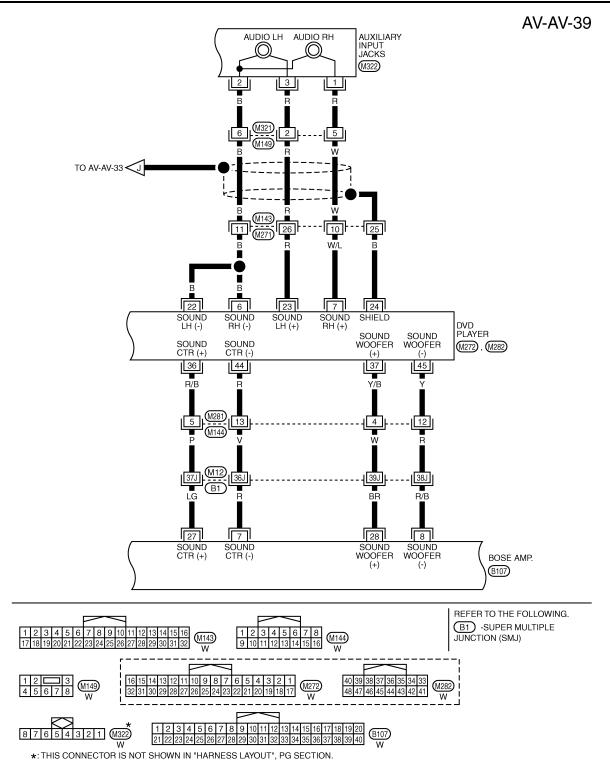
TKWT6713E



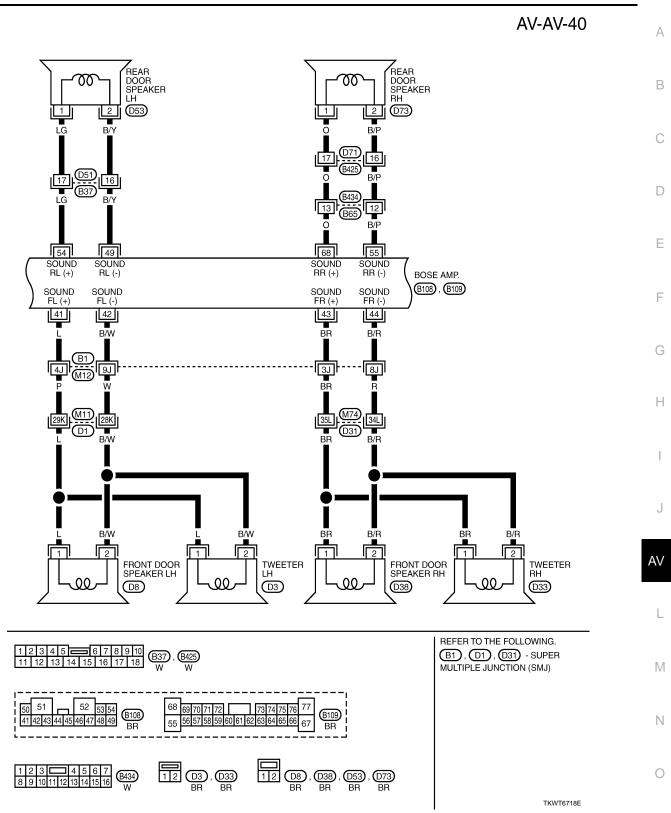




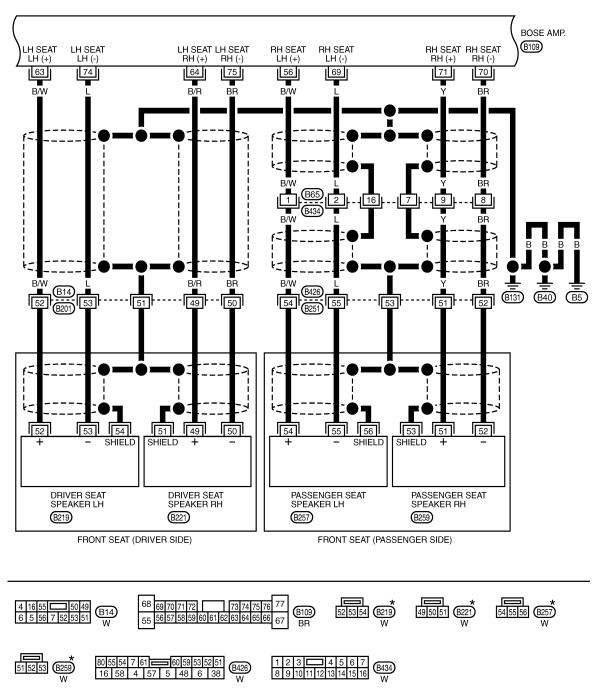




TKWT8287E



AV-AV-41

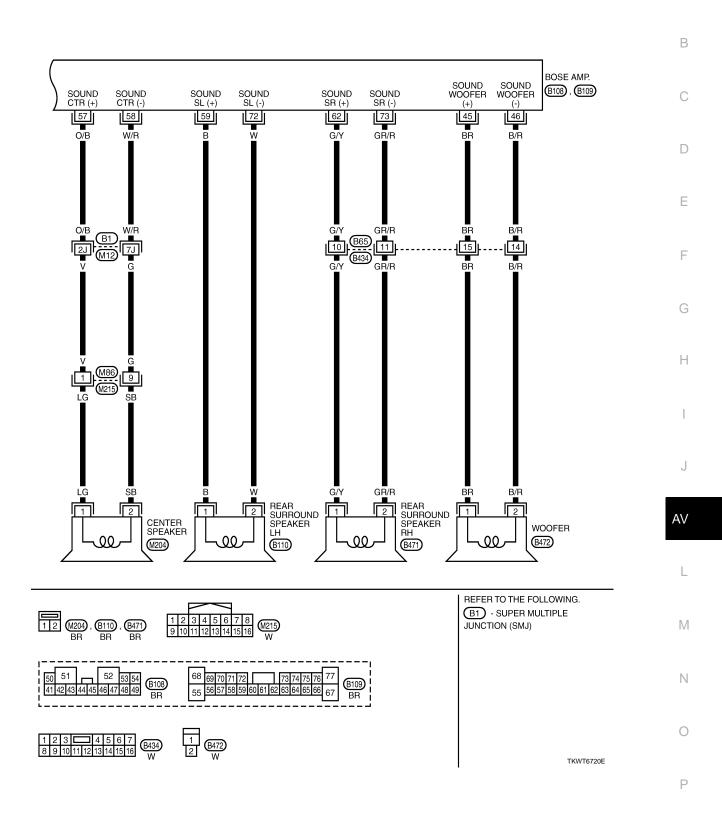


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT6719E

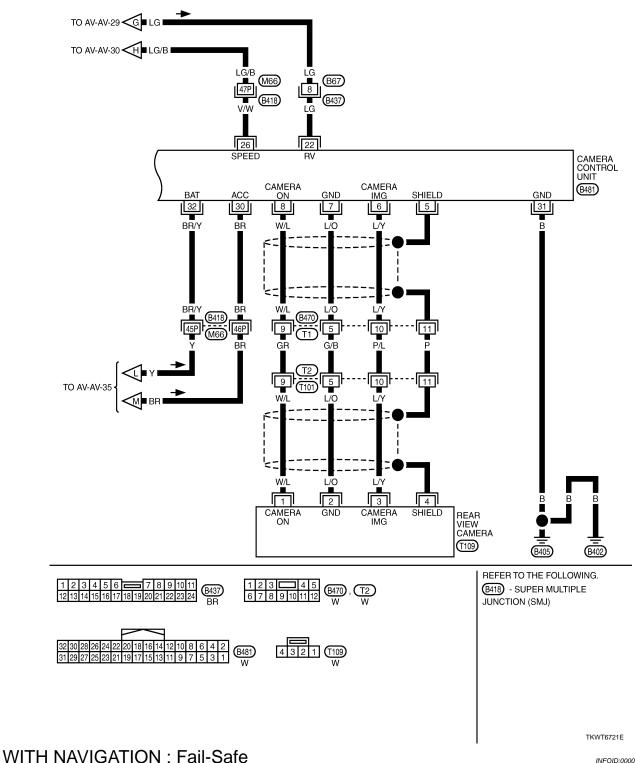


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# AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

AV-AV-43



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

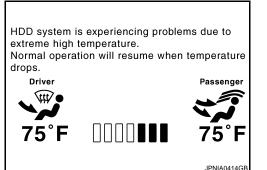
#### FAIL-SAFE CONDITIONS

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

# AV-218

INFOID:000000004155802

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



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Fail-safe mode	Display (display of the fail-safe condition)	E
When HDD temperature is low	HDD system is experiencing problems due to extreme low temperature. Normal operation will resume when temperature rises.	
When HDD temperature is high	HDD system is experiencing problems due to extreme high temperature. Normal operation will resume when temperature drops.	F
When HDD is malfunctioning	HDD system is not functioning. Please contact your dealer for assistance.	G

# DESCRIPTION OF CONTROLS

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

#### Ability Operation Mode

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

#### RELEASE CONDITIONS OF FAIL-SAFE

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

When the temperature of HDD is low or high

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

#### When HDD is malfunctioning

If the malfunction disappears, normal mode is restored.

#### NOTE:

- If fail-safe mode due to HDD malfunction is seen continuously, replace AV control unit.
- If fail-safe mode due to HDD malfunction is seen temporarily, check the "Error History" of Confirmation/ Adjustment mode. If this is normal, then continue the normal operation, observing the function. (It might be a temporary malfunction of HDD.)

#### AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# WITH NAVIGATION : DTC Index

INFOID:000000004155803

# SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display item	Refer to
U1000	CAN COMM CIRCUIT [U1000]	AV-78, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [1010]	AV-79, "Diagnosis Procedure"
U1310	CONTROL UNIT (AV) [U1310]	AV-80, "WITH NAVIGATION : DTC Logic"
U1200	Control Unit FLASH-ROM [1200]	AV-82, "WITH NAVIGATION : DTC Logic"
U1201	Gyro NO CONN [1201]	AV-84, "DTC Logic"
U1216	CAN CONT [U1216]	AV-85, "WITH NAVIGATION : DTC Logic"
U1217	BLUETOOTH CONN [U1217]	AV-87, "DTC Logic"
U1218	HDD CONN [U1218]	AV-88, "DTC Logic"
U1219	HDD READ [U1219]	AV-89, "DTC Logic"
U1220	XM SERIAL COMM [U1220]	AV-90, "DTC Logic"
U121A	HDD WRITE [U121A]	AV-91, "DTC Logic"
U121B	HDD COMM [U121B]	AV-92, "DTC Logic"
U121C	HDD ACCESS [U121C]	AV-93, "DTC Logic"
U121D	DSP CONN [U121D]	AV-94, "DTC Logic"
U121E	DSP COMM [U121E]	AV-95, "DTC Logic"
U121F	INTERNAL COMM [U121F]	AV-96, "DTC Logic"
U1204	GPS COMM [U1204]	AV-97, "DTC Logic"
U1205	GPS ROM [U1205]	AV-98, "DTC Logic"
U1206	GPS RAM [U1206]	AV-99, "DTC Logic"
U1207	GPS RTC [U1207]	AV-100, "DTC Logic"
U1243	FRONT DISP CONN [U1243]	AV-102, "WITH NAVIGATION : DTC Logic"
U1244	GPS ANTENNA CONN [U1244]	AV-105, "DTC Logic"
U1250	CAMERA CONT. CONN [U1250]	AV-106, "DTC Logic"
U1258	XM ANTENNA CONN [U1258]	AV-109, "DTC Logic"
U1300 U121F	AV COMM CIRCUIT [U1300]     INTERNAL COMM [U121F]	AV-110, "WITH NAVIGATION : Description"
U1300 U1240	AV COMM CIRCUIT [U1300]     SWITCH CONN [U1240]	AV-110, "WITH NAVIGATION : Description"
U1300 U1248	AV COMM CIRCUIT [U1300]     DVD DECK CONN [U1248]	AV-110, "WITH NAVIGATION : Description"
U1300 U124E	AV COMM CIRCUIT [U1300]     AMP CONN [U124E]	AV-110, "WITH NAVIGATION : Description"
U1300 U1252	AV COMM CIRCUIT [U1300]     REAR CAMERA LAN CONN [U1252]	AV-110, "WITH NAVIGATION : Description"
U1300 U1254	<ul><li>AV COMM CIRCUIT [U1300]</li><li>IPOD CONN [U1254]</li></ul>	AV-110, "WITH NAVIGATION : Description"
U1300 U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"
U1300 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"

# AV CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

< ECU DIAGNOSIS >

DTC	Display item	Refer to
U1300 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"
U1300 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"
U1300 U1240 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"
U1300 U1240 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"
U1300 U121F U1240 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>INTERNAL COMM [U121F]</li> <li>SWITCH CONN [U1240]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"
U1300 U121F U1240 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>INTERNAL COMM [U121F]</li> <li>SWITCH CONN [U1240]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-110, "WITH NAVIGATION : Description"

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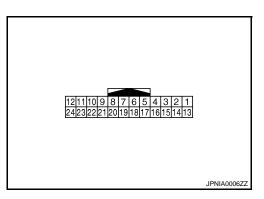
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# FRONT DISPLAY UNIT WITHOUT NAVIGATION

# WITHOUT NAVIGATION : Reference Value

**TERMINAL LAYOUT** 



INFOID:000000004155804

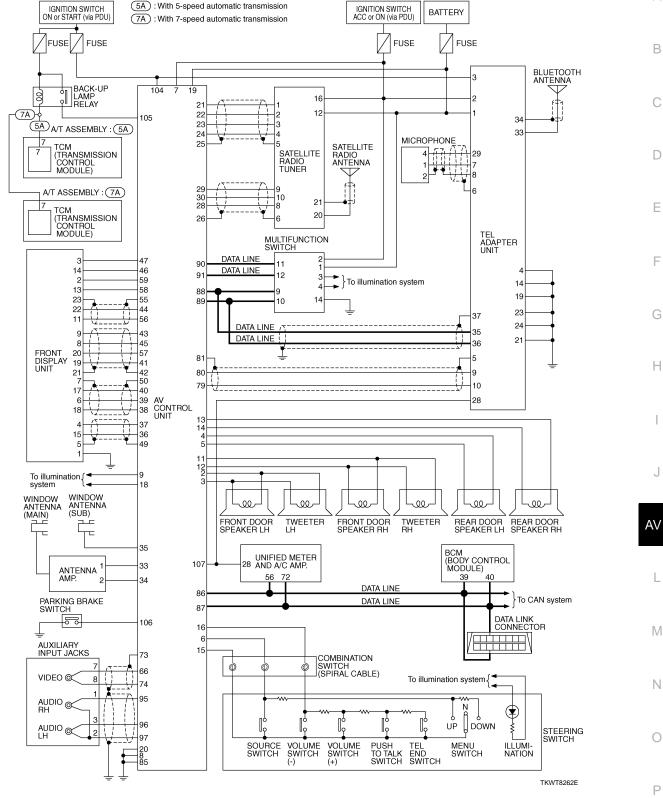
#### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
2 (Y)	Ground	Inverter VCC	Input	Ignition switch ACC	_	9 V	
3 (L)	Ground	Signal VCC	Input	Ignition switch ACC	_	9 V	
4 (G)	Ground	AUX image ground	_	Ignition switch ON	_	0 V	
5		Shield				_	
6 (L)	Ground	RGB image signal (G: green)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 -0.4 Figure 40,45 SKIB2236J	
7		Shield		_	_	_	
8 (W)	Ground	Horizontal synchronizing (HP) signal	Output	lgnition switch ON	_	(V) 4 0 • • 20µs SKIB3601E	

Terminal (Wire color)		Description				Reference value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	
					When RGB image is dis- played.	5 V	-
9 (G)	Ground	RGB area (YS) signal	Input	lgnition switch ON	When AUX image is dis- played.	(V) 6 4 2 0 + + 200 µ s − − − − − − − − − − − − − − − − − − −	
11 (O/L)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting display brightness.	(V) 6 4 2 0 	-
13 (W/R)	Ground	Inverter ground	_	Ignition switch ON	_	0 V	-
14 (O)	Ground	Signal ground		Ignition switch ON	_	0 V	_
15 (W)	4 (G)	AUX image signal	Input	lgnition switch ON	When AUX image is dis- played.	(V) 0.4 -0.4 -0.4 -0.4	
17 (G)	Ground	RGB image signal (R: red)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0 -0.4 (V) 0.4 0 0 0 0 0 0 0 0 0 0 0 0 0	-
18 (Y)	Ground	RGB image signal (B: blue)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	

	ninal color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
19 (B)	Ground	RGB synchronizing signal	Input	Ignition switch ON		(V) 4 0 ↓ ↓ 20 µ s SKIB3603E	
20 (R)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON	_	(V) 4 0 • • • 4 ms SKIB3598E	
21	—	Shield	—	—	—	_	
22 (W/L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting display brightness.	(V) 6 2 0 •••••1ms ••••••1ms ••••••••••••••••••••••••••••••••••••	
23	—	Shield	—	—		_	

#### FRONT DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM] < ECU DIAGNOSIS > WITHOUT NAVIGATION : Schematic - Base Audio System -INFOID:000000004380450 А (5A) : With 5-speed automatic transmission IGNITION SWITCH ACC or ON (via PDU) BATTERY (7A) : With 7-speed automatic transmission

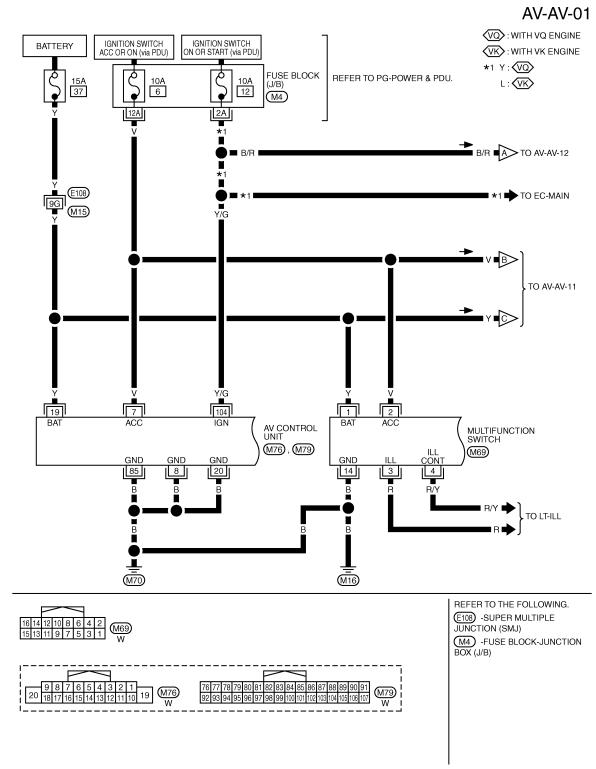


WITHOUT NAVIGATION : Wiring Diagram - AV - / Base Audio System

INFOID:000000004380451

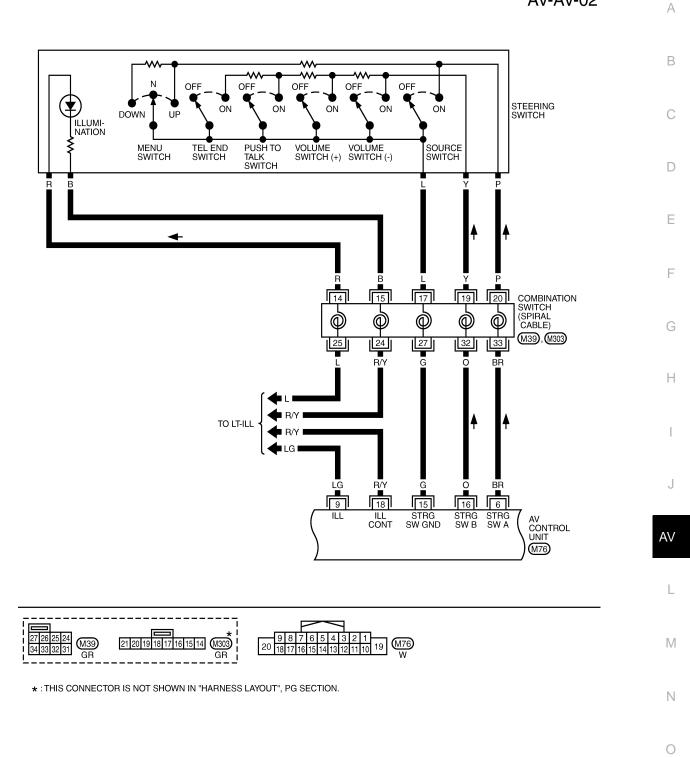
NOTE:

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

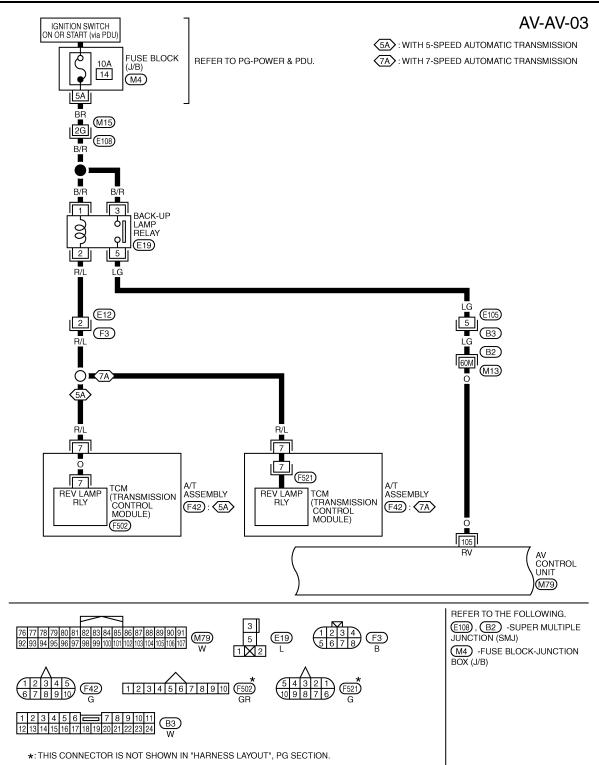


TKWT8263E

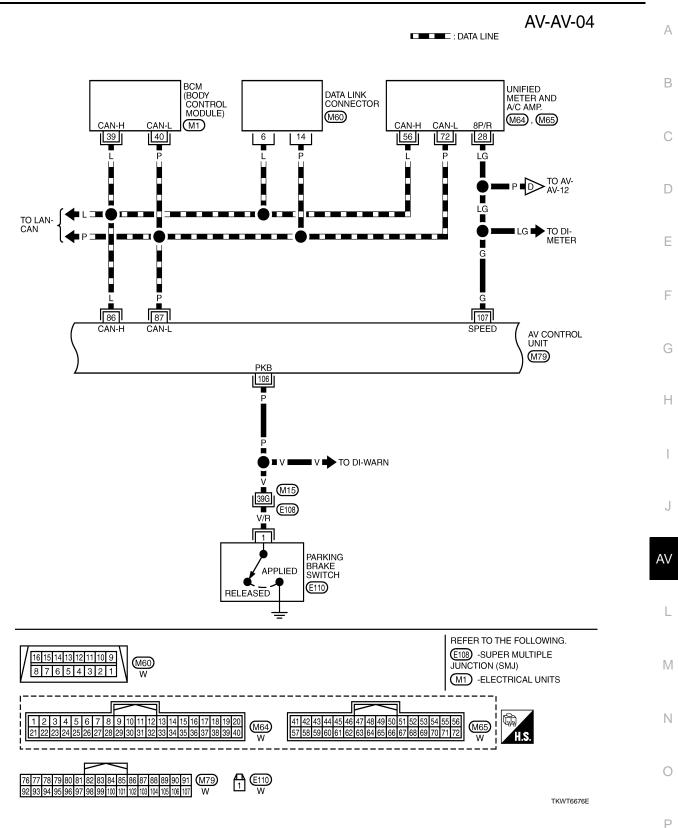
AV-AV-02



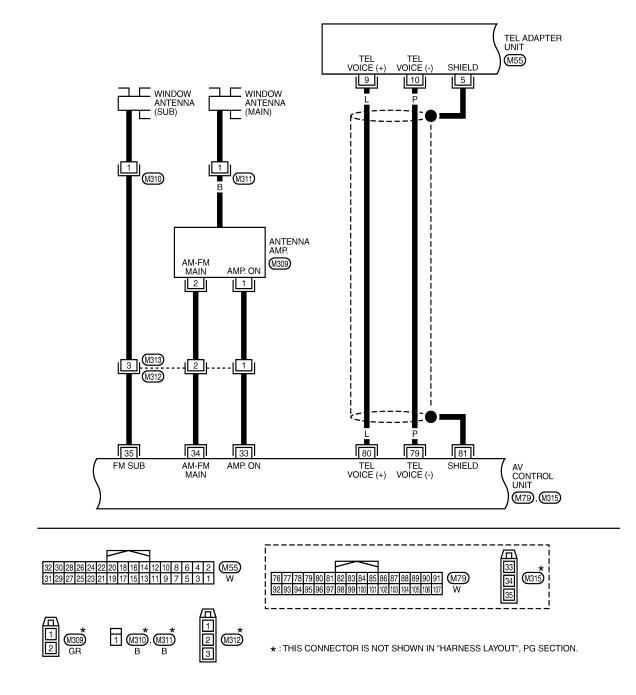
TKWT6674E



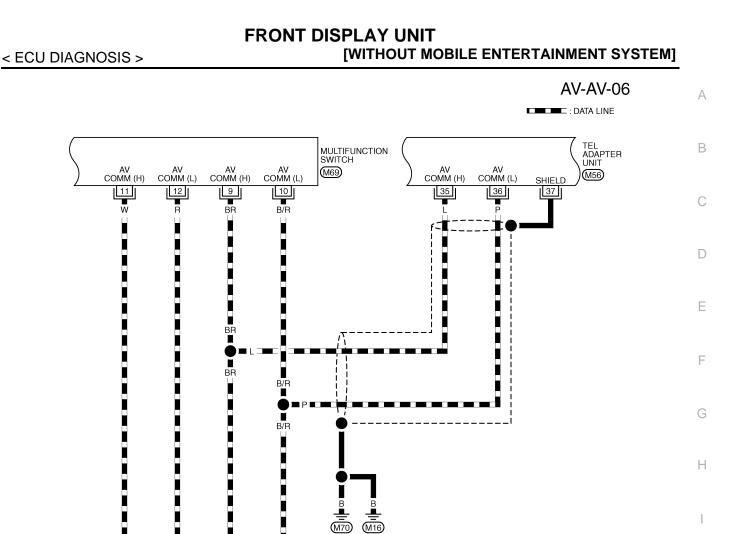
TKWT8264E



AV-AV-05

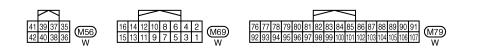


TKWT6677E



AV CONTROL UNIT

(M79)



B/R

89

AV COMM (L)

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TKWT8265E

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AV COMM (H)

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91

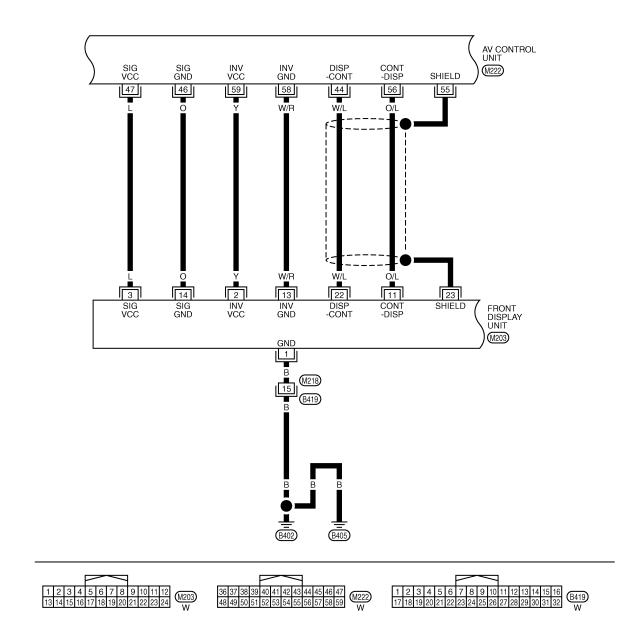
AV COMM (L)

₿R

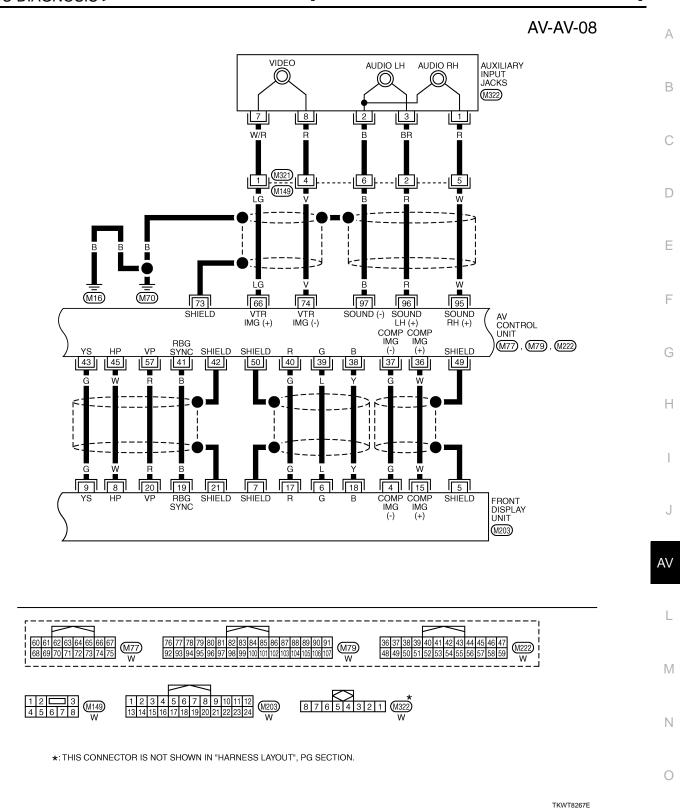
88

AV COMM (H)

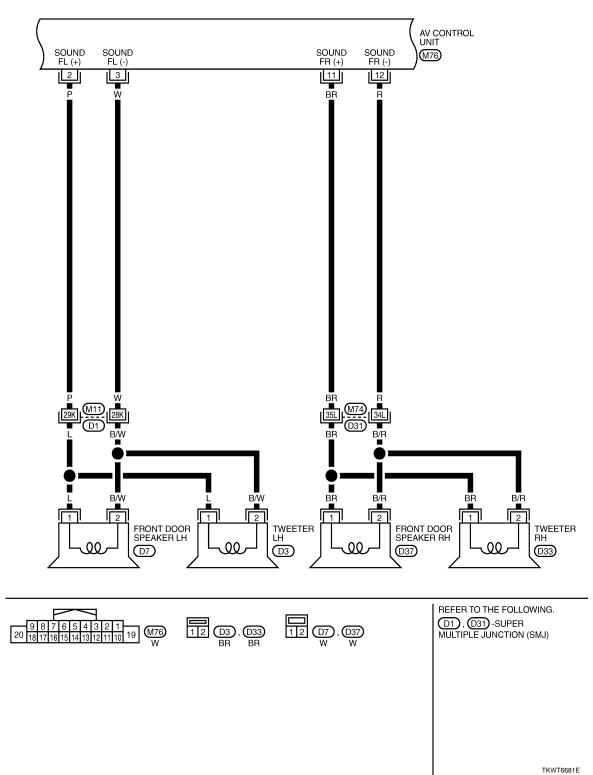
AV-AV-07



TKWT8266E

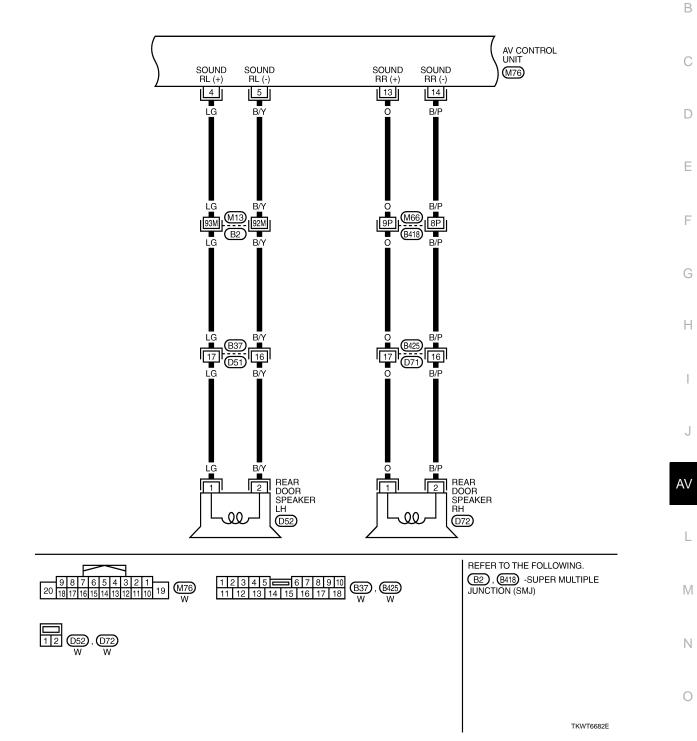


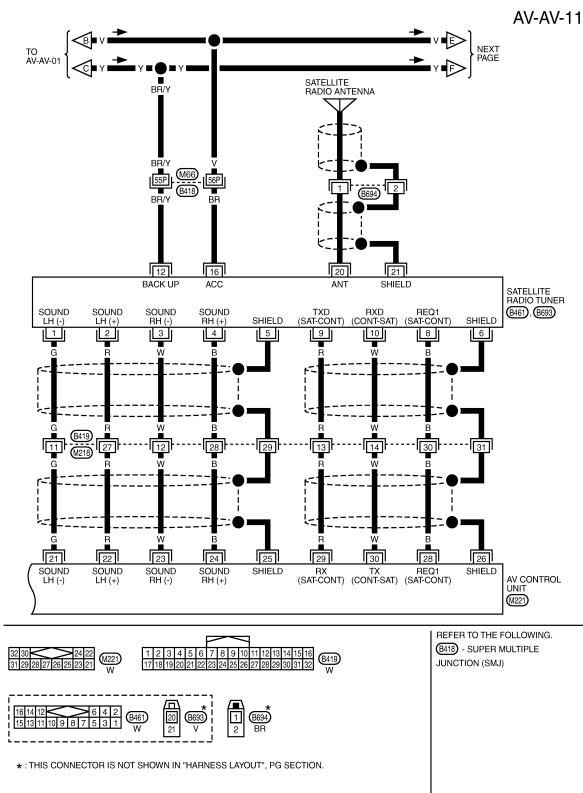
AV-AV-09





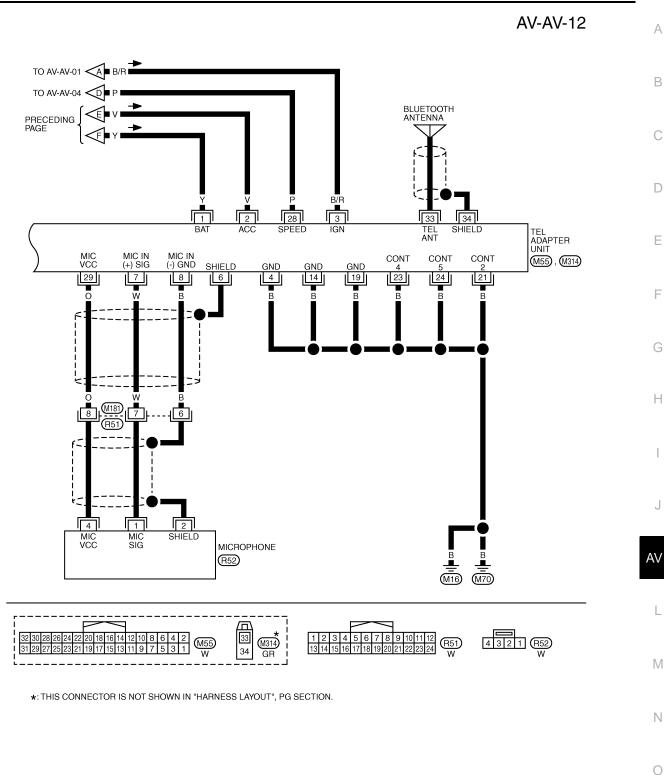
А





TKWT6683E





# WITH NAVIGATION

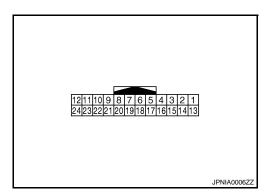
Ρ

TKWT8268E

# WITH NAVIGATION : Reference Value

#### **TERMINAL LAYOUT**

INFOID:000000004155807



#### PHYSICAL VALUES

	minal e color)	Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
1 (B)	Ground	Ground		Ignition switch ON	_	0 V	
2 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
3 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
5 (BR)	Ground	Composite image ground (AUX image) <sup>*1</sup> (DVD and AUX images) <sup>*2</sup>		Ignition switch ON	_	0 V	
6 (G/R)	Ground	RGB image signal (G: green)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 • • • 40µs	
7 (P)	Ground	RGB image signal ground	_	Ignition switch ON		0 V	
8 (W)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON		(V) 4 0 + + 20µs SKIB3601E	

	minal e color)	Description			Condition	Reference value	А
+	-	Signal name	Input/ Output		Condition	(Approx.)	
					When RGB image is displayed.	5 V	В
9 (G)	Ground	RGB area (YS) signal	Input	Ignition switch ON	When rear view camera im- age is displayed.	$\begin{pmatrix} V \\ 6 \\ 4 \\ 2 \\ 0 \\ \end{pmatrix}$	C
						PKiB4948J	E
11 (O/L)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting front dis- play brightness.	(V) 6 4 2 0 ↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓	F
						PKIB5039J	G
12 (W)	Ground	Camera image signal	Input	Ignition switch ON	When rear view camera im- age is displayed.		Н
						-0.4	
13 (B)	Ground	Ground		Ignition switch ON		0 V	J
14	—	Shield	—	—		_	AV
15 (B/R)	5 (BR)	Composite image signal (AUX image signal) <sup>*1</sup> (AUX and DVD image) <sup>*2</sup>	Input	Ignition switch ON	When AUX or DVD image is displayed.		L
						5. 4 + 40µs SKIB2251J	$\mathbb{M}$
17	Ground	RGB image signal (R: red)	Input	Ignition switch	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting		Ν
(G/O)	Ground	NOD image signal (N. reu)	mput	ON	"Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	0.4	0
18 (G/Y)	Ground	RGB image signal (B: blue)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{pmatrix} (V) \\ 0.8 \\ 0.4 \\ 0.4 \\ 0 \\ \bullet \\ \bullet$	Ρ

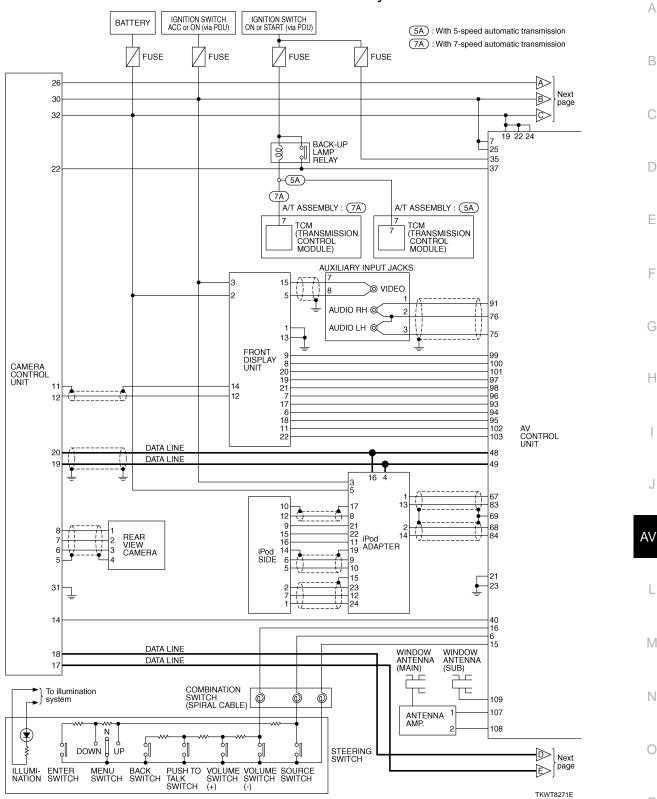
# FRONT DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

	minal e color)	Description			Condition	Reference value
+	_	Signal name	Input/ Output	- Condition		(Approx.)
19 (L)	Ground	RGB synchronizing signal	Input	Ignition switch ON		(V) 0.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 (R)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON		(V) 4 0 ++4ms SKIB3598E
21 (B)	Ground	RGB synchronizing signal ground	_	Ignition switch ON	_	0 V
22 (W/L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting front dis- play brightness.	(V) 6 4 2 0 •••••1ms •••••1ms ••••••1ms ••••••••••••••••••••••••••••••••••••

\*1: Without DVD player models.

\*2: With DVD player models.

#### FRONT DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM] WITH NAVIGATION : Schematic - BOSE Audio 2ch System -INFOID:000000004380452



< ECU DIAGNOSIS >

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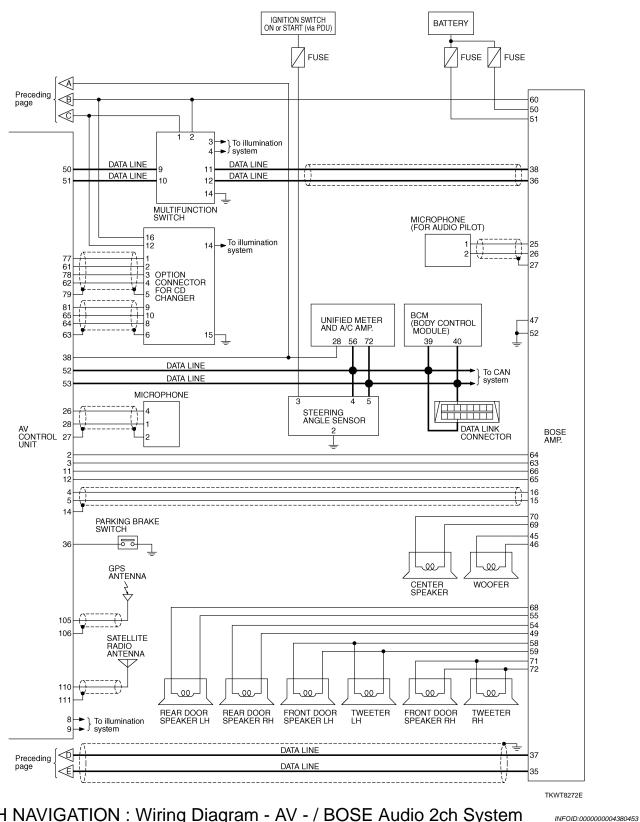
J

L

Μ

Ν

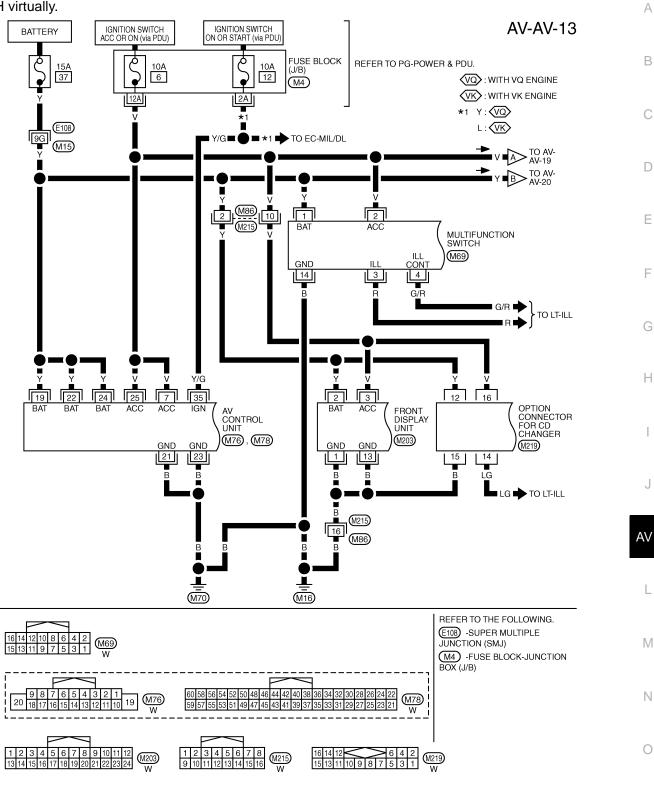
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WITH NAVIGATION : Wiring Diagram - AV - / BOSE Audio 2ch System NOTE:

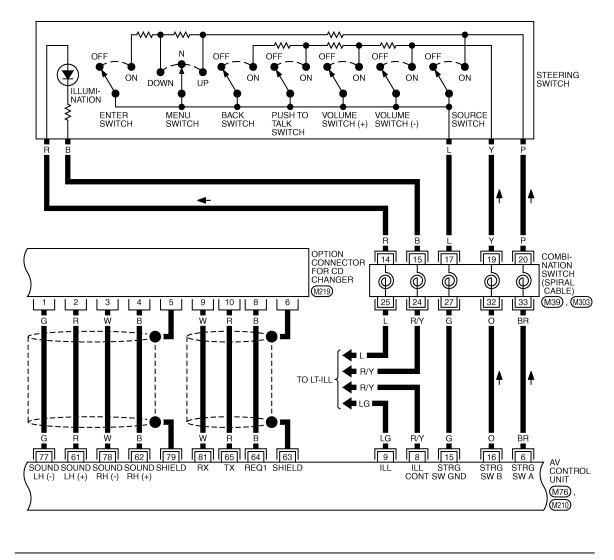
#### FRONT DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

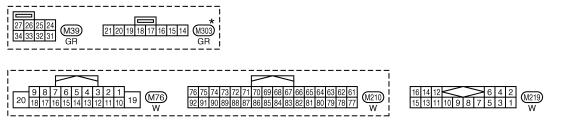
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



TKWT8273E

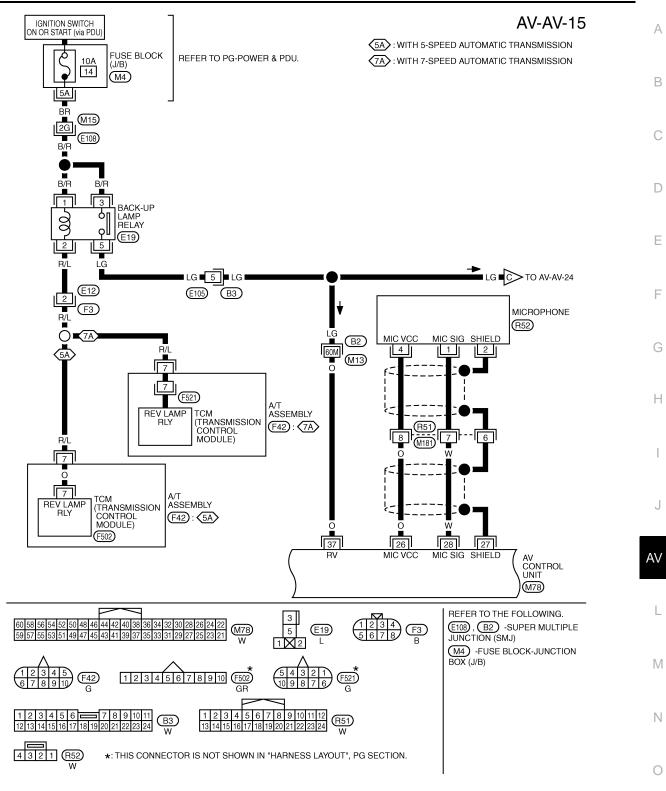
#### AV-AV-14



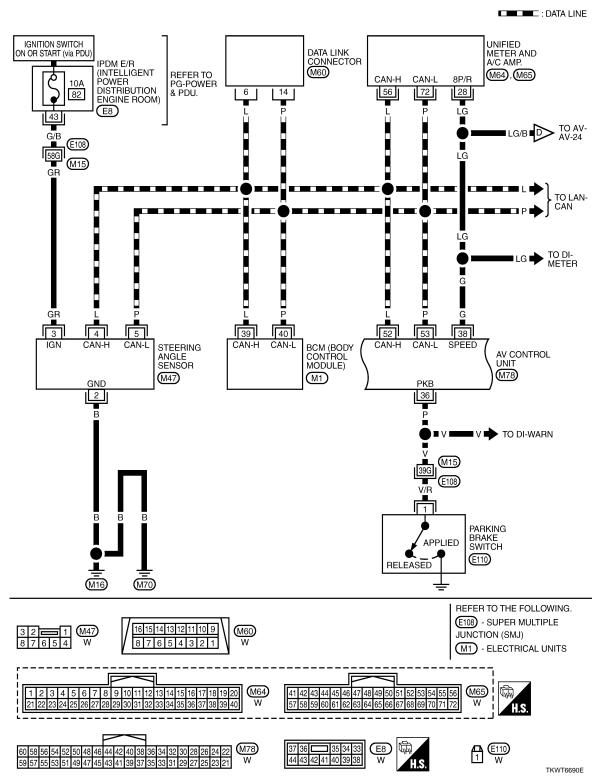


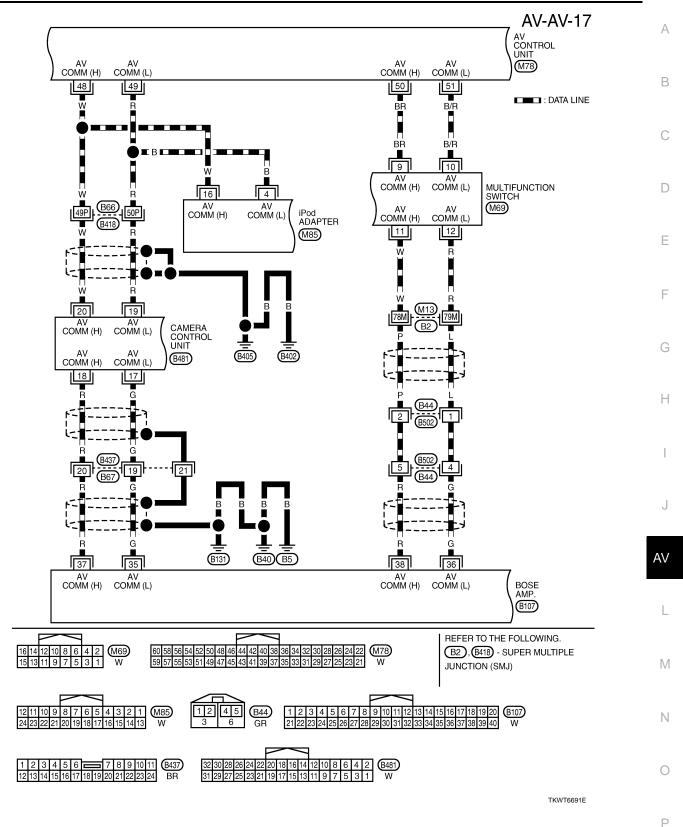
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

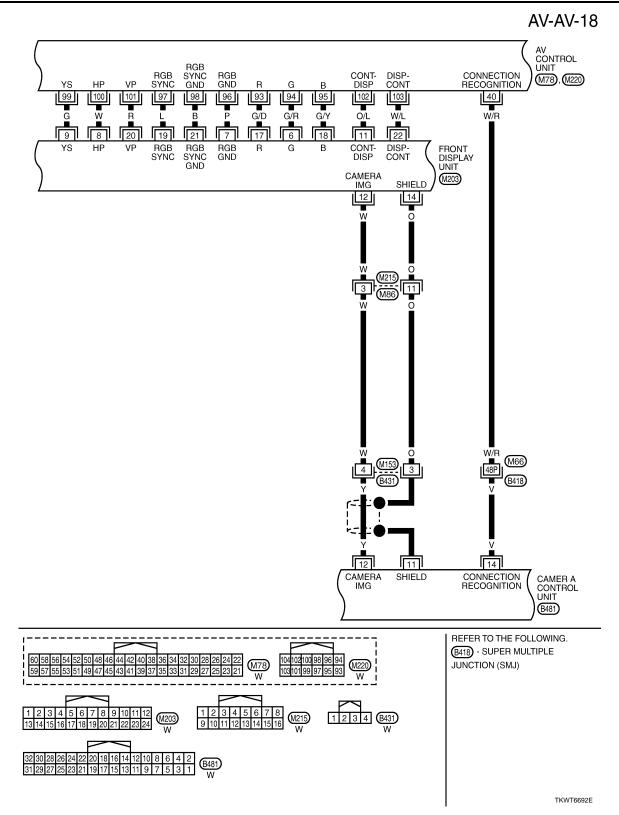
TKWT8274E



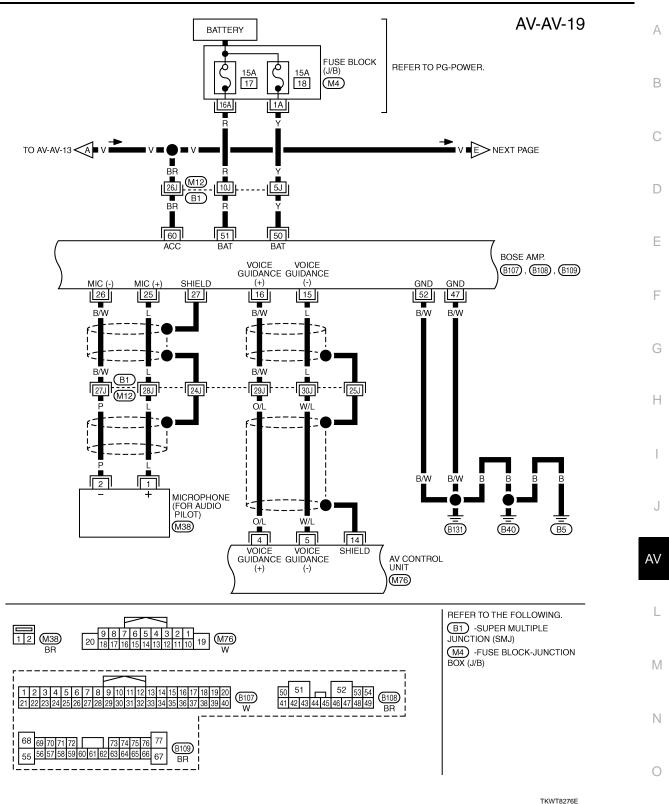
TKWT8275E



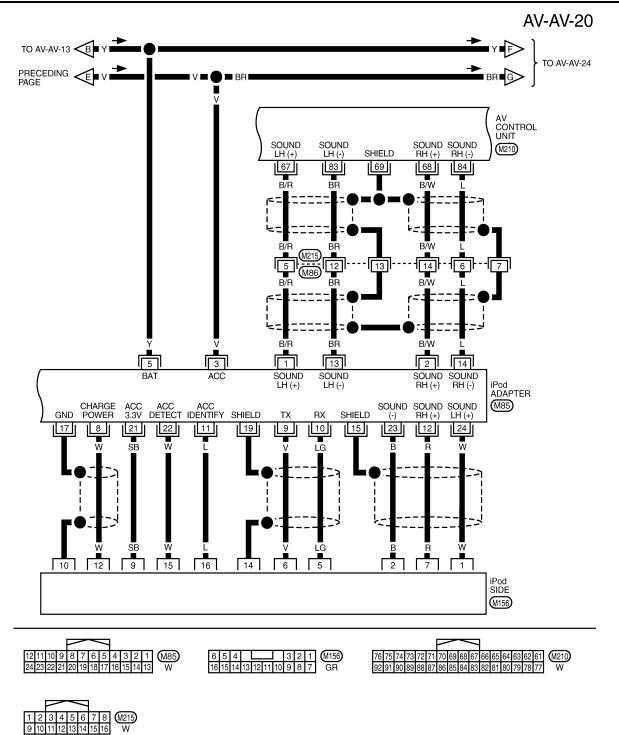




#### FRONT DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



3276E



TKWT6695E

**AV-AV-21** 

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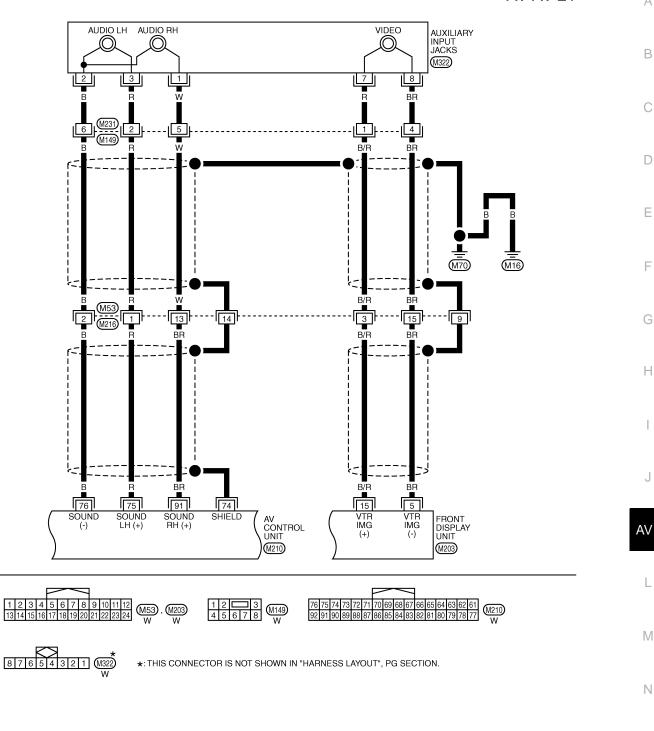
J

L

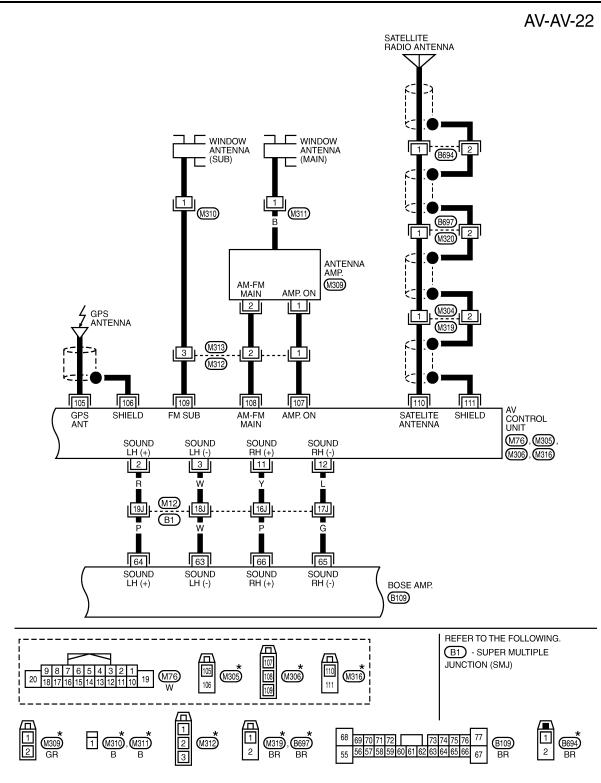
Μ

Ν

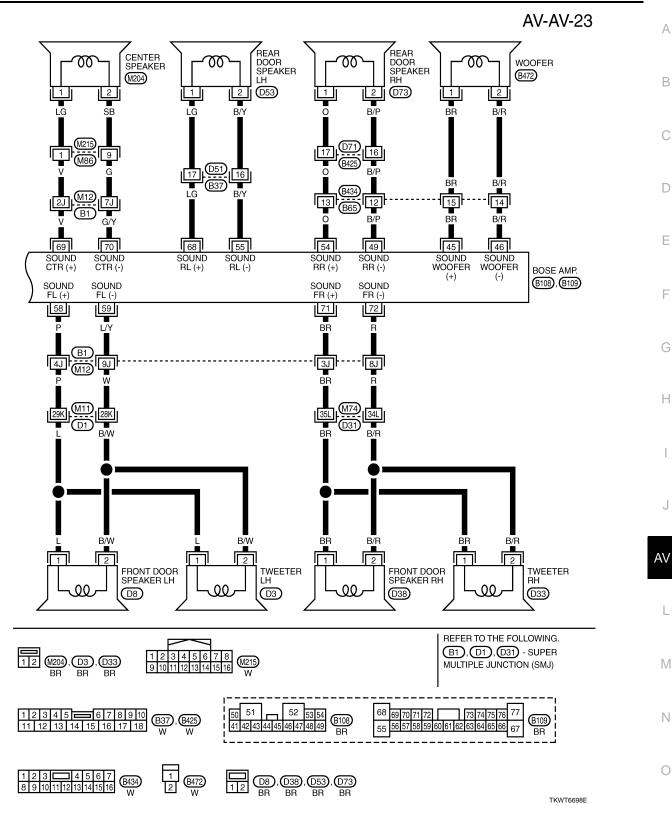
Ο



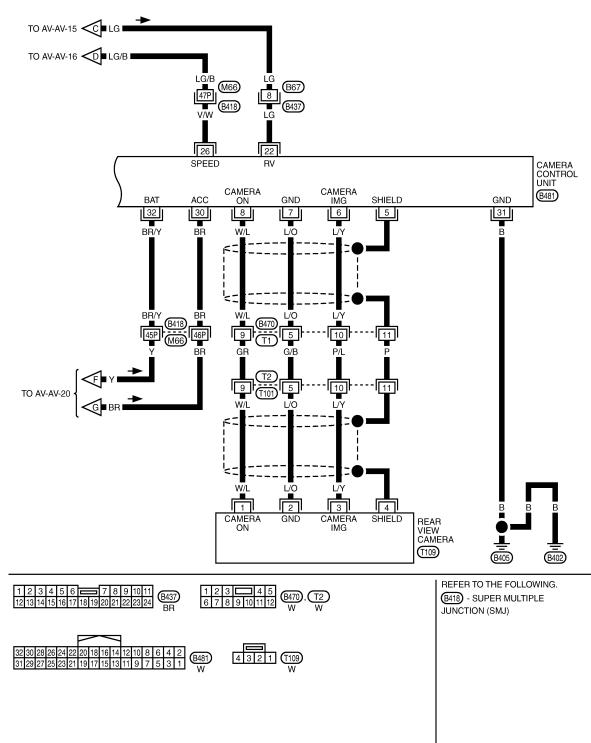
TKWT8277E



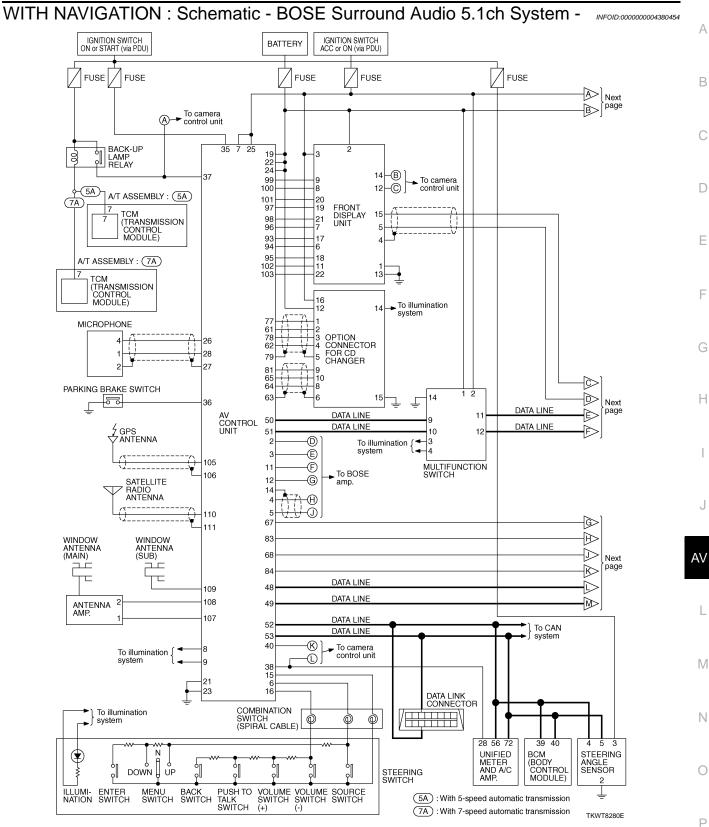
TKWT6697E

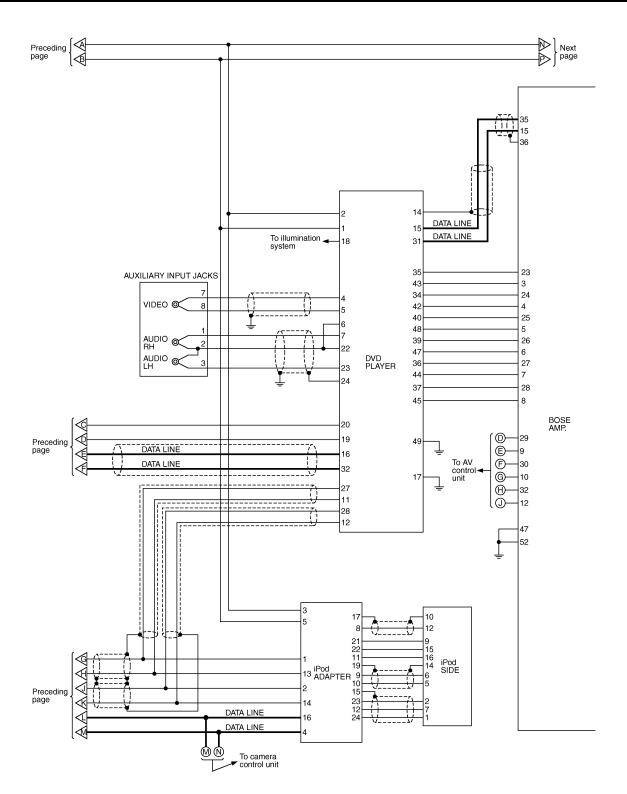


AV-AV-24

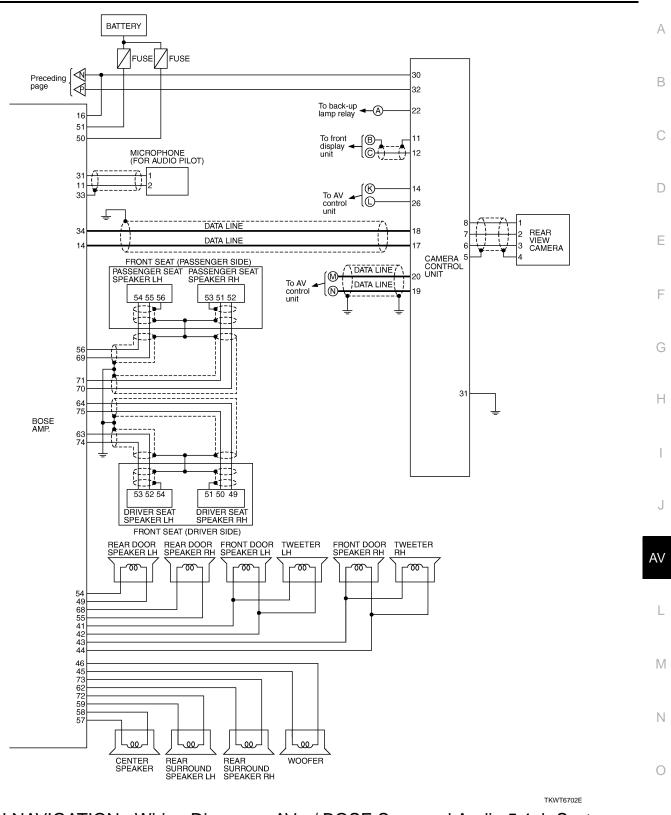


TKWT6699E





TKWT6701E



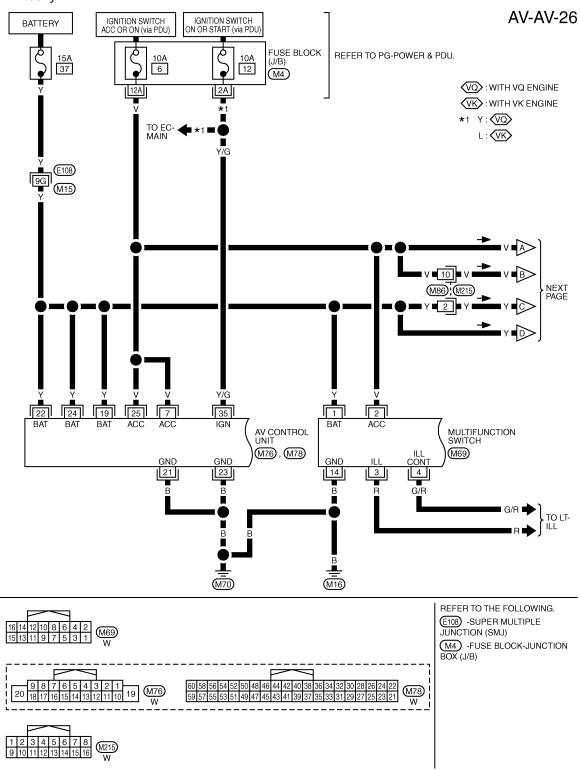
WITH NAVIGATION : Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

INFOID:000000004380455

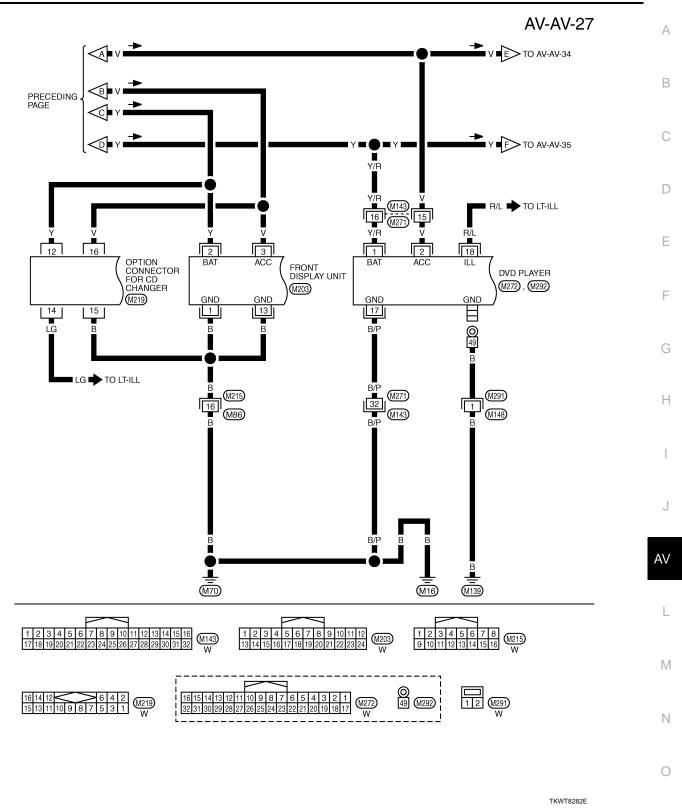
Ρ

NOTE:

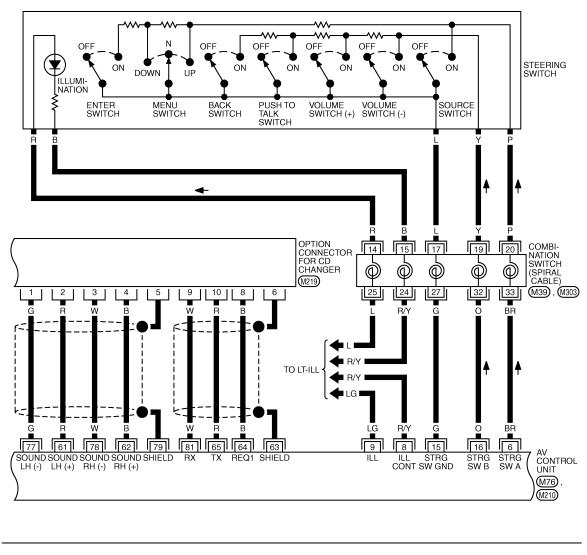
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



TKWT8281E



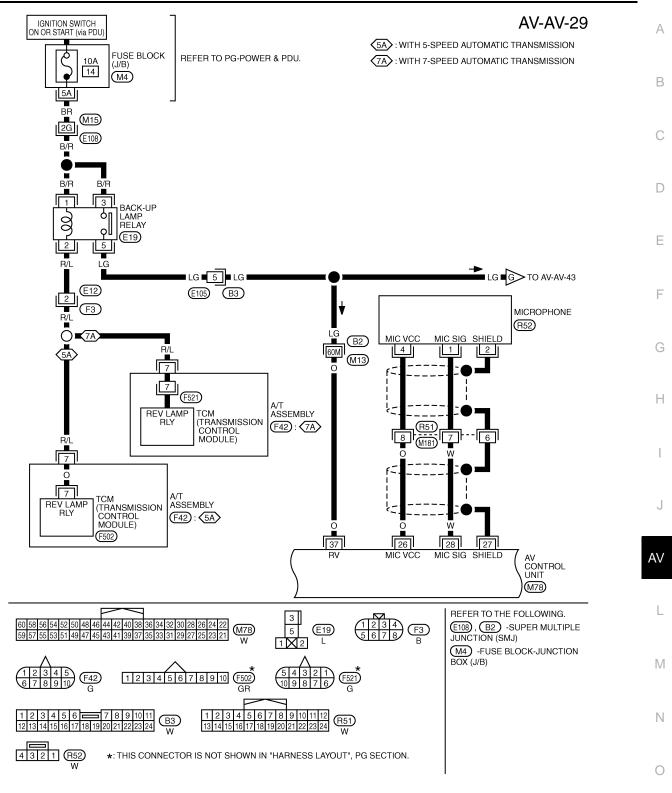
AV-AV-28



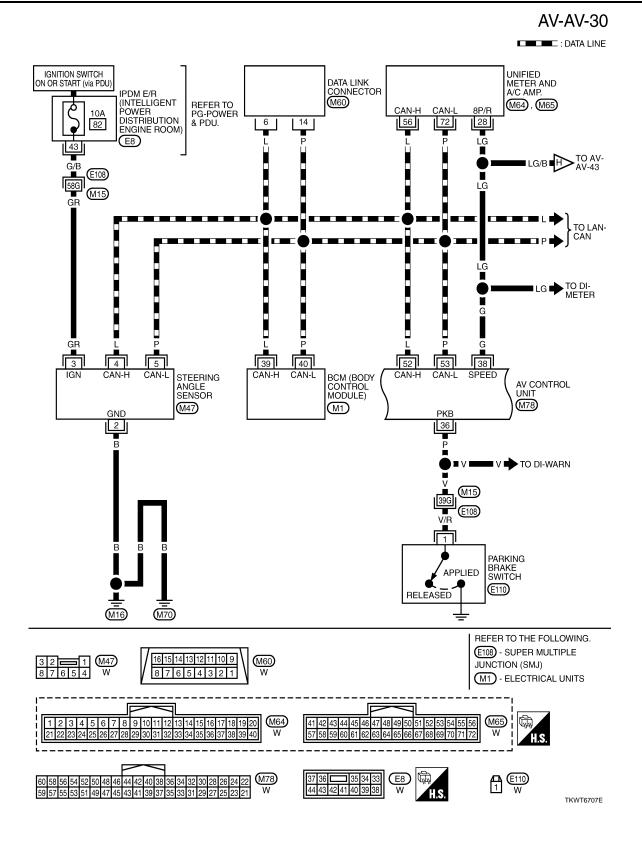


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

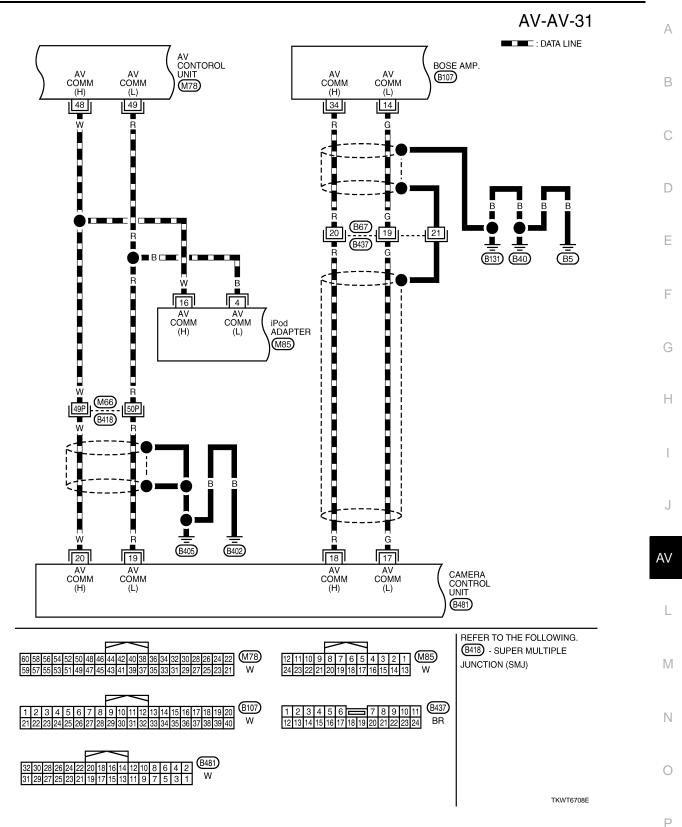
TKWT8283E

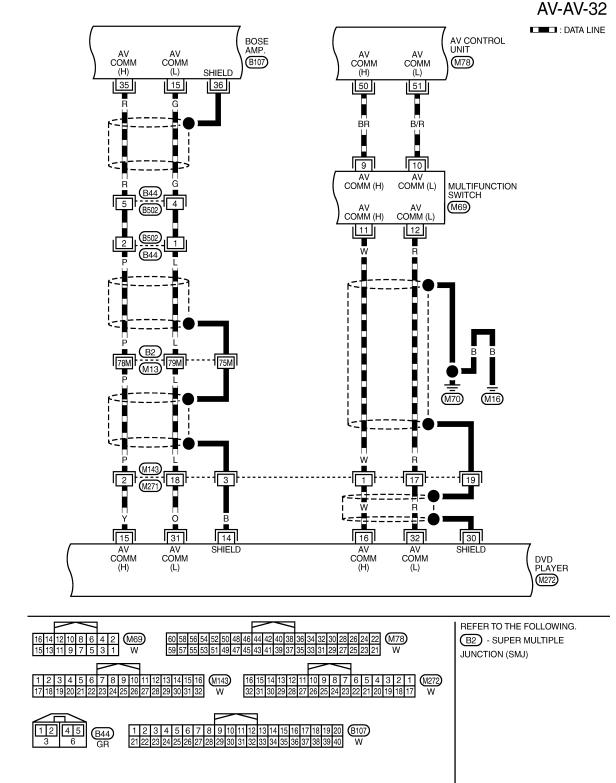


TKWT8284E

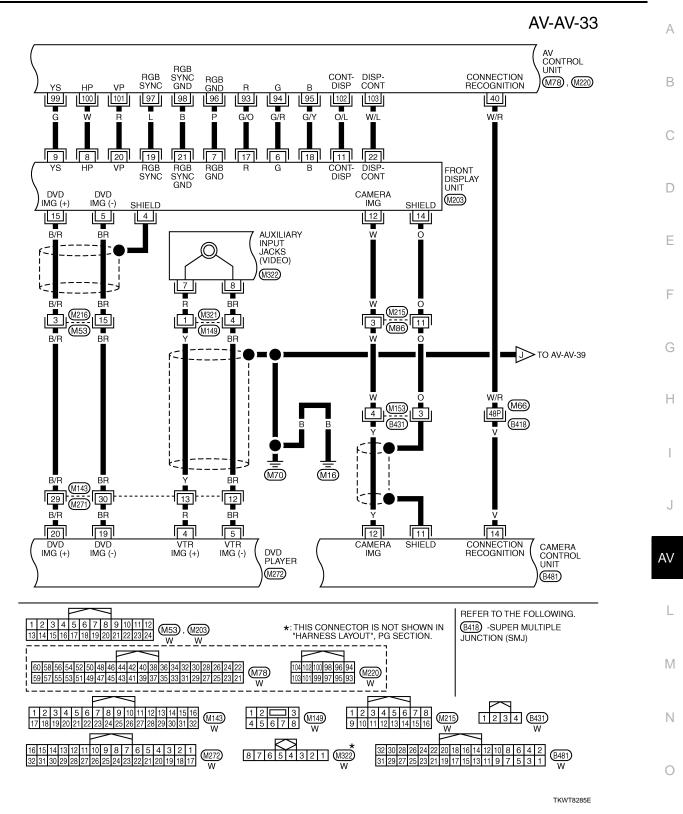


# Revision: 2009 Novemver

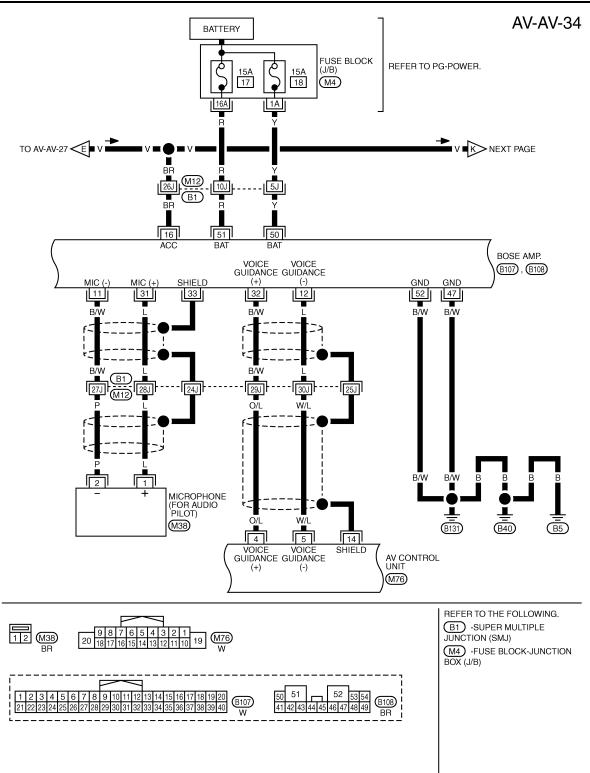




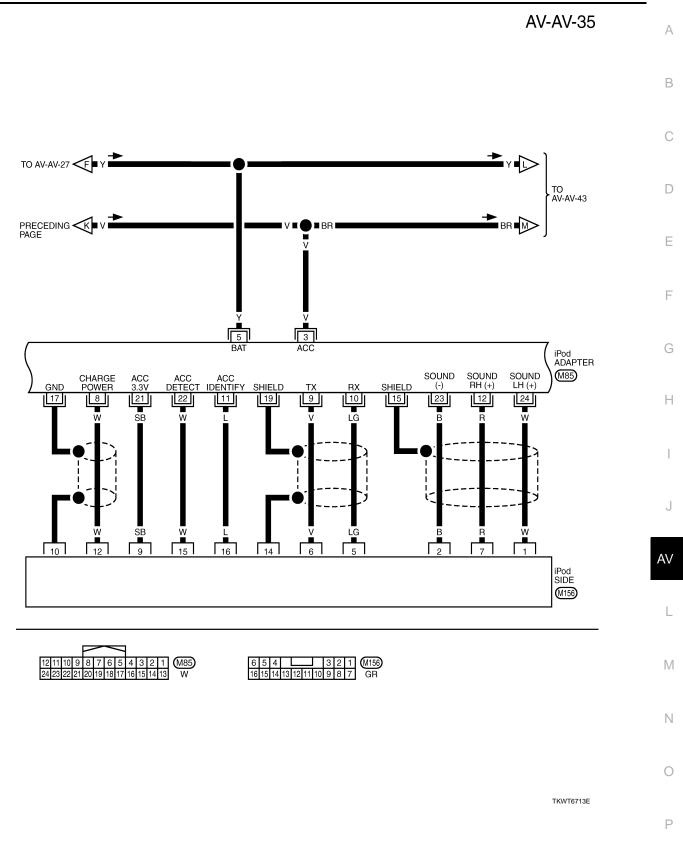
TKWT6709E



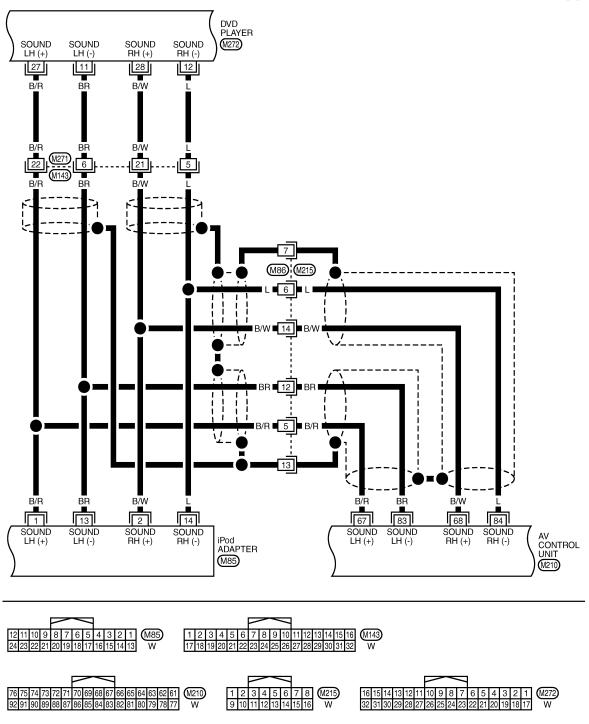
< ECU DIAGNOSIS >



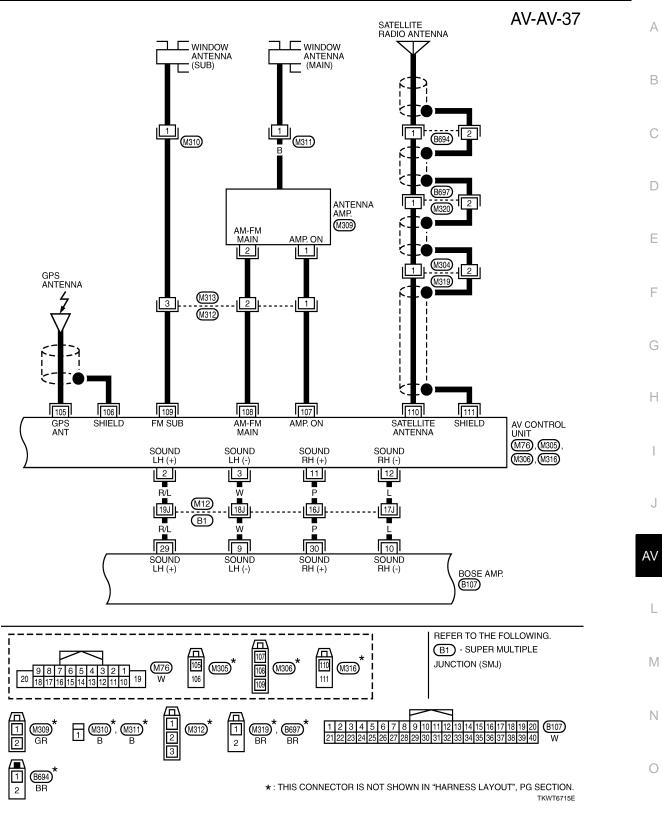
TKWT8286E



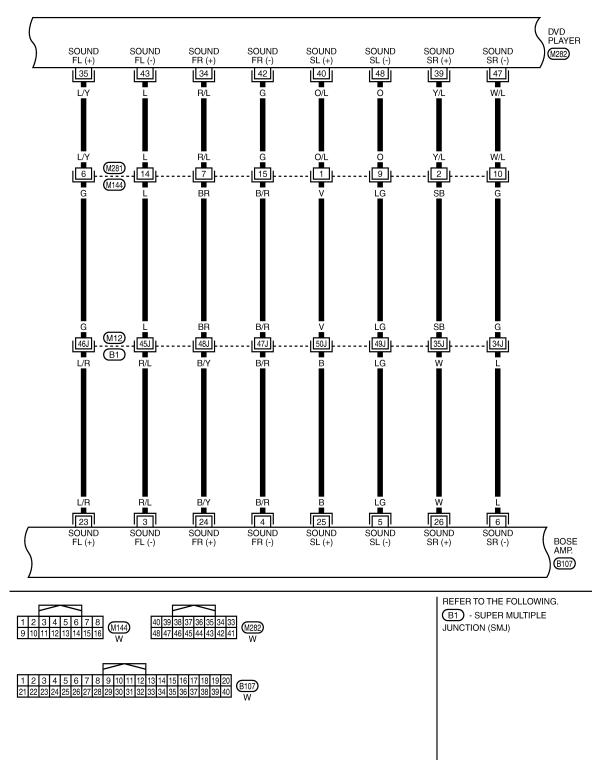
AV-AV-36



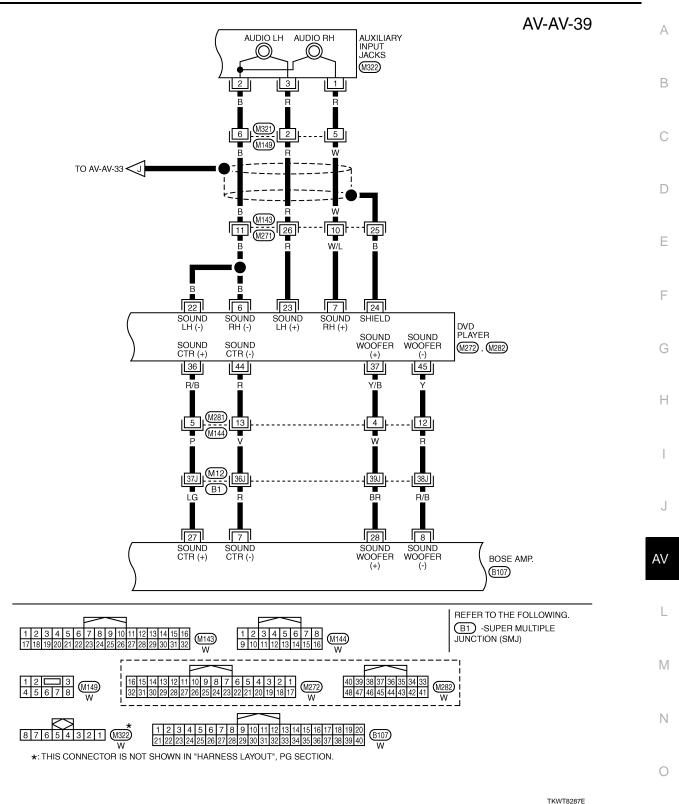
TKWT6714E



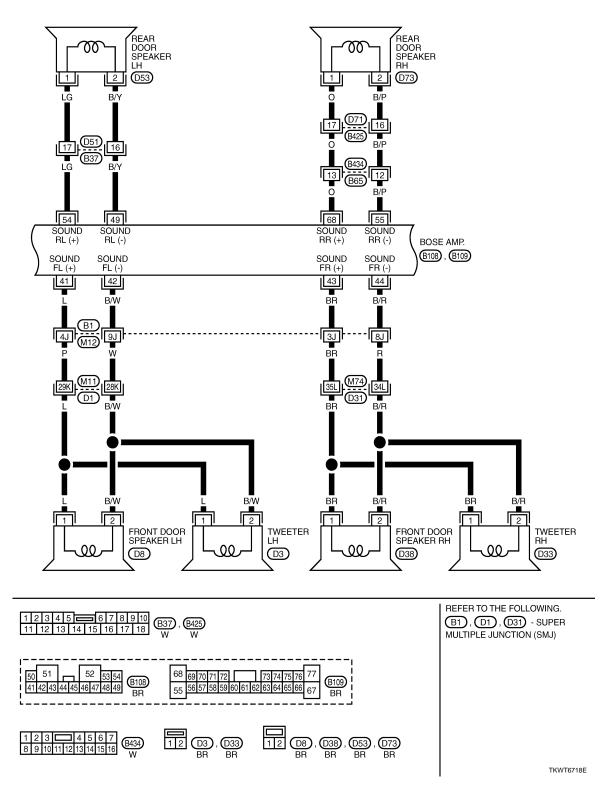
**AV-AV-38** 

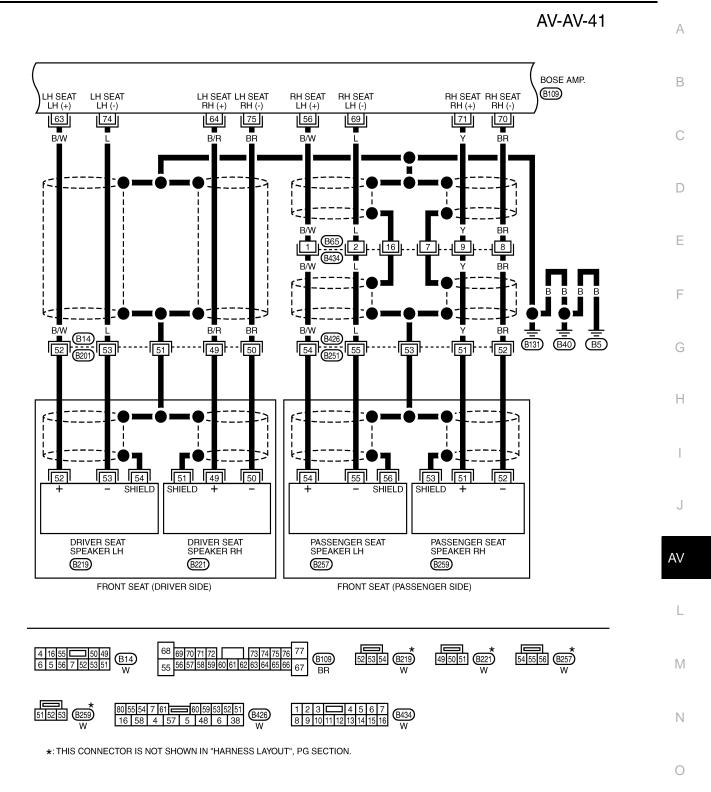


TKWT6716E



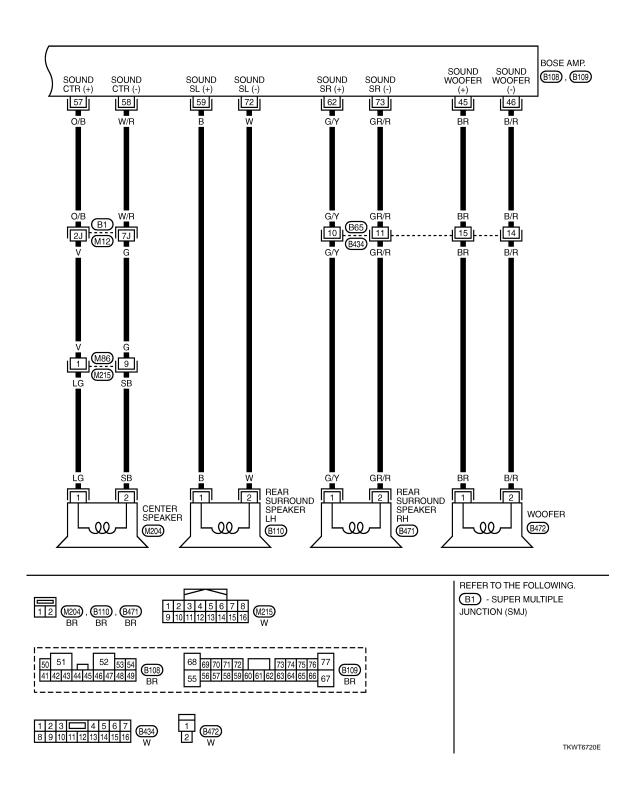
AV-AV-40

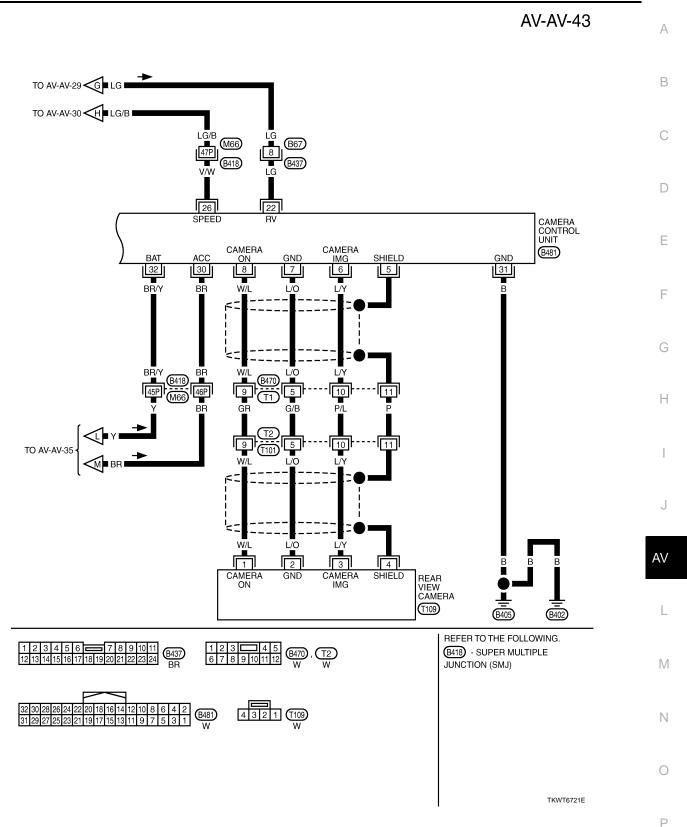




TKWT6719E

**AV-AV-42** 



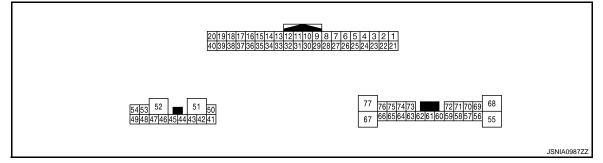


# BOSE AMP. BOSE AUDIO 2CH SYSTEM

BOSE AUDIO 2CH SYSTEM : Reference Value

INFOID:000000004155812

#### **TERMINAL LAYOUT**



# PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
16 (B/W)	15 (L)	Voice guidance signal	Input	Ignition switch ON	When inputting voice guid- ance	(V) 1 0 -1 -2ms SKIB3609E
25 (L)	26 (B/W)	MIC. signal (for AudioPilot <sup>®</sup> )	Input	Ignition switch ON	When inputting noise	(V) 6 2 0 • • • 2ms • • • 2ms • • • creference value) PKIA2104E
27		Shield	_		—	_
35 (G)	_	AV communication signal (L)	Input/ Output	_	_	_
36 (G)	_	AV communication signal (L)	Input/ Output		_	_
37 (R)	_	AV communication signal (H)	Input/ Output	_	_	_
38 (R)	_	AV communication signal (H)	Input/ Output	_	_	_
45 (BR)	46 (B/R)	Sound signal woofer	Output	Ignition switch ON	Sound output	(V) 0.6 0.4 0.2 0 -0.2 -0.4 -0.6 PKIB6116J

### < ECU DIAGNOSIS >

# BOSE AMP. [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

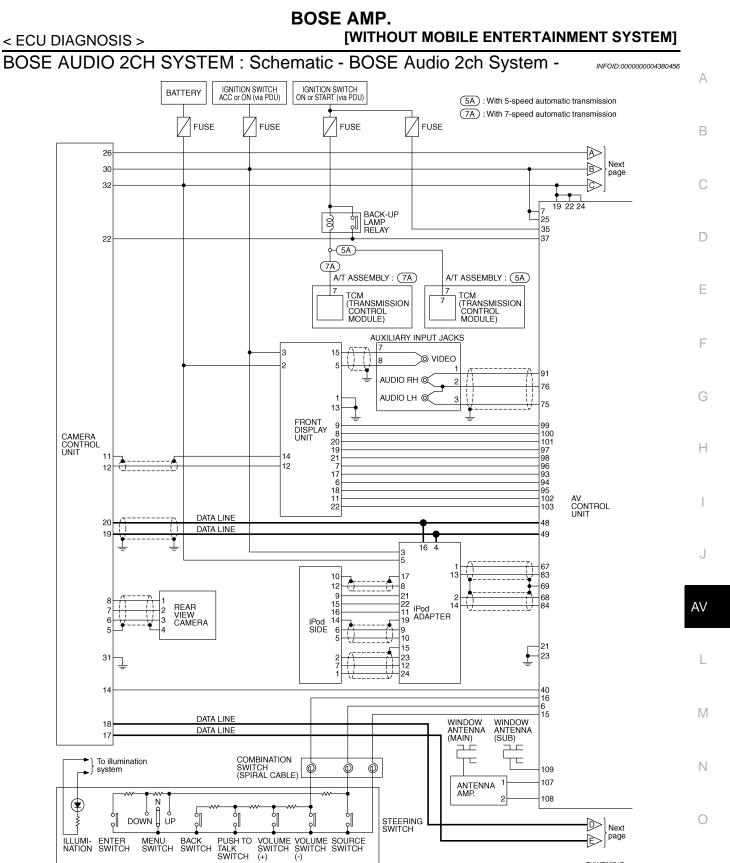
Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
47 (B/W)	Ground	Ground	_	Ignition switch ON	_	0 V
50 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
51 (R)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
52 (B/W)	Ground	Ground	_	Ignition switch ON	_	0 V
54 (O)	49 (B/P)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 -1 +2ms SKIB3609E
58 (P)	59 (L/Y)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E
60 (BR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
64 (R/L)	63 (W)	Sound signal LH	Input	lgnition switch ON	Audio sound output	(V) 1 0 -1 + 2ms SKIB3609E
66 (P)	65 (L)	Sound signal RH	Input	Ignition switch ON	Audio sound output	(V) 1 0 -1 + 2ms SKIB3609E
68 (LG)	55 (B/Y)	Sound signal rear door speaker LH	Output	lgnition switch ON	Sound output	(V) 1 0 -1 • 2ms SKIB3609E

2009 M35/M45

# BOSE AMP. [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# < ECU DIAGNOSIS >

	minal e color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
69 (V)	70 (G/Y)	Sound signal center speak- er	Output	Ignition switch ON	Sound output	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
71 (BR)	72 (R)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output	(V) 1 0 -1 + 2ms SKIB3609E

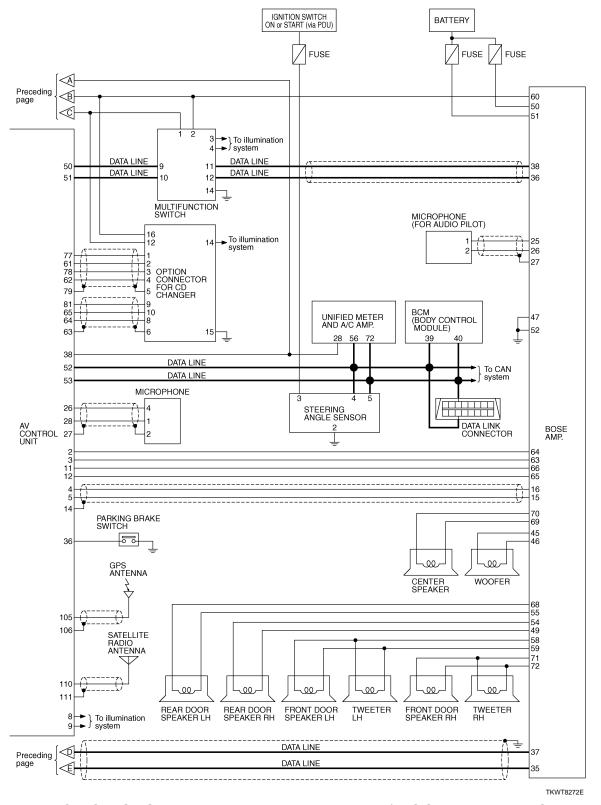


Revision: 2009 Novemver

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TKWT8271E

#### < ECU DIAGNOSIS >



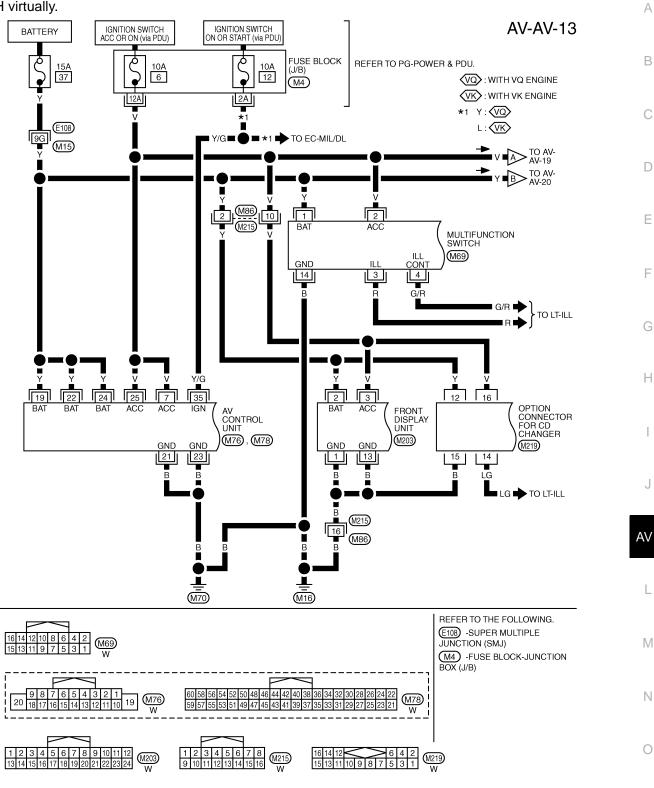
BOSE AUDIO 2CH SYSTEM : Wiring Diagram - AV - / BOSE Audio 2ch System

INFOID:000000004380457

NOTE:

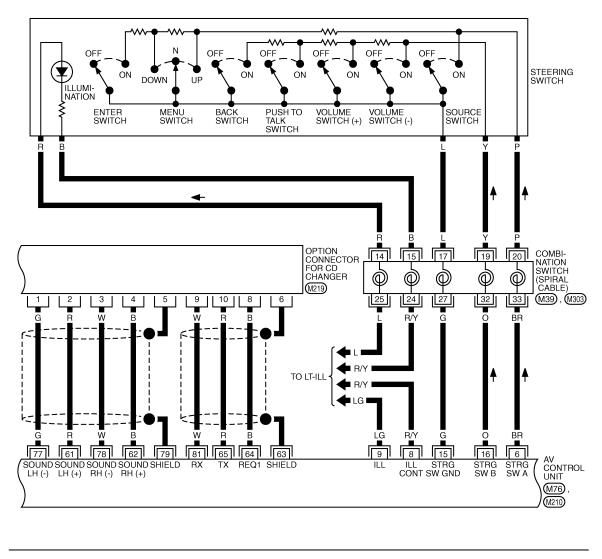
#### BOSE AMP. [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

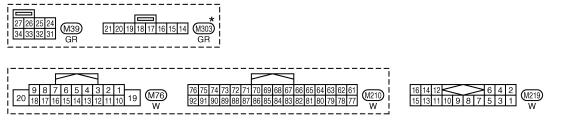
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



TKWT8273E

AV-AV-14

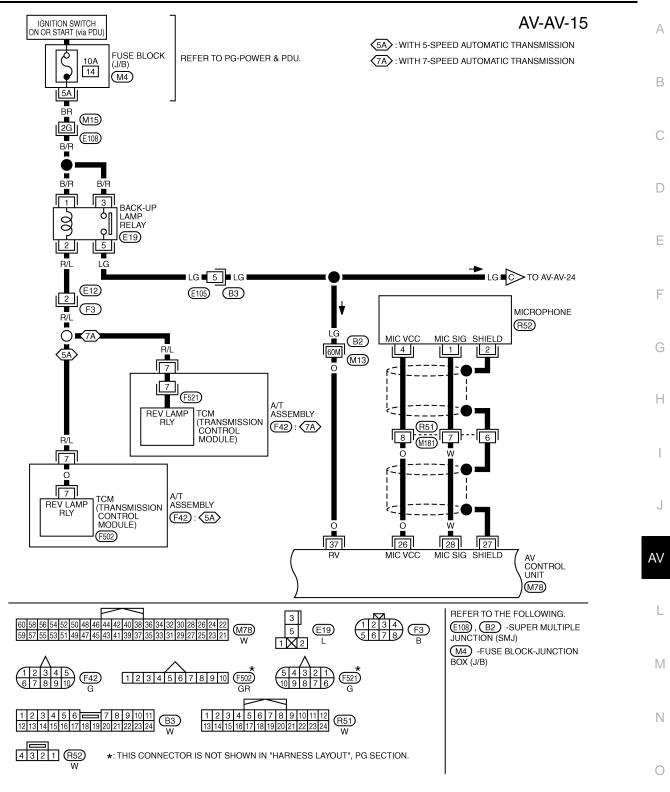




\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

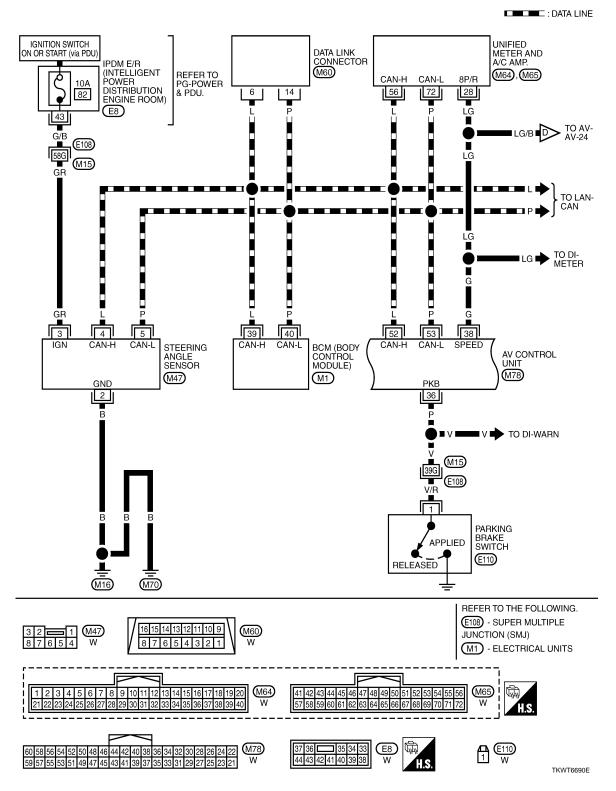
TKWT8274E

#### BOSE AMP. [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



TKWT8275E

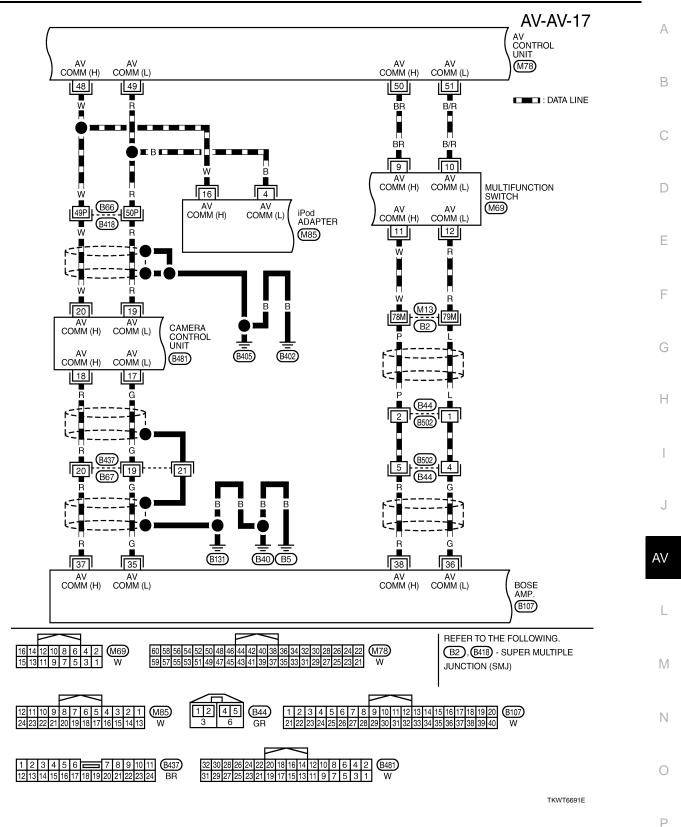
# [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

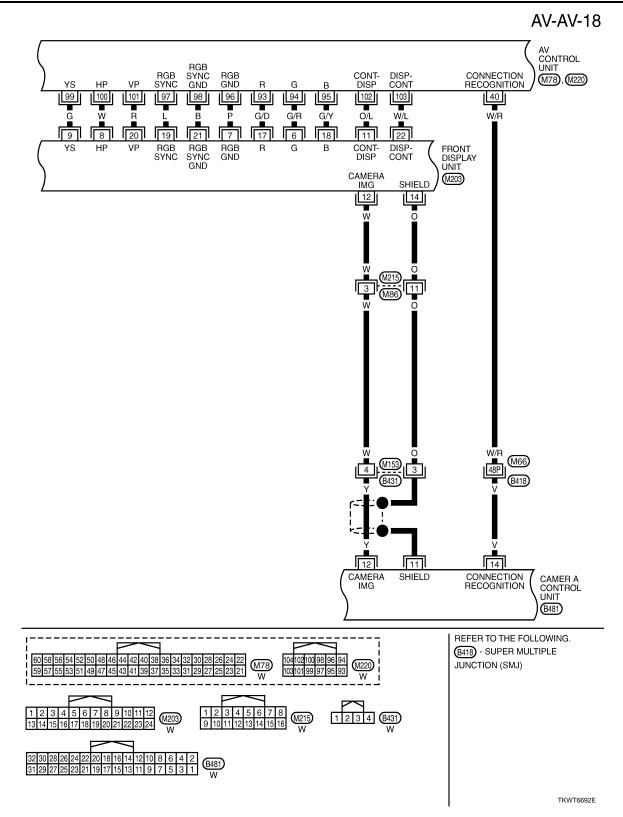


#### AV-AV-16

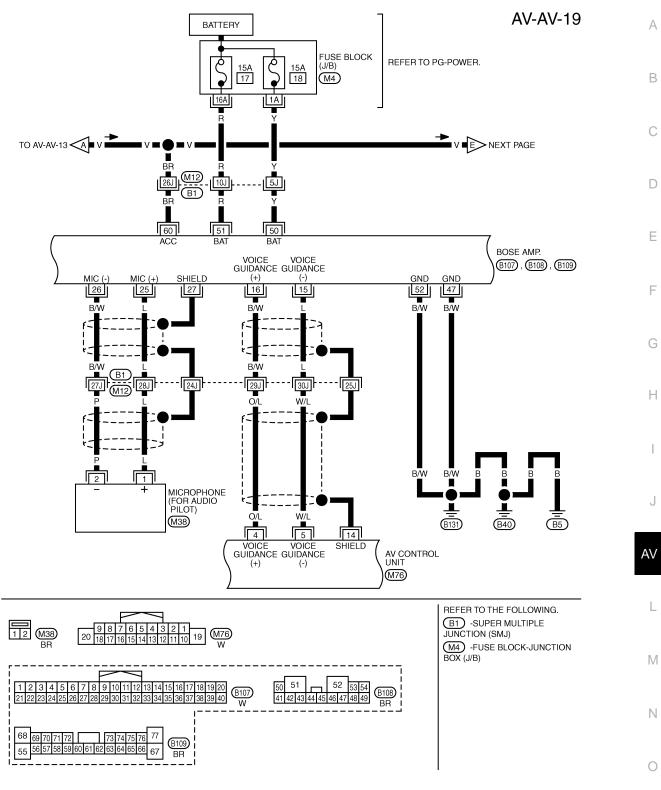
< ECU DIAGNOSIS >

# BOSE AMP. [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

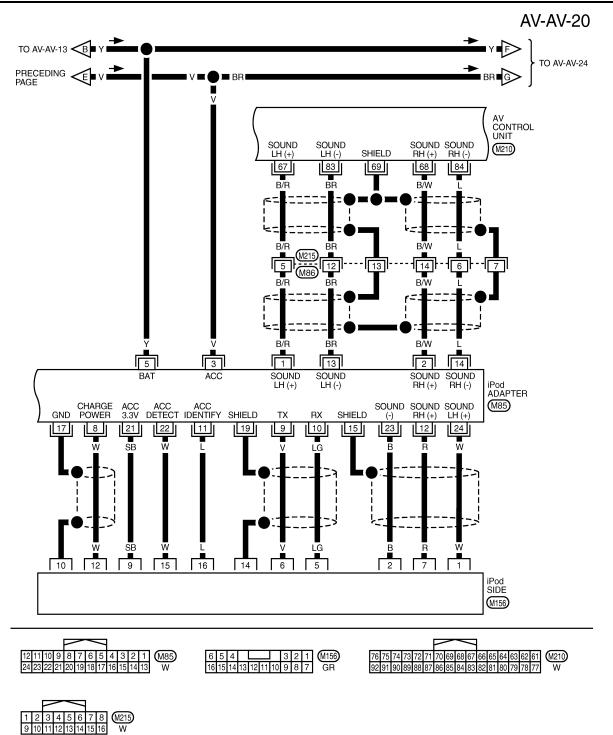




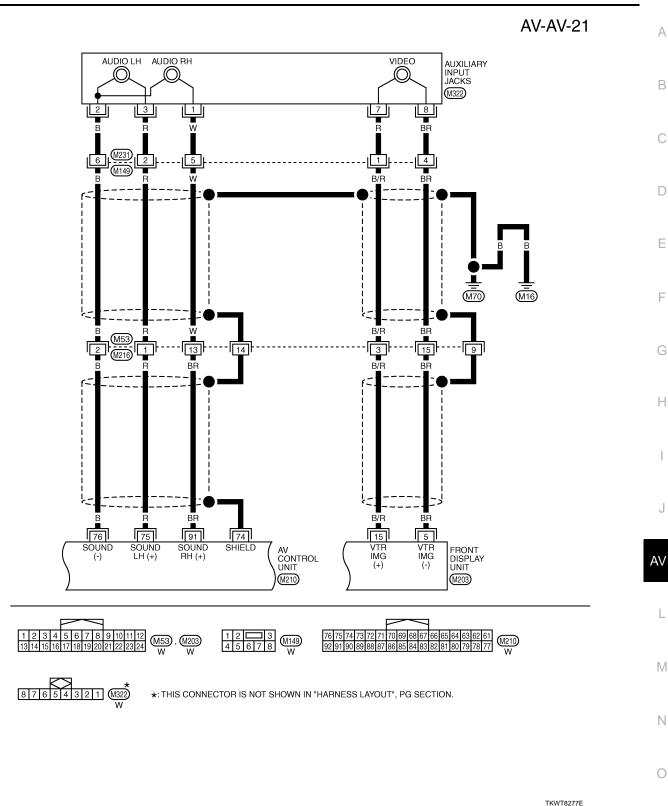




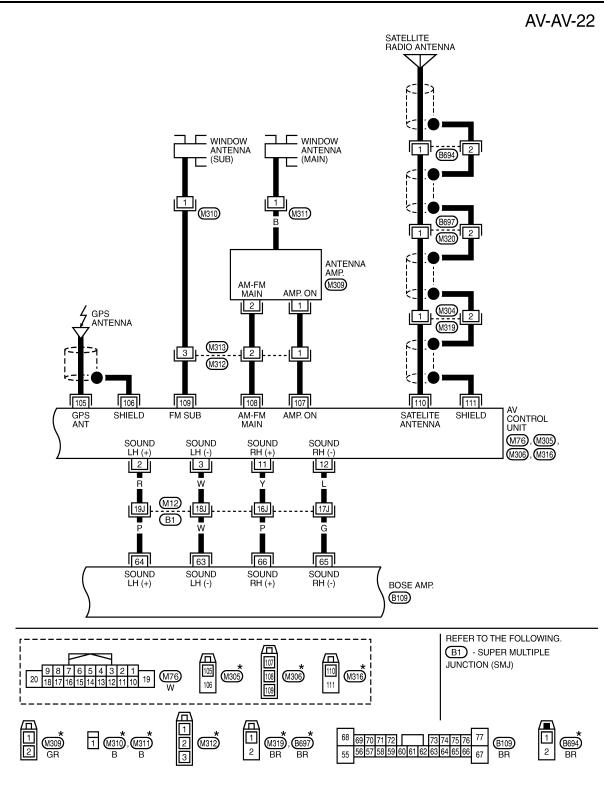
TKWT8276E



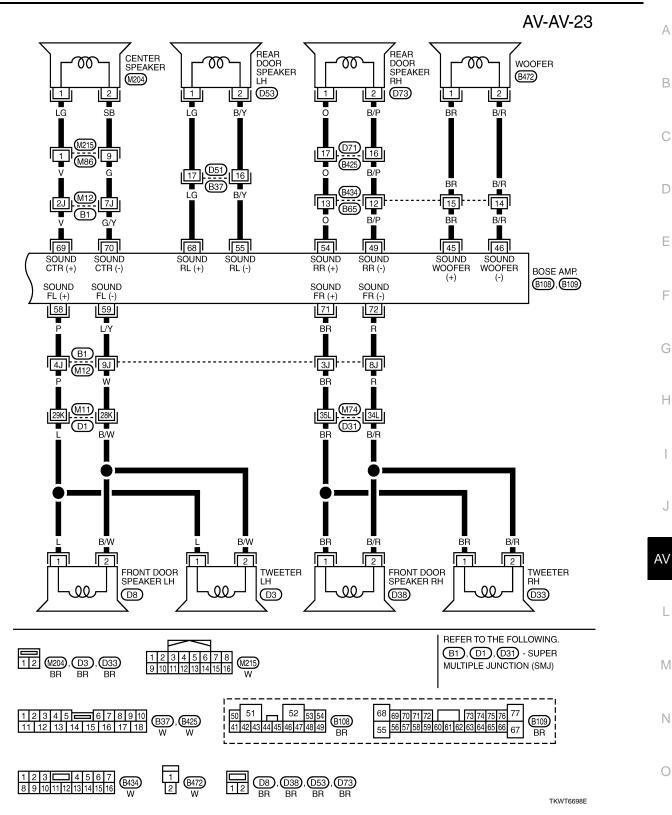
TKWT6695E



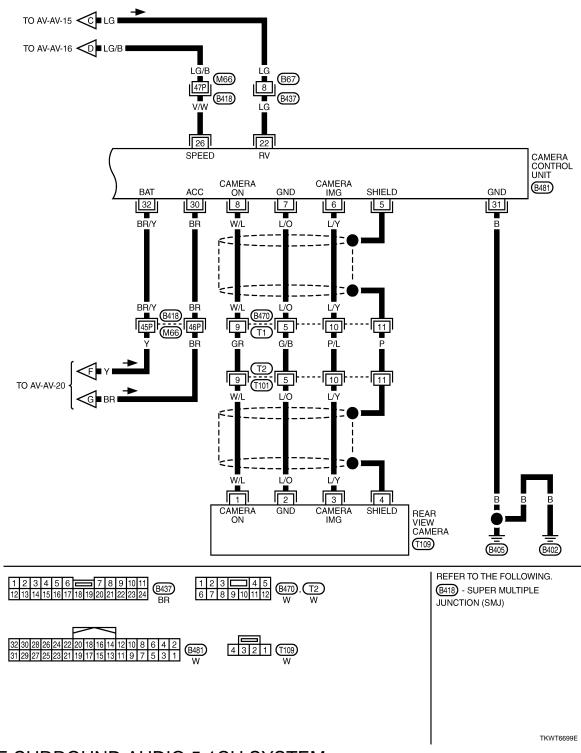
Р



TKWT6697E



AV-AV-24



# BOSE SURROUND AUDIO 5.1CH SYSTEM

< ECU [	< ECU DIAGNOSIS > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]									
BOSE	SURR	OUND AUDIO 5.1	CH SY	STEM	: Reference Value	INFOID:000000004155815	А			
TERMI		YOUT								
		21 41	01918171615 03938373635	14 13 12 11 10 9 34 33 32 31 30 2	9 8 7 6 5 4 3 2 1 928 27 26 25 24 23 22 21		B			
	5453       52       51       50         4948       47       46       45       44       43       42       41       67       66       66       65       55         JSNIA0987ZZ									
PHYSIC	CAL VAL	LUES					E			
	ninal color)	Description			<b>0</b>	Reference value	F			
+	_	Signal name	Input/ Output		Condition	(Approx.)	I			
14 (G)		AV communication signal (L)	Input/ Output		_	_	G			
15 (G)		AV communication signal (L)	Input/ Output			_	Н			
16 (BR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage				
23 (L/R)	3 (R/L)	DVD surround signal front LH	Input	lgnition switch ON	When the DVD player is played.	(V) 1 0 -1 + 2ms	J			
						SKIB3609E				
24	4	DVD surround signal front		Ignition	When the DVD player is		L			
(B/Y)	(B/R)	RH	Input	switch ON	played.	0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	Μ			
						(V)	Ν			
25 (B)	5 (LG)	DVD surround signal rear LH	Input	Ignition switch ON	When the DVD player is played.		0			
						SKIB3609E	Ρ			

	minal e color)	Description		Condition		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
26 (W)	6 (L)	DVD surround signal rear RH	Input	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 -1 -1 SKIB3609E
27 (LG)	7 (R)	DVD surround signal center	Input	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 • 2ms SKIB3609E
28 (BR)	8 (R/B)	DVD surround signal woof- er	Input	Ignition switch ON	When the DVD player is played.	(V) 0. 6 0. 4 0. 2 0 -0. 2 -0. 4 -0. 6 PKIB6116J
29 (R/L)	9 (W)	Sound signal LH	Input	Ignition switch ON	Audio sound output. (except DVD mode)	(V) 1 0 -1 • • 2ms SKIB3609E
30 (P)	10 (L)	Sound signal RH	Input	Ignition switch ON	Audio sound output. (except DVD mode)	(V) 1 0 -1 • • 2ms SKIB3609E
31 (L)	11 (B/W)	MIC. signal (for AudioPilot <sup>®</sup> )	Input	Ignition switch ON	When inputting noise.	(V) 6 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
32 (B/W)	12 (L)	Voice guidance signal	Input	Ignition switch ON	When inputting voice guid- ance.	(V) 1 0 -1 • • 2ms SKIB3609E	B C D
33	_	Shield				_	
34 (R)	_	AV communication signal (H)	Input/ Output	_	—	_	E
35 (R)	_	AV communication signal (H)	Input/ Output		_	_	E
36	_	Shield	_			—	F
41 (L)	42 (B/W)	Sound signal front door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms	G
43 (BR)	44 (B/R)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 -1 -1 -2ms -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	J
45 (BR)	46 (B/R)	Sound signal woofer	Output	Ignition switch ON	Sound output.	SKIB3609E (V) 0.6 0.4 0.2 0 0 0.2 0 0 0.2 0 0 0.4 0.2 0 0 0 0 0 0 0 0 0 0 0 0 0	AV L M
47 (B/W)	Ground	Ground		Ignition switch ON		0 V	Ν
50 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	0
51 (R)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	Ρ
52 (B/W)	Ground	Ground	_	Ignition switch ON		0 V	

	minal color)	Description		Condition		Reference value
+	_	Signal name	Input/ Output			(Approx.)
54 (LG)	49 (B/Y)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
56 (B/W)	69 (L)	Sound signal passenger seat speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 1 + 2ms SKIB3609E
57 (O/B)	58 (W/R)	Sound signal center speak- er	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • • 2ms SKIB3609E
59 (B)	72 (W)	Sound signal rear surround speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
62 (G/Y)	73 (GR/R)	Sound signal rear surround speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • • 2ms SKIB3609E
63 (B/W)	74 (L)	Sound signal driver seat speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 -1 -2ms SKIB3609E

	minal e color)	Description			Condition	Reference value (Approx.)	
+	-	Signal name	Input/ Output	Condition			
64 (B/R)	75 (BR)	Sound signal driver seat speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 -1 + 2ms	B C D
68 (O)	55 (B/P)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output.	SKIB3609E	E
71 (Y)	70 (BR)	Sound signal passenger seat speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 -1 + 2ms SKIB3609E	G H

BOSE SURROUND AUDIO 5.1CH SYSTEM : Schematic - BOSE Surround Audio

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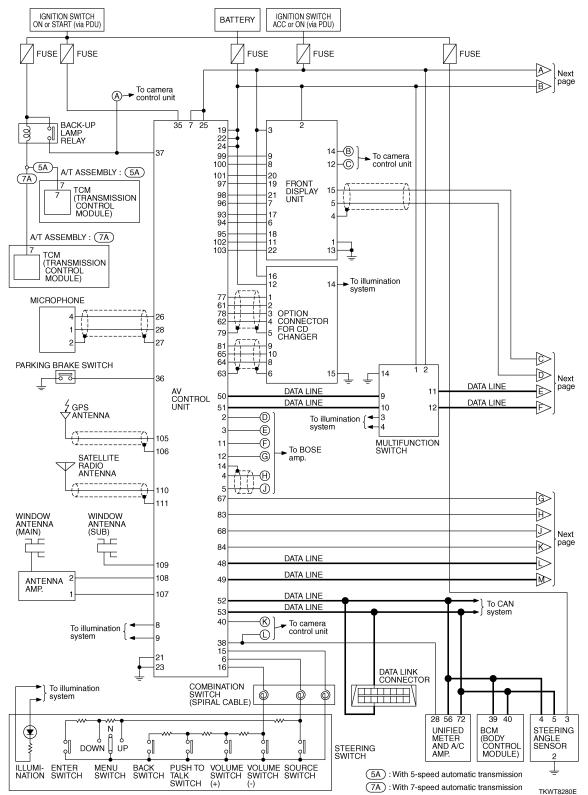
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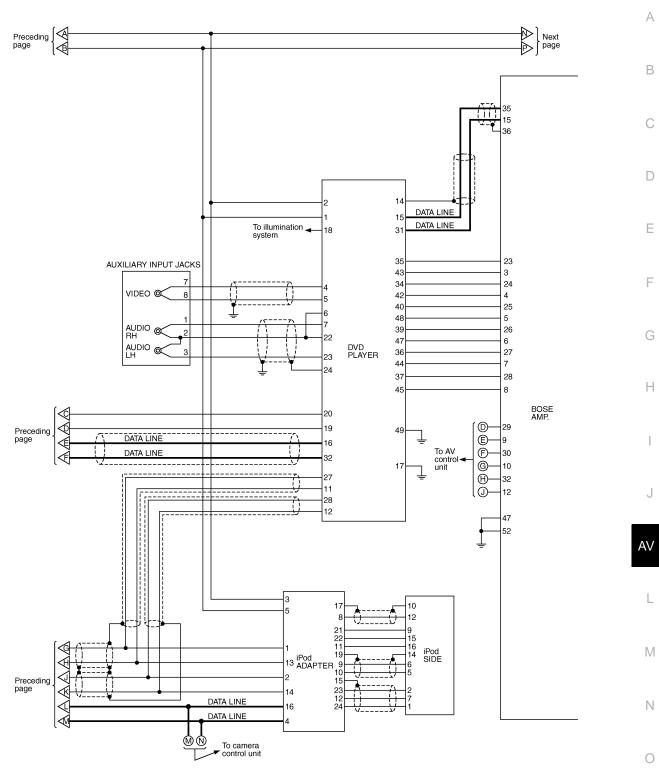
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< ECU DIAGNOSIS >

# 5.1ch System -

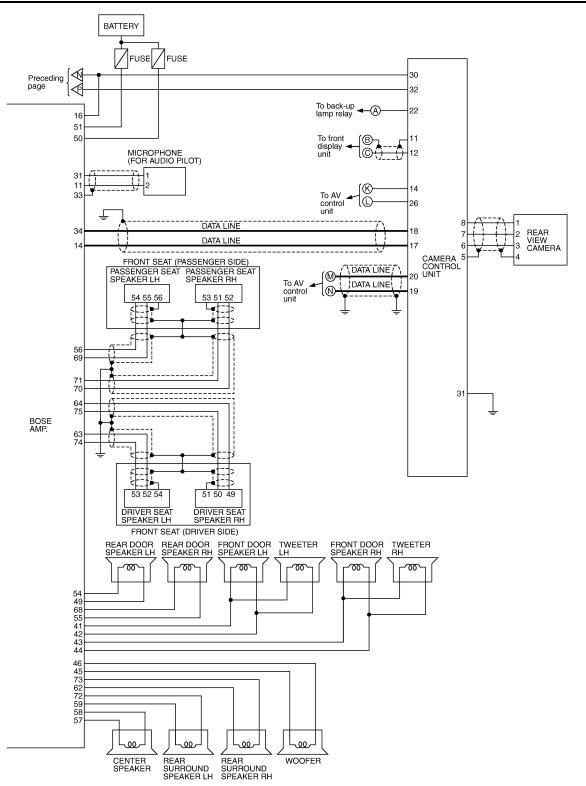
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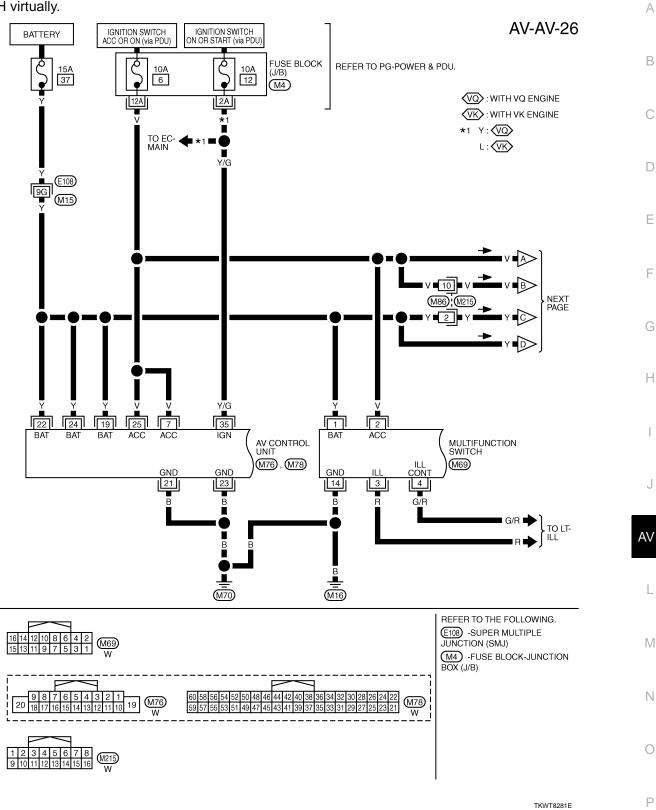


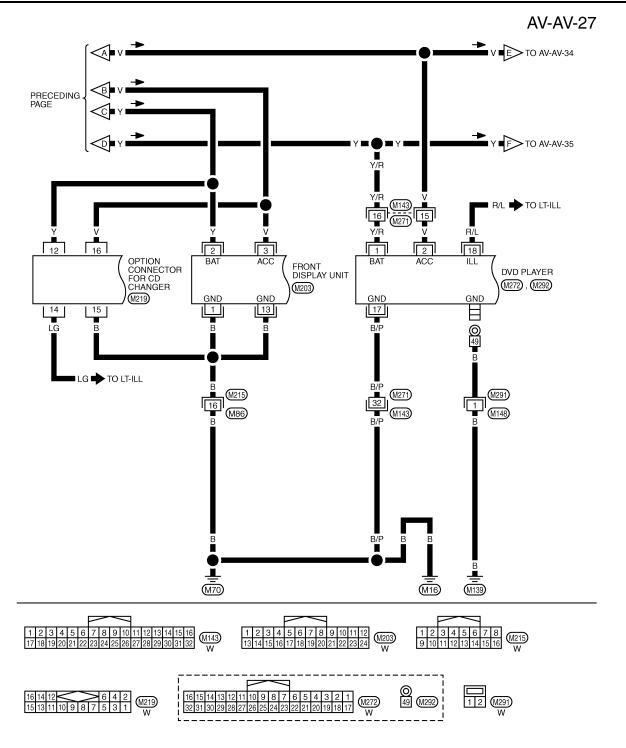
TKWT6702E

BOSE SURROUND AUDIO 5.1CH SYSTEM : Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

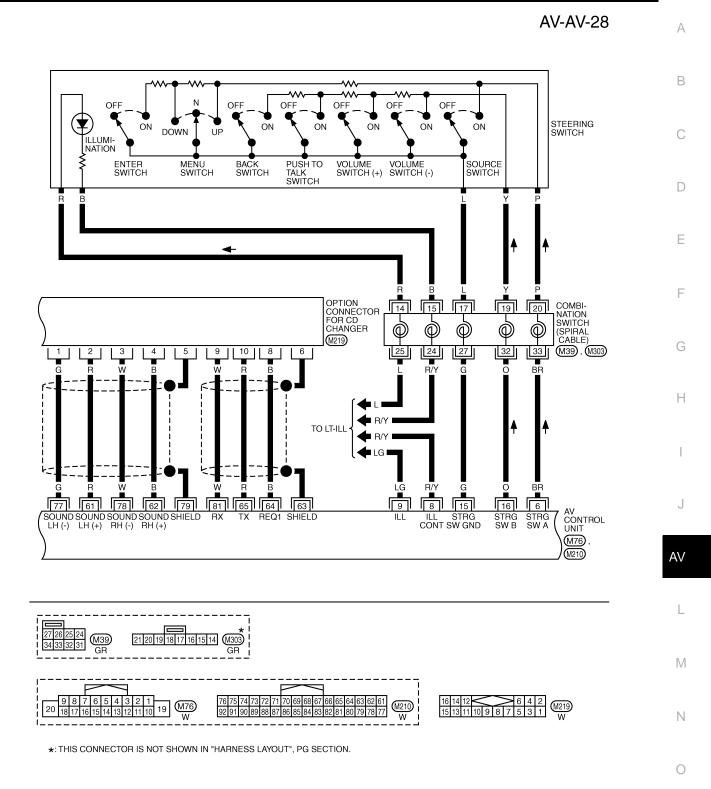
NOTE:

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



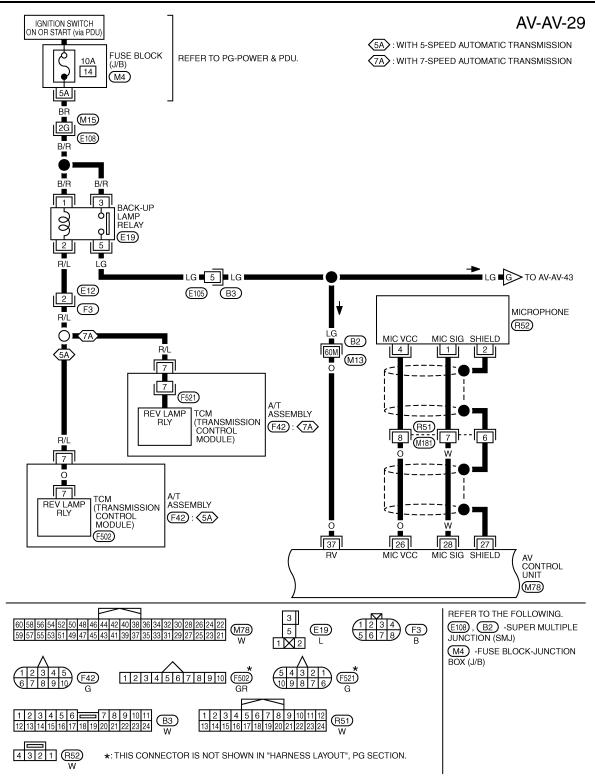


TKWT8282E



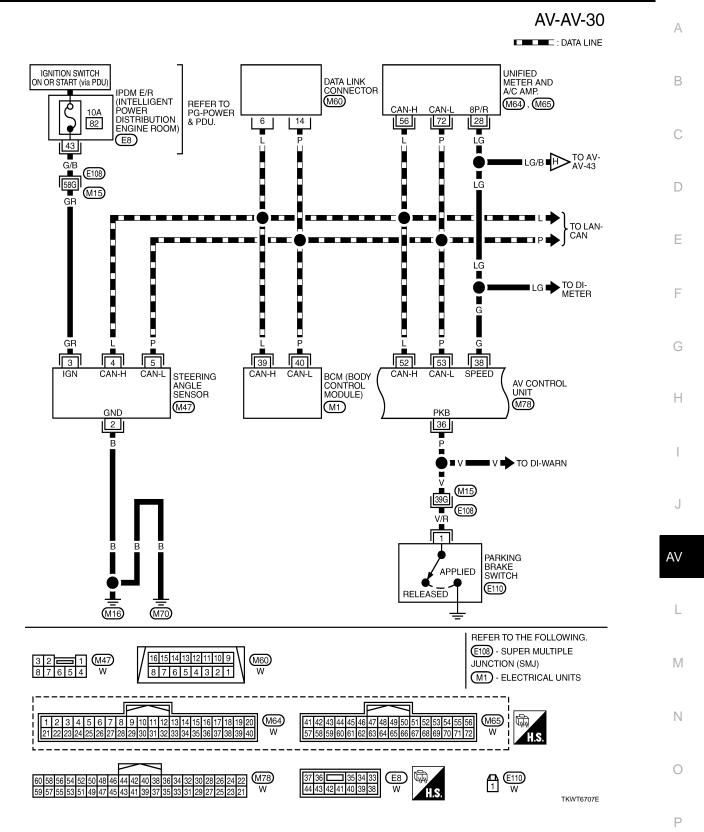
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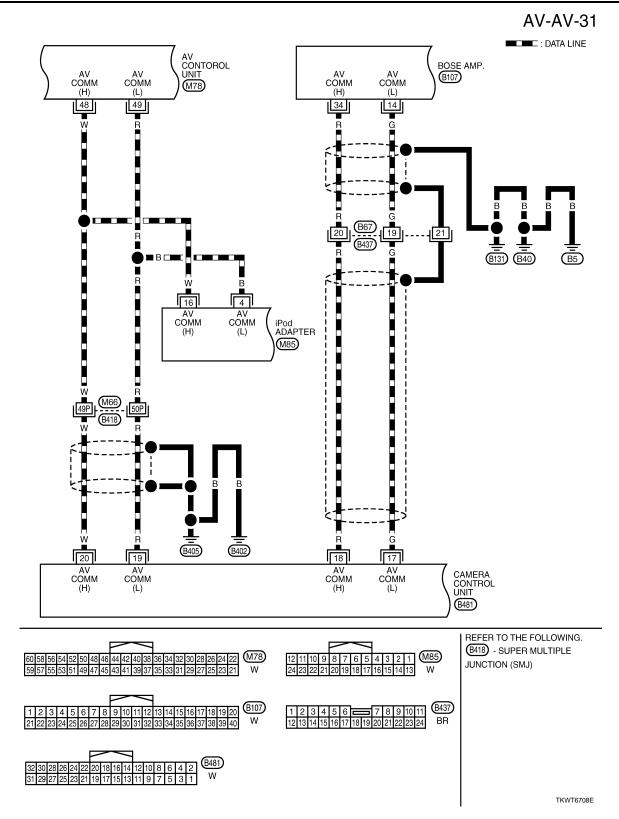
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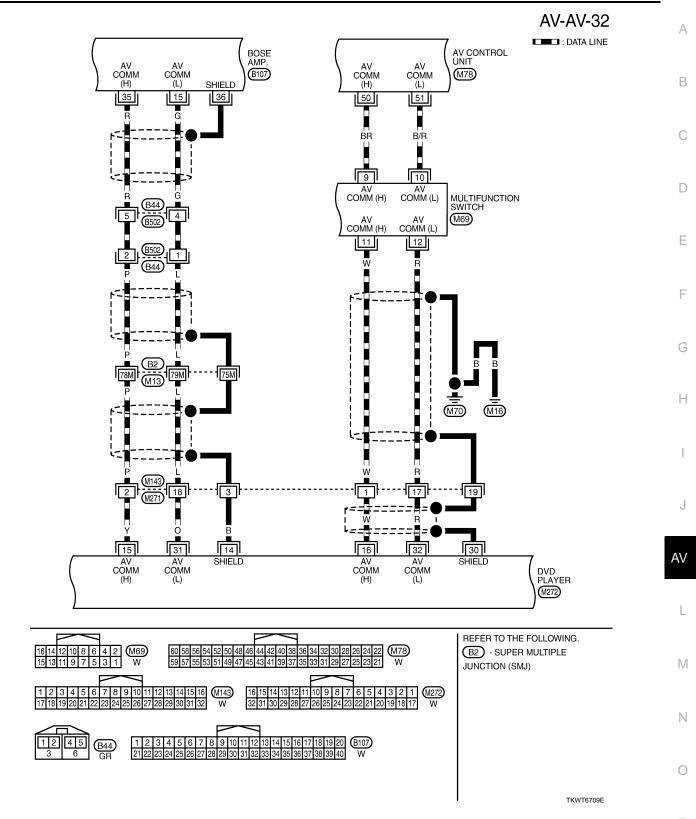


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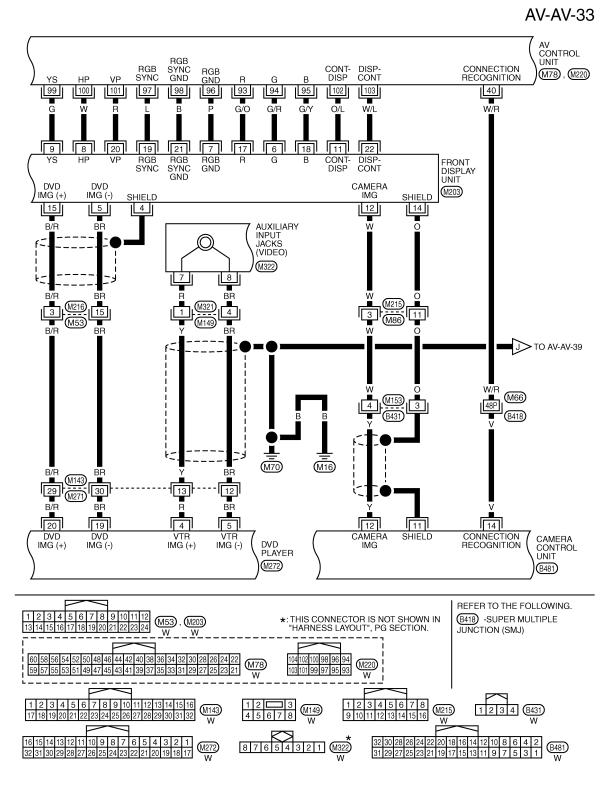






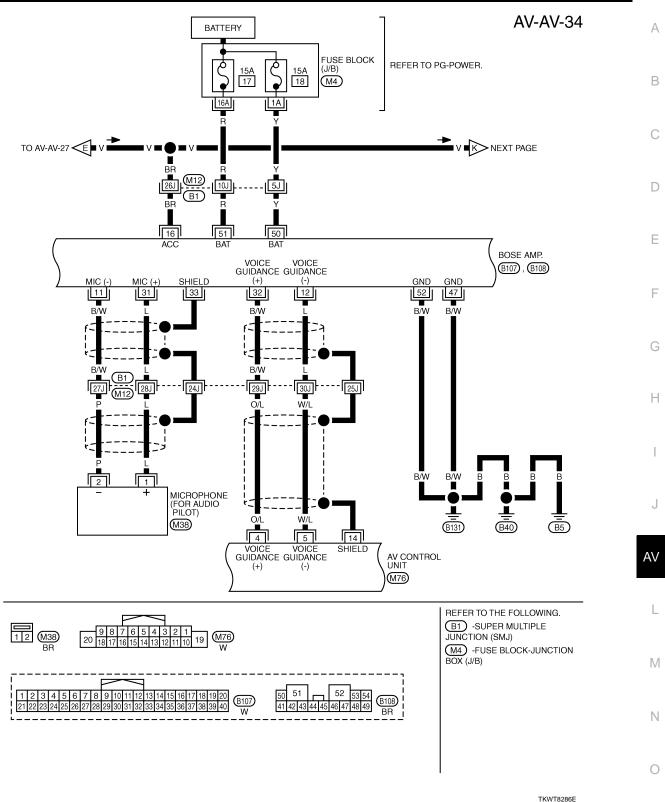


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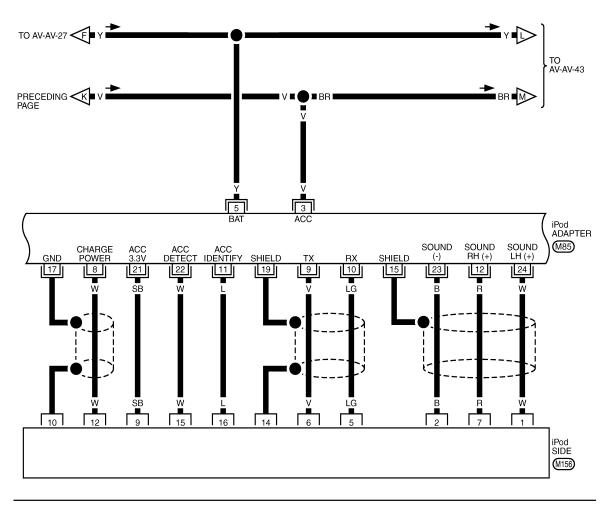
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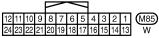




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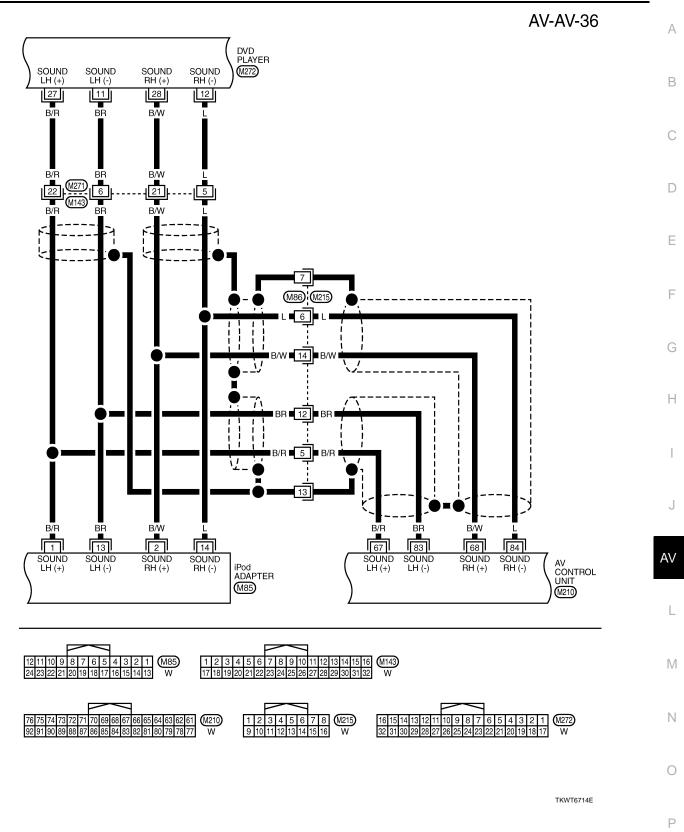
AV-AV-35

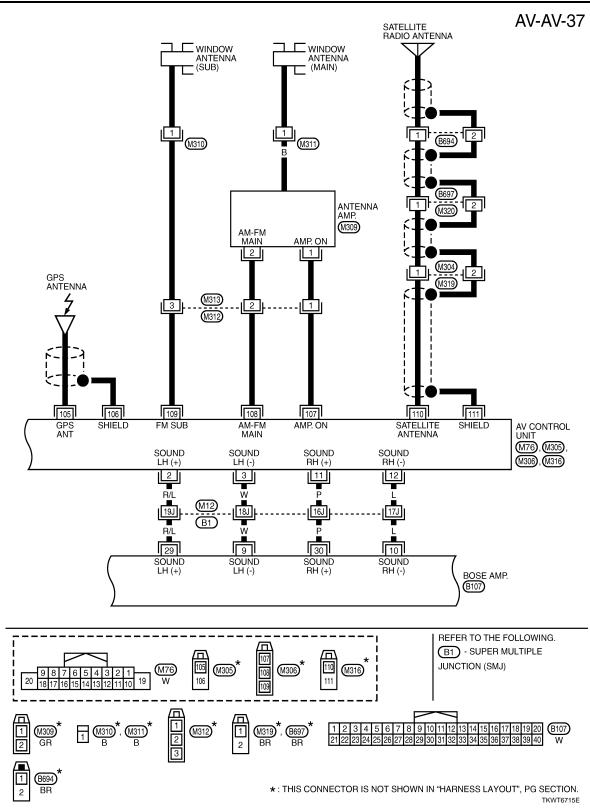


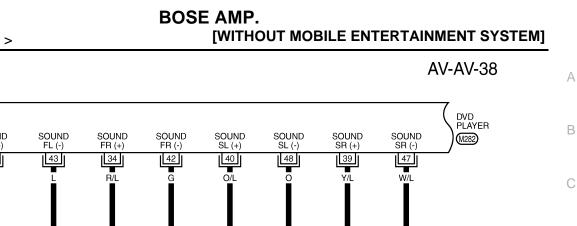


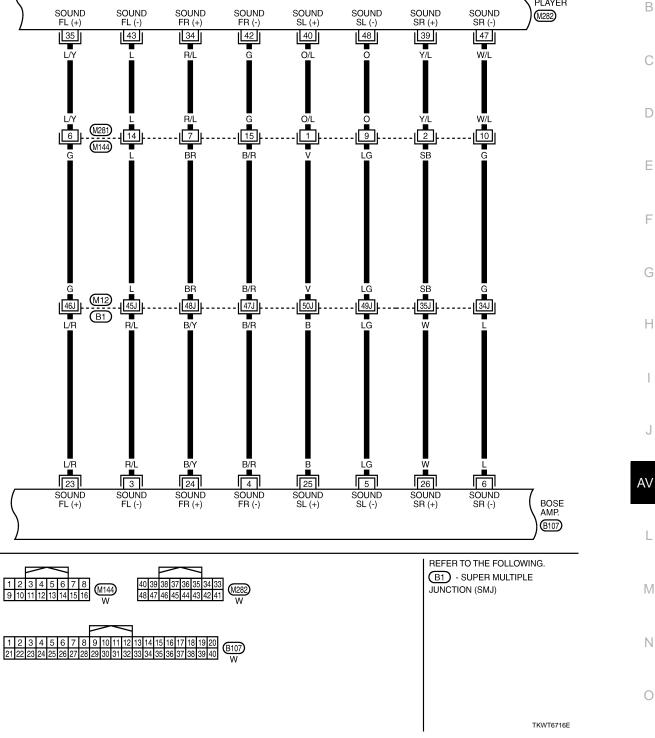
6 5 4 3 2 1 M156 16 15 14 13 12 11 10 9 8 7 GR

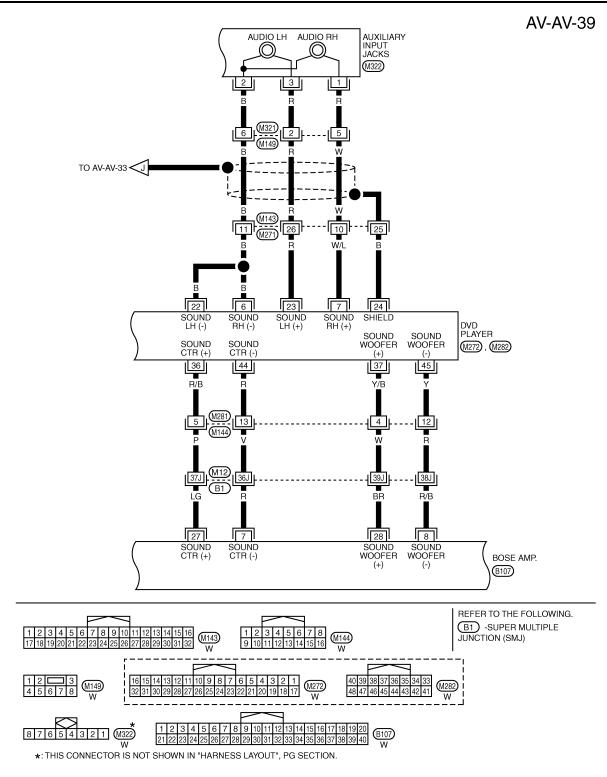
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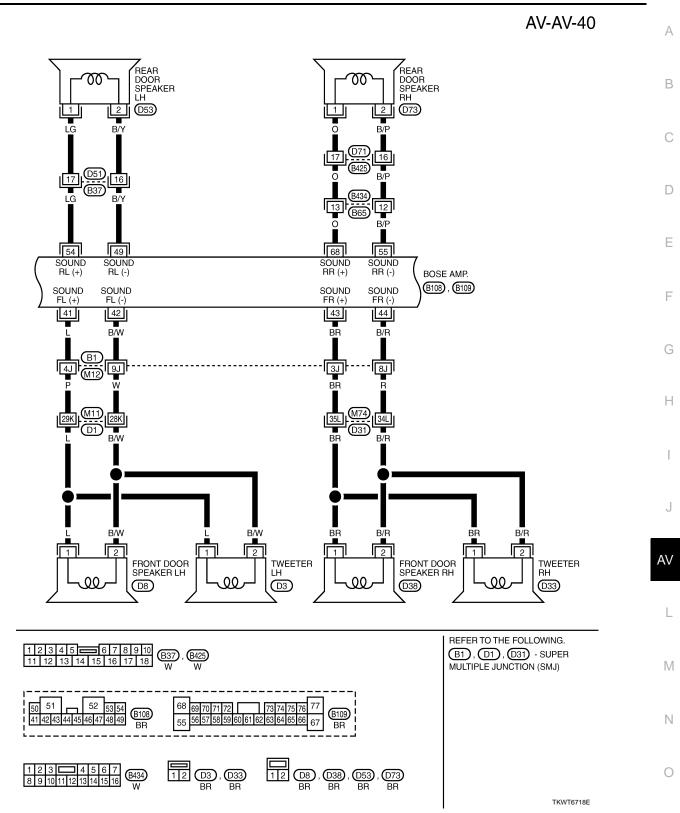






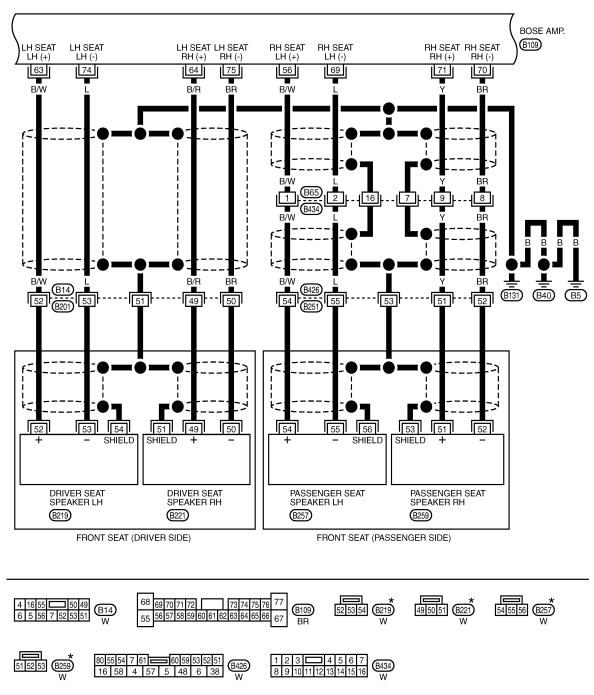


TKWT8287E



Ρ

AV-AV-41

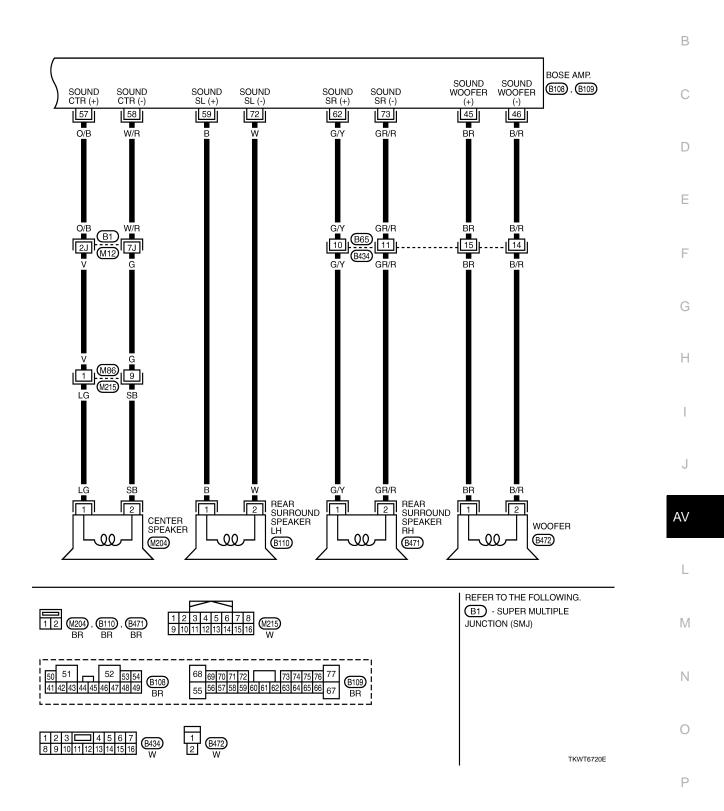


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

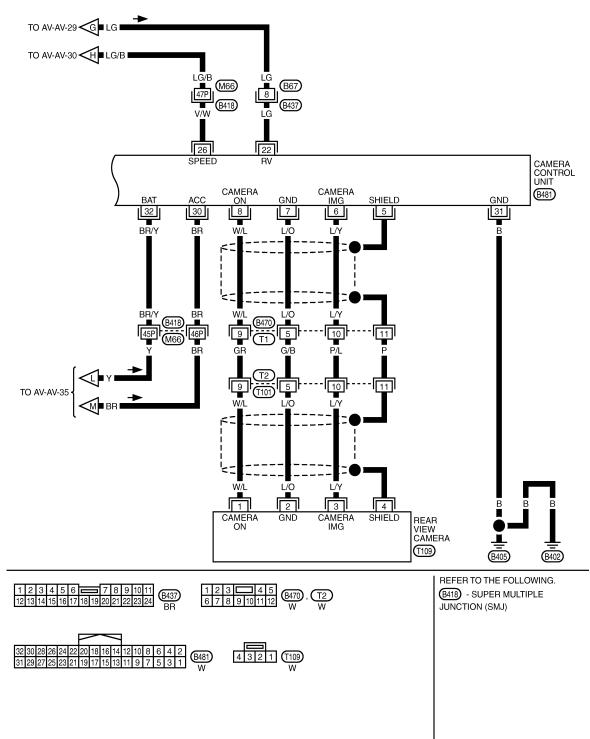
TKWT6719E

**AV-AV-42** 

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AV-AV-43



TKWT6721E

# IPOD ADAPTER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# < ECU DIAGNOSIS >

# IPOD ADAPTER

Reference Value

**TERMINAL LAYOUT** 

B 1 2 3 4 5 6 7 8 9 1011112 131415161718192021222324 D JSNIA0618ZZ

# PHYSICAL VALUES

Terminal (Wire color)		Description			Condition	Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
1 (B/R)	13 (BR)	iPod sound signal LH	Output	Ignition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
2 (B/W)	14 (L)	iPod sound signal RH	Output	Ignition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 -1 -2ms SKIB3609E	
3 (V)	Ground	ACC power supply	Input	Ignition switch ACC		Battery voltage	
4 (B)	_	AV communication signal (L)	Input/ Output	_	_	_	
5 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage	
8 (W)	Ground	iPod battery charge	Output	Ignition switch ON	Connected to iPod <sup>®</sup> .	12 V	

Ρ

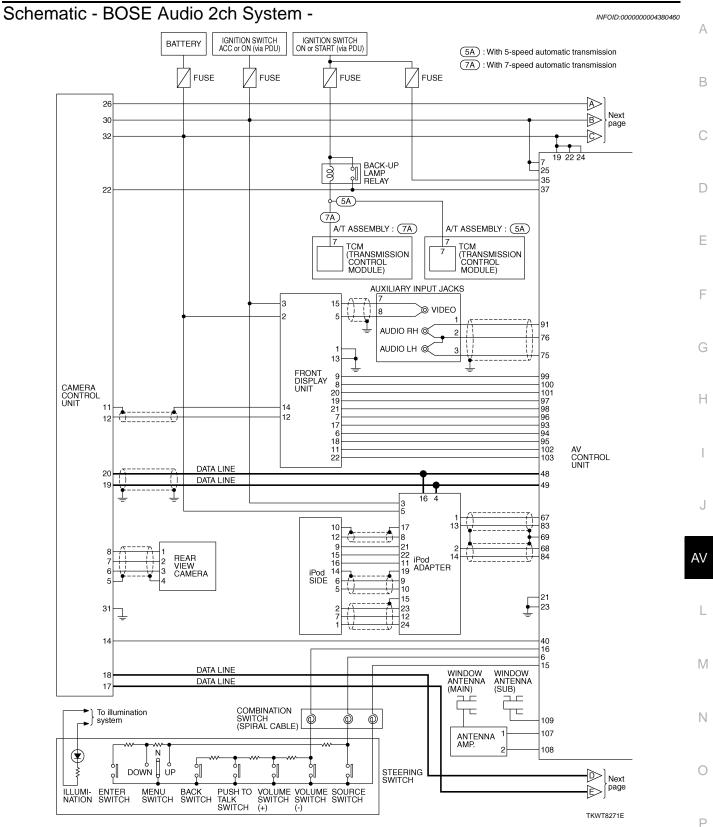
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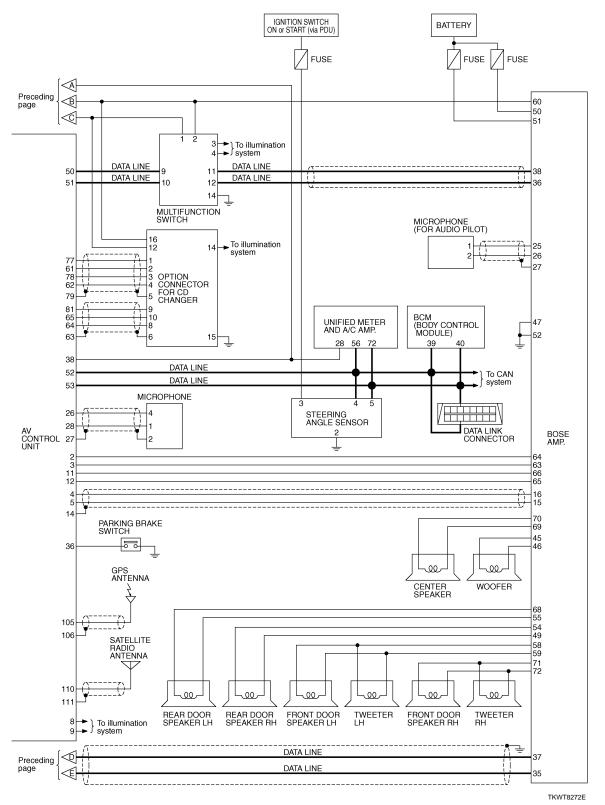
INFOID:000000004155818

# IPOD ADAPTER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

	minal e color)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
9 (V)	Ground	Communication signal (iPod adapter→iPod <sup>®</sup> )	Output	Ignition switch ON	The wave pattern is dis- played just after iPod con- nection.	NOTE: After the wave pattern display, the value continues Approx 3.3 V
10 (LG)	Ground	Communication signal (iPod <sup>®</sup> →iPod adapter)	Input	Ignition switch ON	Connected to iPod <sup>®</sup> .	(V) 32 10 +++2ms JPNIA0462GB
11 (L)	Ground	ACCESSORY-IDENTIFY		Ignition switch ON	Connected to iPod <sup>®</sup> .	0 V
12 (R)	23 (B)	iPod sound signal RH	Input	Ignition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 −1 + 2ms SKIB3609E
15		Shield	_			_
16 (W)	_	AV communication signal (H)	Input/ Output	_	_	_
17	Ground	Ground	_	Ignition switch ON	_	0 V
19	—	Shield	—	—	—	_
21	Crowned	iPod connection recogni-	lan -t	Ignition	Not connected to iPod <sup>®</sup> .	4 V
(SB)	Ground	tion signal	Input	switch ON	Connected to iPod <sup>®</sup> .	0 V
22 (W)	Ground	ACCESSORY-DETECT	_	Ignition switch ON	Connected to iPod <sup>®</sup> .	0 V
24 (W)	23 (B)	iPod sound signal LH	Input	Ignition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 -1 + 2ms SKIB3609E

## IPOD ADAPTER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]





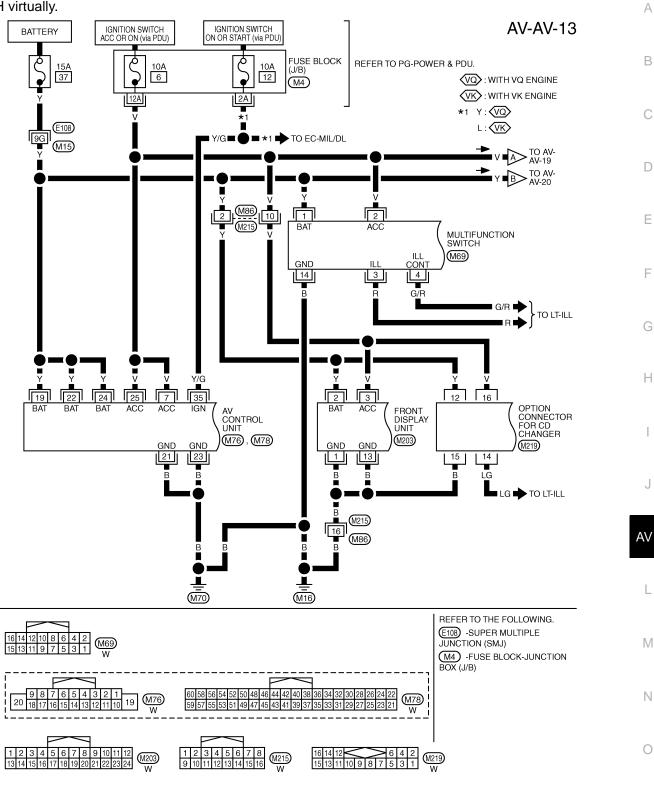
Wiring Diagram - AV - / BOSE Audio 2ch System

INFOID:000000004380461

#### NOTE:

#### IPOD ADAPTER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

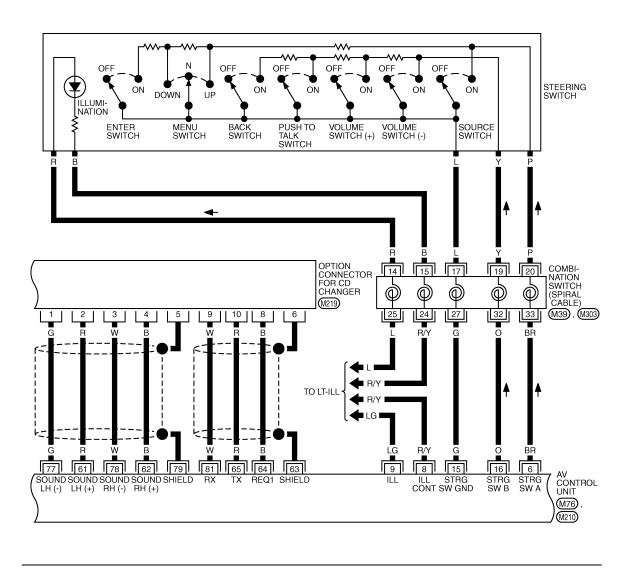
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

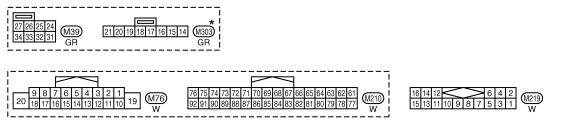


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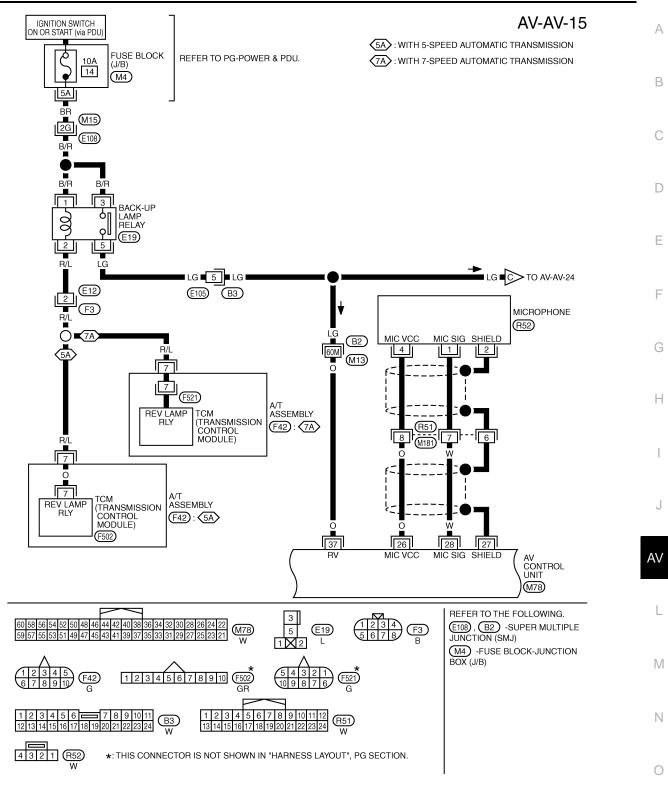
AV-AV-14





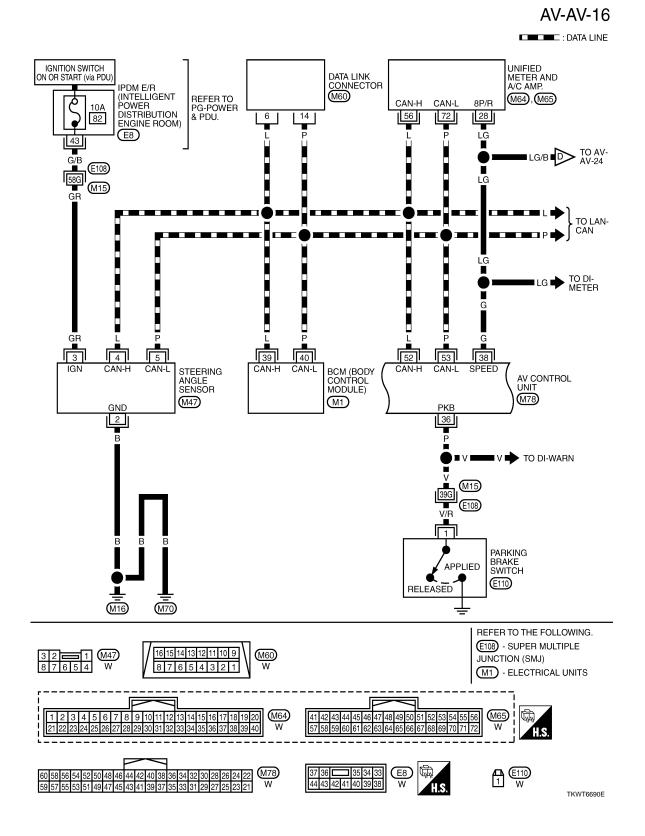
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8274E

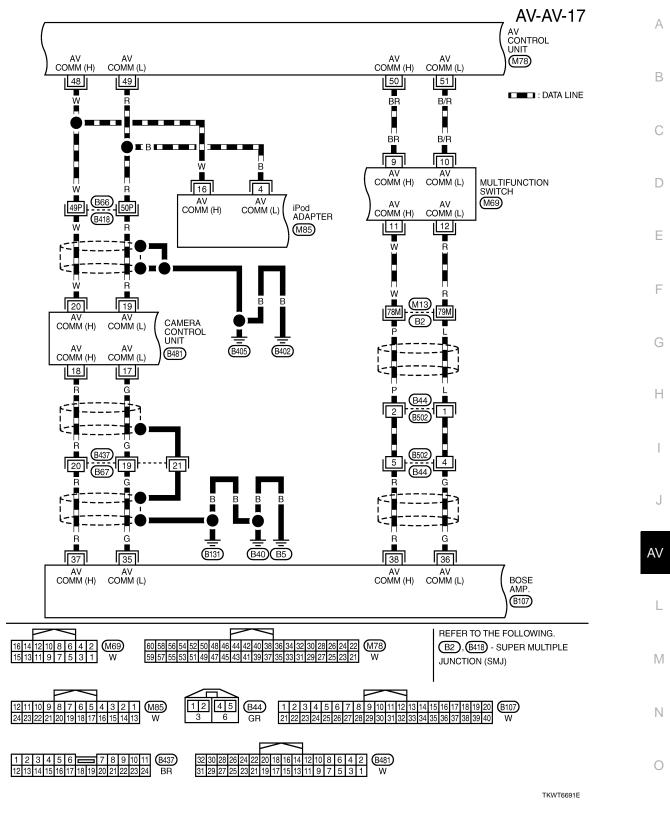


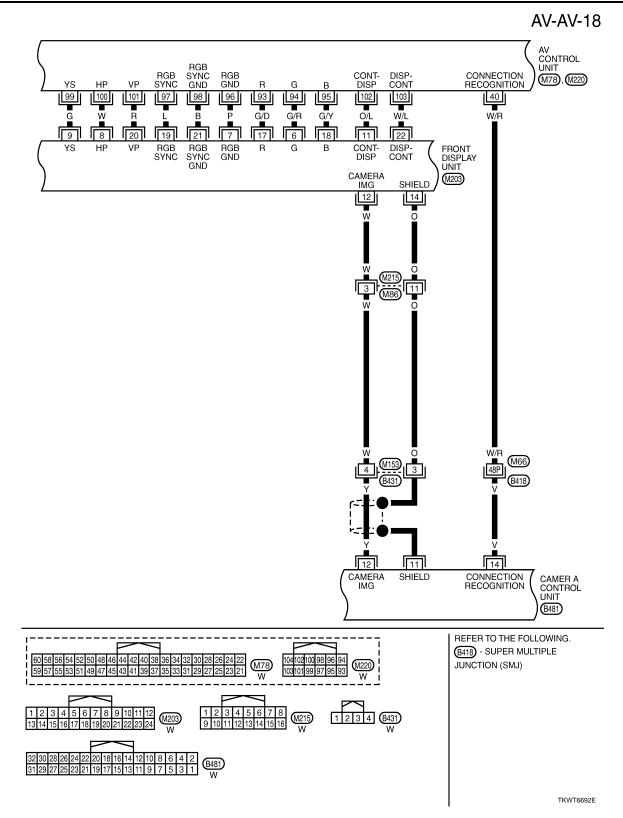
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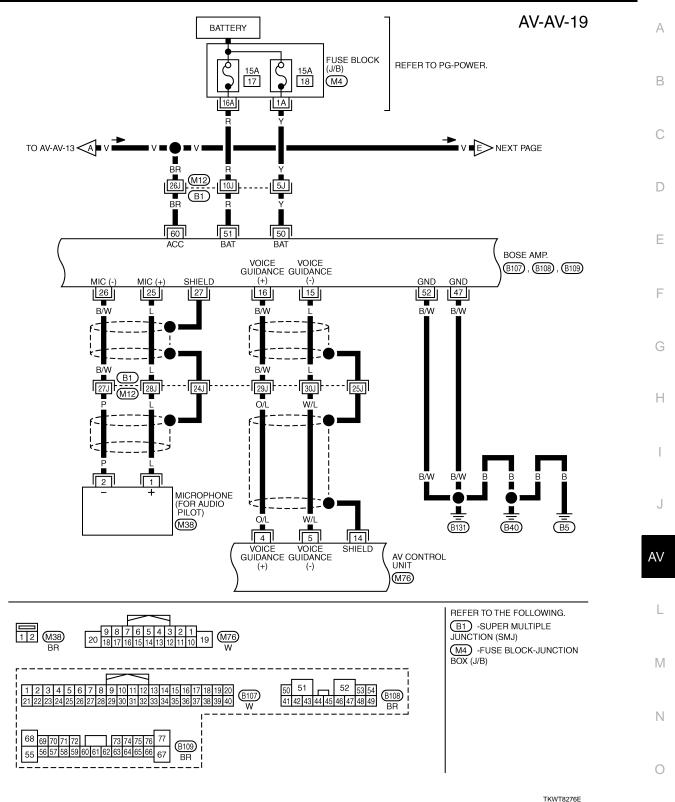


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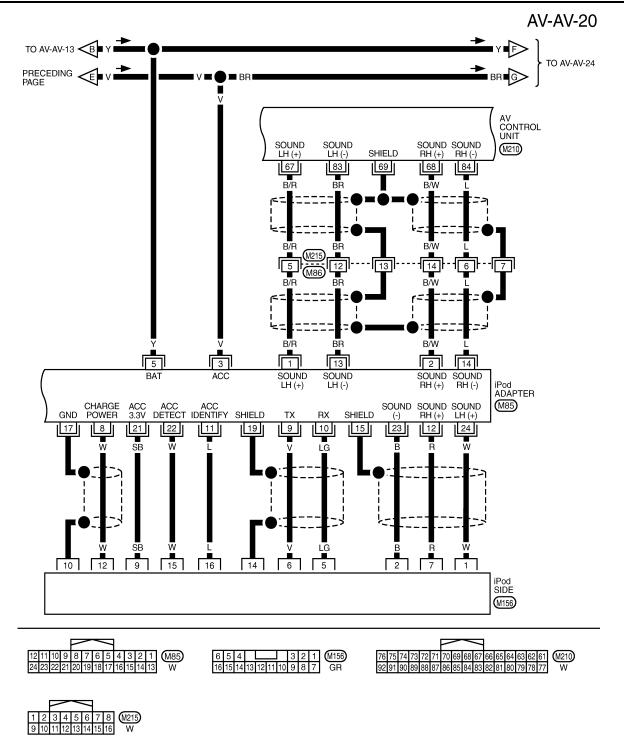












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AV-AV-21

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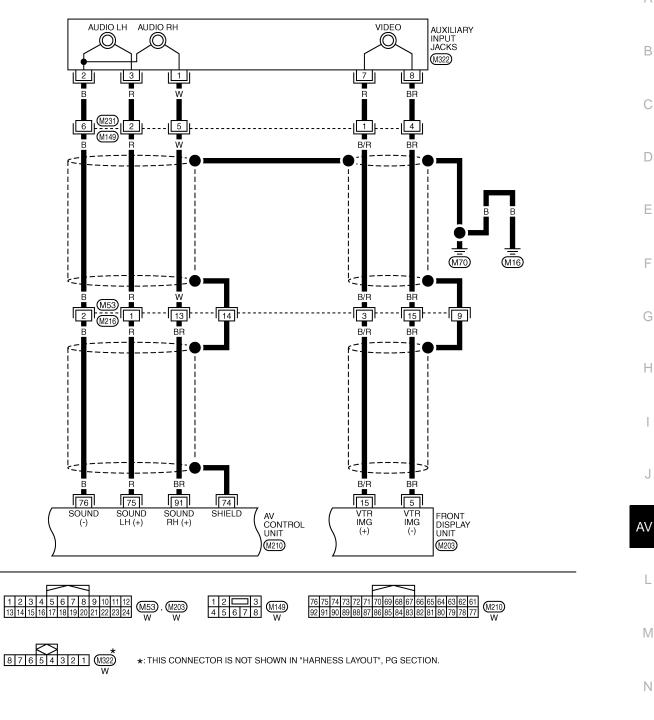
J

L

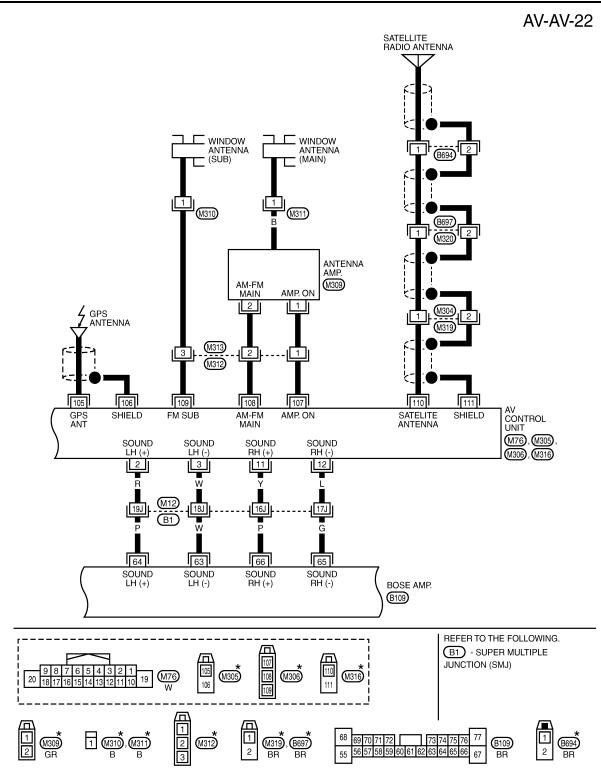
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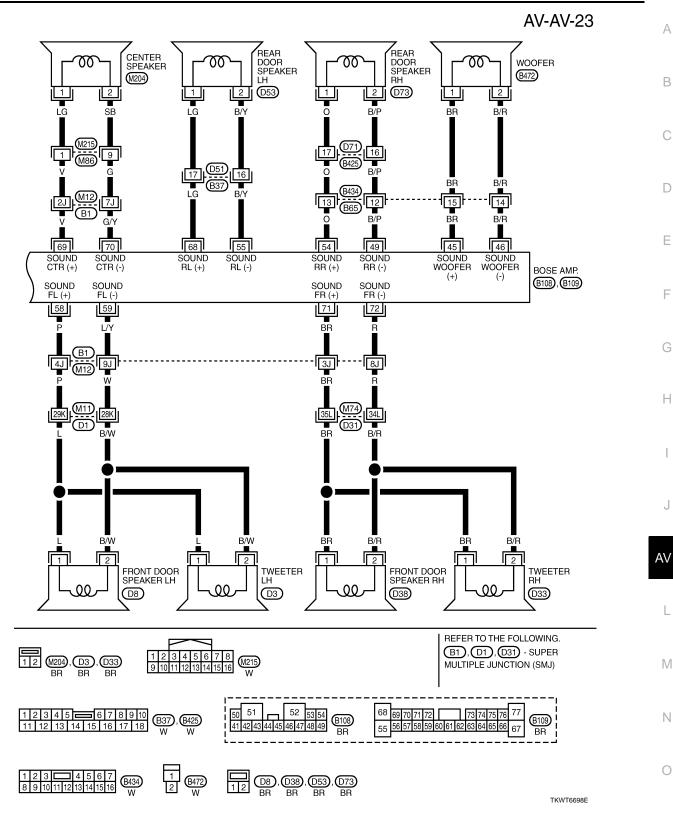
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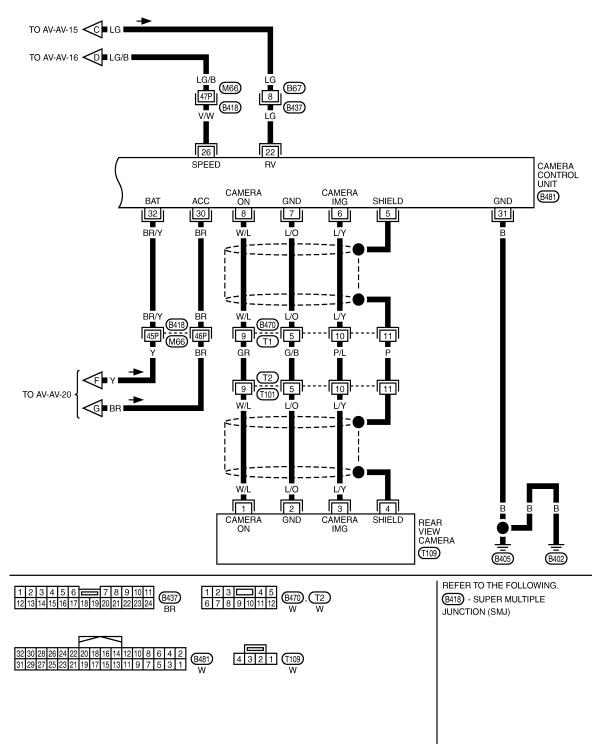
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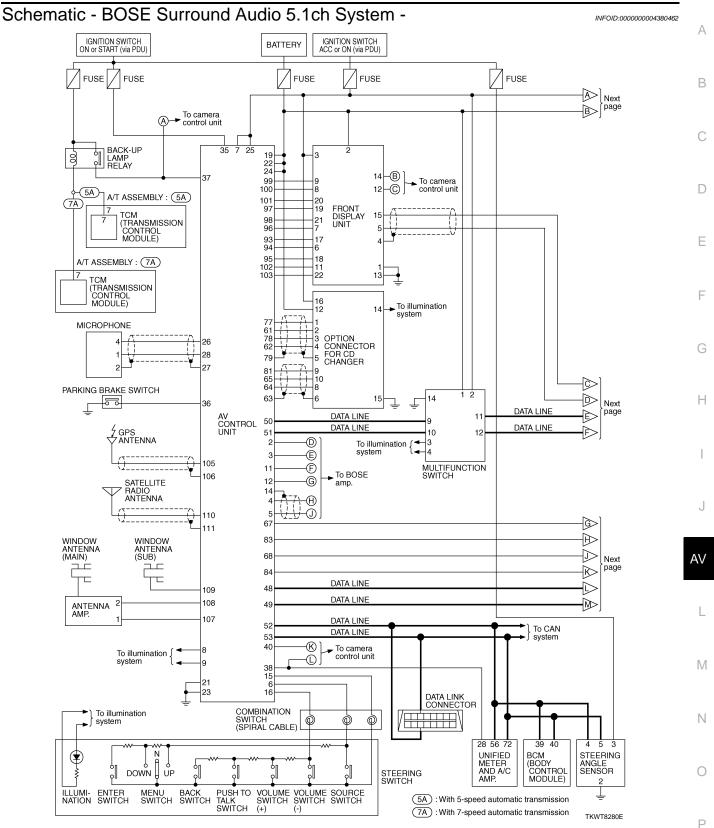
TKWT6697E

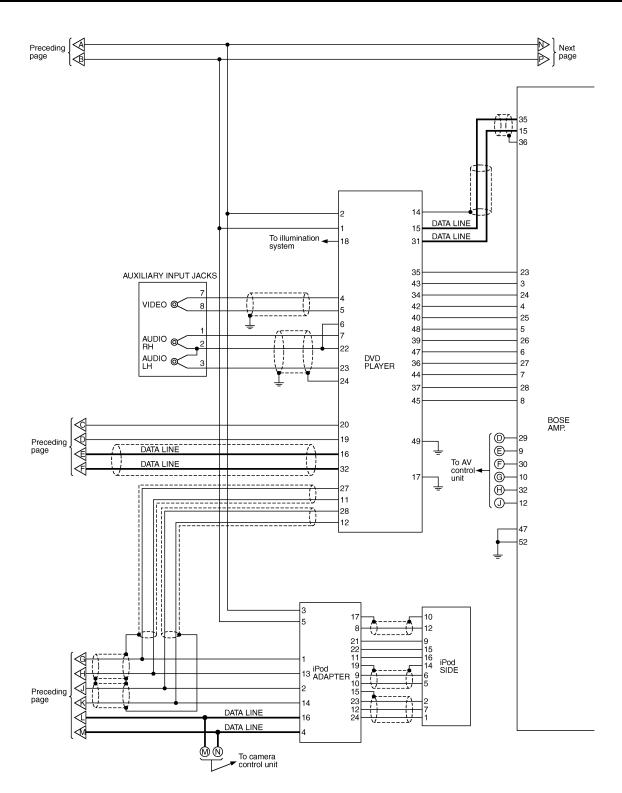


AV-AV-24

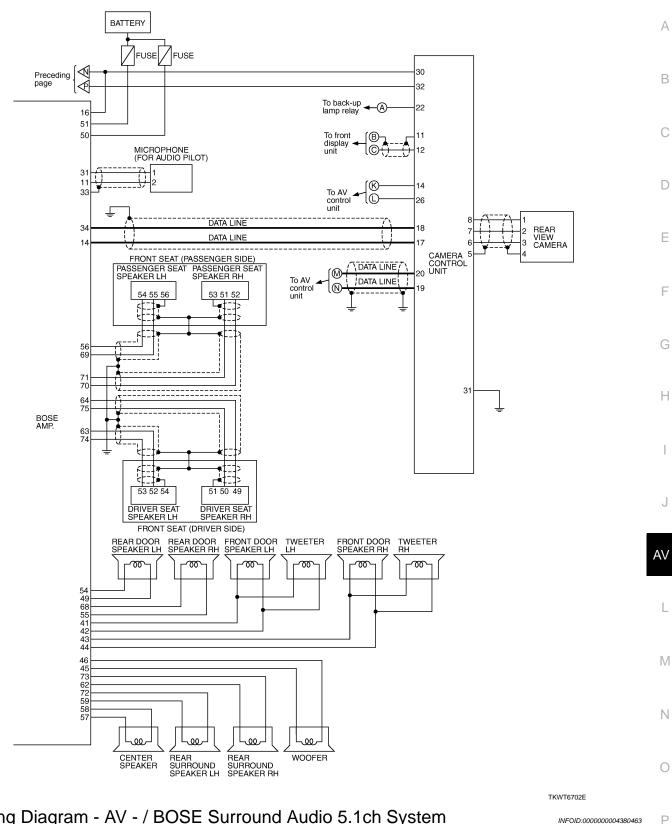


TKWT6699E





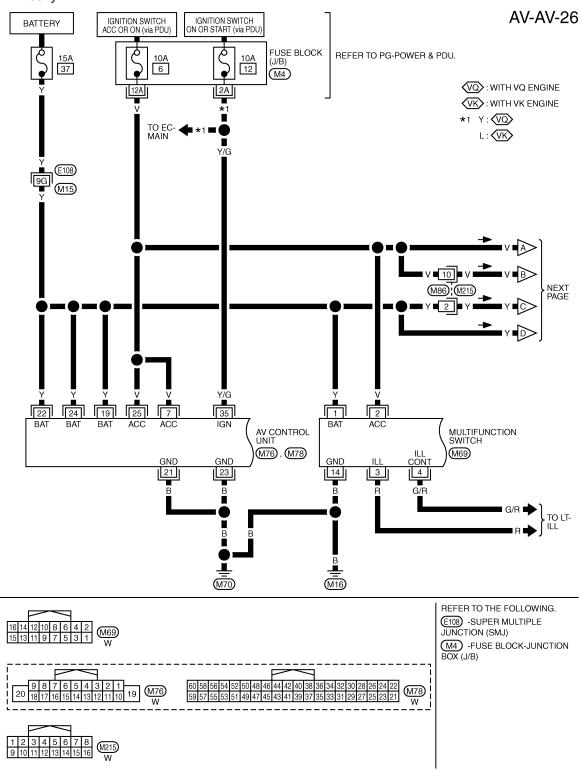
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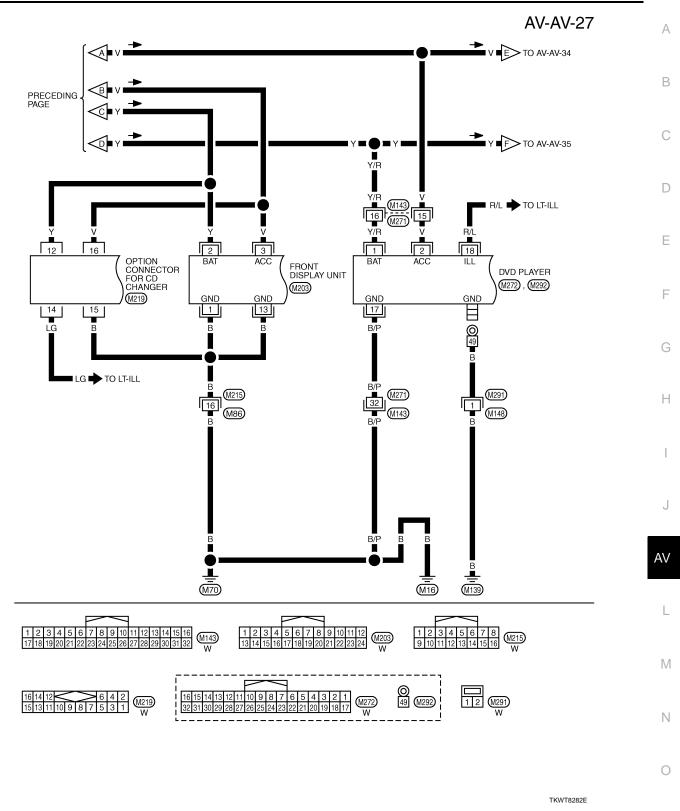
Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

2009 M35/M45

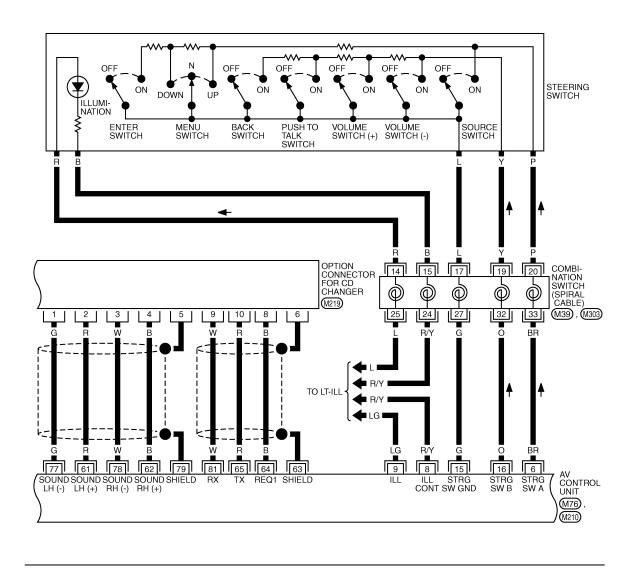
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

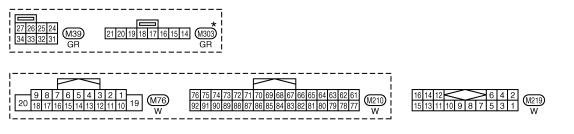


TKWT8281E



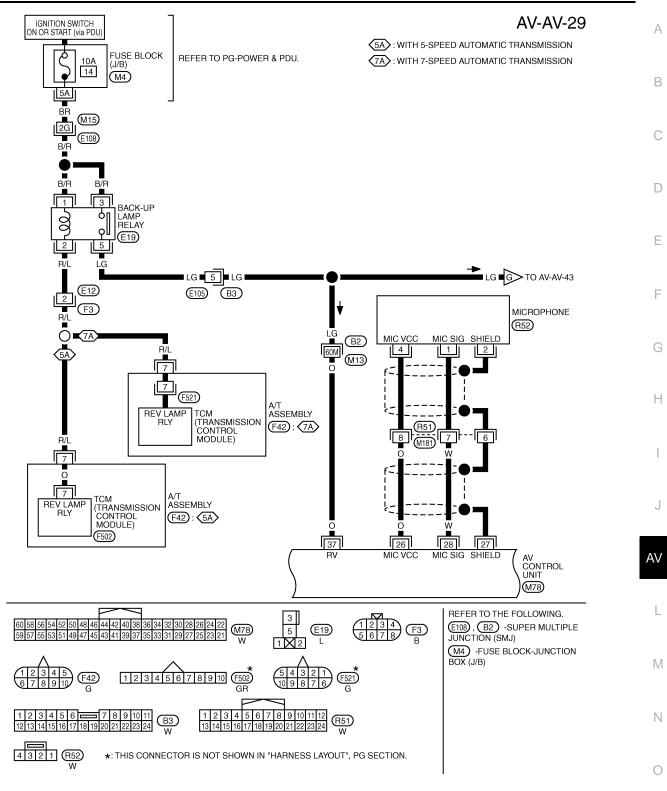
AV-AV-28



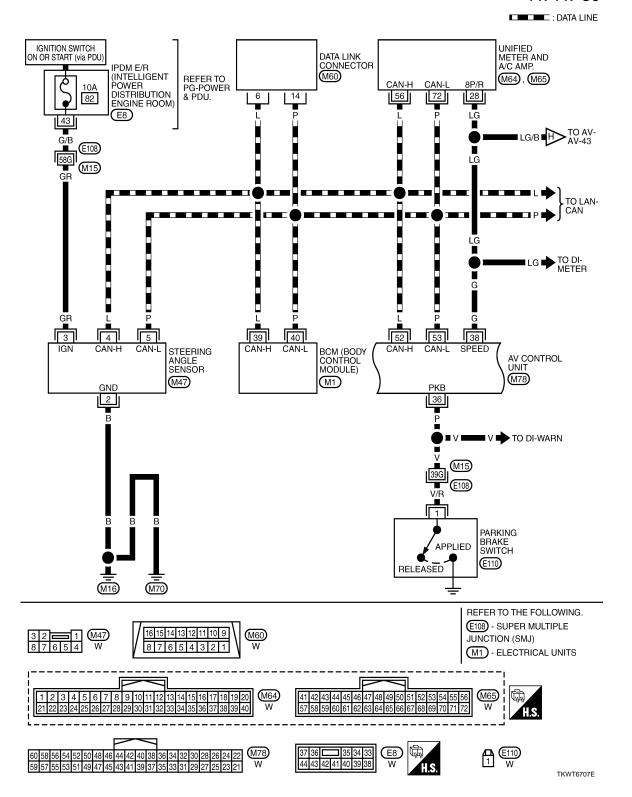


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

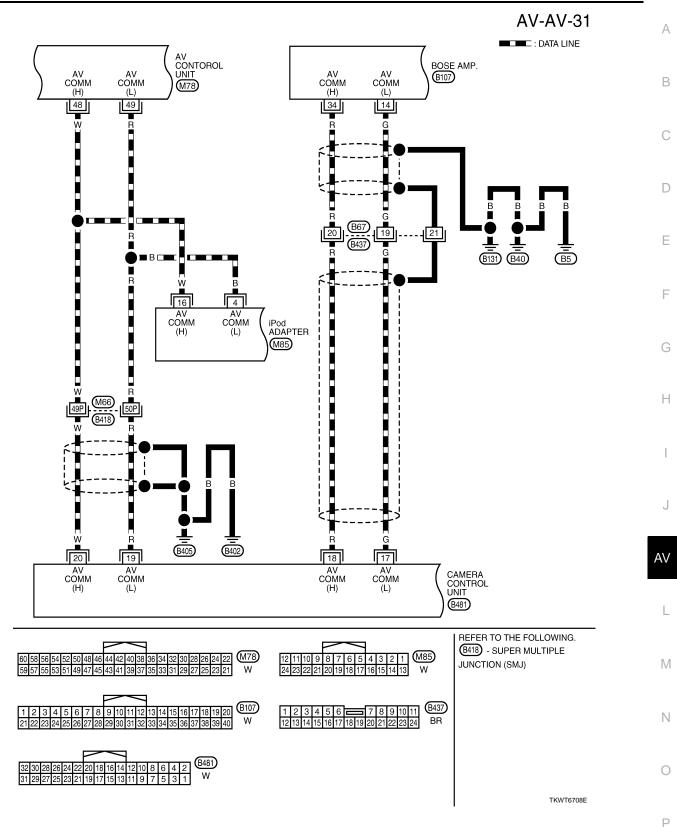
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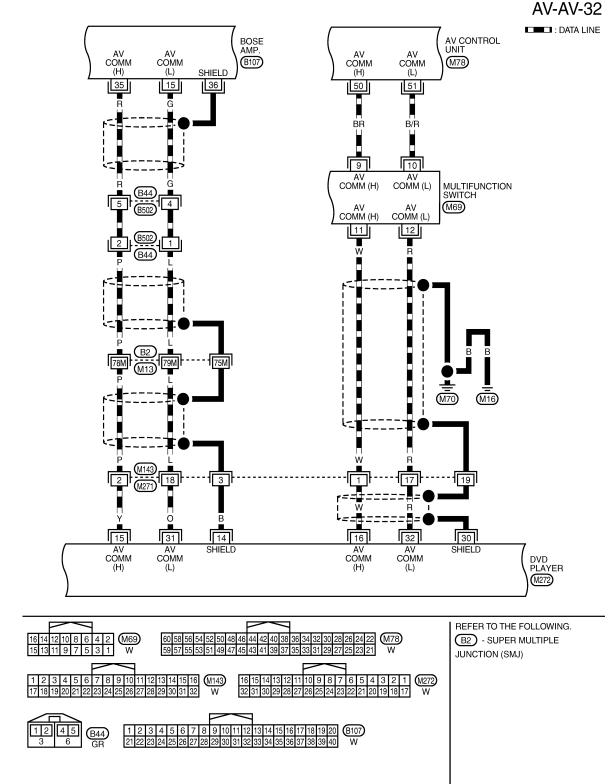


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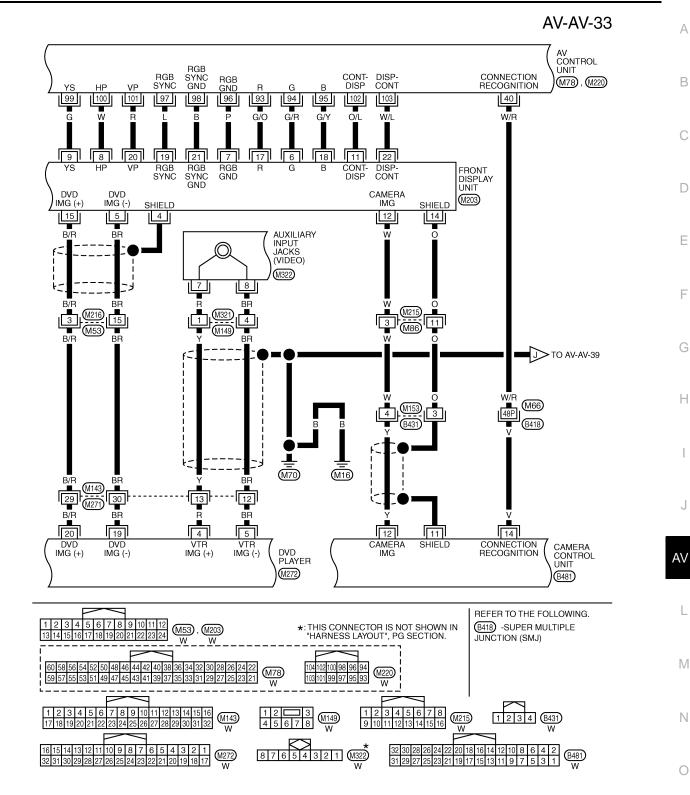


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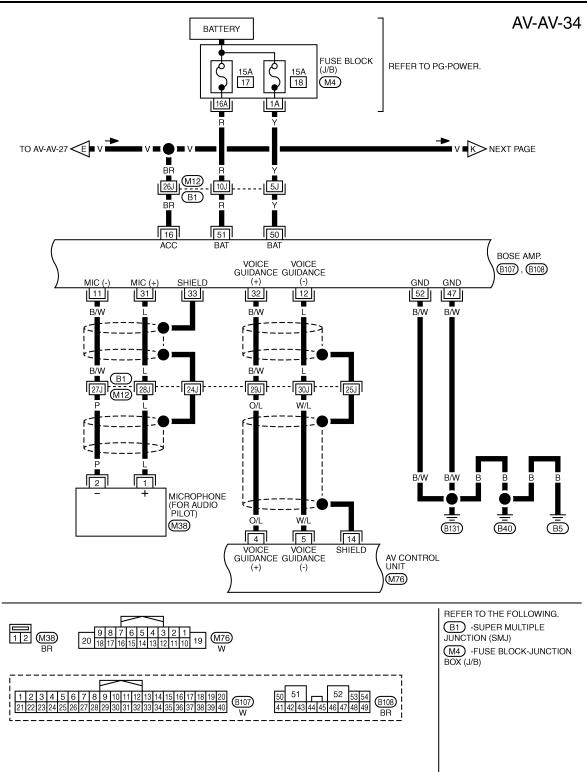




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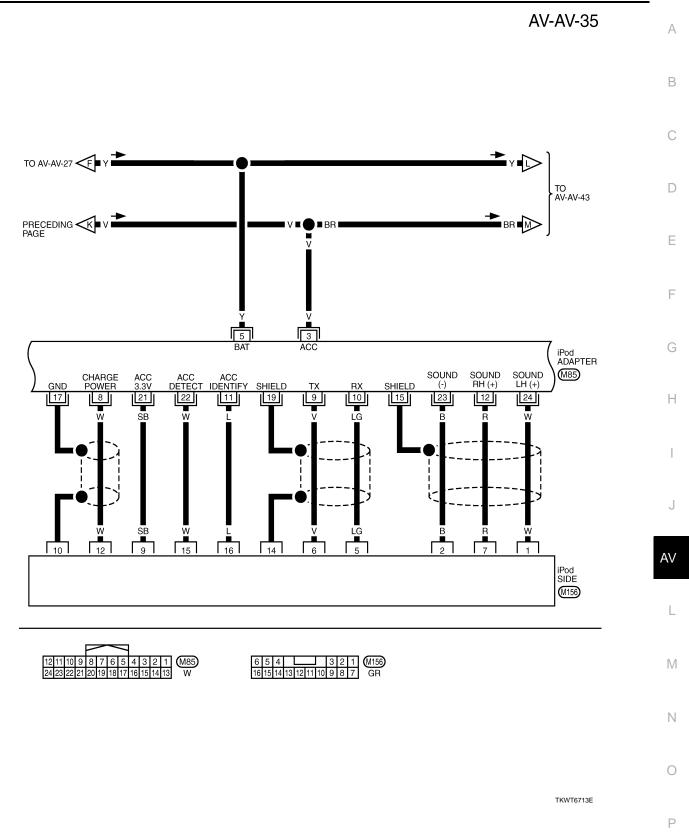


TKWT8285E



TKWT8286E



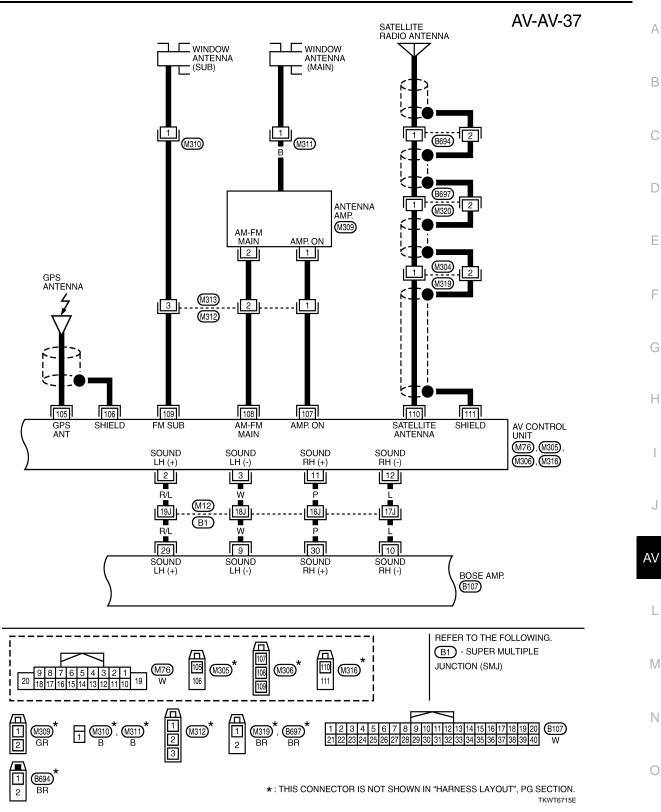


AV-AV-36

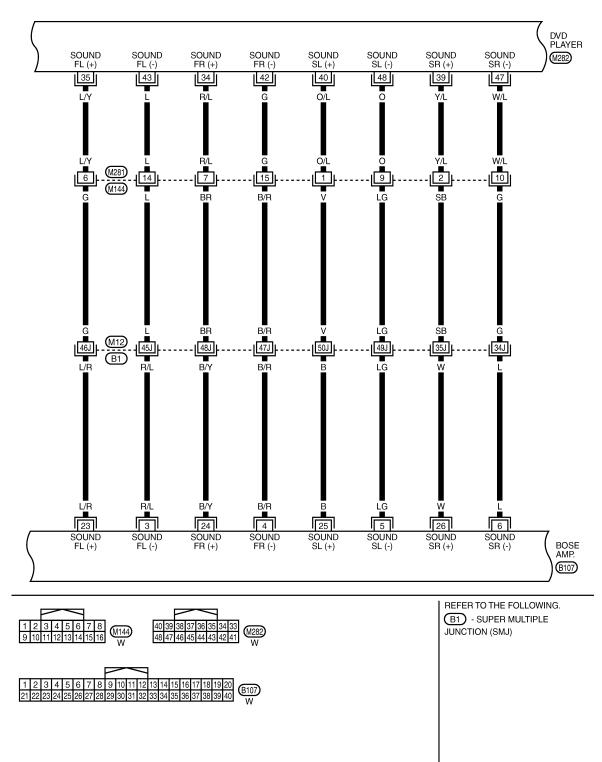
DVD PLAYER (M272) SOUND RH (+) SOUND RH (-) SOUND LH (+) SOUND LH (-) 27 B/R 12 11 28 BR B/W B/R B/W BR M271 6 M143 6 21 22 - 5 B/W B/R BB F-۲. ۱ Ŀ 5 7 M86 M215 6 L ī ■ B/W ■ 14 ■ B/W I ١ ij 1 i١ BR **■** 12 **■** BR **■** B/R 🛯 5 🔳 B/R 13 B/W В/W B/R BR B/R BR 2 83 84 14 67 68 SOUND LH (-) SOUND RH (+) SOUND RH (-) SOUND SOUND SOUND SOUND SOUND AV CONTROL UNIT (M210) iPod ADAPTER (M85) LH (+) LH (-) RH (+) RH (-) LH (+) 12 11 10 9 8 7 6 5 4 3 2 1 M85 24 23 22 21 20 19 18 17 16 15 14 13 W 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 (M143) W

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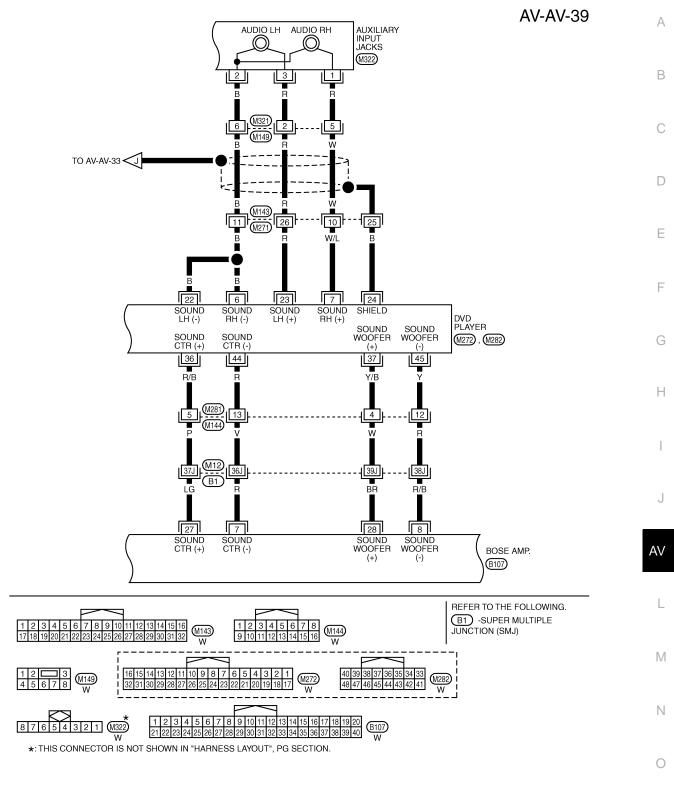
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**AV-AV-38** 

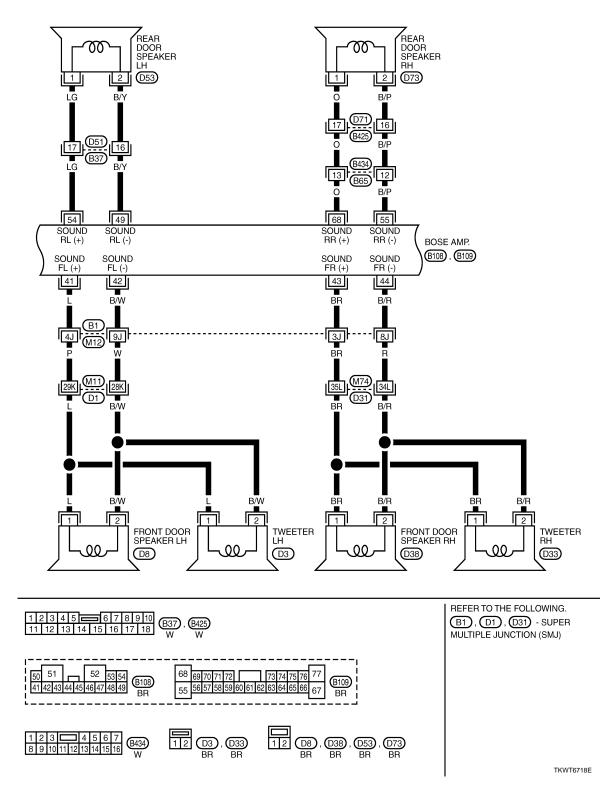


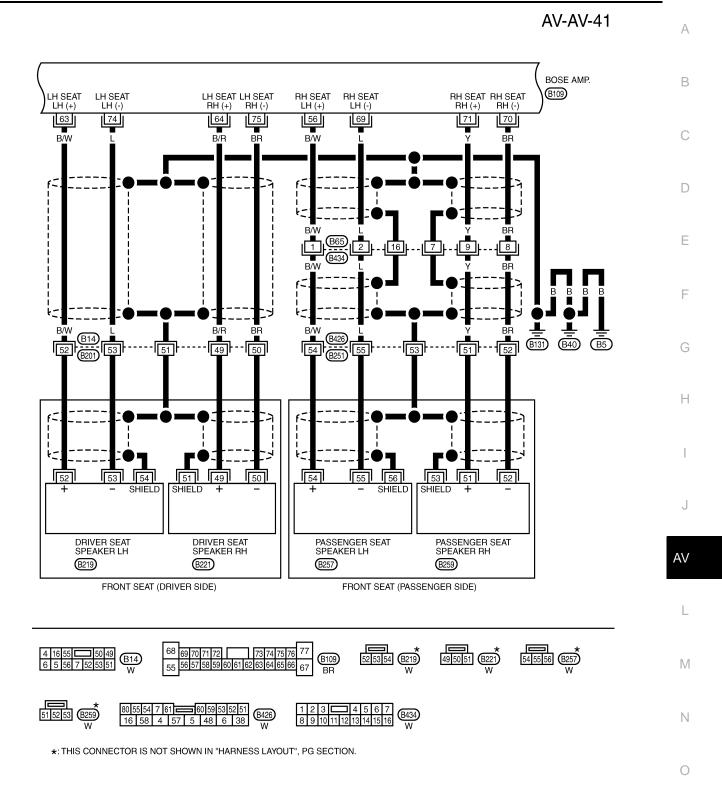
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TKWT8287E

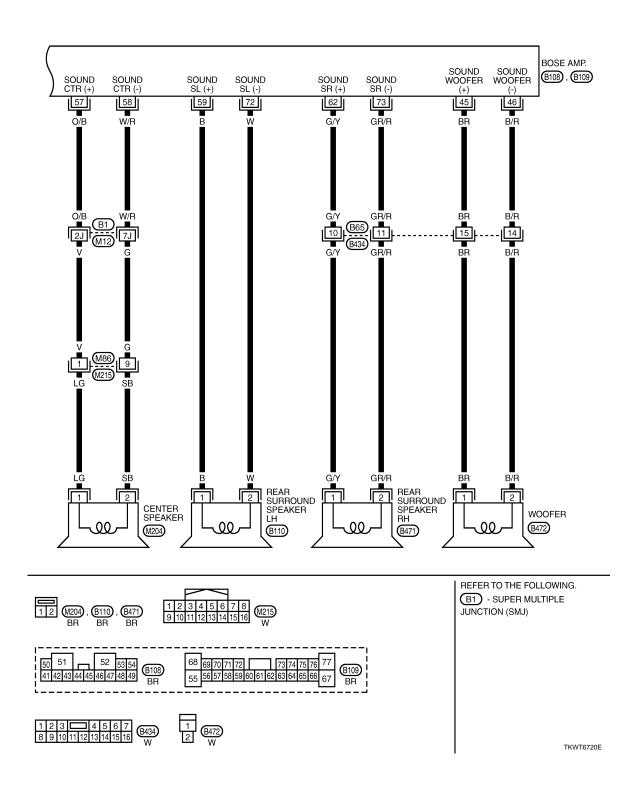
#### AV-AV-40



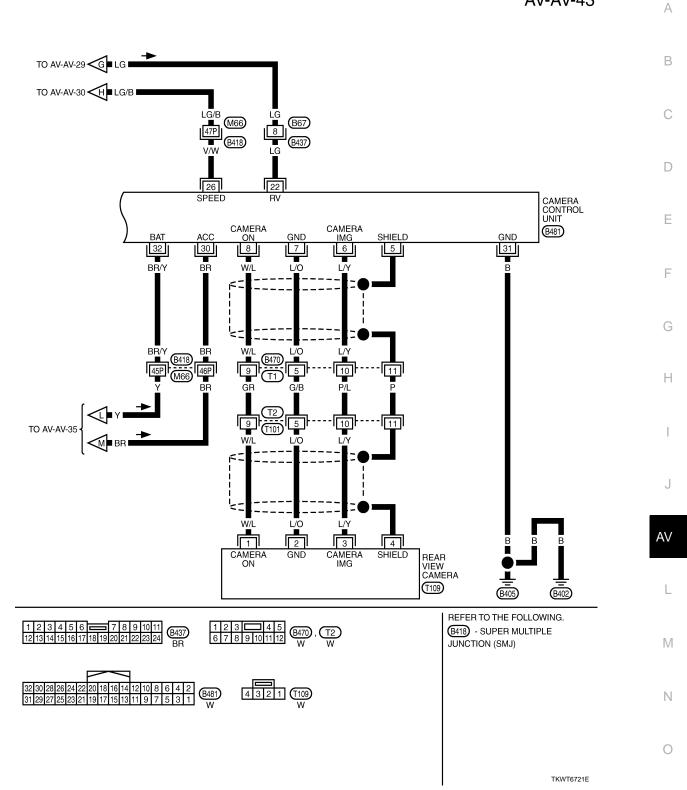


TKWT6719E

AV-AV-42



**AV-AV-43** 



Р

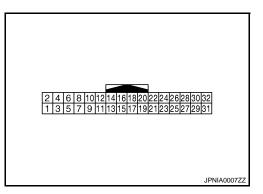
# CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# **CAMERA CONTROL UNIT**

**Reference Value** 

**TERMINAL LAYOUT** 

INFOID:000000004155823



#### PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output	(Approx.)		
5	—	Shield	—		—	_
6 (L/Y)	Ground	Camera image signal	Input	Ignition switch ON	When rear view camera im- age is displayed.	(V) 0.4 0 -0.4 ••40µs skiB2251J
7 (L/O)	Ground	Rear view camera ground	_	Ignition switch ON	_	0 V
8				Ignition	R position.	6 V
(W/L)	Ground	Camera ON signal	Output	switch ON	Other than R position.	0 V
11		Shield		_	_	_
12 (Y)	Ground	Camera image signal	Output	Ignition switch ON	When rear view camera im- age is displayed.	(V) 0.4 0 -0.4 • 40µs SKIB2251J
14	Ground	Camera-connection recog-	Output	Ignition switch		0 V
(V)	Ground	nition signal	Output	ON	Not connected to camera control unit connector.	5 V
17 (G)	_	AV communication signal (L)	Input/ Output		_	—
18 (R)	—	AV communication signal (H)	Input/ Output	_	—	—
19 (R)	—	AV communication signal (L)	Input/ Output	_	_	_

#### < ECU DIAGNOSIS >

# CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output	(Approx.)		
20 (W)		AV communication signal (H)	Input/ Output		_	_
22 (LG)	Ground	Reverse signal	Input	Ignition switch ON	R position.	12 V
					Other than R position.	0 V
26 (V/W)	Ground	Vehicle speed signal (8-pulse)	Input	lgnition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH).	NOTE: Maximum voltage may be 12 V due to specifications (connected units).
						4 2 0 • • • 20ms SKIA6649J
30 (BR)	Ground	ACC power supply	Input	Ignition switch ACC		Battery voltage
31 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
32 (BR/Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage

J

AV

L

Μ

Ν

Ο

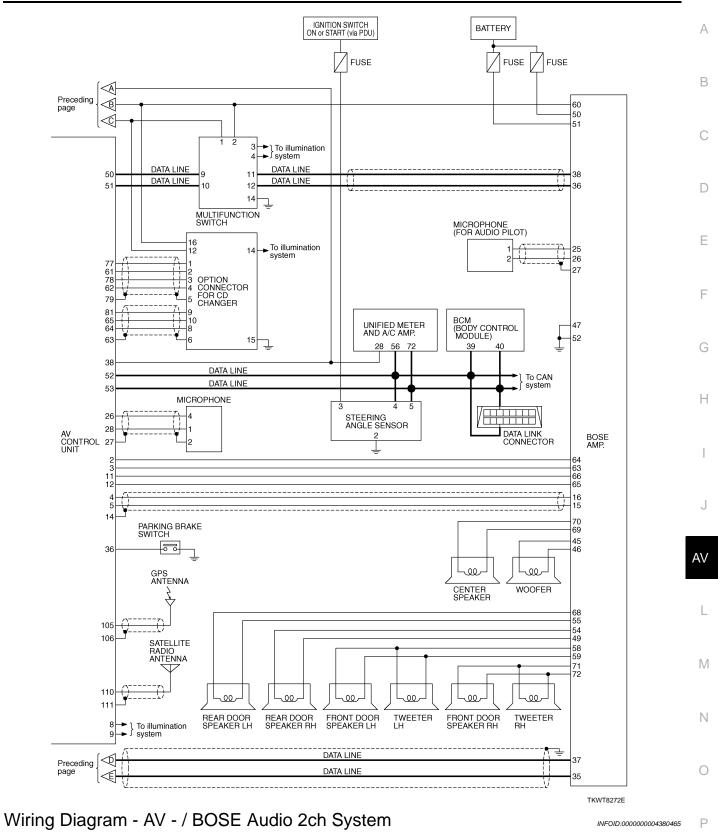
# CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### Schematic - BOSE Audio 2ch System -INFOID:000000004380464 IGNITION SWITCH ACC or ON (via PDU) IGNITION SWITCH ON or START (via PDU) BATTERY (5A) : With 5-speed automatic transmission (7A) : With 7-speed automatic transmission / FUSE / FUSE FUSE FUSE A 26 Next page ₽ 30 32 $\triangleright$ 19 22 24 +7 25 35 37 BACK-UP LAMP RELAY g 22 (5A) (7A) A/T ASSEMBLY : 5A A/T ASSEMBLY : (7A) TCM (TRANSMISSION CONTROL MODULE) TCM (TRANSMISSION CONTROL MODULE) AUXILIARY INPUT JACKS 15 8 VIDEO Ī 91 AUDIO RH @ 2 76 AUDIO LH ര 3 75 13 Ĭ FRONT DISPLAY UNIT 99 100 101 97 CAMERA CONTROL UNIT Ř 20 19 21 14 98 96 93 94 -12 12 Q\_\_\_\_\_ 17 6 95 102 103 18 AV CONTROL UNIT 11 22 DATA LINE 20 48 : i DATA LINE 49 19 ÷ 35 67 13 83 10 17 12 8 69 $\rightarrow$ 21 22 11 с 68 84 REAR VIEW CAMERA 14 iPod ADAPTER 16 iPod SIDE 19 6 9 10 j 21 Ē 15 23 31 23 12 1 40 16 14 6 15 WINDOW ANTENNA (MAIN) DATA LINE WINDOW ANTENNA (SUB) 18 DATA LINE 17 COMBINATION SWITCH (SPIRAL CABLE) To illumination system Þ O Ø 109 107 ANTENNA AMP. 108 2 ۲ STEERING SWITCH ş ò Next ol page Þ PUSH TO TALK SWITCH VOLUME VOLUME SOURCE SWITCH SWITCH SWITCH (+) (-) ILLUMI- ENTER NATION SWITCH MENU BACK SWITCH SWITCH TKWT8271E

Revision: 2009 Novemver

#### < ECU DIAGNOSIS >

### CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

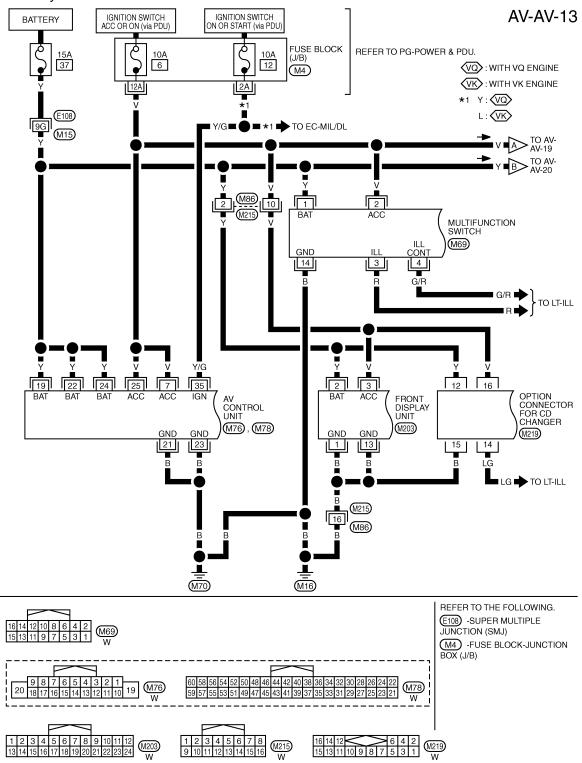


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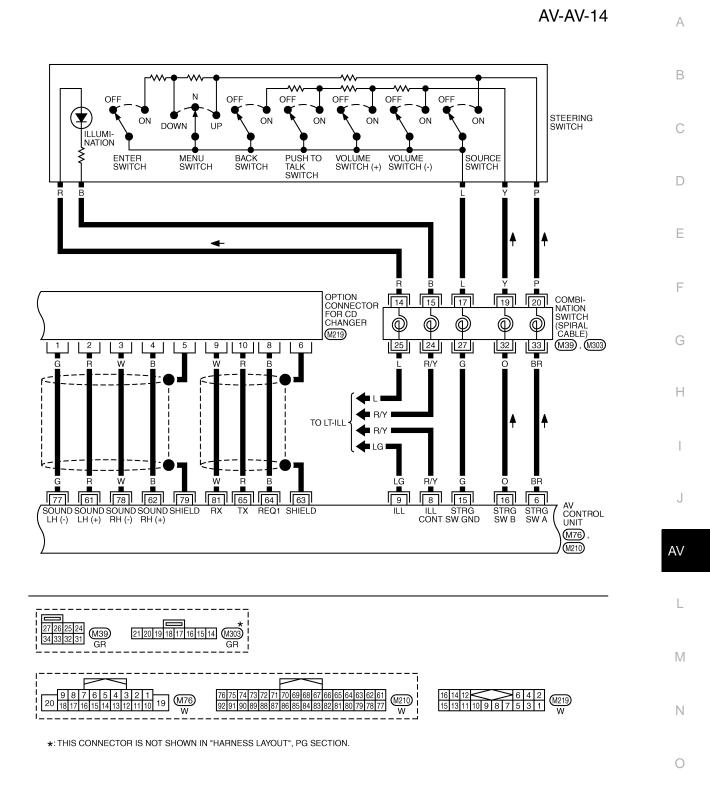
#### < ECU DIAGNOSIS >

#### CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

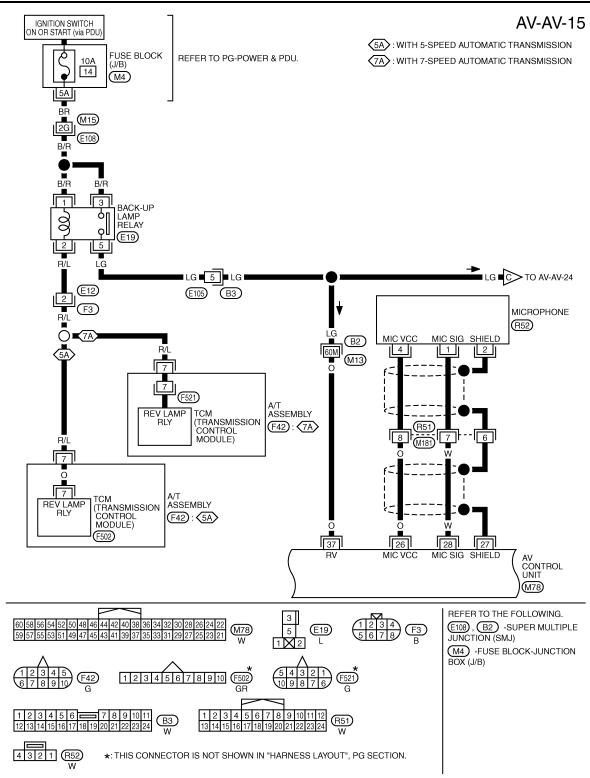
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



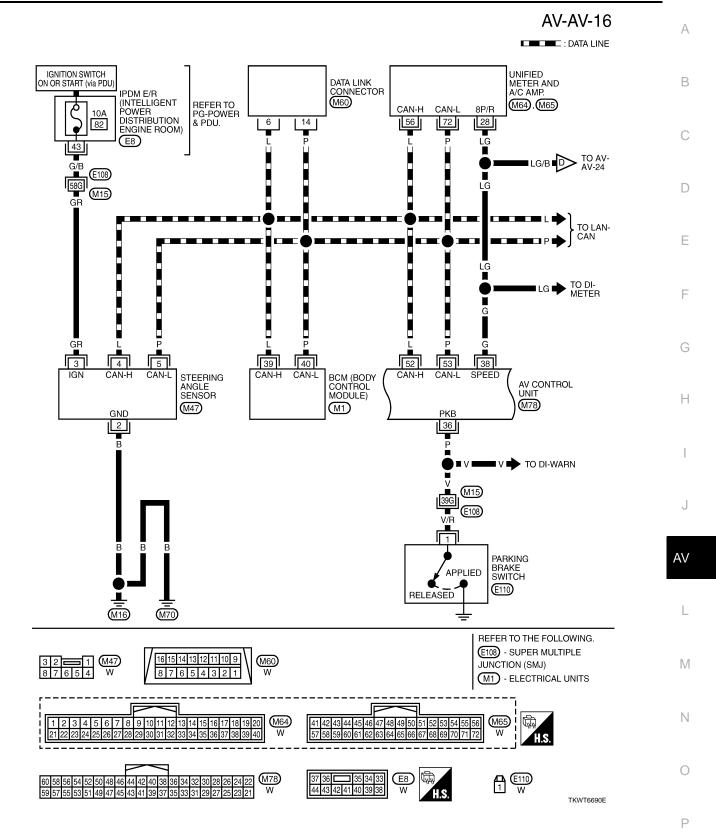
TKWT8273E

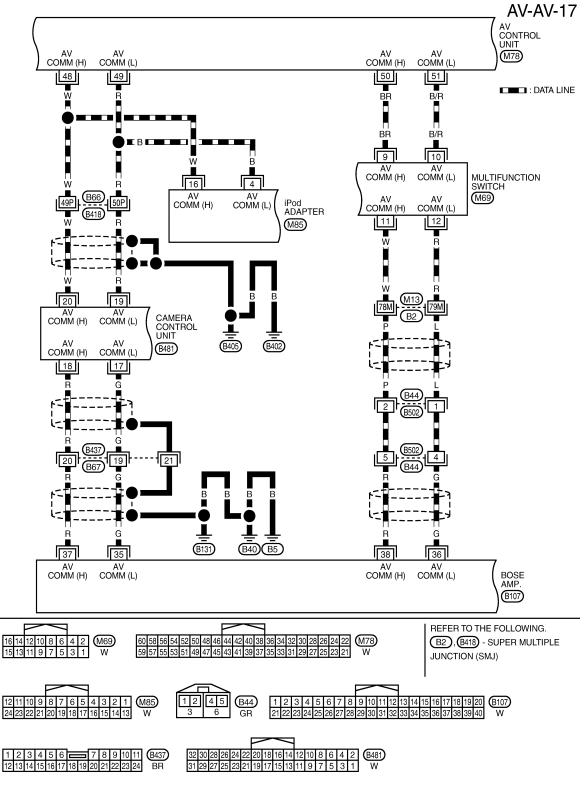


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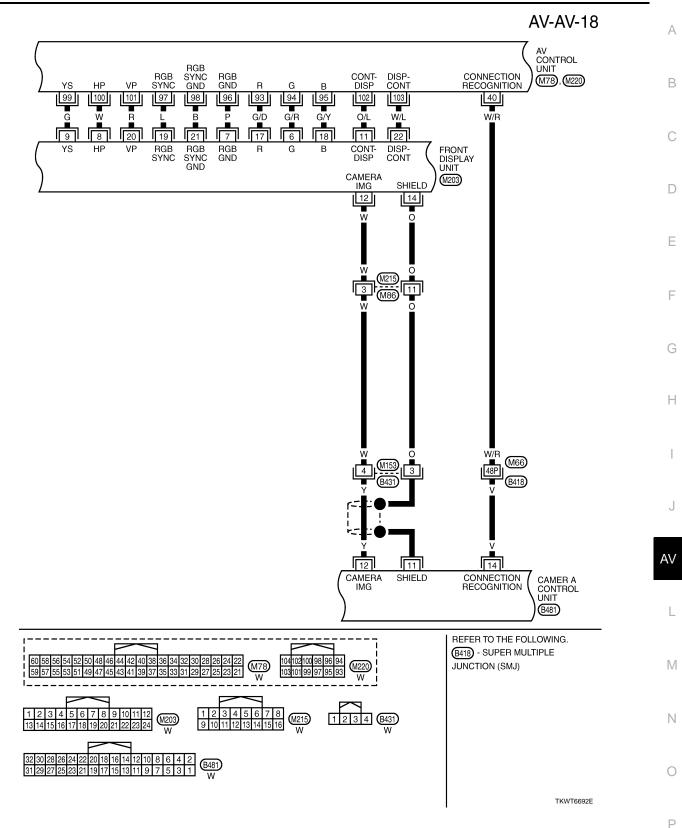


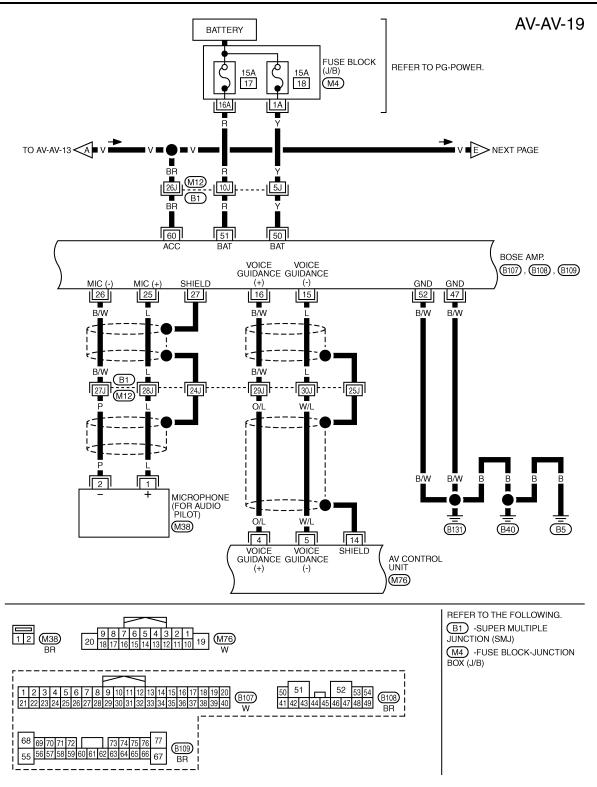
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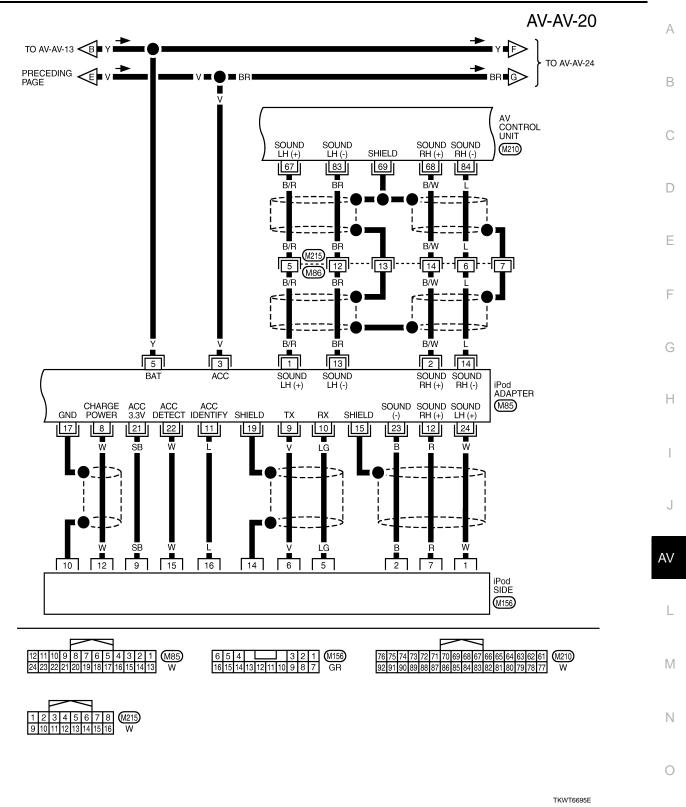


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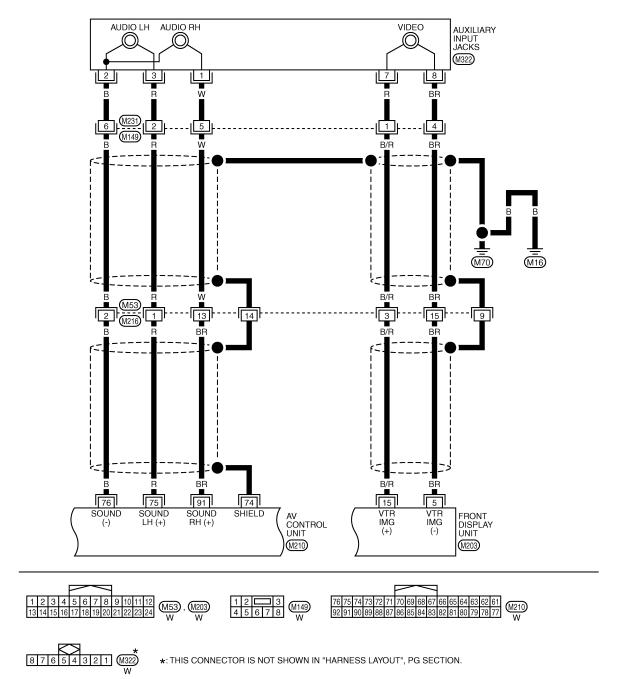




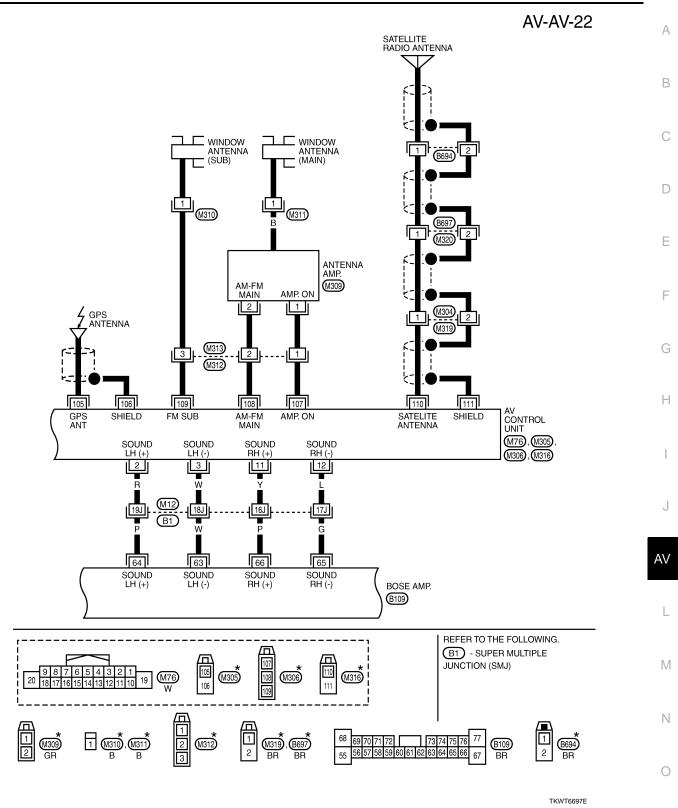
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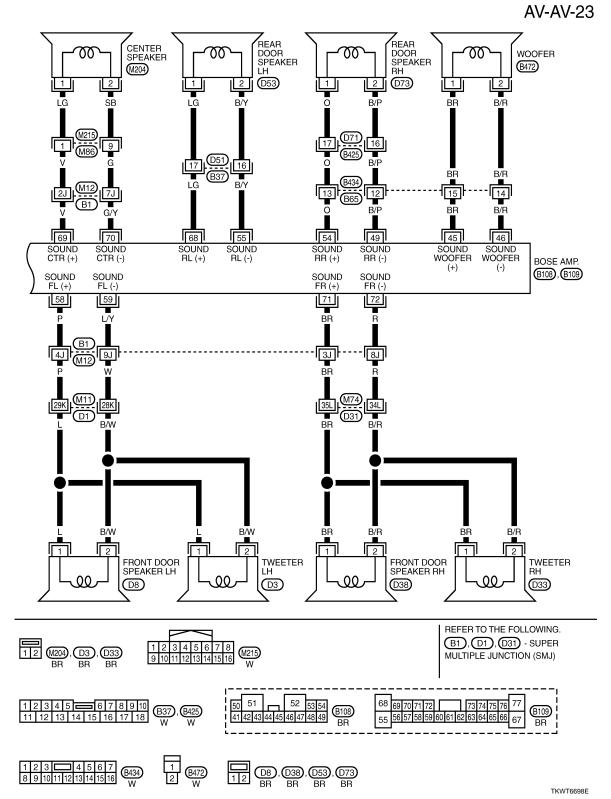


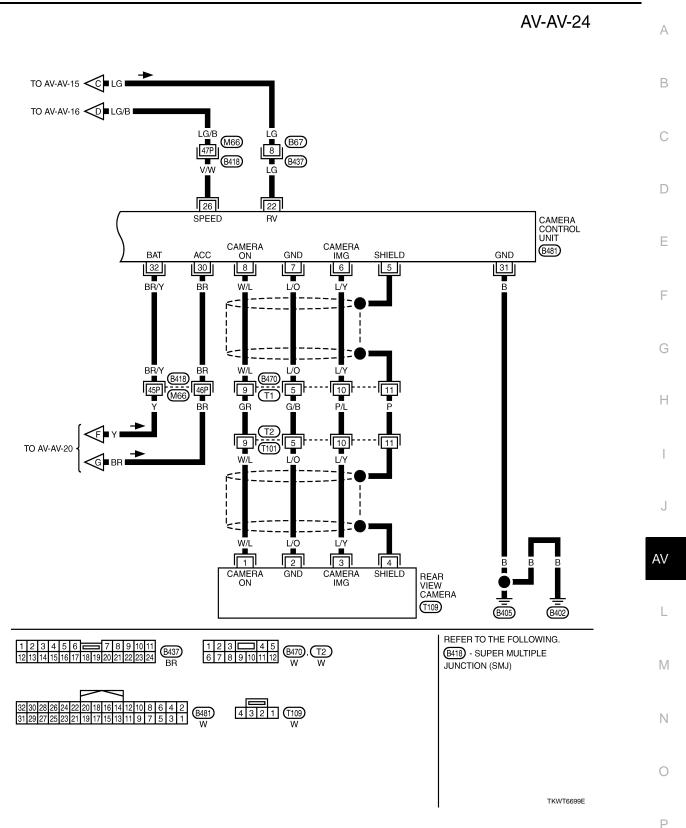
AV-AV-21



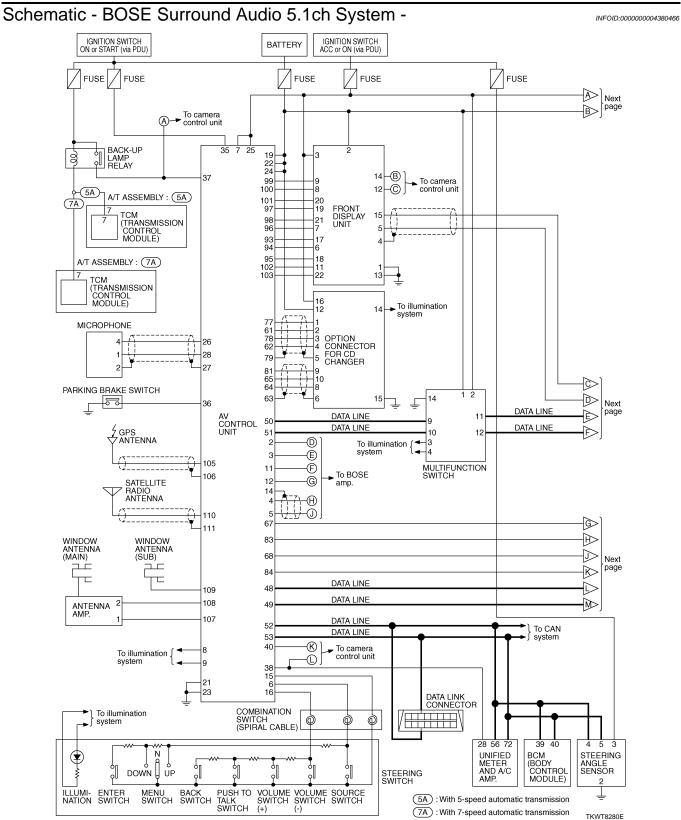
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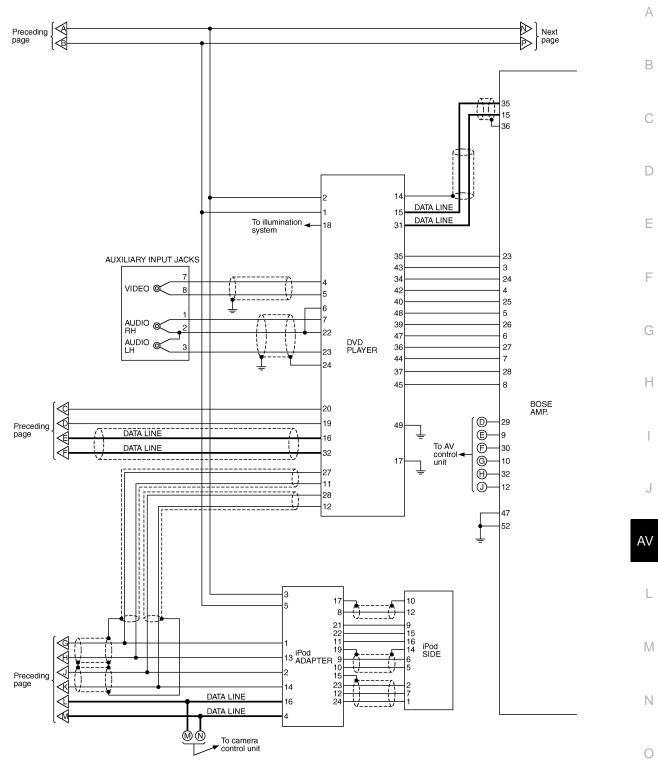




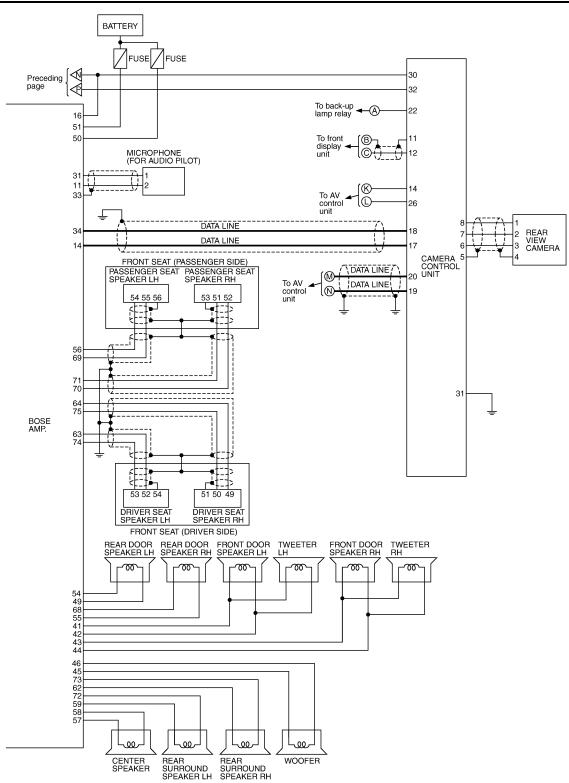


Revision: 2009 Novemver





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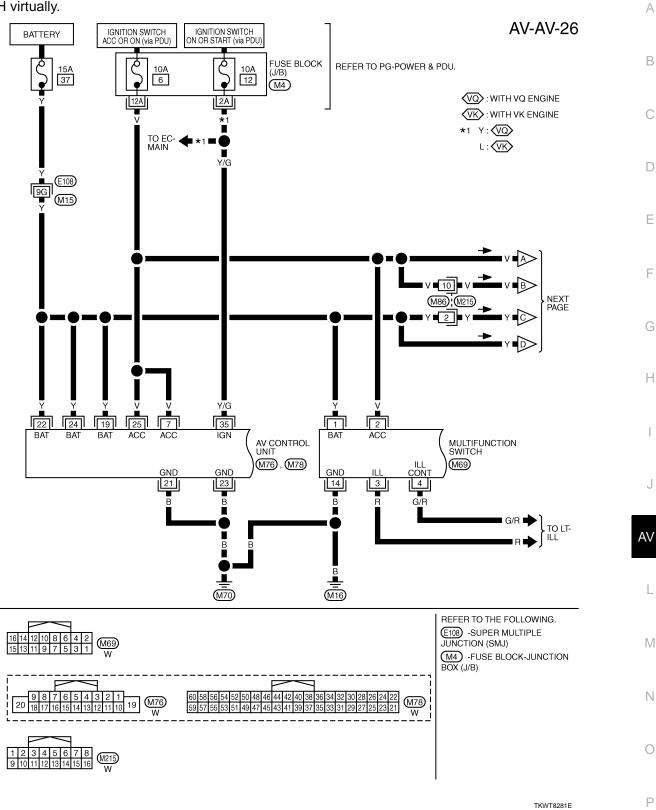
# Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

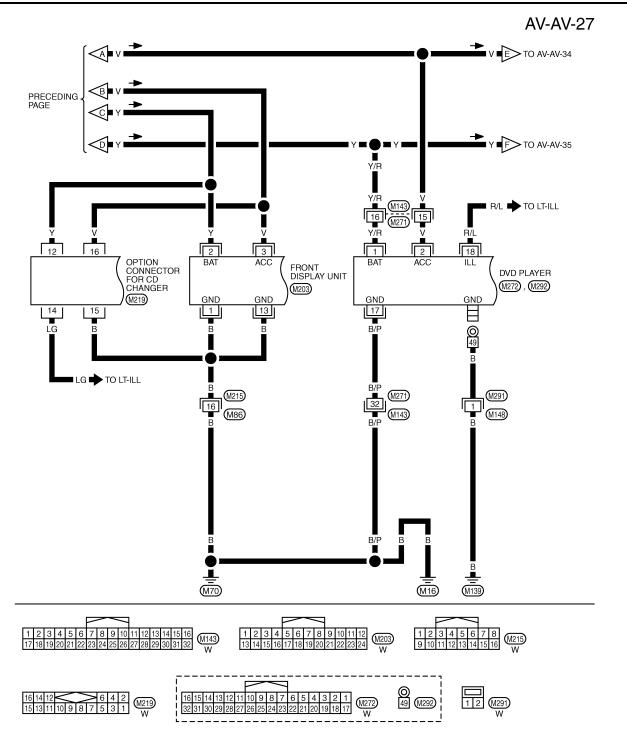
#### NOTE:

INFOID:000000004380467

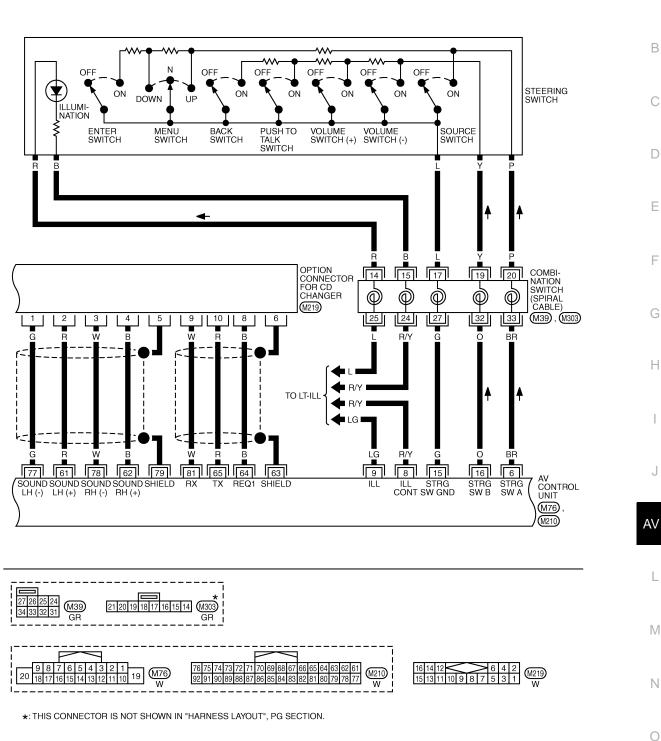
#### CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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





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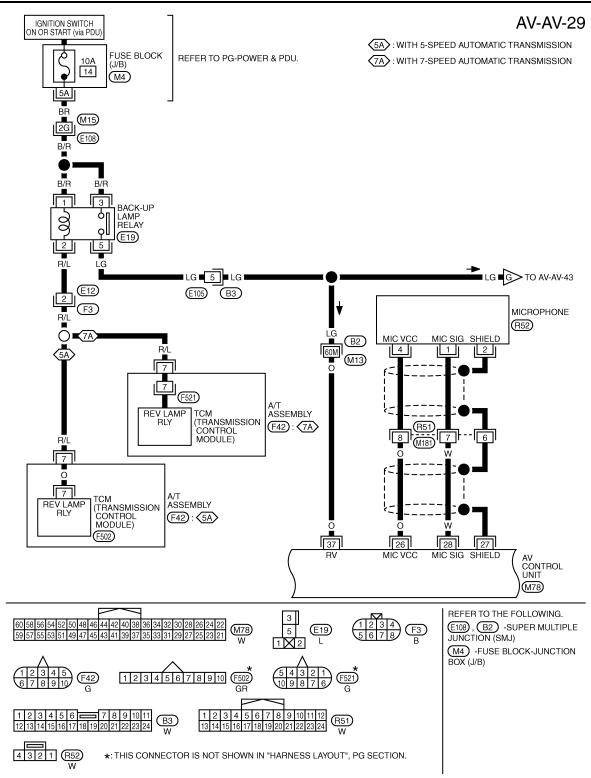
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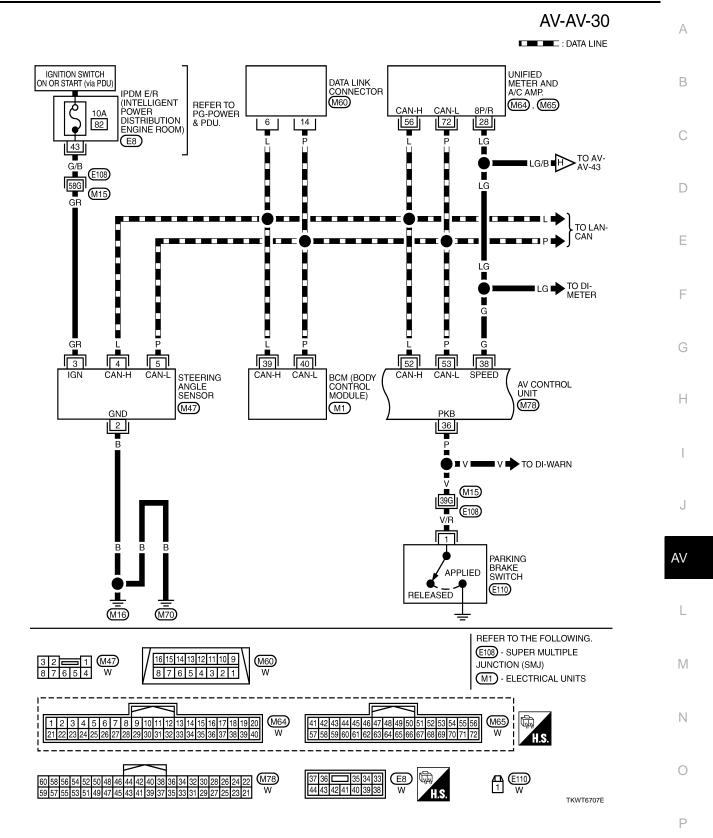
Revision: 2009 Novemver

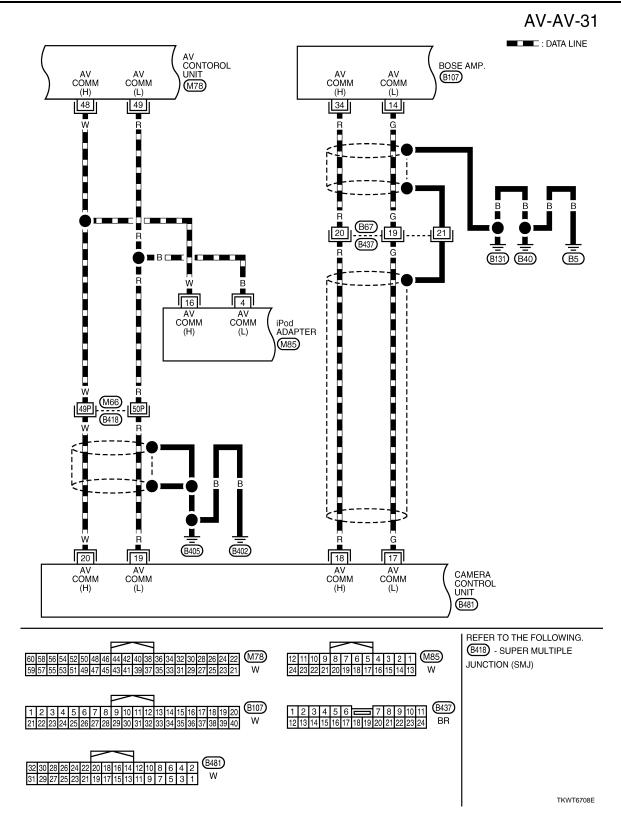
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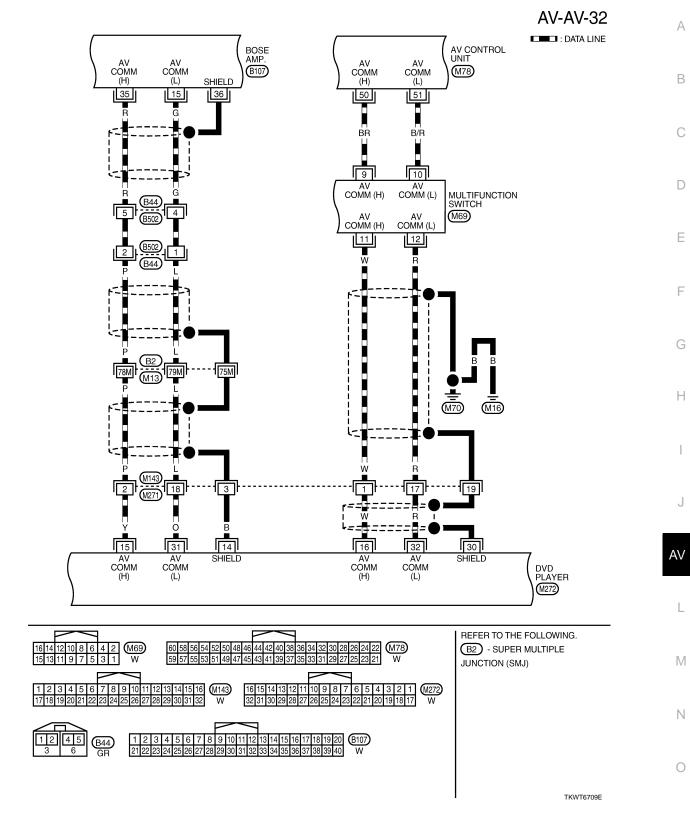
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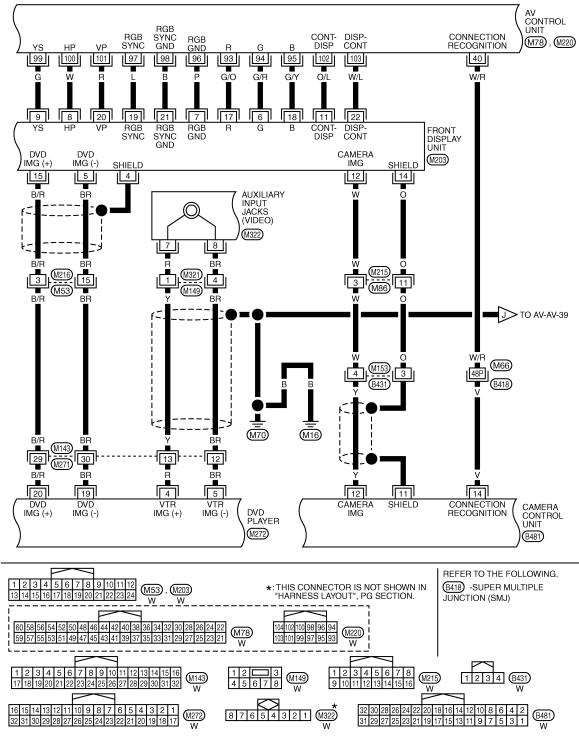
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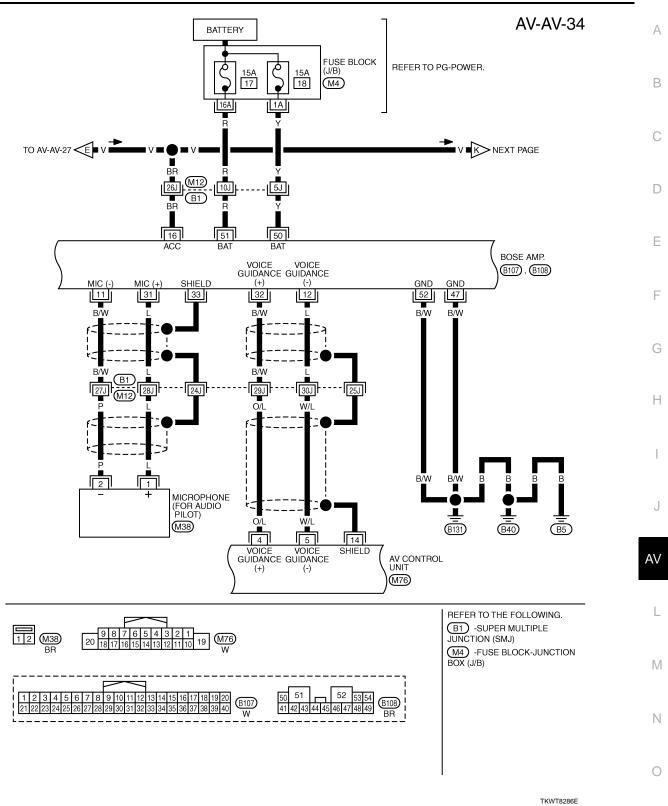


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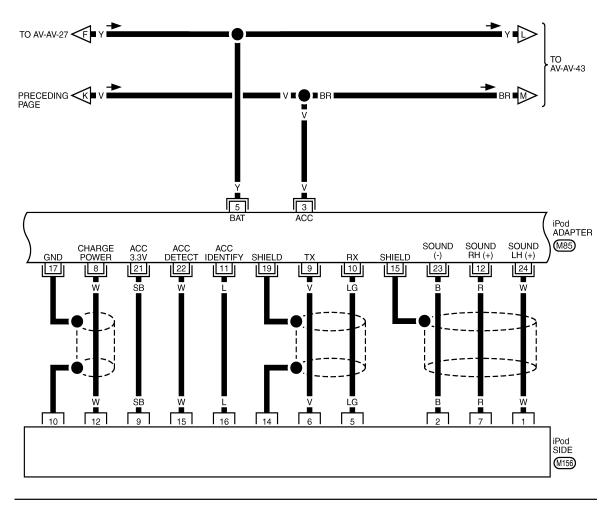


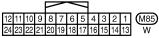
TKWT8285E

#### CAMERA CONTROL UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



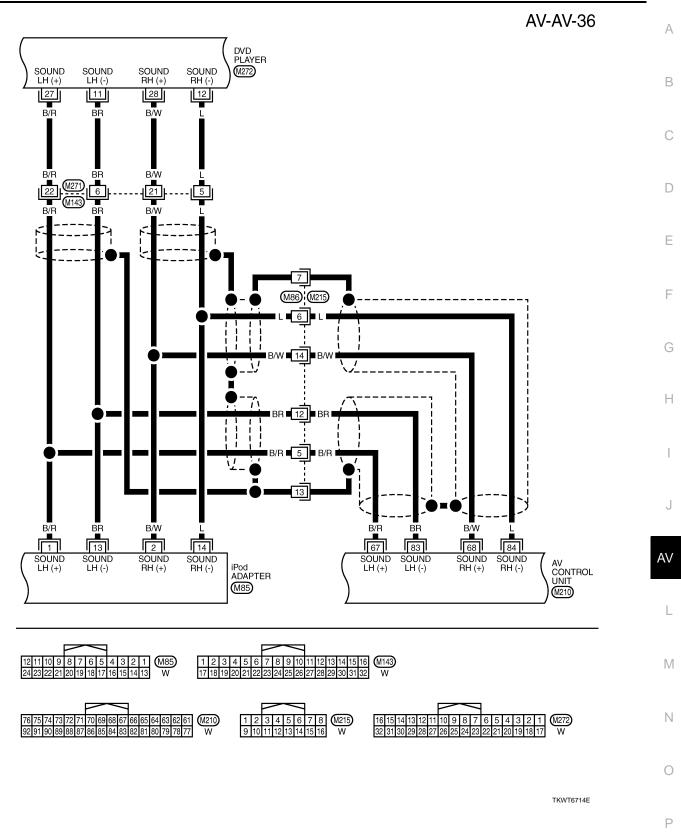
**AV-AV-35** 

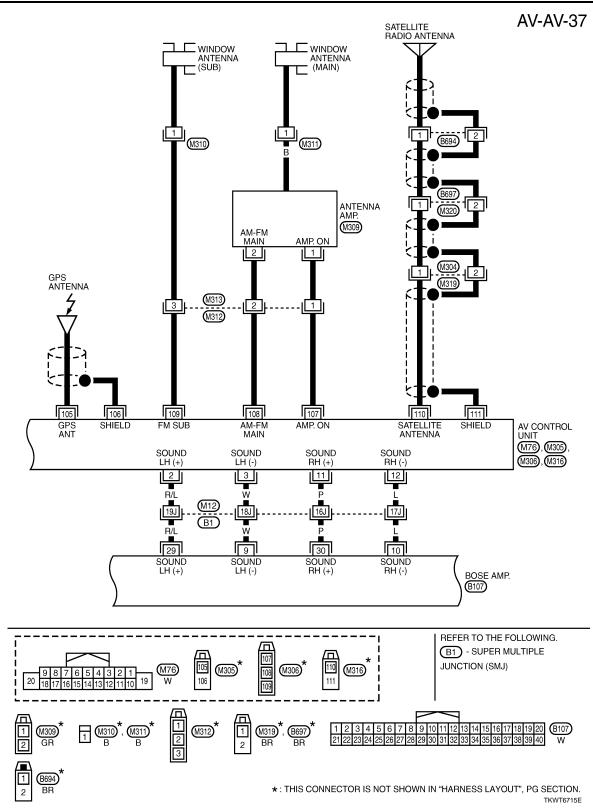


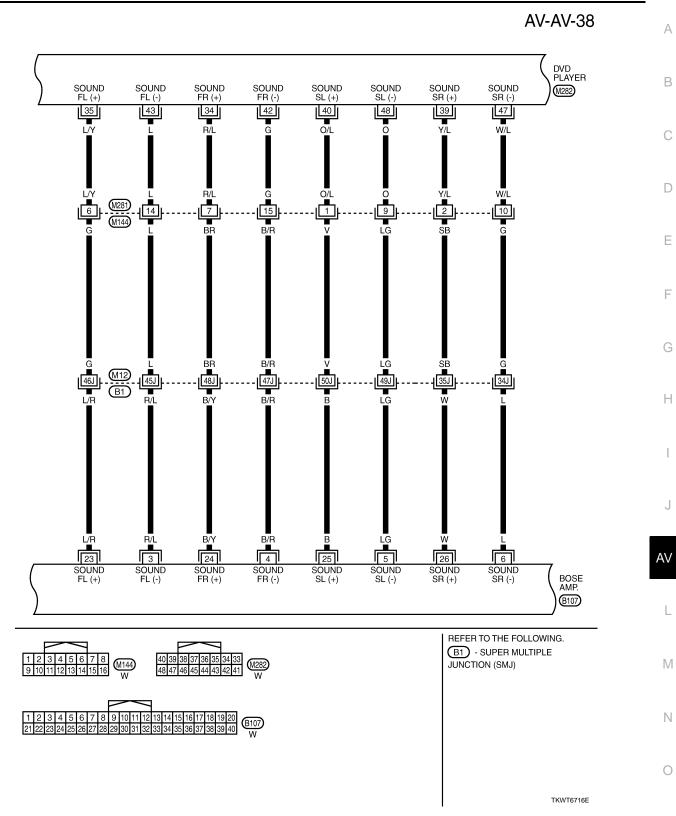


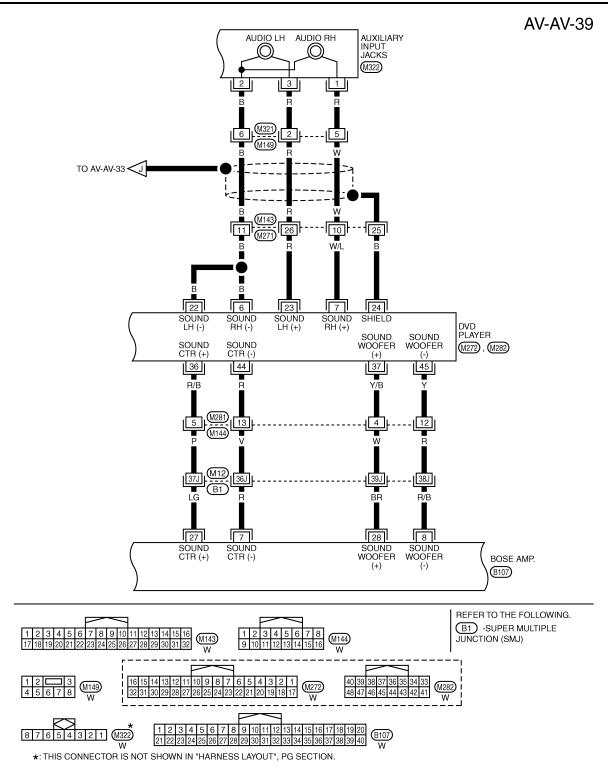
6 5 4 3 2 1 16 15 14 13 12 11 10 9 8 7 GR

TKWT6713E

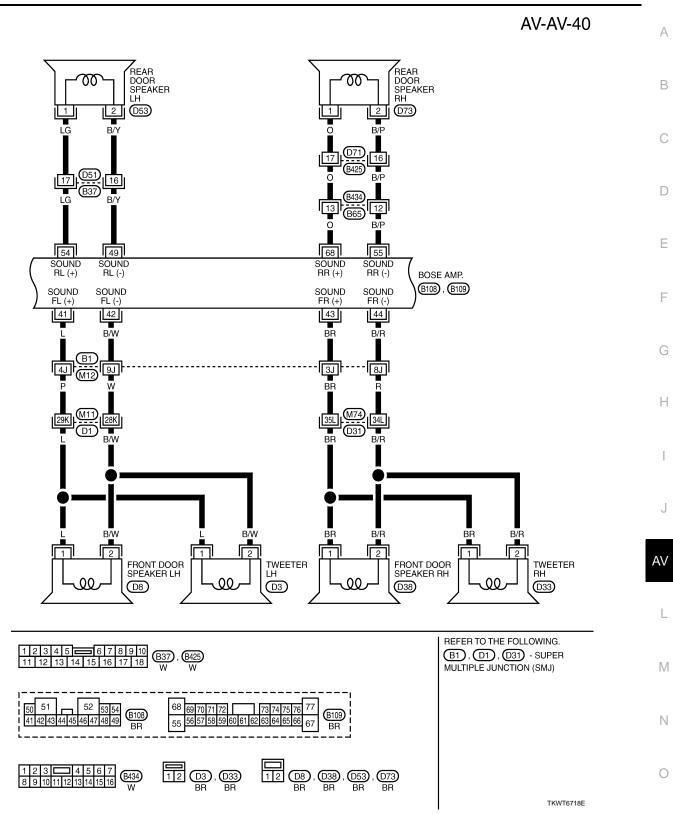




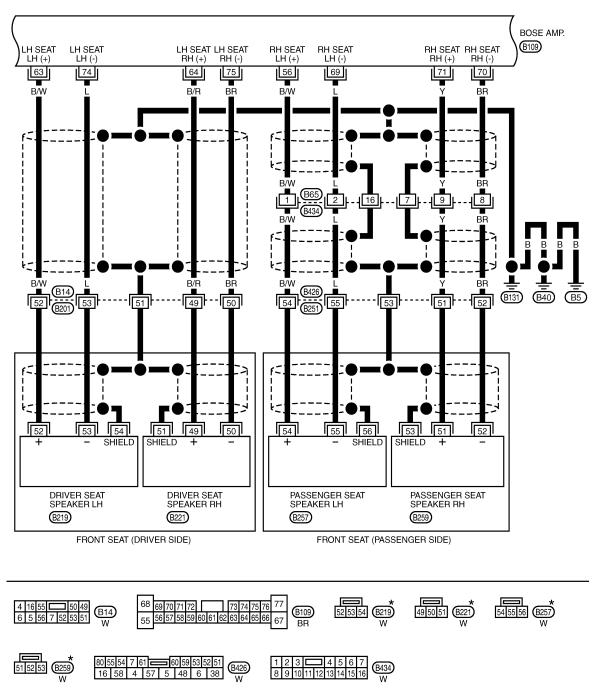




TKWT8287E



AV-AV-41

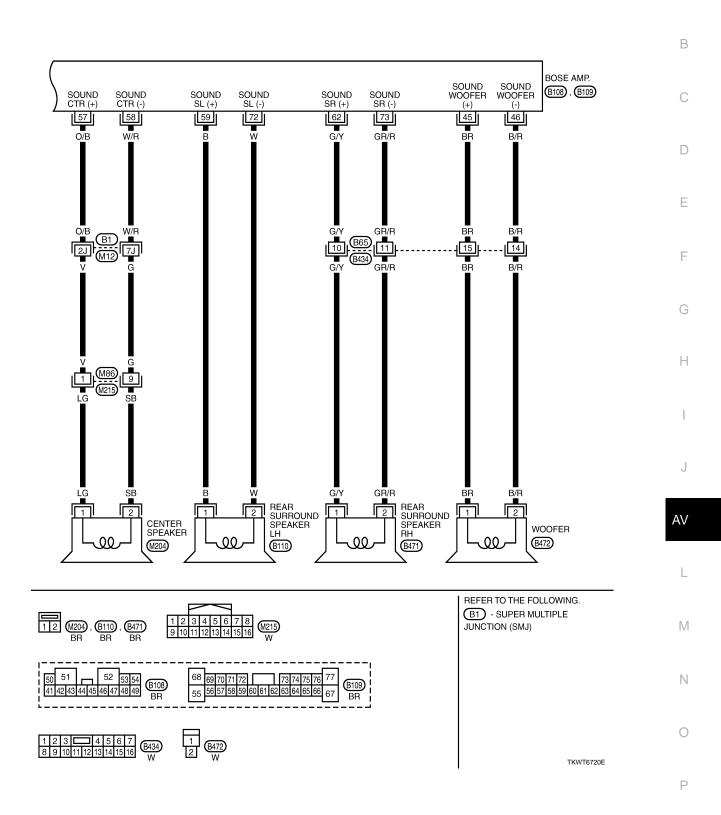


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

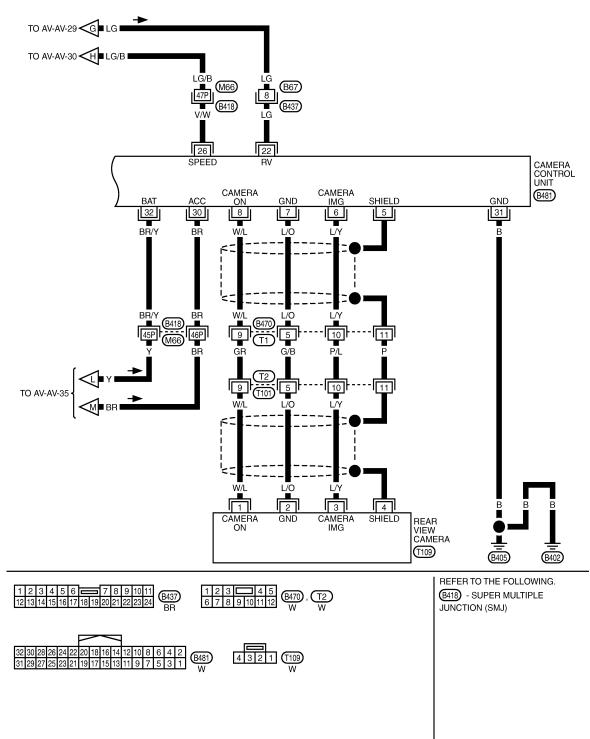
TKWT6719E



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AV-AV-43

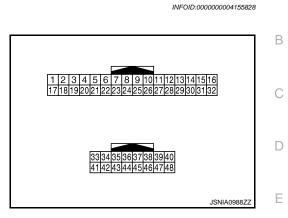


TKWT6721E

# DVD PLAYER

**Reference Value** 

**TERMINAL LAYOUT** 



А

## PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Input/		(Approx.)	
1 (Y/R)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
2 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
4 (R)	5 (BR)	AUX image signal	Input	Ignition switch ON	When AUX image is dis- played.	(V) 0.4 0 −0.4 ++40μs SkiB2251J	
7 [W/L]	6 (B)	AUX sound signal RH	Input	Ignition switch ON	AUX sound output.	(V) 1 0 -1 * 2ms SKIB3609E	
14	_	Shield	_	_	—	—	
15 (Y)		AV communication signal (H)	Input/ Output		_	_	
16 (W)		AV communication signal (H)	Input/ Output		_	_	
17 (B/P)	Ground	Ground	_	Ignition switch ON	_	0 V	
18 (R/L)	Ground	Illumination signal	Input	Ignition	Lighting switch is OFF.	0 V	
				switch ON	Lighting switch is ON.	12 V	

# DVD PLAYER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
20 (B/R)	19 (BR)	Composite image signal (DVD and AUX images)	Output	Ignition switch ON	When DVD or AUX image is displayed.	(V) 0.4 0 −0.4 • • 40µs SKiB2251J	
23 (R)	22 (B)	AUX sound signal LH	Input	Ignition switch ON	AUX sound output.	(V) 1 0 -1 2ms SKIB3609E	
24		Shield			—		
27 (B/R)	11 (BR)	AUX sound signal LH	Output	Ignition switch ON	AUX sound output.	(V) 1 0 -1 * 2ms SKIB3609E	
28 (B/W)	12 (L)	AUX sound signal RH	Output	Ignition switch ON	AUX sound output.	(V) 1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
30		Shield					
31 (O)	_	AV communication signal (L)	Input/ Output	_	_	_	
32 (R)	_	AV communication signal (L)	Input/ Output		_	_	
34 (R/L)	42 (G)	DVD surround signal front RH	Output	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 ••2ms SKIB3609E	
35 (L/Y)	43 (L)	DVD surround signal front LH	Output	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 + 2ms SKIB3609E	

# DVD PLAYER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	А
+	-	Signal name	Input/ Output	Condition		(Approx.)	
36 (R/B)	44 (R)	DVD surround signal center	Output	lgnition switch ON	When the DVD player is played.	(V) 1 0 -1 * 2ms SKIB3609E	B C D
37 (Y/B)	45 (Y)	DVD surround signal woof- er	Output	lgnition switch ON	When the DVD player is played.	(V) 0.6 0.4 0.2 0 -0.2 -0.4 -0.6 • • • 20ms PKIB6116J	E
39 (Y/L)	47 (W/L)	DVD surround signal rear RH	Output	lgnition switch ON	When the DVD player is played.	(V) 1 0 -1 * 2ms SKIB3609E	G
40 (O/L)	48 (O)	DVD surround signal rear LH	Output	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 -1 SKIB3609E	J
49 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	L

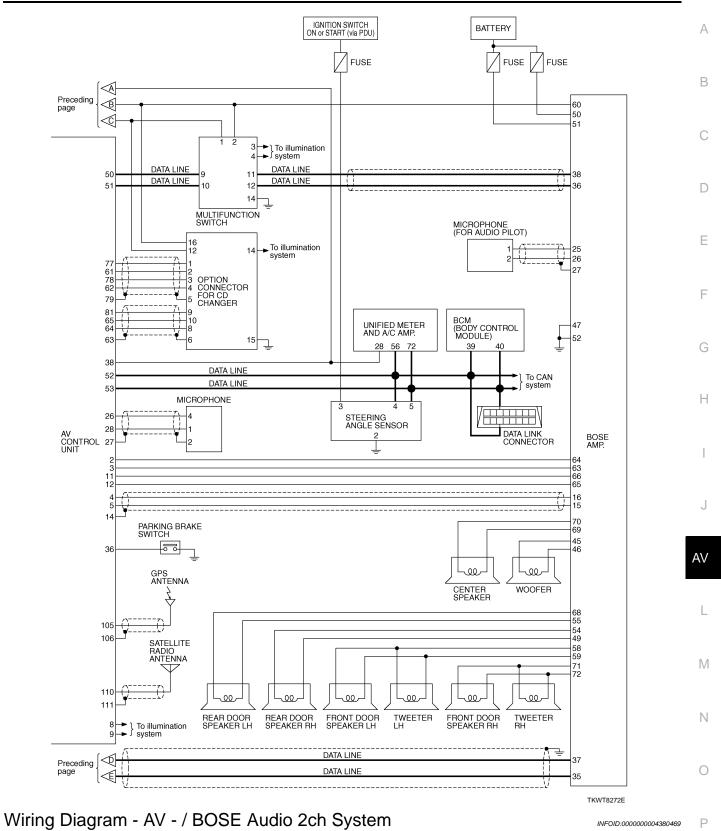
M

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# DVD PLAYER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### Schematic - BOSE Audio 2ch System -INFOID:000000004380468 IGNITION SWITCH ACC or ON (via PDU) IGNITION SWITCH ON or START (via PDU) BATTERY (5A) : With 5-speed automatic transmission (7A) : With 7-speed automatic transmission FUSE / FUSE FUSE FUSE A 26 Next page ✐ 30 32 $\triangleright$ 19 22 24 +7 25 35 37 BACK-UP LAMP RELAY g 22 (5A) (7A) A/T ASSEMBLY : 5A A/T ASSEMBLY : (7A) TCM (TRANSMISSION CONTROL MODULE) TCM (TRANSMISSION CONTROL MODULE) AUXILIARY INPUT JACKS 15 8 VIDEO Ī 91 AUDIO RH @ 2 76 AUDIO LH ര 3 75 13 Ĭ FRONT DISPLAY UNIT 99 100 101 97 CAMERA CONTROL UNIT Ř 20 19 21 14 98 96 93 94 -12 12 Q\_\_\_\_\_ 17 6 95 102 103 18 AV CONTROL UNIT 11 22 DATA LINE 20 48 : i DATA LINE 49 19 ÷ 35 67 83 13 10 17 12 8 69 $\rightarrow$ 21 22 11 с 68 84 REAR VIEW CAMERA 14 iPod ADAPTER 16 19 iPod SIDE 6 9 10 j 21 Ē 15 23 31 23 12 1 40 16 14 6 15 WINDOW ANTENNA (MAIN) DATA LINE WINDOW ANTENNA (SUB) 18 DATA LINE 17 COMBINATION SWITCH (SPIRAL CABLE) To illumination system Þ O Ø 109 107 ANTENNA AMP. 108 2 ۲ STEERING SWITCH ş ò Next ol page PUSH TO TALK SWITCH VOLUME VOLUME SOURCE SWITCH SWITCH SWITCH (+) (-) ILLUMI- ENTER NATION SWITCH MENU BACK SWITCH SWITCH $\triangleright$ TKWT8271E

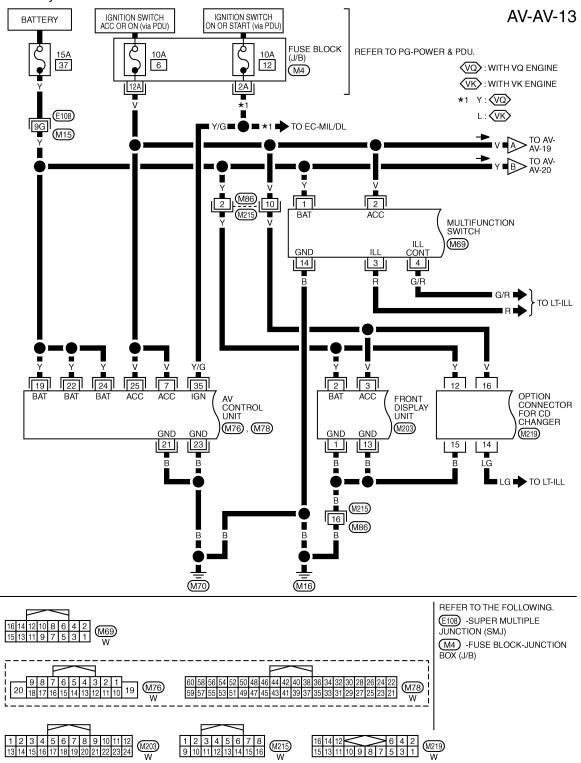


#### NOTE:

Revision: 2009 Novemver

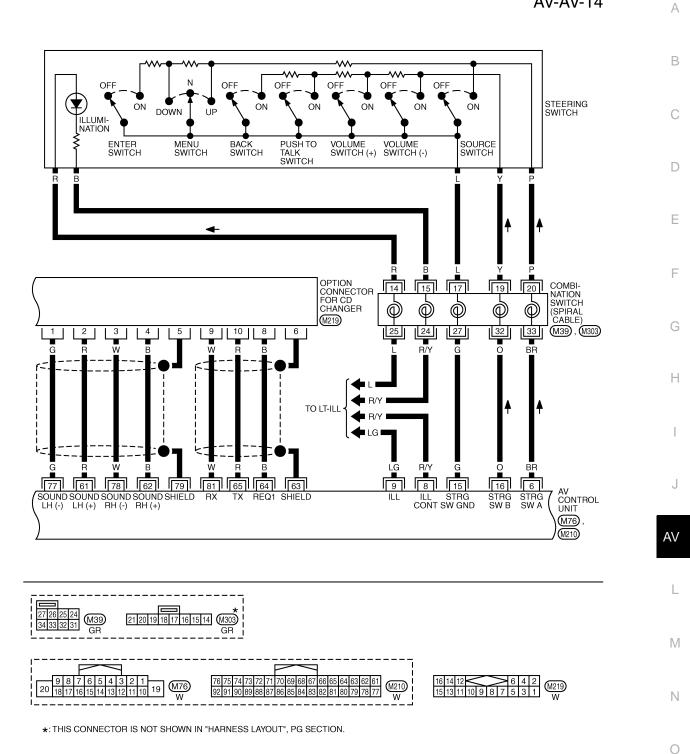
2009 M35/M45

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

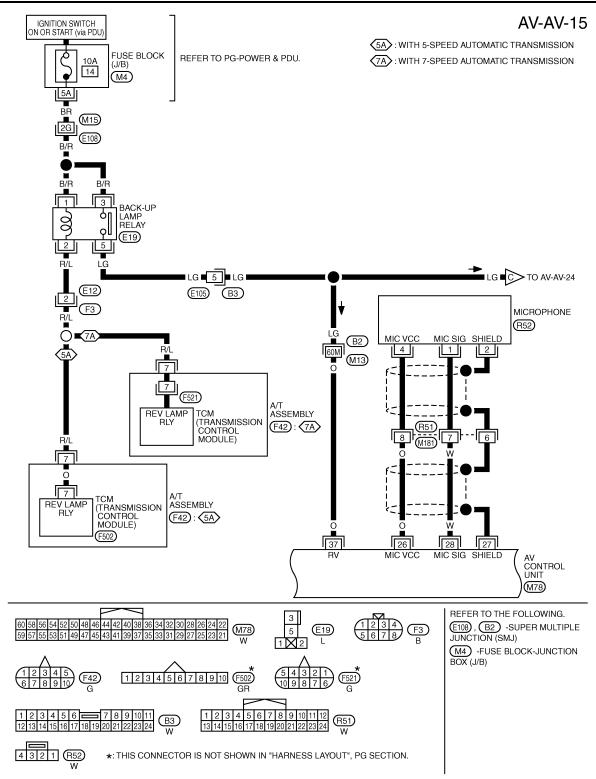


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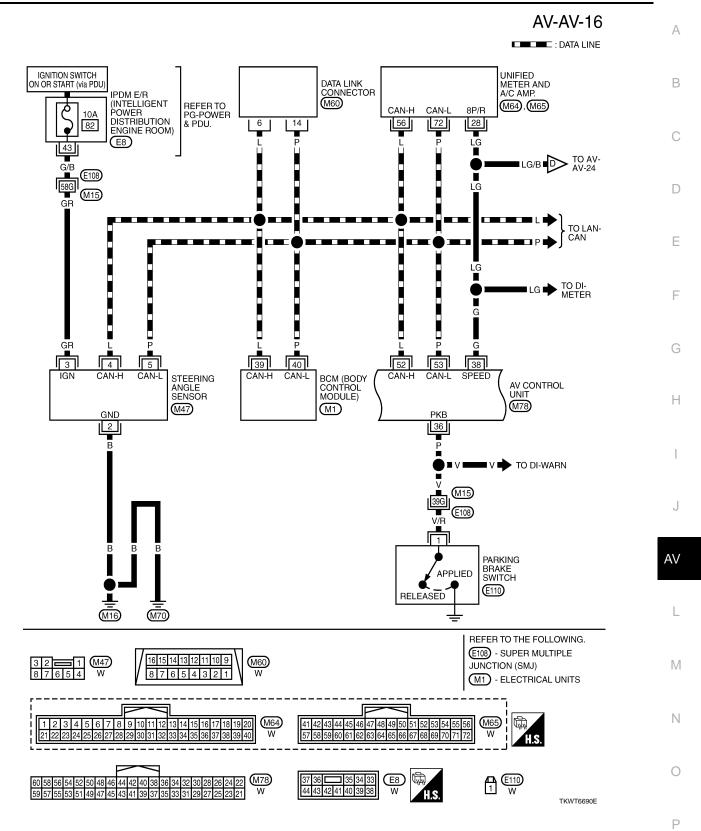
AV-AV-14



TKWT8274E

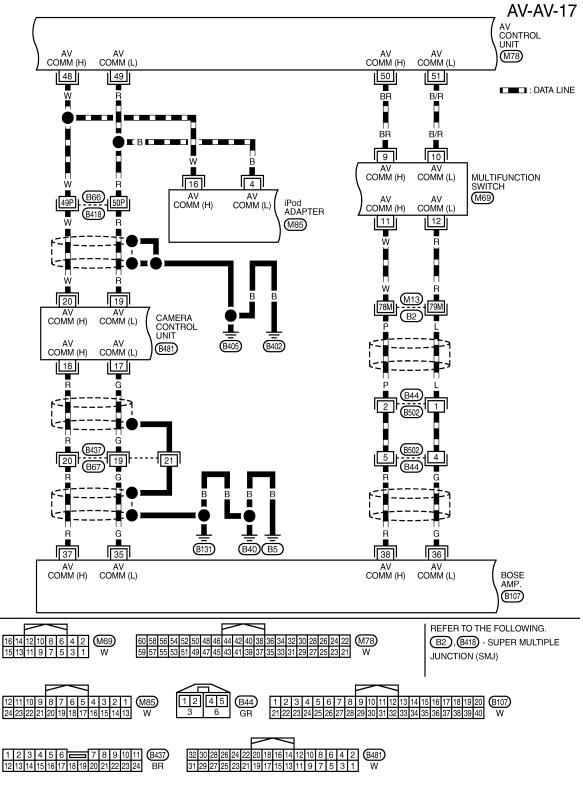


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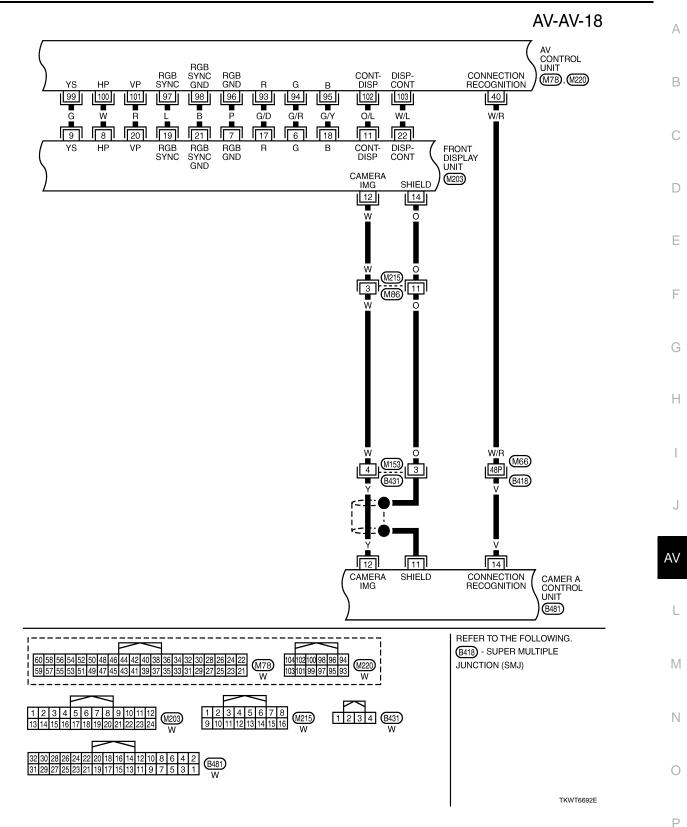


Revision: 2009 Novemver

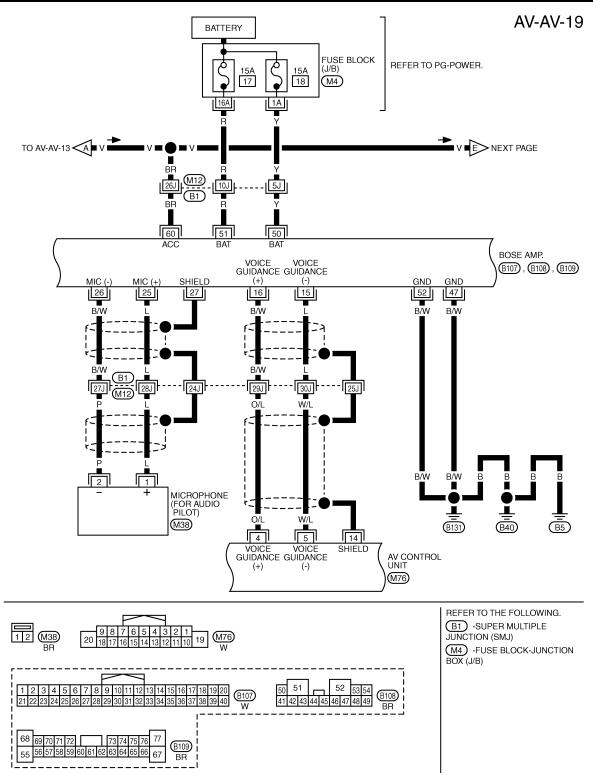
2009 M35/M45



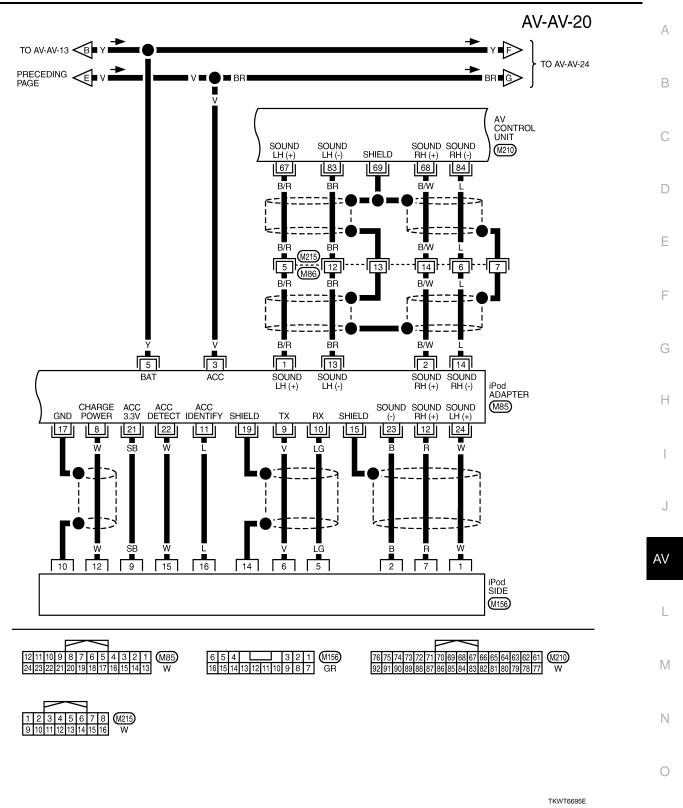
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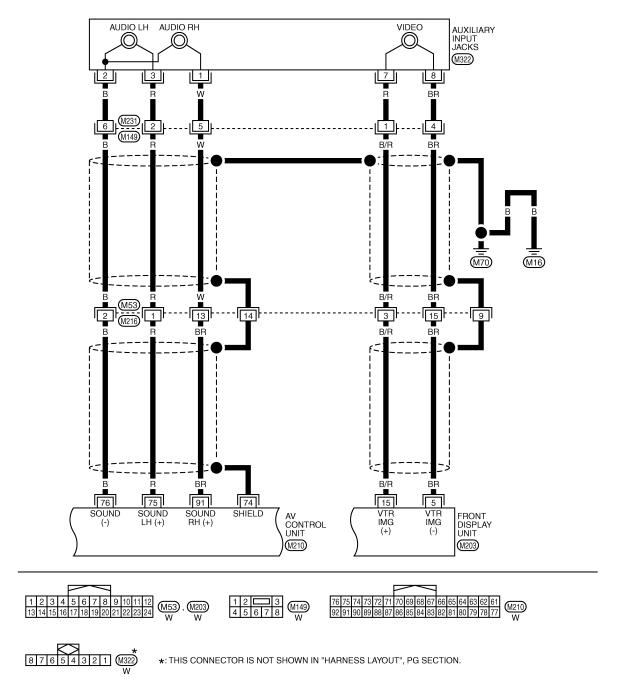


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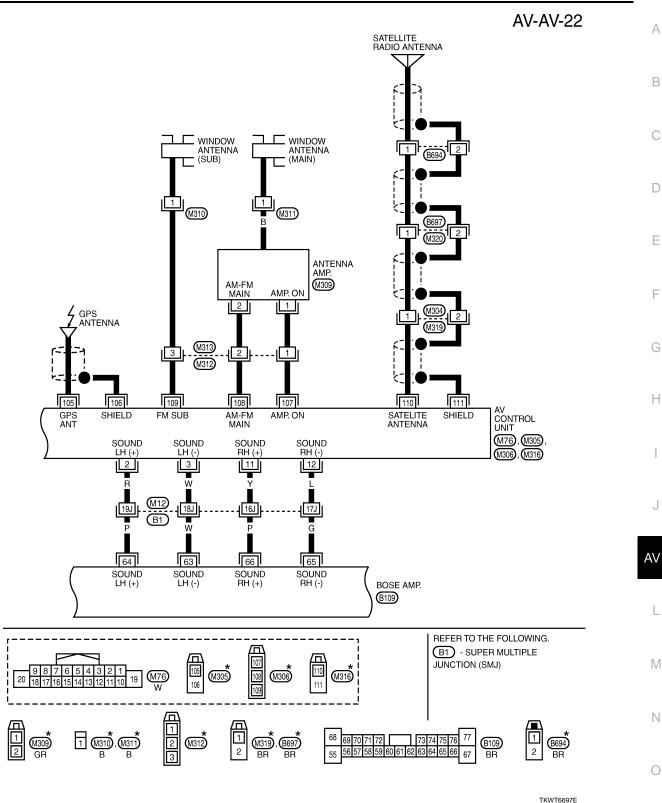


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AV-AV-21

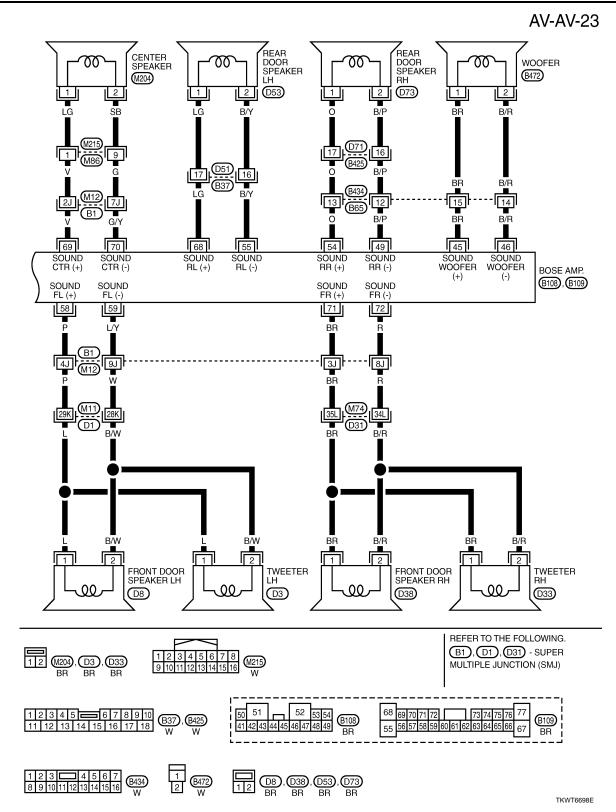


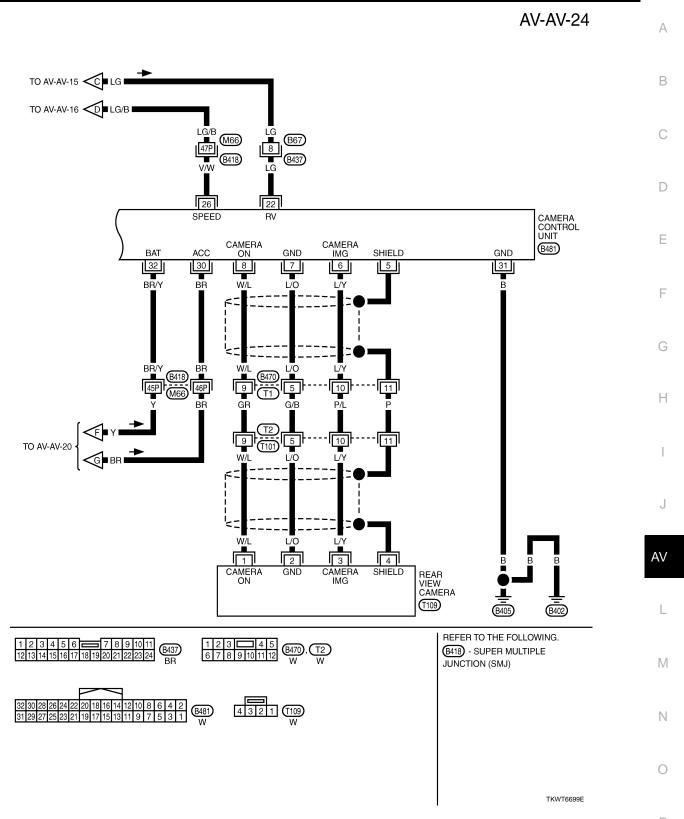
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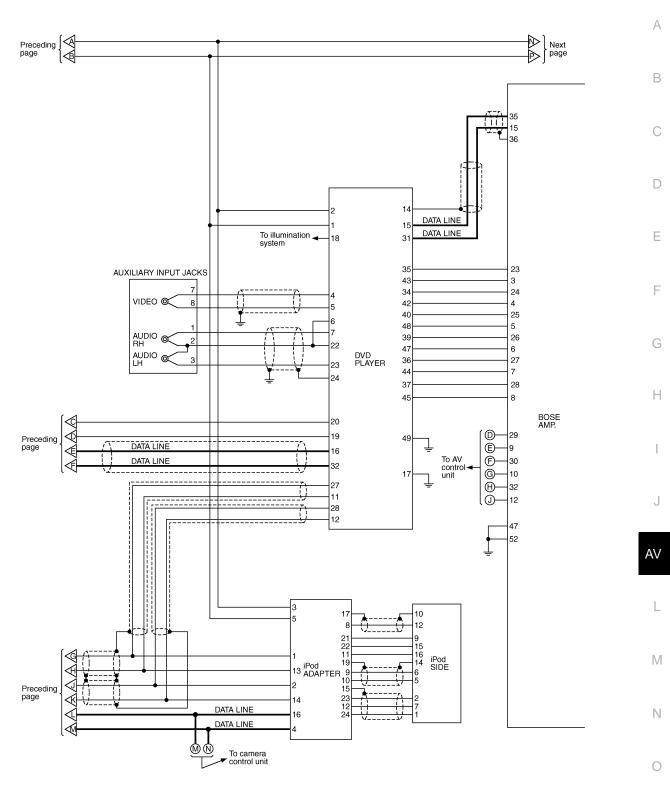
Revision: 2009 Novemver

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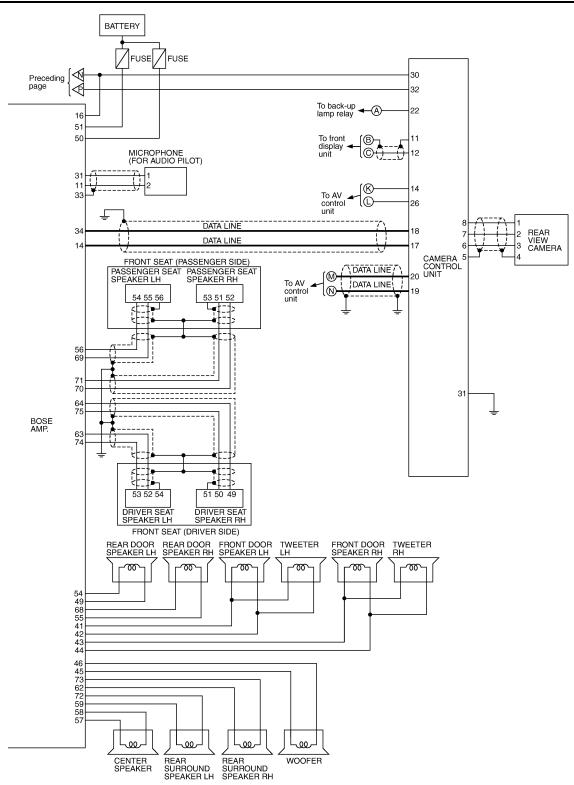


#### Schematic - BOSE Surround Audio 5.1ch System -INFOID:000000004380470 IGNITION SWITCH ON or START (via PDU) IGNITION SWITCH ACC or ON (via PDU) BATTERY FUSE / FUSE FUSE / FUSE FUSE A B Page A→ To camera control unit ] BACK-UP | LAMP | RELAY 35 7 25 2 19 22 24 ļ 13 00 14-B) 37 To camera control unit 99 -9 -8 12-©∫ 100 (5A)<sub>7</sub> A/T ASSEMBLY : 5A 101 20 FRONT DISPLAY UNIT 97 TCM (TRANSMISSION CONTROL MODULE) 15 98 96 21 5 93 94 17 95 18 A/T ASSEMBLY : 7A 102 103 11 13 TCM (TRANSMISSION CONTROL MODULE) 16 To illumination 12 14 system 7 77 MICROPHONE 61 78 26 4 62 28 79 ¥ 27 2 81 65 64 10 $\diamond$ PARKING BRAKE SWITCH 1 2 63 14 $\triangleright$ 15 Next 36 Ţ DATA LINE page DATA LINE Þ AV CONTROL UNIT 11 50 DATA LINE DATA LINE GPS ANTENNA 51 10 12 Þ -0 3 2 To illumination . 4 system -E 3 105 -F MULTIFUNCTION SWITCH 11 ¥. ► To BOSE amp. 106 SATELLITE 12 -G RADIO ANTENNA 14 -⊕ 4 ------0 110 ÷ G 67 111 $\mathbb{P}$ WINDOW ANTENNA (MAIN) WINDOW ANTENNA (SUB) 83 $\triangleright$ 68 Next عد عنح page $\mathbb{P}$ 84 DATA LINE $\triangleright$ 48 109 DATA LINE 108 $\mathbb{P}$ ANTENNA AMP. 2 49 107 DATA LINE 52 To CAN system DATA LINE 53 K 40 🕳 To camera 18 To illumination control unit -0 system 19 38 15 21 6 23 16 DATA LINK CONNECTOR COMBINATION SWITCH (SPIRAL CABLE) To illumination system Þ $^{\odot}$ Ò 28 56 72 39 40 4 5 3 ٢ N STEERING UNIFIED BCM METER AND A/C AMP. (BODY CONTROL MODULE) ANGLE SENSOR STEERING SWITCH \* ò UP ol 2 MENU BACK SWITCH SWITCH PUSH TO TALK VOLUME VOLUME SOURCE ILLUMI- ENTER NATION SWITCH (5A) : With 5-speed automatic transmission ŚWITCH (+) (-) (7A) : With 7-speed automatic transmission TKWT8280E



TKWT6701E

Ρ



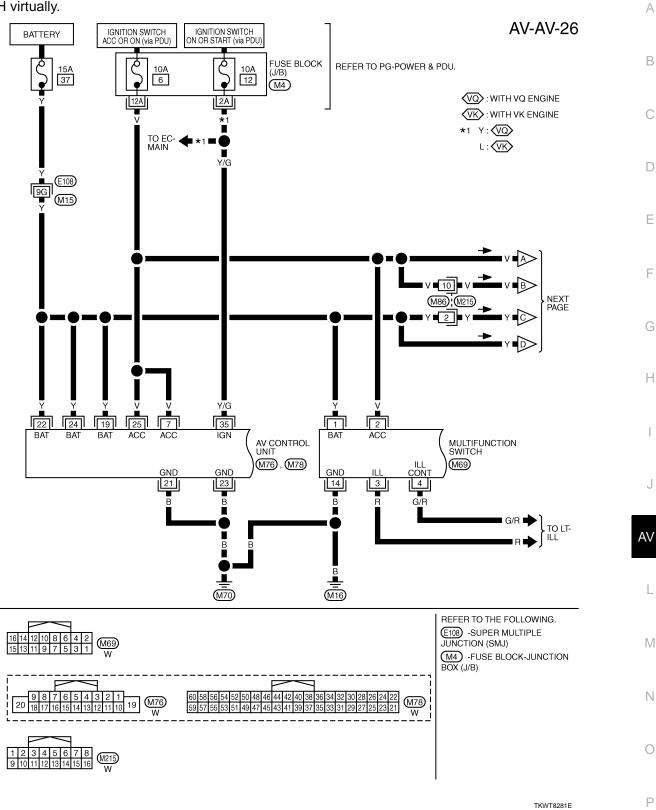
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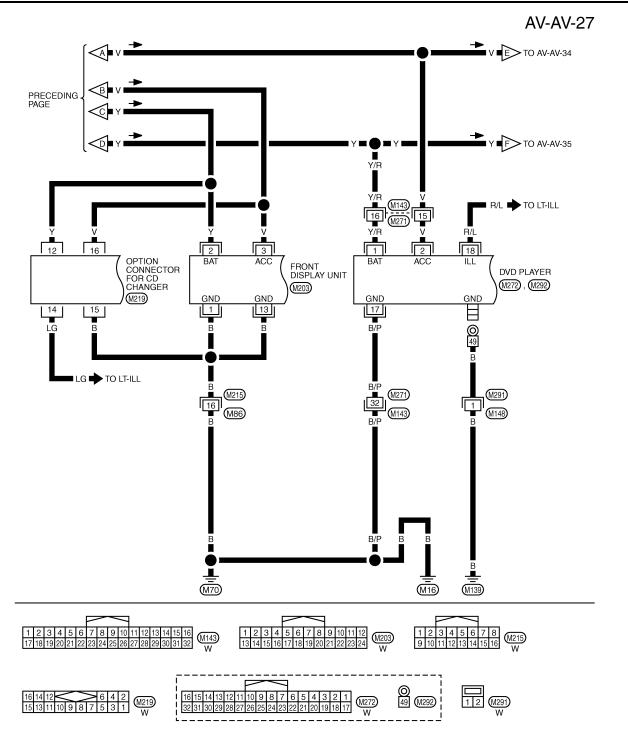
Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

NOTE:

INFOID:000000004380471

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

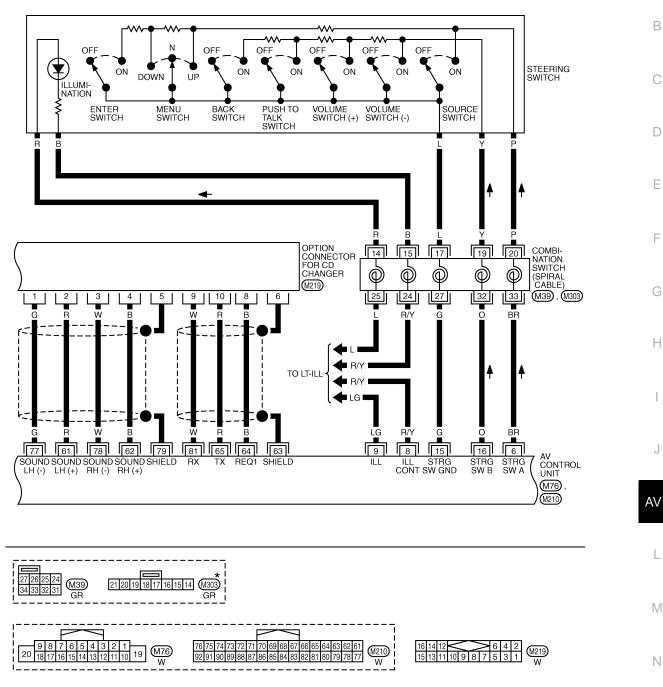




TKWT8282E

#### AV-AV-28

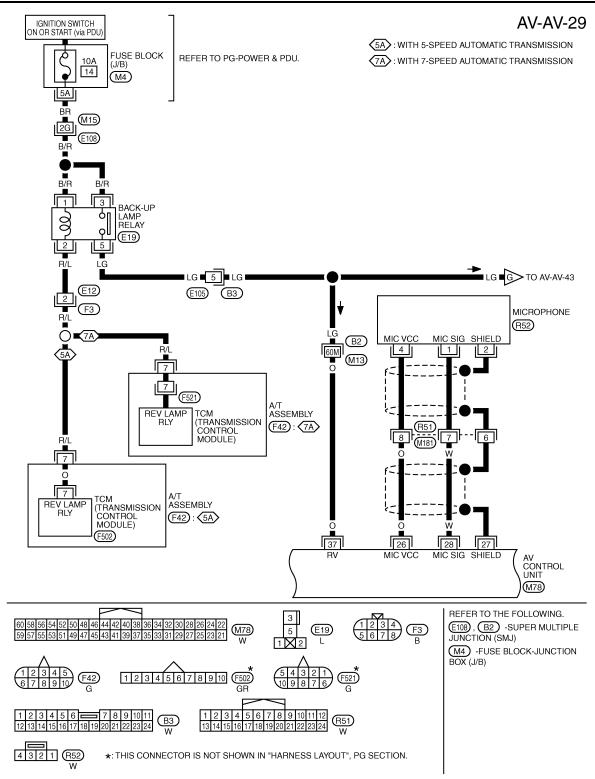
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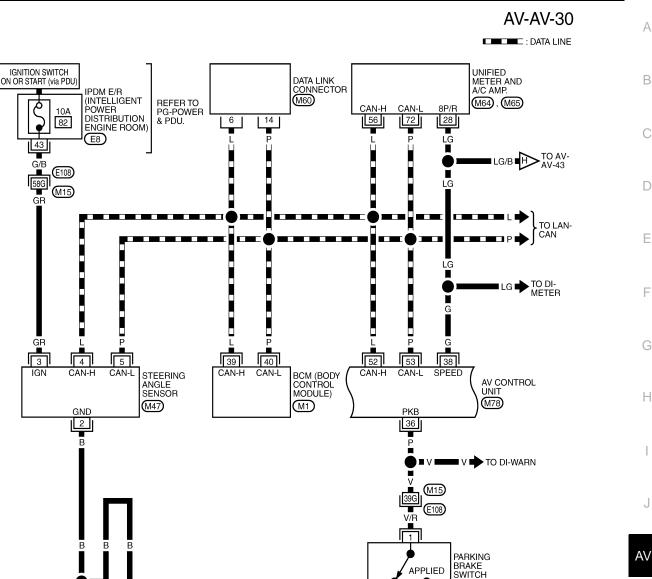
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

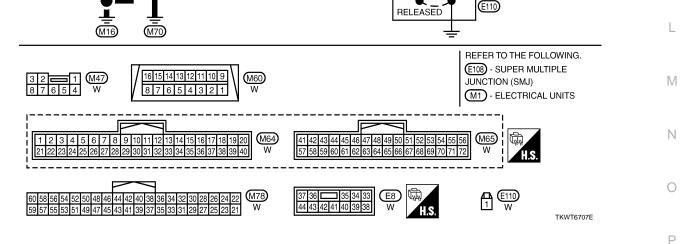
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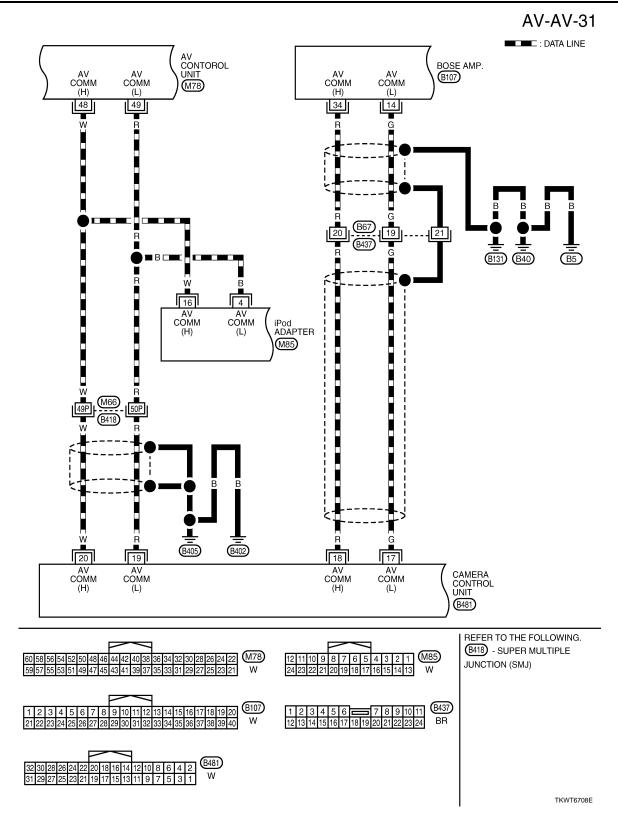


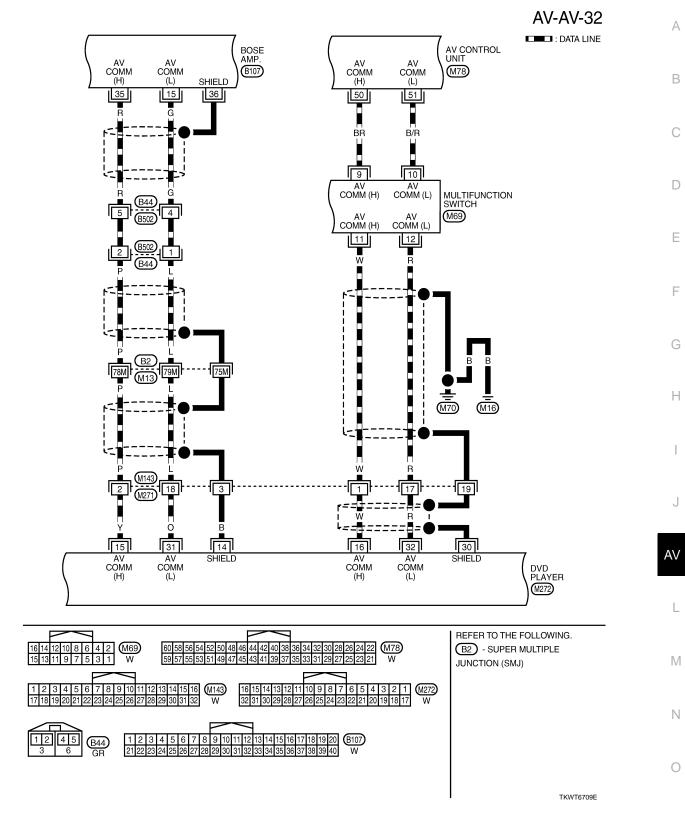
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#### < ECU DIAGNOSIS >



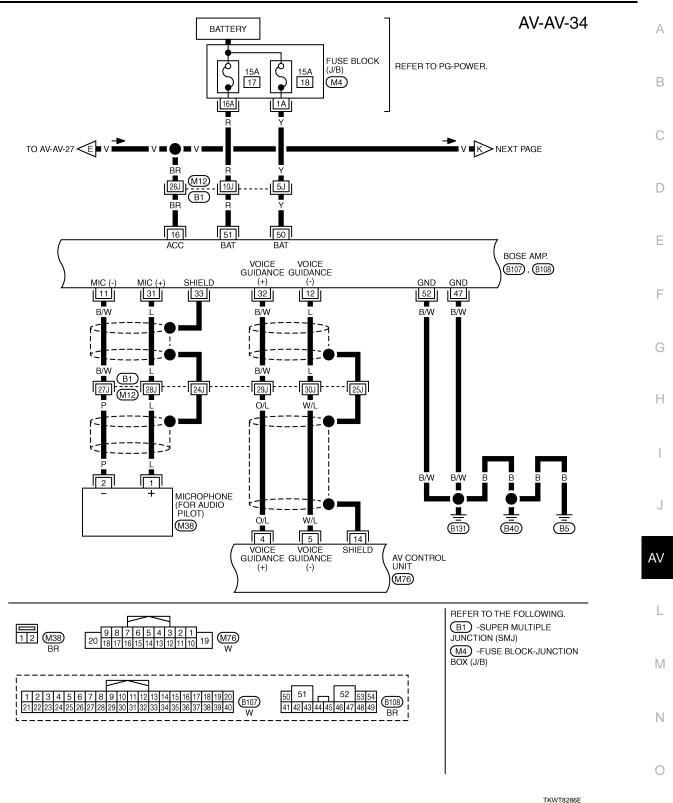


**AV-AV-33** AV CONTROL UNIT RGB SYNC GND CONNECTION RECOGNITION RGB SYNC CONT-DISP DISP-CONT RGB M78 , M220 YS ΗP VP GND 96 G B R 93 94 103 40 W/R 100 98 95 99 101 97 102 G/O G/R G/Y 0/L G w R B Р W/L 20 7 9 8 19 22 21 17 6 18 11 RGB SYNC CONT-DISP DISP-CONT YS VP RGB RGB G В HP R FRONT DISPLAY UNIT SYNC GND GND DVD IMG (+) CAMERA IMG DVD IMG (-) (M203) SHIELD SHIELD 15 5 4 12 14 AUXILIARY INPUT JACKS (VIDEO) B/R BR W С O (M322) 8 Ľ とこ. BR 15 B/F BR B/R (M215 4 (M321) (M149) (M216) 3 11 (M86) M53 BR BR \٨/ J TO AV-AV-39 W/R [48P] M66 B418 1-(M70) M16 BR B/R BR (M143) 29 13 (1271) 30 12 B/R BR R BR 19 4 5 12 14 DVD IMG (+) DVD IMG (-) CAMERA CONNECTION RECOGNITION VTR IMG (+) VTR IMG (-) SHIELD CAMERA CONTROL UNIT DVD PLAYER IMG (M272) (B481) REFER TO THE FOLLOWING. 1 2 3 4 5 6 7 8 9 10 11 12 \*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION. (B418) -SUPER MULTIPLE JUNCTION (SMJ) M53 , M203 13 14 15 16 1 7 18 19 2 21 22 23 24 W W 44 42 40 38 36 34 2 50 48 46 04 102 100 98 9 M78 W M220 W 5 53 51 49 47 45 43 41 39 37 35 33 31 29 27 25 23 21 103 101 99 97 95 93 6 7 8 9 10 11 12 13 14 15 16 1 2 **3** 4 5 6 7 8 1 2 3 4 5 6 7 8 3 4 5 (M215) W 1234 (B431) W (M143) W (M149) W 13 14 15 16 17 1 22 23 24 25 26 27 28 29 30 31 32 9 10 11 12 10 9 87 6 54 22 20 18 16 14 12 2 10 8 6 3 2 87654321 (M322) (B481) W (M272) 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1 26 25 24 23 22 21 20 19 18 17

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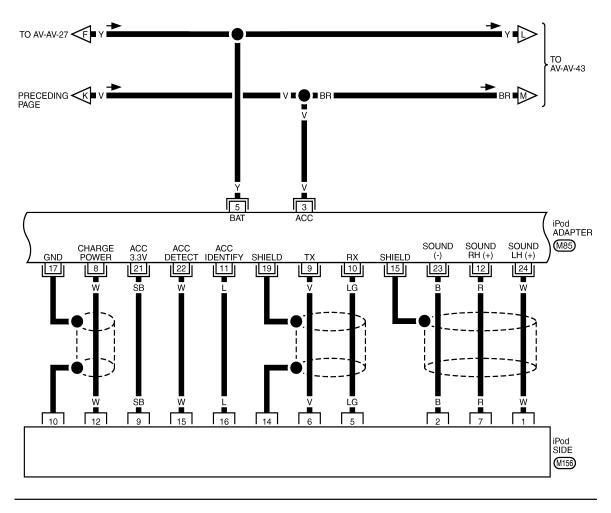
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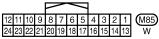
#### DVD PLAYER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



Р

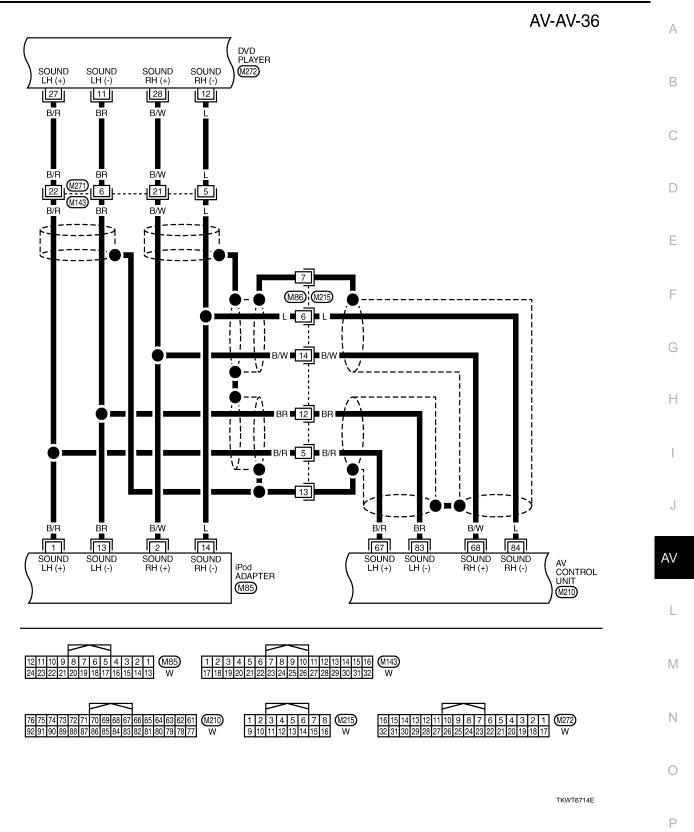
AV-AV-35

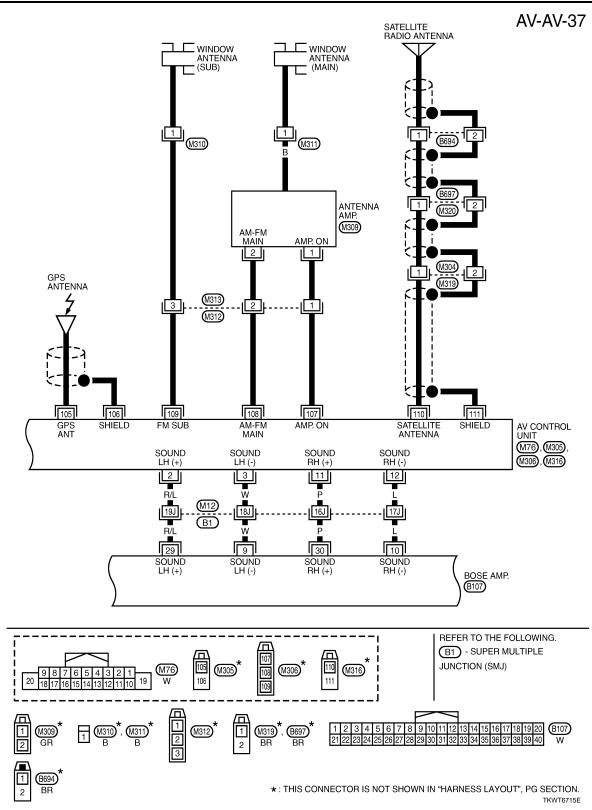




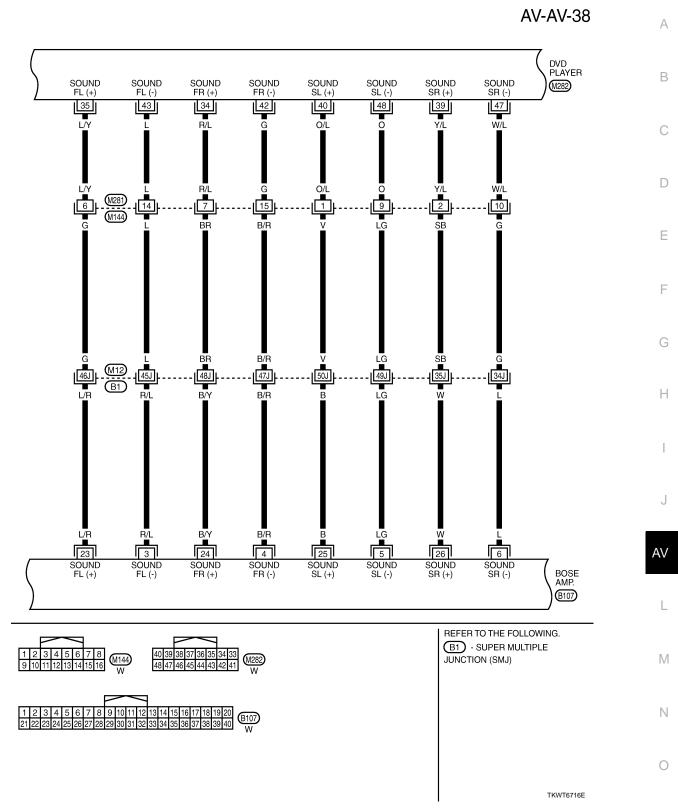
6 5 4 3 2 1 16 15 14 13 12 11 10 9 8 7 GR

TKWT6713E

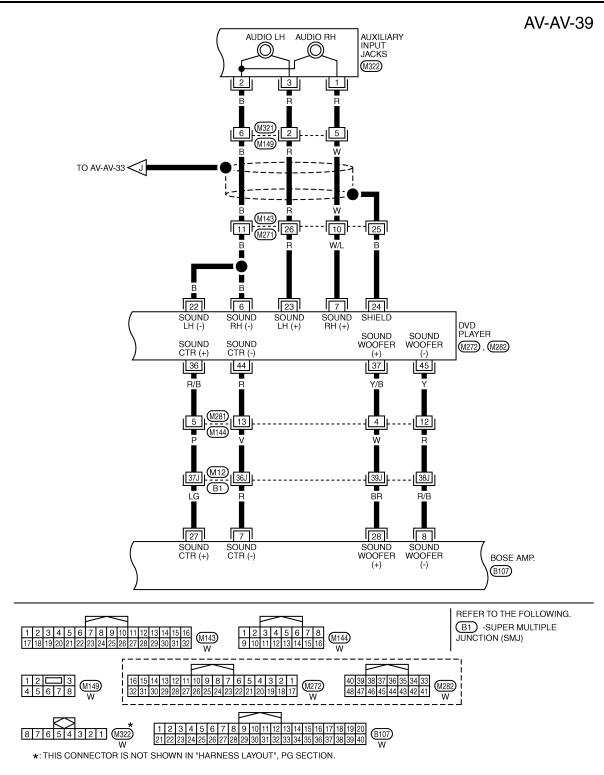




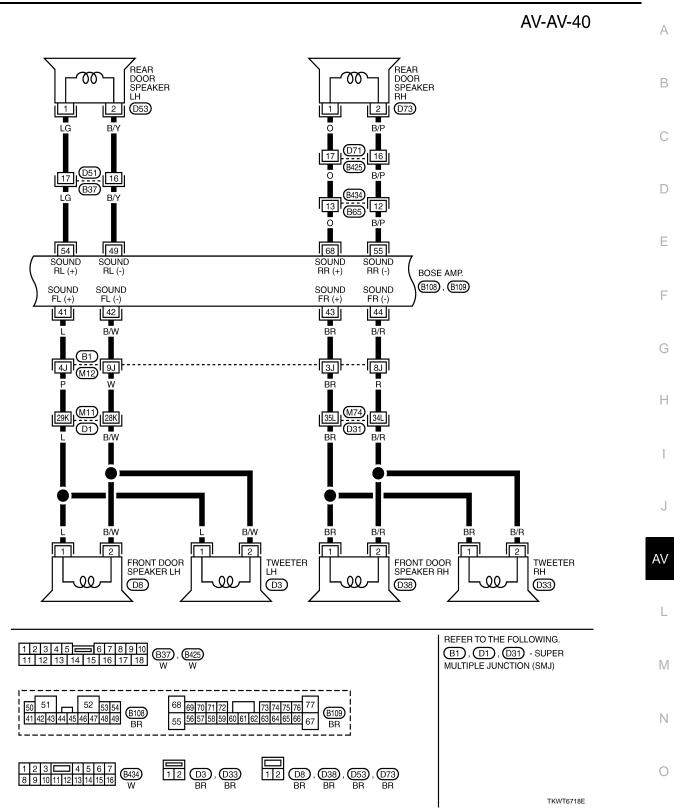




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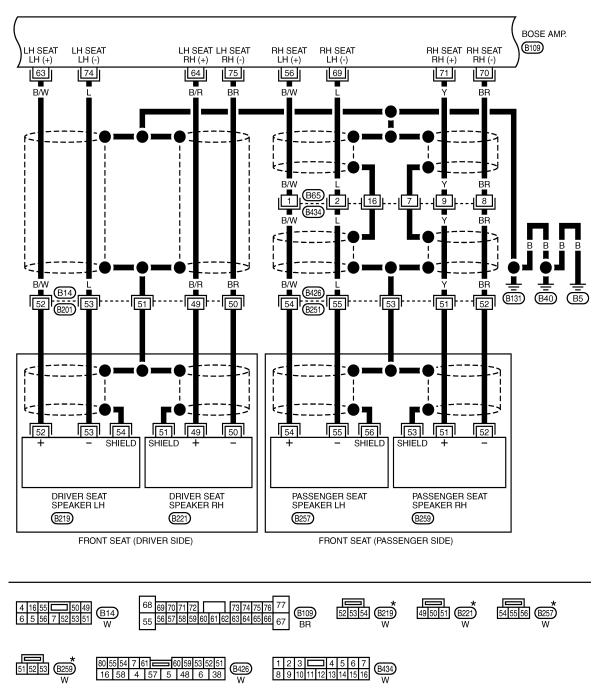


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AV-AV-41

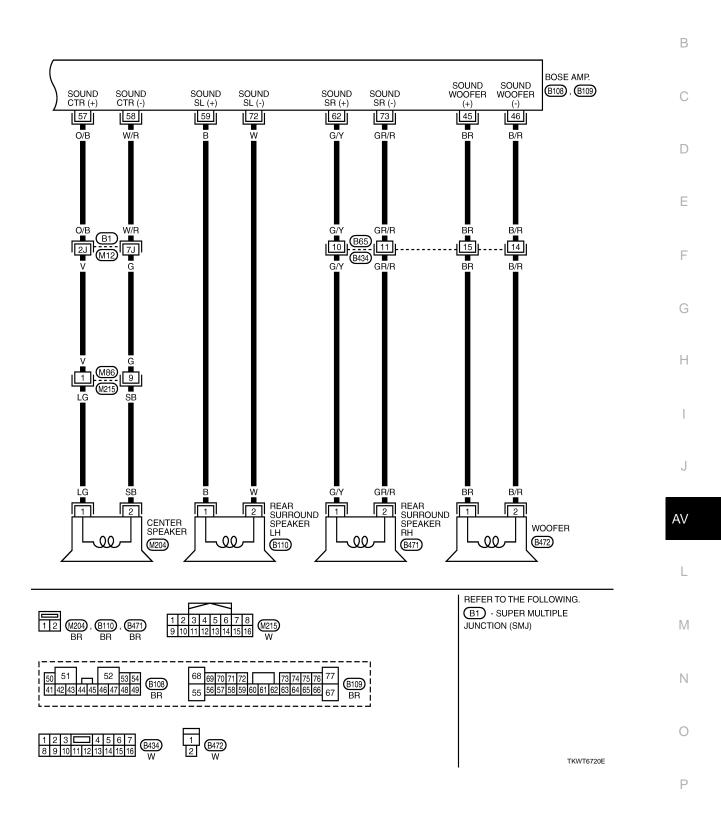


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

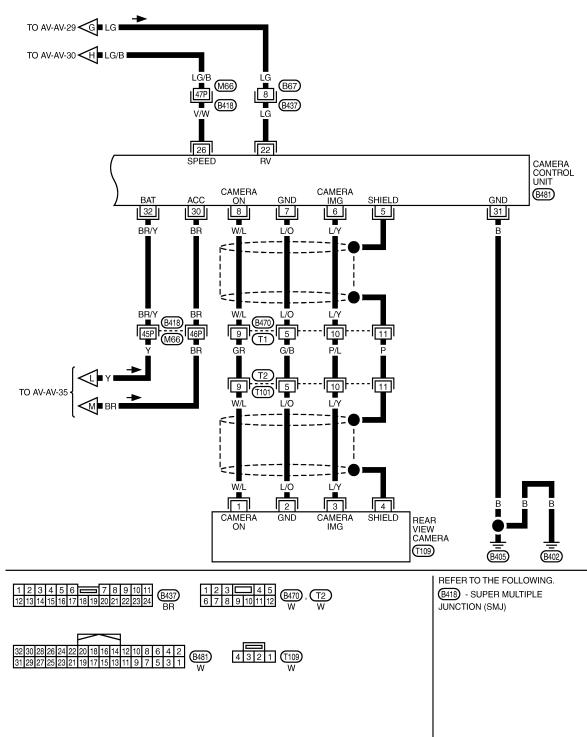
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AV-AV-43

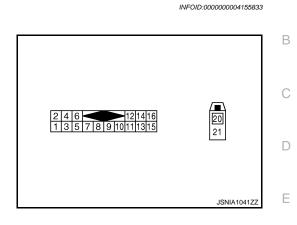


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#### SATELLITE RADIO TUNER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# SATELLITE RADIO TUNER

## **Reference Value**



## PHYSICAL VALUES

Terminal		Description				Defense en velve	•
+	_	Signal name	Input/ Output	Condition		Reference value (Approx.)	
2 (R)	1 (G)	Satellite radio sound signal LH	Output	lgnition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 • • 2ms SKIB3609E	H
4 (B)	3 (W)	Satellite radio sound signal RH	Output	lgnition switch ON	When satellite radio mode is selected.	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	J AV
5		Shield			_	_	- L
6		Shield		_	_	_	-
8 (B)	Ground	Request signal (SAT→CONT)	Output	lgnition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 + 10ms SKIA9299J	M N O
9 (R)	Ground	Communication signal (SAT→CONT)	Output	Ignition switch ON	When satellite radio mode is selected.	(V) 10 0 -10 -10 -10 -10 -10 -10 -	Ρ

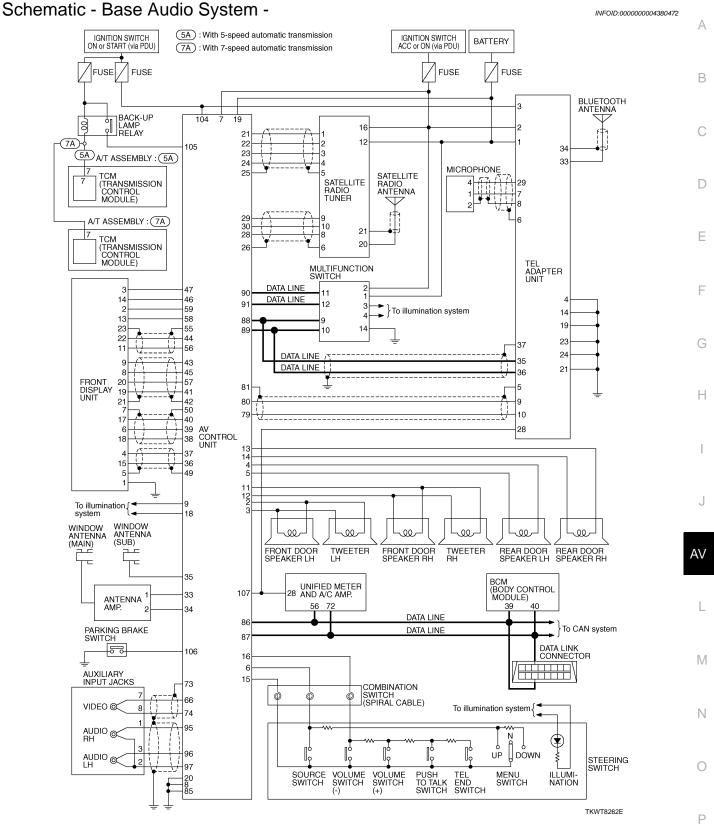
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#### < ECU DIAGNOSIS >

## SATELLITE RADIO TUNER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

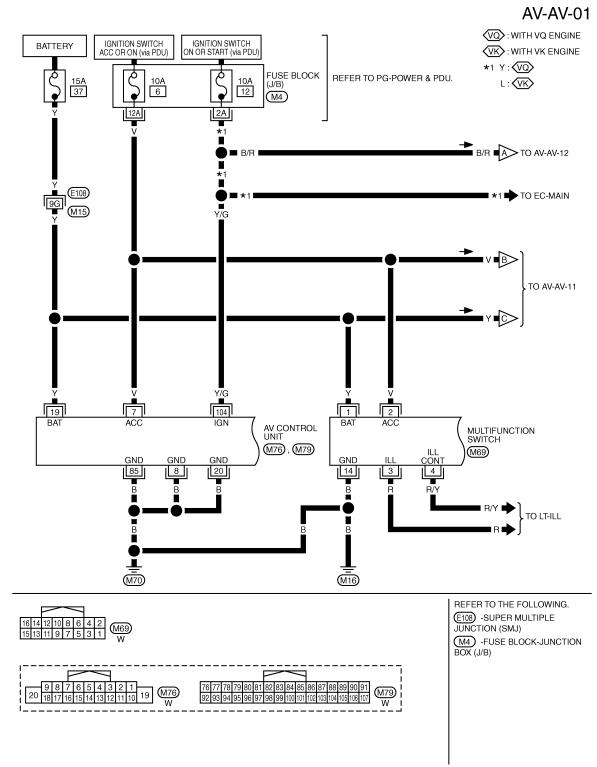


# Wiring Diagram - AV - / Base Audio System

NOTE:

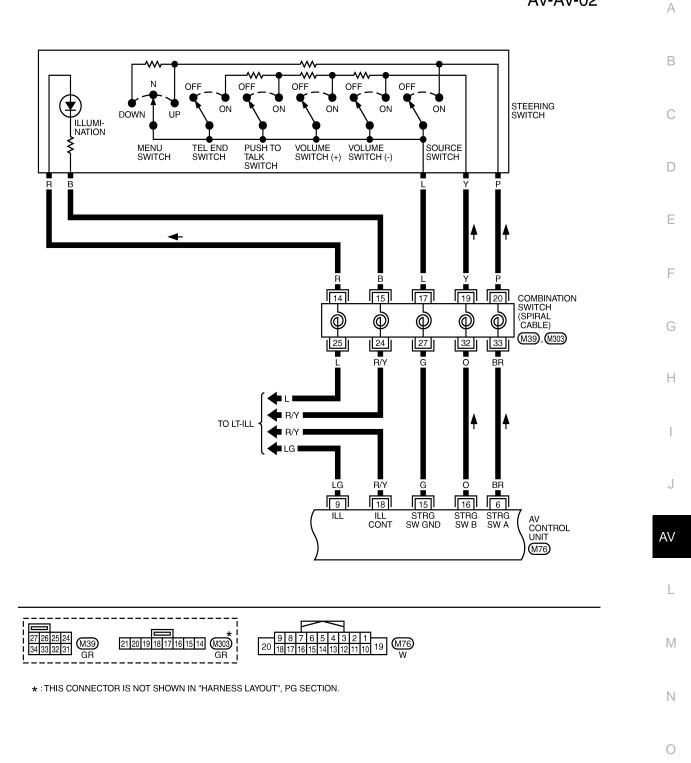
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The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

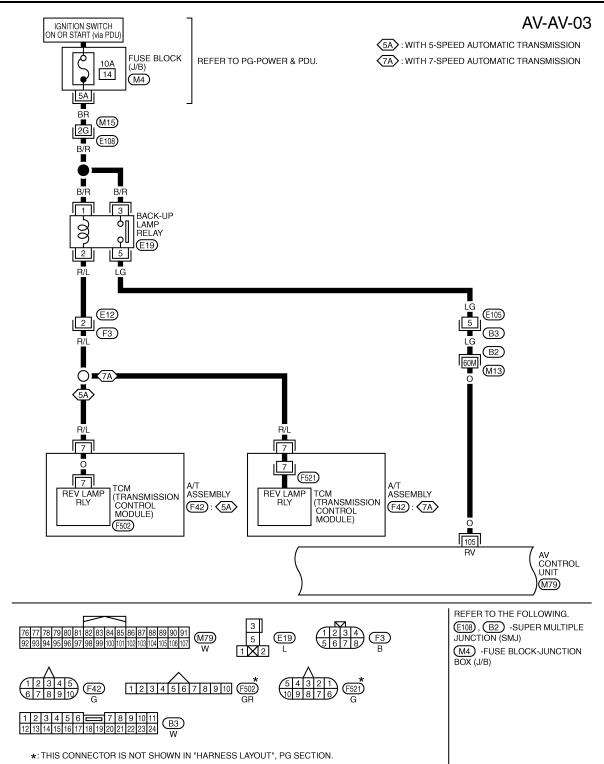


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AV-AV-02



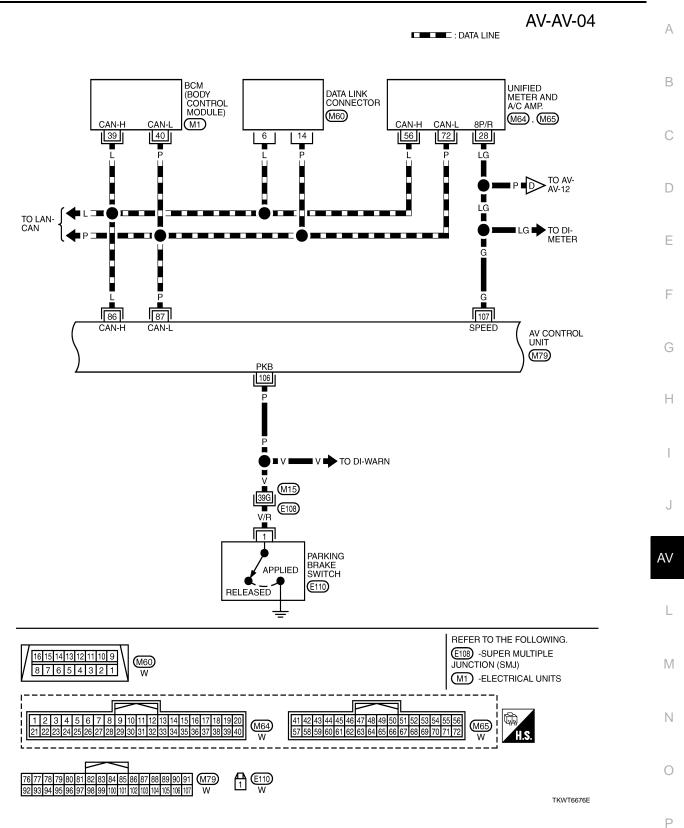
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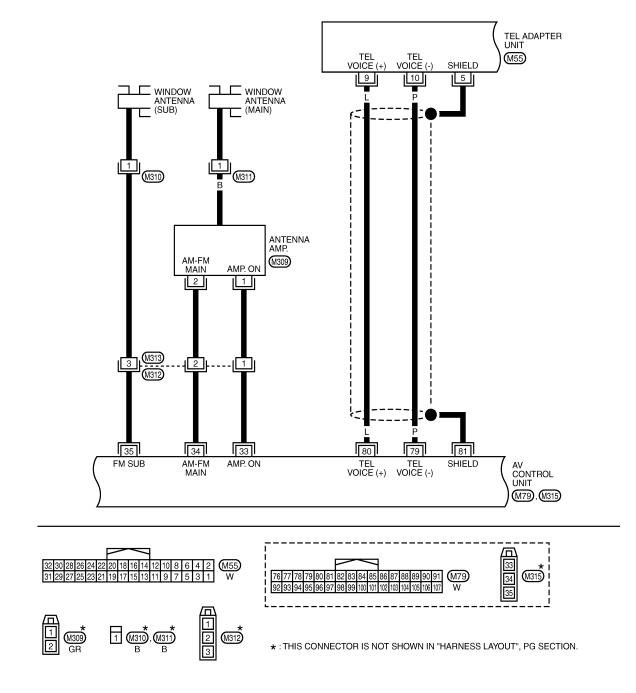
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### < ECU DIAGNOSIS >

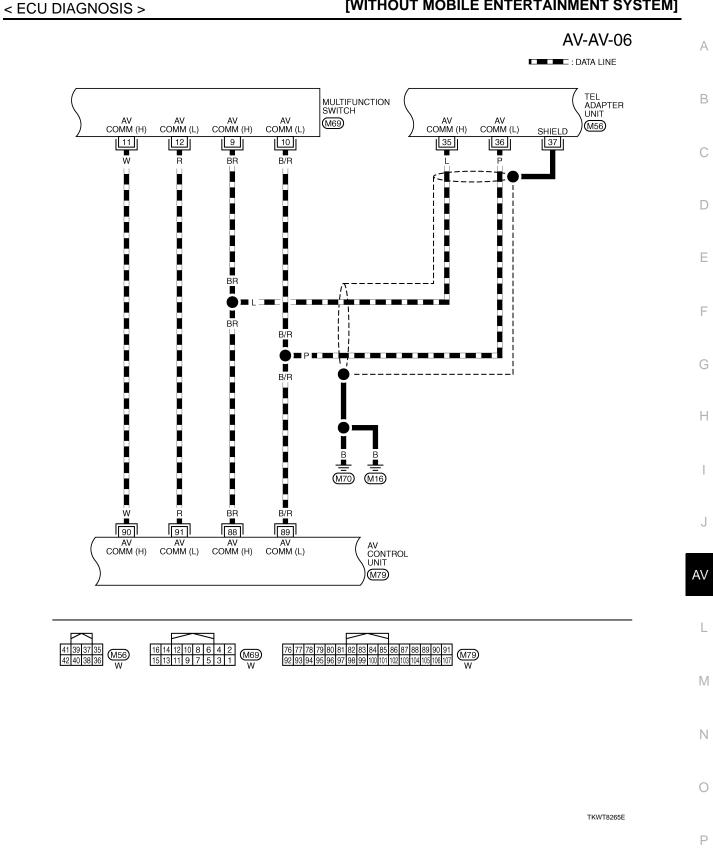
# SATELLITE RADIO TUNER [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



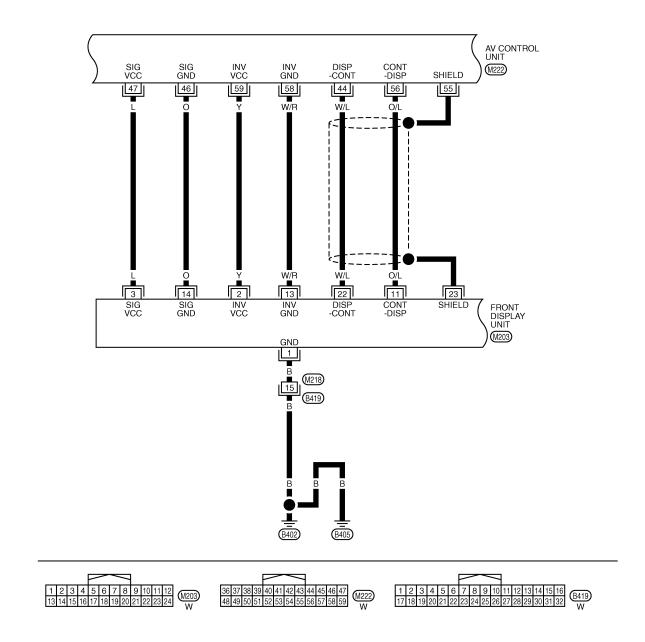
AV-AV-05



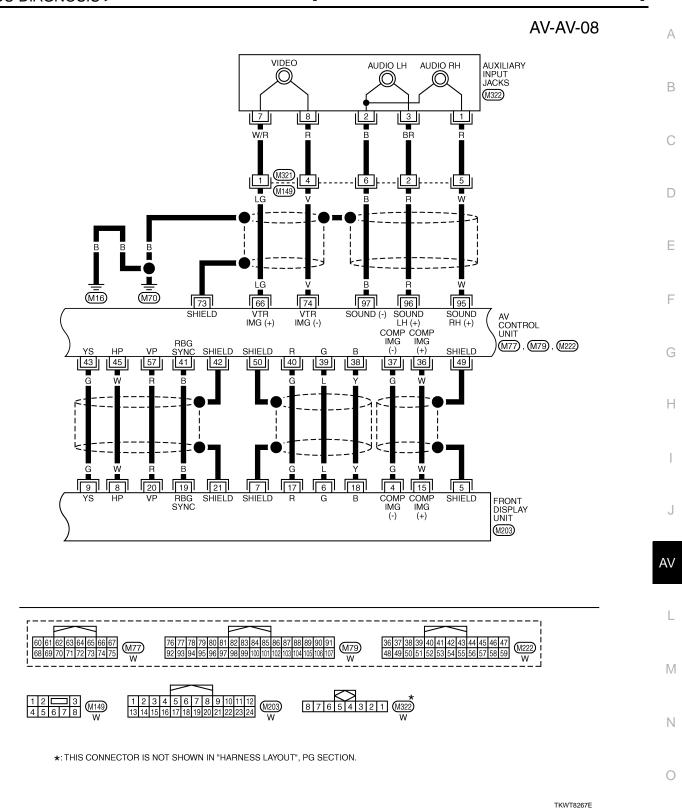
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AV-AV-07

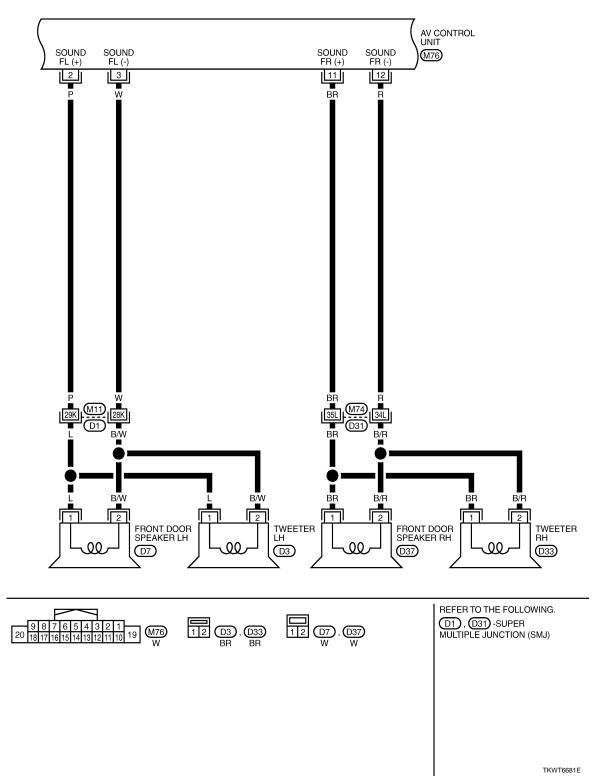


TKWT8266E



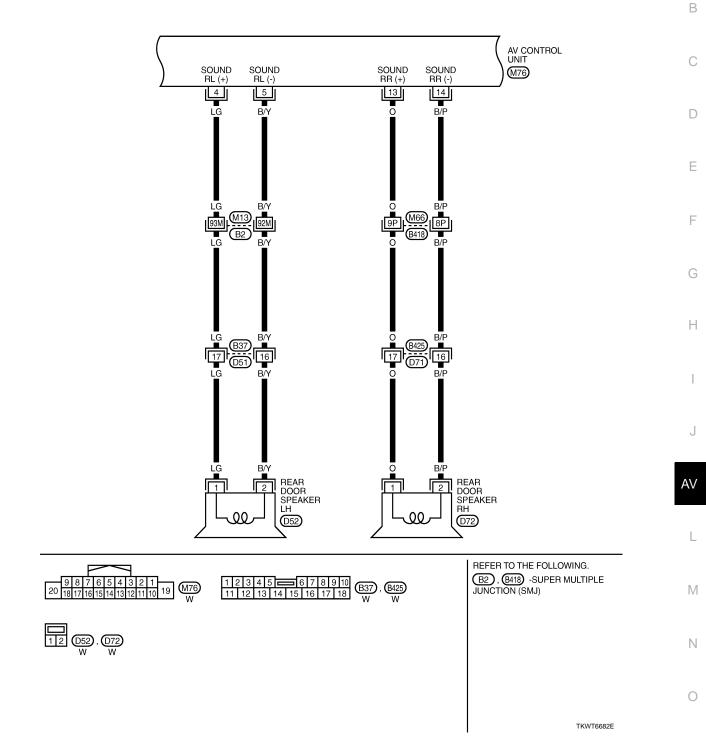
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AV-AV-09

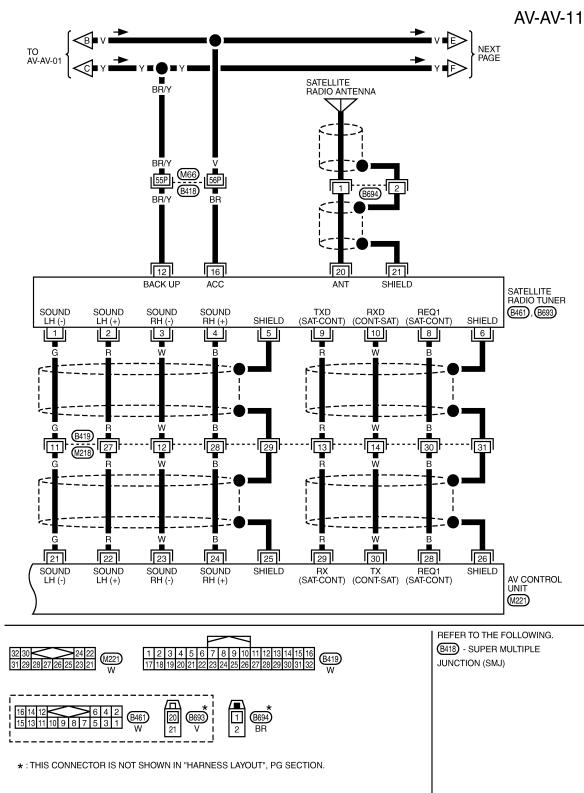




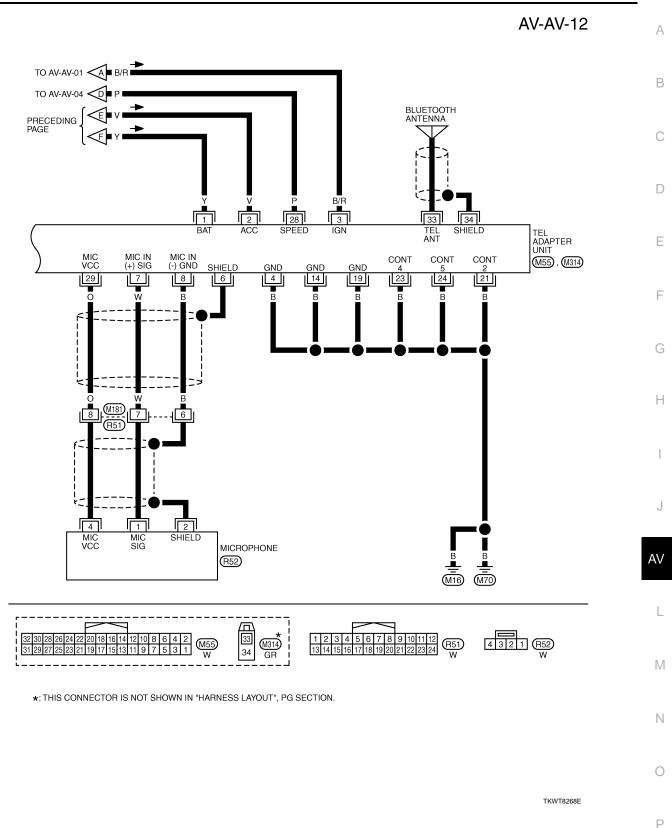
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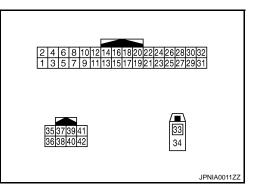
TKWT6683E



# TEL ADAPTER UNIT

# Reference Value

INFOID:000000004155836



## PHYSICAL VALUES

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

### < ECU DIAGNOSIS >

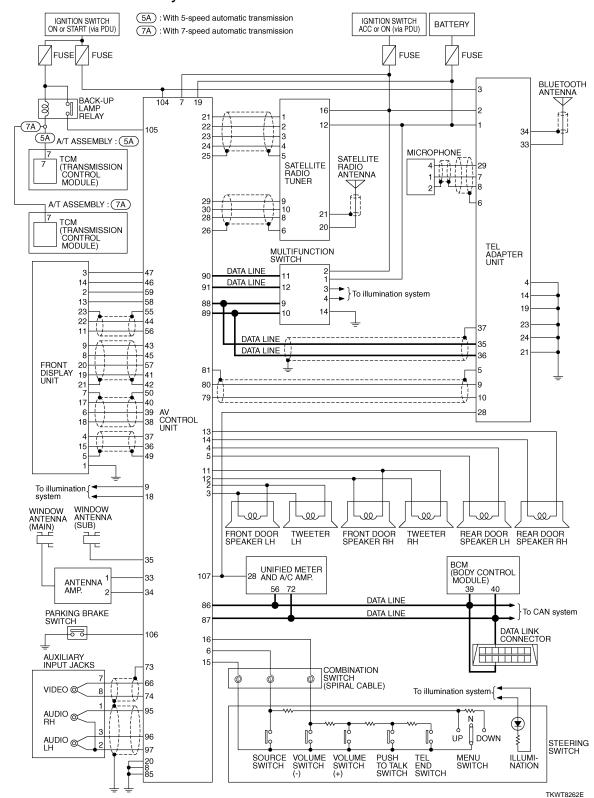
# TEL ADAPTER UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

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Schematic - Base Audio System -

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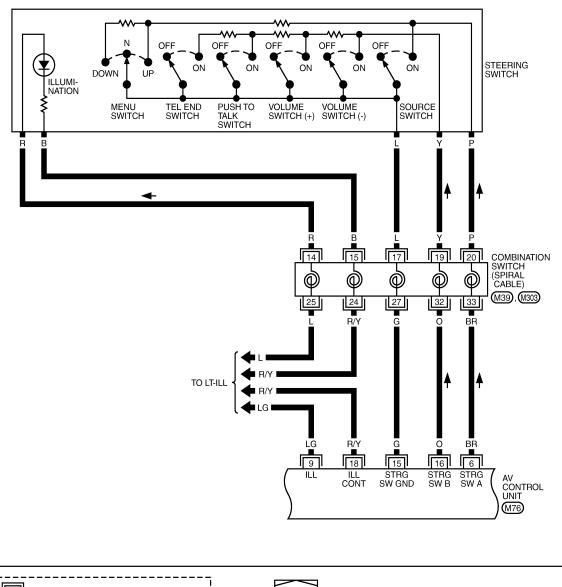
Wiring Diagram - AV - / Base Audio System

INFOID:000000004380475

## NOTE:

The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually. А **AV-AV-01** VQ: WITH VQ ENGINE IGNITION SWITCH ACC OR ON (via PDU) IGNITION SWITCH ON OR START (via PDU) BATTERY В **VK**: WITH VK ENGINE \*1 Y: (VQ) ð FUSE BLOCK (J/B) REFER TO PG-POWER & PDU. 15A 37 10A 6 10A L: VK 12 (M4) С 12A 2A v \*1 B/R A TO AV-AV-12 D ٠ B/R \*1 (E108) TO EC-MAIN 9G Е Y/G M15 F ⋎∎₿⊃ TO AV-AV-11 Н Y/G 19 7 2 BAT ACC IGN BAT ACC AV CONTROL UNIT MULTIFUNCTION SWITCH M76, M79 (M69) ILL GND GNE GND GND ILI CON J 20 14 3 85 4 8 В В R R/Y В R TO LT-ILL AV B В L M16 M70 REFER TO THE FOLLOWING. 16 14 12 10 8 6 4 2 15 13 11 9 7 5 3 1 W (E108) -SUPER MULTIPLE JUNCTION (SMJ) Μ M4 -FUSE BLOCK-JUNCTION BOX (J/B) Ν 6 5 4 3 9 8 7 6 5 4 3 2 1 18 17 16 15 14 13 12 11 10 19 W (M79) 20 92 93 94 95 96 97 98 99 100 w 0 Ρ TKWT8263E

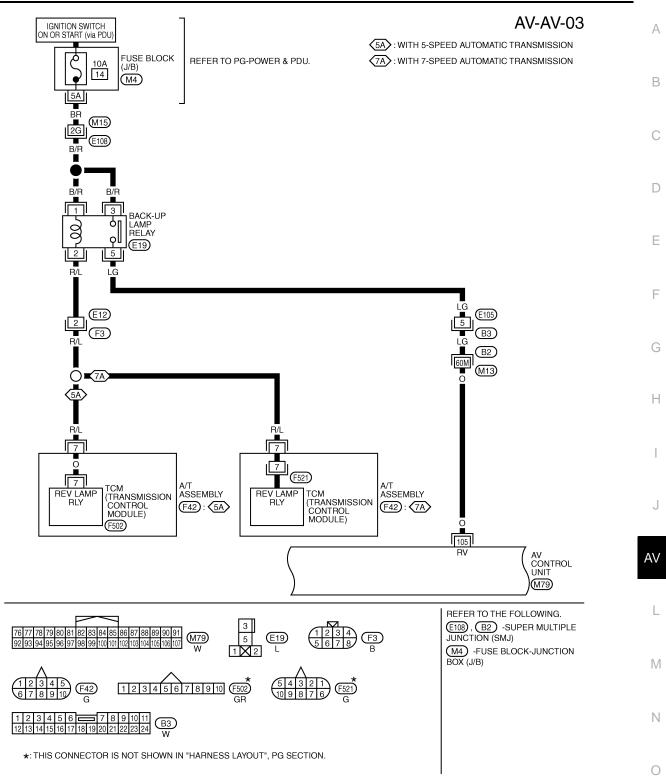
AV-AV-02





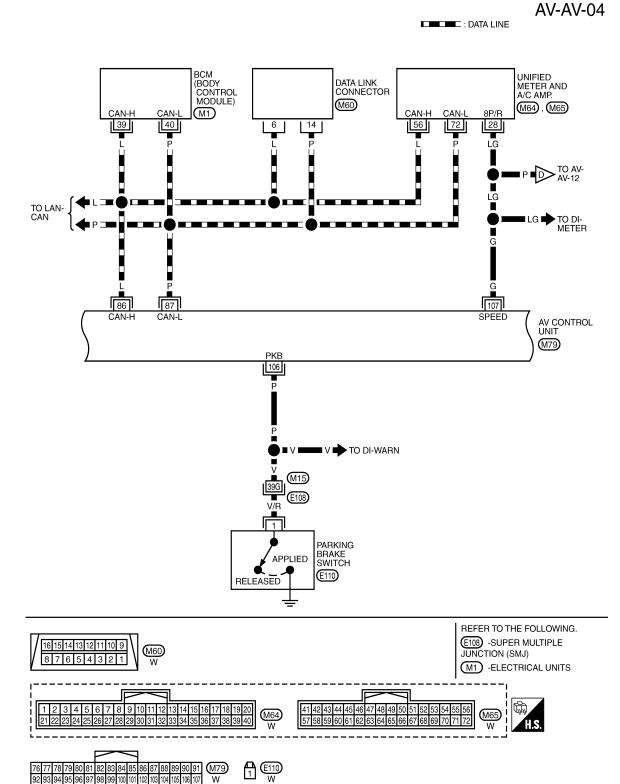
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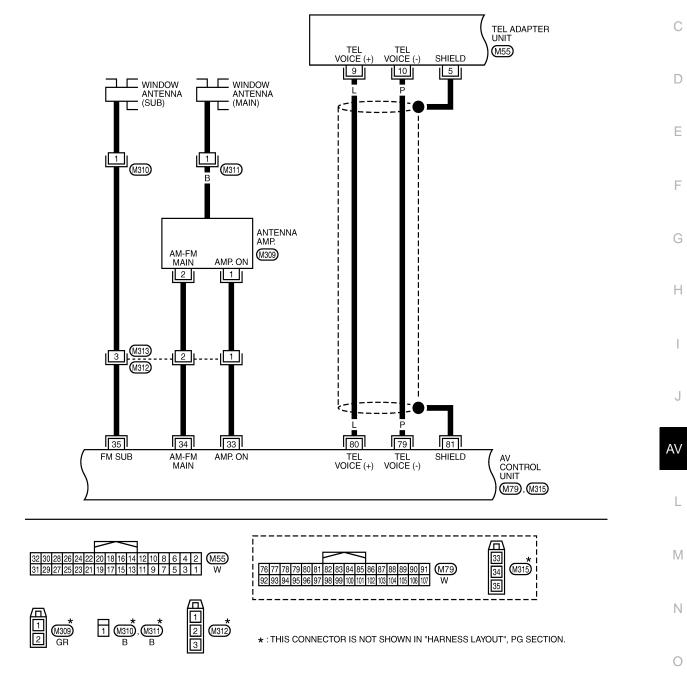


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AV-AV-05

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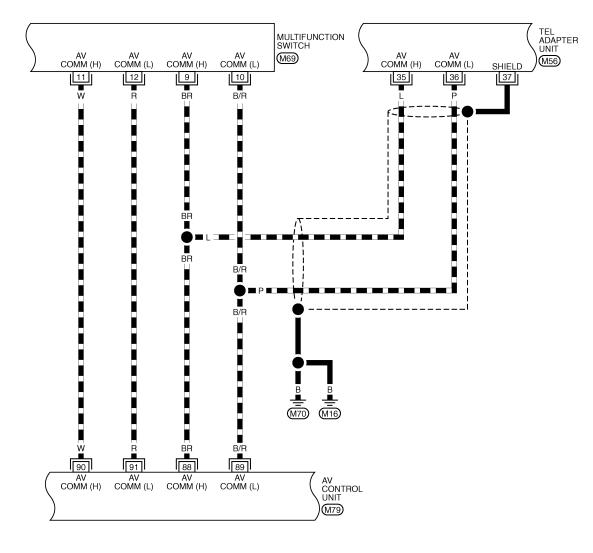
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### < ECU DIAGNOSIS >

# TEL ADAPTER UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



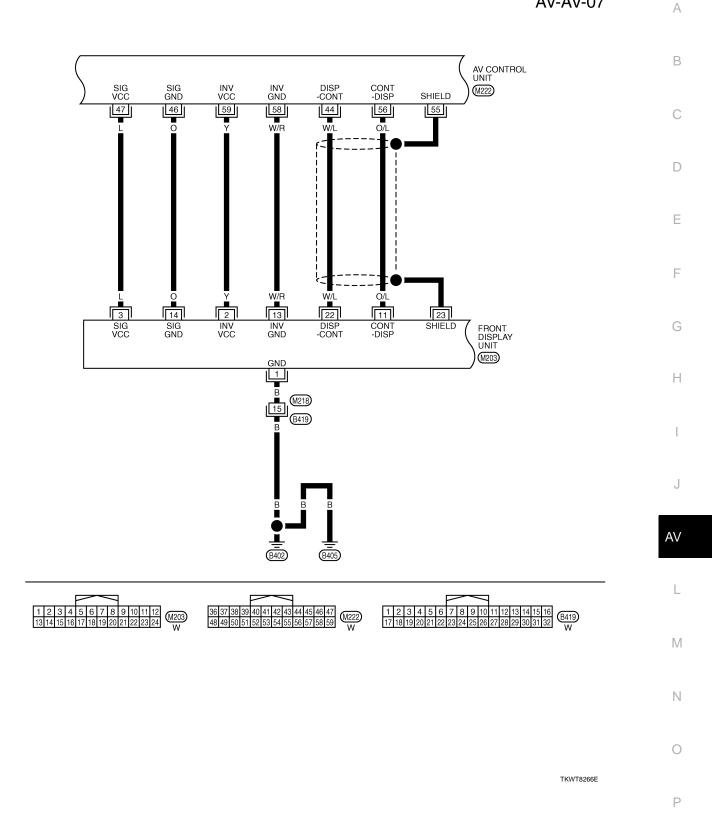
: DATA LINE



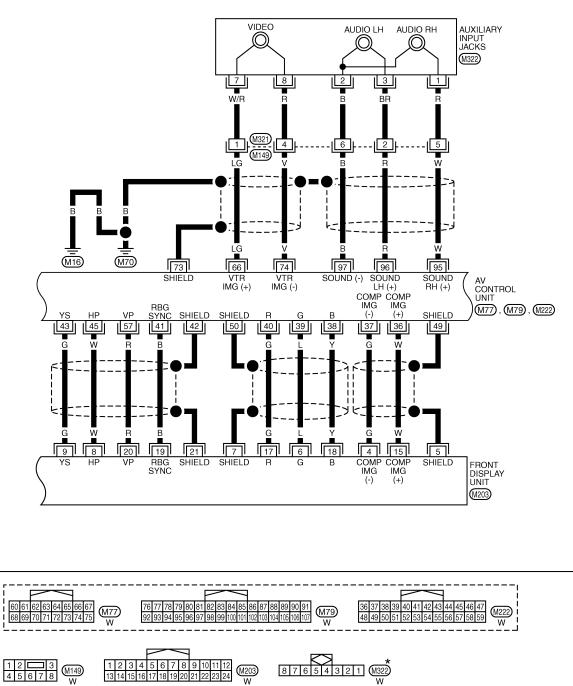
$\frown$		
41 39 37 35	16 14 12 10 8 6 4 2	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91
42 40 38 36 W56	15 13 11 9 7 5 3 1 W69	92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107
W	W	W

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**AV-AV-07** 



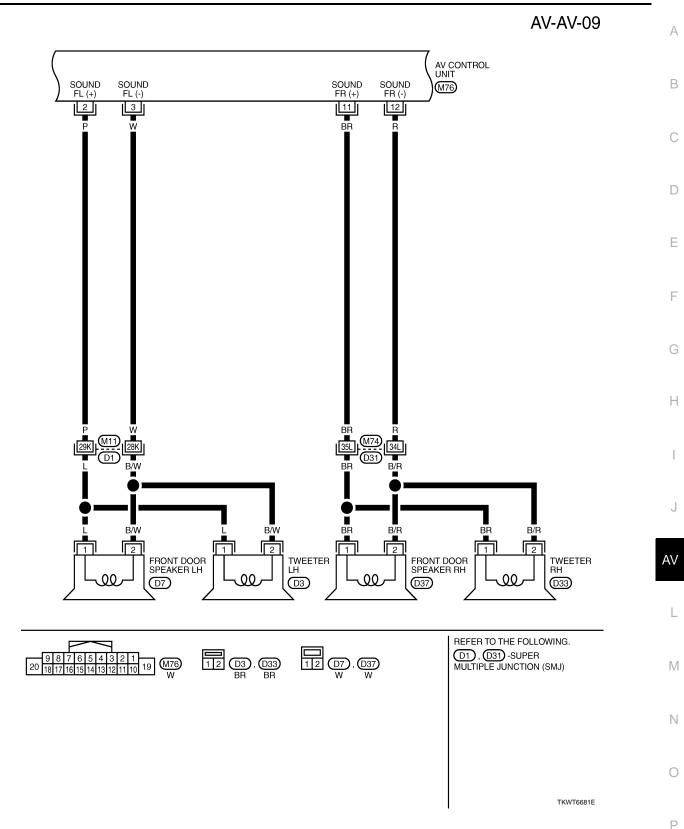
**AV-AV-08** 



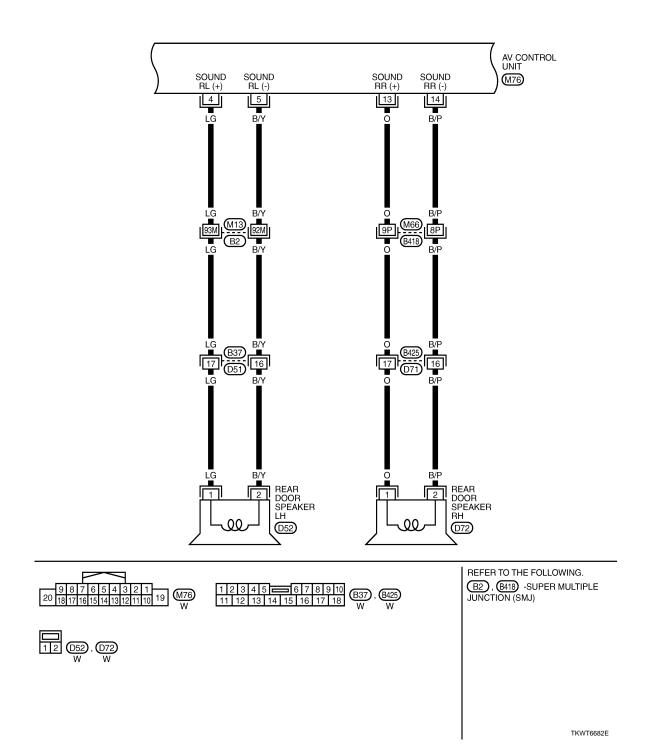
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

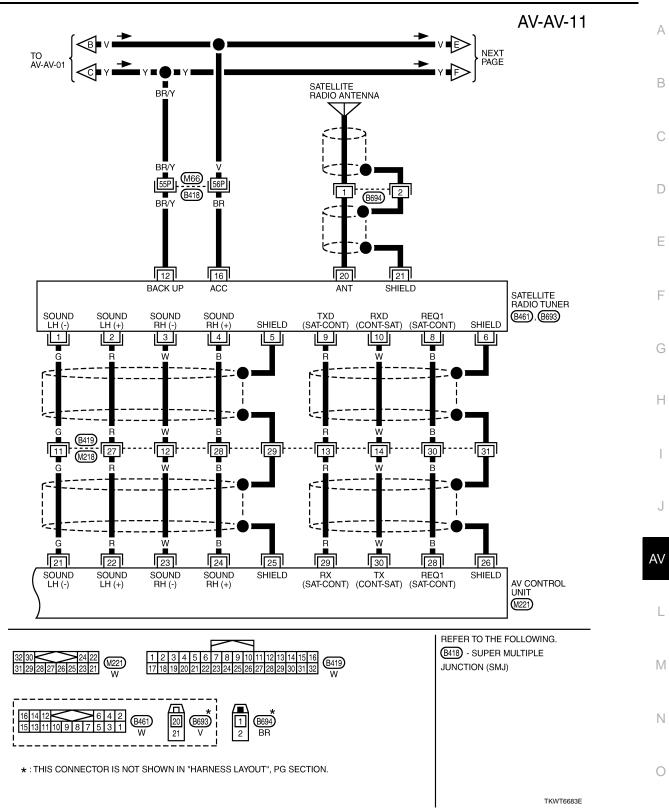
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TKWT8267E



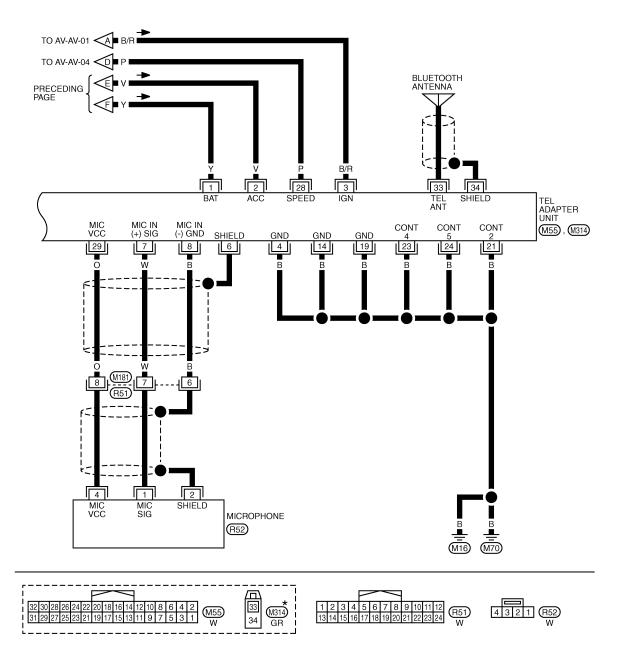
AV-AV-10





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AV-AV-12



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8268E

# SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS WITHOUT NAVIGATION

< SYMPTOM DIAGNOSIS >

# WITHOUT NAVIGATION : Symptom Table

# OPERATION

Symptoms	Check items	Possible malfunction location / Action to take
	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is displayed on system selection screen when the CON-SULT-III is started.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> <li>Perform CONSULT-III self-diagnosis.</li> <li>Refer to <u>AV-55, "WITHOUT NAVIGATION : CONSULT-III Function (MULTI AV)"</u>.</li> </ul>
Multifunction switch and preset switch operation does not work.	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is not displayed on system selection screen when the CON-SULT-III is started.</li> </ul>	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-113</u> , " <u>AV CONTROL UNIT : Diagnosis</u> <u>Procedure</u> ".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Per- form multifunction switch and preset switch self-diagno- sis function. Refer to AV-48, "WITHOUT NAVIGATION : Diagnosis Description".

## RELATED TO HANDS-FREE PHONE

**Basic Inspection** 

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

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

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

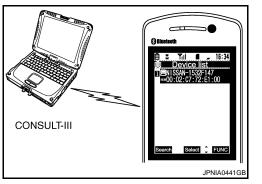
\*:displayed Device Name Is "NISSAN-\*\*\*\*\*\*\*\*\*.

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

On board self-diagnosis of hands-free phone system

Always perform the on board self-diagnosis at first after completing the basic inspection when the malfunction is detected on the hands-free phone system. Refer to <u>AV-76. "Diagnosis Description"</u>.

Narrow down possible causes using the Diagnosis Chart if there is no malfunction in the on board self-diagnosis.



AV-461

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## MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection. (No connec- tion is displayed on the front display at the guide.)	Repeat the registration of cellular phone.	TEL adapter unit malfunction. Refer to <u>AV-508, "Exploded View"</u> .
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed	<ul> <li>Perform CONSULT-III self-diagnosis. Refer to AV-55, "WITHOUT NAVIGATION : CON- SULT-III Function (MULTI AV)".</li> <li>No malfunction. TEL adapter unit malfunction. Refer to <u>AV-508, "Exploded View"</u>.</li> </ul>
The other party's voice cannot	The operation of the " $\sqrt{2}$ (" switch can be performed.	TEL voice signal circuit malfunction between TEL adapter unit and AV control unit.
be heard by hands-free phone.	The operation of the " $\sqrt{\epsilon}$ (" switch cannot be performed.	Control signal circuit. Refer to <u>AV-144, "Diagnosis Procedure"</u> .
Originating sound is not heard	Sound operation function is normal.	TEL adapter unit. Refer to <u>AV-508, "Exploded View"</u> .
by the other party with hands- free phone communication.	Sound operation function does not work.	Microphone signal circuit. Refer to <u>AV-140</u> , "WITHOUT NAVIGATION : Diagnosis <u>Procedure"</u> .

## RELATED TO RGB IMAGE

Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-55</u> , "WITHOUT NAVIGATION : CONSULT-III Function (MULTI AV)".
RGB image is not shown.	There is no malfunction in CONSULT-III self-diagnosis results.	<ul> <li>Front display unit power supply and ground circuit. Refer to <u>AV-114</u>, "FRONT DISPLAY UNIT : Diagnosis <u>Procedure"</u>.</li> <li>AV control unit power supply and ground circuit. Refer to <u>AV-113</u>, "AV CONTROL UNIT : Diagnosis Pro- cedure".</li> </ul>
	Light blue (Cyan) tint.	RGB signal (R: red) circuit. Refer to <u>AV-122</u> , "WITHOUT NAVIGATION : Diagnosis <u>Procedure"</u> .
Color of RGB image is not proper.	Purple (Magenta) tint.	RGB signal (G: green) circuit. Refer to <u>AV-124</u> , "WITHOUT NAVIGATION : Diagnosis <u>Procedure"</u> .
	Screen looks yellowish.	RGB signal (B: blue) circuit. Refer to <u>AV-126</u> , "WITHOUT NAVIGATION : Diagnosis <u>Procedure"</u> .
RGB screen is rolling.	_	RGB synchronizing signal circuit. Refer to <u>AV-128</u> , "WITHOUT NAVIGATION : Diagnosis <u>Procedure"</u> .
Fuel economy display is mal-	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-55</u> , "WITHOUT NAVIGATION : CONSULT-III Function (MULTI AV)".
functioning.	There is no malfunction in CONSULT-III self-diagnosis results.	Ignition signal circuit malfunction. Refer to <u>AV-113</u> , " <u>AV CONTROL UNIT : Diagnosis Proce- dure</u> ".

**RELATED TO AUDIO** 

# MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Possible malfunction location / Action to take	
The CD cannot be removed.	Check the mechanical operation of eject switch.	Perform CONSULT-III self-diagnosis. When detecting no malfunction in those components, replace AV control unit.Refer to <u>AV-482</u> , "Exploded View".	
Audio sound is not heard.	No sound from all speakers.	Perform CONSULT-III self-diagnosis. When detecting no malfunction in those components, replace AV control unit.Refer to <u>AV-482</u> , "Exploded View".	
	There is no sound from one of speakers.	Sound signal circuits malfunction between AV control unit and speaker on the side where there is no sound.	
Satellite radio is not received.	"ANTENNA" is not displayed even when the channel is turned to 0 in Satellite ra- dio mode.	<ol> <li>Perform the following inspection procedure.</li> <li>Check satellite radio antenna mounting nut for looseness.</li> <li>NOTE: Tightening torque: 6.5 N·m (0.66 kg-m, 58 in-lb.)</li> <li>Visually check for satellite radio antenna feeder.</li> <li>Replace the satellite radio antenna. Refer to <u>AV-507, "Exploded View"</u>.</li> <li>Replace the satellite radio tuner. Refer to <u>AV-506, "Exploded View"</u>.</li> </ol>	
Satellite radio is not received.	"ANTENNA" is displayed when the chan- nel is turned to 0 in Satellite radio mode.	<ol> <li>Perform the following inspection procedure.</li> <li>Check the connection between Satellite radio tuner and antenna feeder.</li> <li>Check the connection between Satellite radio anten- na and antenna feeder.</li> <li>Check Antenna feeder for open circuit.</li> <li>Replace the satellite radio antenna. Refer to <u>AV-507</u>, "Exploded View".</li> <li>Replace the satellite radio tuner. Refer to <u>AV-506</u>, "Exploded View".</li> </ol>	
The sound of Satellite radio is not heard.	Other audio sounds are normal.	Satellite radio sound signal circuit between AV control unit and satellite radio tuner.	
It does not change to Satellite radio mode.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-55, "WITHOUT NAVIGATION : CONSULT-III</u> <u>Function (MULTI AV)"</u> .	
AM/FM radio is not received.	Other audio sounds are normal.	<ul><li>Antenna amp. ON signal circuit.</li><li>Antenna feeder.</li></ul>	4

# RELATED TO STEERING SWITCH

Trouble diagnosis chart by symptom

Symptoms	Probable malfunction location	
None of the steering switch operations work.	Steering switch signal GND circuit. Refer to <u>AV-154, "WITHOUT NAVIGATION : Diagnosis Procedure"</u> .	M
Only specified switch cannot be operated.	Steering switch. Refer to AV-495, "Exploded View".	
"SOURCE", "MENU UP", "MENU DOWN"switches of steer- ing switch are not operated.	Steering switch signal A circuit. Refer to <u>AV-148</u> , "WITHOUT NAVIGATION : Diagnosis Procedure".	Ν
"VOL UP", "VOL DOWN", ", ", " 🕵 🌈 " switches of steering switch are not operated.	Steering switch signal B circuit. Refer to <u>AV-151, "WITHOUT NAVIGATION : Diagnosis Procedure"</u> .	0

# AUX

# NOTE:

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

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# MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Probable malfunction location
No voice sound is heard when AUX mode is selected.	Voice sound is heard when other modes are selected.	AUX sound signal circuits malfunction between auxiliary input jacks and AV control unit.
AUX Image is not displayed when AUX mode is selected. (Menu display is normal)		<ul> <li>AUX image signal circuit malfunction between auxiliary input jacks and AV control unit. Refer to AV-136, "WITHOUT NAVIGATION : Diagnosis Procedure".</li> <li>RGB area (YS) signal circuit malfunction between AV control unit and front display unit. Refer to AV-130, "WITHOUT NAVIGATION : Diagnosis Procedure".</li> </ul>
AUX Image is not displayed when AUX mode is selected. (Menu display is not displayed, too)		<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITHOUT NAVIGATION : Diagnosis Procedure".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to AV-134, "WITHOUT NAVIGATION : Diagnosis Procedure".</li> </ul>
AUX Image is not rolling when AUX mode is selected.		<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITHOUT NAVIGATION : Diagnosis Procedure".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and display unit. Refer to AV-134, "WITHOUT NAVIGATION : Diagnosis Procedure".</li> </ul>

# WITH NAVIGATION

# WITH NAVIGATION : Symptom Table

## **RELATED TO NAVIGATION**

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is displayed on system selection screen when the CON- SULT-III is started.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> <li>Perform CONSULT-III self-diagnosis. Refer to <u>AV-72</u>, <u>"WITH NAVIGATION : CONSULT-III Function (MULTI AV)"</u>.</li> </ul>
Multifunction switch and preset switch operation does not work.	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is not displayed on system selection screen when the CON-SULT-III is initialized.</li> </ul>	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-113</u> , " <u>AV CONTROL UNIT</u> : <u>Diagnosis</u> <u>Procedure</u> ".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-di- agnosis function. Refer to <u>AV-57</u> , "WITH NAVIGATION : <u>Diagnosis Description</u> ".
Fuel economy display, vehicle set-	There is malfunction in the CONSULT- III self-diagnosis result.	Perform detected DTC self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
ting operation is abnormal.	There is no malfunction in the self-diag- nosis results.	AV control unit Ignition signal circuit malfunction. Refer to AV-113, "AV CONTROL UNIT : Diagnosis Pro- cedure".
Guide sound is not heard.	On the setting display select "system sound (guide sound volume, etc.)," and confirm that guide sound is ON.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-482, "Exploded</u> <u>View"</u> .

# RELATED TO HANDS-FREE PHONE

INFOID:000000004155840

### MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

## Simple check for Bluetooth<sup>™</sup> communication

If cellular phone and AV control unit cannot be connected with Bluetooth<sup>™</sup> communication, following proce-

- 1. Turn on a cellular phone, not connecting Bluetooth<sup>TM</sup> communication.
- 2. Start CONSULT-III, then start Windows<sup>®</sup>.
- 3. Set CONSULT-III near a cellular phone.
- 4. When operated Bluetooth<sup>™</sup> registration by cellular phone, check if CONSULT-III<sup>\*</sup> would be displayed on the device name. (If other Bluetooth<sup>™</sup> device is located near cellular phone, a name of the device would be displayed also.)
  NOTE:

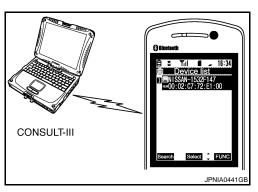
\*:Displayed device name is "NISSAN-\*\*\*\*\*\*\*\*.".

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

Symptoms Check items Probable malfunction location Does not recognize cellular AV control unit malfunction. phone connection. (no connec-Repeat the registration of cellular phone. Replace AV control unit. Refer to AV-482, "Exploded tion is displayed on the display J View". at the guide.) · Hands-free phone operation can be made, but the communication cannot AV be established. AV control unit malfunction. Hands-free phone cannot be Replace AV control unit. Refer to AV-482, "Exploded Hands-free phone operation can be established. performed, however, voice between View". each other cannot be heard during the conversation. Check the "microphone speaker" in In-AV control unit malfunction. spection & Adjustment Mode if sound is Replace AV control unit. Refer to AV-482, "Exploded M heard. View". The other party's voice cannot be heard by hands-free phone. Check the "microphone speaker" in In-AV control unit malfunction. spection & Adjustment Mode if sound is Replace AV control unit. Refer to AV-482, "Exploded Ν not heard. View". AV control unit malfunction. Sound operation function is normal. Replace AV control unit. Refer to AV-482, "Exploded Originating sound is not heard View". by the other party with hands-Microphone signal circuit malfunction. free phone communication. Refer to AV-141, "WITH NAVIGATION : Diagnosis Pro-Sound operation function does not work. cedure". Ρ

# RELATED TO CAMERA

Trouble diagnosis chart by symptom



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# MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Trouble diagnosis chart by sympton	n	
Symptoms	Check items	Probable malfunction location
Camera image is not displayed (displayed in black and nothing can be displayed).	For front display unit, AUX and DVD im- age are not displayed.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITH NAVIGATION : Diagnosis Procedure".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-134, "WITH NAVIGATION : Diagnosis Procedure".</li> </ul>
Camera image is not shown. (Vehicle width and possible route line is displayed.)	_	<ul> <li>Camera image signal circuit between camera control unit and rear view camera. Refer to <u>AV-145</u>, "<u>Diagnosis Procedure</u>".</li> <li>Rear view camera ON signal circuit. Refer to <u>AV-146</u>, "<u>Diagnosis Procedure</u>".</li> </ul>
	There is malfunction in the CONSULT-III self-diagnosis result.	Perform detected DTC self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
Camera image is not displayed.	For front display unit, AUX and DVD im- age are normal.	Camera image signal circuit malfunction between cam- era control unit and front display unit. Refer to AV-147, "Diagnosis Procedure".
(Only warning message under area is displayed.)	For front display unit, AUX and DVD im- age are not displayed.	RGB area (YS) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-130</u> , "WITH NAVIGATION : Diagnosis Pro- cedure".
	Select "Camera Cont." of Confirmation/ Adjustment mode, Reverse Sensor is not turned ON at "Connection Confirmation".	Reverse signal circuit malfunction (camera control unit).
CAMERA image is rolling.	For front display unit, AUX and DVD im- age are also rolling.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITH NAVIGATION : Diagnosis <u>Procedure"</u>.</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-134, "WITH NAVIGATION : Diagnosis <u>Procedure"</u>.</li> </ul>
Camera image does not switch.	Malfunction of self-diagnosis result is indi- cated.	Camera-connection recognition signal circuit malfunc- tion between AV control unit and camera control unit. Refer to <u>AV-106</u> , " <u>Diagnosis Procedure</u> ".
	Malfunction of self-diagnosis result is not indicated.	Reverse signal circuit malfunction (AV control unit).
Possible route line is indicated abnormally when camera im- age is displayed.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform detected DTC self-diagnosis. Refer to <u>AV-72, "WITH NAVIGATION : CONSULT-III</u> Function (MULTI AV)".

### RELATED TO RGB IMAGE

Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
PCP image is not shown	<ul> <li>All RGB images are not shown.</li> <li>"MULTI AV" is displayed on system selection screen when the CONSULT-III is started.</li> </ul>	Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
RGB image is not shown.	<ul> <li>All RGB images are not shown.</li> <li>"MULTI AV" is not displayed on system selection screen when the CONSULT- III is started.</li> </ul>	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-113, "AV CONTROL UNIT : Diagnosis Proce- dure"</u> .

## MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Possible malfunction location / Action to take
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit malfunction between AV con- trol unit and front display unit. Refer to <u>AV-122</u> , "WITH NAVIGATION : Diagnosis Proce- <u>dure"</u> .
	Purple (Magenta) tint.	RGB signal (G: green) circuit malfunction between AV control unit and front display unit. Refer to <u>AV-124</u> , "WITH NAVIGATION : Diagnosis Procedure".
	Screen looks yellowish.	RGB signal (B: blue) circuit malfunction between AV con- trol unit and front display unit. Refer to <u>AV-126, "WITH NAVIGATION : Diagnosis Proce- dure"</u> .
RGB screen is rolling.	Front display unit, AUX image are nor- mal.	RGB synchronizing signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-128</u> , "WITH NAVIGATION : Diagnosis Procedure".

# RELATED TO VOICE CONTROL

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location	
The voice cannot be controlled even if the voice control screen is displayed.	Voice sounds at "Voice Microphone Test" of Confirmation/Adjustment mode.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-482</u> , "Exploded <u>View"</u> .	
	Voice does not sound at "Voice Micro- phone Test" of Confirmation/Adjustment mode.	Microphone circuit malfunction. Refer to AV-141, "WITH NAVIGATION : Diagnosis Pro- cedure".	ŀ
The voice cannot be controlled (Voice control screen is not dis- played).	Steering switch's "VOL DOWN", "VOL UP", "➔" switch works, but "√⊱ ✔"it does not work.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-495, "Exploded</u> <u>View"</u> .	
	Steering switch's "VOL DOWN", "VOL UP", "➔", "ݒ≨ 𝗨" switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-152, "WITH NAVIGATION : Diagnosis Pro- cedure".	J
	All steering switches do not work.	Steering switch signal GND circuit malfunction. Refer to AV-155, "WITH NAVIGATION : Diagnosis Pro- cedure".	A۷

## **RELATED TO AUDIO**

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
The CD cannot be removed.	Check the mechanical operation of eject switch.	Perform CONSULT-III self-diagnosis. When detecting no malfunction in those components, replace AV control unit. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
Audio sound is not heard.	No sound from all speakers.	Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
There is no sound from speaker on the right or left side.		Sound signal circuit malfunction between AV control unit and BOSE amp. at the side where there is no sound.
There is no sound from front door and tweeter on the right or left side.	_	Sound signal circuits malfunction between BOSE amp. and speaker on the side where there is no sound.
There is no sound from one of speakers.	_	Sound signal circuit malfunction between BOSE amp. and speaker on the side where there is no sound.

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## MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Possible malfunction location / Action to take
Audiopilot <sup>®</sup> does not work.	_	<ul> <li>Audiopilot<sup>®</sup> Microphone circuits malfunction between BOSE amp. and Audiopilot<sup>®</sup> Microphone.</li> <li>Without DVD player models Refer to AV-142, "BOSE AUDIO 2CH SYSTEM : Diag- nosis Procedure".</li> <li>With DVD player models Refer to AV-143, "BOSE SURROUND AUDIO 5.1CH SYSTEM : Diagnosis Procedure".</li> </ul>
Satellite radio is not received.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
	There is no malfunction in the CON- SULT-III self-diagnosis result.	<ul> <li>Perform the following inspection procedure.</li> <li>1. Check satellite radio antenna mounting nut for looseness.</li> <li>NOTE: Tightening torque: 6.5 N·m (0.66 kg-m, 58 in-lb)</li> <li>2. Visually check for satellite radio antenna feeder.</li> <li>3. Replace the satellite radio antenna. Refer to <u>AV-482</u>, "Exploded View".</li> <li>4. Replace the AV control unit. Refer to <u>AV-482</u>, "Exploded View".</li> </ul>
AM/FM radio is not received.	Other audio sounds are normal.	<ul><li>Antenna amp. ON signal circuit.</li><li>Antenna feeder.</li></ul>

# RELATED TO iPod<sup>®</sup>

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

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

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
The sound of iPod <sup>®</sup> is not heard.	Other audio sounds are normal.	<ul> <li>iPod sound signal circuit between AV control unit and iPod adapter.</li> <li>iPod sound signal circuit between iPod<sup>®</sup> and iPod adapter.</li> </ul>
It does not change to iPod mode.	There is malfunction in the CONSULT-III self-diagnosis.	Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
"iPod is not connected" is dis- played when it comes to iPod mode.	Connected to iPod <sup>®</sup> .	iPod connection recognition signal circuit between iPod <sup>®</sup> and iPod adapter.
iPod <sup>®</sup> cannot charge the bat- tery.		iPod battery charge circuit between iPod <sup>®</sup> and iPod adapter.
The title of music file in the iP- $od^{\ensuremath{\mathbb{R}}}$ is not indicated.		Serial communication circuit between $iPod^{ embed{B}}$ and $iPod$
Accessing the $\mathrm{iPod}^{\texttt{®}}$ is unavailable from the vehicle.		adapter.

#### **RELATED TO STEERING SWITCH**

Trouble diagnosis chart by symptom		
Symptoms	Probable malfunction location	
None of the steering switch operations work.	Steering switch signal GND circuit malfunction. Refer to <u>AV-155, "WITH NAVIGATION : Diagnosis Procedure"</u> .	
Only specified switch (1) cannot be operated.	Steering switch malfunction. Refer to <u>AV-495, "Exploded View"</u> .	

#### MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Probable malfunction location	0
Steering switch's "SOURCE", "MENU UP", "MENU", "DOWN", "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to AV-149, "WITH NAVIGATION : Diagnosis Procedure".	А
Steering switch's " <b>'</b> ", "VOL UP", "VOL DOWN", " <b>'</b> " switches do not work.	Steering switch signal B circuit malfunction. Refer to <u>AV-152</u> , "WITH NAVIGATION : Diagnosis Procedure".	В

#### RELATED TO AUXILIARY INPUT

#### NOTE:

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

#### Without DVD player models

Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location
	Camera image is normal.	AUX image signal circuit malfunction between auxiliary input jacks and front display unit. Refer to AV-137, "WITH NAVIGATION : Diagnosis Pro- cedure".
For front display unit, AUX im- age is not displayed (Menu dis- play is normal).	Camera image is not displayed. (Only warning message under area is dis- played.)	Perform CONSULT-III self-diagnosis. Refer to <u>AV-72</u> , "WITH NAVIGATION : CONSULT-III Function (MULTI <u>AV</u> )". When detecting no malfunction in those compo- nents, the following items are a possible cause. RGB area (YS) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-130</u> , "WITH NAVIGATION : Diagnosis Pro- cedure".
For front display unit, AUX im- age is not displayed (Menu dis- play is not displayed, too).	Camera image is not displayed (displayed in black and nothing can be displayed).	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITH NAVIGATION : Diagnosis Procedure".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-134, "WITH NAVIGATION : Diagnosis Procedure".</li> </ul>
For front display unit, AUX im- age is rolling.	Camera image is rolling.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITH NAVIGATION : Diagnosis <u>Procedure"</u>.</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-134, "WITH NAVIGATION : Diagnosis</u> <u>Procedure"</u>.</li> </ul>
There is no AUX sound from speaker on the right or left side.	The sound other than AUX sound is nor- mal.	AUX sound signal circuits malfunction between auxiliary input jacks and AV control unit.
It does not change to AUX mode.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".

With DVD player models

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#### MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Trouble diagnosis chart by sympton	n	
Symptoms	Check items	Probable malfunction location
	DVD image is normal.	AUX image signal circuit malfunction between auxiliary input jacks and DVD player. Refer to AV-137, "WITH NAVIGATION : Diagnosis Pro- cedure".
For front display unit, AUX im- age is not displayed (Menu dis- play is normal).	Also, DVD image is not displayed (Menu display is normal).	<ul> <li>Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)". When detecting no malfunction in those compo- nents, the following items are a possible cause.</li> <li>Composite image signal circuits malfunction between DVD player and front display unit. Refer to AV-139, "Diagnosis Procedure".</li> <li>RGB area (YS) signal circuit malfunction between AV control unit and front display unit. Refer to AV-130, "WITH NAVIGATION : Diagnosis Procedure".</li> </ul>
For front display unit, AUX im- age is not displayed (Menu dis- play is not displayed, too).	Also, DVD image is not displayed (Also, menu display is not displayed).	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITH NAVIGATION : Diagnosis <u>Procedure</u>".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-134, "WITH NAVIGATION : Diagnosis Procedure</u>".</li> </ul>
For front display unit, AUX im- age is rolling.	DVD image is rolling.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITH NAVIGATION : Diagnosis <u>Procedure"</u>.</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-134, "WITH NAVIGATION : Diagnosis</u> <u>Procedure"</u>.</li> </ul>
There is no AUX sound.	_	Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".
There is no AUX sound from speaker on the right or left side.	The sound other than AUX sound is nor- mal.	<ul> <li>AUX sound signal circuit malfunction between auxiliary input jacks and DVD player at the side where there is no sound.</li> <li>AUX sound signal circuit malfunction between AV control unit and DVD player at the side where there is no sound.</li> </ul>
It does not change to AUX mode.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)".

RELATED TO DVD MODE

#### MULTI AV SYSTEM SYMPTOMS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Probable malfunction location
For front display unit, DVD im- age is not displayed (Menu dis- play is normal).	Also, AUX image is not displayed (Menu display is normal).	<ul> <li>Perform CONSULT-III self-diagnosis. Refer to AV-72, "WITH NAVIGATION : CONSULT-III Function (MULTI AV)". When detecting no malfunction in those compo- nents, the following items are a possible cause.</li> <li>Composite image signal circuits malfunction between DVD player and front display unit. Refer to AV-139, "Diagnosis Procedure".</li> <li>RGB area (YS) signal circuit malfunction between AV control unit and front display unit. Refer to AV-130, "WITH NAVIGATION : Diagnosis Procedure".</li> </ul>
For front display unit, DVD im- age is not displayed (Also, menu display is not displayed).	Also, AUX image is not displayed (Also, menu display is not displayed).	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-132</u>, "<u>WITH NAVIGATION : Diagnosis</u> <u>Procedure</u>".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-134</u>, "<u>WITH NAVIGATION : Diagnosis</u> <u>Procedure</u>".</li> </ul>
For front display, DVD image is rolling.	AUX image is rolling.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-132, "WITH NAVIGATION : Diagnosis Procedure".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-134, "WITH NAVIGATION : Diagnosis Procedure".</li> </ul>
There is no DVD sound.	_	Perform CONSULT-III self-diagnosis. Refer to <u>AV-72, "WITH NAVIGATION : CONSULT-III</u> Function (MULTI AV)".
There is no DVD sound from one of speakers.	Other audio sounds are normal.	Sound signal circuit malfunction between BOSE amp. and DVD player on the side where there is no sound.
It does not change to DVD mode.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-72, "WITH NAVIGATION : CONSULT-III</u> Function (MULTI AV)".

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## NORMAL OPERATING CONDITION WITHOUT NAVIGATION

#### WITHOUT NAVIGATION : Description

INFOID:000000004155841

#### **BASIC OPERATIONS**

< SYMPTOM DIAGNOSIS >

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

#### **RELATED TO VOICE RECOGNITION**

#### Related to telephone

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

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

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

#### **RELATED TO AUDIO**

- The majority of the audio malfunctions are the result of outside causes (bad CD/cassette, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and then determine the cause. NOTE:
- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

#### NORMAL OPERATING CONDITION [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

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

#### NOTE:

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

#### WITH NAVIGATION

#### WITH NAVIGATION : Description

#### NOTE:

For Navigation system operation information, refer to Navigation system Owner's Manual.

#### **BASIC OPERATIONS**

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
No image is displayed.	The systems in the video mode.	Push <b><disc-aux></disc-aux></b> to change the mode.
	The display is turned off.	Push <b><day night=""></day></b> to turn on the display.
Na veice quidence is available. Or	The volume is not set correctly, or it is turned off.	Adjust the volume of voice guidance.
No voice guidance is available. Or The volume is too high or too low.	Voice guidance is not provided for certain streets (roads displayed in gray).	This is not a malfunction.
No map is displayed on the screen.	A screen other than map screen is displayed.	Push <b><map></map></b> .
The screen is too dim. The move- ment is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.

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#### NORMAL OPERATING CONDITION [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptom	Possible cause	Possible solution
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be se- lected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the navigation system.

#### NOTE:

Locations stored in the Address Book and other memory functions may be lost if the vehicle's battery is disconnected or becomes discharged. If this occurs, service the vehicle's battery as necessary and re-enter the information in the Address Book.

#### RELATED TO VOICE RECOGNITION

#### Related to basic operation

Symptom	Possible cause	Possible solution
	The interior of the vehicle is too noisy.	Close the windows or have other occupants quiet.
	The volume of your voice is too low.	Speak louder.
	The volume if your voice is too loud.	Speak softer.
	Your pronunciation is unclear.	Speak clearly.
The system does not recognize your com- mand.	You are speaking before the voice recognition is ready	Push and release " $\sqrt{2}$ $\checkmark$ " switch on the steering switch, and speak a command after the tone sounds.
or The system recognizes your command incor- rectly	8 seconds or more have passed after you pushed and released " $\sqrt{\epsilon}$ " switch on the steering switch.	Make sure to speak a command within 8 sec- onds after you push 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.	If the air conditioner is set to "Auto", the fan speed is automatically lowered and voice com- mands can be recognized more easily. Lower the fan speed as necessary or set the air conditioner to "Auto".

#### Related to item choice

The system should respond correctly to all voice commands without difficulty. If problems are encountered, follow the solutions given in this guide for the appropriate error.

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

Symptom/ error message	Solution
	1. Ensure that the command format is valid.
Displays "COMMAND NOT REC- OGNIZED" or the system fails to interpret the command correctly.	2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level.
	<ul> <li>3. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on.</li> <li>NOTE:</li> <li>If it is too noisy to use the phone, it is likely that voice commands will not be recognized.</li> </ul>
	4. If optional words of the command have been omitted, then command should be tried with these in place.
The system consistently selects the wrong voicetag	1. Ensure that the voicetag requested matches what was originally stored. This can be con- firmed by giving the "Addressbook" Directory or Phone Directory command.
	2. Replace one of the voicetags being confused with a different voicetag.

#### Related to telephone

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



#### NORMAL OPERATING CONDITION [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

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

#### RELATED TO AUDIO

- The majority of the audio malfunctions are the result of outside causes (bad CD/cassette, electromagnetic interference, etc.). Check the symptoms below to diagnose the malfunction.
- The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning.
   H Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and then determine the cause.
   NOTE:
- CD-R is not guaranteed to play because they can contain compressed audio (MP3, WMA) or could be incorrectly mastered by the customer on a computer.
- Check if the CDs carry the Compact Disc Logo. If not, the disc is not mastered to the "red book" Compact Disc Standard and may not play.

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

#### NORMAL OPERATING CONDITION [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptom	Cause and Counter measure
Move immediately to the next song when playing	When a non-MP3/WMA file has been given an extension of ".MP3", ".WMA", ".mp3", or ".wma", or when play is prohibited by copyright protection, the player will skip to the next song.
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files might not play in the desired order.

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

#### NOTE:

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

#### RELATED TO VEHICLE ICON

Symptom	Possible cause	Possible solution
Names of roads differ between Plan View and Birdview <sup>™</sup> .	This is because the quantity of the displayed information is reduced so that the screen does not become too crowded. There is also a chance that names of the roads may be dis- played multiple times, and the names appear- ing on the screen may be different because of a processing procedure.	This is not a malfunction.
The vehicle icon is not displayed in	The vehicle was transported after the ignition switch was pushed off, for example, by a ferry or car transporter.	Drive the vehicle for a while on a road where GPS signals can be received.
The vehicle icon is not displayed in the correct position.	The position and direction of the vehicle icon may be incorrect depending on the driving en- vironments and the levels of positioning accu- racy of the navigation system.	This is not a malfunction. Drive the vehicle for a while to automatically correct the posi- tion and direction of the vehicle icon.
When the vehicle is traveling on a new road, the vehicle icon is located on another road nearby.	Because the new road is not stored in the map data, the system automatically places the ve- hicle icon on the nearest road available.	Updated road information will be included in the next version of the map data.
The screen does not switch to the night screen even after turning on the headlights.	The daytime screen was set the last time the headlights were turned on.	Set the screen to the night screen mode us- ing <day night=""> when you turn on the head- lights.</day>
The map does not scroll even when the vehicle is moving.	The current location map screen is not displayed.	Push <b><map></map></b> .
The vehicle icon is not displayed.	The current location map screen is not displayed.	Push <b><map></map></b> .
The location of the vehicle icon is misaligned from the actual position.	When using tire chains or replacing the tires, speed calculations based on the speed sensor may be incorrect.	Drive the vehicle for a while (at approximate- ly 19 MPH for about 30 minutes) to automat- ically correct the vehicle icon position. If this does not correct the vehicle icon posi- tion, contact an INFINITI dealer.
	The map data has a mistake or is incomplete (the vehicle icon position is always misaligned in the same area).	Updated road information will be included in the next version of the map data.

#### RELATED TO ROUTE CALCULATION AND VISUAL GUIDANCE

Symptom	Possible cause	Possible solution
Waypoints are not included in the auto reroute calculation.	Waypoints that you have already passed are not included in the auto reroute calculation.	If you want to go to that waypoint again, you need to edit the route.

## NORMAL OPERATING CONDITION

#### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

Symptom	Possible cause	Possible solution
	Route calculation has not yet been performed.	Set the destination and perform route calculation.
Route information is not dis-	You are not driving on the suggested route.	Drive on the suggested route.
played.	Route guidance is set to off.	Turn on route guidance.
	Route information is not provided for certain types of roads (roads displayed in gray).	This is not a malfunction.
The auto reroute calculation (or detour calculation) sug- gests the same route as the one previously suggested.	Route calculations took priority conditions into consider- ation, but the same route was calculated.	This is not a malfunction.
A waypoint cannot be added.	Five waypoints are already set on the route, including ones that you have already passed.	A maximum of 5 waypoints can be set on the route. If you want to go to 6 or more waypoints, perform route calculations multiple times as neces- sary.
	Roads near the destination cannot be calculated.	Reset the destination to a main or or- dinary road, and recalculate the route.
	The starting point and destination are too close.	Set a more distant destination.
The suggested route is not displayed.	The starting point and destination are too far away.	Divide your trip by selecting one or two intermediate destinations, and perform route calculations multiple times.
	There are time restricted roads (by the day of the week, by time) near the current vehicle location or destination.	Set [Use Time Restricted Roads] to off.
The part of the route that you have already passed is deleted.	A route is managed by sections between waypoints. If you passed the first waypoint, the section between the starting point and the waypoint is deleted. (It may not be deleted depending on the area.)	This is not a malfunction.
An indirect route is suggested	If there are restrictions (such as one-way streets) on roads close to the starting point or destination, the system may suggest an indirect route.	Adjust the location of the starting of the starting point or destination.
An indirect route is suggested.	The system may suggest an indirect route because route calculation does not take into consideration some areas such as narrow streets (gray roads.)	Reset the destination to a main or or- dinary road, and recalculate the route.
The landmark information does not correspond to the ac- tual information.	- This may be caused by insufficient or incorrect map data. Updated information will be incorrect map data.	
The suggested route does not exactly connect to the starting point, waypoints, or destina- tion.	There is no data for route calculation closes to these loca- tions.	Set the starting point, waypoints and destination on a main road, and per- form route calculation.

#### RELATED TO VOICE GUIDANCE

Symptom	Possible cause	Possible solution
	Voice guidance is only available at certain intersections marked with? In some case, voice guidance is not available even when the vehicle should make a turn.	This is not a malfunction.
Voice guidance is not available	The vehicle has deviated from the suggested route.	Go back to the suggested route or request route calculation again
	Voice guide is set to off.	Turn on voice guidance.
	Route guidance is set to off.	Turn on voice guidance.
The guidance contact does not correspond to the actual condition.	The contact of voice guidance may vary, depending on the types of intersections at which turn are made.	Follow all traffic rules and regulations.

#### NORMAL OPERATING CONDITION [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### RELATED TO TRAFFIC INFORMATION

Symptom	Possible cause	Possible solution
	The traffic information is not set to on.	Set the traffic information to on.
	You are in an area where traffic information is not available	Scroll to an area where traffic information is available
The traffic information is not displayed	You have not subscribed to XM NavTraffic or, your sub- scription to XM NavTraffic has expired.	Check your subscription status of XM NavTraffic.
	The map scale is set at a level where the display of icons is impossible.	Check that the map scale is set at a level in which the display of icons is possible.
With the automatic de- tour route search ON, no detour route is set to avoid congested areas.	There is no faster route compared to the current route, based on the road network and traffic information.	The automatic detour search is not intended for avoiding traffic jams. It searches for the fastest route taking into consideration such things as traffic jams.
The route does not avoid road section with traffic information stat- ing it is closed due to road construction.	The navigation system is designed not to avoid this event because the actual period of closure may differ from the declared roadwork period.	Observe the actual road condition and follow the instructions on road for detour when necessary. If the road closure is for certain, use detour function and set the detour distance to avoid the closed road section.
Traffic information dis- played differs from in- formation from other media (e.g. radio).	Other media may use different information sources.	Observe the actual road conditions and regula- tions. Always observe safe driving practices and follow all traffic regulations.

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## PRECAUTIONS

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

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

#### WARNING:

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

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

#### WARNING:

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

#### Precaution for SRS "AIR BAG" and "SEAT BELT PRE-TENSIONER" Service

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- Do not use electrical test equipment to check SRS circuits unless instructed to in this Service Manual.
- Before servicing the SRS, turn ignition switch OFF, disconnect both battery cables and wait at least 3 minutes.

For approximately 3 minutes after the cables are removed, it is still possible for the air bag and seat belt pretensioner to deploy. Therefore, do not work on any SRS connectors or wires until at least 3 minutes have passed.

- Diagnosis sensor unit must always be installed with their arrow marks "
   —" pointing towards the front of the vehicle for proper operation. Also check diagnosis sensor unit for cracks, deformities or rust before installation and replace as required.
- The spiral cable must be aligned with the neutral position since its rotations are limited. Do not turn steering wheel and column after removal of steering gear.
- Handle air bag module carefully. Always place driver and front passenger air bag modules with the pad side facing upward and seat mounted front side air bag module standing with the stud bolt side facing down.
- Conduct self-diagnosis to check entire SRS for proper function after replacing any components.
- After air bag inflates, the front instrument panel assembly should be replaced if damaged.
- Always replace instrument panel pad following front passenger air bag deployment.

#### Precaution for Trouble Diagnosis

#### AV COMMUNICATION SYSTEM

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

#### AV-479

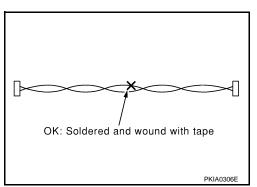
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#### PRECAUTIONS [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

#### Precaution for Harness Repair

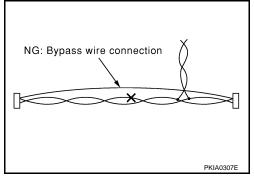
#### AV COMMUNICATION SYSTEM

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



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



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## PREPARATION

## PREPARATION

### **Commercial Service Tools**

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Tool name		Description	
Power tool		Loosening screws	I
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# < ON-VEHICLE REPAIR > ON-VEHICLE REPAIR

### AV CONTROL UNIT

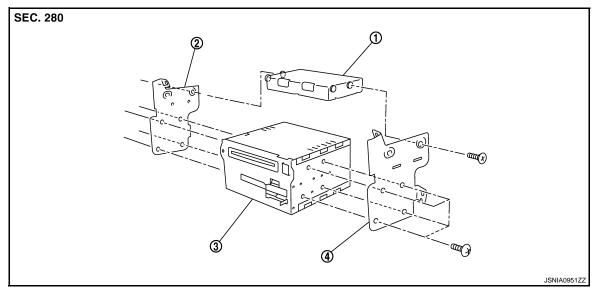
#### Exploded View

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#### REMOVAL

Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".

#### DISASSEMBLY



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

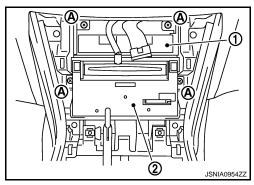
3. AV control unit

4. Bracket RH

#### Removal and Installation

#### REMOVAL

- 1. Remove cluster lid C. Refer to IP-19, "CLUSTER LID C : Removal and Installation".
- 2. Remove screws (A) and remove AV control unit (2) in conjunction with unified meter and A/C amp. (1).
- 3. Remove bracket screws, and then remove AV control unit.



#### INSTALLATION

Install in the reverse order of removal.

#### CAUTION:

Unified meter and A/C amp. screws are different from other securing screws. Never confuse them when installing.

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#### < ON-VEHICLE REPAIR >

#### FRONT DISPLAY UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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### FRONT DISPLAY UNIT

#### **Exploded View**

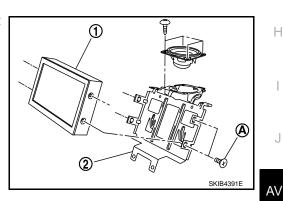
Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".

#### **Removal and Installation**

#### REMOVAL

- 1. Remove center ventilator grille. Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".
- 2. Remove multifunction switch. Refer to AV-493, "Removal and Installation".
- 3. Remove screw (A).
- 4. Remove screws (B) and disconnect connector, and remove display (1) center speaker comes off accordingly.

5. Remove screws (A) separate front display unit (1) from bracket (2).



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**INSTALLATION** Install in the reverse order of removal.



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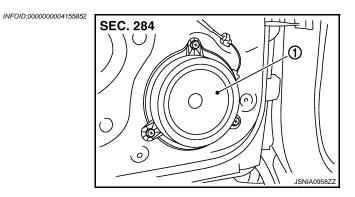
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## FRONT DOOR SPEAKER



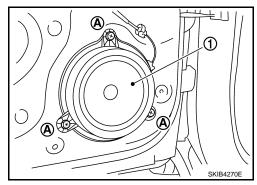
1. Front door speaker

#### Removal and Installation

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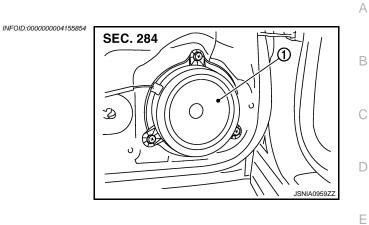
#### REMOVAL

- 1. Remove front door finisher. Refer to EI-46. "Removal and Installation".
- 2. Remove screws (A) and remove front door speaker (1).



INSTALLATION Install in the reverse order of removal.

## REAR DOOR SPEAKER

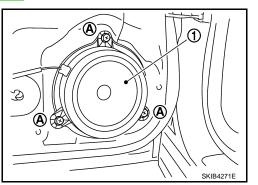


1. Rear door speaker

#### Removal and Installation

#### REMOVAL

- 1. Remove rear door finisher. Refer to EI-46, "Removal and Installation".
- 2. Remove screws (A) and remove rear door speaker (1).



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INSTALLATION Install in the reverse order of removal.



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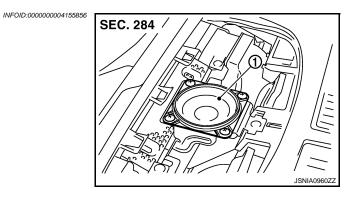
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## CENTER SPEAKER

#### Exploded View



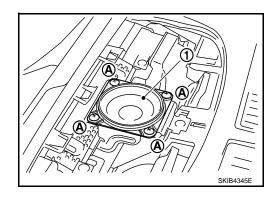
1. Center speaker

#### Removal and Installation

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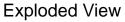
#### REMOVAL

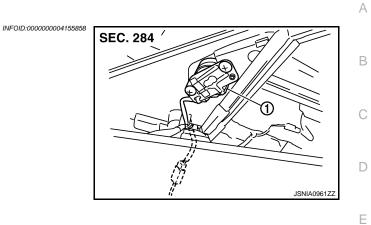
- 1. Remove upper ventilator grill. Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".
- 2. Remove screws (A) and disconnect connector.
- 3. Remove center speaker (1).



INSTALLATION Install in the reverse order of removal.

## TWEETER



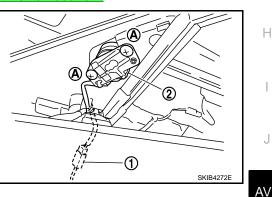


1. Tweeter

#### **Removal and Installation**

#### REMOVAL

- 1. Remove front door finisher. Refer to El-46, "Removal and Installation".
- 2. Remove door sash inner cover (front). Refer to EI-46, "Component Parts Location".
- 3. Remove screws (A), and disconnect connector (1).
- 4. Remove tweeter (2).



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**INSTALLATION** Install in the reverse order of removal.



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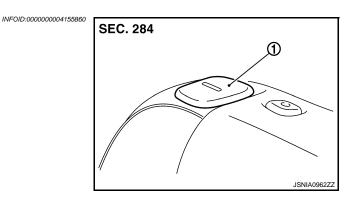
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## SEAT SPEAKER



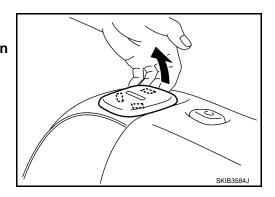


1. Seat speaker

#### Removal and Installation

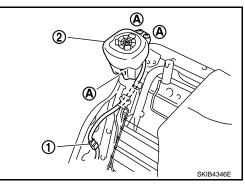
#### REMOVAL

 Remove seat speaker grill as shown in the figure.
 CAUTION: Never reuse seat speaker grill. The pawl is broken when removing.



INFOID:000000004155861

- 2. Remove front seat back trim and pad. Refer to SE-147. "Removal and Installation".
- 3. Remove screws (A) and disconnect connector (1).
- 4. Remove seat speaker (2).

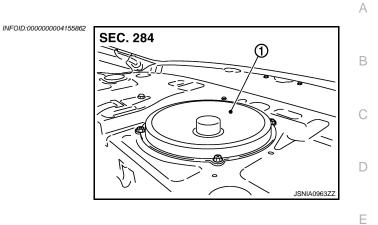


INSTALLATION Install in the reverse order of removal.

### < ON-VEHICLE REPAIR >

## WOOFER

#### Exploded View

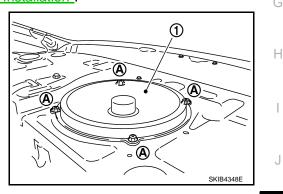


1. Woofer

#### Removal and Installation

## REMOVAL

- 1. Remove rear parcel shelf finisher. Refer to EI-53, "Removal and Installation".
- 2. Remove screws (A) and disconnect connector.
- 3. Remove rear woofer (1) from rear parcel shelf.



INFOID:000000004155863

INSTALLATION Install in the reverse order of removal.

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## REAR SURROUND SPEAKER

Removal and Installation

INFOID:000000004155864

#### REMOVAL

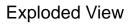
- 1. Remove rear parcel shelf finisher. Refer to EI-53. "Removal and Installation".
- 2. Remove rear surround speaker from rear parcel shelf.

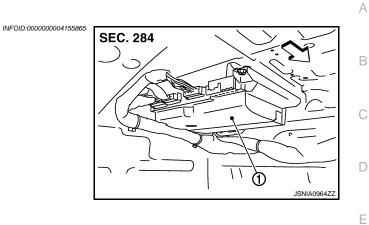
#### INSTALLATION

Install in the reverse order of removal.

#### < ON-VEHICLE REPAIR >

## BOSE AMP.





Vehicle front  $\langle \exists$ 

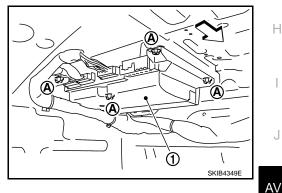
BOSE amp. 1.

#### **Removal and Installation**

#### REMOVAL

- Remove trunk front finisher. Refer to EI-66, "Component Parts Location". 1.
- 2. Remove screws (A), and disconnect connector.
- 3. Remove BOSE amp. (1).

∠: Vehicle front



**INSTALLATION** Install in the reverse order of removal.



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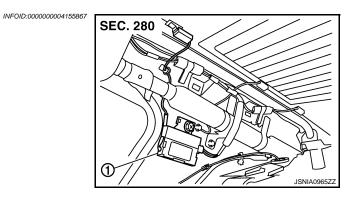
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INFOID:000000004155866

## ANTENNA AMP.

#### Exploded View



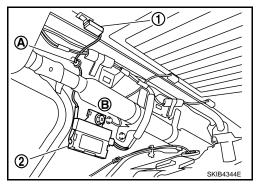
1. Antenna amp.

#### Removal and Installation

INFOID:000000004155868

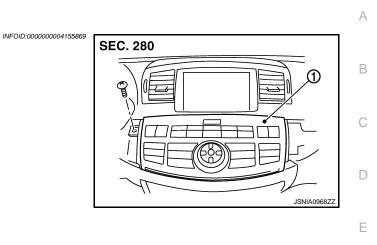
#### REMOVAL

- 1. Remove back pillar garnish RH. Refer to EI-49, "Component Parts Location".
- 2. Disengaged the clip (A) to separate glass terminal (1).
- 3. Remove screw (B) and remove antenna amp. (2) from vehicle.



INSTALLATION Install in the reverse order of removal.

## **MULTIFUNCTION SWITCH**

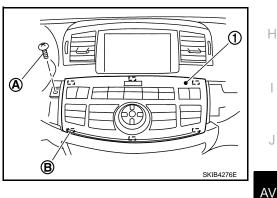


1. Multifunction switch

#### **Removal and Installation**

#### REMOVAL

- 1. Remove instrument panel finisher B and C. Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".
- 2. Remove screw (A).
- 3. Disengage tabs (B) and connector to separate multifunction switch (1) from instrument panel.



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**INSTALLATION** Install in the reverse order of removal.

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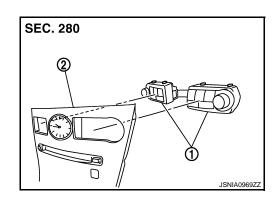
PRESET SWITCH

## Exploded View

INFOID:000000004155871

#### REMOVAL

Refer to <u>IP-19, "CLUSTER LID C : Component Parts Location"</u>. DISASSEMBLY



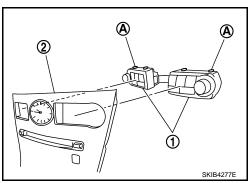
- 1. Preset switch
- 2. Cluster lid C

#### Removal and Installation

INFOID:000000004155872

#### REMOVAL

- 1. Remove cluster lid C. Refer to IP-19, "CLUSTER LID C : Removal and Installation".
- Disengage tabs (A) to separate preset switch (1) from cluster lid C (2).



#### INSTALLATION

Install in the reverse order of removal.

#### NOTE:

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

#### STEERING SWITCH [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

STEERING SWITCH		Δ
Exploded View	INFOID:000000004155873	~
Refer to <u>PS-10, "Removal and Installation"</u> . Removal and Installation	INFOID:000000004155874	В
REMOVAL Refer to <u>PS-10, "Removal and Installation"</u> .		С
INSTALLATION Install in the reverse order of removal.		D

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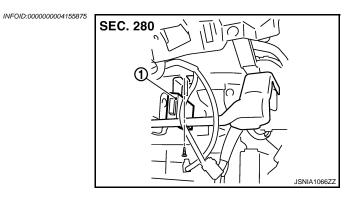
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< ON-VEHICLE REPAIR >

## IPOD ADAPTER Exploded View



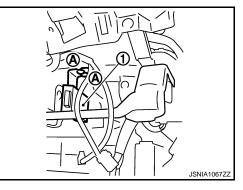
1. iPod adapter

#### Removal and Installation

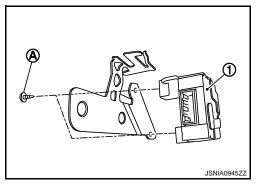
INFOID:000000004155876

#### REMOVAL

- 1. Remove glove box cover. Refer to IP-20, "GLOVE BOX : Removal and Installation".
- 2. Remove screws (A) and remove iPod adapter bracket and iPod adapter (1).



3. Remove screws (A) and remove iPod adapter (1) from iPod adapter bracket.



INSTALLATION Install in the reverse order of removal.

#### IPOD CONNECTOR [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

## IPOD CONNECTOR

Exploded View

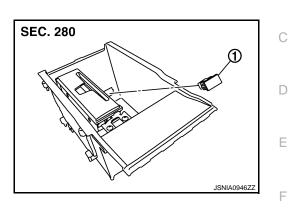
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REMOVAL Refer to IP-22, "CENTER CONSOLE : Component Parts Location".

DISASSEMBLY



1. iPod connector

#### Removal and Installation

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1.	Remove center console. Refer to IP-22, "CENTER CONSOLE : Component Parts Location".
2.	Push the pawl from the back of center console to remove iPod connector.

#### INSTALLATION

Install in the reverse order of removal.

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#### < ON-VEHICLE REPAIR > DVD PLAYER

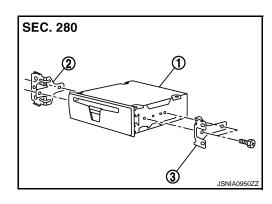
Exploded View

INFOID:000000004155879

REMOVAL

Refer to IP-22, "CENTER CONSOLE : Component Parts Location".

DISASSEMBLY



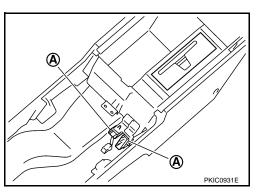
- 1. DVD player
- 2. Bracket LH
- 3. Bracket RH

### Removal and Installation

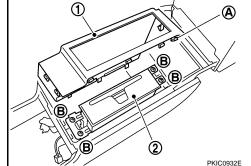
INFOID:000000004155880

#### REMOVAL

- 1. Remove cup holder. Refer to IP-22, "CENTER CONSOLE : Disassembly and Assembly".
- 2. Disconnect sub harness connector.
- 3. Remove sub harness connectors (A) from bracket.



- 4. Remove metal clips (A) and 8 pawls. Then DVD player cover (1).
- 5. Remove screws (B) and remove DVD player (2).



INSTALLATION Install in the reverse order of removal.

#### AUXILIARY INPUT JACKS

#### [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

### **AUXILIARY INPUT JACKS**

< ON-VEHICLE REPAIR >

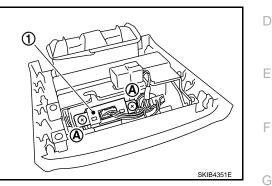
#### Exploded View

Refer to IP-22, "CENTER CONSOLE : Component Parts Location".

#### Removal and Installation

#### REMOVAL

- 1. Remove center console rear finisher. Refer to IP-22, "CENTER CONSOLE : Component Parts Location".
- 2. Remove screws (A) and disconnect connector. Remove auxiliary input jacks (1) from center console rear finisher.



INSTALLATION Install in the reverse order of removal.

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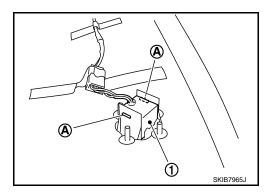
## MICROPHONE

### Removal and Installation

INFOID:000000004155883

#### REMOVAL

- 1. Remove headlining. Refer to EI-63, "Component Parts Location".
- 2. Remove connector.
- 3. Raise tab (A) and remove microphone (1).



INSTALLATION Install in the reverse order of removal.

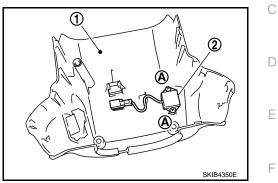
#### AUDIOPILOT® MICROPHONE [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

## **AUDIOPILOT® MICROPHONE**

#### Removal and Installation

#### REMOVAL

- 1. Remove steering column lower cover. Refer to <u>IP-12. "INSTRUMENT PANEL : Component Parts Loca-</u> tion".
- 2. Remove screws (A) and disconnect connector.
- 3. Remove Microphone (2) from steering column lower cover (1).



INSTALLATION Install in the reverse order of removal.

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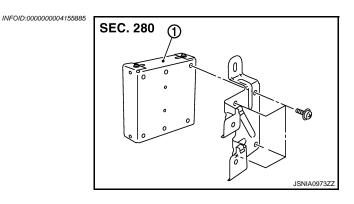
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INFOID:000000004155884

## CAMERA CONTROL UNIT



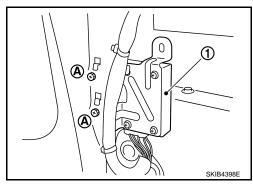
1. Camera control unit

#### Removal and Installation

INFOID:000000004155886

#### REMOVAL

- 1. Remove trunk side finisher (RH). Refer to EI-66. "Component Parts Location".
- 2. Remove screws (A) and disconnect connector, and remove camera control unit (1).



INSTALLATION Install in the reverse order of removal.

#### Adjustment

INFOID:000000004155887

#### ADJUSTMENT

There may be a misalignment of possible route line center position of rear view monitor after removing camera control unit. Therefore, correct neutral position with the following procedure.

- 1. Steer the steering wheel to the leftmost and rightmost ends.
- 2. Drive vehicle at 30 km/h (18.6 MPH) min. speed at least 100 m (328.1 ft).

#### REAR VIEW CAMERA [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

< ON-VEHICLE REPAIR > REAR VIEW CAMERA

#### А **Exploded View** INFOID:000000004155888 Refer to EI-68, "Component Parts Location". В Removal and Installation INFOID:000000004155889 REMOVAL 1. Remove trunk lid finisher inner. Refer to EI-68, "Removal and Installation". 2. Remove screws attaching camera and camera bracket. D 3. Remove connector and connector clip. 4. Remove camera bracket (1) while pushing right direction of vehicle. Ε

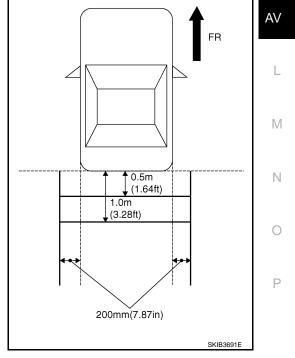
#### INSTALLATION

- 1. Install rear view camera and camera bracket while pressing to trunk room side.
- 2. Install connector and connector clip.
- 3. Install trunk lid finisher inner.

#### Adjustment

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

- 1. Draw lines on rearward area of the vehicle passing through the following points: 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.



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#### REAR VIEW CAMERA [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

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

#### Selected pattern

4. Make fine adjustment to the correction line of the rear of the vehicle with up/down/left/right switches so that its position is aligned with the guiding line. Press ""

:7

Up/Down adjustment range	: – <b>20 – 20</b>
Left/Right adjustment range	: – <b>20 – 20</b>

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7			7
Use DIAL to select range	marking type <4 position <0,0>	1/7>	

#### **CAUTION:**

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

If Confirmation/Adjustment mode does not function in the above procedure, perform one of the following service to adjust the index again.

- Remove battery for five min. Then reconnect battery.
- Remove camera control unit connector for five min. Then reconnect camera control unit connector.

#### STEERING ANGLE SENSOR [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# STEERING ANGLE SENSOR

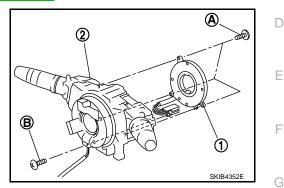
Exploded View

Refer to PS-9, "On-Vehicle Inspection and Service".

#### Removal and Installation

#### REMOVAL

- 1. Remove combination switch. Refer to LT-177, "Removal and Installation".
- 2. Remove screws (A) and remove connector mount screw (B).
- 3. Remove steering angle sensor (1) from combination switch (2).



#### INSTALLATION

Install in the reverse order of removal.

#### CAUTION:

Insert the projection area, and install steering wheel angle sensor while fitting adjusting the triangle marks (Larger mark should be upward.).

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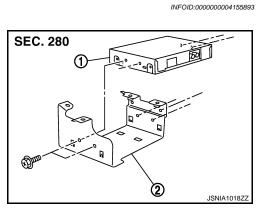
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# SATELLITE RADIO TUNER

# Exploded View

- 1. Satellite radio tuner
- 2. Bracket

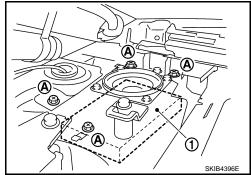


# Removal and Installation

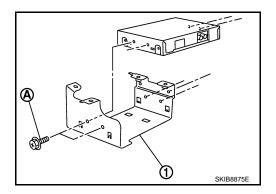
INFOID:000000004155894

#### REMOVAL

- 1. Remove trunk front finisher. Refer to El-66, "Removal and Installation".
- 2. Remove rear parcel shelf finisher. Refer to EI-53, "Removal and Installation".
- 3. Remove screws (A).
- 4. Disconnect connector and remove satellite radio tuner (1) from trunk room side.



5. Disconnect screws (A) and remove bracket (1).



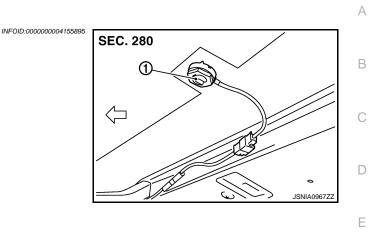
#### INSTALLATION Installation is the reverse order of removal.

## < ON-VEHICLE REPAIR >

#### SATELLITE RADIO ANTENNA [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

# SATELLITE RADIO ANTENNA





∠\_: Vehicle front

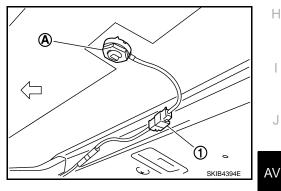
1. Satellite radio antenna

## Removal and Installation

#### REMOVAL

- 1. Remove headlining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>EI-63</u>, <u>"Removal and Installation"</u> [with normal roof] <u>EI-63</u>, <u>"Removal and Installation"</u> [with sunroof].
- 2. Remove nuts (A), and then disconnect connector (1).
- 3. Remove satellite radio antenna from roof panel.

∠: Vehicle front



INSTALLATION Install in the reverse order of removal.

Satellite radio antenna	
mounting nut	

#### **P**: 6.5 N·m (0.66 kg-m, 58 in-lb)

#### **CAUTION:**

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

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#### TEL ADAPTER UNIT [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

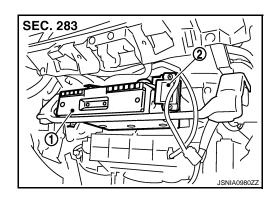
# TEL ADAPTER UNIT

## Exploded View

INFOID:000000004155897

## REMOVAL

Refer to <u>IP-20</u>, "GLOVE BOX : Removal and Installation". DISASSEMBLY



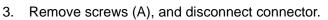
- 1. TEL adapter unit
- 2. TEL antenna

## Removal and Installation

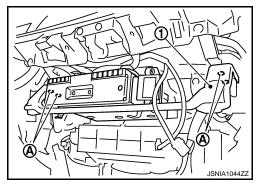
INFOID:000000004155898

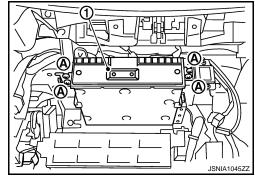
#### REMOVAL

- 1. Remove glove box cover. Refer to IP-20, "GLOVE BOX : Removal and Installation".
- 2. Remove screws (A), and remove knee assist protector assembly (1).



4. Remove TEL adapter unit (1) TEL antenna comes off accordingly.



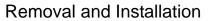


INSTALLATION Install in the reverse order of removal.

# TEL ANTENNA

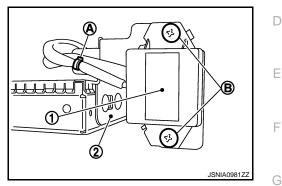
Exploded View

Refer to AV-508, "Exploded View".



#### REMOVAL

- 1. Remove TEL adapter unit. Refer to AV-508, "Removal and Installation".
- 2. Remove clip (A), and disconnect connector.
- 3. Remove screws (B) from the TEL adapter unit bracket RH (2), and remove TEL antenna (1).



INSTALLATION Install in the reverse order of removal.



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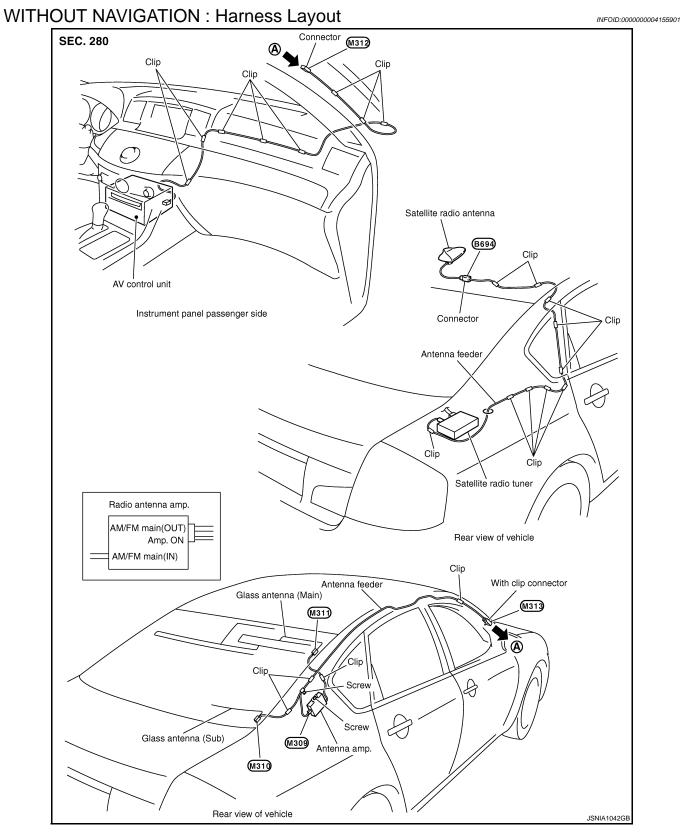
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# ANTENNA FEEDER (RADIO) WITHOUT NAVIGATION

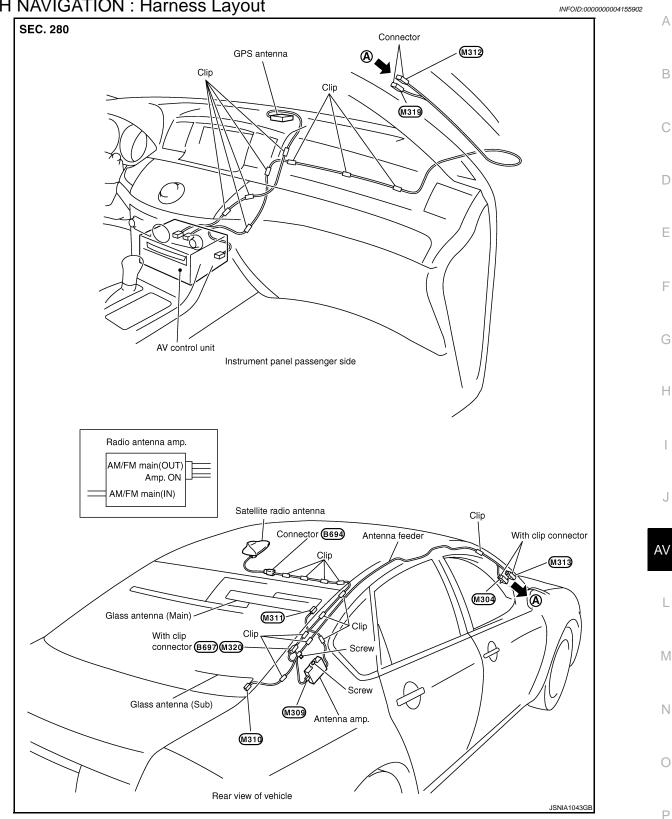


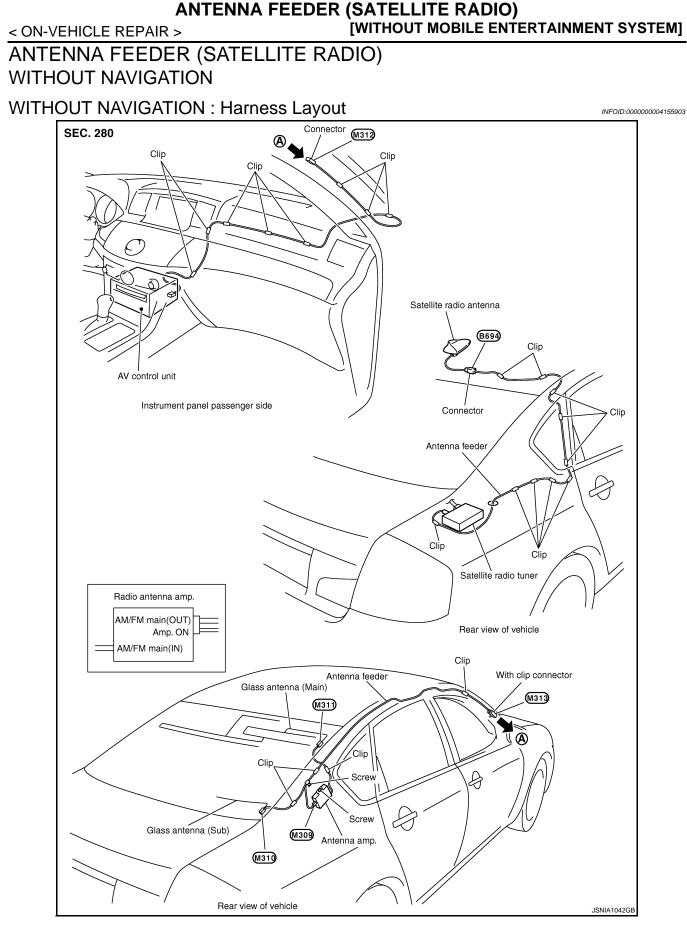
WITH NAVIGATION

#### < ON-VEHICLE REPAIR >

## **ANTENNA FEEDER (RADIO)** [WITHOUT MOBILE ENTERTAINMENT SYSTEM]

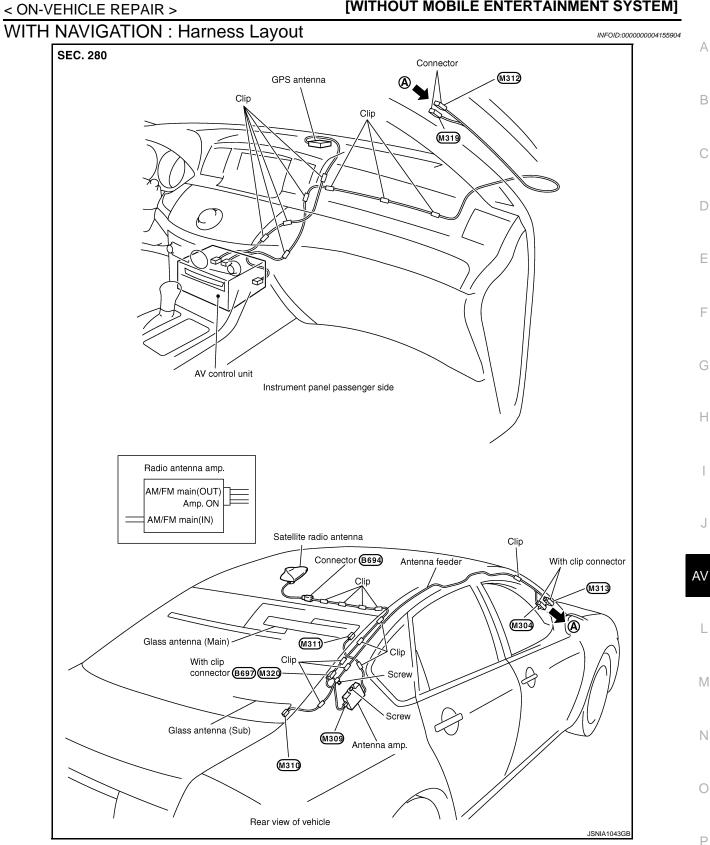






WITH NAVIGATION

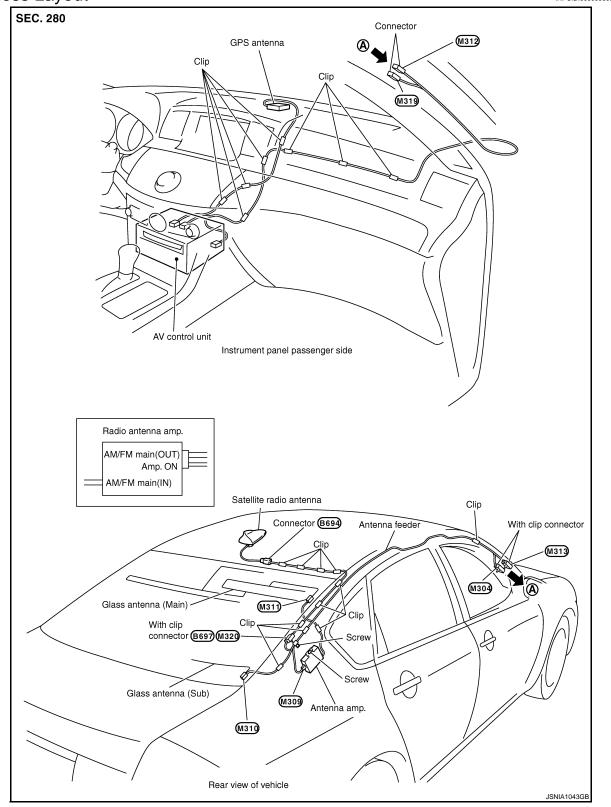
#### ANTENNA FEEDER (SATELLITE RADIO) > [WITHOUT MOBILE ENTERTAINMENT SYSTEM]



# ANTENNA FEEDER (GPS)

Harness Layout





## DIAGNOSIS AND REPAIR WORK FLOW [WITH MOBILE ENTERTAINMENT SYSTEM]

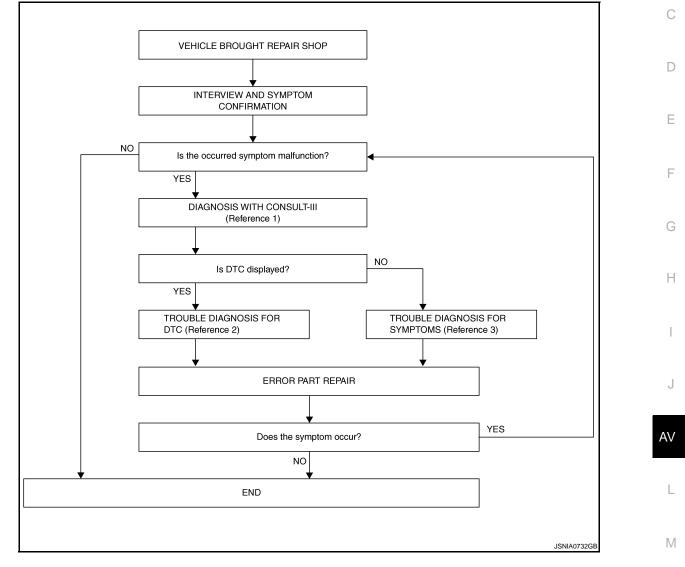
# BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

## Work Flow

INFOID:000000004155906

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- Reference 1... Refer to <u>AV-560. "CONSULT-III Function (MULTI AV)"</u>.
- Reference 2... Refer to <u>AV-685, "DTC Index".</u>
- Reference 3… Refer to <u>AV-1048, "Symptom Table"</u>.

## DETAILED FLOW

**1.**INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

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

YES >> GO TO 2.

NO >> INSPECTION END

2. DIAGNOSIS WITH CONSULT-III

Ν

## DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

- Connect CONSULT-III and perform a self-diagnosis for "MULTI AV". Refer to <u>AV-560, "CONSULT-III Func-tion (MULTI AV)"</u>. NOTE:
  - Skip to step 4 of the diagnosis procedure if "MULTI AV" is not displayed.
- 2. Check if any DTC is displayed in the self-diagnosis results.

#### 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-685, "DTC Index".

>> GO TO 5.

### **4.**TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to <u>AV-1048</u>, "Symptom <u>Table"</u>.

>> GO TO 5.

## 5. ERROR PART REPAIR

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

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

3. Check that the symptom does not occur.

Does the symptom occur?

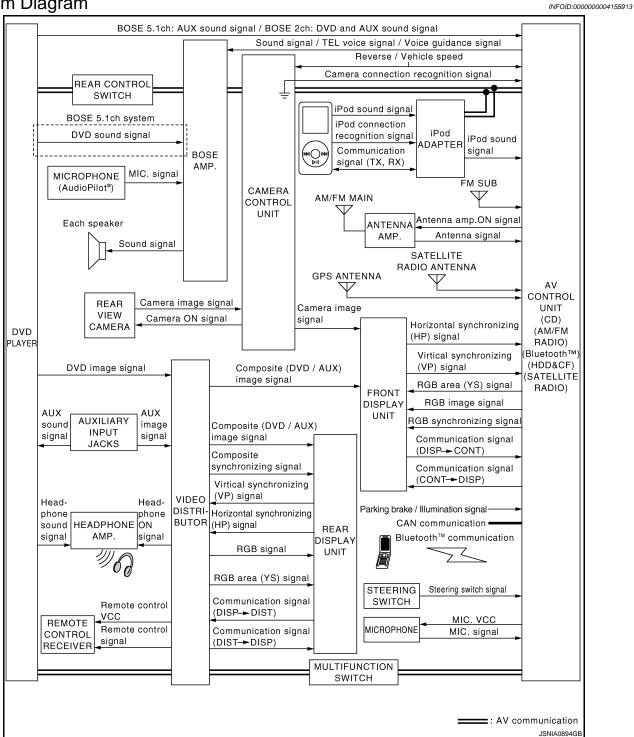
- YES >> GO TO 1.
- NO >> INSPECTION END

INSPECTION AND ADJUSTMENT	
< BASIC INSPECTION > [WITH MOBILE ENTERTAINMENT SYSTEM]	
INSPECTION AND ADJUSTMENT	А
ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL	~
ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : De- scription	В
Always correct the center position of the rear view monitor's possible route line after disconnecting the battery negative terminal.	С
ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Spe- cial Repair Requirement	D
1.CORRECTION OF CENTER POSITION OF REAR VIEW MONITOR'S POSSIBLE ROUTE LINE	_
Refer to the following for details.	Е
>> Refer to <u>AV-517, "REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION</u> <u>ADJUSTMENT : Special Repair Requirement"</u> . ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT	F
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description	G
When camera control unit is replaced, the center position of rear view monitor possible route line is corrected. ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Re- quirement	Η
1.CORRECTION OF CENTER POSITION OF REAR VIEW MONITOR'S POSSIBLE ROUTE LINE	
Refer to the following for details.	
>> Refer to <u>AV-517, "REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION</u> ADJUSTMENT : Special Repair Requirement".	J
REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST- MENT	AV
REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST- MENT : Description	L
Adjust the center position of the possible route line of the rear view monitor if it is shifted.	M
REAR VIEW MONITOR POSSIBLE ROUTE LINE CENTER POSITION ADJUST- MENT : Special Repair Requirement	Ν
1.STEERING OPERATION	
Steer the steering wheel to the leftmost and rightmost ends.	0
>> GO TO 2 2.DRIVING	Ρ
Drive the vehicle straight ahead 100 m (328.1 ft) or more at a speed of 30 km/h (18.6 MPH) or more.	
>> END	

### [WITH MOBILE ENTERTAINMENT SYSTEM]

# FUNCTION DIAGNOSIS MULTI AV SYSTEM

## System Diagram



#### NOTE:

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

#### System Description

INFOID:000000004155914

Multi AV system means that the following systems are integrated.

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

System name	System explanation	А
NAVIGATION SYSTEM	AV-525, "System Description"	
AUDIO SYSTEM	AV-533, "System Description"	
REAR VIEW MONITOR SYSTEM	AV-530, "System Diagram"	В
HANDS-FREE PHONE SYSTEM	AV-538, "System Diagram"	
MOBILE ENTERTAINMENT SYSTEM	AV-541, "System Description"	С
VEHICLE INFORMATION SYSTEM	<ul> <li>Status of audio, climate control system, fuel economy, maintenance and navigation is displayed.</li> <li>AV control unit displays the fuel consumption status while receiving data signal through CAN communication from ECM, unified meter and A/C amp. and BCM.</li> </ul>	D
AUXILIARY INPUT SYSTEM	Refer to the following "AUXILIARY INPUT SYSTEM".	_
VOICE RECOGNITION SYSTEM	Refer to the following "VOICE RECOGNITION SYSTEM".	E
TOUCH PANEL SYSTEM	Refer to the following "TOUCH PANEL SYSTEM".	

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

- Two AV communication lines (H, L) adopt a twisted pair line that is resistant to noise.
- AV control unit is connected by CAN communication, and it receives data signal from ECM, unified meter and A/C amp. It computes and displays fuel economy information value with the obtained information. Transmitting/receiving of data signal is performed by BCM. Also, it transmits the required signal of vehicle setting and receives the response signal.
- The AV control unit receives the steering angle sensor signal via CAN communication from the steering angle sensor and transmits the steering angle sensor signal via AV communication to the camera control unit.
- AV control unit is connected with front display and serial communication, and it transmits the required signal of display and display control and receives the response signal from front display.
   NOTE:

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

- CONSULT-III self diagnosis: Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u>.
- On board self diagnosis: Refer to <u>AV-545, "Diagnosis Description"</u>.

#### AUXILIARY INPUT SYSTEM

- The AUX sound signal input from the external input device is transmitted from auxiliary input jacks to DVD player. DVD player transmits it to AV control unit. AV control unit transmits the AUX sound signal to BOSE amp.
- The AUX image signal input from the external input device is transmitted to the video distributor. The video distributor transmits the AUX image signal to the front display unit and rear display unit.

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AV

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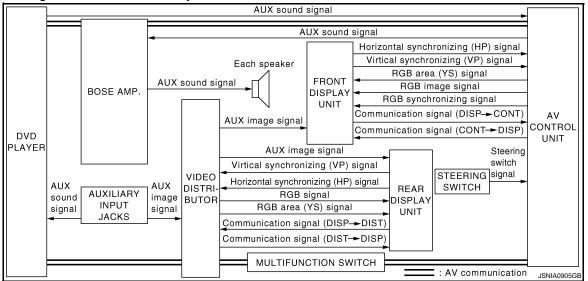
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# < FUNCTION DIAGNOSIS >

## MULTI AV SYSTEM

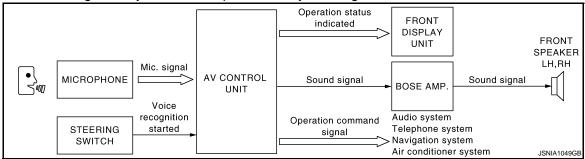
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

• Operation can be performed with multifunction switch and steering switch. Multifunction switch transmits operation signal to AV control unit by AV communication.



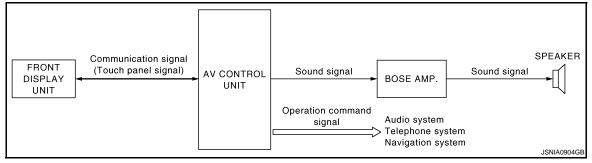
#### VOICE RECOGNITION SYSTEM

- Each operation of multi AV system can be performed by inputting sound to microphone.
- · 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 front display.



#### **MULTI AV SYSTEM** [WITH MOBILE ENTERTAINMENT SYSTEM]

## **Component Parts Location**

INFOID:000000004155915

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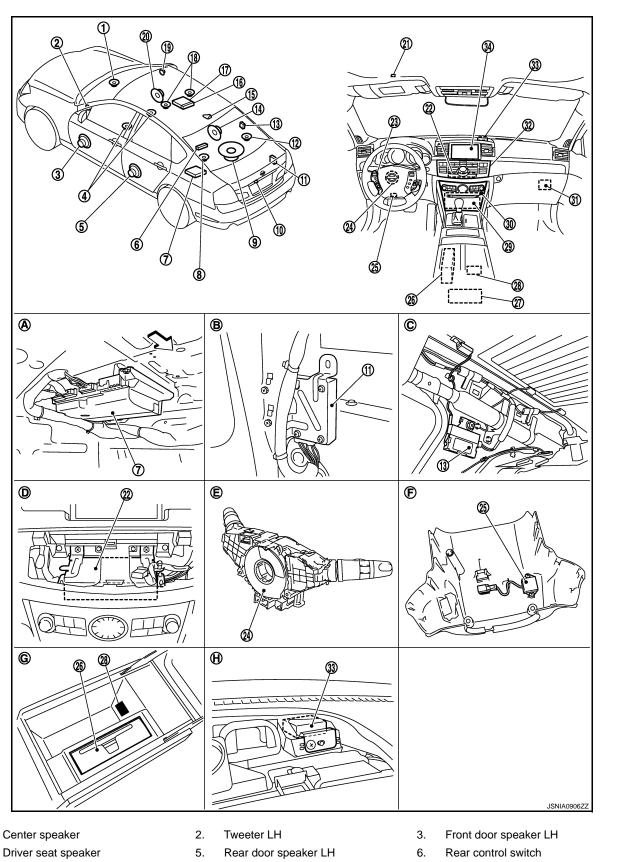
L

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7. BOSE amp.

1.

4.

- 10. Rear view camera
- 8. Rear surround speaker LH
- 11. Camera control unit
- 9. Woofer
- 12. Rear surround speaker RH



## < FUNCTION DIAGNOSIS >

**Component Description** 

# [WITH MOBILE ENTERTAINMENT SYSTEM]

13.	Antenna amp.	14.	Rear door speaker RH	15.	Satellite radio antenna
16.	Headphone amp. & remote control receiver	17.	Rear display unit	18.	Passenger seat speaker
19.	Tweeter RH	20.	Front door speaker RH	21.	Microphone
22.	Video distributor	23.	Steering switch	24.	Steering angle sensor
25.	Microphone (for AudioPilot <sup>®</sup> )	26.	DVD player	27.	Auxiliary input jacks
28.	iPod connector	29.	AV control unit	30.	Preset switch
31.	iPod adapter	32.	Multifunction switch	33.	GPS antenna
34.	Front display unit				
Α.	Under rear parcel LH side	В.	Trunk side finisher (RH) is removed	C.	Rear pillar finisher (RH) is removed
D.	Multifunction switch is removed	Ε.	Spiral cable part	F.	Steering column cover is removed
G.	In center console	Н.	Center ventilator grille is removed		
⊏>:	Vehicle front				

INFOID:000000004155916

Part name	Description			
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>			
VIDEO DISTRIBUTOR	<ul> <li>It receives the image signal from the DVD player, and auxiliary input jack, and then transmits it to the front display unit and rear display unit.</li> <li>It supplies the power to the remote control receiver, and then receives the operation signal from the remote control receiver.</li> <li>Composite synchronize signal is output to rear display unit.</li> <li>It transmits ON signal to headphone amp.</li> </ul>			
FRONT DISPLAY UNIT	<ul> <li>Front display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing). Composite image signal (auxiliary and DVD images) is input from the video distributor. Camera image signal is input from camera control unit.</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> </ul>			
REAR DISPLAY UNIT	<ul> <li>Rear display image is controlled by the serial communication from video distributor.</li> <li>RGB image signal is input from video distributor (RGB image and RGB area). Composite image signal (DVD and auxiliary images) is input from the video distributor.</li> <li>Synchronize signal (HP, VP) is output to video distributor.</li> </ul>			

#### < FUNCTION DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

Part name	Description			
	<ul> <li>It is connected via AV communication and controlled by the AV control unit.</li> <li>It receives the voice guidance signal from AV control unit and output it to the front speaker.</li> <li>It controls sound volume of each speaker when outputting TEL voice and voice guidance.</li> </ul>			
BOSE AMP.	• It subjects to AudioPilot <sup>®</sup> processing when receiving sound signal from micro- phone for AudioPilot <sup>®</sup> .			
DOSE AIVIF.	<ul><li>BOSE 2ch system</li><li>It amplifies the sound signal from the AV control unit and output it to each speaker.</li></ul>			
	<ul> <li>BOSE surround audio 5.1ch system</li> <li>It amplifies the sound signal from the AV control unit and the DVD sound signal from DVD player, and then output them to each speaker.</li> </ul>			
	It subjects to Centerpoint <sup>®</sup> processing.			
WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>			
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>			
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>			
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>			
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>			
SEAT SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>			
REAR SURROUND SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>			
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio, auxiliary input and navigation operations are integrated.</li> <li>The multifunction switch is connected via AV communication, and it transmits the operation signals of the multifunction switch and preset switch.</li> </ul>			
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>The preset switch is connected to the multifunction switch by hard-wire, and it transmits the operation signal to the multifunction switch.</li> </ul>			
DVD PLAYER	<ul> <li>It transmits the playback DVD image signal to the video distributor. It also transmits the input AUX sound signal to the AV control unit. BOSE 2ch system</li> <li>It transmits the playback DVD sound signal to the AV control unit. BOSE surround audio 5.1ch system</li> <li>It transmits the playback DVD sound signal to the BOSE amp.</li> </ul>			
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera. Camera image signal output to front display unit.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> <li>Camera control unit is connected via AV communication, and it receives the control signal and steering angle signal from the AV control unit.</li> </ul>			
REAR VIEW CAMERA	<ul> <li>The image of vehicle rear view is transmitted to camera control unit.</li> <li>It receives the power (camera ON signal) from the camera control unit and operates.</li> </ul>			
STEERING SWITCH	<ul> <li>Operations for audio, hands-free phone, audio response and navigation, etc. are possible.</li> <li>Steering switch signal (operation signal) is output to AV control unit.</li> </ul>			

#### < FUNCTION DIAGNOSIS >

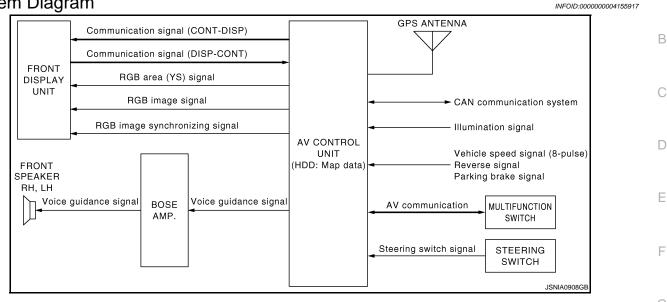
## [WITH MOBILE ENTERTAINMENT SYSTEM]

Part name	Description
MICROPHONE	<ul> <li>Used for hands-free phone operation and voice recognition.</li> <li>Mic signal is transmitted to AV control unit.</li> <li>Power (Mic. VCC) is supplied from AV control unit.</li> </ul>
AUXILIARY INPUT JACKS	Image signal of auxiliary input is transmitted to video distributor, and sound signal is transmitted to DVD player.
GPS ANTENNA	GPS signal is received and transmitted to AV control unit.
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp. ON signal) is supplied from AV control unit.</li> </ul>
SATELLITE RADIO ANTENNA	Satellite radio wave is received and transmitted to AV control unit.
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>
STEERING ANGLE SENSOR	It is connected to the AV control unit and transmits the steering angle signal via CAN communication.
REAR CONTROL SWITCH	<ul> <li>Operations for audio, etc. are possible.</li> <li>The rear control switch is connected via AV communication, and it transmits the operation signals of the rear control switch.</li> </ul>
MICROPHONE (for AudioPilot <sup>®</sup> )	<ul> <li>Used for AudioPilot<sup>®</sup>.</li> <li>Mic signal is transmitted to BOSE amp.</li> </ul>

#### NAVIGATION SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

# NAVIGATION SYSTEM

#### System Diagram



## System Description

INFOID:0000000004155918

#### 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.

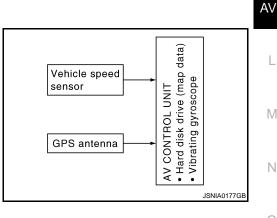
The current position is calculated by detecting the travel distance from the previous calculation point, and its direction change.

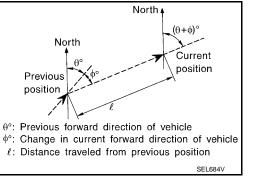
Travel distance

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.





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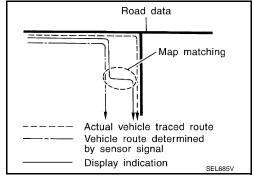
#### NAVIGATION SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

Туре	Advantage	Disadvantage			
Gyroscope (angular velocity sensor)	The turning angle is precisely detected.	Errors are accumulated when driving a long dis- tance without stopping.			
GPS antenna (GPS informa- tion)	The travel direction (North/South/East/West) is detected.	The travel direction is not precisely detected when driving slowly.			

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

#### MAP-MATCHING

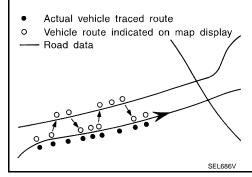
Map-matching repositions the vehicle on the road map when a new location is judged to be more accurate. This is done by comparing the current vehicle position (calculated by the normal position detection method) from the map data stored in the HDD (Hard Disk Drive).



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

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

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



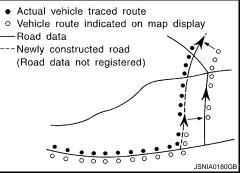
Map-matching does not function correctly when road on which the vehicle is driving is new, etc. and not recorded in the map data. Also, map-matching does not function correctly when road pattern stored in the map data and the actual road pattern are different due to repair, etc.

Therefore, the map-matching function judges other road as a 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)

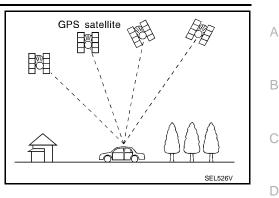


#### < FUNCTION DIAGNOSIS >

#### NAVIGATION SYSTEM [WITH MOBILE ENTERTAINMENT 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.

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 even with a high-precision three dimensional positioning.
- There may be cases when the accuracy is lowered and radio waves are stopped intentionally because the GPS satellite signal is controlled by the US trace control center.

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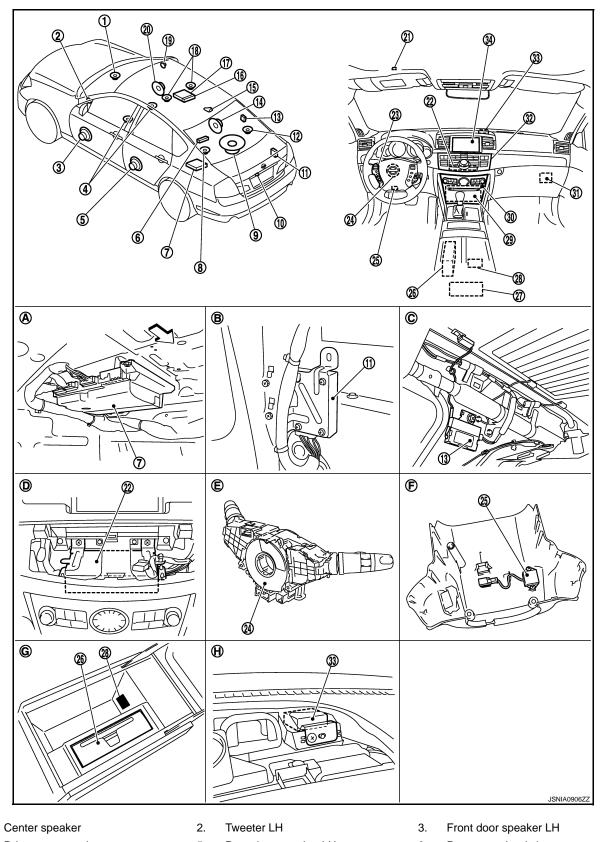
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#### NAVIGATION SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

## **Component Parts Location**

INFOID:000000004155919



- 4. Driver seat speaker
- 7. BOSE amp.

1.

- 10. Rear view camera
- 5. Rear door speaker LH
- 8. Rear surround speaker LH
- 11. Camera control unit
- 6. Rear control switch
- 9. Woofer
- 12. Rear surround speaker RH



# < F

**Component Description** 

# **NAVIGATION SYSTEM**

< FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]					
13.	Antenna amp.	14.	Rear door speaker RH	15.	Satellite radio antenna
16.	Headphone amp. & remote control receiver	17.	Rear display unit	18.	Passenger seat speaker
19.	Tweeter RH	20.	Front door speaker RH	21.	Microphone
22.	Video distributor	23.	Steering switch	24.	Steering angle sensor
25.	Microphone (for AudioPilot <sup>®</sup> )	26.	DVD player	27.	Auxiliary input jacks
28.	iPod connector	29.	AV control unit	30.	Preset switch
31.	iPod adapter	32.	Multifunction switch	33.	GPS antenna
34.	Front display unit				
Α.	Under rear parcel LH side	В.	Trunk side finisher (RH) is removed	C.	Rear pillar finisher (RH) is removed
D.	Multifunction switch is removed	Ε.	Spiral cable part	F.	Steering column cover is removed
G.	In center console	Н.	Center ventilator grille is removed		
⊏>:	Vehicle front				

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INFOID:000000004155920

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

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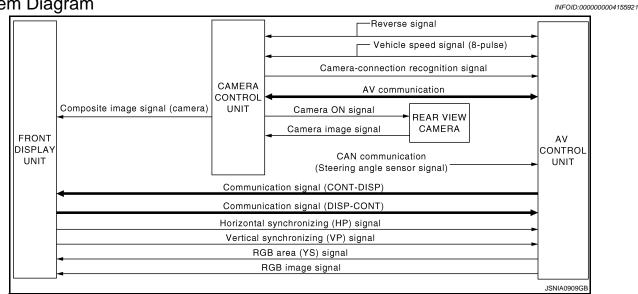
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#### < FUNCTION DIAGNOSIS >

#### REAR VIEW MONITOR SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

# REAR VIEW MONITOR SYSTEM

#### System Diagram



## System Description

INFOID:000000004155922

#### CAMERA IMAGE OPERATION PRINCIPLE

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

## < FUNCTION DIAGNOSIS >

#### **REAR VIEW MONITOR SYSTEM** [WITH MOBILE ENTERTAINMENT SYSTEM]

## **Component Parts Location**

INFOID:000000004155923

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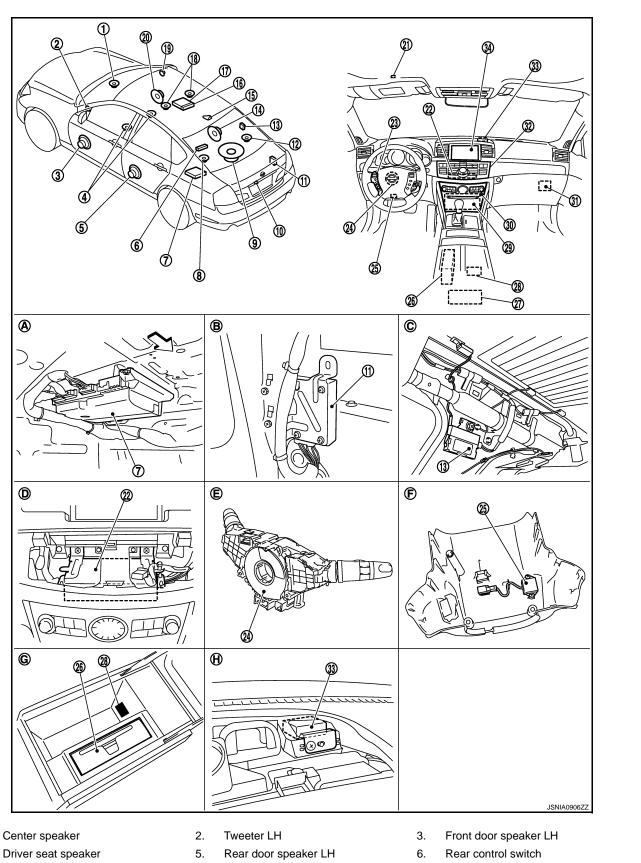
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7. BOSE amp.

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- 10. Rear view camera
- 8. Rear surround speaker LH
- 11. Camera control unit
- 9. Woofer
- 12. Rear surround speaker RH

AV-531

# REAR VIEW MONITOR SYSTEM

## < FUNCTION DIAGNOSIS >

-	
	[WITH MOBILE ENTERTAINMENT SYSTEM]

13.	Antenna amp.	14.	Rear door speaker RH	15.	Satellite radio antenna
16.	Headphone amp. & remote control receiver	17.	Rear display unit	18.	Passenger seat speaker
19.	Tweeter RH	20.	Front door speaker RH	21.	Microphone
22.	Video distributor	23.	Steering switch	24.	Steering angle sensor
25.	Microphone (for AudioPilot <sup>®</sup> )	26.	DVD player	27.	Auxiliary input jacks
28.	iPod connector	29.	AV control unit	30.	Preset switch
31.	iPod adapter	32.	Multifunction switch	33.	GPS antenna
34.	Front display unit				
Α.	Under rear parcel LH side	В.	Trunk side finisher (RH) is removed	C.	Rear pillar finisher (RH) is removed
D.	Multifunction switch is removed	Ε.	Spiral cable part	F.	Steering column cover is removed
G.	In center console	Н.	Center ventilator grille is removed		
<₽>:	Vehicle front				

**Component Description** 

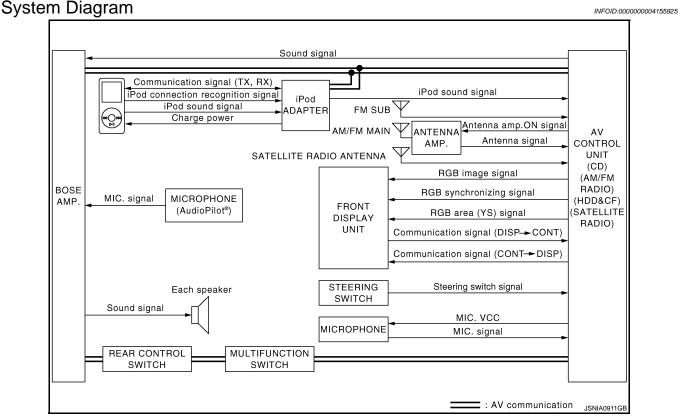
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Part name	Description
AV CONTROL UNIT	<ul> <li>Image on display is changed to rear view monitor image with serial communication between AV control unit and front display unit.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>Warning displayed in rear view monitor image is illustrated.</li> </ul>
FRONT DISPLAY UNIT	<ul> <li>Camera image signal is transmitted from camera control unit, and RGB image signal for warning display is transmitted from AV control unit.</li> <li>Rear view monitor image is changed with the communication for AV control unit.</li> </ul>
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera, and camera image is indicated on the front display unit.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>Camera control unit is connected via AV communication, and it receives the control signal and steering angle signal from the AV control unit.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> </ul>
REAR VIEW CAMERA	<ul> <li>The image of vehicle rear view is transmitted to camera control unit.</li> <li>It receives the power (camera ON signal) from the camera control unit and operates.</li> </ul>
STEERING ANGLE SENSOR	It is connected to the AV control unit and transmits the steering angle signal via CAN communication.

#### AUDIO SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

# < FUNCTION DIAGNOSIS >

# AUDIO SYSTEM



# System Description

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 front display.

From etition		
Function		
AM/FM radio		
Satellite radio		
CD		
Music Box (Hard Disk Drive)		
CF (Compact Flash)		
iPod connection		
AudioPilot <sup>®</sup>		
Centerpoint <sup>®</sup> (for BOSE surround audio 5.1ch system)		

## FUNCTION DESCRIPTION

#### **Operating Signal**

Audio system operation can be performed with multifunction switch, preset switch, steering switch, touch panel function or voice recognition function.

- Operating signal is transmitted to AV control unit with AV communication when it is operated by multifunction switch or preset switch.
- Operating signal is transmitted to AV control unit with steering switch signal when it is operated by steering switch.
- Refer to <u>AV-518, "System Description"</u> for explanation of voice recognition function and touch panel function.

Screen Front Display

## AV-533

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## **AUDIO SYSTEM**

#### < FUNCTION DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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

#### AM/FM Radio Mode

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

#### Satellite Radio Mode

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

#### CD Mode

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

#### Music Box Mode

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

#### CF Mode

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

#### iPod Connection

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

#### AudioPilot<sup>®</sup>

AudioPilot<sup>®</sup> is the sound improving system that picks up any noises and the sound of music coming into the vehicle by a microphone under the steering, and that the BOSE amp. revises the frequency feature of music at real time in response to the frequency feature of the noise while driving and listening to music.

- If low frequency area noise from vehicle is loud, it adjusts low frequency element of music to be bigger than vehicle noise.
- If high frequency area noise from vehicle is loud, it adjusts all frequency element of music to be bigger than vehicle noise.

#### Centerpoint<sup>®</sup> (For BOSE surround audio 5.1ch system)

CD and 2ch DVD stereo sound played at audio unit and DVD player are subjected to signal processing in BOSE amp. It can play the surround sound with presence.

#### **AUDIO SYSTEM** [WITH MOBILE ENTERTAINMENT SYSTEM]

## **Component Parts Location**

INFOID:000000004155927

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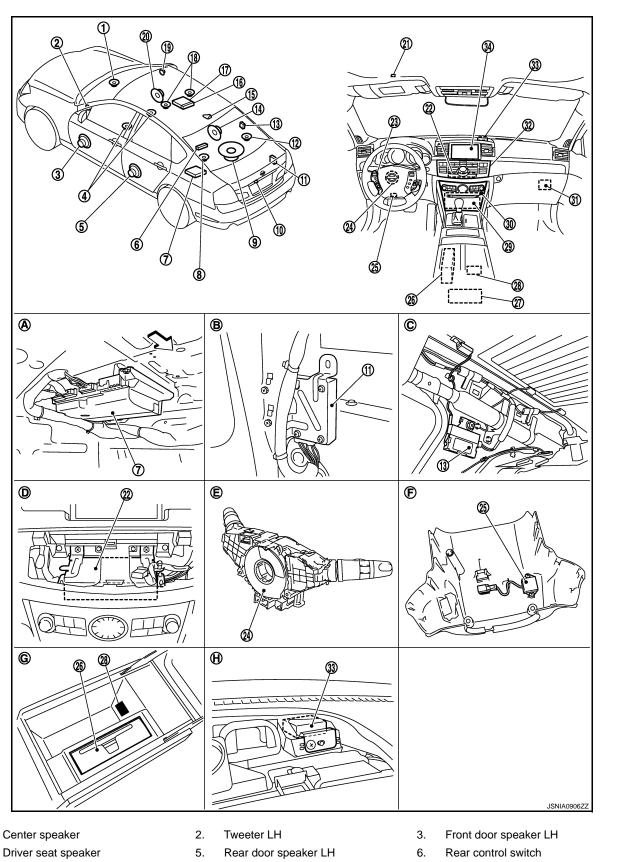
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7. BOSE amp.

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- 10. Rear view camera
- 8. Rear surround speaker LH
- 11. Camera control unit
- 9. Woofer
- 12. Rear surround speaker RH

AV-535

# AUDIO SYSTEM

#### < FUNCTION DIAGNOSIS >

### [WITH MOBILE ENTERTAINMENT SYSTEM]

13.	Antenna amp.	14.	Rear door speaker RH	15.	Satellite radio antenna
16.	Headphone amp. & remote control receiver	17.	Rear display unit	18.	Passenger seat speaker
19.	Tweeter RH	20.	Front door speaker RH	21.	Microphone
22.	Video distributor	23.	Steering switch	24.	Steering angle sensor
25.	Microphone (for AudioPilot <sup>®</sup> )	26.	DVD player	27.	Auxiliary input jacks
28.	iPod connector	29.	AV control unit	30.	Preset switch
31.	iPod adapter	32.	Multifunction switch	33.	GPS antenna
34.	Front display unit				
Α.	Under rear parcel LH side	В.	Trunk side finisher (RH) is removed	C.	Rear pillar finisher (RH) is removed
D.	Multifunction switch is removed	Ε.	Spiral cable part	F.	Steering column cover is removed
G.	In center console	Н.	Center ventilator grille is removed		
⊏>:	Vehicle front				

**Component Description** 

INFOID:000000004155928

Part name	Description
AV CONTROL UNIT	<ul> <li>Receiving function of AM/FM/satellite radio, replaying function of CD, replaying/saving function of music box (HDD), replaying function of CF and voice recognition function are integrated.</li> <li>It transmits the sound signal to the BOSE amp. with hard wire, and then transmits the control signals of AudioPilot<sup>®</sup> and Centerpoint<sup>®</sup> with AV communication.</li> </ul>
FRONT DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal (audio operation condition) is input from AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> </ul>
BOSE AMP.	<ul> <li>It is connected via AV communication and controlled by the AV control unit.</li> <li>It receives the sound signal from AV control unit and output it to the each speaker.</li> <li>It subjects to AudioPilot<sup>®</sup> processing when receiving sound signal from microphone for AudioPilot<sup>®</sup>. BOSE 2ch system</li> <li>It amplifies the sound signal from the AV control unit and output it to each speaker. BOSE surround audio 5.1ch system</li> <li>It amplifies the sound signal from the AV control unit and the DVD sound signal from DVD player, and then output them to each speaker.</li> <li>It subjects to Centerpoint<sup>®</sup> processing.</li> </ul>
WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>
SEAT SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>
REAR SURROUND SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>

## **AUDIO SYSTEM**

#### < FUNCTION DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

Part name	Description		
MULTIFUNCTION SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio, auxiliary input and navigation operations are integrated.</li> <li>The multifunction switch is connected via AV communication, and it transmits the operation signals of the multifunction switch and preset switch.</li> </ul>		
PRESET SWITCH	<ul> <li>Operation panel is equipped with the centralized switch where audio and air conditioner operations are integrated.</li> <li>The preset switch is connected to the multifunction switch by hard-wire, and it transmits the operation signal to the multifunction switch.</li> </ul>		
STEERING SWITCH	<ul> <li>Each audio operation can be operated.</li> <li>Steering switch signal (operation signal) is output to AV control unit.</li> </ul>		
MICROPHONE	<ul> <li>Used for hands-free phone operation and voice recognition.</li> <li>Mic signal is transmitted to AV control unit.</li> <li>Power (Mic. VCC) is supplied from AV control unit.</li> </ul>		
ANTENNA AMP.	<ul> <li>Radio signal received by glass antenna is amplified and transmitted to AV control unit.</li> <li>Power (antenna amp ON signal) is supplied from AV control unit.</li> </ul>		
SATELLITE RADIO ANTENNA	Satellite radio wave is received and output to AV control unit.		
iPod ADAPTER	<ul> <li>Inputs iPod sound signal from iPod<sup>®</sup>, and outputs iPod sound signal to AV control unit.</li> <li>Receiving/transmitting of iPod<sup>®</sup> operation signals are performed as follows:</li> <li>between AV control unit and iPod adapter: AV communication.</li> <li>between iPod<sup>®</sup> and iPod adapter: serial communication.</li> </ul>		
REAR CONTROL SWITCH	<ul> <li>Operations for audio, etc. are possible.</li> <li>The rear control switch is connected via AV communication, and it transmits the operation signals of the rear control switch.</li> </ul>		
MICROPHONE (for AudioPilot <sup>®</sup> )	<ul> <li>Used for AudioPilot<sup>®</sup>.</li> <li>Mic signal is transmitted to BOSE amp.</li> </ul>		

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## HANDS-FREE PHONE SYSTEM

#### < FUNCTION DIAGNOSIS >

# HANDS-FREE PHONE SYSTEM

#### System Diagram INFOID:000000004155929 FRONT )) SPEAKER Sound signal Sound signal M LH,RH (TEL voice, Voice (TEL voice, Voice TEL voice signal guidance signal) guidance signal) BOSE AMP AV CONTROL TEL started STEERING UNIT SWITCH (Bluetooth™ module) Operation status FRONT indicated DISPLAY Mic. signal ٠ MICROPHONE UNIT 500 JSNIA1050GI

## System Description

INFOID:000000004155930

- AV control unit includes hands-free phone function.
- Hands-free communication can be operated by connecting using Bluetooth<sup>™</sup> communication with cellular phone.
- Operation is performed by steering switch, and operating condition is indicated on front 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 (MIC. signal) is input to AV control unit. AV control unit outputs to cellular phone with Bluetooth<sup>™</sup> 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 front speaker, and the signal is input to BOSE amp. via AV control unit by establishing Bluetooth<sup>™</sup> communication from cellular phone.

## < FUNCTION DIAGNOSIS >

## **HANDS-FREE PHONE SYSTEM** [WITH MOBILE ENTERTAINMENT SYSTEM]

# **Component Parts Location**

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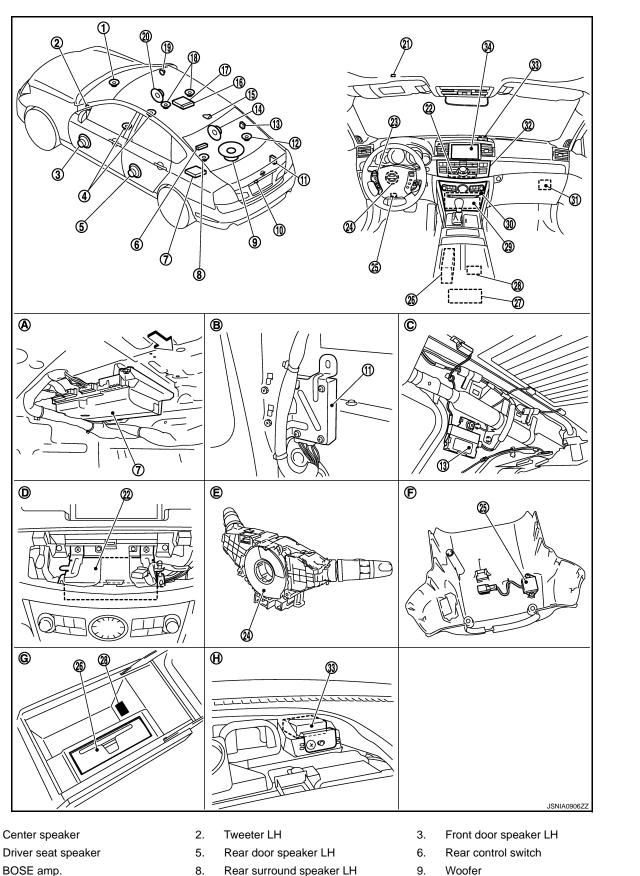
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7. BOSE amp.

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10. Rear view camera Camera control unit

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- Woofer
- 12. Rear surround speaker RH



# < FUNCTION DIAGNOSIS >

#### HANDS-FREE PHONE SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

			-		=
13.	Antenna amp.	14.	Rear door speaker RH	15.	Satellite radio antenna
16.	Headphone amp. & remote control receiver	17.	Rear display unit	18.	Passenger seat speaker
19.	Tweeter RH	20.	Front door speaker RH	21.	Microphone
22.	Video distributor	23.	Steering switch	24.	Steering angle sensor
25.	Microphone (for AudioPilot <sup>®</sup> )	26.	DVD player	27.	Auxiliary input jacks
28.	iPod connector	29.	AV control unit	30.	Preset switch
31.	iPod adapter	32.	Multifunction switch	33.	GPS antenna
34.	Front display unit				
Α.	Under rear parcel LH side	В.	Trunk side finisher (RH) is removed	C.	Rear pillar finisher (RH) is removed
D.	Multifunction switch is removed	Ε.	Spiral cable part	F.	Steering column cover is removed
G.	In center console	Н.	Center ventilator grille is removed		

 $\Box$ : Vehicle front

## **Component Description**

INFOID:000000004155932

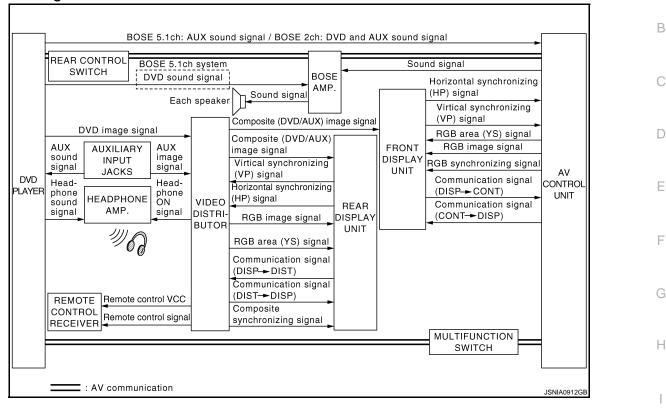
Part name	Description
AV CONTROL UNIT	<ul> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> <li>It outputs the TEL voice signal and voice guidance sound signal to the BOSE amp.</li> </ul>
FRONT DISPLAY UNIT	<ul> <li>Display image is controlled by the serial communication from AV control unit.</li> <li>Inputs RGB image signal (RGB, RGB area and RGB synchronizing) from AV control unit and displays the status of hands free phone system.</li> </ul>
BOSE AMP.	Inputs TEL voice signal or voice guidance signal from AV control unit and outputs it to front speaker.
FRONT DOOR SPEAKER	Outputs the TEL voice signal or voice guidance signal from BOSE amp.
PRESET SWITCH	<ul> <li>Adjust the sound when using TEL.</li> <li>The operation signal is transmitted to the AV control unit via AV communication.</li> </ul>
STEERING SWITCH	<ul><li>The hands free-phone system can be operated.</li><li>Steering switch signal (operation signal) is output to AV control unit.</li></ul>
MICROPHONE	<ul> <li>Uses when operating the hands-free phone.</li> <li>Outputs Mic. signal (TEL voice signal) to the AV control unit.</li> <li>The power (Mic. power supply) is supplied from the AV control unit.</li> </ul>

### MOBILE ENTERTAINMENT SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

### < FUNCTION DIAGNOSIS >

# MOBILE ENTERTAINMENT SYSTEM

## System Diagram



## System Description

The passengers can enjoy watching DVD in the rear seat with the rear display unit. They can also listen to a DVD and AUX in the rear seat independently by cordless headphones.

### FUNCTION DESCRIPTION

### **Operating Signal**

The mobile entertainment system can be controlled by the rear seat remote controller.

It receives the operation signal of the rear seat remote controller by the remote control receiver and rear display unit, and then transmits it to the video distributor.

Screen Rear Display

- Switching of display is performed with serial communication between rear display unit and video distributor.
- The rear display unit receives the DVD/AUX image signal and RGB image signal from the video distributor.

### Screen Front Display

- Switching of display is performed with serial communication between front display unit and AV control unit.
- The front display unit receives the DVD/AUX image signal from the video distributor.
- The front display unit receives the RGB image signal from the AV control unit.

### DVD Mode

- The DVD player is connected to the AV control unit via AV communication and controlled by the AV control unit.
- The DVD player sound signal is output to the BOSE amp. The BOSE amp. outputs it to each speaker. (BOSE surround audio 5.1ch system models)
- The DVD player sound signal is output to the AV control unit. The AV control unit outputs DVD player sound signal to BOSE amp. The BOSE amp. outputs it to each speaker. (BOSE 2ch system models)
- The DVD image signal is output to the video distributor. The video distributor outputs it to front display unit and rear display unit.

AUX Mode Refer to <u>AV-518, "System Diagram"</u>.

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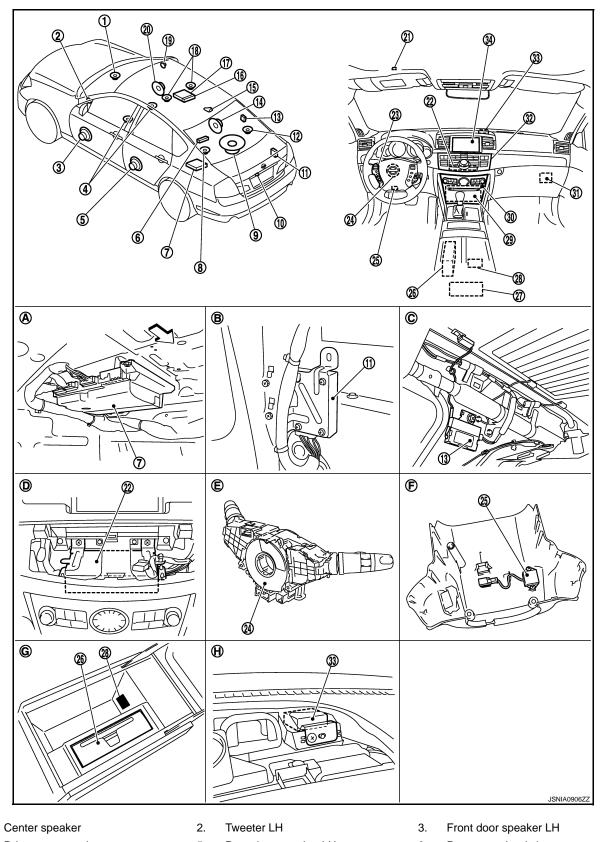
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# < FUNCTION DIAGNOSIS >

### MOBILE ENTERTAINMENT SYSTEM [WITH MOBILE ENTERTAINMENT SYSTEM]

## **Component Parts Location**

INFOID:000000004155935



- 4. Driver seat speaker
- 7. BOSE amp.

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- 10. Rear view camera
- 5. Rear door speaker LH
- 8. Rear surround speaker LH
- 11. Camera control unit
- 6. Rear control switch
- 9. Woofer
- 12. Rear surround speaker RH



# MOBILE ENTERTAINMENT SYSTEM

#### [WITH MOBILE ENTERTAINMENT SYSTEM] < FUNCTION DIAGNOSIS > Satellite radio antenna 13. Antenna amp. 14. Rear door speaker RH 15. А Headphone amp. & remote control 17. Rear display unit 16. 18. Passenger seat speaker receiver Tweeter RH 19. 20. Front door speaker RH 21. Microphone В 22. Video distributor 23. Steering switch 24. Steering angle sensor 26. **DVD** player 25. Auxiliary input jacks Microphone (for AudioPilot<sup>®</sup>) 27. 28. iPod connector 29. AV control unit 30. Preset switch iPod adapter 32. Multifunction switch 33. GPS antenna 31. 34. Front display unit Α. Under rear parcel LH side В. Trunk side finisher (RH) is removed C. Rear pillar finisher (RH) is removed D D. Multifunction switch is removed Ε. Spiral cable part F. Steering column cover is removed G. In center console Η. Center ventilator grille is removed

 $\Box$ : Vehicle front

# **Component Description**

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Part name	Description
VIDEO DISTRIBUTOR	<ul> <li>It receives the image signal from the DVD player, and auxiliary input jack, and then transmits it to the front display and rear display.</li> <li>It supplies the power to the remote control receiver, and then receives the operation signal from the remote control receiver.</li> <li>Composite synchronize signal is output to rear display unit.</li> <li>It transmits ON signal to headphone amp.</li> <li>Power (remote control receiver VCC) is transmitted to remote control receiver.</li> </ul>
REAR DISPLAY UNIT	<ul> <li>Rear Display image is controlled by the serial communication from video distributor.</li> <li>RGB image signal is input from video distributor (RGB image and RGB area). Composite image signal (DVD and auxiliary images) is input from the video distributor.</li> <li>Synchronize signal (HP, VP) is output to video distributor.</li> </ul>
	<ul> <li>It is connected via AV communication and controlled by the AV control unit.</li> <li>It receives the voice guidance signal from AV control unit and output it to the front speaker.</li> <li>It controls sound volume of each speaker when outputting TEL voice and voice guidance.</li> <li>It subjects to AudioPilot<sup>®</sup> processing when receiving sound signal from micro-</li> </ul>
BOSE AMP.	<ul> <li>phone for AudioPilot<sup>®</sup>.</li> <li>BOSE 2ch system</li> <li>It amplifies the sound signal from the AV control unit and output it to each speaker.</li> <li>BOSE surround audio 5.1ch system</li> <li>It amplifies the sound signal from the AV control unit and the DVD sound signal from DVD player, and then output them to each speaker.</li> <li>It subjects to Centerpoint<sup>®</sup> processing.</li> </ul>
DVD PLAYER	<ul> <li>It transmits the playback DVD image signal to the video distributor. It also transmits the input AUX sound signal to the AV control unit. BOSE 2ch system</li> <li>It transmits the playback DVD sound signal to the AV control unit. BOSE surround audio 5.1ch system</li> <li>It transmits the playback DVD sound signal to the BOSE amp.</li> </ul>
REMOTE CONTROL RECEIVER	<ul> <li>The power is supplied from the video distributor.</li> <li>It receives the operation signal of the remote controller, and then transmits the operation signal to the video distributor.</li> </ul>
HEADPHONE AMP.	<ul> <li>It receives the DVD/AUX sound signal from the DVD player, and then transmits it to the headphones.</li> <li>It operates by receiving the headphone ON signal from the video distributor.</li> </ul>
WOOFER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs low-pitched sound.</li></ul>

# MOBILE ENTERTAINMENT SYSTEM

### < FUNCTION DIAGNOSIS >

### [WITH MOBILE ENTERTAINMENT SYSTEM]

Part name	Description
FRONT DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
TWEETER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high range sound.</li></ul>
REAR DOOR SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high, mid and low range sounds.</li></ul>
CENTER SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>
SEAT SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>
REAR SURROUND SPEAKER	<ul><li>Outputs sound signal from BOSE amp.</li><li>Outputs high and mid range sounds.</li></ul>

### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITH MOBILE ENTERTAINMENT SYSTEM]

## < FUNCTION DIAGNOSIS > DIAGNOSIS SYSTEM (AV CONTROL UNIT)

# **Diagnosis Description**

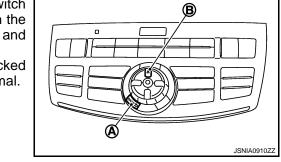
## MULTIFUNCTION SWITCH AND PRESET SWITCH SELF-DIAGNOSIS FUNCTION

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

Self-Diagnosis Mode

- Press the "BACK (A)" switch and the " (B)" 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 CD eject switch cannot be checked.



Finishing Self-Diagnosis Mode

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

### MULTI AV SYSTEM ON BOARD DIAGNOSIS FUNCTION

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

### ON BOARD DIAGNOSIS

Description

- The trouble diagnosis function has a self-diagnosis mode for conducting trouble diagnosis automatically and a confirmation/adjustment mode for operating manually.
- The self-diagnosis mode performs diagnoses on the AV control unit, connections between system components as well as connections between AV control unit and GPS antenna and between AV control unit and AV satellite radio antenna. Then it displays the diagnosis results on the display.
- The confirmation/adjustment mode allows the technician to check, modify or adjust the vehicle signals and set values, as well as to monitor the system error records and system communication status. The checking, modifying or adjusting generally require human intervention and judgment (the system cannot make judgment automatically).

On Board Diagnosis Item

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

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#### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITH MOBILE ENTERTAINMENT SYSTEM] < FUNCTION DIAGNOSIS >

Description The following check functions are available: color tone check by color **Display Diagnosis** bar display, light and shade check by gray scale display and touch panel calibration response check. Diagnosis of signals can be performed for vehicle speed, parking brake, Vehicle Signals lights, ignition switch, and reverse. Speaker Test The connection of a speaker can be confirmed by test tone. Climate Control Start auto air conditioner system self-diagnosis. Steering Angle Ad-When there is a difference between the actual turning angle and the vejustment hicle mark turning angle, it can be adjusted. When there is a difference between the current location mark and the ac-Navigation Speed Calibration tual location, it can be adjusted. XM SAT Subscrip-The XM NavTraffic subscription status can be checked. tion Status The system malfunction and the frequency when occurring in the past Error History are displayed. When the malfunctioning item is selected, the time and Confirmation/ place that the selected malfunction last occurred are displayed. Adjustment The transmitting/receiving of CAN communication can be monitored. Vehicle CAN Diagnosis The communication condition of each unit of Multi AV system can be AV COMM Diagnosis monitored. The received volume adjustment of hands-free phone, microphone Handsfree Phone speaker check, and erase memory can be performed. The signal connected to camera control unit can be checked and the Camera Cont. guiding line position that overlaps rear view camera image can be adjusted. Bluetooth The passkey and the device name can be checked and changed. Any necessary channels required to receive traffic information from the

satellite radio system can be set.

Initializes the AV control unit memory.

lite radio system can be set.

Not used.

Any application ID's required to receive traffic information from the satel-

Erase the connection history of unit and error history.

# STARTING PROCEDURE

SAT

Initialize Settings

**Delete Unit Connection Log** 

Mode

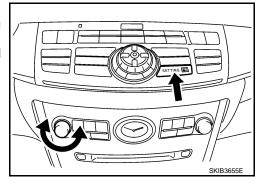
- 1. Start the engine.
- Turn the audio system OFF. 2.
- 3. While pressing the "SETTING" button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)

ID Diag

 Shifting from current screen to previous screen is performed by pressing "BACK" button.

**Change Channel** 

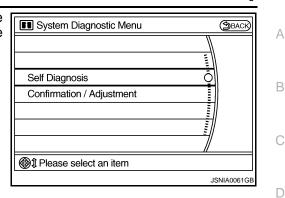
Change Application



### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITH MOBILE ENTERTAINMENT SYSTEM]

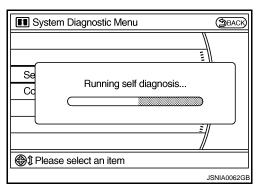
### < FUNCTION DIAGNOSIS >

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



### SELF-DIAGNOSIS MODE

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

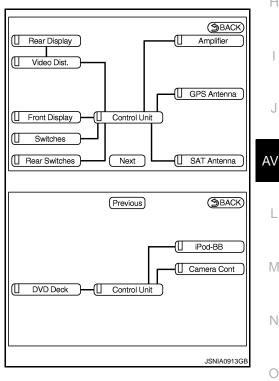


Diagnosis results are displayed after the self-diagnosis is com-2. pleted. The unit names and the connection lines are color-coded according to the diagnostic results.

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

### NOTE:

- Only the control unit (AV control unit) is displayed in red.
- Replace AV control unit if "Self-Diagnosis did not run because of a control unit malfunction" is indicated. The symptom is AV control unit internal error. Refer to AV-1064, "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.



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### DIAGNOSIS SYSTEM (AV CONTROL UNIT) GIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

### < FUNCTION DIAGNOSIS >

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

System Diagnostic Menu > En	ror Inform (SBACK)
Detected connection error(s) are shown below. Please refer to the Confirmation / Adjustment function or service manual for more detailed diagnosis information.	
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	JSNIA0064GE

### SELF-DIAGNOSIS RESULTS

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

Diagnosis results	Detection logic	Possible malfunction location / Action to take
Control unit • unit: red <b>NOTE:</b> When a control unit malfunction is detected (red in unit display), connection malfunctions with other connection unit may be displayed. "Self-Diagnosis did not run because of a control unit malfunction"	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.
Front Display • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	Serial communication circuits between AV control unit and front display unit.
Rear Display • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>rear display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between video distributor and rear display unit are malfunctioning.</li> <li>serial communication signal between video distributor and rear display unit is malfunctioning.</li> </ul>	<ul> <li>Rear display power supply and ground circuits.</li> <li>Serial communication circuits between video distributor and rear display unit.</li> </ul>
DVD Deck • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>DVD player power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and DVD player is malfunctioning.</li> </ul>	DVD player power supply and ground circuits.
Rear Switches • unit: gray • connection line: yellow	<ul> <li>When either one of the following items is detected:</li> <li>rear control switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and rear control switch is malfunctioning.</li> </ul>	Rear control switch power supply and ground circuits.

## DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

#### Possible malfunction location / Action **Detection logic Diagnosis results** А to take When either one of the following items is detected: Amplifier · BOSE amp. power supply and BOSE amp. power supply and ground · unit: gray ground circuits are malfunctioning. circuits. connection line: yellow AV communication signal between AV control unit and BOSE amp. is malfunctioning. Camera Cont. Malfunction is detected in Camera-Camera connection recognition signal unit: gray connection recognition signal circuit. circuit. connection line: yellow D When either one of the following items is detected: · iPod adapter power supply and · iPod adapter power supply and ground circuits are malfunctioning. AV communication circuits between around circuits. iPod-BB camera control unit and iPod adapt- AV communication circuits between unit: gray er are malfunctioning. BOSE amp. and camera control unit. F · connection line: yellow AV communication circuits between AV communication circuits between BOSE amp. and camera control unit camera control unit and iPod adaptare malfunctioning. er. AV communication signal between AV control unit and iPod adapter is malfunctioning. **GPS** Antenna GPS antenna connection malfunction Н GPS antenna. unit: gray is detected. connection line: yellow SAT Antenna Satellite radio antenna connection · Satellite radio antenna feeder. unit: gray malfunction is detected. · Satellite radio antenna. · connection line: yellow Video Dist. and Rear Display · Video Dist. - unit: gray Malfunction is detected in video distrib-Video distributor power supply and - connection line: yellow utor power supply and ground circuits. ground circuits. · Rear Display AV - unit: gray - connection line: gray When either one of the following items is detected: AV communication circuits between AV communication circuits between DVD player and BOSE amp. are DVD player and BOSE amp. (with-Amplifier and iPod-BB malfunctioning. (without rear control out rear control switch models) unit: gray switch models) · AV communication circuits between M connection line: yellow AV communication circuits between rear control switch and BOSE amp. rear control switch and BOSE amp. (with rear control switch models) are malfunctioning. (with rear control Ν switch models) Amplifier, iPod-BB and Rear Switches Malfunction is detected in AV commu-AV communication circuits between nication circuits between DVD player unit: gray DVD player and rear control switch. and rear control switch. connection line: yellow Amplifier, iPod-BB, and DVD Deck unit: gray Malfunction is detected in AV commu- connection line: yellow AV communication circuits between Ρ

video distributor and DVD player.

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

#### Possible malfunction location / Action **Diagnosis results Detection logic** to take Amplifier, iPod-BB, DVD Deck and Video Dist. • unit: gray · connection line: yellow Rear Display • unit: gray · connection line: gray AV communication circuits between Malfunction is detected in AV communication circuits between multifunction multifunction switch and video distribu-Amplifier, iPod-BB, Rear Switches, DVD Deck and switch and video distributor. tor. Video Dist. unit: gray · connection line: yellow Rear Display • unit: gray · connection line: gray

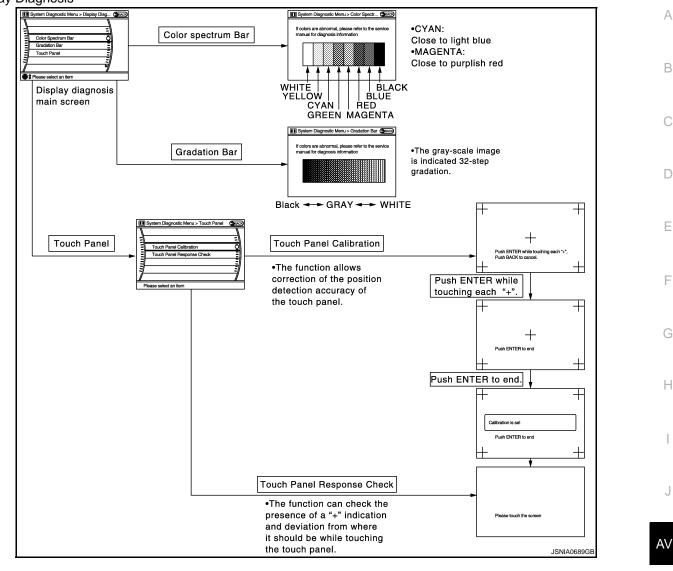
### CONFIRMATION/ADJUSTMENT MODE

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

	System Diagnostic Mer	nu > Co	onfirmation	. 🌘 ВАСК
			Ŋ	Δ
	Display Diagnosis		Q	
	Vehicle Signals			
	Speaker Test			
	Climate Control			]
	Navigation			//
		1/15		
<b>@</b> 1	Please select an item			
				JSNIA0617GB

# CONTROL UNIT) < FUNCTION DIAGNOSIS >(WITH MOBILE ENTERTAINMENT SYSTEM)

## Display Diagnosis



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

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

### Vehicle Signals

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

■ System Diagnostic Menu > Vehicle Signal ()BACK					
Vehicle speed	OFF				
Parking brake	ON				
Lights	ON				
Ignition	ON				
Reverse	OFF	J			
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Diagnosis item	Display	Vehicle status	Remarks	
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)		
venicie speed	OFF	Vehicle speed = 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.	
Parking broke	ON	Parking brake is applied.	Changes in indication may be delayed. This is normal.	
Parking brake	OFF	Parking brake is released.		
Lights	ON	Light switch ON.		
Lights	OFF	Light switch OFF.		
Ignition	ON	Ignition switch ON.		
Ignition	OFF	Ignition switch in ACC position.		
Reverse	ON	Shift the selector lever to "R" position.	Changes in indication may be delayed. This is normal.	
Nevel36	OFF	Shift the selector lever other than "R" position.	Changes in indication may be delayed. This is nothial.	

### Speaker Test

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

### NOTE:

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

Tweeter	: 3 kHz
Front door speaker	: 300 Hz
Rear door speaker	: 1 kHz
Rear surround speaker	: 1 kHz
Center speaker	: 1 kHz
Woofer	: 100 Hz
Seat speaker	: 1 kHz

System Diagnostic Menu > Spea Speaker Testing Front Left Tweeter Speaker Settings 	start O End
Push start to test next speaker	JSNIA0076GB

### Climate Control

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

### Navigation

STEERING ANGLE ADJUSTMENT

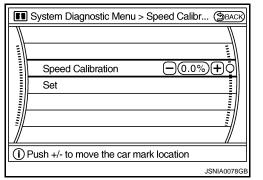
The steering angle output value detected with the gyroscope is adjusted.

FI	System Diagnostic Menu > Steering Ang	ј (Эваск)
$\mathbb{Z}$		
MUMANIANA		
	Left turn $-0.0\%+0$	
	Right turn - 0.0% +	
	Set	
	/	
	Push +/- to rotate the car mark direction	
		JSNIA0077GB

### SPEED CALIBRATION

# DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

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.



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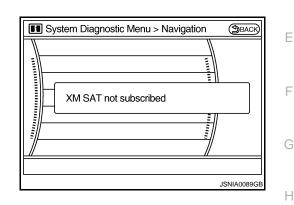
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XM SAT SUBSCRIPTION STATUS

The XM NavTraffic subscription status can be checked.



Error History

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

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

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

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

Count up method A

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

Count up method B

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

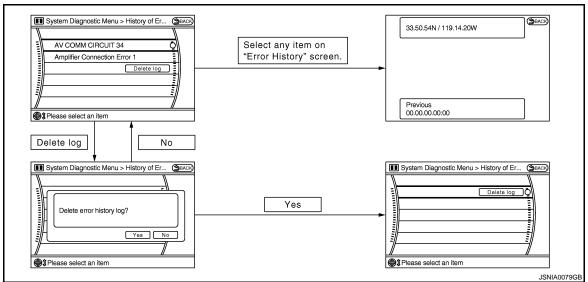
Display type of occur- rence frequency	Error history display item
Count up method A	CAN communication line, control unit (CAN), AV communication line, control unit (AV communication)
Count up method B	Other than the above

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### < FUNCTION DIAGNOSIS >



### Error item

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

Error item	Description	Possible malfunction factor/Action to take	
CAN COMM CIRCUIT	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-565</u> , "Diagnosis Procedure".	
CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detect- ed.		
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.		
FLASH-ROM Error Of Control Unit			
Connection Of Gyro			
XM SERIAL COMM Error			
CAN Controller Memory Error			
Bluetooth Module Connection Error		Replace the AV control unit.	
HDD CONN Error	AV control unit malfunction is detected.		
HDD READ Error	Av control unit mailunction is detected.		
HDD WRITE Error			
HDD COMM Error			
HDD ACCESS Error			
DSP CONN Error			
DSP COMM Error			
Internal Communication Error	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no mal- function in those components, replace AV control unit.	
GPS Communication Error		An intermittent error caused by strong radio	
GPS ROM Error		interference may be detected unless any symptom (GPS reception error, etc.) oc- curs. Replace the AV control unit if the malfunc- tion occurs constantly.	
GPS RAM Error	GPS malfunction is detected.		
GPS RTC Error			

# DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

Error item	Description	Possible malfunction factor/Action to take	
Front Display Connection Error	<ul> <li>When either one of the following items is detected:</li> <li>front display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	<ul> <li>Front display unit power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and front display unit.</li> </ul>	B
GPS Antenna Error	GPS antenna connection malfunction is detected.	GPS antenna.	D
Rear Display Connection Error	<ul> <li>When either one of the following items is detected:</li> <li>rear display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between video distributor and rear display unit are malfunctioning.</li> <li>serial communication signal between video distributor and rear display unit is malfunctioning.</li> </ul>	<ul> <li>Rear display unit power supply and ground circuits.</li> <li>Serial communication circuits between video distributor and rear display unit.</li> </ul>	F
Camera Control Unit Connection Error	Malfunction is detected in camera connec- tion recognition circuit between AV control unit and camera control unit.	Camera-connection recognition circuit be- tween AV control unit and camera control unit.	Н
XM Antenna Connection Error	Satellite radio antenna connection malfunc- tion is detected.	<ul><li>Satellite radio antenna feeder.</li><li>Satellite radio antenna.</li></ul>	
AV COMM CIRCUIT     Internal Communication Error	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no mal- function in those components, replace AV control unit.	
<ul><li>AV COMM CIRCUIT</li><li>Switches Connection Error</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.	J
<ul><li>AV COMM CIRCUIT</li><li>Rear SW Connection Error</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>Rear control switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and rear control switch is malfunctioning.</li> </ul>	Rear control switch power supply and ground circuits.	L N
<ul> <li>AV COMM CIRCUIT</li> <li>Video Distributor Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>video distributor power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and video distributor is malfunctioning.</li> </ul>	Video distributor power supply and ground circuits.	N
<ul><li>AV COMM CIRCUIT</li><li>DVD Deck Connection Error</li></ul>	<ul> <li>When either one of the following items is detected:</li> <li>DVD player power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and DVD player is malfunctioning.</li> </ul>	DVD player power supply and ground cir- cuits.	Ρ

## DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

### < FUNCTION DIAGNOSIS >

Error item	Description	Possible malfunction factor/Action to take
<ul> <li>AV COMM CIRCUIT</li> <li>Amplifier Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>BOSE amp. power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and BOSE amp. is malfunctioning.</li> </ul>	BOSE amp. power supply and ground cir- cuits.
<ul> <li>AV COMM CIRCUIT</li> <li>Rearview Camera Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>camera control unit power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and camera control unit is malfunctioning.</li> </ul>	Camera control unit power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT</li> <li>iPod Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>iPod adapter power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between camera control unit and iPod adapter are malfunctioning.</li> <li>AV communication signal between AV control unit and iPod adapter is malfunctioning.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between BOSE amp. and cam- era control unit.	AV communication circuits between BOSE amp. and camera control unit.
<ul> <li>AV COMM CIRCUIT</li> <li>Amplifier Connection Error</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>AV communication circuits between DVD player and BOSE amp. are malfunctioning. (without rear control switch models)</li> <li>AV communication circuits between rear control switch and BOSE amp. are malfunctioning. (with rear control switch models)</li> </ul>	<ul> <li>AV communication circuits between DVD player and BOSE amp. (without rear control switch models)</li> <li>AV communication circuits between rear control switch and BOSE amp.</li> </ul>
<ul> <li>AV COMM CIRCUIT</li> <li>Rear SW Connection Error</li> <li>Amplifier Connection Error</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between DVD player and rear control switch.	AV communication circuits between DVD player and rear control switch.
<ul> <li>AV COMM CIRCUIT</li> <li>Rear SW Connection Error<sup>*</sup></li> <li>DVD Deck Connection Error</li> <li>Amplifier Connection Error</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between video distributor and DVD player.	AV communication circuits between video distributor and DVD player.
<ul> <li>AV COMM CIRCUIT</li> <li>Rear SW Connection Error<sup>*</sup></li> <li>Video Distributor Connection Error</li> <li>DVD Deck Connection Error</li> <li>Amplifier Connection Error</li> <li>Rearview Camera Connection Error</li> <li>iPod Connection Error</li> </ul>	Malfunction is detected in AV communica- tion circuits between multifunction switch and video distributor.	AV communication circuits between multi- function switch and video distributor.

## DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

#### Error item Description Possible malfunction factor/Action to take А AV COMM CIRCUIT Rear SW Connection Error<sup>\*</sup> Switches Connection Error Malfunction is detected in AV communica-AV communication circuits between AV Video Distributor Connection Error В tion circuits between AV control unit and control unit and multifunction switch. DVD Deck Connection Error multifunction switch. Amplifier Connection Error Rearview Camera Connection Error • iPod Connection Error AV COMM CIRCUIT Rear SW Connection Error<sup>\*</sup> D Internal Communication Error Switches Connection Error Check and repair the short circuit in AV Malfunction is detected in AV communica- Video Distributor Connection Error tion circuits. communication circuits. DVD Deck Connection Error Е Amplifier Connection Error Rearview Camera Connection Error iPod Connection Error

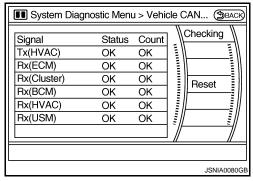
### NOTE:

\*: non-equipped item is not displayed.

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 / UNKWN	OK / 0 – 39
Rx (ECM)	OK / UNKWN	OK / 0 – 39
Rx (Cluster)	OK / UNKWN	OK / 0 – 39
Rx (BCM)	OK / UNKWN	OK / 0 – 39
Rx (HVAC)	OK / UNKWN	OK / 0 – 39
Rx (USM)	OK / UNKWN	OK / 0 – 39
Rx (TPMS)	OK / UNKWN	OK / 0 – 39
Rx (STRG)	OK / UNKWN	OK / 0 – 39





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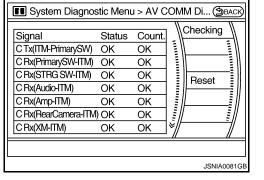
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### AV COMM Diagnosis

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

Items	Status (Current)	Counter (Past)
C Tx(ITM–PrimarySW)	OK / UNKWN	OK / 0 – 39
C Rx(PrimarySW–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(STRG SW–ITM)	OK / UNKWN	OK / 0 – 39
C Rx(RrSeatSW–ITM)	OK / UNKWN	OK / 0 – 39
C Rx (Audio–ITM)	OK / UNKWN	OK / 0 – 39



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OK / UNKWN	OK / 0 – 39
	1
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
OK / UNKWN	OK / 0 – 39
	OK / UNKWN OK / UNKWN OK / UNKWN OK / UNKWN OK / UNKWN OK / UNKWN

### NOTE:

• Any units with "-" displayed have no history of vehicle connection.

• "STRG SW", "Amp""XM" indicate the same status as "Audio".

### Hands-Free Phone

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

	System Diagnostic Menu > Handsfree Ph (SBACK)
$\mathbb{N}$	
MARAN DATA DATA DATA DATA DATA DATA DATA DA	Handsfree Volume Adjustment
	Voice Microphone Test
	Delete Handsfree Memory
	/
	JSNIA0083GB

Camera Cont.

The two functions of "Connection Confirmation" and "Adjust Offset of Rear View Camera" are available. CONNECTION CONFIRMATION

The steering angle sensor, reverse signal and vehicle speed sensor can be inspected.

<b>FI</b> Sys	stem Diagnostic Menu >	Connection (	С (Эваск)
	Steer. Angle Sensor	OFF	
	Reverse Sensor	OFF	
	Vehicle Speed Sensor	OFF	
	Side view Switch	-	
			JSNIA0084GB

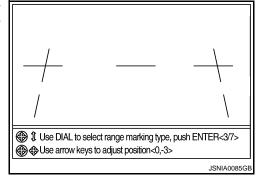
Diagnosis item	Display	Vehicle status
	ON	When steering the vehicle with ignition switch ON (remains ON until connection mode is stopped when it is turned ON).
Steer. Angle Sensor	OFF	<ul><li> Ignition switch at ACC.</li><li> No steering with ignition switch ON.</li></ul>
	—	Malfunction detected in camera connection recognition signal.

# CONTROL UNIT) < FUNCTION DIAGNOSIS >< FUNCTION DIAGNOSIS >(WITH MOBILE ENTERTAINMENT SYSTEM)

Diagnosis item	Display	Vehicle status	
	ON	Selector lever is in "R" with ignition switch ON.	ŀ
Reverse Sensor	OFF	<ul> <li>Ignition switch at ACC.</li> <li>Selector lever is in position other than "R" with ignition switch ON.</li> </ul>	
	—	Malfunction detected in camera-connection recognition signal.	
	ON	Vehicle speed is more than 0 km/h (0 MPH) with ignition switch ON.	
Vehicle Speed Sensor	OFF	<ul> <li>Ignition switch at ACC.</li> <li>Vehicle speed is 0 km/h (0 MPH) with ignition switch ON.</li> </ul>	(
	—	Malfunction detected in camera connection recognition signal.	
Side view Switch		Not used.	

ADJUST OFFSET OF REAR VIEW CAMERA

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



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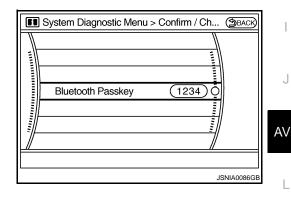
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Bluetooth

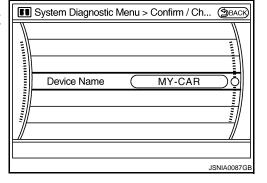
Confirm / Change Passkey

- The passkey of Bluetooth can be confirmed and changed.
- The passkey can be changed by four digits within 0 to 9.



Confirm / Change Device Name

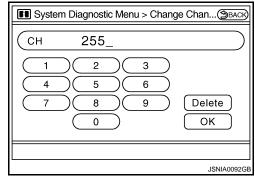
- The device name of Bluetooth can be confirmed and changed.
- The device name can be changed by sixteen digits within A to Z (small character can be used) and (hyphen).



SAT

### **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** [WITH MOBILE ENTERTAINMENT SYSTEM] < FUNCTION DIAGNOSIS >

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



System Diagnostic Menu > Change Appli... (SBACK)

8 2

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8

0

EXTID

3

6

9

5

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>

Delete

ΟK

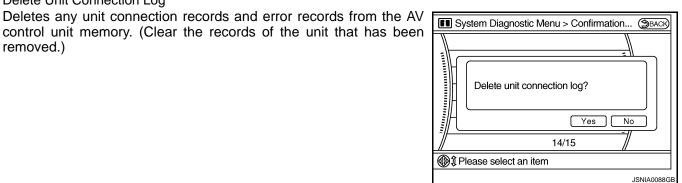
JSNIA0093GE

APPID

1 4

7

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



Initialize Settings Deletes data stored in HDD.

**Delete Unit Connection Log** 

removed.)

<b>III</b> Sys	tem Diagnostic Menu > Confirmation (SBACK)
	Clear ALL HDD data below. Are you sure? -Address book -Saved music -Phonebook etc.
	Yes No
🕲 Ĵ Ple	ease select an item
	JSNIA0095GB

INFOID:000000004155938

# CONSULT-III FUNCTIONS

CONSULT-III Function (MULTI AV)

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

## DIAGNOSIS SYSTEM (AV CONTROL UNIT)

### < FUNCTION DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

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Diagnosis mode	Description	F
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.	В
Data Monitor	The diagnosis of vehicle signal that is input to the AV control unit can be performed.	

### AV COMMUNICATION

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

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

### ECU IDENTIFICATION

The part number of AV control unit is displayed.

### SELF DIAGNOSIS RESULT

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

Self-diagnosis results display item

Error item	Detection logic	Possible malfunction factor/Action to take
CAN COMM CIRCUIT [U1000]	CAN communication malfunction is detect- ed.	Perform diagnosis with CONSULT-III, and then repair the malfunctioning parts accord- ing to the diagnosis results. Refer to <u>AV-565, "Diagnosis Procedure"</u> .
CONTROL UNIT (CAN) [U1010]	CAN initial diagnosis malfunction is detected.	
CONTROL UNIT (AV) [U1310]	AV communication circuit initial diagnosis malfunction is detected.	
Control Unit FLASH-ROM [U1200]		
Gyro NO CONN [U1201]		
CAN CONT [U1216]		
BLUETOOTH CONN [U1217]		Replace the AV control unit.
HDD-CONN [U1218]		
HDD-READ [U1219]	AV control unit malfunction is detected.	
XM SERIAL COMM [U1220]	Av control unit manufaction is detected.	
HDD-WRITE [U121A]		
HDD-COMM [U121B]		
HDD-ACCESS [U121C]		
DSP CONN [U121D]		
DSP COMM [U121E]		
INTERNAL COMM [U121F]	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no mal- function in those components, replace AV control unit.
GPS COMM [U1204]		An intermittent error caused by strong radio
GPS ROM [U1205]		interference may be detected unless any symptom (GPS reception error, etc.) oc-
GPS RAM [U1206]	GPS malfunction is detected.	curs.
GPS RTC [U1207]		Replace the AV control unit if the malfunc- tion occurs constantly.

Revision: 2009 Novemver

### DIAGNOSIS SYSTEM (AV CONTROL UNIT) SIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

# < FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM Error item Detection logic Possible malfunction factor/Action to take When either one of the following items is detected:

FRONT DISP CONN [U1243]	<ul> <li>When either one of the following items is detected:</li> <li>front display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	<ul> <li>Front display unit power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and front display unit.</li> </ul>
GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected.	GPS antenna.
REAR DISP CONN [U1247]	<ul> <li>When either one of the following items is detected:</li> <li>rear display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between video distributor and rear display unit are malfunctioning.</li> <li>serial communication signal between video distributor and rear display unit is malfunctioning.</li> </ul>	<ul> <li>Rear display unit power supply and ground circuits.</li> <li>Serial communication circuits between video distributor and rear display unit.</li> </ul>
CAMERA CONT CONN [U1250]	Malfunction is detected in camera connec- tion recognition circuit between AV control unit and camera control unit.	Camera-connection recognition circuit be- tween AV control unit and camera control unit.
XM ANTENNA CONN [U1258]	Satellite radio antenna connection malfunc- tion is detected.	<ul><li>Satellite radio antenna feeder.</li><li>Satellite radio antenna.</li></ul>
AV COMM CIRCUIT [U1300]	<ul> <li>When either one of the following items is detected:</li> <li>Rear control switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and rear control switch is malfunctioning.</li> </ul>	Rear control switch power supply and ground circuits.
<ul><li>AV COMM CIRCUIT [U1300]</li><li>INTERNAL COMM [U121F]</li></ul>	Malfunction is detected in AV control unit power supply and ground circuits.	Check AV control unit power supply and ground circuits. When detecting no mal- function in those components, replace AV control unit.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>Multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>VIDEO DIST CONN [U1246]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>Video distributor power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and video distributor is malfunctioning.</li> </ul>	Video distributor power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>DVD player power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and DVD player is malfunctioning.</li> </ul>	DVD player power supply and ground cir- cuits.

## **DIAGNOSIS SYSTEM (AV CONTROL UNIT)** BILE ENTÉRTAINMENT SYSTEM]

< FUNCTION DIAGNO	DSIS >	[WITH MOE

Error item	Detection logic	Possible malfunction factor/Action to take
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>BOSE amp. power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and BOSE amp is malfunctioning.</li> </ul>	BOSE amp. power supply and ground cir- cuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>camera control unit power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and camera control unit is malfunctioning.</li> </ul>	Camera control unit power supply and ground circuits.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>iPod adapter power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between camera control unit and iPod adapter are malfunctioning.</li> <li>AV communication signal between AV control unit and iPod adapter is malfunctioning.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communica- tion circuits between BOSE amp. and cam- era control unit.	AV communication circuits between BOSE amp. and camera control unit.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>AV communication circuits between DVD player and BOSE amp.are malfunctioning. (without rear control switch models)</li> <li>AV communication circuits between rear control switch and BOSE amp. are malfunctioning (with rear control switch models)</li> <li>AV communication circuits between rear control switch and DVD player are malfunctioning (with rear control switch models)</li> <li>AV communication circuits between rear control switch and DVD player are malfunctioning (with rear control switch models)</li> </ul>	<ul> <li>AV communication circuits between DVD player and BOSE amp. (without rear control switch models)</li> <li>AV communication circuits between rear control switch and BOSE amp.</li> </ul>
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communica- tion circuits between video distributor and DVD player.	AV communication circuits between video distributor and DVD player.
<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>VIDEO DIST CONN [U1246]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communica- tion circuits between multifunction switch and video distributor.	AV communication circuits between multi- function switch and video distributor.

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## DIAGNOSIS SYSTEM (AV CONTROL UNIT) < FUNCTION DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

#### Error item **Detection logic** Possible malfunction factor/Action to take AV COMM CIRCUIT [U1300] SWITCH CONN [U1240] VIDEO DIST CONN [U1246] Malfunction is detected in AV communica-AV communication circuits between AV DVD DECK CONN [U1248] tion circuits between AV control unit and control unit and multifunction switch. AMP CONN [U124E] multifunction switch. • REAR CAMERA LAN CONN [U1252] IPod CONN [U1254] AV COMM CIRCUIT [U1300] • INTERNAL COMM [U121F] • SWITCH CONN [U1240] VIDEO DIST CONN [U1246] Malfunction is detected in AV communica-Check and repair the short circuit in AV DVD DECK CONN [U1248] tion circuits. communication circuits. AMP CONN [U124E] • REAR CAMERA LAN CONN [U1252]

# IPod CONN [U1254] DATA MONITOR

### ALL SIGNALS

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

Display Item	Display	Vehicle status	Remarks
VHCL SPD SIG	On	Vehicle speed >0 km/h (0 MPH)	
	Off	Vehicle speed =0 km/h (0 MPH)	Changes in indication may be delayed. This is
	On	Parking brake is applied.	normal.
PKB SIG	Off	Parking brake is released.	
ILLUM SIG IGN SIG	On	Light switch ON.	
	Off	Light switch OFF.	
	On	Ignition switch ON.	
	Off	Ignition switch in ACC position.	
REV SIG	On	Selector lever in R position.	Changes in indication may be delayed. This is
	Off	Selector lever in any position other than R.	Changes in indication may be delayed. This is normal.

### SELECTION FROM MENU

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

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

## U1000 CAN COMM CIRCUIT

## < COMPONENT DIAGNOSIS >

# COMPONENT DIAGNOSIS U1000 CAN COMM CIRCUIT

## Description

INFOID:000000004155939

INFOID:000000004155940

INFOID:000000004155941

[WITH MOBILE ENTERTAINMENT SYSTEM]

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

# **DTC Logic**

### DTC DETECTION LOGIC

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

## Diagnosis Procedure

**1.**PERFORM SELF-DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

YES >> Refer to "LAN system". Refer to LAN-20, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI section. Refer to <u>GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident"</u>.

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# U1010 CONTROL UNIT (CAN)

## Description

Initial diagnosis of AV control unit.

### DTC Logic

INFOID:000000004155943

INFOID:000000004155944

### DTC DETECTION LOGIC

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

## **Diagnosis Procedure**

# **1.**REPLACE AV CONTROL UNIT

When DTC U1010 is detected, replace AV control unit.

>> INSPECTION END

AV-566

INFOID:000000004155942

[WITH MOBILE ENTERTAINMENT SYSTEM]

### **U1310 AV CONTROL UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

## < COMPONENT DIAGNOSIS >

# **U1310 AV CONTROL UNIT**

# Description

INFOID:000000004155945

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable carble.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## DTC Logic

INFOID:000000004155946

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

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## **U1200 AV CONTROL UNIT**

### < COMPONENT DIAGNOSIS >

# **U1200 AV CONTROL UNIT**

# Description

INFOID:000000004155947

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

### INFOID:000000004155948

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

# **U1201 AV CONTROL UNIT**

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

## < COMPONENT DIAGNOSIS >

# **U1201 AV CONTROL UNIT**

# Description

INFOID:000000004155949

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Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## DIC Logic

INFOID:000000004155950

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1201	GYRO NO CONN [U1201]	Internal malfunction of AV control unit (gyrocompass dis- connection) is detected.	Replace AV control unit.	

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## **U1216 AV CONTROL UNIT**

### < COMPONENT DIAGNOSIS >

# U1216 AV CONTROL UNIT

# Description

INFOID:000000004155951

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It is nputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155952

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

### **U1217 AV CONTROL UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

## < COMPONENT DIAGNOSIS >

# **U1217 AV CONTROL UNIT**

# Description

INFOID:000000004155953

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## DTC Logic

INFOID:000000004155954

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1217	BLUETOOTH MODULE CONN [U1217]	Internal malfunction of AV control unit (Bluetooth module connection malfunction) is detected.	Replace AV control unit.	AV

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## **U1218 AV CONTROL UNIT**

### < COMPONENT DIAGNOSIS >

# U1218 AV CONTROL UNIT

# Description

INFOID:000000004155955

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155956

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1218	HDD-CONN [U1218]	Internal malfunction of AV control unit (HDD connection malfunction) is detected.	Replace AV control unit.

### **U1219 AV CONTROL UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

## < COMPONENT DIAGNOSIS >

# **U1219 AV CONTROL UNIT**

# Description

INFOID:000000004155957

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Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## DIC Logic

INFOID:000000004155958

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1219	HDD-READ [U1219]	Internal malfunction of AV control unit (HDD read malfunc- tion) is detected.	Replace AV control unit.	

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## **U1220 AV CONTROL UNIT**

### < COMPONENT DIAGNOSIS >

# U1220 AV CONTROL UNIT

# Description

INFOID:000000004155959

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description	
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>	

# DTC Logic

INFOID:000000004155960

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1220	XM SERIAL COMM [U1220]	Internal malfunction of AV control unit (satellite radio tuner communication error) is detected.	Replace AV control unit.

### **U121A AV CONTROL UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

## < COMPONENT DIAGNOSIS >

# **U121A AV CONTROL UNIT**

# Description

INFOID:000000004155961

Part name	Description
Part name	<ul> <li>Description</li> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable ca-</li> </ul>
	<ul> <li>ble.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## DTC Logic

INFOID:000000004155962

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U121A	HDD-WRITE [U121A]	Internal malfunction of AV control unit (HDD write mal- function) is detected.	Replace AV control unit.	

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## **U121B AV CONTROL UNIT**

### < COMPONENT DIAGNOSIS >

# **U121B AV CONTROL UNIT**

# Description

INFOID:000000004155963

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description	
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>	

# DTC Logic

INFOID:000000004155964

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121B	HDD-COMM [U121B]	Internal malfunction of AV control unit (HDD communica- tion error) is detected.	Replace AV control unit.

#### **U121C AV CONTROL UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

#### < COMPONENT DIAGNOSIS >

# **U121C AV CONTROL UNIT**

# Description

INFOID:000000004155965

Part name	Description
V CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It is put the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## DIC Logic

INFOID:000000004155966

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U121C	HDD-ACCESS [U121C]	Internal malfunction of AV control unit (HDD access error) is detected.	Replace AV control unit.	

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## **U121D AV CONTROL UNIT**

#### < COMPONENT DIAGNOSIS >

# **U121D AV CONTROL UNIT**

# Description

INFOID:000000004155967

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155968

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121D	DSP CONN [U121D]	Internal malfunction of AV control unit (DSP connection error) is detected.	Replace AV control unit.

#### **U121E AV CONTROL UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

#### < COMPONENT DIAGNOSIS >

# **U121E AV CONTROL UNIT**

# Description

INFOID:000000004155969

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Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

## DTC Logic

INFOID:000000004155970

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	
U121E	DSP COMM [U121E]	Internal malfunction of AV control unit (DSP communica- tion error) is detected.	Replace AV control unit.	

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#### **U121F AV CONTROL UNIT**

#### < COMPONENT DIAGNOSIS >

# **U121F AV CONTROL UNIT**

## Description

INFOID:000000004155971

[WITH MOBILE ENTERTAINMENT SYSTEM]

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# **DTC** Logic

INFOID:000000004155972

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U121F	INTERNAL COMM [U121F]	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.

## **Diagnosis Procedure**

INFOID:000000004155973

# 1. CHECK AV CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check AV control unit power supply and ground circuit. Refer to <u>AV-594. "AV CONTROL UNIT : Diagnosis</u> <u>Procedure"</u>.

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Repair or replace malfunctioning parts.

# **U1204 GPS**

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

# < COMPONENT DIAGNOSIS >

# U1204 GPS

Description

INFOID:000000004155974

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Part name	Description
	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> </ul>
	<ul> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication</li> </ul>
	signals from the AV control unit.
	<ul> <li>The AV control unit includes the audio, hands-free phone, voice control, navi- gation, satellite radio, and vehicle information functions.</li> </ul>
	<ul> <li>It is connected to ECM and unified meter and A/C amp. via CAN communica- tion to obtain processory information for the unbide information function</li> </ul>
	<ul><li>tion to obtain necessary information for the vehicle information function.</li><li>It is connected to BCM via CAN communication transmitting/receiving for the</li></ul>
V CONTROL UNIT	vehicle settings function.
	<ul> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.</li> </ul>
	<ul> <li>It inputs the illumination signals that are required for the display dimming con- trol.</li> </ul>
	<ul> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> </ul>
	<ul> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> </ul>
	<ul> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155975

INFOID:000000004155976

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1204	GPS CONN [U1204]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.	

# **Diagnosis Procedure**

# [WITH MOBILE ENTERTAINMENT SYSTEM]

## U1205 GPS

#### < COMPONENT DIAGNOSIS >

# U1205 GPS

INFOID:000000004155977

[WITH MOBILE ENTERTAINMENT SYSTEM]

## Description

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It is nputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155978

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1205	GPS ROM [U1205]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.

## **Diagnosis Procedure**

INFOID:000000004155979

# **1.**PERFORM THE SELF-DIAGNOSIS

- 1. Delete the self-diagnosis results. Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- 3. Check that the DTC is detected again.

#### Is any DTC detected?

- YES >> Replace AV control unit.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

#### U1206 GPS [WITH MOBILE ENTERTAINMENT SYSTEM]

# < COMPONENT DIAGNOSIS >

# U1206 GPS

Description

INFOID:000000004155980

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".	

Part name	Description	
	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> </ul>	
	<ul> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navi-</li> </ul>	
	gation, satellite radio, and vehicle information functions.	
AV CONTROL UNIT	<ul> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> </ul>	
	• It is connected to the steering angle sensor and receives the steering angle signal via CAN communication. It also transmits the steering angle signal to camera control unit via AV communication.	
	<ul> <li>It inputs the illumination signals that are required for the display dimming con- trol.</li> </ul>	
	<ul> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> </ul>	
	<ul> <li>Update of map data is performed with the CONSULT-III and the applicable ca- ble.</li> </ul>	
	<ul> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>	

# DTC Logic

INFOID:000000004155981

INFOID:000000004155982

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take	J
U1206	GPS RAM [U1206]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.	
Diama				AV

# **Diagnosis Procedure**

1.PERFORM THE SELF-DIAGNOSIS	I
<ol> <li>Delete the self-diagnosis results. Turn ignition switch OFF.</li> <li>Turn ignition switch ON. Perform the self-diagnosis again.</li> </ol>	- L
<ol> <li>Turn ignition switch ON. Perform the self-diagnosis again.</li> <li>Check that the DTC is detected again.</li> </ol>	N.4
Is any DTC detected?	IVI
<ul> <li>YES &gt;&gt; Replace AV control unit.</li> <li>NO &gt;&gt; The intermittent malfunction caused by strong radio interference can be detected.</li> </ul>	
NO >> The intermittent manufaction caused by strong radio interference can be detected.	Ν
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## U1207 GPS

#### < COMPONENT DIAGNOSIS >

# U1207 GPS

INFOID:000000004155983

[WITH MOBILE ENTERTAINMENT SYSTEM]

## Description

Replace the AV control unit if this DTC is displayed. Refer to AV-1064, "Exploded View".

Part name	Description
AV CONTROL UNIT	<ul> <li>Integrates hard disk drive (HDD) allowing map data and music data to be stored.</li> <li>It is the master unit of the MULTI AV system, and it is connected to each control unit by communication. It operates each system according to communication signals from the AV control unit.</li> <li>The AV control unit includes the audio, hands-free phone, voice control, navigation, satellite radio, and vehicle information functions.</li> <li>It is connected to ECM and unified meter and A/C amp. via CAN communication to obtain necessary information for the vehicle information function.</li> <li>It is connected to BCM via CAN communication transmitting/receiving for the vehicle settings function.</li> <li>It is connected to the steering angle sensor and receives the steering angle signal via CAN communication.</li> <li>It inputs the illumination signals that are required for the display dimming control.</li> <li>It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake).</li> <li>Update of map data is performed with the CONSULT-III and the applicable cable.</li> <li>It includes the TEL adapter and Bluetooth<sup>™</sup> function.</li> </ul>

# DTC Logic

INFOID:000000004155984

DTC	Display contents of CONSULT-III	DTC Detection Condition	Action to take
U1207	GPS RTC [U1207]	Internal malfunction of AV control unit (GPS malfunction) is detected.	Replace AV control unit.

# **Diagnosis Procedure**

INFOID:000000004155985

# **1.** PERFORM THE SELF-DIAGNOSIS

- 1. Delete the self-diagnosis results. Turn ignition switch OFF.
- 2. Turn ignition switch ON. Perform the self-diagnosis again.
- 3. Check that the DTC is detected again.

#### Is any DTC detected?

- YES >> Replace AV control unit.
- NO >> The intermittent malfunction caused by strong radio interference can be detected.

#### **U1243 DISPLAY UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

# **U1243 DISPLAY UNIT**

## Description

INFOID:000000004155986

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FRONT DISPLAY UNIT	<ul> <li>Front display image is controlled by the serial communication from AV control unit.</li> <li>RGB image signal is input from AV control unit (RGB, RGB area and RGB synchronizing). Auxiliary image signal and DVD image signal are input from the video distributor. Camera image signal is input from camera control unit.</li> <li>Synchronize signal (HP, VP) is output to AV control unit.</li> <li>Touch panel function can be operated for each system by touching a display directly.</li> </ul>

# DTC Logic

INFOID:000000004155987

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes	F
U1243	FRONT DISP CONN [U1243]	<ul> <li>When either one of the following items is detected:</li> <li>front display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between AV control unit and front display unit are malfunctioning.</li> </ul>	<ul> <li>Front display unit power supply and ground circuits.</li> <li>Serial communication circuits be- tween AV control unit and front dis- relevant.</li> </ul>	G
		<ul> <li>serial communication signal between AV control unit and front display unit is malfunctioning.</li> </ul>	play unit.	Н

# **Diagnosis Procedure**

INFOID:000000004155988

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

Check front display unit power supply and ground circuits. Refer to <u>AV-594</u> , "FRONT DISPLAY UNIT : Diagno- sis Procedure".	J
Is the inspection result normal? YES >> GO TO 2. NO >> Repair malfunctioning parts. 2.CHECK CONTINUITY COMMUNICATION CIRCUIT	AV
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect front display unit connector and AV control unit connector.</li> <li>Check continuity between front display unit harness connector terminals 11, 22 and AV control unit harness connector terminals 102, 103.</li> </ol>	L
11 - 102 : Continuity should exist.	
22 - 103 : Continuity should exist.	Ν
4. Check continuity between front display unit harness connector terminals 11, 22 and ground.	IN
11, 22 - Ground : Continuity should not exist.	0
Is the inspection result normal?	
YES >> GO TO 3. NO >> Repair harness or connector. <b>3.</b> CHECK SERIAL COMMUNICATION SIGNAL	Ρ

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

- 2. Turn ignition switch ON.
- Check signal between front display unit harness connector terminal 11 and ground. 3.

# AV-585

# U1243 DISPLAY UNIT

#### < COMPONENT DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal	Condition		Reference value
11 - Ground	Ignition switch ON	When adjusting front display brightness.	(V) 6 4 2 0 + 1ms 

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace AV control unit.

4. CHECK SERIAL COMMUNICATION SIGNAL

Check signal between front display unit harness connector terminal 22 and ground.

Terminal		Condition	Reference value
22 - Ground	Ignition switch ON	When adjusting front display brightness.	(V) 6 4 2 0 •••••1ms •••••1ms ••••••1ms ••••••1ms ••••••1ms

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace front display unit.

# U1244 GPS ANTENNA

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

# < COMPONENT DIAGNOSIS > U1244 GPS ANTENNA

## UI244 OF 5 ANTLI

# Description

INFOID:000000004155989

Part name			Description		
GPS AN	ITENNA	GPS signal is received and tra	GPS signal is received and transmitted to AV control unit.		
DTC L	ogic		INF01D:000000004155990		
DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes		
U1244	GPS ANTENNA CONN [U1244]	GPS antenna connection malfunction is detected	ed. GPS antenna disconnection.		
iagno	osis Procedure		INFOID:000000004155991		
.GPS	ANTENNA CHECK				
-	check GPS antenna				
<u>s the in</u> YES	spection result norma >> GO TO 2.	<u>11?</u>			
NO	>> Repair malfunction				
.CHE	CK AV CONTROL UN	NIT VOLTAGE			
	n ignition switch OFF. connect GPS antenna				
. Turi	n ignition switch ON.				
. Che	eck voltage between A	W control unit terminal 105 and ground.			
-	105 - Ground	: Approx. 5 V			
	spection result norma				
YES NO	>> INSPECTION EN >> Replace AV contr				

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#### U1247 REAR DISP CONN [WITH MOBILE ENTERTAINMENT SYSTEM]

# U1247 REAR DISP CONN

## Description

INFOID:000000004155992

Part name	Description	
REAR DISPLAY UNIT	<ul> <li>Rear display image is controlled by the serial communication from video distributor.</li> <li>RGB image signal is input from video distributor (RGB and RGB area).Composite image signal (DVD and AUX images) is input from the video distributor.</li> <li>Synchronize signal (HP, VP) is output to video distributor.</li> </ul>	

## **DTC** Logic

INFOID:000000004155993

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1247	REAR DISP CONN [U1247]	<ul> <li>When either one of the following items is detected:</li> <li>rear display unit power supply and ground circuits are malfunctioning.</li> <li>serial communication circuits between video distributor and rear display unit are malfunctioning.</li> <li>serial communication signal between video distributor and rear display unit is malfunctioning.</li> </ul>	<ul> <li>Rear display unit power supply and ground circuits.</li> <li>Serial communication circuits between AV control unit and rear display unit.</li> </ul>

# **Diagnosis Procedure**

INFOID:000000004155994

1. CHECK REAR DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check rear display unit power supply and ground circuits. Refer to <u>AV-595, "REAR DISPLAY UNIT : Diagnosis</u> <u>Procedure</u>".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair malfunctioning parts.

2. CHECK CONTINUITY SERIAL COMMUNICATION CIRCUIT

#### 1. Turn ignition switch OFF.

- 2. Disconnect rear display unit connector and video distributor connector.
- 3. Check continuity between rear display unit harness connector terminals 9, 10 and video distributor harness connector terminals 39, 40.
  - 9 39 10 - 40

#### : Continuity should exist.

: Continuity should exist.

4. Check continuity between rear display unit harness connector terminals 9, 10 and ground.

#### 9, 10 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

**3.**CHECK SERIAL COMMUNICATION SIGNAL

- 1. Connect rear display unit connector and video distributor connector.
- 2. Turn ignition switch ON.
- 3. Check signal between rear display unit harness connector terminal 9 and ground.

# < COMPONENT DIAGNOSIS >

#### U1247 REAR DISP CONN [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal		Condition	Reference value	А
9 - Ground	Ignition switch ON	Rear seat remote controller oper- ation.	(V) 6 4 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	В
			► TIMS PKIB5039J	С
Is the inspection result normal YES >> GO TO 4. NO >> Replace rear dis				D
4. CHECK SERIAL COMMU		N SIGNAL		Е

Check signal between rear display unit harness connector terminal 10 and ground.

Terminal		Condition	Reference value	F
10 - Ground	lgnition switch ON	Rear seat remote controller oper- ation.	(V) 6 4 2 0 + 1ms - ms -	G

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace video distributor.

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# U1250 CAMERA CONTROL UNIT

#### < COMPONENT DIAGNOSIS >

# U1250 CAMERA CONTROL UNIT

# Description

INFOID:000000004155995

Part name	Description
CAMERA CONTROL UNIT	<ul> <li>Camera image signal is input from rear view camera, and camera image is indicated on the front display.</li> <li>Power (camera ON signal) is transmitted to rear view camera.</li> <li>Controlled by AV communication transmitted from AV control unit.</li> <li>AV control unit recognizes the presence of camera system with camera connection recognition signal.</li> </ul>

# **DTC** Logic

INFOID:000000004155996

DTC	Display contents of CONSULT-III	DTC Detection Condition	Possible causes
U1250	CAMERA CONT. CONN [U1250]	Malfunction is detected in Camera-connection recognition signal circuit.	Camera-connection recognition sig- nal circuit.

## **Diagnosis Procedure**

INFOID:000000004155997

# $1. {\sf check \ camera-connection \ recognition \ signal \ circuit}$

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and camera control unit connector.
- 3. Check continuity between AV control unit harness connector terminal 40 and camera control unit harness connector terminal 14.

#### 40 - 14

#### : Continuity should exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK AV CONTROL UNIT VOLTAGE

- 1. Connect AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between AV control unit harness connector terminal 40 and ground.

#### 40 - Ground

: Approx. 5 V

#### Is the inspection result normal?

- YES >> Replace camera control unit.
- NO >> Replace AV control unit.

# **U1258 SATELLITE RADIO ANTENNA**

# < COMPONENT DIAGNOSIS >

# **U1258 SATELLITE RADIO ANTENNA**

## Description

Part name	Description
SATELLITE RADIO ANTENNA	Satellite radio signal is received and transmitted to AV control unit.

# **DTC** Logic

D Display contents of DTC **DTC** Detection Condition Possible causes CONSULT-III XM ANTENNA CONN Satellite radio antenna connection malfunction is detect-· Satellite radio antenna feeder U1258 Ε [U1258] ed. · Satellite radio antenna **Diagnosis Procedure** INFOID:000000004156000 F **1**.SATELLITE RADIO ANTENNA CHECK Visually check satellite radio antenna and antenna feeder. Is the inspection result normal? >> GO TO 2. YES NO >> Repair malfunctioning parts. **2.**CHECK AV CONTROL UNIT VOLTAGE Н 1. Turn ignition switch OFF. Disconnect satellite radio antenna connector. 2. Turn ignition switch ON. 3. 4. Check voltage between AV control unit terminal 110 and ground. 110 - Ground : Approx. 5 V Is the inspection result normal? >> INSPECTION END YES AV

NO >> Replace AV control unit. INFOID:000000004155998

INFOID:000000004155999

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## U1300 AV COMM CIRCUIT

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

## **U1300 AV COMM CIRCUIT**

#### Description

INFOID:000000004156001

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

#### SELF-DIAGNOSIS RESULTS DISPLAY ITEM

DTC	Display contents of CONSULT-III	Description	Possible malfunction factor/Action to take
U1300	AV COMM CIRCUIT [U1300]	<ul> <li>When either one of the following items is detected:</li> <li>Rear control switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and rear control switch is malfunctioning.</li> </ul>	Rear control switch power supply and ground circuits.
U1300 U121F	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>INTERNAL COMM [U121F]</li> </ul>	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, re- place AV control unit.
U1300 U1240	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>Multifunction switch power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and multifunction switch is malfunctioning.</li> </ul>	Multifunction switch power supply and ground circuits.
U1300 U1246	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>VIDEO DIST CONN [U1246]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>video distributor power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and video distributor is malfunctioning.</li> </ul>	Video distributor power supply and ground circuits.
U1300 U1248	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>DVD player power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and DVD player is malfunctioning.</li> </ul>	DVD player power supply and ground circuits.
U1300 U124E	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>BOSE amp. power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and BOSE amp is malfunctioning.</li> </ul>	BOSE amp. power supply and ground circuits.
U1300 U1252	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>camera control unit power supply and ground circuits are malfunctioning.</li> <li>AV communication signal between AV control unit and camera control unit is malfunctioning.</li> </ul>	Camera control unit power supply and ground circuits.
U1300 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>iPod adapter power supply and ground circuits are malfunctioning.</li> <li>AV communication circuits between camera control unit and iPod adapter are malfunctioning.</li> <li>AV communication signal between AV control unit and iPod adapter is malfunctioning.</li> </ul>	<ul> <li>iPod adapter power supply and ground circuits.</li> <li>AV communication circuits between camera control unit and iPod adapter.</li> </ul>
U1300 U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits be- tween BOSE amp. and camera control unit.	AV communication circuits between BOSE amp. and camera control unit.

## < COMPONENT DIAGNOSIS >

# U1300 AV COMM CIRCUIT

### [WITH MOBILE ENTERTAINMENT SYSTEM]

DTC	Display contents of CONSULT-III	Description	Possible malfunction factor/Action to take
U1300 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	<ul> <li>When either one of the following items is detected:</li> <li>AV communication circuits between DVD player and BOSE amp.are malfunctioning. (without rear control switch models)</li> <li>AV communication circuits between rear control switch and BOSE amp. are malfunctioning (with rear control switch models)</li> <li>AV communication circuits between rear control switch and BOSE amp. are malfunctioning (with rear control switch models)</li> <li>AV communication circuits between rear control switch and DVD player are malfunctioning (with rear control switch models)</li> </ul>	<ul> <li>AV communication circuits between DVD player and BOSE amp. (with- out rear control switch models)</li> <li>AV communication circuits between rear control switch and BOSE amp.</li> </ul>
U1300 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits be- tween video distributor and DVD player.	AV communication circuits between video distributor and DVD player.
U1300 U1246 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>VIDEO DIST CONN [U1246]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits be- tween multifunction switch and video distributor.	AV communication circuits between multifunction switch and video distributor.
U1300 U1240 U1246 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>VIDEO DIST CONN [U1246]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPod CONN [U1254]</li> </ul>	Malfunction is detected in AV communication circuits be- tween AV control unit and multifunction switch.	AV communication circuits between AV control unit and multifunction switch.
U1300 U121F U1240 U1246 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>INTERNAL COMM [U121F]</li> <li>SWITCH CONN [U1240]</li> <li>VIDEO DIST CONN [U1246]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> </ul>	Malfunction is detected in AV communication circuits.	Check and repair the short circuit in AV communication circuits.

#### POWER SUPPLY AND GROUND CIRCUIT

#### < COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# POWER SUPPLY AND GROUND CIRCUIT AV CONTROL UNIT

## AV CONTROL UNIT : Diagnosis Procedure

INFOID:000000004156002

# 1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6
Ignition switch ON or START	12

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.)
	M76	19		
Battery power supply	M78	22	OFF	Battery voltage
	IVI7O	24		
	M76	7	ACC	Pottony voltage
ACC power supply	M78	25	ACC	Battery voltage
Ignition signal	M78	35	ON	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

- 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	M78	21	OFF	Existed
Ground	NH O	23		Existed

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

#### FRONT DISPLAY UNIT

## FRONT DISPLAY UNIT : Diagnosis Procedure

INFOID:000000004156003

# 1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6

## POWER SUPPLY AND GROUND CIRCUIT

# [WITH MOBILE ENTERTAINMENT SYSTEM]

< CONFONENT DIA			2		
Is the inspection resul	It normal?				
YES >> GO TO 2					
NO >> Be sure to	o eliminate cause of m	nalfunction b	efore insta	alling new fuse.	
2. CHECK POWER S	SUPPLY CIRCUIT				
Check voltage betwee	en front display unit ha	arness conne	ector and g	ground.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Value (Approx.)
Battery power supply	M203	2		OFF	Battery voltage
ACC power supply	M203	3		ACC	Battery voltage
Is the inspection resul	It normal?				
YES >> GO TO 3					
•	rness between front d	lisplay unit a	nd fuse.		
3.CHECK GROUND	CIRCUIT				
1. Turn ignition swite					
	display unit connector. between front display		connecto	r and ground	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Continuity
Ground	M203	1		OFF	Existed
Clound	101200	13	3	ÖN	Existed
Is the inspection resul	lt normal?				
YES >> INSPECT					
	arness or connector.				
REAR DISPLAY	UNII				
REAR DISPLAY	UNIT : Diagnosis	Procedu	re		INFOID:000000004156004
	0				
<b>1.</b> CHECK FUSE					
Check for blown fuses	3.				
	Power source			Fuse No.	
	Battery			37	
Ignitio	on switch ACC or ON			6	
Is the inspection resul	It normal?				
YES >> GO TO 2					
-	o eliminate cause of m	nalfunction b	efore insta	alling new fuse.	
2. CHECK POWER S	SUPPLY CIRCUIT				
Check voltage betwee	en rear display unit ha	rness conne	ctor and g	round.	
Signal name	Connector No.	Termina	al No.	Ignition switch position	Value (Approx.)
	_	3			
Battery power supply	R102	4		OFF Battery ve	Battery voltage
ACC power supply	R102	6		ACC	Battery voltage
		L			

Is the inspection result normal?

< COMPONENT DIAGNOSIS >

YES >> GO TO 3.

NO >> Check harness between rear display unit and fuse.

# 3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

- 2. Disconnect rear display unit connector.
- 3. Check continuity between rear display unit harness connector and ground.

# AV-595

#### POWER SUPPLY AND GROUND CIRCUIT [WITH MOBILE ENTERTAINMENT SYSTEM]

#### < COMPONENT DIAGNOSIS >

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	R102	1	OFF	Existed
Ground	1(102	2	- Off	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

VIDEO DISTRIBUTOR

## VIDEO DISTRIBUTOR : Diagnosis Procedure

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6
Ignition switch ON or START	12

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 video distributor harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M208	54	OFF	Battery voltage
ACC power supply	M208	55	ACC	Battery voltage
Ignition signal	M208	56	ON	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between video distributor and fuse.

# 3.CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect video distributor connector. 2.

3. Check continuity between video distributor harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M208	53	OFF	Existed

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

## BOSE AMP.

**BOSE AMP. : Diagnosis Procedure** 

#### BOSE SURROUND AUDIO 5.1CH SYSTEM MODELS

## 1.CHECK FUSE

Check for blown fuses.

INFOID:000000004156006

INFOID:000000004156005

# POWER SUPPLY AND GROUND CIRCUIT

#### < COMPONENT DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Power source			Fuse No.		
Battery			17, 18		
Ignitic	on switch ACC or ON		6		
s the inspection result YES >> GO TO 2. NO >> Be sure to 2.CHECK POWER S	eliminate cause of m	alfunction before i	nstalling new fuse.		
Check voltage betwee	n BOSE amp. harnes	s connector and g	round.		
Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)	
Battery power supply	B108	50 51	OFF	Battery voltage	
ACC power supply	B107	16	ACC	Battery voltage	
<b>B.</b> CHECK GROUND 1. Turn ignition swite 2. Disconnect BOSE	h OFF. amp. connector.	harness connector	and ground.		
Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity	
	Connector No. B108			Continuity Existed	
Signal name Ground s the inspection resul YES >> INSPECT	Connector No. B108 t normal? ION END rness or connector. / MODELS	Terminal No. 47	Ignition switch position		
Signal name Ground <u>s the inspection resul</u> YES >> INSPECT NO >> Repair ha 3OSE 2CH SYSTEN 1.CHECK FUSE	Connector No. B108 t normal? ION END rness or connector. / MODELS	Terminal No. 47	Ignition switch position		
Signal name Ground <u>s the inspection resul</u> YES >> INSPECT NO >> Repair ha 3OSE 2CH SYSTEN 1.CHECK FUSE	Connector No. B108 t normal? ION END rness or connector. M MODELS	Terminal No. 47	Ignition switch position OFF		
Signal name Ground <u>s the inspection resul</u> YES >> INSPECT NO >> Repair ha BOSE 2CH SYSTEN <b>1</b> .CHECK FUSE Check for blown fuses	Connector No. B108 t normal? ION END rness or connector. MODELS	Terminal No. 47	Ignition switch position OFF Fuse No.		
Signal name Ground s the inspection resul YES >> INSPECT NO >> Repair ha BOSE 2CH SYSTEM 1.CHECK FUSE Check for blown fuses Ignitic s the inspection resul YES >> GO TO 2.	Connector No. B108 L normal? ION END rness or connector. / MODELS Power source Battery in switch ACC or ON L normal? o eliminate cause of m UPPLY CIRCUIT	Terminal No. 47 52	Ignition switch position         OFF         OFF         Fuse No.         17, 18         6         nstalling new fuse.		
Signal name Ground s the inspection resul YES >> INSPECT NO >> Repair ha BOSE 2CH SYSTEM 1.CHECK FUSE Check for blown fuses Ignitic s the inspection resul YES >> GO TO 2. NO >> Be sure to 2.CHECK POWER S	Connector No. B108 L normal? ION END rness or connector. / MODELS Power source Battery in switch ACC or ON L normal? o eliminate cause of m UPPLY CIRCUIT	Terminal No. 47 52	Ignition switch position         OFF         OFF         Fuse No.         17, 18         6         nstalling new fuse.		
Signal name Ground s the inspection result YES >> INSPECT NO >> Repair ha BOSE 2CH SYSTEM 1.CHECK FUSE Check for blown fuses Ignitic s the inspection result YES >> GO TO 2. NO >> Be sure to 2.CHECK POWER S Check voltage betwee	Connector No. B108 Enormal? ION END rness or connector. / MODELS Power source Battery on switch ACC or ON Enormal? o eliminate cause of m UPPLY CIRCUIT n BOSE amp. harnes	Terminal No. 47 52 halfunction before i s connector and g	Ignition switch position OFF OF Fuse No. 17, 18 6 nstalling new fuse. round.	Existed	

YES >> GO TO 3.

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

## POWER SUPPLY AND GROUND CIRCUIT

#### < COMPONENT DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

# 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	B108	47	OFF	Existed
Ground	Dioo	52		Existed

Is the inspection result normal?

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

#### iPod ADAPTER

#### iPod ADAPTER : Diagnosis Procedure

INFOID:000000004156007

#### **1.**CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6

#### Is the inspection result normal?

YES >> GO TO 2.

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

## 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between iPod adapter harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M85	5	OFF	Battery voltage
ACC power supply	M85	3	ACC	Battery voltage

Is the inspection result normal?

YES >> INSPECTION END

NO >> Check harness between iPod adapter and fuse.

#### CAMERA CONTROL UNIT

## CAMERA CONTROL UNIT : Diagnosis Procedure

INFOID:000000004156008

#### **1.**CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	37
Ignition switch ACC or ON	6

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 camera control unit harness connector and ground.

## AV-598

#### POWER SUPPLY AND GROUND CIRCUIT OSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

#### < COMPONENT DIAGNOSIS >

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	B481	32	OFF	Battery voltage
ACC power supply	B481	30	ACC	Battery voltage
<b>3.</b> CHECK GROUND 1. Turn ignition swite 2. Disconnect came	rness between camer CIRCUIT	tor.		
Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B481	31	OFF	Existed
DVD PLAYÈR DVD PLAYER : 1.check fuse		lure		INFOID:000000004156005
Check for blown fuses	S.			
Check for blown fuses				
Check for blown fuses	Power source		Fuse No.	
	Power source Battery		37	
Ignitic	Power source Battery on switch ACC or ON			
Ignition Is the inspection result YES >> GO TO 2 NO >> Be sure to 2.CHECK POWER S	Power source Battery on switch ACC or ON It normal? o eliminate cause of m SUPPLY CIRCUIT		37 6	
Ignition Is the inspection result YES >> GO TO 2 NO >> Be sure to <b>2.</b> CHECK POWER S Check voltage betwee	Power source Battery on switch ACC or ON <u>t normal?</u> o eliminate cause of m SUPPLY CIRCUIT en DVD player harness	s connector and gr	37 6 nstalling new fuse. pund.	Value (Approx.)
Ignition Is the inspection result YES >> GO TO 2 NO >> Be sure to <b>2.</b> CHECK POWER S Check voltage betweet Signal name	Power source Battery on switch ACC or ON It normal? o eliminate cause of m SUPPLY CIRCUIT		37 6	Value (Approx.) Battery voltage
Ignition Is the inspection result YES >> GO TO 2 NO >> Be sure to 2.CHECK POWER S Check voltage betwee	Power source Battery on switch ACC or ON it normal? o eliminate cause of m SUPPLY CIRCUIT en DVD player harness Connector No.	s connector and gr Terminal No.	37 6 nstalling new fuse. ound.	
Ignition Is the inspection result YES >> GO TO 2 NO >> Be sure to 2.CHECK POWER S Check voltage between Signal name Battery power supply ACC power supply ACC power supply Is the inspection result YES >> GO TO 3 NO >> Check hat 3.CHECK GROUND 1. Turn ignition switte 2. Disconnect DVD	Power source Battery on switch ACC or ON it normal? o eliminate cause of m SUPPLY CIRCUIT en DVD player harness Connector No. M272 M272 t normal? rness between DVD p CIRCUIT ch OFF.	s connector and gro Terminal No. 1 2 Nayer and fuse.	37 6 Installing new fuse.	Battery voltage
Ignition Is the inspection result YES >> GO TO 2 NO >> Be sure to 2.CHECK POWER S Check voltage betwee Signal name Battery power supply ACC power supply ACC power supply Is the inspection result YES >> GO TO 3 NO >> Check hat 3.CHECK GROUND 1. Turn ignition swite 2. Disconnect DVD 3. Check continuity	Power source Battery on switch ACC or ON it normal? o eliminate cause of m SUPPLY CIRCUIT en DVD player harness Connector No. M272 M272 it normal? rness between DVD p CIRCUIT ch OFF. player connector. between DVD player h	s connector and group of the second s	37 6 nstalling new fuse. ound. Ignition switch position OFF ACC	Battery voltage Battery voltage
Ignition Is the inspection result YES >> GO TO 2 NO >> Be sure to 2.CHECK POWER S Check voltage between Signal name Battery power supply ACC power supply ACC power supply Is the inspection result YES >> GO TO 3 NO >> Check hat 3.CHECK GROUND 1. Turn ignition switte 2. Disconnect DVD	Power source Battery on switch ACC or ON it normal? o eliminate cause of m SUPPLY CIRCUIT en DVD player harness Connector No. M272 M272 t normal? rness between DVD p CIRCUIT ch OFF. player connector.	s connector and gro Terminal No. 1 2 Nayer and fuse.	37 6 Installing new fuse.	Battery voltage

NO >> Repair harness or connector.

## POWER SUPPLY AND GROUND CIRCUIT

#### < COMPONENT DIAGNOSIS >

## MULTIFUNCTION SWITCH

## **MULTIFUNCTION SWITCH : Diagnosis Procedure**

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery power supply	37
Ignition switch ACC or ON	6

#### Is the inspection result normal?

YES >> GO TO 2.

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

#### 2. CHECK POWER SUPPLY CIRCUIT

Check voltage between multifunction switch harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M69	1	OFF	Battery voltage
ACC power supply	M69	2	ACC	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between multifunction switch and fuse.

# 3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect multifunction switch connector.

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M69	14	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

INFOID:000000004156010

# RGB (R: RED) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

[WITH MOBILE ENTERTAINMENT SYSTEM]

RGB (R: RED) SIGN	_	RCUIT (AV CONTRO	L UNIT TO FRONT DISPLAY
UNIT)		Υ.	
Description			INFOID:000000004156011
Transmit the image displayed	with AV	control unit with RGB signal to	o the front display unit.
Diagnosis Procedure			INF0ID:00000004156012
1. CHECK CONTINUITY RG	B (R: RE	D) SIGNAL CIRCUIT	
		ector and AV control unit conn splay unit harness connector	nector. terminal 17 and AV control unit harness
17 - 93	: Co	ontinuity should exist.	
4. Check continuity between	n front dis	play unit harness connector to	erminal 17 and ground.
17 - Ground	: Co	ontinuity should not exist.	
Is the inspection result norma YES >> GO TO 2. NO >> Repair harness o 2.CHECK RGB (R: RED) SI	r connect	or.	
1. Connect front display uni		or and AV control unit connec	tor.
<ol> <li>Turn ignition switch ON.</li> <li>Check signal between from the state of the st</li></ol>	ont display	/ unit harness connector term	inal 17 and ground.
Terminal		Condition	Reference value
17 - Ground	Ignition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	$ \begin{array}{c} (V) \\ 0.8 \\ 0.4 \\ 0.4 \\ 0 \\ \hline \end{array} $

Is the inspection result normal?

< COMPONENT DIAGNOSIS >

>> Replace front display unit. YES

NO >> Replace AV control unit.

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#### RGB (G: GREEN) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# RGB (G: GREEN) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DIS-PLAY UNIT)

## Description

INFOID:000000004156013

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

## Diagnosis Procedure

INFOID:000000004156014

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

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 6 and AV control unit harness connector terminal 94.

#### 6 - 94

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 6 and ground.

#### 6 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

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

2.CHECK RGB (G: GREEN) SIGNAL

- 1. Connect front display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 6 and ground.

Terminal		Condition	Reference value
6 - Ground	Ignition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

RGB (B: BLUE) SIGNAL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY	
UNIT)	

	UNII)	
< COMPONENT DIAGNOS	IS > <b>[WITH</b> !	MOBILE ENTERTAINMENT SYSTEM]
RGB (B' BLUE) SIC	NAL CIRCUIT (AV CONT	ROL UNIT TO FRONT DIS-
PLAY UNIT)		A A
,		
Description		INFOID:000000004156015
Transmit the image displayed	d with AV control unit with RGB signal to	
Diagnosis Procedure		INFOID:000000004156016
		C
	B (B: BLUE) SIGNAL CIRCUIT	
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect front display</li> </ol>	unit connector and AV control unit conn	D
		terminal 18 and AV control unit harness
connector terminal 95.		E
18 - 95	: Continuity should exist.	Le
4. Check continuity betwee	n front display unit harness connector to	erminal 18 and ground.
18 - Ground	: Continuity should not exist.	'
Is the inspection result norma	-	
YES >> GO TO 2.	<u></u>	G
NO >> Repair harness of	or connector.	
2.CHECK RGB (B: BLUE) S	IGNAL	Н
	t connector and AV control unit connection	tor.
<ol> <li>Turn ignition switch ON.</li> <li>Check signal between from the second secon</li></ol>	ont display unit harness connector term	inal 18 and ground
5. Check signal between in	in display unit namess connector term	
Terminal	Condition	Reference value
		J

18 - Ground	lgnition switch ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.		AV
-------------	--------------------------	--	--	----

Is the inspection result normal?

YES

>> Replace front display unit.>> Replace AV control unit. NO

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## **RGB SYNCHRONIZING SIGNAL CIRCUIT**

#### < COMPONENT DIAGNOSIS >

# RGB SYNCHRONIZING SIGNAL CIRCUIT

#### Description

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

## **Diagnosis Procedure**

INFOID:000000004156018

INFOID:000000004156017

[WITH MOBILE ENTERTAINMENT SYSTEM]

# 1. CHECK CONTINUITY RGB SYNCHRONIZING SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 19 and AV control unit harness connector terminal 97.

#### 19 - 97 : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 19 and ground.

#### 19 - Ground

#### : Continuity should not exist.

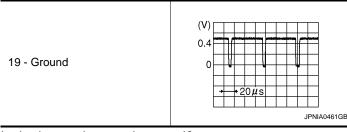
Is the inspection result normal?

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

2. CHECK RGB SYNCHRONIZING SIGNAL

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

- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 19 and ground.



Is the inspection result normal?

- YES >> Replace front display unit.
- NO >> Replace AV control unit.

RGB AREA (YS) SIGNA	AL CIRCUIT (AV CONTROL UNIT TO FRONT DISPLAY UNIT)	
< COMPONENT DIAGNOSIS >	[WITH MOBILE ENTERTAINMENT SYSTEM]	
RGB AREA (YS) SIGN PLAY UNIT)	AL CIRCUIT (AV CONTROL UNIT TO FRONT DIS-	А
Description	INFOID:000000004156019	В
Transmits the front display area of display unit.	f RGB image displayed by AV control unit with RGB area (YS) signal to front	D
Diagnosis Procedure	INFOID:000000004156020	С
1. CHECK CONTINUITY RGB AF	REA (YS) SIGNAL CIRCUIT	D
	connector and AV control unit connector. nt display unit harness connector terminal 9 and AV control unit harness con-	E
9 - 99	: Continuity should exist.	
4 Chaok continuity botwoon fro	nt display unit bernass connector terminal 0 and ground	F

4. Check continuity between front display unit harness connector terminal 9 and ground.

9 -	Ground	
· ·	oround	

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB AREA (YS) SIGNAL

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

2. Turn ignition switch ON.

3. Check signal between front display unit harness connector terminal 9 and ground.

Terminal		Condition	Reference value	J
		When RGB image is displayed	Approx. 5 V	
	Ignition			AV
9 - Ground	switch ON	When rear view camera image is displayed.	$\begin{array}{c} 4\\ 2\\ 0\\ \end{array}$	L
s the inspection result n			PKIB4948J	M

Is the inspection result normal?

YES >> Replace front display unit.

NO >> Replace AV control unit.

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## HP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT) < COMPONENT DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]

# HP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT)

## Description

INFOID:000000004156021

In composite image (DVD and AUX images, camera image), transmit the vertical synchronizing (VP) signal and horizontal synchronizing (HP) signal from front 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:000000004156022

1. CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect front display unit connector and AV control unit connector.
- 3. Check continuity between front display unit harness connector terminal 8 and AV control unit harness connector terminal 100.

#### 8 - 100

#### : Continuity should exist.

4. Check continuity between front display unit harness connector terminal 8 and ground.

#### 8 - Ground

#### : Continuity should not exist.

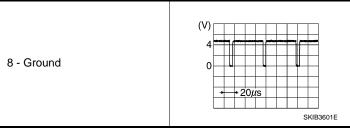
Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL

- 1. Connect front display unit connector and AV control unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 8 and ground.



Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace front display unit.

#### VP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT) А Description INFOID:000000004156023 In composite image (DVD and AUX images, camera image), transmit the vertical synchronizing (VP) signal В and horizontal synchronizing (HP) signal from front display unit to AV control unit so as to synchronize the RGB images displayed with AV control unit such as the image guality adjusting menu, etc. **Diagnosis** Procedure INFOID:000000004156024 1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT 1. Turn ignition switch OFF. D Disconnect front display unit connector and AV control unit connector. 2. 3. Check continuity between front display unit harness connector terminal 20 and AV control unit harness connector terminal 101. Е 20 - 101 : Continuity should exist. Check continuity between front display unit harness connector terminal 20 and ground. 4. F 20 - Ground : Continuity should not exist. Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. **2.**CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL Н Connect front display unit connector and AV control unit connector. 1. 2. Turn ignition switch ON. 3. Check signal between front display unit harness connector terminal 20 and ground. (V 20 - Ground AV 4ms SKIB3598E Is the inspection result normal? >> Replace AV control unit. YES NO >> Replace front display unit. M Ν Ρ

**VP SIGNAL CIRCUIT (FRONT DISPLAY UNIT TO AV CONTROL UNIT)** 

[WITH MOBILE ENTERTAINMENT SYSTEM]

< COMPONENT DIAGNOSIS >

#### COMPOSITE IMAGE SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO FRONT DIS-PLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# COMPOSITE IMAGE SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO FRONT DISPLAY UNIT)

## Description

INFOID:000000004156025

Video distributor receives the image signal from the DVD player, and auxiliary input jack, and then transmits it to the front display unit and rear display unit.

#### **Diagnosis Procedure**

INFOID:000000004156026

#### 1. CHECK CONTINUITY COMPOSITE IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect video distributor connector and front display unit connector.
- 3. Check continuity between video distributor harness connector terminal 8 and front display unit harness connector terminal 15.

#### 8 - 15

#### : Continuity should exist.

4. Check continuity between video distributor harness connector terminal 6 and front display unit harness connector terminal 5.

#### **6 - 5**

#### : Continuity should exist.

5. Check continuity between front display unit harness connector terminal 15 and ground.

#### 15 - Ground

#### : Continuity should not exist.

6. Check continuity between front display unit harness connector terminal 5 and ground.

#### 5 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

# 2. CHECK COMPOSITE IMAGE SIGNAL

- 1. Connect video distributor connector and front display unit connector.
- 2. Turn ignition switch ON.
- 3. Check signal between front display unit harness connector terminal 15 and 5.

Terminal	Condition		Reference value
15 - 5	Ignition switch ON	When AUX or DVD image is dis- played on front display unit.	(V) 0. 4 −0. 4 −0. 4 SKIB2251J

#### Is the inspection result normal?

- YES >> Replace front display unit.
- NO >> Replace video distributor.

COMPOSITE IMAGE SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO	REAR DIS-		
PLAY ÙNIT)			
	MENT OVOTEM		

< COMPONENT DIAGNOSIS >	[WITH MOBILE ENTERTAINMENT SYSTEM]
COMPOSITE IMAGE SIGNAL CIRCU DISPLAY UNIT)	JIT (VIDEO DISTRIBUTOR TO REAR A
Description	INF0ID:00000004156027
Video distributor receives the image signal from the DV to the front display unit and rear display unit.	/D player, and auxiliary input jack, and then transmits it
Diagnosis Procedure	INFOID:000000004156028
1. CHECK CONTINUITY COMPOSITE IMAGE SIGNA	AL CIRCUIT
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect video distributor connector and rear dis</li> <li>Check continuity between video distributor harnes connector terminal 16.</li> </ol>	splay unit connector. ss connector terminal 34 and rear display unit harness
34 - 16 : Continuity should	d exist.
4. Check continuity between rear display unit harness	s connector terminal 16 and ground.
16 - Ground : Continuity should	
Is the inspection result normal?	G
YES >> GO TO 2. NO >> Repair harness or connector.	Н
2.CHECK COMPOSITE IMAGE SIGNAL	
<ol> <li>Connect video distributor connector and rear display</li> </ol>	av unit connector

1. Connect video distributor connector and rear display unit connector.

2. Turn ignition switch ON.

3. Check signal between rear display unit harness connector terminal 16 and ground.

Terminal		Condition	Reference value	
16 - Ground	Ignition switch ON	When AUX or DVD image is dis- played on rear display.	$(V)$ $0.4$ $0$ $-0.4$ $+40\mu$ s $KIB2251J$	AV

Is the inspection result normal?

YES >> Replace rear display unit.

NO >> Replace video distributor.

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# RGB (R: RED) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# RGB (R: RED) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DIS-PLAY UNIT)

## Description

INFOID:000000004156029

Transmit the image displayed with video distributor with RGB signal to the rear display unit.

## Diagnosis Procedure

INFOID:000000004156030

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

- 1. Turn ignition switch OFF.
- 2. Disconnect rear display unit connector and video distributor connector.
- 3. Check continuity between rear display unit harness connector terminal 24 and video distributor harness connector terminal 25.

#### 24 - 25

#### : Continuity should exist.

4. Check continuity between rear display unit harness connector terminal 24 and ground.

#### 24 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

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

2.CHECK RGB (R: RED) SIGNAL

1. Connect rear display unit connector and video distributor connector.

- 2. Turn ignition switch ON.
- 3. Check signal between rear display unit harness connector terminal 24 and ground.

Terminal	Condition		Reference value	
24 - Ground	Ignition switch ON	Rear seat remote controller oper- ation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 + + 5ms JSNIA0984ZZ	

Is the inspection result normal?

YES >> Replace rear display unit.

NO >> Replace video distributor.

# RGB (G: GREEN) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DISPLAY UNIT)

RGB (G: GREEN) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DIS- PLAY UNIT)         Description         Transmit the image displayed with video distributor with RGB signal to the rear display unit.         Diagnosis Procedure         1. CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT         1         Turn ignition switch OFF.         2. Disconnect rear display unit connector and video distributor connector.         3. Check continuity between rear display unit harness connector terminal 23 and video distributor harness connector terminal 26.         23 - 26       : Continuity should exist.         4. Check continuity between rear display unit harness connector terminal 23 and ground.         23 - Ground       : Continuity should not exist.
Transmit the image displayed with video distributor with RGB signal to the rear display unit.         Diagnosis Procedure         1.CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT         1. Turn ignition switch OFF.         2. Disconnect rear display unit connector and video distributor connector.         3. Check continuity between rear display unit harness connector terminal 23 and video distributor harness connector terminal 26.         23 - 26       : Continuity should exist.         4. Check continuity between rear display unit harness connector terminal 23 and ground.
Transmit the image displayed with video distributor with RGB signal to the rear display unit.         Diagnosis Procedure       INFOLD:00000004156032         1.CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT         1. Turn ignition switch OFF.         2. Disconnect rear display unit connector and video distributor connector.         3. Check continuity between rear display unit harness connector terminal 23 and video distributor harness connector terminal 26.         23 - 26       : Continuity should exist.         4. Check continuity between rear display unit harness connector terminal 23 and ground.
<ul> <li>1. CHECK CONTINUITY RGB (G: GREEN) SIGNAL CIRCUIT</li> <li>1. Turn ignition switch OFF.</li> <li>2. Disconnect rear display unit connector and video distributor connector.</li> <li>3. Check continuity between rear display unit harness connector terminal 23 and video distributor harness connector terminal 26.</li> <li>23 - 26 : Continuity should exist.</li> <li>4. Check continuity between rear display unit harness connector terminal 23 and ground.</li> </ul>
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect rear display unit connector and video distributor connector.</li> <li>Check continuity between rear display unit harness connector terminal 23 and video distributor harness connector terminal 26.</li> <li>23 - 26 : Continuity should exist.</li> <li>Check continuity between rear display unit harness connector terminal 23 and ground.</li> </ol>
<ol> <li>Disconnect rear display unit connector and video distributor connector.</li> <li>Check continuity between rear display unit harness connector terminal 23 and video distributor harness connector terminal 26.</li> <li>23 - 26 : Continuity should exist.</li> <li>Check continuity between rear display unit harness connector terminal 23 and ground.</li> </ol>
<ul> <li>23 - 26 : Continuity should exist.</li> <li>4. Check continuity between rear display unit harness connector terminal 23 and ground.</li> </ul>
4. Check continuity between rear display unit harness connector terminal 23 and ground.
23 - Ground : Continuity should not exist.
· · · · · · · · · · · · · · · · · · ·
Is the inspection result normal?         YES       >> GO TO 2.         NO       >> Repair harness or connector.
2.CHECK RGB (G: GREEN) SIGNAL
<ol> <li>Connect rear display unit connector and video distributor connector.</li> <li>Turn ignition switch ON.</li> <li>Check signal between rear display unit harness connector terminal 23 and ground.</li> </ol>

Terminal	Condition		Reference value	
23 - Ground	lgnition switch ON	Rear seat remote controller oper- ation when AUX or DVD image is displayed on rear display unit.		J AV L

Is the inspection result normal?

>> Replace rear display unit.>> Replace video distributor. YES

NO

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#### RGB (B: BLUE) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# RGB (B: BLUE) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DIS-PLAY UNIT)

## Description

INFOID:000000004156033

Transmit the image displayed with video distributor with RGB signal to the rear display unit.

## Diagnosis Procedure

INFOID:000000004156034

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

- 1. Turn ignition switch OFF.
- 2. Disconnect rear display unit connector and video distributor connector.
- 3. Check continuity between rear display unit harness connector terminal 22 and video distributor harness connector terminal 28.

#### 22 - 28

#### : Continuity should exist.

4. Check continuity between rear display unit harness connector terminal 22 and ground.

#### 22 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

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

2.CHECK RGB (B: BLUE) SIGNAL

1. Connect rear display unit connector and video distributor connector.

- 2. Turn ignition switch ON.
- 3. Check signal between rear display unit harness connector terminal 22 and ground.

Terminal	Condition		Reference value	
22 - Ground	Ignition switch ON	Rear seat remote controller oper- ation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 • • • 5ms JSNIA0984ZZ	

Is the inspection result normal?

YES >> Replace rear display unit.

NO >> Replace video distributor.

# COMPOSITE SYNCHRONIZING SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DISPLAY UNIT)

<u>COMPONENT DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]</u>
COMPOSITE SYNCHRONIZING SIGNAL CIRCUIT (VIDEO DISTRIBUTOR)

# TO REAR DISPLAY UNIT) Description

Transmit the composite synchronizing signal to the rear display unit so as to synchronize the composite image displayed with video distributor.

# Diagnosis Procedure

# 1. CHECK CONTINUITY COMPOSITE SYNCHRONIZING SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect rear display unit connector and video distributor connector.
- 3. Check continuity between rear display unit harness connector terminal 15 and video distributor harness connector terminal 33.

# 15 - 33 : Continuity should exist.

4. Check continuity between rear display unit harness connector terminal 15 and ground.

: Continuity should not exist.

15 - Ground
Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK RGB SYNCHRONIZING SIGNAL

# 1. Connect rear display unit connector and video distributor connector.

2. Turn ignition switch ON.

3. Check signal between rear display unit harness connector terminal 15 and ground.

Terminal		Condition	Reference value	J
15 - Ground	lgnition switch ON	When AUX or DVD image is dis- played on rear display unit.	(V) 4 0 ↓ 20µs SKIB0825E	AV

Is the inspection result normal?

YES >> Replace rear display unit.

NO >> Replace video distributor.

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INFOID:000000004156035

INFOID:000000004156036

# VP SIGNAL CIRCUIT (REAR DISPLAY UNIT TO VIDEO DISTRIBUTOR)

#### < COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# VP SIGNAL CIRCUIT (REAR DISPLAY UNIT TO VIDEO DISTRIBUTOR)

# Description

INFOID:000000004156037

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

# **Diagnosis** Procedure

INEOID:000000004156038

1. CHECK CONTINUITY VERTICAL SYNCHRONIZING (VP) SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect rear display unit connector and video distributor connector.
- Check continuity between rear display unit harness connector terminal 19 and video distributor harness 3. connector terminal 29.

#### 19 - 29

#### : Continuity should exist.

4. Check continuity between rear display unit harness connector terminal 19 and ground.

#### 19 - Ground

#### : Continuity should not exist.

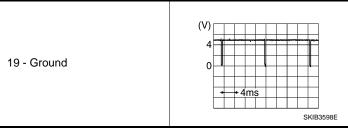
Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

**2.**CHECK VERTICAL SYNCHRONIZING (VP) SIGNAL

- Connect rear display unit connector and video distributor connector. 1.
- 2. Turn ignition switch ON.
- Check signal between rear display unit harness connector terminal 19 and ground. 3.



Is the inspection result normal?

>> Replace video distributor. YES

NO >> Replace rear display unit.

#### HP SIGNAL CIRCUIT (REAR DISPLAY UNIT TO VIDEO DISTRIBUTOR) А Description INFOID:000000004156039 In composite image (DVD and AUX images), transmit the vertical synchronizing (VP) signal and horizontal В synchronizing (HP) signal from rear display unit to video distributor so as to synchronize the RGB images displayed with video distributor such as the image guality adjusting menu, etc. **Diagnosis** Procedure INFOID:000000004156040 1. CHECK CONTINUITY HORIZONTAL SYNCHRONIZING (HP) SIGNAL CIRCUIT 1. Turn ignition switch OFF. D Disconnect rear display unit connector and video distributor connector. 2. 3. Check continuity between rear display unit harness connector terminal 20 and video distributor harness connector terminal 30. Е 20 - 30 : Continuity should exist. Check continuity between rear display unit harness connector terminal 20 and ground. 4. F 20 - Ground : Continuity should not exist. Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. **2.**CHECK HORIZONTAL SYNCHRONIZING (HP) SIGNAL Н Connect rear display unit connector and video distributor connector. 1. 2. Turn ignition switch ON. Check signal between rear display unit harness connector terminal 20 and ground. 3. (V 20 - Ground AV SKIB3601E Is the inspection result normal? >> Replace video distributor. YES NO >> Replace rear display unit. M Ν Ρ

HP SIGNAL CIRCUIT (REAR DISPLAY UNIT TO VIDEO DISTRIBUTOR)

[WITH MOBILE ENTERTAINMENT SYSTEM]

< COMPONENT DIAGNOSIS >

# RGB AREA (YS) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DISPLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# RGB AREA (YS) SIGNAL CIRCUIT (VIDEO DISTRIBUTOR TO REAR DIS-PLAY UNIT)

# Description

INFOID:000000004156041

Transmits the rear display area of RGB image displayed by video distributor with RGB area (YS) signal to rear display unit.

# Diagnosis Procedure

INFOID:000000004156042

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

- 1. Turn ignition switch OFF.
- 2. Disconnect rear display unit connector and video distributor connector.
- 3. Check continuity between rear display unit harness connector terminal 17 and video distributor harness connector terminal 32.

17 - 32

#### : Continuity should exist.

4. Check continuity between rear display unit harness connector terminal 17 and ground.

#### 17 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

- **2.**CHECK RGB AREA (YS) SIGNAL
- 1. Connect rear display unit connector and video distributor connector.

2. Turn ignition switch ON.

3. Check signal between rear display unit harness connector terminal 17 and ground.

Terminal	Condition		Reference value
		When RGB image is displayed.	Approx. 0 V
17 - Ground	Ignition switch ON	Rear seat remote controller oper- ation when AUX or DVD image is displayed on rear display.	(V) 6 4 2 0 +++200µs − − − × × × × 20 × × × × × × × × × × × × ×

Is the inspection result normal?

YES >> Replace rear display unit.

NO >> Replace video distributor.

# AUX IMAGE SIGNAL CIRCUIT

# < COMPONENT DIAGNOSIS >

#### AUX IMAGE SIGNAL CIRCUIT А Description INFOID:000000004156043 Transmits the image signal of external device from auxiliary input jacks to video distributor. В **Diagnosis** Procedure INFOID:000000004156044 1. CHECK CONTINUITY AUX IMAGE SIGNAL CIRCUIT Turn ignition switch OFF. 1. Disconnect auxiliary input jacks connector and video distributor connector. 2. Check continuity between auxiliary input jacks harness connector terminal 7 and video distributor harness D 3. connector terminal 19. 7 - 19 : Continuity should exist. Е 4. Check continuity between auxiliary input jacks harness connector terminal 8 and video distributor harness connector terminal 21. F 8 - 21 : Continuity should exist. Check continuity between auxiliary input jacks harness connector terminal 7 and ground. 7 - Ground : Continuity should not exist. Check continuity between auxiliary input jacks harness connector terminal 8 and ground. Н 8 - Ground : Continuity should not exist. Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2.CHECK AUX IMAGE SIGNAL 1. Connect auxiliary input jacks connector and video distributor connector. Turn ignition switch ON. 2. Check signal between video distributor harness connector terminal 19 and 21. 3. AV Terminal Condition Reference value

				L
19 - 21	lgnition switch ON	When AUX image is displayed.	(V) 0.4 0 -0.4 •••40µs skiB2251J	M

#### Is the inspection result normal?

YES >> Replace video distributor.

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

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# DVD IMAGE SIGNAL CIRCUIT

# Description

INFOID:000000004156045

[WITH MOBILE ENTERTAINMENT SYSTEM]

The DVD player transmits the playback DVD image signal to the video distributor. The video distributor receives the image signal from the DVD player, and auxiliary input jack, and then transmits it to the front display and rear display.

# Diagnosis Procedure

INFOID:000000004156046

# 1. CHECK CONTINUITY DVD IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect DVD player connector and video distributor connector.
- 3. Check continuity between DVD player harness connector terminal 20 and video distributor harness connector terminal 23.

#### 20 - 23

#### : Continuity should exist.

4. Check continuity between DVD player harness connector terminal 19 and video distributor harness connector terminal 22.

#### 19 - 22

#### : Continuity should exist.

5. Check continuity between video distributor harness connector terminal 23 and ground.

#### 23 - Ground

#### : Continuity should not exist.

6. Check continuity between video distributor harness connector terminal 22 and ground.

#### 22 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK DVD IMAGE SIGNAL

1. Connect DVD player connector and video distributor connector.

- 2. Turn ignition switch ON.
- 3. Check signal between video distributor harness connector terminal 23 and 22.

Terminal	Condition		Reference value
23 - 22	Ignition switch ON	When AUX image is displayed.	(V) 0.4 -0.4 -0.4 SKIB2251J

Is the inspection result normal?

YES >> Replace video distributor.

NO >> Replace DVD player.

# **MICROPHONE SIGNAL CIRCUIT**

# < COMPONENT DIAGNOSIS >

# MICROPHONE SIGNAL CIRCUIT

# Description

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

# **Diagnosis** Procedure

# INEOID:000000004156048

INFOID:000000004156047

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# 1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND MICROPHONE CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect AV control unit connector and microphone connector.
- Check continuity between AV control unit harness connector terminals 26, 27, 28 and microphone har-3. ness connector terminals 4, 2, 1.

26 - 4	: Continuity should exist.	E
27 - 2	: Continuity should exist.	
28 - 1	: Continuity should exist.	F

- 4. Check continuity between AV control unit harness connector terminals 26, 28 and ground.
- 26, 28 Ground : Continuity should not exist. Is the inspection result normal? >> GO TO 2. YES Н NO >> Repair harness or connector. 2.CHECK VOLTAGE MICROPHONE VCC 1. Connect AV control unit connector. 2. Turn ignition switch ON. Check voltage between AV control unit harness connector terminals 26 and 27. 3. 26 - 27

#### : Approx. 5 V

Is the inspection result normal?

YES >> GO TO 3.

>> Replace AV control unit. NO

 ${f 3.}$ CHECK MICROPHONE SIGNAL

1. Connect microphone connector.

2. Check signal between AV control unit harness connector terminals 28 and 27.

Terminal		Condition	Reference value
28 - 27	Ignition switch ON	Give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 • + 2ms PKIB5037J

Is the inspection result normal?

YES >> Replace AV control unit.

NO >> Replace microphone.

Revision: 2009 Novemver

# **AUDIOPILOT® MICROPHONE**

< COMPONENT DIAGNOSIS >

# AUDIOPILOT® MICROPHONE BOSE AUDIO 2CH SYSTEM

BUSE AUDIO ZURI STSTEIN

BOSE AUDIO 2CH SYSTEM : Description

The microphone transmits the microphone signal to the BOSE amp.

BOSE AUDIO 2CH SYSTEM : Diagnosis Procedure

**1.**CHECK CONTINUITY BETWEEN BOSE AMP. AND AUDIOPILOT<sup>®</sup> MICROPHONE CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BOSE amp. connector and AudioPilot<sup>®</sup>microphone connector.
- 3. Check continuity between BOSE amp. harness connector terminals 25, 26 and AudioPilot<sup>®</sup>microphone harness connector terminals 1, 2.

25 - 1	: Continuity should exist.
26 - 2	: Continuity should exist.

4. Check continuity between BOSE amp. harness connector terminals 25, 26 and ground.

#### 25, 26 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK VOLTAGE MICROPHONE VCC

- 1. Connect BOSE amp. connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between BOSE amp. harness connector terminals 25 and ground.

# 25 - Ground

#### : Approx. 5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BOSE amp.

**3.**CHECK MICROPHONE SIGNAL

- 1. Turn ignition switch OFF.
- 2. Connect AudioPilot<sup>®</sup>microphone connector.
- 3. Turn ignition switch ON.
- 4. Check signal between BOSE amp. harness connector terminals 25 and 26.

Terminal		Condition	Reference value	
25 - 26	Ignition switch ON	When inputting noise.	(V) 6 2 0 + 2ms (reference value) PKIA2104E	

Is the inspection result normal?

YES >> Replace BOSE amp.

NO >> Replace AudioPilot<sup>®</sup>microphone.

BOSE SURROUND AUDIO 5.1CH SYSTEM

INFOID:000000004156050

INFOID:000000004156049

< COMPONENT DIAGNOS	IS >		MOBILE ENTERTAIN	MENT SYSTEM]
BOSE SURROUND A	UDIO 5.	1CH SYSTEM : Descr	iption	INFOID:000000004156051
The microphone transmits th	e microph	one signal to the BOSE amp		
BOSE SURROUND A	UDIO 5.	1CH SYSTEM : Diagn	osis Procedure	INFOID:000000004156052
1. CHECK CONTINUITY BE	TWEEN E	BOSE AMP. AND AUDIOPILO	OT <sup>®</sup> MICROPHONE CIF	RCUIT
•	connector en BOSE	<sup>-</sup> and AudioPilot <sup>®</sup> microphone amp. harness connector terr		oPilot <sup>®</sup> microphone
31 - 1	: Co	ontinuity should exist.		
11 - 2	: Co	ontinuity should exist.		
4. Check continuity betwee	n BOSE a	amp. harness connector term	nals 31, 11 and ground.	
31, 11 - Ground	: Co	ontinuity should not exist.		
Is the inspection result norma	<u>al?</u>			
YES >> GO TO 2.				
NO >> Repair harness of 2.CHECK VOLTAGE MICRO				
		VCC		
<ol> <li>Connect BOSE amp. con</li> <li>Turn ignition switch ON.</li> </ol>	nnector.			
3. Check voltage between	BOSE am	p. harness connector termina	als 31 and ground.	
31 - Ground	: Aj	pprox. 5 V		
Is the inspection result norma	<u>al?</u>			
YES >> GO TO 3.				
NO >> Replace BOSE a 3.CHECK MICROPHONE S	•			
<ol> <li>Turn ignition switch OFF</li> <li>Connect AudioPilot<sup>®</sup>mic</li> </ol>		onnector		,
3. Turn ignition switch ON.	•		<b>.</b>	
4. Check signal between B	OSE amp	. harness connector terminals	s 31 and 11.	
Terminal		Condition	Reference	value
31 - 11	lgnition switch ON	When inputting noise.	(V) 6 4 2 0 • • • 2ms (reference	e value)
<u> </u>				PKIA2104E
Is the inspection result norma				

YES >> Replace BOSE amp. NO >> Replace AudioPilot<sup>®</sup>microphone.

### CAMERA IMAGE SIGNAL CIRCUIT (REAR VIEW CAMERA TO CAMERA CON-TROL UNIT)

< COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# CAMERA IMAGE SIGNAL CIRCUIT (REAR VIEW CAMERA TO CAMERA CONTROL UNIT)

# Description

INFOID:000000004156053

- Camera control unit outputs camera ON signal to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.
- The camera control unit that inputs the camera image signal transmits the camera image signal to the front display unit.

# Diagnosis Procedure

INFOID:000000004156054

# 1. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect camera control unit connector and rear view camera connector.
- 3. Check continuity between camera control unit harness connector terminal 6 and rear view camera harness connector terminal 3.

# 6 - 3 : Continuity should exist.

4. Check continuity between camera control unit harness connector terminal 6 and ground.

#### 6 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK CAMERA IMAGE SIGNAL

1. Connect camera control unit connector and rear view camera connector.

- 2. Turn ignition switch ON.
- 3. Check signal between camera control unit harness connector terminal 6 and ground.

Terminal		Condition	Reference value
6 - Ground	Ignition switch ON	When rear view camera image is displayed.	(V) 0.4 −0.4 • + 40µs SKiB2251J

Is the inspection result normal?

YES >> Replace camera control unit.

NO >> Replace rear view camera.

# **CAMERA ON SIGNAL CIRCUIT**

### < COMPONENT DIAGNOSIS > CAMERA ON SIGNAL CIRCUIT

# Description

- Camera control unit outputs camera ON signal to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.
- The camera control unit that inputs the camera image signal transmits the camera image signal to the front display unit.

# Diagnosis Procedure

- 1.
- 2. Disconnect camera control unit connector and rear view camera connector.
- 3. Check continuity between camera control unit harness connector terminal 8 and rear view camera harness connector terminal 1.

	8 - 1	: Continuity should exist.
4.	Check continuity between c	amera control unit harness connector terminal 8 and ground.
	8 - Ground	: Continuity should not exist.
<u>Is th</u>	ne inspection result normal?	
YE	S >> GO TO 2.	

NO

- Connect camera control unit connector and rear view camera connector. 1
- 2. Turn ignition switch ON.
- 3. Check signal between camera control unit harness connector terminal 8 and ground.

Is the inspection result normal?

- YES >> Replace rear view camera.
- NO >> Replace camera control unit.

#### 2009 M35/M45

[WITH MOBILE ENTERTAINMENT SYSTEM]

# С INFOID:000000004156056 1. CHECK CONTINUITY CAMERA ON SIGNAL CIRCUIT D Turn ignition switch OFF. Е F >> GO 10 2. >> Repair harness or connector. Н 2. CHECK VOLTAGE CAMERA ON SIGNAL Shift the selector lever to "R" position 8 - Ground : Approx. 6 V AV

Ν

Ρ

Μ

А

В

INFOID:000000004156055

## CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO FRONT DIS-PLAY UNIT)

< COMPONENT DIAGNOSIS >

[WITH MOBILE ENTERTAINMENT SYSTEM]

# CAMERA IMAGE SIGNAL CIRCUIT (CAMERA CONTROL UNIT TO FRONT DISPLAY UNIT)

# Description

INFOID:000000004156057

- Camera control unit outputs camera ON signal to rear view camera and inputs rear view camera image signal from rear view camera when the reverse signal is input.
- The camera control unit that inputs the camera image signal transmits the camera image signal to the front display unit.

# Diagnosis Procedure

INFOID:000000004156058

# 1. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect camera control unit connector and front display unit connector.
- 3. Check continuity between camera control unit harness connector terminal 12 and front display unit harness connector terminal 12.

### 12 - 12 : Continuity should exist.

4. Check continuity between camera control unit harness connector terminal 12 and ground.

#### 12 - Ground

#### : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK CAMERA IMAGE SIGNAL

1. Connect camera control unit connector and front display unit connector.

- 2. Turn ignition switch ON.
- 3. Check signal between camera control unit harness connector terminal 12 and ground.

Terminal		Condition	Reference value	
12 - Ground	Ignition switch ON	When rear view camera image is displayed.	$\begin{pmatrix} V \\ 0 \\ -0 \\ 4 \\ \end{pmatrix}$	

Is the inspection result normal?

YES >> Replace display unit.

NO >> Replace camera control unit.

# **STEERING SWITCH SIGNAL A CIRCUIT**

< COMPONENT DIAGNOSIS >	[WITH MOBILE ENTERTAINMENT SYSTEM]
STEERING SWITCH SIGNAL A CIRCU	ПΤ
Description	INFOID:00000004156059
Transmits the steering switch signal to AV control unit.	В
Diagnosis Procedure	INFOID:000000004156060
1. CHECK STEERING SWITCH SIGNAL A CIRCUIT	C
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect AV control unit connector and spiral cable</li> <li>Check continuity between AV control unit harness contor terminal 33.</li> </ol>	
6 - 33 : Continuity should e	exist. E
4. Check continuity between AV control unit harness co	onnector terminals 6 and ground.
6 - Ground : Continuity should	not exist. F
Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector. 2.CHECK SPIRAL CABLE	G
Check spiral cable.	н
Is the inspection result normal? YES >> GO TO 3. NO >> Replace spiral cable. <b>3.</b> CHECK AV CONTROL UNIT VOLTAGE	I
1. Connect AV control unit connector and spiral cable c	onnector.
<ol> <li>Turn ignition switch ON.</li> <li>Check voltage between AV control unit harness conr</li> </ol>	
6 - 15 : Approx. 5 V	AV
Is the inspection result normal? YES >> GO TO 4. NO >> Replace AV control unit.	L
4.CHECK STEERING SWITCH	
<ol> <li>Turn ignition switch OFF.</li> <li>Check steering switch. Refer to <u>AV-625, "Componen</u> Is the inspection result normal?</li> </ol>	t Inspection". ∭
YES >> INSPECTION END NO >> Replace steering switch.	Ν
Component Inspection	INFOID:000000004156061
Measure the resistance between the steering switch con	nector terminals 20 to 17 and 19 to 17.

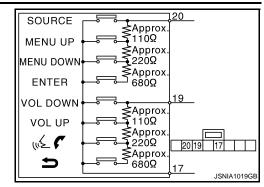
# **STEERING SWITCH SIGNAL A CIRCUIT**

#### < COMPONENT DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

#### Standard

Between terminals 20 and 7	17
ENTER switch ON	<b>: 990 – 1030</b> Ω
MENU DOWN switch ON	<b>: 323 – 337</b> Ω
MENU UP switch ON	<b>: 108 – 112</b> Ω
SOURCE switch ON	<b>: 0</b> Ω
Between terminals 19 and 7	17
<b>Switch ON</b>	<b>: 990 – 1030</b> Ω
🔬 🌈 switch ON	<b>: 323 – 337</b> Ω
VOL UP switch ON	<b>: 108 – 112</b> Ω
VOL DOWN switch ON	: <b>0</b> Ω



# **STEERING SWITCH SIGNAL B CIRCUIT**

< COMPONENT DIAGNOSIS >	[WITH MOBILE ENTERTAINMENT SYSTEM]
STEERING SWITCH SIGNAL B CIRCUI	Т
Description	INFOID:00000004156062
Transmits the steering switch signal to AV control unit.	В
Diagnosis Procedure	INFOID:000000004156063
<b>1.</b> CHECK STEERING SWITCH SIGNAL B CIRCUIT	C
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect AV control unit connector and spiral cable</li> <li>Check continuity between AV control unit harness conr tor terminals 32.</li> </ol>	
16 - 32 : Continuity should ex	<b>tist.</b> ⊨
4. Check continuity between AV control unit harness con	nector terminal 16 and ground.
16 - Ground : Continuity should no	<b>bt exist.</b> F
Is the inspection result normal?	
YES >> GO TO 2. NO >> Repair harness or connector.	G
2. CHECK SPIRAL CABLE	
Check spiral cable.	н
Is the inspection result normal?	
YES >> GO TO 3. NO >> Replace spiral cable.	
<b>3.</b> CHECK AV CONTROL UNIT VOLTAGE	'
1. Connect AV control unit connector and spiral cable cor	nnector.
<ol> <li>Turn ignition switch ON.</li> <li>Check voltage between AV control unit harness conne</li> </ol>	ctor terminals 16 and 15.
16 - 15 : Approx. 5 V	AV
Is the inspection result normal?	
YES >> GO TO 4.	L
NO >> Replace AV control unit. 4.CHECK STEERING SWITCH	
1. Turn ignition switch OFF.	M
2. Check steering switch. Refer to AV-627, "Component I	
Is the inspection result normal?	Ν
YES >> INSPECTION END NO >> Replace steering switch.	И
Component Inspection	INFOID:00000004156064
Measure the resistance between the steering switch conne	

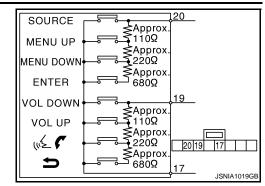
# **STEERING SWITCH SIGNAL B CIRCUIT**

#### < COMPONENT DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

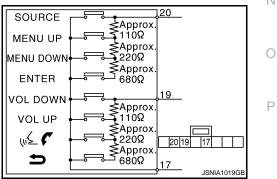
#### Standard

G	
Between terminals 20 and	17
ENTER switch ON	<b>: 990 – 1030</b> Ω
MENU DOWN switch ON	<b>: 323 – 337</b> Ω
MENU UP switch ON	: <b>108 – 112</b> Ω
SOURCE switch ON	<b>: 0</b> Ω
Between terminals 19 and	17
<b>Switch ON</b>	<b>: 990 – 1030</b> Ω
🔬 🌈 switch ON	<b>: 323 – 337</b> Ω
VOL UP switch ON	: <b>108 – 112</b> Ω
VOL DOWN switch ON	: <b>0</b> Ω



STEERING SWITCH SIGNAL GND CIRCUIT < COMPONENT DIAGNOSIS > [WITH MOBILE ENTERTAINMENT SYSTEM]	
STEERING SWITCH SIGNAL GND CIRCUIT	
Description	A
Transmits the steering switch signal to AV control unit.	В
Diagnosis Procedure	D
1. CHECK STEERING SWITCH SIGNAL GND CIRCUIT	С
<ol> <li>Disconnect AV control unit connector and spiral cable connector.</li> <li>Check continuity between AV control unit harness connector terminal 15 and spiral cable harness connector terminal 27.</li> </ol>	D
15 - 27 : Continuity should exist.	
Is the inspection result normal? YES >> GO TO 2.	E
NO >> Repair harness or connector.	
2.CHECK SPIRAL CABLE	F
Check spiral cable. <u>Is the inspection result normal?</u>	G
YES >> GO TO 3.	0
NO >> Replace spiral cable. 3.CHECK GROUND CIRCUIT	Н
<ol> <li>Connect AV control unit connector.</li> <li>Check continuity between AV control unit harness connector terminal 15 and ground.</li> </ol>	I
15 - Ground : Continuity should exist.	
Is the inspection result normal?	J
YES >> GO TO 4. NO >> Replace AV control unit.	
4.CHECK STEERING SWITCH	AV
<ol> <li>Turn ignition switch OFF.</li> <li>Check steering switch. Refer to <u>AV-629, "Component Inspection"</u>.</li> </ol>	
Is the inspection result normal?	L
YES >> INSPECTION END NO >> Replace steering switch.	
Component Inspection	M
Measure the resistance between the steering switch connector terminals 20 to 17 and 19 to 17.	N 1
Standard Between terminals 20 and 17 SOURCE	Ν

Between terminals 20 and 17								
<b>ENTER switch ON</b> : 990 – 1030 $\Omega$								
MENU DOWN switch ON	<b>: 323 – 337</b> Ω							
MENU UP switch ON	<b>: 108 – 112</b> Ω							
SOURCE switch ON	<b>: 0</b> Ω							
Between terminals 19 and 7	17							
<b>Switch ON</b>	<b>: 990 – 1030</b> Ω							
🔬 🌈 switch ON	<b>: 323 – 337</b> Ω							
VOL UP switch ON	<b>: 108 – 112</b> Ω							
VOL DOWN switch ON	: <b>0</b> Ω							



# ECU DIAGNOSIS AV CONTROL UNIT

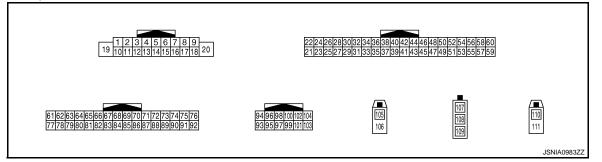
Reference Value

VALUES ON THE DIAGNOSIS TOOL

CONSULT-III monitor item

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

**Terminal Layout** 



Physical Values

INFOID:000000004156068

### < ECU DIAGNOSIS >

# **AV CONTROL UNIT**

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description			<b>0</b>	Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
2 (R/L) <sup>*1</sup> (R) <sup>*2</sup>	3 (W)	Sound signal LH	Output	lgnition switch ON	Audio sound output. (except DVD mode) <sup>*1</sup>	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
4 (L/G)	5 (L/Y)	Voice guidance signal	Output	lgnition switch ON	Voice guidance output.		
					Keep pressing SOURCE switch.	0 V	
		Steering switch signal A	Input	lgnition switch ON	Keep pressing MENU UP switch.	1 V	
6 15 (BR) (G)					Keep pressing MENU DOWN switch.	2 V	
					Keep pressing ENTER switch.	3 V	
					Except for above.	5 V	
7 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
8 (R/Y)	Ground	Illumination control signal	Input	lgnition switch ON	Illumination control switch is operated by lighting switch in ON position.	Change between approx. 0 V and approx. 12 V	
9	<u> </u>			Ignition	Lighting switch is OFF.	0 V	
(LG)	Ground	Illumination signal	Input	switch ON	Lighting switch is ON.	12 V	
11 (P) <sup>*1</sup> (Y) <sup>*2</sup>	12 (L)	Sound signal RH	Output	lgnition switch ON	Audio sound output. (except DVD mode) <sup>*1</sup>	(V) 1 0 -1 * 2ms SKIB3609E	
14	—	Shield			—	_	
15 (G)	Ground	Steering switch signal ground	_	Ignition switch ON	_	0 V	

# < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

	minal e color)	Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
					Keep pressing VOL DOWN switch.	0 V	
16	15			Ignition	Keep pressing VOL UP switch.	1 V	
(O)	(G)	Steering switch signal B	Input	switch ON	Keep pressing 💒 🌈 switch.	2 V	
					Keep pressing 🗲 switch.	3 V	
					Except for above.	5 V	
19 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
21 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
22 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
23 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
24 (Y)	Ground	Battery power supply	Input	lgnition switch OFF	_	Battery voltage	
25 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
26 (O)	27	Microphone VCC	Output	Ignition switch ON	_	5 V	
27	Ground	Shield (Microphone ground)		Ignition switch ON	_	0 V	
28 (W)	27	Microphone signal	Input	Ignition switch ON	Give a voice.	(V) 2.5 2.0 1.5 1.0 0.5 0 • • 2ms PKIB5037J	
35 (Y/G)	Ground	Ignition signal	Input	lgnition switch ON	_	Battery voltage	
					Parking brake ON.	0 V	
36 (P)	Ground	Parking brake signal	Input	Ignition switch ON	Parking brake OFF.	(V) 8 4 0 10 ms JSNIA0007GB	

# < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
37 (O)	Ground	Reverse signal	Input	lgnition switch ON	R position. Other than R position.	12 V 0 V	
38 (G)	Ground	Vehicle speed signal (8- pulse)	Input	lgnition switch ON	When vehicle speed is ap- prox. 40 km/h (25MPH).	NOTE: Maximum voltage may be 12 V due to specifications (connected units). (V) 6 4 2 0 • • 20ms SKIA6649J	
40 (W/R)	Ground	Camera-connection recog- nition signal	Input	lgnition switch ON	Connected to camera con- trol unit connector. Not connected to camera control unit connector.	0 V 5 V	
48 (W)		AV communication signal (H)	Input/ Output				
49 (R)		AV communication signal (L)	Input/ Output	_			
50 (BR)		AV communication signal (H)	Input/ Output			_	
51 (B/R)	_	AV communication signal (L)	Input/ Output	_	_	_	
52 (L)	_	CAN-H	Input/ Output		_	_	
53 (P)	_	CAN-L	Input/ Output		_	_	
67	83	BOSE 2ch models • Sound signal LH (DVD, AUX and iPod sound)		Ignition	When DVD, AUX or iPod mode is selected.		
(B/R)	(BR)	BOSE surround audio 5.1ch models • Sound signal LH (AUX and iPod sound)	Input	switch ON	When AUX or iPod mode is selected.	0 -1 + 2ms SKIB3609E	
68	84	BOSE 2ch models • Sound signal RH (DVD, AUX and iPod sound)	Incut	Ignition	When DVD, AUX or iPod mode is selected.		
(B/W)	(L)	BOSE surround audio 5.1ch models • Sound signal RH (AUX and iPod sound)	Input	switch ON	When AUX or iPod mode is selected.	0 -1 + 2ms SKIB3609E	
93 (G/O)	Ground	RGB signal (R: red) for front display unit	Output	lgnition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0.4 0.4 0.4 0 0 0 0 0 0 0 0 0 0 0 0 0	

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# < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description			Condition	Reference value
+	_	Signal name	Input/ Output		Condition	(Approx.)
94 (G/R)	Ground	RGB signal (G: green) for front display unit	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 •••40µs JSNIA1030ZZ
95 (G/Y)	Ground	RGB signal (B: blue) for front display unit	Output	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0.4 0.4 0.4 0.5 0.4 0.4 0.5 0.4 0.5 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
96 (P)	Ground	RGB ground for front dis- play unit	_	Ignition switch ON	_	0 V
97 (L)	Ground	RGB synchronizing signal for front display unit	Output	lgnition switch ON		(V) 0.4 0 + 20µs JPNIA0461GB
98 (B)	Ground	RGB synchronizing signal ground for front display unit	_	Ignition switch ON	_	0 V
					When RGB image is displayed.	5 V
99 (G)	Ground	RGB area (YS) signal for front display unit	Output	Ignition switch ON	When rear view camera im- age is displayed.	(V) 6 4 2 0 • • • 200 µ s • • • 200 µ s • • • • • • • • • • • • • • • • • • •
100 (W)	Ground	Horizontal synchronizing (HP) signal for front display unit	Input	lgnition switch ON		(V) 4 0 ↓ 20µs SKIB3601E

# < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

+       -       Signal name       Input/ Output       Input/ Output       Input/ Ignition       Input       Ignition       -       (Approx.)         101 (R)       Ground       Vertical synchronizing (VP) signal for display unit       Input       Ignition Switch ON       -       -       (V)       -	Terminal (Wire color)		Description		Condition		Reference value	A
101 (R)       Ground       Vertical synchronizing (VP) signal for display unit       Input       Ignition over the synchronized on synch ON       —       Imput       Ignition over the synchronized on Synchron	+	_	Signal name	Input/ Output	Condition		(Approx.)	
102 (O/L)       Ground       Communication signal (CONT→DISP)       Output       Ignition N       When adjusting front dis- play brightness.       Imput for the second part of the second part o		Ground	Vertical synchronizing (VP) signal for display unit	Input	switch		4 0 • • • 4ms	B C D
103 (W/L)       Ground       Communication signal (DISP→CONT)       Input       Ignition switch ON       When adjusting front dis- play brightness.       Imput		Ground		Output	switch		$\begin{array}{c} 6\\ 4\\ 2\\ 0\\ 0\\ \bullet\\ \bullet\\$	E
105GroundGPS antenna signalInputSwitch oNNot connected to GPS antenna5 V106—Shield————107GroundAntenna amp. ON signalOutputIgnition switch ON—12 VA108—AM-FM mainInput———109—FM subInput———110GroundSatellite antenna signalInputIgnition switch ONNot connected to satellite antenna connector.5 V		Ground		Input	switch		$\begin{array}{c} 6\\ 4\\ 2\\ 0\\ 0\\ \bullet\\ \bullet\\$	G
106       —       Shield       —       —       —       —       —       —       —       —       —       —       —       —       Ignition       Not connected to satellite       5 V         110       Ground       Satellite antenna signal       Input       Ignition       Not connected to satellite antenna connector.       5 V	105	Ground	GPS antenna signal	Input	switch		5 V	
107       Ground       Antenna amp. ON signal       Output       switch ON       —       12 V       All         108       —       AM-FM main       Input       —       —       —       —       4         109       —       FM sub       Input       —       —       —       —       —       —       10         110       Ground       Satellite antenna signal       Input       Ignition Switch ON       Not connected to satellite antenna connector.       5 V	106		Shield	_		—		J
109     —     FM sub     Input     —     —       110     Ground     Satellite antenna signal     Input     Ignition switch ON     Not connected to satellite antenna connector.     5 V	107	Ground	Antenna amp. ON signal	Output	switch	_	12 V	AV
110     Ground     Satellite antenna signal     Input     Ignition switch ON     Not connected to satellite antenna connector.     5 V	108	—	AM–FM main	Input	—	—	—	
110     Ground     Satellite antenna signal     Input     switch ON     Not connected to satellite     5 V	109	—	FM sub	Input	—	—	_	L
	110	Ground	Satellite antenna signal	Input	switch		5 V	M
111 — Shield — — — — —	111		Shield		—			IVI

\*1: BOSE surround audio 5.1ch system models.

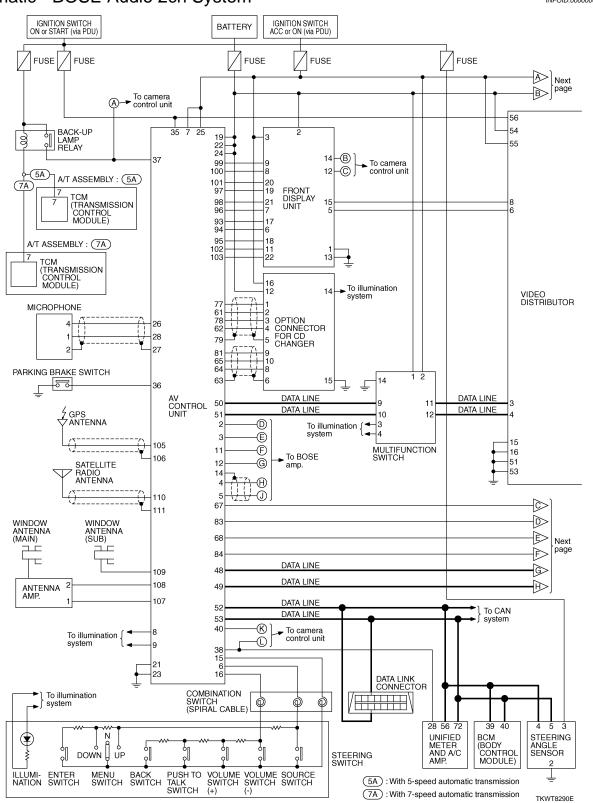
\*2: BOSE 2ch system models.

Ν

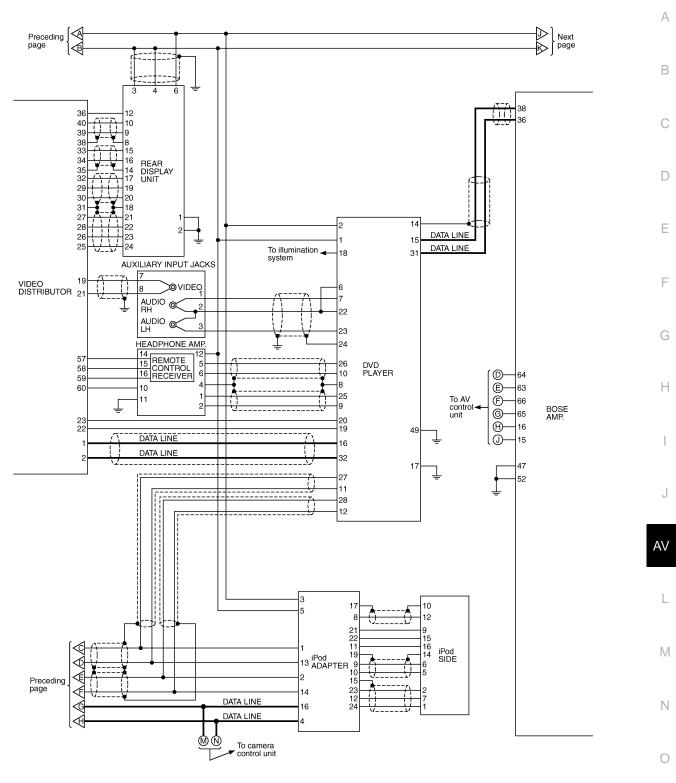
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# Schematic - BOSE Audio 2ch System-

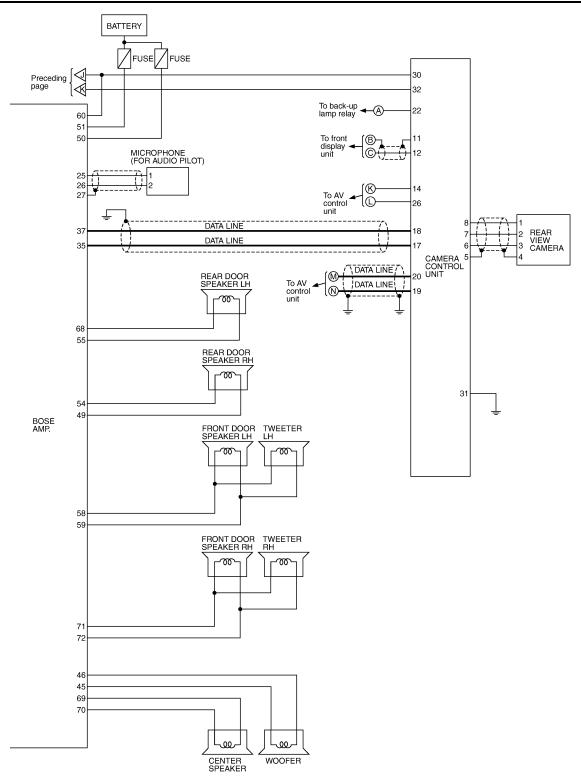
INFOID:000000004156069



# AV CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]



TKWT6722E



TKWT6723E

Wiring Diagram - AV - / BOSE Audio 2ch System

#### NOTE:

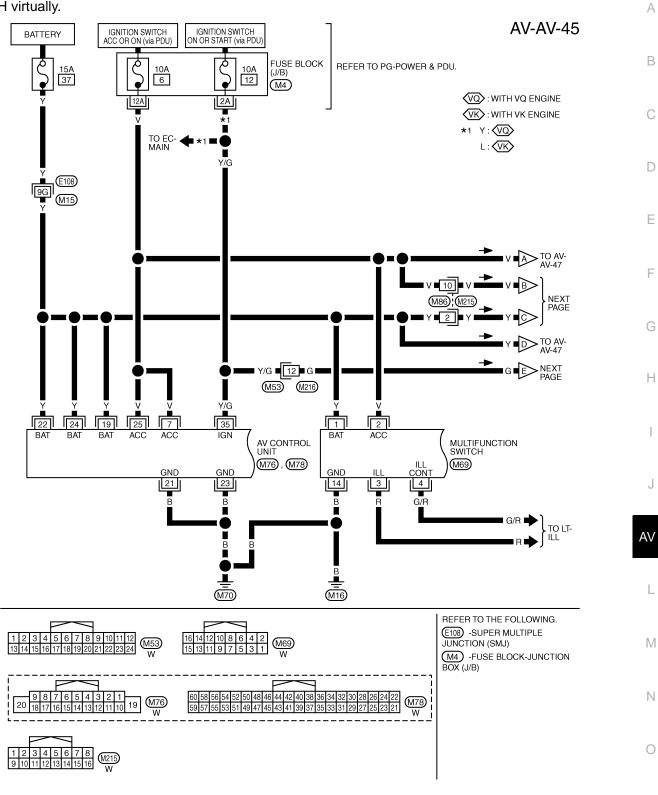
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#### < ECU DIAGNOSIS >

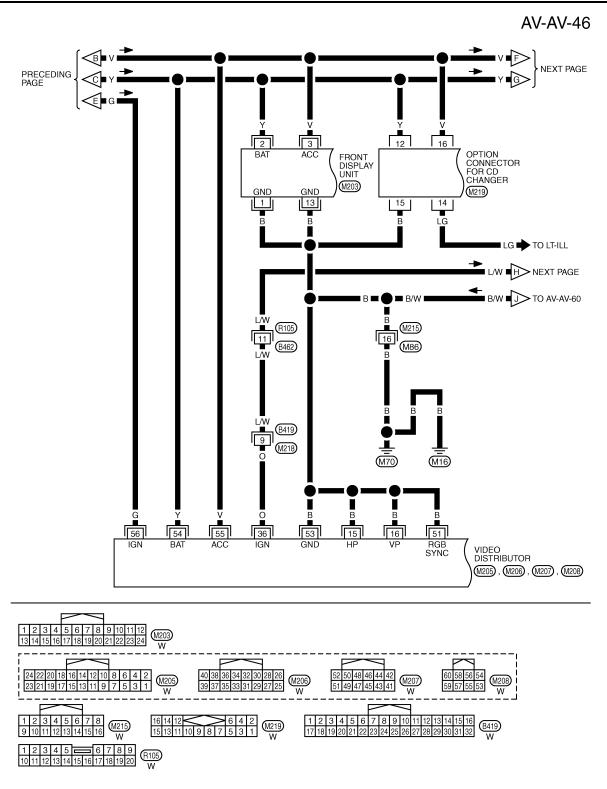
# AV CONTROL UNIT

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

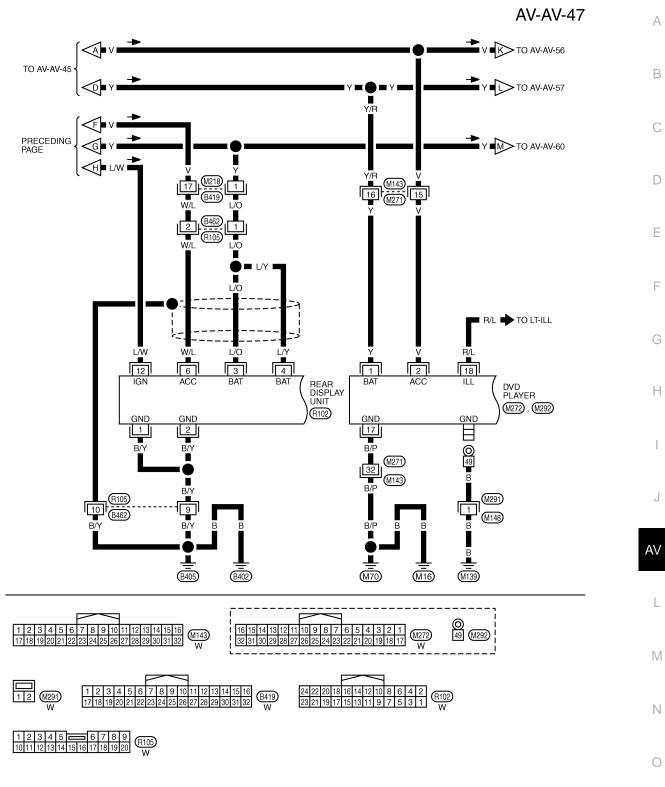
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



TKWT8291E

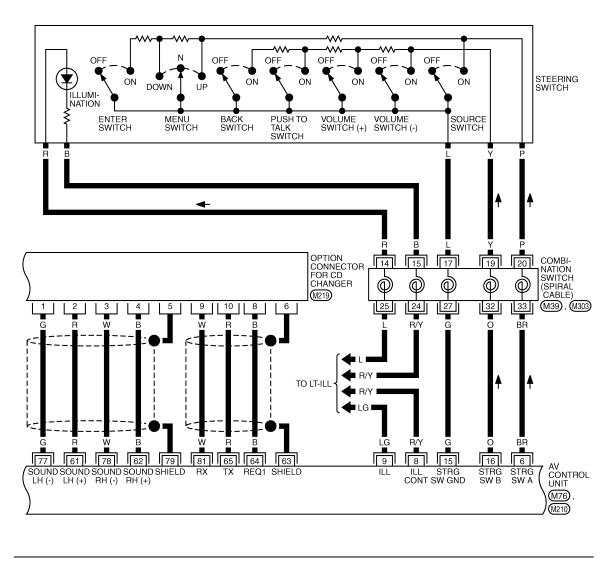


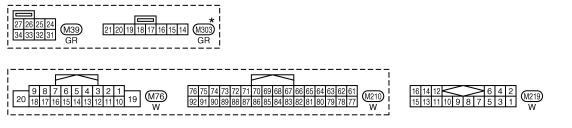
TKWT8292E



TKWT8293E

AV-AV-48

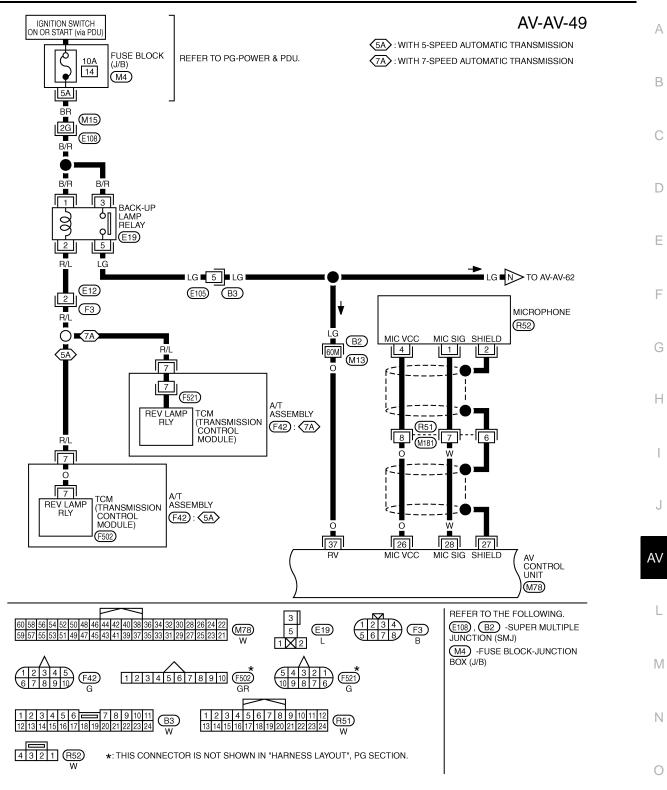




\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8294E

#### AV CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]



TKWT8295E

# AV CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]

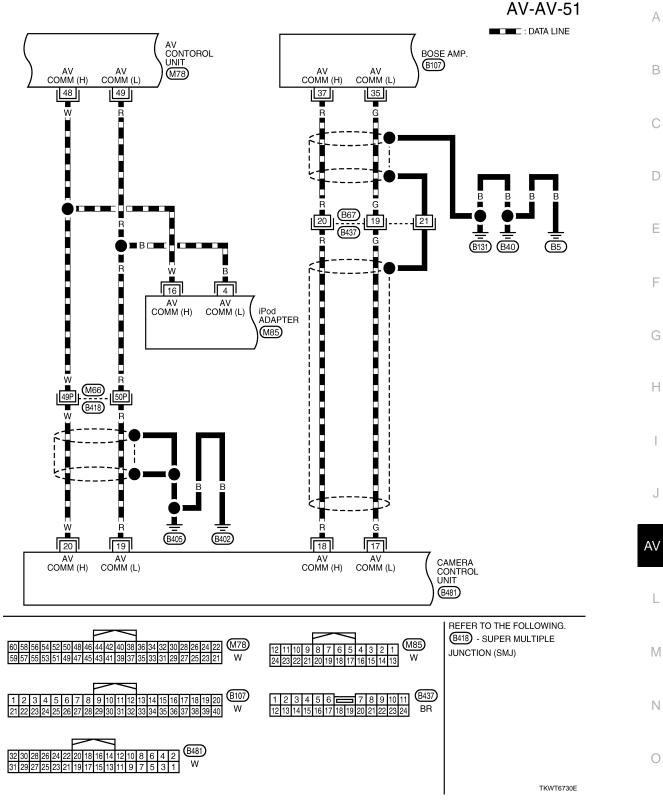


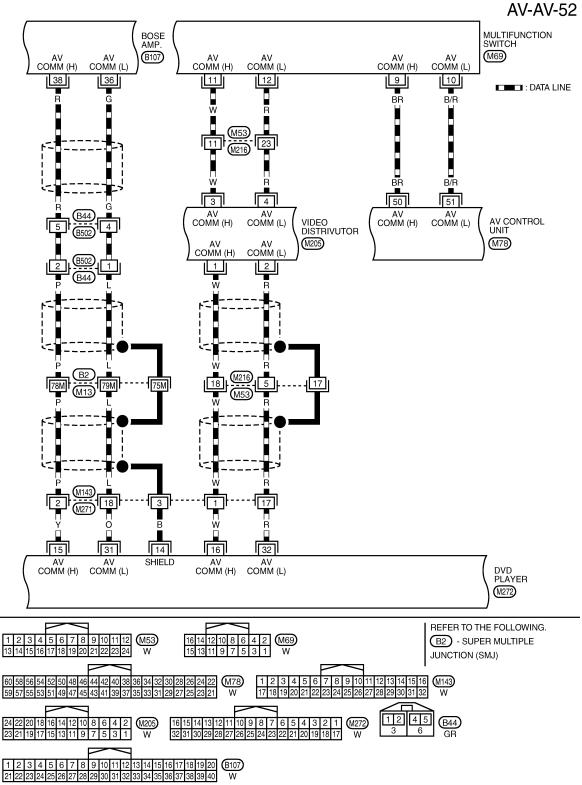
#### IGNITION SWITCH UNIFIED DATA LINK METER AND A/C AMP. ON OR START (via PDU CONNECTOR IPDM E/R REFER TO PG-POWER & PDU. (M60) (INTELLIGENT (M64), (M65) Ċ CAN-H 8P/R POWER CAN-L 10A DISTRIBUTION ENGINE ROOM) 56 2 6 14 72 28 82 (E8) 43 G/B 58G M15 L F LG Т F LG/B TO AV-Ē LG M15 GR TO LAN-CAN P LG P TO DI-METER 🛯 LG 🗭 G П Ē GR G 3 4 5 39 38 40 52 53 IGN CAN-H CAN-L STEERING CAN-H CAN-L BCM (BODY CONTROL MODULE) CAN-H CAN-L SPEED AV CONTROL ANGLE SENSOR M78 (M47) (M1) GND PKB 2 36 P R 'n. TO DI-WARN ∎ V I V M15 39G E108 V/R PARKING В B B BRAKE SWITCH APPLIED (E110) RELEASED M16 (M70) -REFER TO THE FOLLOWING. E108 - SUPER MULTIPLE 16 15 14 13 12 11 10 9 (M47) W 32**1** 87654 (M60) JUNCTION (SMJ) 87654321 W (M1) - ELECTRICAL UNITS M64 (M65) 侼 8 9 10 11 12 13 14 15 16 44 45 46 47 48 49 50 51 52 17 18 1 W 3 34 35 36 37 38 39 40 W 5 26 27 28 29 30 31 32 3 57 58 59 60 61 62 63 64 65 66 67 68 59 70 7 1 E110 W 剑 60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 59 57 55 53 51 49 47 45 43 41 39 37 35 33 31 29 27 25 23 21 (M78) 35 34 33 (E8) 37 36 44 43 42 41 40 39 38 W W TKWT6729E

#### **AV-AV-50**

DATA LINE

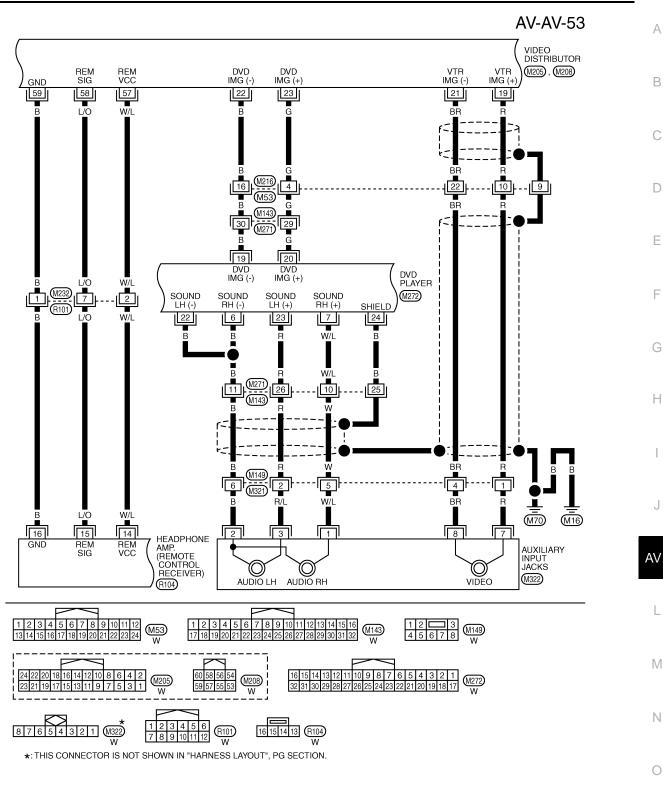






TKWT6731E

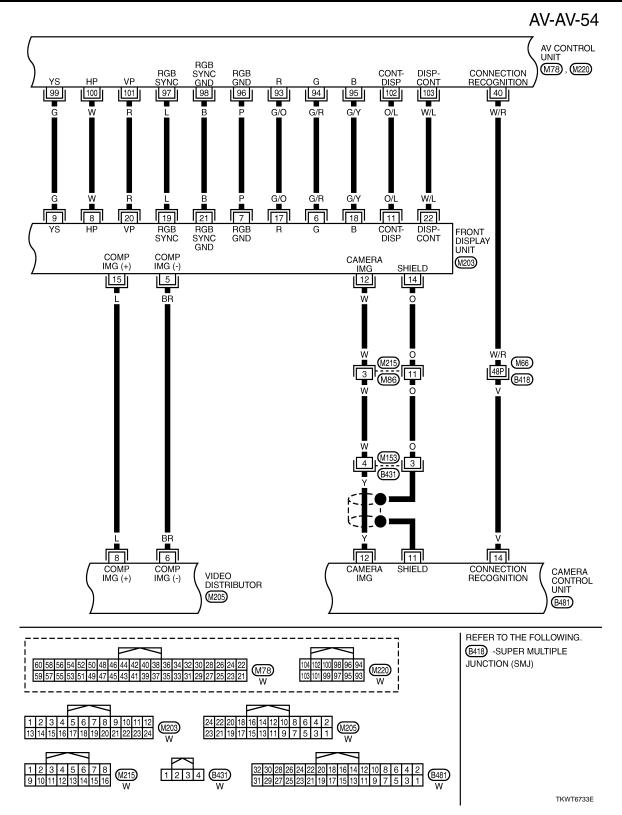
#### AV CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]



TKWT8296E

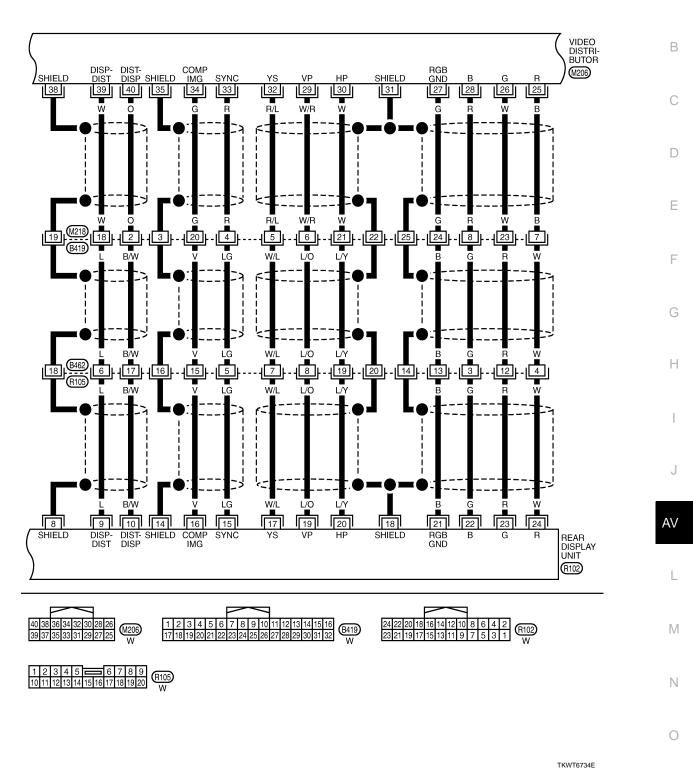
### AV CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]



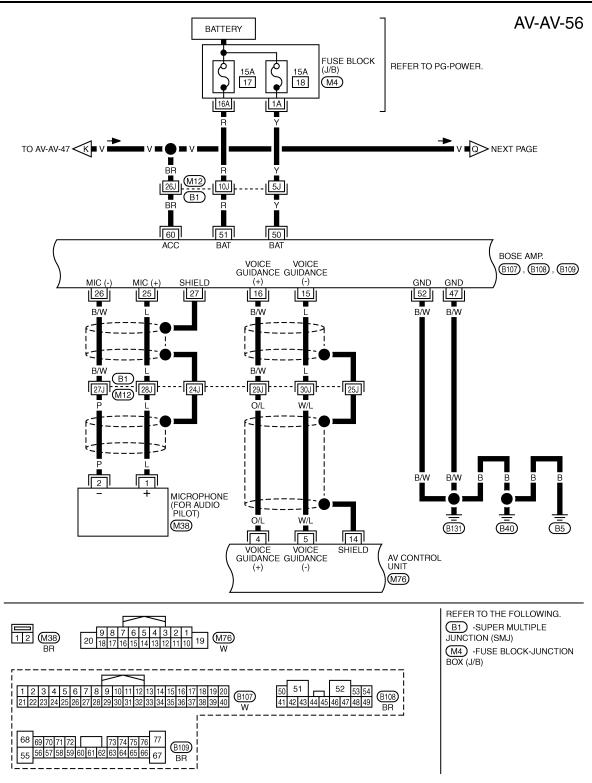


**AV-AV-55** 

А

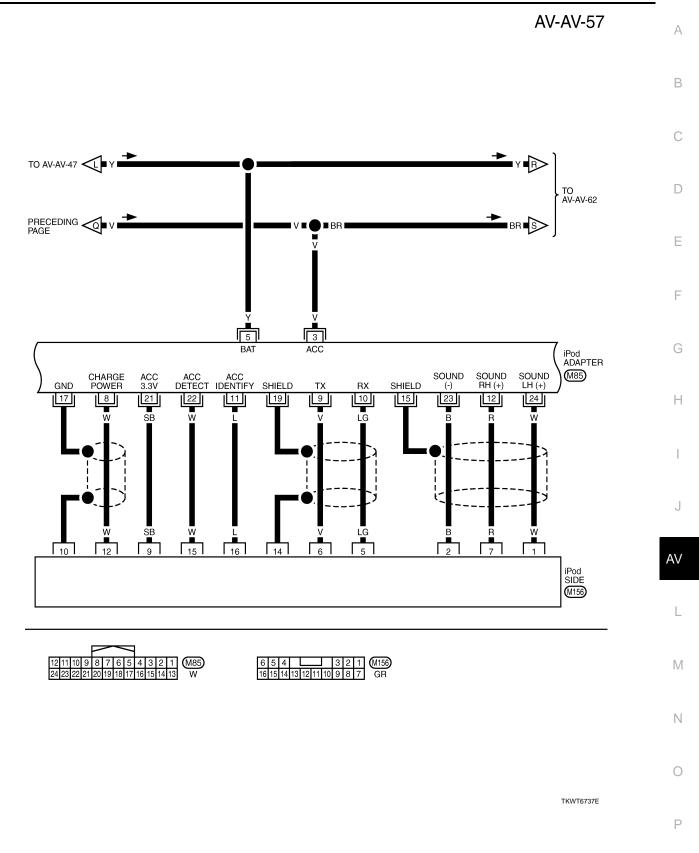


#### < ECU DIAGNOSIS >



TKWT8297E





DVD PLAYER (M272) SOUND LH (+) SOUND LH (-) SOUND RH (+) SOUND RH (-) 27 B/R 28 B/W 12 11 BR B/R B/W BR 21 M271 M143 22 6 5 B/W B/R BR 5-۲ ۱ Ŀ Ŀ 7 M86 M215 6 L I B/W 14 B/W ١ ij 1 i١ BR **■** 12 **■** BR **■** B/R 🛯 5 🔳 B/R 13 B/W В/W B/R BR B/R BR 2 83 68 84 14 67 SOUND LH (-) SOUND RH (-) SOUND LH (-) SOUND SOUND SOUND SOUND SOUND AV CONTROL UNIT iPod ADAPTER LH (+) RH (+) LH (+) RH (+) RH (-) (M85) M210 12 11 10 9 8 7 6 5 4 3 2 1 M85 24 23 22 21 20 19 18 17 16 15 14 13 W 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 (M143) W

**AV-AV-58** 

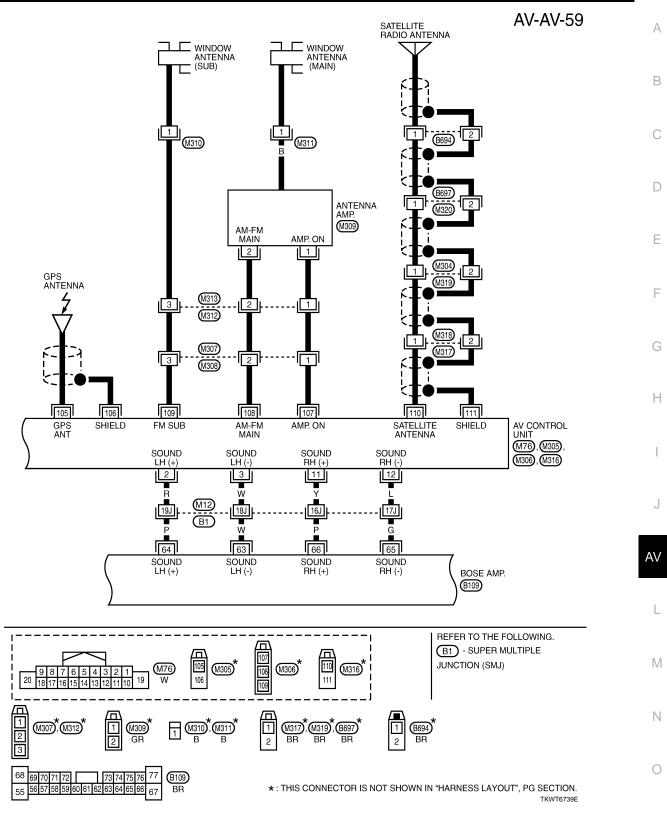
TKWT6738E

(M272) W

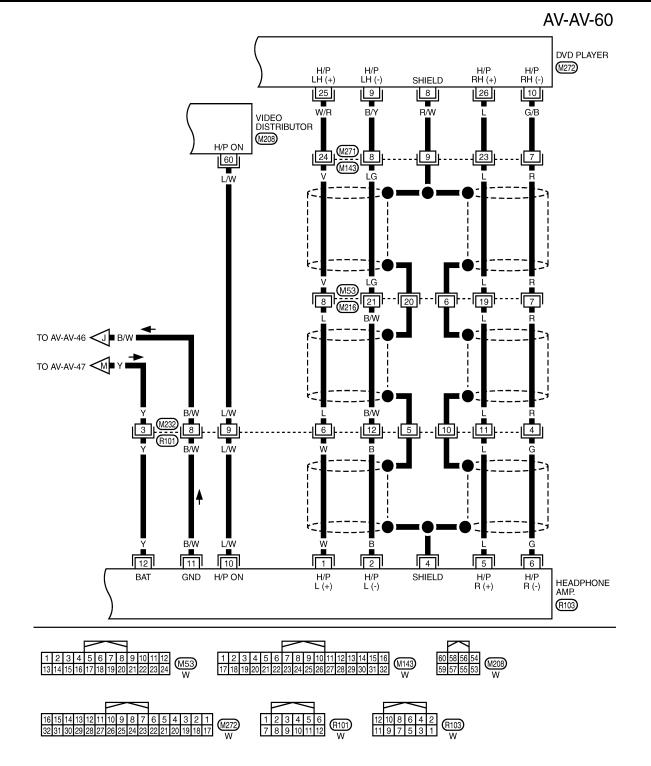
76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77

(M210) W (M215) W 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

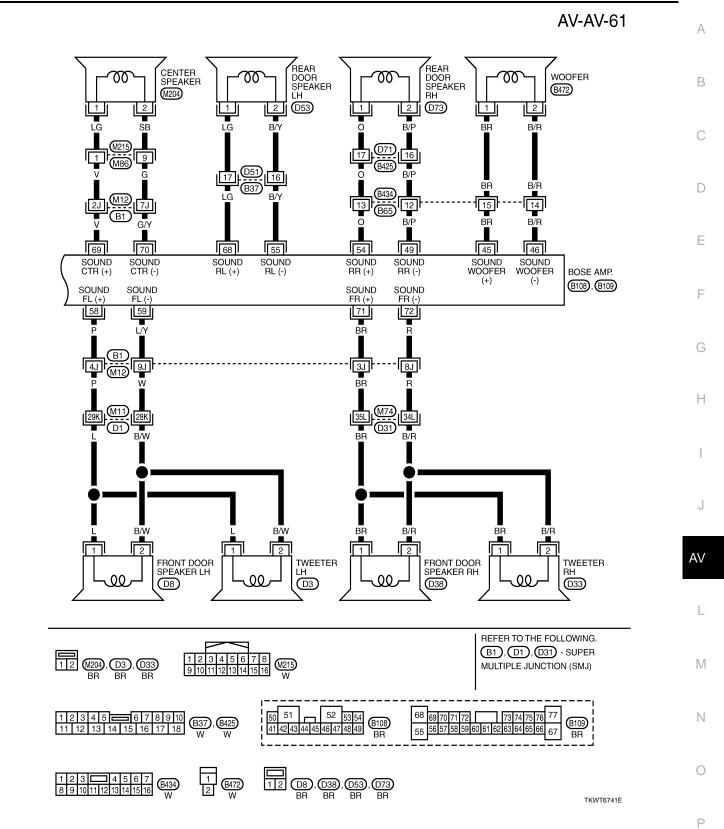




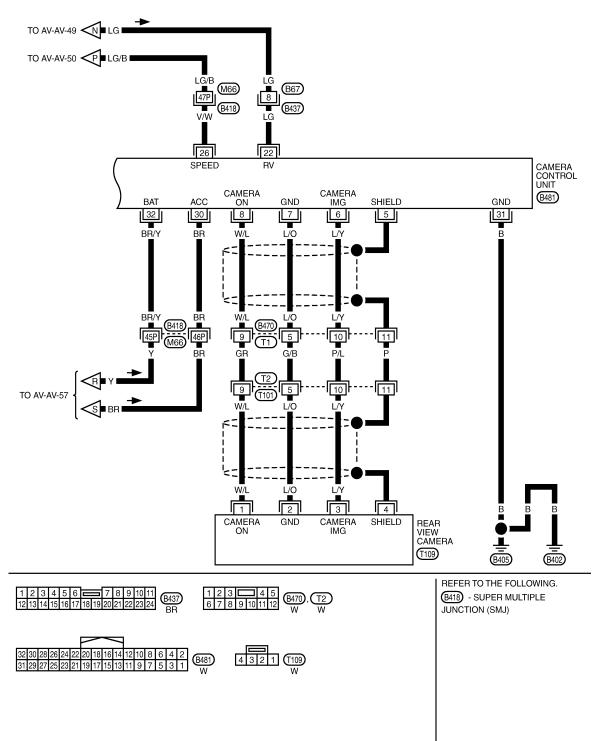


TKWT6740E

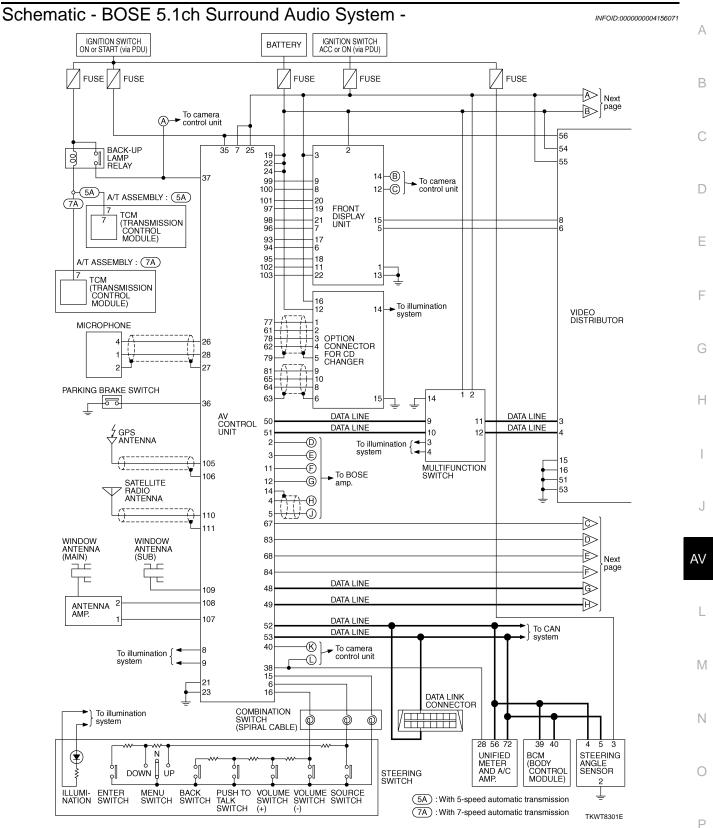


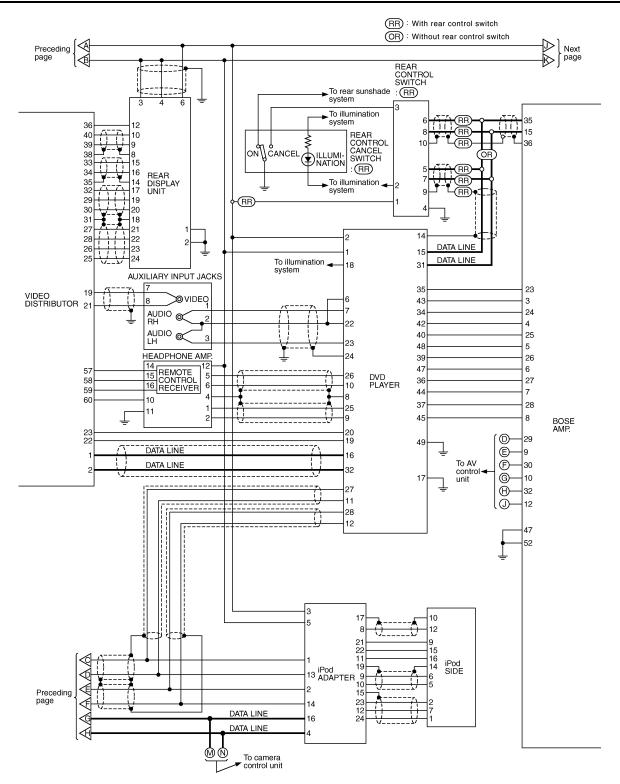


AV-AV-62

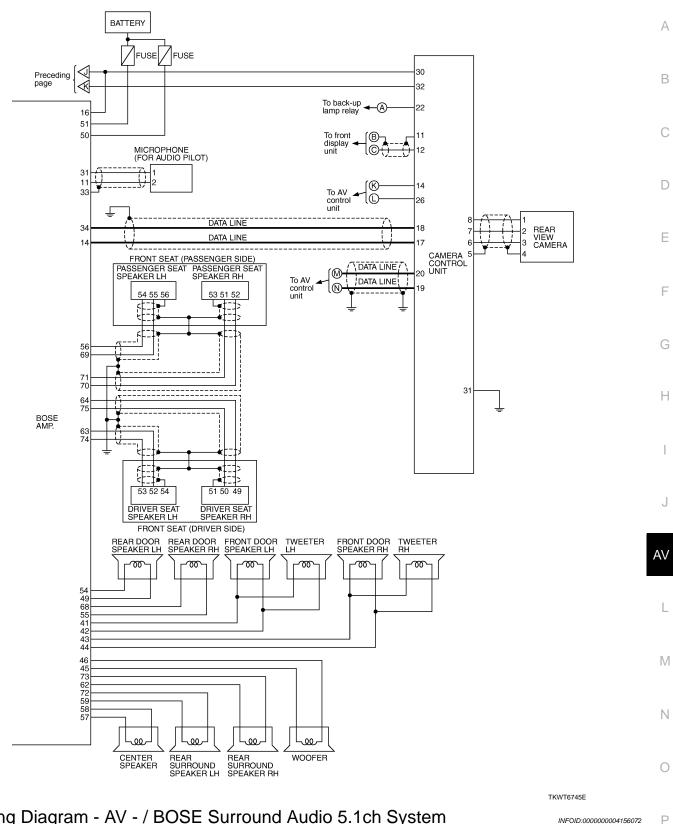


TKWT6742E





TKWT6744E

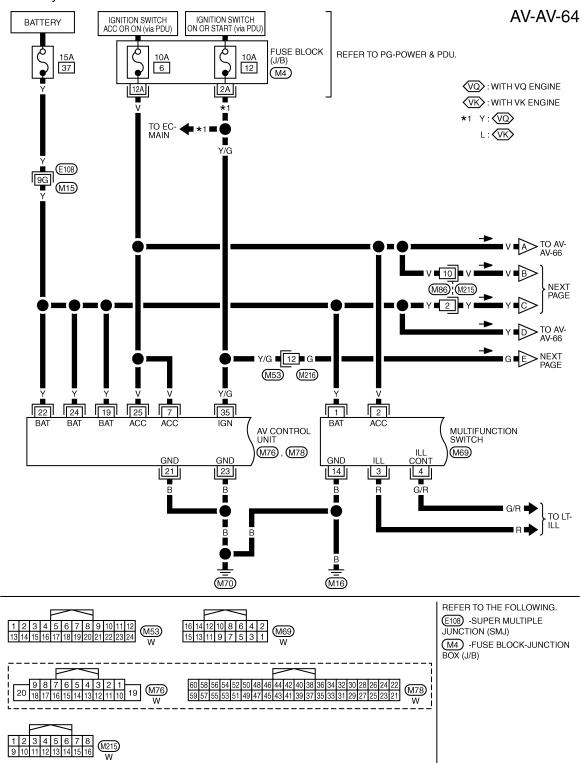


Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

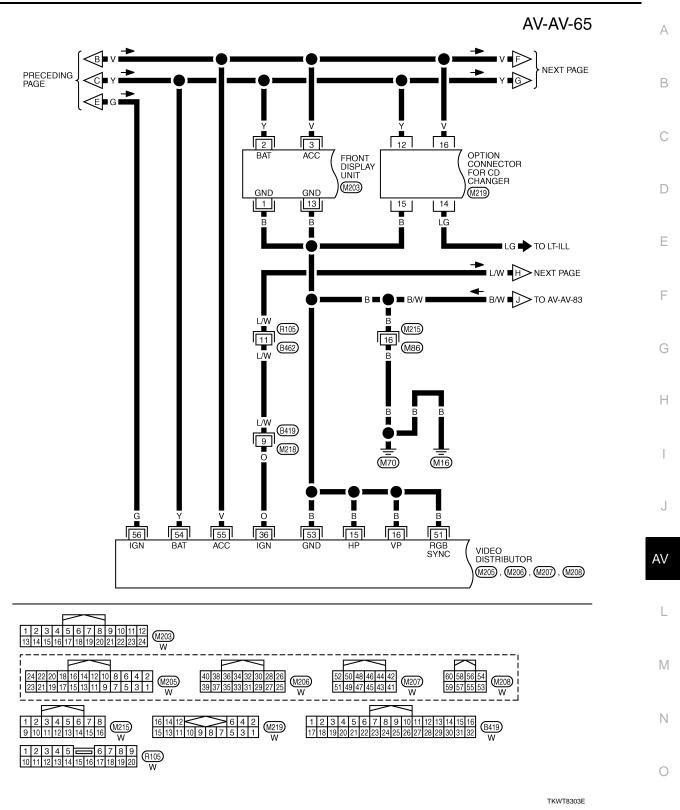
# AV CONTROL UNIT

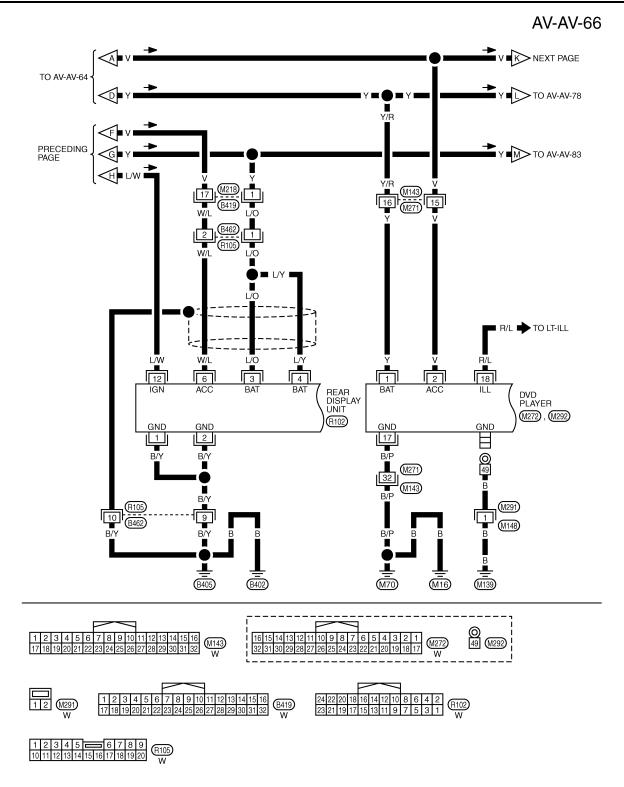
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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



TKWT8302E

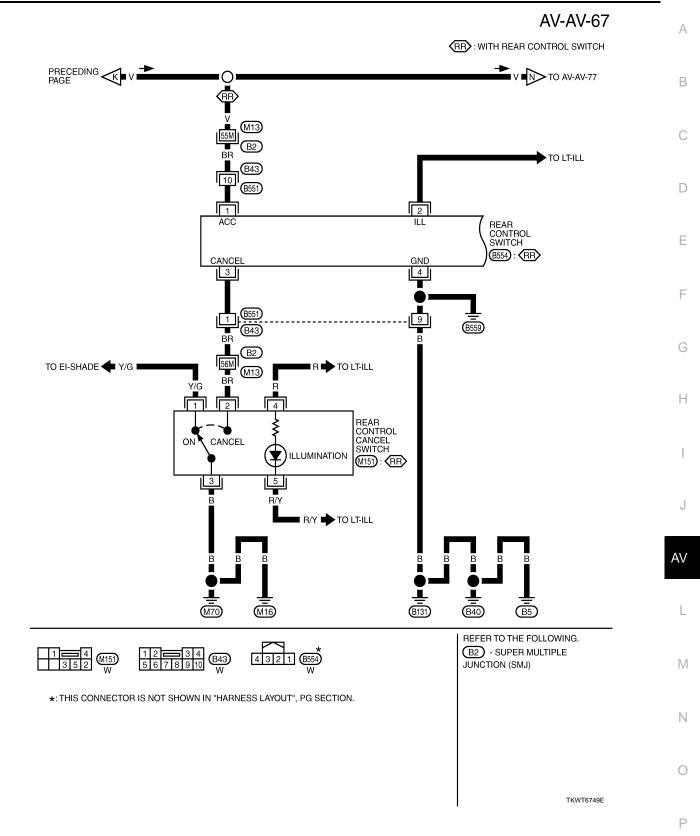




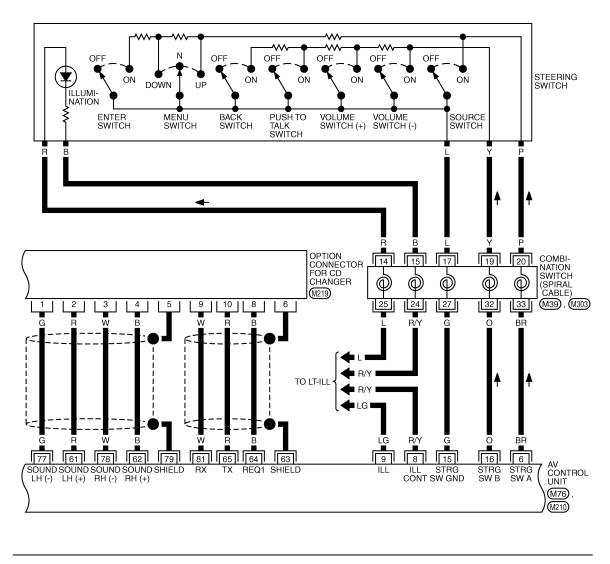
TKWT8304E

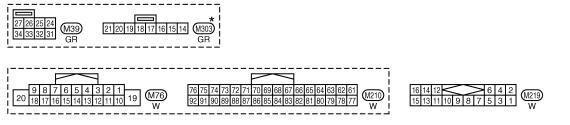
# **AV CONTROL UNIT**

## [WITH MOBILE ENTERTAINMENT SYSTEM]



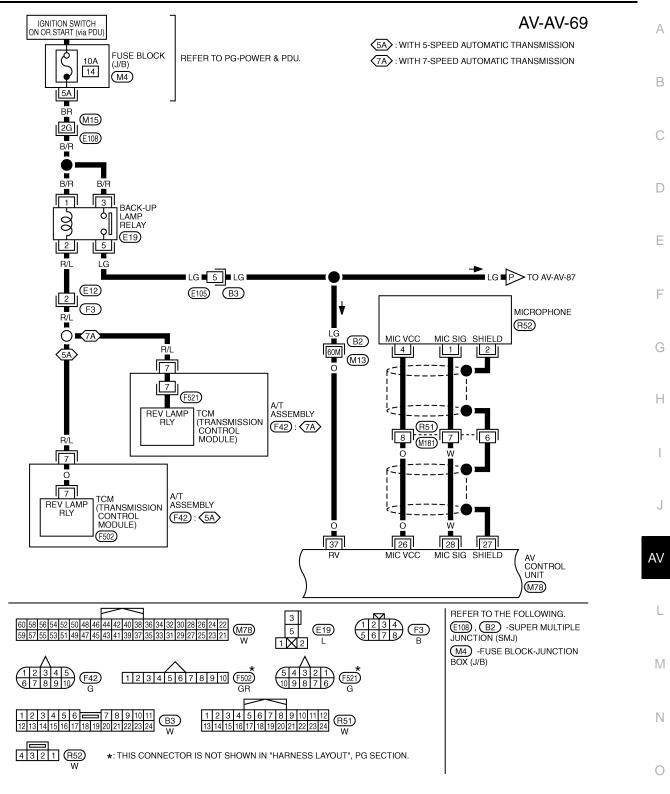
AV-AV-68



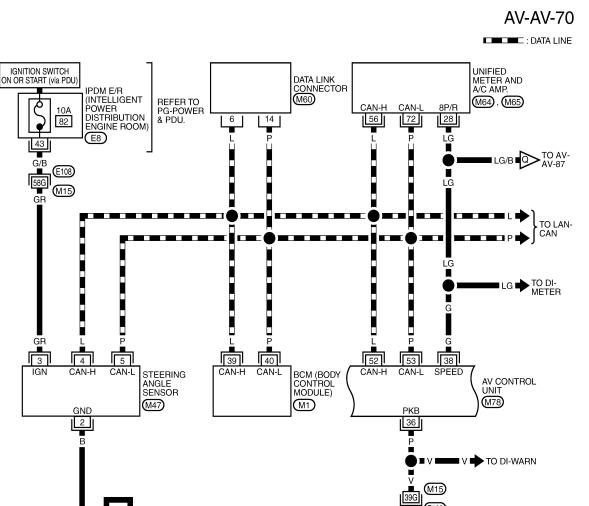


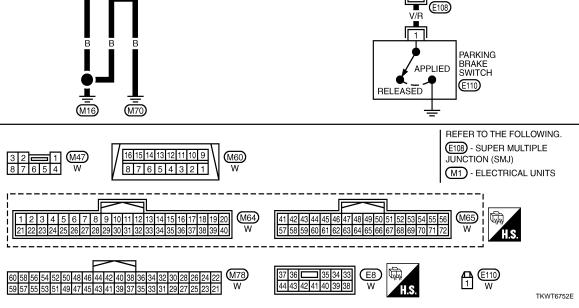
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8305E

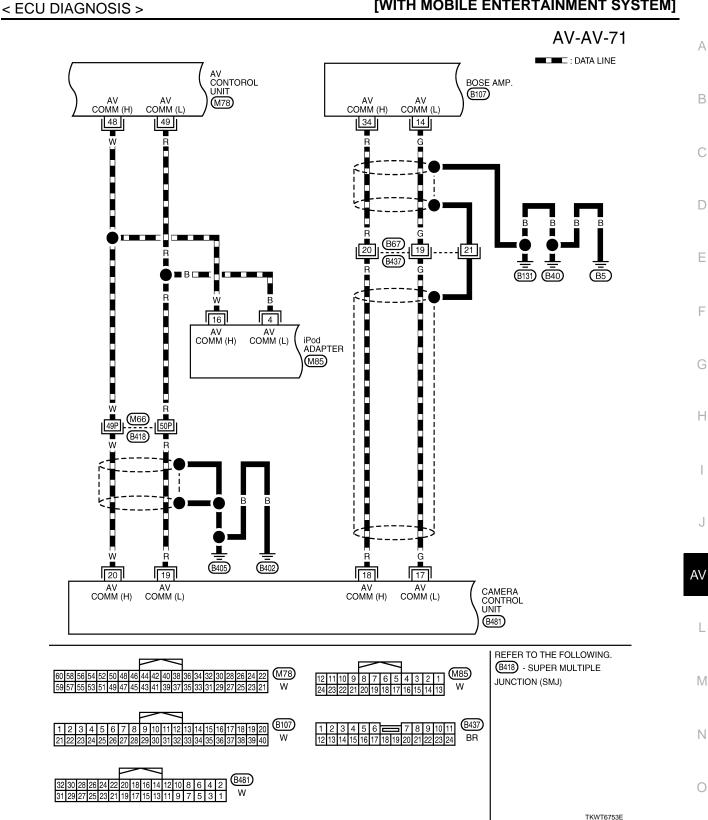


TKWT8306E



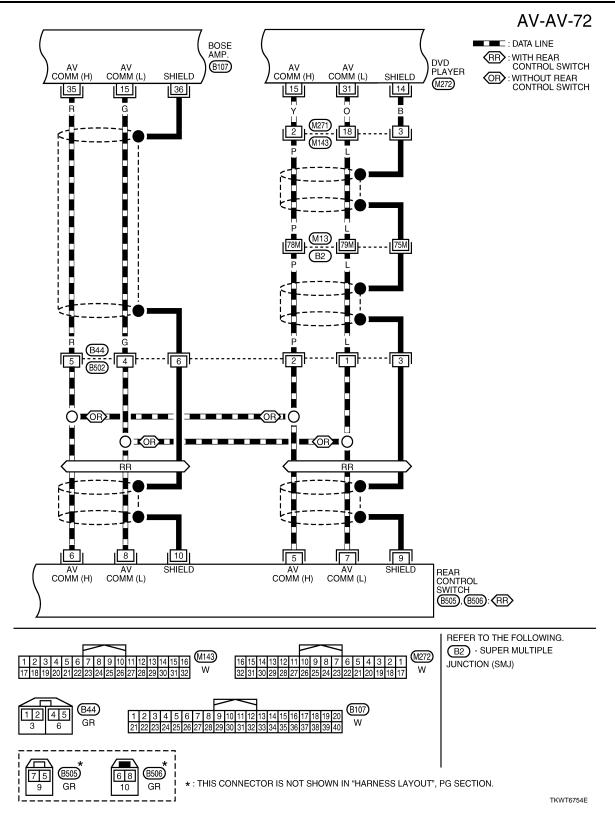


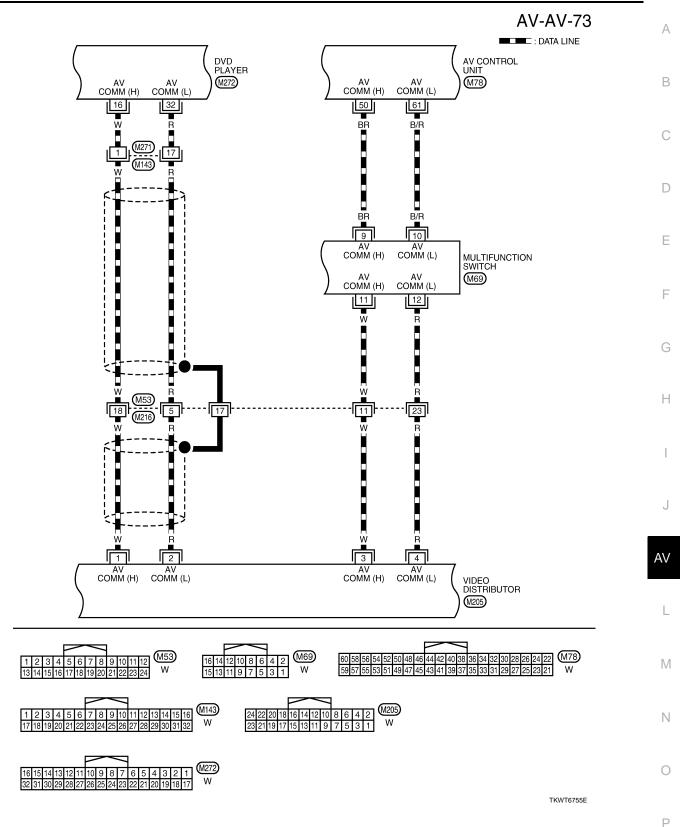
< ECU DIAGNOSIS >



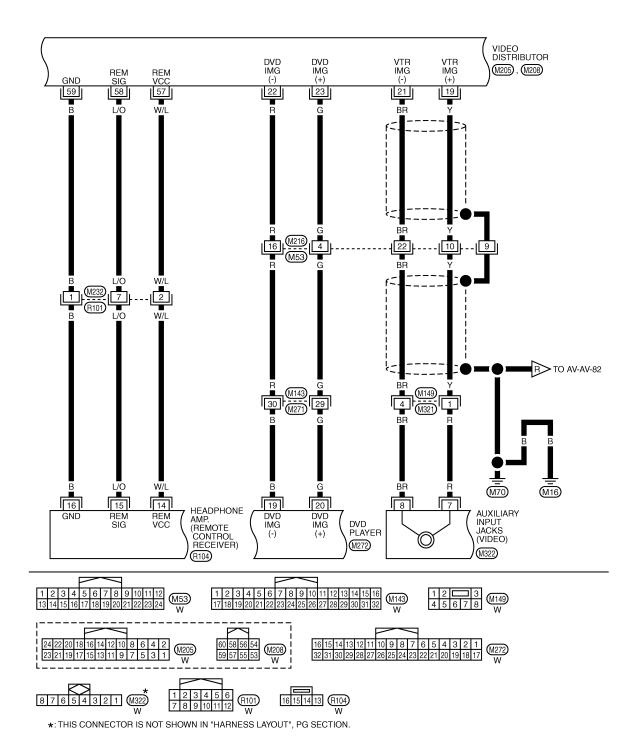
Revision: 2009 Novemver

2009 M35/M45

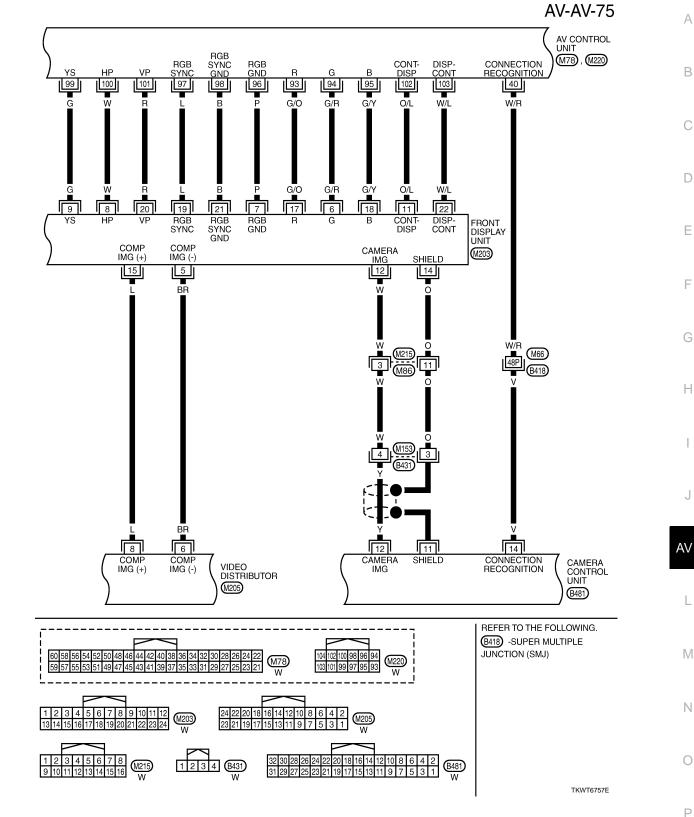




AV-AV-74

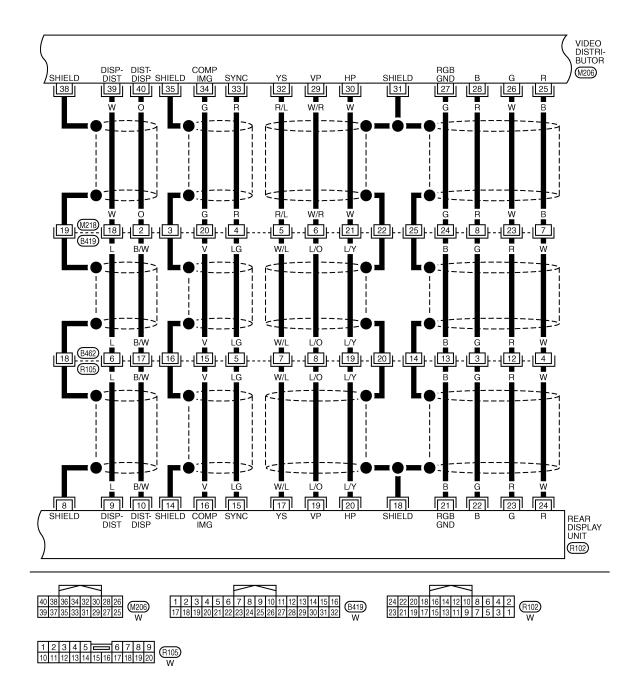


TKWT8307E



< ECU DIAGNOSIS >

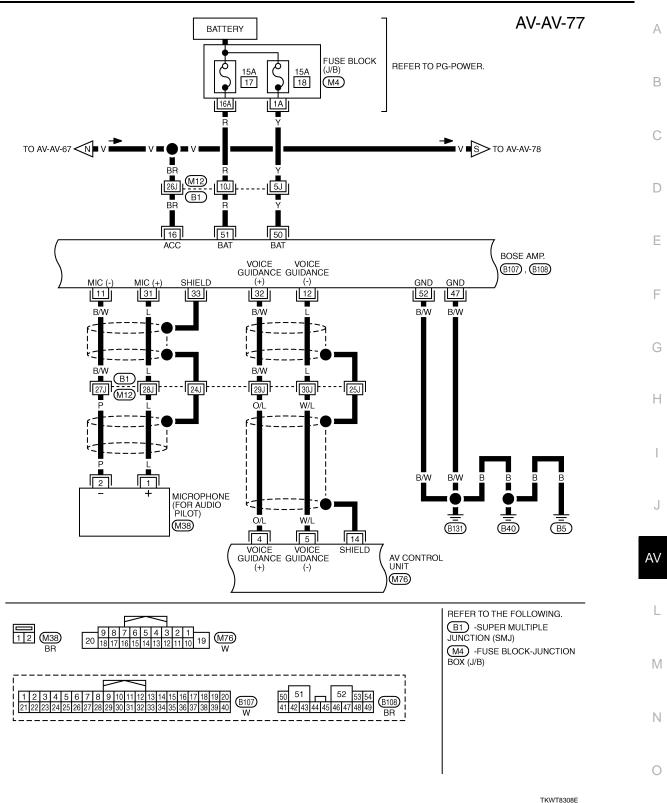
AV-AV-76



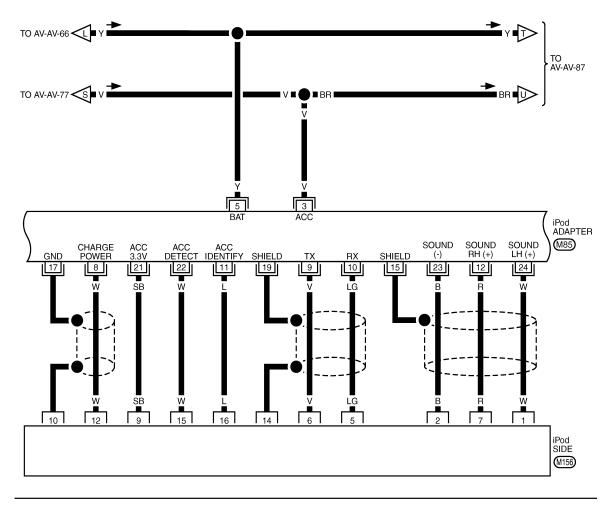
TKWT5152E

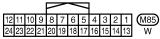
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#### AV CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]



**AV-AV-78** 

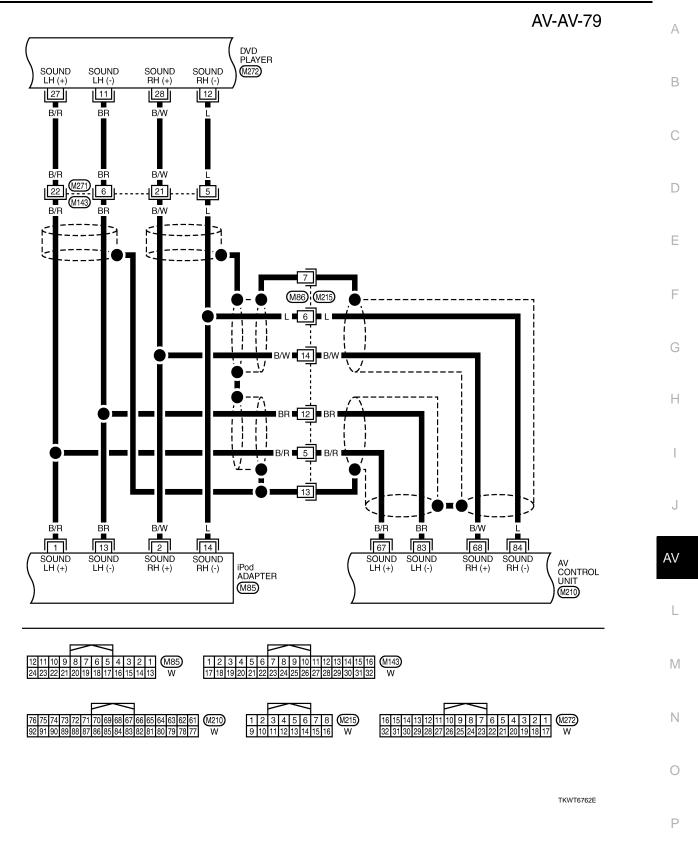


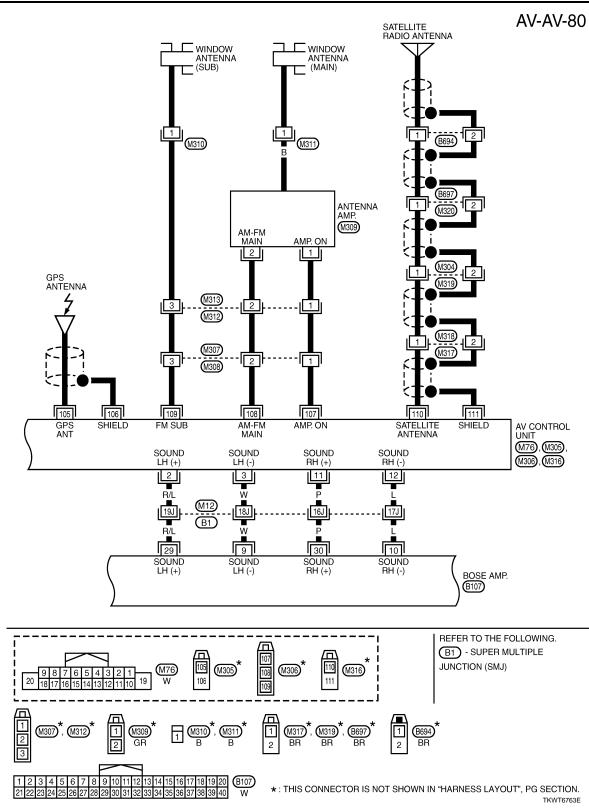


6 5 4 3 2 1 M156 16 15 14 13 12 11 10 9 8 7 GR

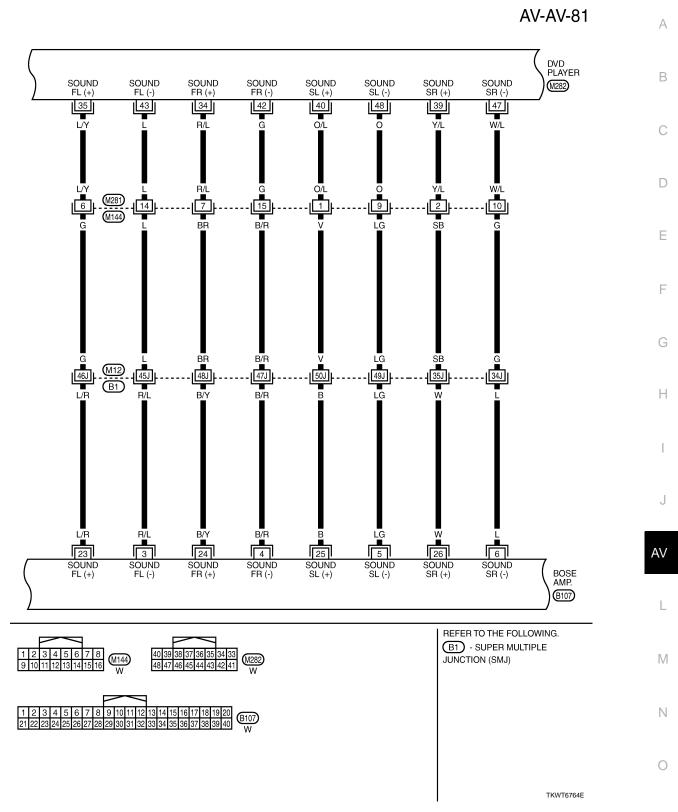
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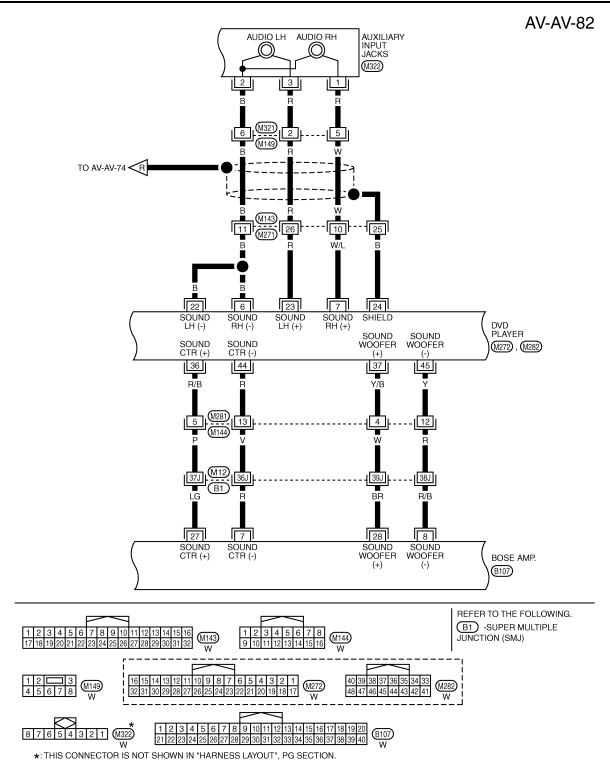






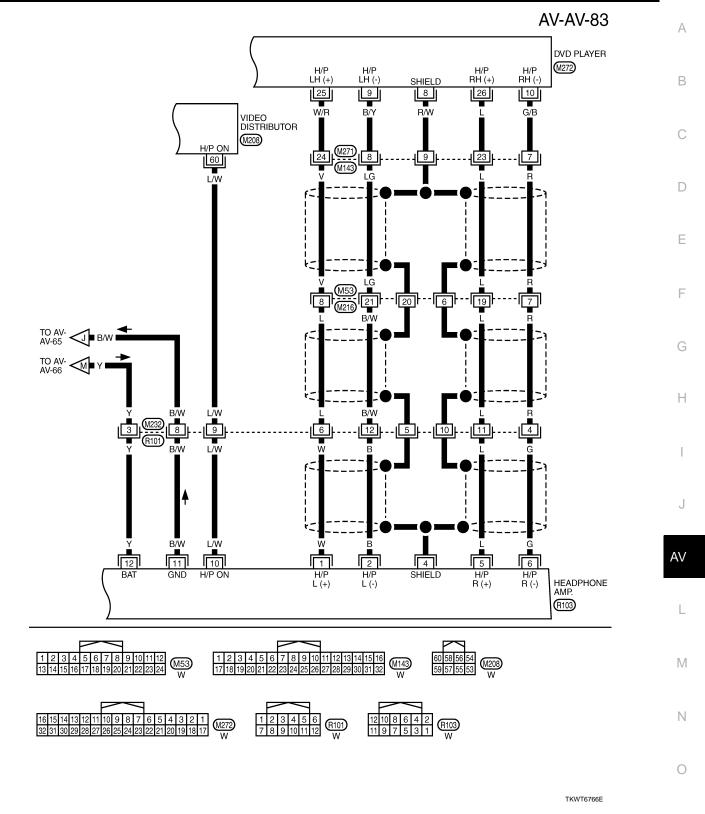




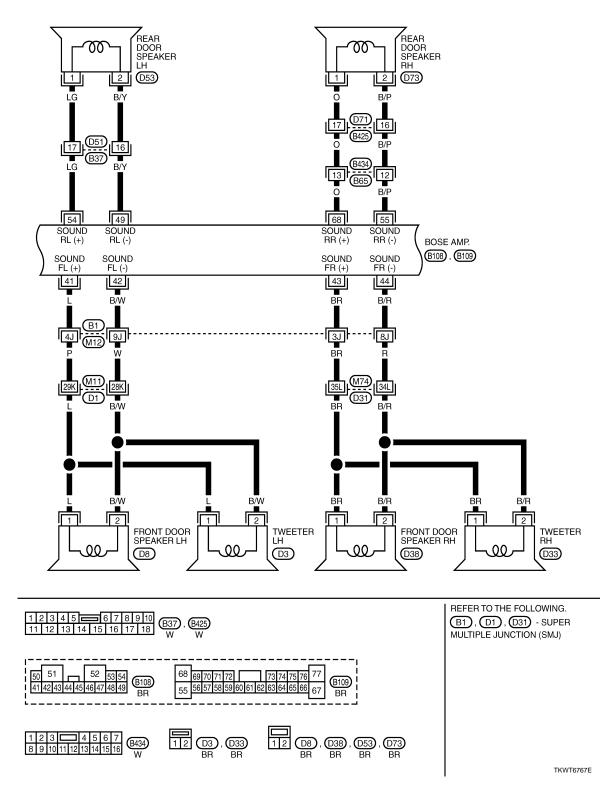


TKWT8309E

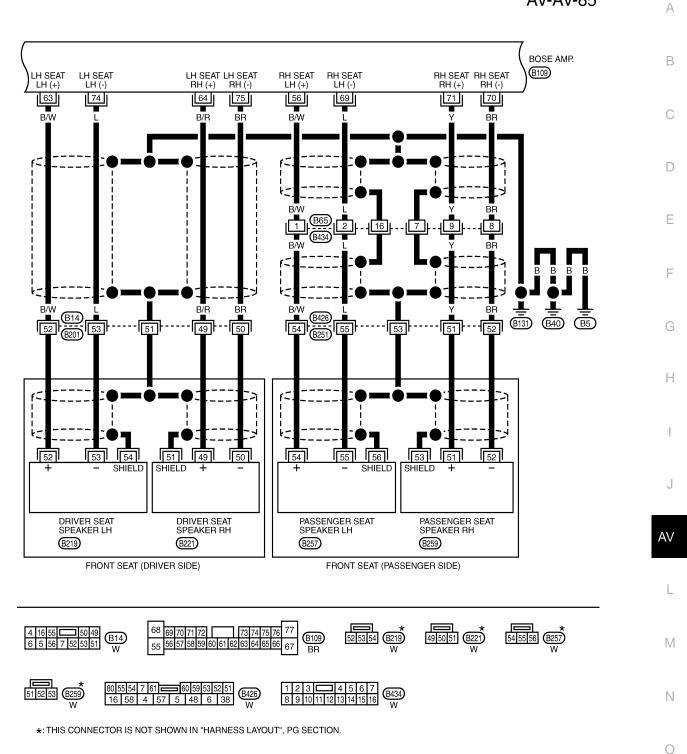




## AV-AV-84

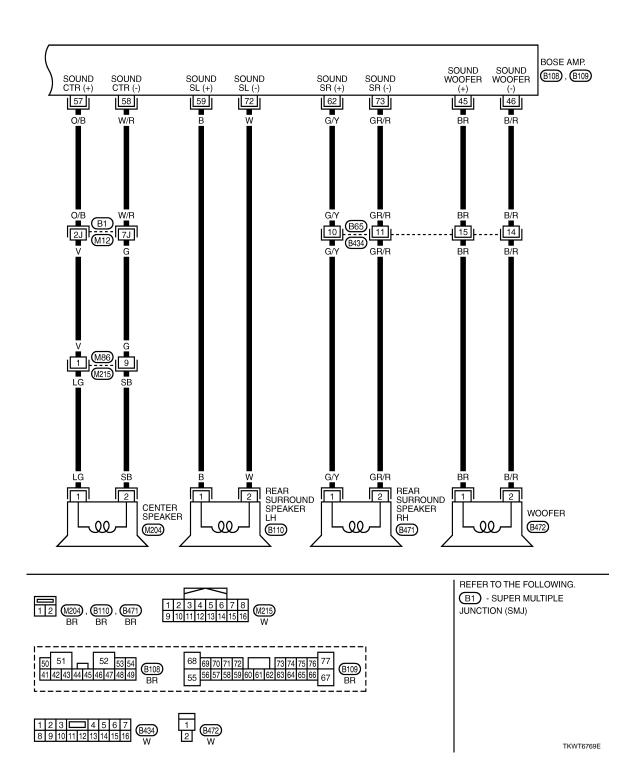


**AV-AV-85** 

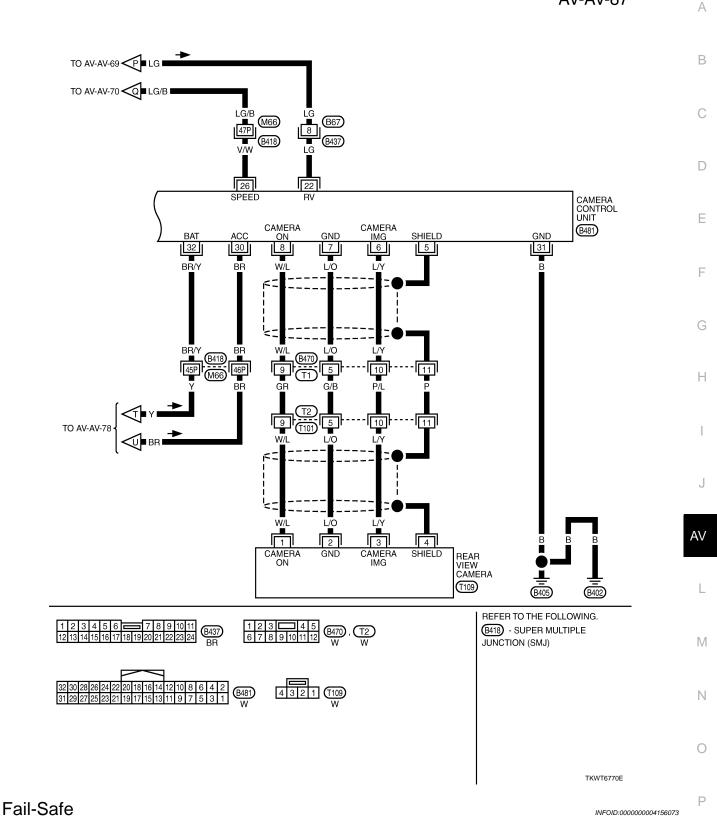


TKWT6768E

AV-AV-86



AV-AV-87



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

## FAIL-SAFE CONDITIONS

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

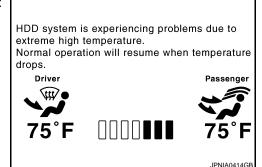
When HDD is malfunctioning

Revision: 2009 Novemver

## AV-683

#### 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.
When HDD is malfunctioning	HDD system is not functioning. Please contact your dealer for assistance.

## DESCRIPTION OF CONTROLS

Function		When Fail-safe Function is activated
Air conditioner	Operation	Only multifunction switch (preset switch) can be operated.
	Display	<ul> <li>LED of multifunction switch (preset switch) illuminates.</li> <li>Aimed temperature, blow angle, and flow rate are displayed in simplified mode.</li> </ul>
Audio Operation Display	Only ON/OFF and volume control operations by multifunction switch (preset switch) are possible.	
	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-III diagnosis		Cannot be operated.

#### Ability Operation Mode

There is an ability operation mode for Fail-safes due to low or high ambiance temperature.

If HDD data can be read, fail-safe is shown, then normal displays are displayed only for functions which can be operated.

#### **RELEASE CONDITIONS OF FAIL-SAFE**

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

#### When the temperature of HDD is low or high

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

#### When HDD is malfunctioning

If the malfunction disappears, normal mode is restored.

#### NOTE:

- If fail-safe mode due to HDD malfunction is seen continuously, replace AV control unit.
- If fail-safe mode due to HDD malfunction is seen temporarily, check the "Error History" of Confirmation/ Adjustment mode. If this is normal, then continue the normal operation, observing the function. (It might be a temporary malfunction of HDD.)

# **AV CONTROL UNIT**

< ECU DIAGNOSIS >

DTC

# [WITH MOBILE ENTERTAINMENT SYSTEM]

# DTC Index

INFOID:000000004156074

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В

## SELF-DIAGNOSIS RESULTS DISPLAY ITEM

Display item	Refer to
IM CIRCUIT [U1000]	AV-565, "Diagnosis Procedure"
L UNIT (CAN) [1010]	AV-566, "Diagnosis Procedure"
L UNIT (AV) [U1310]	AV-567, "DTC Logic"
nit FLASH-ROM [1200]	AV-568, "DTC Logic"
CONN [1201]	AV-569, "DTC Logic"
IT [U1216]	AV-570, "DTC Logic"
OTH CONN [U1217]	AV-571, "DTC Logic"
IN [U1218]	AV-572, "DTC Logic"
.D [U1219]	AV-573, "DTC Logic"
AL COMM [U1220]	AV-574, "DTC Logic"
TE [U121A]	AV-575, "DTC Logic"
/IM [U121B]	AV-576, "DTC Logic"
ESS [U121C]	AV-577, "DTC Logic"
IN [U121D]	AV-578, "DTC Logic"
IM [U121E]	AV-579, "DTC Logic"
L COMM [U121F]	AV-580. "DTC Logic"

I CIRCUIT [U1000] JNIT (CAN) [1010] JNIT (AV) [U1310]	AV-565, "Diagnosis Procedure" AV-566, "Diagnosis Procedure"	
	AV-566, "Diagnosis Procedure"	
JNIT (AV) [U1310]		<u> </u>
	AV-567, "DTC Logic"	C
FLASH-ROM [1200]	AV-568, "DTC Logic"	
DNN [1201]	AV-569, "DTC Logic"	D
[U1216]	AV-570, "DTC Logic"	
H CONN [U1217]	AV-571, "DTC Logic"	_
[U1218]	AV-572, "DTC Logic"	E
[U1219]	AV-573, "DTC Logic"	
COMM [U1220]	AV-574, "DTC Logic"	F
[U121A]	AV-575, "DTC Logic"	
I [U121B]	AV-576, "DTC Logic"	
SS [U121C]	AV-577, "DTC Logic"	G
[U121D]	AV-578, "DTC Logic"	
[U121E]	AV-579, "DTC Logic"	Н
COMM [U121F]	AV-580, "DTC Logic"	
I [U1204]	AV-581, "DTC Logic"	
U1205]	AV-582, "DTC Logic"	
J1206]	AV-583, "DTC Logic"	
J1207]	AV-584, "DTC Logic"	J
P CONN [U1243]	AV-585, "DTC Logic"	
CONN [U1247]	AV-588, "DTC Logic"	
NNA CONN [U1244]	AV-587, "DTC Logic"	AV
ONT. CONN [U1250]	AV-590, "DTC Logic"	
NA CONN [U1258]	AV-591, "DTC Logic"	
CIRCUIT [U1300]	AV-592, "Description"	
	AV-592, "Description"	M
	AV-592, "Description"	
	AV-592, "Description"	Ν
	AV-592, "Description"	0
	AV-592, "Description"	0
	AV-592, "Description"	Ρ
	AV-592, "Description"	
MERA LAN CONN [U1252]	AV-592, "Description"	
	FLASH-ROM [1200]         DNN [1201]         [U1216]         H CONN [U1217]         I[U1218]         [U1219]         COMM [U1220]         [U1214]         I[U1218]         [U1214]         I[U1218]         SS [U121C]         [U1211]         I[U1218]         SS [U121C]         [U1210]         I[U1214]         ONT.COM [U121F]         I[U1206]         J1207]         SP CONN [U1243]         CONN [U1243]         ONT. CONN [U1243]         ONT. CONN [U1243]         ONT. CONN [U1243]         ONT. CONN [U1244]         ONT. CONN [U1258]         CIRCUIT [U1300]         A CIRCUIT [U1300]         A CIRCUIT [U1300]         A CIRCUIT [U1300]         A CIRCUIT [U1300]         NN [U1248]         A CIRCUIT [U1300]         NN [U1248]         A CIRCUIT [U1300]         NN [U1248]         A CIRCUIT [U1300]         NN [U1254]         A CIRCUIT [U1300]         NN [U1254]	DNN [1201]         AV-569."DTC Logic"           [U1216]         AV-570."DTC Logic"           H CONN [U1217]         AV-571."DTC Logic"           [U1218]         AV-572."DTC Logic"           [U1219]         AV-573."DTC Logic"           [U1219]         AV-575."DTC Logic"           [U1214]         AV-575."DTC Logic"           [U1214]         AV-575."DTC Logic"           [U1214]         AV-576."DTC Logic"           [U1214]         AV-577."DTC Logic"           [U1215]         AV-578."DTC Logic"           [U1216]         AV-578."DTC Logic"           [U1217]         AV-579."DTC Logic"           [U1216]         AV-578."DTC Logic"           [U1217]         AV-580."DTC Logic"           [U1204]         AV-581."DTC Logic"           [U1205]         AV-582."DTC Logic"           [U1206]         AV-583."DTC Logic"           [U1206]         AV-583."DTC Logic"           [U1206]         AV-583."DTC Logic"           [U1207]         AV-583."DTC Logic"           [U1208]         AV-583."DTC Logic"           [U1209]         AV-583."DTC Logic"           [U1204]         AV-583."DTC Logic"           [U1205]         AV-583."DTC Logic"           [U1206]

# **AV CONTROL UNIT**

#### < ECU DIAGNOSIS >

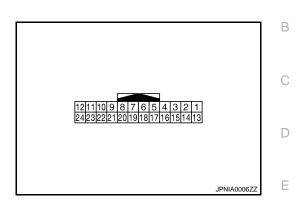
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

DTC	Display item	Refer to
U1300 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-592, "Description"
U1300 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-592, "Description"
U1300 U1246 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>VIDEO DIST CONN [U1246]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-592, "Description"
U1300 U1240 U1246 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>SWITCH CONN [U1240]</li> <li>VIDEO DIST CONN [U1246]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-592, "Description"
U1300 U121F U1240 U1246 U1248 U1248 U124E U1252 U1254	<ul> <li>AV COMM CIRCUIT [U1300]</li> <li>INTERNAL COMM [U121F]</li> <li>SWITCH CONN [U1240]</li> <li>VIDEO DIST CONN [U1246]</li> <li>DVD DECK CONN [U1248]</li> <li>AMP CONN [U124E]</li> <li>REAR CAMERA LAN CONN [U1252]</li> <li>IPOD CONN [U1254]</li> </ul>	AV-592, "Description"

# FRONT DISPLAY UNIT

# **Reference Value**

TERMINAL LAYOUT



#### PHYSICAL VALUES

Terminal (Wire color)		Description	Description		Condition	Reference value
+	-	Signal name	Input/ Output		(Approx.)	
1 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
2 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
3 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
5 (BR)	Ground	Composite image ground	_	Ignition switch ON	_	0 V
6 (G/R)	Ground	RGB signal (G: green)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 ••••40µs JSNIA1030ZZ
7 (P)	Ground	RGB signal ground	_	Ignition switch ON	_	0 V
8 (W)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	_	(V) 4 0 →→ 20µs

А

INFOID:000000004156075

# < ECU DIAGNOSIS >

# FRONT DISPLAY UNIT

### [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
					When RGB image is displayed on front display.	5 V	
9 (G)	Ground	RGB area (YS) signal	Input	Ignition t switch ON	When rear view camera im- age is displayed.	(V) 6 4 2 0 • • • • 200 µ s • • • • 200 µ s • • • • 200 µ s	
11 (O/L)	Ground	Communication signal (CONT→DISP)	Input	Ignition switch ON	When adjusting front dis- play brightness.	(V) 6 4 2 0 ••••••••••••••••••••••••••••••••	
12 (W)	Ground	Camera image signal	Input	Ignition switch ON	When rear view camera im- age is displayed.	(V) 0.4 0 -0.4 ••••••••••••••••••••••••••••••••••••	
13 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
14	—	Shield	—	_	—	_	
15 (L)	5 (BR)	Composite image signal (AUX and DVD images)	Input	Ignition switch ON	When AUX or DVD image is displayed on front displayed.	(V) 0.4 0 -0.4 ••••••••••••••••••••••••••••••••••••	
17 (G/O)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 ••••40µs JSNIA1029ZZ	
18 (G/Y)	Ground	RGB signal (B: blue)	Input	Ignition switch ON	Start confirmation/adjust- ment mode, and then dis- play color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	(V) 0.8 0.4 0 ★ 40µs JSNIA1031ZZ	

# < ECU DIAGNOSIS >

# FRONT DISPLAY UNIT

### [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description			Condition	Reference value	А
+	-	Signal name	Input/ Output	Contaition		(Approx.)	
19 (L)	Ground	RGB synchronizing signal	Input	Ignition switch ON		(V) 0.4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B C D
20 (R)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON		(V) 4 0 + 4ms SKIB3598E	E
21 (B)	Ground	RGB synchronizing signal ground		Ignition switch ON	_	0 V	G
22 (W/L)	Ground	Communication signal (DISP→CONT)	Output	Ignition switch ON	When adjusting front dis- play brightness.	(V) 6 4 2 0 • • • 1 ms • • • 1 ms • • • • • 1 ms	H I J

AV

L

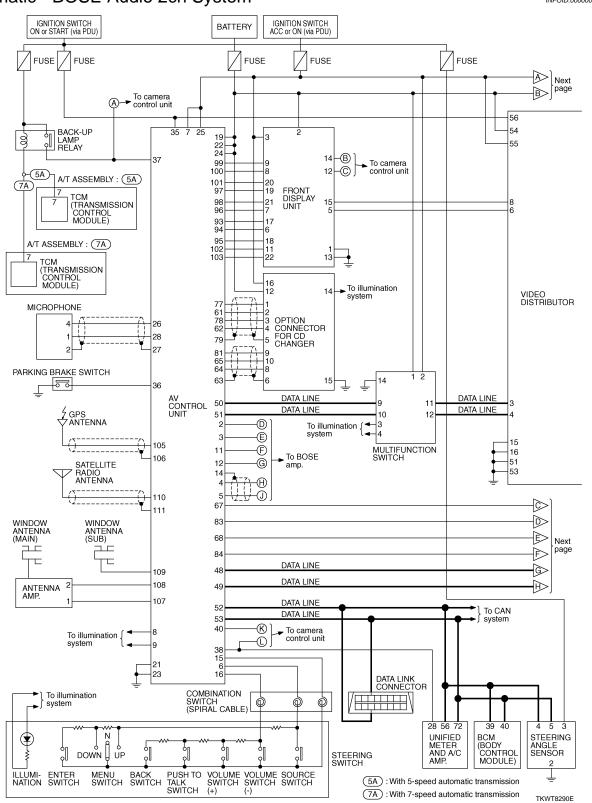
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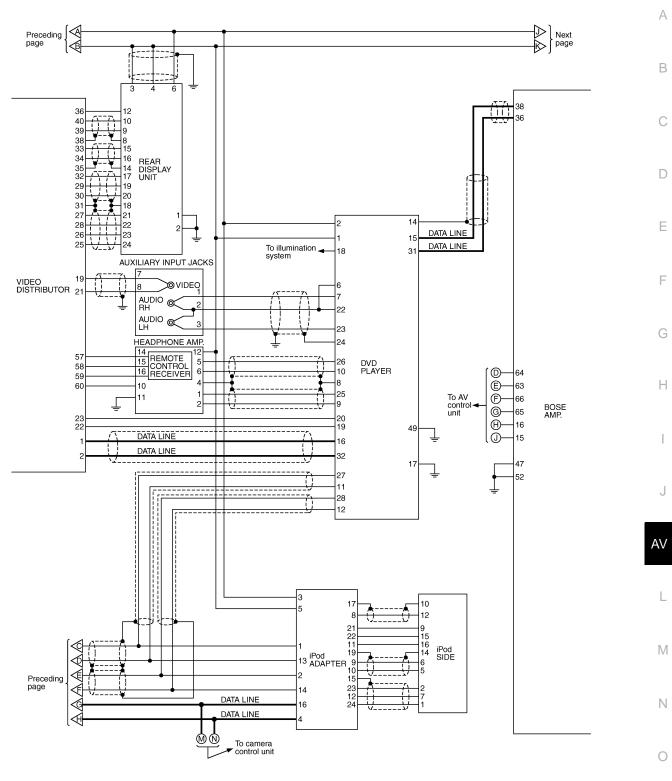
Ν

Ο

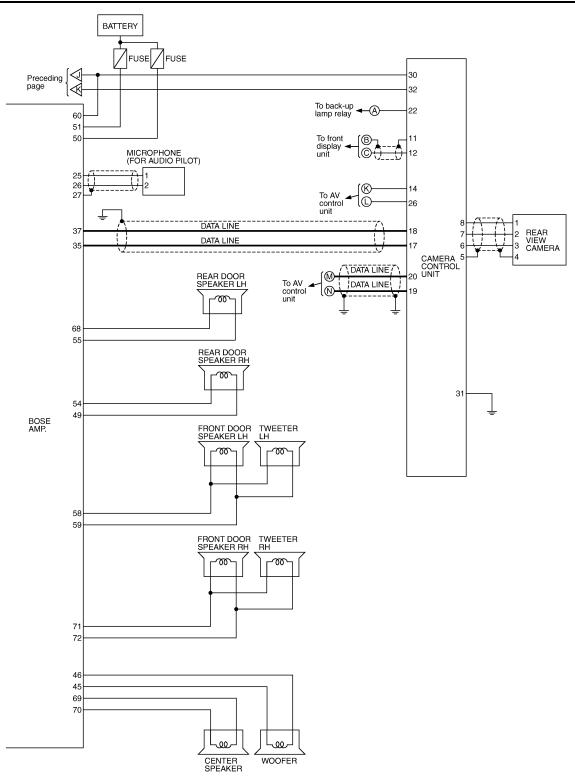
### Schematic - BOSE Audio 2ch System-

INFOID:000000004391594





TKWT6722E



TKWT6723E

Wiring Diagram - AV - / BOSE Audio 2ch System

#### NOTE:

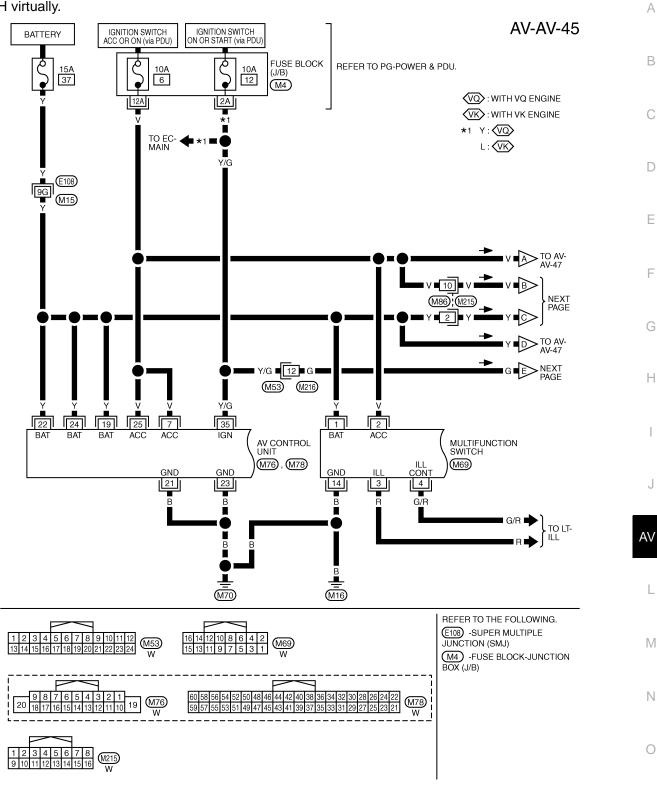
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#### < ECU DIAGNOSIS >

# FRONT DISPLAY UNIT

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

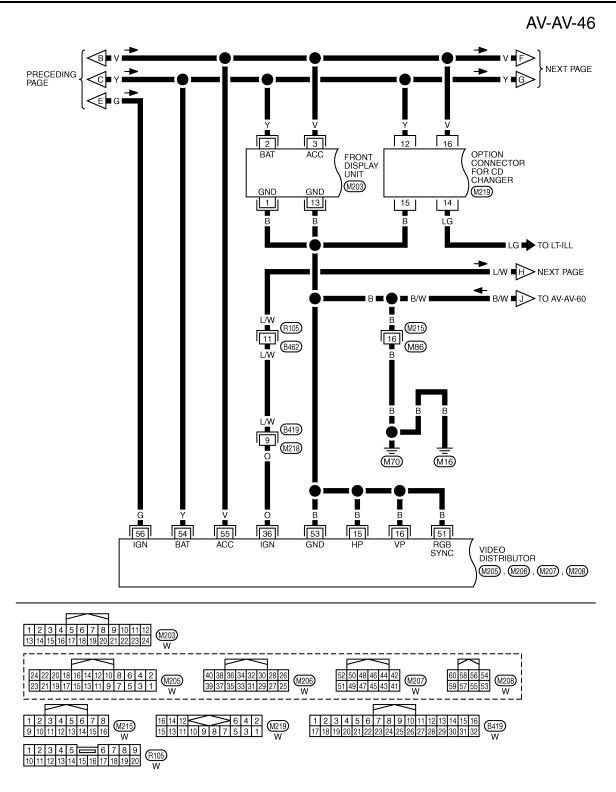
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



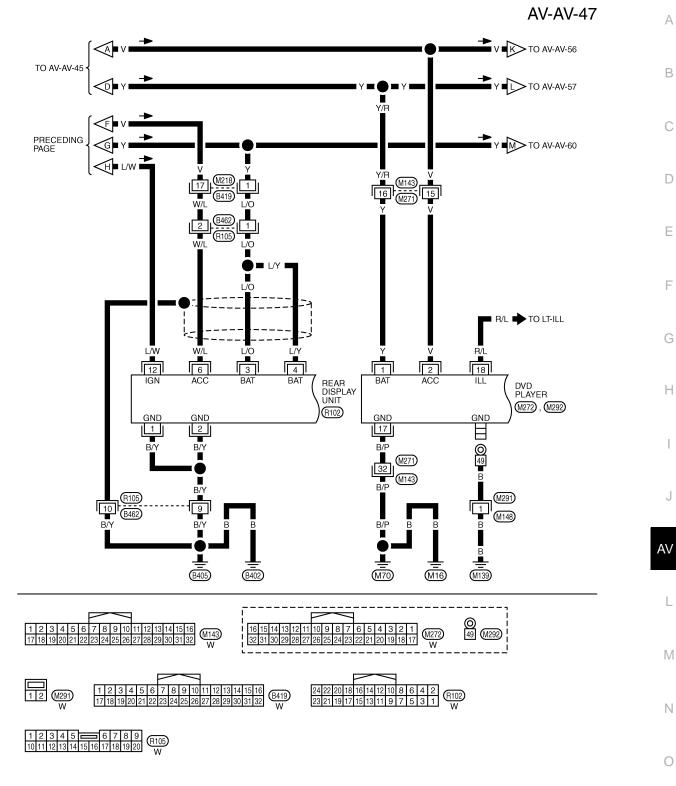
TKWT8291E

# **FRONT DISPLAY UNIT**



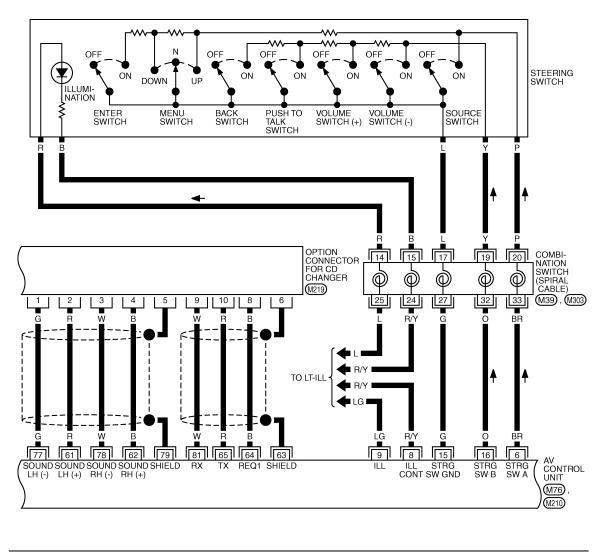


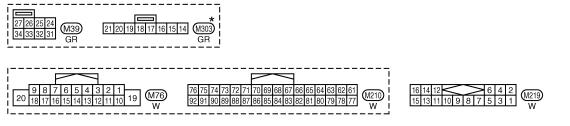
TKWT8292E



TKWT8293E

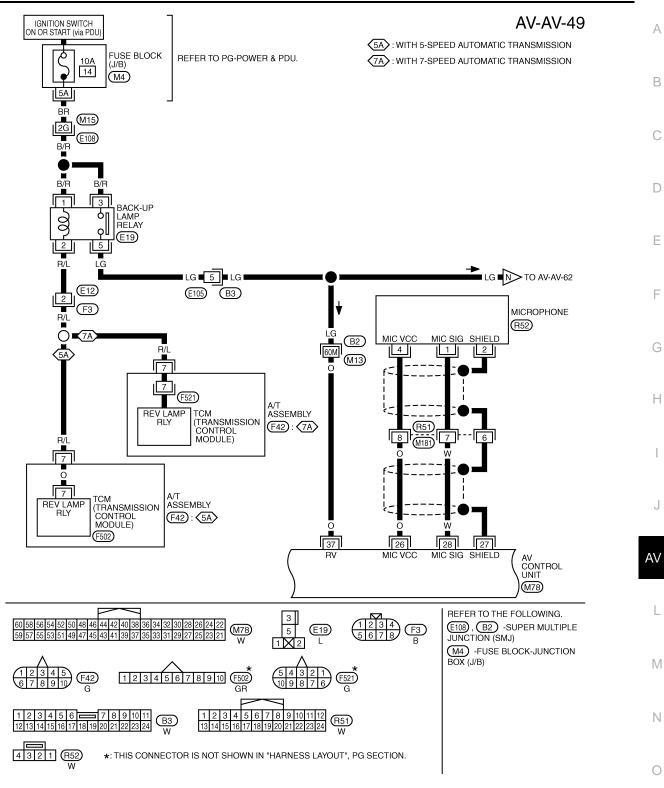
AV-AV-48



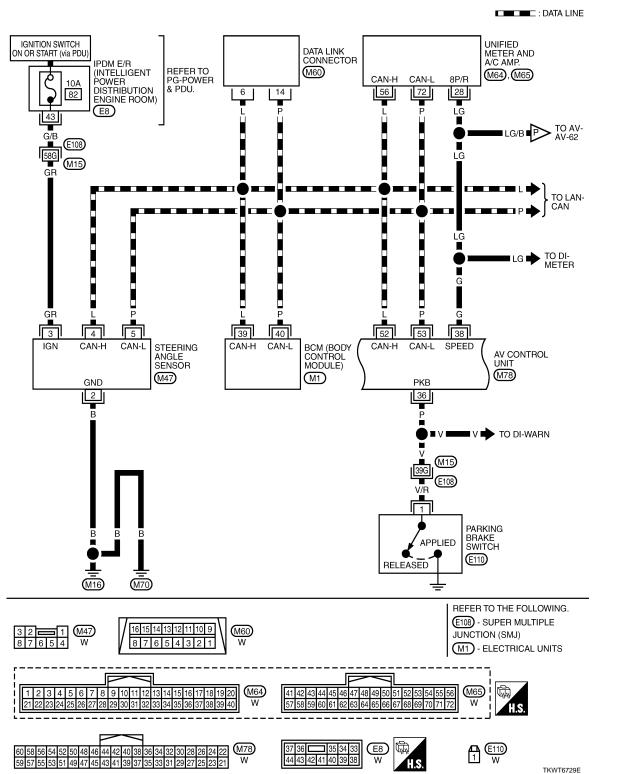


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

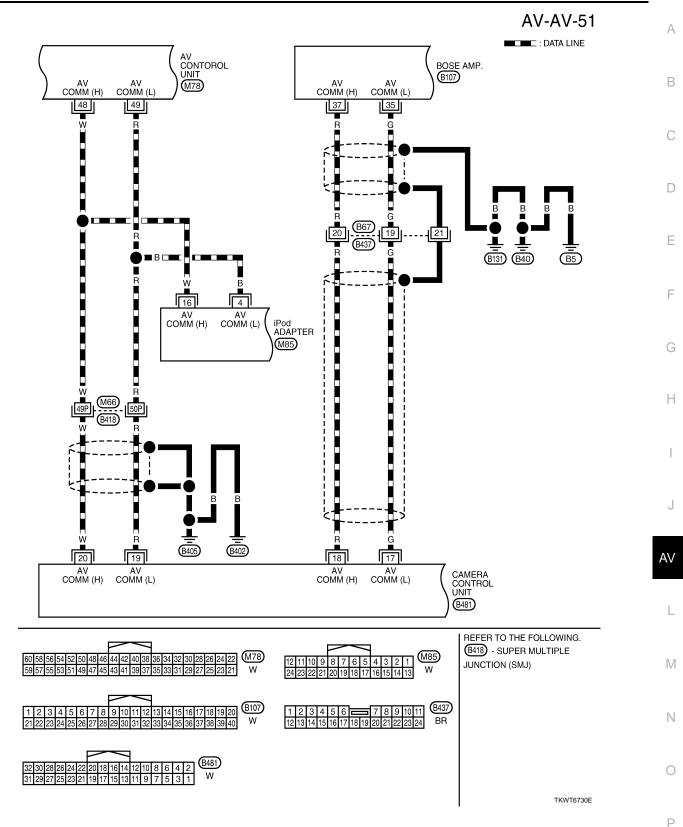
TKWT8294E

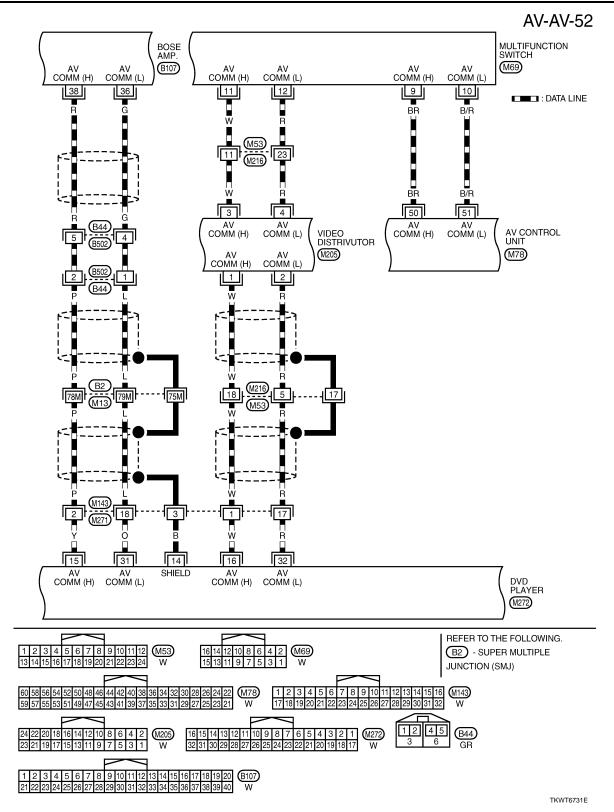


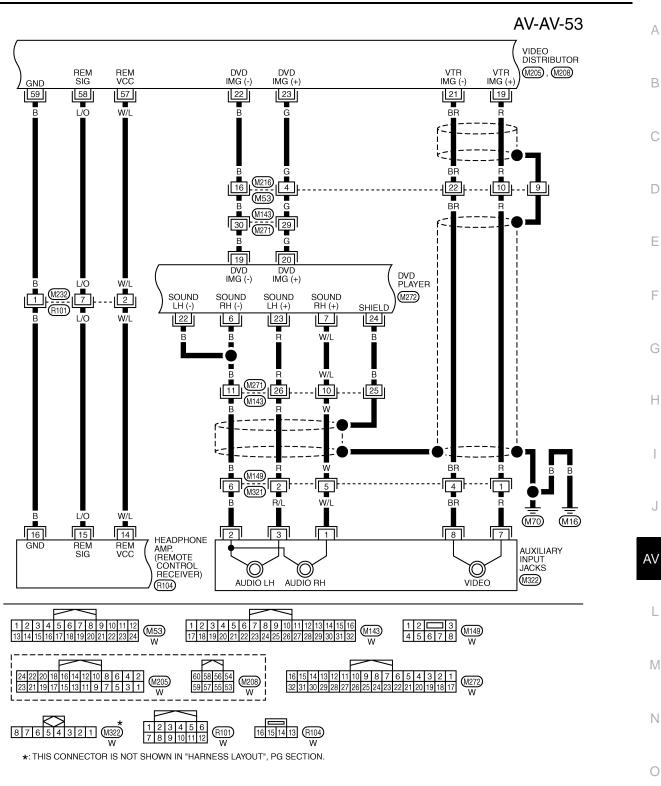
TKWT8295E



#### AV-AV-50

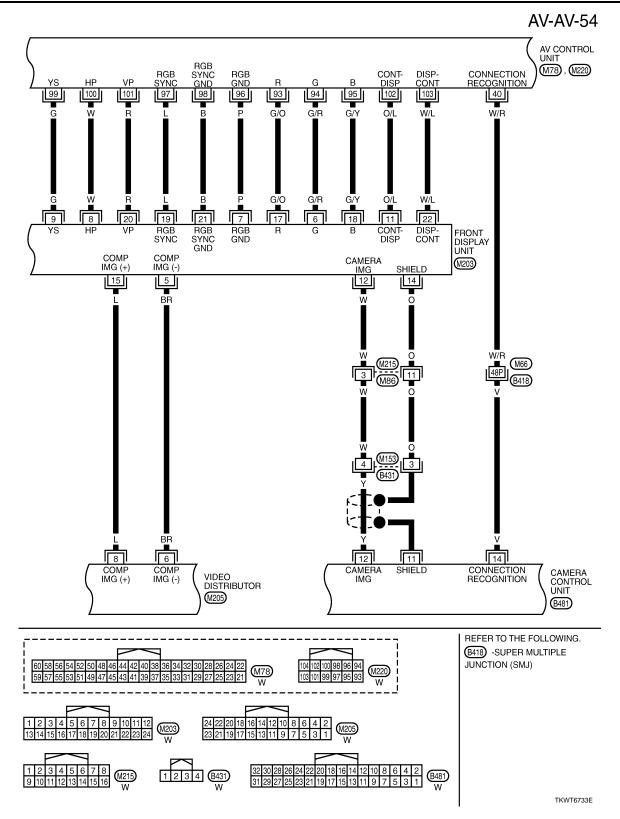






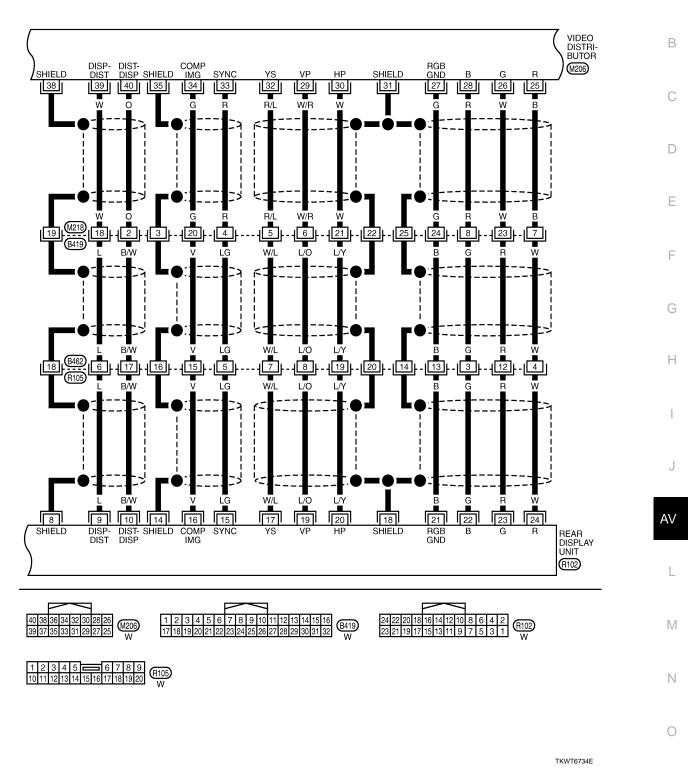
TKWT8296E



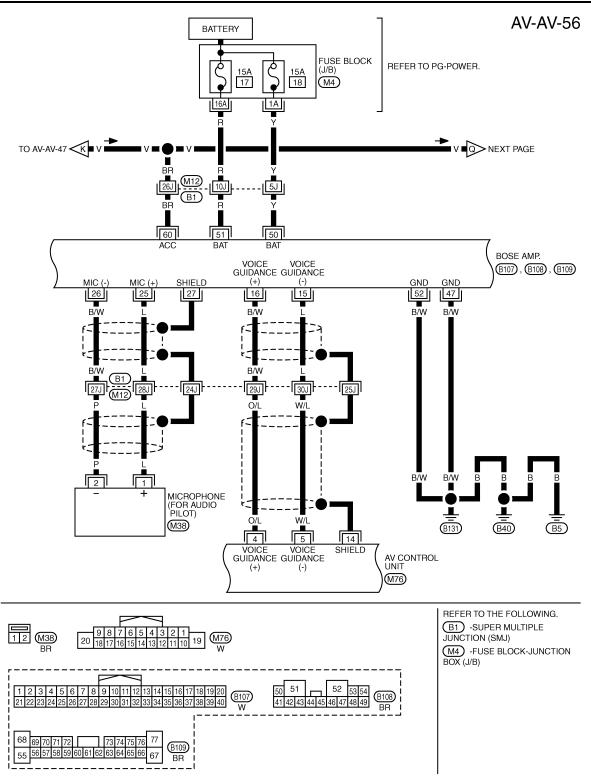




А

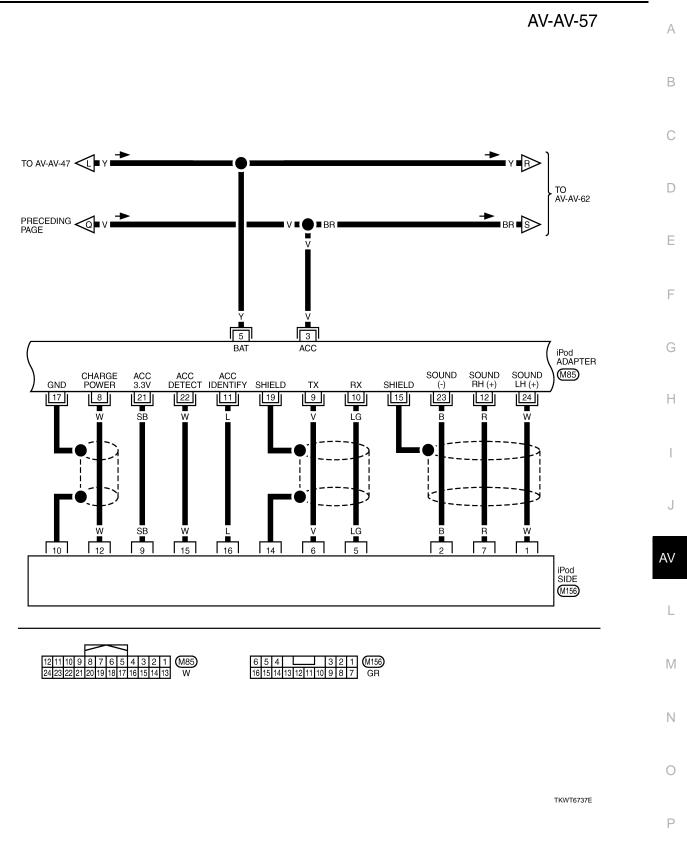


< ECU DIAGNOSIS >



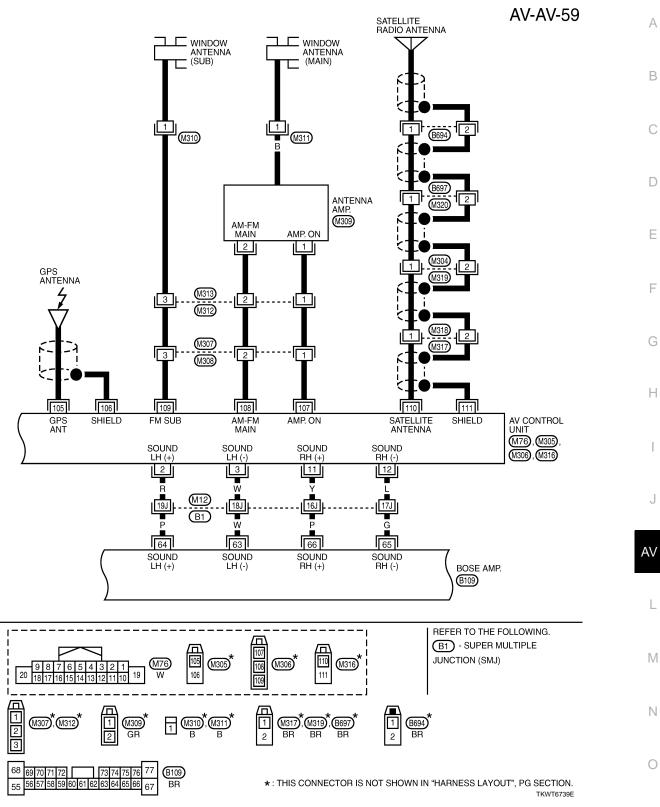
TKWT8297E

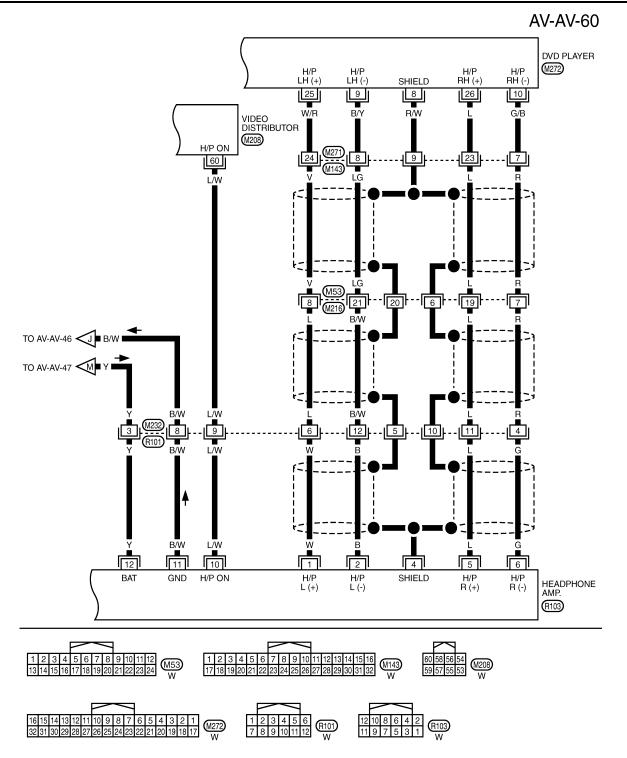




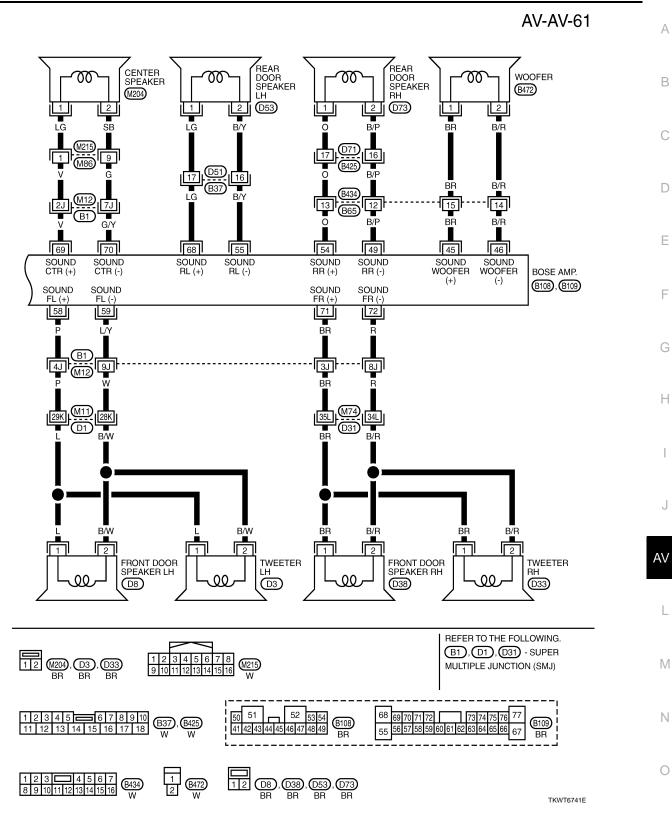
**AV-AV-58** 

TKWT6738E

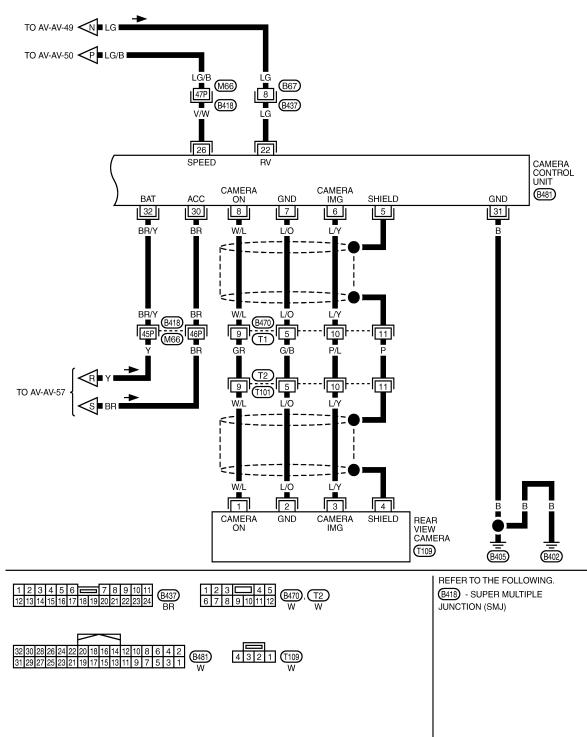




TKWT6740E

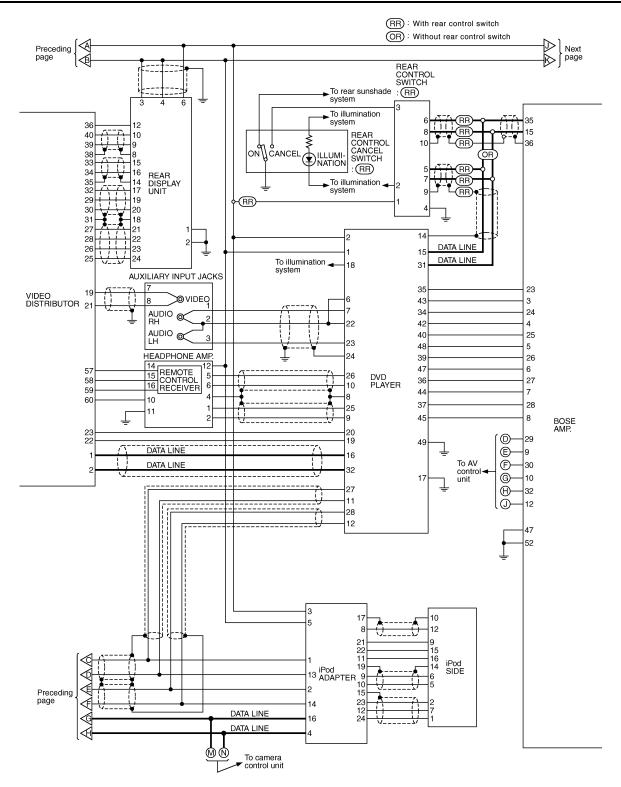


AV-AV-62

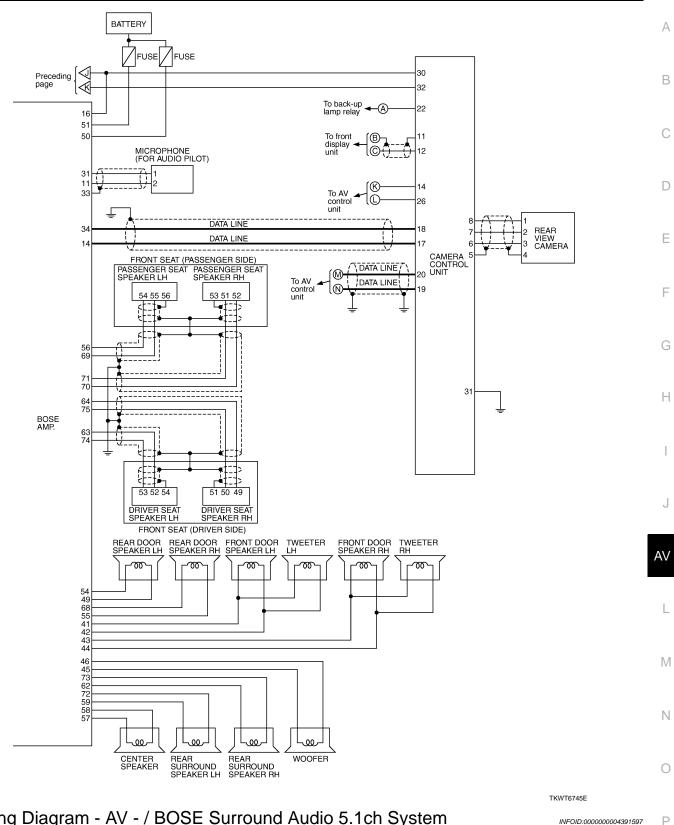


TKWT6742E

#### Schematic - BOSE 5.1ch Surround Audio System -INFOID:000000004391596 А IGNITION SWITCH ON or START (via PDU) IGNITION SWITCH ACC or ON (via PDU) BATTERY FUSE FUSE / FUSE FUSE FUSE В B page A→ To camera control unit 56 54 BACK-UP LAMP RELAY 35 25 2 19 22 3 8 55 24 -®) 14 🔺 To camera 37 99 -9 -8 -©∫ D 100 12 control unit 5A) A/T ASSEMBLY : 5A 101 97 20 (7A FRONT DISPLAY UNIT 7 TCM (TRANSMISSION 21 98 15 8 96 CONTROL MODULE) 17 93 94 Ε 6 95 18 A/T ASSEMBLY : 7A 102 103 11 22 13 TCM (TRANSMISSION CONTROL MODULE) F 16 12 To illumination 14 VIDEO DISTRIBUTOR system 77 4 CONNECTOR FOR CD CHANGER 77 MICROPHONE 61 78 26 62 28 79 27 81 65 10 64 PARKING BRAKE SWITCH 1 2 63 14 Н 15 36 Ť DATA LINE DATA LINE AV CONTROL UNIT 50 11 DATA LINE DATA LINE Ź GPS ☆ANTENNA 51 10 12 -0 2 To illumination . 3 system 4 Ð З 15 105 Ē MULTIFUNCTION SWITCH 11 16 51 → To BOSE amp. 106 SATELLITE RADIO ANTENNA 12 -G 53 14 <del>7)</del> (f) 4 -----<u>U</u> -0 5 110 ١, Ψ $\diamond$ 67 111 $\triangleright$ WINDOW ANTENNA (MAIN) WINDOW ANTENNA (SUB) 83 Þ 68 AV Next عد Þ page 84 DATA LINE 6 48 109 DATA LINE 108 ✐ ANTENNA AMP. 2 49 L 107 DATA LINE 52 To CAN system DATA LINE 53 ĸ 40 To camera control unit 8 To illumination { system -0 9 Μ 38 15 21 6 23 16 DATA LINK CONNECTOR COMBINATION SWITCH (SPIRAL CABLE) To illumination Ν Ø /₩ system 0 Ò 39 40 28 56 72 4 5 3 N STEERING UNIFIED BCM ٢ METER AND A/C AMP. (BODY CONTROL MODULE) SENSOR STEERING SWITCH UP ol ol 2 VOLUME VOLUME SOURCE SWITCH SWITCH SWITCH (+)\_\_\_\_\_(-) ILLUMI- ENTER NATION SWITCH MENU BACK SWITCH SWITCH PUSH TO TALK (5A) : With 5-speed automatic transmission ŚŴĬŤCH (7A) : With 7-speed automatic transmission TKWT8301E



TKWT6744E



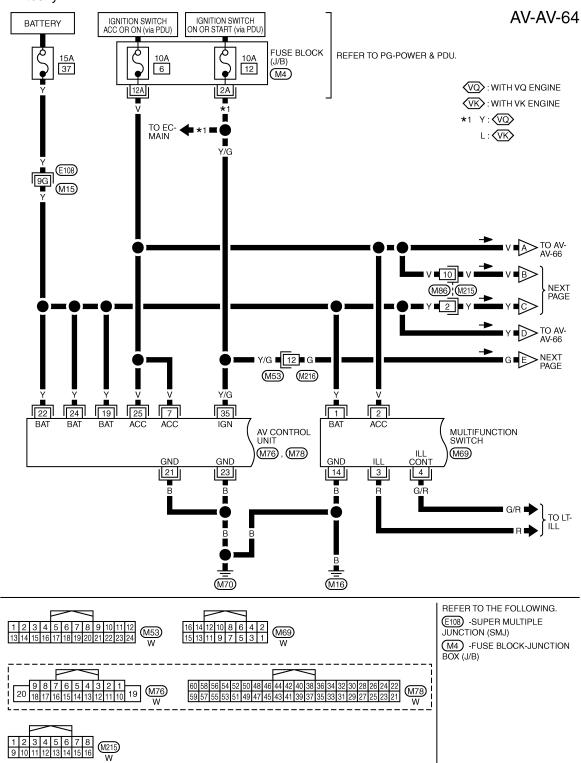
Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

#### < ECU DIAGNOSIS >

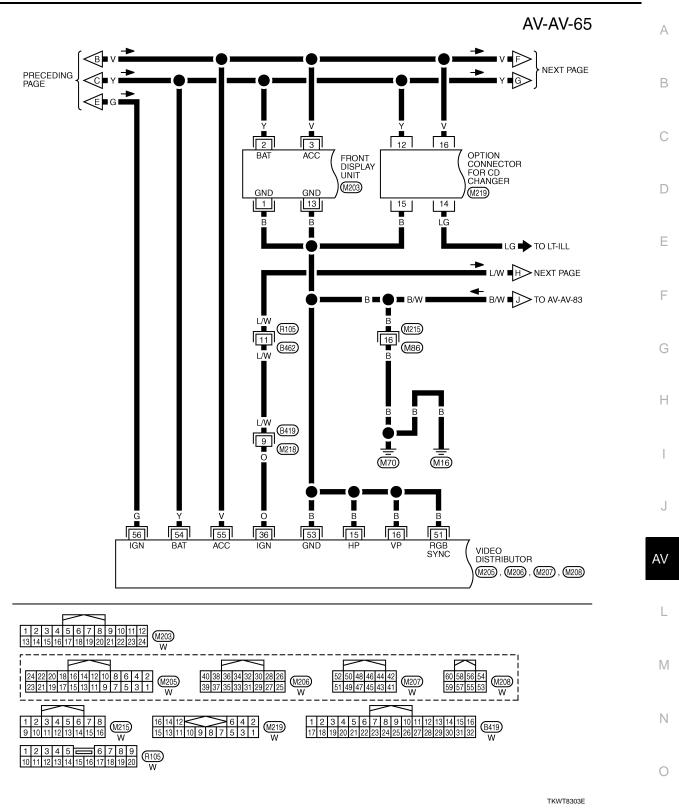
# FRONT DISPLAY UNIT

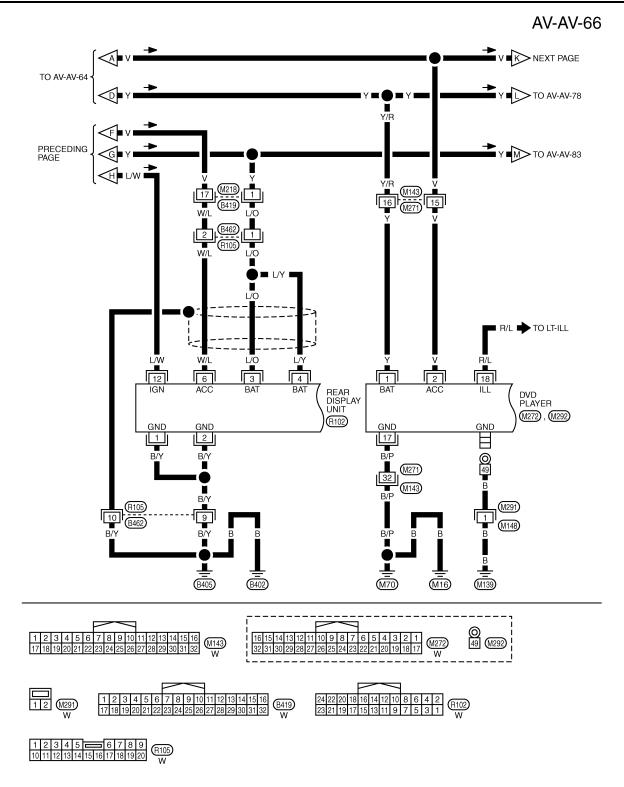
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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



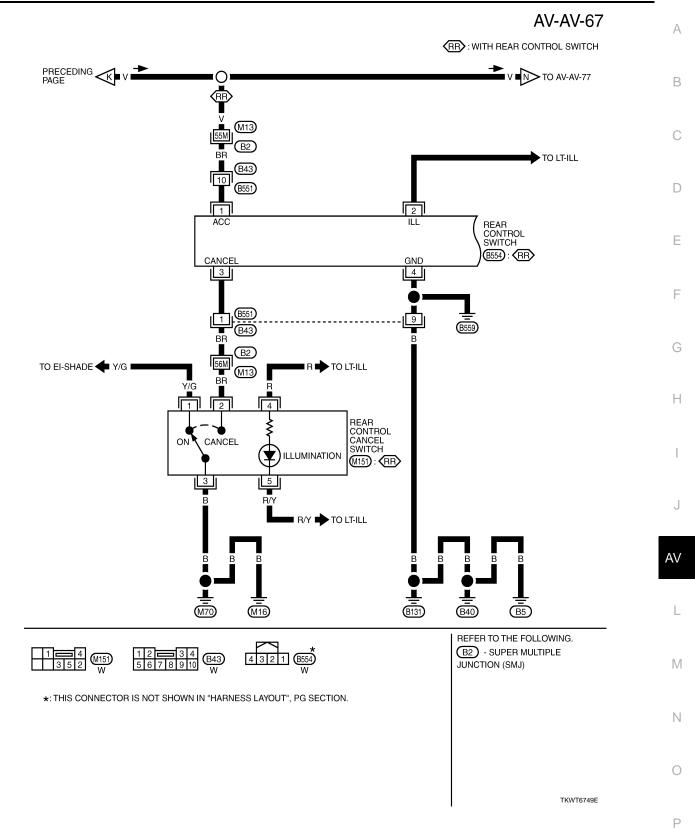
TKWT8302E



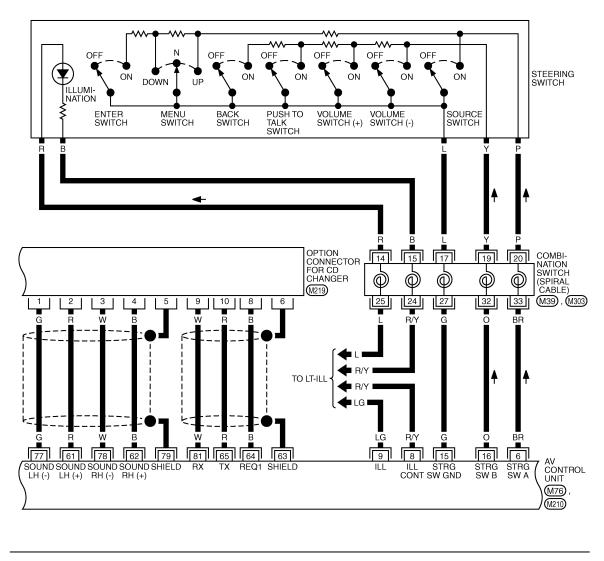


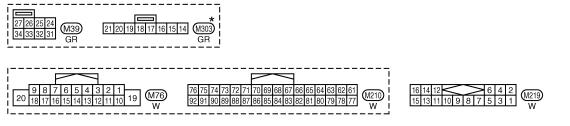
TKWT8304E

# [WITH MOBILE ENTERTAINMENT SYSTEM]



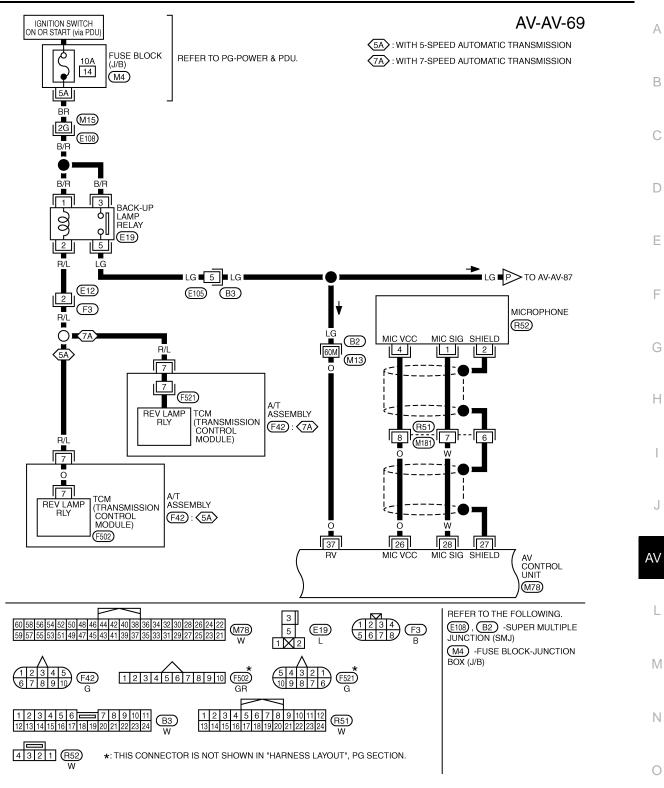
AV-AV-68



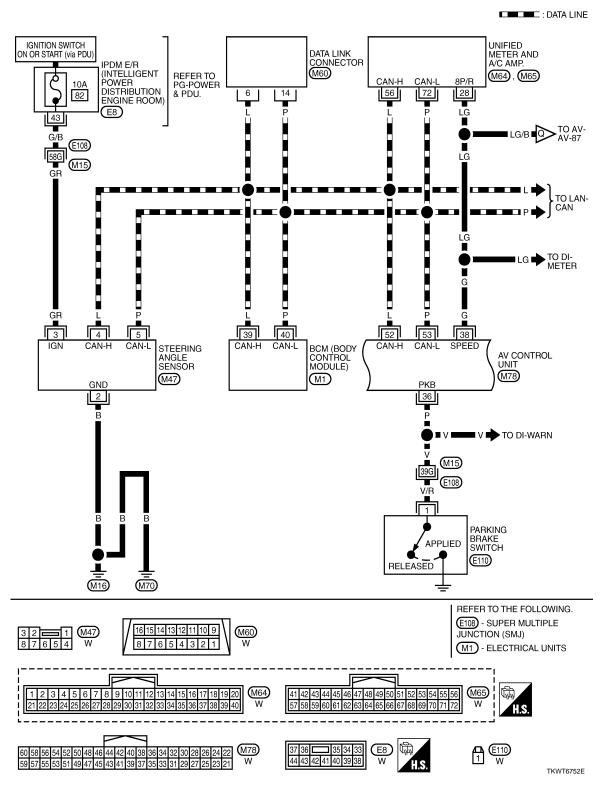


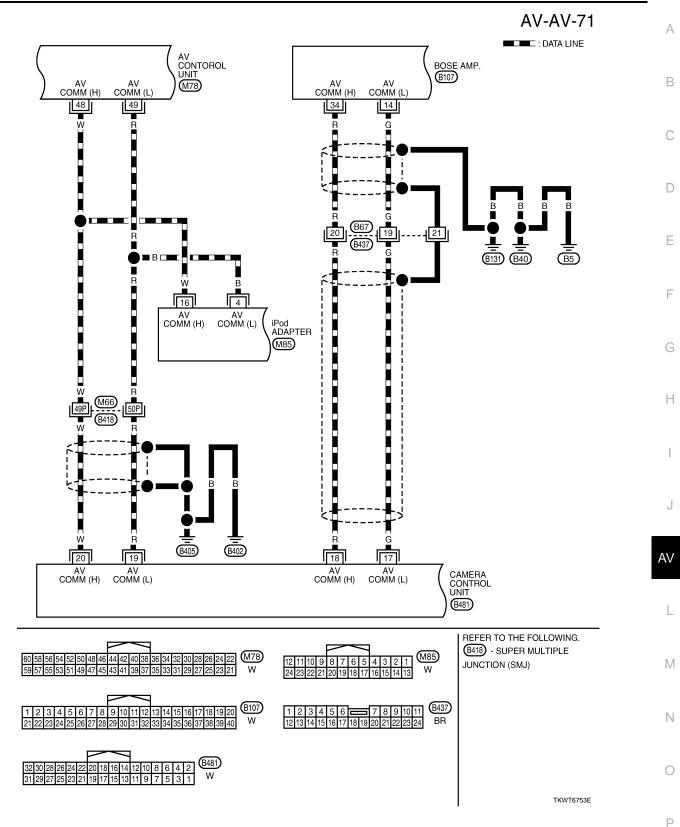
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

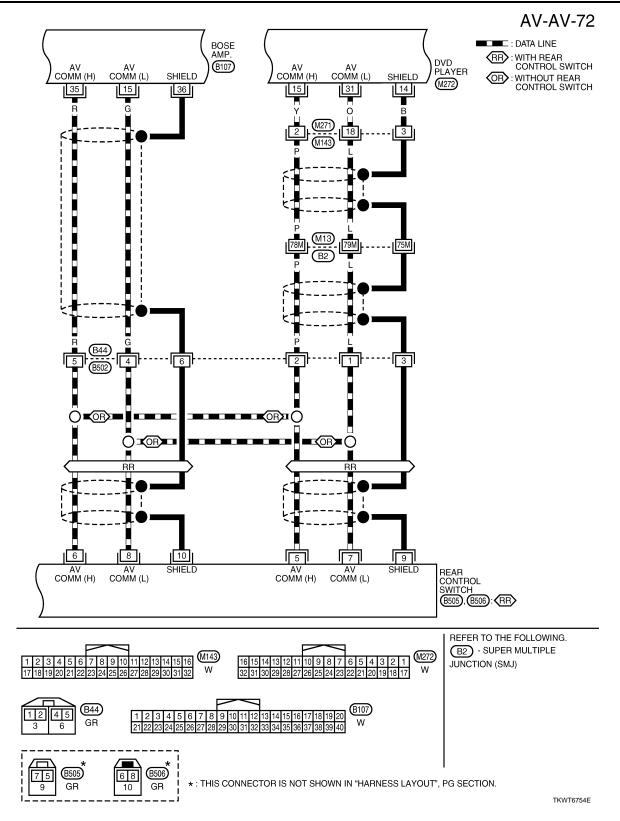
TKWT8305E

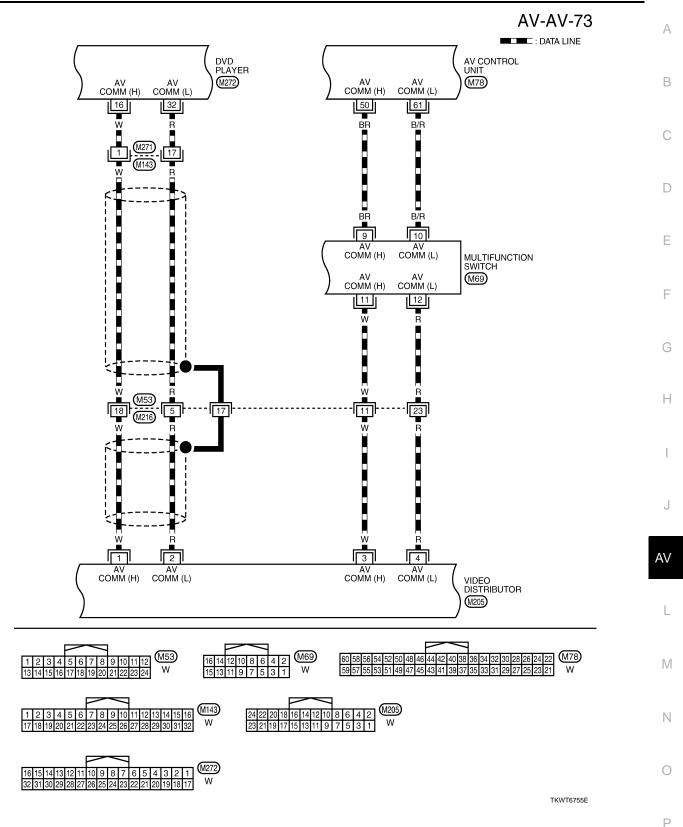


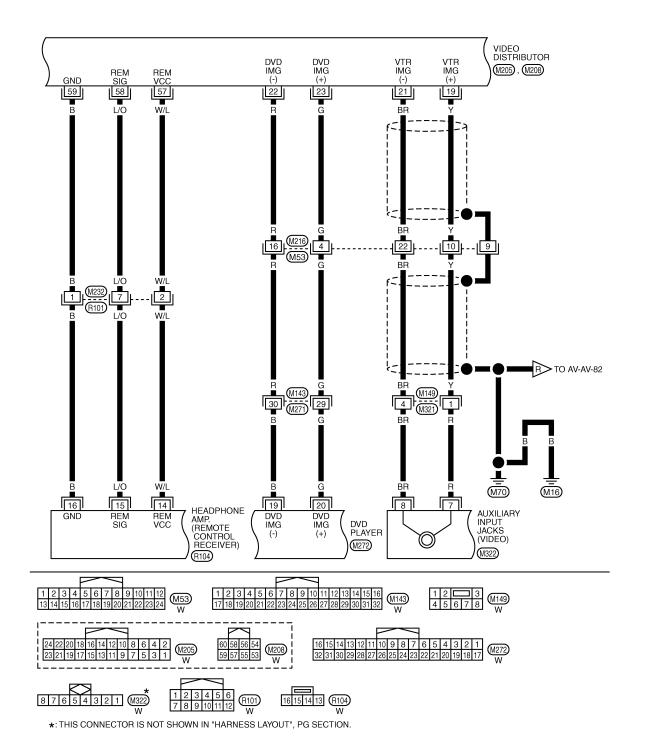
TKWT8306E



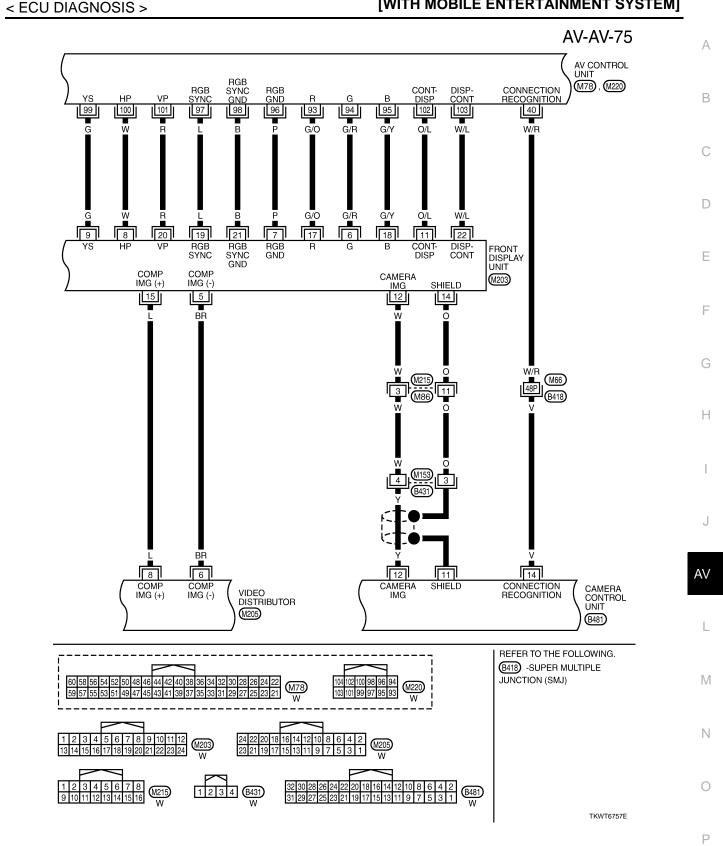






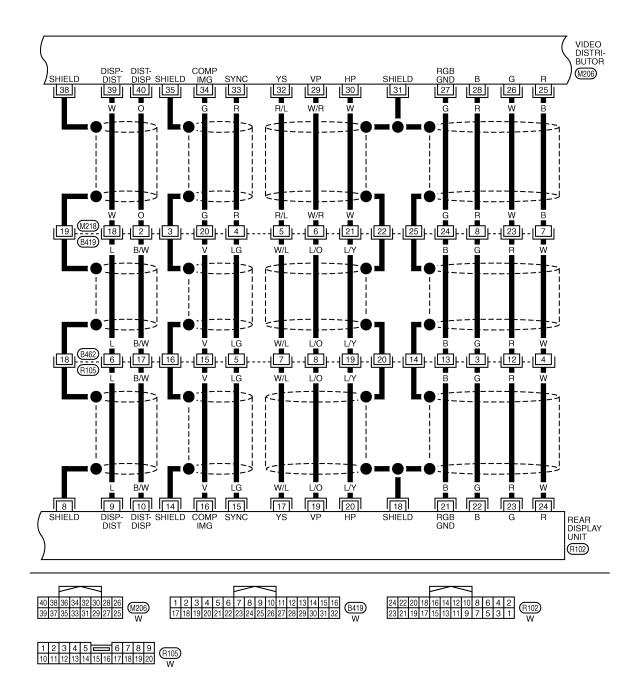


TKWT8307E



Revision: 2009 Novemver

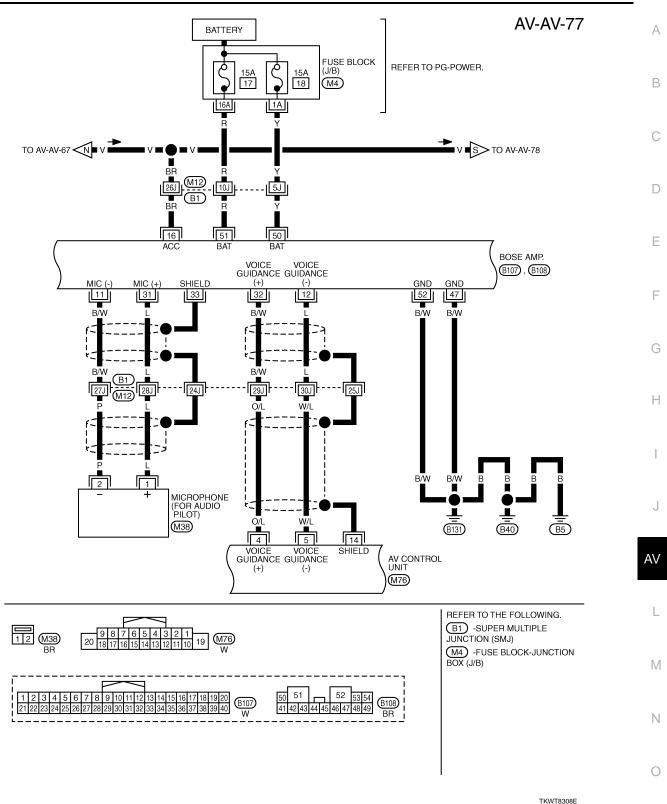
**AV-AV-76** 



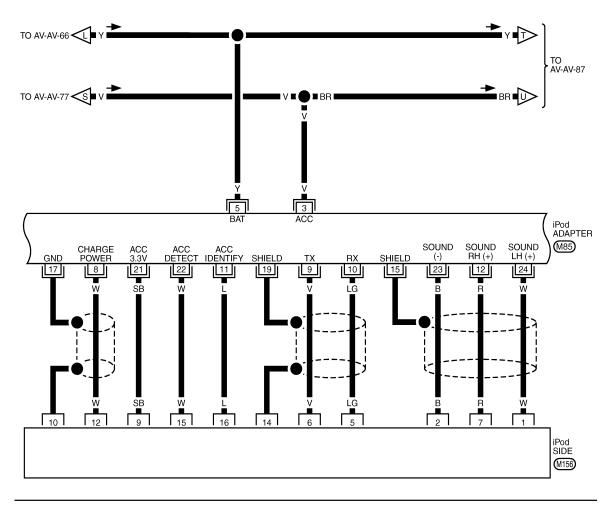
TKWT5152E

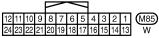
< ECU DIAGNOSIS >

### FRONT DISPLAY UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]



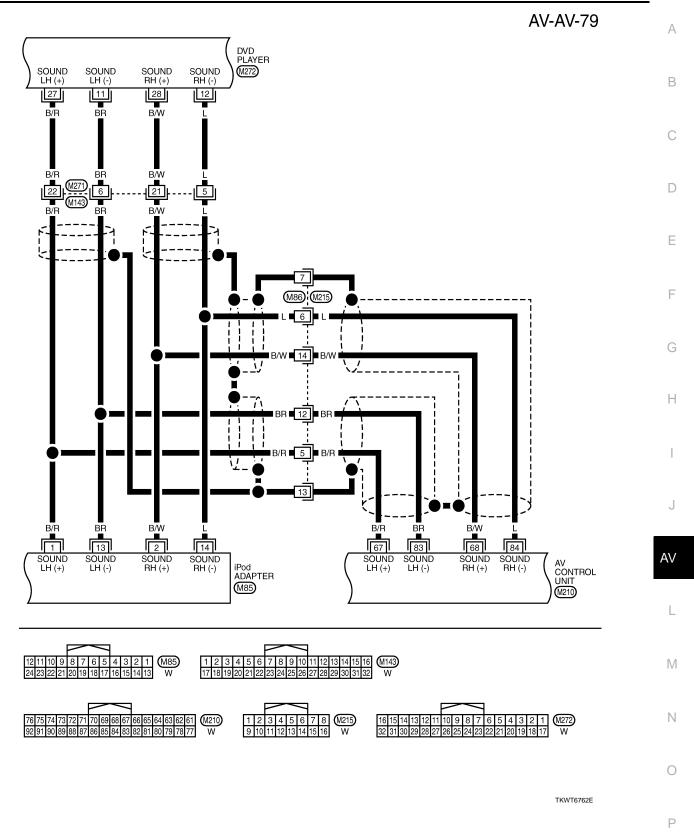
Ρ

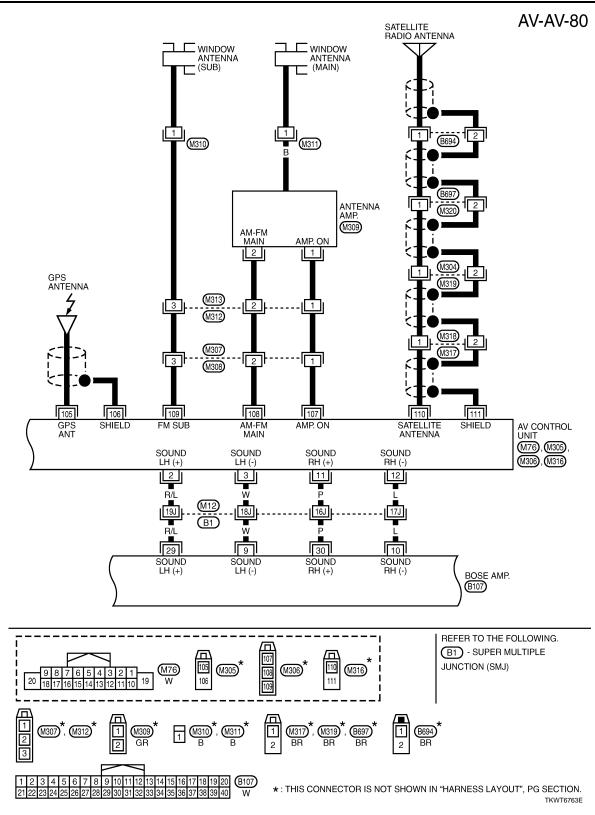


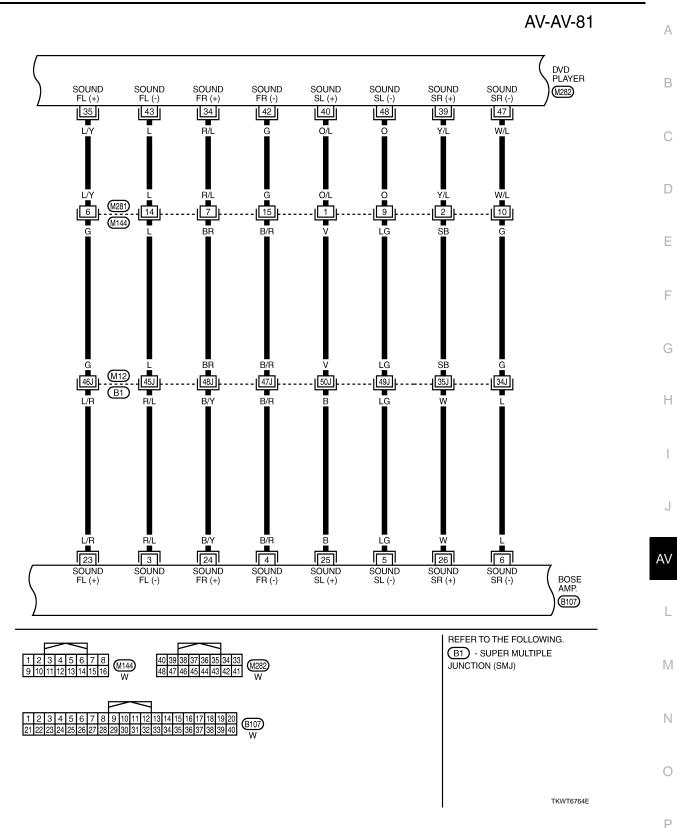


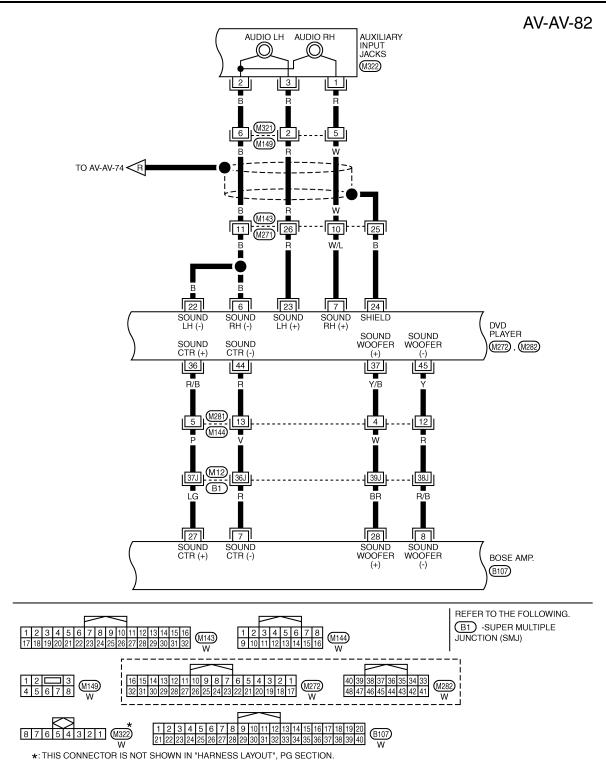
6 5 4 3 2 1 M156 16 15 14 13 12 11 10 9 8 7 GR

TKWT6761E

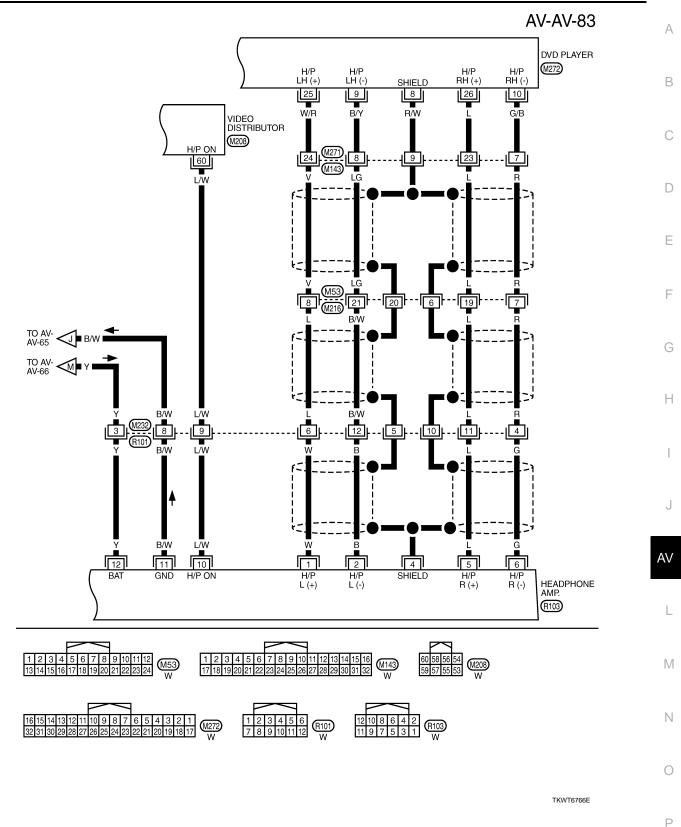


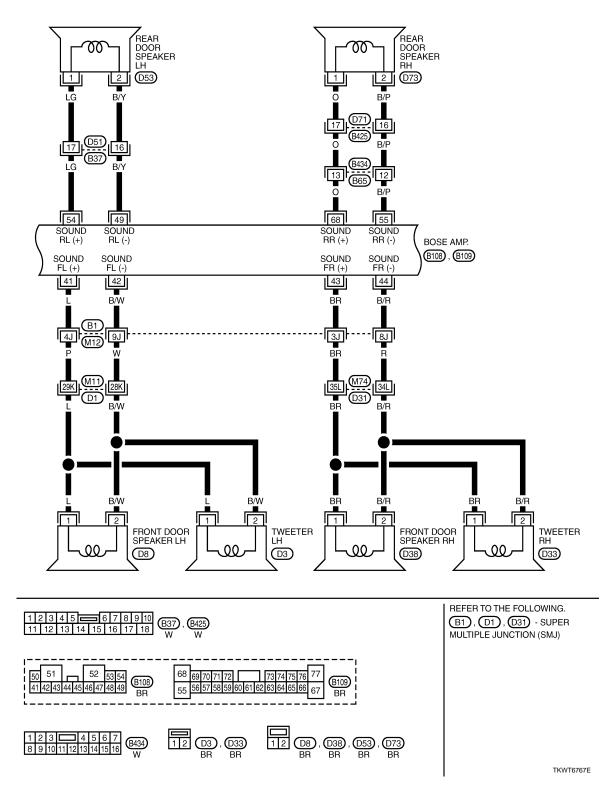


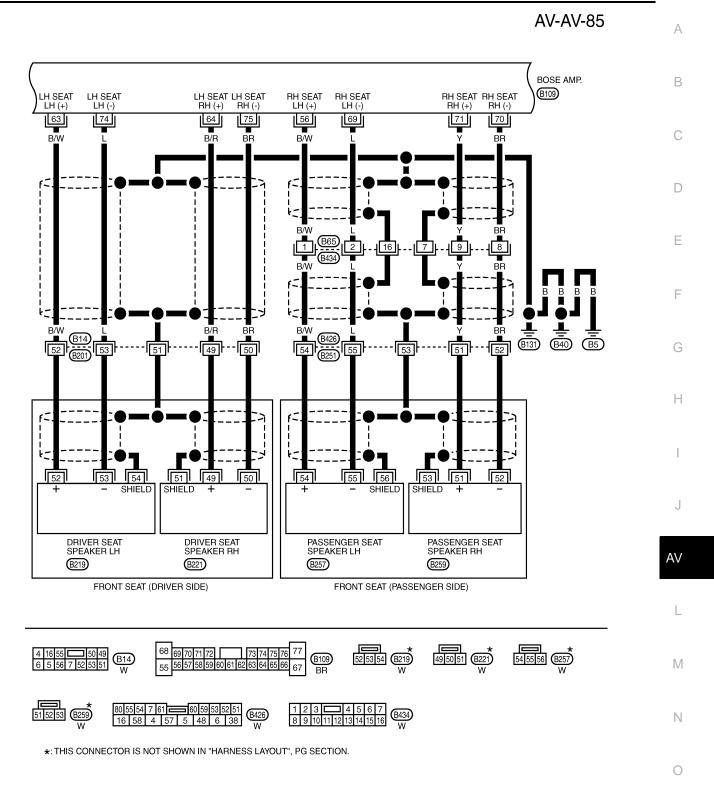




TKWT8309E

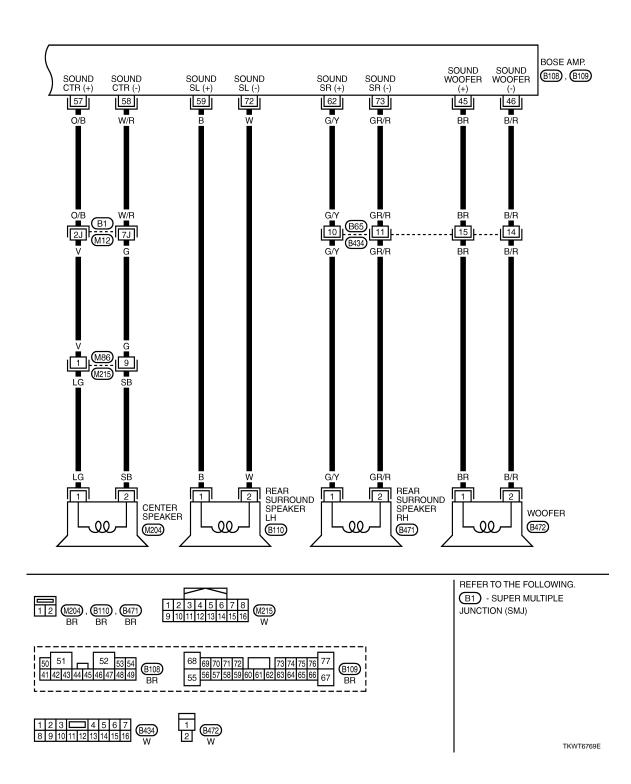


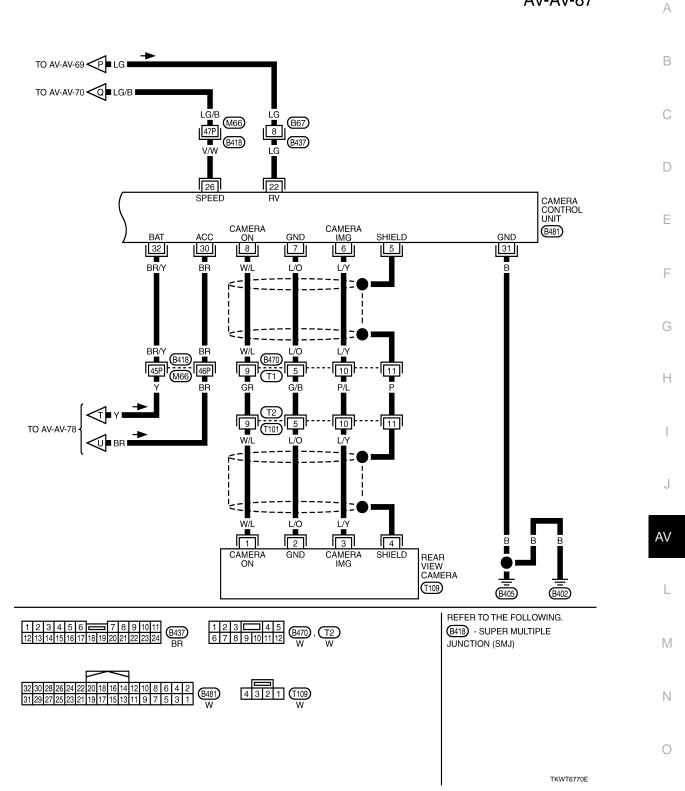




TKWT6768E

Ρ





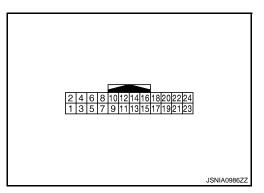
Р

# **REAR DISPLAY UNIT**

# **Reference Value**

TERMINAL LAYOUT

INFOID:000000004156080



## PHYSICAL VALUES

Terminal (Wire color)		Description			Condition	Reference value		
+	-	Signal name	Input/ Output		Condition	(Approx.)		
1 (B/Y)	Ground	Ground	_	Ignition switch ON	_	0 V		
2 (B/Y)	Ground	Ground	_	Ignition switch ON	_	0 V		
3 (L/O)	Ground	Battery power supply	Input	Ignition switch ON	_	Battery voltage		
4 (L/Y)	Ground	Battery power supply	Input	Ignition switch ON	_	Battery voltage		
6 (W/L)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage		
8	_	Shield	_	_	—	_		
9 (L)	Ground	Communication signal (DISP→DIST)	Output	lgnition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear displayed.	(V) 6 4 2 0 •••••1ms •••••1ms •••••• ••••••• •••••••••••••••••••		
10 (B/W)	Ground	Communication signal (DIST→DISP)	Input	lgnition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear displayed.	(V) 6 4 2 0 •••••1ms •••••1ms •••••• •••••• ••••••• ••••••• ••••••		

# < ECU DIAGNOSIS >

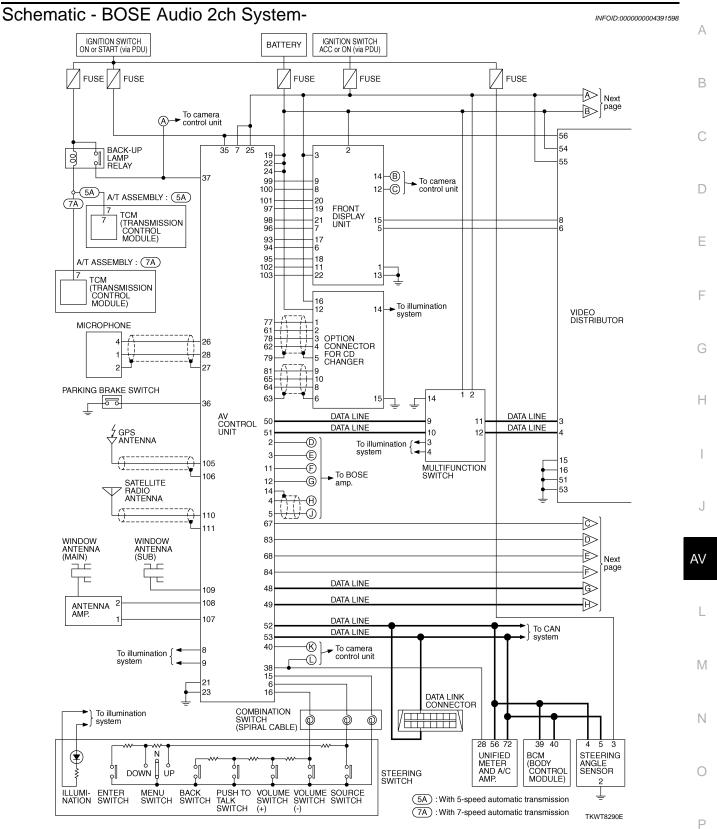
Terminal (Wire color)		Description			Condition	Reference value		
+ –		Signal name	Input/ Output		Condition	(Approx.)		
12	Ground	Ignition signal	Input	Ignition switch ON	_	0 V 5 V		
(L/W)	Cround	ignition signal	mput	Ignition switch ACC	_			
14		Shield				-		
15 (LG)	Ground	Composite image synchro- nizing signal	Input	lgnition switch ON	When AUX or DVD image is displayed on rear display unit.	(V) 4 0 + 20µs SKIB0825E		
16 (V)	Ground	Composite image signal	Input	Ignition switch ON	When AUX or DVD image is displayed on rear display unit.	(V) 0.4 −0.4 + 40µs SKIB2251J		
					When AUX or DVD image is displayed.	0 V		
17 (W/L)	Ground	RGB area (YS) signal	Input	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display.	(V) 6 4 2 0 →→ 200 µ s PKIB4948J		
18	_	Shield		_				
19 (L/O)	Ground	Vertical synchronizing (VP) signal	Output	Ignition switch ON		(V) 4 0 + 4ms SKIB3598E		
20 (L/Y)	Ground	Horizontal synchronizing (HP) signal	Output	Ignition switch ON	_	(V) 4 0 + 20µs SKIB0825E		
21 (B)	Ground	RGB ground		Ignition switch ON	_	0 V		

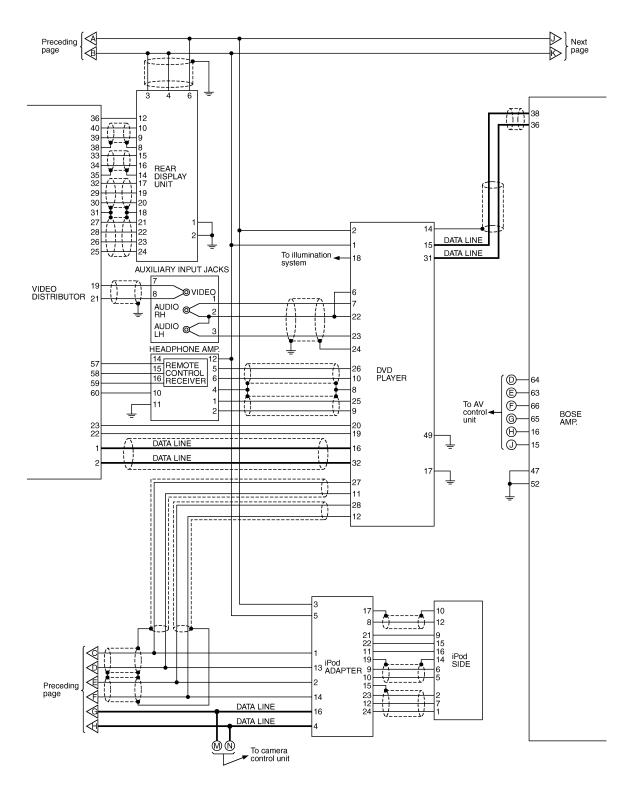
# **REAR DISPLAY UNIT**

# < ECU DIAGNOSIS >

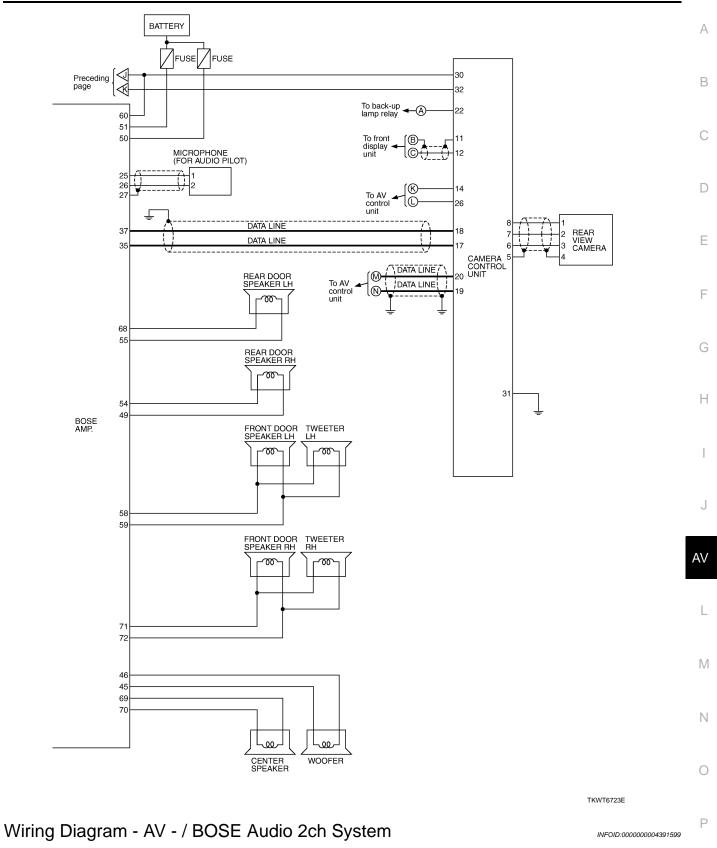
# [WITH MOBILE ENTERTAINMENT SYSTEM]

	ninal color)	Description			Condition	Reference value		
+	_	Signal name	Input/ Output		Condition	(Approx.)		
22 (G)	Ground	RGB signal (B: blue) for rear display unit	Input	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 + 5ms JSNIA0984ZZ		
23 (R)	Ground	RGB signal (G: green)	Input	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 + 5ms JSNIA0984ZZ		
24 (W)	Ground	RGB signal (R: red)	Input	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 • • • 5ms JSNIA0984ZZ		





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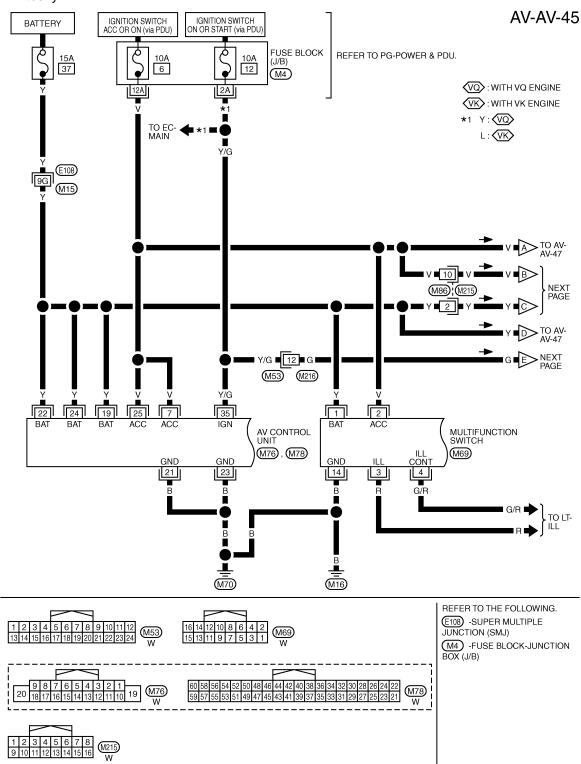
#### NOTE:

#### < ECU DIAGNOSIS >

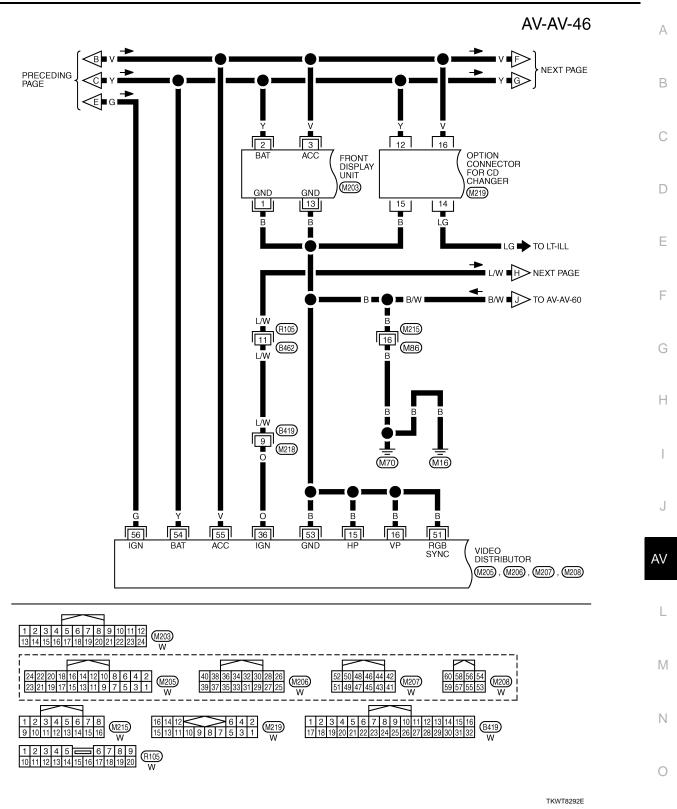
# REAR DISPLAY UNIT

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

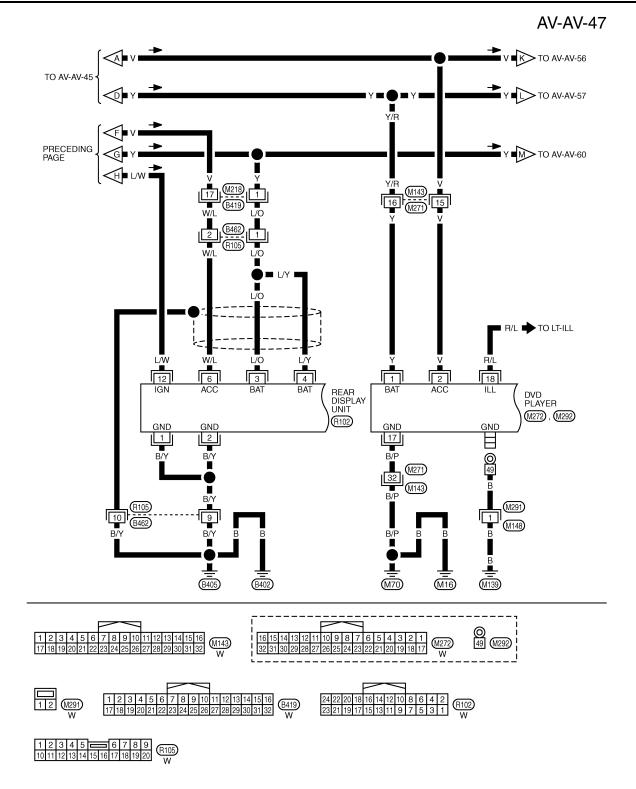
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



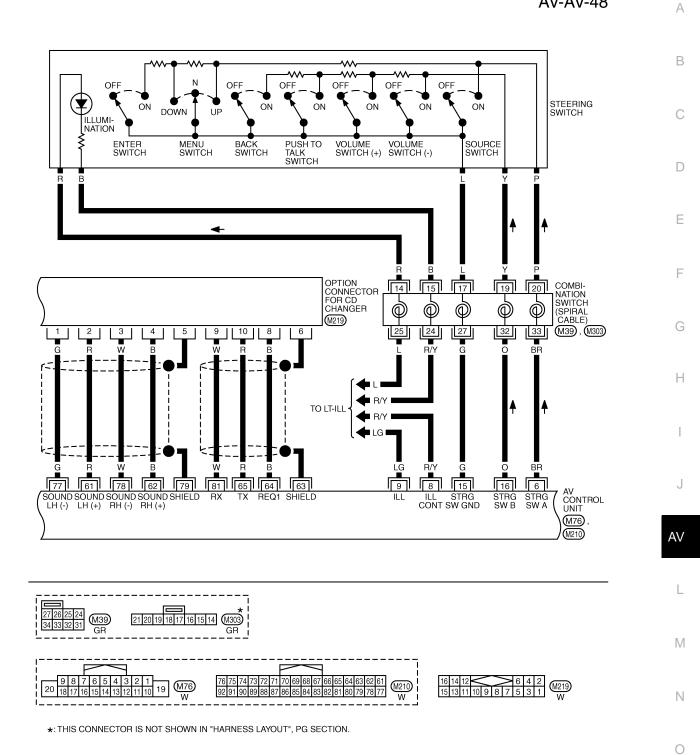
TKWT8291E



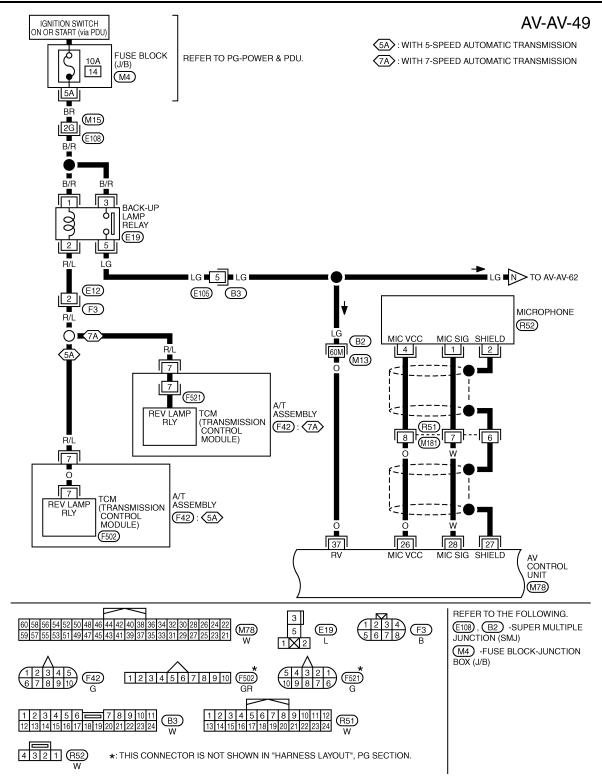
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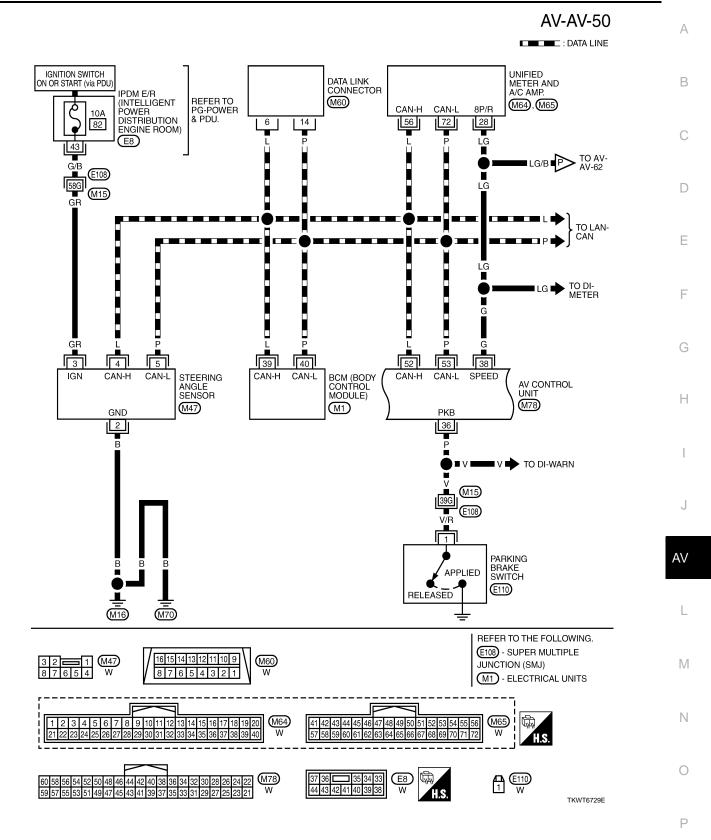
TKWT8293E

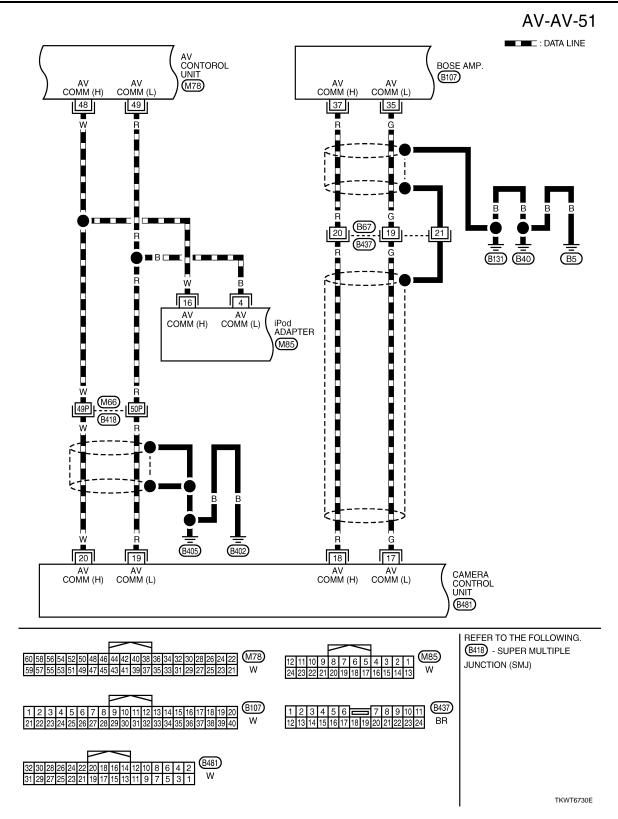


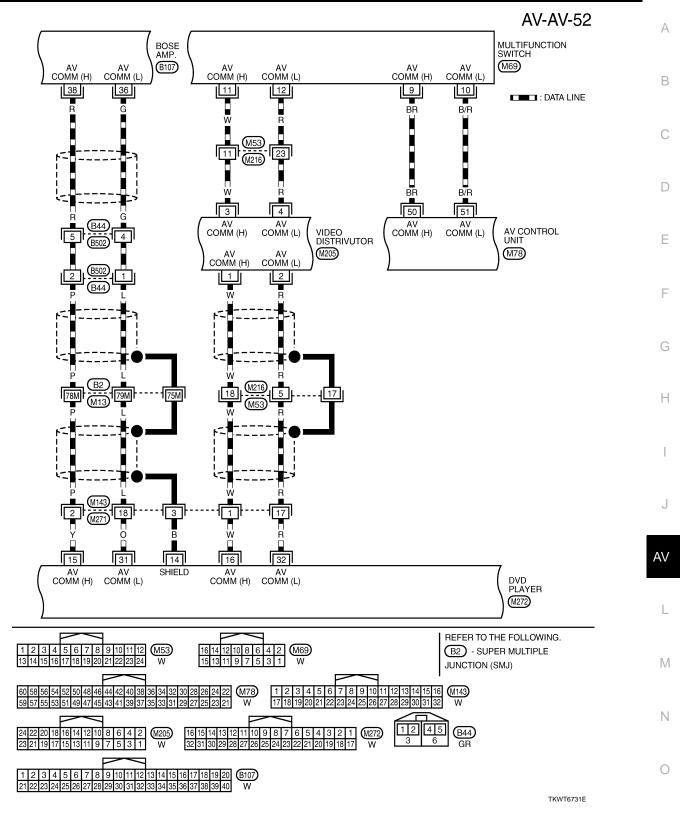
TKWT8294E

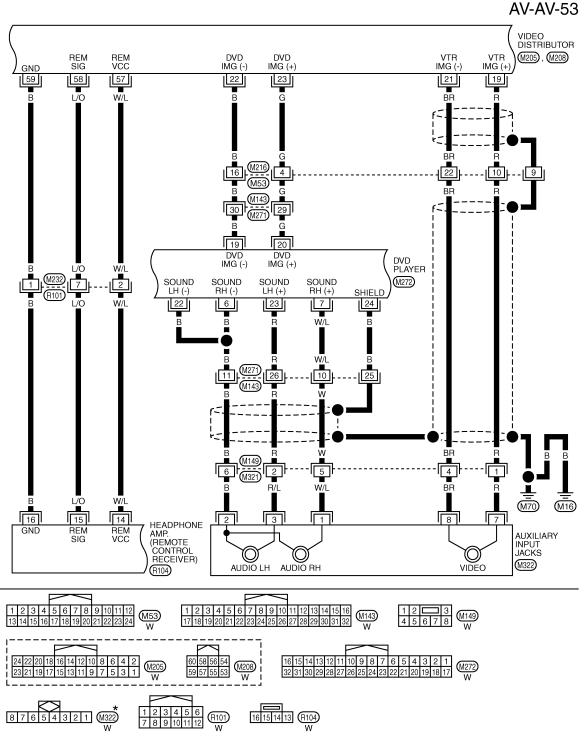


TKWT8295E



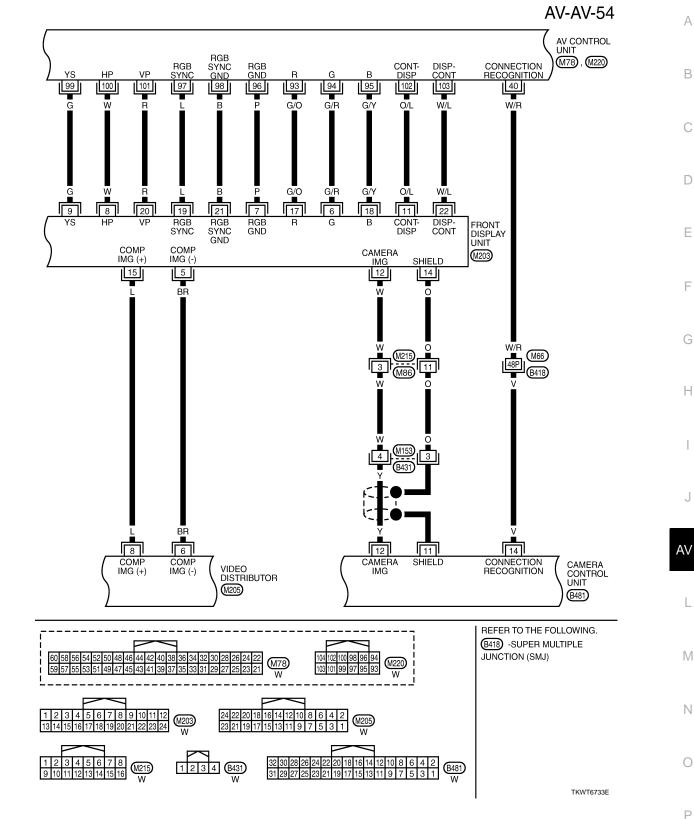






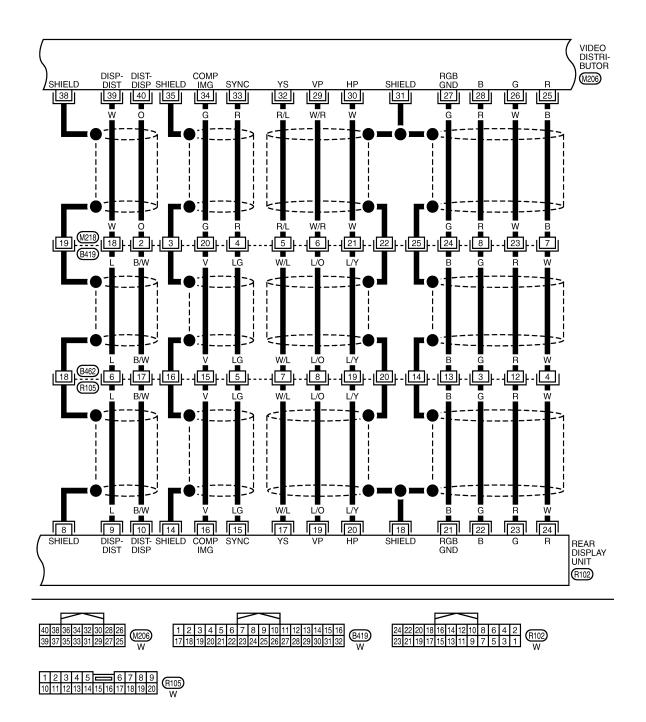
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8296E



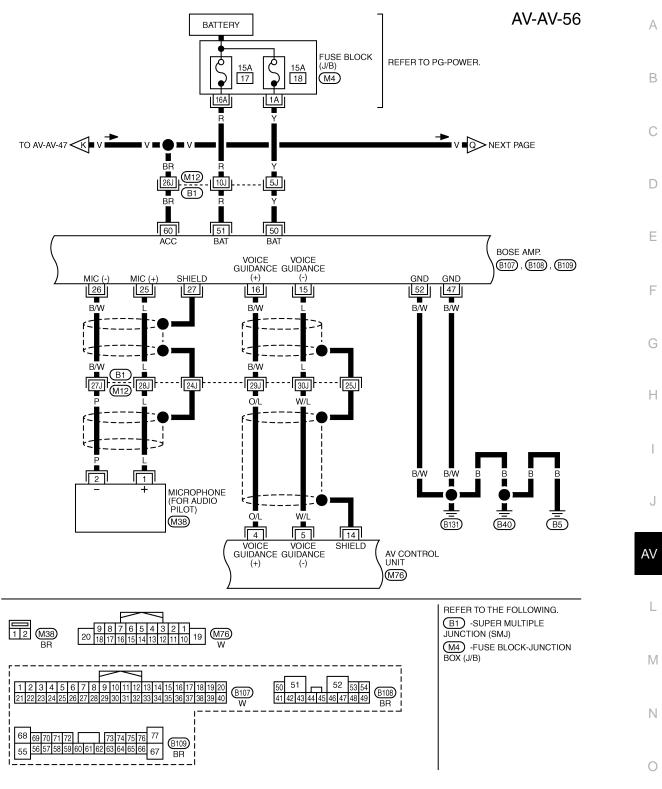
< ECU DIAGNOSIS >

**AV-AV-55** 



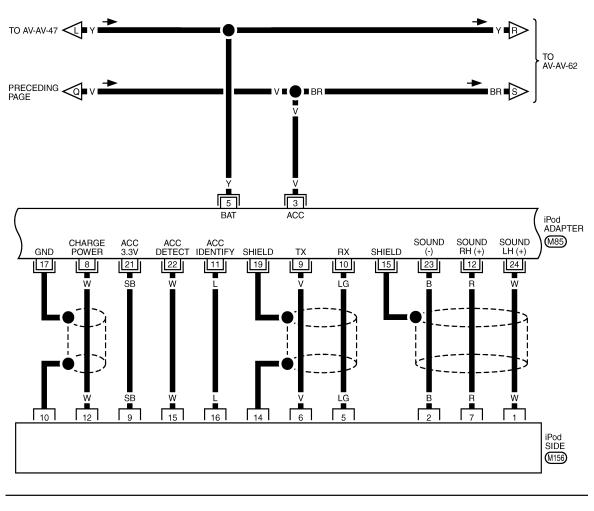
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< ECU DIAGNOSIS >



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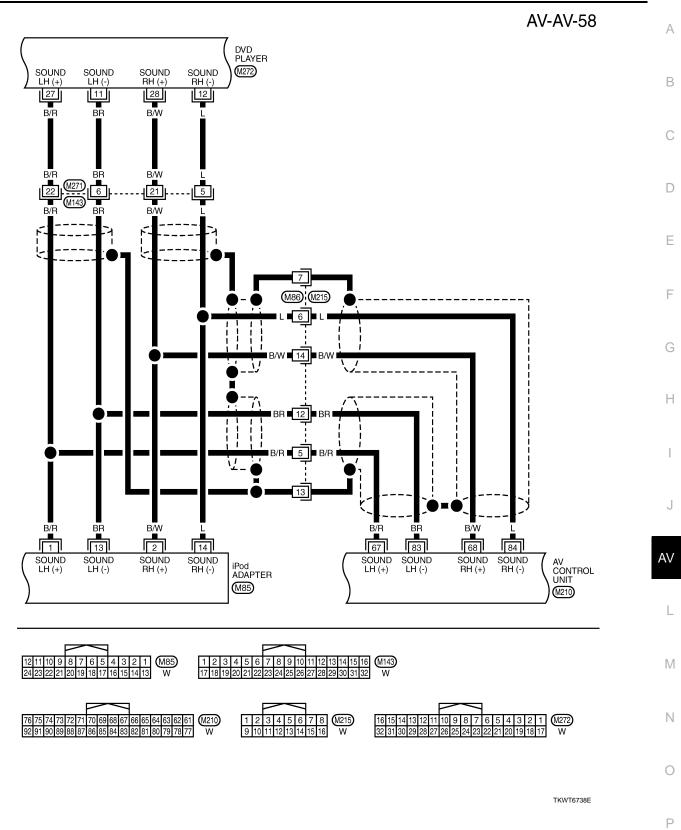
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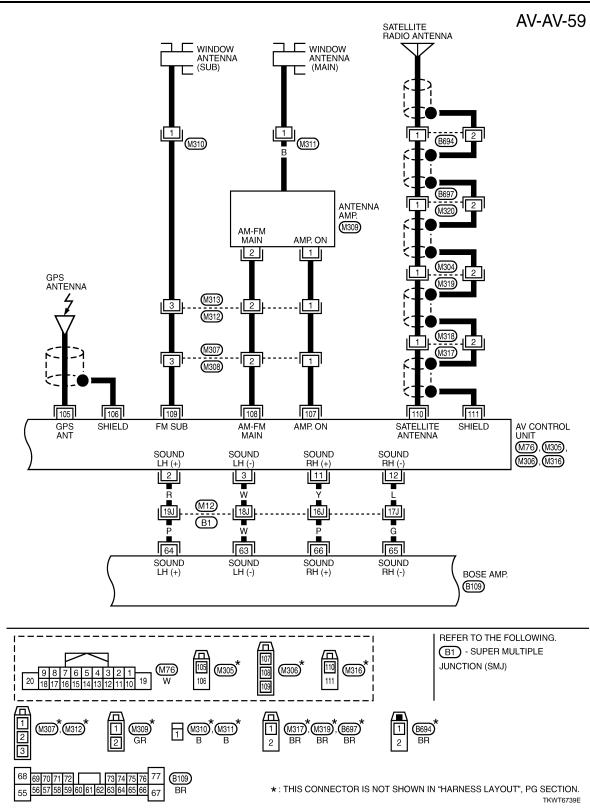


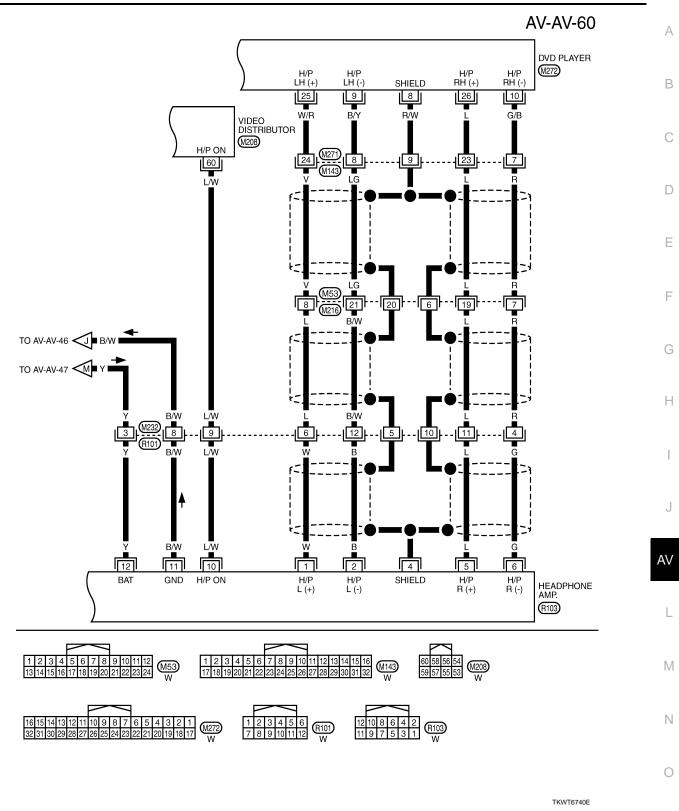
				$\sim$	_		/					
12	11	10	9	8	7	6	5	4	3	2	1	(M85)
24	23	22	21	20	19	18	17	16	15	14	13	W

6 5 4 3 2 1 16 15 14 13 12 11 10 9 8 7 GR

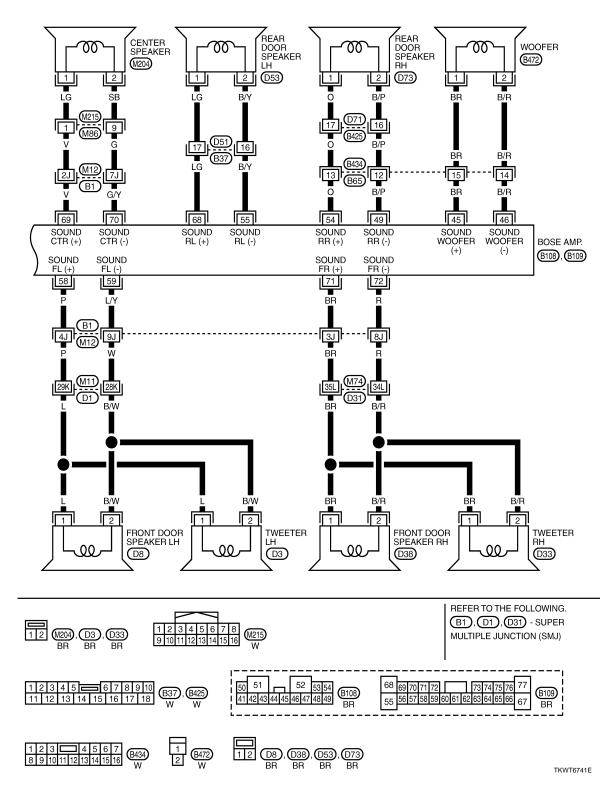
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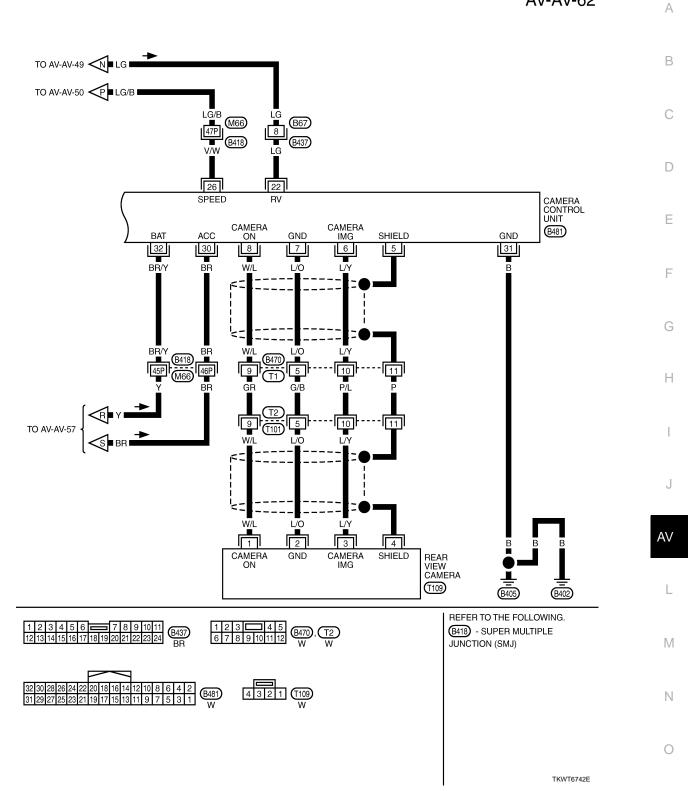


AV-AV-61



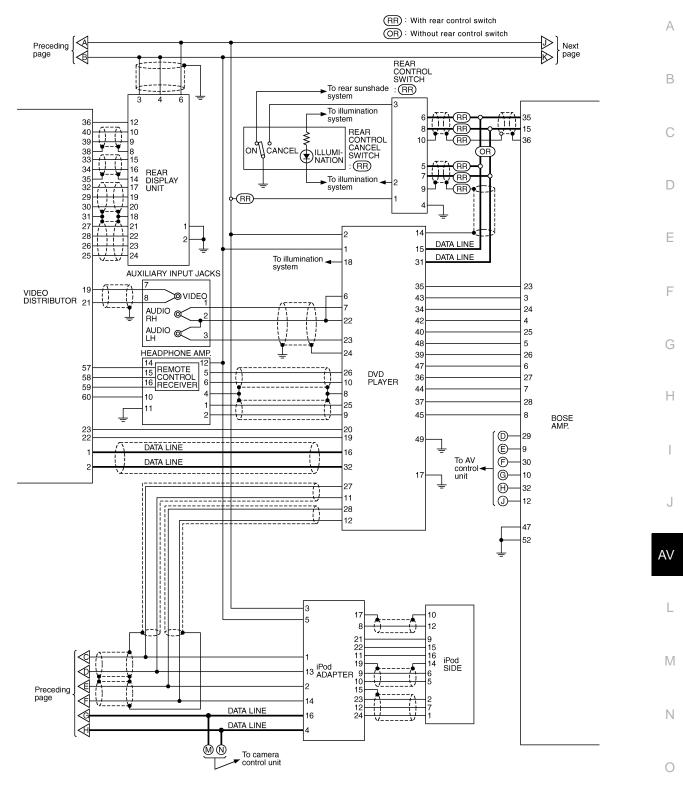


AV-AV-62



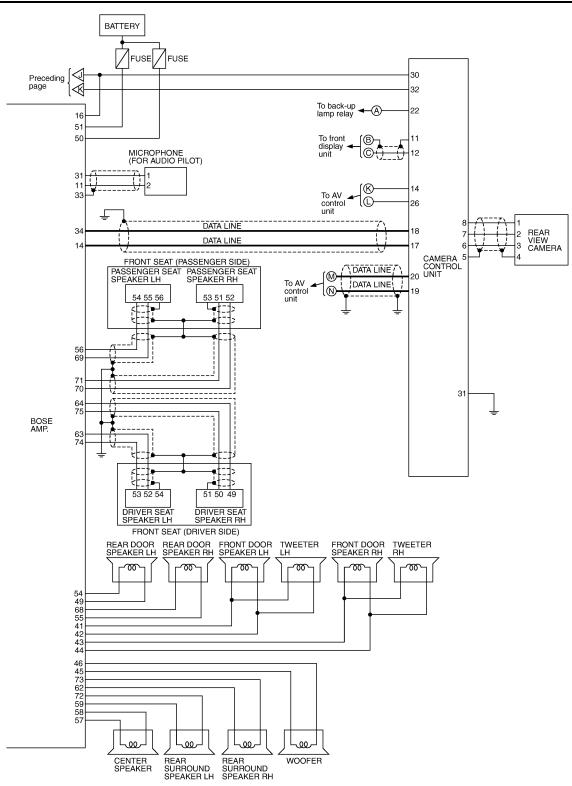
Ρ

#### Schematic - BOSE 5.1ch Surround Audio System -INFOID:000000004391600 IGNITION SWITCH ON or START (via PDU) IGNITION SWITCH ACC or ON (via PDU) BATTERY FUSE FUSE / FUSE FUSE FUSE B page A→ To camera control unit 56 54 ] BACK-UP | LAMP | RELAY 35 25 2 19 22 24 -3 ļ 00 55 14-B) 37 To camera control unit 99 -9 -8 12-C J 100 (5A)-A/T ASSEMBLY : 5A 101 20 19 FRONT DISPLAY UNIT 97 TCM (TRANSMISSION CONTROL MODULE) 98 96 21 15 5 8 6 93 94 17 95 18 A/T ASSEMBLY : 7A 102 103 11 13 TCM (TRANSMISSION CONTROL MODULE) 16 To illumination 12 14 VIDEO DISTRIBUTOR system 7 7 1 2 3 4 4 4 4 4 CONNECTOR 5 5 CHANGER 77 MICROPHONE 61 78 26 4 62 28 79 ١ 27 2 81 65 64 10 PARKING BRAKE SWITCH 1 2 63 14 15 36 Ţ DATA LINE DATA LINE AV CONTROL UNIT 50 11 3 DATA LINE DATA LINE GPS ANTENNA 51 10 12 л -0 3 2 To illumination . 4 system -E 3 15 105 -F MULTIFUNCTION SWITCH 11 16 51 ¥ ► To BOSE amp. 106 SATELLITE 12 -G 53 RADIO ANTENNA 14 -⊕ 4 ------0 110 ÷ $\diamond$ 67 111 $\triangleright$ WINDOW ANTENNA (MAIN) WINDOW ANTENNA (SUB) 83 Þ 68 Next عند page Þ 84 DATA LINE 6 48 109 DATA LINE 108 ✐ ANTENNA AMP. 2 49 107 DATA LINE 52 To CAN system DATA LINE 53 K 40 🕳 To camera la To illumination control unit -0 system 19 38 15 21 6 23 16 DATA LINK CONNECTOR COMBINATION SWITCH (SPIRAL CABLE) To illumination system Þ $^{\odot}$ Ò 28 56 72 39 40 4 5 3 N STEERING UNIFIED BCM METER AND A/C AMP. (BODY CONTROL MODULE) ANGLE SENSOR STEERING SWITCH ò UP ol 2 MENU BACK SWITCH SWITCH PUSH TO TALK VOLUME VOLUME SOURCE ILLUMI- ENTER NATION SWITCH (5A) : With 5-speed automatic transmission ŚWITCH (+) (-) (7A) : With 7-speed automatic transmission TKWT8301E



TKWT6744E

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TKWT6745E

Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

#### INFOID:000000004391601

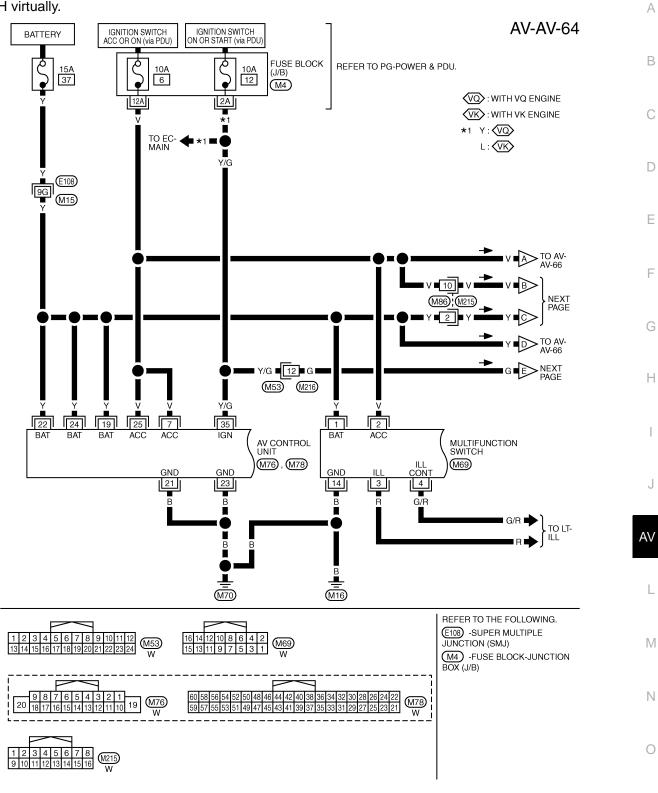
#### NOTE:

#### < ECU DIAGNOSIS >

### REAR DISPLAY UNIT

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

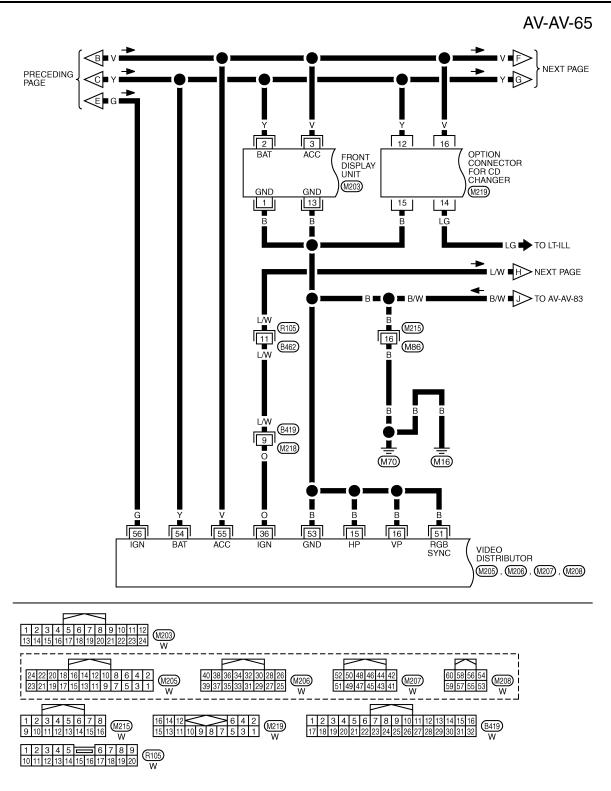
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



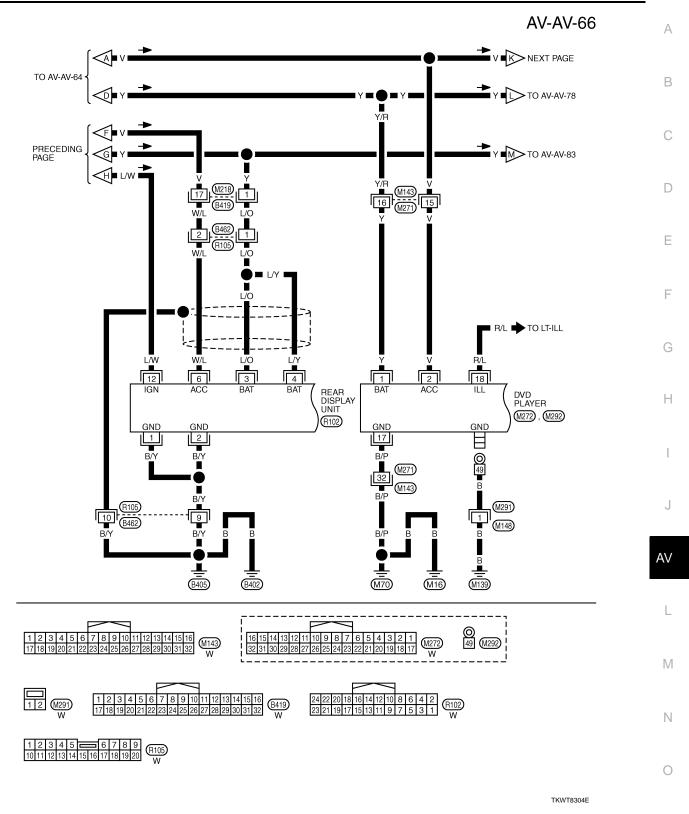
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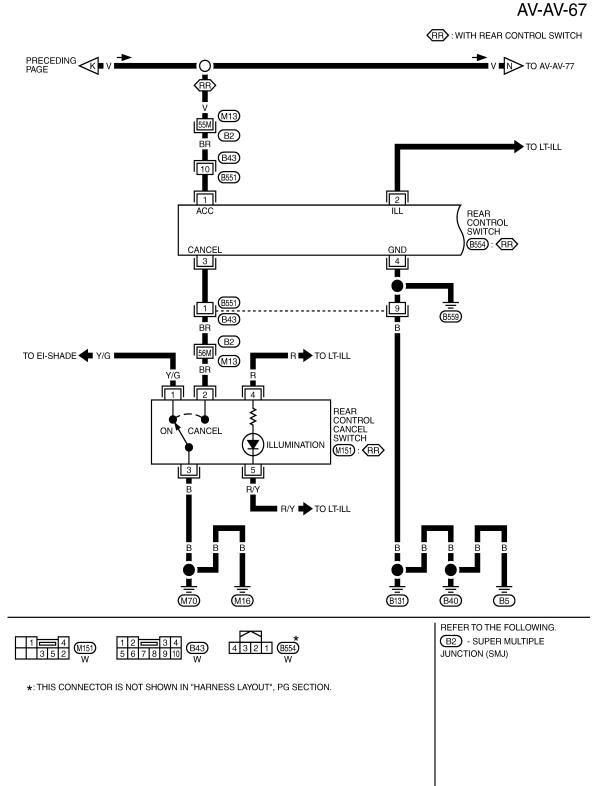
# REAR DISPLAY UNIT



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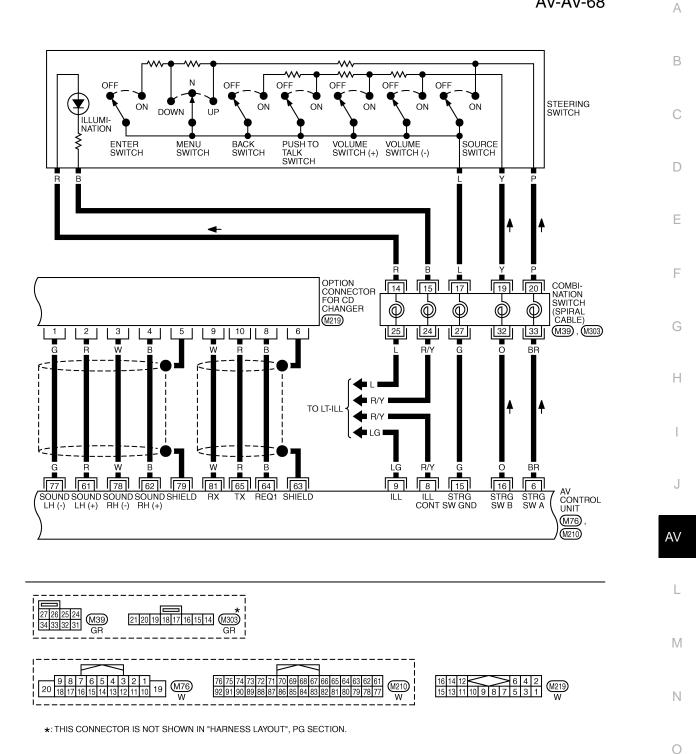


# [WITH MOBILE ENTERTAINMENT SYSTEM]



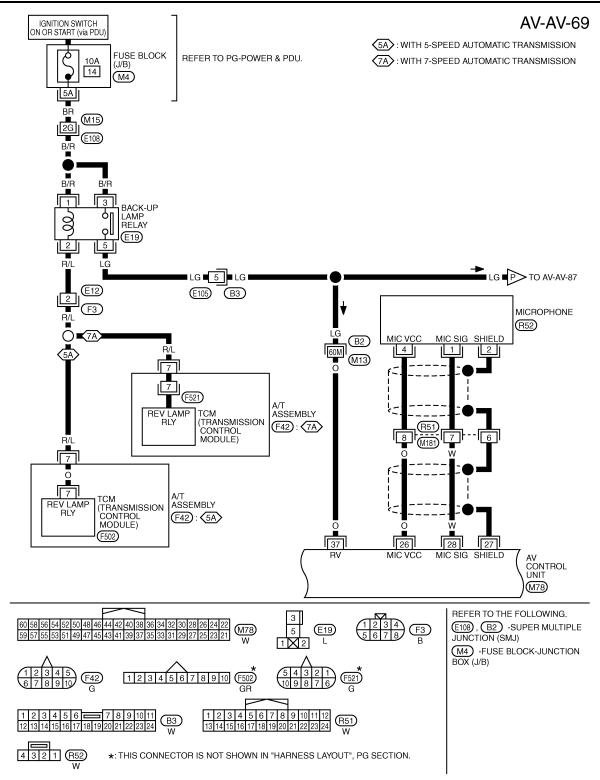
TKWT6749E

#### **AV-AV-68**

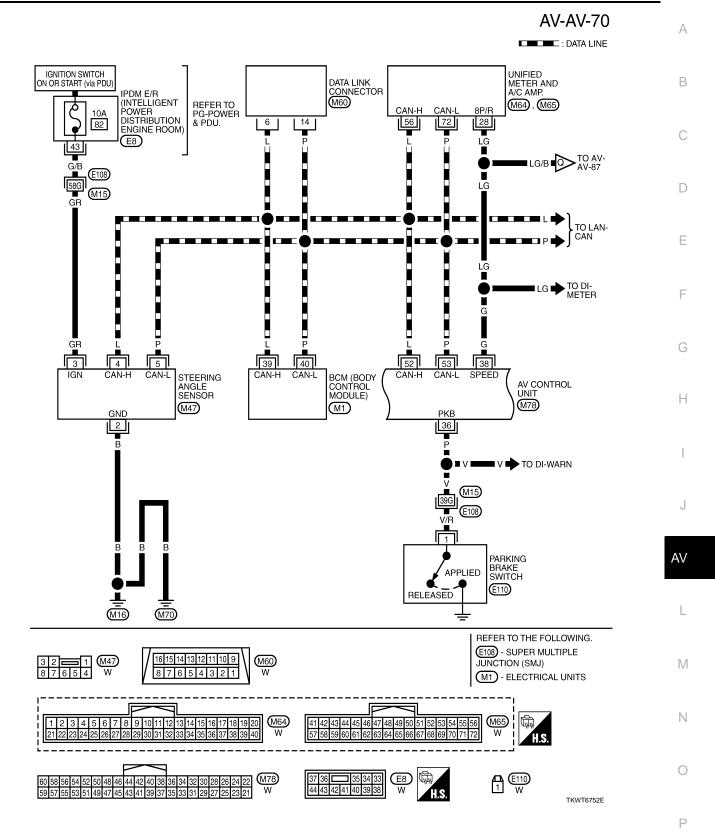


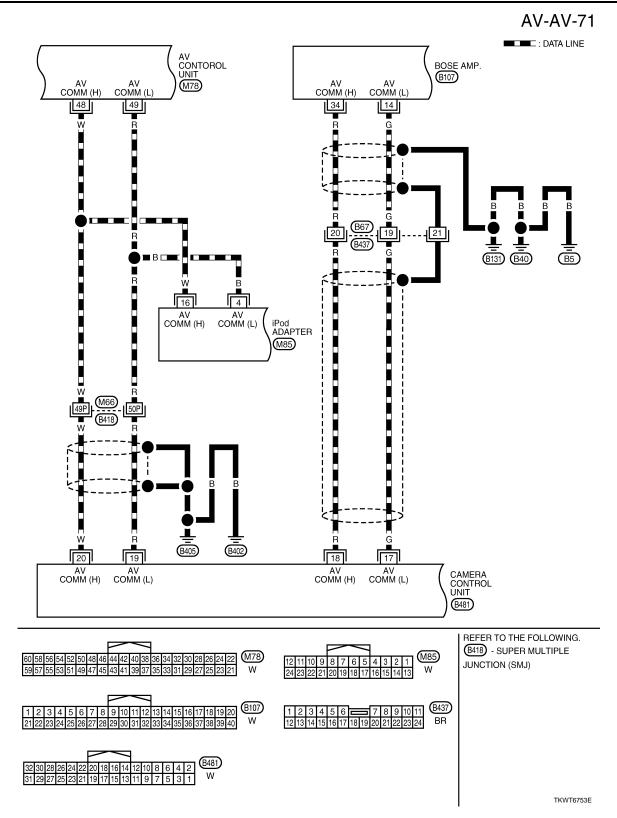
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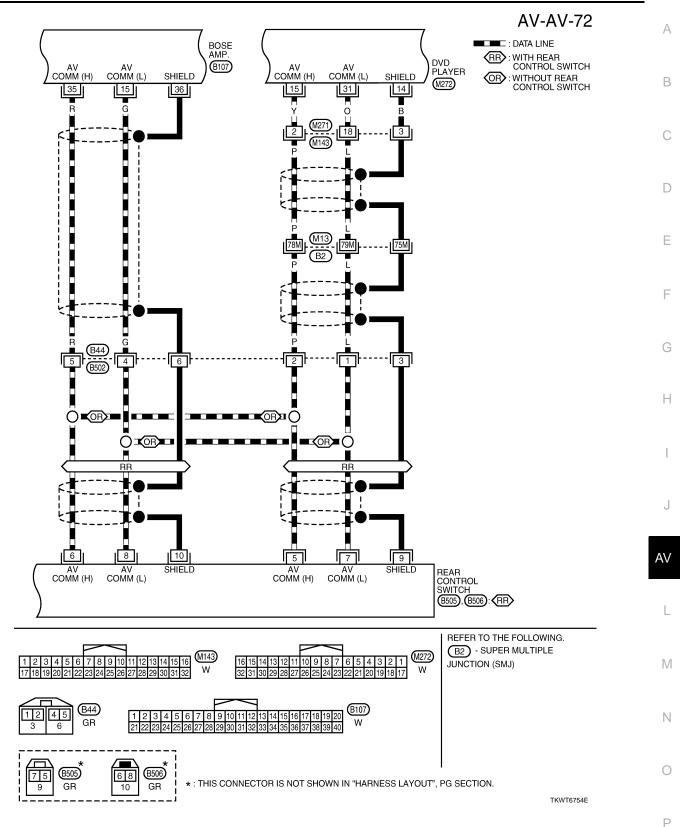
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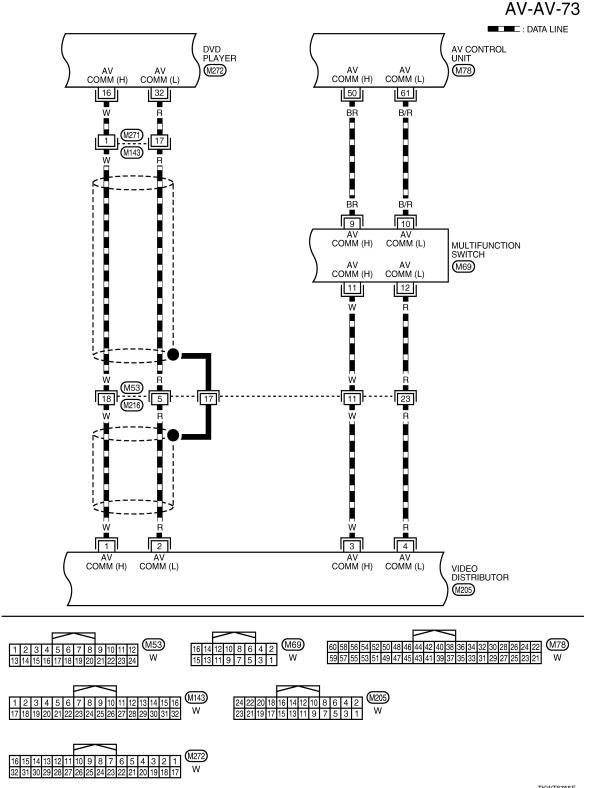


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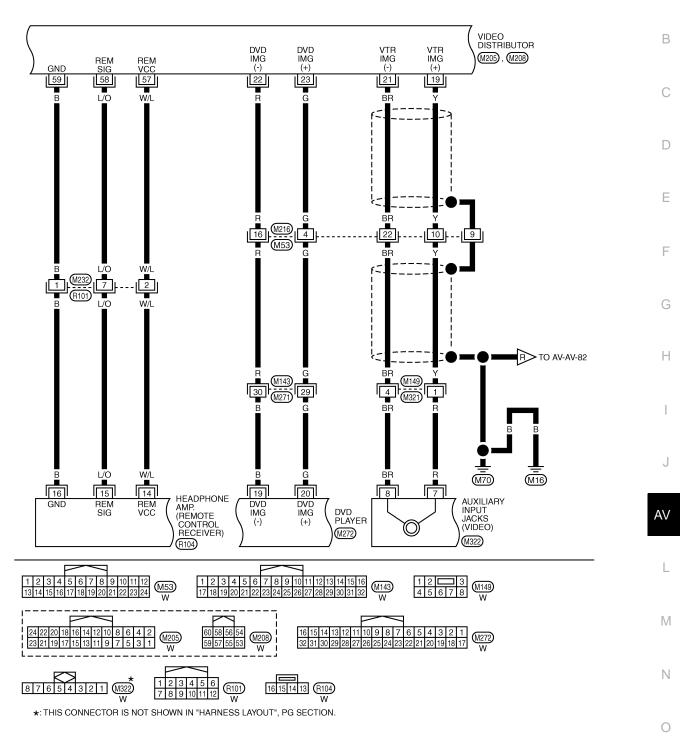




TKWT6755E

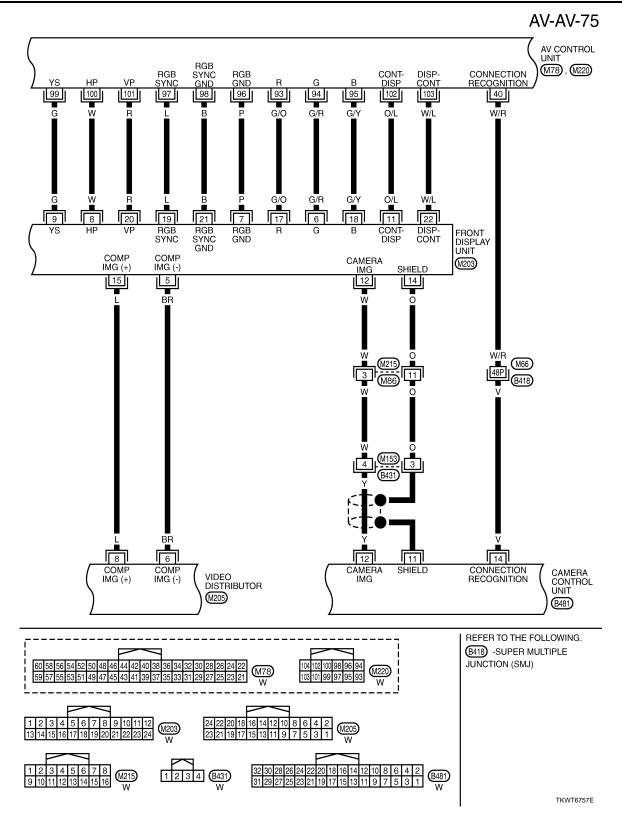
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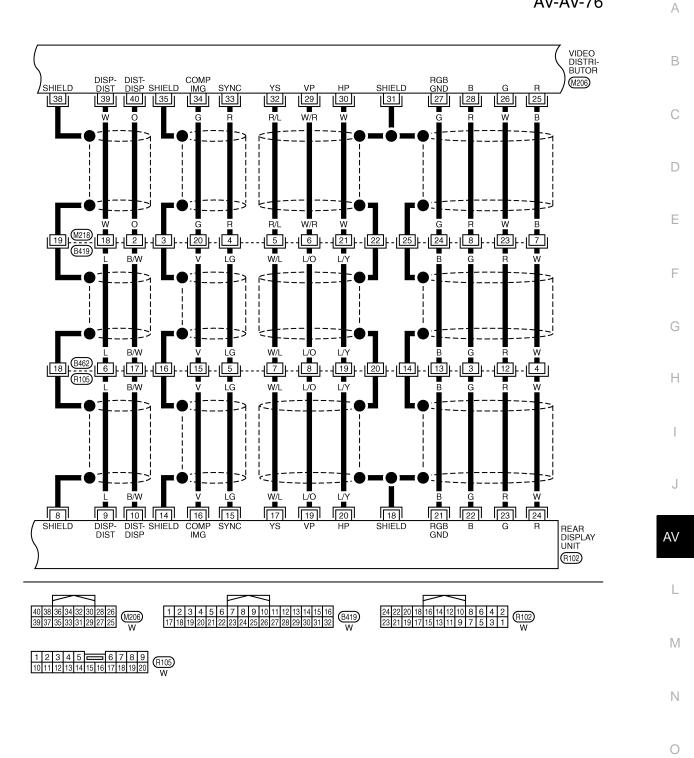


TKWT8307E



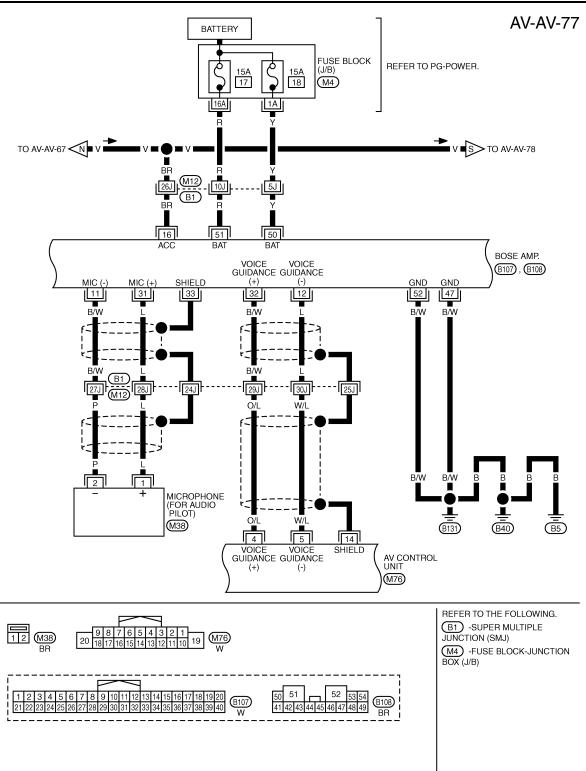


**AV-AV-76** 

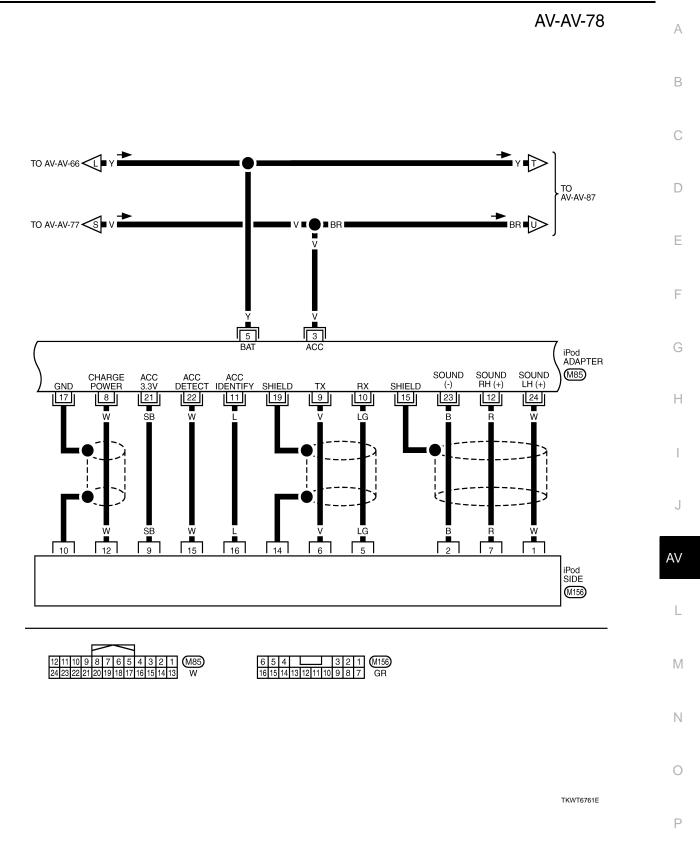


TKWT5152E

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TKWT8308E

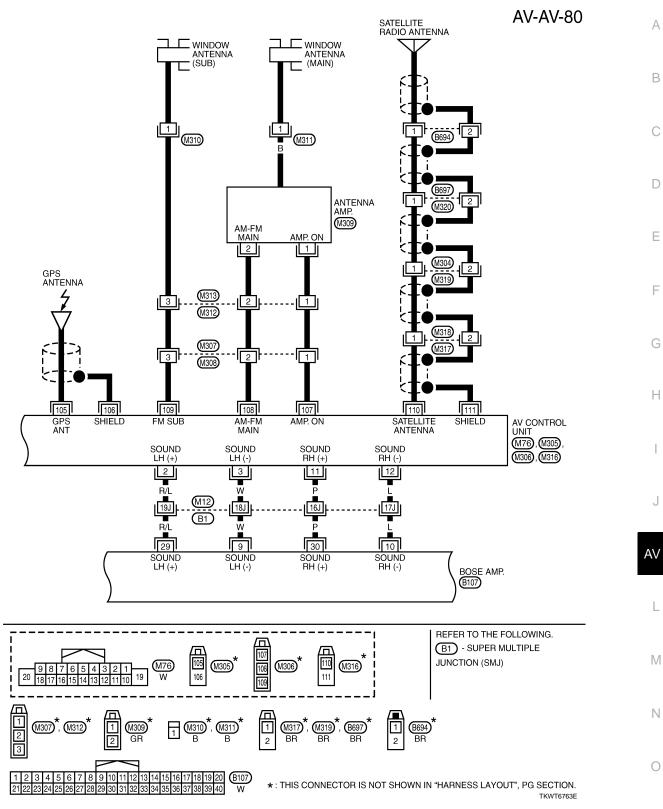


**AV-AV-79** 

DVD PLAYER (M272) SOUND RH (-) SOUND LH (+) SOUND LH (-) SOUND RH (+) 27 B/R 12 11 28 BR B/W B/R B/W BR -21 (M271) (M143) 22 6 - 5 B/W B/R BB F-۲. ۱ Ŀ 5 7 M86 M215 6 L I ■ B/W ■ 14 ■ B/W I ١ ij 1 i١ BR **■** 12 **■** BR **■** B/R 🛯 5 🔳 B/R 13 ]} B/R B/W в/W BR B/R BR 2 83 84 14 67 68 SOUND LH (-) SOUND RH (+) SOUND RH (-) SOUND SOUND SOUND SOUND SOUND AV CONTROL UNIT (M210) iPod ADAPTER (M85) LH (+) LH (-) RH (+) RH (-) LH (+) 12 11 10 9 8 7 6 5 4 3 2 1 M85 24 23 22 21 20 19 18 17 16 15 14 13 W 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 (M143) W

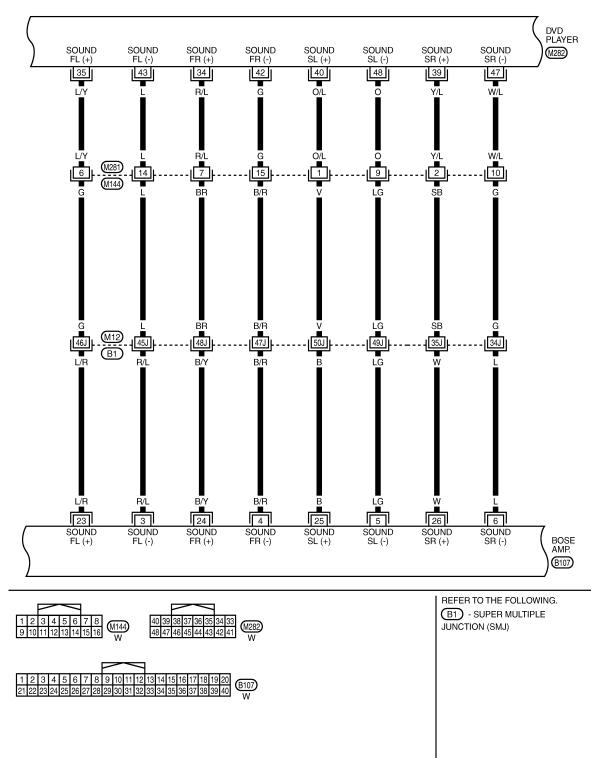
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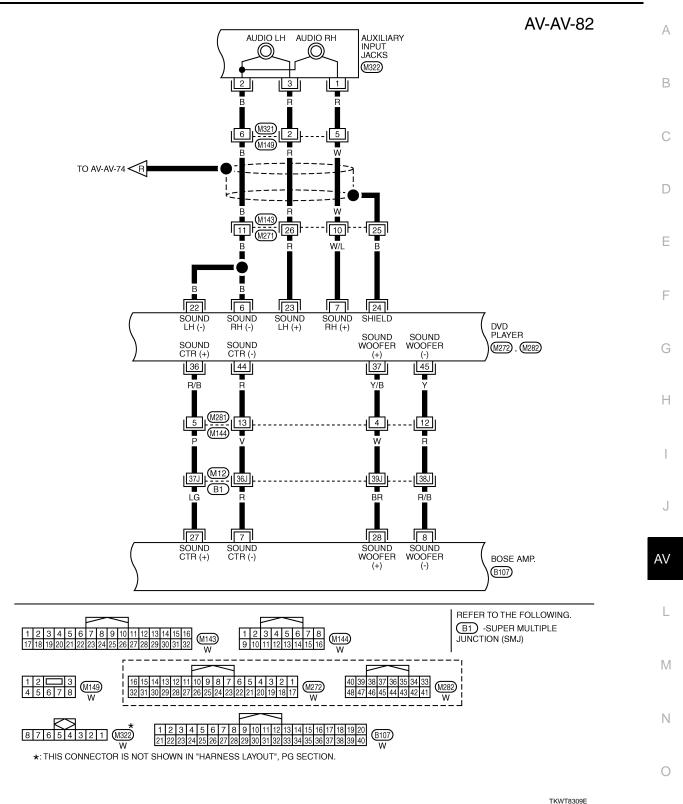


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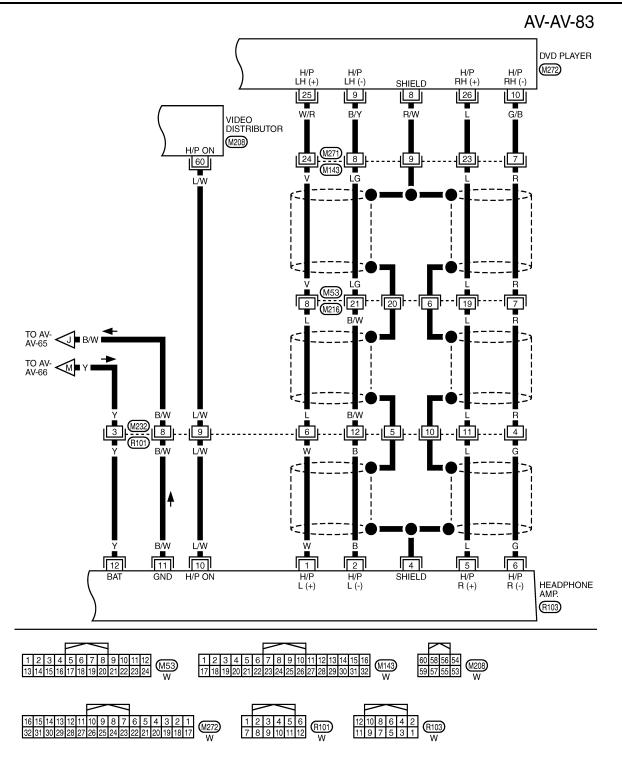
AV-AV-81



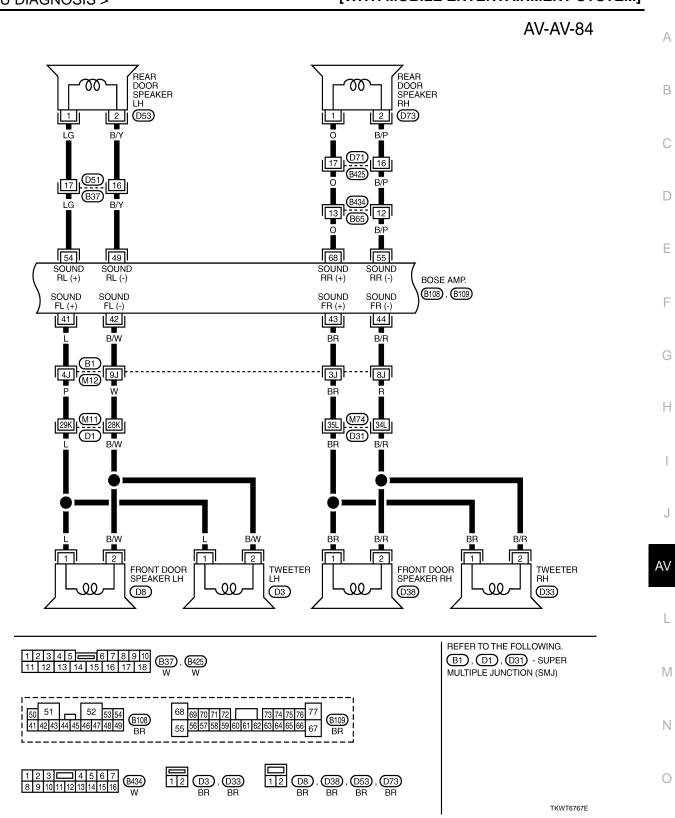
TKWT6764E



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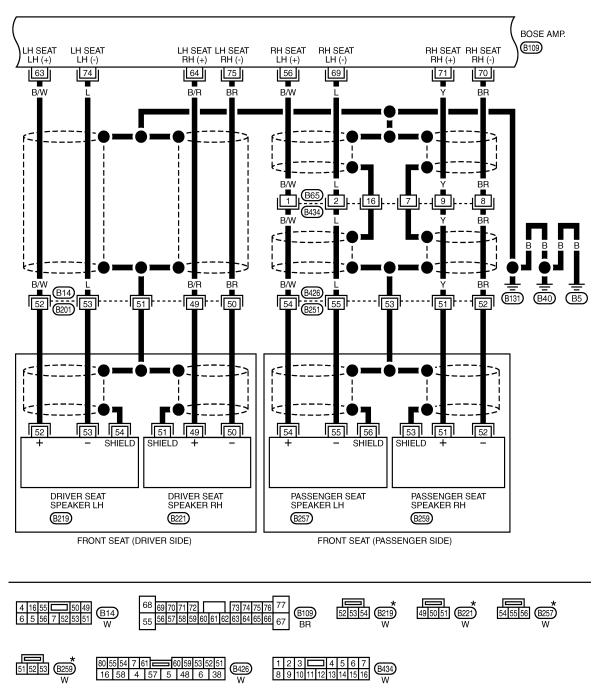


TKWT6766E



Ρ

AV-AV-85

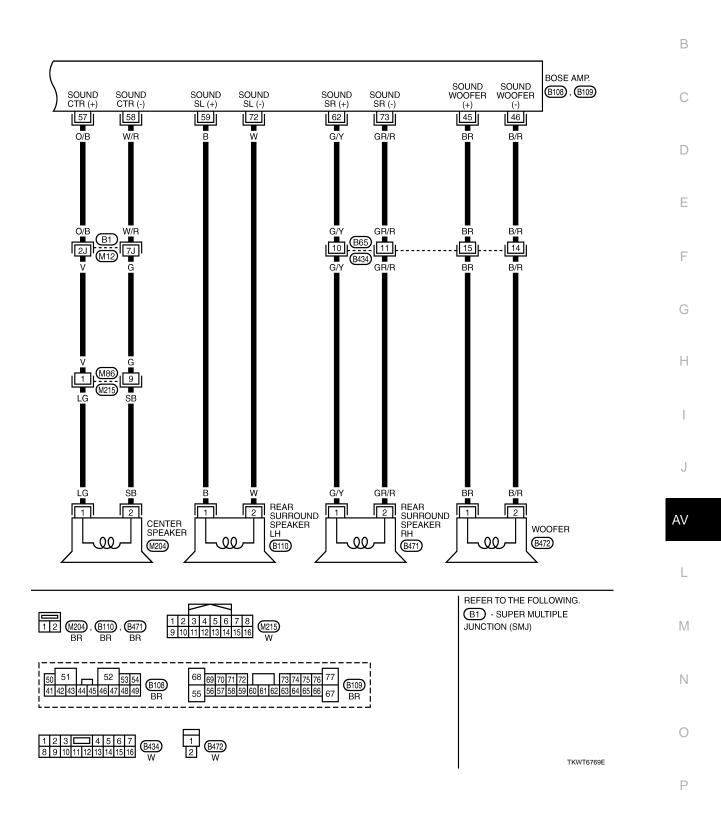


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

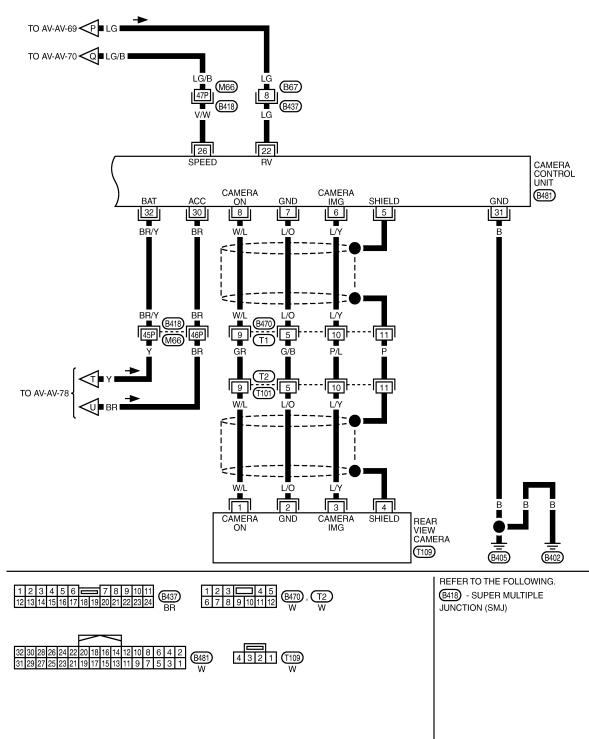
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**AV-AV-87** 



TKWT6770E

#### VIDEO DISTRIBUTOR [WITH MOBILE ENTERTAINMENT SYSTEM]

# VIDEO DISTRIBUTOR

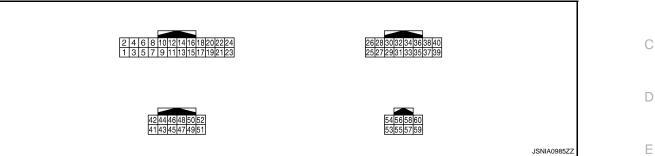
# **Reference Value**

INFOID:000000004156085

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В

# TERMINAL LAYOUT



#### PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value	<u> </u>
+	-	Signal name	Input/ Output		(Approx.)		G
1 (W)	_	AV communication signal (H)	Input/ Output	_	—	_	
2 (R)	_	AV communication signal (L)	Input/ Output	_	—	—	- 1
3 (W)	_	AV communication signal (H)	Input/ Output	_	—	_	-
4 (R)	_	AV communication signal (L)	Input/ Output	_	_	_	-
8 (L)	6 (BR)	Composite image signal for front display unit	Output	Ignition switch ON	When AUX or DVD image is displayed on front display unit.	(V) 0.4 0 -0.4 ••••40µs ski82251J	A
15 (B)	Ground	Ground		Ignition switch ON	_	0 V	Ν
16 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	1
19 (Y) <sup>*1</sup> (R) <sup>*2</sup>	21 (BR)	AUX image signal	Input	lgnition switch ON	When AUX image is dis- played.	(V) 0.4 0 −0.4 •••40µs SKIB2251J	C F

# < ECU DIAGNOSIS >

# VIDEO DISTRIBUTOR

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
23 (G)	22 (R) <sup>*1</sup> (B) <sup>*2</sup>	DVD image signal	Input	Ignition switch ON	When DVD image is dis- played.	(V) 0.4 0 −0.4 ••40µs SKiB2251J	
25 (B)	Ground	RGB signal (R: red) for rear display unit	Output	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 + 5ms JSNIA0984ZZ	
26 (W)	Ground	RGB signal (G: green) for rear display unit	Output	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 ••••5ms JSNIA0984ZZ	
27 (G)	Ground	RGB ground for rear dis- play unit		Ignition switch ON	_	0 V	
28 (R)	Ground	RGB signal (B: blue) for rear display unit	Output	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 1 0 ••••5ms JSNIA0984ZZ	
29 (W/R)	Ground	Vertical synchronizing (VP) signal for rear display unit	Input	Ignition switch ON	_	(V) 4 0 • • 4ms SKIB3598E	
30 (W)	Ground	Horizontal synchronizing (HP) signal for rear display	Input	Ignition switch ON	_	(V) 4 0 + 20µs SKIB0825E	
31		Shield		—	_	_	

# < ECU DIAGNOSIS >

# VIDEO DISTRIBUTOR

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	А
+	-	Signal name	Input/ Output	Condition		(Approx.)	
					When AUX or DVD image is displayed on rear display unit.	0 V	В
32 (R/L)	Ground	RGB area (YS) signal for rear display	Output	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 6 4 2 0 → + 200,μ s → + 200,μ s → + 200,μ s → → + 200,μ s	C D E
33 (R)	Ground	Composite image synchro- nizing signal for rear dis- play	Output	lgnition switch ON	When AUX or DVD image is displayed on rear display unit.	(V) 4 0 → 20µs SKIB0825E	F
34 (G)	Ground	Composite image signal for rear display unit	Output	lgnition switch ON	When AUX or DVD image is displayed on rear display unit.	(V) 0.4 0 -0.4 -0.4 SKIB2251J	H
35		Shield					J
36	Ground	Ignition signal	Output	Ignition switch ON	_	0 V	AV
(O)				Ignition switch ACC	_	5 V	L
38	_	Shield	—	—		_	
39 (W)	Ground	Communication signal (DISP→DIST)	Input	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 6 4 2 0 •••••1ms •••••1ms ••••••••••••••••••••••••••••••••••••	M N
40 (O)	Ground	Communication signal (DIST→DISP)	Output	Ignition switch ON	Rear seat remote controller operation when AUX or DVD image is displayed on rear display unit.	(V) 6 4 2 0 •••••••••••••••••••••••••••••••••	P
51 (B)	Ground	Ground		Ignition switch ON	_	0 V	

# VIDEO DISTRIBUTOR

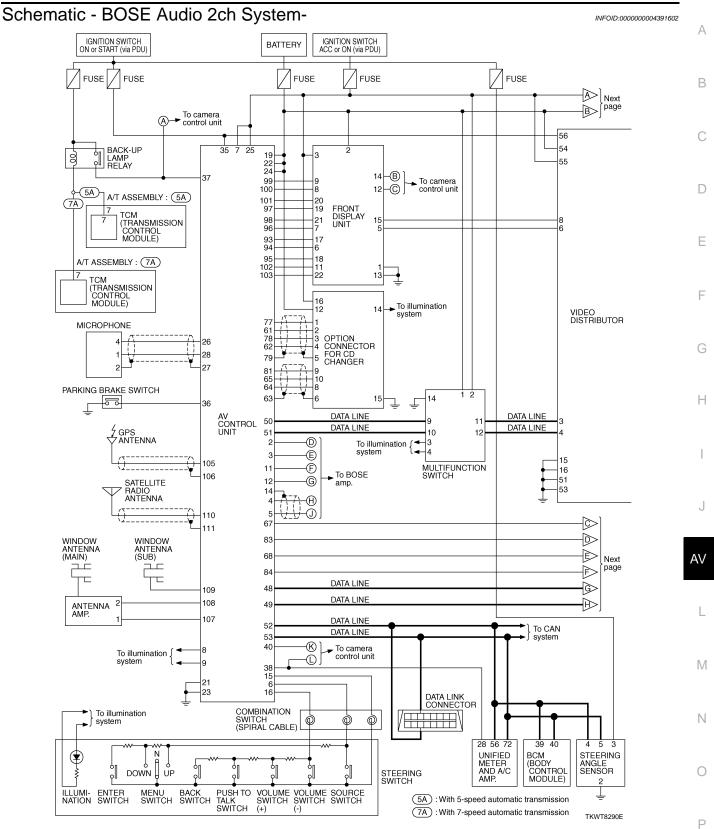
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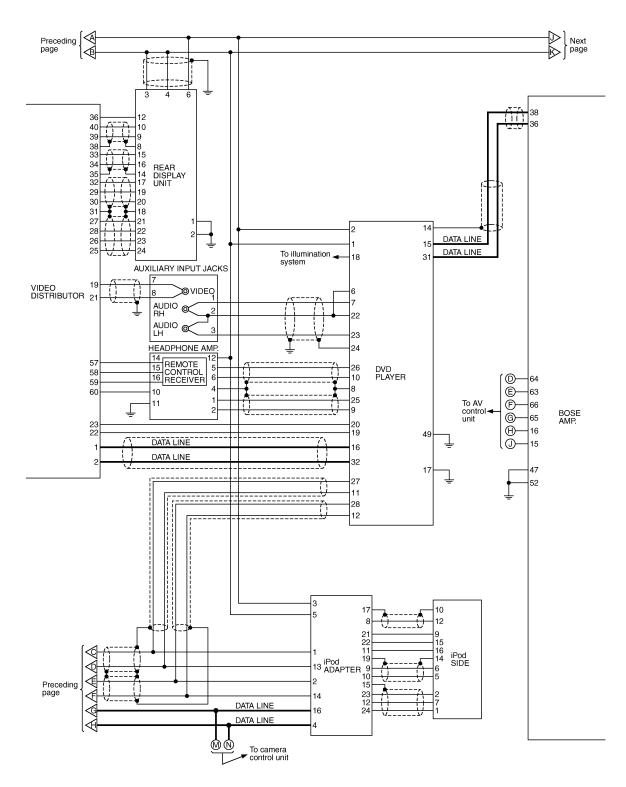
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
53 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	
54 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
55 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
56 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	
57 (W/L)	Ground	Remote control receiver VCC	Output	Ignition switch ON	_	5 V	
58 (L/O)	Ground	Remote control signal	Input	Ignition switch ON	Rear seat remote controller operation.	(V) 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
59 (B)	Ground	Headphone amp. ground	_	Ignition switch ON	_	0 V	
60	Ground	Fround Headphone amp. ON sig-	0.1.1	Ignition switch ON	Headphone mode is ON.	4 V	
(L/W)			Output		Headphone mode is OFF.	0 V	

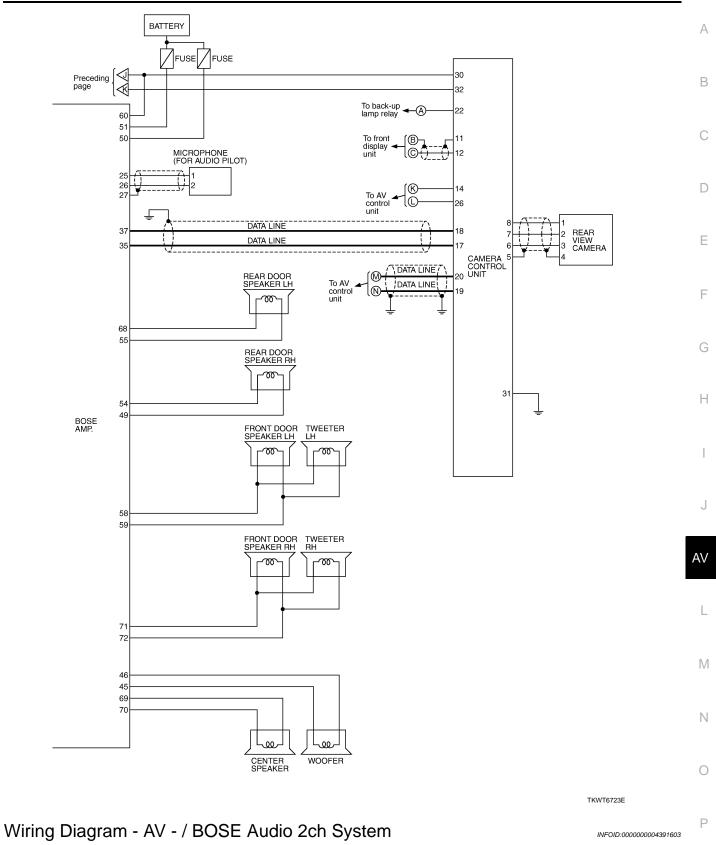
\*1: BOSE surround audio 5.1ch system models.

\*2: BOSE 2ch system models.





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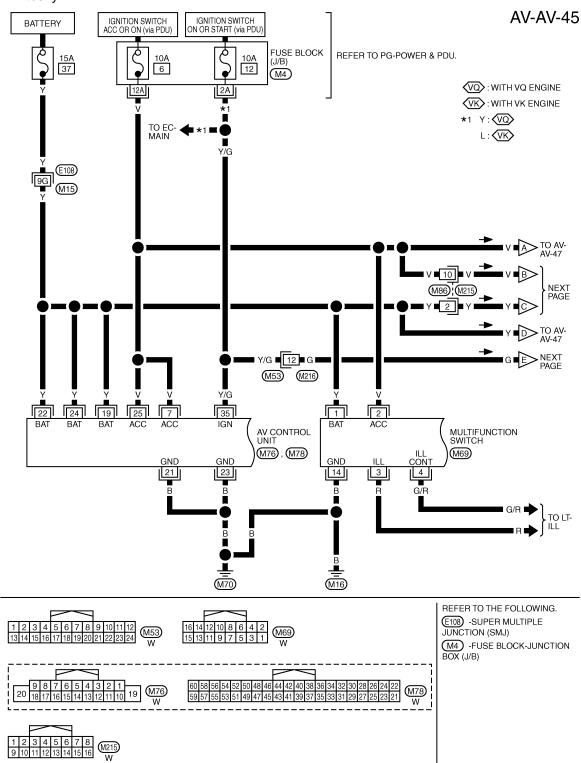
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### < ECU DIAGNOSIS >

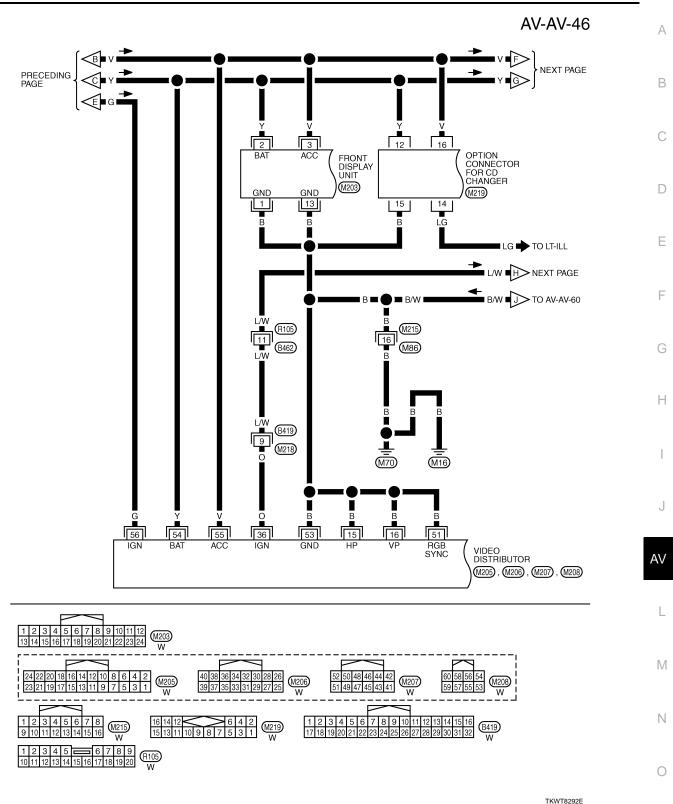
# VIDEO DISTRIBUTOR

### [WITH MOBILE ENTERTAINMENT SYSTEM]

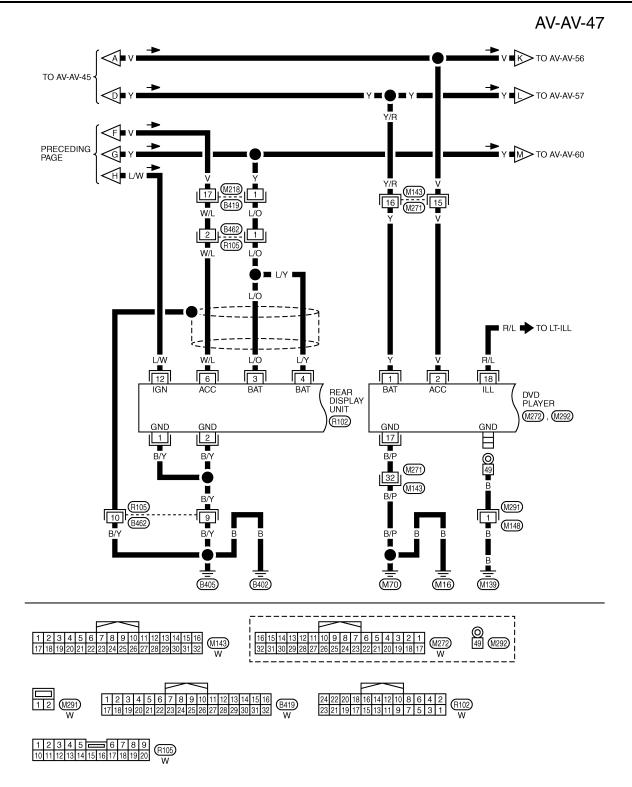
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



TKWT8291E



Ρ

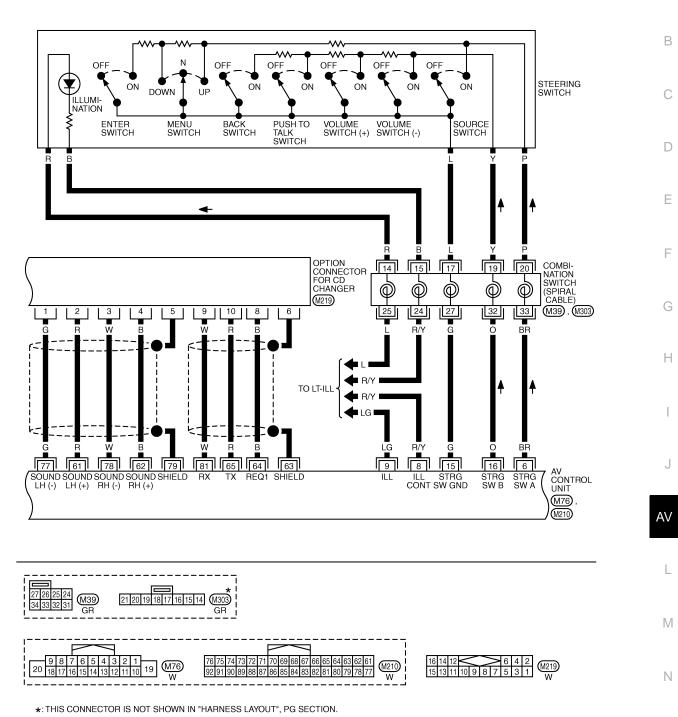


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< ECU DIAGNOSIS >

# AV-AV-48

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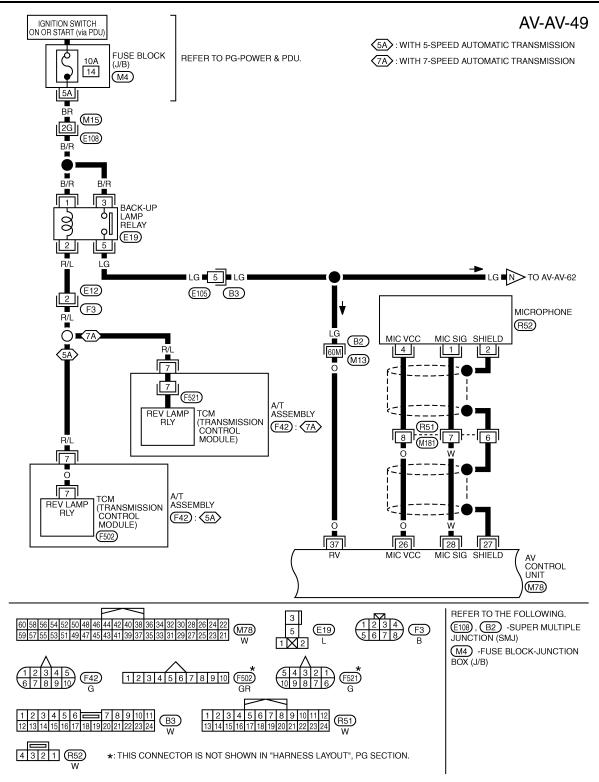
TKWT8294E

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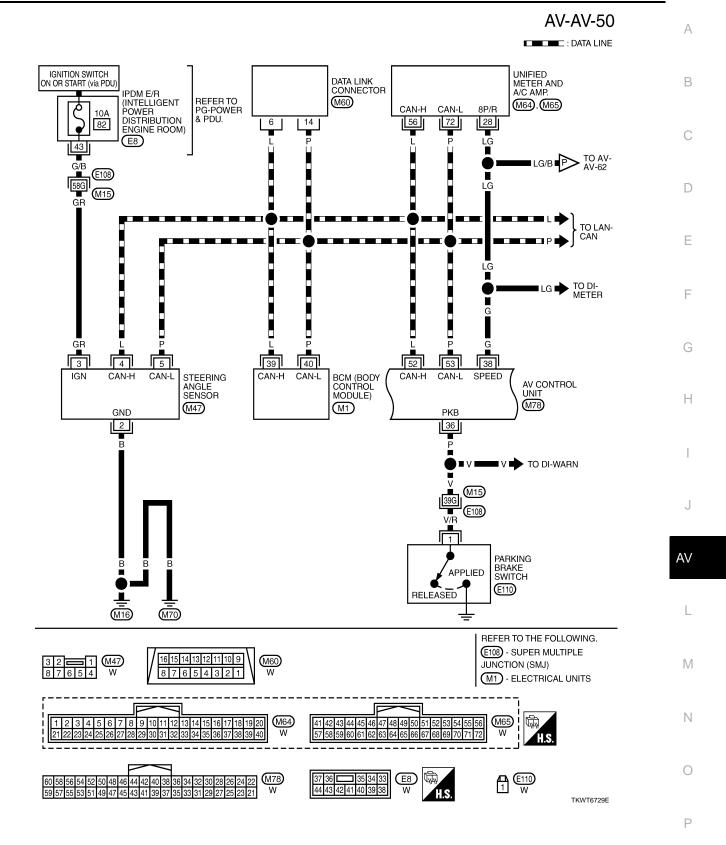
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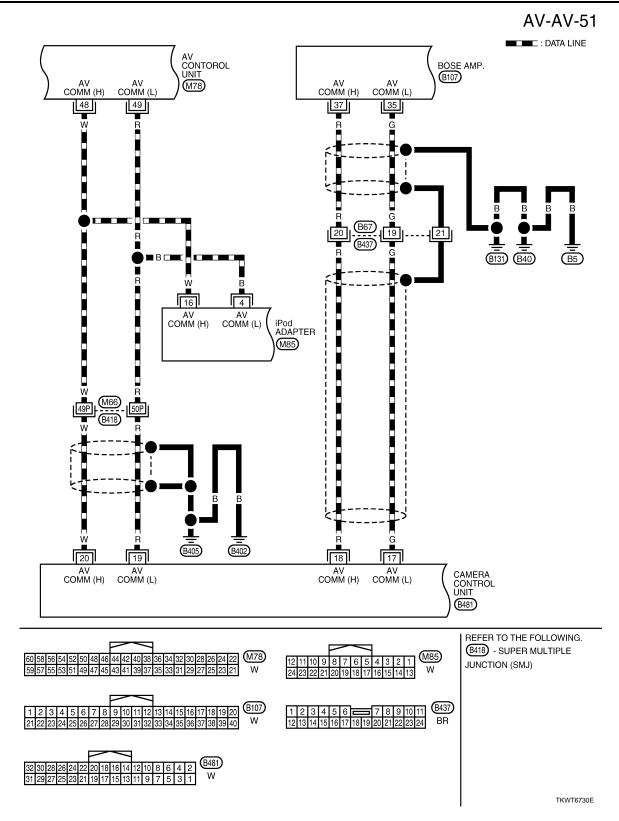
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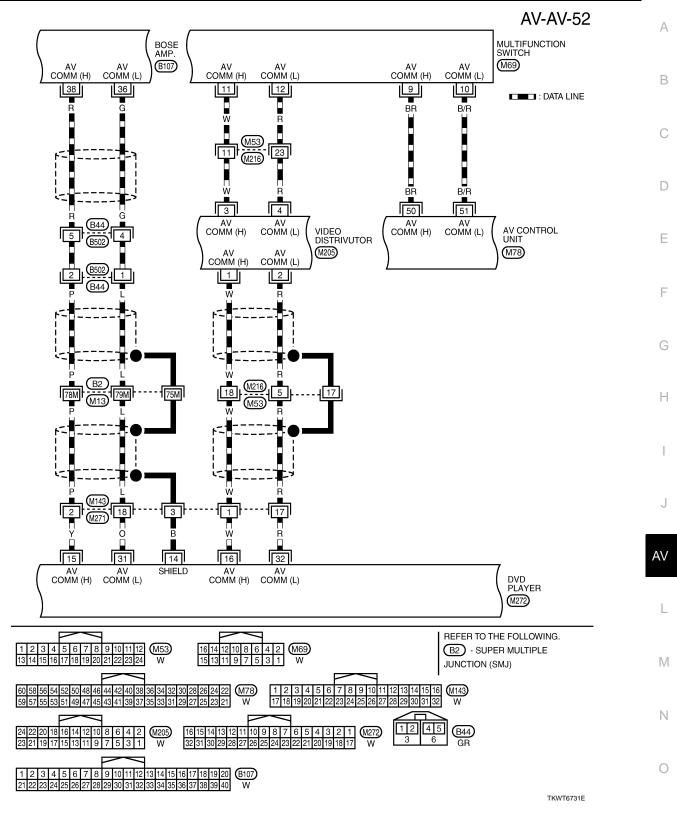


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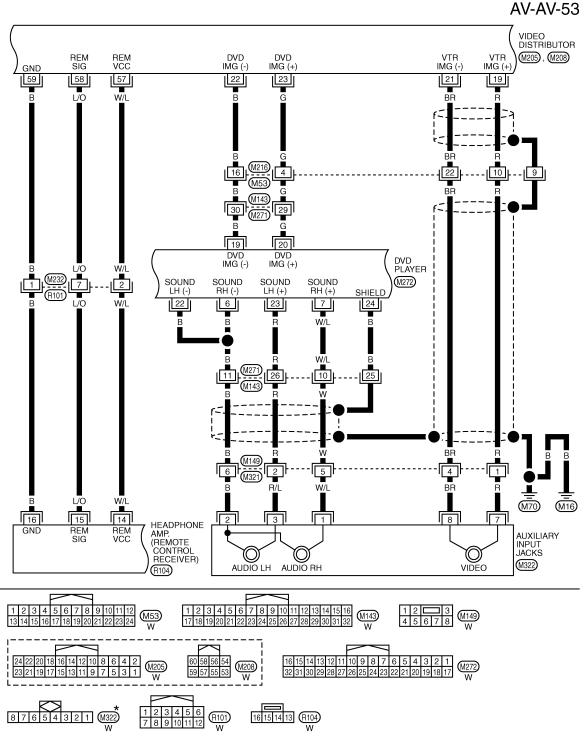
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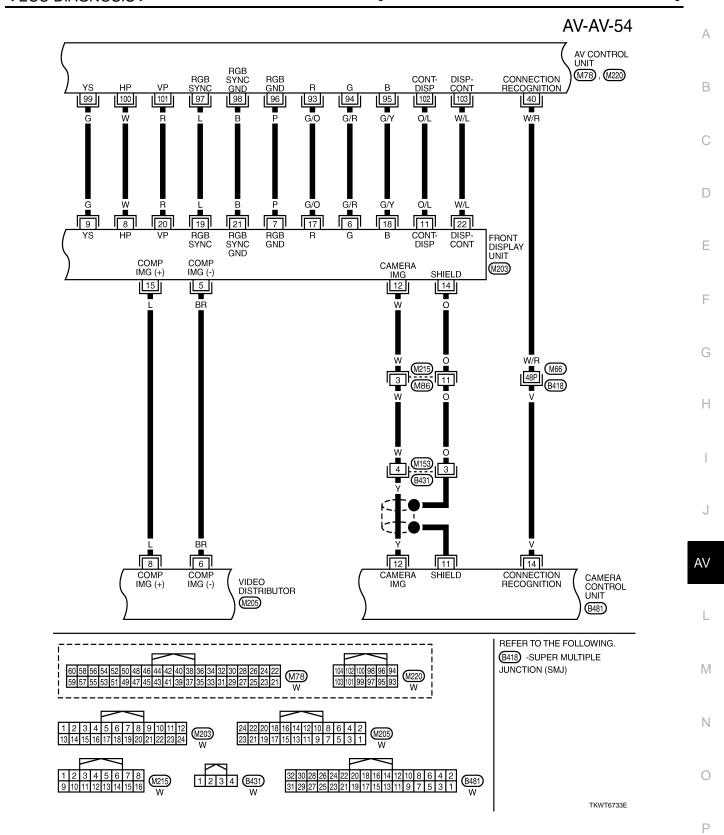


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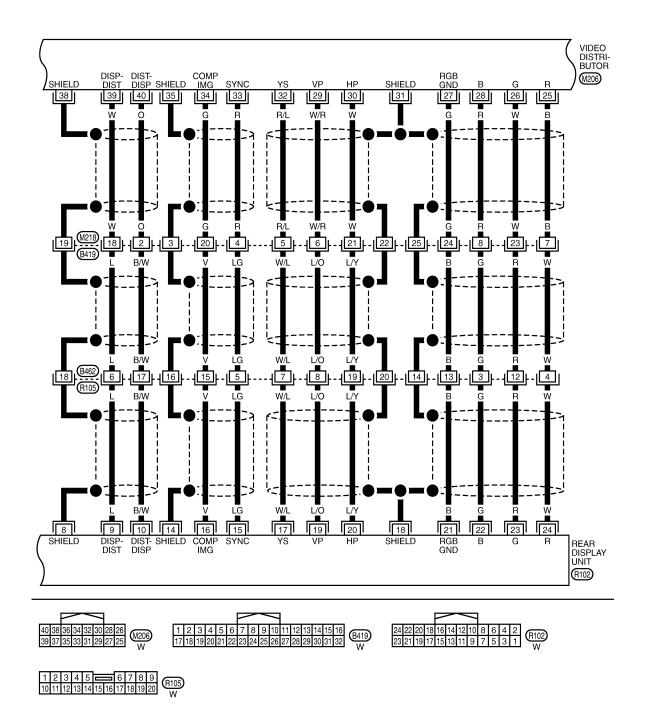


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8296E

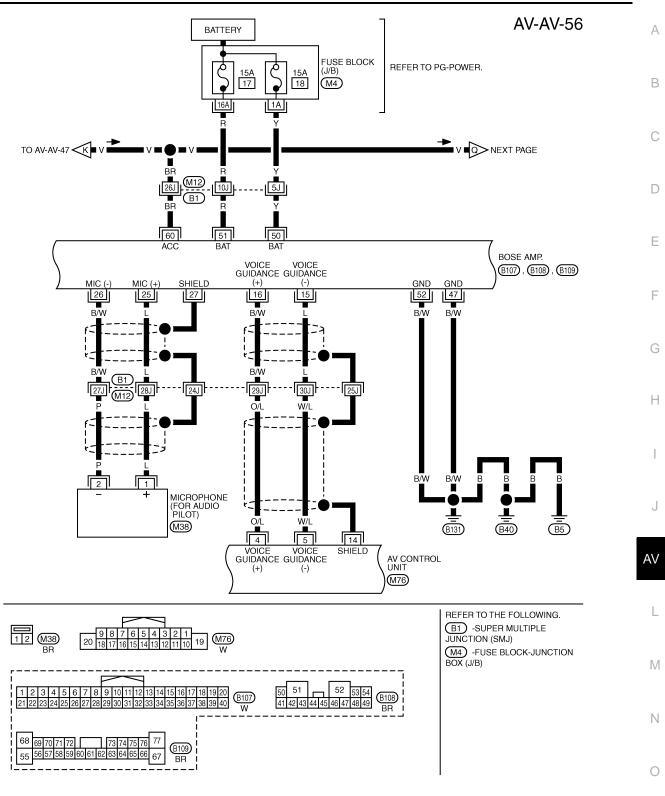


**AV-AV-55** 



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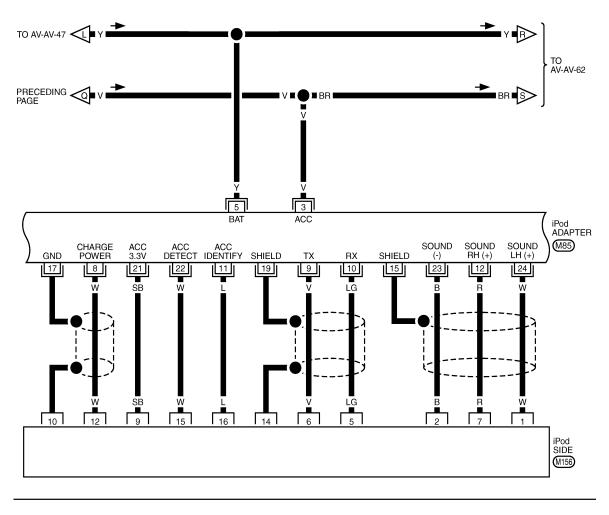
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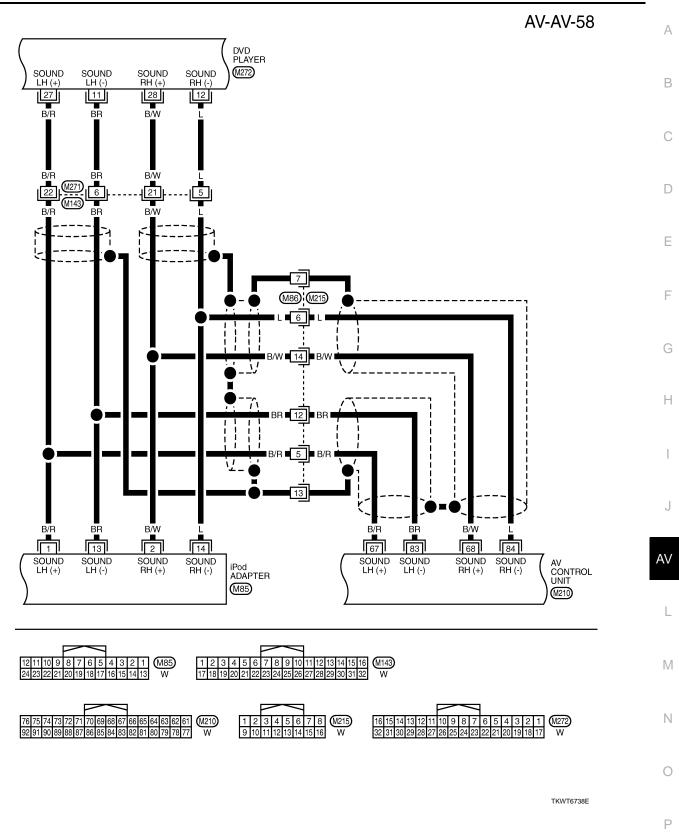
AV-AV-57

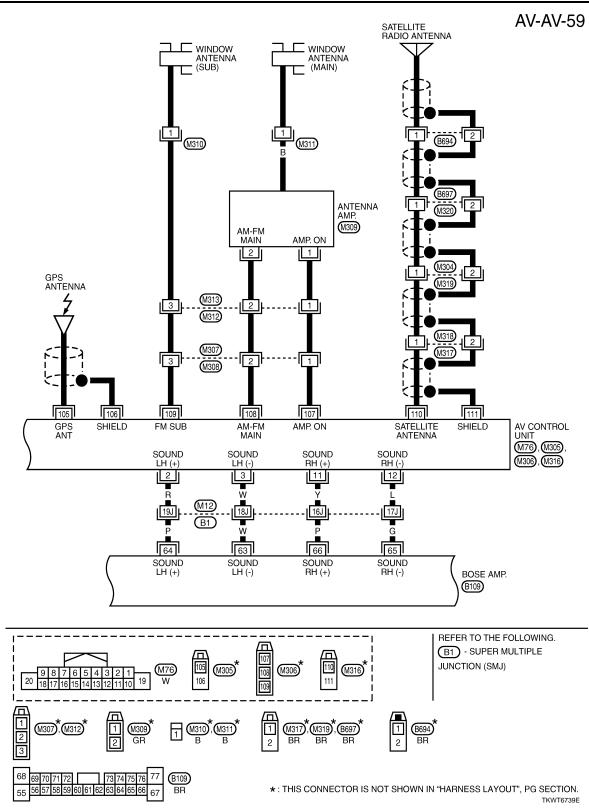


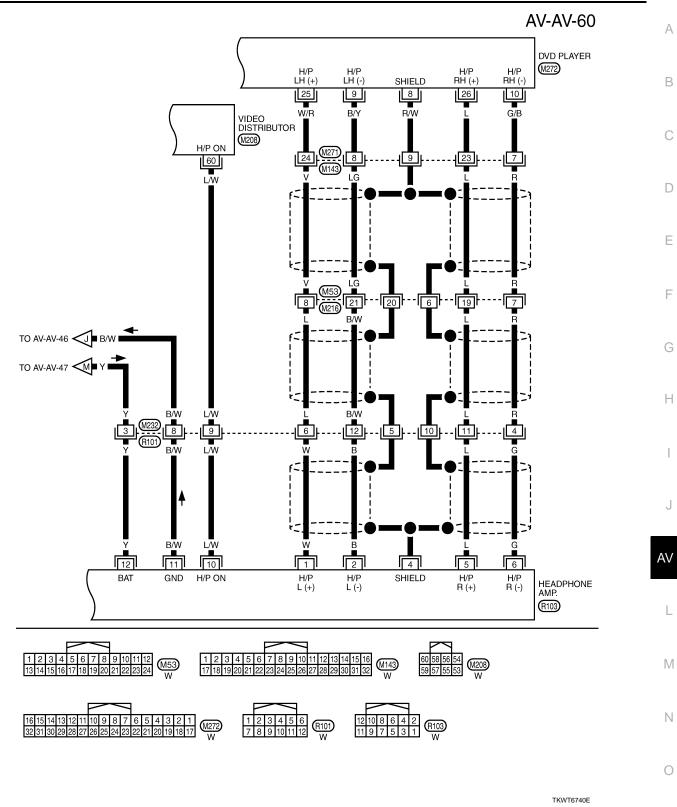
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12	11	10	9	8	7	6	5	4	3	2	1	M85
24	23	22	21	20	19	18	17	16	15	14	13	W

6 5 4 3 2 1 16 15 14 13 12 11 10 9 8 7 GR

TKWT6737E

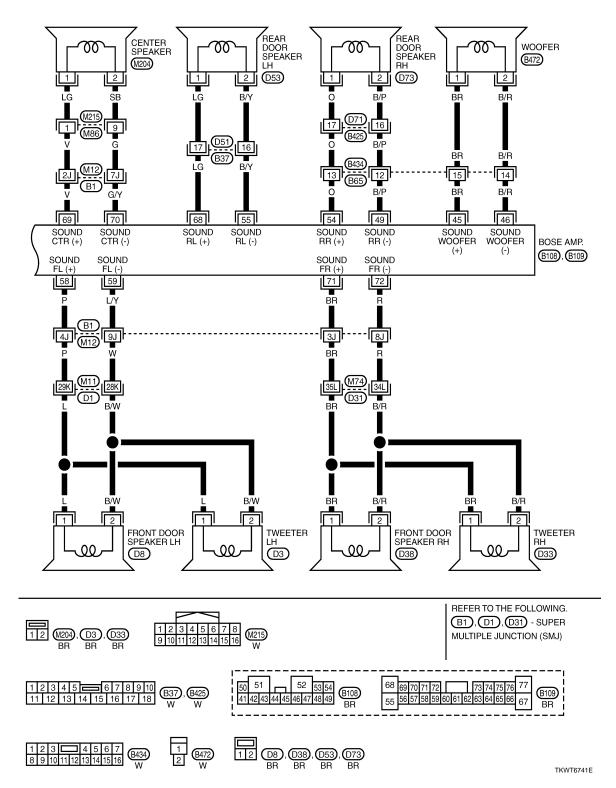






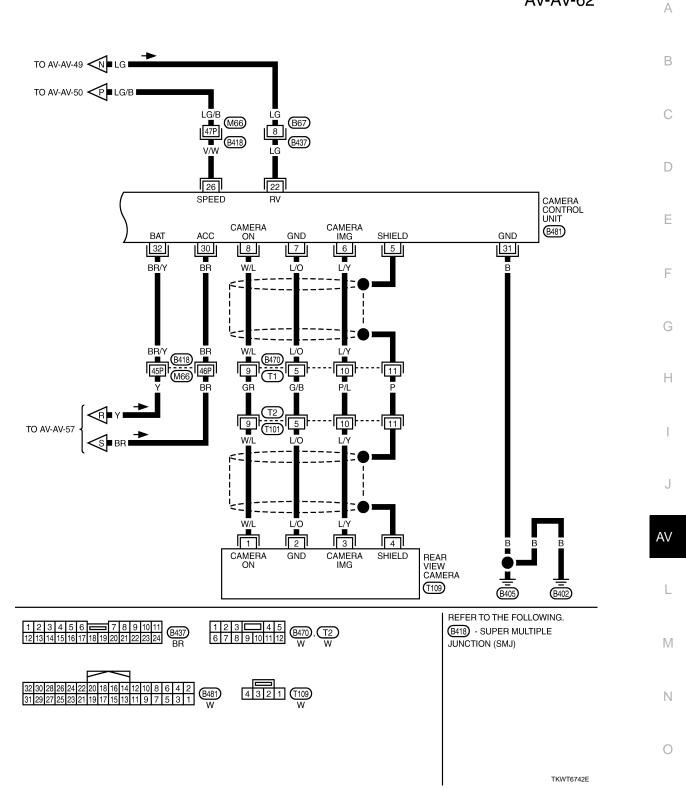
Ρ

AV-AV-61



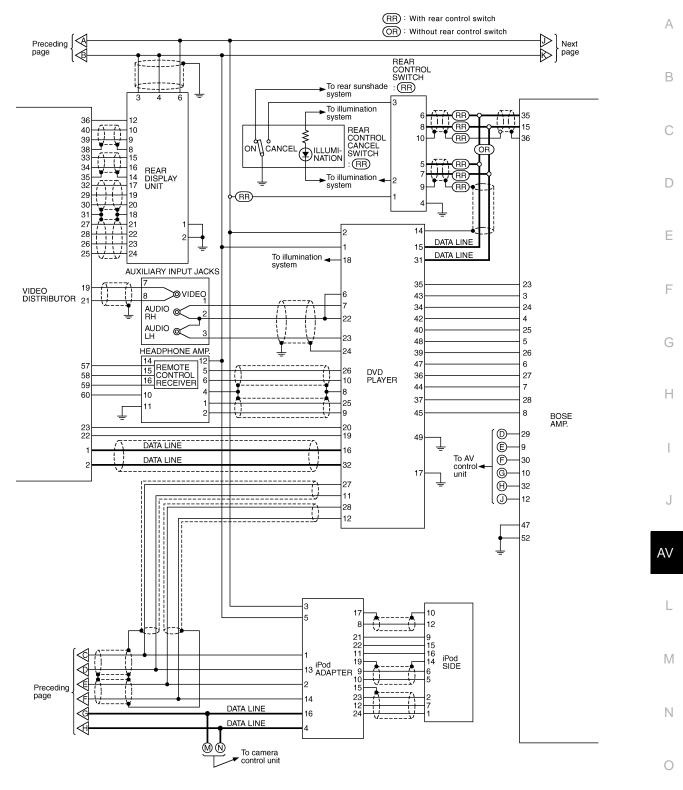


**AV-AV-62** 



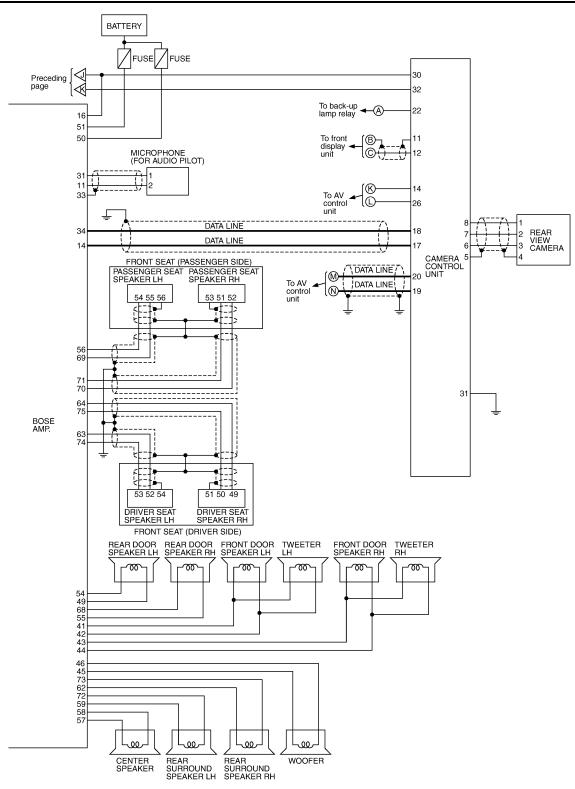
Р

### Schematic - BOSE 5.1ch Surround Audio System -INFOID:000000004391604 IGNITION SWITCH ON or START (via PDU) IGNITION SWITCH ACC or ON (via PDU) BATTERY FUSE FUSE / FUSE FUSE FUSE B page A→ To camera control unit 56 54 ] BACK-UP | LAMP | RELAY 35 25 2 19 22 24 -3 ļ 00 55 14-B) 37 To camera control unit 99 -9 -8 12-C J 100 (5A)-A/T ASSEMBLY : 5A 101 20 19 FRONT DISPLAY UNIT 97 TCM (TRANSMISSION CONTROL MODULE) 98 96 21 15 5 8 6 17 93 94 95 18 A/T ASSEMBLY : 7A 102 103 11 13 TCM (TRANSMISSION CONTROL MODULE) 16 To illumination 12 14 VIDEO DISTRIBUTOR system 7 77 MICROPHONE 61 78 26 4 62 28 79 ١ 27 2 81 65 64 10 PARKING BRAKE SWITCH 1 2 63 14 15 36 Ţ DATA LINE DATA LINE AV CONTROL UNIT 50 11 3 DATA LINE DATA LINE GPS ANTENNA 51 10 12 л -0 3 2 To illumination . 4 system Œ 3 15 105 -F MULTIFUNCTION SWITCH 11 16 51 ¥ ► To BOSE amp. 106 SATELLITE 12 -G 53 RADIO ANTENNA 14 -⊕ 4 ------0 110 ÷ $\diamond$ 67 111 $\triangleright$ WINDOW ANTENNA (MAIN) WINDOW ANTENNA (SUB) 83 Þ 68 Next page Þ 84 DATA LINE 6 48 109 DATA LINE 108 ✐ ANTENNA AMP. 2 49 107 DATA LINE 52 To CAN system DATA LINE 53 K 40 🕳 To camera la To illumination control unit -0 system 19 38 15 21 6 23 16 DATA LINK CONNECTOR COMBINATION SWITCH (SPIRAL CABLE) To illumination system Þ O Ò 28 56 72 39 40 4 5 3 ٢ N STEERING UNIFIED BCM METER AND A/C AMP. (BODY CONTROL MODULE) ANGLE SENSOR STEERING SWITCH ò UP ol 2 MENU BACK SWITCH SWITCH PUSH TO TALK VOLUME VOLUME SOURCE ILLUMI- ENTER NATION SWITCH (5A) : With 5-speed automatic transmission ŚWITCH (+) (-) (7A) : With 7-speed automatic transmission TKWT8301E



TKWT6744E

Ρ



TKWT6745E

# Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

INFOID:000000004391605

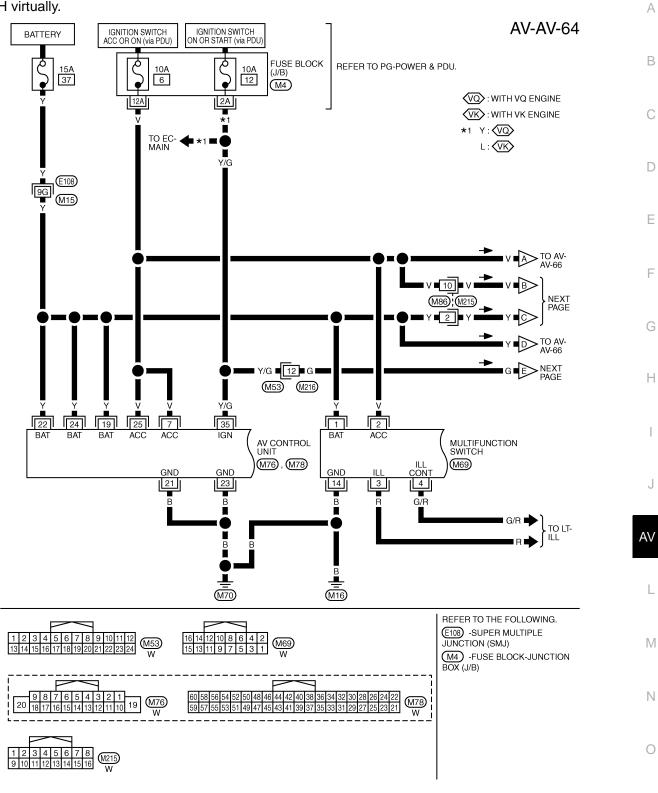
### NOTE:

### < ECU DIAGNOSIS >

# VIDEO DISTRIBUTOR

### [WITH MOBILE ENTERTAINMENT SYSTEM]

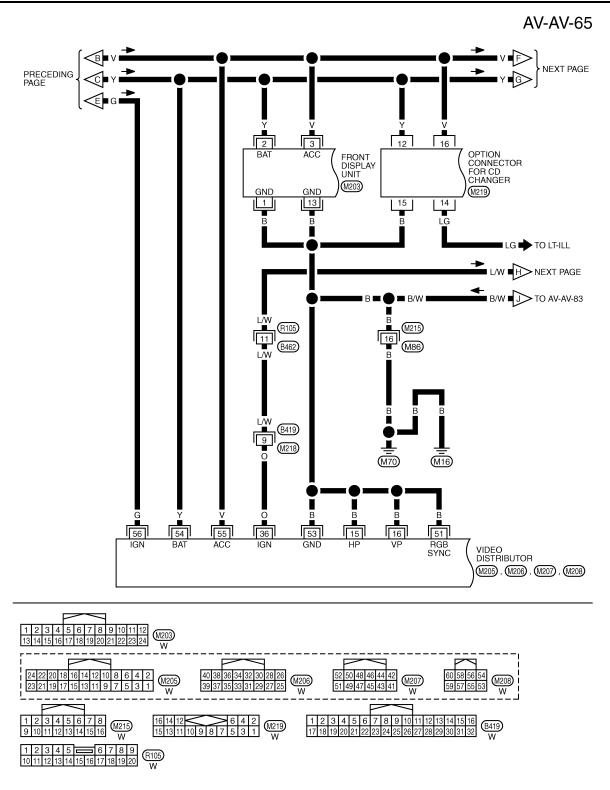
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



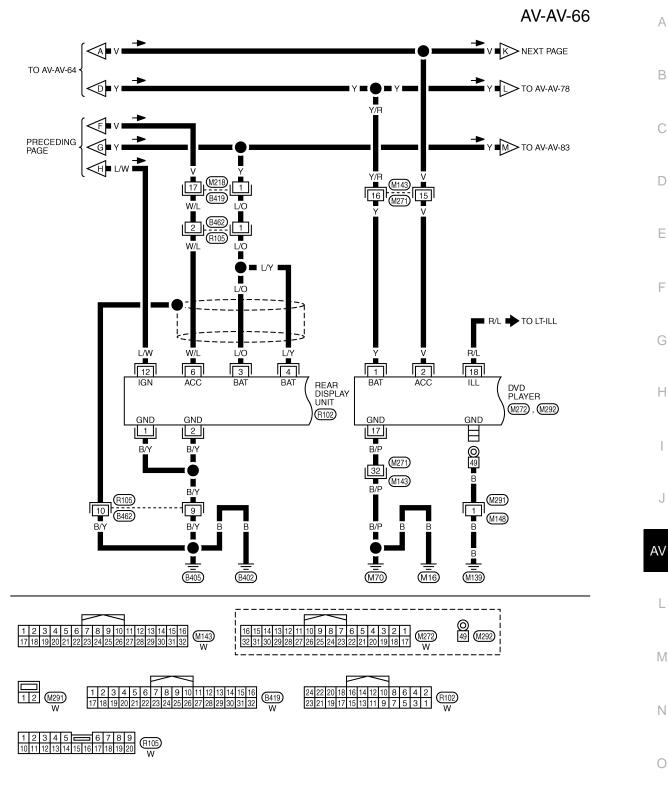
TKWT8302E

Ρ

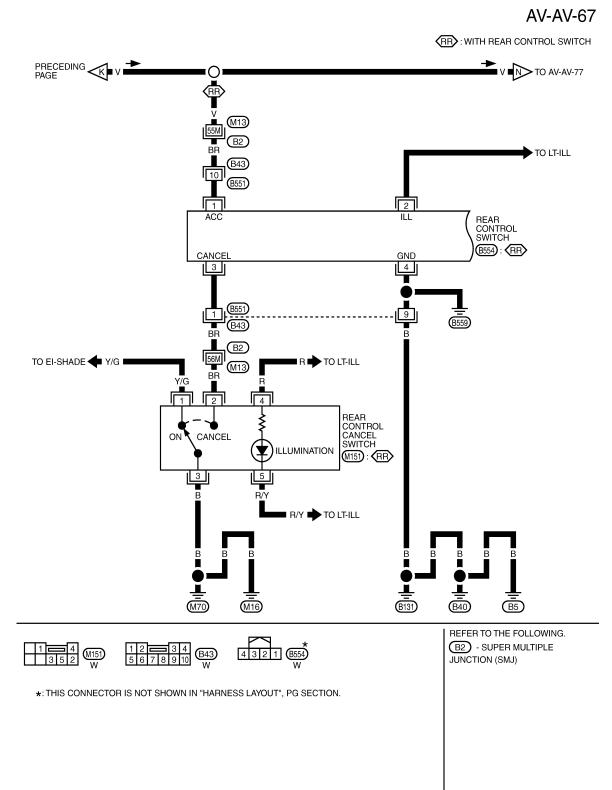
# VIDEO DISTRIBUTOR



TKWT8303E



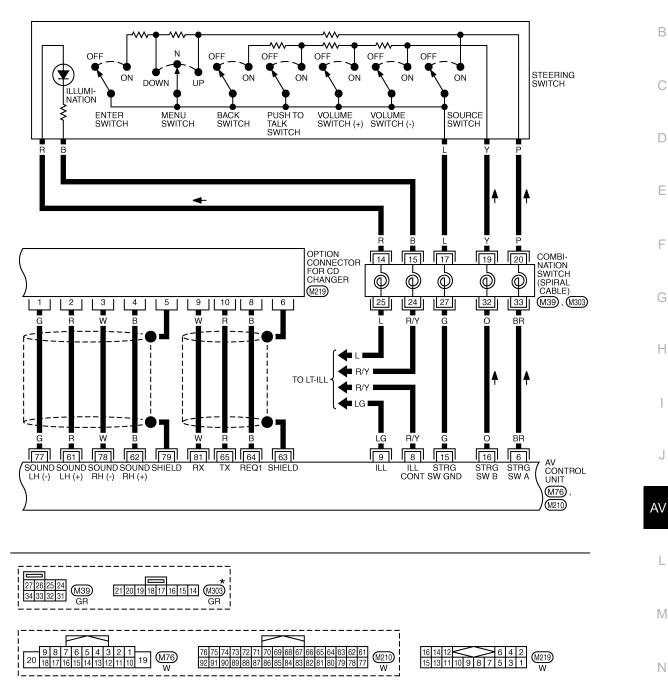
TKWT8304E



TKWT6749E

# AV-AV-68

А



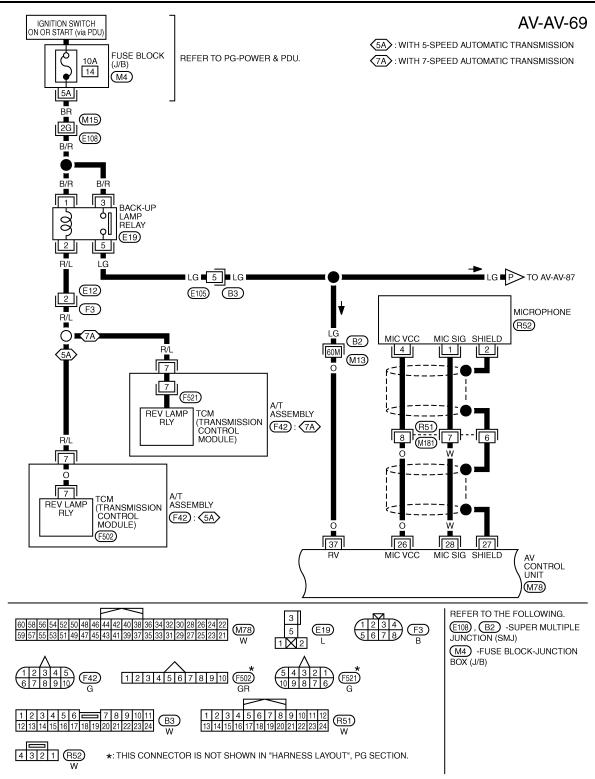
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8305E

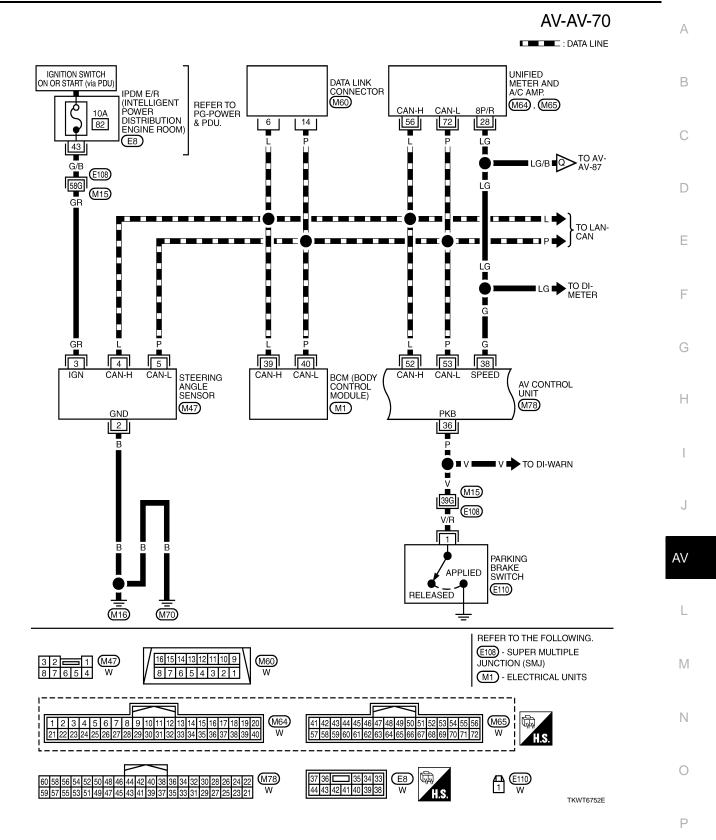
Ο

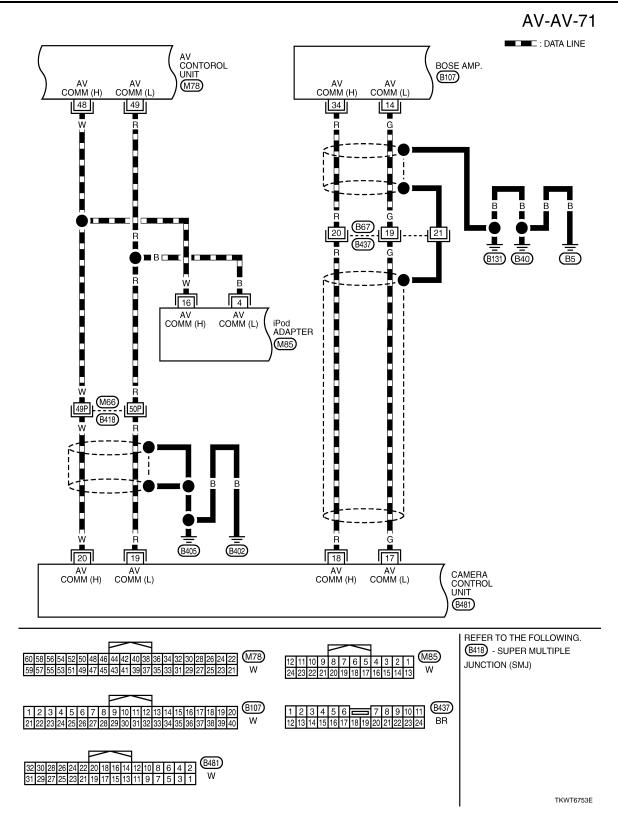
### < ECU DIAGNOSIS >

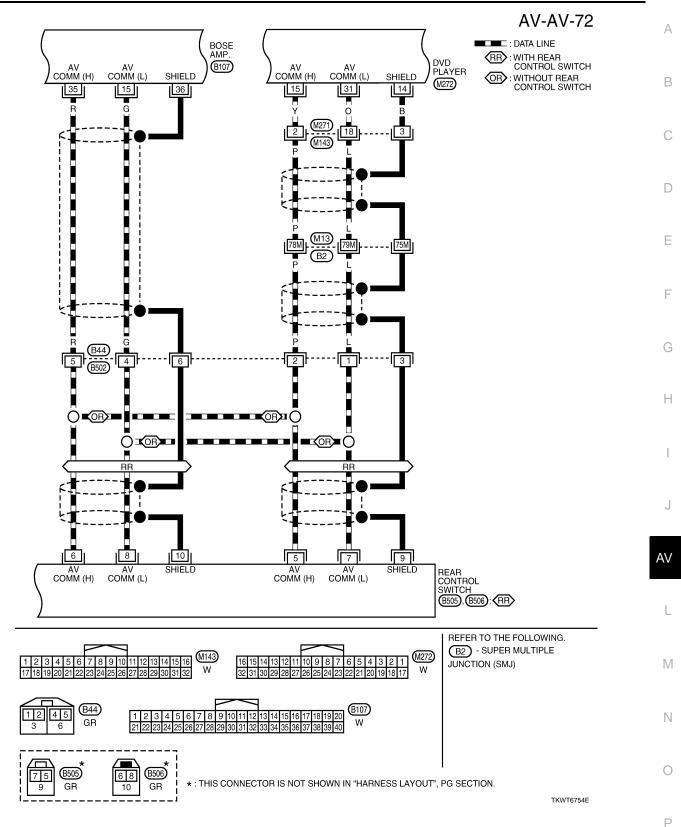
# VIDEO DISTRIBUTOR [WITH MOBILE ENTERTAINMENT SYSTEM]

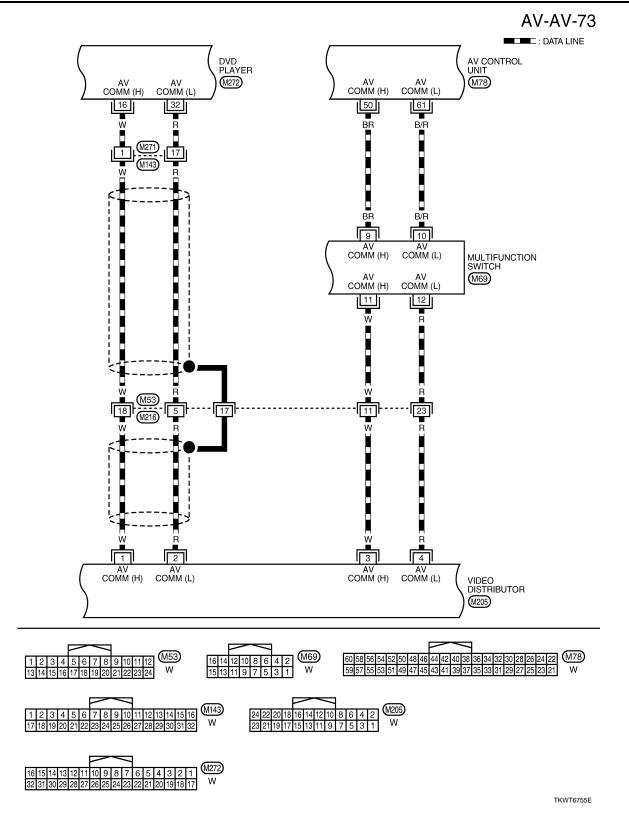


TKWT8306E



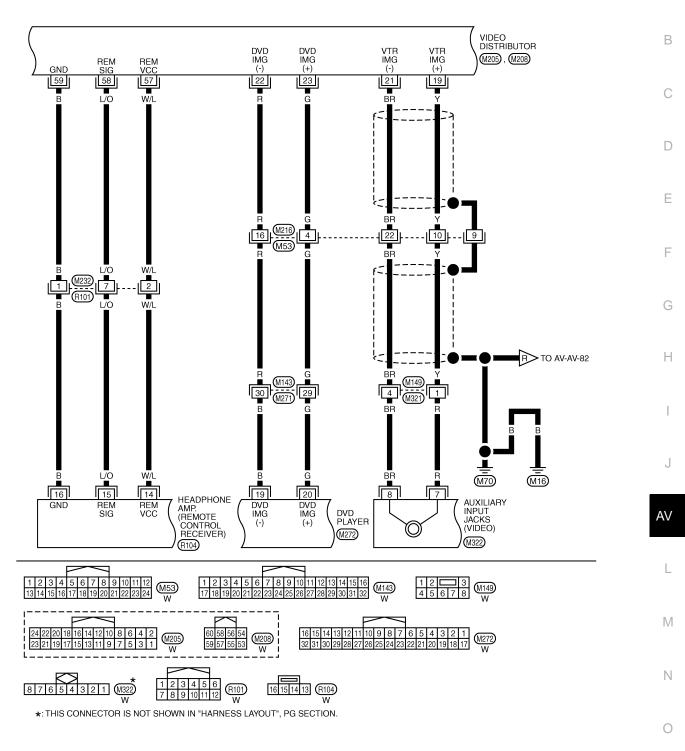




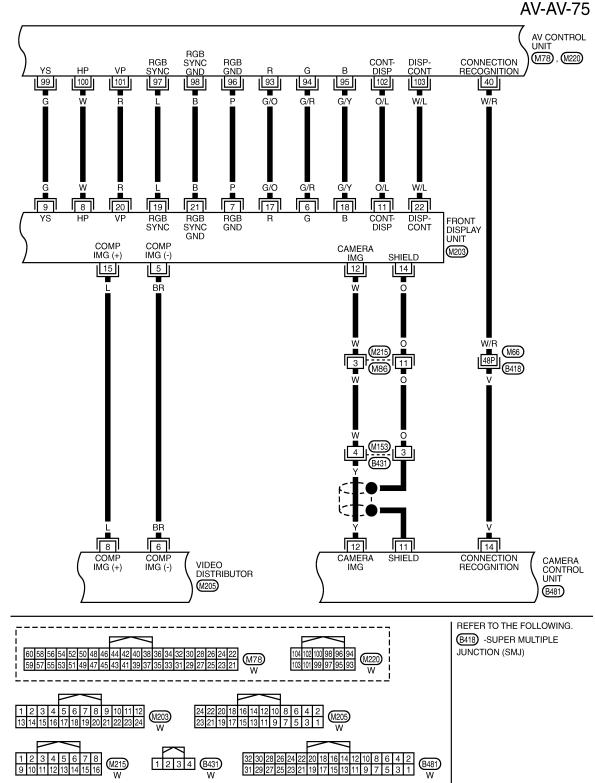


**AV-AV-74** 

А

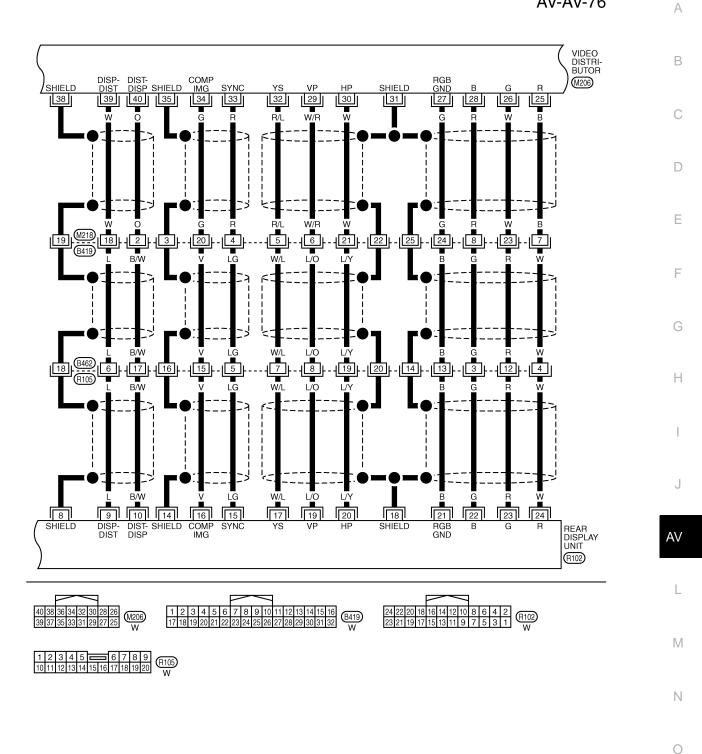


TKWT8307E



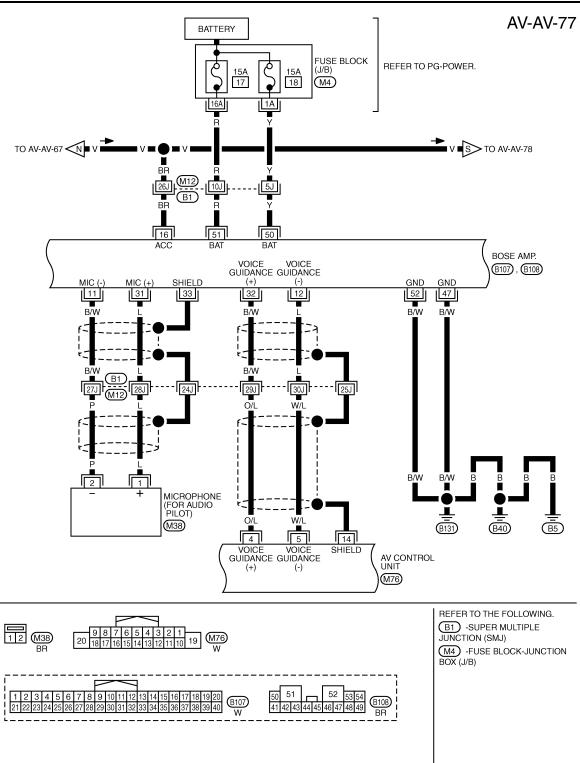
TKWT6757E





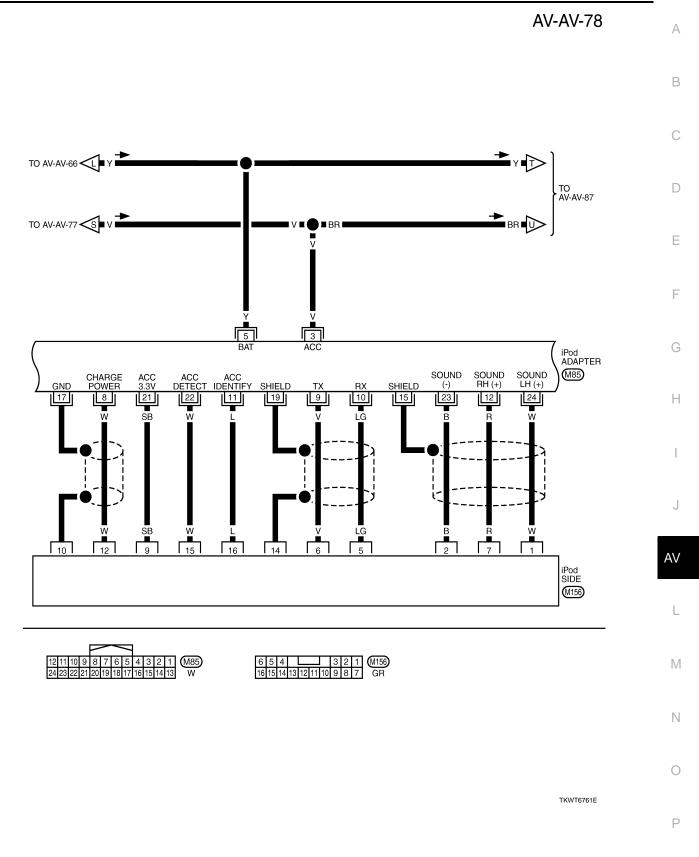
TKWT5152E

< ECU DIAGNOSIS >



TKWT8308E



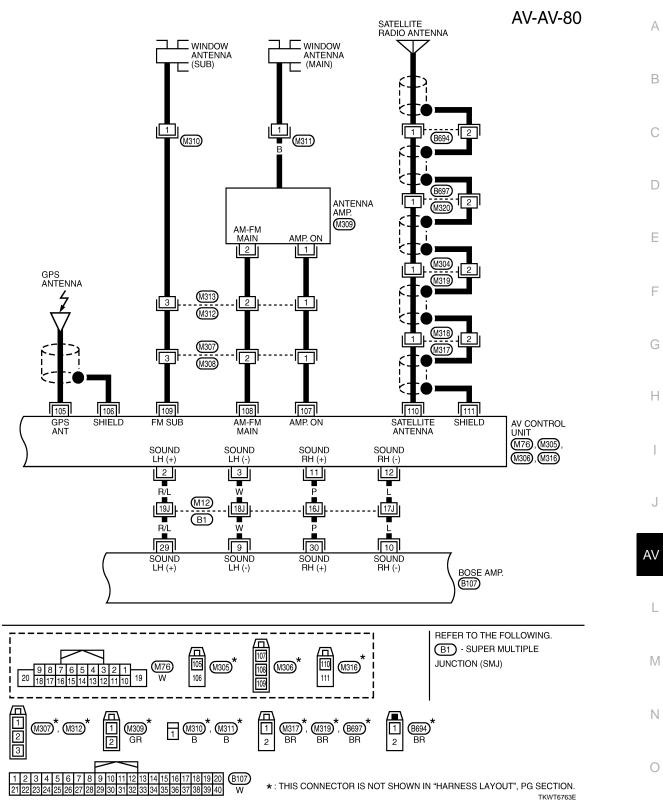


**AV-AV-79** 

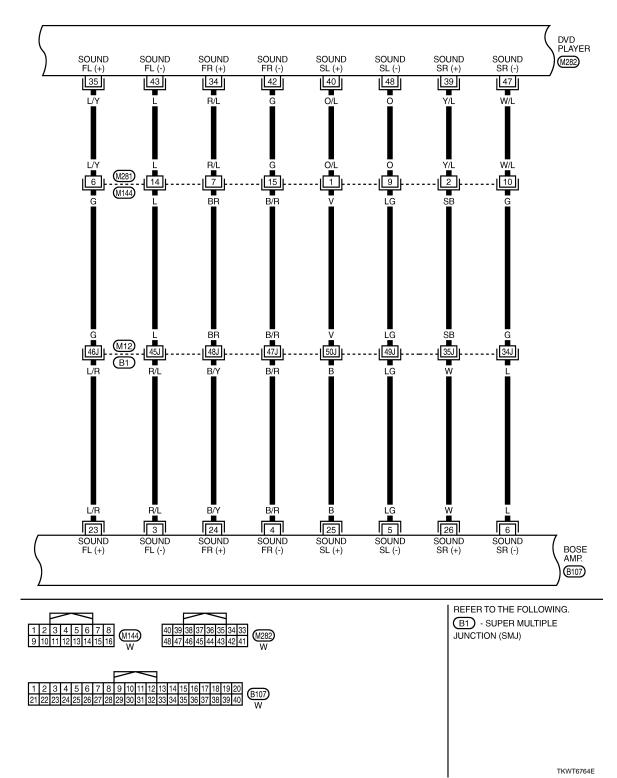
DVD PLAYER (M272) SOUND RH (+) SOUND RH (-) SOUND LH (+) SOUND LH (-) 27 B/R 12 11 28 BR B/W B/R B/W BR -21 (M271) (M143) 22 6 5 B/W B/R BR 5 ۲ ۱ Ŀ Ŀ 7 M86 M215 6 L I B/W 14 B/W ١ ij 1 i١ BR **■** 12 **■** BR **■** B/R 🛯 5 🔳 B/R 13 ]} B/W В/W B/R BR B/R BR 2 83 84 14 67 68 SOUND LH (-) SOUND RH (+) SOUND RH (-) SOUND SOUND SOUND SOUND SOUND AV CONTROL UNIT (M210) iPod ADAPTER (M85) LH (+) LH (-) RH (+) RH (-) LH (+) 12 11 10 9 8 7 6 5 4 3 2 1 M85 24 23 22 21 20 19 18 17 16 15 14 13 W 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 (M143) W

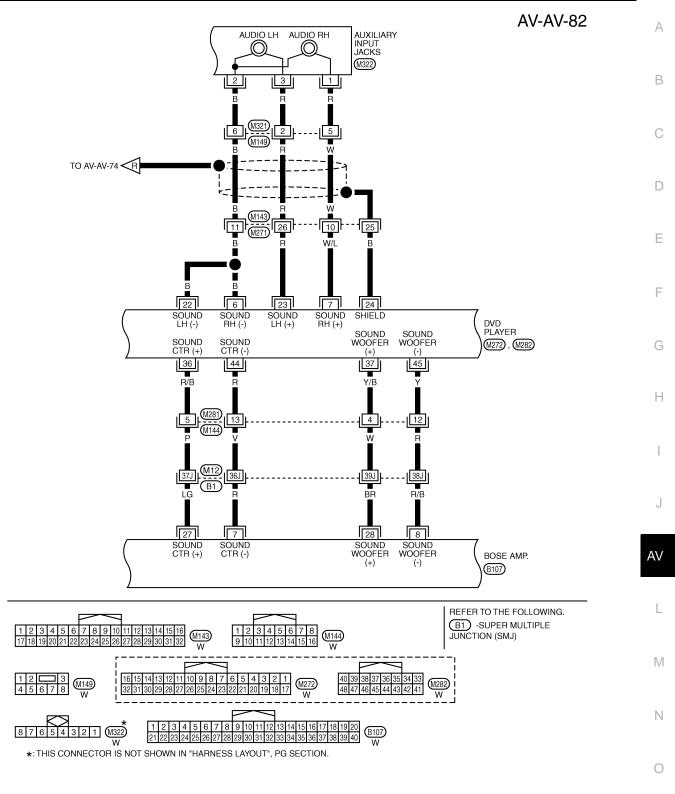
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TKWT6762E

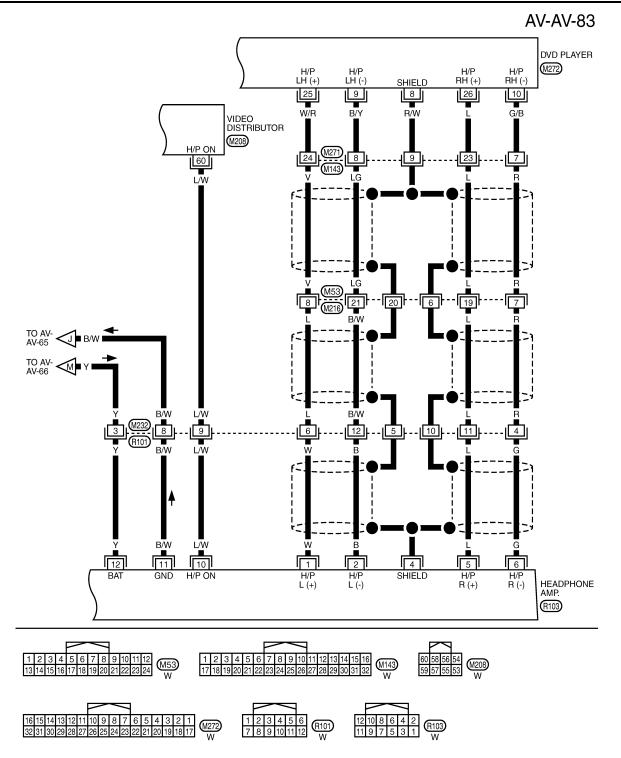


AV-AV-81

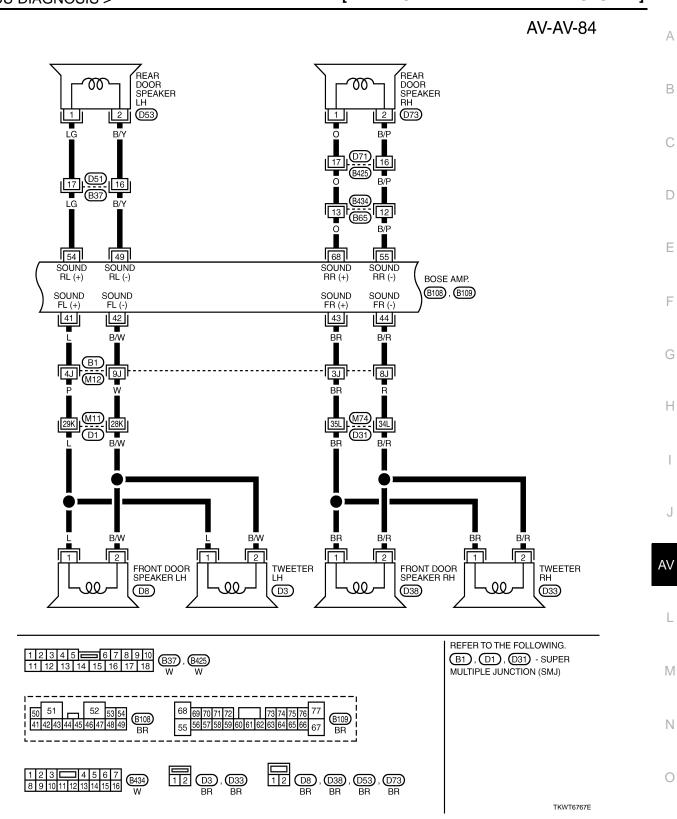




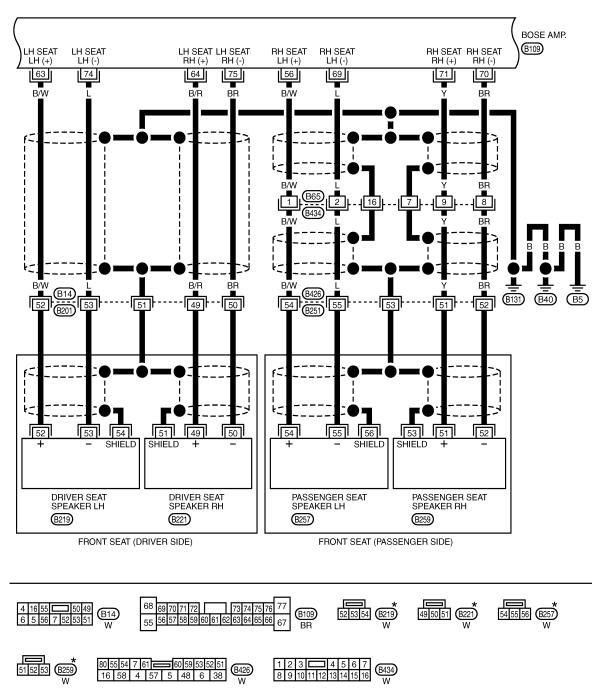
TKWT8309E



TKWT6766E



AV-AV-85

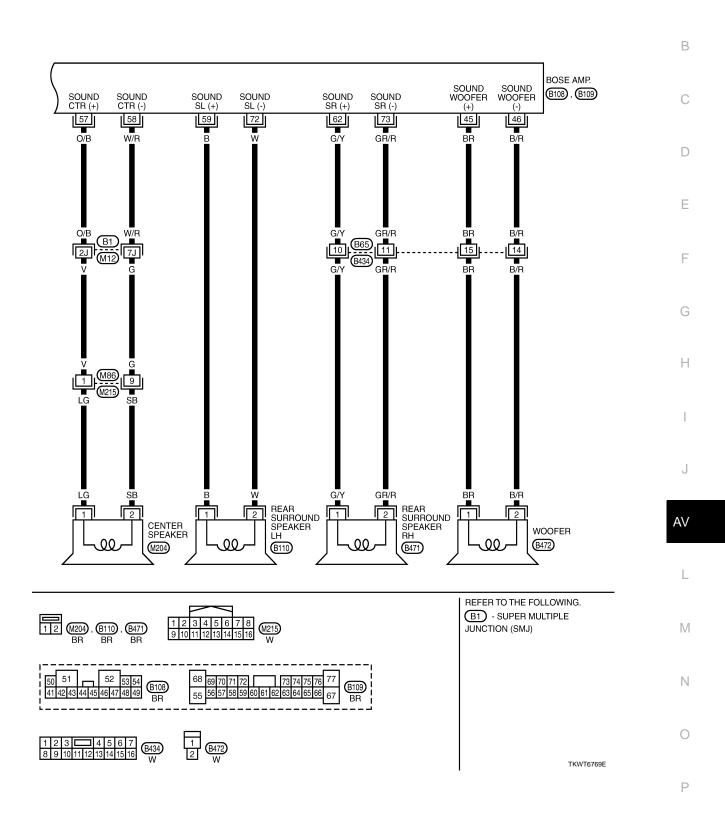


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

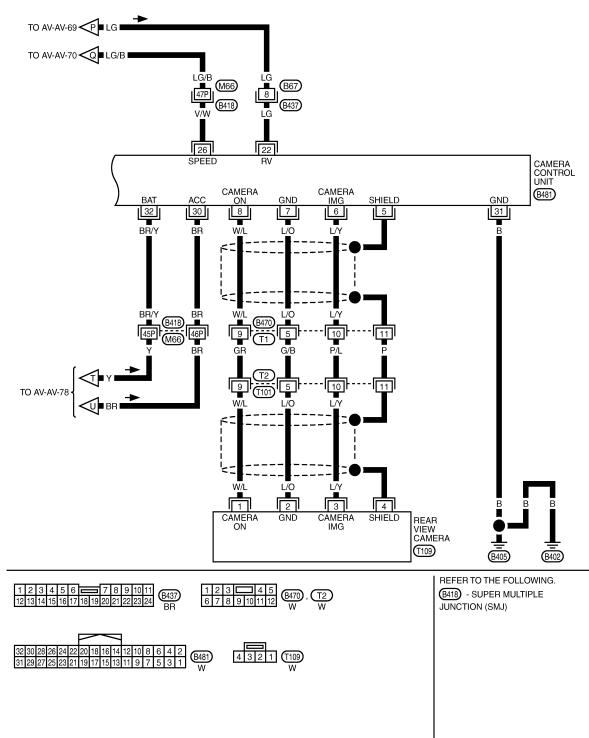
TKWT6768E

AV-AV-86

А



AV-AV-87



TKWT6770E

# BOSE AMP. BOSE AUDIO 2CH SYSTEM

BOSE AUDIO 2CH SYSTEM : Reference Value

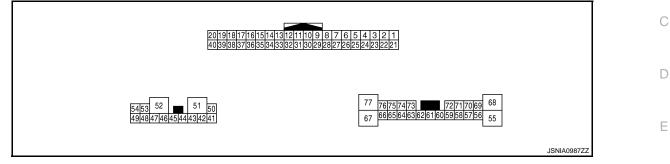
#### INFOID:000000004156090

А

В

F

# **TERMINAL LAYOUT**



# PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value	G
+	_	Signal name	Input/ Output	Condition		(Approx.)	
16 (B/W)	15 (L)	Voice guidance signal	Input	Ignition switch ON	When inputting voice guid- ance.	(V) 1 0 -1 2 ms SKIB3609E	H
25 (L)	26 (B/W)	MIC. signal (for AudioPilot <sup>®</sup> )	Input	Ignition switch ON	When inputting noise.	(V) 6 4 2 0 • + 2ms (reference value) PKIA2104E	AV
27		Shield			—	_	B. 4
35 (G)	_	AV communication signal (L)	Input/ Output	_	_	_	Μ
36 (G)	_	AV communication signal (L)	Input/ Output	_	_	-	Ν
37 (R)	_	AV communication signal (H)	Input/ Output	—	_	_	
38 (R)	_	AV communication signal (H)	Input/ Output		_	_	0
45 (BR)	46 (B/R)	Sound signal woofer	Output	Ignition switch ON	Sound output.	(V) 0.6 0.4 0.2 0 -0.2 -0.4 -0.6 PKIB6116J	Ρ

# BOSE AMP.

# < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
47 (B/W)	Ground	Ground	_	Ignition switch ON	_	0 V	
50 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
51 (R)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	
52 (B/W)	Ground	Ground	_	Ignition switch ON	_	0 V	
54 (O)	49 (B/P)	Sound signal rear door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • • • 2ms SKIB3609E	
58 (P)	59 (L/Y)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 * 2ms SKIB3609E	
60 (BR)	Ground	ACC power supply	Input	Ignition switch ACC		Battery voltage	
64 (P)	63 (W)	Sound signal LH	Input	Ignition switch ON	Audio sound output.	(V) 1 0 -1 * 2ms SKIB3609E	
66 (P)	65 (G)	Sound signal RH	Input	Ignition switch ON	Audio sound output.	(V) 1 0 -1 • 2ms SKIB3609E	
68 (LG)	55 (B/Y)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 2 ms SKIB3609E	

2009 M35/M45

# BOSE AMP.

# < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	А
+	-	Signal name	Input/ Output	Condition		(Approx.)	
69 (V)	70 (G/Y)	Sound signal center speak- er	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms	B C D
71 (BR)	72 (R)	Sound signal front door speaker RH	Output	lgnition switch ON	Sound output.	SKIB3609E	E

G

Н

J

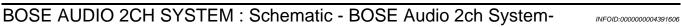
AV

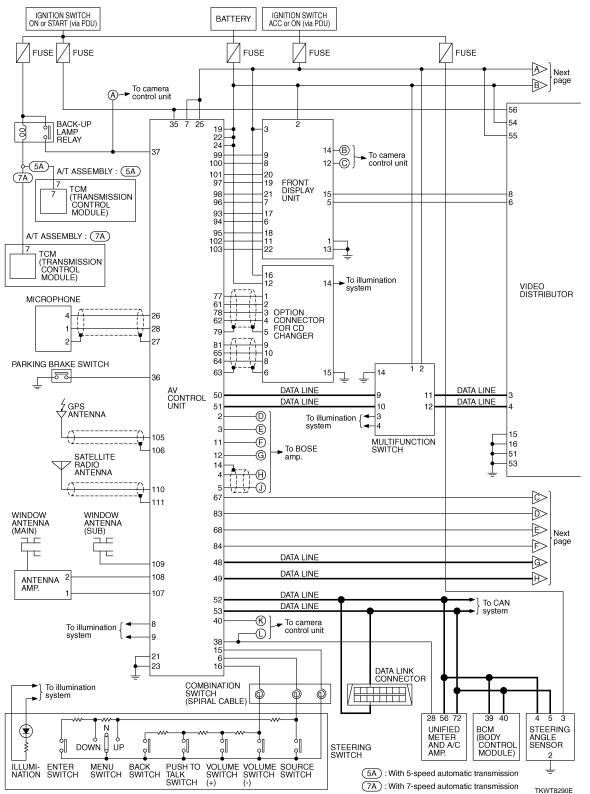
L

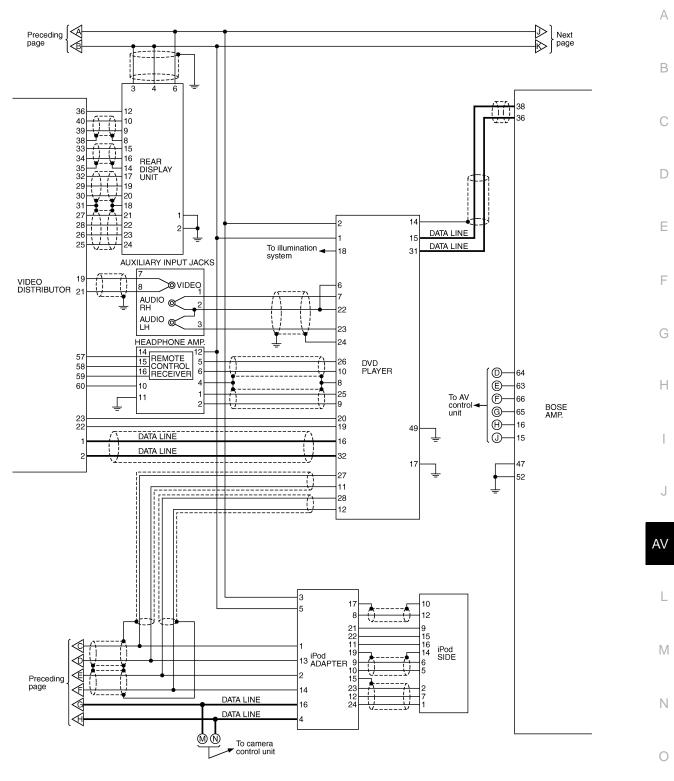
Μ

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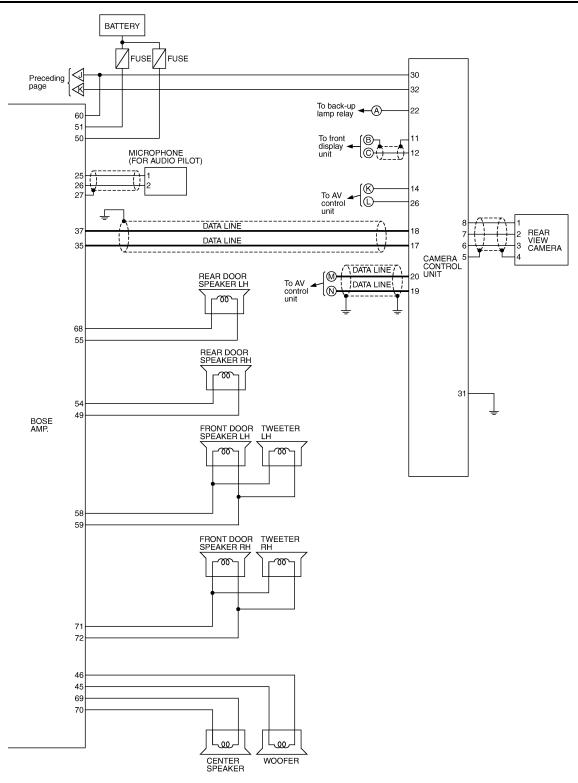
Ο







TKWT6722E



TKWT6723E

# BOSE AUDIO 2CH SYSTEM : Wiring Diagram - AV - / BOSE Audio 2ch System

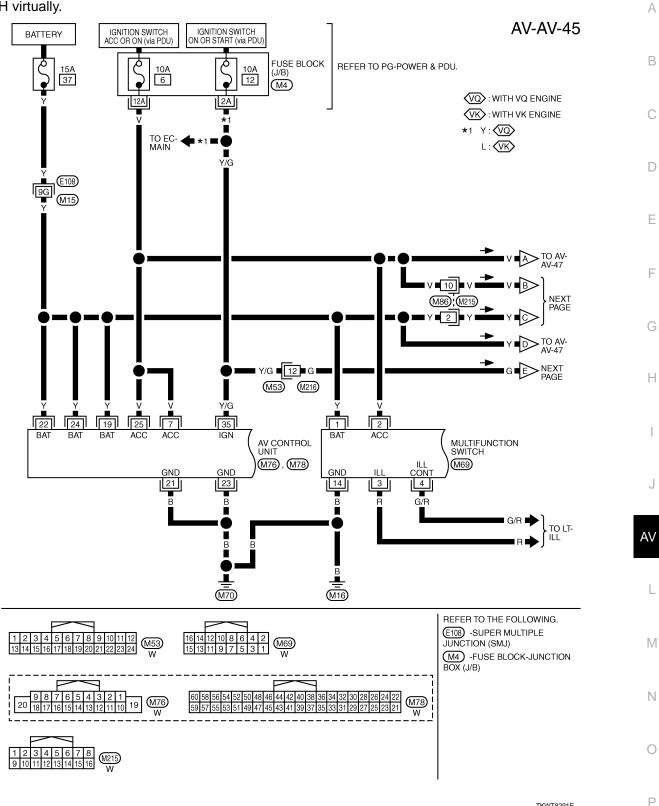
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#### NOTE:

## < ECU DIAGNOSIS >

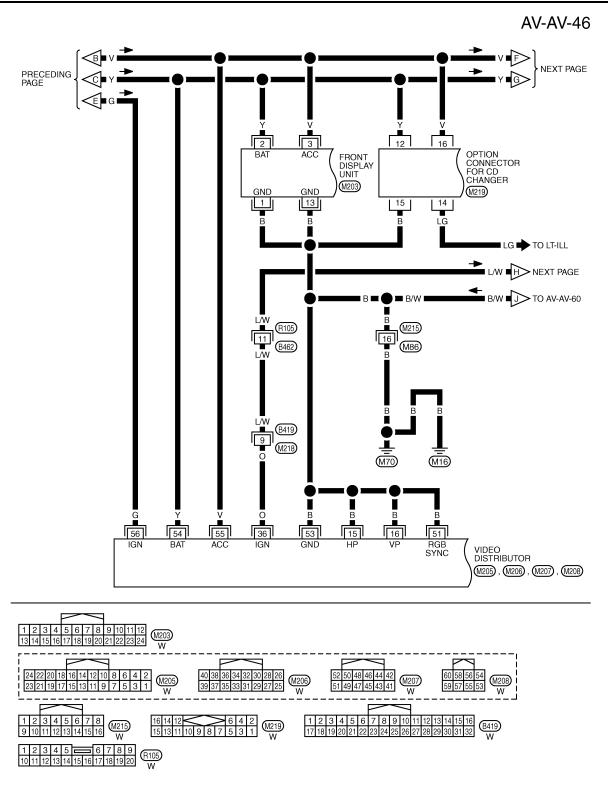
# BOSE AMP. [WITH MOBILE ENTERTAINMENT SYSTEM]

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

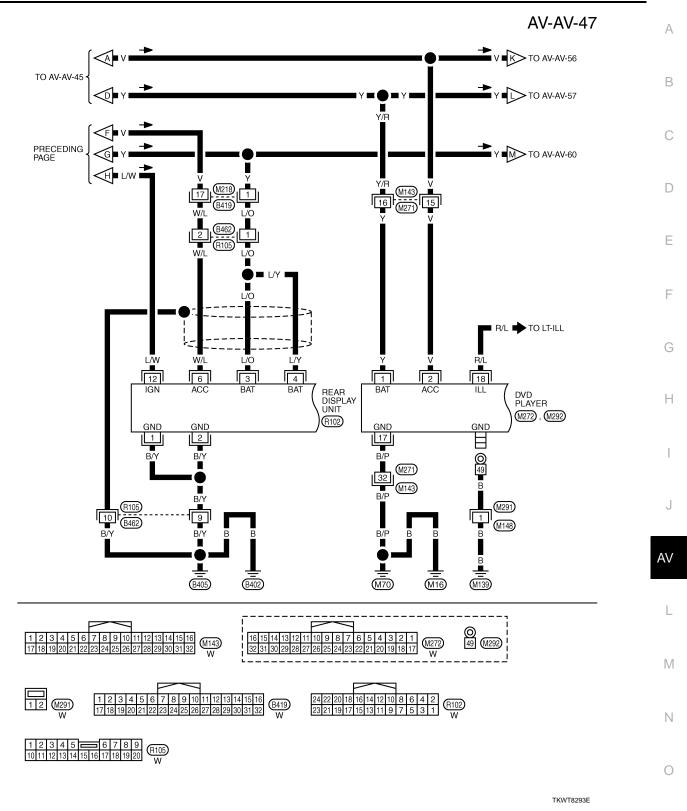


TKWT8291E

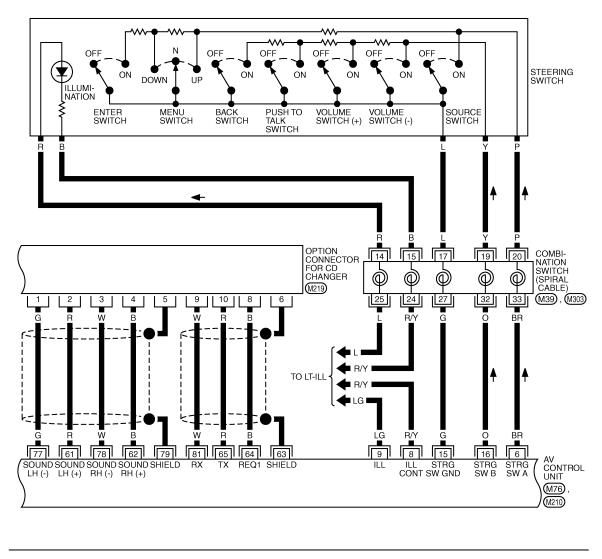
# BOSE AMP.

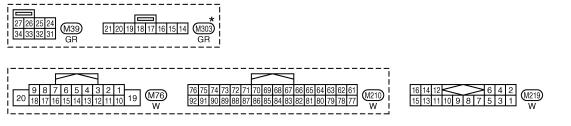


TKWT8292E



# AV-AV-48



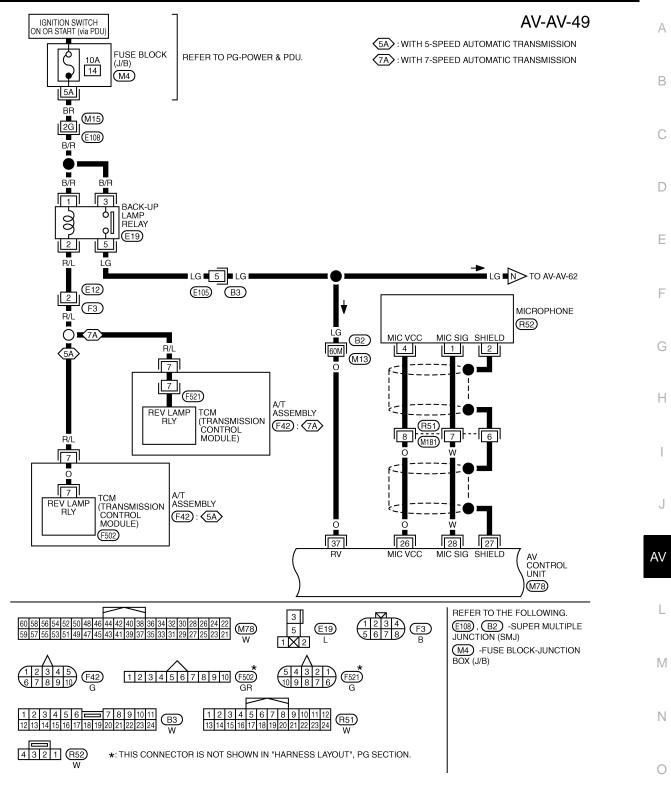


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8294E

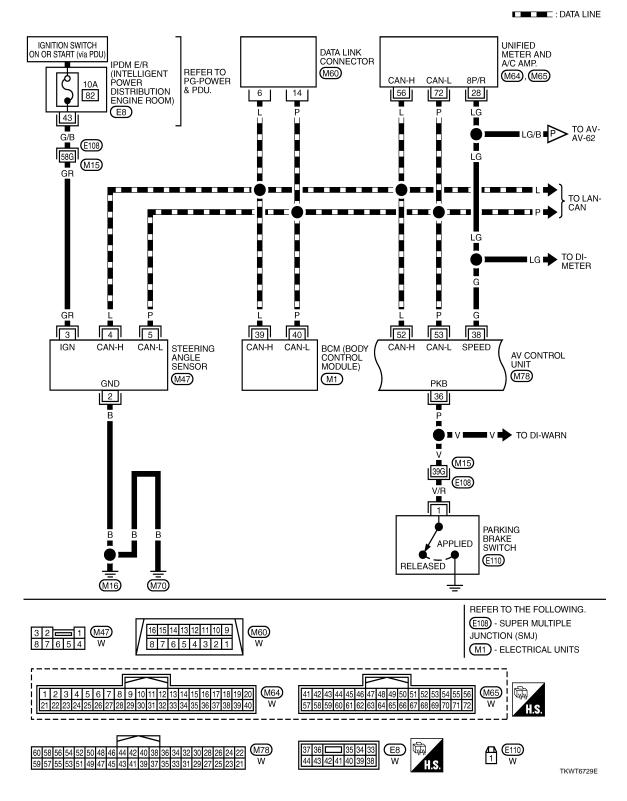
# < ECU DIAGNOSIS >

# BOSE AMP. [WITH MOBILE ENTERTAINMENT SYSTEM]

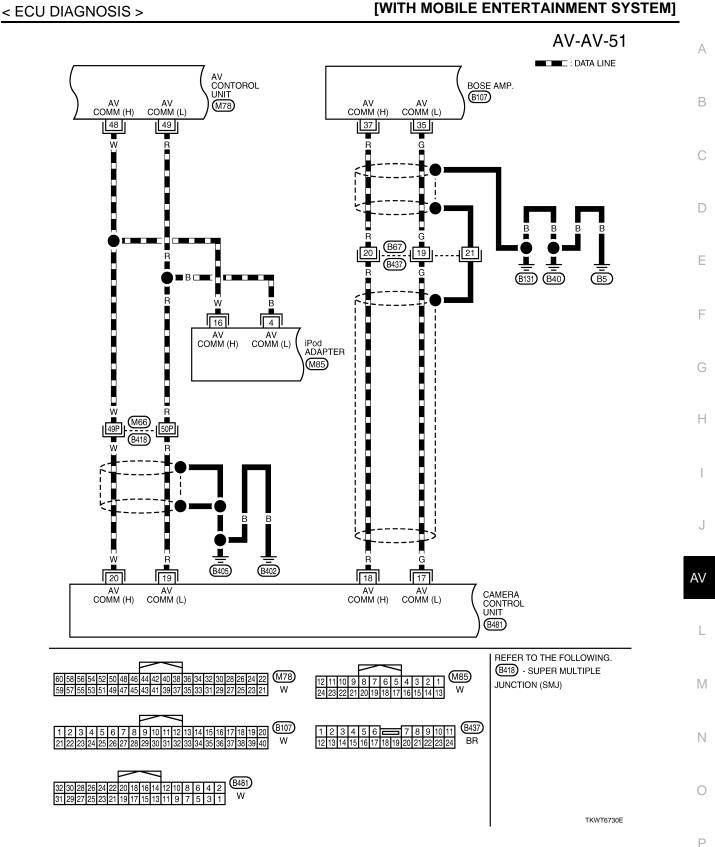


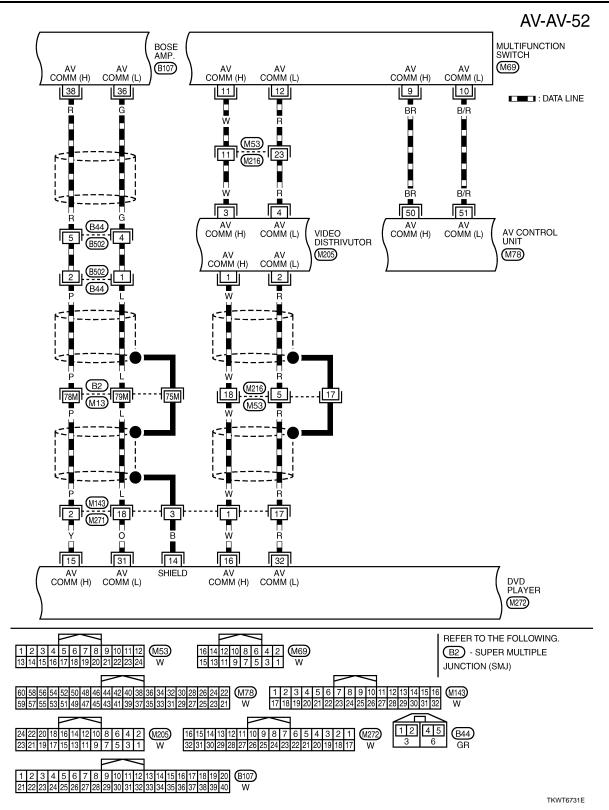
TKWT8295E

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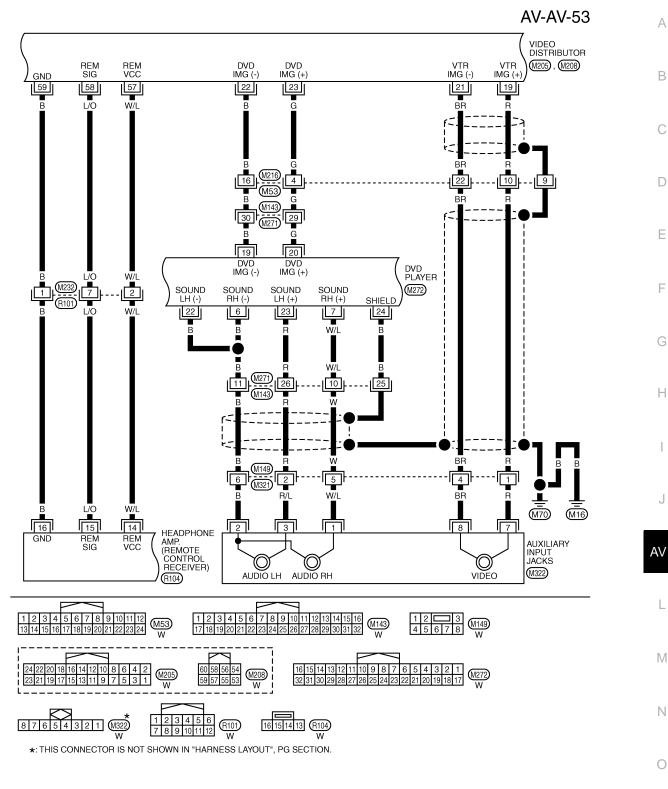


## **AV-AV-50**

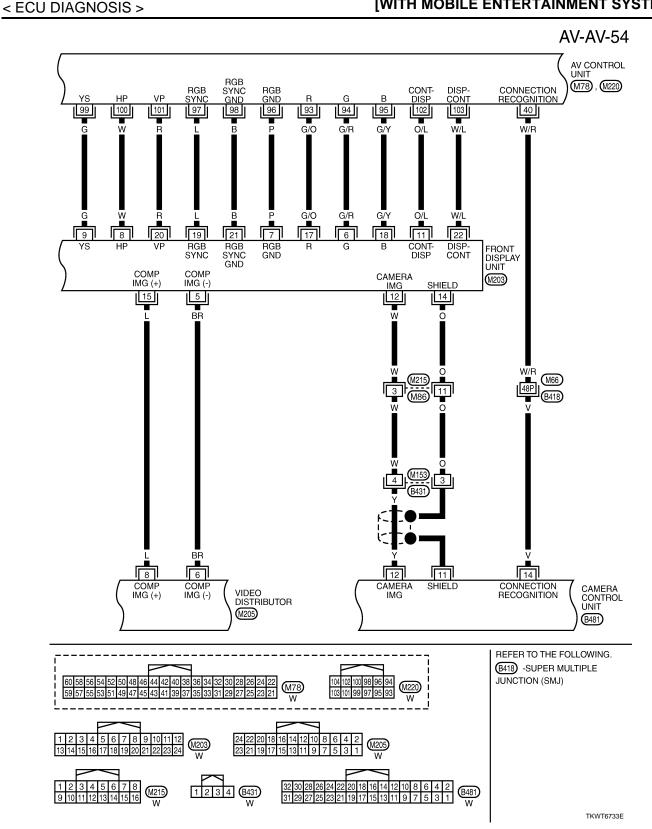




BOSE AMP.

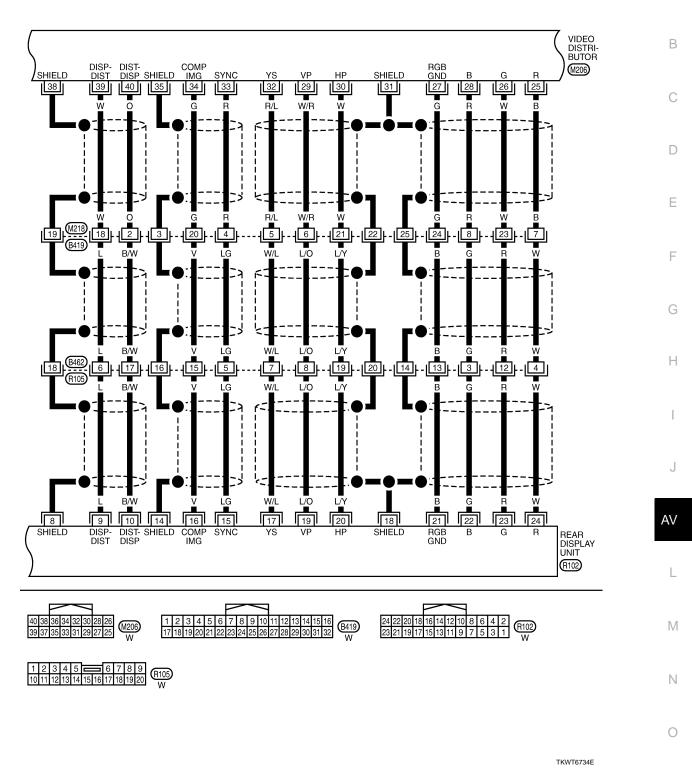


TKWT8296E

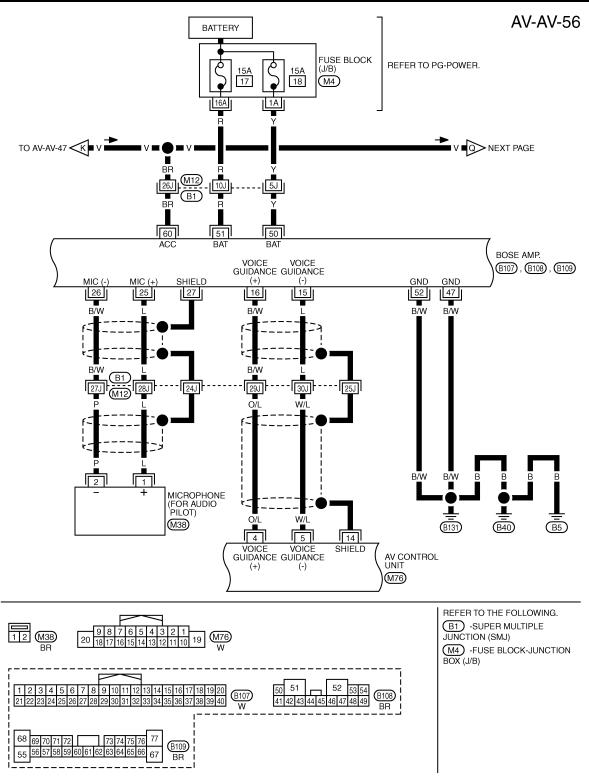




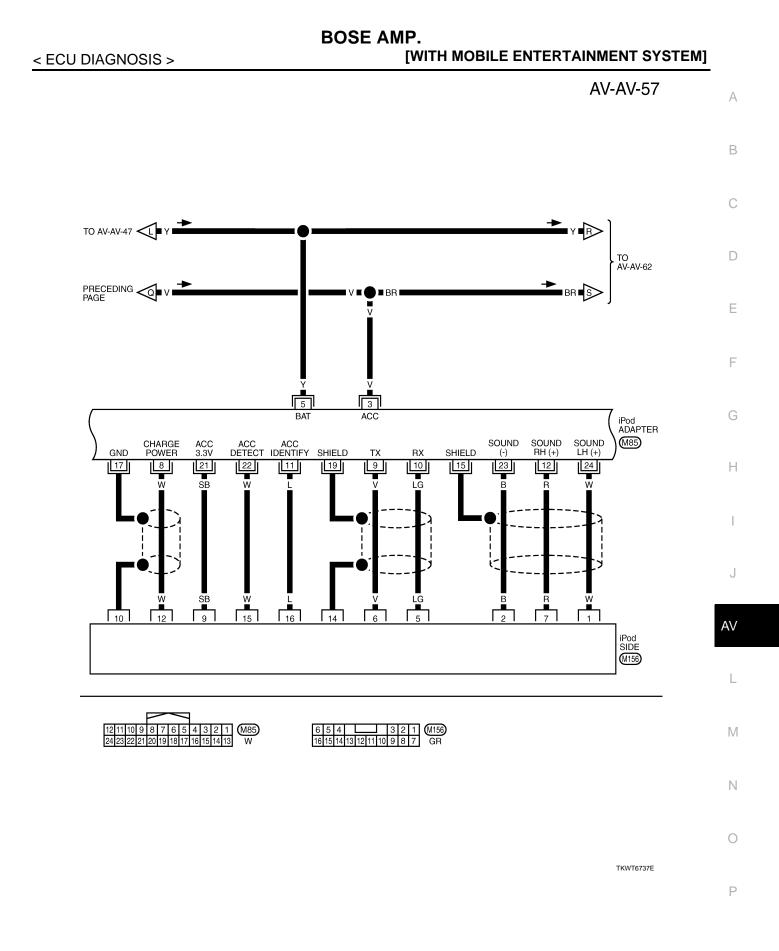
А

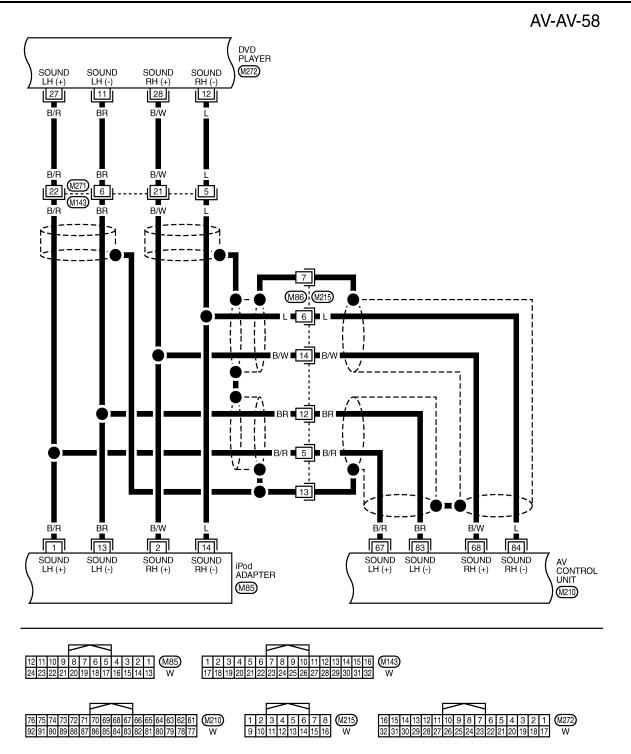




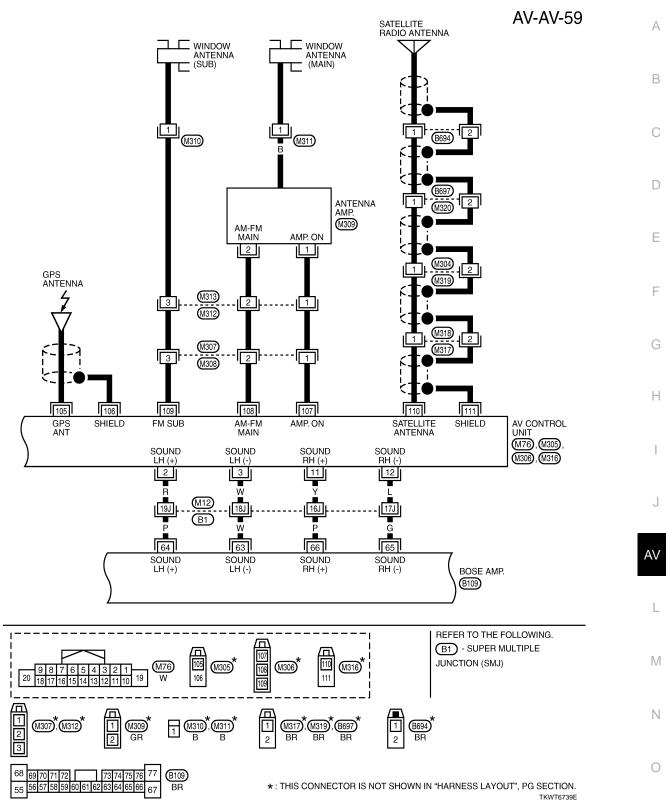


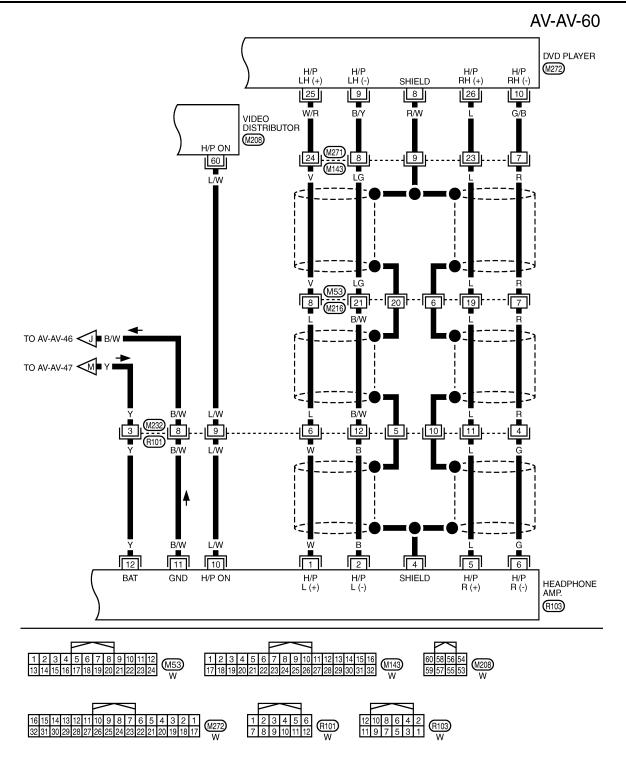
TKWT8297E





TKWT6738E



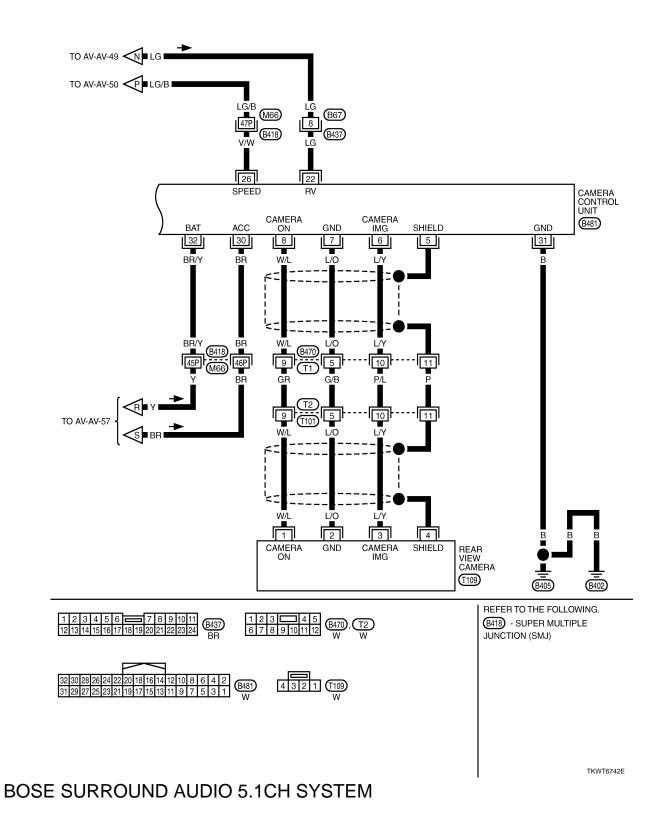


TKWT6740E

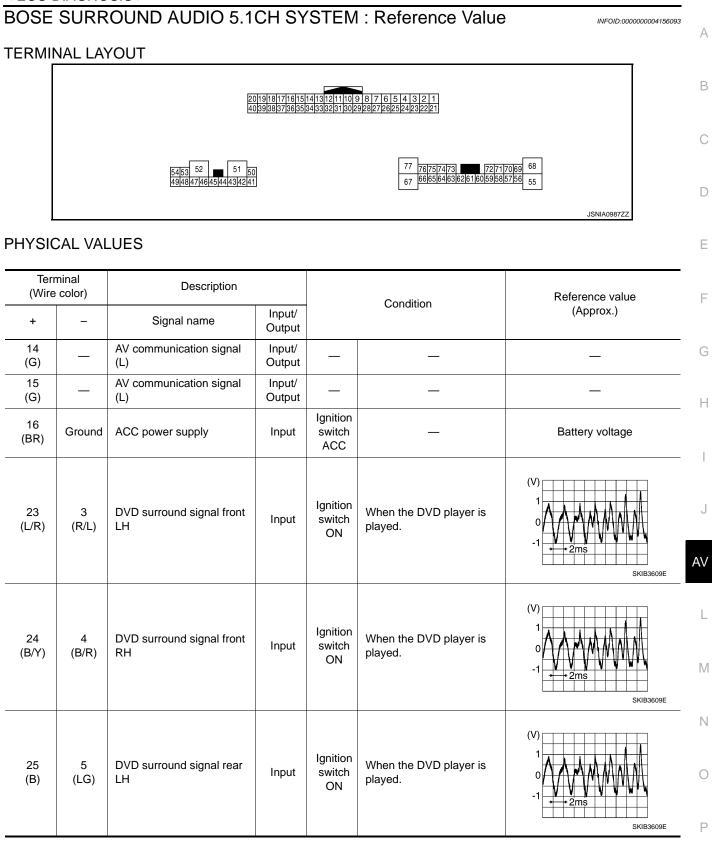
	AV-AV-61
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$V = G = \begin{bmatrix} 17 \\ 17 \\ 837 \\ 13 \\ 865 \\ 12 \\ 12 \\ 13 \\ 865 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 1$	D
Image: Constraint of the second se	BOSE AMP.
SOUND         SOUND         SOUND         SOUND         SOUND           FL (+)         FL (-)         FR (+)         FR (-)           58         59         71         72	(B108), (B109)
	G
	Н
	I
	J
Image: speaker line     Image: speaker l	TWEETER AV RH (D33)
I         I	- SUPER
1       2       3       4       5       6       7       8       9       10       837       .6425       50       51       52       53       54       68       69       70       71       72       73       74       75       76       77         11       12       13       14       15       16       17       18       W       W       W       BR       BR       68       69       70       71       72       73       74       75       76       77         11       12       13       14       15       16       17       18       W       W       W       BR       BR       55       56       57       58       59       60       61       62       63       64       65       67       55       56       57       58       59       60       61       62       63       64       65       67       55       56       57       58       59       60       61       62       63       64       65       67       55       56       57       58       56       67       55       56       57       58       56       56	(8109) BR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 W 2 B434 W 2 B472 12 D8, D38, D53, D73 BR BR BR BR BR BR	О
	Р

# [WITH MOBILE ENTERTAINMENT SYSTEM]

AV-AV-62



#### [WITH MOBILE ENTERTAINMENT SYSTEM]



#### < ECU DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

	minal e color)	Description		Condition		Reference value
+	-	Signal name	Input/ Output		Condition	(Approx.)
26 (W)	6 (L)	DVD surround signal rear RH	Input	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 -1 -1 SKIB3609E
27 (LG)	7 (R)	DVD surround signal center	Input	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 + 2ms SKIB3609E
28 (BR)	8 (R/B)	DVD surround signal woof- er	Input	Ignition switch ON	When the DVD player is played.	(V) 0. 6 0. 4 0. 2 0 -0. 2 -0. 4 -0. 6 PKIB6116J
29 (R/L)	9 (W)	Sound signal LH	Input	Ignition switch ON	Audio sound output. (except DVD mode)	(V) 1 0 -1 • • 2ms SKIB3609E
30 (P)	10 (L)	Sound signal RH	Input	Ignition switch ON	Audio sound output. (except DVD mode)	(V) 1 0 -1 + 2ms SKIB3609E
31 (L)	11 (B/W)	MIC. signal (for AudioPilot <sup>®</sup> )	Input	Ignition switch ON	When inputting noise.	(V) 6 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

# < ECU DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output		Condition	(Approx.)	
32 (B/W)	12 (L)	Voice guidance signal	Input	lgnition switch ON	When inputting voice guid- ance.	(V) 1 0 -1 -2ms SKIB3609E	B C D
33	—	Shield	—	—	_	—	
34 (R)	_	AV communication signal (H)	Input/ Output	_	_	_	Е
35 (R)		AV communication signal (H)	Input/ Output		_	_	F
36	—	Shield	—	—	—	_	F
41 (L)	42 (B/W)	Sound signal front door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • 2ms SKIB3609E	G H
43 (BR)	44 (B/R)	Sound signal front door speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	ا ل
45 (BR)	46 (B/R)	Sound signal woofer	Output	lgnition switch ON	Sound output.	(V) 0.6 0.4 0.2 0 -0.2 -0.4 -0.6 PKIB6116J	L
47 (B/W)	Ground	Ground	_	Ignition switch ON	_	0 V	Ν
50 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	0
51 (R)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	Ρ
52 (B/W)	Ground	Ground	_	Ignition switch ON		0 V	

#### < ECU DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output			(Approx.)
54 (LG)	49 (B/Y)	Sound signal rear door speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
56 (B/W)	69 (L)	Sound signal passenger seat speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • 2ms SKIB3609E
57 (O/B)	58 (W/R)	Sound signal center speak- er	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E
59 (B)	72 (W)	Sound signal rear surround speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • 2ms SKIB3609E
62 (G/Y)	73 (GR/R)	Sound signal rear surround speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • 2ms SKIB3609E
63 (B/W)	74 (L)	Sound signal driver seat speaker LH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKiB3609E

#### < ECU DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

	minal e color)	Description		Condition		Reference value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
64 (B/R)	75 (BR)	Sound signal driver seat speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 0 -1 • 2ms SKIB3609E	B C D
68 (O)	55 (B/P)	Sound signal rear door speaker RH	Output	lgnition switch ON	Sound output.	(V) 1 0 -1 + 2ms SKIB3609E	E
71 (Y)	70 (BR)	Sound signal passenger seat speaker RH	Output	Ignition switch ON	Sound output.	(V) 1 -1 -2 SKIB3609E	G

### BOSE SURROUND AUDIO 5.1CH SYSTEM : Schematic - BOSE 5.1ch Surround Au-

AV

L

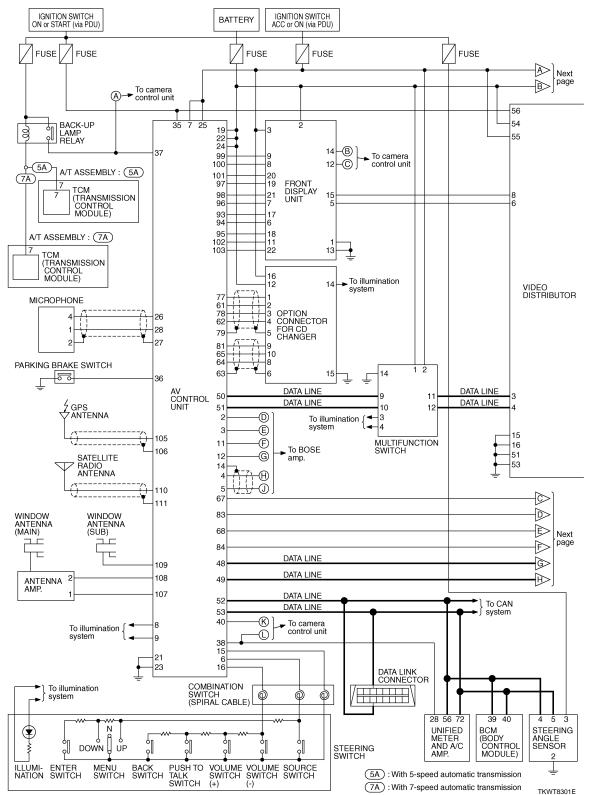
Μ

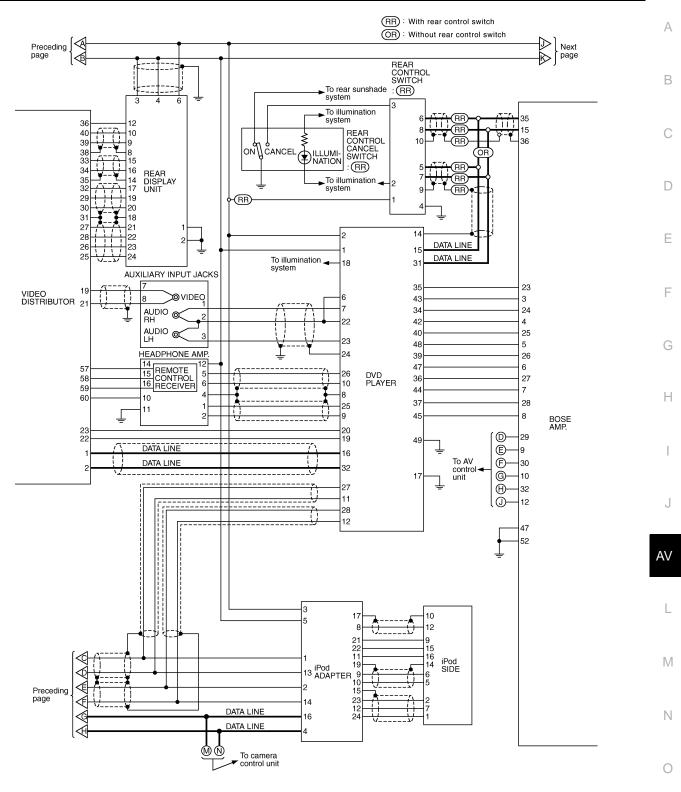
Ν

Ο

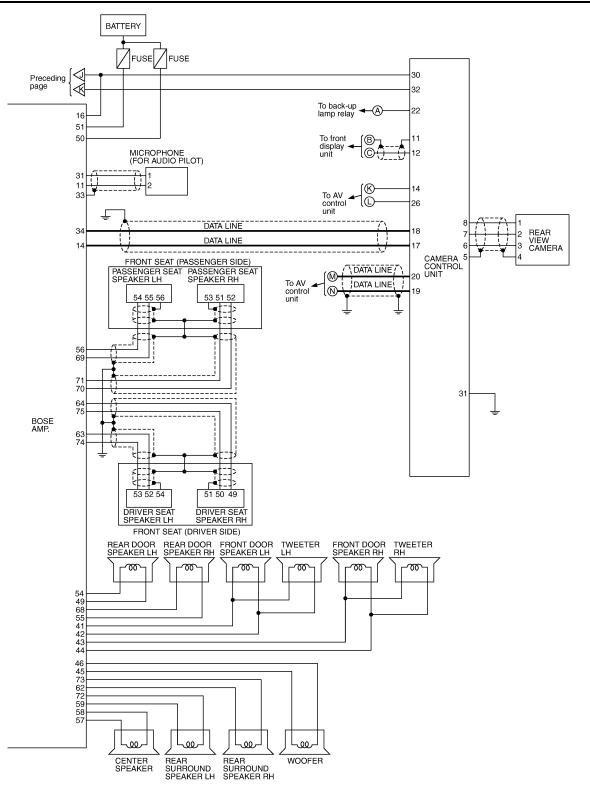
#### dio System -







TKWT6744E



TKWT6745E

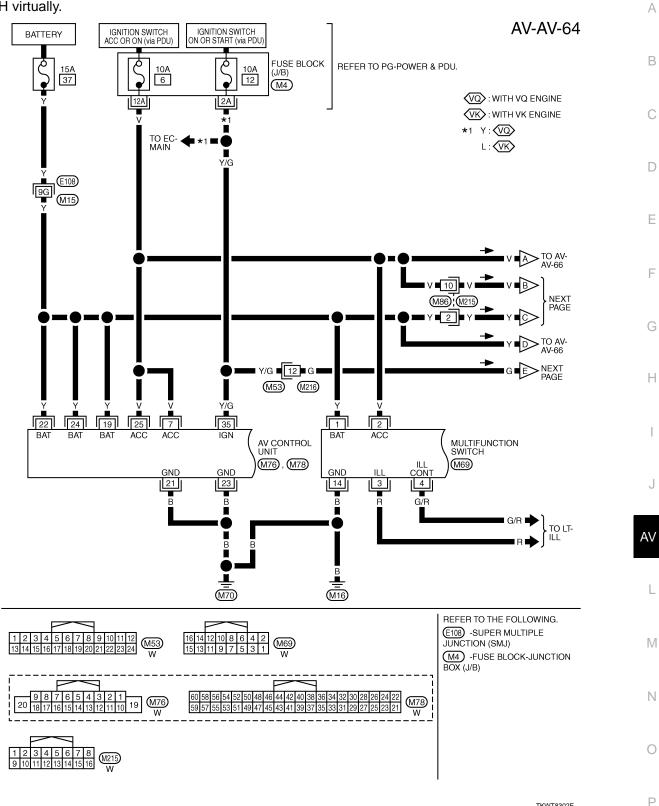
## BOSE SURROUND AUDIO 5.1CH SYSTEM : Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

NOTE:

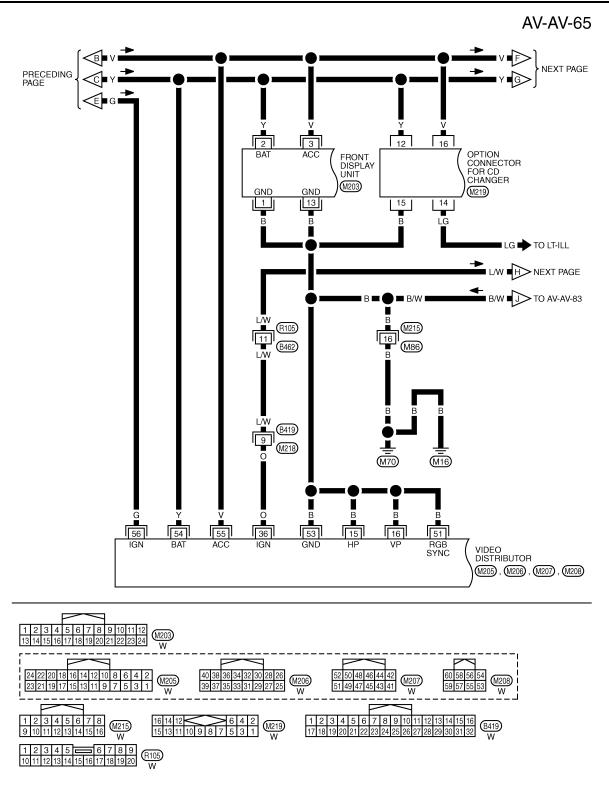
#### < ECU DIAGNOSIS >

#### BOSE AMP. [WITH MOBILE ENTERTAINMENT SYSTEM]

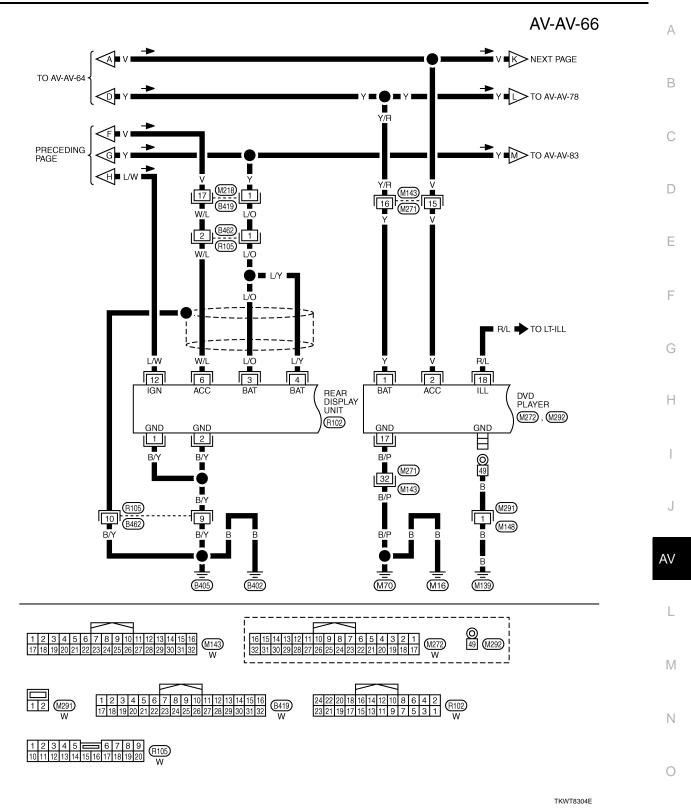
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.



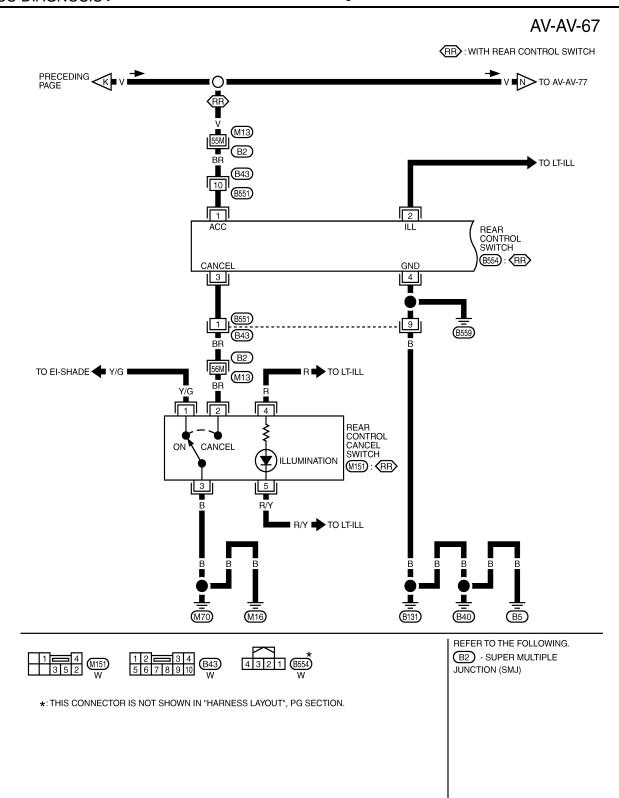
TKWT8302E



TKWT8303E



Revision: 2009 Novemver

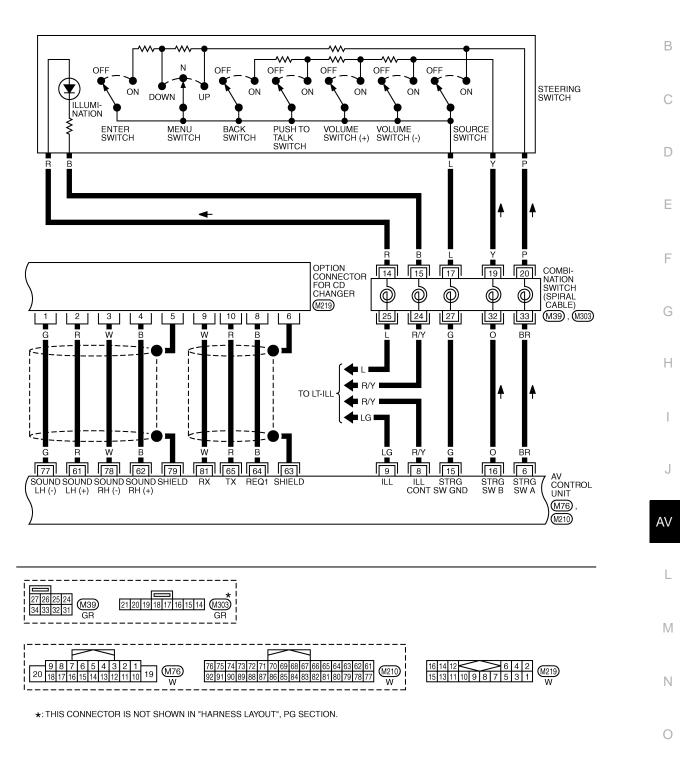


TKWT6749E

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

AV-AV-68

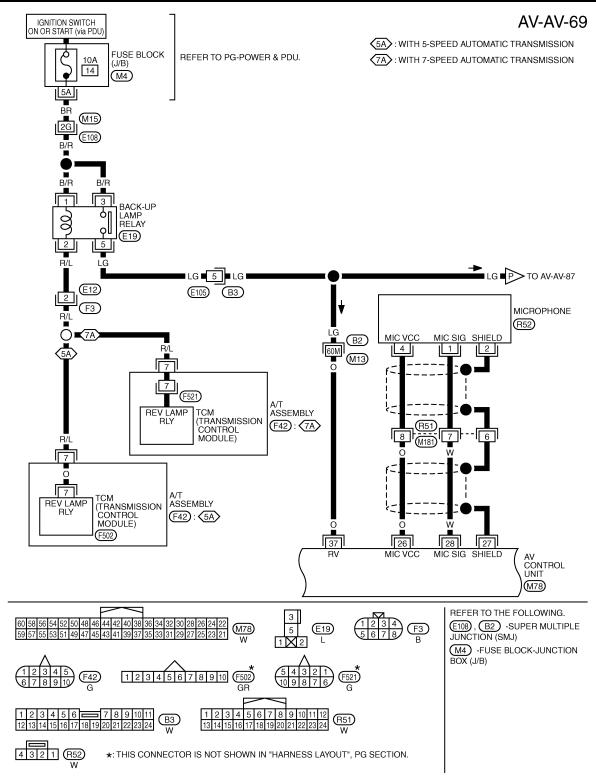
А



TKWT8305E

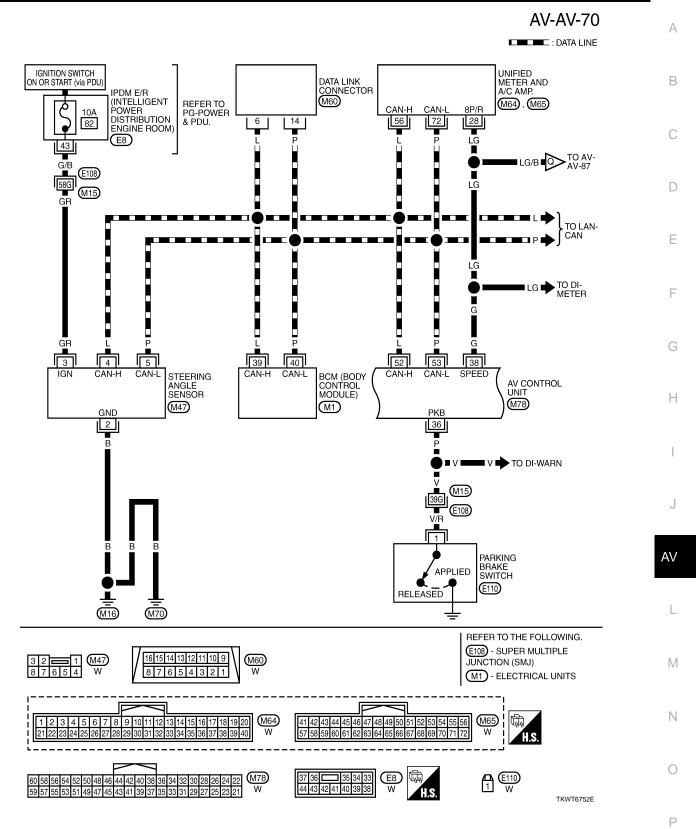
#### < ECU DIAGNOSIS >

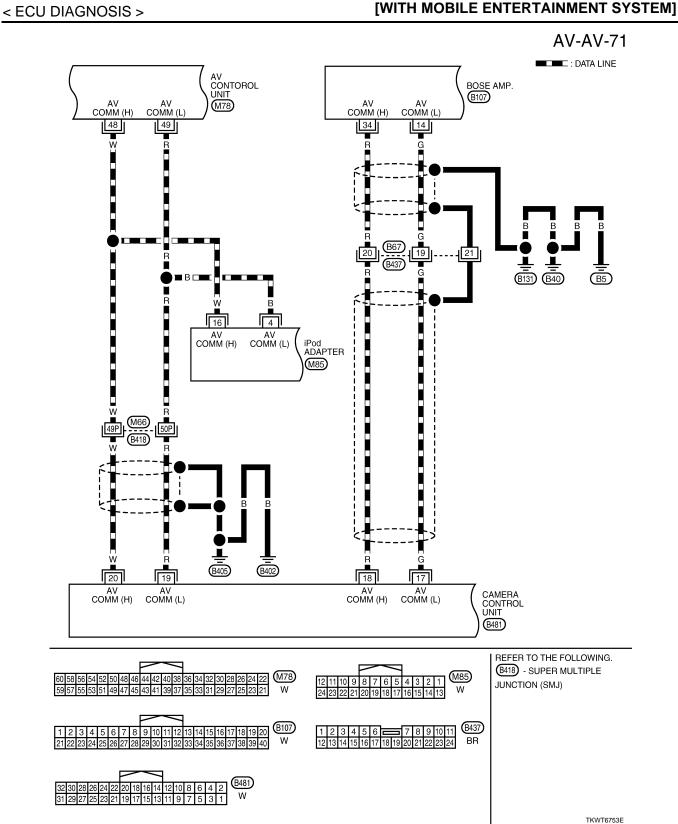
#### BOSE AMP. [WITH MOBILE ENTERTAINMENT SYSTEM]



TKWT8306E

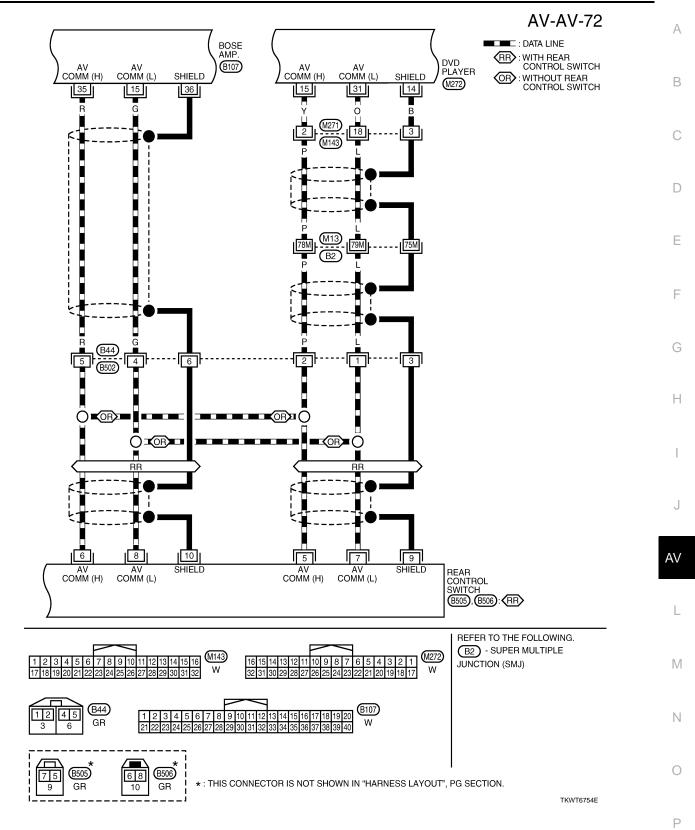


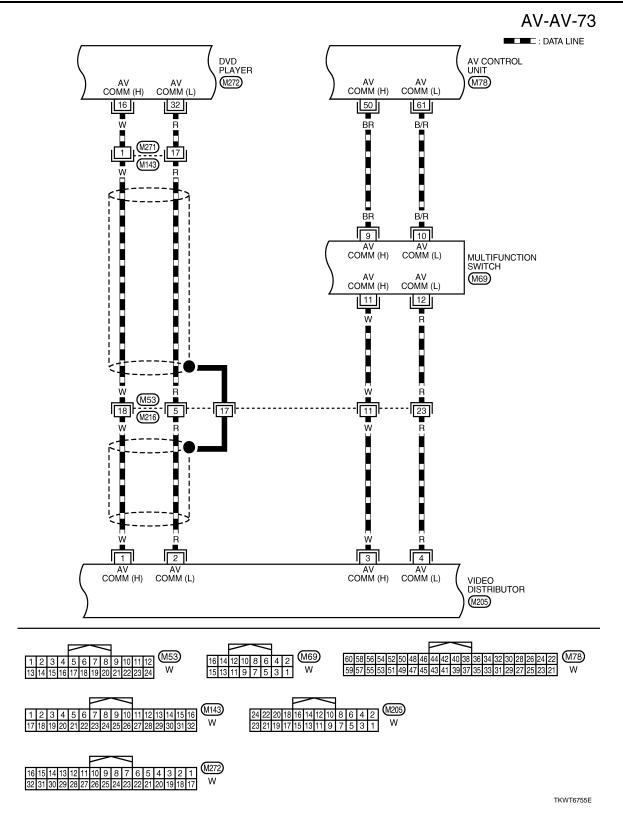




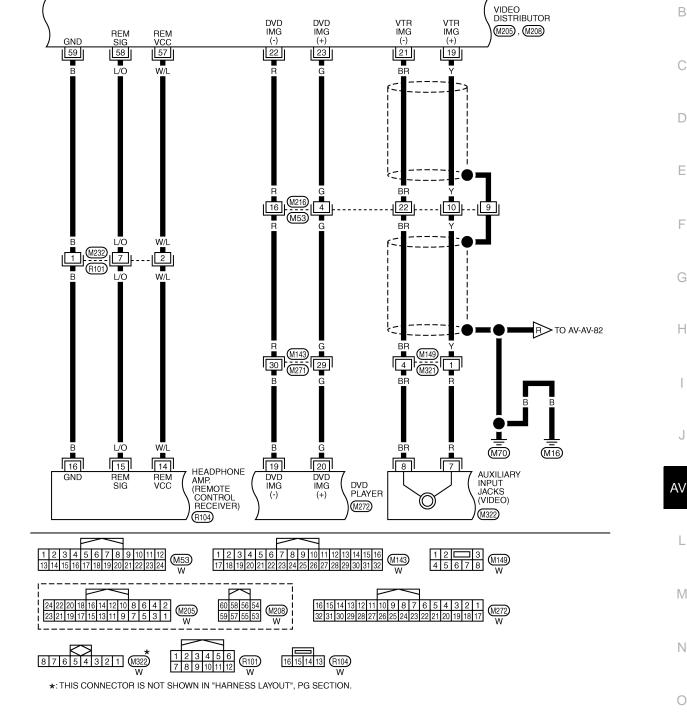
#### < ECU DIAGNOSIS >

#### BOSE AMP. [WITH MOBILE ENTERTAINMENT SYSTEM]





< ECU DIAGNOSIS >



#### BOSE AMP. [WITH MOBILE ENTERTAINMENT SYSTEM]

AV-AV-74

А

В

С

D

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Н

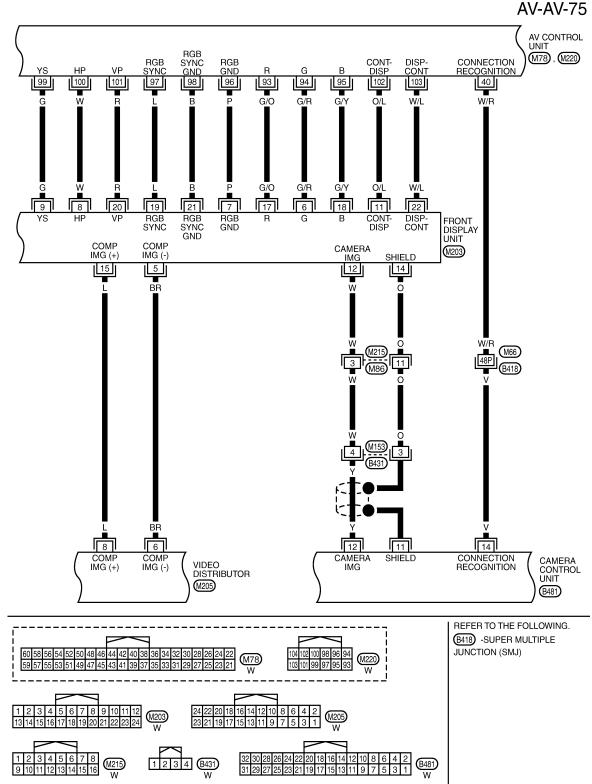
J

L

Μ

Ν

Ο



TKWT6757E

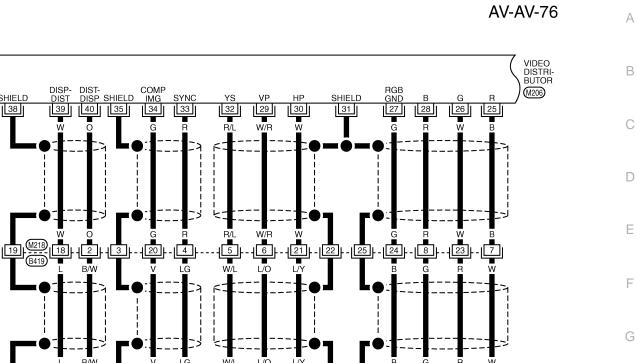
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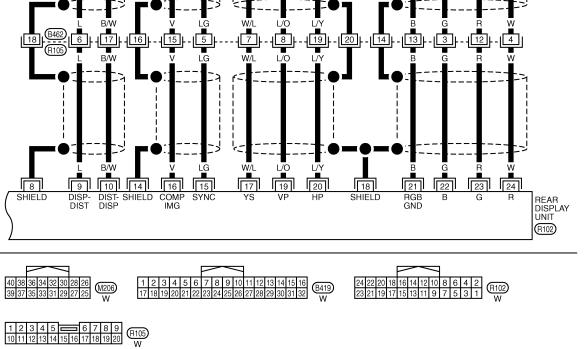
SHIELD

38

W

#### BOSE AMP. [WITH MOBILE ENTERTAINMENT SYSTEM]





AV L

J

Н

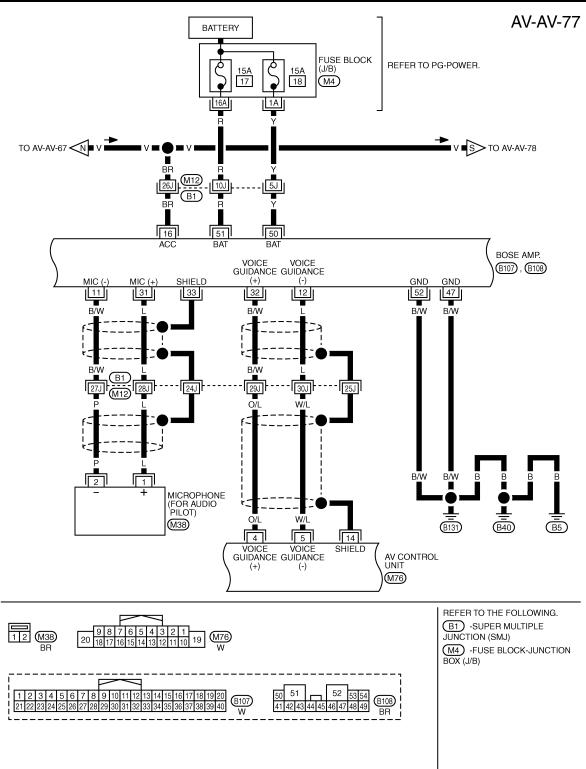
Ν

Ο

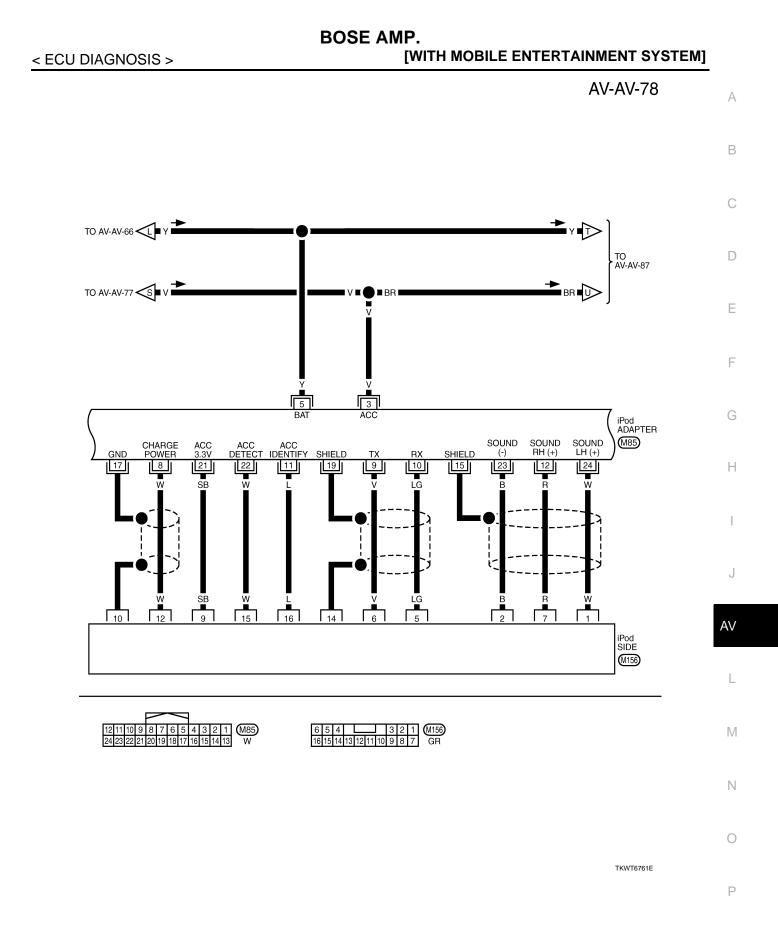
Μ

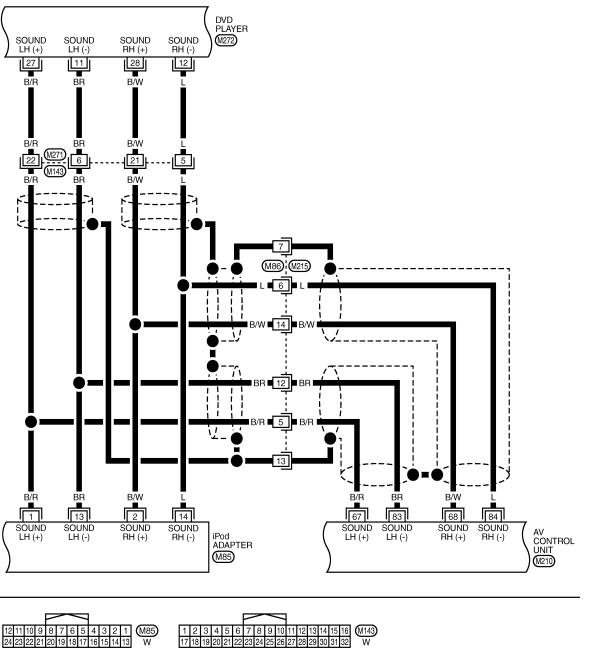
TKWT5152E





TKWT8308E



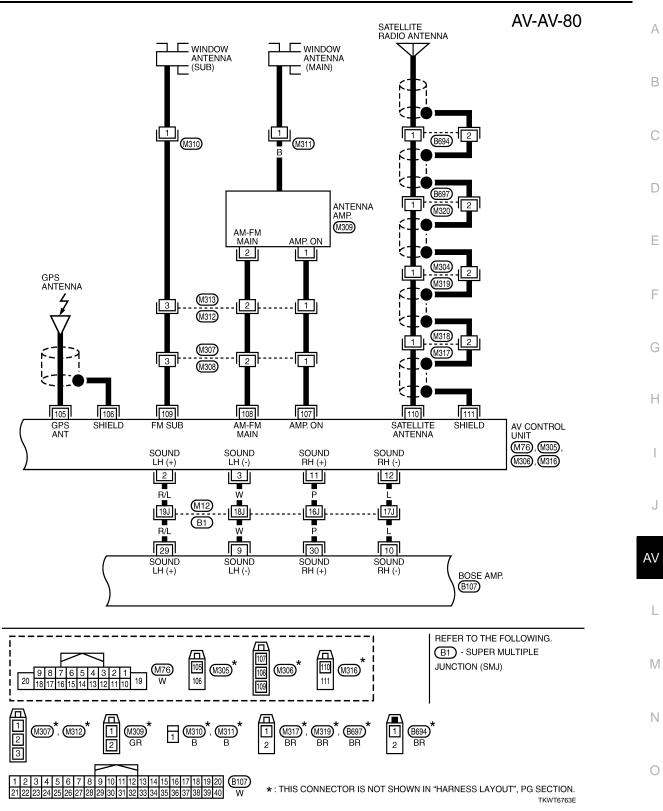


AV-AV-79

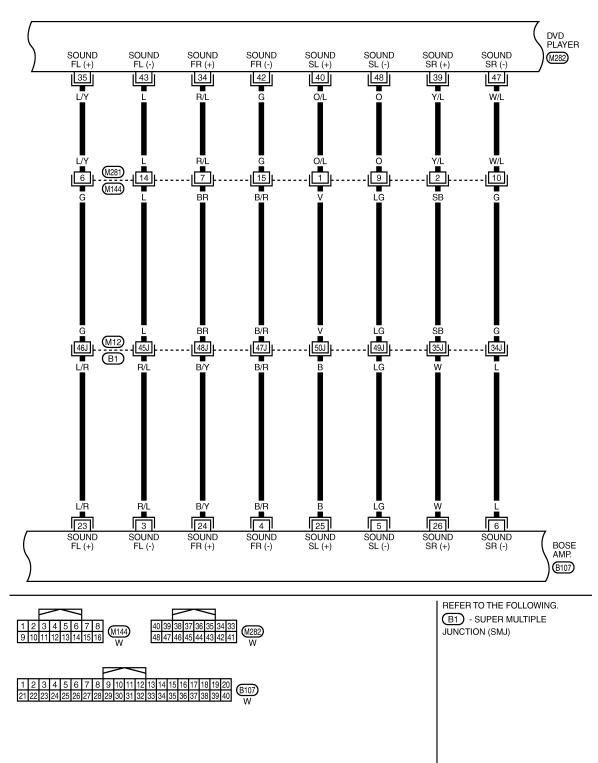
 76
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 63
 62
 61
 M210
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 8
 M215
 16
 15
 14
 13
 12
 11
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 M215
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 M215
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 M272

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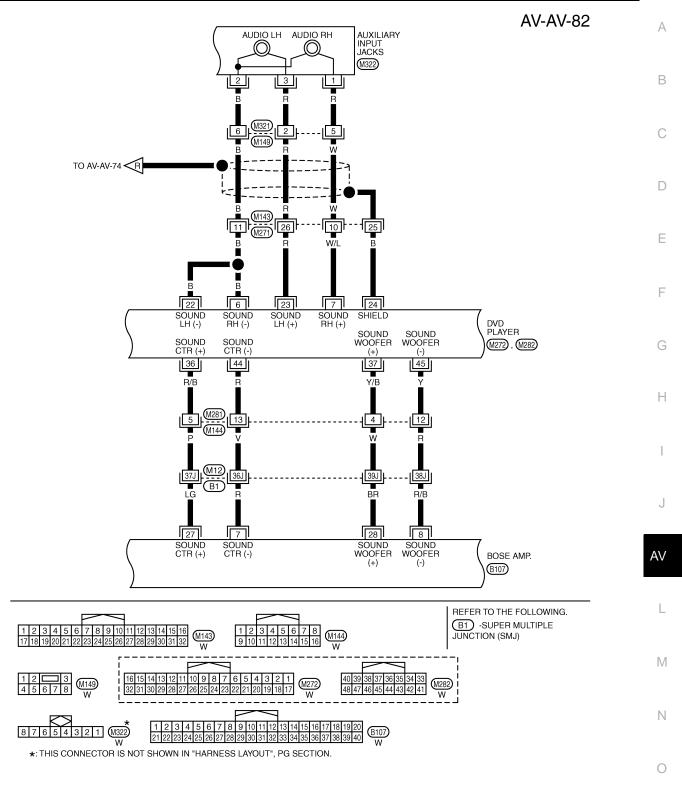
TKWT6762E



AV-AV-81



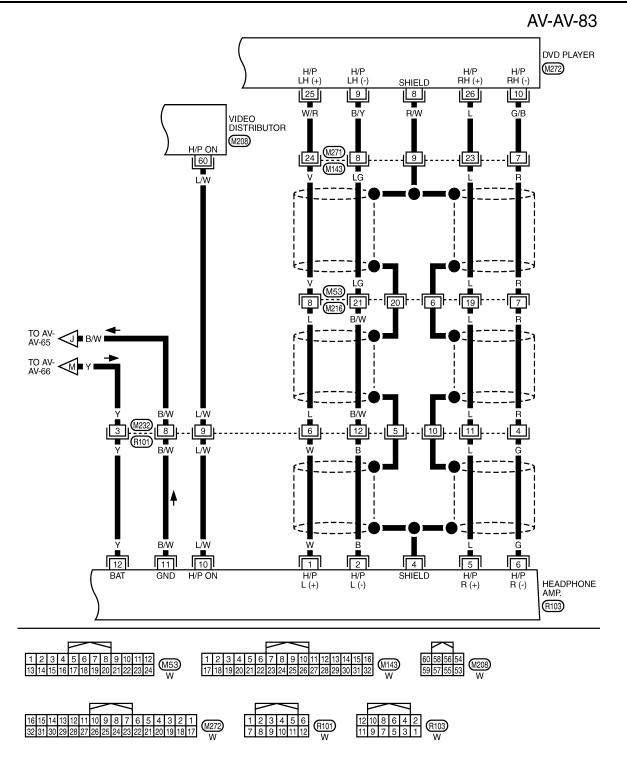
TKWT6764E



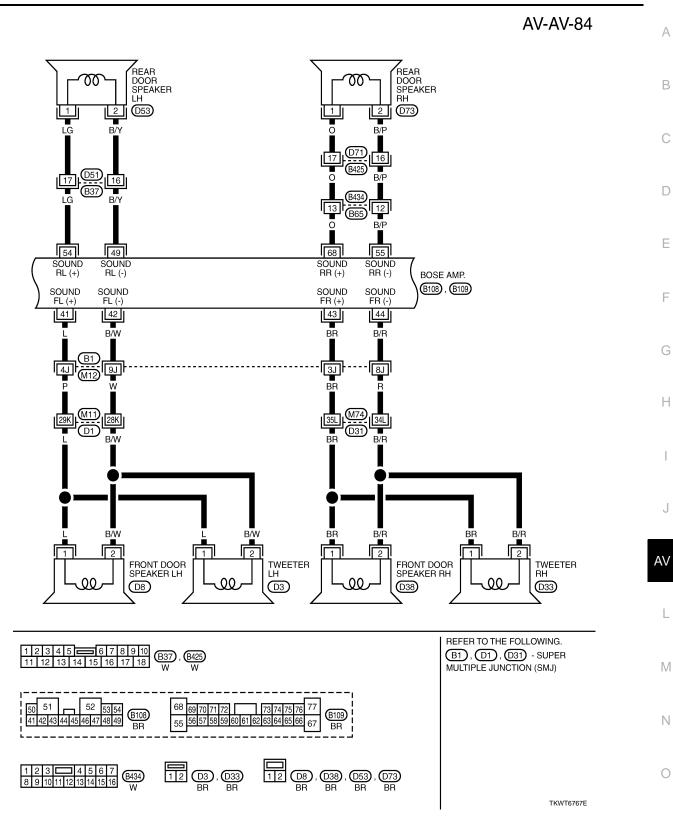
TKWT8309E

#### < ECU DIAGNOSIS >

#### [WITH MOBILE ENTERTAINMENT SYSTEM]



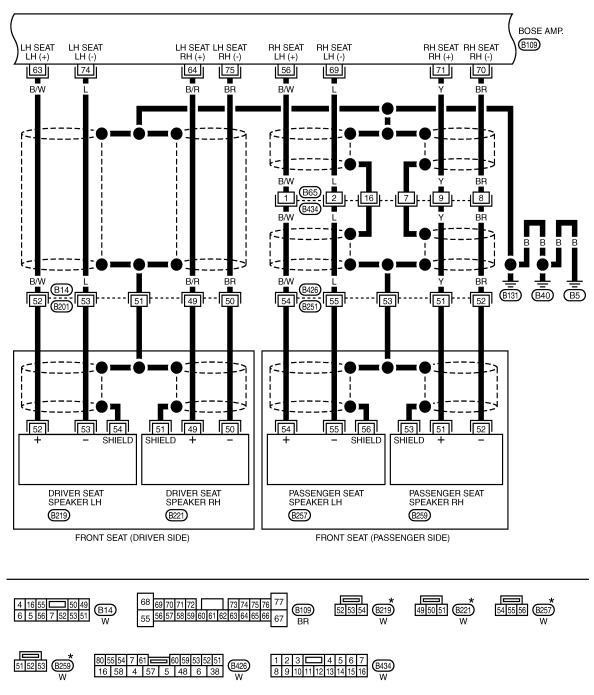
TKWT6766E



Revision: 2009 Novemver

2009 M35/M45

AV-AV-85



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT6768E

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 W

< ECU DIAGNOSIS >

SOUND CTR (+)

57

О/В

O/B

SOUND CTR (-)

58

W/R

B1 W/R M12 7J

SOUND

SL (+)

59

В

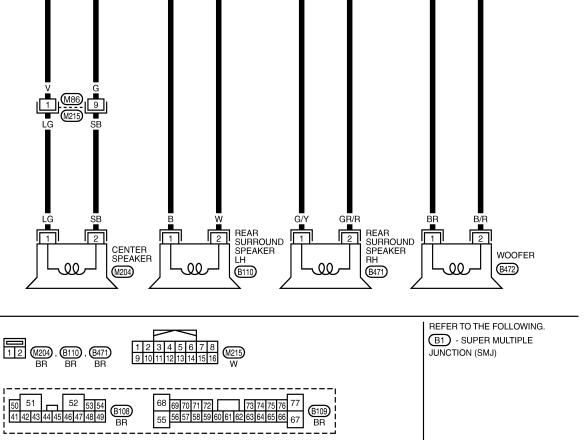
1 2 B472 W

SOUND

SL (-)

72

Ŵ



SOUND SR (+)

62

G/Y

G/Y

G/Y

(B434)

SOUND SR (-)

73

GR/R

GR/R

GR/R

**AV-AV-86** 

BOSE AMP.

B108 , B109

А

В

С

D

Ε

F

Н

J

L

Μ

Ν

Ο

Ρ

SOUND WOOFER

(-)

46

B/R

В/R 14

B/R

SOUND WOOFER

(+)

45

BR

BR

BR

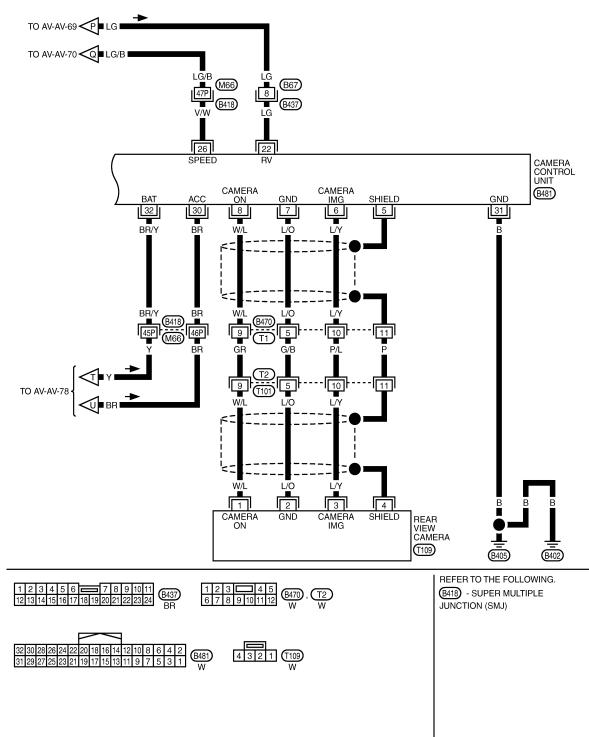
TKWT6769E

AV-895

AV

## [WITH MOBILE ENTERTAINMENT SYSTEM]

AV-AV-87



TKWT6770E

#### IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]

# < ECU DIAGNOSIS >

# IPOD ADAPTER

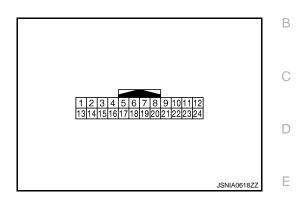
Reference Value

**TERMINAL LAYOUT** 

INFOID:000000004156096

А

F



#### PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value	-
+	_	Signal name	Input/ Output	Conation		(Approx.)	
1 (B/R)	13 (BR)	iPod sound signal LH	Output	lgnition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
2 (B/W)	14 (L)	iPod sound signal RH	Output	lgnition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 -1 -1 SKIB3609E	A
3 (V)	Ground	ACC power supply	Input	Ignition switch ACC		Battery voltage	-
4 (B)	_	AV communication signal (L)	Input/ Output	_	_	_	-
5 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage	-
8 (W)	Ground	iPod battery charge	Output	Ignition switch ON	Connected to iPod <sup>®</sup> .	12 V	-

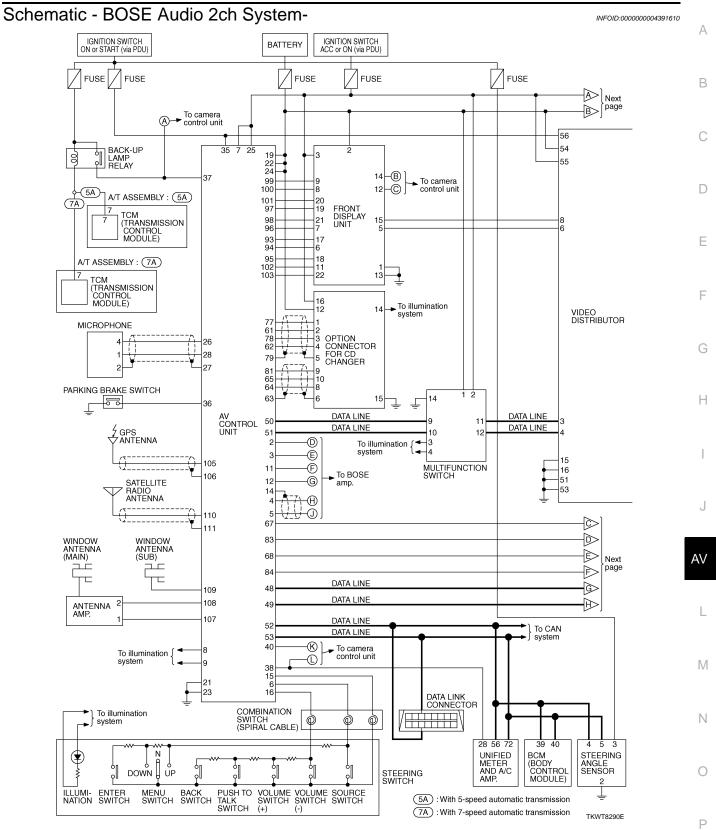
# IPOD ADAPTER

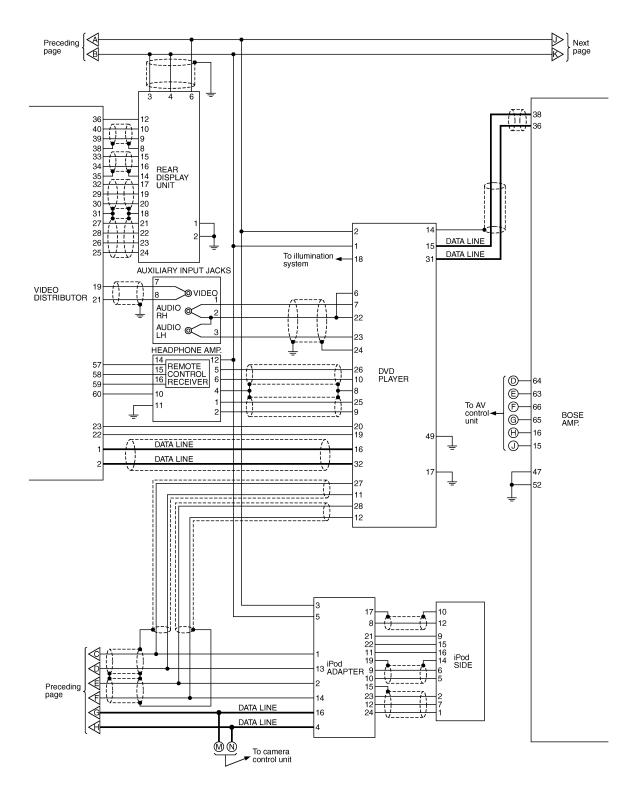
# < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

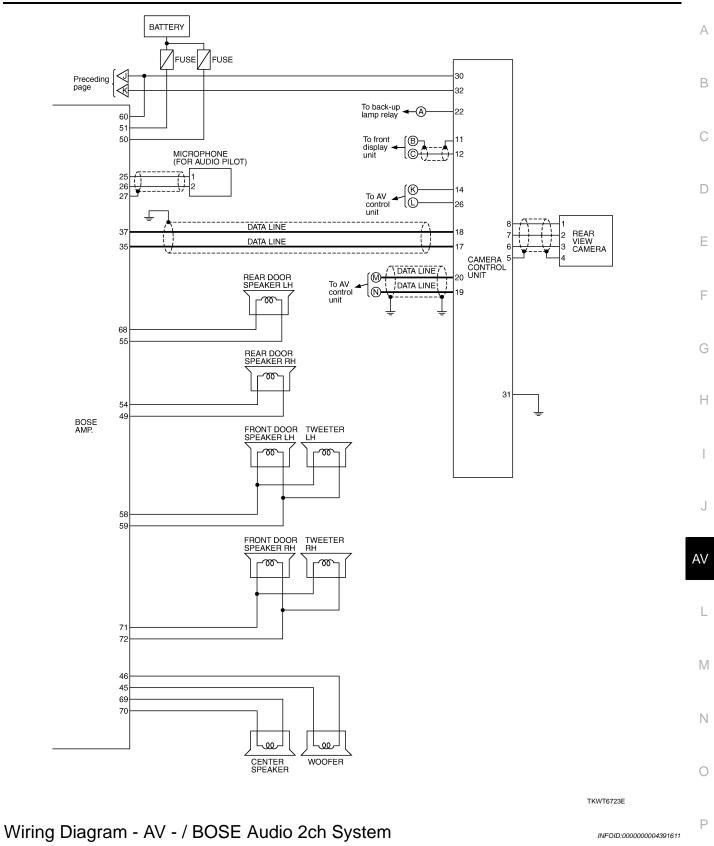
Terminal (Wire color)		Description		Condition		Reference value
+	_	Signal name	Input/ Output	Condition		(Approx.)
9 (V)	Ground	Communication signal (iPod adapter→iPod <sup>®</sup> )	Output	Ignition switch ON	The wave pattern is dis- played just after iPod con- nection.	NOTE: After the wave pattern display, the value continues Approx 3.3 V
10 (LG)	Ground	Communication signal (iPod <sup>®</sup> →iPod adapter)	Input	Ignition switch ON	Connected to iPod <sup>®</sup> .	(V) 3 1 0 ++2ms JDNIA0462GB
11 (L)	Ground	ACCESSORY-IDENTIFY	_	Ignition switch ON	Connected to iPod <sup>®</sup> .	0 V
12 (R)	23 (B)	iPod sound signal RH	Input	Ignition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 −1 + 2ms SKIB3609E
15	_	Shield			_	
16 (W)		AV communication signal (H)	Input/ Output		_	_
17	Ground	Ground	_	Ignition switch ON	_	0 V
19	_	Shield			—	_
21		iPod connection recogni-		Ignition	Not connected to iPod <sup>®</sup> .	4 V
(SB)	Ground	tion signal	Input	switch ON	Connected to iPod <sup>®</sup> .	0 V
22 (W)	Ground	ACCESSORY-DETECT	_	Ignition switch ON	Connected to iPod <sup>®</sup> .	0 V
24 (W)	23 (B)	iPod sound signal LH	Input	Ignition switch ON	Connect and play iPod <sup>®</sup> .	(V) 1 0 -1 • 2ms SKIB3609E

#### IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]





TKWT6722E

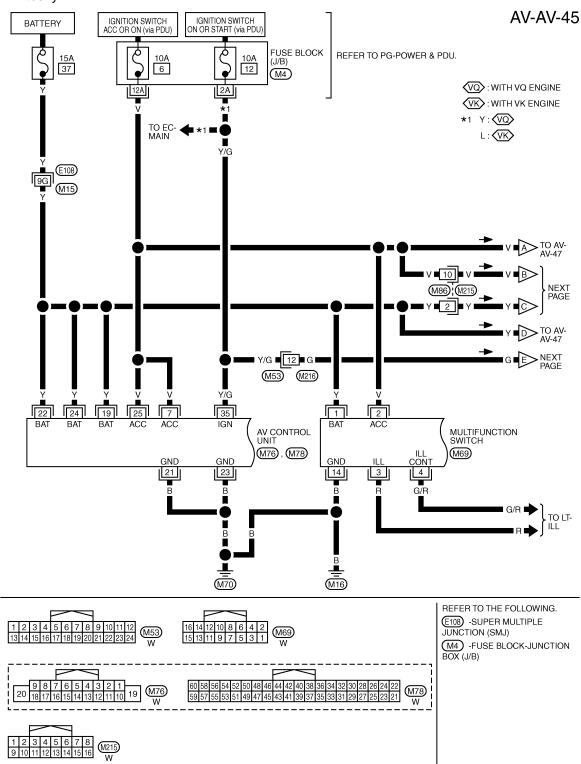


#### NOTE:

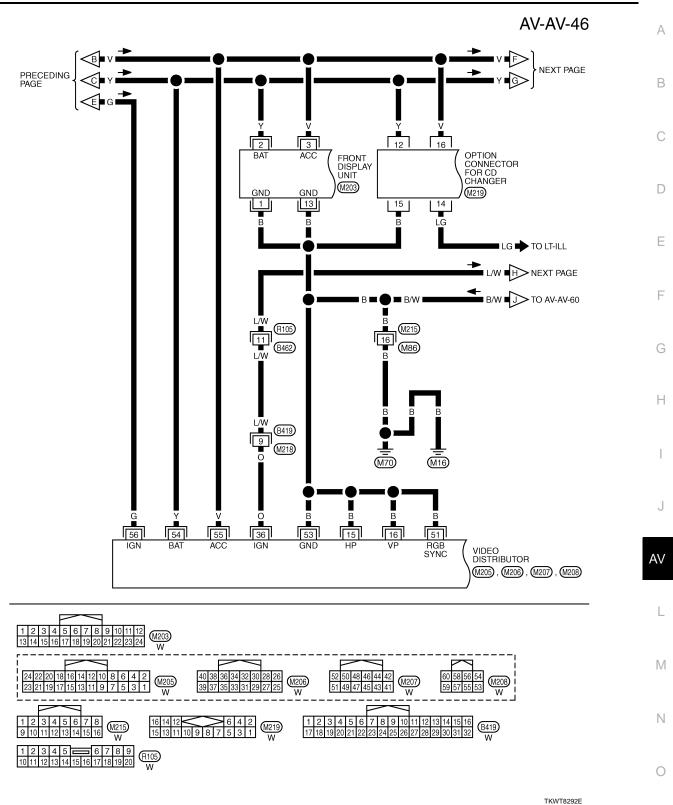
### **IPOD ADAPTER**

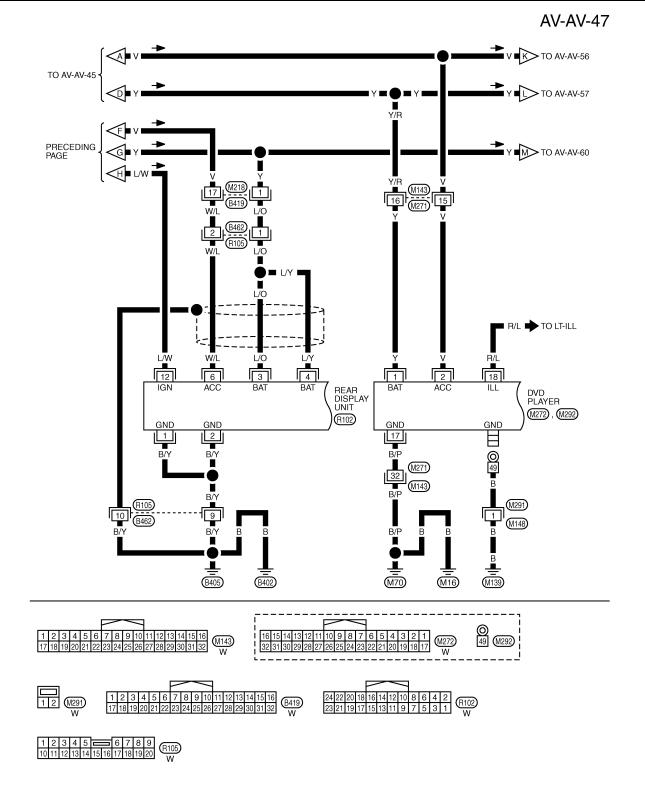
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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



TKWT8291E

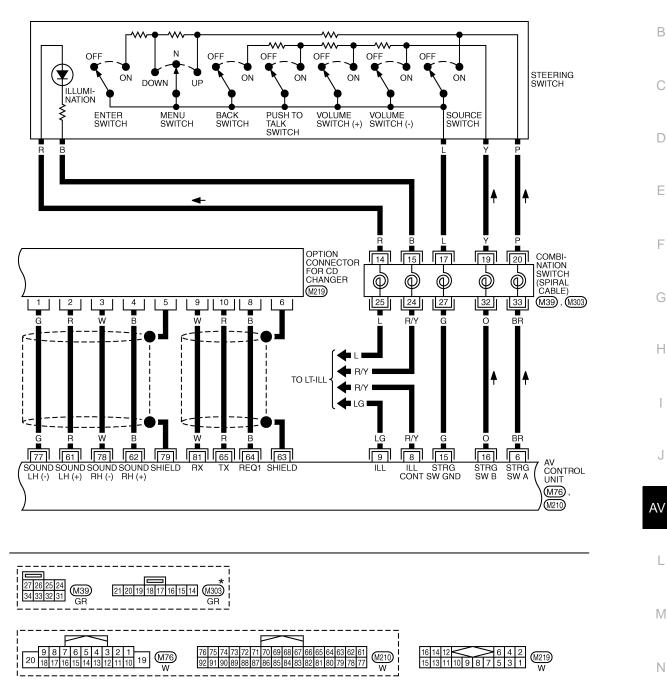




TKWT8293E

### AV-AV-48

А



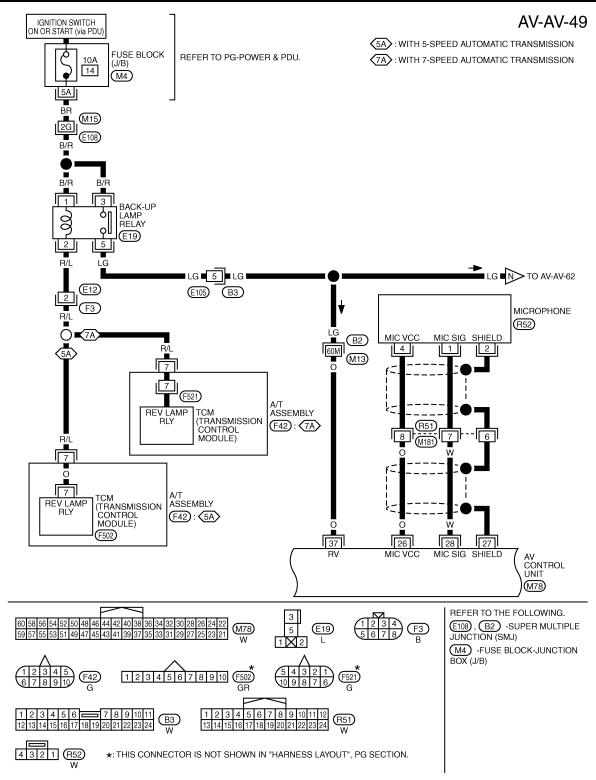
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8294E

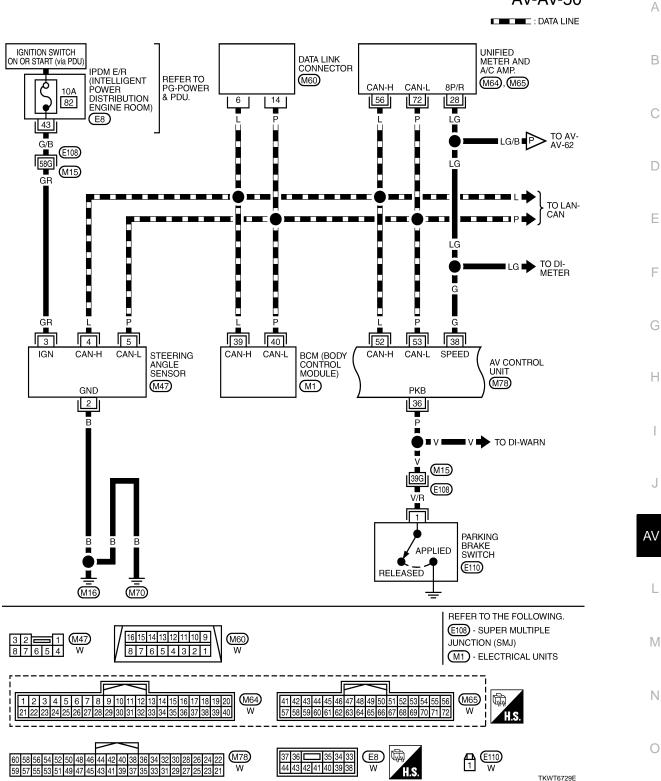
Ρ

Ο

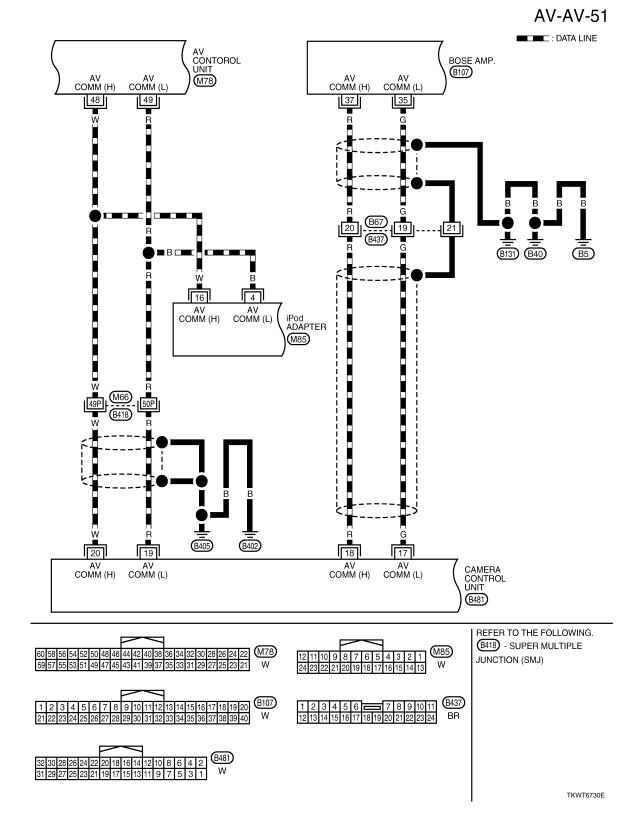
### IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]

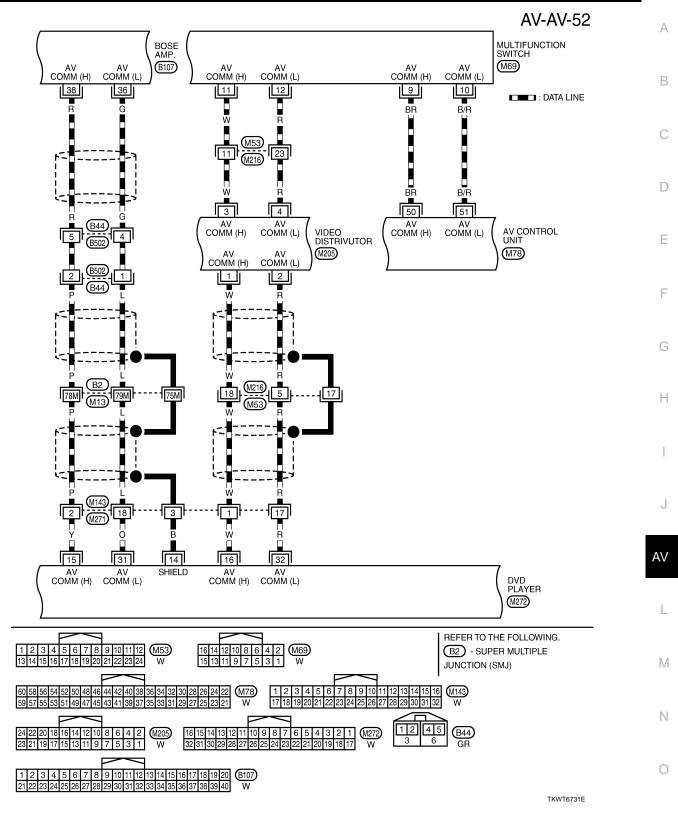


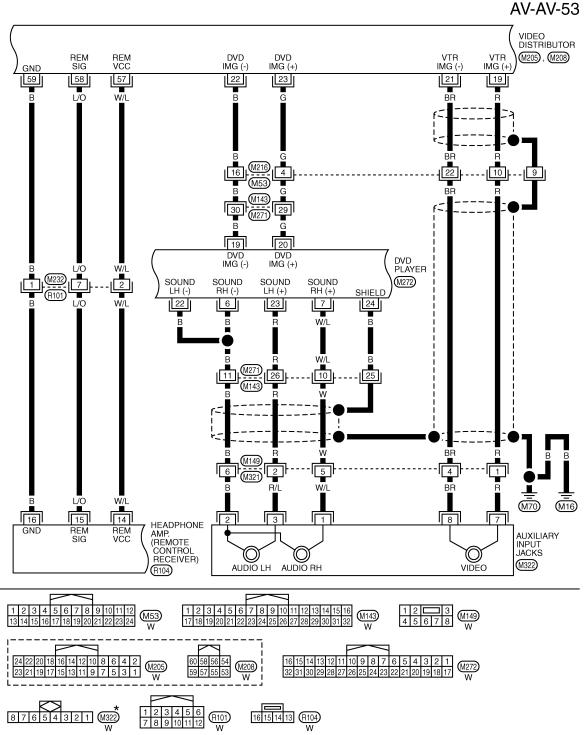
TKWT8295E



AV-AV-50

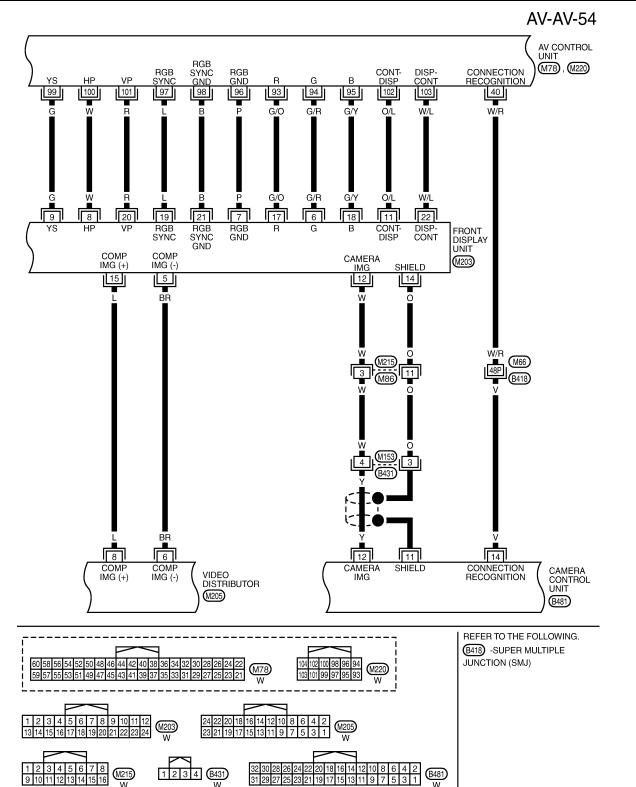






\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8296E



TKWT6733E

А

В

С

D

Ε

F

Н

J

AV

L

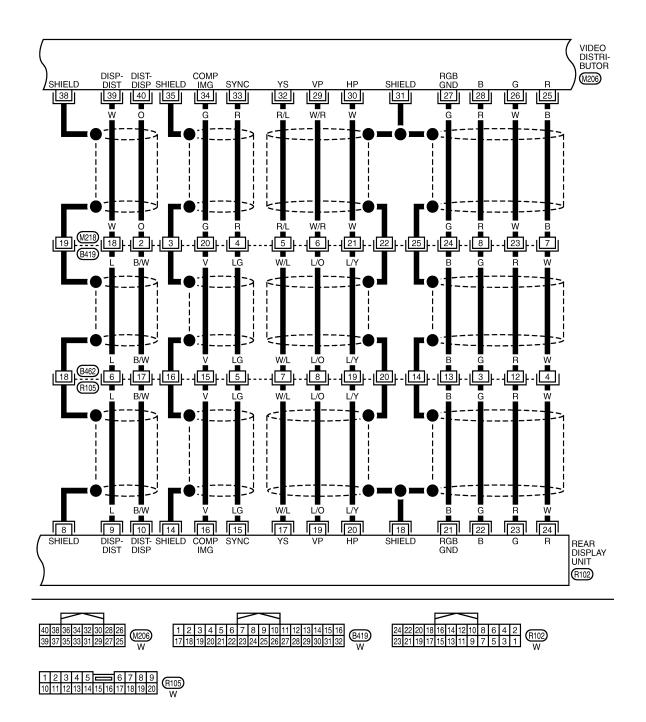
Μ

Ν

Ο

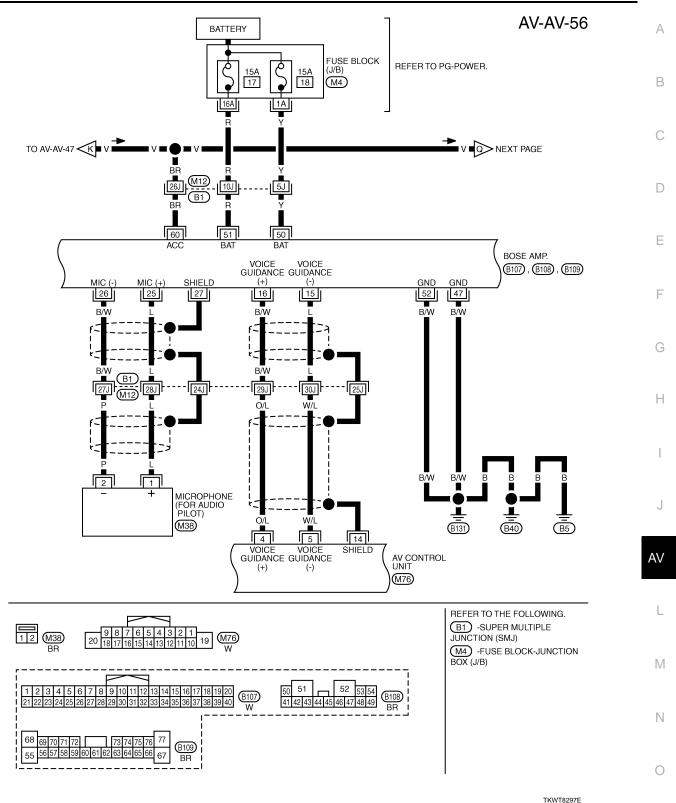
Revision: 2009 Novemver

**AV-AV-55** 



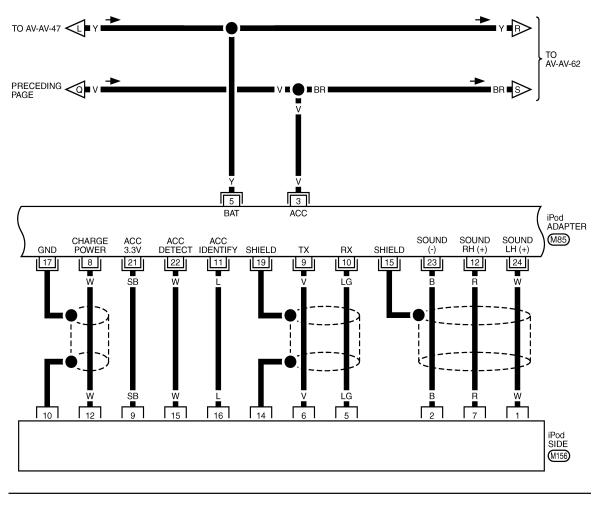
TKWT6734E

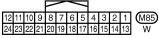
#### IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]



Р

AV-AV-57



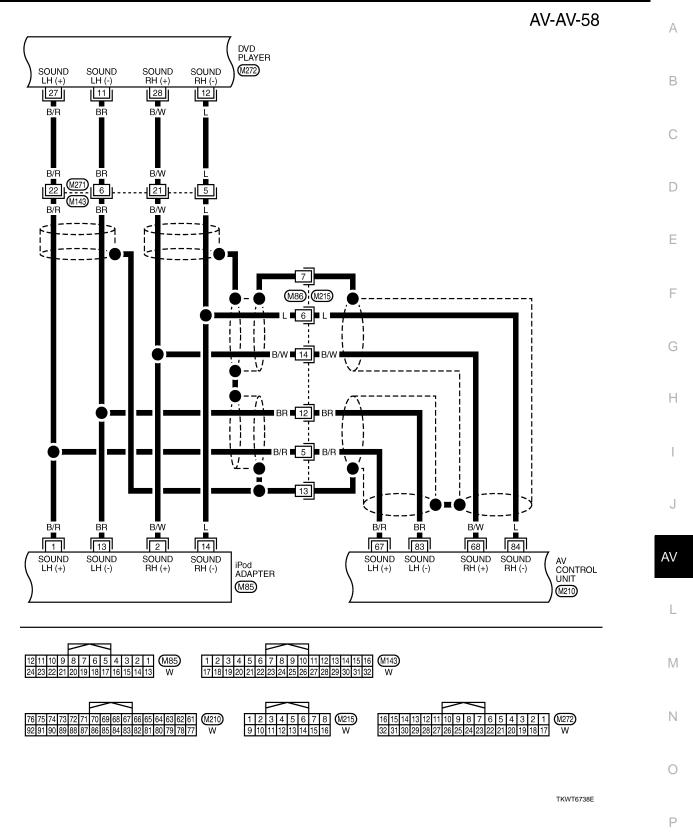


 6
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 4
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 (M156)

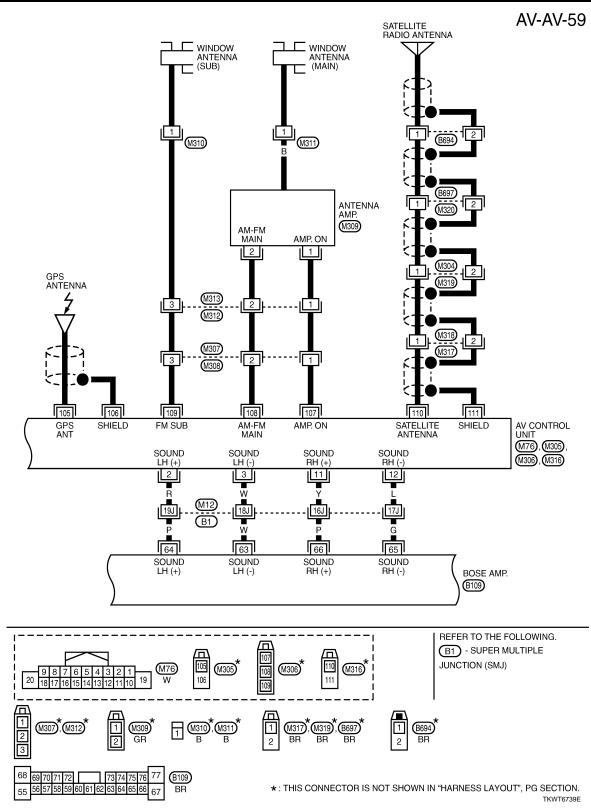
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TKWT6737E

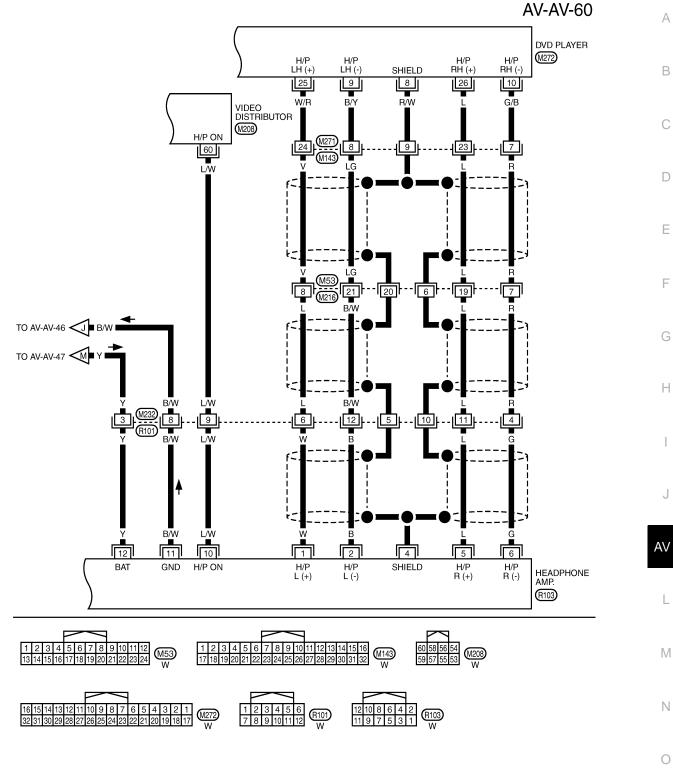




### IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]

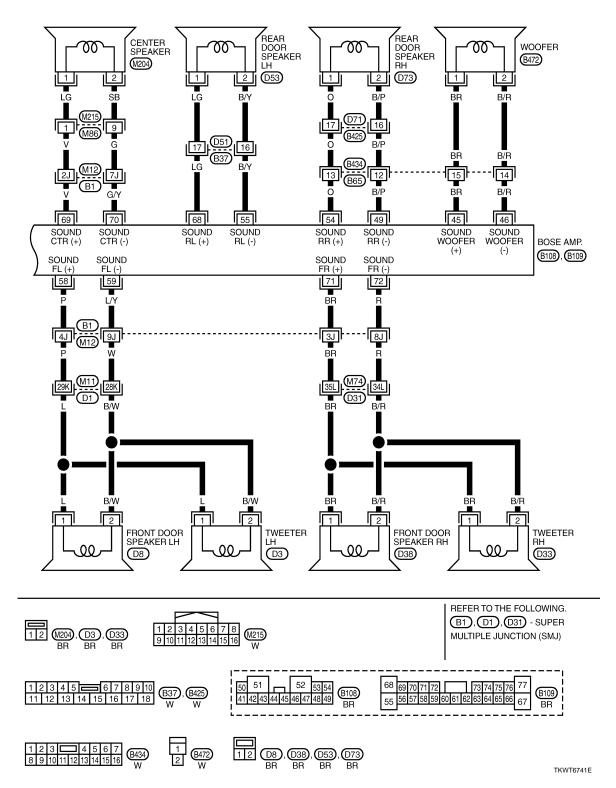




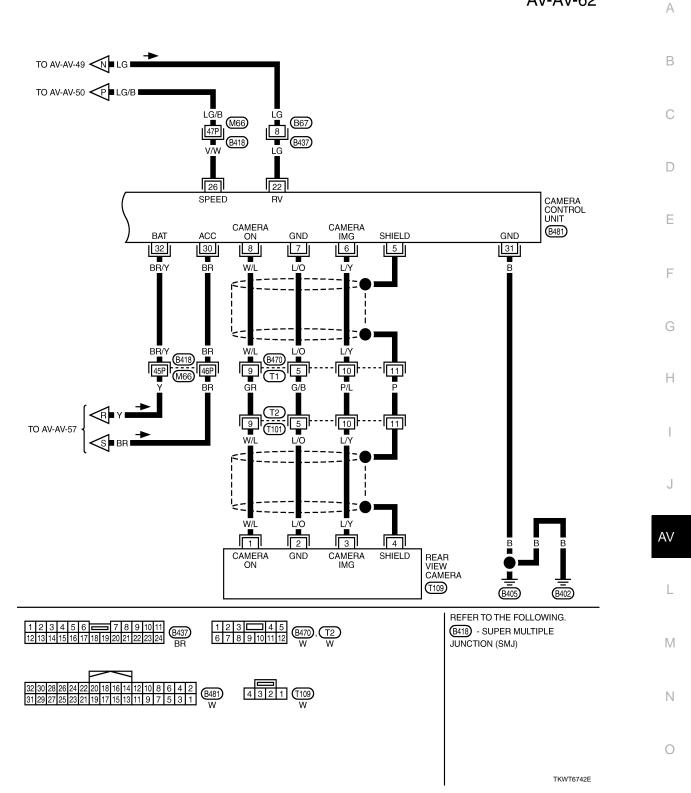


TKWT6740E

AV-AV-61



AV-AV-62

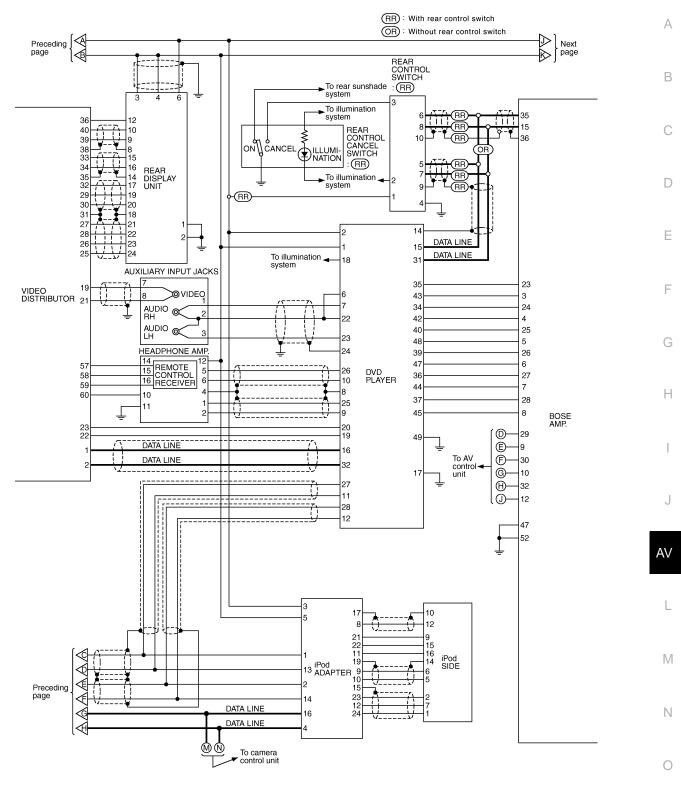


#### Schematic - BOSE 5.1ch Surround Audio System -INFOID:000000004391612 IGNITION SWITCH ON or START (via PDU) IGNITION SWITCH ACC or ON (via PDU) BATTERY FUSE FUSE / FUSE FUSE FUSE B page A→ To camera control unit 56 54 ] BACK-UP | LAMP | RELAY 35 25 2 19 22 24 -3 ļ 00 55 14-B) 37 To camera control unit 99 -9 -8 12-C J 100 (5A)-A/T ASSEMBLY : 5A 101 20 19 FRONT DISPLAY UNIT 97 TCM (TRANSMISSION CONTROL MODULE) 98 96 21 15 5 8 6 93 94 17 95 18 A/T ASSEMBLY : 7A 102 103 11 13 TCM (TRANSMISSION CONTROL MODULE) 16 To illumination 12 14 VIDEO DISTRIBUTOR system 7 7 1 2 3 4 4 4 4 4 CONNECTOR 5 5 CHANGER 77 MICROPHONE 61 78 26 4 62 28 79 ١ 27 2 81 65 64 10 PARKING BRAKE SWITCH 1 2 63 14 15 36 Ţ DATA LINE DATA LINE AV CONTROL UNIT 50 11 3 DATA LINE DATA LINE GPS ANTENNA 51 10 12 1 -0 3 2 To illumination . 4 system Œ 3 15 105 -F MULTIFUNCTION SWITCH 11 16 51 ¥ ► To BOSE amp. 106 SATELLITE 12 -G 53 RADIO ANTENNA 14 -⊕ 4 ------0 110 Ŷ $\diamond$ 67 111 $\triangleright$ WINDOW ANTENNA (MAIN) WINDOW ANTENNA (SUB) 83 Þ 68 Next عند page Þ 84 DATA LINE 6 48 109 DATA LINE 108 ✐ ANTENNA AMP. 2 49 107 DATA LINE 52 To CAN system DATA LINE 53 K 40 🕳 To camera 18 To illumination control unit -0 system 19 38 15 21 6 23 16 DATA LINK CONNECTOR COMBINATION SWITCH (SPIRAL CABLE) To illumination system Þ O Ò 28 56 72 39 40 4 5 3 UNIFIED METER AND A/C AMP. N STEERING BCM (BODY CONTROL MODULE) ANGLE SENSOR STEERING SWITCH ò UP ol 2 MENU BACK SWITCH SWITCH PUSH TO TALK VOLUME VOLUME SOURCE ILLUMI- ENTER NATION SWITCH (5A) : With 5-speed automatic transmission ŚWITCH (+) (-) (7A) : With 7-speed automatic transmission TKWT8301E

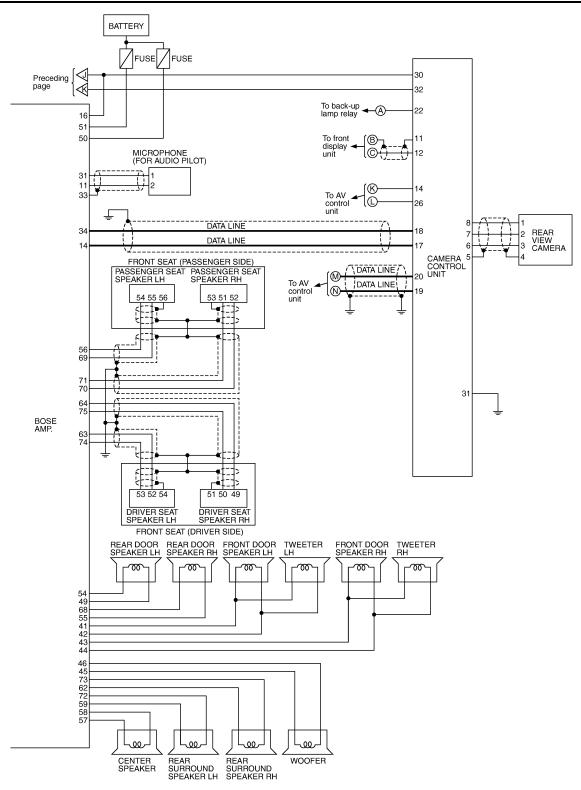
# 

#### < ECU DIAGNOSIS >

### [WITH MOBILE ENTERTAINMENT SYSTEM]



TKWT6744E



TKWT6745E

# Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

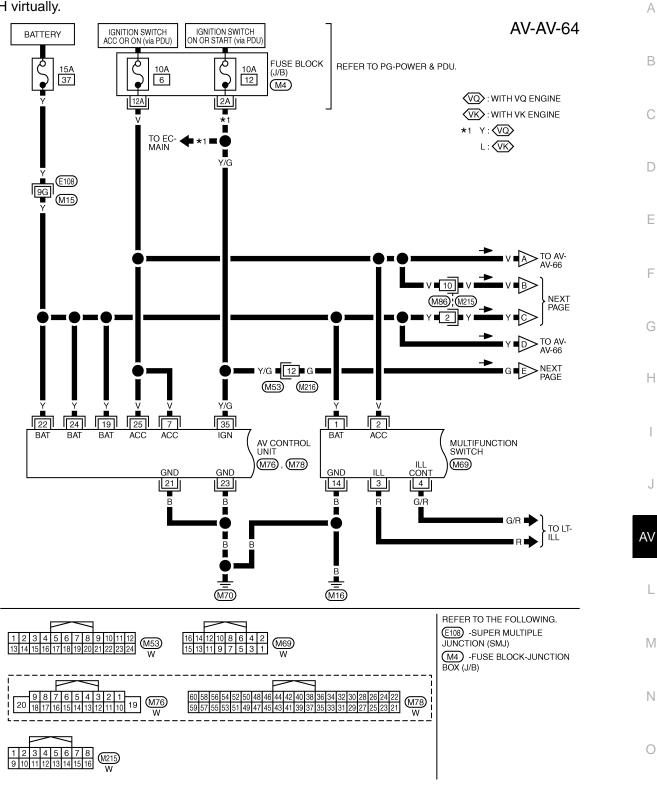
### NOTE:

INFOID:000000004391613

### IPOD ADAPTER

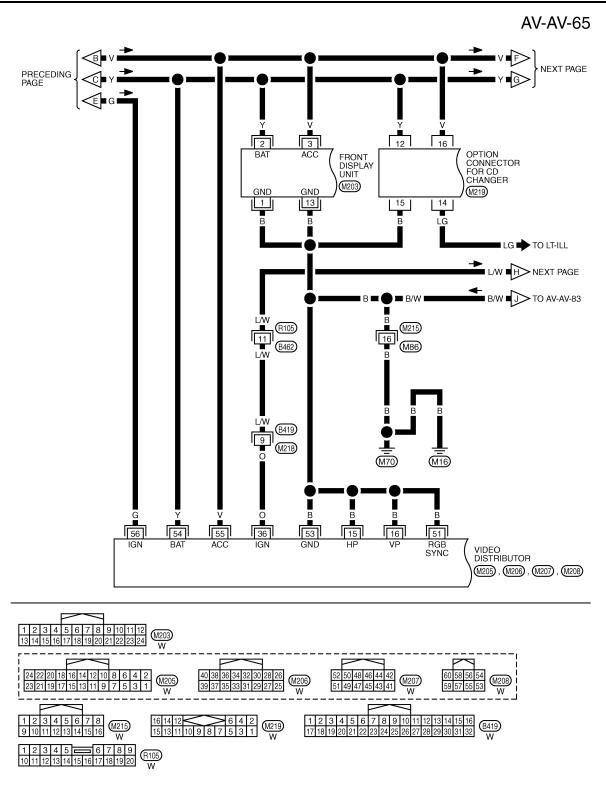
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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

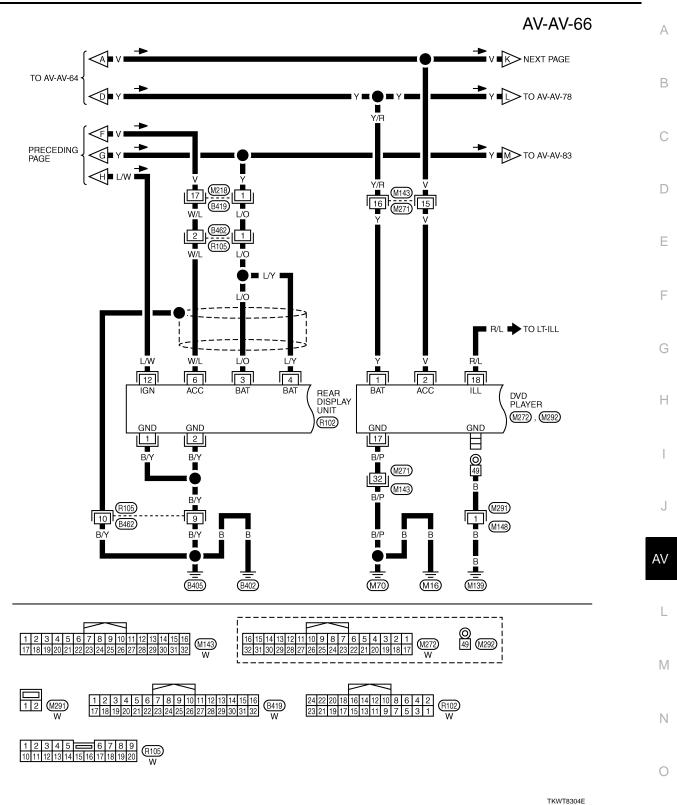


TKWT8302E

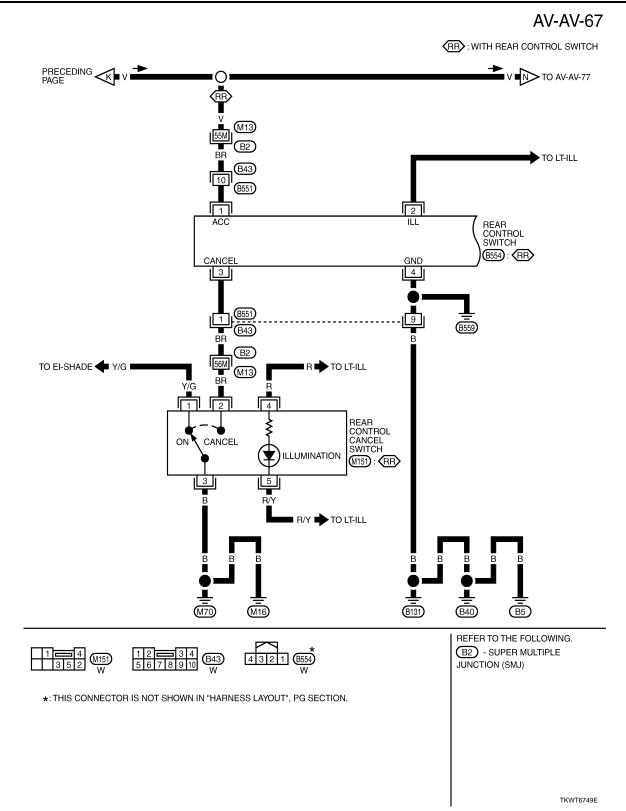
## IPOD ADAPTER



TKWT8303E

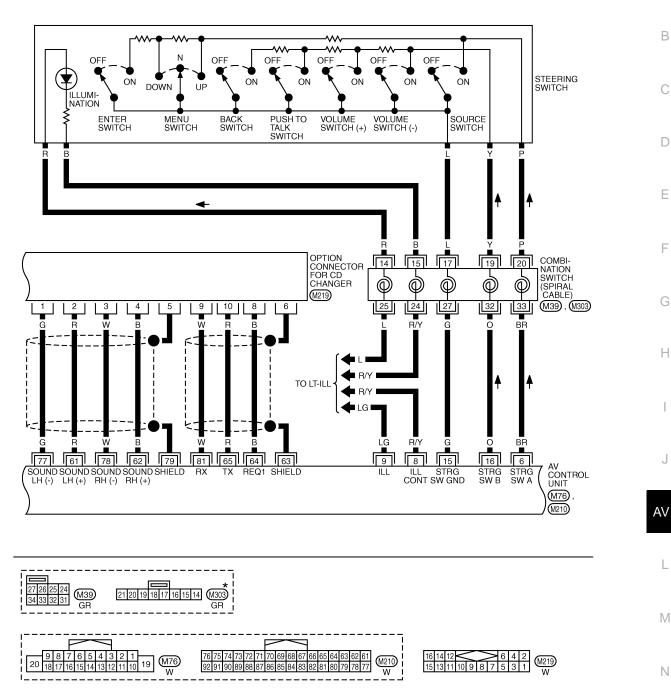


### [WITH MOBILE ENTERTAINMENT SYSTEM]



### AV-AV-68

А



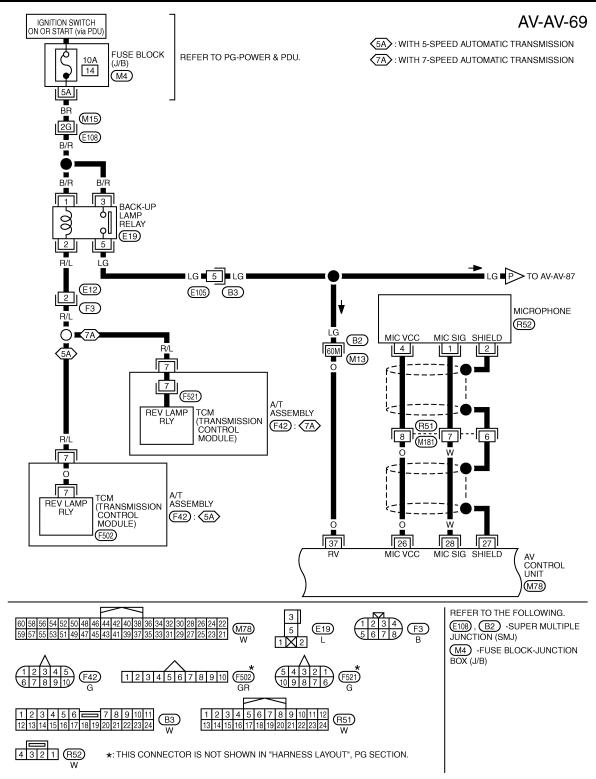
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8305E

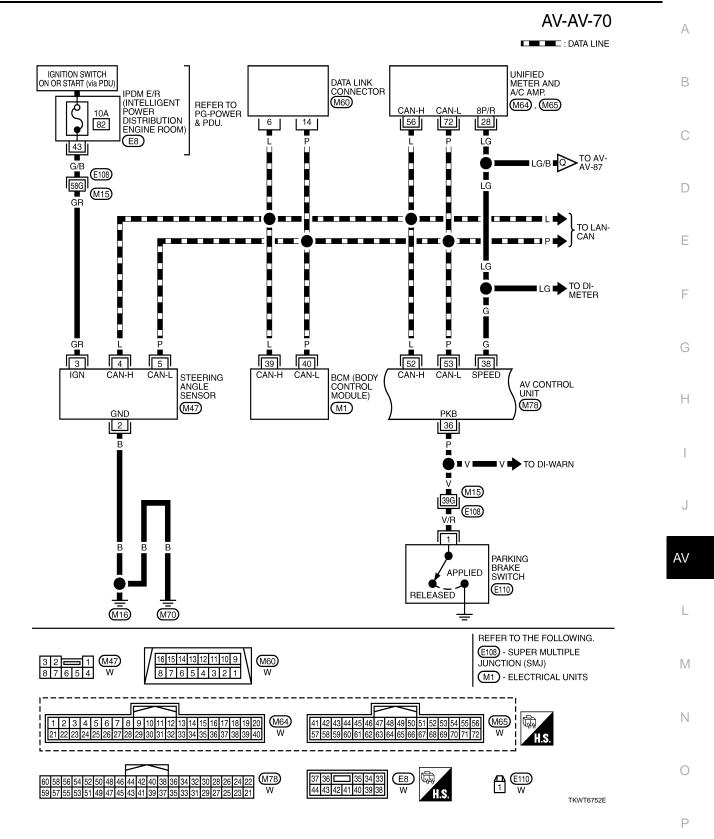
Ρ

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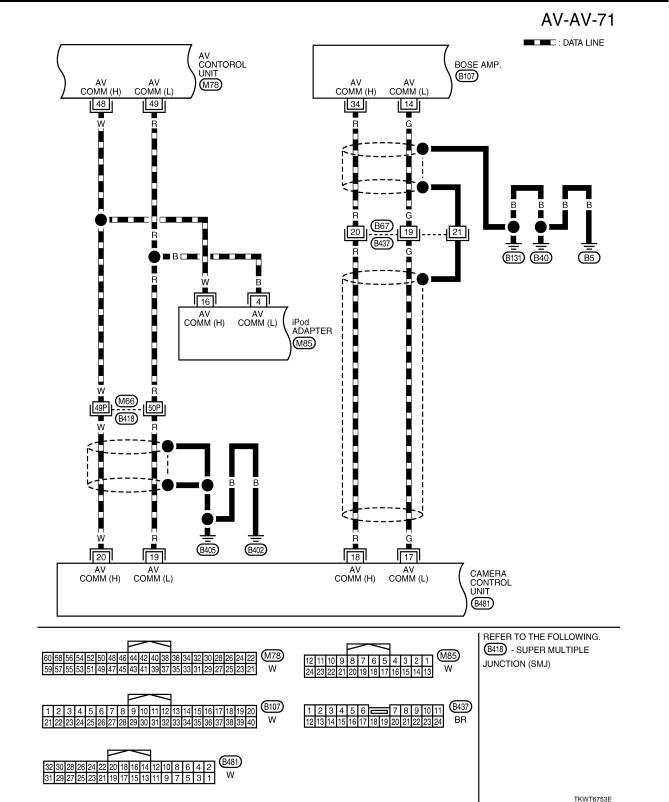
### IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]



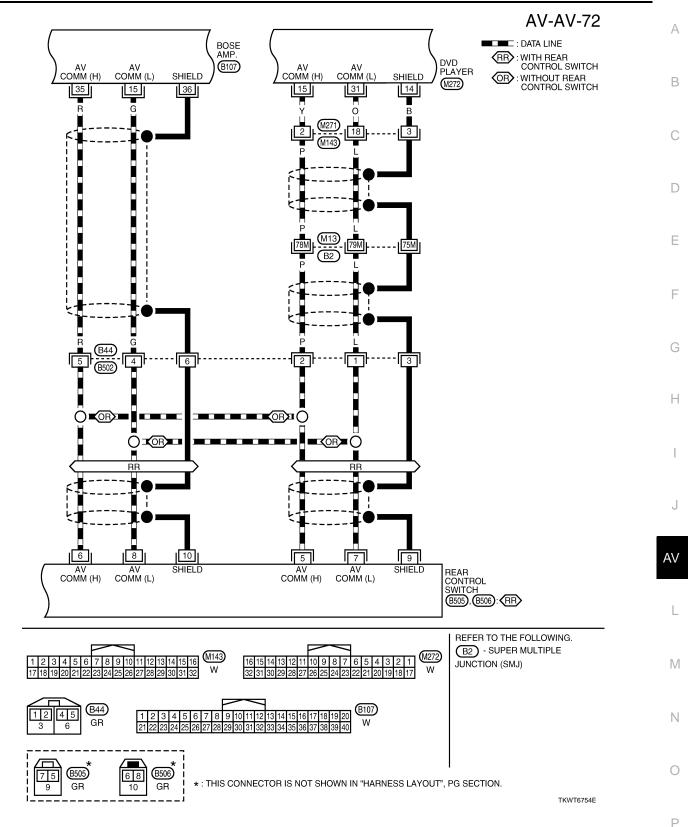
TKWT8306E

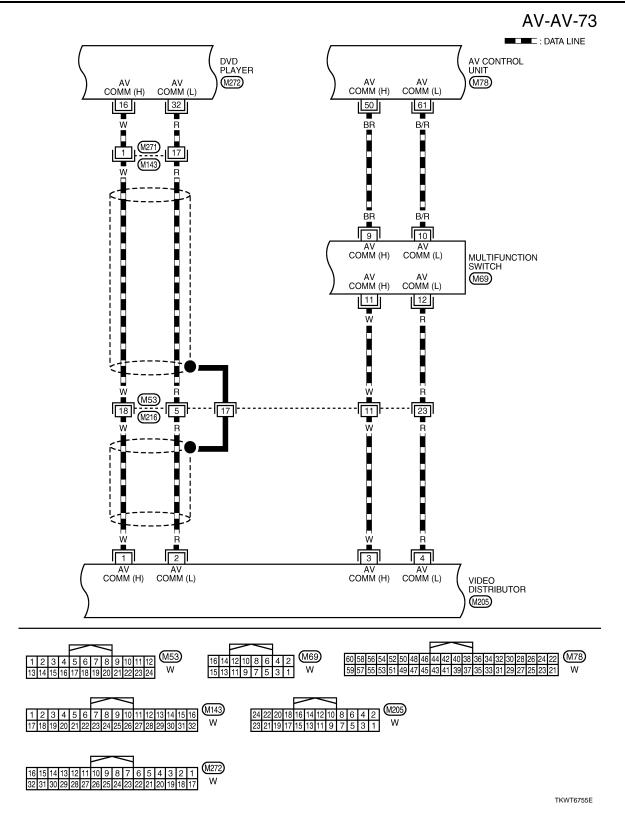


< ECU DIAGNOSIS >



### IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]



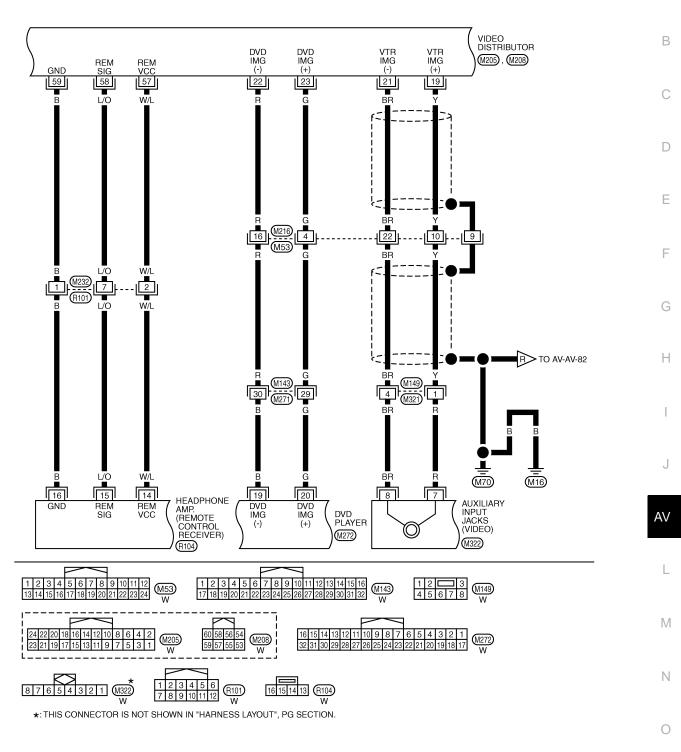


Revision: 2009 Novemver

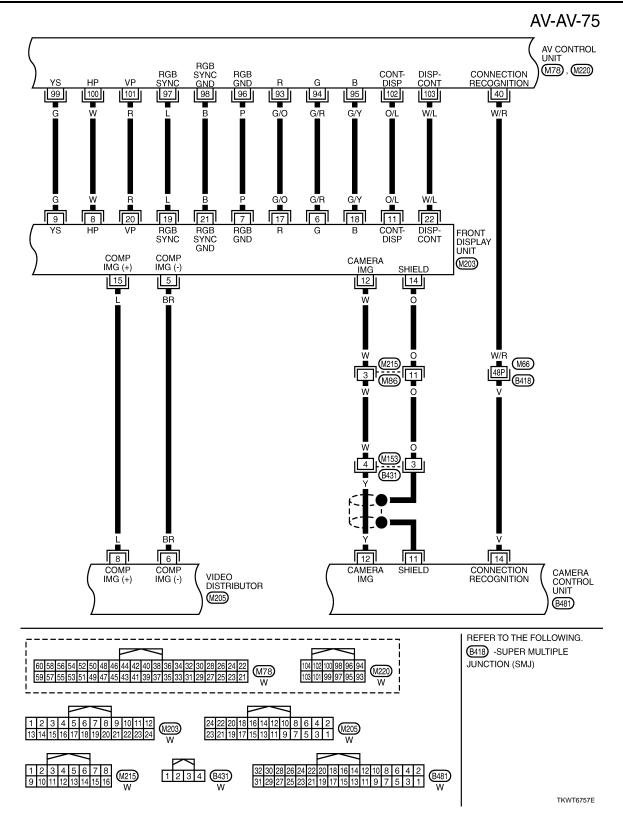
2009 M35/M45

AV-AV-74

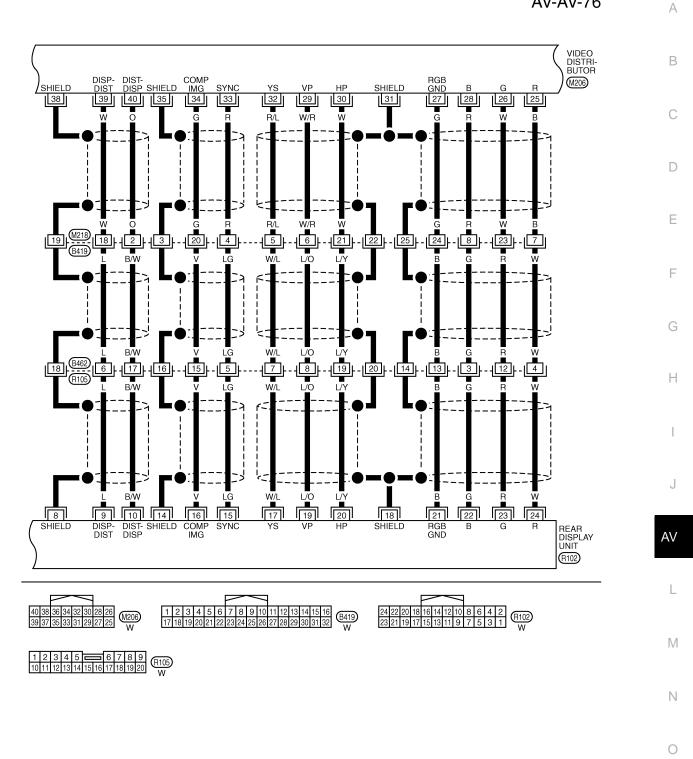
А



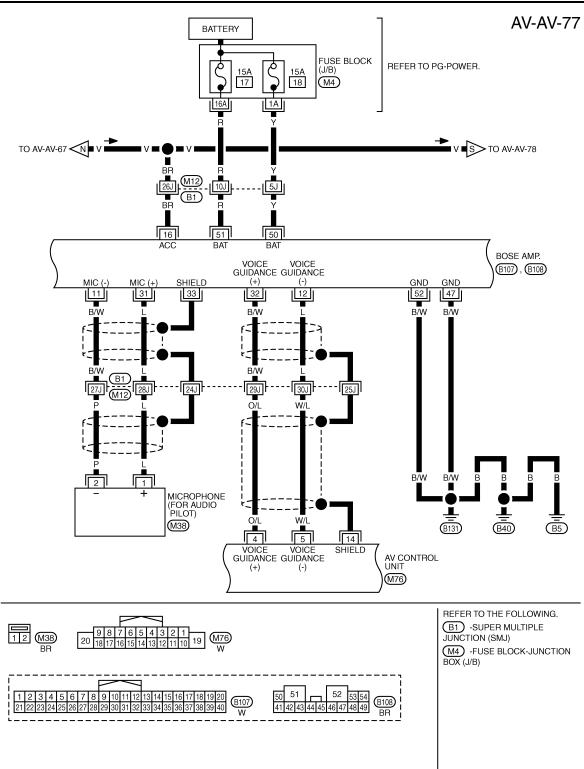
TKWT8307E



**AV-AV-76** 

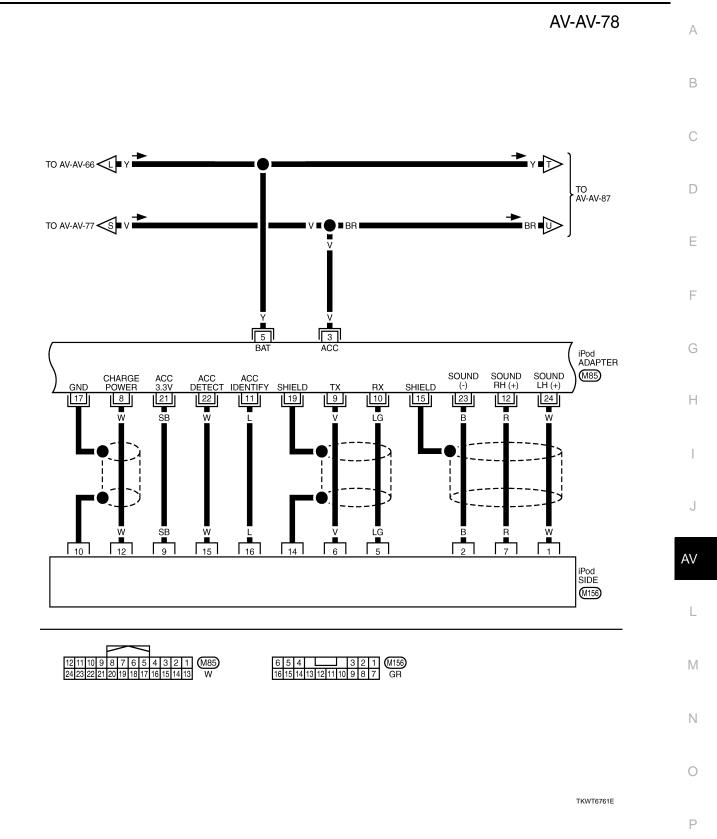


TKWT5152E

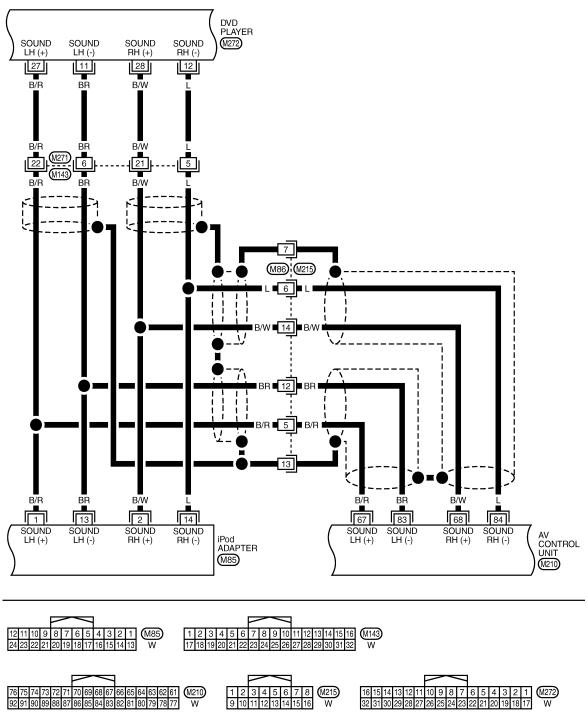


TKWT8308E





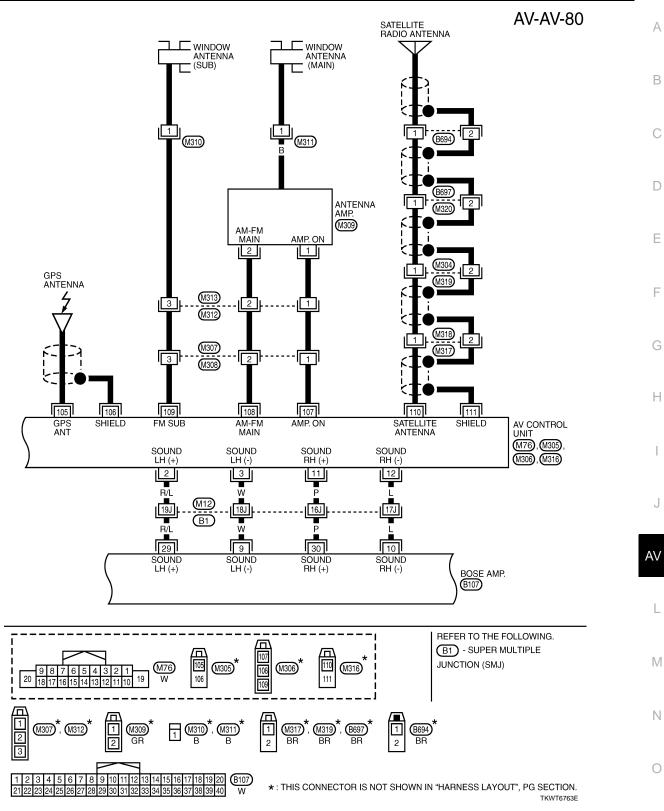
AV-AV-79



TKWT6762E

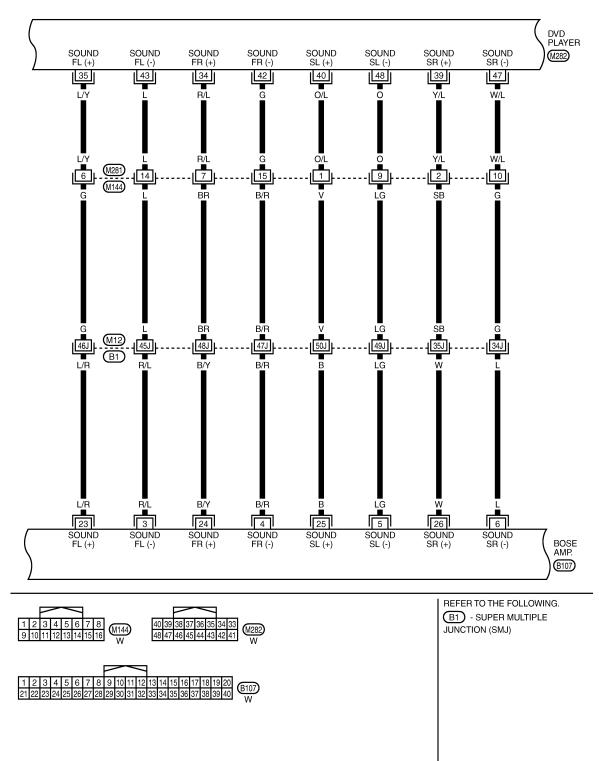
#### < ECU DIAGNOSIS >

# IPOD ADAPTER [WITH MOBILE ENTERTAINMENT SYSTEM]

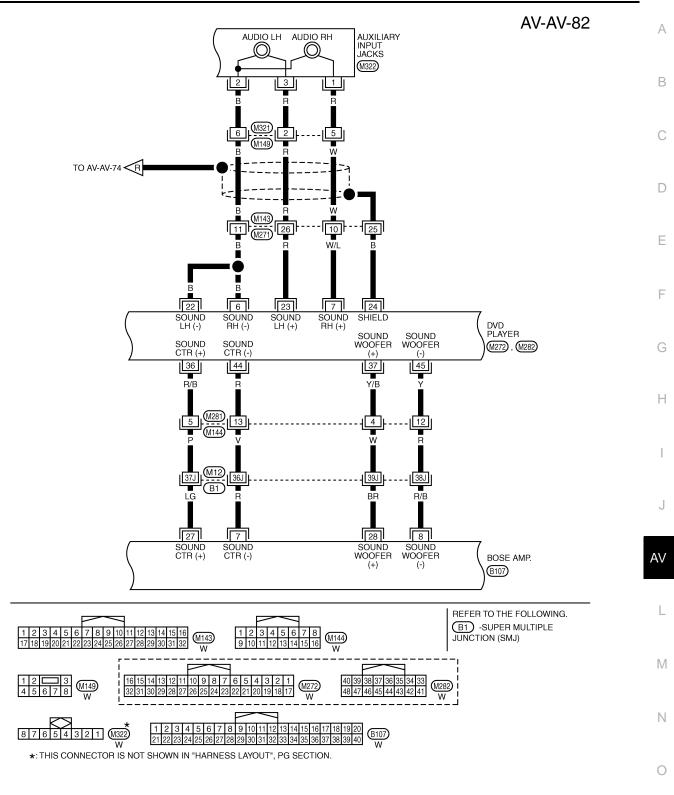


Ρ

AV-AV-81



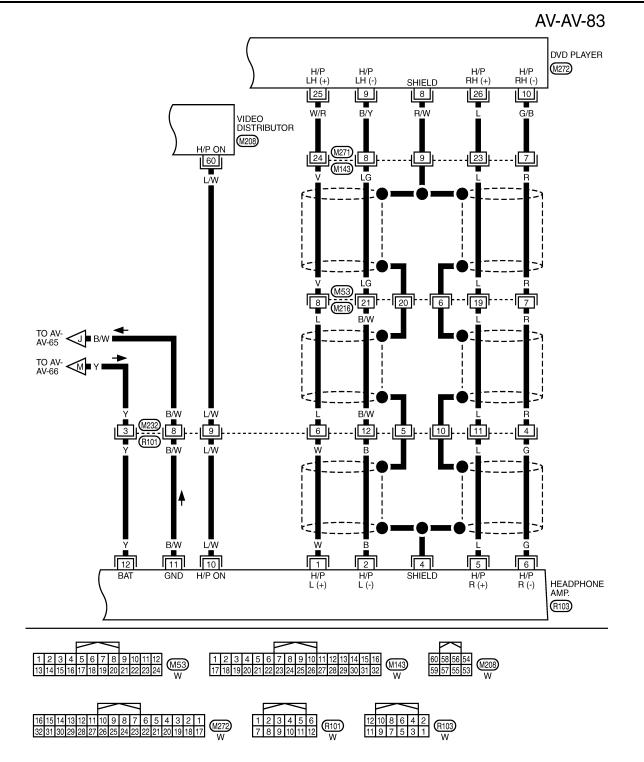
TKWT6764E



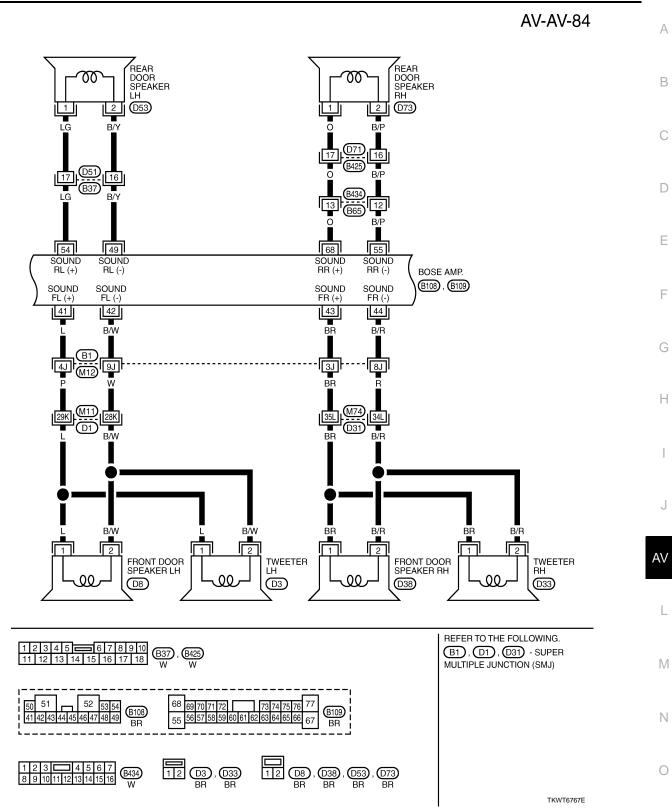
TKWT8309E

Ρ



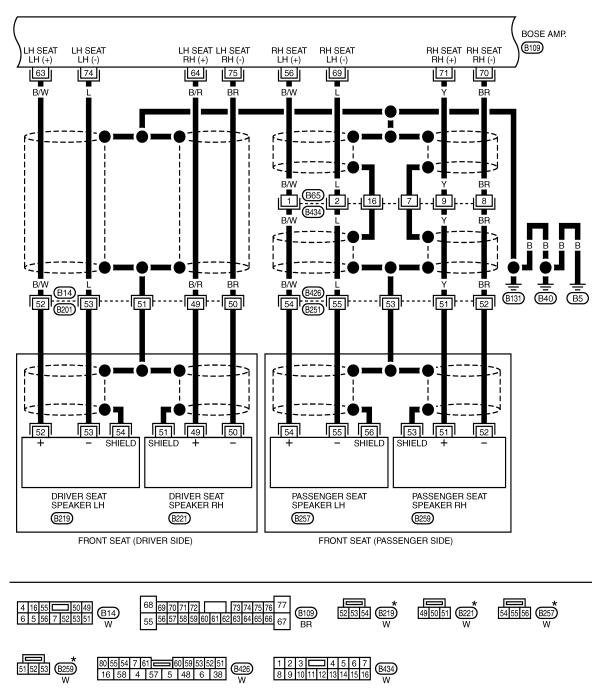


TKWT6766E



Ρ

AV-AV-85

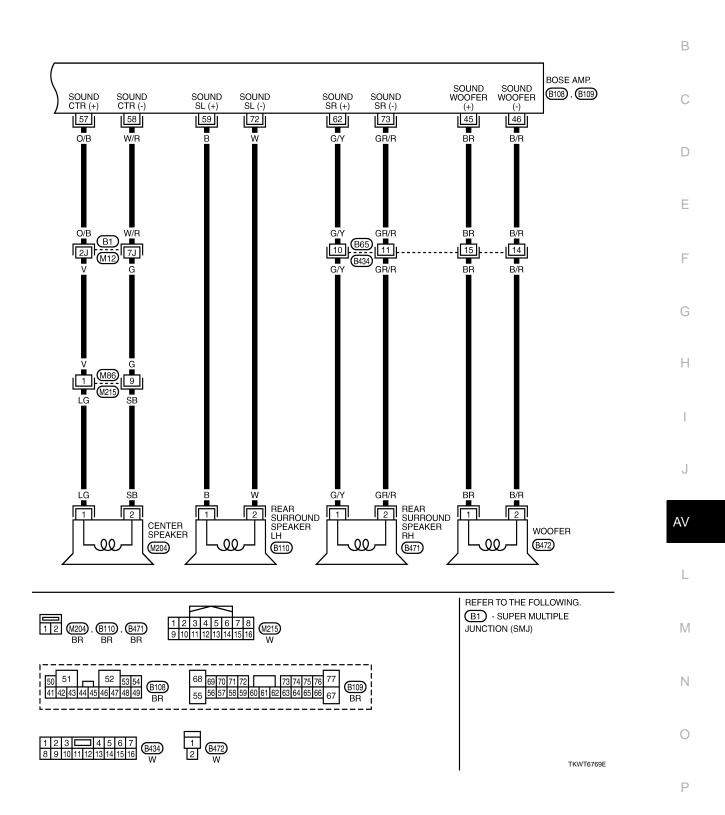


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

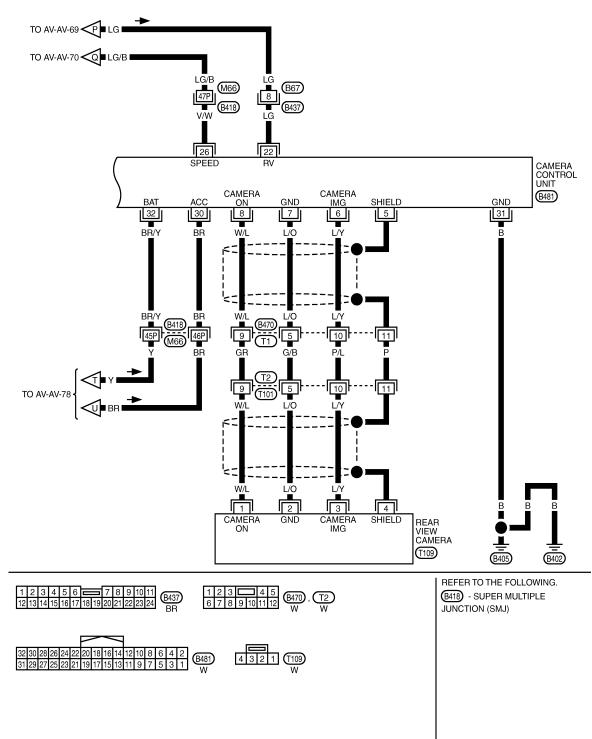
TKWT6768E

AV-AV-86

А



AV-AV-87

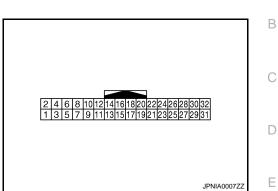


TKWT6770E

# CAMERA CONTROL UNIT

**Reference Value** 

TERMINAL LAYOUT



# PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value
+ –		Signal name	Input/ Output	Condition		(Approx.)
5		Shield			—	_
6 (L/Y)	Ground	Camera image signal	Input	Ignition switch ON	When rear view camera im- age is displayed.	(V) 0.4 0 -0.4 • 40µs ski82251J
7 (L/O)	Ground	Rear view camera ground		Ignition switch ON	_	0 V
8 (W/L)	Ground	Camera ON signal	Output	Ignition switch ON	R position.	6 V
					Other than R position.	0 V
11		Shield			_	_
12 (Y)	Ground	Camera image signal	Output	Ignition switch ON	When rear view camera im- age is displayed.	(V) 0.4 0 −0.4 • • • 40µs skiB2251J
14 (V)	Ground	Camera-connection recog- nition signal	Output	Ignition switch ON	Connected to camera con- trol unit connector.	0 V
					Not connected to camera control unit connector.	5 V
17 (G)	_	AV communication signal (L)	Input/ Output		_	_
18 (R)	—	AV communication signal (H)	Input/ Output	—	—	_
19 (R)	_	AV communication signal (L)	Input/ Output	_	_	_

2 4 6 8 1012 1 3 5 7 9 11

Revision: 2009 Novemver

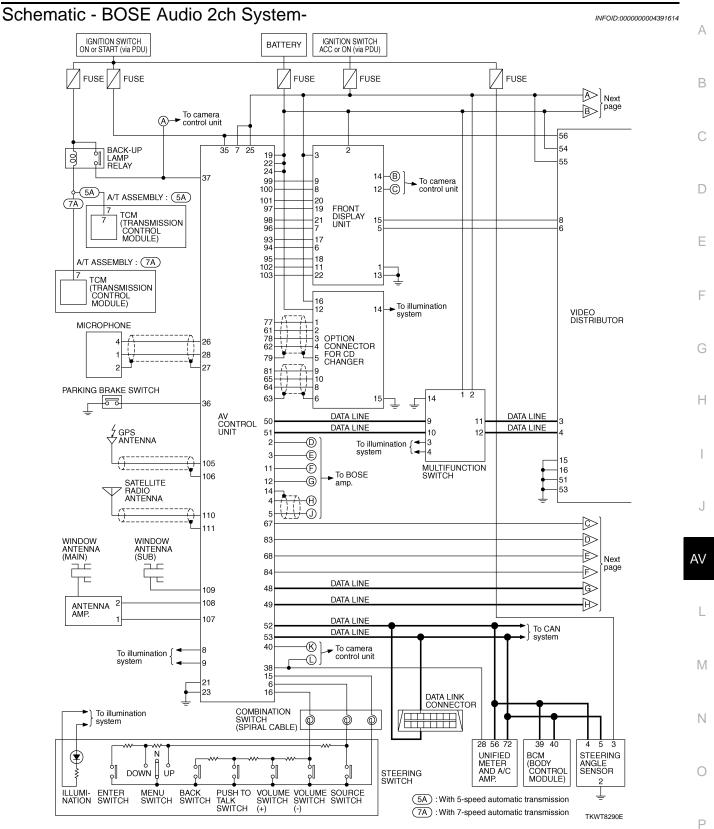
А

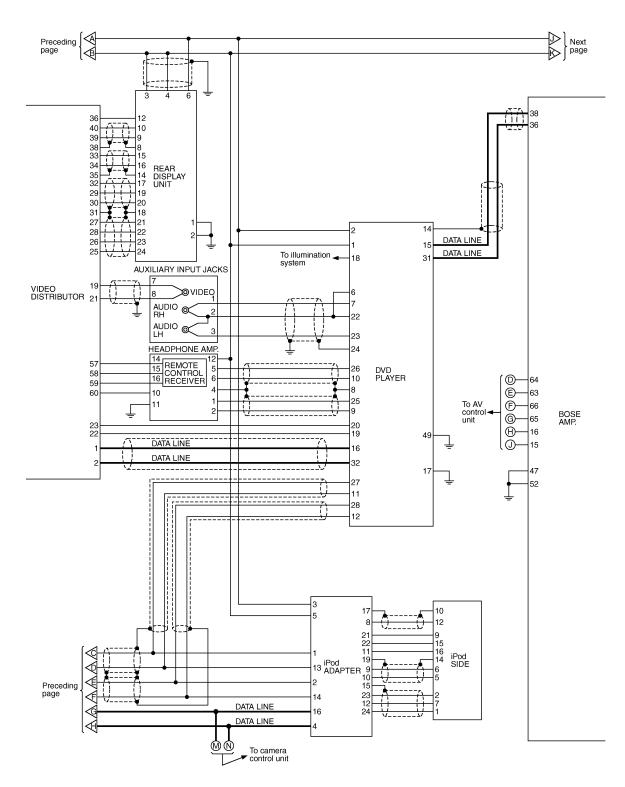
INFOID:000000004156101

~

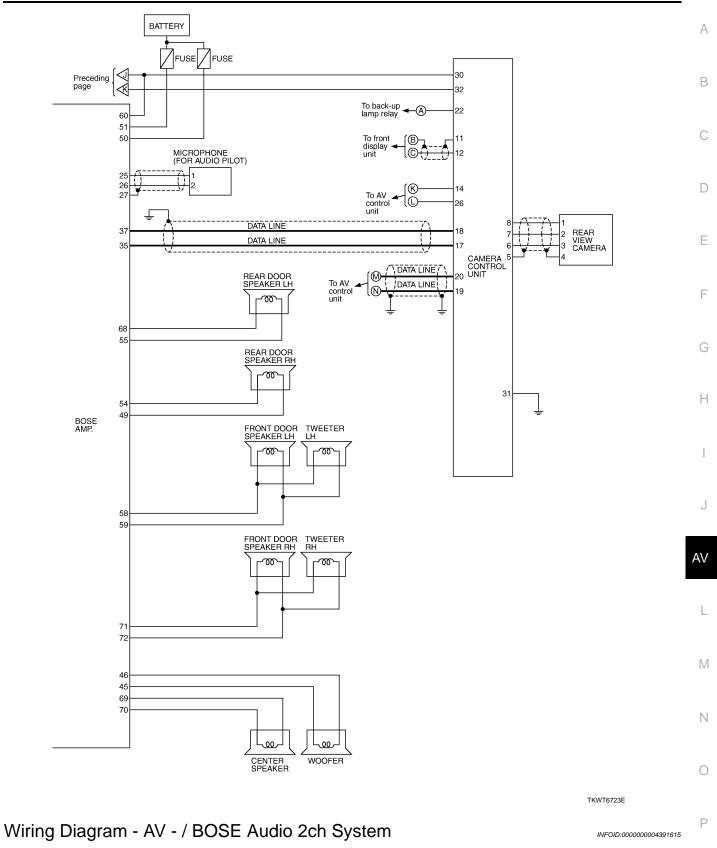
#### < ECU DIAGNOSIS >

Terminal (Wire color)		Description		Condition		Reference value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
20 (W)	_	AV communication signal (H)	Input/ Output		_	_	
22	Ground	Reverse signal	Input	Ignition switch ON	R position.	12 V	
(LG)					Other than R position.	0 V	
26 (V/W)	Ground	Vehicle speed signal (8-pulse)	Input	lgnition switch ON	When vehicle speed is ap- prox. 40 km/h (25 MPH).	NOTE: Maximum voltage may be 12 V due to specifications (connected units). (V) 6 4 2 0 4 2 0 4 2 0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
30 (BR)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage	
31 (B)	Ground	Ground		Ignition switch ON	_	0 V	
32 (BR/Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	





TKWT6722E

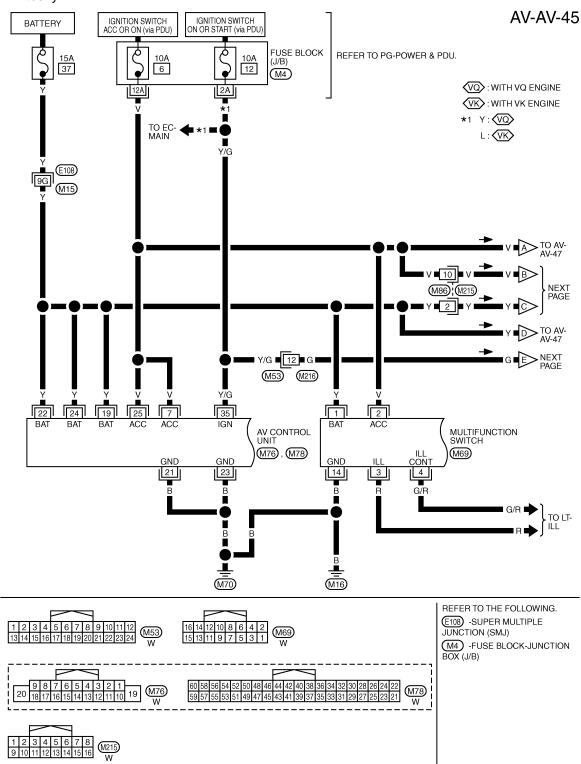


#### NOTE:

#### < ECU DIAGNOSIS >

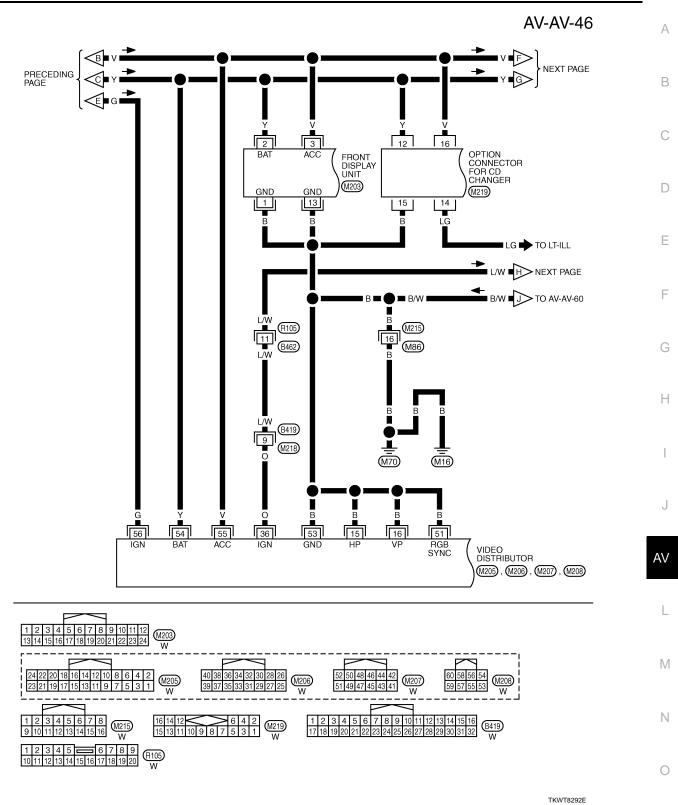
#### CAMERA CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]

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

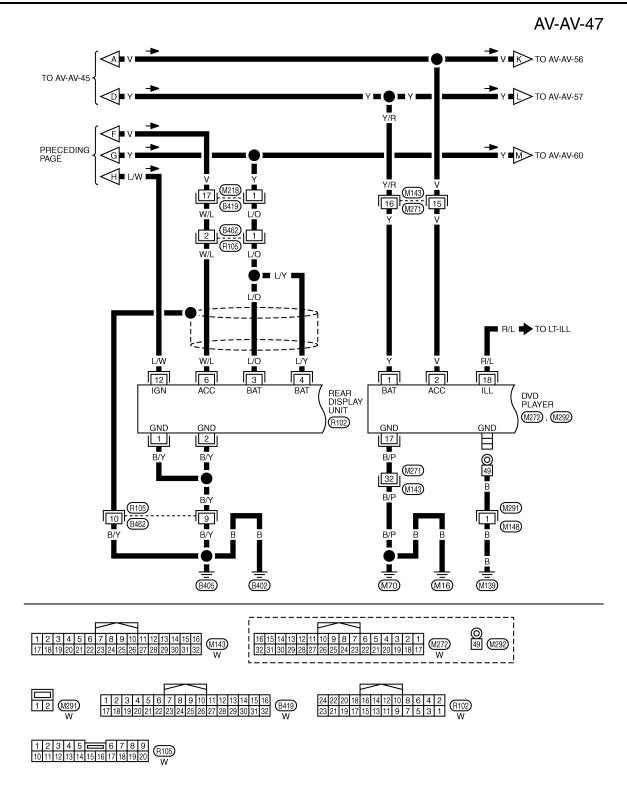


TKWT8291E

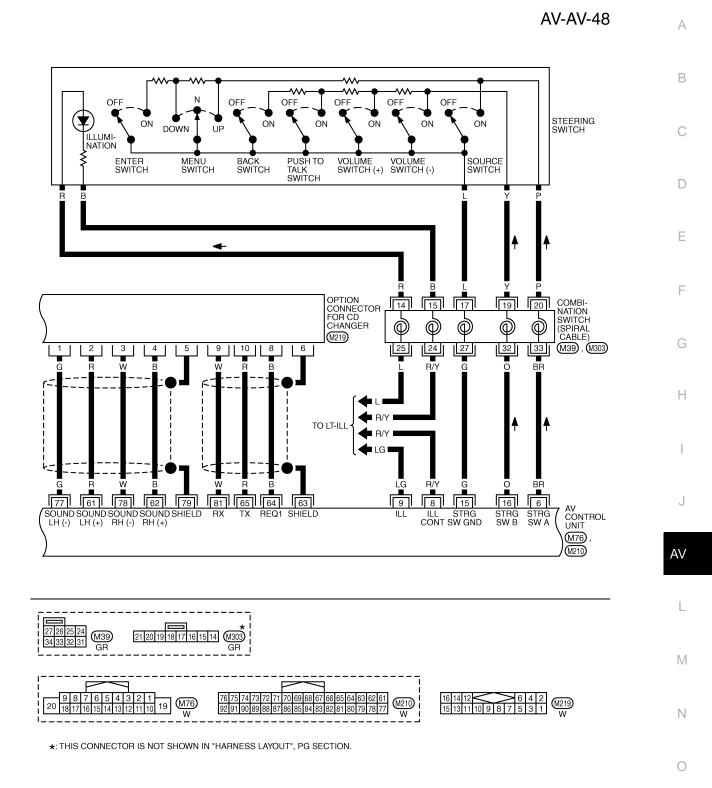




Ρ

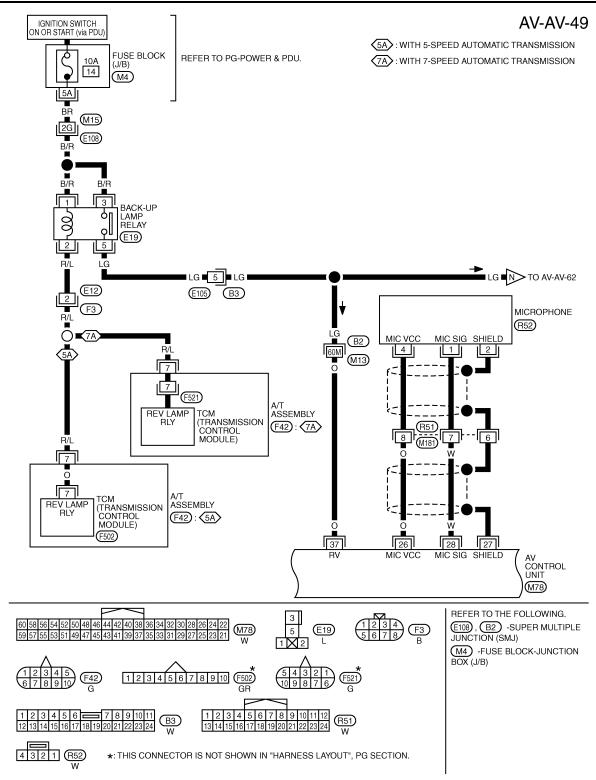


TKWT8293E

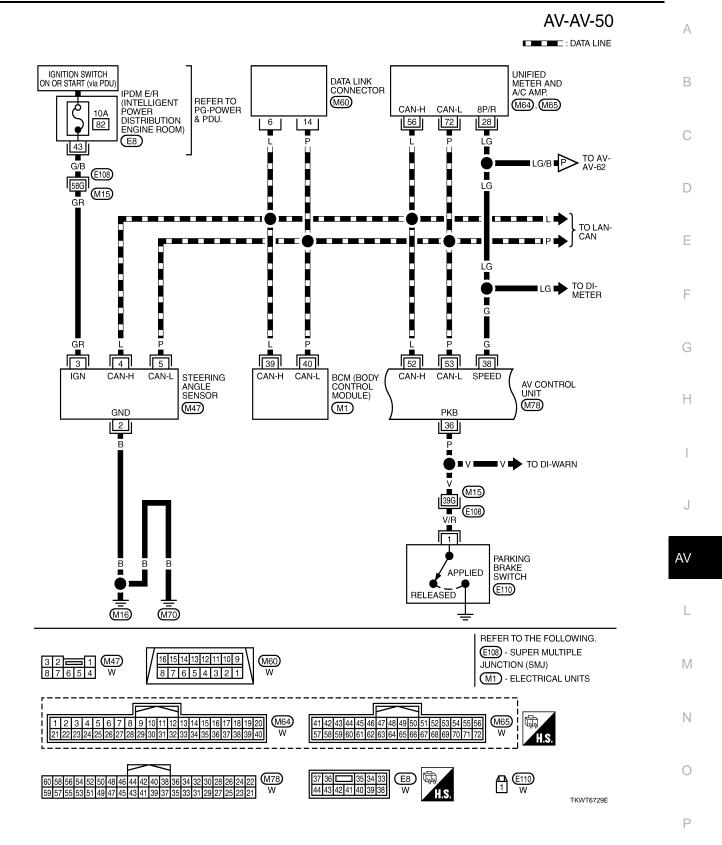


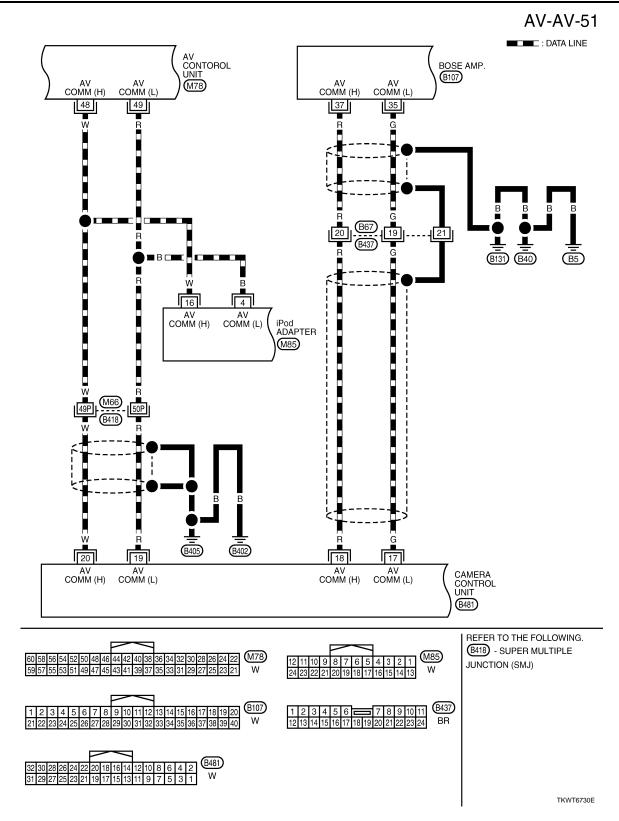
TKWT8294E

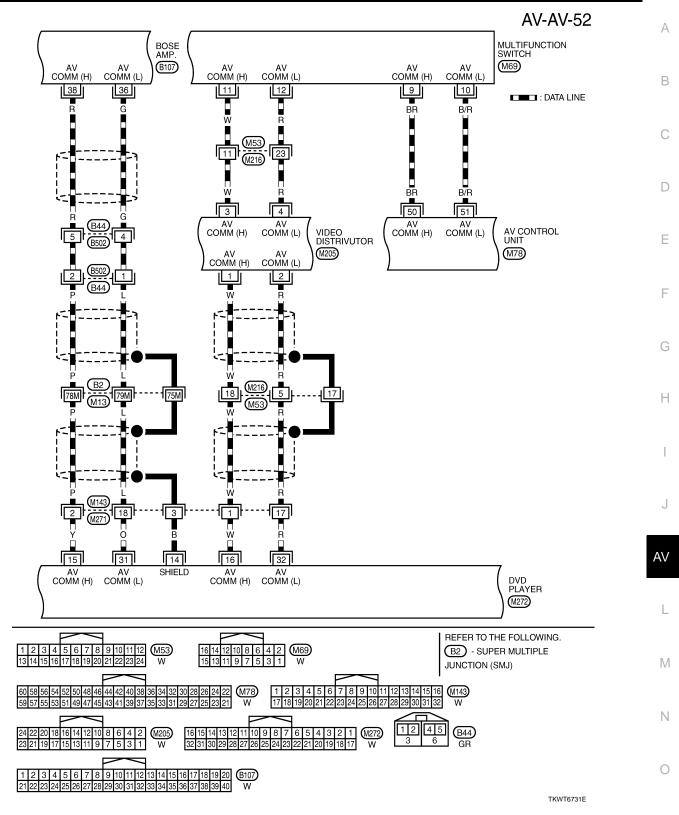
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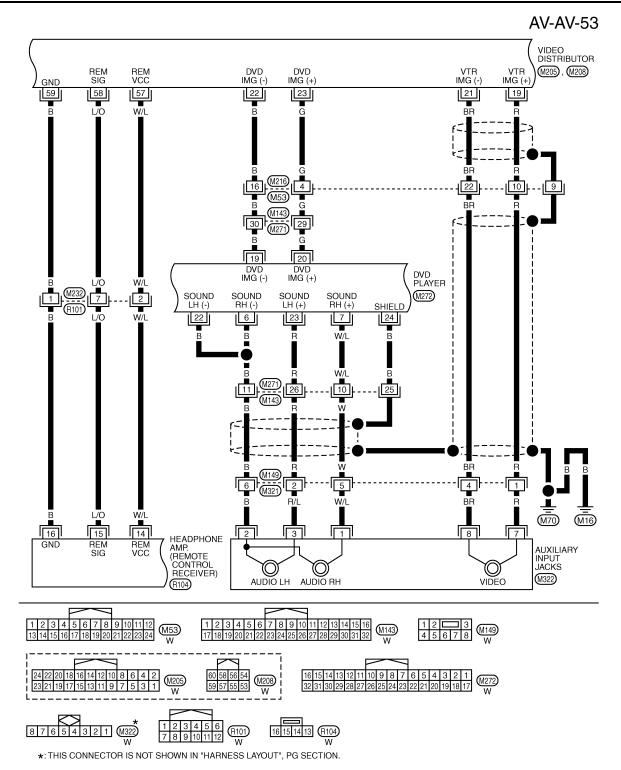


TKWT8295E

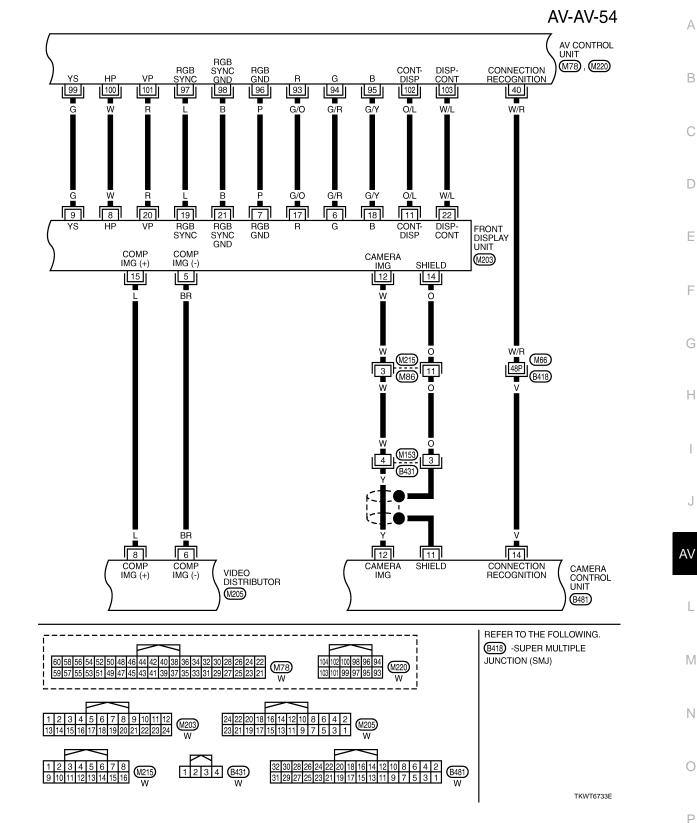






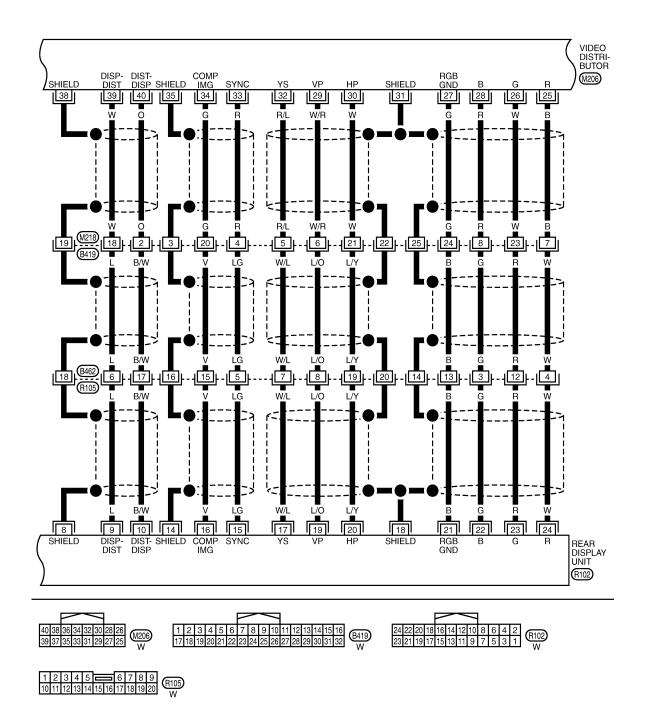


TKWT8296E



AV-961

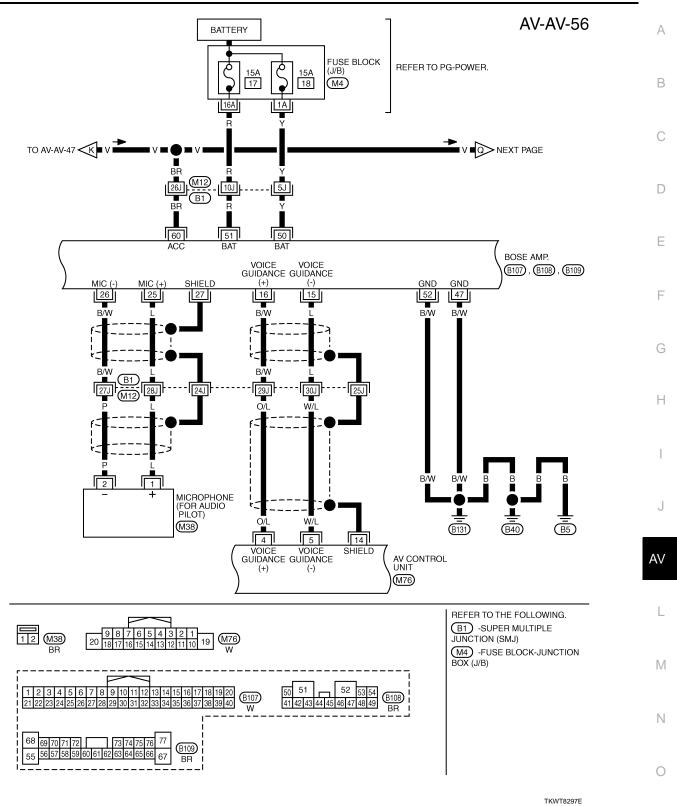
**AV-AV-55** 



TKWT6734E

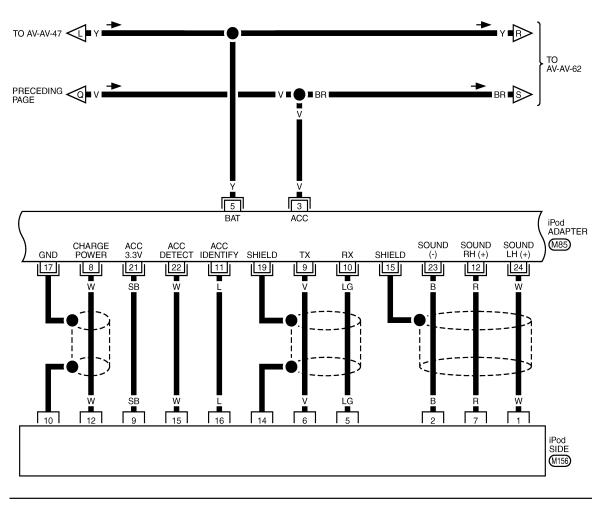
< ECU DIAGNOSIS >

#### CAMERA CONTROL UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]



Р

AV-AV-57

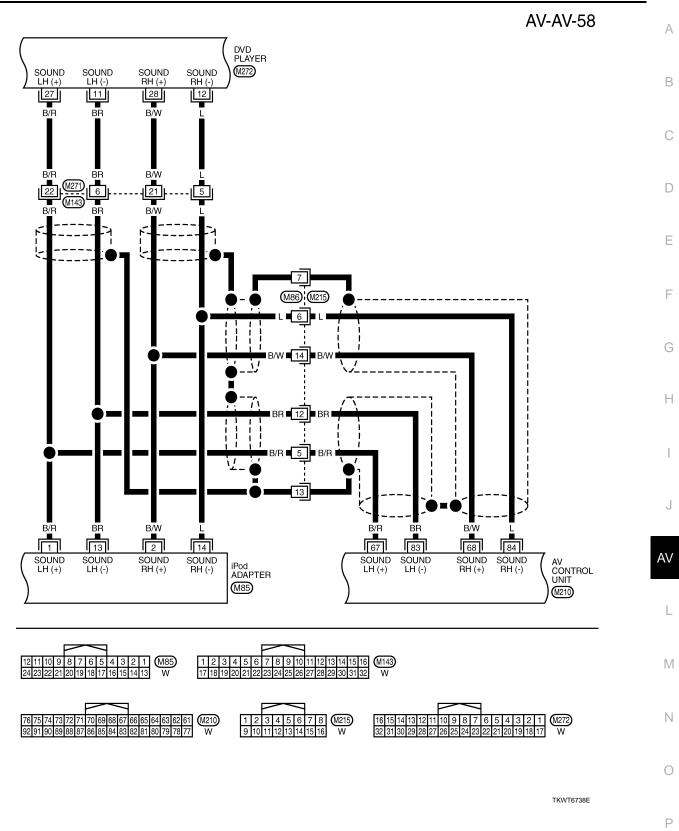


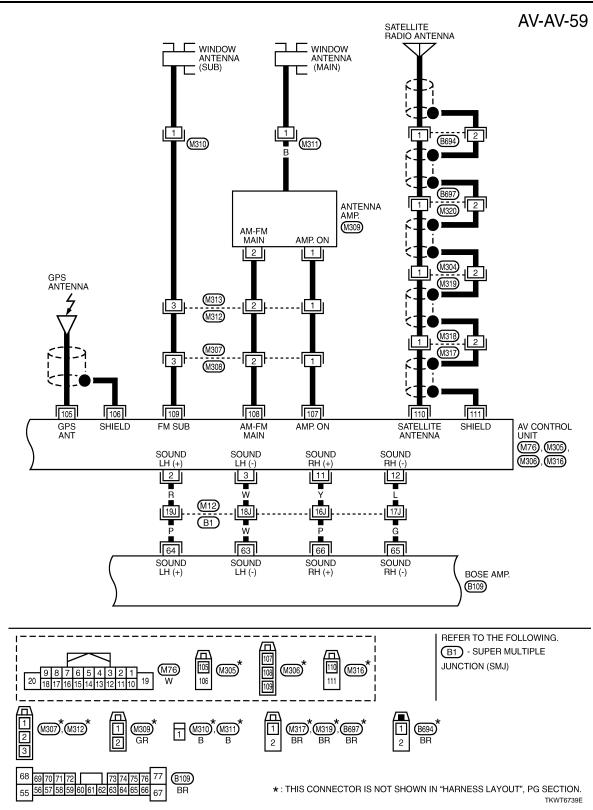


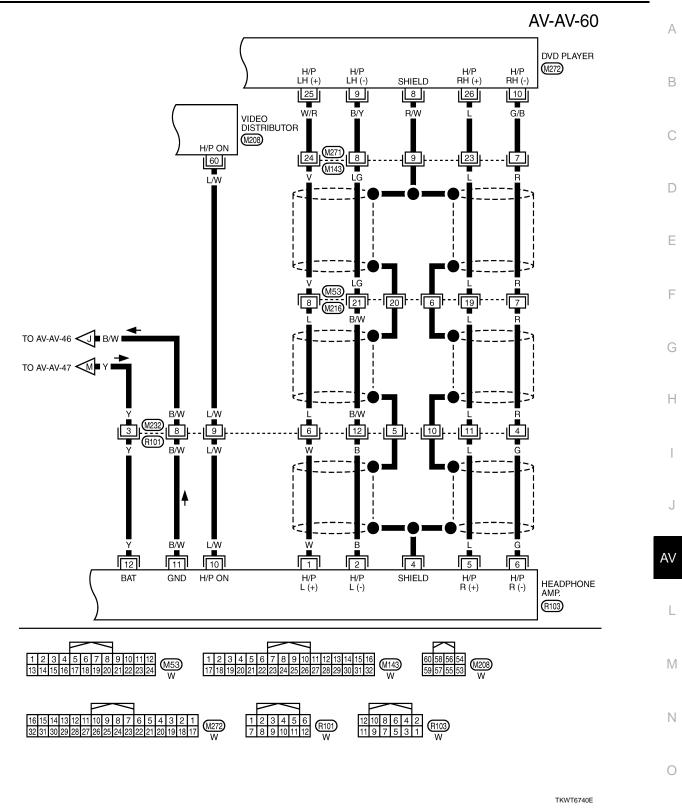
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 (M156)

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 GR

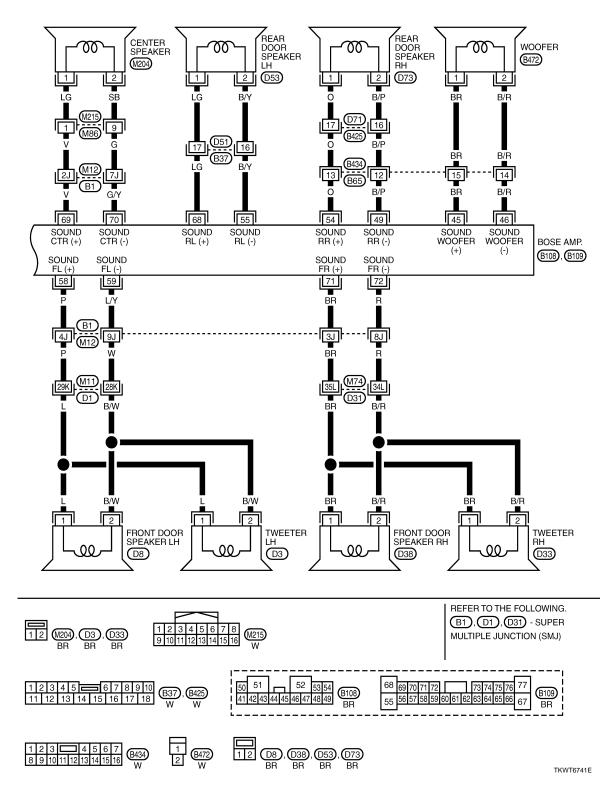
TKWT6737E







AV-AV-61



TO AV-AV-49 🔨

TO AV-AV-57

# **CAMERA CONTROL UNIT** [WITH MOBILE ENTERTAINMENT SYSTEM]

**AV-AV-62** А В TO AV-AV-50 <P LG/B LG 8 С LG/B **B**67 M66 **B**418 **B**437 LG v/w D 26 22 CAMERA CONTROL UNIT SPEED RV Е CAMERA ON CAMERA IMG (B481) BAT ACC GND SHIELD GND 5 31 B BR 8 7 32 6 BR/Y L/O W/I I/YF BR/Y 45P Y BBR BBR BR/Y BR L/C L/Y 9 10 5 11 T1 Н P/L GF G/B T2 9 - [11] 5 10 (T101) W/L L/O L/Y 1 J 2 W/L L/0 L/Y AV 2 3 4 B CAMERA IMG CAMERA GND SHIELD REAR VIEW CAMERA ON (T109) L (B402) (B405) REFER TO THE FOLLOWING. 1 2 3 4 5 6 **—** 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 1 2 3 **4** 5 6 7 8 9 10 11 12 (B470), (T2) W 8437 BR (B418) - SUPER MULTIPLE JUNCTION (SMJ) Μ 4321 (T109) 16 14 12 10 8 6 4 2 15 13 11 9 7 5 3 1 (B481) W Ν

Ο

Ρ

TKWT6742E

#### Schematic - BOSE 5.1ch Surround Audio System -INFOID:000000004391616 IGNITION SWITCH ON or START (via PDU) IGNITION SWITCH ACC or ON (via PDU) BATTERY FUSE FUSE / FUSE FUSE FUSE B page A→ To camera control unit 56 54 BACK-UP 35 25 2 19 22 24 -3 ļ 00 LAMP 55 14-B) 37 To camera control unit 99 -9 -8 12-C J 100 (5A)-A/T ASSEMBLY : 5A 101 20 19 FRONT DISPLAY UNIT 97 TCM (TRANSMISSION CONTROL MODULE) 98 96 21 15 5 8 6 93 94 17 95 18 A/T ASSEMBLY : 7A 102 103 11 13 TCM (TRANSMISSION CONTROL MODULE) 16 To illumination 12 14 VIDEO DISTRIBUTOR system 7 7 1 2 3 4 4 4 4 4 CONNECTOR 5 5 CHANGER 77 MICROPHONE 61 78 26 4 62 28 79 ١ 27 2 81 65 64 10 PARKING BRAKE SWITCH 1 2 63 14 15 36 Ţ DATA LINE DATA LINE AV CONTROL UNIT 50 11 3 DATA LINE DATA LINE GPS ANTENNA 51 10 12 л -0 3 2 To illumination . 4 system Œ 3 15 105 -F MULTIFUNCTION SWITCH 11 16 51 ¥ ► To BOSE amp. 106 SATELLITE 12 -G 53 RADIO ANTENNA 14 -⊕ 4 ------0 110 ÷ $\diamond$ 67 111 $\triangleright$ WINDOW ANTENNA (MAIN) WINDOW ANTENNA (SUB) 83 Þ 68 Next عند page Þ 84 DATA LINE 6 48 109 DATA LINE 108 ✐ ANTENNA AMP. 2 49 107 DATA LINE 52 To CAN system DATA LINE 53 K 40 🕳 To camera la To illumination control unit -0 system 19 38 15 21 6 23 16 DATA LINK CONNECTOR

COMBINATION SWITCH (SPIRAL CABLE)

(+)

 $^{\odot}$ 

VOLUME VOLUME SOURCE

(-)

To illumination

N

UP

MENU BACK SWITCH SWITCH

ol

PUSH TO TALK

ŚWITCH

system

ò

ILLUMI- ENTER NATION SWITCH

STEERING SWITCH 28 56 72

UNIFIED

METER AND A/C AMP.

(5A) : With 5-speed automatic transmission

(7A) : With 7-speed automatic transmission

39 40

(BODY CONTROL MODULE)

BCM

4 5 3

STEERING

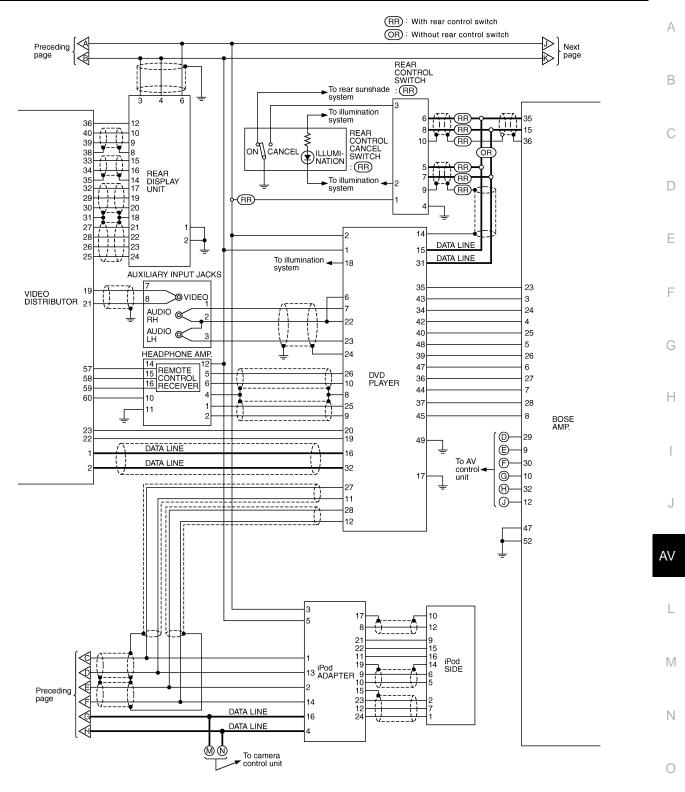
ANGLE SENSOR

2

TKWT8301E

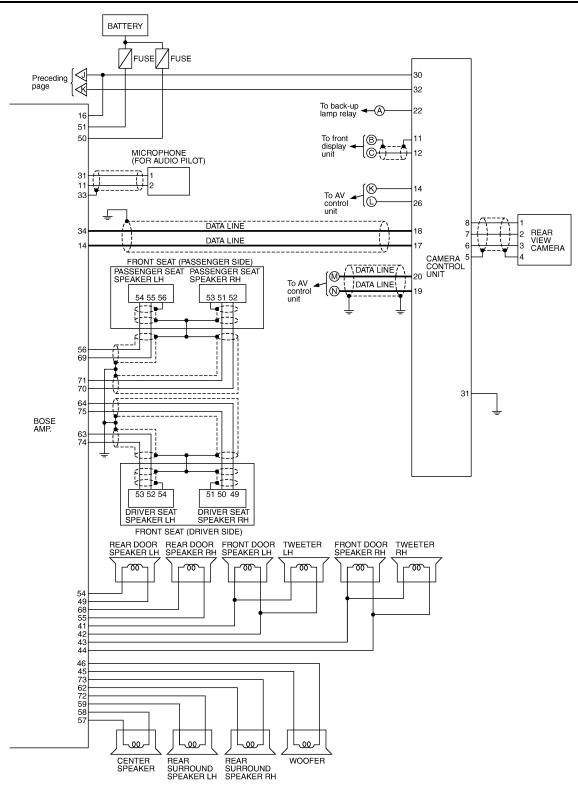
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TKWT6744E

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TKWT6745E

# Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

INFOID:000000004391617

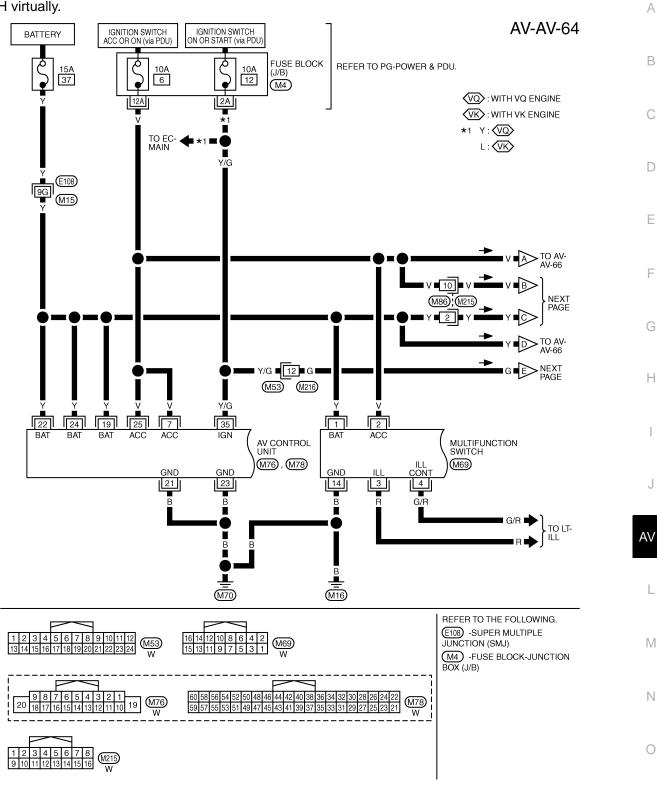
# NOTE:

#### < ECU DIAGNOSIS >

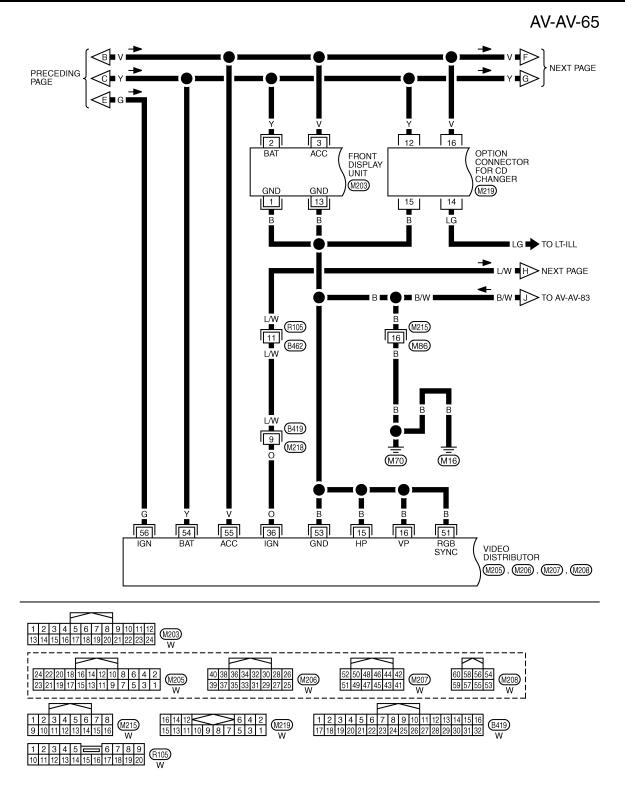
## CAMERA CONTROL UNIT

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

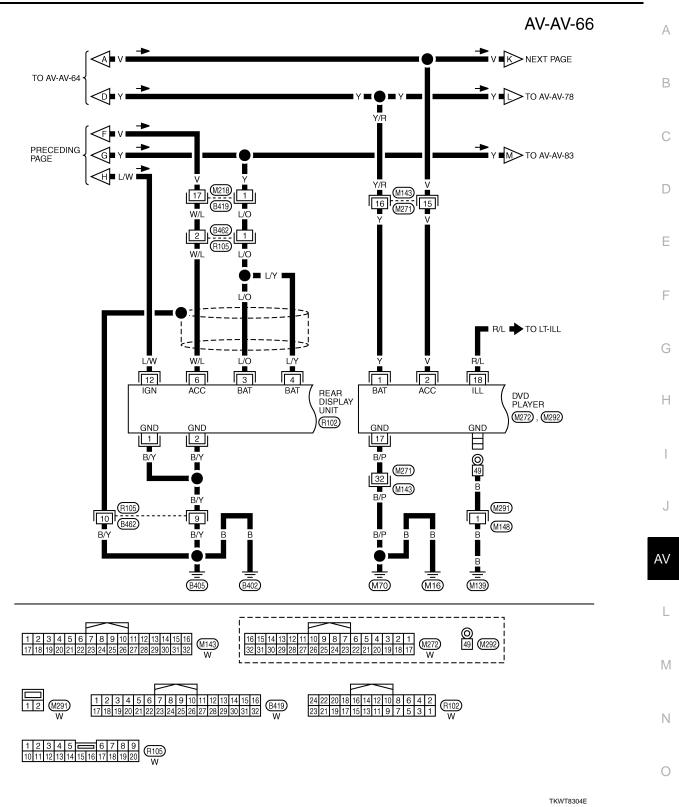
The name MULTIFUNCTION SWITCH indicates the integration of PRESET SWITCH and MULTIFUNCTION SWITCH virtually.

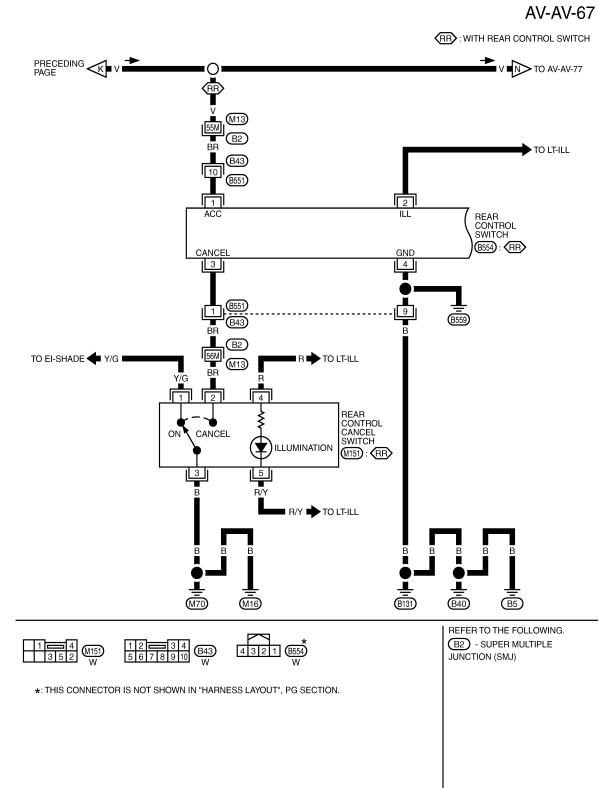


TKWT8302E

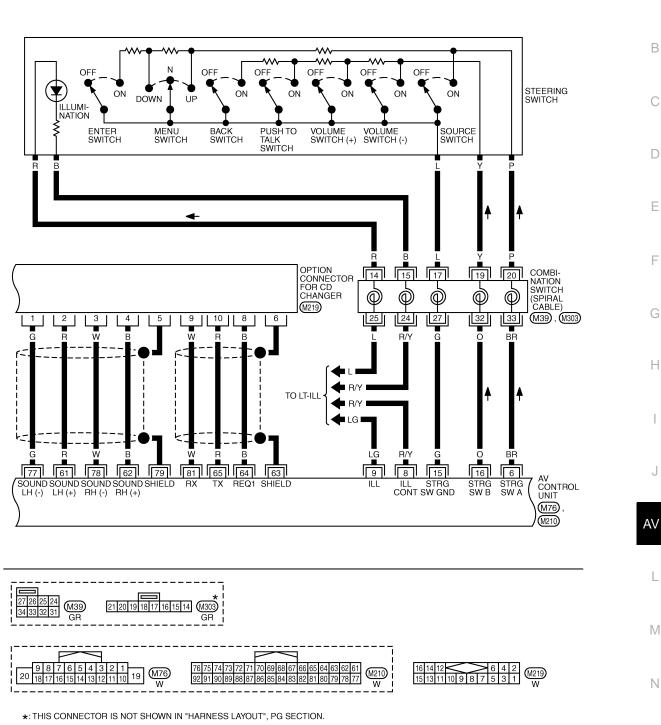


TKWT8303E





TKWT6749E



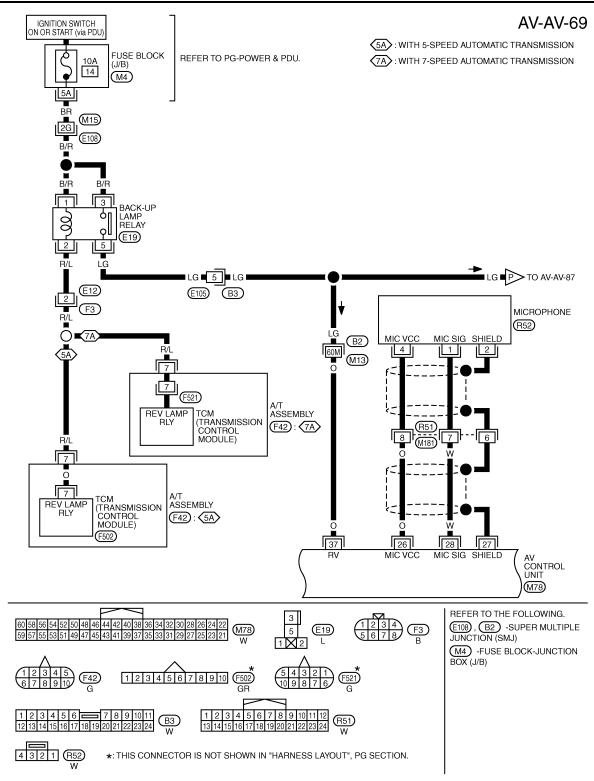
#### AV-AV-68

А

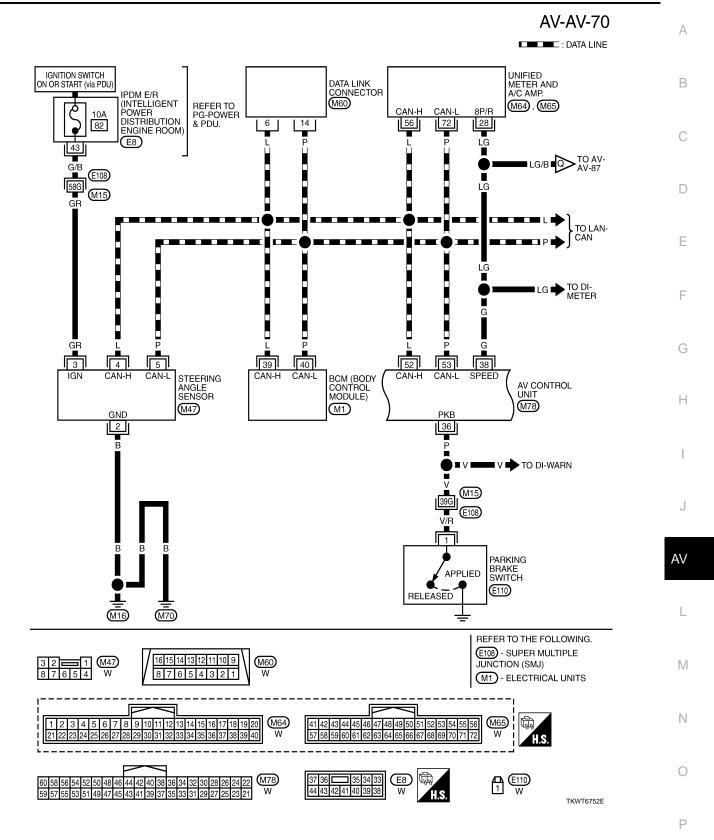
TKWT8305E

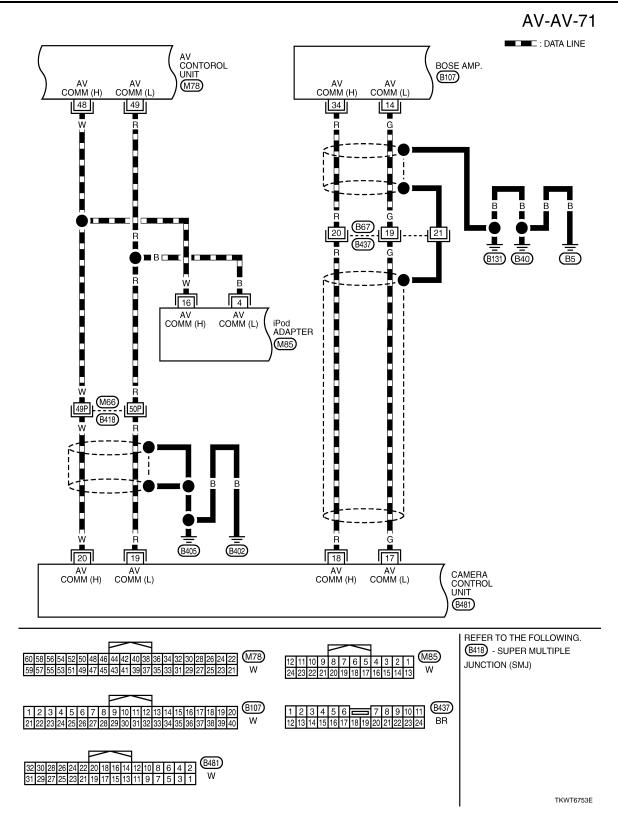
Ρ

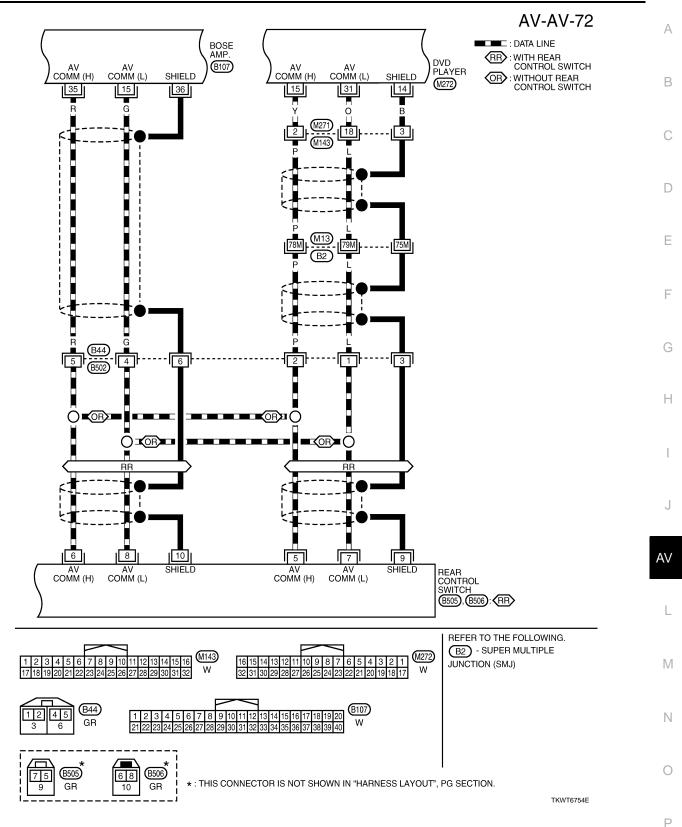
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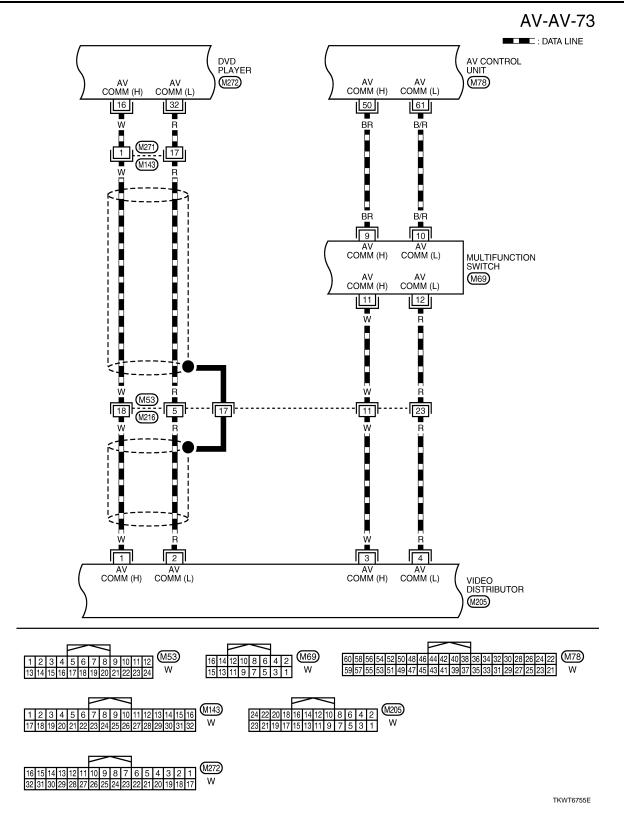


TKWT8306E





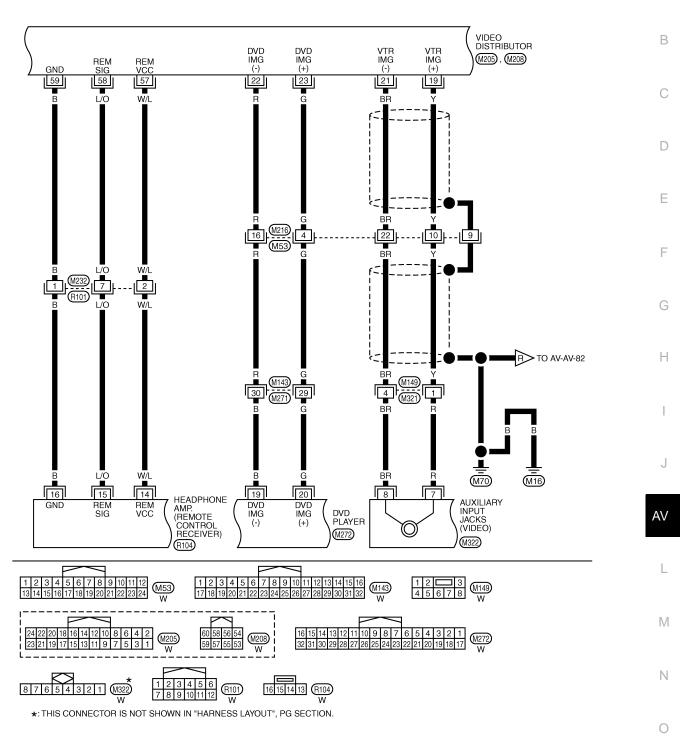






AV-AV-74

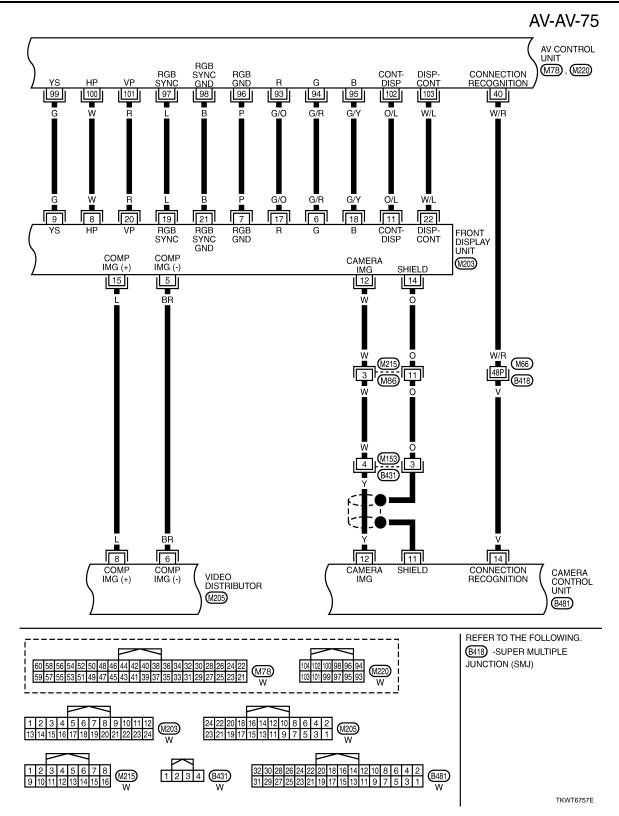
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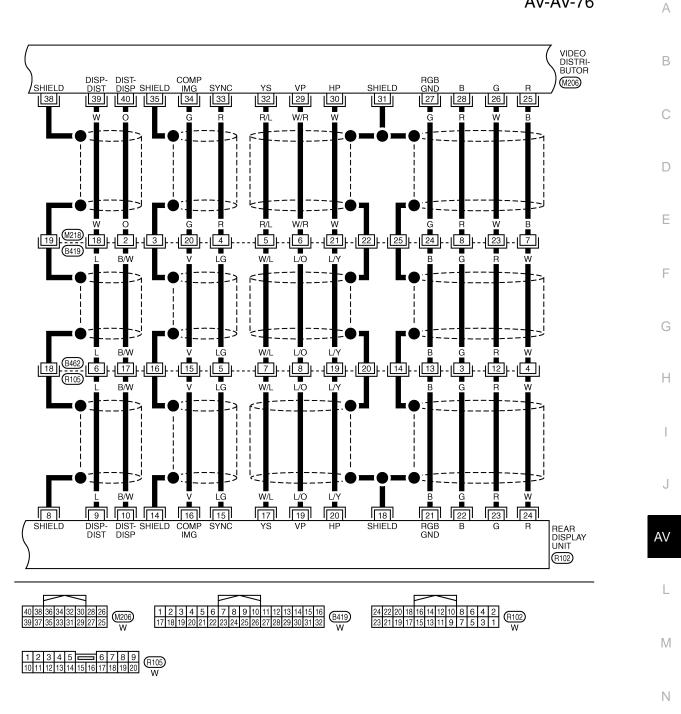


TKWT8307E

Р





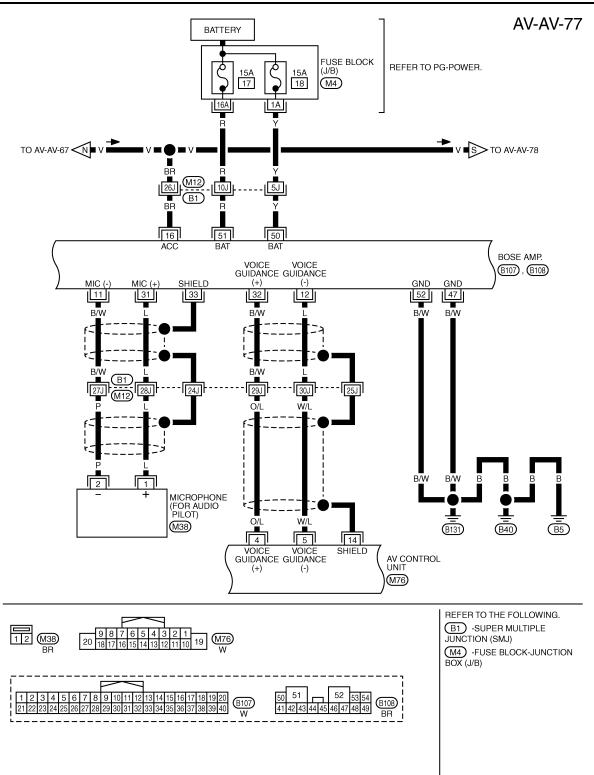


**AV-AV-76** 

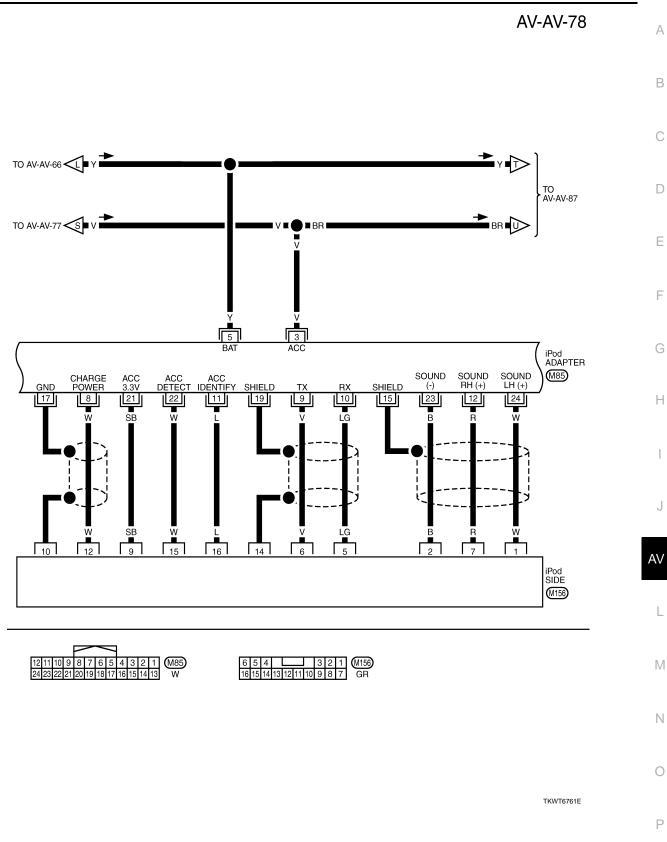
TKWT5152E

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< ECU DIAGNOSIS >



TKWT8308E

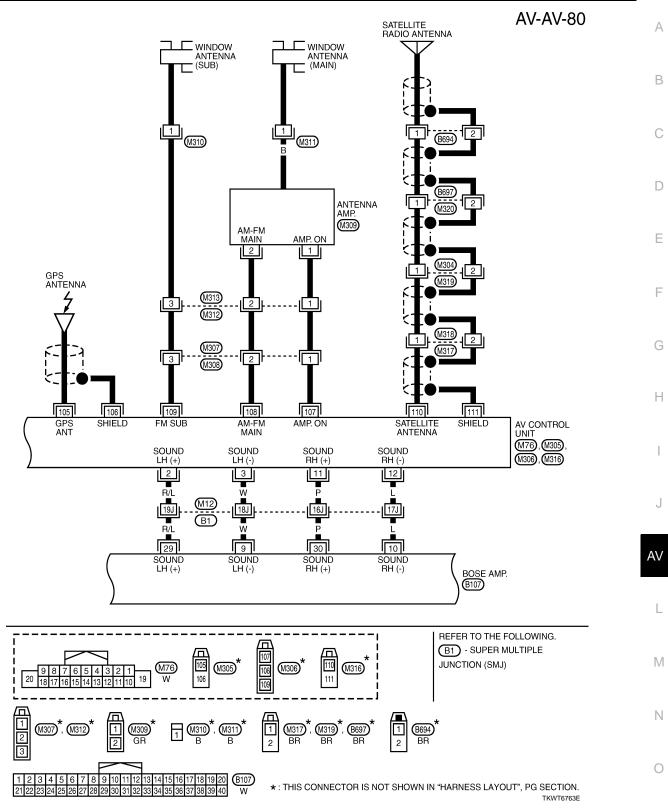


**AV-AV-79** 

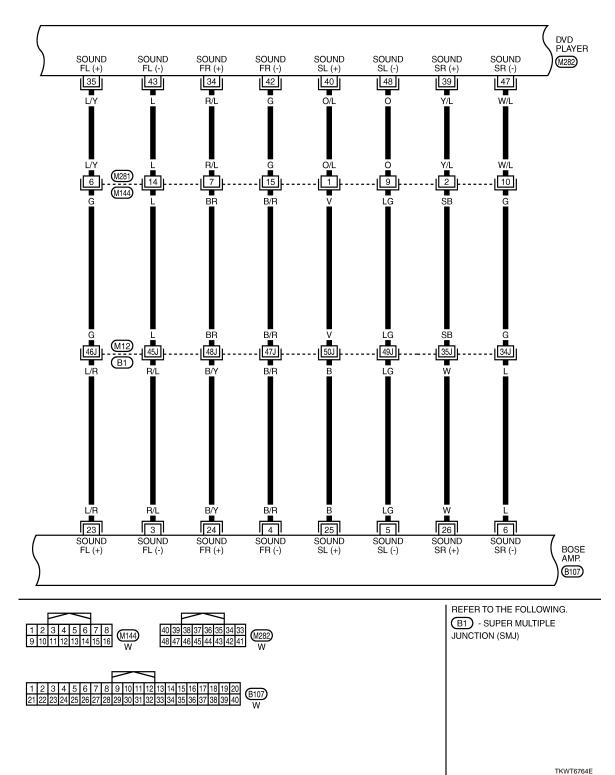
DVD PLAYER (M272) SOUND RH (-) SOUND LH (+) SOUND LH (-) SOUND RH (+) 27 B/R 12 11 28 BR B/W B/R в/w BR -21 M271 M143 22 6 5 B/W B/R BR F-۲ ۱ Ŀ Ŀ 7 M86 M215 6 L I B/W 14 B/W ١ ij 1 i١ BR **■** 12 **■** BR **■** B/R 🛯 5 🔳 B/R 13 B/W В/W B/R BR B/R BR 2 83 84 14 67 68 SOUND LH (-) SOUND RH (+) SOUND RH (-) SOUND SOUND SOUND SOUND SOUND AV CONTROL UNIT (M210) iPod ADAPTER (M85) LH (+) LH (-) RH (+) RH (-) LH (+) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 12 11 10 9 8 7 6 5 4 3 2 1 M85 24 23 22 21 20 19 18 17 16 15 14 13 W (M143) W

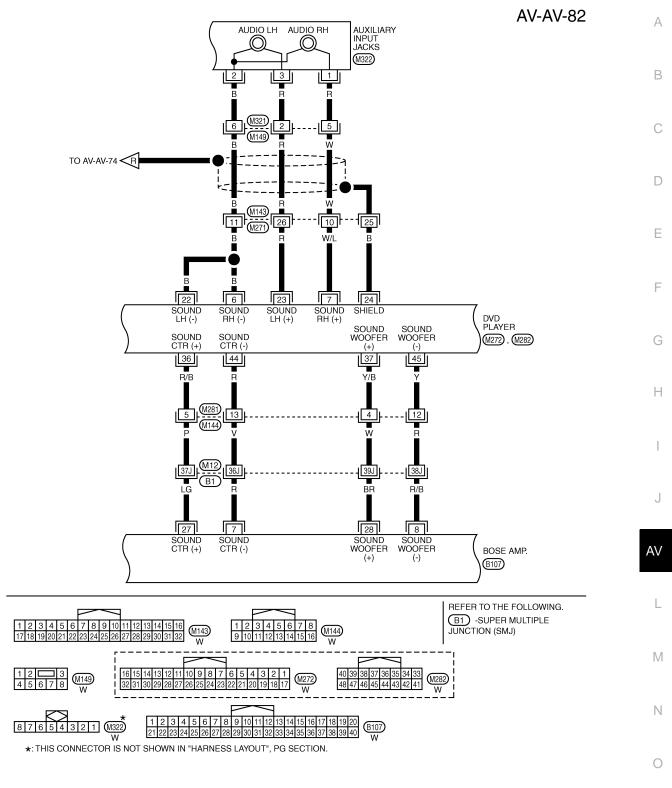
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TKWT6762E

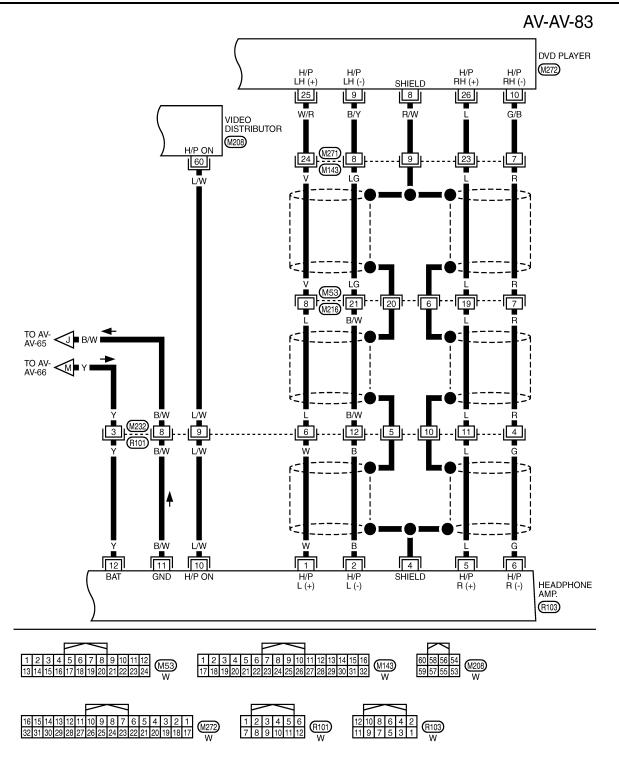


AV-AV-81

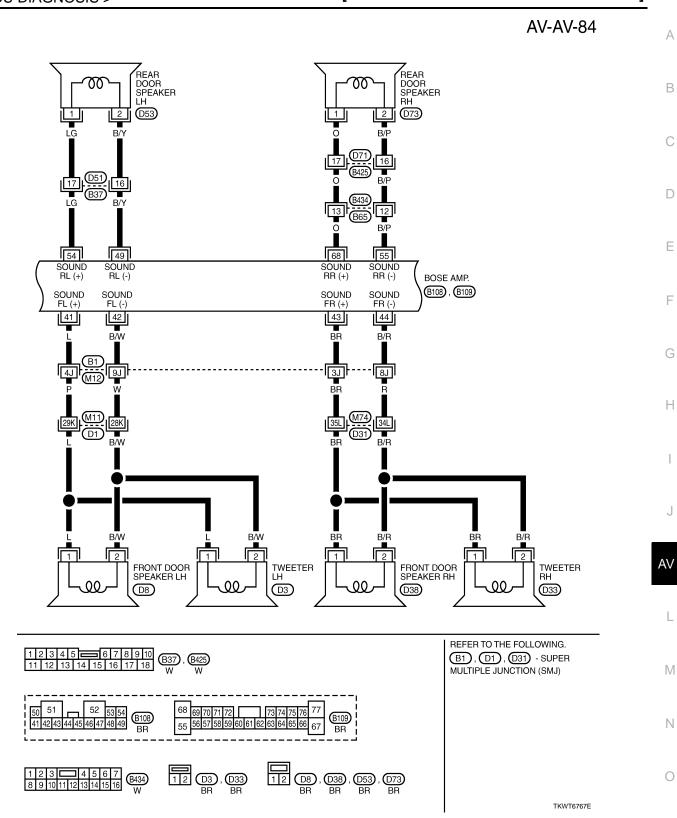




TKWT8309E

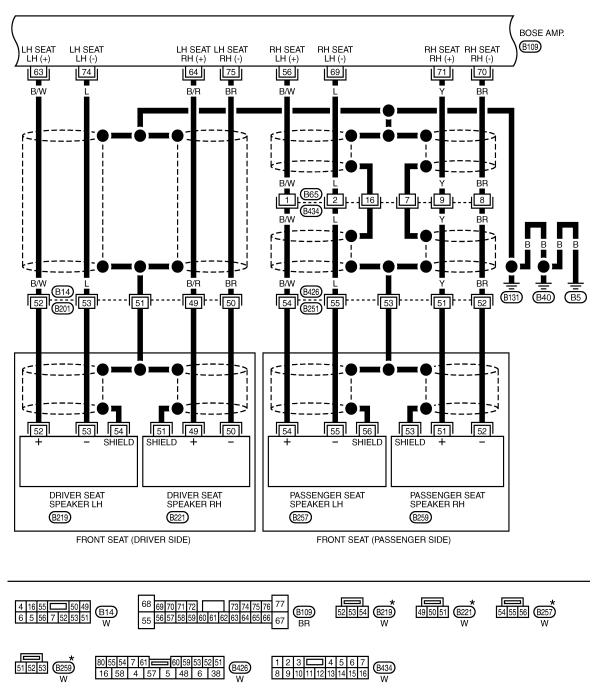


TKWT6766E



Revision: 2009 Novemver

AV-AV-85

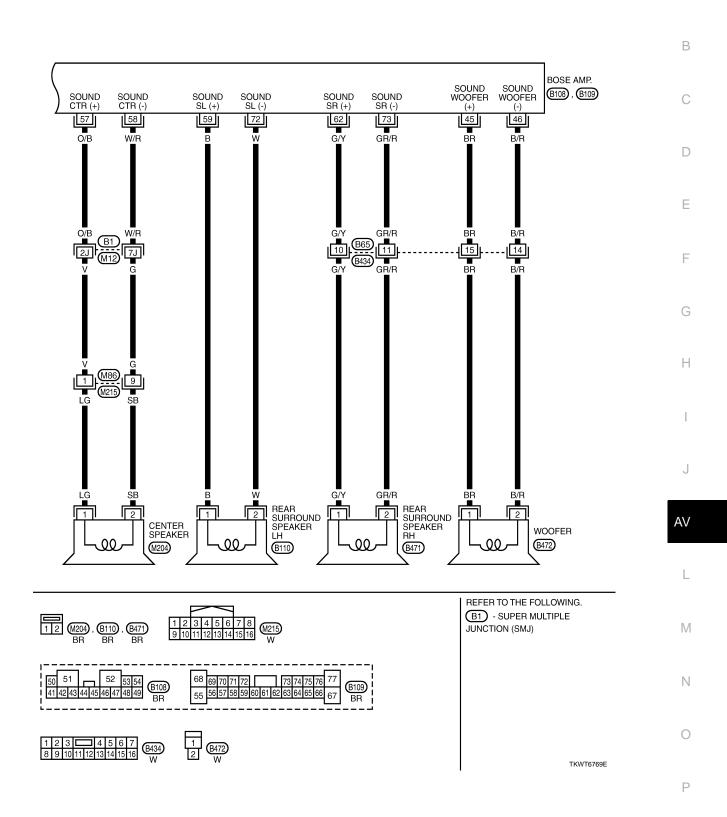


\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

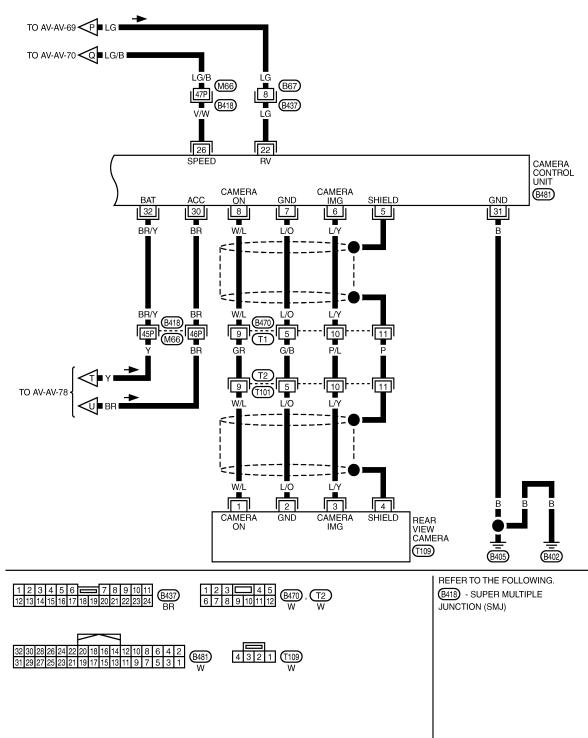
TKWT6768E

AV-AV-86

А



**AV-AV-87** 



TKWT6770E

#### < ECU DIAGNOSIS >

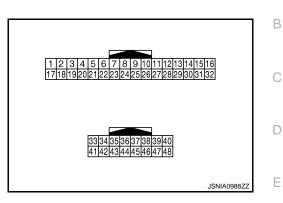
# DVD PLAYER

**Reference Value** 

**TERMINAL LAYOUT** 



А



#### PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value
+	-	Signal name	Input/ Output	Conation		(Approx.)
1 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
2 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
7 (W/L)	6 (B)	AUX sound signal RH	Input	Ignition switch ON	AUX sound output.	(V) 1 0 -1 • 2ms SKIB3609E
8	—	Shield	—		—	_
14	—	Shield	_		—	_
15 (Y)		AV communication signal (H)	Input/ Output		_	_
16 (W)		AV communication signal (H)	Input/ Output		_	_
17 (B/P)	Ground	Ground	_	Ignition switch ON	_	0 V
18	Ground	Illumination signal	Input	Ignition switch ON	Lighting switch is OFF.	0 V
(R/L)					Lighting switch is ON.	12 V
20 (G)	19 (B)	DVD image signal	Output	Ignition switch ON	When DVD image is dis- played.	(V) 0.4 -0.4 -0.4 -0.4 -0.4 -0.4

# **DVD PLAYER**

#### < ECU DIAGNOSIS >

## [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value	
+	_	Signal name	Input/ Output	Condition		(Approx.)	
23 (R)	22 (B)	AUX sound signal LH	Input	Ignition switch ON	AUX sound output.	(V) 1 0 -1 • 2ms SKIB3609E	
24	_	Shield		—	—	_	
25 (W/R)	9 (B/Y)	Headphone sound signal LH	Output	Ignition switch ON	Headphone sound output.	(V) 1 0 -1 +2ms SKIB3609E	
26 (L)	10 (G/B)	Headphone sound signal RH	Output	Ignition switch ON	Headphone sound output.	(V) 1 0 -1 * 2ms SKIB3609E	
	11 (BR)	BOSE 2ch models • Sound signal LH (DVD and AUX sound)		Ignition switch ON	AUX or DVD sound output.		
27 (B/R)		BOSE surround audio 5.1ch models • Sound signal LH (AUX sound)	Output		AUX sound output.	0 -1 + 2ms SKIB3609E	
	12 (L)	BOSE 2ch models • Sound signal RH (DVD and AUX sound)	Output	Ignition switch ON	AUX or DVD sound output.	(V)	
28 (B/W)		BOSE surround audio 5.1ch models • Sound signal RH (AUX sound)			AUX sound output.	0 -1 -1 -1 SKiB3609E	
31 (O)	_	AV communication signal (L)	Input/ Output	_	_	_	
(0) 32 (R)	_	AV communication signal (L)	Input/ Output				
34 <sup>*</sup> (R/L)	42 <sup>*</sup> (G)	DVD surround signal front RH	Output	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 -1 SKIB3609E	

# **DVD PLAYER**

#### < ECU DIAGNOSIS >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

Terminal (Wire color)		Description				Reference value	Д
+	-	Signal name	Input/ Output	Condition		(Approx.)	
35 <sup>*</sup> (L/Y)	43 <sup>*</sup> (L)	DVD surround signal front LH	Output	lgnition switch ON	When the DVD player is played.	(V) 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	E
36 <sup>*</sup> (R/B)	44 <sup>*</sup> (R)	DVD surround signal center	Output	lgnition switch ON	When the DVD player is played.	(V) 1 0 -1 • 2ms SKIB3609E	E
37 <sup>*</sup> (Y/B)	45 <sup>*</sup> (Y)	DVD surround signal woof- er	Output	Ignition switch ON	When the DVD player is played.	(V) 0. 6 0. 4 0. 2 0 0 0. 2 0 0 0 0 0 0 0 0 0 0 0 0 0	ŀ
39 <sup>*</sup> (Y/L)	47 <sup>*</sup> (W/L)	DVD surround signal rear RH	Output	Ignition switch ON	When the DVD player is played.	(V) 1 0 -1 • 2ms SKIB3609E	A
40 <sup>*</sup> (O/L)	48 <sup>*</sup> (O)	DVD surround signal rear LH	Output	Ignition switch ON	When the DVD player is played.	(V) 1 0 −1 → • 2ms SKIB3609E	ľ
49 (B)	Ground	Ground	_	Ignition switch ON		0 V	ľ

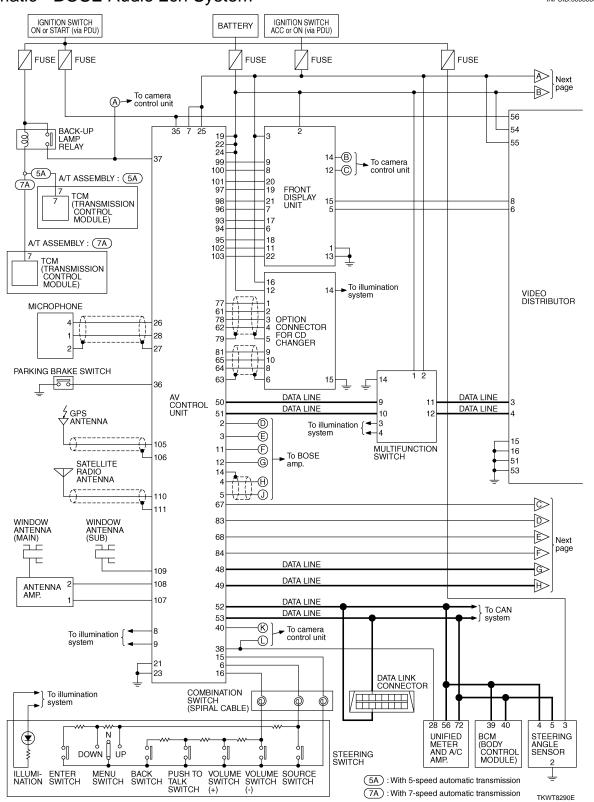
\*: Only for BOSE surround audio 5.1ch system models.

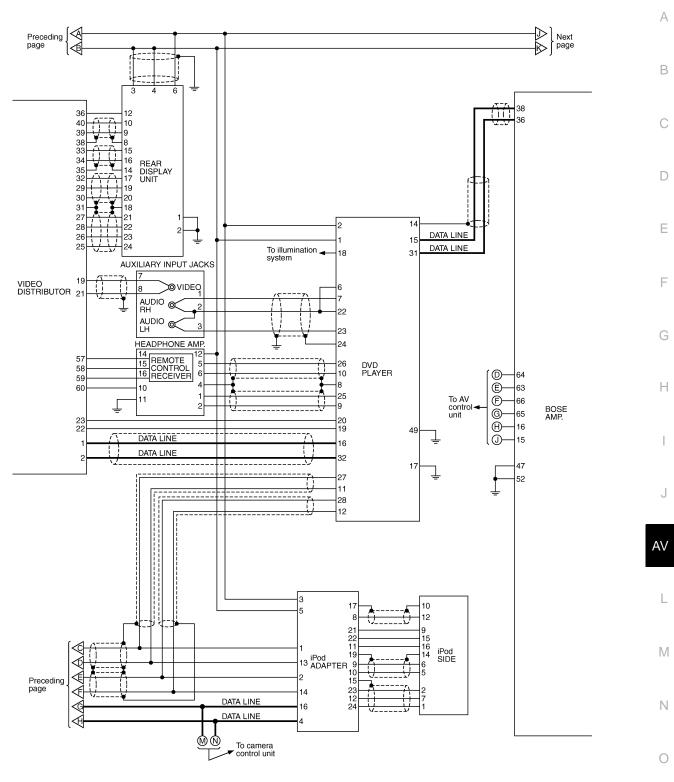
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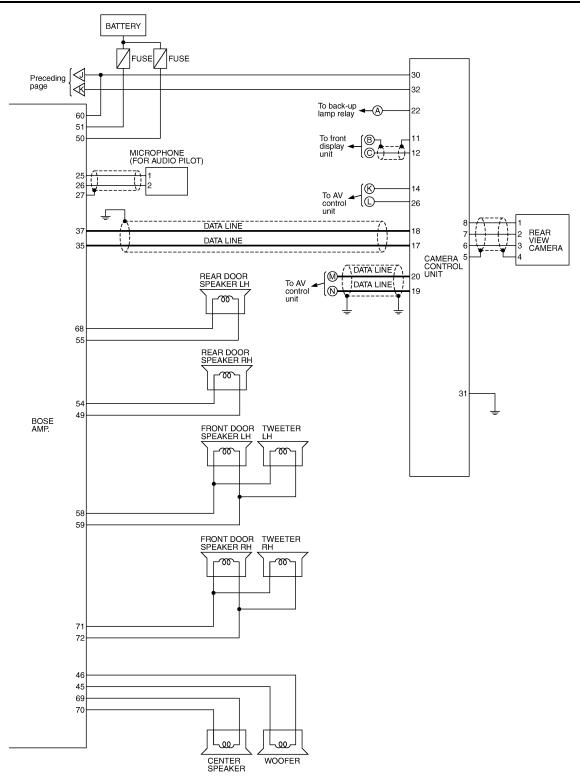
#### Schematic - BOSE Audio 2ch System-

INFOID:000000004391618





TKWT6722E



TKWT6723E

Wiring Diagram - AV - / BOSE Audio 2ch System

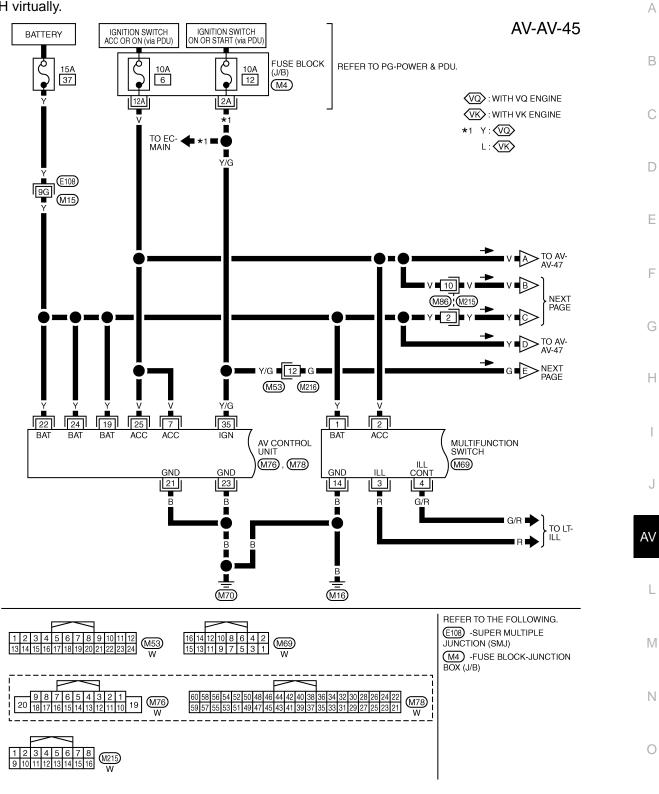
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INFOID:000000004391619

#### < ECU DIAGNOSIS >

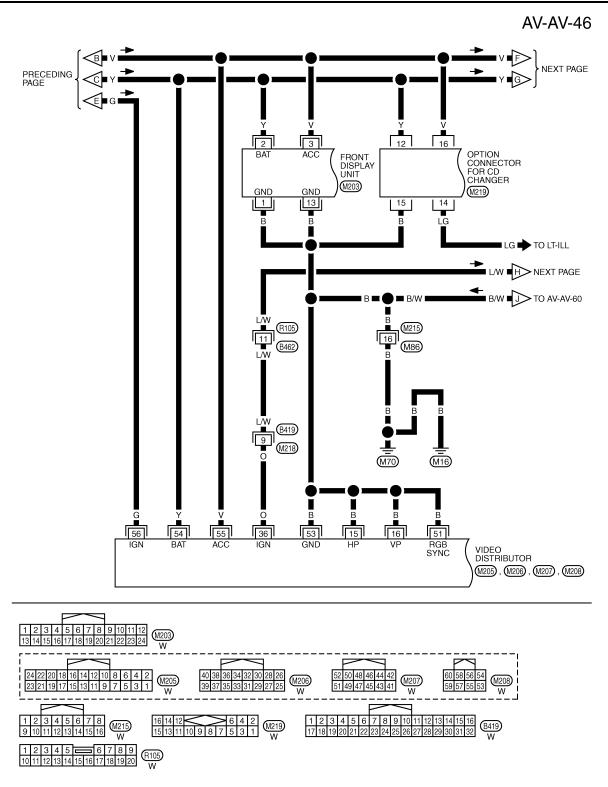
#### DVD PLAYER [WITH MOBILE ENTERTAINMENT SYSTEM]

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



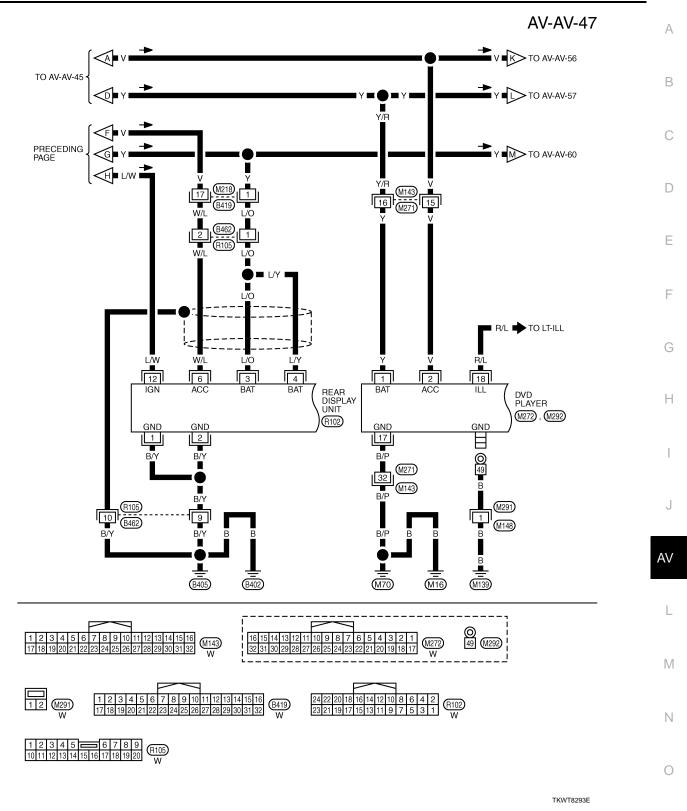
TKWT8291E

### DVD PLAYER

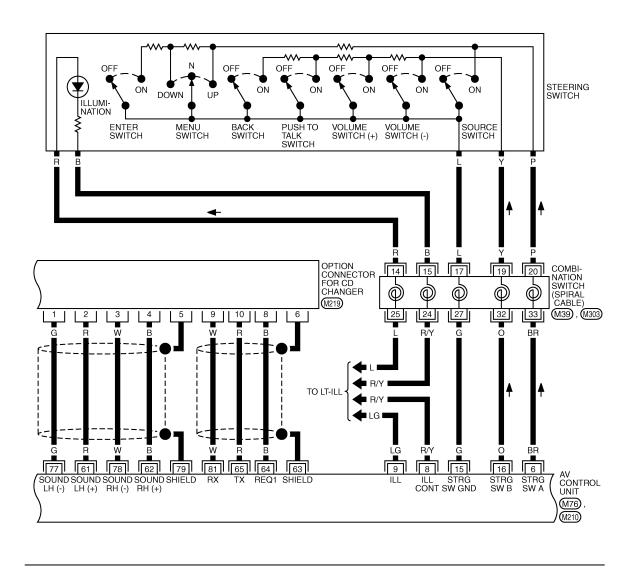


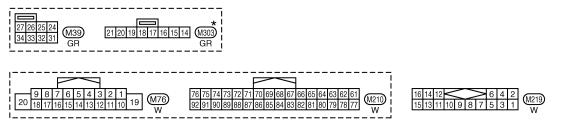
TKWT8292E

# DVD PLAYER



AV-AV-48

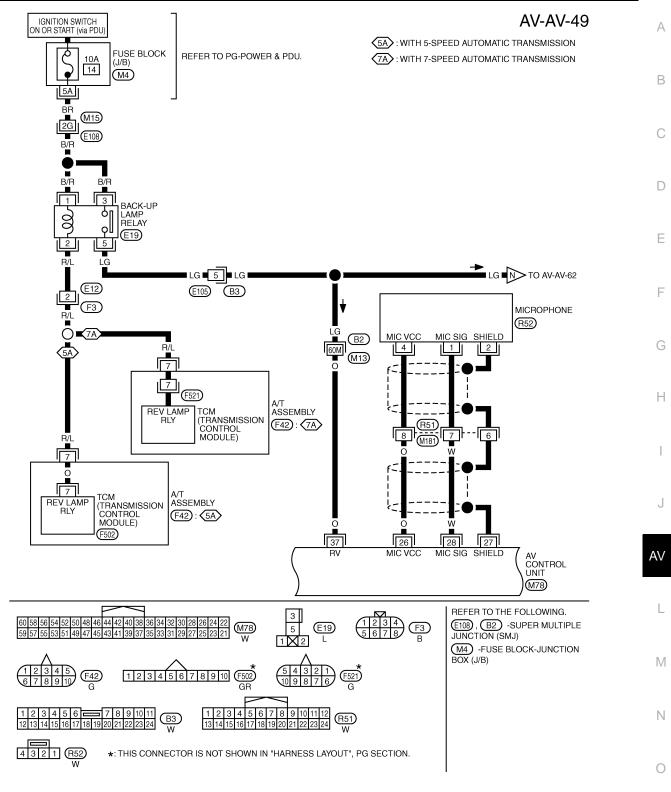




\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8294E

#### DVD PLAYER [WITH MOBILE ENTERTAINMENT SYSTEM]



TKWT8295E

Р

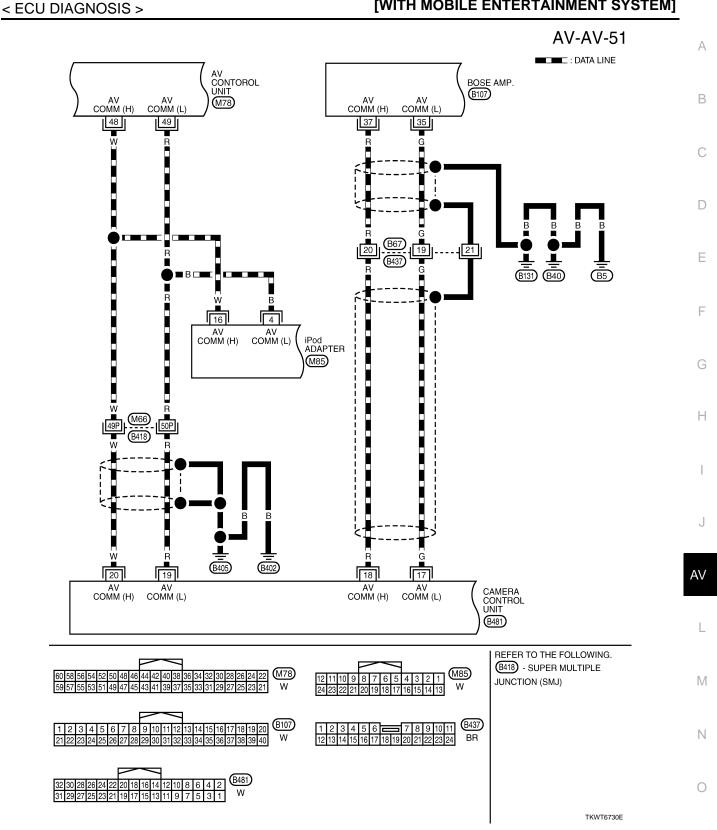
#### DVD PLAYER [WITH MOBILE ENTERTAINMENT SYSTEM]

#### < ECU DIAGNOSIS >

#### IGNITION SWITCH UNIFIED DATA LINK METER AND A/C AMP. ON OR START (via PDU CONNECTOR IPDM E/R REFER TO PG-POWER & PDU. (M60) (INTELLIGENT (M64), (M65) Ċ CAN-H 8P/R POWER CAN-L 10A DISTRIBUTION ENGINE ROOM) 56 7 6 14 72 28 82 (E8) 43 G/B 58G M15 L F LG L F LG/B TO AV-AV-62 Ē LG M15 GR TO LAN-CAN P LG P TO DI-METER 🛯 LG 🗭 G P GR G 3 4 5 39 38 40 52 53 IGN CAN-H CAN-L STEERING CAN-H CAN-L BCM (BODY CONTROL MODULE) CAN-H CAN-L SPEED AV CONTROL ANGLE SENSOR M78 (M47) (M1) GND PKB 2 36 P R 'n. TO DI-WARN ∎ V I V M15 39G E108 V/R PARKING В B B BRAKE SWITCH APPLIED (E110) RELEASED M16 (M70) -REFER TO THE FOLLOWING. E108 - SUPER MULTIPLE (M47) W 16 15 14 13 12 11 10 9 32**1** 87654 (M60) JUNCTION (SMJ) W 87654321 (M1) - ELECTRICAL UNITS M64 (M65) 侼 8 9 10 11 12 13 14 15 16 44 45 46 47 48 49 50 51 52 17 18 1 W 3 34 35 36 37 38 39 40 W 5 26 27 28 29 30 31 32 3 57 58 59 60 61 62 63 64 65 66 67 68 9 70 7 1 E110 W 剑 60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 59 57 55 53 51 49 47 45 43 41 39 37 35 33 31 29 27 25 23 21 (M78) 35 34 33 (E8) 37 36 44 43 42 41 40 39 38 W W TKWT6729E

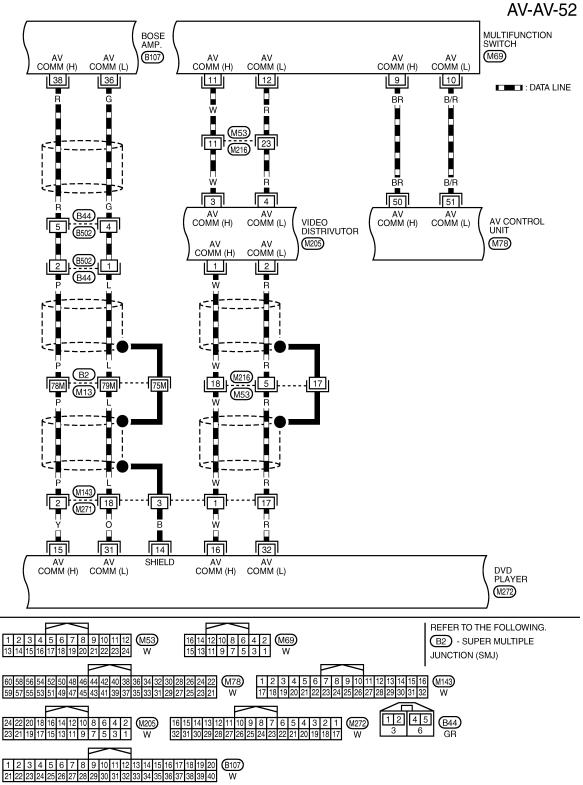
#### AV-AV-50

DATA LINE

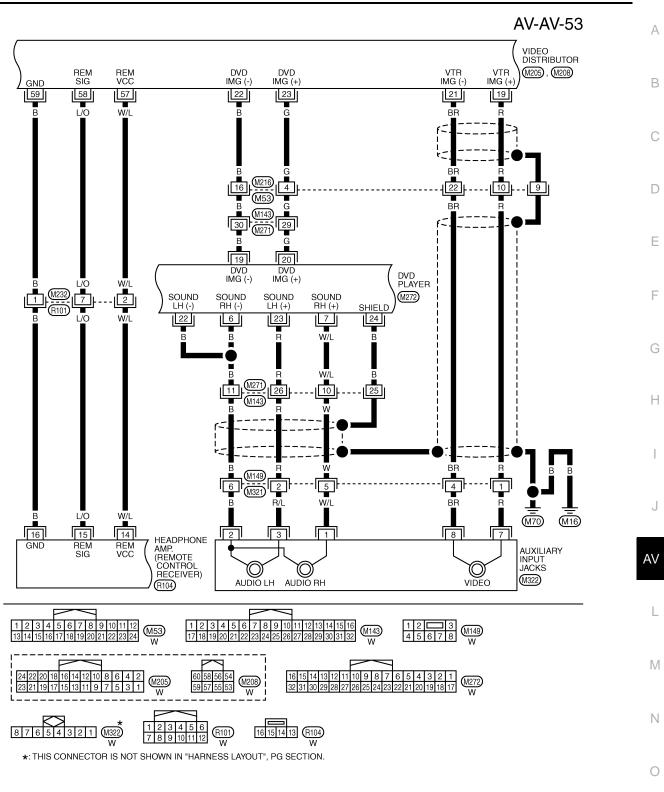


**DVD PLAYER** 

[WITH MOBILE ENTERTAINMENT SYSTEM]

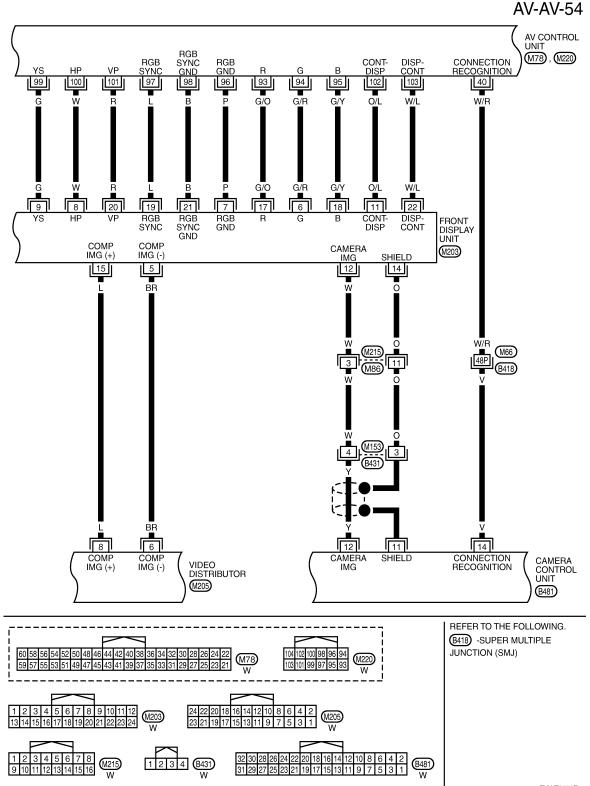


TKWT6731E



TKWT8296E

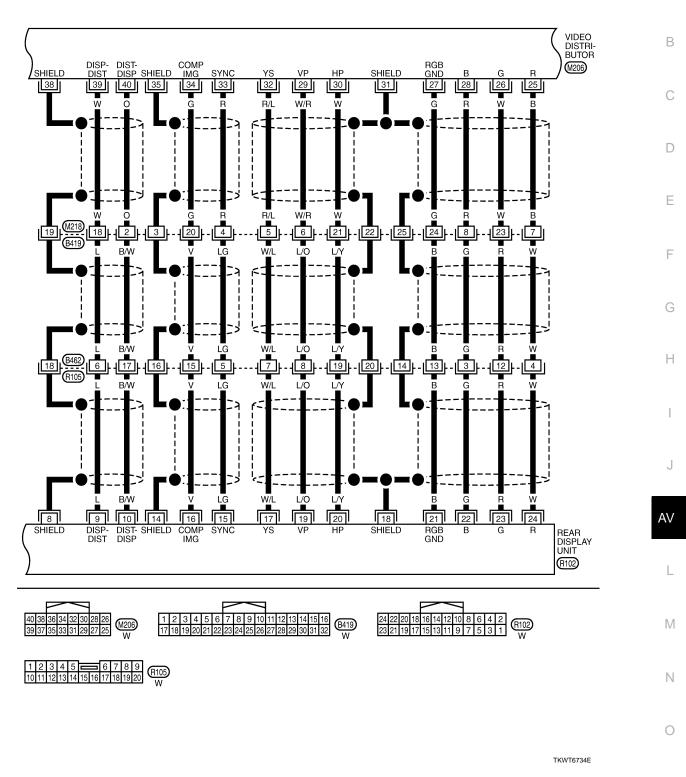
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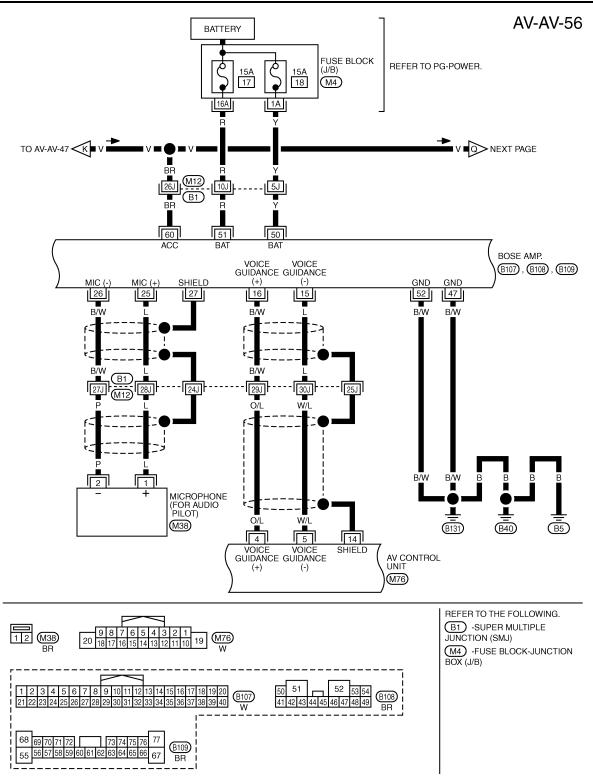
AV-AV-55

А



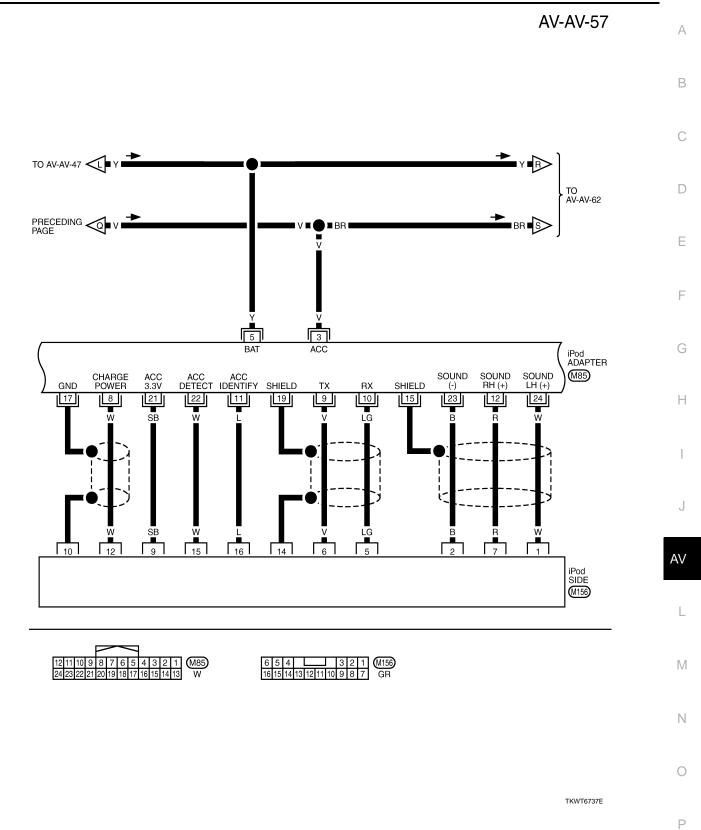
Ρ

#### < ECU DIAGNOSIS >



TKWT8297E





DVD PLAYER (M272) SOUND LH (+) SOUND LH (-) SOUND RH (+) SOUND RH (-) 27 B/R 28 B/W 12 11 BR B/R B/W BR M271 6 M143 6 21 22 - 5 B/W B/R BB F-۲ ۱ Ŀ 5 7 M86 M215 6 L I ■ B/W ■ 14 ■ B/W I ١ ij 1 i١ BR **■** 12 **■** BR **■** B/R 🛯 5 🔳 B/R 13 в/W В/W B/R BR B/R BR 2 83 68 84 14 67 SOUND LH (-) SOUND RH (-) SOUND LH (-) SOUND SOUND SOUND SOUND SOUND AV CONTROL UNIT iPod ADAPTER LH (+) RH (+) LH (+) RH (+) RH (-) (M85) M210 12 11 10 9 8 7 6 5 4 3 2 1 24 23 22 21 20 19 18 17 16 15 14 13 W 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 (M143) W

AV-AV-58

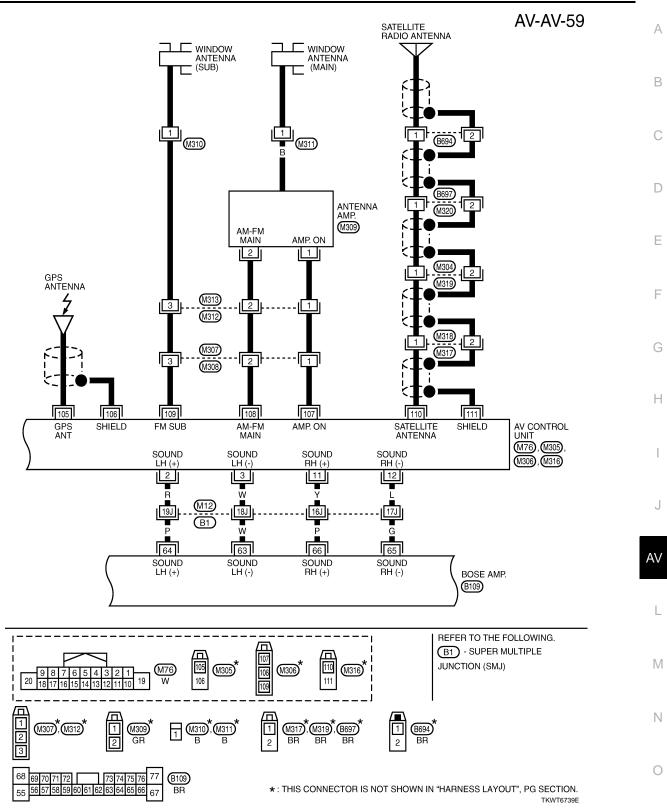
TKWT6738E

(M272) W

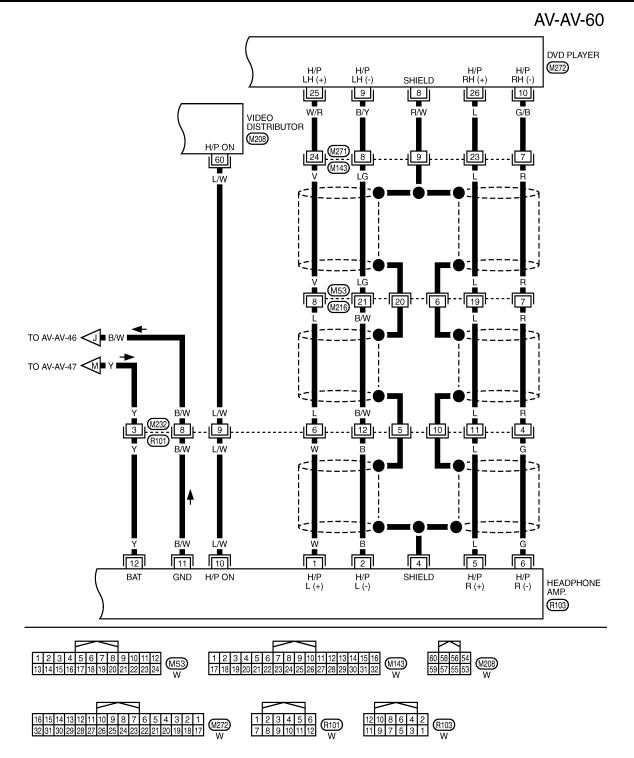
76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77

(M210) W (M215) W 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



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TKWT6740E



AV-AV-61 REAR DOOR SPEAKER LH REAR DOOR SPEAKER RH CENTER SPEAKER 00 00 00 00 WOOFER (B472) (M204) 2 2 2 B/R **D53** 1 **D73** 2 1 1 BR B/Y B/P SE I G 0 9 16 (D51) 17 16 BR B/R (B37) LG B/Y **(**M12 14 B/R 2J 12 15 13 7J (B65) B1 -B/P BR 0 V G/Y 69 54 45 46 49 70 68 55 SOUND CTR (+) SOUND CTR (-) SOUND RL (+) SOUND RL (-) SOUND RR (+) SOUND RR (-) SOUND WOOFER SOUND WOOFER BOSE AMP. (+) (-) (B108), (B109) SOUND FL (+) SOUND SOUND FR (+) SOUND FR (-) FL (-59 58 71 72 BR L/Y R **(** B1 9J 3J 8J 4J (M12) ΒR R M74 (M11) 34L 35L 28K 29K (D1) (D31) вли BR B/R B/W B/₩ ΒR B∕R BR B/R ■ 2 2 1 1 AV FRONT DOOR FRONT DOOR TWEETER TWEETER RH 00 00 00 00 **D8 D38** D33 REFER TO THE FOLLOWING. (B1), (D1), (D31) - SUPER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 1 2 (M204), (D3), (D33) BR BR BR BR M215 W MULTIPLE JUNCTION (SMJ) 1 2 3 4 5 **— 6 7 8 9 10** 11 12 13 14 15 16 17 18 51 52 68 77 69 70 71 72 50 53 54 B37, B425 **B108 B109** 41 42 43 44 45 46 47 48 49 55 56 57 58 59 60 61 62 63 64 65 66 67 W BR BR 1 2 B472 W 12 1 2 3 **4** 5 6 7 8 9 10 11 12 13 14 15 16 D8, D38, D53, D73 BR BR BR BR BR B434 TKWT6741E

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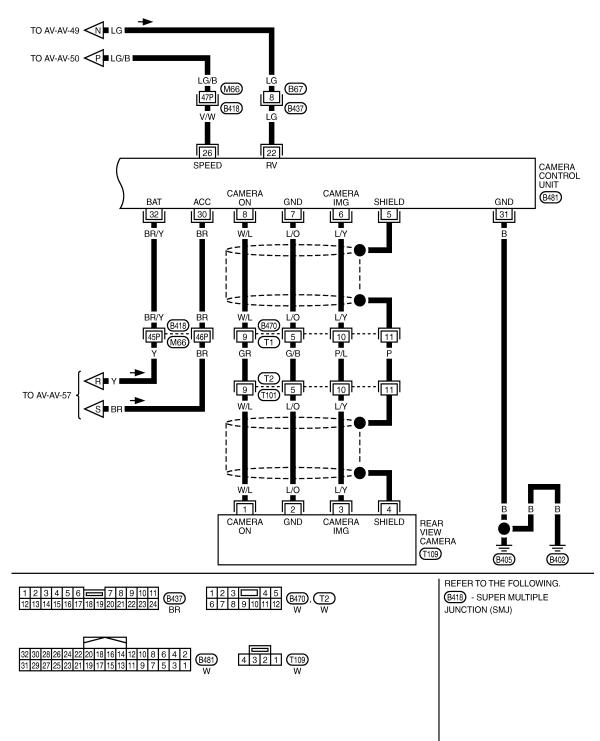
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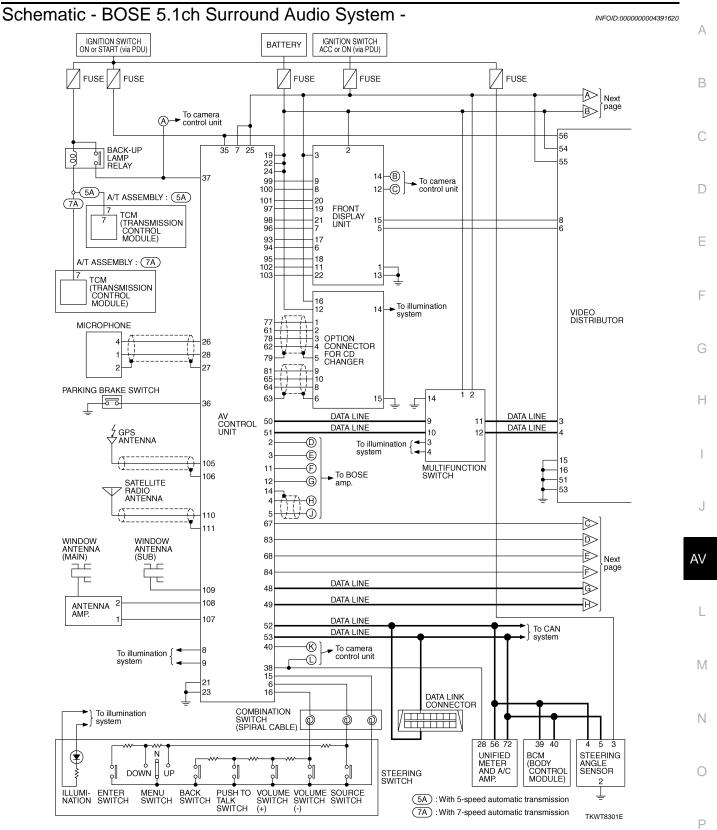
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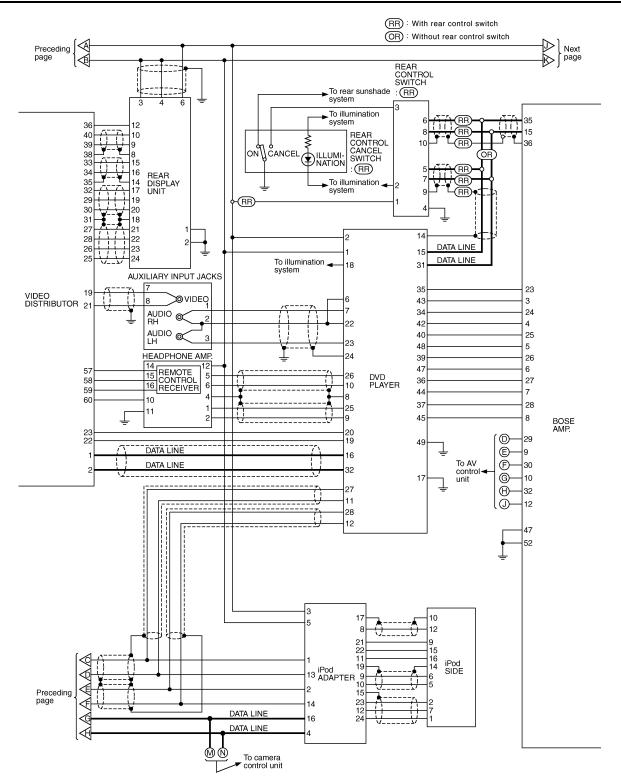
Ο

## AV-AV-62

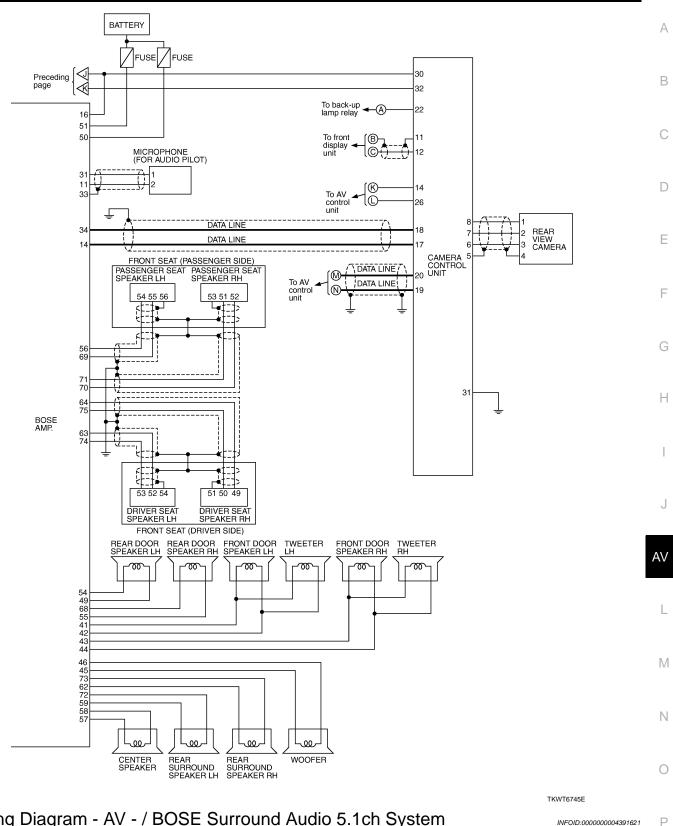


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TKWT6744E

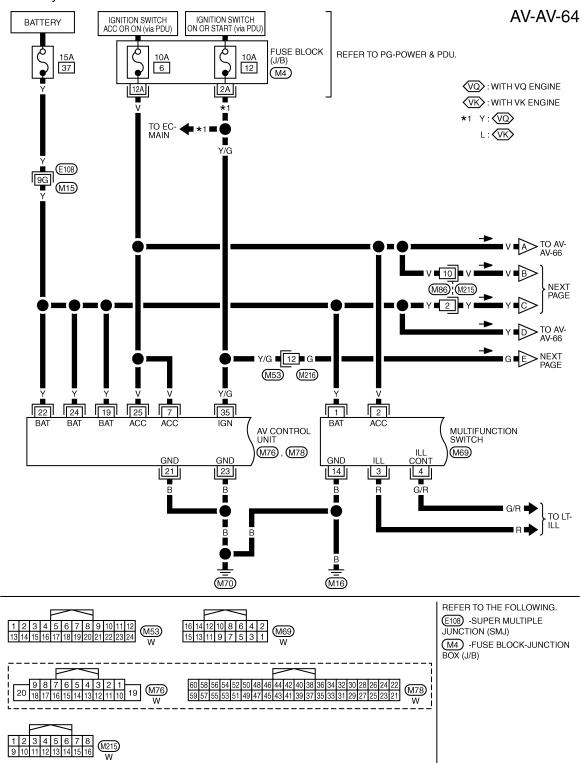


Wiring Diagram - AV - / BOSE Surround Audio 5.1ch System

## **DVD PLAYER**

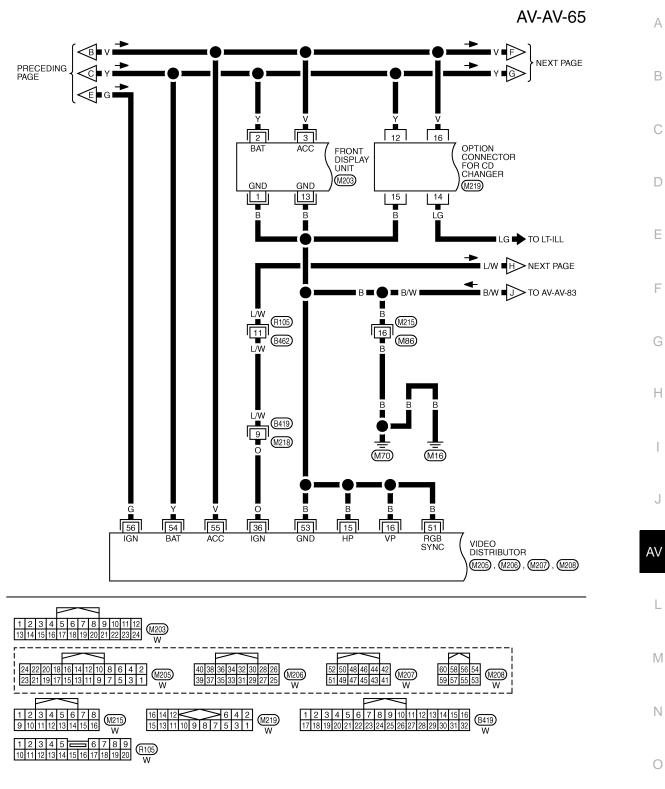
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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

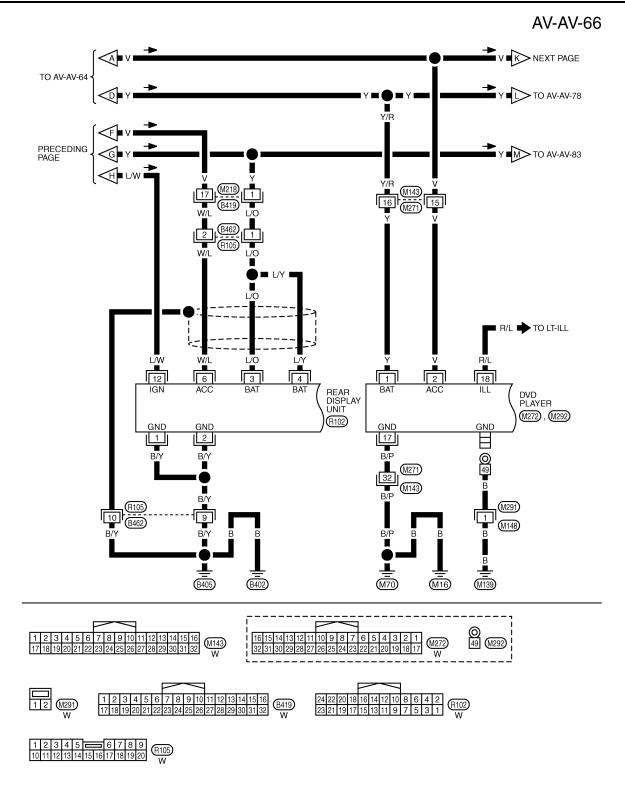


TKWT8302E



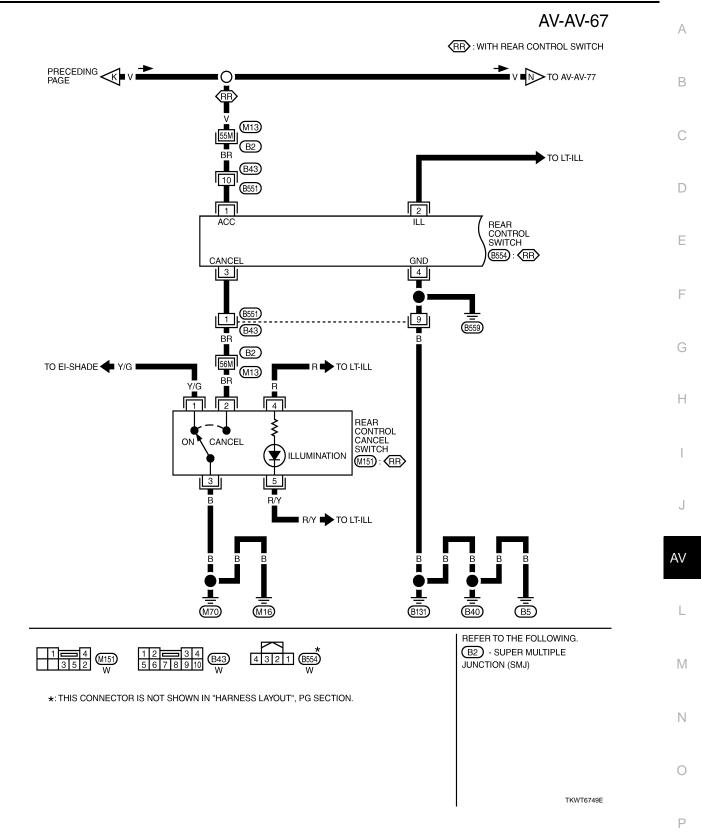


TKWT8303E

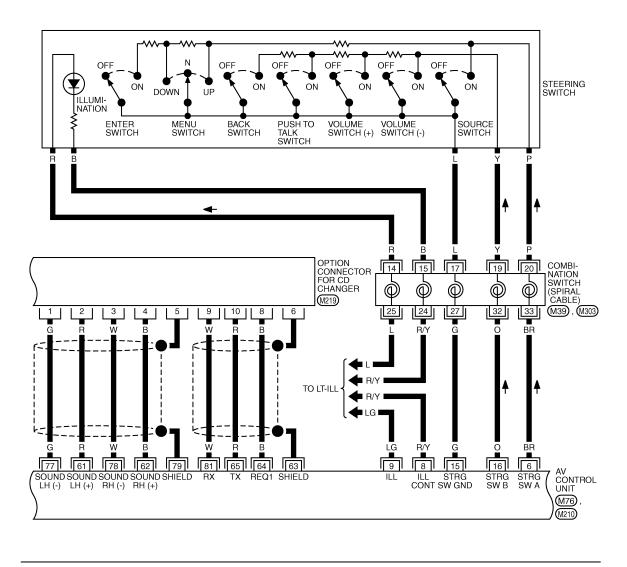


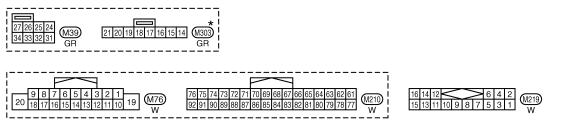
TKWT8304E

### [WITH MOBILE ENTERTAINMENT SYSTEM]



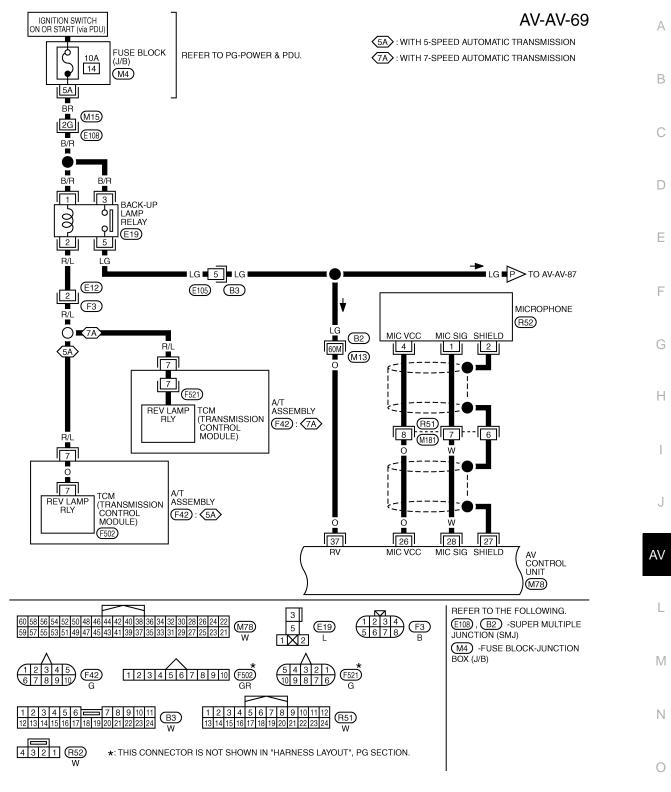
AV-AV-68





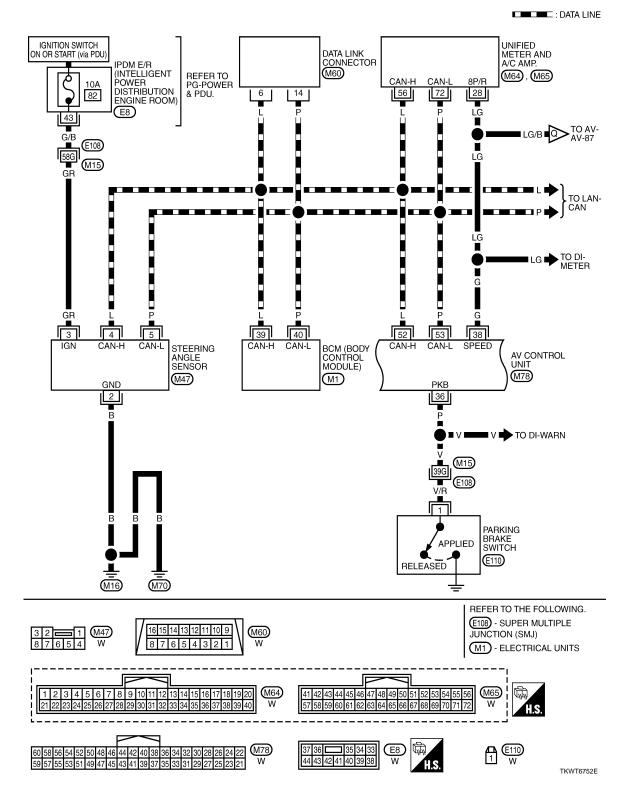
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT8305E

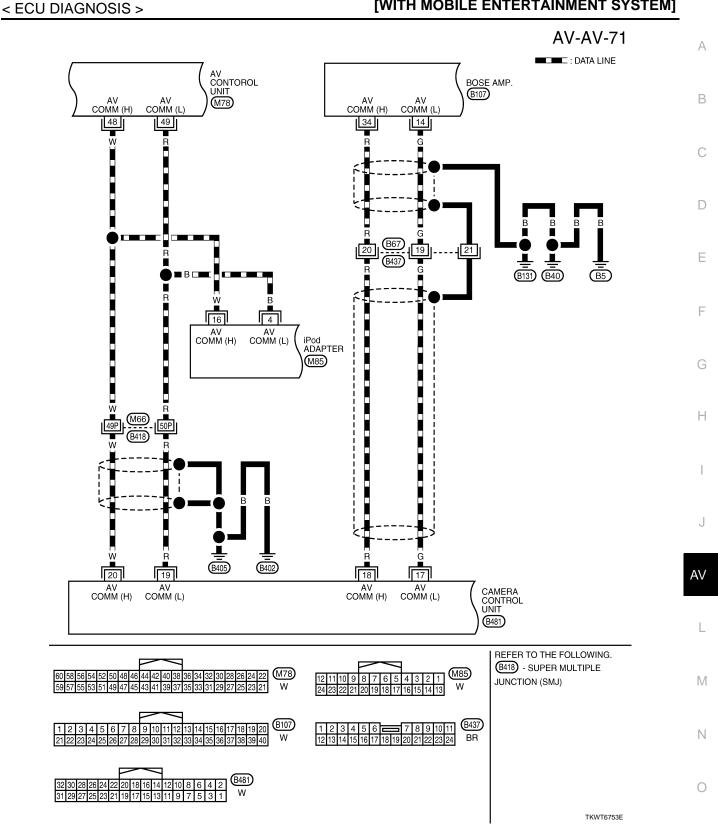


TKWT8306E

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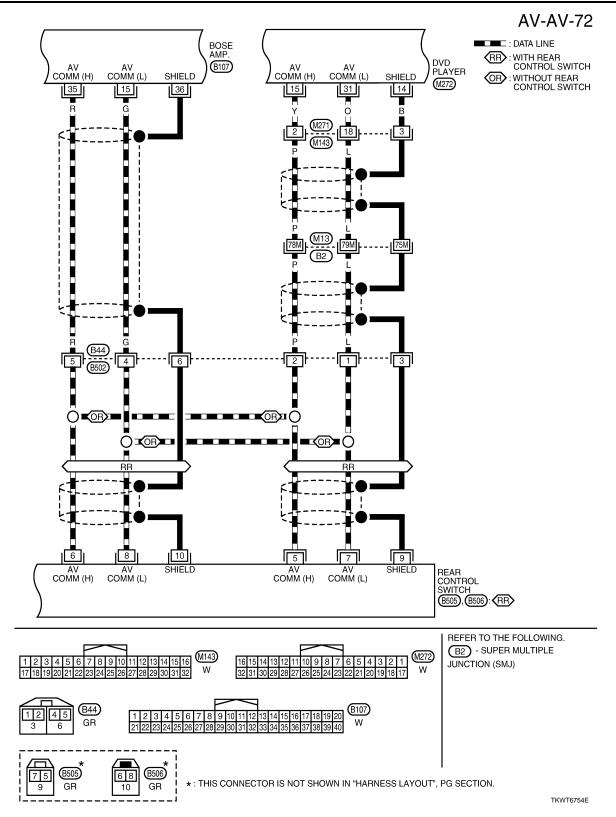


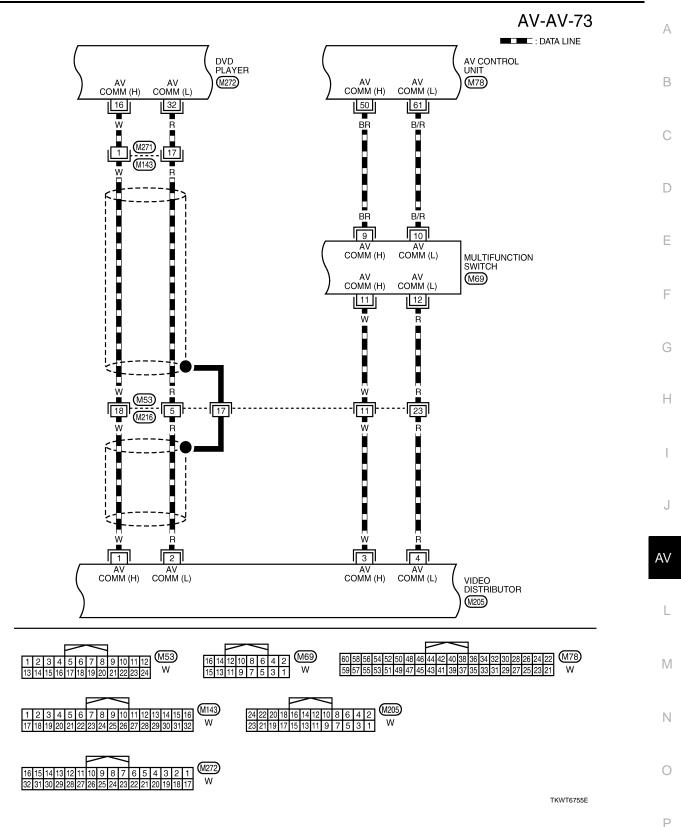
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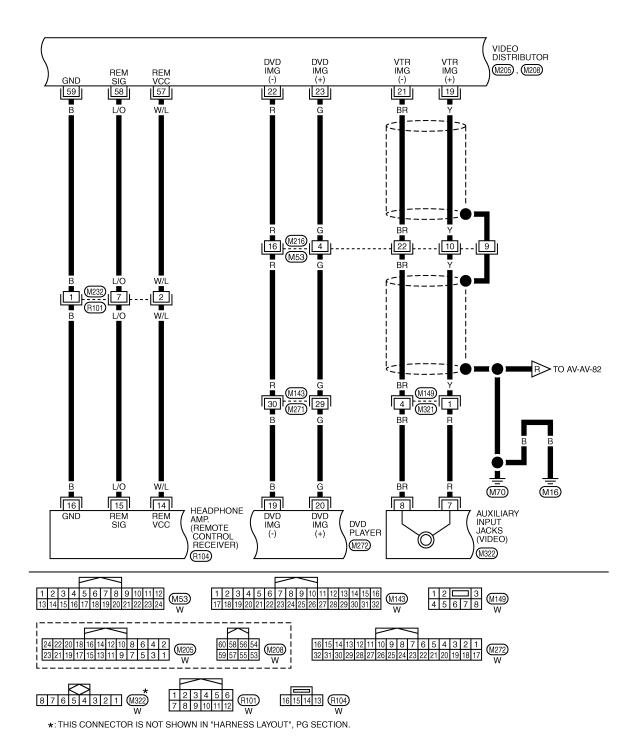
Revision: 2009 Novemver

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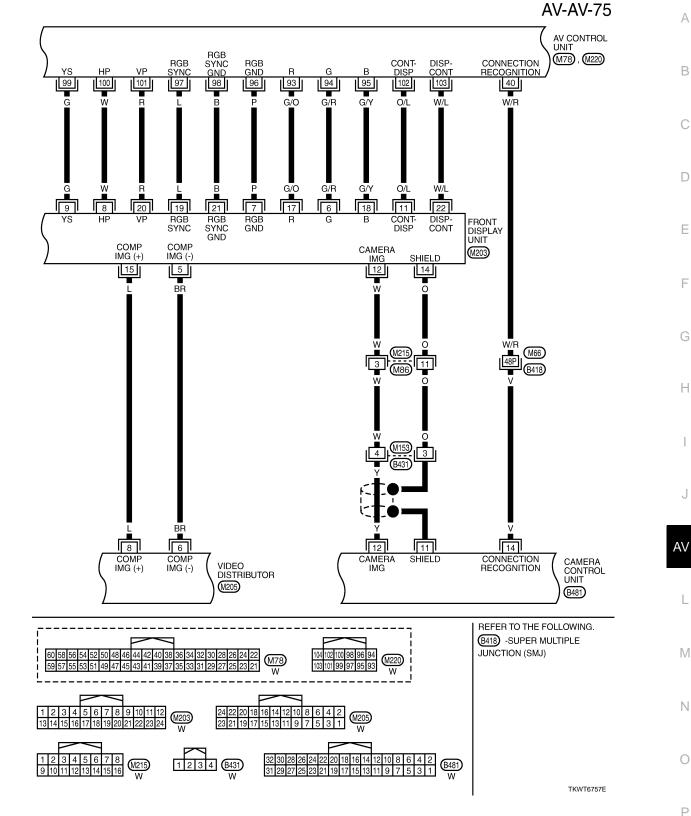




AV-AV-74



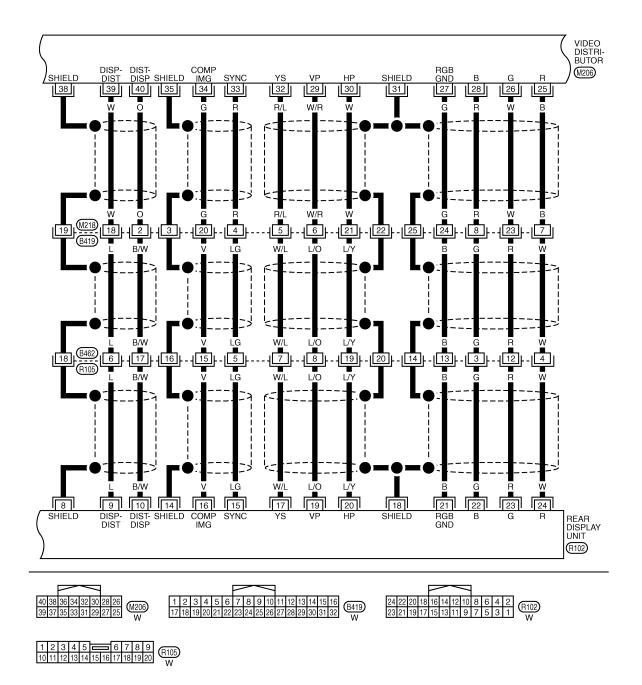
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< ECU DIAGNOSIS >

Revision: 2009 Novemver

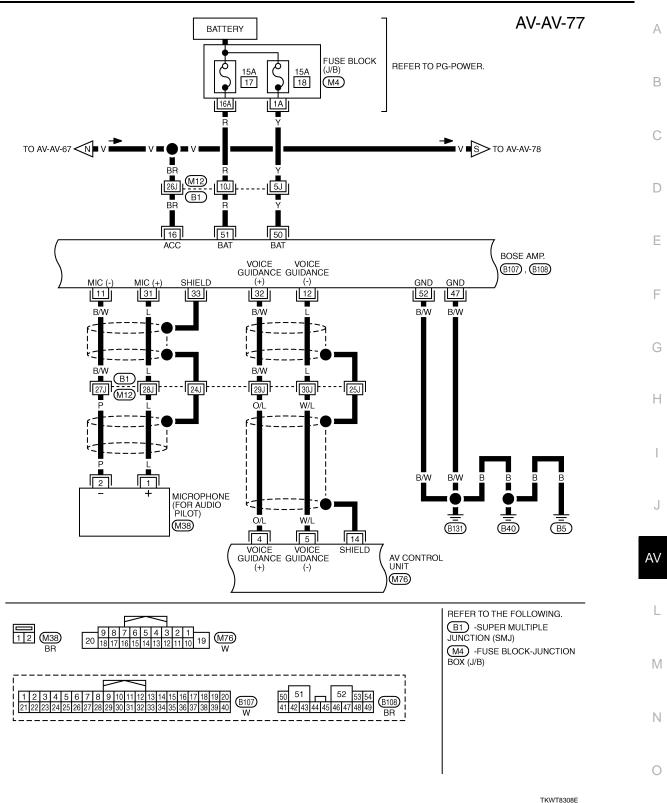
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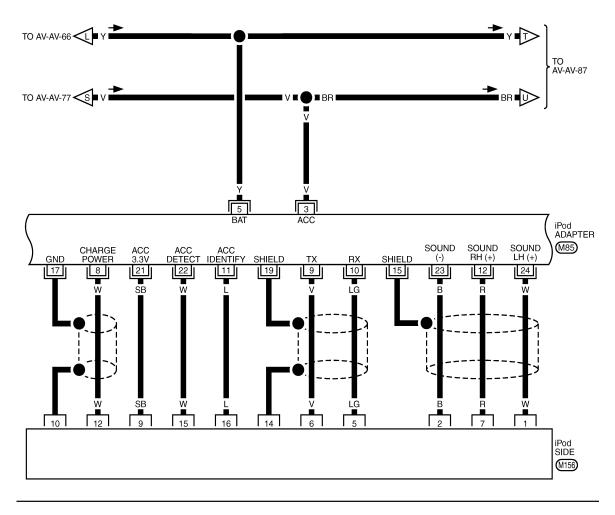
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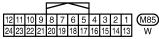
#### < ECU DIAGNOSIS >

#### DVD PLAYER [WITH MOBILE ENTERTAINMENT SYSTEM]



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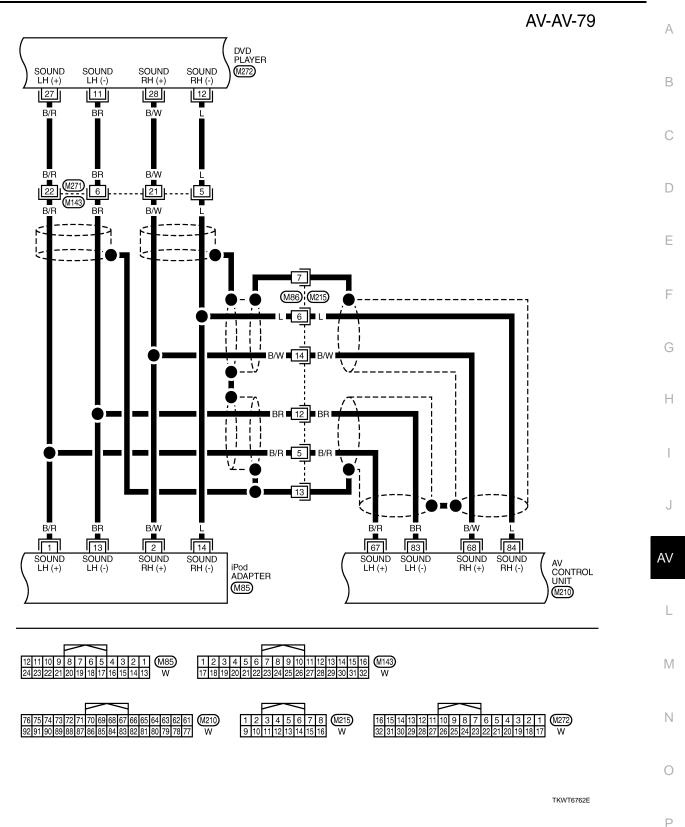


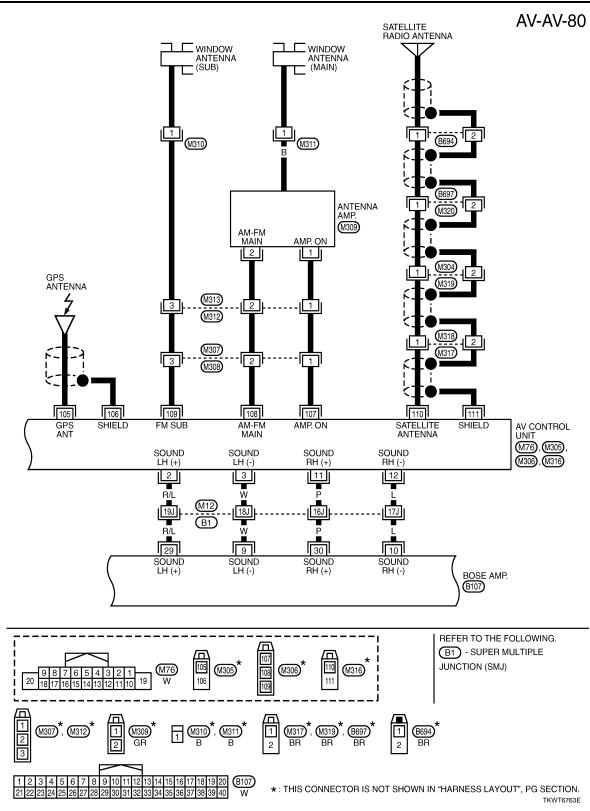
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 (M156)

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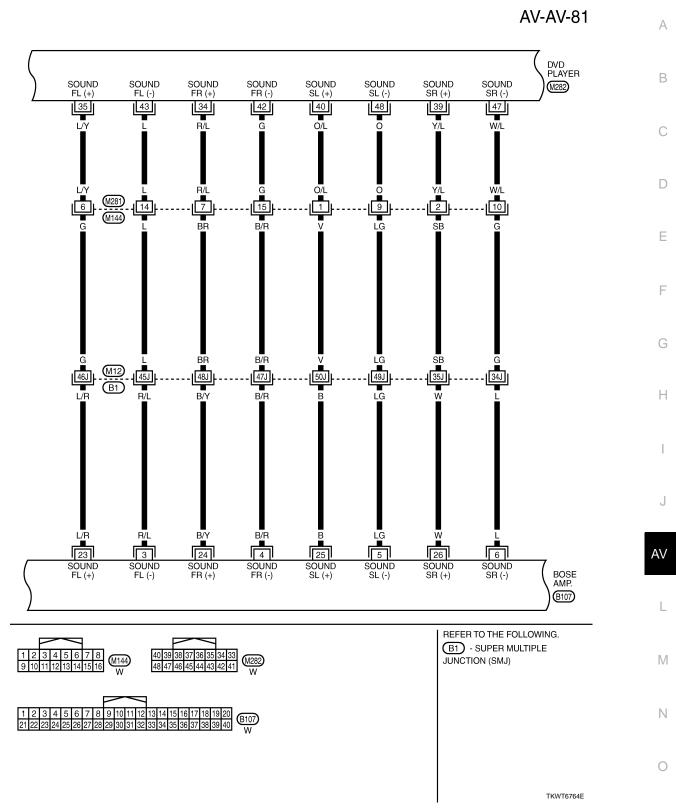
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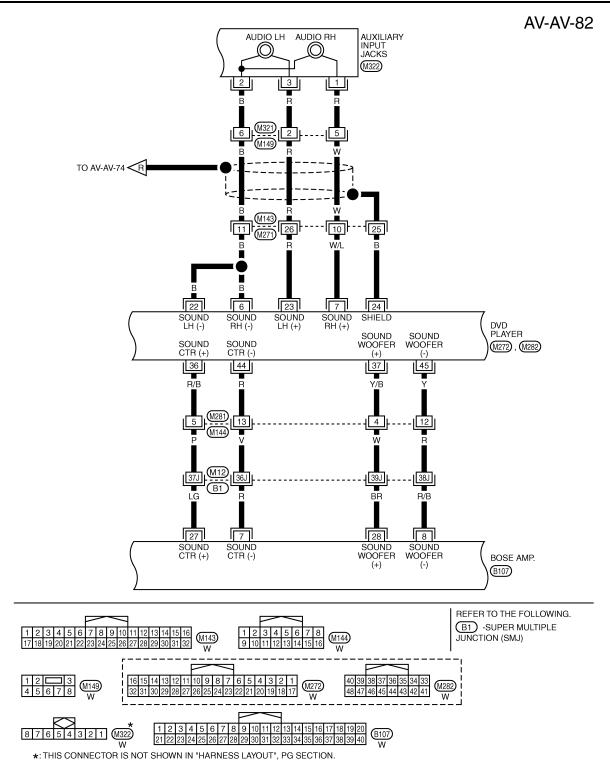










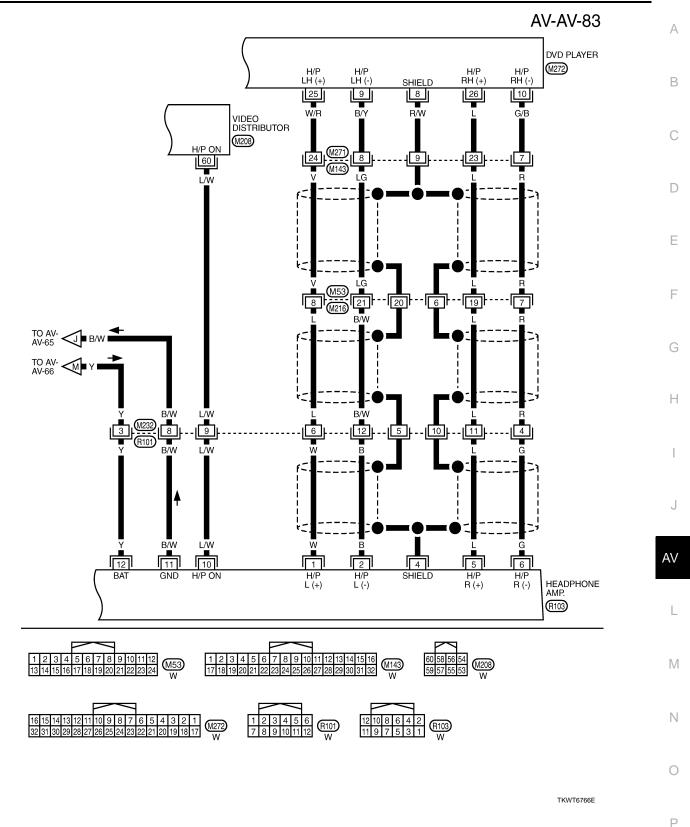


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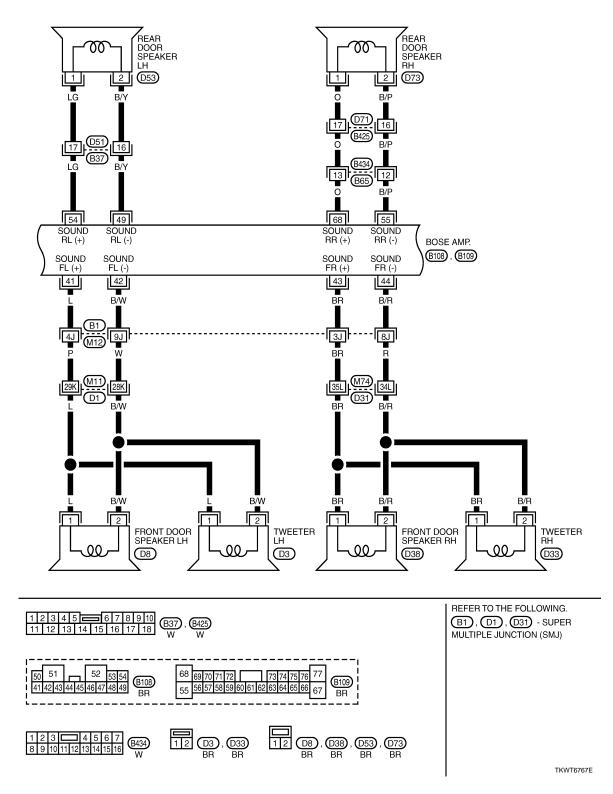
# DVD PLAYER

#### < ECU DIAGNOSIS >

## [WITH MOBILE ENTERTAINMENT SYSTEM]

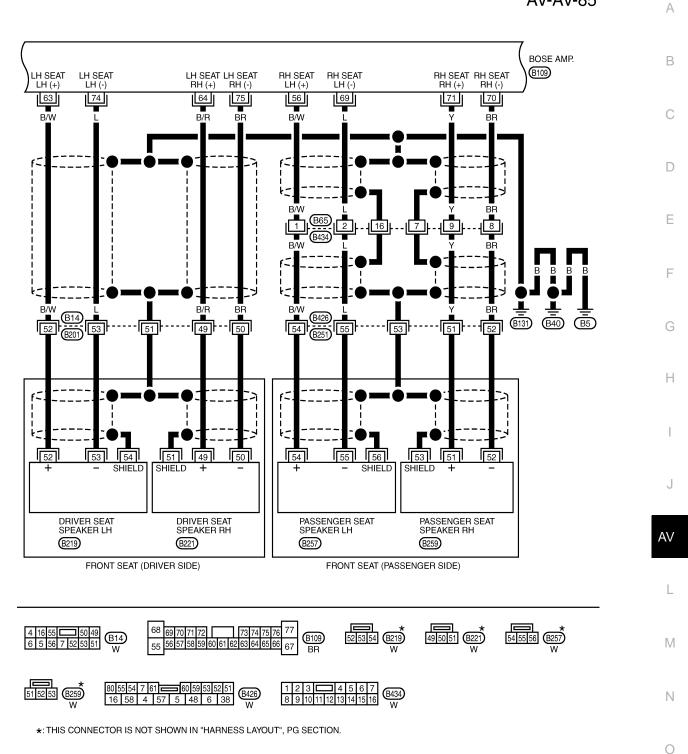


## AV-AV-84



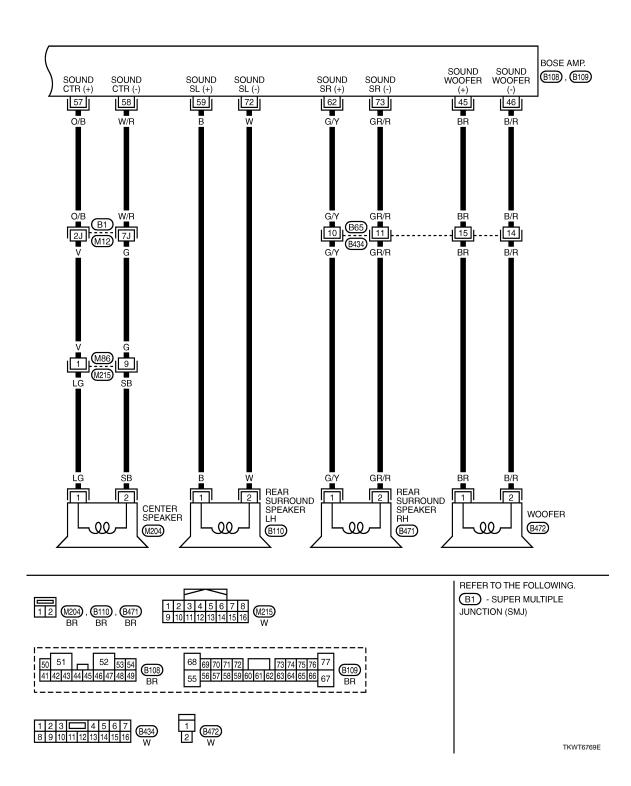
#### **DVD PLAYER** [WITH MOBILE ENTERTAINMENT SYSTEM]

**AV-AV-85** 



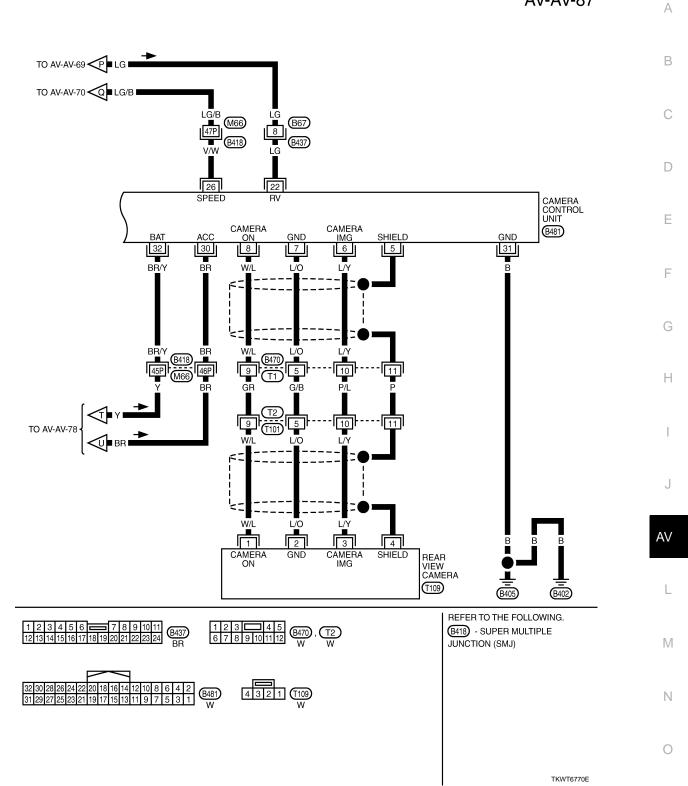
TKWT6768E

AV-AV-86



#### DVD PLAYER [WITH MOBILE ENTERTAINMENT SYSTEM]

AV-AV-87



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# SYMPTOM DIAGNOSIS MULTI AV SYSTEM SYMPTOMS

### Symptom Table

INFOID:000000004156111

### **RELATED TO NAVIGATION**

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
Multifunction switch and preset switch operation does not work.	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is displayed on system selection screen when the CON-SULT-III is started.</li> </ul>	<ul> <li>Multifunction switch power supply and ground circuit.</li> <li>AV communication circuit between AV control unit and multifunction switch.</li> <li>Perform CONSULT-III self-diagnosis. Refer to <u>AV-560</u>, <u>"CONSULT-III Function (MULTI AV)"</u>.</li> </ul>
	<ul> <li>All switches cannot be operated.</li> <li>"MULTI AV" is not displayed on system selection screen when the CON-SULT-III is initialized.</li> </ul>	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-594</u> , " <u>AV CONTROL UNIT</u> : <u>Diagnosis</u> <u>Procedure</u> ".
	Only specified switch cannot be operated.	Multifunction switch or preset switch malfunction. Perform multifunction switch and preset switch self-di- agnosis function. Refer to <u>AV-545</u> , "Diagnosis Descrip- tion".
Rear control switch operation dose not work.	There is malfunction in the on board-diagnosis result.	Perform on board-diagnosis. Refer to AV-545, "Diagnosis Description".
	Only specified switch cannot be operated.	Rear control switch malfunction. Replace rear control switch. Refer to <u>AV-1080</u> , " <u>Remov-al and Installation</u> ".
Fuel economy display, vehicle set- ting operation is abnormal.	There is malfunction in the CONSULT- III self-diagnosis result.	Perform detected DTC self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .
	There is no malfunction in the self-diag- nosis results.	AV control unit Ignition signal circuit malfunction. Refer to <u>AV-594, "AV CONTROL UNIT : Diagnosis Pro-</u> cedure".
Guide sound is not heard.	On the setting display select "system sound (guide sound volume, etc.)," and confirm that guide sound is ON.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-1064</u> , "Exploded <u>View</u> ".

#### RELATED TO HANDS-FREE PHONE

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

Simple check for  $\mathsf{Bluetooth}^{^{\mathsf{TM}}}$  communication

If cellular phone and AV control unit cannot be connected with Bluetooth<sup>™</sup> communication, following procedure allows the technician to judge which device has malfunction.

- 1. Turn on a cellular phone, not connecting Bluetooth<sup>™</sup> communication.
- 2. Start CONSULT-III, then start  $Windows^{\mathbb{R}}$ .
- 3. Set CONSULT-III near a cellular phone.

# MULTI AV SYSTEM SYMPTOMS

#### < SYMPTOM DIAGNOSIS >

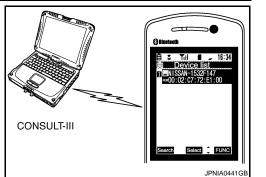
# [WITH MOBILE ENTERTAINMENT SYSTEM]

4. When operated Bluetooth<sup>™</sup> registration by cellular phone, check if CONSULT-III<sup>\*</sup> would be displayed on the device name. (If other Bluetooth<sup>™</sup> device is located near cellular phone, a name of the device would be displayed also.)
NOTE:

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

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

#### Trouble diagnosis chart by symptom



Symptoms	Check items	Probable malfunction location	
Does not recognize cellular phone connection. (no connec- tion is displayed on the display at the guide.)	Repeat the registration of cellular phone.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-1064, "Exploded</u> <u>View"</u> .	F
Hands-free phone cannot be established.	<ul> <li>Hands-free phone operation can be made, but the communication cannot be established.</li> <li>Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.</li> </ul>	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-1064, "Exploded</u> <u>View"</u> .	G
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in In- spection & Adjustment Mode if sound is heard.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-1064</u> , " <u>Exploded</u> <u>View</u> ".	
	Check the "microphone speaker" in In- spection & Adjustment Mode if sound is not heard.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-1064, "Exploded</u> <u>View"</u> .	J
Originating sound is not heard by the other party with hands- free phone communication.	Sound operation function is normal.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-1064, "Exploded</u> <u>View"</u> .	AV
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-619, "Diagnosis Procedure".	

# RELATED TO CAMERA

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location
Camera image is not displayed (displayed in black and nothing can be displayed).	For front display unit, AUX and DVD im- age are not displayed.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-606</u>, "Diagnosis Procedure".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-607</u>, "Diagnosis Procedure".</li> </ul>
Camera image is not shown. (Vehicle width and possible route line is displayed.)	_	<ul> <li>Camera image signal circuit between camera control unit and rear view camera. Refer to <u>AV-622, "Diagnosis Procedure"</u>.</li> <li>Rear view camera ON signal circuit. Refer to <u>AV-623, "Diagnosis Procedure"</u>.</li> </ul>

А

В

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#### MULTI AV SYSTEM SYMPTOMS [WITH MOBILE ENTERTAINMENT SYSTEM]

#### Symptoms Check items Probable malfunction location There is malfunction in the CONSULT-III Perform detected DTC self-diagnosis. self-diagnosis result. Refer to AV-560, "CONSULT-III Function (MULTI AV)". Camera image signal circuit malfunction between cam-For front display unit, AUX and DVD imera control unit and front display unit. age are normal. Refer to AV-624, "Diagnosis Procedure". Camera image is not displayed. (Only warning message under RGB area (YS) signal circuit malfunction between AV For front display unit, AUX and DVD imarea is displayed.) control unit and front display unit. age are not displayed. Refer to AV-605, "Diagnosis Procedure". Select "Camera Cont." of Confirmation/ Adjustment mode, Reverse Sensor is not Reverse signal circuit malfunction (camera control unit). turned ON at "Connection Confirmation". • Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. For front display unit, AUX and DVD im-Refer to AV-606, "Diagnosis Procedure". Camera image is rolling. age are also rolling. ٠ Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to AV-607, "Diagnosis Procedure". Camera-connection recognition signal circuit malfunc-Malfunction of self-diagnosis result is indition between AV control unit and camera control unit. cated. Refer to AV-590, "Diagnosis Procedure". Camera image does not switch. Malfunction of self-diagnosis result is not Reverse signal circuit malfunction (AV control unit). indicated. Possible route line is indicated There is malfunction in the CONSULT-III Perform detected DTC self-diagnosis. abnormally when camera im-Refer to AV-560, "CONSULT-III Function (MULTI AV)". self-diagnosis result. age is displayed.

### RELATED TO RGB IMAGE (FRONT DISPLAY UNIT)

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
	<ul> <li>All RGB images are not shown.</li> <li>"MULTI AV" is displayed on system selection screen when the CONSULT-III is started.</li> </ul>	Perform CONSULT-III self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .
RGB image is not shown.	<ul> <li>All RGB images are not shown.</li> <li>"MULTI AV" is not displayed on system selection screen when the CONSULT- III is started.</li> </ul>	AV control unit power supply and ground circuit malfunc- tion. Refer to <u>AV-594, "AV CONTROL UNIT : Diagnosis Proce- dure"</u> .
Color of RGB image is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit malfunction between AV con- trol unit and front display unit. Refer to <u>AV-601, "Diagnosis Procedure"</u> .
	Purple (Magenta) tint.	RGB signal (G: green) circuit malfunction between AV control unit and front display unit. Refer to <u>AV-602</u> , " <u>Diagnosis Procedure</u> ".
	Screen looks yellowish.	RGB signal (B: blue) circuit malfunction between AV con- trol unit and front display unit. Refer to <u>AV-603</u> , " <u>Diagnosis Procedure</u> ".
RGB screen is rolling.	Front display unit, AUX and DVD image are normal.	RGB synchronizing signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-604, "Diagnosis Procedure"</u> .

#### RELATED TO REAR DISPLAY

#### MULTI AV SYSTEM SYMPTOMS [WITH MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Possible malfunction location / Action to take
The menu screen is not dis- played.	For rear display unit, AUX and DVD im- age are normal.	<ul> <li>Vertical synchronizing (VP) signal circuit malfunction between video distributor and rear display unit. Refer to <u>AV-614</u>, "<u>Diagnosis Procedure</u>".</li> <li>Horizontal synchronizing (HP) signal circuit malfunction between video distributor and rear display unit. Refer to <u>AV-615</u>, "<u>Diagnosis Procedure</u>".</li> <li>RGB area (YS) signal circuit malfunction between vid- eo distributor and rear display unit. Refer to <u>AV-616</u>, "<u>Diagnosis Procedure</u>".</li> </ul>
Color of RGB image (menu dis- play screen) is not proper.	Light blue (Cyan) tint.	RGB signal (R: red) circuit malfunction between video dis- tributor and rear display unit. Refer to <u>AV-610, "Diagnosis Procedure"</u> .
	Purple (Magenta) tint.	RGB signal (G: green) circuit malfunction between video distributor and rear display unit. Refer to <u>AV-611, "Diagnosis Procedure"</u> .
	Screen looks yellowish.	RGB signal (B: blue) circuit malfunction between video distributor and rear display unit. Refer to AV-612, "Diagnosis Procedure".
AUX and DVD image are not displayed.	Also, front display unit is not displayed.	Perform CONSULT-III self-diagnosis. Refer to AV-560, "CONSULT-III Function (MULTI AV)".
	Front display unit is normal.	Composite image signal circuit malfunction between vid- eo distributor and rear display unit. Refer to <u>AV-609</u> , " <u>Diagnosis Procedure</u> ".
AUX and DVD image are roll- ing.	Front display unit displayed, AUX and DVD image are not rolling.	Composite synchronizing signal circuit malfunction be- tween video distributor and rear display unit. Refer to <u>AV-613</u> , " <u>Diagnosis Procedure</u> ".
Rear display unit does not open.	For front display unit, AUX and DVD im- age are not displayed.	Video distributor power supply and ground circuits mal- function. Refer to <u>AV-596, "VIDEO DISTRIBUTOR : Diagnosis Pro-</u> cedure".
	For front display unit, AUX image displayed.	Perform detected DTC self-diagnosis. Refer to <u>AV-560</u> , "CONSULT-III Function (MULTI AV)".

#### RELATED TO VOICE CONTROL

Symptoms	Check items	Probable malfunction location
The voice cannot be controlled even if the voice control screen is displayed.	Voice sounds at "Voice Microphone Test" of Confirmation/Adjustment mode.	AV control unit malfunction. Replace AV control unit. Refer to <u>AV-1064, "Exploded</u> <u>View"</u> .
	Voice does not sound at "Voice Micro- phone Test" of Confirmation/Adjustment mode.	Microphone circuit malfunction. Refer to AV-619, "Diagnosis Procedure".
The voice cannot be controlled (Voice control screen is not dis- played).	Steering switch's "VOL DOWN", "VOL UP", "➔" switch works, but " 🖋 ✔ " it does not work.	Steering switch malfunction. Replace steering switch. Refer to <u>AV-1079, "Exploded</u> <u>View"</u> .
	Steering switch's "VOL DOWN", "VOL UP", "➔", "ڛ≨ ✔" switches do not work.	Steering switch signal B circuit malfunction. Refer to AV-625, "Diagnosis Procedure".
	All steering switches do not work.	Steering switch signal GND circuit malfunction. Refer to <u>AV-629</u> , "Diagnosis Procedure".

#### RELATED TO AUDIO

AV

#### MULTI AV SYSTEM SYMPTOMS [WITH MOBILE ENTERTAINMENT SYSTEM]

Trouble diagnosis chart by sympton	n	
Symptoms	Check items	Possible malfunction location / Action to take
The CD cannot be removed.	Check the mechanical operation of eject switch.	Perform CONSULT-III self-diagnosis. When detecting no malfunction in those components, replace AV control unit. Refer to <u>AV-560</u> , "CONSULT-III Function (MULTI AV)".
Audio sound is not heard.	No sound from all speakers.	Perform CONSULT-III self-diagnosis. Refer to AV-560, "CONSULT-III Function (MULTI AV)".
There is no sound from speaker on the right or left side.	_	Sound signal circuit malfunction between AV control unit and BOSE amp. at the side where there is no sound.
There is no sound from front door and tweeter on the right or left side.	_	Sound signal circuits malfunction between BOSE amp. and speaker on the side where there is no sound.
There is no sound from one of speakers.	_	Sound signal circuit malfunction between BOSE amp. and speaker on the side where there is no sound.
AudioPilot <sup>®</sup> does not work.		<ul> <li>AudioPilot<sup>®</sup> Microphone circuits malfunction between BOSE amp. and AudioPilot<sup>®</sup> Microphone.</li> <li>BOSE 2ch system refer to <u>AV-620, "BOSE AUDIO 2CH</u> <u>SYSTEM : Diagnosis Procedure"</u>.</li> <li>BOSE surround audio 5.1ch system refer to <u>AV-621,</u> <u>"BOSE SURROUND AUDIO 5.1CH SYSTEM : Diagno- sis Procedure"</u></li> </ul>
	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to AV-560, "CONSULT-III Function (MULTI AV)".
Satellite radio is not received.	There is no malfunction in the CON- SULT-III self-diagnosis result.	<ul> <li>Perform the following inspection procedure.</li> <li>1. Check satellite radio antenna mounting nut for looseness.</li> <li>NOTE: Tightening torque: 6.5 N·m (0.66 kg-m, 58 in-lb)</li> <li>2. Visually check for satellite radio antenna feeder.</li> <li>3. Replace the satellite radio antenna. Refer to <u>AV-1091, "Exploded View"</u>.</li> <li>4. Replace the AV control unit. Refer to <u>AV-1064, "Exploded View"</u>.</li> </ul>
AM/FM radio is not received.	Other audio sounds are normal.	<ul><li>Antenna amp. ON signal circuit.</li><li>Antenna feeder.</li></ul>

# $\mathsf{RELATED} \ \mathsf{TO} \ \mathsf{iPod}^{\textcircled{R}}$

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

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

Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
The sound of iPod <sup>®</sup> is not heard.	Other audio sounds are normal.	<ul> <li>iPod sound signal circuit between AV control unit and iPod adapter.</li> <li>iPod sound signal circuit between iPod<sup>®</sup> and iPod adapter.</li> </ul>
It does not change to iPod mode.	There is malfunction in the CONSULT-III self-diagnosis.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .
"iPod is not connected" is dis- played when it comes to iPod mode.	Connected to iPod <sup>®</sup> .	iPod connection recognition signal circuit between iPod <sup>®</sup> and iPod adapter.
iPod <sup>®</sup> cannot charge the bat- tery.	_	iPod battery charge circuit between iPod <sup>®</sup> and iPod adapter.

#### MULTI AV SYSTEM SYMPTOMS [WITH MOBILE ENTERTAINMENT SYSTEM]

#### 

### RELATED TO STEERING SWITCH

Trouble diagnosis chart by symptom

Symptoms	Probable malfunction location	
None of the steering switch operations work.	Steering switch signal GND circuit malfunction. Refer to <u>AV-629</u> , "Diagnosis Procedure".	D
Only specified switch (1) cannot be operated.	Steering switch malfunction. Refer to <u>AV-1079</u> , "Exploded View".	_
Steering switch's "SOURCE", "MENU UP", "MENU", "DOWN", "ENTER" switches do not work.	Steering switch signal A circuit malfunction. Refer to <u>AV-625</u> , "Diagnosis Procedure".	— E
Steering switch's "", "VOL UP", "VOL DOWN", "	Steering switch signal B circuit malfunction. Refer to <u>AV-627, "Diagnosis Procedure"</u> .	F

# RELATED TO AUXILIARY INPUT **NOTE:**

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

Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location	Н
Front display unit and rear display unit, AUX image is not displayed.	Also, DVD image is not displayed.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .	I
	DVD image is normal.	AUX image signal circuit malfunction between auxiliary input jacks and video distributor.	1
		Perform CONSULT-III self-diagnosis. Refer to <u>AV-560</u> , <u>"CONSULT-III Function (MULTI AV)"</u> . When detecting no malfunction in those components, the following items are a possible cause.	J
	Also, DVD image is not displayed (Menu display is normal).	<ul> <li>Composite image signal circuits malfunction between video distributor and front display unit. Refer to <u>AV-608, "Diagnosis Procedure"</u>.</li> <li>RGB area (YS) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-605, "Diagnosis Procedure"</u>.</li> </ul>	AV L
For front display unit, AUX im- age is not displayed (Menu dis- play is not displayed, too).	Also, DVD image is not displayed (Also, menu display is not displayed).	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-606</u>, "<u>Diagnosis Procedure</u>".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-607</u>, "<u>Diagnosis Procedure</u>".</li> </ul>	M
For front display unit, AUX im- age is rolling.	DVD image is rolling.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-606, "Diagnosis Procedure"</u>.</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-607, "Diagnosis Procedure"</u>.</li> </ul>	0
For rear display unit, AUX im- age is not displayed (Menu dis- play is normal).	Also, DVD image is not displayed (Menu display is normal).	Composite image signal circuits malfunction between video distributor and rear display unit. Refer to <u>AV-609</u> , " <u>Diagnosis Procedure</u> ".	Ρ

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# MULTI AV SYSTEM SYMPTOMS

### [WITH MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Probable malfunction location
At AUX of rear display, menu display is not displayed.	AUX image is normal.	<ul> <li>Vertical synchronizing (VP) signal circuit malfunction between video distributor and rear display unit. Refer to <u>AV-614</u>, "Diagnosis Procedure".</li> <li>Horizontal synchronizing (HP) signal circuit malfunction between video distributor and rear display unit. Refer to <u>AV-615</u>, "Diagnosis Procedure".</li> <li>RGB area (YS) signal circuit malfunction between video distributor and rear display unit. Refer to <u>AV-616</u>, "Diagnosis Procedure".</li> </ul>
For rear display unit, AUX and DVD image are rolling.	Front display unit displayed, AUX and DVD image are not rolling.	Composite synchronizing signal circuit malfunction be- tween video distributor and rear display unit. Refer to <u>AV-613</u> , "Diagnosis Procedure".
There is no AUX sound.	_	Perform CONSULT-III self-diagnosis. Refer to AV-560, "CONSULT-III Function (MULTI AV)".
There is no AUX sound from speaker on the right or left side.	BOSE 2ch models. <ul> <li>DVD sound is not normal, neither.</li> </ul>	<ul> <li>BOSE 2ch models.</li> <li>DVD and AUX sound signal circuit malfunction between DVD player and AV control unit at the side where there is no sound.</li> </ul>
		<ul> <li>BOSE 2ch models.</li> <li>AUX sound signal circuit malfunction between auxiliary input jacks and DVD player at the side where there is no sound.</li> </ul>
	The sound other than AUX sound is nor- mal.	<ul> <li>BOSE surround audio 5.1ch models.</li> <li>AUX sound signal circuit malfunction between auxiliary input jacks and DVD player at the side where there is no sound.</li> <li>AUX sound signal circuit malfunction between AV control unit and DVD player at the side where there is no sound.</li> </ul>
It does not change to AUX mode.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .

### RELATED TO DVD MODE

Trouble diagnosis of	chart by symptom
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Symptoms	Check items	Probable malfunction location
Front display unit and rear display unit, DVD image is not displayed.	Also, AUX image is not displayed.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .
For front display unit, DVD im- age is not displayed (Menu dis- play is normal).	Also, AUX image is not displayed (Menu display is normal).	<ul> <li>Perform CONSULT-III self-diagnosis. Refer to <u>AV-560</u>, <u>"CONSULT-III Function (MULTI AV)</u>". When detecting no malfunction in those components, the following items are a possible cause.</li> <li>Composite image signal circuits malfunction between video distributor and front display unit. Refer to <u>AV-608</u>, "<u>Diagnosis Procedure</u>".</li> <li>RGB area (YS) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-605</u>, "<u>Diagnosis Procedure</u>".</li> </ul>
For front display unit, DVD im- age is not displayed (Also, menu display is not displayed).	Also, AUX image is not displayed (Also, menu display is not displayed).	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-606, "Diagnosis Procedure"</u>.</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-607, "Diagnosis Procedure"</u>.</li> </ul>
For front display, DVD image is rolling.	AUX image is rolling.	<ul> <li>Horizontal synchronizing (HP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-606</u>, "<u>Diagnosis Procedure</u>".</li> <li>Vertical synchronizing (VP) signal circuit malfunction between AV control unit and front display unit. Refer to <u>AV-607</u>, "<u>Diagnosis Procedure</u>".</li> </ul>

#### MULTI AV SYSTEM SYMPTOMS [WITH MOBILE ENTERTAINMENT SYSTEM]

Symptoms	Check items	Probable malfunction location
For rear display, DVD image is not displayed (Menu display is normal).	Also, AUX image is not displayed (Menu display is normal).	Composite image signal circuits malfunction between video distributor and rear display unit. Refer to <u>AV-609</u> , "Diagnosis Procedure".
At DVD of rear display unit, menu display is not displayed.	DVD image is normal.	<ul> <li>Vertical synchronizing (VP) signal circuit malfunction between video distributor and rear display unit. Refer to <u>AV-614</u>, "<u>Diagnosis Procedure</u>".</li> <li>Horizontal synchronizing (HP) signal circuit malfunc- tion between video distributor and rear display unit. Refer to <u>AV-615</u>, "<u>Diagnosis Procedure</u>".</li> <li>RGB area (YS) signal circuit malfunction between vid- eo distributor and rear display unit. Refer to <u>AV-616</u>, "<u>Diagnosis Procedure</u>".</li> </ul>
For rear display unit, DVD and AUX image are rolling.	Front display unit displayed, DVD and AUX image are not rolling.	Composite synchronizing signal circuit malfunction be- tween video distributor and rear display unit. Refer to <u>AV-613</u> , "Diagnosis Procedure".
There is no DVD sound.	_	Perform CONSULT-III self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .
There is no DVD sound from one of speakers.	BOSE surround audio 5.1ch models. • Other audio sounds are normal.	<ul><li>BOSE 5.1ch models.</li><li>Sound signal circuit malfunction between BOSE amp. and DVD player on the side where there is no sound.</li></ul>
There is no DVD sound from speaker on the right or left side.	BOSE 2ch models. • AUX sound is not normal, neither.	<ul> <li>BOSE 2ch models.</li> <li>DVD and AUX sound signal circuit malfunction between DVD player and AV control unit at the side where there is no sound.</li> </ul>
It does not change to DVD mode.	There is malfunction in the CONSULT-III self-diagnosis result.	Perform CONSULT-III self-diagnosis. Refer to <u>AV-560, "CONSULT-III Function (MULTI AV)"</u> .

#### RELATED TO REMOTE CONTROL AND HEADPHONE

#### Trouble diagnosis chart by symptom

Symptoms	Check items	Probable malfunction location	
		<ul><li>They operate normally.</li><li>Battery of headphones.</li><li>Headphones.</li></ul>	J
Headphone does not work	Change headphones to another set.	<ul> <li>It does not operate normally.</li> <li>Headphone sound signal circuit malfunction between DVD player and headphone amp.</li> <li>Headphone ON signal circuit malfunction between video distributor and headphone amp.</li> </ul>	AV
		<ul><li>They operate normally.</li><li>Battery of remote controller.</li><li>Remote controller body.</li></ul>	N
Remote control does not work.	Change remote controller to another one.	<ul> <li>It does not operate normally.</li> <li>Remote control power supply (VCC signal) circuit be- tween video distributor and remote control receiver.</li> <li>Remote control signal circuit between video distributor and remote control receiver.</li> </ul>	Ν

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# NORMAL OPERATING CONDITION

### Description

INFOID:000000004156112

[WITH MOBILE ENTERTAINMENT SYSTEM]

#### NOTE:

For Navigation system operation information, refer to Navigation system Owner's Manual.

#### BASIC OPERATIONS

Symptom	Possible cause	Possible solution
	The brightness is at the lowest setting.	Adjust the brightness of the display.
No image is displayed.	The systems in the video mode.	Push <b><disc-aux></disc-aux></b> to change the mode.
	The display is turned off.	Push <b><day night=""></day></b> to turn on the display.
No voico guidanco is ovoilablo. Or	The volume is not set correctly, or it is turned off.	Adjust the volume of voice guidance.
No voice guidance is available. Or The volume is too high or too low.	Voice guidance is not provided for certain streets (roads displayed in gray).	This is not a malfunction.
No map is displayed on the screen.	A screen other than map screen is displayed.	Push <b><map></map></b> .
The screen is too dim. The move- ment is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.
Some menu items cannot be se- lected.	Some menu items become unavailable while the vehicle is driven.	Park the vehicle in a safe location, and then operate the navigation system.

NORMAL OPERATING CONDITION

#### NOTE:

Locations stored in the Address Book and other memory functions may be lost if the vehicle's battery is disconnected or becomes discharged. If this occurs, service the vehicle's battery as necessary and re-enter the information in the Address Book.

### RELATED TO VOICE RECOGNITION

#### Related to basic operation

Symptom	Possible cause	Possible solution
	The interior of the vehicle is too noisy.	Close the windows or have other occupants quiet.
	The volume of your voice is too low.	Speak louder.
	The volume if your voice is too loud.	Speak softer.
	Your pronunciation is unclear.	Speak clearly.
mand. or The system recognizes	You are speaking before the voice recognition is ready	Push and release " 🖋 🌈 " switch on the steering switch, and speak a command after the tone sounds.
	8 seconds or more have passed after you pushed and released " $\sqrt{2}$ (") switch on the steering switch.	Make sure to speak a command within 8 sec- onds after you push 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	The fan of the air conditioner is too loud.	If the air conditioner is set to "Auto", the fan speed is automatically lowered and voice com- mands can be recognized more easily. Lower the fan speed as necessary or set the air conditioner to "Auto".

#### Related to item choice

The system should respond correctly to all voice commands without difficulty. If problems are encountered, follow the solutions given in this guide for the appropriate error.

# AV-1056

# NORMAL OPERATING CONDITION

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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

Symptom/ error message	Solution	
	1. Ensure that the command format is valid.	
	2. Speak clearly without pausing between words and at a level appropriate to the ambient noise level.	
Displays "COMMAND NOT REC- DGNIZED" or the system fails to Interpret the command correctly.	<ul> <li>3. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on.</li> <li>NOTE:</li> <li>If it is too noisy to use the phone, it is likely that voice commands will not be recognized.</li> </ul>	
	4. If optional words of the command have been omitted, then command should be tried with these in place.	
The system consistently selects	1. Ensure that the voicetag requested matches what was originally stored. This can be con- firmed by giving the "Addressbook" Directory or Phone Directory command.	
he wrong voicetag	2. Replace one of the voicetags being confused with a different voicetag.	

#### Related to telephone

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

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

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

#### **RELATED TO AUDIO**

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

#### NOTE:

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

# NORMAL OPERATING CONDITION

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

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

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

#### NOTE:

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

#### RELATED TO VEHICLE ICON

Symptom	Possible cause	Possible solution
Names of roads differ between Plan View and Birdview <sup>®</sup> .	This is because the quantity of the displayed information is reduced so that the screen does not become too crowded. There is also a chance that names of the roads may be dis- played multiple times, and the names appear- ing on the screen may be different because of a processing procedure.	This is not a malfunction.
The applicate in motodian loaned in	The vehicle was transported after the ignition switch was pushed off, for example, by a ferry or car transporter.	Drive the vehicle for a while on a road where GPS signals can be received.
The vehicle icon is not displayed in the correct position.	The position and direction of the vehicle icon may be incorrect depending on the driving en- vironments and the levels of positioning accu- racy of the navigation system.	This is not a malfunction. Drive the vehicle for a while to automatically correct the posi- tion and direction of the vehicle icon.
When the vehicle is traveling on a new road, the vehicle icon is located on another road nearby.	Because the new road is not stored in the map data, the system automatically places the ve- hicle icon on the nearest road available.	Updated road information will be included in the next version of the map data.

#### NORMAL OPERATING CONDITION [WITH MOBILE ENTERTAINMENT SYSTEM]

Symptom	Possible cause	Possible solution
The screen does not switch to the night screen even after turning on the headlights.	The daytime screen was set the last time the headlights were turned on.	Set the screen to the night screen mode us- ing <day night=""> when you turn on the head- lights.</day>
The map does not scroll even when the vehicle is moving.	The current location map screen is not displayed.	Push <b><map></map></b> .
The vehicle icon is not displayed.	The current location map screen is not displayed.	Push <b><map></map></b> .
The location of the vehicle icon is misaligned from the actual position.	When using tire chains or replacing the tires, speed calculations based on the speed sensor may be incorrect.	Drive the vehicle for a while (at approximate- ly 19 MPH for about 30 minutes) to automat- ically correct the vehicle icon position. If this does not correct the vehicle icon posi- tion, contact an INFINITI dealer.
	The map data has a mistake or is incomplete (the vehicle icon position is always misaligned in the same area).	Updated road information will be included in the next version of the map data.

### RELATED TO ROUTE CALCULATION AND VISUAL GUIDANCE

Symptom	Possible cause	Possible solution
Waypoints are not included in the auto reroute calculation.	Waypoints that you have already passed are not included in the auto reroute calculation.	If you want to go to that waypoint again, you need to edit the route.
	Route calculation has not yet been performed.	Set the destination and perform route calculation.
Route information is not dis-	You are not driving on the suggested route.	Drive on the suggested route.
played.	Route guidance is set to off.	Turn on route guidance.
	Route information is not provided for certain types of roads (roads displayed in gray).	This is not a malfunction.
The auto reroute calculation (or detour calculation) sug- gests the same route as the one previously suggested.	Route calculations took priority conditions into consider- ation, but the same route was calculated.	This is not a malfunction.
A waypoint cannot be added.	Five waypoints are already set on the route, including ones that you have already passed.	A maximum of 5 waypoints can be set on the route. If you want to go to 6 or more waypoints, perform route calculations multiple times as neces- sary.
	Roads near the destination cannot be calculated.	Reset the destination to a main or or- dinary road, and recalculate the route.
	The starting point and destination are too close.	Set a more distant destination.
The suggested route is not displayed.	The starting point and destination are too far away.	Divide your trip by selecting one or two intermediate destinations, and perform route calculations multiple times.
	There are time restricted roads (by the day of the week, by time) near the current vehicle location or destination.	Set [Use Time Restricted Roads] to off.
The part of the route that you have already passed is deleted.	A route is managed by sections between waypoints. If you passed the first waypoint, the section between the starting point and the waypoint is deleted. (It may not be deleted depending on the area.)	This is not a malfunction.
An indirect route is suggested.	If there are restrictions (such as one-way streets) on roads close to the starting point or destination, the system may suggest an indirect route.	Adjust the location of the starting of the starting point or destination.
	The system may suggest an indirect route because route calculation does not take into consideration some areas such as narrow streets (gray roads.)	Reset the destination to a main or or- dinary road, and recalculate the route.

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# NORMAL OPERATING CONDITION

### [WITH MOBILE ENTERTAINMENT SYSTEM]

Symptom	Possible cause	Possible solution
The landmark information does not correspond to the actual information.	This may be caused by insufficient or incorrect map data.	Updated information will be included in the next version of the data.
The suggested route does not exactly connect to the starting point, waypoints, or destina- tion.	There is no data for route calculation closes to these loca- tions.	Set the starting point, waypoints and destination on a main road, and per- form route calculation.

#### RELATED TO VOICE GUIDANCE

Symptom	Possible cause	Possible solution
Voice guidance is 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 TRAFFIC INFORMATION

Symptom	Possible cause	Possible solution
The traffic information is not displayed	The traffic information is not set to on.	Set the traffic information to on.
	You are in an area where traffic information is not available	Scroll to an area where traffic information is available
	You have not subscribed to XM NavTraffic or, your sub- scription to XM NavTraffic has expired.	Check your subscription status of XM NavTraffic.
	The map scale is set at a level where the display of icons is impossible.	Check that the map scale is set at a level in which the display of icons is possible.
With the automatic de- tour route search ON, no detour route is set to avoid congested areas.	There is no faster route compared to the current route, based on the road network and traffic information.	The automatic detour search is not intended for avoiding traffic jams. It searches for the fastest route taking into consideration such things as traffic jams.
The route does not avoid road section with traffic information stat- ing it is closed due to road construction.	The navigation system is designed not to avoid this event because the actual period of closure may differ from the declared roadwork period.	Observe the actual road condition and follow the instructions on road for detour when necessary. If the road closure is for certain, use detour function and set the detour distance to avoid the closed road section.
Traffic information dis- played differs from in- formation from other media (e.g. radio).	Other media may use different information sources.	Observe the actual road conditions and regula- tions. Always observe safe driving practices and follow all traffic regulations.

# < PRECAUTION > PRECAUTION PRECAUTIONS

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

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

#### WARNING:

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

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

#### WARNING:

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

# Precaution for SRS "AIR BAG" and "SEAT BELT PRE-TENSIONER" Service

INFOID:000000004156114 AV

- Do not use electrical test equipment to check SRS circuits unless instructed to in this Service Manual.
- Before servicing the SRS, turn ignition switch OFF, disconnect both battery cables and wait at least 3 minutes.

For approximately 3 minutes after the cables are removed, it is still possible for the air bag and seat belt pretensioner to deploy. Therefore, do not work on any SRS connectors or wires until at least 3 minutes have passed.

- Diagnosis sensor unit must always be installed with their arrow marks "
   —" pointing towards the front of the vehicle for proper operation. Also check diagnosis sensor unit for cracks, deformities or rust before installation and replace as required.
- The spiral cable must be aligned with the neutral position since its rotations are limited. Do not turn steering wheel and column after removal of steering gear.
- Handle air bag module carefully. Always place driver and front passenger air bag modules with the pad side facing upward and seat mounted front side air bag module standing with the stud bolt side facing down.
- Conduct self-diagnosis to check entire SRS for proper function after replacing any components.
- After air bag inflates, the front instrument panel assembly should be replaced if damaged.
- Always replace instrument panel pad following front passenger air bag deployment.

### Precaution for Trouble Diagnosis

#### AV COMMUNICATION SYSTEM

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

# AV-1061

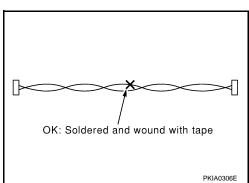
INFOID:0000000004156115

#### PRECAUTIONS [WITH MOBILE ENTERTAINMENT SYSTEM]

### Precaution for Harness Repair

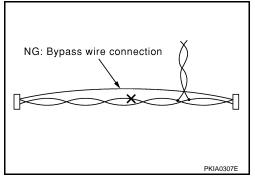
#### AV COMMUNICATION SYSTEM

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



INFOID:000000004156116

• 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 [WITH MOBILE ENTERTAINMENT SYSTEM]

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# PREPARATION

# PREPARATION

# **Commercial Service Tools**

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# < ON-VEHICLE REPAIR > ON-VEHICLE REPAIR

# AV CONTROL UNIT

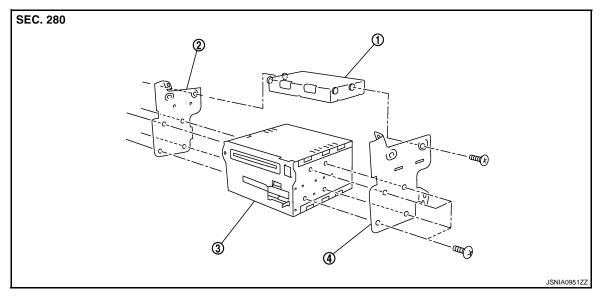
# Exploded View

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#### REMOVAL

Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".

#### DISASSEMBLY



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

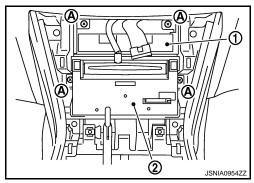
3. AV control unit

4. Bracket RH

# Removal and Installation

#### REMOVAL

- 1. Remove cluster lid C. Refer to IP-19, "CLUSTER LID C : Removal and Installation".
- 2. Remove screws (A) and remove AV control unit (2) in conjunction with unified meter and A/C amp. (1).
- 3. Remove bracket screws, and then remove AV control unit.



# INSTALLATION

Install in the reverse order of removal.

#### CAUTION:

Unified meter and A/C amp. screws are different from other securing screws. Never confuse them when installing.

INFOID:000000004156119

#### < ON-VEHICLE REPAIR >

#### FRONT DISPLAY UNIT [WITH MOBILE ENTERTAINMENT SYSTEM]

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# FRONT DISPLAY UNIT

# **Exploded View**

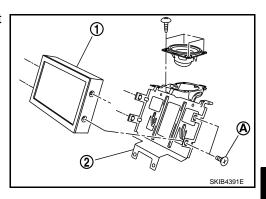
Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".

# **Removal and Installation**

# REMOVAL

- 1. Remove center ventilator grille. Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".
- 2. Remove multifunction switch. Refer to AV-1077, "Removal and Installation".
- 3. Remove screw (A).
- 4. Remove screws (B) and disconnect connector, and remove display (1) center speaker comes off accordingly.

5. Remove screws (A) separate front display unit (1) from bracket (2).



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**INSTALLATION** Install in the reverse order of removal.



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# **REAR DISPLAY UNIT**

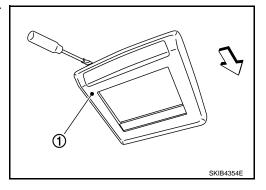
### Removal and Installation

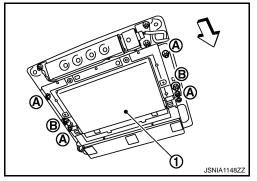
INFOID:000000004156122

#### REMOVAL

 Insert cloth-covered driver into gaps between rear display cover (1) and headlining, and remove rear display cover.

C: Vehicle front





2. Remove nuts (A) and plastic nuts (B).

#### C: Vehicle front

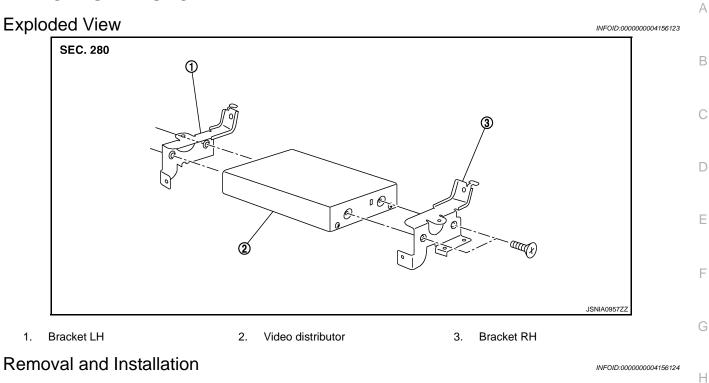
3. Disconnect connector, and remove rear display unit (1).

INSTALLATION Install in the reverse order of removal.

# VIDEO DISTRIBUTOR

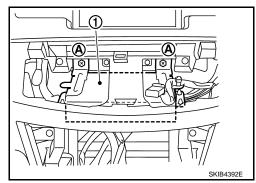
#### [WITH MOBILE ENTERTAINMENT SYSTEM]

#### < ON-VEHICLE REPAIR > VIDEO DISTRIBUTOR



#### REMOVAL

- 1. Remove multifunction switch. Refer to AV-1077, "Removal and Installation".
- 2. Remove AV control unit. Refer to AV-1064, "Removal and Installation".
- 3. Remove screws (A).
- 4. Disconnect connector and remove video distributor (1)



INSTALLATION Install in the reverse order of removal.

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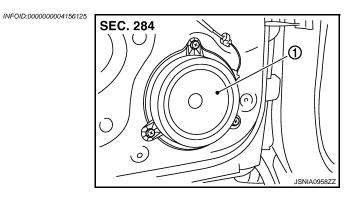
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# FRONT DOOR SPEAKER

# **Exploded View**



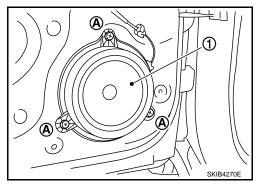
1. Front door speaker

#### Removal and Installation

INFOID:000000004156126

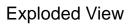
#### REMOVAL

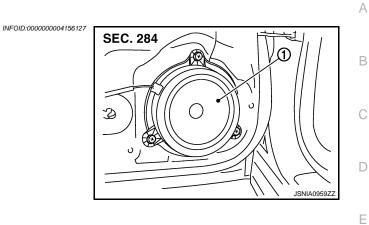
- 1. Remove front door finisher. Refer to EI-46, "Removal and Installation".
- 2. Remove screws (A) and remove front door speaker (1).



INSTALLATION Install in the reverse order of removal.

# REAR DOOR SPEAKER



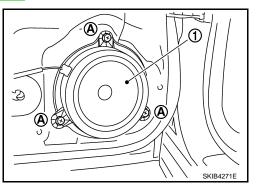


1. Rear door speaker

#### Removal and Installation

#### REMOVAL

- 1. Remove rear door finisher. Refer to EI-46, "Removal and Installation".
- 2. Remove screws (A) and remove rear door speaker (1).



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INSTALLATION Install in the reverse order of removal.



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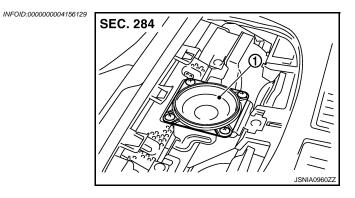
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# CENTER SPEAKER

# Exploded View



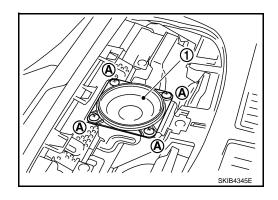
1. Center speaker

#### Removal and Installation

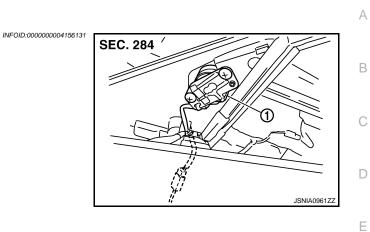
INFOID:000000004156130

#### REMOVAL

- 1. Remove upper ventilator grill. Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".
- 2. Remove screws (A) and disconnect connector.
- 3. Remove center speaker (1).



INSTALLATION Install in the reverse order of removal.



1. Tweeter

### **Removal and Installation**

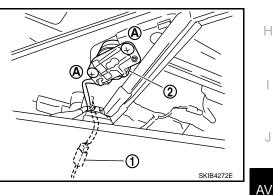
#### INFOID:000000004156132

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#### REMOVAL

- 1. Remove front door finisher. Refer to El-46, "Removal and Installation".
- 2. Remove door sash inner cover (front). Refer to EI-46, "Component Parts Location".
- 3. Remove screws (A), and disconnect connector (1).
- 4. Remove tweeter (2).



**INSTALLATION** Install in the reverse order of removal.



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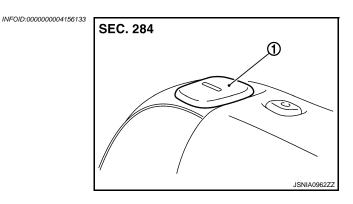
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# SEAT SPEAKER



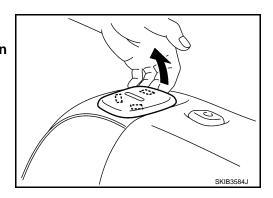


1. Seat speaker

#### Removal and Installation

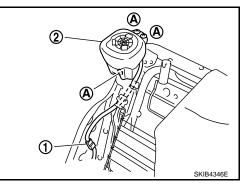
#### REMOVAL

 Remove seat speaker grill as shown in the figure.
 CAUTION: Never reuse seat speaker grill. The pawl is broken when removing.



INFOID:000000004156134

- 2. Remove front seat back trim and pad. Refer to SE-147. "Removal and Installation".
- 3. Remove screws (A) and disconnect connector (1).
- 4. Remove seat speaker (2).

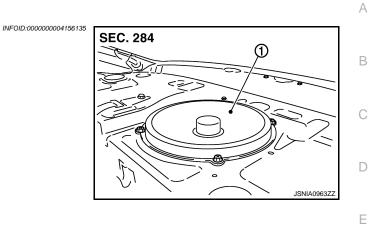


INSTALLATION Install in the reverse order of removal.

# < ON-VEHICLE REPAIR >

# WOOFER

# Exploded View



1. Woofer

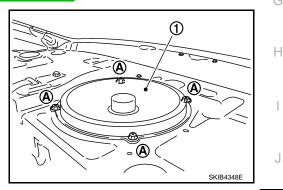
### Removal and Installation

#### INFOID:000000004156136

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#### REMOVAL

- 1. Remove rear parcel shelf finisher. Refer to EI-53, "Removal and Installation".
- 2. Remove screws (A) and disconnect connector.
- 3. Remove rear woofer (1) from rear parcel shelf.



INSTALLATION Install in the reverse order of removal.

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# REAR SURROUND SPEAKER

Removal and Installation

#### REMOVAL

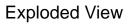
- 1. Remove rear parcel shelf finisher. Refer to EI-53, "Removal and Installation".
- 2. Remove rear surround speaker from rear parcel shelf.

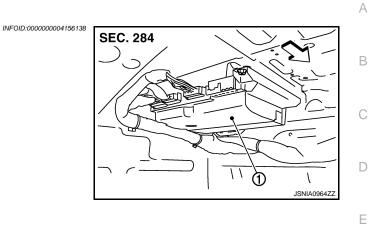
#### INSTALLATION

Install in the reverse order of removal.

# < ON-VEHICLE REPAIR >

# BOSE AMP.





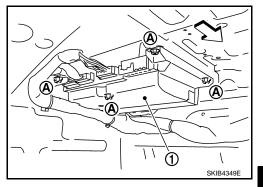
1. BOSE amp.

# Removal and Installation

#### REMOVAL

- 1. Remove trunk front finisher. Refer to EI-66, "Component Parts Location".
- 2. Remove screws (A), and disconnect connector.
- 3. Remove BOSE amp. (1).

C: Vehicle front



INSTALLATION Install in the reverse order of removal.



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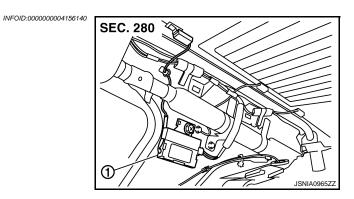
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# ANTENNA AMP.



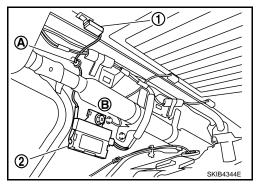
1. Antenna amp.

### Removal and Installation

INFOID:000000004156141

#### REMOVAL

- 1. Remove back pillar garnish RH. Refer to EI-49, "Component Parts Location".
- 2. Disengaged the clip (A) to separate glass terminal (1).
- 3. Remove screw (B) and remove antenna amp. (2) from vehicle.

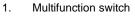


INSTALLATION Install in the reverse order of removal.

#### **MULTIFUNCTION SWITCH** [WITH MOBILE ENTERTAINMENT SYSTEM]

#### < ON-VEHICLE REPAIR > **MULTIFUNCTION SWITCH**

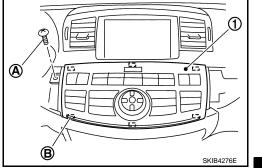
Exploded View



# **Removal and Installation**

### REMOVAL

- 1. Remove instrument panel finisher B and C. Refer to IP-12, "INSTRUMENT PANEL : Component Parts Location".
- 2. Remove screw (A).
- 3. Disengage tabs (B) and connector to separate multifunction switch (1) from instrument panel.



**INSTALLATION** Install in the reverse order of removal. INFOID:000000004156142 **SEC. 280** ന С D JSNIA0968Z

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INFOID:000000004156143

#### PRESET SWITCH [WITH MOBILE ENTERTAINMENT SYSTEM]

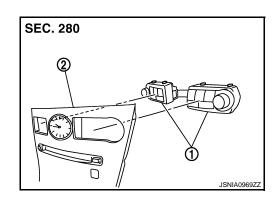
# PRESET SWITCH

Exploded View

INFOID:000000004156144

REMOVAL

Refer to <u>IP-19</u>, "CLUSTER LID C : Component Parts Location". DISASSEMBLY



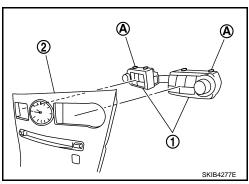
- 1. Preset switch
- 2. Cluster lid C

# Removal and Installation

INFOID:000000004156145

#### REMOVAL

- 1. Remove cluster lid C. Refer to IP-19, "CLUSTER LID C : Removal and Installation".
- Disengage tabs (A) to separate preset switch (1) from cluster lid C (2).



#### INSTALLATION

Install in the reverse order of removal.

#### NOTE:

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

# **STEERING SWITCH**

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

STEERING SWITCH		^
Exploded View	INFOID:000000004156146	A
Refer to <u>PS-10, "Removal and Installation"</u> .		В
Removal and Installation	INFOID:000000004156147	
REMOVAL Refer to <u>PS-10, "Removal and Installation"</u> .		С
INSTALLATION Install in the reverse order of removal.		D

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Revision: 2009 Novemver

< ON-VEHICLE REPAIR >

#### REAR CONTROL SWITCH [WITH MOBILE ENTERTAINMENT SYSTEM]

#### < ON-VEHICLE REPAIR >

# **REAR CONTROL SWITCH**

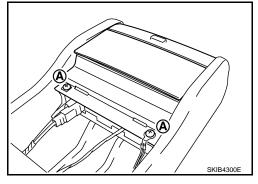
Exploded View

#### Refer to SE-156, "Disassembly and Assembly".

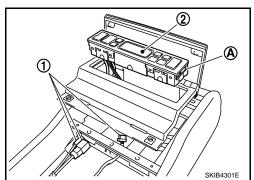
#### Removal and Installation

#### REMOVAL

- 1. Remove tray box from armrest. Refer to <u>SE-156, "Disassembly and Assembly"</u>.
- 2. Remove screw (A).



3. Disconnect connector (1) and disengage tabs (A) to separate rear control switch (2).



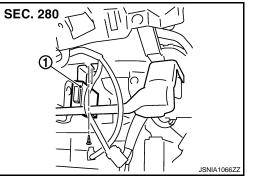
INSTALLATION Install in the reverse order of removal. INFOID:000000004156148

INFOID:000000004156149

# **IPOD ADAPTER**







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1. iPod adapter

#### **Removal and Installation**

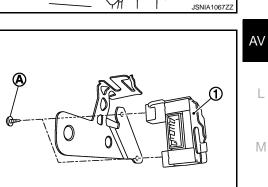
#### REMOVAL

3.

adapter bracket.

- 1. Remove glove box cover. Refer to IP-20, "GLOVE BOX : Removal and Installation".
- 2. Remove screws (A) and remove iPod adapter bracket and iPod adapter (1).





**INSTALLATION** Install in the reverse order of removal.

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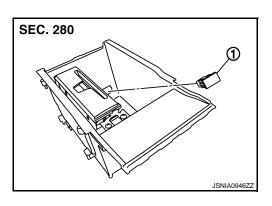
# IPOD CONNECTOR

Exploded View

INFOID:000000004156152

REMOVAL

Refer to <u>IP-22, "CENTER CONSOLE : Component Parts Location"</u>. DISASSEMBLY



1. iPod connector

Removal and Installation

INFOID:000000004156153

#### REMOVAL

- 1. Remove center console. Refer to IP-22, "CENTER CONSOLE : Component Parts Location".
- 2. Push the pawl from the back of center console to remove iPod connector.

#### INSTALLATION

Install in the reverse order of removal.

#### **DVD PLAYER** [WITH MOBILE ENTERTAINMENT SYSTEM]

# < ON-VEHICLE REPAIR >

# **DVD PLAYER**

**Exploded View** 

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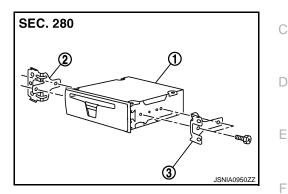
(A)

PKIC0932E

REMOVAL

Refer to IP-22, "CENTER CONSOLE : Component Parts Location".

DISASSEMBLY

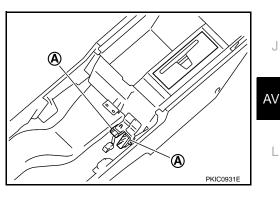


- **DVD** player 1.
- Bracket LH 2.
- 3. Bracket RH

# **Removal and Installation**

#### REMOVAL

- 1. Remove cup holder. Refer to <u>IP-22, "CENTER CONSOLE : Disassembly and Assembly"</u>.
- 2. Disconnect sub harness connector.
- Remove sub harness connectors (A) from bracket. 3.



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- 4. Remove metal clips (A) and 8 pawls. Then DVD player cover (1).
- 5. Remove screws (B) and remove DVD player (2).



# **AUXILIARY INPUT JACKS**

#### < ON-VEHICLE REPAIR >

# AUXILIARY INPUT JACKS

Exploded View

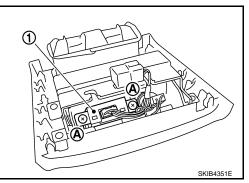
Refer to IP-22, "CENTER CONSOLE : Component Parts Location".

#### Removal and Installation

INFOID:000000004156157

#### REMOVAL

- 1. Remove center console rear finisher. Refer to IP-22, "CENTER CONSOLE : Component Parts Location".
- 2. Remove screws (A) and disconnect connector. Remove auxiliary input jacks (1) from center console rear finisher.



[WITH MOBILE ENTERTAINMENT SYSTEM]

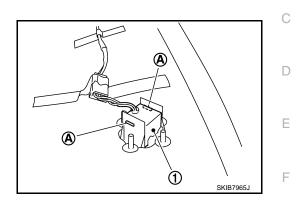
INSTALLATION Install in the reverse order of removal.

# **MICROPHONE**

## Removal and Installation

#### REMOVAL

- 1. Remove headlining. Refer to EI-63, "Component Parts Location".
- 2. Remove connector.
- 3. Raise tab (A) and remove microphone (1).



**INSTALLATION** Install in the reverse order of removal.

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### [WITH MOBILE ENTERTAINMENT SYSTEM]

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## AUDIOPILOT® MICROPHONE

#### [WITH MOBILE ENTERTAINMENT SYSTEM]

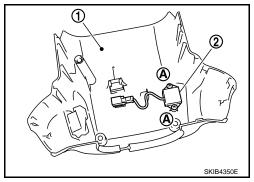
# **AUDIOPILOT® MICROPHONE**

#### Removal and Installation

INFOID:000000004156159

#### REMOVAL

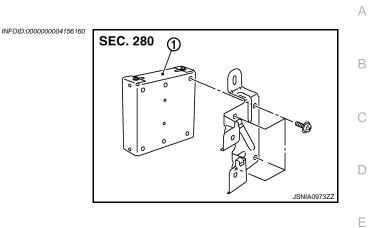
- 1. Remove steering column lower cover. Refer to <u>IP-12</u>, "INSTRUMENT PANEL : Component Parts Location".
- 2. Remove screws (A) and disconnect connector.
- 3. Remove Microphone (2) from steering column lower cover (1).



INSTALLATION Install in the reverse order of removal.

# CAMERA CONTROL UNIT



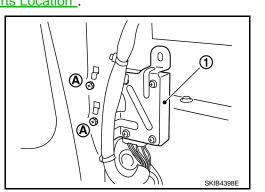


1. Camera control unit

#### Removal and Installation

#### REMOVAL

- 1. Remove trunk side finisher (RH). Refer to EI-66. "Component Parts Location".
- 2. Remove screws (A) and disconnect connector, and remove camera control unit (1).



INSTALLATION Install in the reverse order of removal.

#### Adjustment

#### INFOID:000000004156162

INFOID:000000004156161

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#### ADJUSTMENT

There may be a misalignment of possible route line center position of rear view monitor after removing camera control unit. Therefore, correct neutral position with the following procedure.

- 1. Steer the steering wheel to the leftmost and rightmost ends.
- 2. Drive vehicle at 30 km/h (18.6 MPH) min. speed at least 100 m (328.1 ft).

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# **REAR VIEW CAMERA**

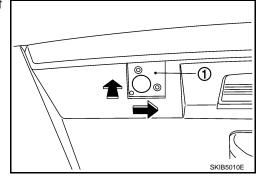
**Exploded View** 

Refer to EI-68, "Component Parts Location".

#### Removal and Installation

#### REMOVAL

- 1. Remove trunk lid finisher inner. Refer to EI-68, "Removal and Installation".
- 2. Remove screws attaching camera and camera bracket.
- 3. Remove connector and connector clip.
- 4. Remove camera bracket (1) while pushing right direction of vehicle.



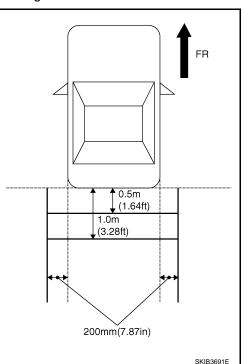
#### INSTALLATION

- 1. Install rear view camera and camera bracket while pressing to trunk room side.
- 2. Install connector and connector clip.
- 3. Install trunk lid finisher inner.

#### Adjustment

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

- 1. Draw lines on rearward area of the vehicle passing through the following points: 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.



[WITH MOBILE ENTERTAINMENT SYSTEM]

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INFOID:000000004156164

#### REAR VIEW CAMERA [WITH MOBILE ENTERTAINMENT SYSTEM]

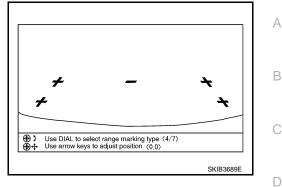
3. Rotate the center dial, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

#### Selected pattern

4. Make fine adjustment to the correction line of the rear of the vehicle with up/down/left/right switches so that its position is aligned with the guiding line. Press ""

:7

Up/Down adjustment range	: – <b>20 – 20</b>
Left/Right adjustment range	: -20 - 20



#### **CAUTION:**

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

If Confirmation/Adjustment mode does not function in the above procedure, perform one of the  $\Box$  following service to adjust the index again.

- Remove battery for five min. Then reconnect battery.
- Remove camera control unit connector for five min. Then reconnect camera control unit connector.

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# STEERING ANGLE SENSOR

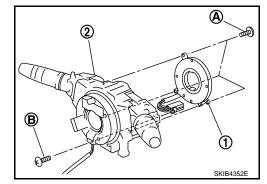
**Exploded View** 

Refer to PS-9, "On-Vehicle Inspection and Service".

## **Removal and Installation**

### REMOVAL

- 1. Remove combination switch. Refer to LT-177, "Removal and Installation".
- 2. Remove screws (A) and remove connector mount screw (B).
- 3. Remove steering angle sensor (1) from combination switch (2).



### INSTALLATION

Install in the reverse order of removal.

#### **CAUTION:**

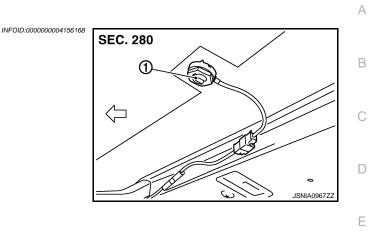
Insert the projection area, and install steering wheel angle sensor while fitting adjusting the triangle marks (Larger mark should be upward.).

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#### SATELLITE RADIO ANTENNA [WITH MOBILE ENTERTAINMENT SYSTEM]

# SATELLITE RADIO ANTENNA





C: Vehicle front

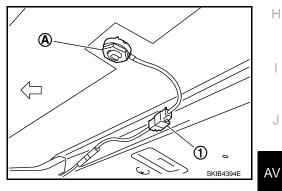
1. Satellite radio antenna

#### Removal and Installation

#### REMOVAL

- 1. Remove headlining assembly (rear) to secure work space between vehicle and headlining. Refer to <u>EI-63</u>, <u>"Removal and Installation"</u> [with normal roof] <u>EI-63</u>, <u>"Removal and Installation"</u> [with sunroof].
- 2. Remove nuts (A), and then disconnect connector (1).
- 3. Remove satellite radio antenna from roof panel.

∠: Vehicle front



INSTALLATION Install in the reverse order of removal.

Satellite radio antenna	
mounting nut	

#### **P**: 6.5 N·m (0.66 kg-m, 58 in-lb)

#### **CAUTION:**

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

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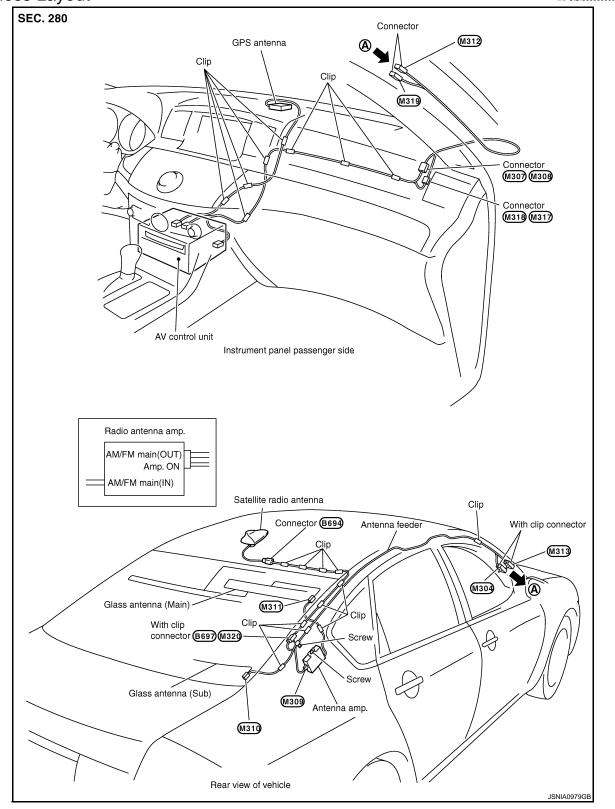
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#### ANTENNA FEEDER (RADIO) [WITH MOBILE ENTERTAINMENT SYSTEM]

# ANTENNA FEEDER (RADIO)

# Harness Layout





# **ANTENNA FEEDER (SATELLITE RADIO)**

#### < ON-VEHICLE REPAIR >

# [WITH MOBILE ENTERTAINMENT SYSTEM]

# ANTENNA FEEDER (SATELLITE RADIO)

#### Harness Layout

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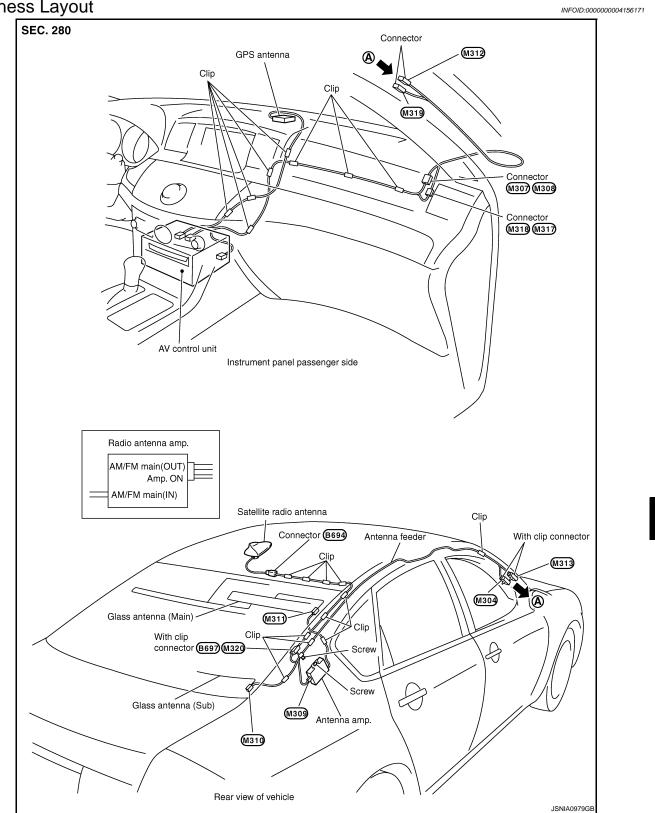
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# ANTENNA FEEDER (GPS)

Harness Layout

