SECTION AV
AUDIO, VISUAL & NAVIGATION SYSTEM

CONTENTS

DISPLAY AUDIO

AUDIO WITH NAVIGATION

INTEGRATED CONTROL SYSTEM

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012202450

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

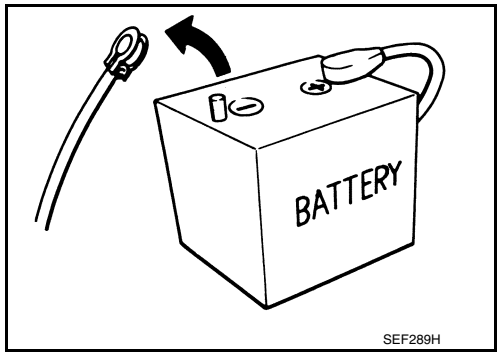
Precautions for Removing Battery Terminal

INFOID:0000000012947019

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		
YD25DDTi	: 2 minutes		



NOTE:

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

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

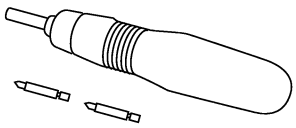
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000012202452

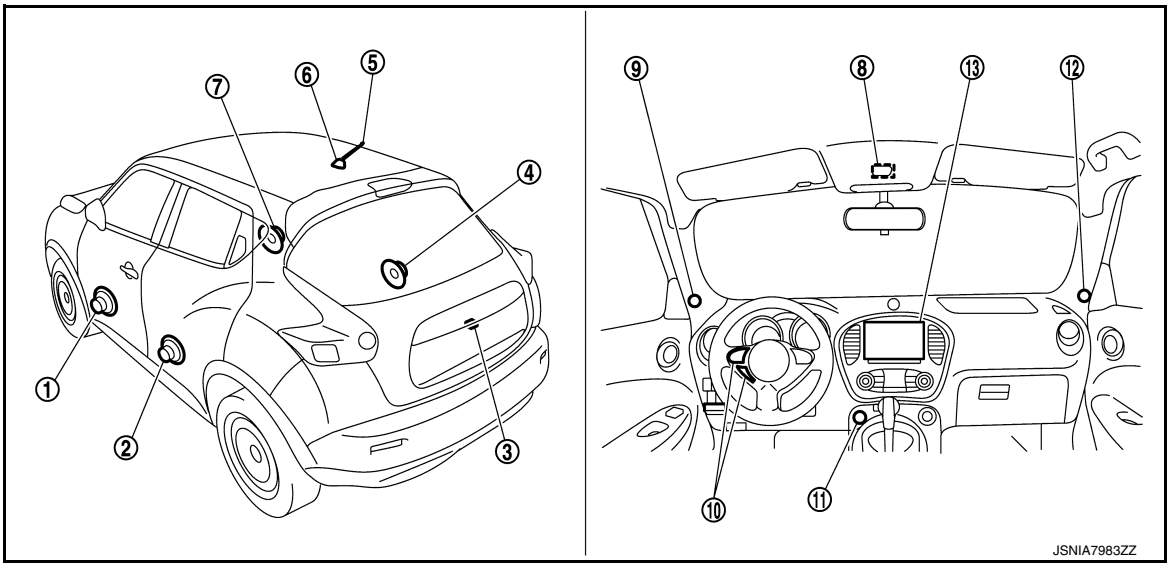
Tool name	Description
Power tool  PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000012202453



1. Front door speaker LH
2. Rear door speaker LH
3. Rear view camera
4. Rear door speaker RH
5. Antenna rod
6. Antenna base (antenna amp. and satellite radio antenna)
7. Front door speaker RH
8. Microphone
9. Tweeter LH
10. Steering switch
11. USB connector and AUX jack
12. Tweeter RH
13. Audio unit

Component Description

INFOID:0000000012202454

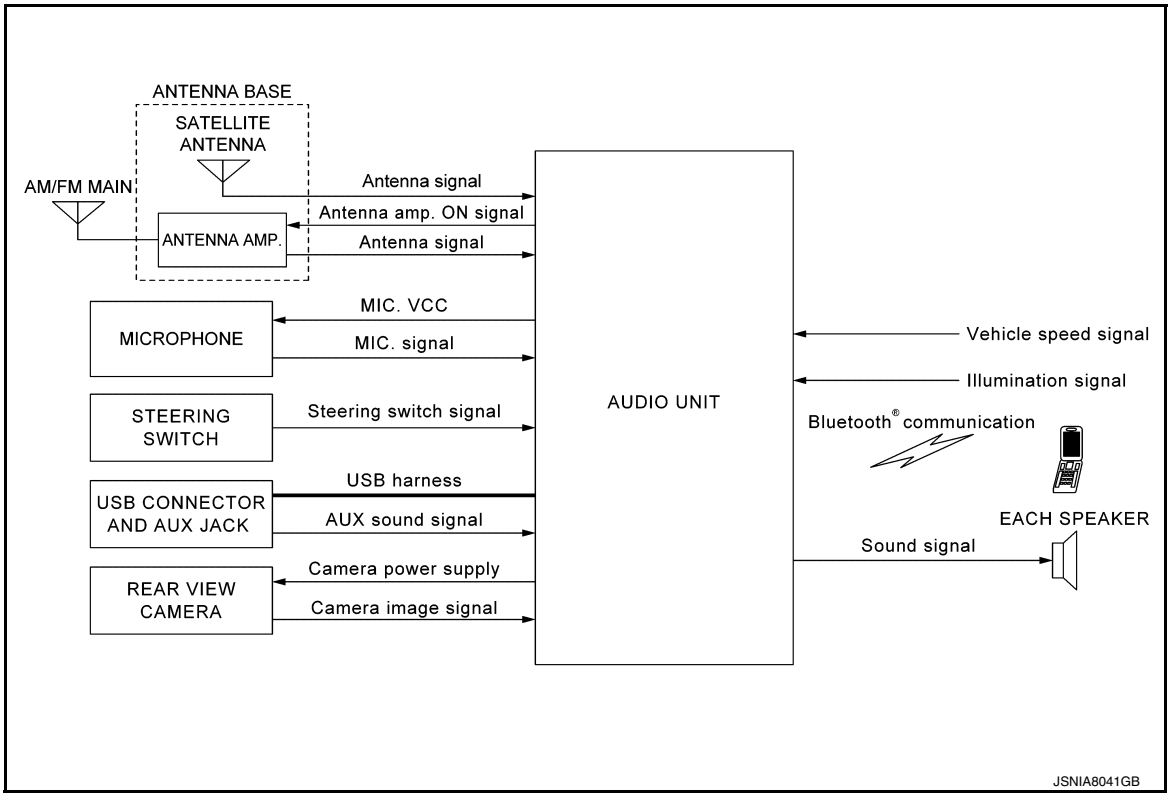
Part name	Description
Audio unit	• Controls audio system and hands-free phone system functions. • Sound signals are output to each speaker.
Steering switch	• Operation for audio and hands-free phone are possible. • Steering switch signal (operation signal) is output to audio unit.
Front door speaker	• Inputs sound signal from audio unit. • Outputs mid and low range sounds.
Tweeter	• Inputs sound signal from audio unit. • Outputs high range sounds.
Rear door speaker	• Inputs sound signal from audio unit. • Outputs high, mid and low range sounds.
Antenna base	A radio antenna base integrated with radio antenna amp. and satellite radio antenna is adopted. ANTENNA AMP. • Radio signal received by rod antenna is amplified and transmitted to audio unit. • Power (antenna amp. ON signal) is supplied from audio unit. SATELLITE RADIO ANTENNA • Receives satellite radio waves and outputs it to audio unit.
Microphone	• Used for hands-free phone operation. • Microphone signal is transmitted to audio unit. • Power (microphone VCC) is supplied from audio unit.

Part name	Description
USB connector and AUX jack	• Sound signal of auxiliary input is transmitted to audio unit. • Sound signal of USB input is transmitted to audio unit.
Rear view camera	• Camera power supply is input from audio unit. • The image of vehicle rear view is transmitted to audio unit.

SYSTEM

System Description

INFOID:0000000012202455



AUDIO SYSTEM

The audio system consists of the following components:

- Audio unit
- Front door speakers
- Rear door speakers
- Tweeters
- Steering wheel audio control switches
- USB interface
- AUX in jack
- Antenna amp.
- Rod antenna
- Satellite radio.

When the audio system is on, AM/FM signals received by the rod antenna are amplified by the antenna amp. and sent to the audio unit. The audio unit then sends audio signals to the front door speakers and rear door speakers.

Refer to Owner's Manual for audio system operating instructions.

USB INTERFACE FUNCTION

- iPod® or music files in USB memory can be played.
- Sound signals are transmitted from USB interface to the audio unit and output to each speaker.
- iPod® is recharged when connected to USB interface.

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

HANDS-FREE PHONE SYSTEM

- Bluetooth® control is built into audio unit.
- The connection between cellular phone and audio unit is performed with Bluetooth® communication.
- The voice guidance signal is input from the audio unit and output to the front speakers when operating the cellular phone.

When A Call Is Originated

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

When Receiving A Call

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

SPEED SENSITIVE VOLUME SYSTEM

Volume level of this system goes up and down automatically in proportion to the vehicle speed. The control level can be selected by the customer. Refer to Owner's Manual for operating instructions.

REAR VIEW MONITOR FUNCTION

Operation Description

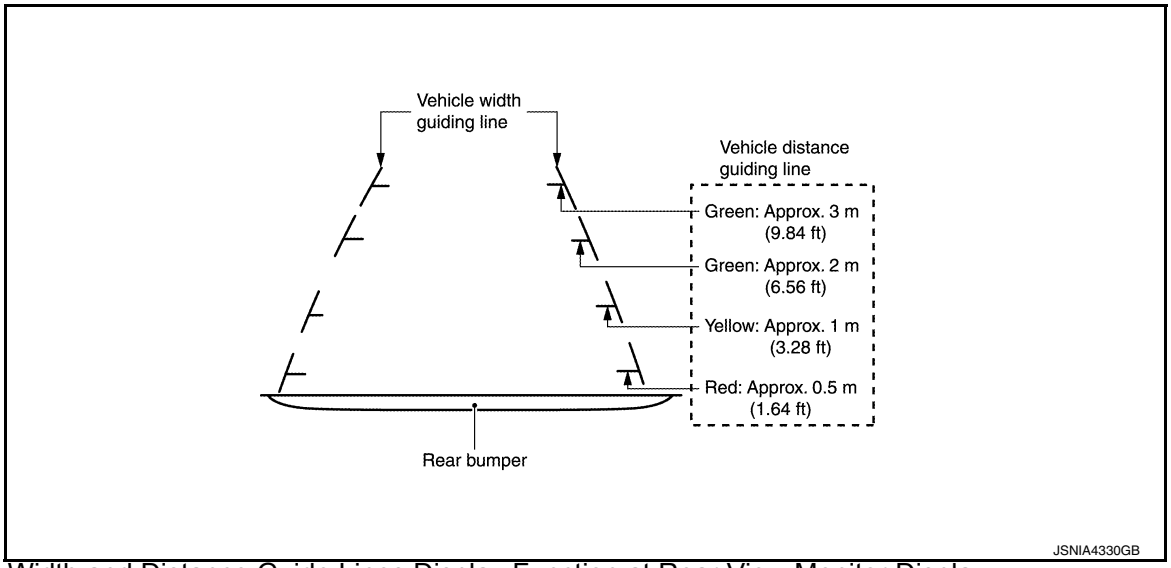
- When the selector lever is shifted to the reverse position, the rear view monitor image is displayed.
- When the selector lever is shifted to any position other than the reverse position, the original image (the image displayed before the rear view monitor image) is displayed.

Camera Image Operation Principle

- The audio unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the audio unit when power is supplied from the audio unit.
- The audio unit combines a warning message and fixed guide lines with an image received from the rear view camera to display a rear view camera image on the screen.

Vehicle Width and Distance Guide Lines Display Function at Rear View Monitor Display

- The vehicle width and distance guide lines are displayed at the rear view monitor display to allow the driver to more easily judge distances between the vehicle and objects and help the driver back into a parking space.



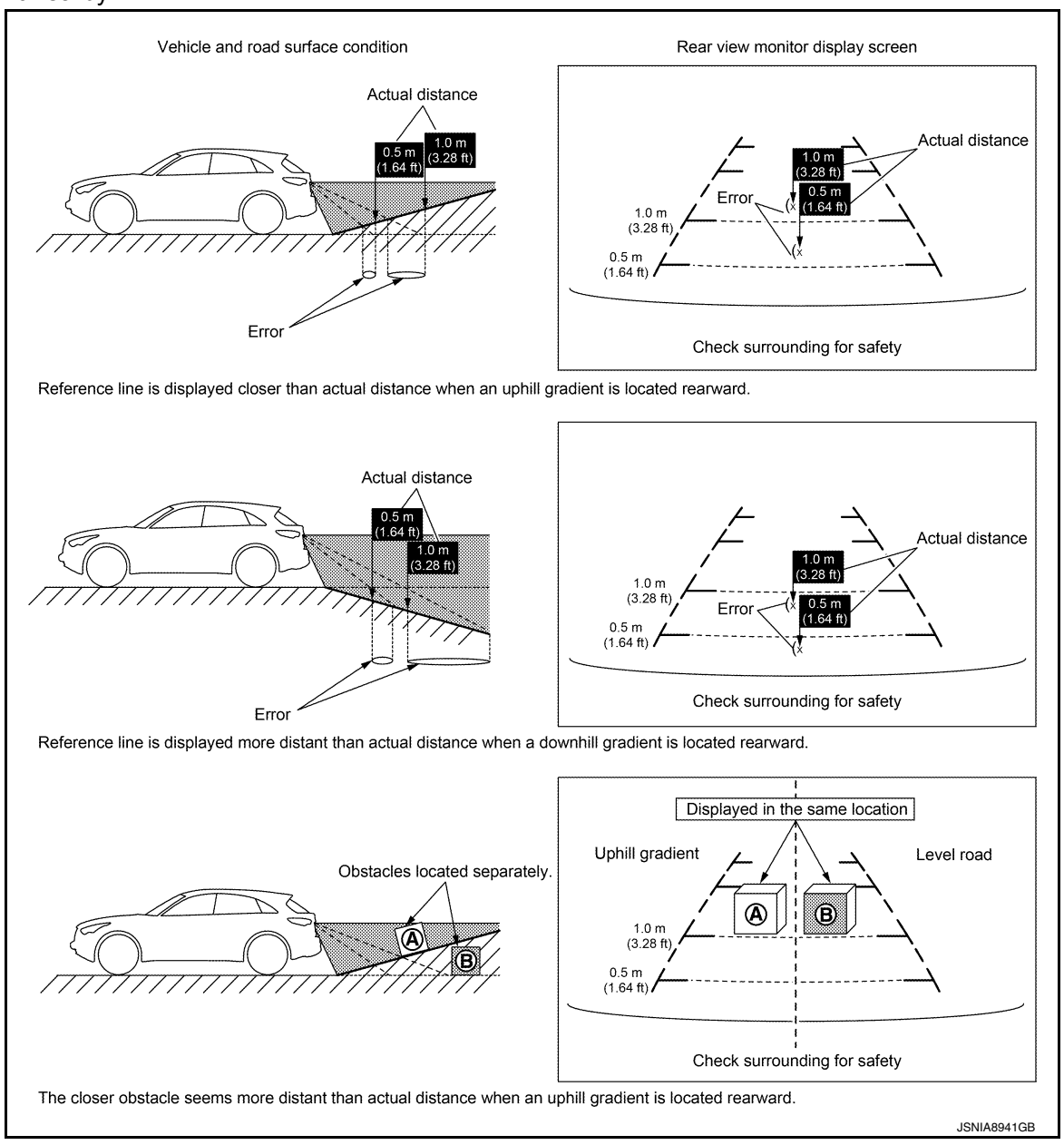
Vehicle Width and Distance Guide Lines Display Function at Rear View Monitor Display

Precautions for Vehicle Width And Distance Guide Lines Display on the Rear View Monitor Display

Vehicle width and distance guide lines on the display may be different from actual lines depending on vehicle conditions and road conditions.

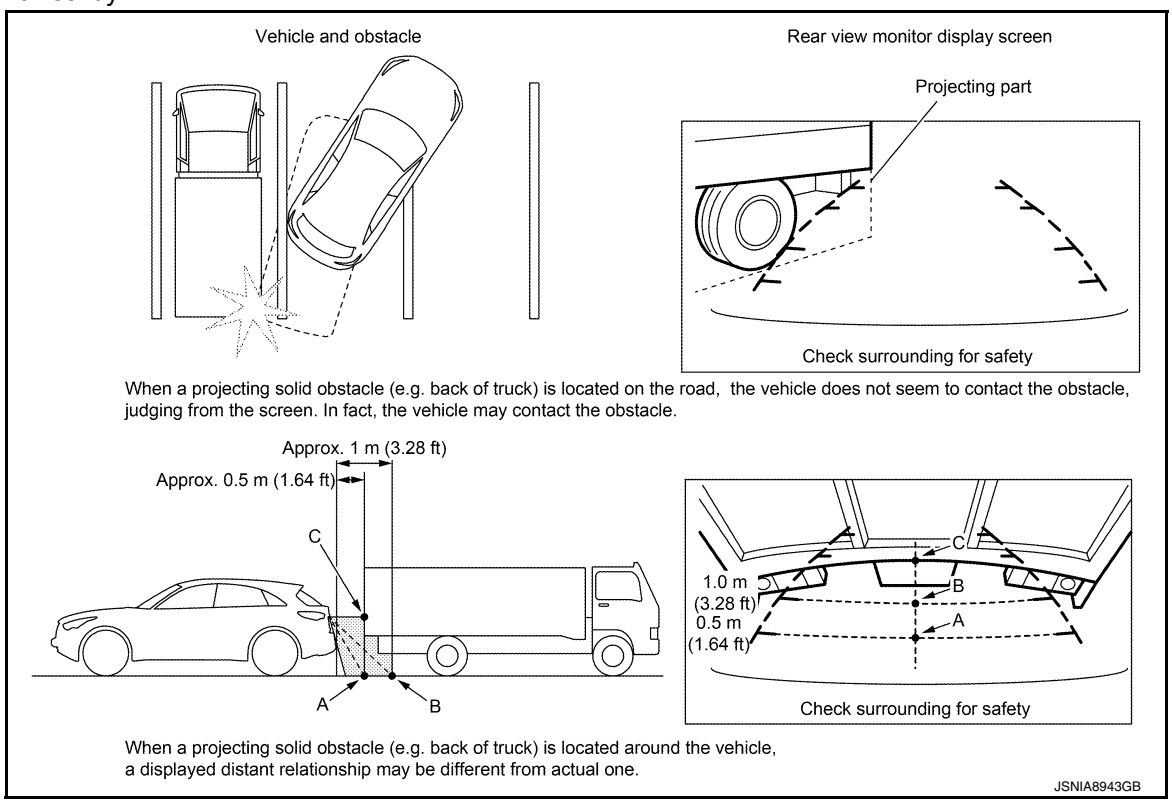
Precautions for road conditions

- Since guide lines are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.



Precautions for block

- Since guide lines are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.



DIAGNOSIS SYSTEM (AUDIO UNIT)

Description

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The audio unit on board diagnosis performs the functions listed in the table below:

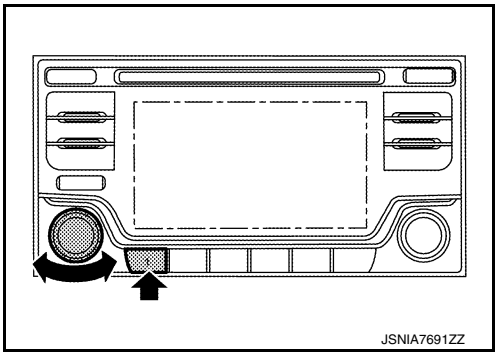
Mode		Description
Self Diagnosis		Audio unit diagnosis.
Confirmation/ Adjustment	Display Diagnosis	The following check functions are available: color tone check by color spectrum bar display and gray scale check by gradation bar display.
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, lights, reverse, EQ pin, ignition, destination and camera type.
	Speaker Test	The connection of a speaker can be confirmed by test tone.
	Camera System	Guiding line position that overlaps rear view camera image can be adjusted.
	AV COMM Diagnosis	Displayed but not used.
	Delete Unit Connection Log	Erase the connection history of unit and error history.
	Version Information	Displays the audio system version information.
	Initialize Setting	Initializes the audio unit memory.

On Board Diagnosis Function

INFOID:0000000012202457

METHOD OF STARTING

1. Turn the ignition ON.
2. Turn the audio unit OFF.
3. While pressing the preset 1 button, turn the volume control dial clockwise and counterclockwise quickly approximately 15 times or more. Shifting from current screen to previous screen is performed by pressing BACK button.



4. The trouble diagnosis initial screen is displayed, and Self Diagnosis or Confirmation/Adjustment can be selected.

SELF DIAGNOSIS MODE

Audio Unit Self Diagnosis

1. Select Self Diagnosis.
2. Self diagnosis screen is displayed. The bar graph visible in center of screen indicates progress of self diagnosis.
3. Diagnosis results are displayed after the self diagnosis is completed. The unit names and the connection lines are color coded according to the diagnostic results.

Diagnosis results	Unit	Connection line
Normal	Green	Green
Unit malfunction [1]	Red	Green

1: Control unit (audio unit) is displayed in red.

Replace audio unit if Self Diagnosis did not run because control unit malfunction is indicated. The symptom is audio unit internal error. Refer to AV-50, "Removal and Installation".

4. Comments of self diagnosis results can be viewed in the diagnosis result screen.

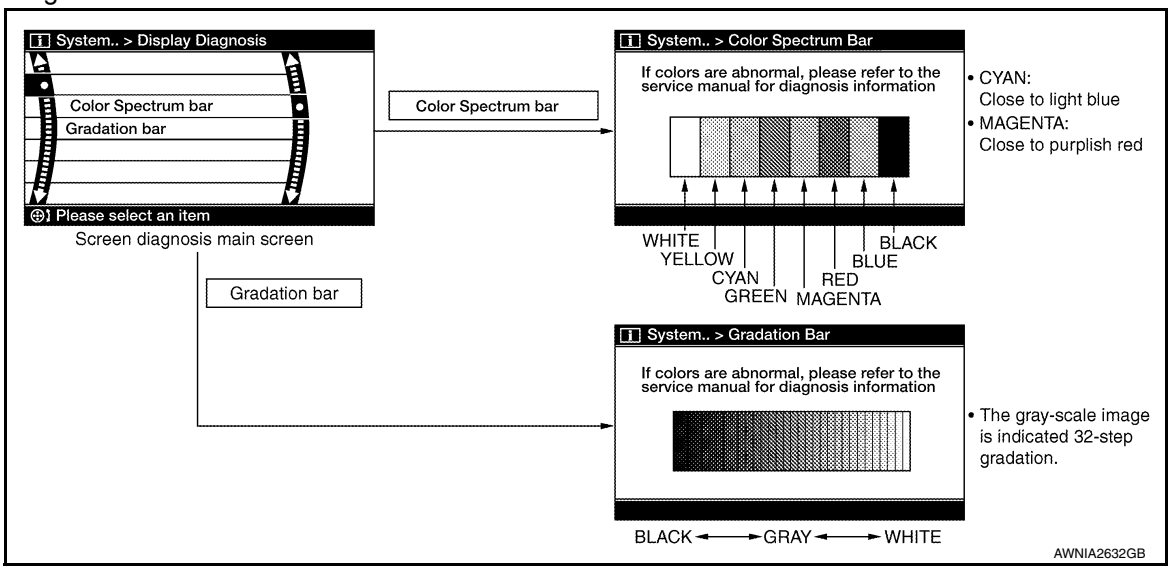
Audio Unit Self Diagnosis Results

Only Unit Part Is Displayed In Red		
Screen switch	Description	Possible cause
Control unit	Malfunction is detected in audio unit power supply and ground circuits.	• Audio unit power supply or ground circuits. Refer to AV-35, "AUDIO UNIT : Diagnosis Procedure". • If no malfunction is detected in audio unit power supply and ground circuits, replace audio unit. Refer to AV-50, "Removal and Installation".

Audio Unit Confirmation/Adjustment

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

Display Diagnosis



Vehicle Signals

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

Diagnosis results	Display	Vehicle status	Remarks
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
Lights	ON	Lighting switch is ON	—
	OFF	Lighting switch is OFF	
Reverse	ON	Shift position is in "R"	Changes in indication may be delayed. This is normal.
	OFF	Shift position is in other than "R"	

Speaker Test

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

Camera System

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

Delete Unit Connection Log

Deletes any unit connection records and error records from the audio unit memory (clears the records of the unit that has been removed).

Version Information
Displays audio system version numbers.

Initialize Settings
Deletes data stored from the audio unit.

ECU DIAGNOSIS INFORMATION

AUDIO UNIT

Reference Value

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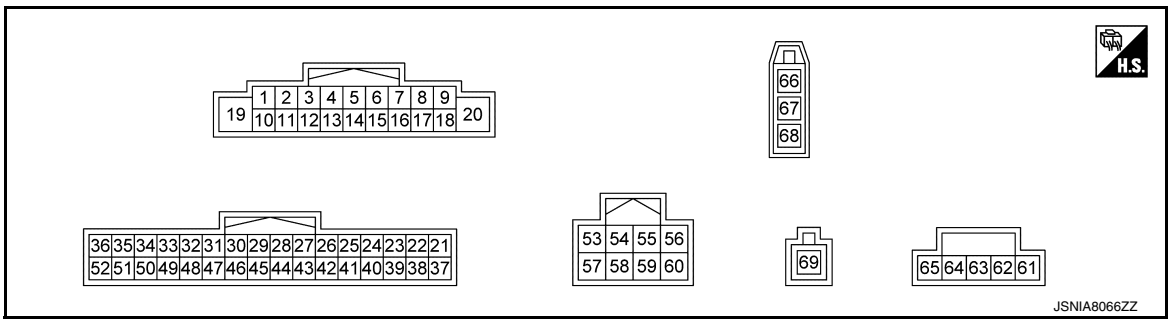
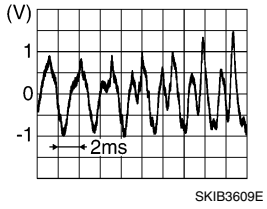
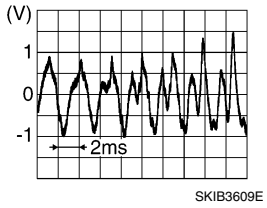
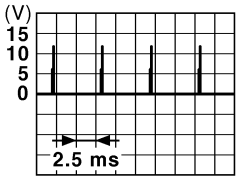
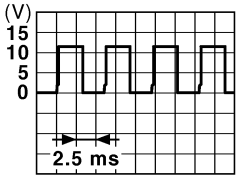
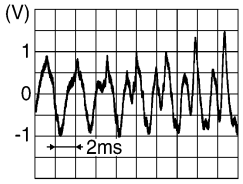
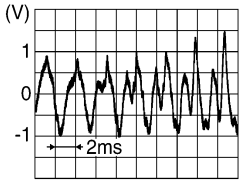
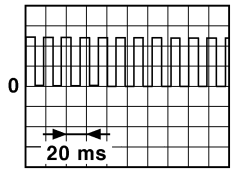
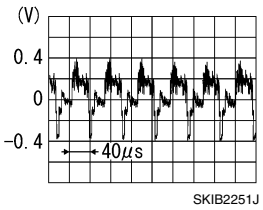
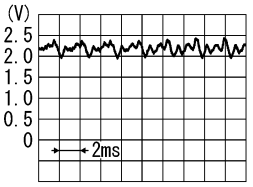
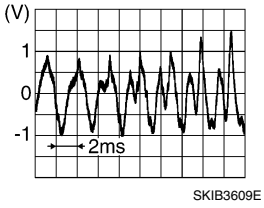
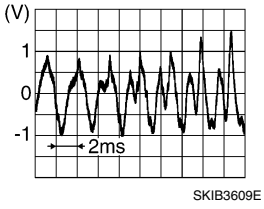
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
2 (W)	3 (GR)	Sound signal front speaker LH	Output	ON	Sound output	 SKIB3609E
4 (LG)	5 (V)	Sound signal rear speaker LH	Output	ON	Sound output	 SKIB3609E
6 (G)	15 (V)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch.	0 V
					Keep pressing SEEK UP switch.	1.0 V
					Keep pressing SEEK DOWN switch.	2.0 V
					Keep pressing TEL switch.	3.0 V
					Except for above.	5.0 V
7 (L)	Ground	ACC power supply	Input	ACC	—	Battery voltage
8 (GR)	Ground	Illumination control signal ground	—	ON	—	0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
9 (V)	Ground	Illumination control signal	Input	ON	• Lighting switch 1ST • When meter illumination is maximum	 JPNIA1687GB
					• Lighting switch 1ST • When meter illumination is step 11	 JPNIA1686GB
					• Lighting switch 1ST • When meter illumination is minimum	0 V
11 (G)	12 (R)	Sound signal front speaker RH	Output	ON	Sound output	 SKIB3609E
13 (BR)	14 (Y)	Sound signal rear speaker RH	Output	ON	Sound output	 SKIB3609E
16 (R)	15 (V)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL DOWN switch.	0 V
					Keep pressing VOL UP switch.	1.0 V
					Keep pressing TEL END switch.	2.0 V
					Except for above.	5.0 V
18 (Y)	Ground	Vehicle speed signal (8-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	 JSNIA0012GB
19 (BR)	Ground	Battery power supply	Input	OFF	—	Battery voltage
20 (B)	Ground	Ground	—	ON	—	0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
33 (L)	Ground	Camera ground	—	ON	—	0 V
34 (LG)	Ground	Camera power supply	Output	Ignition switch ON	Shift position is in “R”	6.2 V
35 (V)	Ground	Camera image signal	Input	Ignition switch ON	At camera images is displayed.	 SKIB2251J
36	—	Shield	—	—	—	—
37 (W)	Ground	Microphone signal	Input	ON	While speaking into microphone.	 PKIB5037J
38 (B)	Ground	Microphone VCC	Input	ON	—	5.0 V
39	—	Shield	—	—	—	—
44 (B)	Ground	Camera detection signal	—	ON	—	0 V
50 (G)	Ground	Reverse signal	Input	ON	Selector lever in R (reverse)	Battery voltage
53 (L)	Ground	AUX audio signal LH	Input	ON	AUX audio signal received	 SKIB3609E
54 (G)	Ground	AUX audio signal RH	Input	ON	AUX audio signal received	 SKIB3609E
55 (Y)	Ground	AUX audio signal ground	—	ON	—	0 V
56	—	Shield	—	—	—	—
61	—	V BUS signal	—	—	—	—
62	—	USB D− signal	—	—	—	—
63	—	USB D+ signal	—	—	—	—
65	—	USB ground	—	—	—	—

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
66	—	Antenna amp. ON signal	Output	ACC	—	Battery voltage
67	—	Antenna signal	Input	—	—	—
69	—	Satellite radio antenna signal	Input	—	Not connected to satellite antenna connector.	5.0 V

WIRING DIAGRAM

DISPLAY AUDIO

Wiring Diagram

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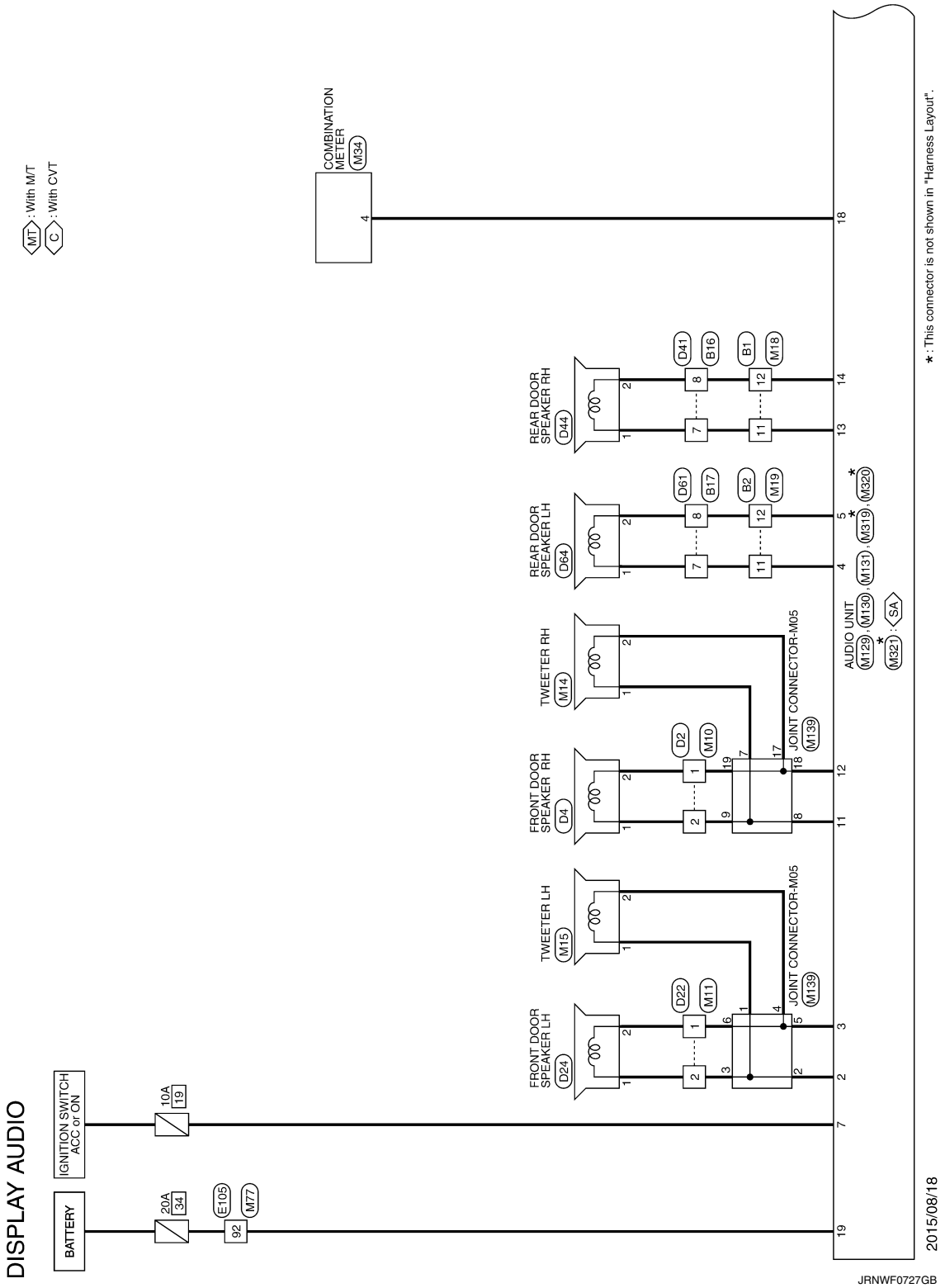
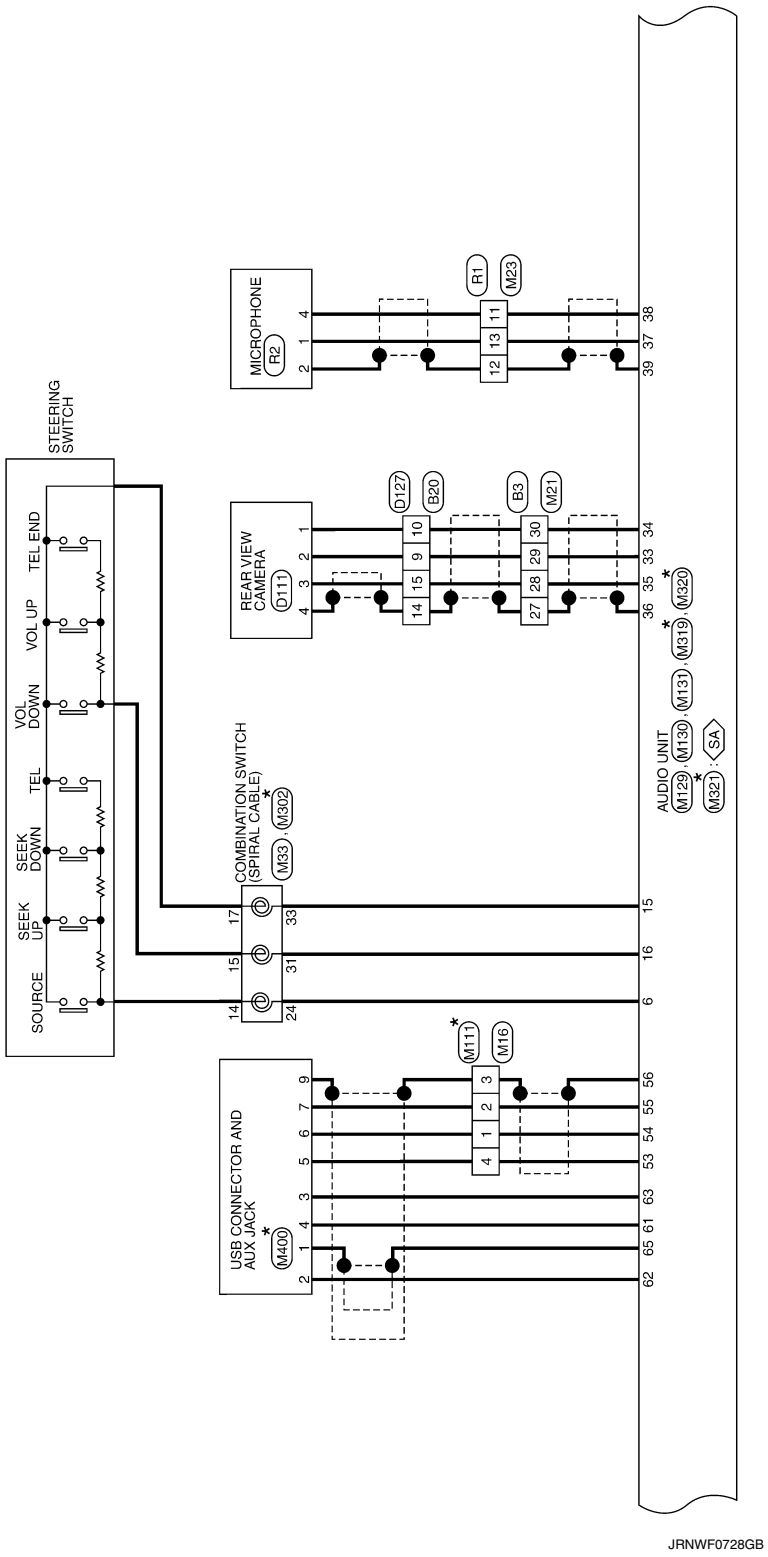
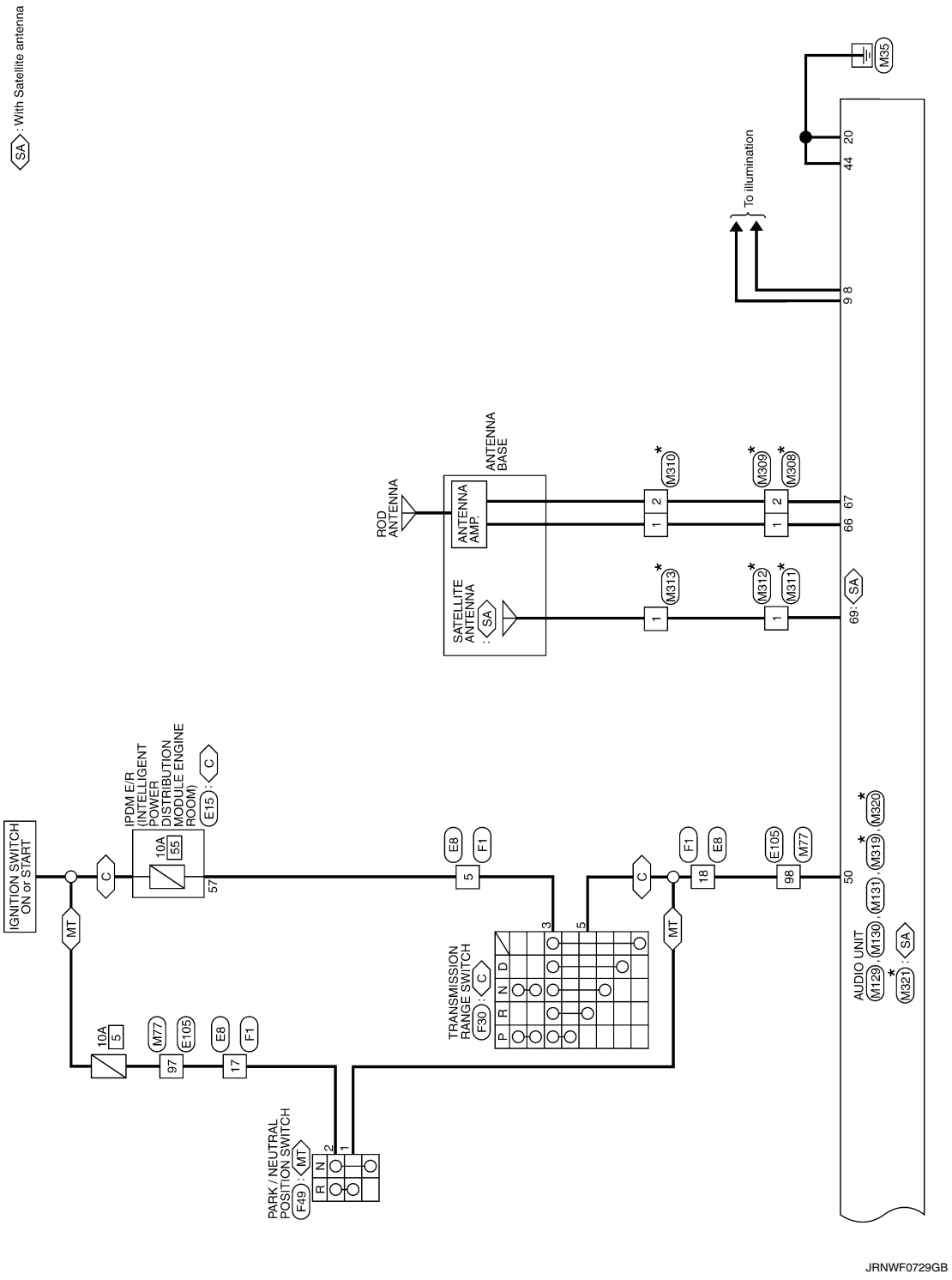



STEERING SWITCH
TEL END
VOL UP
VOL DOWN
TEL
SEEK DOWN
SEEK UP
SOURCE
MICROPHONE
R2
R1
M23
REAR VIEW CAMERA
D111
D127
B20
B3
M21
COMBINATION SWITCH (SPIRAL CABLE)
M33
M302
USB CONNECTOR AND AUX JACK
M400
M111
M16
AUDIO UNIT
M129
M130
M131
M319
M320
M321
SA
JRNWF0728GB



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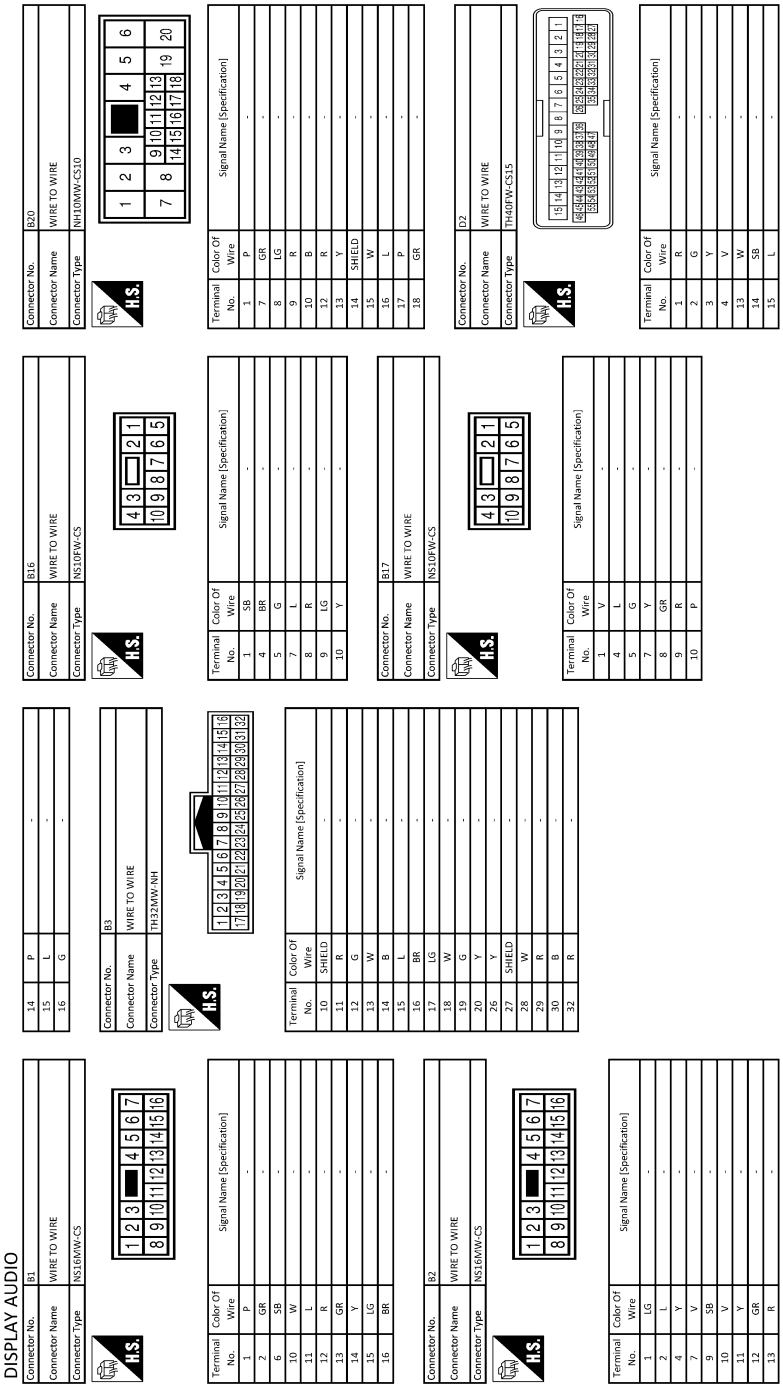

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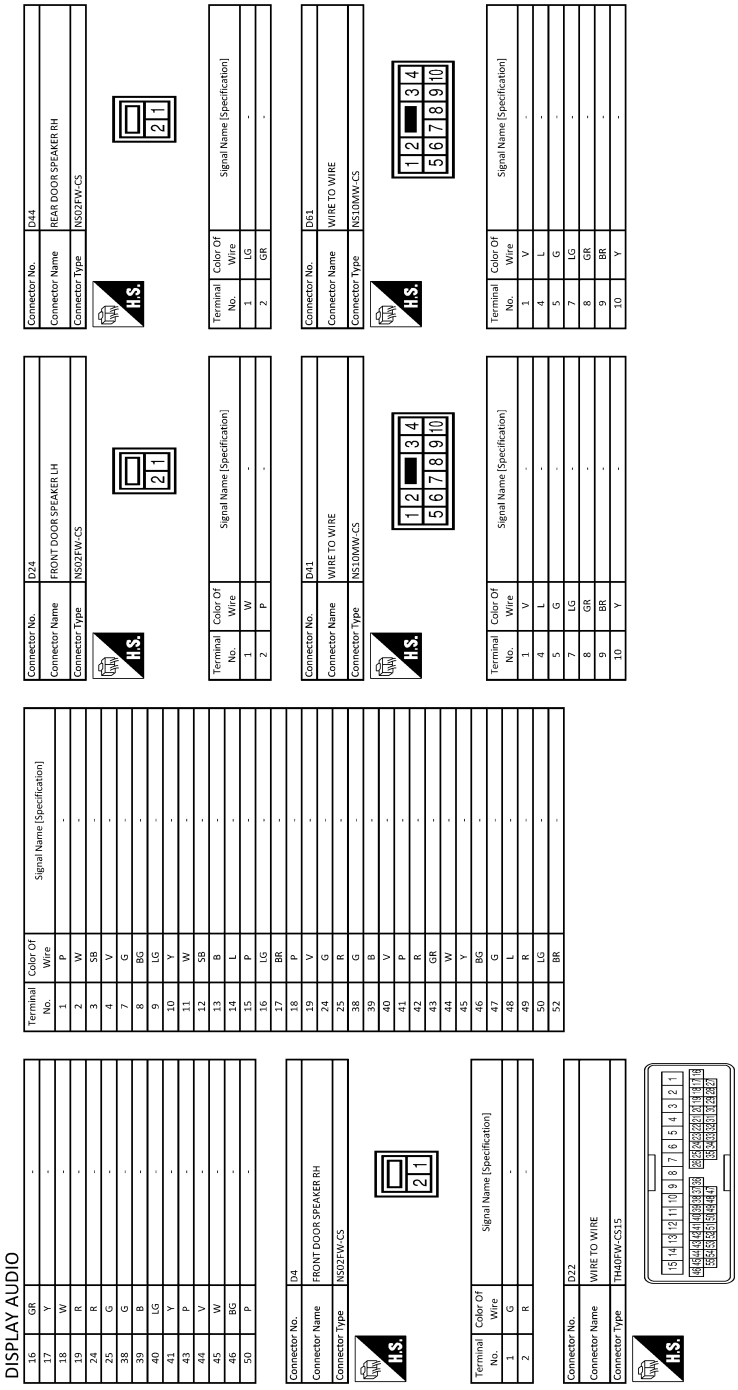

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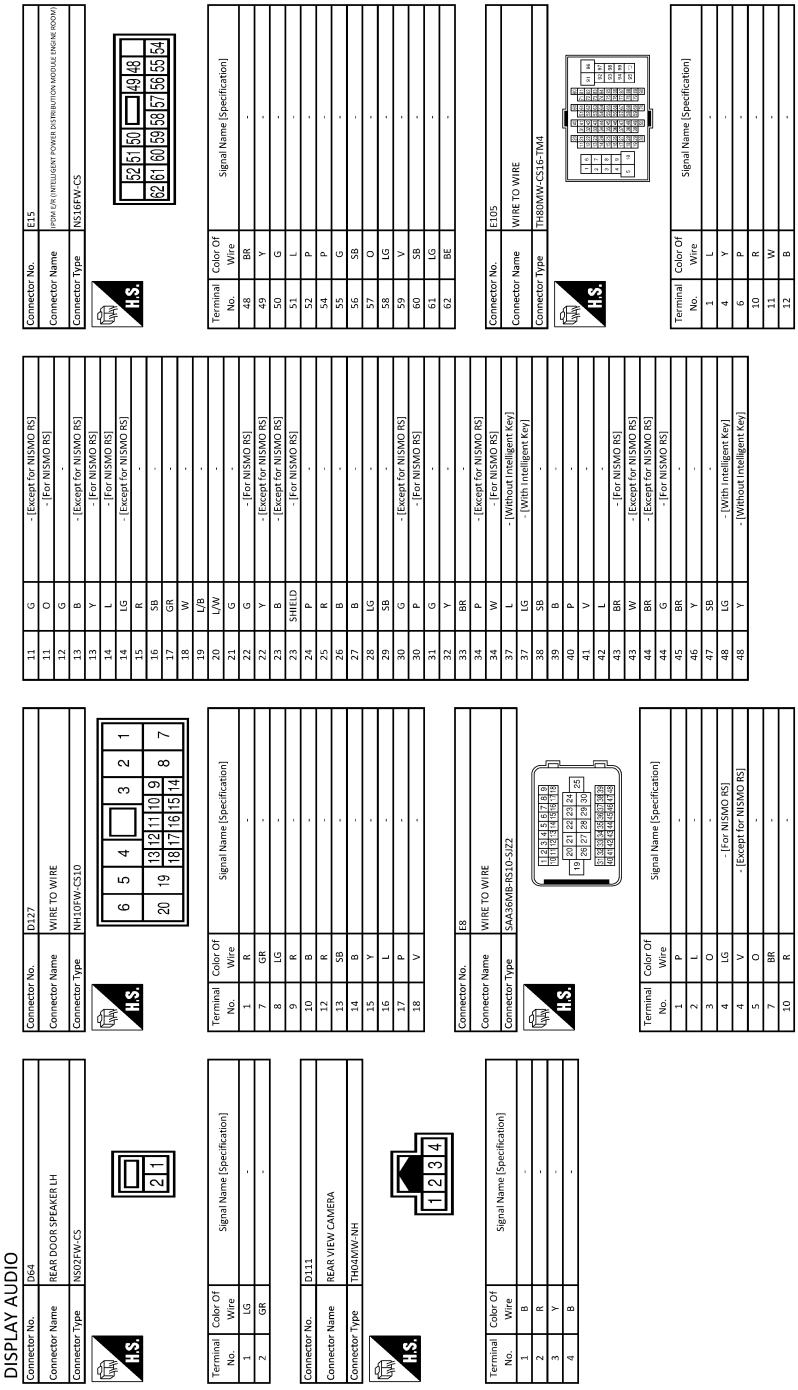

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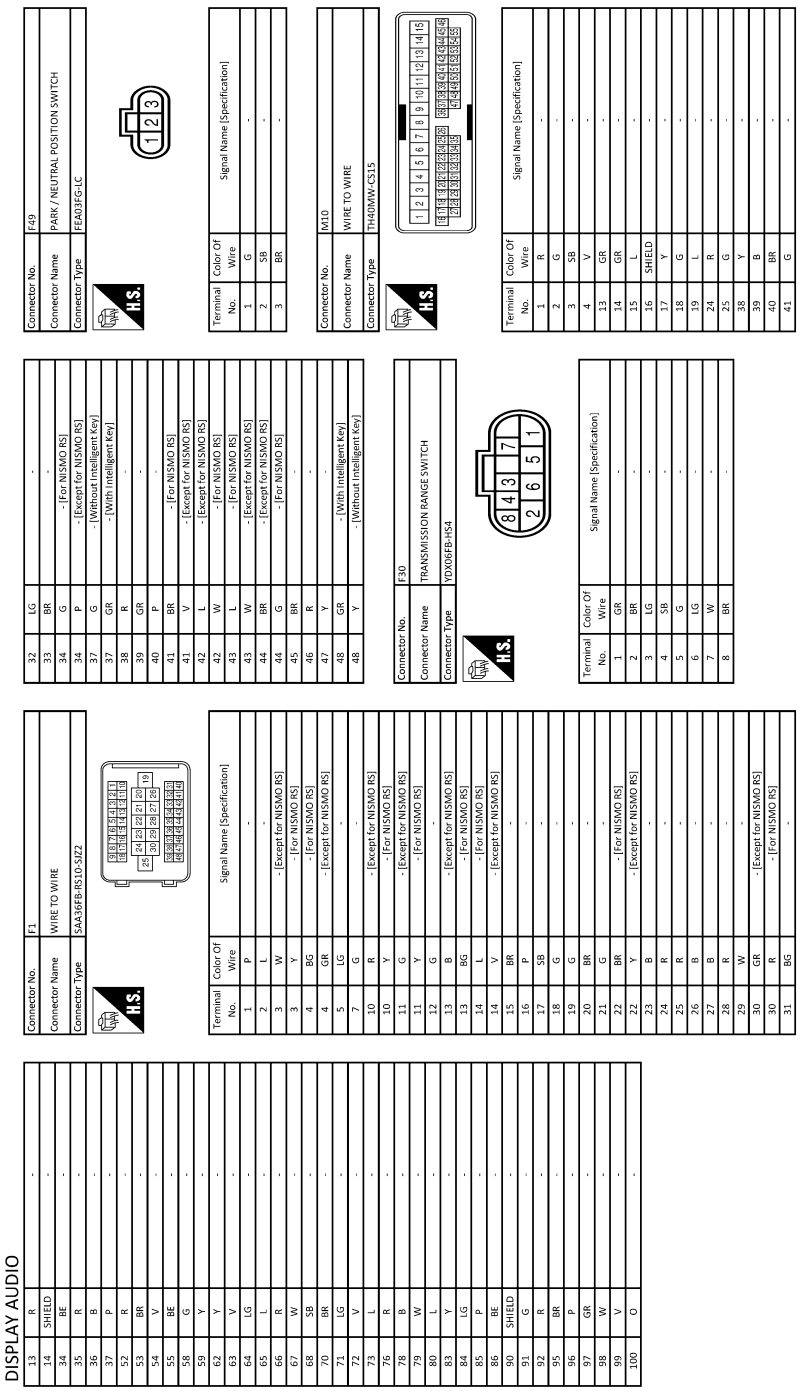

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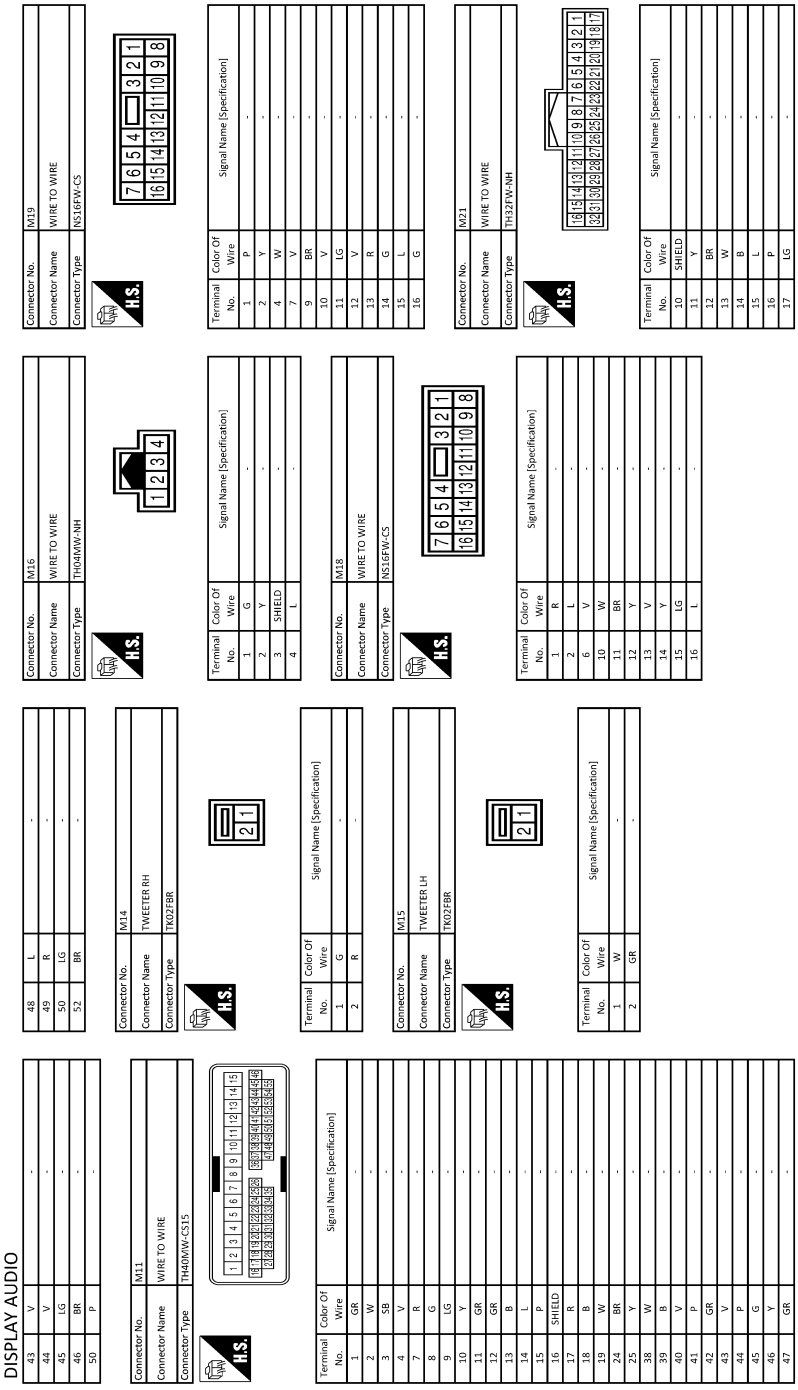

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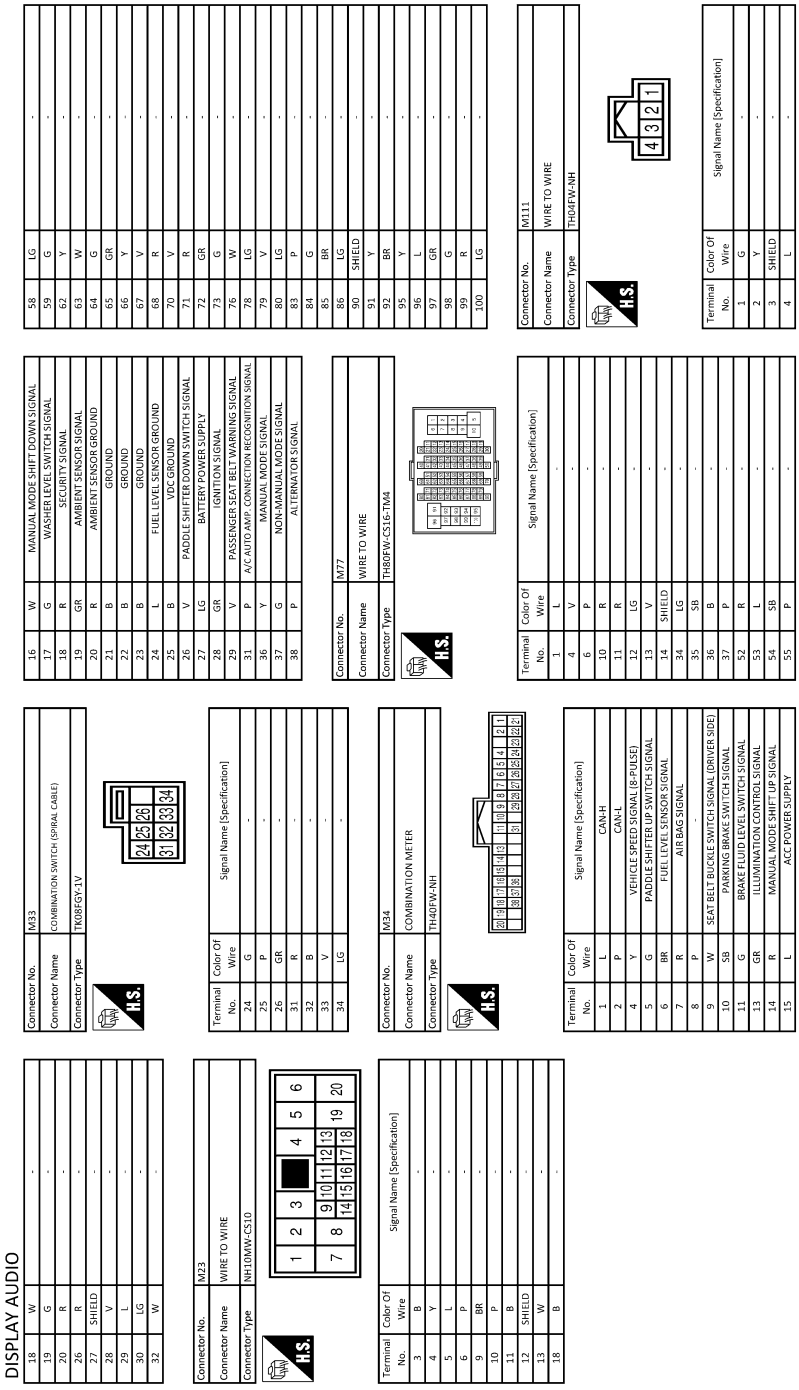

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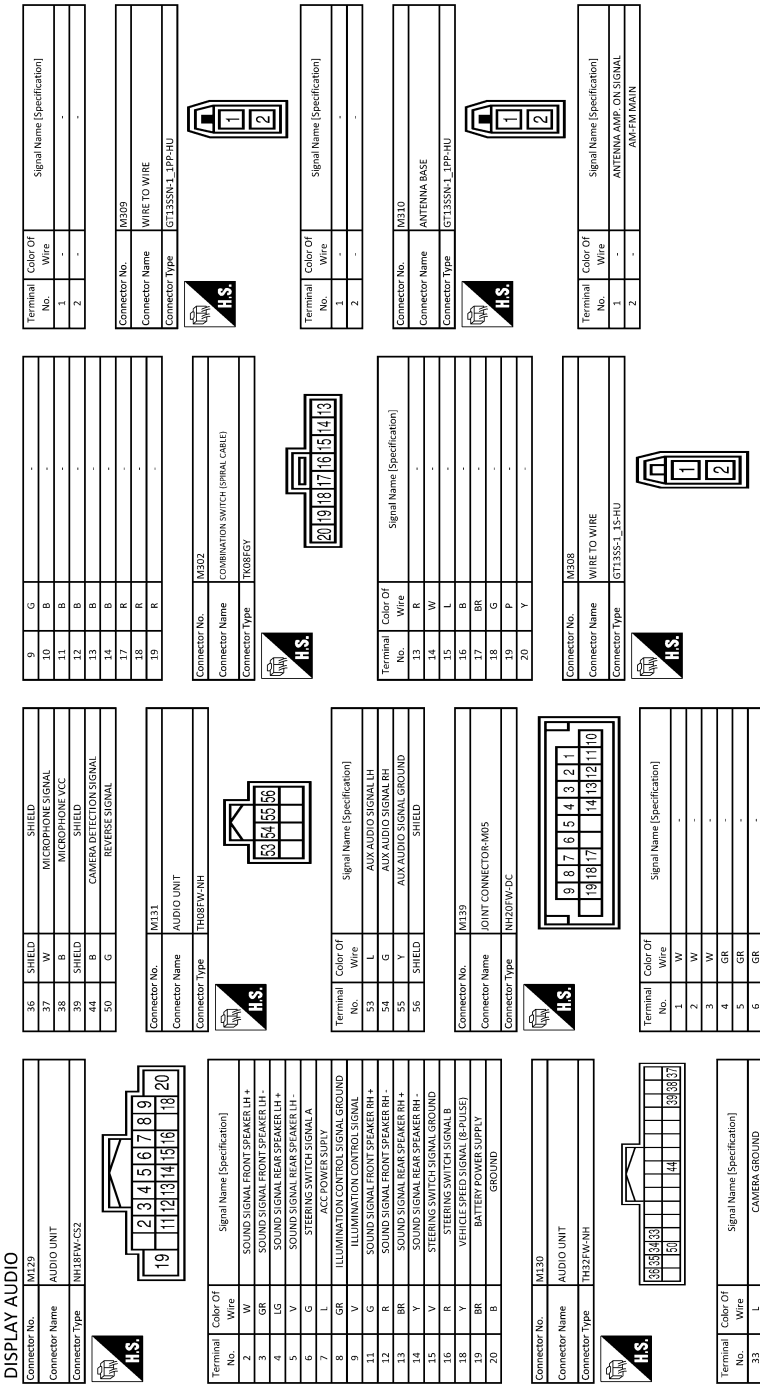

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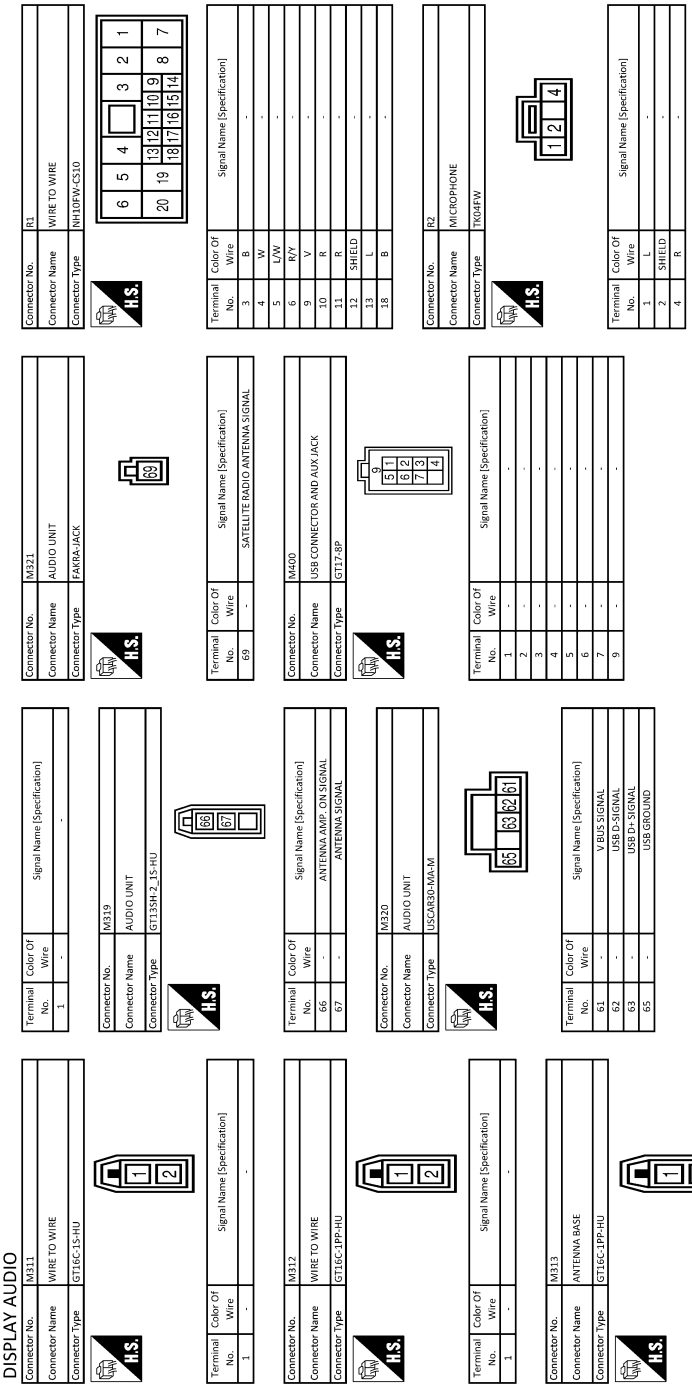

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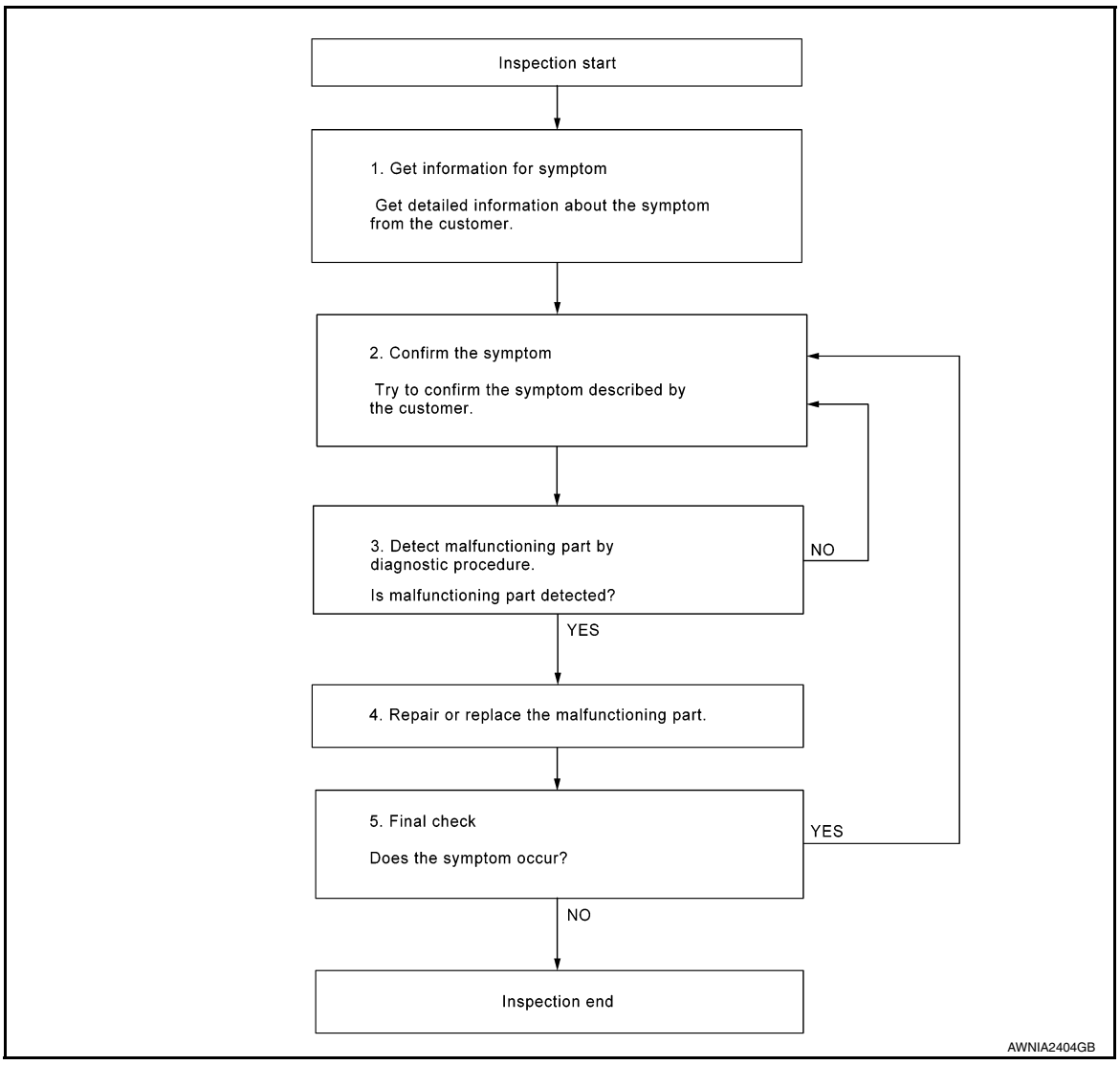
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000012202460

OVERALL SEQUENCE



DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2.

2.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected. Refer to AV-46, "Symptom Table".

>> GO TO 3.

3.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

Is malfunctioning part detected?

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

4. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure.

>> GO TO 5.

5. FINAL CHECK

Refer to confirmed symptom in step 2, and make sure that the symptom is not detected.

Has the symptom been repaired?

YES >> INSPECTION END
NO >> GO TO 2.

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

AUDIO UNIT

AUDIO UNIT : Diagnosis Procedure

INFOID:0000000012202461

1.CHECK FUSE

Check that the following fuses are not blown.

Signal name	Fuse No.
Battery power supply	34
ACC power supply	19

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between audio unit connector and ground.

Audio unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M129	7		Ignition switch: ON	Battery voltage
	19		Ignition switch: OFF	

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

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

Audio unit		Ground	Continuity
Connector	Terminal		
M129	20		Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace harness or connectors.

MICROPHONE SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000012202462

1.CHECK MICROPHONE SIGNAL CIRCUIT CONTINUITY

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

Audio unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	
M130	37	R2	1	Existed
	38		4	
	39		2	

4. Check continuity between audio unit connector and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M130	37		Not existed
	38		

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness or connectors.

2.CHECK MICROPHONE VCC VOLTAGE

1. Connect audio unit connector .
2. Turn ignition switch ON.
3. Check voltage between terminals of audio unit connector .

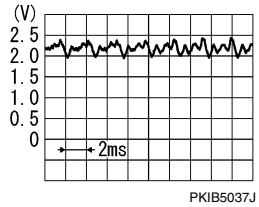
(+)		(–)	Voltage (Approx.)
Audio unit			
Connector	Terminal		
M130	38	Ground	5.0 V

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace audio unit. Refer to AV-50, "Removal and Installation".

3.CHECK MICROPHONE SIGNAL

1. Connect microphone connector.
2. Check signal between terminals of audio unit connector .

(+)		(–)	Condition	Reference value
Audio unit				
Connector	Terminal			
M130	37	Ground	While speaking into microphone.	

PKIB5037J

Is the inspection result normal?

YES >> Replace audio unit. Refer to AV-50, "Removal and Installation".
NO >> Replace microphone. Refer to AV-54, "Removal and Installation".

STEERING SWITCH SIGNAL A CIRCUIT

Description

INFOID:0000000012202463

Transmits the steering switch signal to audio unit.

Diagnosis Procedure

INFOID:0000000012202464

1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

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

Audio unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M129	6	M33	24	Existed

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

Audio unit		Ground	Continuity
Connector	Terminal		
M129	6		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-15, "Removal and Installation".

3.CHECK AUDIO UNIT VOLTAGE

1. Connect audio unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector.

Probe				Voltage (Approx.)
(+)		(−)		
Audio unit				
Connector	Terminal	Connector	Terminal	
M129	6	M129	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace audio unit. Refer to AV-50, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-38, "Component Inspection".

Is the inspection result normal?

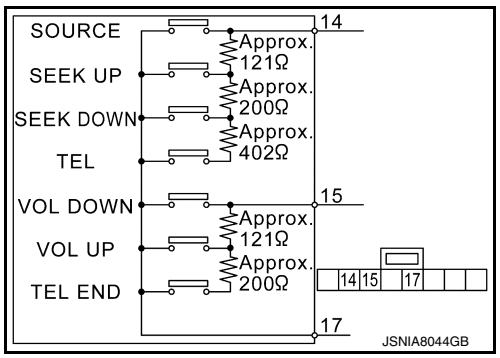
YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-55, "Removal and Installation".

Component Inspection

INFOID:0000000012202465

Measure the resistance between the steering switch connector.

Steering switch Terminal		Condition	Resistance (Approx.) Ω
14	17	TEL switch ON	716 – 730
		SEEK DOWN switch ON	318 – 324
		SEEK UP switch ON	120 – 122
		SOURCE switch ON	0
15		TEL END switch ON	318 – 324
		VOL UP switch ON	120 – 122
		VOL DOWN switch ON	0



STEERING SWITCH SIGNAL B CIRCUIT

Description

INFOID:0000000012202466

Transmits the steering switch signal to audio unit.

Diagnosis Procedure

INFOID:0000000012202467

1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

Audio unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M129	16	M33	31	Existed

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

Audio unit		Ground	Continuity
Connector	Terminal		
M129	16		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-15, "Removal and Installation".

3.CHECK AUDIO UNIT VOLTAGE

1. Connect audio unit connector and spiral cable connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector.

Probe				Voltage (Approx.)
(+)		(−)		
Audio unit				
Connector	Terminal	Connector	Terminal	
M129	16	M129	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace audio unit. Refer to AV-50, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-40, "Component Inspection".

Is the inspection result normal?

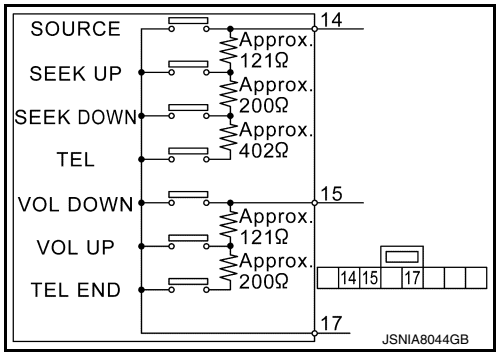
YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-55, "Removal and Installation".

Component Inspection

INFOID:0000000012202468

Measure the resistance between the steering switch connector.

Steering switch Terminal		Condition	Resistance (Approx.) Ω
14	17	TEL switch ON	716 – 730
		SEEK DOWN switch ON	318 – 324
		SEEK UP switch ON	120 – 122
		SOURCE switch ON	0
15		TEL END switch ON	318 – 324
		VOL UP switch ON	120 – 122
		VOL DOWN switch ON	0



STEERING SWITCH SIGNAL GND CIRCUIT

Description

INFOID:0000000012202469

Transmits the steering switch signal to audio unit.

Diagnosis Procedure

INFOID:0000000012202470

1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

Audio unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M129	15	M33	33	Existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-15, "Removal and Installation".

3.CHECK GROUND CIRCUIT

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

Audio unit		Ground	Continuity
Connector	Terminal		
M129	15		Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace audio unit. Refer to AV-50, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-42, "Component Inspection".

Is the inspection result normal?

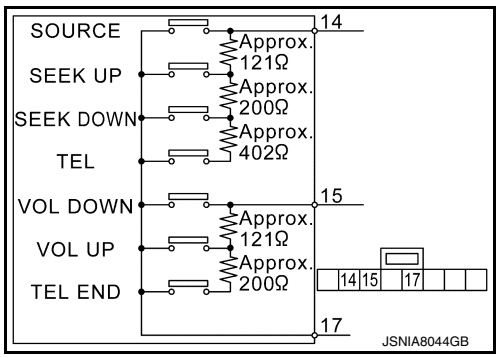
YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-55, "Removal and Installation".

Component Inspection

INFOID:0000000012202471

Measure the resistance between the steering switch connector.

Steering switch Terminal		Condition	Resistance (Approx.) Ω
14	17	TEL switch ON	716 – 730
		SEEK DOWN switch ON	318 – 324
		SEEK UP switch ON	120 – 122
		SOURCE switch ON	0
15		TEL END switch ON	318 – 324
		VOL UP switch ON	120 – 122
		VOL DOWN switch ON	0



CAMERA IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000012202472

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

Diagnosis Procedure

INFOID:0000000012202473

1.CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

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

Audio unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M130	34	D111	1	Existed

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

Audio unit		Ground	Continuity
Connector	Terminal		
M130	34		Not existed

Is inspection result normal?

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

2.CHECK VOLTAGE CAMERA POWER SUPPLY

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

(+)		(−)	Condition	Voltage (Approx.)
Audio unit				
Connector	Terminal			
M130	34	Ground	Shift position is in “R”.	6.2 V

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace audio unit. Refer to AV-50, "Removal and Installation".

3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

Audio unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M130	35	D111	3	Existed

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

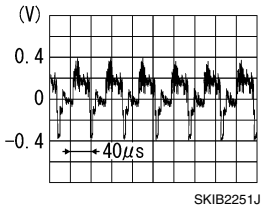
Audio unit		Ground	Continuity
Connector	Terminal		
M130	35		Not existed

Is inspection result normal?

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

4. CHECK CAMERA IMAGE SIGNAL

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

(+)		(−)	Condition	Standard	Reference value
Audio unit					
Connector	Terminal				
M130	35	Ground	At camera image is displayed.	Waveform according to camera image is input.	

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Is inspection result normal?

YES >> Replace audio unit. Refer to AV-50, "Removal and Installation".
NO >> Replace rear view camera. Refer to AV-56, "Removal and Installation".

SYMPTOM DIAGNOSIS

AUDIO SYSTEM

Symptom Table

INFOID:0000000012202474

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	Audio unit	Malfunction in audio unit. Refer to AV-35, "AUDIO UNIT : Diagnosis Procedure".
No sound comes out or the level of the sound is low.	No sound from all speakers.	Audio unit power supply and ground circuits malfunction. Refer to AV-35, "AUDIO UNIT : Diagnosis Procedure".
	Only a certain speaker (front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH, etc.) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between audio unit and speaker. • Malfunction in speaker. Refer to: • Malfunction in audio unit.
Noise is mixed with audio.	Noise comes out from all speakers.	Malfunction in audio unit.
	Noise comes out only from a certain speaker (front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH, etc.).	• Poor connector connection of speaker. • Sound signal circuit malfunction between audio unit and speaker. • Malfunction in speaker. • Poor Installation of speaker (e.g. backlash and looseness). Refer to: • Malfunction in audio unit.
	Noise is mixed with radio only (when the vehicle hits a bump or while driving over bad roads)	Poor connector connection of antenna or antenna feeder.
No radio reception or poor reception.	• Other audio sounds are normal. • Any radio station cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	• Antenna amp. ON signal circuit malfunction. • Poor connector connection of antenna or antenna feeder.
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.

RELATED TO HANDS-FREE PHONE

Symptoms	Check items	Possible malfunction location / Action to take
Does not recognize cellular phone connection.	Repeat the registration of cellular phone.	Audio unit malfunction. Replace audio unit. Refer to AV-50, "Removal and Installation".
Hands-free phone cannot be activated.	• Hands-free phone operation can be made, but the communication cannot be established. • Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.	
Originating sound is not heard by the other party with hands-free phone communication.	Voice operation does work.	
	Voice operation does not work.	Microphone signal circuit malfunction. Refer to AV-36, "Diagnosis Procedure".
The other party's voice cannot be heard by hands-free phone.	—	TEL voice sound signal circuits malfunction.

RELATED TO CAMERA

Symptoms	Check items	Probable malfunction location
Camera image is not shown.	The guide line display is normal.	Camera image signal circuit. Refer to AV-44, "Diagnosis Procedure".
Camera image does not switch.	“Reverse” is not turned ON on “Vehicle Signals” screen of “Confirmation/Adjustment”.	Reverse signal circuit malfunction.
	“Reverse” is turned ON on “Vehicle Signals” screen of “Confirmation/Adjustment”.	Replace audio unit. Refer to AV-50, "Removal and Installation".

RELATED TO STEERING SWITCH

Symptoms	Probable malfunction location / Action to take
None of the steering switch operations work.	Steering switch signal ground circuit. Refer to AV-42, "Diagnosis Procedure".
Only specified switch cannot be operated.	Replace steering switch. Refer to AV-55, "Removal and Installation".
“SOURCE”, “SEEK UP”, “SEEK DOWN” and “TEL” switches are not operated.	Steering switch signal A circuit. Refer to AV-38, "Diagnosis Procedure".
”VOL UP”, “VOL DOWN” and “TEL END” switches are not operated.	Steering switch signal B circuit. Refer to AV-40, "Diagnosis Procedure".

RELATED TO USB

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

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

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

RELATED TO AUXILIARY INPUT

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

Symptoms	Check items	Probable malfunction location
No voice sound is heard when AUX mode is selected.	Voice sound is heard when other modes are selected.	• USB and AUX harness • USB connector and AUX jack

NORMAL OPERATING CONDITION

Description

INFOID:0000000012202475

NOTE:
Audio operation information, refer to Owner's Manual.

RELATED TO AUDIO

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

NOTE:

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

Symptoms	Cause and counter measure
Cannot play	Check that the CD was inserted correctly.
	Check that the CD is scratched or dirty.
	Check that there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.
	The player will play correctly after it returns to the normal temperature if there is a temperature increase error.
	Only the music CD files (CD-DA data) will be played if there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD.
	Files with extensions other than “.MP3”, “.WMA”, “.mp3”, or “.wma” cannot be played.
	Check that the finalization process, such as session close and disc close, is done for the disc.
	Check that the CD is protected by copyright.
Poor sound quality	Check that 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 multi session disc, some time may be required before the music starts playing.
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files might not play in the desired order.
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.
Buzz/rattle sound from speaker	The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle.

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

NOTE:

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

RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection (No connection is displayed on the display at the guide).	Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to “RELATED TO HANDS-FREE PHONE (Check Compatibility)” in AV-46, "Symptom Table".
Cannot use hands-free phone.	Customer will not be able to use a hands-free phone under the following conditions: • The vehicle is outside of the telephone service area. • The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. • The cellular phone is locked to prevent it from being dialed. **NOTE:** While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality.	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

REMOVAL AND INSTALLATION

AUDIO UNIT

Removal and Installation

INFOID:0000000012202476

REMOVAL

1. Remove cluster lid C. Refer to IP-13, "Removal and Installation".
2. Remove audio unit screws.
3. Disconnect audio unit connectors to remove audio unit and brackets as a single unit.
4. Remove brackets screws to remove audio unit.

INSTALLATION

Install in the reverse order of removal.

FRONT DOOR SPEAKER

Removal and Installation

INFOID:0000000012202477

REMOVAL

1. Remove front door finisher. Refer to INT-13, "Removal and Installation".
2. Remove front door speaker screws, then disconnect front door speaker connector and remove front door speaker.

INSTALLATION

Install in the reverse order of removal.

REAR DOOR SPEAKER

Removal and Installation

INFOID:0000000012202478

REMOVAL

1. Remove rear door finisher. Refer to INT-16, "Removal and Installation".
2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

INSTALLATION

Install in the reverse order of removal.

TWEETER

Removal and Installation

INFOID:0000000012202479

REMOVAL

1. Remove front pillar garnish. Refer to INT-18, "FRONT PILLAR GARNISH : Removal and Installation".
2. Remove tweeter clip, then disconnect tweeter connector and remove tweeter.

INSTALLATION

Install in the reverse order of removal.

MICROPHONE

Removal and Installation

INFOID:0000000012202480

REMOVAL

1. Remove headlining. Refer to INT-27, "NORMAL ROOF : Removal and Installation" (normal roof) or INT-30, "SUNROOF : Removal and Installation" (sunroof).
2. Remove microphone connector and pawl to remove microphone.

INSTALLATION

Install in the reverse order of removal.

STEERING SWITCH

Exploded View

INFOID:0000000012202481

Refer to SR-12, "Exploded View".

Removal and Installation

INFOID:0000000012202482

REMOVAL

Refer to ST-9, "Removal and Installation".

INSTALLATION

Install in the reverse order of removal.

REAR VIEW CAMERA

Removal and Installation

INFOID:0000000012202483

REMOVAL

1. Remove back door lower finisher. Refer to INT-39, "BACK DOOR LOWER FINISHER : Removal and Installation".
2. Remove connector to remove rear view camera.

INSTALLATION

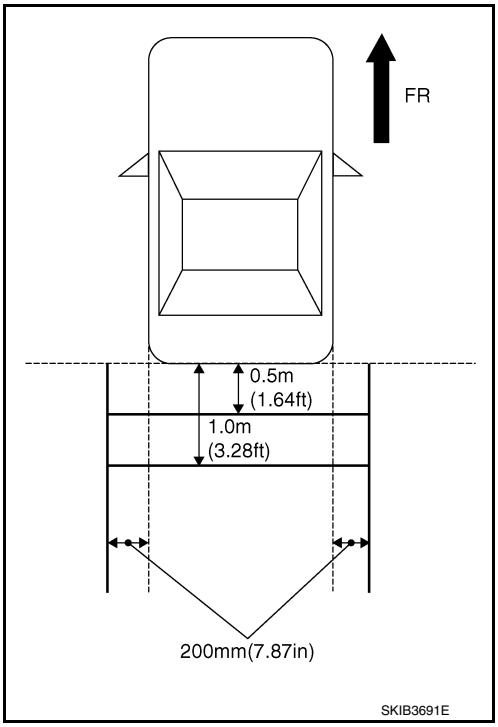
Install in the reverse order of removal.

Adjustment

INFOID:0000000012202484

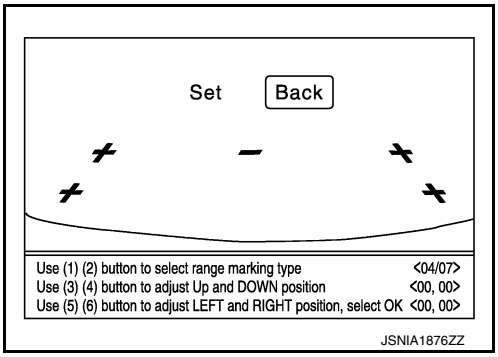
Adjust the guide line position if the guide line position is shifted after installing the rear view camera.

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 “Camera system” mode of Confirmation / Adjustment mode.



3. Press “1” or “2” switches, and then select the guiding line pattern so that its angle is aligned with the correction line of the rear of the vehicle.

Selected pattern : 7



4. Make fine adjustment to the correction line of the rear of the vehicle with “3”, “4”, “5” or “6” switches so that its position is aligned with the guiding line. Press “ENTER/SETTING” switch and record the adjusted guiding line position to the camera control unit.

Up/Down adjustment range : (–20) – (20)

Left/Right adjustment range : (–20) – (20)

CAUTION:

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

USB CONNECTOR AND AUX JACK

Removal and Installation

INFOID:0000000012202485

REMOVAL

1. Remove cluster tray. Refer to IP-13, "Removal and Installation".
2. Push the pawl from the back of cluster tray to remove USB connector and AUX jack.

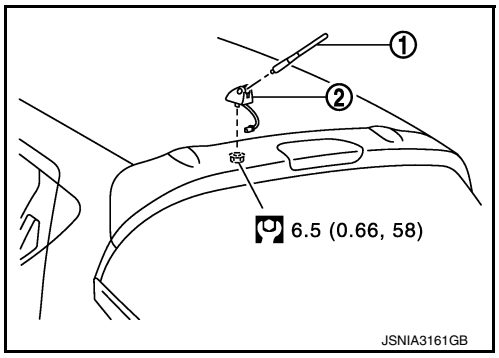
INSTALLATION

Install in the reverse order of removal.

ANTENNA BASE

Exploded View

INFOID:0000000012202486



1. Antenna rod
2. Antenna base

: N·m (kg-m, in-fb)

Removal and Installation

INFOID:0000000012202487

REMOVAL

1. Remove headlining. Refer to INT-27, "NORMAL ROOF : Removal and Installation" (normal roof) or INT-30, "SUNROOF : Removal and Installation" (sunroof).
2. Disconnect antenna feeder connector.
3. Remove nut to remove antenna base.

INSTALLATION

Install in the reverse order of removal.

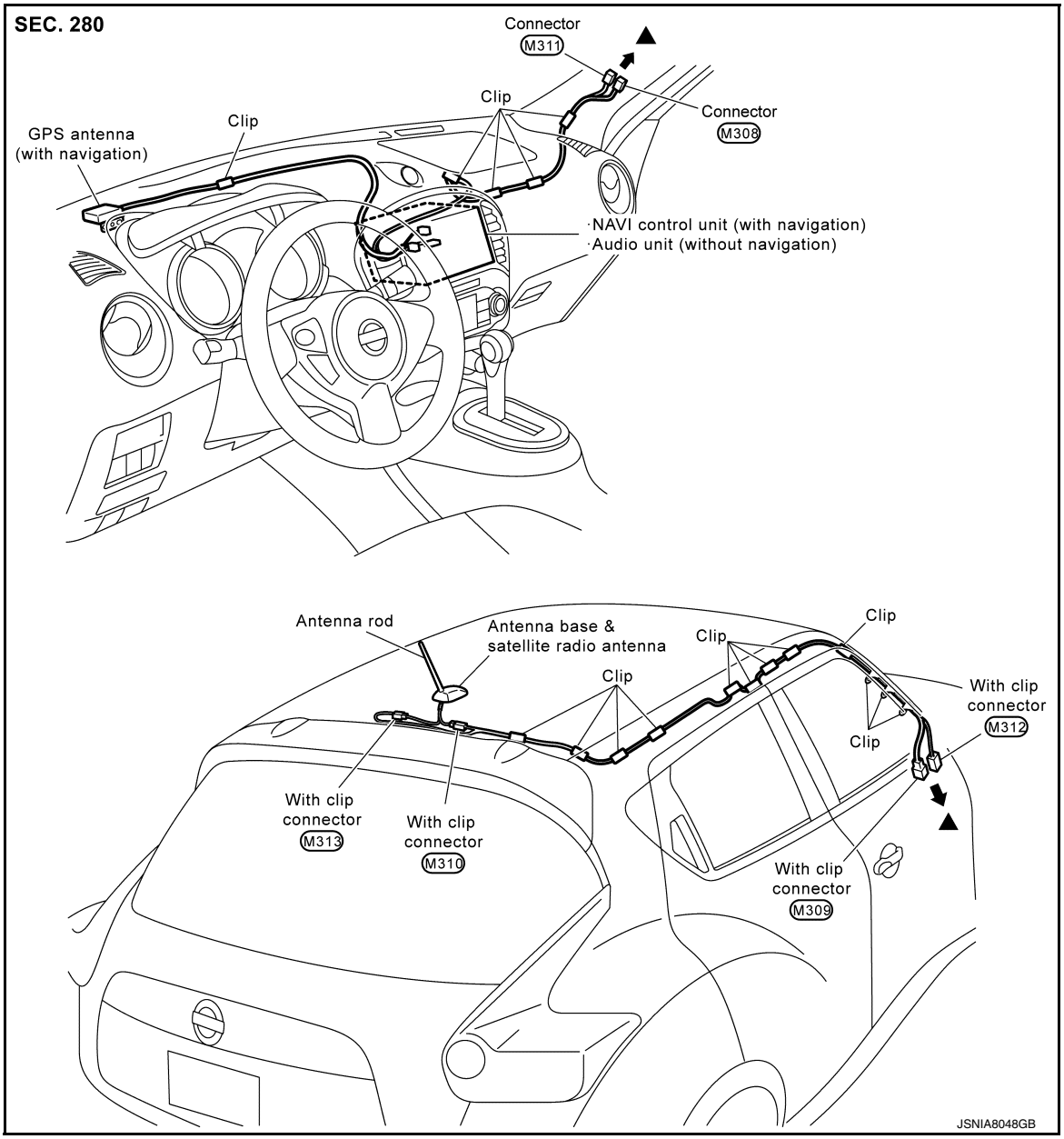
CAUTION:

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

ANTENNA FEEDER

Feeder Layout

INFOID:0000000012202488



▲: Indicates that the part is connected at points with same symbol in actual vehicle.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012202489

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

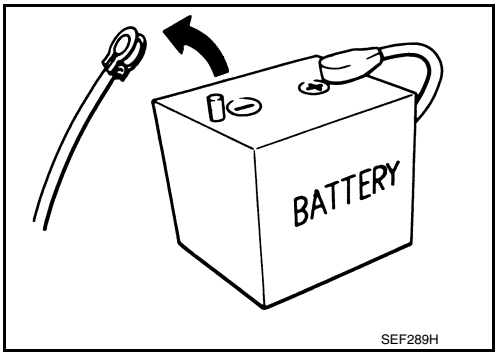
Precautions for Removing Battery Terminal

INFOID:0000000012947018

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		
YD25DDTi	: 2 minutes		



NOTE:

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

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

Precaution for Trouble Diagnosis

INFOID:0000000012202491

AV COMMUNICATION SYSTEM

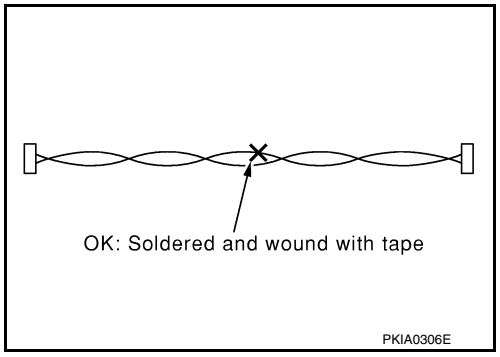
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

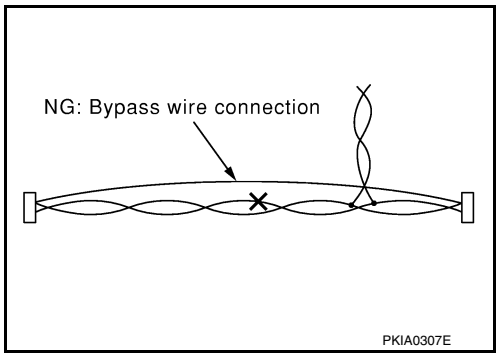
INFOID:0000000012202492

AV COMMUNICATION SYSTEM

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



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

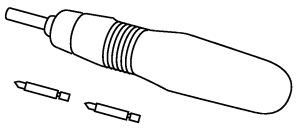


PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000012202493

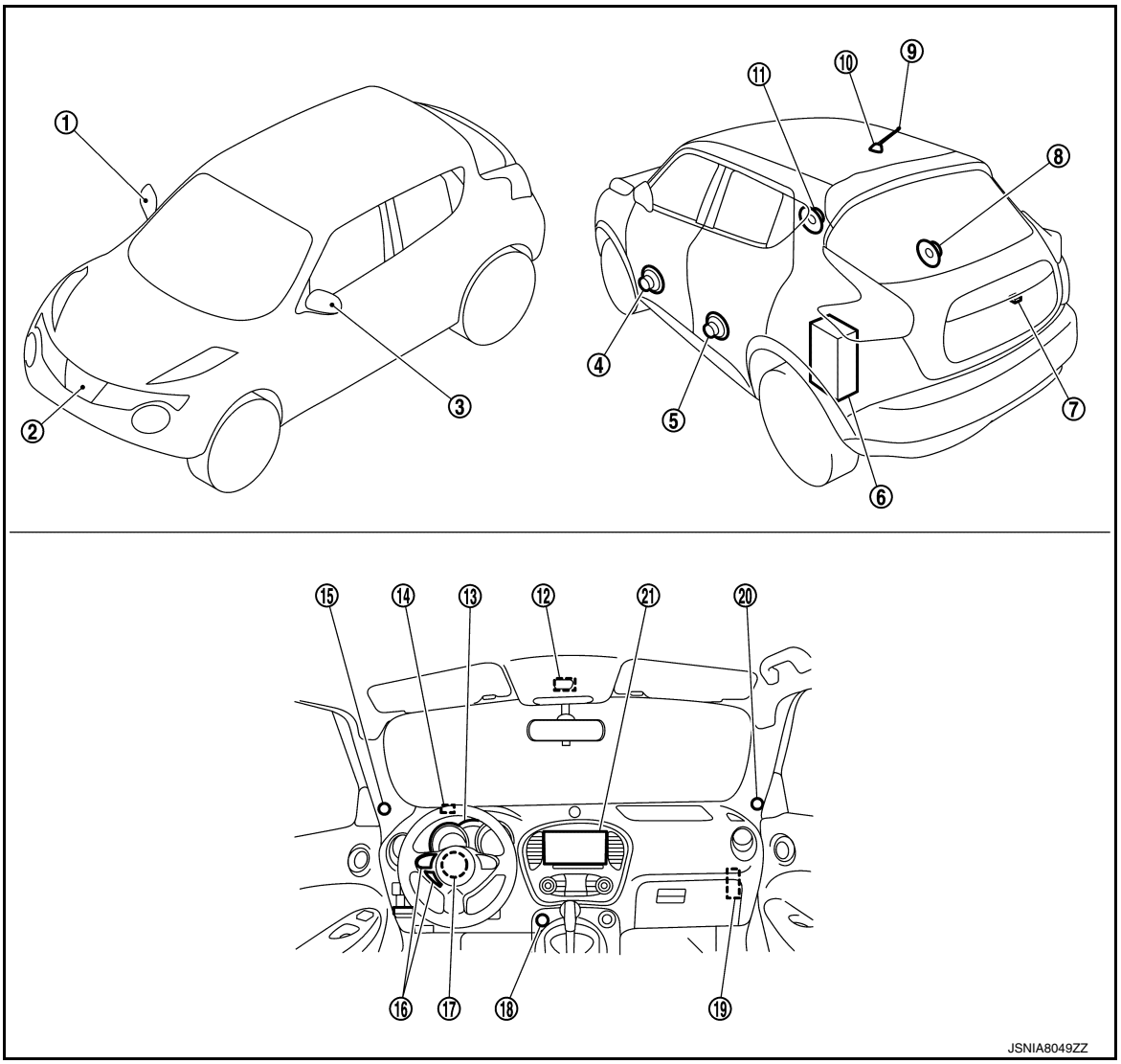
Tool name	Description
Power tool  PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000012202494



1. Side camera RH
2. Front camera
3. Side camera LH
4. Front door speaker LH
5. Rear door speaker LH
6. Woofer
7. Rear camera
8. Rear door speaker RH
9. Antenna rod
10. Antenna base (antenna amp. and satellite radio antenna)
11. Front door speaker RH
12. Microphone
13. Combination meter
14. GPS antenna
15. Tweeter LH
16. Steering switch
17. Steering angle sensor
18. USB connector and AUX jack
19. Around view monitor control unit
20. Tweeter RH
21. NAVI control unit

Component Description

INFOID:0000000012202495

Part name	Description
NAVI control unit	• Operational switch of navigation system and audio system are integrated. • Includes the audio, hands-free phone, navigation, satellite radio, rear view monitor, USB connection and AUX connection functions. • Map data can be loaded from the SD-card inserted in the built-in SD-card slot. • Sound signals are output to each speaker and woofer. • It inputs the illumination signals that are required for the display dimming control. • It inputs the signals for driving status recognition (vehicle speed, reverse and parking brake). • Touch panel function can be operated for each system by touching a display directly. • Camera image signal is input from around view monitor control unit.
Map SD-card	A collection of Map data.
Front door speaker	• Outputs sound signal from NAVI control unit. • Outputs mid and low range sounds.
Tweeter	• Outputs sound signal from NAVI control unit. • Outputs high range sounds.
Rear door speaker	• Outputs sound signal from NAVI control unit. • Outputs high, mid and low range sounds.
Woofer	• Woofer amp. ON signal is input from NAVI control unit. • Outputs sound signal from NAVI control unit. • Outputs low range sounds.
Steering switch	• Operations for audio and hands-free phone are possible. • Steering switch signal (operation signal) is output to NAVI control unit.
Microphone	• Used for hands-free phone operation. • Microphone signal is transmitted to NAVI control unit. • Power (microphone VCC) is supplied from NAVI control unit.
GPS antenna	GPS signal is received and transmitted to NAVI control unit.
Antenna base	A radio antenna base integrated with radio antenna amp. and satellite radio antenna is adopted. ANTENNA AMP. • Radio signal received by rod antenna is amplified and transmitted to NAVI control unit. • Power (antenna amp. ON signal) is supplied from NAVI control unit. SATELLITE RADIO ANTENNA • Receives satellite radio waves and outputs it to NAVI control unit.
Around view monitor control unit	• It supplies power to front camera, rear camera, and side camera. And then it superimposes the images from each camera and outputs them to NAVI control unit. • Superimpose the guiding line and predicted course line to the camera image that outputs to NAVI control unit. • It performs the reception/transmission of communication signal with each camera.
Combination meter	Receives the buzzer output signal from the around view monitor control unit via CAN communication.
Front camera	• It inputs the power supply from around view monitor control unit and outputs the image of the vehicle front to around view monitor control unit. • It performs the reception/transmission of the communication signal with around view monitor control unit.
Rear camera	• It inputs the power supply from around view monitor control unit and outputs the image of the vehicle rear to around view monitor control unit. • It performs the reception/transmission of the communication signal with around view monitor control unit.

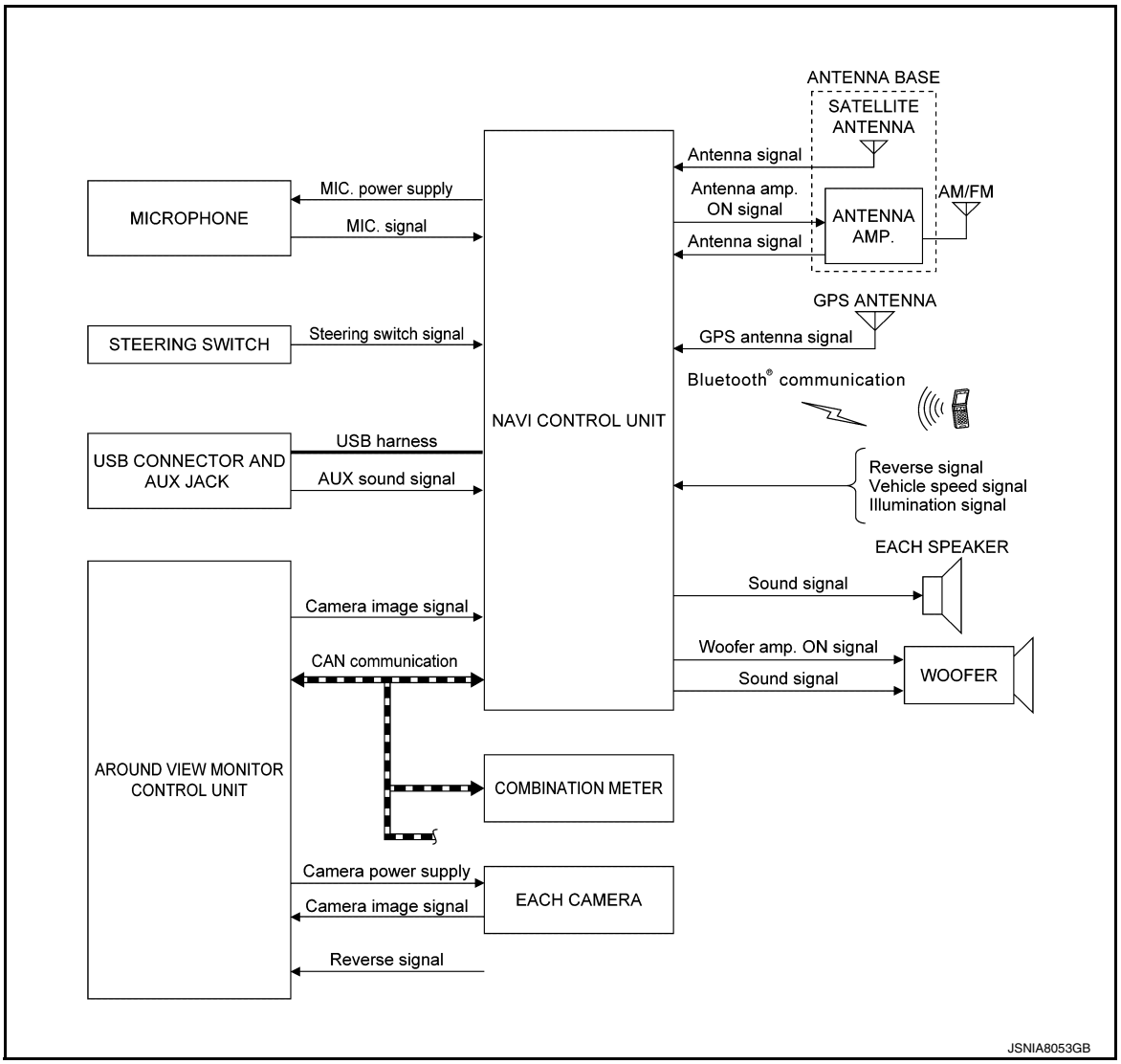
Part name	Description
Side camera LH	• It inputs the power supply from around view monitor control unit and outputs the image of the vehicle LH to around view monitor control unit. • It performs the reception/transmission of the communication signal with around view monitor control unit.
Side camera RH	• It inputs the power supply from around view monitor control unit and outputs the image of the vehicle RH to around view monitor control unit. • It performs the reception/transmission of the communication signal with around view monitor control unit.
Steering angle sensor	It is connected to the around view monitor control unit and transmits the steering angle sensor signal via CAN communication.
USB connector and AUX jack	• Sound signal of auxiliary input is transmitted to NAVI control unit. • Sound signal of USB input is transmitted to NAVI control unit.

SYSTEM

System Description

INFOID:0000000012202496

SYSTEM DIAGRAM



DESCRIPTION

Refer to Owner's Manual for navigation and audio system operating instructions.
Audio function and display are built into NAVI control unit.
This navigation has the following functions.

- Map data on SD card.
- Full support for playback of music from iPod®, iPhone, and USB device.
- High resolution full color touch panel 5.8 inch "QVGA" display.
- FM/AM digital tuner.
- USB mass storage connection.
- Satellite radio.
- Bluetooth® audio streaming.
- RDS
- POI Support is included. User POI download.
- Hands-free phone system.
- Around view monitor function.

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

NAVIGATION SYSTEM FUNCTION

Description

- The navigation system can be operated by control panel of the NAVI control unit and display (touch panel) of the NAVI control unit.
- Guide sound during the operation of the navigation system is output from NAVI control unit to front speaker.
- NAVI control unit calculates the vehicle location based on the signals from GYRO (angle speed sensor), vehicle sensor, and GPS satellite, as well as the map data from map SD card. It is displayed on display of the NAVI control unit.

POSITION DETECTION PRINCIPLE

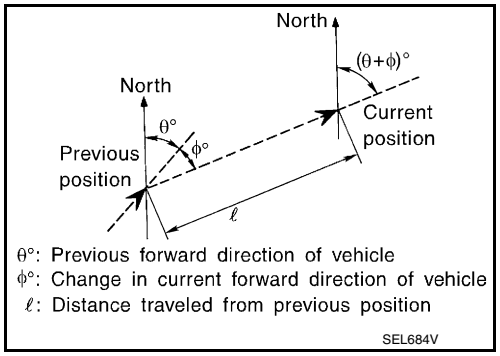
The navigation system periodically calculates the vehicle's current position according to the following three signals:

- Travel distance of the vehicle as determined by the vehicle speed sensor
- Turning angle of the vehicle as determined by the gyroscope (angular velocity sensor)
- Direction of vehicle travel as 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 read from the map SD card (map-matching), and indicated on the screen as a vehicle mark. More accurate data is judged and used by comparing vehicle position detection results found by the GPS with the result by map-matching.

The current vehicle position will be calculated by detecting the distance the vehicle moved from the previous calculation point and its direction.

- Travel distance
  Travel distance calculations are based on the vehicle speed sensor input signal. Therefore, the calculation may become incorrect as the tires wear down. To prevent this, an automatic distance correction function has been adopted.
- Travel direction
  Change in the travel direction of the vehicle is calculated by a gyroscope (angular velocity sensor) and a GPS antenna (GPS information). They have both advantages and disadvantages.



Type	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	Can detect the vehicle's turning angle quite accurately.	Direction errors may accumulate when vehicle is driven for long distances without stopping.
GPS antenna (GPS information)	Can detect the vehicle's travel direction (North/South/East/West).	Correct direction cannot be detected when vehicle speed is low.

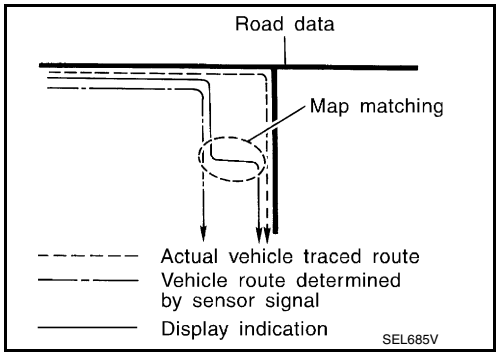
More accurate traveling direction is detected because priorities are set for the signals from these two devices according to the situation.

MAP-MATCHING

Map-matching compares a current location detected by the method in the “Location Detection Principle” with a road map data from map SD card.

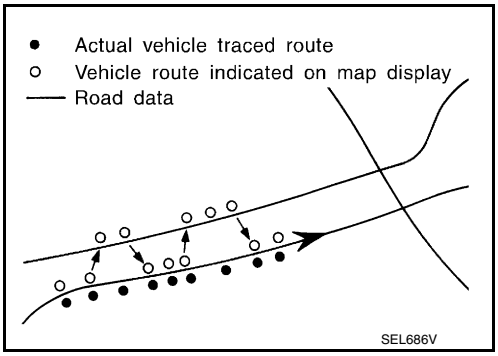
NOTE:

The road map data is based on data stored in the map SD card.

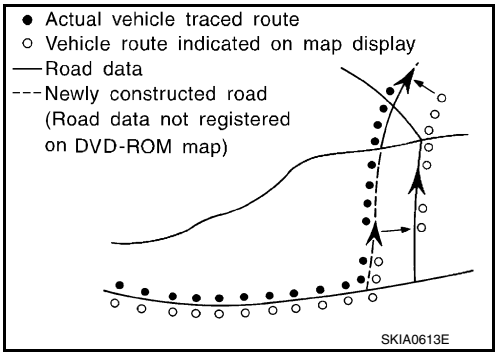


The vehicle position may not be corrected under the following circumstances and after driving for a certain time when GPS information is difficult to receive.

- In map-matching, alternative routes to reach the destination will be shown and prioritized, after the road on which the vehicle is currently driven has been judged and the vehicle mark has been repositioned.
  Alternative routes will be shown in different order of priority, and the incorrect road can be avoided if there is an error in distance and/or direction.
  They are of the same priority if two roads are running in parallel. Therefore, the vehicle mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road.



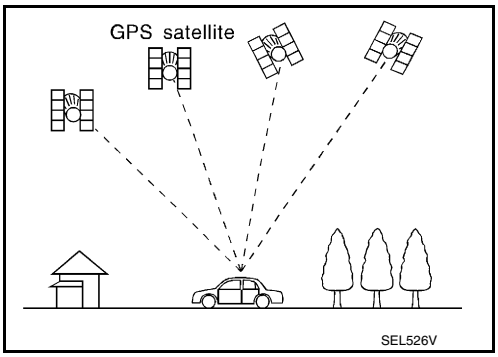
- Map-matching does not function correctly when a road on which the vehicle is driving is new and not recorded in the map SD card, or when road pattern stored in the map data and the actual road pattern are different due to repair.
  The map-matching function may find another road and position the vehicle mark on it when driving on a road not present in the map. Then, the vehicle mark may change to it when 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 read from the map SD card is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position and the position on the map.



GPS (Global Positioning System)

GPS (Global Positioning System) is developed for and is controlled by the US Department of Defense. The system utilizes GPS satellites (NAVSTAR), transmitting out radio waves while flying on an orbit around the earth at an altitude of approximately 21,000 km (13,049 mile).

The receiver calculates the travel position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves that four or more GPS satellites transmit (three-dimensional positioning). The GPS receiver calculates the travel position in two dimensions (latitude/longitude) with the previous altitude data if the GPS receiver receives only three radio waves (two-dimensional positioning). GPS position correction is not performed while stopping the vehicle.



Accuracy of the GPS will deteriorate under the following conditions:

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

NOTE:

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

AUXILIARY INPUT FUNCTION

- Sound can be output from an external device by connecting a device with USB connector and AUX jack.
- AUX sound signals are transmitted to each speaker via NAVI control unit.

USB CONNECTION FUNCTION

- iPod® or music files in USB memory can be played.

- Sound signals are transmitted from USB connector and AUX jack to the NAVI control unit and to each speaker.
- iPod® is recharged when connected to USB connector and AUX jack.

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

NOTE:

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

SPEED SENSITIVE VOLUME SYSTEM

- Volume level of this system gone up and down automatically in proportion to the vehicle speed.
- The control level can be selected by the customer.

HANDS-FREE PHONE SYSTEM

- Hands-free communication can be operated by connecting to cellular phone using Bluetooth®.
- Operation is performed by steering switch.
- Guide sound that is heard during operation is output from NAVI control unit to front speaker.

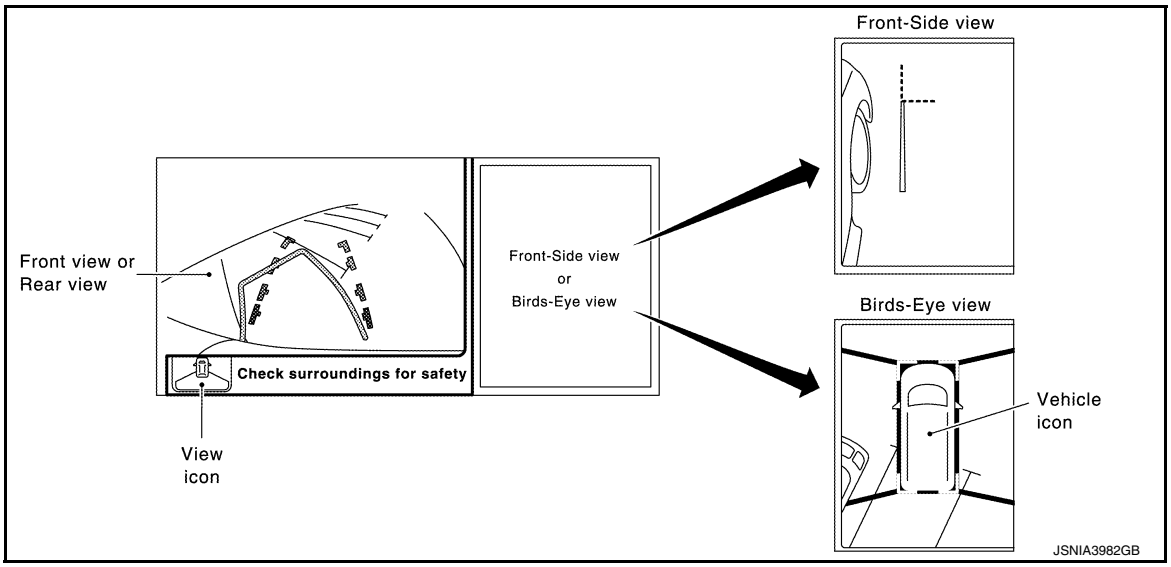
AROUND VIEW MONITOR FUNCTION

- This system is equipped with wide-angle cameras on the front and rear of the vehicle and on both right and left door mirrors. The images from front view, rear view, front-side view (RH side), and birds-eye view that shows the view from the top of the vehicle are displayed to monitor the vehicle surroundings.
- Around view monitor control unit cuts out and expands the image received from each camera to create each view.
- In front view and rear view, the vehicle width, distance lines and predictive course lines are superimposed and displayed. In front-side view, the vehicle distance guiding line and vehicle width guiding line are displayed.
- The Birds-Eye view converts the images from 4 cameras into the overhead view and displays the status of the vehicle on display. The vehicle icon that are displayed on the Birds-Eye view display are rendered by around view monitor control unit.
- Moving Object Detection (MOD) is adopted that detects moving objects according to camera image and notifies the detection result to the driver.

Around View Monitor Screen

- Around view monitor combines and displays the travel direction view and “Birds-Eye view”, “Front-Side view”.
- Around view monitor control unit renders the view icon and warning message on display. Warning messages are displayed in the language set at the Navigation System settings.

Screen constitution

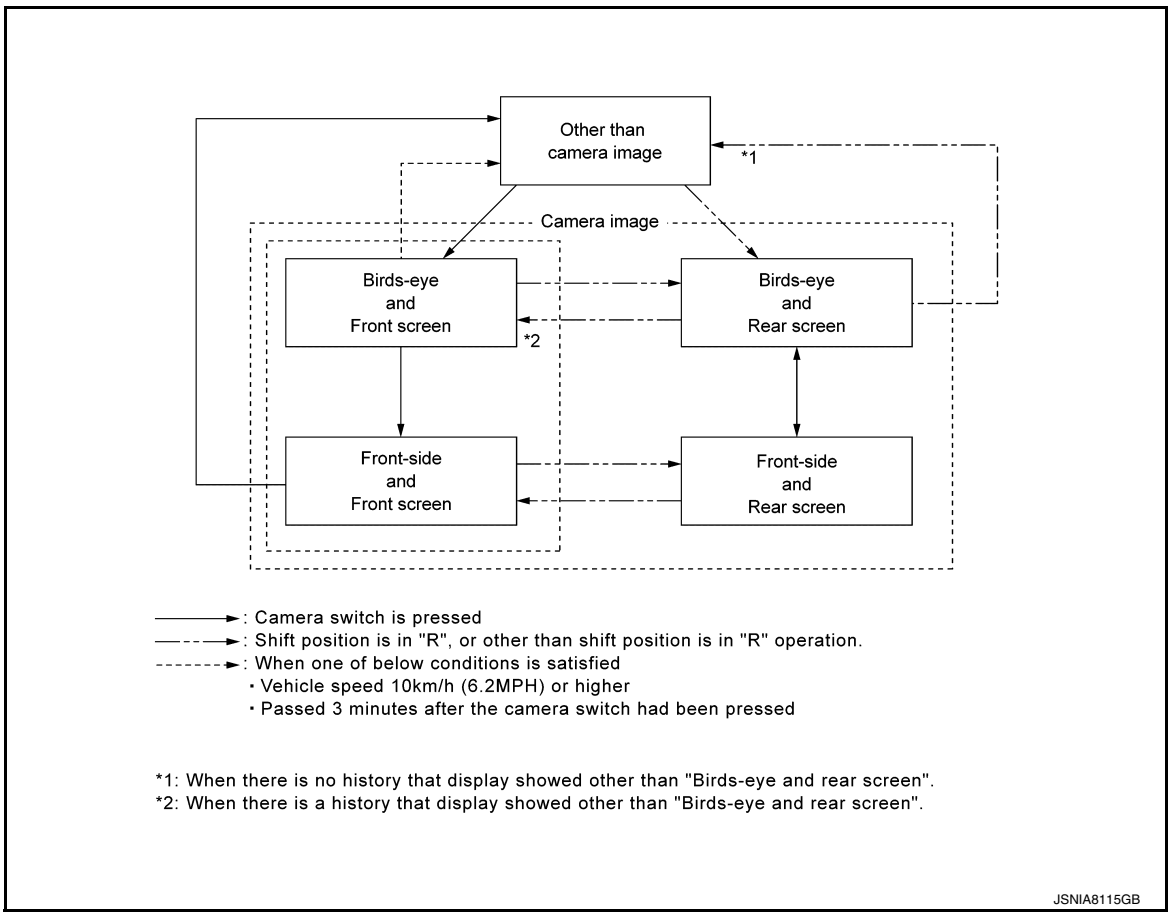


Operation Description

- Around view monitor operates by pressing the “CAMERA” switch or shifting the selector lever to the reverse position.
- When the selector lever is in any position other than the reverse position, the screen is switched to the around view monitor by pressing the “CAMERA” switch.

- The screen is switched to the around view monitor by shifting the selector lever to the reverse position.
- In the around view monitor, Birds-Eye view, Front-side view can be switched by pressing the “CAMERA” switch.
- The around view monitor is cancelled 3 minutes after pressing the “CAMERA” switch, and then the screen returns to the screen before displaying the around view monitor when selector lever is in a position other than the reverse position.
- In the Birds-Eye view, the invisible area is displayed to show the border of 4 camera images. In addition, red fixed lines are displayed in 4 corners of the vehicle icon. After turning the ignition switch ON, the invisible area is highlighted with yellow and red fixed lines are blink only once.

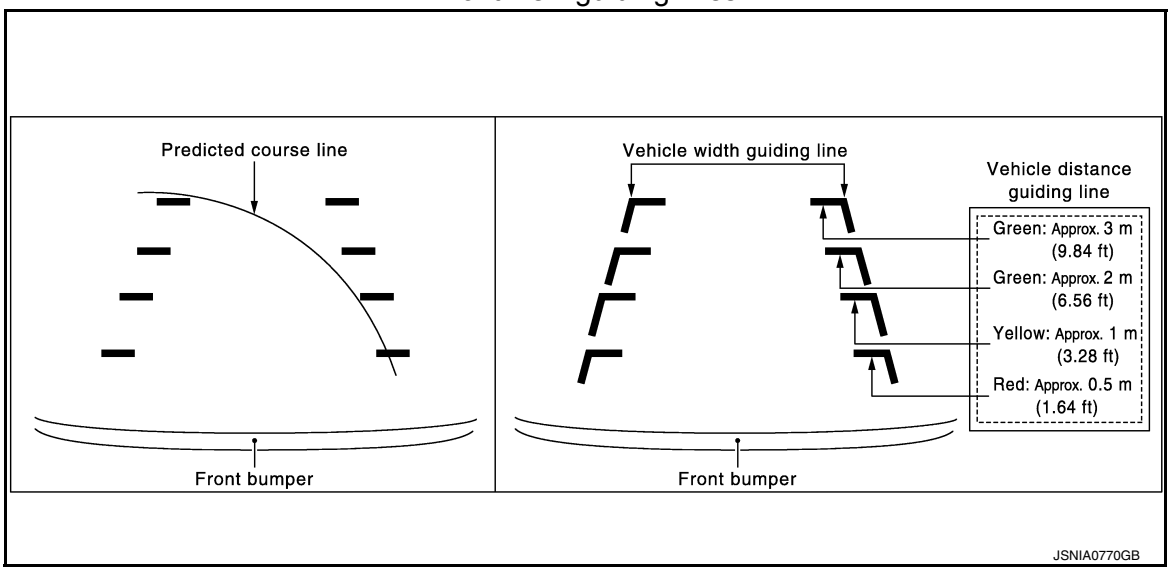
Around view monitor screen transition



FRONT VIEW

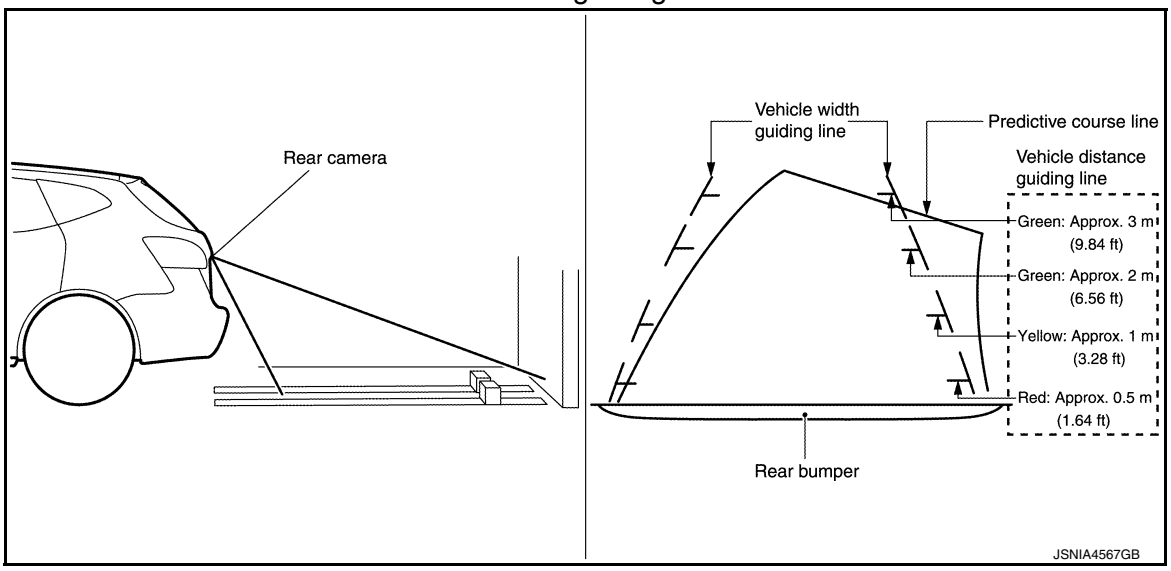
- The front view image is from the front camera.
- When the selector lever is in any position other than the reverse position, the front view is displayed by pressing the “CAMERA” switch. It improves the visibility of obstacles in front of the vehicle and helps driving by the images displayed from Birds-Eye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

Front view guiding lines



REAR VIEW
- The rear view image is from the rear camera.
- When the selector lever is in the reverse position, the rear view is displayed. Backing and parking are improved by the images from Birds-Eye view and Front-Side view.
- Display the vehicle width guiding line and vehicle distance guiding line in Rear view and display the predictive course line according to the steering angle.
- The predictive course line is not displayed at the steering neutral position.
- Around view monitor control unit receives the steering angle signal from steering angle sensor via CAN communication, and controls the direction and distance of the predictive course line.
- ON/OFF setting of predictive course line can be performed by CONSULT.

Rear view guiding lines



MOVING OBJECT DETECTION (MOD)
- Moving Object Detection (MOD) is a function that notifies the driver of the presence of moving objects in the area around the vehicle. MOD detects moving objects from camera image, illuminates frame of view in yellow whenever “MOD” icon is displayed in blue, and sounds buzzer in combination meter.
- MOD detects moving objects while camera image is displayed on display.
- Around view monitor control unit performs the following process when moving objects are detected.
- Superimposes yellow frame line on camera image signal and outputs them to display.
- Transmits buzzer output signal to combination meter via CAN communication so that buzzer in combination meter sounds.
- Around view monitor control unit detects moving objects from camera image according to an image recognition method called optical flow.

- MOD does not detect a background as a moving object when the vehicle moves (when whole screen moves), but detects a moving object when an actual moving object is displayed on screen.
- Color of “MOD” icon indicates whether or not MOD is operative. “MOD” icon is displayed as shown in the following table. When MOD is operative, “MOD” icon is displayed in blue. When MOD is not operative, “MOD” icon is displayed in gray or orange. MOD icon is not displayed when MOD is off (permanent off).
- MOD illuminates frame of view in yellow and sounds buzzer, when any of the conditions in the following table are satisfied.

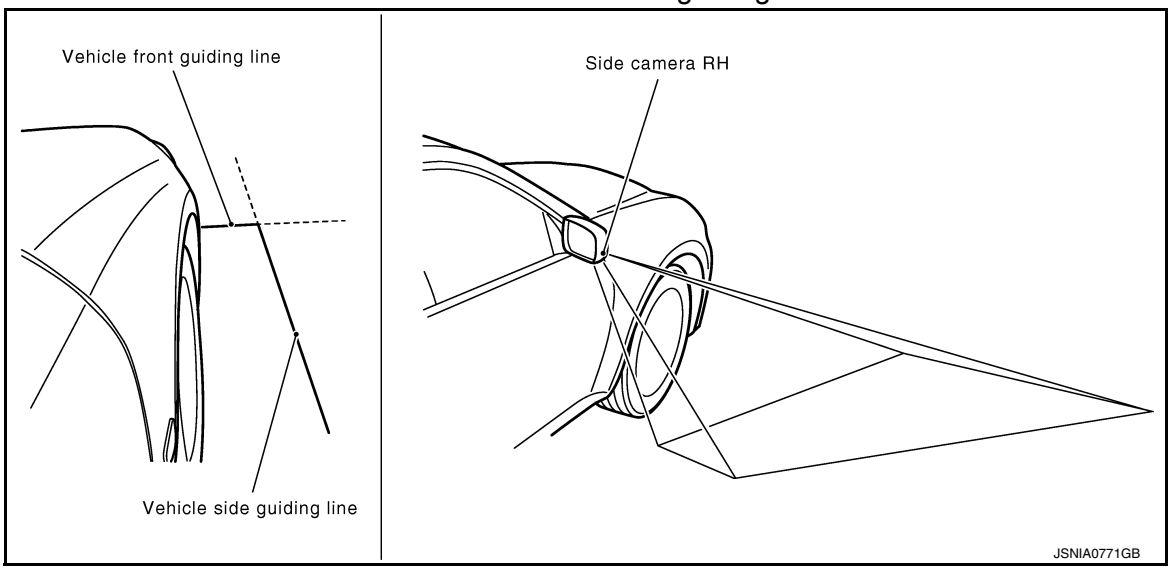
Operation Condition		View where MOD is operative
Shift position	Vehicle speed	
P and N position	0 km/h (0 MPH)	Birds-eye view
R position	0 km/h (0 MPH) or more - less than 8 km/h (5 MPH)	Rear view
D position	0 km/h (0 MPH) or more - less than 8 km/h (5 MPH)	Front view

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

Operation stop condition	“MOD” icon color	Note
Front or rear door is open.	Gray	Operation of Birds-eye view stops when door is open.
Back door is open.	Gray	Operation of Birds-eye view and rear view stops when back door is open.
Rear camera installation angle is incorrect	Gray	Operation of rear view stops when rear view camera installation angle is incorrect.
Front camera image is abnormal (Temporary)	Gray	Operation of Birds-eye view and front view stops when front camera image is temporarily abnormal.
Side camera image is abnormal (Temporary)	Gray	Operation of Birds-eye view stops when side camera image is temporarily abnormal.
Rear camera image is abnormal (Temporary)	Gray	Operation of Birds-eye view and rear view stops when rear camera image is temporarily abnormal.
System malfunction	Orange	Refer to AV-93, "DTC Index"

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

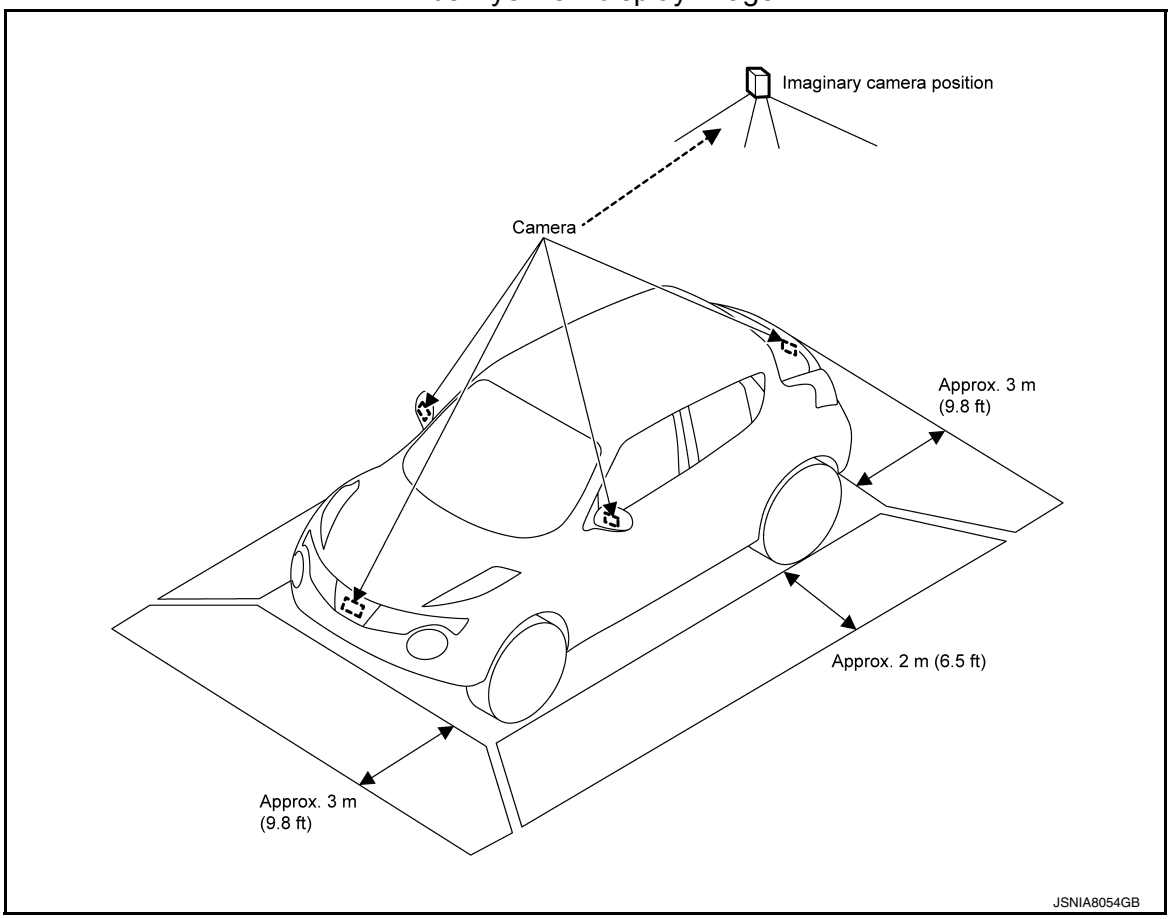
Front-side view area and guiding line



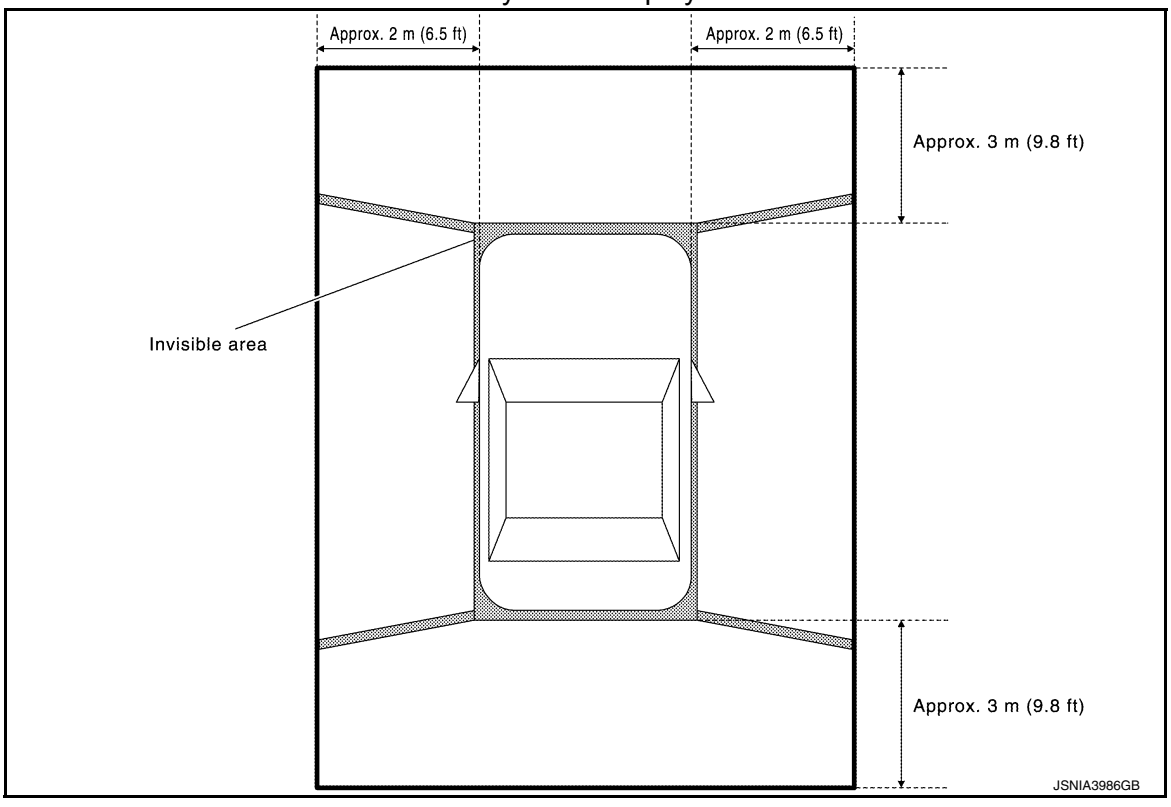
BIRDS-EYE VIEW

- The image from the 4 cameras is cut out and converted into the overhead view, and the surroundings of the vehicle is displayed in birds-eye view.
- In Birds-Eye view, the invisible area is displayed on the image to specify the boundary of the 4 cameras.

Birds-Eye view display image



Birds-Eye view display area



Camera Image Operation Principle

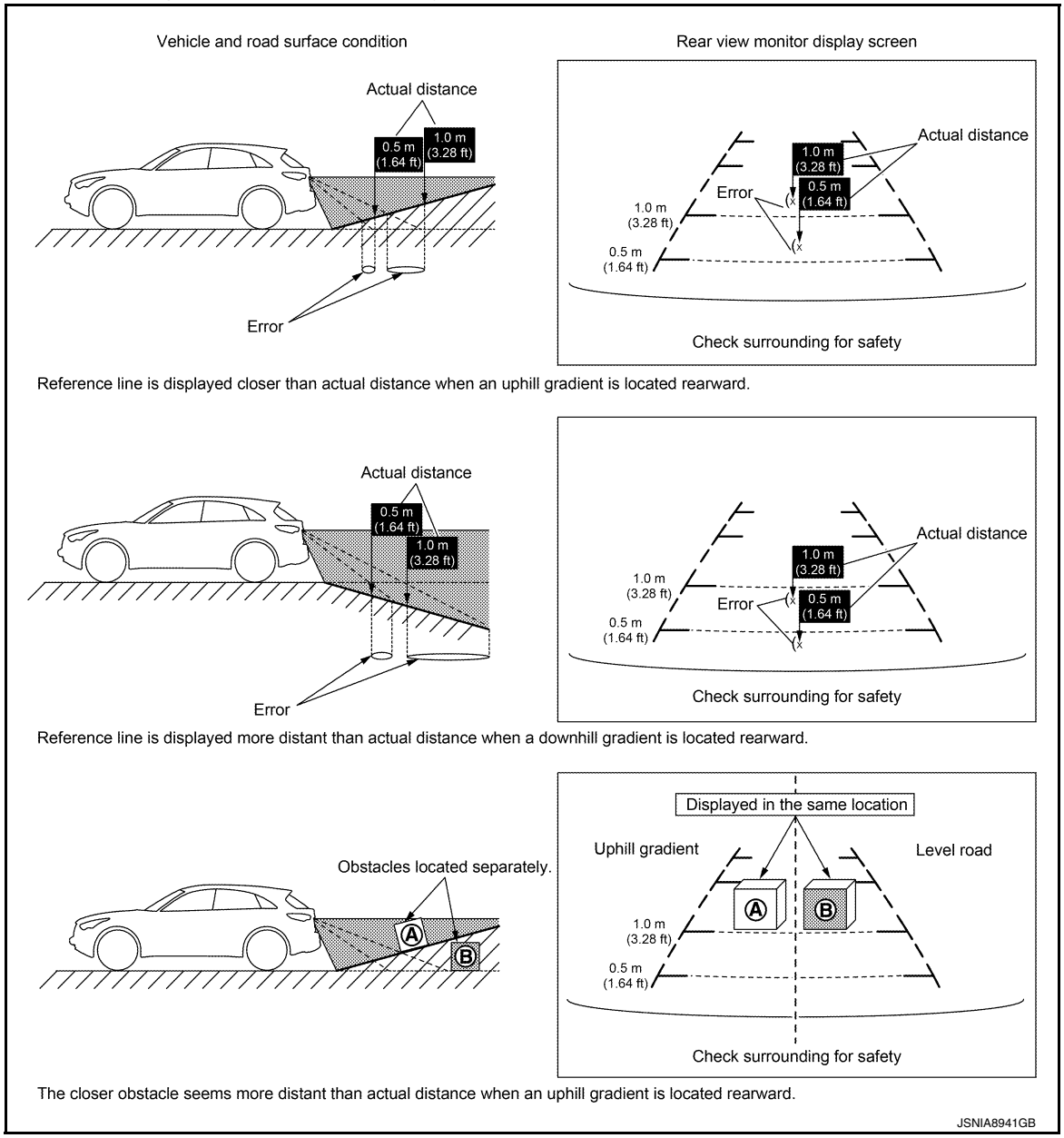
- If the camera image calibration is incomplete, the applicable camera position is indicated as an error on the Birds-Eye view display. (Calibration operation is necessary when replacing each camera or when replacing around view monitor control unit.)
- Around view monitor control unit receives the camera switch signal via CAN communication from NAVI control unit by pressing the “CAMERA” switch.
- Around view monitor control unit that receives the camera switch signal supplies the power to each camera and inputs the camera image from each camera.
- When the selector lever is in the reverse position, around view monitor control unit receives the reverse signal, supplies the power to each camera, and inputs the camera image from each camera.
- Around view monitor control unit that receives the camera image signal from each camera cuts out the required screen for each view, superimposes the camera image, vehicle icon, guiding lines, and outputs them to the NAVI control unit.

Precautions for Vehicle Width Guide Line and Predictive Course Line Display on The Rear View Monitor Display

Side distance guide lines and predictive course line on the display may be different from actual lines depending on vehicle conditions and road conditions.

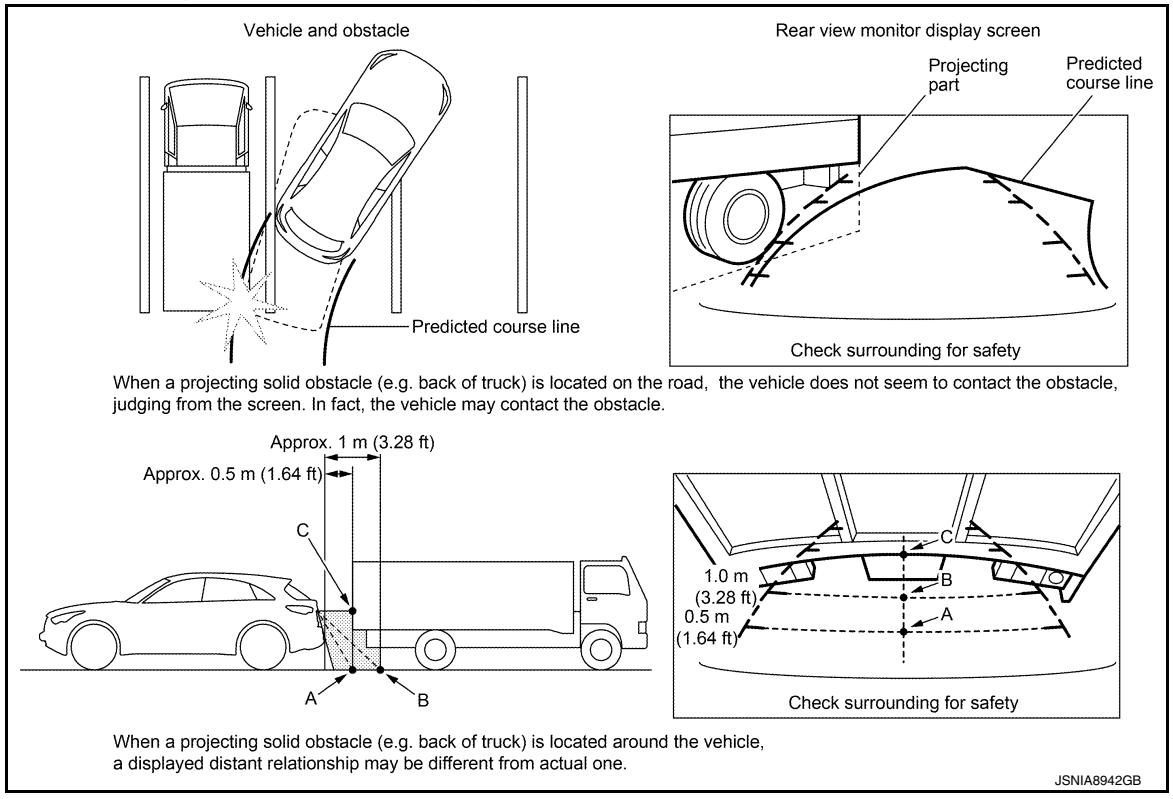
PRECAUTIONS FOR ROAD CONDITIONS

- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.



PRECAUTIONS FOR BLOCK

- Since guide lines and predictive course line are drawn based on the road, a different distance may be displayed if a protruding block is present nearby.



Fail-Safe (Around View Monitor Control Unit)

INFOID:0000000012202497

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
C1A03 VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the around view monitor control unit via CAN communication, are inconsistent	MOD (Moving Object Detection) function is cancel
C1A39 STRG SEN CIR	If the steering angle sensor is malfunction	• MOD (Moving Object Detection) function is cancel • Predicted course line is not displayed.
U0122 VDC P-RUN DIAGNOSIS	If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	MOD (Moving Object Detection) function is cancel
U0416 VDC CHECKSUM DIAGNOSIS	If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	MOD (Moving Object Detection) function is cancel
U0428 ST ANGLE SENSOR CALIBRATION	Neutral position adjustment of steering angle sensor is not complete.	• MOD (Moving Object Detection) function is cancel • Predicted course line is not displayed.

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1000 CAN COMM CIRCUIT	When around view monitor control unit cannot transmit/receive CAN communication signal continuously for 2 seconds or more.	The following functions are stopped • When communication of steering angle sensor signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. • When communication of vehicle signal, wheel speed sensor signal, and shift signal is not normal - MOD (Moving Object Detection) function is stopped.
U1010 CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	The system using the CAN communication signal does not function.
U111A REAR CAMERA IMAGE SIGNAL	No-signal status of rear camera image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).
U111B SIDE CAMERA RH IMAGE SIGNAL	No-signal status of side camera RH image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).
U111C FRONT CAMERA IMAGE SIGNAL	No-signal status of front camera image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).
U111D SIDE CAMERA LH IMAGE SIGNAL	No-signal status of side camera LH image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).
U1232 ST ANGLE SEN CALIB	Neutral position adjustment of steering angle sensor is performed. NG signal from steering angle sensor is received.	• MOD (Moving Object Detection) function is stopped. • Predicted course line is not displayed.
U1304 CAMERA IMAGE CALIB	• When camera calibration is incomplete. • When camera information in around view monitor control unit and information read from camera are not the same. **NOTE:** Current malfunction is displayed only and is not saved.	Unmatched icon ☒ display (red) is displayed (applicable for unmatched camera only).
U1305 CONFIG UNFINISH	The vehicle setting of around view monitor control unit is incomplete. **NOTE:** Current malfunction is displayed only and is not saved.	Operation is according to the vehicle setting value as default value.
Other	When around view monitor control unit is not normal.	Switch to camera screen is not allowed.

DIAGNOSIS SYSTEM (NAVI CONTROL UNIT)

On Board Diagnosis Function

INFOID:0000000012202498

ON BOARD DIAGNOSIS ITEM

Description

- On-board diagnosis is performed in service test mode.
- On-board diagnosis checks if the system operates normally.

On Board Diagnosis Item

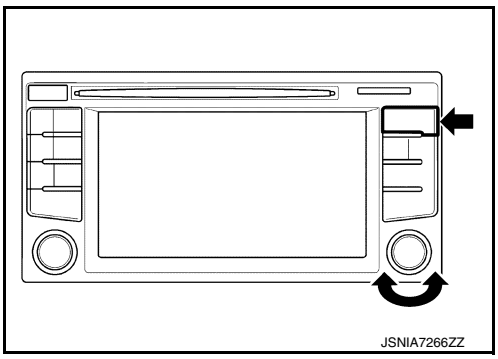
Service test mode

Mode		Item	Content
Service version		—	The version data of the parts is shown displayed.
Service radio	FM monitor	—	The Change Mediator monitors the dynamic values of the current tuner. If the band is switched within the radio monitor context, the active monitor is switched as well.
	AM monitor	—	
	SXM monitor	—	The version data is displayed.
	SXM functions	• Clear XM Chipset NVM • Reset all XM settings • XM CBM debug mode ON/OFF • External Diag mode ON/OFF	The current system status is displayed.
Service configuration	Destination input while driving	—	Destination input while driving can be disabled. **CAUTION:** **Once the setting is changed, the original setting cannot be restored.**
	Touch Display Calibration	—	The function allows connection of the position detection accuracy of the touch panel.
Service system status	Running system status	• SD card slot access • Power Supply • Speed Signal • Direction Signal • Illumination Signal • GPS Antenna • GPS tracking • Satellites visible • Satellites tracked • Microphone Current • Steer. wheel key • Radio Antenna • SXM Antenna • USB Device • iPod® firmware ver • BT status	The current system status is displayed.

Mode		Item	Content
Test function	System self test	• Bluetooth MODULE Access Malfunction • SD-card Access Malfunction • Radio-Antenna Circuit Malfunction • SXM Antenna Circuit Malfunction • GPS Antenna Circuit Malfunction	A system self test is executed: the result is stored into the error memory which is shown afterwards as a list of codes of the detected malfunctions.
	Speaker test	—	This activates a sequence of test tone outputs to the four speaker lines one after the other for 1 second. The frequency can be chosen by user selection before (100 Hz and 4000 Hz).
	Display test	—	This provides a test sequence where test displays (plain colored display: e.g. white, black, red, blue, green) are shown one after the other. The respective color is shown for an indicated period of time (parameter). After the display test, the design of the display previously available is stored. While the screen shows a plain colored display, a pixel malfunction may be detected.

METHOD OF STARTING

1. Start the engine.
2. Turn OFF audio.
3. While pressing the “APPS·i” switch, turn the “+, –” dial counterclockwise 3 clicks or more first, then clockwise and counterclockwise 3 clicks or more, respectively. (After the diagnosis mode starts, the initial screen of the diagnosis mode appears.)


JSNIA7266ZZ

END ON-BOARD DIAGNOSIS

Turn OFF ignition switch.

CONSULT Function

INFOID:0000000012202499

CONSULT FUNCTIONS

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

Direct Diagnostic Mode	Description
Ecu Identification	The NAVI control unit part number is displayed.
Self Diagnostic Result	The NAVI control unit self diagnostic results are displayed.
Data Monitor	The NAVI control unit input/output data is displayed in real time.
Configuration	• The vehicle specification can be read and saved. • The vehicle specification can be written when replacing NAVI control unit.

ECU IDENTIFICATION

The part number of NAVI control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to AV-86, "DTC Index".

DATA MONITOR

Monitor Item [Unit]	Description
VHCL SPD SIG [On/Off]	Indicates vehicle speed signal received from combination meter on CAN communication line.
ILLUM SIG [On/Off]	Indicates condition of illumination signal for the NAVI control unit.
IGN SIG [On/Off]	Indicates condition of ignition signal.
REV SIG [On/Off]	Indicates condition of reverse signal received from BCM.

CONFIGURATION

Configuration has three functions as follows.

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

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

CONSULT Function

INFOID:0000000012202500

APPLICATION ITEMS

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

Test mode	Function
Ecu Identification	Around view monitor control unit part number can be read.
Self Diagnostic Result	Around view monitor control unit checks the conditions and displays memorized error.
Data Monitor	Around view monitor control unit input/output data in real time.
Work support	Changes setting of each function.
Configuration	• The vehicle specification that is written in around view monitor control unit can be displayed or stored. • The vehicle specification can be written when around view monitor control unit is replaced.

ECU IDENTIFICATION

Displays the part number of around view monitor control unit.

SELF-DIAGNOSTIC RESULTS

- For details, refer to AV-93, "DTC Index".
- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates “CRNT”. The past malfunction indicates “PAST”.
- The timing is displayed as “0” if any of the error codes [U1000] and [U1010] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Freeze Frame Data (FFD)

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

Item name	Display content
IGN counter (0 to 39)	Numerical value is displayed indicating the number of times that ignition switch is turned ON after the DTC is detected. • When “0” is displayed, it indicates that the system is presently malfunctioning. • When any numerical number other than “0” is displayed, it indicates that system malfunction in the past is detected, but the system is presently normal. **NOTE:** Each time when ignition switch turns OFF→ON, numerical number increases from 1→2→3...38→39. When number of times exceeds 39, numeric display does not increase and 39 is displayed until self-diagnosis is erased.

DATA MONITOR

NOTE:

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

Monitor Item	Display	Description
ST ANGLE SENSOR SIGNAL	ON/OFF	Input status of steering angle sensor signal is displayed by ON/OFF.
REVERSE SIGNAL	ON/OFF	Input status of reverse signal is displayed by ON/OFF in real time.
VEHICLE SPEED SIGNAL	ON/OFF	Input status of vehicle speed signal is displayed by ON/OFF.
CAMERA SWITCH SIGNAL	ON/OFF	Input status of camera switch signal is displayed by ON/OFF.
CAMERA OFF SIGNAL	ON/OFF	Input status of camera OFF signal is displayed by ON/OFF.
ST ANGLE SENSOR TYPE	Absolute	Type of steering angle sensor is displayed. (“Absolute” is displayed on this vehicle.)
STEERING GEAR RATIO TYPE	Type 0	Type of steering gear ratio is displayed. (“Type 0” is displayed on this vehicle.)
STEERING POSITION	LHD/RHD	Steering position is displayed.

Monitor Item	Display	Description
REAR CAMERA IMAGE SIGNAL	OK/NG	Input status of rear camera image signal is displayed by OK/NG in real time.
F-CAMERA IMAGE SIGNAL	OK/NG	Input status of front camera image signal is displayed by OK/NG in real time.
PA-SIDE CAMERA IMAGE SIG	OK/NG	Input status of side camera RH image signal is displayed by OK/NG in real time.
DR-SIDE CAMERA IMAGE SIG	OK/NG	Input status of side camera LH image signal is displayed by OK/NG in real time.

WORK SUPPORT

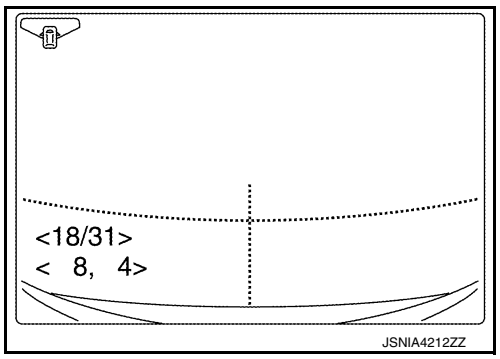
Work support item	Function
CALIBRATING CAMERA IMAGE (FRONT CAMERA)	Performs the calibration of front camera.
CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)	Performs the calibration of side camera RH.
CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)	Performs the calibration of side camera LH.
CALIBRATING CAMERA IMAGE (REAR CAMERA)	Performs the calibration of rear camera.
INITIALIZE CAMERA IMAGE CALIBRATION	The calibration can be initialized to NISSAN factory shipment condition.
FINE TUNING OF BIRDS-EYE VIEW	The confirmation and adjustment of the difference between each camera can be performed.
SELECT LANGUAGE OF WARNING MESSAGE	Language of warning message shown during camera image display can be selected.
PREDICTIVE COURSE LINE DISPLAY	ON/OFF setting of predictive course line can be performed.
STEERING ANGLE SENSOR ADJUSTMENT	Steering angle sensor neutral position can be adjusted and registered.
NON-VIEWABLE AREA REMINDER	ON/OFF setting of the non-viewable area reminder can be performed.

Calibrating Camera Image (front camera, pass-side camera, dr-side camera, and rear camera)

Perform the calibration of camera image caused by the incorrect mounting position of each camera, etc. Always perform calibration after performing the following work.

- When each camera or each camera mount (e.g. front grille, door mirror, and others) is removed
- When replacing the around view monitor control unit

Refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure" for the calibration procedure.



Adjustment range

Rotating direction	: 31 patterns (16 on the center)
Upper/lower direction	: (–22) – (+22)
Left/right direction	: (–22) – (+22)

Initialize Camera Image Calibration

The calibration can be initialized to NISSAN factory shipment condition.

Select Language of Warning Message

No need to be selected because it can change the language on setting of Navi by customer.

Predictive Course Line Display

ON/OFF setting of predictive course line can be performed.

Steering Angle Sensor Adjustment
Steering angle sensor neutral position can be adjusted and registered.
CAUTION:
For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.

Non-Viewable Area Reminder
ON/OFF setting of the non-viewable area reminder can be performed.

CONFIGURATION

Configuration includes functions as follows.

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

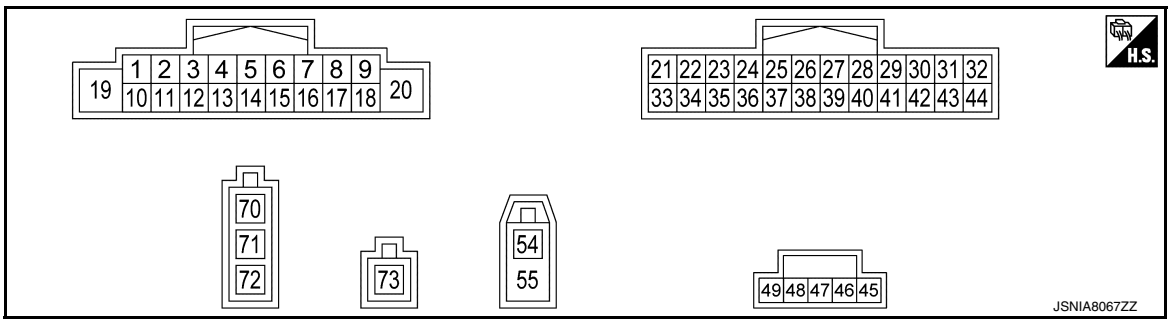
ECU DIAGNOSIS INFORMATION

NAVI CONTROL UNIT

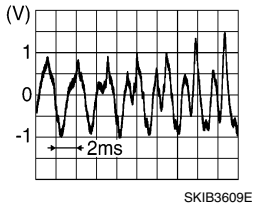
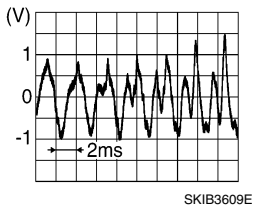
Reference Value

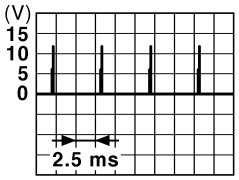
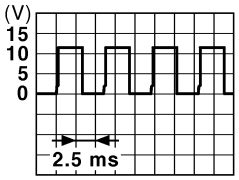
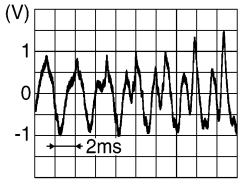
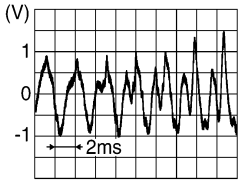
INFOID:0000000012202501

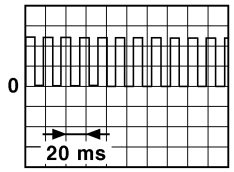
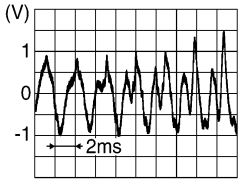
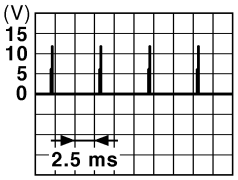
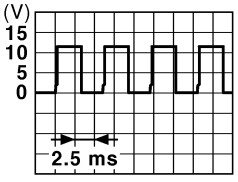
TERMINAL LAYOUT

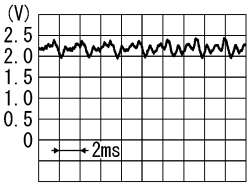
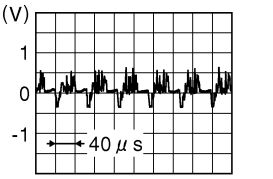


PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (R)	Ground	Woofer amp. ON signal	Output	Ignition switch ON	—	12.0 V
2 (W)	3 (GR)	Sound signal front speaker LH	Output	Ignition switch ON	Sound output.	 SKIB3609E
4 (LG)	5 (V)	Sound signal rear speaker LH	Output	Ignition switch ON	Sound output.	 SKIB3609E
6 (G)	15 (V)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch.	0 V
					Keep pressing SEEK UP switch.	0.9 V
					Keep pressing SEEK DOWN switch.	1.9 V
					Keep pressing TEL switch.	2.4 V
					Except for above.	3.3 V
7 (L)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage
8 (L)	—	CAN–H	Input/ Output	—	—	—

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
9 (V)	33 (GR)	Illumination control signal	Input	Ignition switch ON	• Lighting switch 1ST • When meter illumination is maximum	 JPNIA1687GB
					• Lighting switch 1ST • When meter illumination is step 11	 JPNIA1686GB
					• Lighting switch 1ST • When meter illumination is minimum	0 V
10	—	Shield	—	—	—	—
11 (G)	12 (R)	Sound signal front speaker RH	Output	Ignition switch ON	Sound output.	 SKIB3609E
13 (BR)	14 (Y)	Sound signal rear speaker RH	Output	Ignition switch ON	Sound output.	 SKIB3609E
16 (R)	15 (V)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL DOWN switch.	0 V
					Keep pressing VOL UP switch.	0.9 V
					Keep pressing TEL END switch.	1.9 V
					Except for above.	3.3 V
17 (P)	—	CAN–L	Input/ Output	—	—	—

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
18 (Y)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB
19 (BR)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
20 (B)	Ground	Ground	—	Ignition switch ON	—	—
21 (G)	—	AUX audio signal RH	Input	—	—	—
22 (Y)	—	AUX audio signal ground	—	—	—	—
23 (L)	—	AUX audio signal LH	Input	—	—	0 V
25 (G)	Ground	Reverse signal	Input	Ignition switch ON	Shift position is in R.	12.0 V
					Shift position is in other than R.	0 V
26 (BR)	29 (Y)	Sound signal woofer	Output	Ignition switch ON	Sound output.	 SKIB3609E
30 (V)	33 (GR)	Illumination control signal	Input	Ignition switch ON	• Lighting switch 1ST • When meter illumination is maximum	 JPNIA1687GB
					• Lighting switch 1ST • When meter illumination is step 11	 JPNIA1686GB
					• Lighting switch 1ST • When meter illumination is minimum	0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
34 (W)	Ground	Microphone signal	Input	Ignition switch ON	Give a voice.	 PKIB5037J
35 (B)	Ground	Microphone VCC	Output	Ignition switch ON	—	5.0 V
36	—	Shield	—	—	—	—
37	—	Shield	—	—	—	—
40 (LG)	Ground	Ignition signal	Input	Ignition switch ON	—	12.0 V
41 (B)	Ground	Camera image signal	Input	Ignition switch ON	When camera image is displayed.	 JSNIA0834GB
42	—	Shield	—	—	—	—
45	—	V BUS signal	Input/ Output	—	—	—
46	—	USB D+ signal	Output	—	—	—
47	—	USB ground	—	—	—	—
49	—	USB D– signal	Input/ Output	—	—	—
54	Ground	GPS antenna signal	Input	Ignition switch ON	Not connected to GPS antenna connector.	5.0 V
55	—	Shield	—	—	—	—
70	Ground	Antenna amp. ON signal	Output	Ignition switch ACC	—	12.0 V
71	—	Antenna signal	Input	—	—	—
73	—	Satellite radio antenna signal	Input	—	Not connected to satellite antenna connector.	5.0 V

DTC Index

INFOID:0000000012202502

DTC	Display item	Refer to
U1000	CAN COMM CIRC [U1000]	AV-128, "NAVI CONTROL UNIT : Diagnosis Procedure"
U1010	CONTROL UNIT (CAN) [U1010]	AV-130, "NAVI CONTROL UNIT : DTC Logic"
U1200	Cont Unit [U1200]	AV-143, "DTC Logic"

DTC	Display item	Refer to
U1217	BLUETOOTH MODULE [U1217]	AV-144, "DTC Logic"
U1229	iPod CERTIFICATION [U1229]	AV-145, "DTC Logic"
U1244	GPS ANTENNA CONN [U1244]	AV-147, "Diagnosis Procedure"
U1258	SATELLITE RADIO ANTENNA [U1258]	AV-148, "Diagnosis Procedure"
U1263	USB OVERCURRENT [U1263]	AV-149, "Diagnosis Procedure"
U1264	ANTENNA AMP TERMINAL [U1264]	AV-150, "Diagnosis Procedure"
U12AA	CONFIGURATION ERROR [U12AA]	AV-151, "DTC Logic"
U12AB	FM ANTENNA ERROR [U12AB]	AV-152, "DTC Logic"
U12AC	DISPLAY TEMPERATURE TOO HIGH [U12AC]	AV-153, "DTC Logic"
U12AD	ECU TEMPERATURE TOO HIGH [U12AD]	AV-154, "DTC Logic"
U12AE	INTERNAL AMP TEMP WARNING [U12AE]	AV-155, "DTC Logic"
U12AF	CD MECHANISM TEMP WARNING [U12AF]	AV-156, "DTC Logic"
U12B0	SUPPLY VOLTAGE UNDER 9V [U12B0]	AV-157, "DTC Logic"
U12B1	SUPPLY VOLTAGE OVER 16V [U12B1]	AV-158, "DTC Logic"

AROUND VIEW MONITOR CONTROL UNIT

Reference Value

INFOID:0000000012202503

VALUES ON THE DIAGNOSIS TOOL

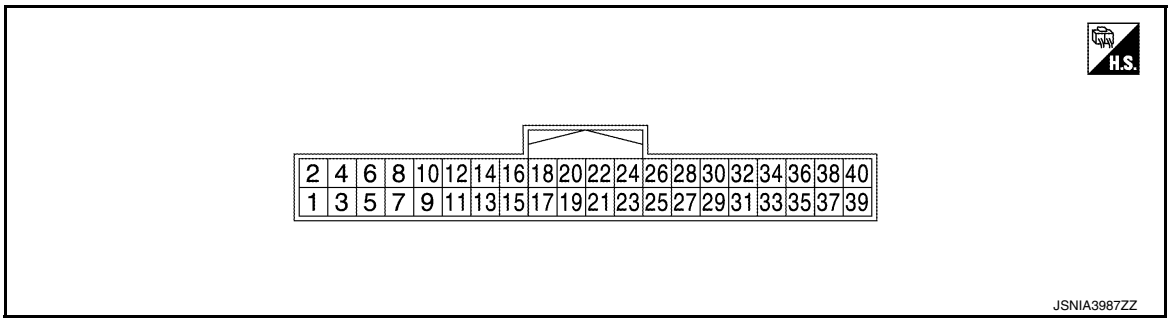
NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

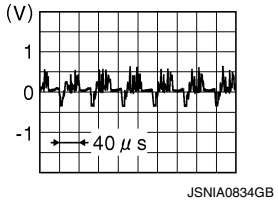
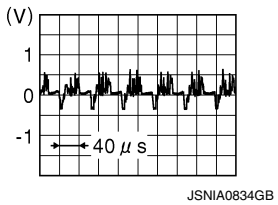
Monitor Item	Condition		Value/Status
ST ANGLE SENSOR SIGNAL	Ignition switch ON	Steering angle sensor signal is input condition.	ON
		Except for above	OFF
REVERSE SIGNAL	Ignition switch ON	Shift position is in “R”	ON
		Other than shift position is in “R”	OFF
VEHICLE SPEED SIGNAL*1	Ignition switch ON	Vehicle speed signal is input condition.	ON
		Except for above	OFF
CAMERA SWITCH SIGNAL*1	Ignition switch ON	Pressing the “CAMERA” switch	ON
		Except for above	OFF
CAMERA OFF SIGNAL	Ignition switch ON	While camera image is not indicated.	ON
		While camera image is indicated.	OFF
ST ANGLE SENSOR TYPE*2	Ignition switch ON	—	Absolute
STEERING GEAR RATIO TYPE*3	Ignition switch ON	—	Type 0
STEERING POSITION	Ignition switch ON	LHD models	LHD
		RHD models	RHD
REAR CAMERA IMAGE SIGNAL	Ignition switch ON	Input status of rear camera image signal is normal.	OK
		Input status of rear camera image signal is not normal.	NG
F-CAMERA IMAGE SIGNAL	Ignition switch ON	Input status of front camera image signal is normal.	OK
		Input status of front camera image signal is not normal.	NG
PA-SIDE CAMERA IMAGE SIG	Ignition switch ON	Input status of side camera RH image signal is normal.	OK
		Input status of side camera RH image signal is not normal.	NG
DR-SIDE CAMERA IMAGE SIG	Ignition switch ON	Input status of side camera LH image signal is normal.	OK
		Input status of side camera LH image signal is not normal.	NG

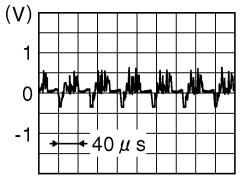
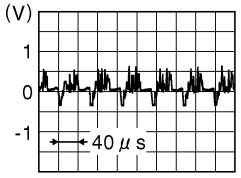
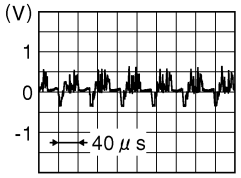
- *1: Once the signal is input, it remains ON indication until CONSULT is finished.
- *2: “Absolute” is always indicated on this vehicle.
- *3: “Type 0” is always indicated on this vehicle.

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Standard	Reference value (Approx.)
+	–	Signal name	Input/ Output				
3	—	Shield	—	—	—	—	—
4 (B)	3	Camera image signal	Output	Ignition switch ON	At camera image is displayed.	Waveform according to camera image is input.	 JSNIA0834GB
5 (LG)	Ground	Front camera ground	—	Ignition switch ON	—	—	0 V
6 (R)	5 (LG)	Front camera power supply	Output	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	3.5 V or more	6.0 V
7	—	Shield	—	—	—	—	—
8 (V)	7	Front camera image signal	Input	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	Waveform according to camera image is input.	 JSNIA0834GB
9 (G)	Ground	Side camera passenger side ground	—	Ignition switch ON	—	—	0 V
10 (L)	9 (G)	Side camera passenger side power supply	Output	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	3.5 V or more	6.0 V
11	—	Shield	—	—	—	—	—

Terminal (Wire color)		Description		Condition		Standard	Reference value (Approx.)
+	–	Signal name	Input/ Output				
12 (Y)	11	Side camera passenger side image signal	Input	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	Waveform according to camera image is input.	 JSNIA0834GB
13 (B)	Ground	Side camera driver side ground	—	Ignition switch ON	—	—	0 V
14 (W)	13 (B)	Side camera driver side power supply	Output	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	3.5 V or more	6.0 V
15	—	Shield	—	—	—	—	—
16 (R)	15	Side camera driver side image signal	Input	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	Waveform according to camera image is input.	 JSNIA0834GB
17 (L)	Ground	Rear camera ground	—	Ignition switch ON	—	—	0 V
18 (LG)	17 (L)	Rear camera power supply	Output	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	3.5 V or more	6.0 V
19	—	Shield	—	—	—	—	—
20 (V)	19	Rear camera image signal	Input	Ignition switch ON	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	Waveform according to camera image is input.	 JSNIA0834GB
24 (P)	—	CAN–L	Input/ Output	—	—	—	—
26 (L)	—	CAN–H	Input/ Output	—	—	—	—
32 (G)	Ground	Reverse signal	Input	Ignition switch ON	Shift position is in "R"	7.0 V or more	12.0 V
					Other than shift position is in "R"	3.0 V or less	0 V

Terminal (Wire color)		Description		Condition		Standard	Reference value (Approx.)
+	–	Signal name	Input/ Output				
39 (B)	Ground	Ground	—	Ignition switch ON	—	—	0 V
40 (LG)	Ground	Ignition signal	Input	Ignition switch ON	—	7.0 V or more	Battery voltage

Fail-Safe (Around View Monitor Control Unit)

INFOID:0000000012202504

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
C1A03 VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the around view monitor control unit via CAN communication, are inconsistent	MOD (Moving Object Detection) function is cancel
C1A39 STRG SEN CIR	If the steering angle sensor is malfunction	• MOD (Moving Object Detection) function is cancel • Predicted course line is not displayed.
U0122 VDC P-RUN DIAGNOSIS	If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	MOD (Moving Object Detection) function is cancel
U0416 VDC CHECKSUM DIAGNOSIS	If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	MOD (Moving Object Detection) function is cancel
U0428 ST ANGLE SENSOR CALIBRATION	Neutral position adjustment of steering angle sensor is not complete.	• MOD (Moving Object Detection) function is cancel • Predicted course line is not displayed.
U1000 CAN COMM CIRCUIT	When around view monitor control unit cannot transmit/receive CAN communication signal continuously for 2 seconds or more.	The following functions are stopped • When communication of steering angle sensor signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. • When communication of vehicle signal, wheel speed sensor signal, and shift signal is not normal - MOD (Moving Object Detection) function is stopped.
U1010 CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	The system using the CAN communication signal does not function.
U111A REAR CAMERA IMAGE SIGNAL	No-signal status of rear camera image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U111B SIDE CAMERA RH IMAGE SIGNAL	No-signal status of side camera RH image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).
U111C FRONT CAMERA IMAGE SIGNAL	No-signal status of front camera image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).
U111D SIDE CAMERA LH IMAGE SIGNAL	No-signal status of side camera LH image signal is continued for 500 ms or more while ignition switch is ON. **NOTE:** Current malfunction is displayed only and is not saved.	Camera image is not displayed (Gray screen display).
U1232 ST ANGLE SEN CALIB	Neutral position adjustment of steering angle sensor is performed. NG signal from steering angle sensor is received.	• MOD (Moving Object Detection) function is stopped. • Predicted course line is not displayed.
U1304 CAMERA IMAGE CALIB	• When camera calibration is incomplete. • When camera information in around view monitor control unit and information read from camera are not the same. **NOTE:** Current malfunction is displayed only and is not saved.	Unmatched icon ☒ display (red) is displayed (applicable for unmatched camera only).
U1305 CONFIG UNFINISH	The vehicle setting of around view monitor control unit is incomplete. **NOTE:** Current malfunction is displayed only and is not saved.	Operation is according to the vehicle setting value as default value.
Other	When around view monitor control unit is not normal.	Switch to camera screen is not allowed.

DTC Inspection Priority Chart

INFOID:0000000012202505

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

Priority	Detected items (DTC)
1	U1305: CONFIG UNFINISH
2	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
3	• C1A39: STRG SEN CIR • U0122: VDC P-RUN DIAGNOSIS • U0416: VDC CHECKSUM DIAGNOSIS • U0428: ST ANGLE SENSOR CALIBRATION • U111A: REAR CAMERA IMAGE SIGNAL • U111B: SIDE CAMERA RH IMAGE SIGNAL • U111C: FRONT CAMERA IMAGE SIGNAL • U111D: SIDE CAMERA LH IMAGE SIGNAL • U1232: ST ANGLE SEN CALIB • U1304: CAMERA IMAGE CALIB
4	C1A03: VHCL SPEED SE CIRC

DTC Index

INFOID:0000000012202506

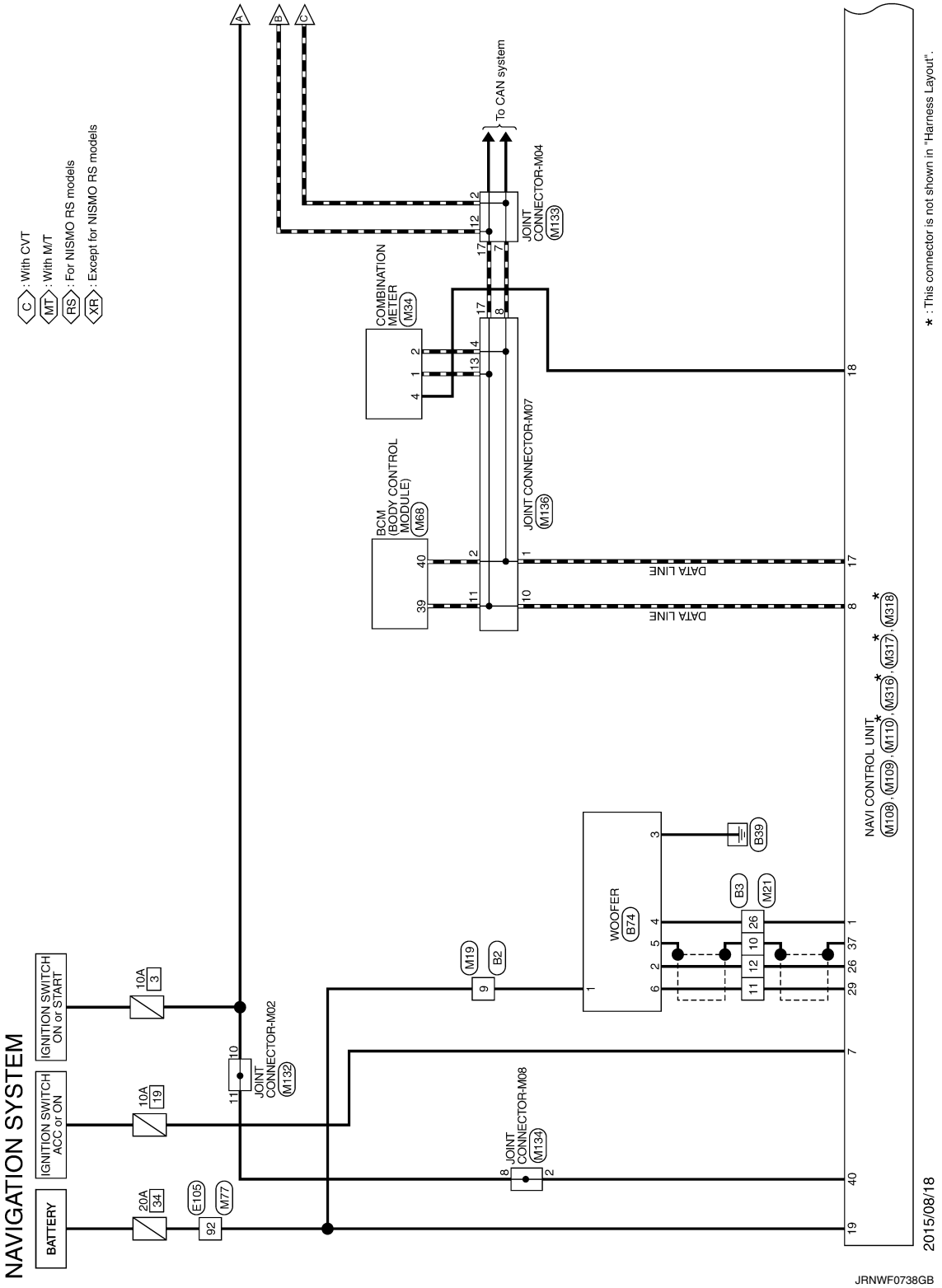
DTC	CONSULT display	Refer to
C1A03	VHCL SPEED SE CIRC	AV-123, "DTC Logic"
C1A39	STRG CIRCUIT	AV-124, "DTC Logic"
U0122	VDC P-RUN DIAGNOSIS	AV-125, "DTC Logic"
U0416	VDC CHECKSUM DIAGNOSIS	AV-126, "DTC Logic"
U0428	ST ANGLE SENSOR CALIBRATION	AV-127, "DTC Logic"
U1000	CAN COMM CIRCUIT	AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U1010	CONTROL UNIT (CAN)	AV-130, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U111A	REAR CAMERA IMAGE SIGNAL	AV-131, "DTC Logic"
U111B	SIDE CAMERA RH IMAGE SIGNAL	AV-134, "DTC Logic"
U111C	FRONT CAMERA IMAGE SIGNAL	AV-137, "DTC Logic"
U111D	SIDE CAMERA LH IMAGE SIGNAL	AV-140, "DTC Logic"
U1232	ST ANGLE SEN CALIB	AV-146, "DTC Logic"
U1304	CAMERA IMAGE CALIB	AV-159, "DTC Logic"
U1305	CONFIG UNFINISH	AV-160, "DTC Logic"

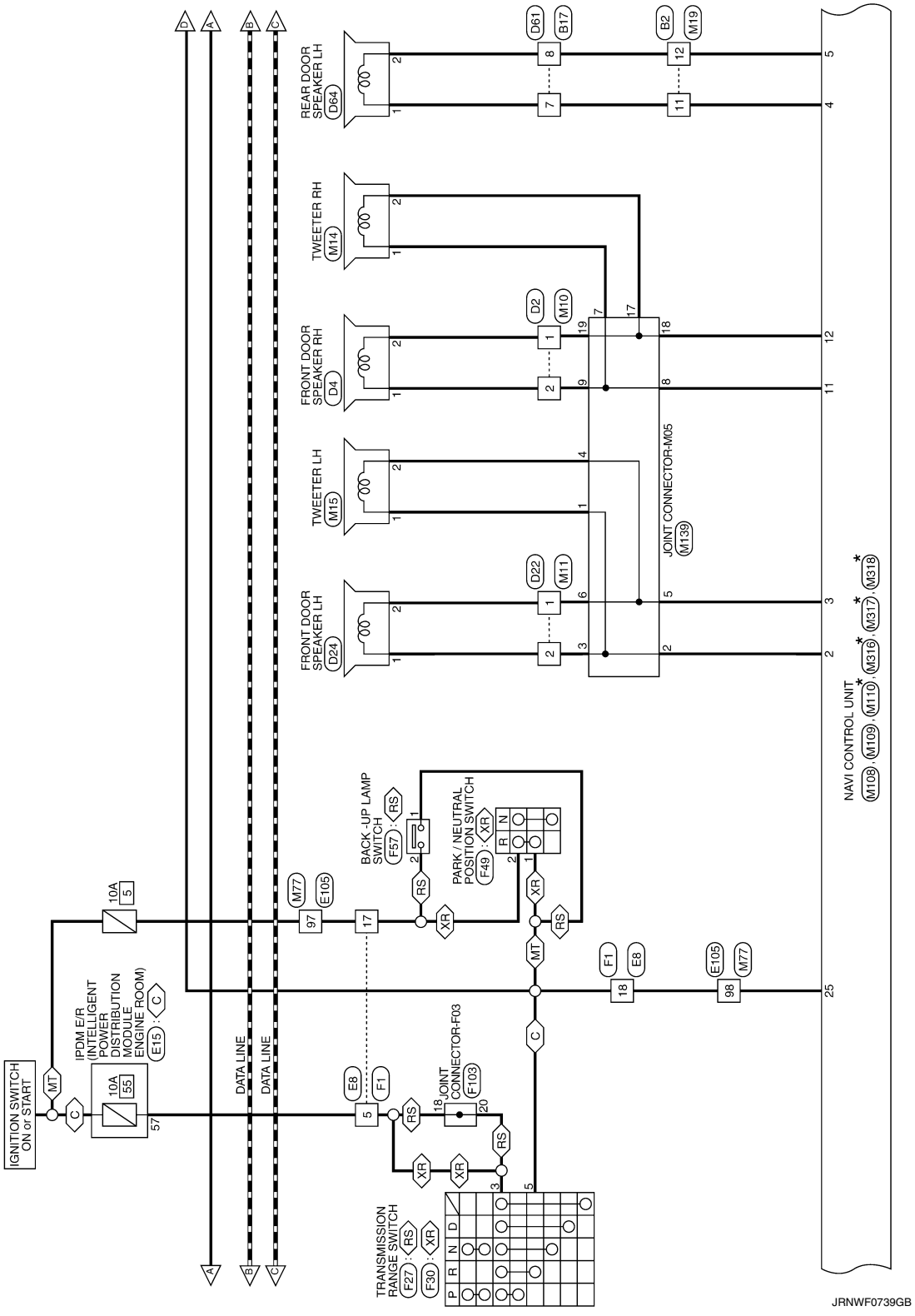
WIRING DIAGRAM

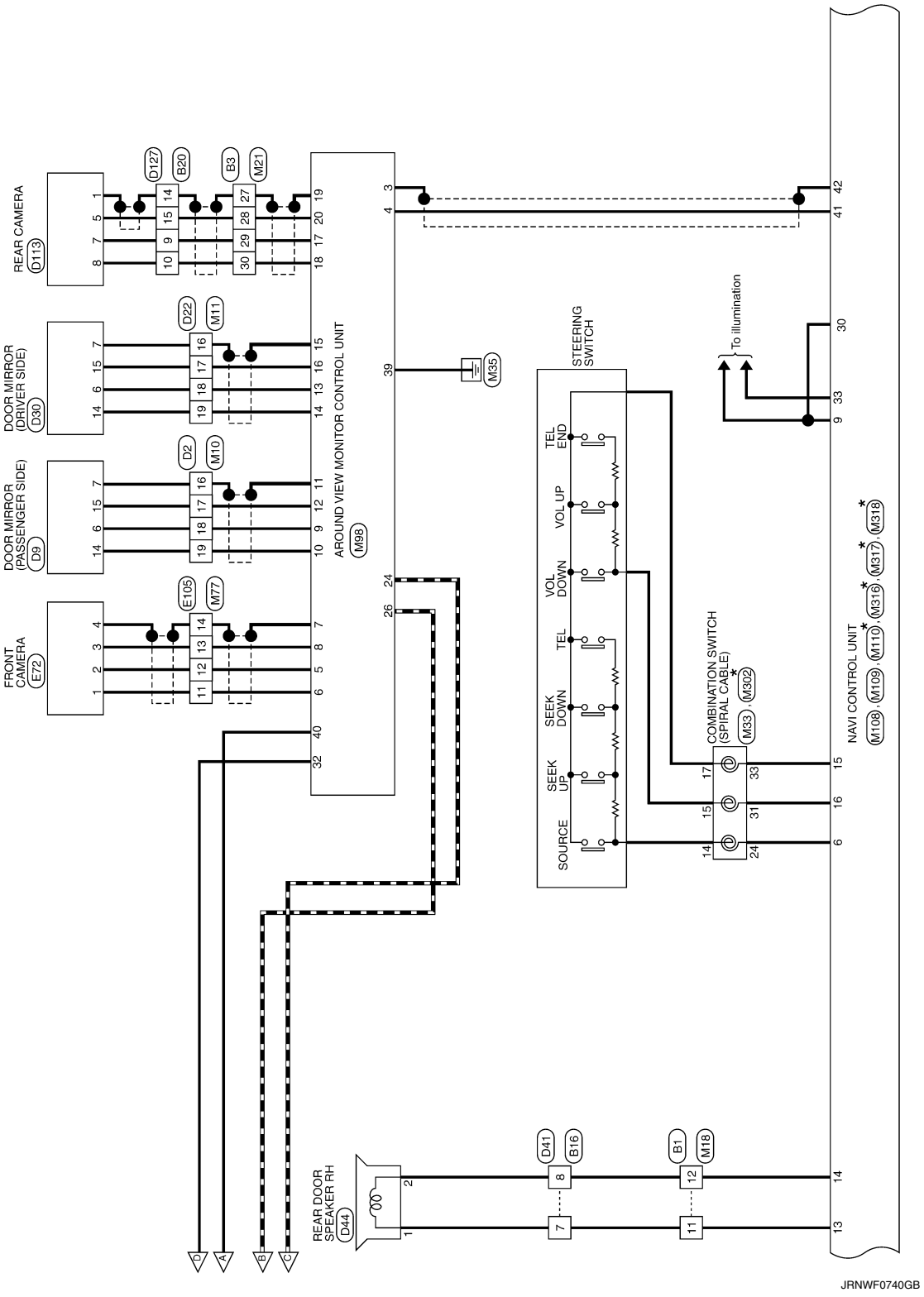
NAVIGATION SYSTEM

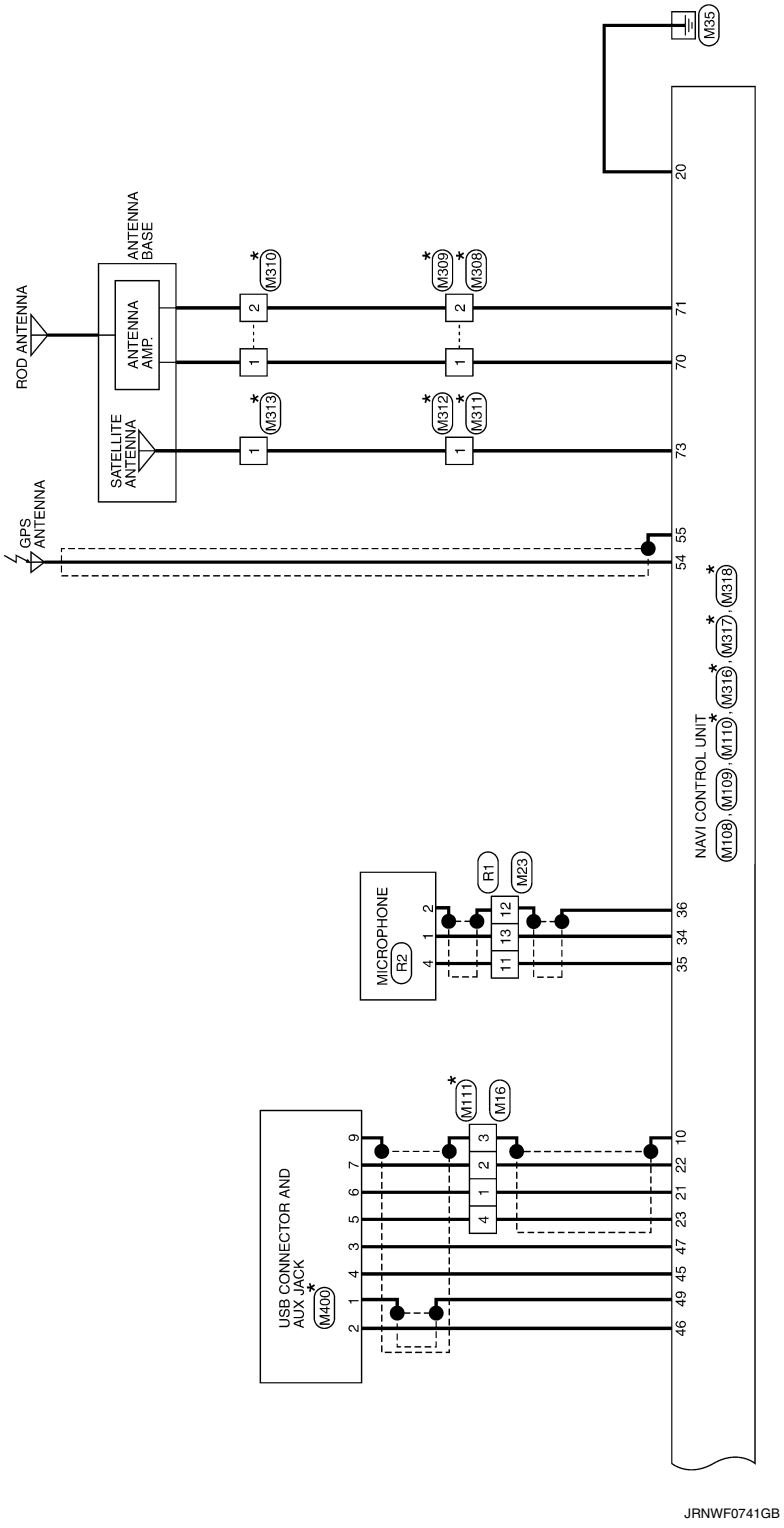
Wiring Diagram

INFOID:0000000012202507




REAR DOOR SPEAKER LH D64
TWEETER RH M14
FRONT DOOR SPEAKER RH D4
TWEETER LH M15
FRONT DOOR SPEAKER LH D24
JOINT CONNECTOR-M05 M139
NAVI CONTROL UNIT M108, M109, M110*, M316*, M317*, M318*
BACK -UP LAMP SWITCH F57
PARK / NEUTRAL POSITION SWITCH F49
TRANSMISSION RANGE SWITCH F27, F30
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E15
IGNITION SWITCH ON or START
JOINT CONNECTOR-F03 F103
DATA LINE
DATA LINE
10A 5
10A 55
JRNWF0739GB


REAR CAMERA
D113
DOOR MIRROR (DRIVER SIDE)
D30
DOOR MIRROR (PASSENGER SIDE)
D9
FRONT CAMERA
E72
AROUND VIEW MONITOR CONTROL UNIT
M98
STEERING SWITCH
TEL END
VOL UP
VOL DOWN
TEL
SEEK DOWN
SEEK UP
SOURCE
COMBINATION SWITCH (SPIRAL CABLE)
NAVI CONTROL UNIT
To illumination
REAR DOOR SPEAKER RH
D44
JRNWF0740GB



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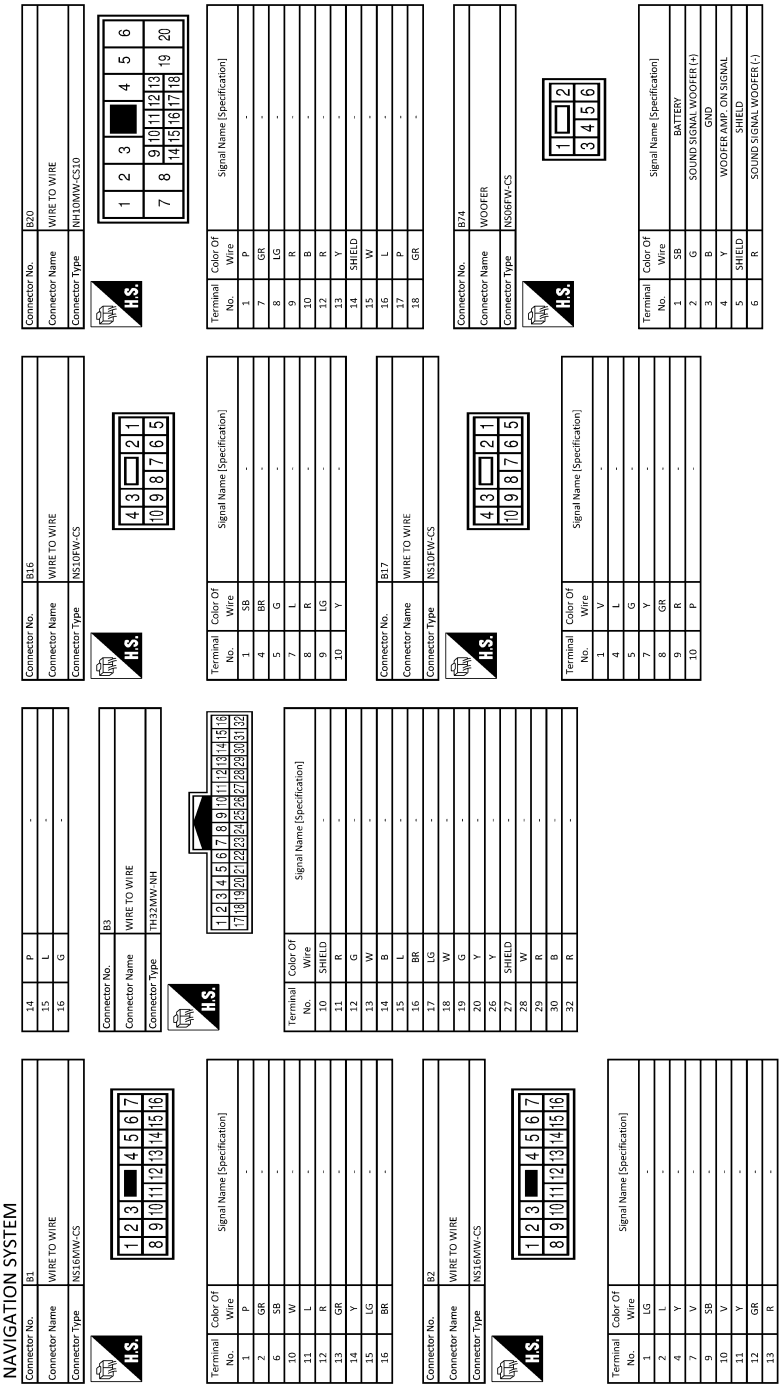
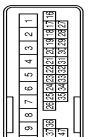


JRNWF0742GB

NAVIGATION SYSTEM

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-CS15



Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
2	G	-
3	Y	-
4	V	-
13	W	-
14	SB	-
15	L	-
16	GR	-
17	Y	-
18	W	-
19	R	-
24	R	-
25	G	-
38	G	-
39	B	-
40	LG	-
41	Y	-
43	P	-
44	V	-
45	W	-
46	BG	-
50	P	-

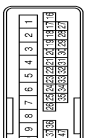
Connector No.	D4
Connector Name	FRONT DOOR SPEAKER RH
Connector Type	NS02FW-CS

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

Connector No.	D9
Connector Name	DOOR MIRROR (PASSENGER SIDE)
Connector Type	TH16MW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
1	V	-
2	B	-
3	P	-
4	B	-
6	W	-
7	GR	-
11	BG	-
12	W	-
13	G	-
14	R	-
15	Y	-

Connector No.	D22
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-CS15



Terminal No.	Color Of Wire	Signal Name [Specification]
1	P	-
2	W	-
3	SB	-
4	V	-
7	G	-
8	BG	-
9	LG	-
10	Y	-
11	W	-
12	SB	-
13	B	-
14	L	-
15	P	-
16	LG	-
17	BR	-
18	P	-
19	V	-
24	G	-
25	R	-
38	G	-
39	B	-
40	V	-
41	P	-
42	R	-
43	GR	-
44	W	-
45	Y	-
46	BG	-
47	G	-
48	L	-
49	R	-
50	LG	-
52	BR	-

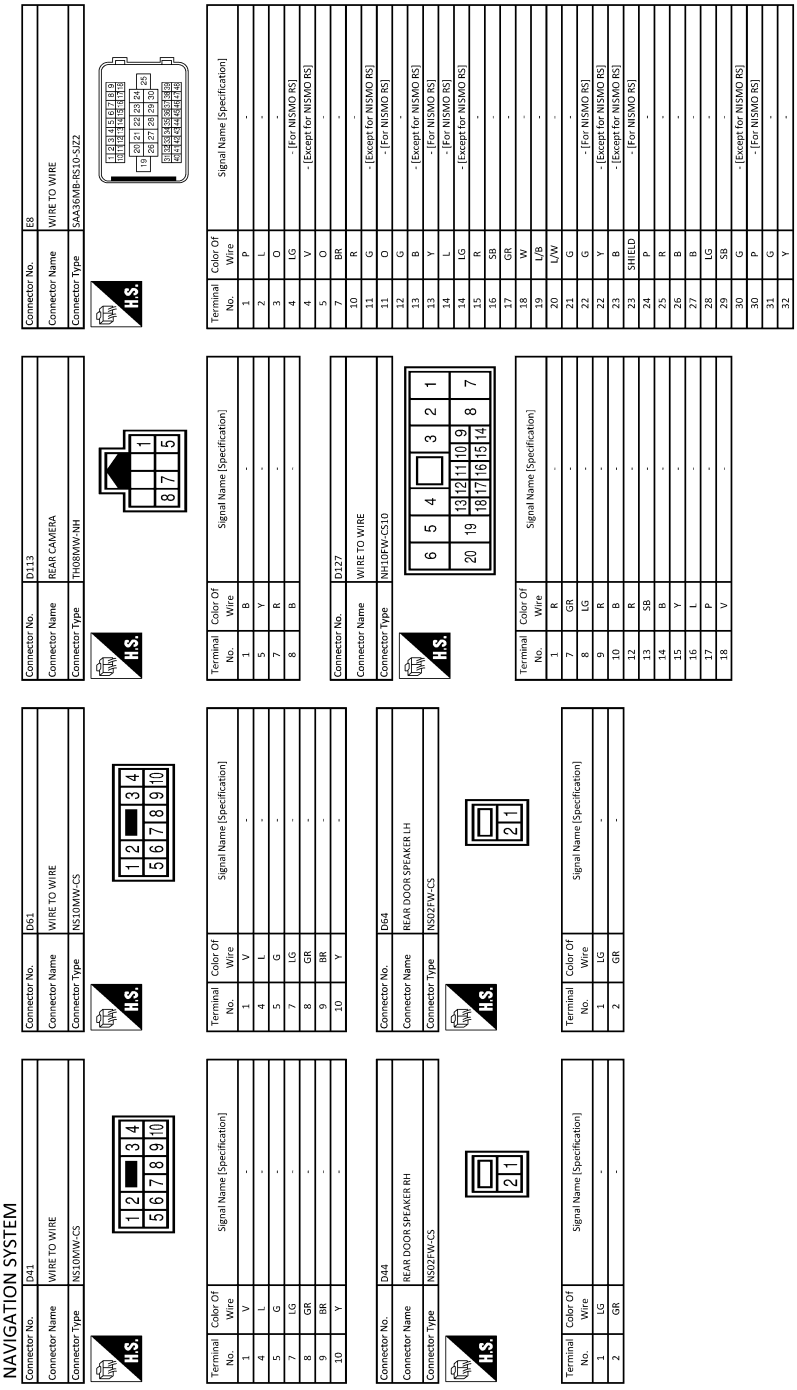
Connector No.	D24
Connector Name	FRONT DOOR SPEAKER LH
Connector Type	NS02FW-CS

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

Connector No.	D30
Connector Name	DOOR MIRROR (DRIVER SIDE)
Connector Type	TH16MW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	B	-
3	GR	-
4	B	-
6	P	-
7	LG	-
11	BG	-
12	Y	-
13	G	-
14	V	-
15	BR	-

JRNWF0743GB



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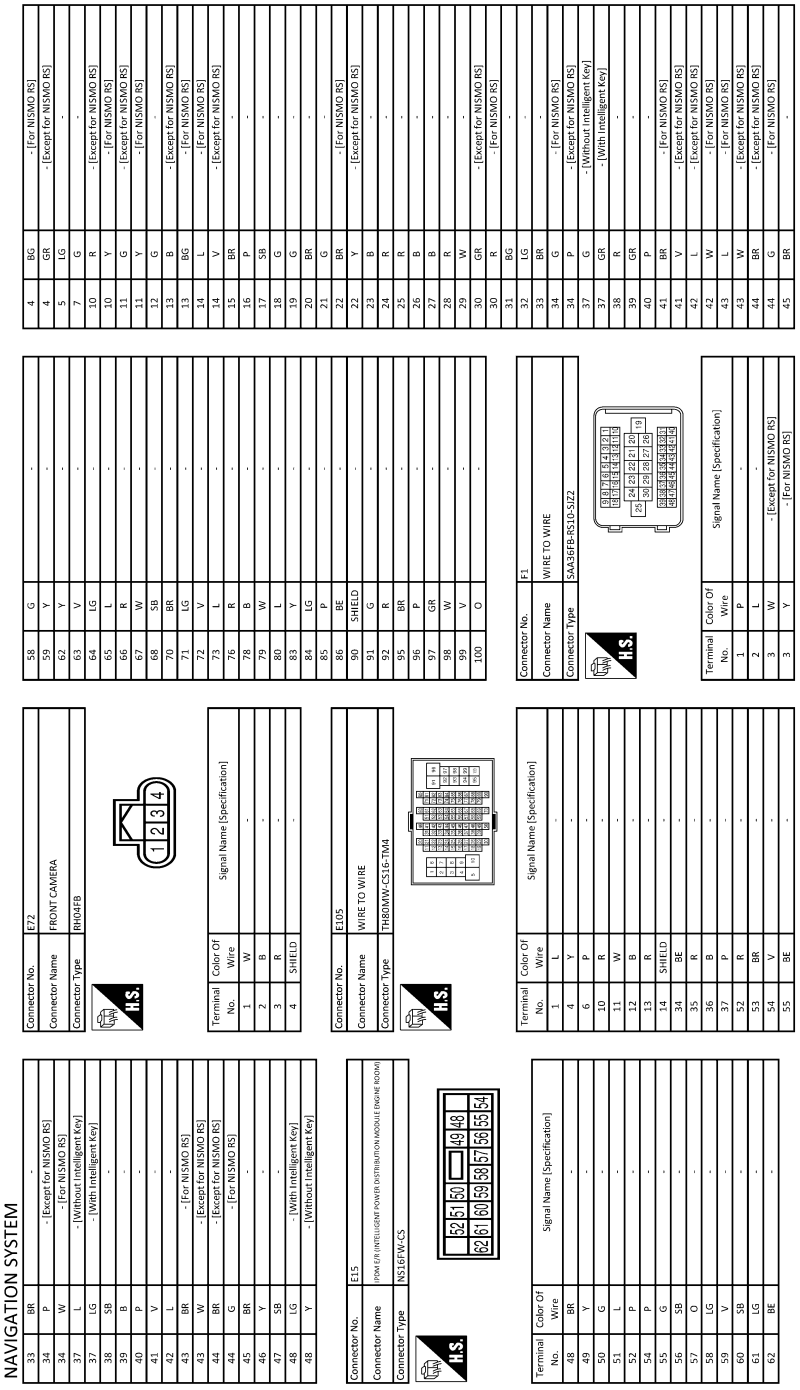

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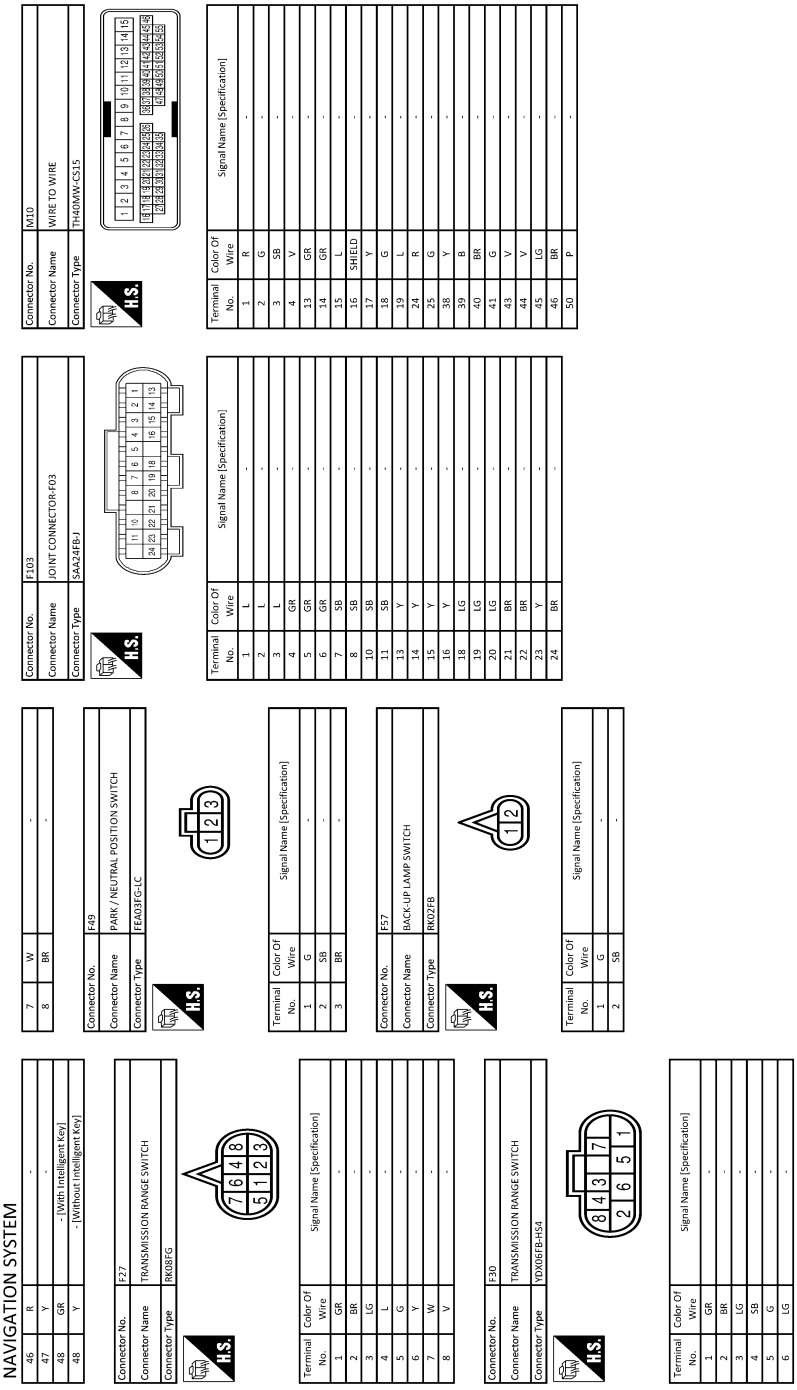

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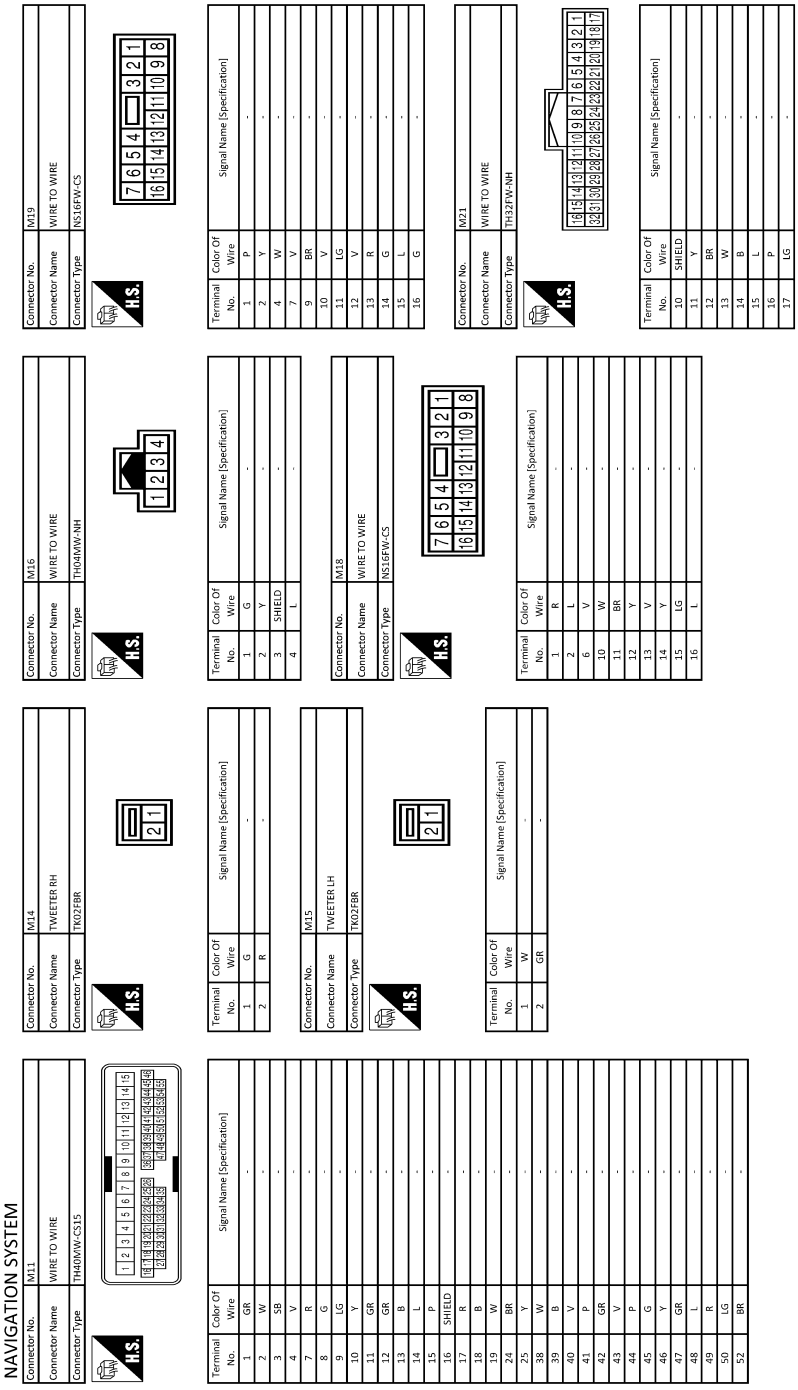

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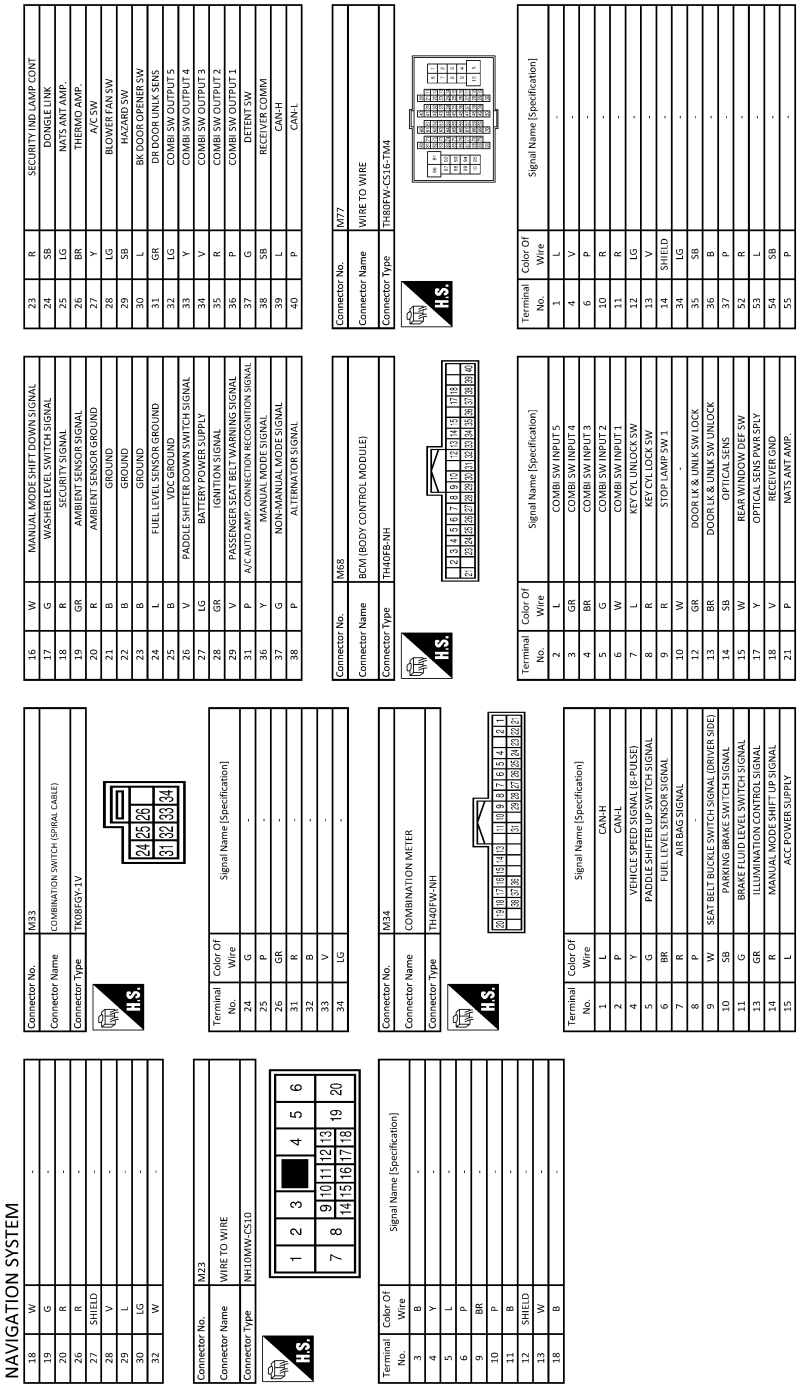

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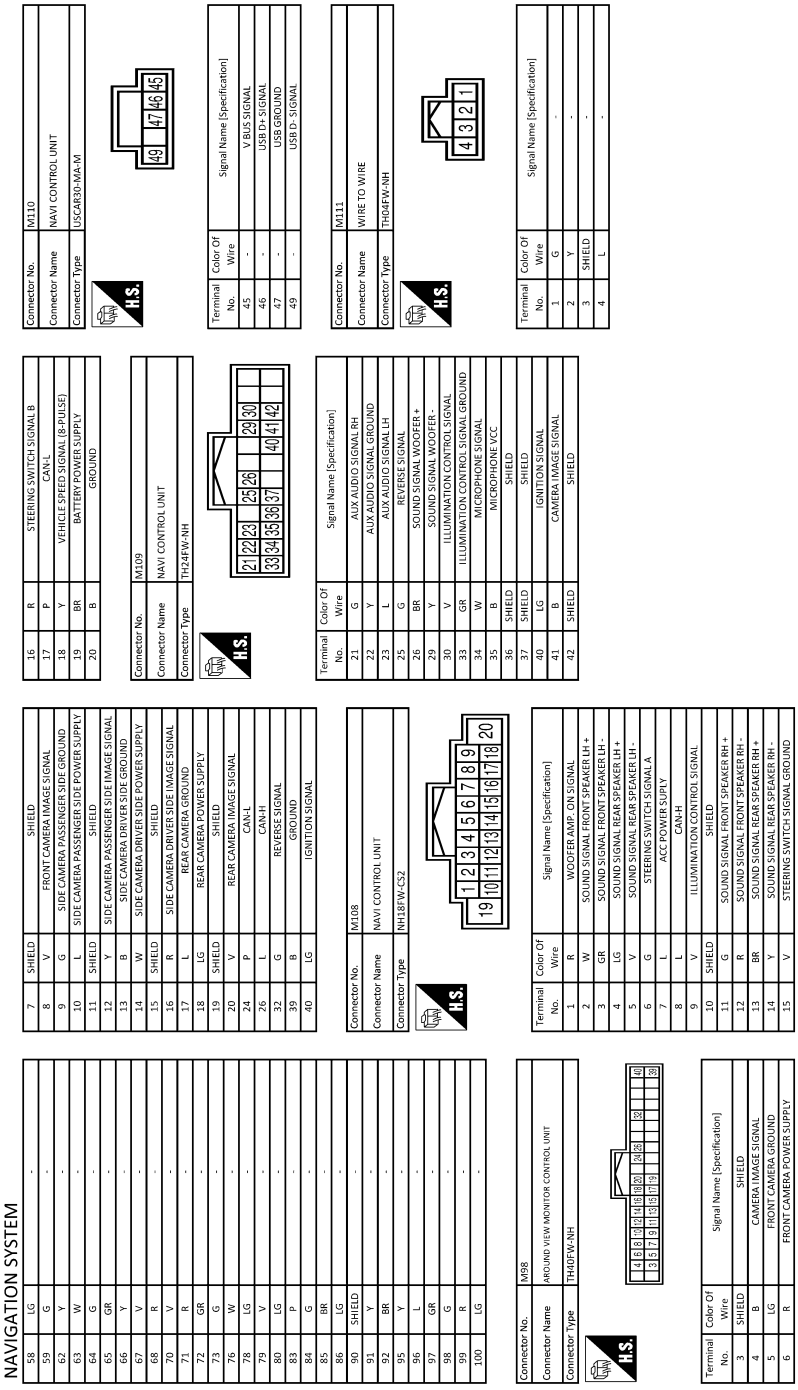
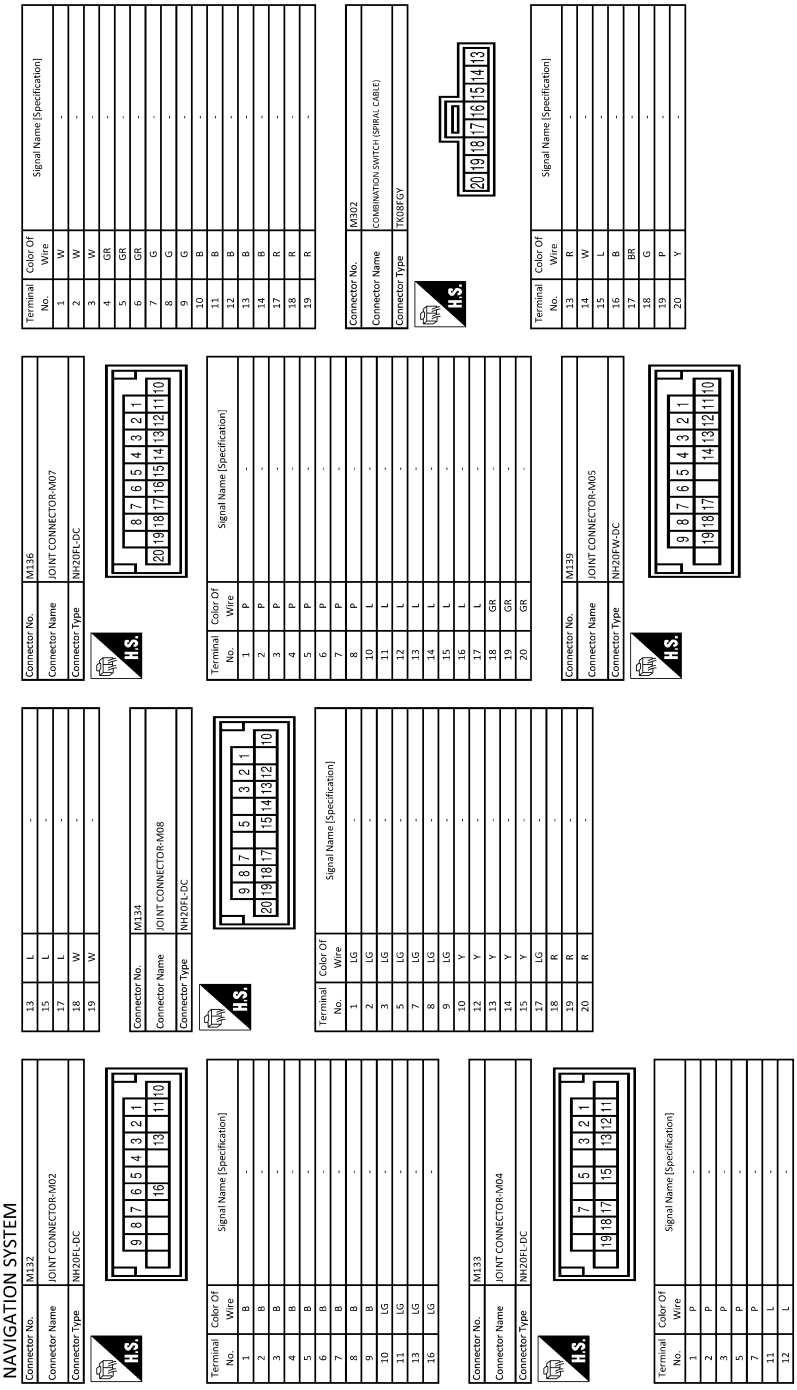
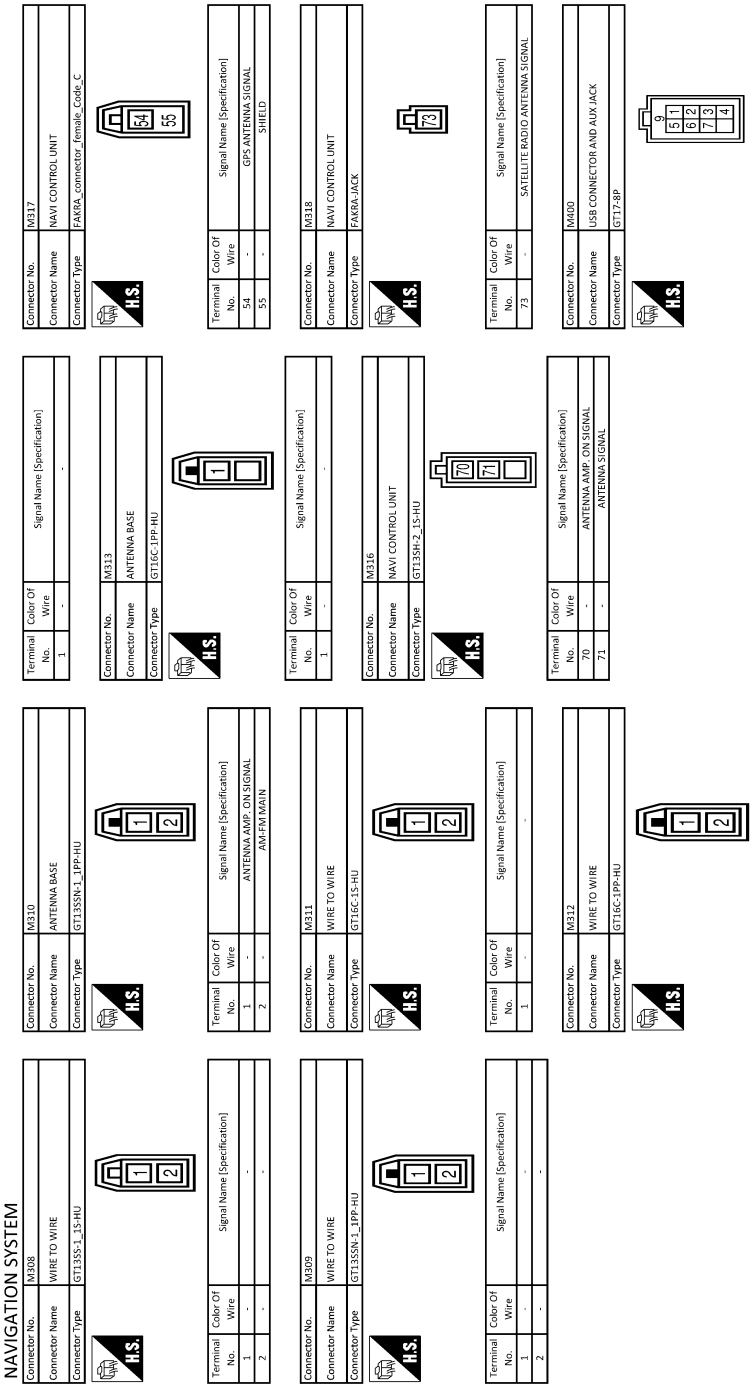


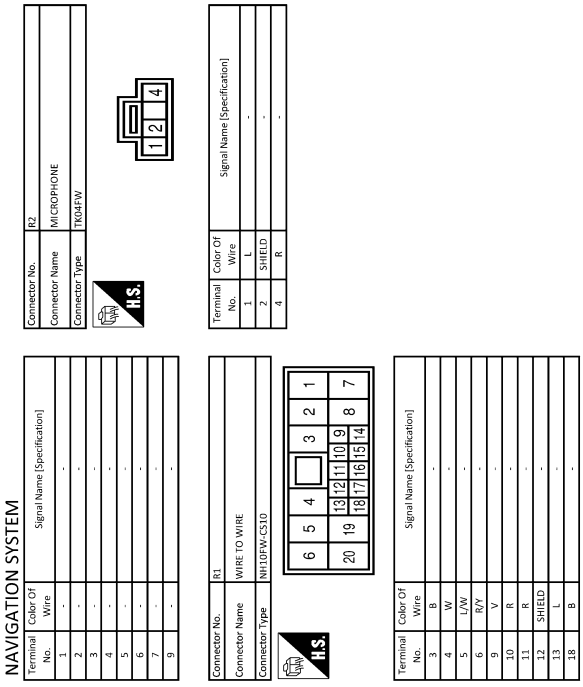
JRNWF0749GB



JRNWF0750GB



JRNWF0751GB



JRNWF0752GB

BASIC INSPECTION

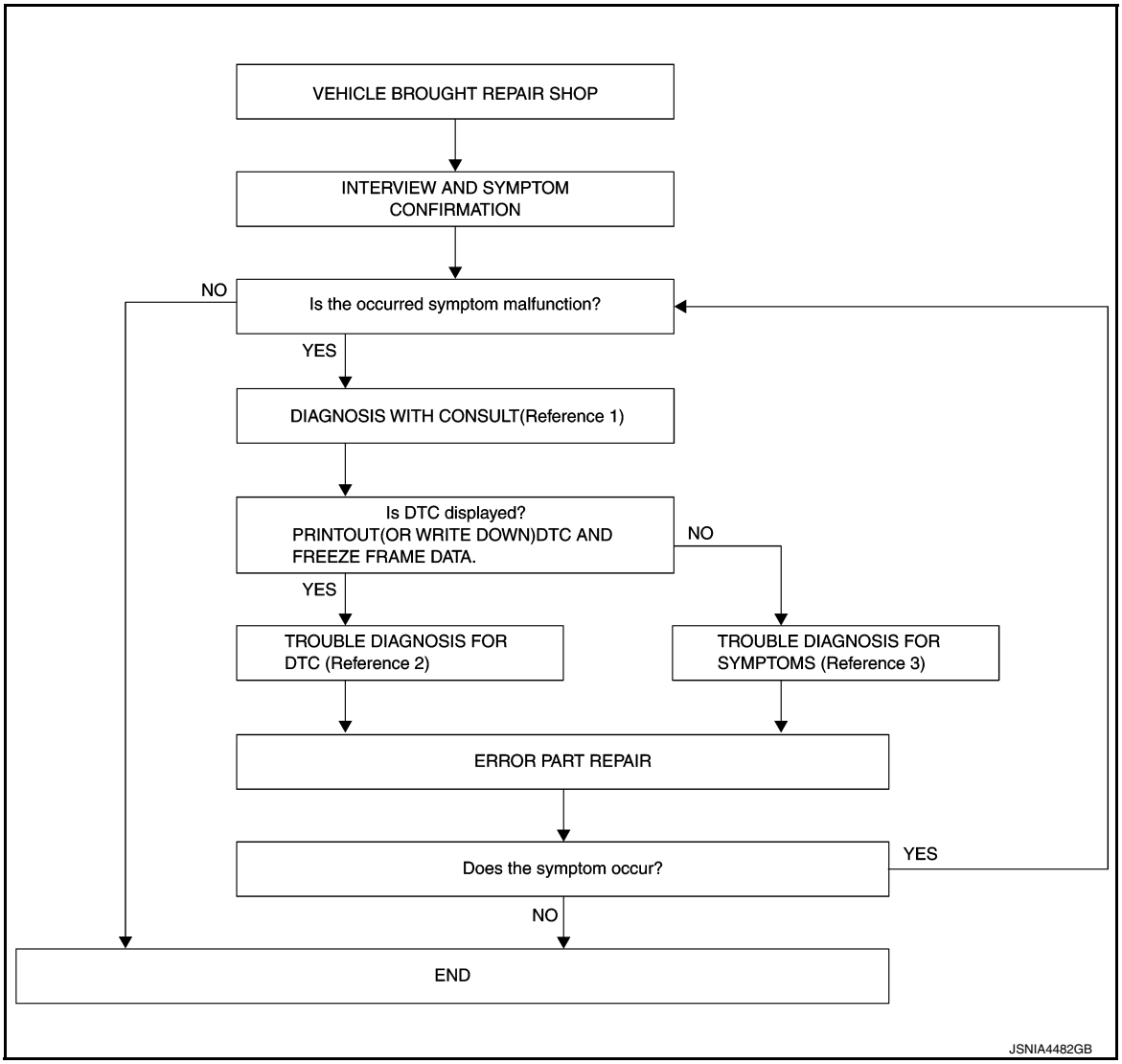
DIAGNOSIS AND REPAIR WORKFLOW

NAVIGATION SYSTEM

NAVIGATION SYSTEM : Work Flow

INFOID:0000000012202508

OVERALL SEQUENCE



- Reference 1··· Refer to AV-78, "CONSULT Function".
- Reference 2··· Refer to AV-86, "DTC Index".
- Reference 3··· Refer to AV-172, "Symptom Table".

DETAILED FLOW

1. INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

Is the occurred symptom malfunction?

YES >> GO TO 2.
NO >> INSPECTION END

2.DIAGNOSIS WITH CONSULT

1. Connect CONSULT and perform a self-diagnosis for “MULTI AV”. Refer to AV-78, "CONSULT Function".
   NOTE:
   Skip to step 4 of the diagnosis procedure if “MULTI AV” is not displayed.
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

Is DTC displayed?

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

3.TROUBLE DIAGNOSIS FOR DTC

1. Check the DTC indicated in the self-diagnosis results.
2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-86, "DTC Index".

>> GO TO 5.

4.TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-172, "Symptom Table".

>> GO TO 5.

5.ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.
2. Perform a self-diagnosis for “MULTI AV” with CONSULT.
   NOTE:
   Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.
3. Check that the symptom does not occur.

Does the symptom occur?

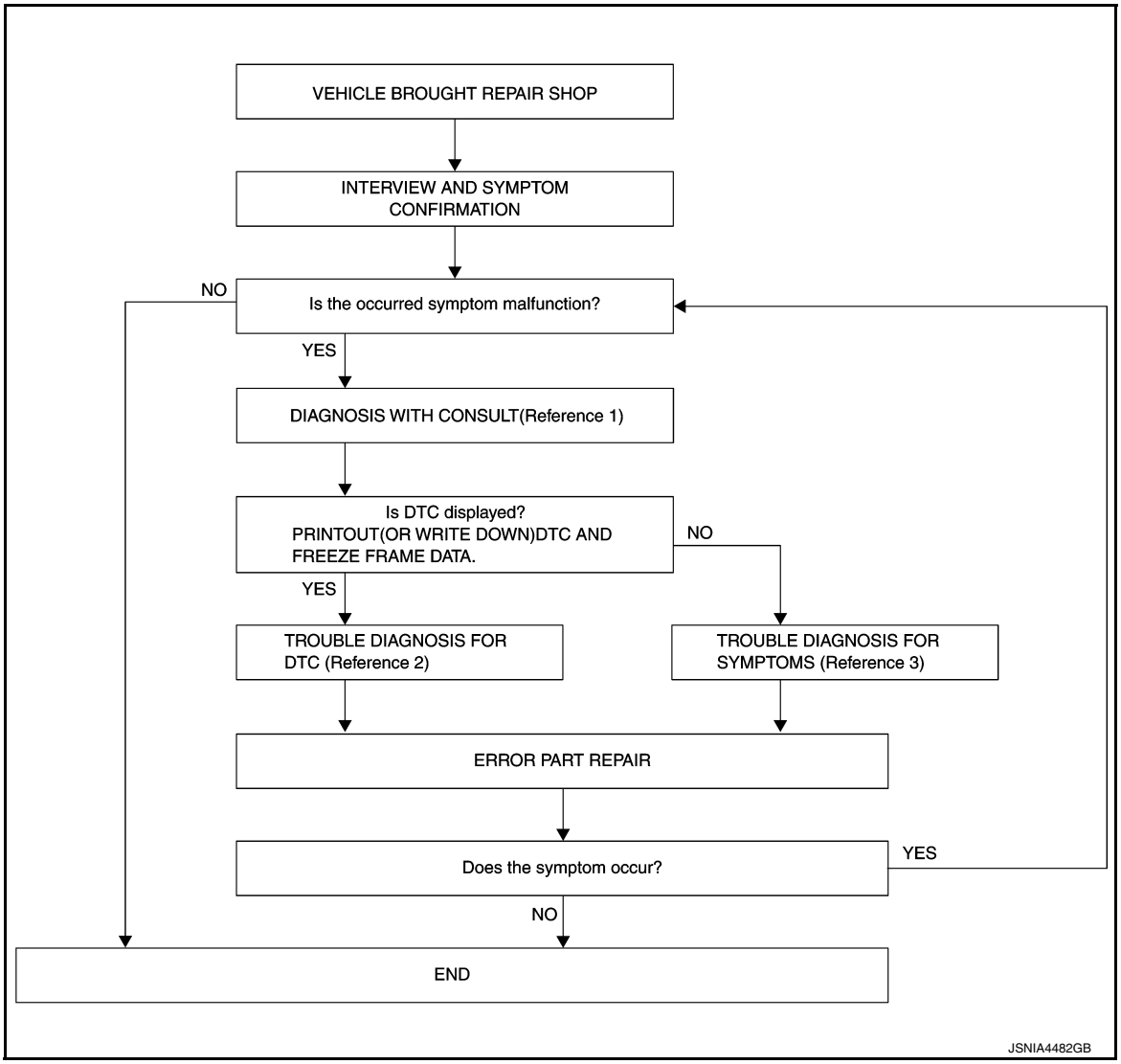
YES >> GO TO 1.
NO >> INSPECTION END

AROUND VIEW MONITOR SYSTEM

AROUND VIEW MONITOR SYSTEM : Work Flow

INFOID:0000000012202509

OVERALL SEQUENCE



- Reference 1··· Refer to AV-80, "CONSULT Function".
- Reference 2··· Refer to AV-93, "DTC Index".
- Reference 3··· Refer to AV-172, "Symptom Table".

DETAILED FLOW

1.INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.
- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check the symptom.

Is the occurred symptom malfunction?

YES >> GO TO 2.
NO >> INSPECTION END

2.DIAGNOSIS WITH CONSULT

1. Connect CONSULT and perform a self-diagnosis for “AVM”. Refer to AV-80, "CONSULT Function".
   NOTE:
   Skip to step 4 of the diagnosis procedure if “AVM” is not displayed.
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

Is DTC displayed?

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

3. TROUBLE DIAGNOSIS FOR DTC

1. Check the DTC indicated in the self-diagnosis results.
2. Perform the relevant diagnosis referring to the DTC Index. Refer to AV-93, "DTC Index".

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-172, "Symptom Table".

>> GO TO 5.

5. ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.
2. Perform a self-diagnosis for “AVM” with CONSULT.
   NOTE:
   Erase the stored self-diagnosis results after repairing or replacing the relevant components if any DTC has been indicated in the self-diagnosis results.
3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.
NO >> INSPECTION END

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING NAVI CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING NAVI CONTROL UNIT : Description

INFOID:0000000012202510

Perform the following operations when replacing NAVI control unit.
Configuration, refer to AV-113, "CONFIGURATION (NAVI CONTROL UNIT) : Description".

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description

INFOID:0000000012202511

Perform the calibrating camera image when replacing around view monitor control unit. Refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure".

CONFIGURATION (NAVI CONTROL UNIT)

CONFIGURATION (NAVI CONTROL UNIT) : Description

INFOID:0000000012202512

- Since vehicle specifications are not included in the NAVI control unit after replacement, it is required to write vehicle specifications with CONSULT. Refer to AV-113, "CONFIGURATION (NAVI CONTROL UNIT) : Special Repair Requirement".
- The NAVI control unit configuration includes functions as follows.

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

CONFIGURATION (NAVI CONTROL UNIT) : Special Repair Requirement

INFOID:0000000012202513

1.SAVING VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Before Replace ECU”, and save the current vehicle specification in CONSULT.
Is the vehicle specification saved normally?

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

2.REPLACE NAVI CONTROL UNIT

Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

CONSULT Configuration
Select “Configuration” or “After Replace ECU”, and write the vehicle specification saved in CONSULT to NAVI control unit.

>> GO TO 6.

4.REPLACE NAVI CONTROL UNIT

Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

>> GO TO 5.

5. WRITE VEHICLE SPECIFICATION

CONSULT Configuration

Select “Manual Configuration”, and write the setting value as shown in the following table to NAVI control unit according to the vehicle specification.

CAUTION:

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

NOTE:

- The items shown in this list depend on vehicle specifications.
- The config list may not be displayed depending on vehicle specifications. This is not a malfunction.
- If selection items are not displayed on the CONSULT screen, touch “NEXT”.

MANUAL SETTING ITEM		Detail
Items	Setting value	
TRANSMISSION	MT	M/T models
	CVT	CVT models
	AT	A/T models
	OTHER	Except for above
SOUND SYSTEM	BASE	—
	BOSE	With BOSE system
	BOSE SURROUND	With BOSE surround system
	ROCKFORD FOSGATE	Without BOSE system without woofer
	ROCKFORD SUB WOOFER	Without BOSE system with woofer
CAMERA SYSTEM	NONE	—
	AVM	—
	NONE/AVM	Without camera system or with around view monitor system
	REAR	With rear view monitor system
	REAR+SIDE	With rear view monitor system and front-side view monitor function
	AVM+PA	With around view monitor system and parking assist function

>> GO TO 6.

6. PERFORM SELF-DIAGNOSIS

CONSULT Self Diagnostic Result

Perform self-diagnosis of CONSULT, and check whether or not DTC U12AA is detected.

Is DTC U12AA detected?

YES >> GO TO 5.
NO >> GO TO 7.

7. OPERATION CHECK

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

>> WORK END

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure

INFOID:0000000012202514

1.SAVING VEHICLE SPECIFICATION

CONSULT Configuration
Perform “Before Replace ECU”, and save the current vehicle specification in CONSULT.

Is the vehicle specification saved normally?

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

2.REPLACE AROUND VIEW MONITOR CONTROL UNIT

Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

CONSULT Configuration
Select “Configuration” or “After Replace ECU”, and write the vehicle specification saved in CONSULT to around view monitor control unit.

>> GO TO 6.

4.REPLACE AROUND VIEW MONITOR CONTROL UNIT

Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".

>> GO TO 5.

5.WRITE VEHICLE SPECIFICATION

CONSULT Configuration
Select “WRITE CONFIGURATION - Manual selection” and write in the following list at a around view monitor control unit depending on a vehicle specification.

Setting item		Detail
Items	Setting value	
TRANSMISSION	A/T	CVT models
	M/T	M/T models

>> GO TO 6.

6.PERFORM SELF-DIAGNOSIS

CONSULT Self Diagnostic Result
Perform self-diagnosis of CONSULT, and check whether or not DTC U1305 is detected.

Is DTC U1305 detected?

YES >> GO TO 5.
NO >> GO TO 7.

7.OPERATION CHECK

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

>> WORK END

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Description

INFOID:0000000012202515

Adjust the center position of the predictive course line of the rear view monitor if it is shifted. Refer to AV-116, "PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure".

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure

INFOID:0000000012202516

1.DRIVING

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

>> END

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description

INFOID:0000000012202517

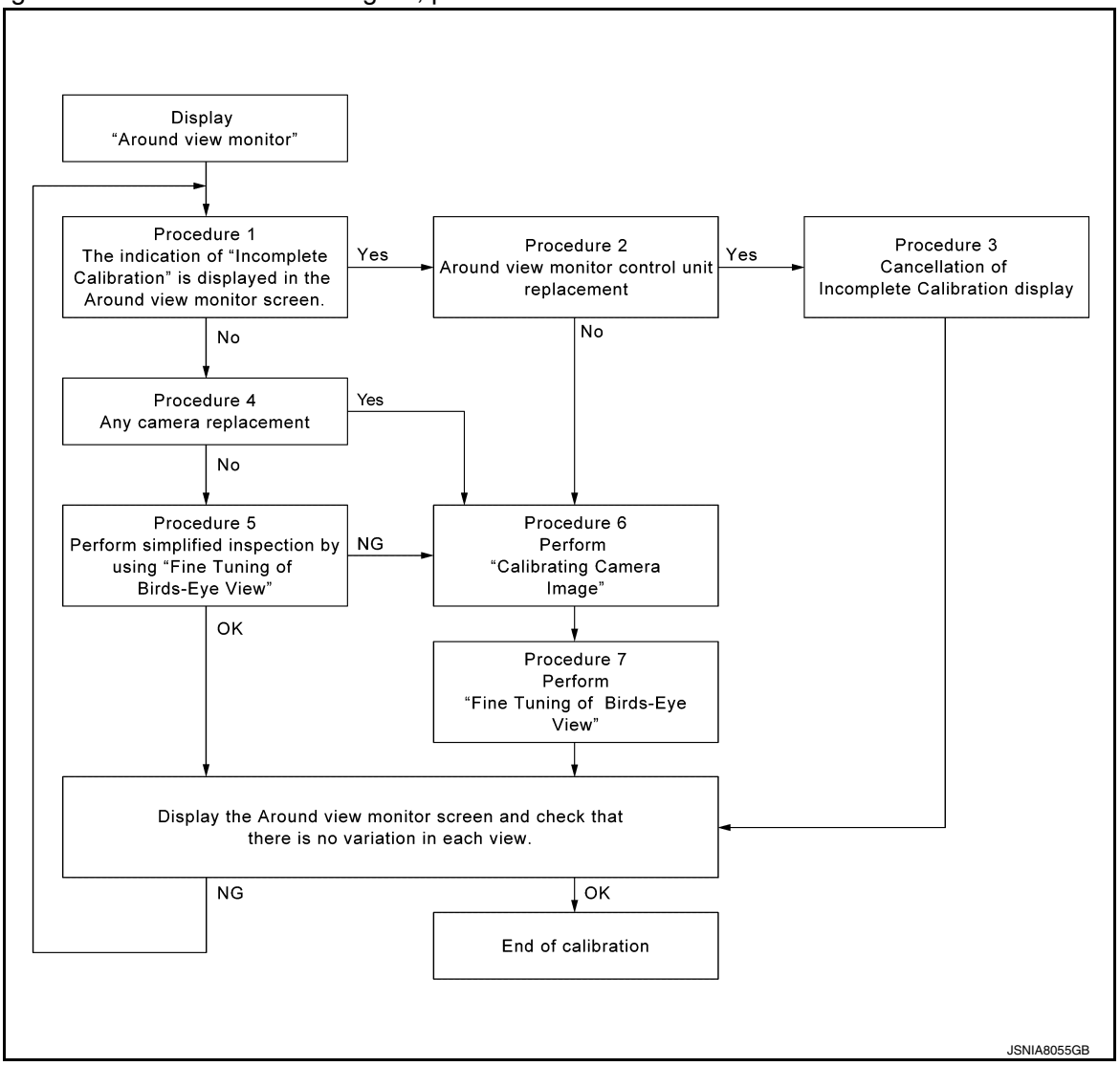
- Calibration must be performed after removing/replacing the cameras, removing parts (e.g. front grille, door mirror, and others) mounted on the cameras, or replacing the Around view monitor control unit.
- The use of CONSULT is required to perform calibration or writing of calibration results to the Around view monitor control unit.
- Align the white lines on the road near the vehicle at the boundary of each camera image by this camera calibration. The white lines far from the vehicle may not be aligned at the boundary of each camera image. The farther the line, the greater the difference is.
- Calibrating camera image, refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure".

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure

INFOID:0000000012202518

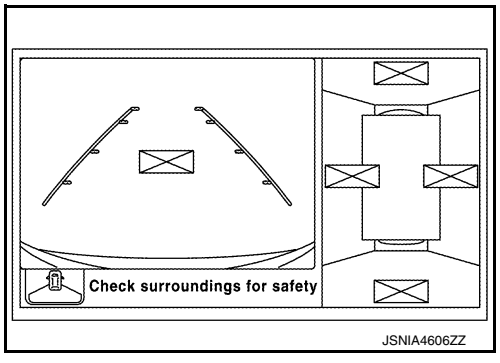
CALIBRATION FLOWCHART

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



NOTE:

View in the incomplete calibration state is indicated by “⊠” on the around view monitor.



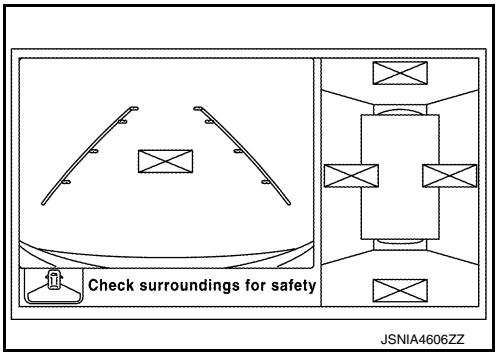
CALIBRATION PROCEDURE

1. AROUND VIEW MONITOR SCREEN CONFIRMATION

Check that there is no indication of “Incomplete calibration”.

Is the “Incomplete calibration” display visible?

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



2. CHECK THAT AROUND VIEW MONITOR CONTROL UNIT IS REPLACED

Check that the around view monitor control unit is replaced.

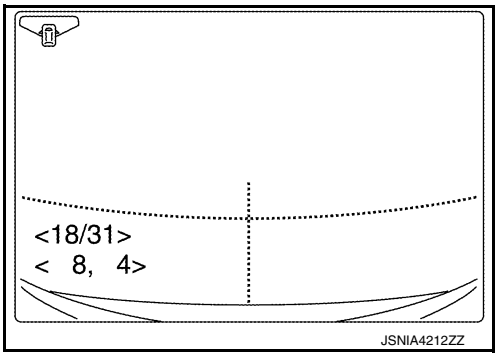
Is the around view monitor control unit replaced?

YES >> GO TO 3.
NO >> GO TO 6.

3. CANCEL THE INDICATION OF INCOMPLETE CALIBRATION (PERFORM THIS ONLY AFTER REPLACING AROUND VIEW MONITOR CONTROL UNIT.)

CONSULT work support

1. On the CONSULT screen, touch “CALIBRATING CAMERA IMAGE (FRONT CAMERA)”, “CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)”, “CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)”, or “CALIBRATING CAMERA IMAGE (REAR CAMERA)” to accept the selection.
   NOTE:
   To cancel the indication of Incomplete calibration, select items based on the target camera.
2. On the adjustment screen of each camera, touch “APPLY” button. After this, touch “OK” button.
   CAUTION:
   - **Never perform operations other than those mentioned above.**
   - **Never perform “Initialize Camera Image Calibration”.**
3. Display the around view monitor screen to check that there is no errors, such as deviations among the camera images.



Is there a malfunction?

YES >> Calibration end
NO >> GO TO 1.

4. CHECK THAT ANY CAMERA IS REPLACED

Check that the any camera is replaced.

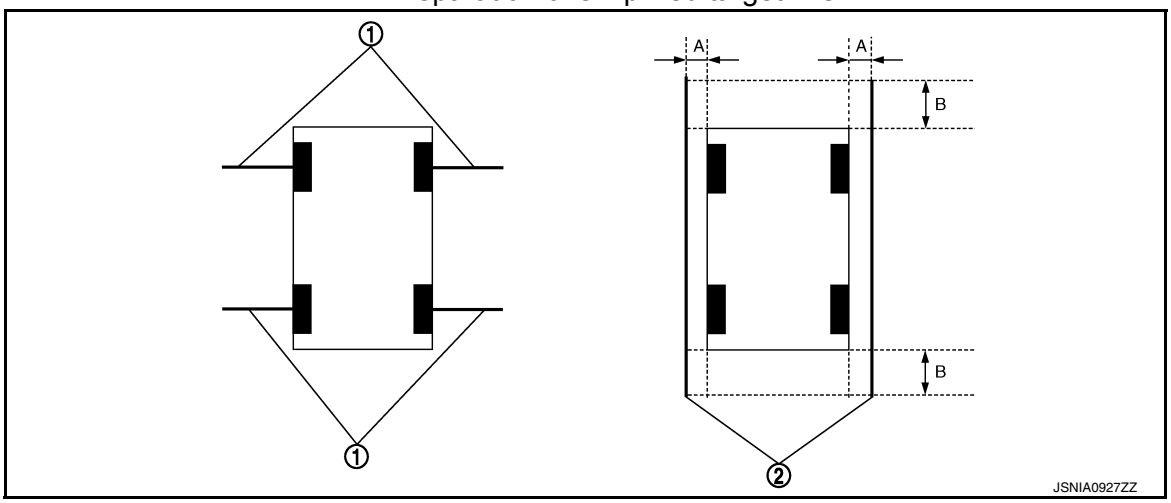
Is the any camera replaced?

YES >> GO TO 6.
NO >> GO TO 5.

5. PERFORM SIMPLIFIED CONFIRMATION/ADJUSTMENT BY “FINE TUNING OF BIRDS-EYE VIEW”

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

Preparation of simplified target line



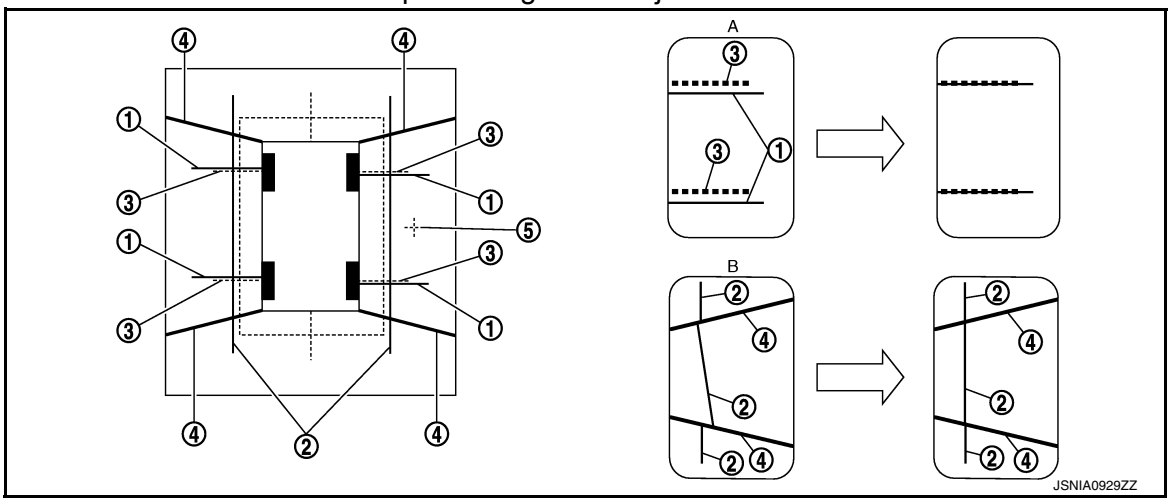
1. Target lines 1
2. Target lines 2
A. Approx. 30 cm (11.8 in)
B. Approx. 1.0 m (39.3 in)

3. CONSULT work support
   Touch “FINE TUNING OF BIRDS-EYE VIEW” on the CONSULT screen.
4. On the CONSULT screen, touch “SELECT” button to select right or left camera and perform camera calibration as instructed below:

- If the marker on the screen deviates from Target line 1, touch “AXIS X” button and “AXIS Y” button to adjust so that the marker is placed on the Target line 1.
- If Target line 2 is misaligned among the cameras, adjust each camera image to bring Target line 2 into a straight line.

CAUTION:
Never adjust the front camera and rear camera. Only adjust the right and left cameras.

Simplified target line adjustment method



1. Target lines 1
2. Target lines 2
3. Marker for target line 1
4. Boundary between cameras
5. Crosshairs cursor (mark indicated the selected camera)
A. Adjustment method for target lines 1 (right)
B. Adjustment method for target lines 2 (right)

5. Adjust right and left cameras. Touch "APPLY" on the CONSULT screen to display adjustment results.
6. After adjusting right and left cameras, check that the marker is properly placed on the screen and there is no deviation in Target line 1.
   NOTE:
   • It can be initialized to the NISSAN factory default condition with “Initialize Camera Image Calibration”.
   • The adjustment value is cancelled on this mode by performing “Initialize Camera Image Calibration”.

Is the difference corrected?

YES >> On the CONSULT screen, touch “OK” button to complete writing to the around view monitor control unit.

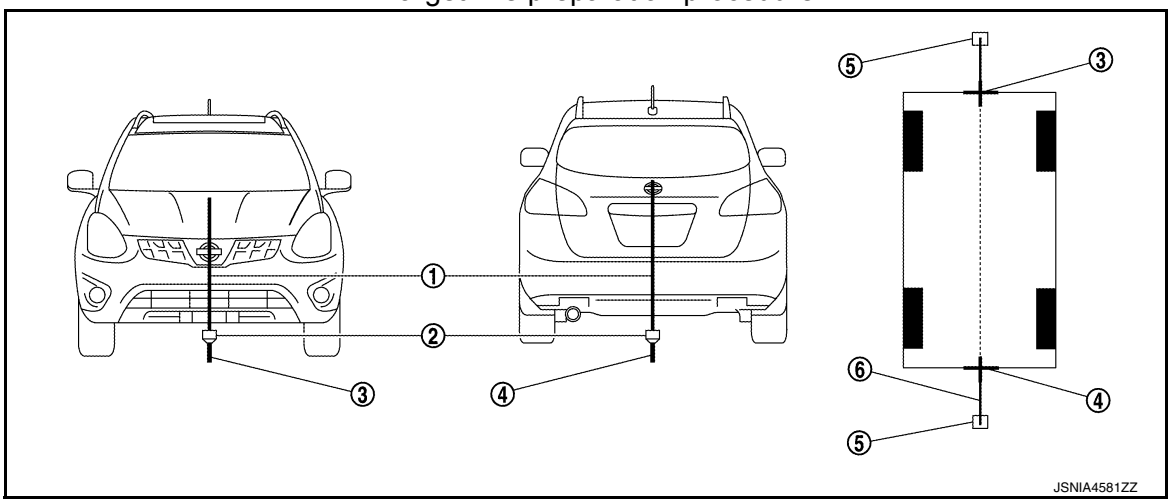
NO >> GO TO 6.

6. PERFORM “CALIBRATING CAMERA IMAGE”

Preparation of target line

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

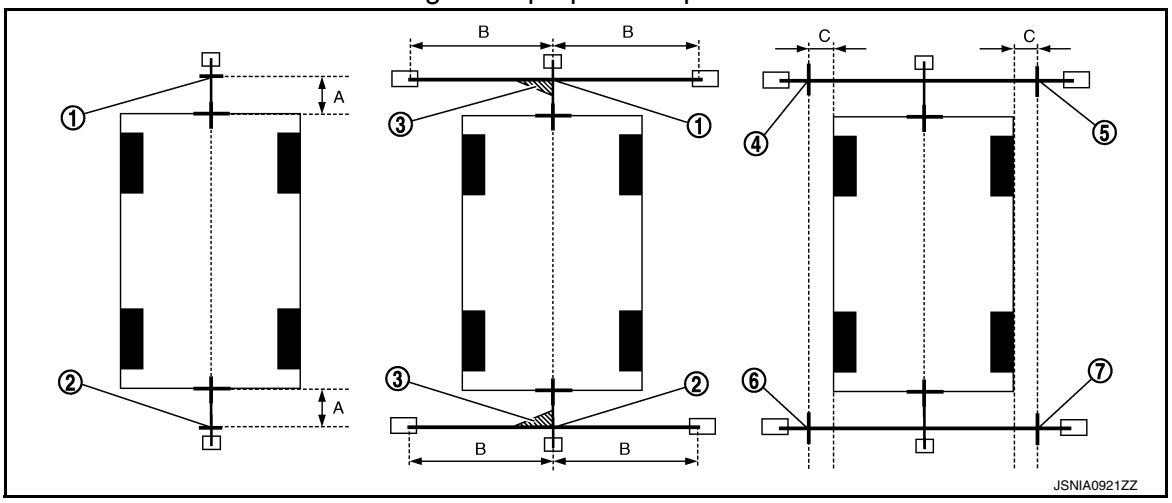
Target line preparation procedure 1



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

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

Target line preparation procedure 2



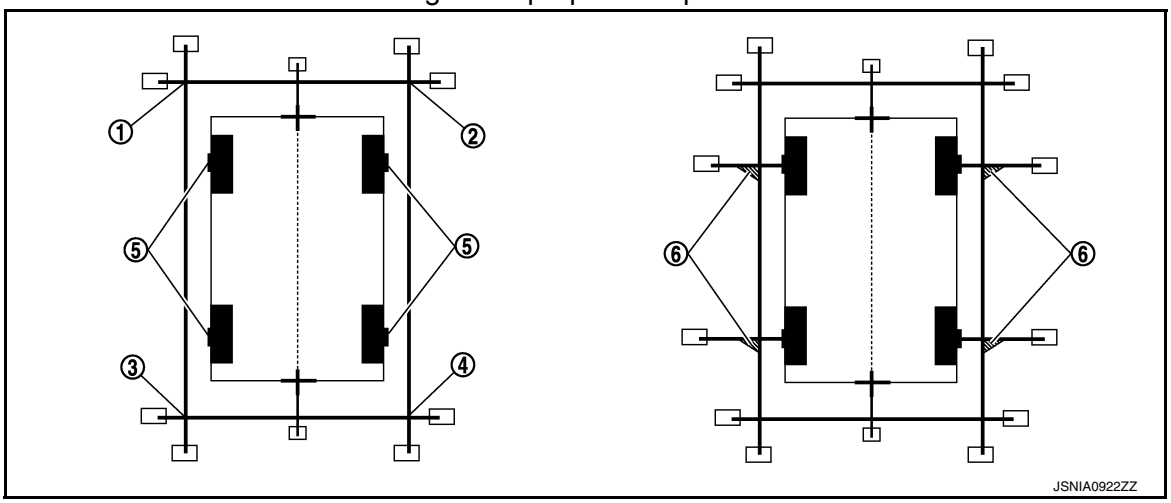
1. Point FM
2. Point RM
3. Triangle scale
4. Point FL (mark)
5. Point FR (mark)
6. Point RL (mark)

7. Point RR (mark)

A. 75 cm (29.5 in) B. Approx. 1.5 m (59 in) C. 30 cm (11.8 in) [Vehicle width/ 2 + 30 cm (11.8 in) from the points FM and RM]

6. Draw the lines of the points FL – RL and FR – RR with vinyl string, and fix it with packing tape.
7. Put a mark on the center of each axle, draw vertical lines to the lines of the points FL – RL and FR – RR from the marks on the center of the axle using a triangle scale, and then fix the lines using packing tape.

Target line preparation procedure 3

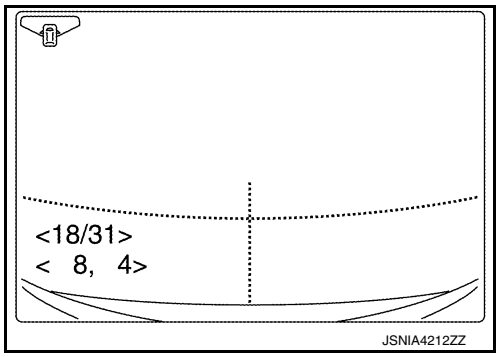


1. Point FL 2. Point FR 3. Point RL
4. Point RR 5. Center position of axle 6. Triangle scale

Perform “Calibrating Camera Image”

CONSULT work support

1. On the CONSULT screen, touch “CALIBRATING CAMERA IMAGE (FRONT CAMERA)”, “CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)”, “CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)”, or “CALIBRATING CAMERA IMAGE (REAR CAMERA)” to accept the selection.
NOTE:
To cancel the indication of Incomplete calibration, select items based on the target camera.
2. On the adjustment screen of each camera, adjust the parameter by touching the “AXIS X” button, “AXIS Y” button, and “ROTATE” button to place the calibration marker shown on the camera screen on the target line drawn on the ground.



Adjustment range	
Rotation direction (Center dial)	: 31 patterns (16 on the center)
Upper/lower direction (upper/lower switch)	: –22 – 22
Left/right direction (left/right switch)	: –22 – 22

3. Touch “APPLY” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are shown on the camera screen.
CAUTION:
Check that “PRCSNG” is displayed. Do never perform other operations while “PRCSNG” is displayed.
4. Touch “OK” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are written to the around view monitor control unit.
CAUTION:
Check that “PRCSNG” is displayed. Do never perform other operations while “PRCSNG” is displayed.

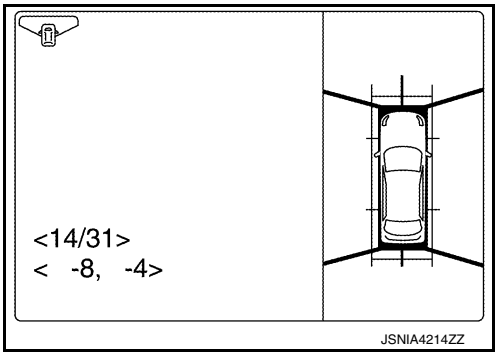
>> GO TO 7.

7. PERFORM “FINE TUNING OF BIRDS-EYE VIEW”

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

CONSULT work support

1. Select “FINE TUNING OF BIRDS-EYE VIEW” by touching CONSULT screen.
2. On the adjustment screen of each camera, adjust the parameter by touching the “AXIS X” button, “AXIS Y” button”, and “ROTATE” button to place the calibration marker shown on the camera screen on the target line drawn on the ground.
   NOTE:
   Touch “SELECT” button on the CONSULT screen to select the target camera.
3. Touch “APPLY” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are shown on the camera screen.
   CAUTION:
   Check that “PRCSNG” is displayed. Do never perform other operations while “PRCSNG” is displayed.



4. Touch “OK” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are written to the around view monitor control unit.
   CAUTION:
   - **Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.**
   - **After pressing the “OK” button, never press buttons other than the “BACK” button.**

   NOTE:
   - It can be initialized to the NISSAN factory default condition with “Initialize Camera Image Calibration”.
   - The adjustment value is cancelled in this mode by performing “Initialize Camera Image Calibration”.

>> Calibration end

DTC/CIRCUIT DIAGNOSIS

C1A03 VEHICLE SPEED SENSOR

DTC Logic

INFOID:0000000012202519

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A03	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the around view monitor control unit via CAN communication, are inconsistent	• ABS actuator and electric unit (control unit) • Around view monitor control unit

NOTE:
If DTC “C1A03” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic" for DTC “U1000”.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1A03” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “C1A03” detected as the current malfunction?

YES >> Refer to AV-123, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202520

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “C1A03” in “Self Diagnostic Result” of “AVM”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-50, "DTC Index".
NO >> GO TO 3.

3.PEPLACE AROUND VIEW MONITOR CONTROL UNIT

1. Replace the around view monitor control unit. Refer to AV-190, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to AV-123, "DTC Logic".

Is “C1A03” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-153, "Removal and Installation".
NO >> INSPECTION END

C1A39 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000012202521

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A39	STRG SEN CIR	If the steering angle sensor is malfunction	Steering angle sensor

NOTE:
If DTC “C1A39” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1A39” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “C1A39” detected as the current malfunction?

YES >> Refer to AV-124, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202522

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “C1A39” in “Self Diagnostic Result” of “AVM”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-50, "DTC Index".
NO >> GO TO 3.

3.PEPLACE AROUND VIEW MONITOR CONTROL UNIT

1. Replace the around view monitor control unit. Refer to AV-190, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to AV-124, "DTC Logic".

Is “C1A39” detected?

YES >> Replace the steering angle sensor. Refer to AV-194, "Removal and Installation".
NO >> INSPECTION END

U0122 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Logic

INFOID:0000000012202523

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0122	VDC P-RUN DIAGNOSIS	If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:
If DTC “U0122” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U0122” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U0122” detected as the current malfunction?

YES >> Refer to AV-125, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202524

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0122” in “Self Diagnostic Result” of “AVM”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-50, "DTC Index".
NO >> GO TO 3.

3.PEPLACE AROUND VIEW MONITOR CONTROL UNIT

1. Replace the around view monitor control unit. Refer to AV-190, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to AV-125, "DTC Logic".

Is “U0122” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-153, "Removal and Installation".
NO >> INSPECTION END

U0416 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Logic

INFOID:0000000012202525

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0416	VDC CHECKSUM DIAGNOSIS	If around view monitor control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:
If DTC “U0416” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U0416” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U0416” detected as the current malfunction?

YES >> Refer to AV-126, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202526

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0416” in “Self Diagnostic Result” of “AVM”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to AV-128, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-50, "DTC Index".
NO >> GO TO 3.

3.PEPLACE AROUND VIEW MONITOR CONTROL UNIT

1. Replace the around view monitor control unit. Refer to AV-190, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to AV-126, "DTC Logic".

Is “U0416” detected?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to BRC-153, "Removal and Installation".
NO >> INSPECTION END

U0428 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000012202527

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

NOTE:
If DTC “U0428” is detected along with DTC “U1232”, first diagnose the DTC “U1232”. Refer to AV-146, "DTC Logic".

Diagnosis Procedure

INFOID:0000000012202528

1.ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

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

>> Perform adjustment of the neutral position of the steering angle sensor. Refer to BRC-63, "Description".

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

U1000 CAN COMM CIRCUIT

NAVI CONTROL UNIT

NAVI CONTROL UNIT : Description

INFOID:0000000012202529

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.

NAVI CONTROL UNIT : DTC Logic

INFOID:0000000012202530

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1000	CAN COMM CIRCUIT (CAN communication circuit)	NAVI control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

NAVI CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012202531

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-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-45, "Intermittent Incident".

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : Description

INFOID:0000000012202532

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-30, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000012202533

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	Around view monitor control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system

NOTE:
If “U1000” is detected, first diagnose the CAN communication system.

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012202534

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-45, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

NAVI CONTROL UNIT

NAVI CONTROL UNIT : DTC Logic

INFOID:0000000012202535

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	CAN initial diagnosis malfunction is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : Description

INFOID:0000000012202536

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

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000012202537

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1010	CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	Around view monitor control unit

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012202538

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U1010” detected as the current malfunction?

YES >> Replace the around view monitor control unit. Refer to AV-190, "Removal and Installation".
NO >> INSPECTION END

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000012202539

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U111A	REAR CAMERA IMAGE SIGNAL	Camera image signal circuit is open or shorted.	• Camera image signal circuit between rear camera and around view monitor control unit • Around view monitor control unit • Rear camera

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Turn ignition switch OFF and wait at least 30 seconds.
3. Turn ignition switch ON and wait at least 30 seconds or more.
4. Select “Self Diagnostic Result” mode of “AVM” using CONSULT.
5. Check DTC.

Is DTC U111A detected?

YES >> Refer to AV-131, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202540

1.CHECK CONTINUITY REAR CAMERA POWER SUPPLY AND GROUND CIRCUIT

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

Around view monitor control unit		Rear camera		Continuity
Connector	Terminals	Connector	Terminals	
M98	17	D113	7	Existed
	18		8	

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M98	18		Not existed

Is inspection result normal?

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

2.CHECK VOLTAGE REAR CAMERA POWER SUPPLY

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

Terminal				Condition	Standard	Reference voltage (Approx.)
(+)		(−)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	18	M98	17	“CAMERA” switch (around view monitor switch) is ON or shift position is “R”.	3.5 V or more	6.0 V

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".

3. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

Around view monitor control unit		Rear camera		Continuity
Connector	Terminals	Connector	Terminals	
M98	19	D113	1	Existed
	20		5	

4. Check continuity between around view monitor control unit harness connector and ground.

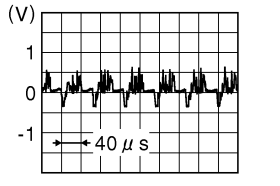
Around view monitor control unit		Ground	Continuity
Connector	Terminals		
M98	19		Not existed
	20		

Is inspection result normal?

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

4. CHECK CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit connector and rear camera connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector.

Terminal				Condition	Standard	Reference value
(+)		(−)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	20	M98	19	Shift position is in “R”.	Waveform according to camera image is input.	

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Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".
NO >> Replace rear camera. Refer to AV-192, "Removal and Installation".

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000012202541

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U111B	SIDE CAMERA RH IMAGE SIGNAL	Camera image signal circuit is open or shorted.	• Camera image signal circuit between side camera RH and around view monitor control unit • Around view monitor control unit • Side camera RH

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Shift the selector lever to “R” position.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U111B” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U111B” detected as the current malfunction?

YES >> Refer to AV-134, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202542

1.CHECK CONTINUITY SIDE CAMERA RH POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

Around view monitor control unit		Door mirror (passenger side)		Continuity
Connector	Terminals	Connector	Terminals	
M98	9	D9	6	Existed
	10		14	

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M98	10		Not existed

Is inspection result normal?

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

2.CHECK VOLTAGE SIDE CAMERA RH POWER SUPPLY

1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit harness connector and ground.

Terminal				Condition	Standard	Reference voltage (Approx.)
(+)		(–)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	10	M98	9	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	3.5 V or more	6.0 V

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".

3. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (passenger side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (passenger side) harness connector.

Around view monitor control unit		Door mirror (passenger side)		Continuity
Connector	Terminals	Connector	Terminals	
M98	11	D9	7	Existed
	12		15	

4. Check continuity between around view monitor control unit harness connector and ground.

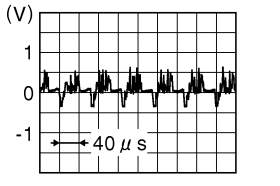
Around view monitor control unit		Ground	Continuity
Connector	Terminals		
M98	11		Not existed
	12		

Is inspection result normal?

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

4. CHECK CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit connector and door mirror (passenger side) connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector terminals.

Terminal				Condition	Standard	Reference value
(+)		(–)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	12	M98	11	Shift position is in "R".	Waveform according to camera image is input.	

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Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".
NO >> Replace side camera RH. Refer to AV-193, "Removal and Installation".

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000012202543

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U111C	FRONT CAMERA IMAGE SIGNAL	Camera image signal circuit is open or shorted.	• Camera image signal circuit between front camera and around view monitor control unit • Around view monitor control unit • Front camera

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Shift the selector lever to “R” position.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U111C” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U111C” detected as the current malfunction?

YES >> Refer to AV-137, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202544

1.CHECK CONTINUITY FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and front camera connector.
3. Check continuity between around view monitor control unit harness connector and front camera harness connector.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M98	5	E72	2	Existed
	6		1	

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M98	6		Not existed

Is inspection result normal?

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

2.CHECK VOLTAGE FRONT CAMERA POWER SUPPLY

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

Terminal				Condition	Standard	Reference voltage (Approx.)
(+)		(−)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	6	M98	5	“CAMERA” switch (around view monitor switch) is ON or shift position is “R”.	3.5 V or more	6.0 V

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".

3. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and front camera connector.
3. Check continuity between around view monitor control unit harness connector and front camera harness connector.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M98	7	E72	4	Existed
	8		3	

4. Check continuity between around view monitor control unit harness connector and ground.

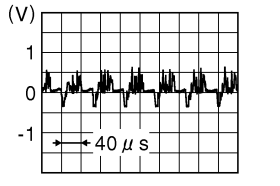
Around view monitor control unit		Ground	Continuity
Connector	Terminals		
M98	7		Not existed
	8		

Is inspection result normal?

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

4. CHECK CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit connector and front camera connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector terminals.

Terminal				Condition	Standard	Reference value
(+)		(−)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	8	M98	7	Shift position is in “R”.	Waveform according to camera image is input.	

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Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".
NO >> Replace front camera. Refer to AV-191, "Removal and Installation".

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000012202545

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U111D	SIDE CAMERA LH IMAGE SIGNAL	Camera image signal circuit is open or shorted.	• Camera image signal circuit between side camera LH and around view monitor control unit • Around view monitor control unit • Side camera LH

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Shift the selector lever to “R” position.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U111D” is detected as the current malfunction in “Self Diagnostic Result” of “AVM”.

Is “U111D” detected as the current malfunction?

YES >> Refer to AV-140, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-45, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000012202546

1.CHECK CONTINUITY SIDE CAMERA LH POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

Around view monitor control unit		Door mirror (driver side)		Continuity
Connector	Terminals	Connector	Terminals	
M98	13	D30	6	Existed
	14		14	

4. Check continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M98	14		Not existed

Is inspection result normal?

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

2.CHECK VOLTAGE SIDE CAMERA LH POWER SUPPLY

1. Connect around view monitor control unit connector and door mirror (driver side) connector.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit harness connector and ground.

Terminal				Condition	Standard	Reference voltage (Approx.)
(+)		(−)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	14	M98	13	"CAMERA" switch (around view monitor switch) is ON or shift position is "R".	3.5 V or more	6.0 V

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".

3. CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector and door mirror (driver side) connector.
3. Check continuity between around view monitor control unit harness connector and door mirror (driver side) harness connector.

Around view monitor control unit		Door mirror (driver side)		Continuity
Connector	Terminals	Connector	Terminals	
M98	15	D30	7	Existed
	16		15	

4. Check continuity between around view monitor control unit harness connector and ground.

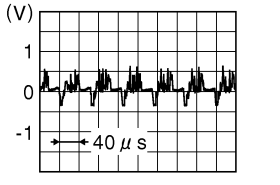
Around view monitor control unit		Ground	Continuity
Connector	Terminals		
M98	15		Not existed
	16		

Is inspection result normal?

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

4. CHECK CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit connector and door mirror (driver side) connector.
2. Turn ignition switch ON.
3. Check signal between around view monitor control unit harness connector terminals.

Terminal				Condition	Standard	Reference value
(+)		(−)				
Around view monitor control unit						
Connector	Terminal	Connector	Terminal			
M98	16	M98	15	Shift position is in "R".	Waveform according to camera image is input.	

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Is inspection result normal?

YES >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".
NO >> Replace side camera LH. Refer to AV-193, "Removal and Installation".

U1200 NAVI CONTROL UNIT

DTC Logic

INFOID:0000000012202547

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1200	Cont Unit (Control unit FLASH-ROM)	NAVI control unit malfunction is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

U1217 NAVI CONTROL UNIT

DTC Logic

INFOID:0000000012202548

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1217	BLUETOOTH MODULE (Bluetooth module connection)	NAVI control unit malfunction is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

U1229 NAVI CONTROL UNIT

DTC Logic

INFOID:0000000012202549

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1229	iPod CERTIFICATION (iPod certification error)	NAVI control unit malfunction is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000012202550

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1232	ST ANGLE SEN CALIB	The neutral position registration of the steering angle sensor can not finish.	• Steering angle sensor • Around view monitor control unit

Diagnosis Procedure

INFOID:0000000012202551

1.REGISTER THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

1. Turn the ignition switch ON.
2. Perform registration of the neutral position of the steering angle sensor. Refer to BRC-63, "Description".
3. Check “Self Diagnostic Result” of “AVM” with CONSULT.

Is “U1232” detected as the current malfunction?

YES >> GO TO 2.
NO >> INSPECTION END

2.CHECK STEERING ANGLE SENSOR

Check steering angle sensor. Refer to BRC-50, "DTC Index".

Is the inspection result normal?

YES >> Replace the around view monitor control unit. Refer to AV-190, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

U1244 GPS ANTENNA

DTC Logic

INFOID:0000000012202552

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1244	GPS ANTENNA CONN (GPS antenna connection)	GPS antenna connection malfunction is detected.	• GPS antenna connector connection • GPS antenna

Diagnosis Procedure

INFOID:0000000012202553

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 NAVI CONTROL UNIT VOLTAGE

1. Disconnect GPS antenna connector.
2. Turn ignition switch ON.
3. Check voltage between NAVI control unit and ground.

(+) NAVI control unit Terminal	(–)	Standard	Voltage (Approx.)
54	Ground	—	5.0 V

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

U1258 SATELLITE RADIO ANTENNA

DTC Logic

INFOID:0000000012202554

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
SXM ANTENNA CONN [U1258]	Open or short to ground is detected in satellite antenna connection.	• Satellite antenna disconnection. • Open or short to ground in satellite antenna signal circuit.

Diagnosis Procedure

INFOID:0000000012202555

Regarding Wiring Diagram information, refer to AV-94, "Wiring Diagram".

1.SATELLITE ANTENNA INSPECTION

Visually inspect the satellite antenna and antenna feeder. Refer to AV-197, "Feeder Layout".

Is inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning components.

2.CHECK NAVI CONTROL UNIT VOLTAGE

1. Turn ignition switch ON.
2. Disconnect NAVI control unit harness connector.
3. Check voltage between NAVI control unit connector and ground.

NAVI control unit	Ground	Voltage
Terminal		
73	—	5.0 V

Is inspection result normal?

YES >> Replace satellite radio antenna. Refer to AV-187, "Removal and Installation".
NO >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

U1263 USB

DTC Logic

INFOID:0000000012202556

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1263	USB OVERCURRENT (USB over current error)	Detection of overcurrent in USB connector.	• USB harness between the NAVI control unit • USB connector

Diagnosis Procedure

INFOID:0000000012202557

1.CHECK USB HARNESS

Visually check USB harness.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace USB harness.

2.CHECK USB CONNECTOR.

Visually check USB connector.

Is the inspection result normal?

YES >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".
NO >> Replace USB connector and AUX jack. Refer to AV-196, "Removal and Installation".

U1264 AMP.

DTC Logic

INFOID:0000000012202558

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U1264	• ANTENNA AMP TERMINAL OPEN (Antenna amp terminal Open) • ANTENNA AMP TERMINAL SHORT (Antenna amp terminal Short)	Antenna amp. ON circuit is open or shorted.	Check antenna amp. ON signal circuit between the NAVI control unit and antenna base.

Diagnosis Procedure

INFOID:0000000012202559

1.CHECK CONTINUITY BETWEEN NAVI CONTROL UNIT AND ANTENNA BASE

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

NAVI control unit		Antenna base		Continuity
Connector	Terminals	Connector	Terminals	
M316	70	M310	1	Existed

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

NAVI control unit		Ground	Continuity
Connector	Terminals		
M316	70		Not existed

Is the inspection result normal?

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

2.CHECK VOLTAGE NAVI CONTROL UNIT

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

NAVI control unit		(–)	Voltage (Approx.)
Connector	Terminals		
M316	70	Ground	12.0 V

Is the inspection result normal?

YES >> Replace antenna base. Refer to AV-187, "Removal and Installation".
NO >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

U12AA CONFIGURATION ERROR

DTC Logic

INFOID:0000000012202560

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12AA	CONFIGURATION ERROR (Configuration Error)	NAVI control unit is not properly configured or configuration is not recognized.	Perform configuration of NAVI control unit with CONSULT.

U12AB ANTENNA

DTC Logic

INFOID:0000000012202561

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12AB	FM ANTENNA ERROR (Frequency modulation antenna error)	FM antenna connection error is detected.	• FM antenna feeder connection • FM antenna feeder

Diagnosis Procedure

INFOID:0000000012202562

1.WINDOW ANTENNA INSPECTION

Visually inspect the window antenna and antenna feeder. Refer to AV-197, "Feeder Layout".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK CONTINUITY BETWEEN NAVI CONTROL UNIT AND ANTENNA BASE

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

NAVI control unit		Antenna base		Continuity
Connector	Terminals	Connector	Terminals	
M316	71	M310	2	Existed

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

NAVI control unit		Ground	Continuity
Connector	Terminals		
M316	71		Not existed

Is the inspection result normal?

YES >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".
NO >> Repair harness or connector.

U12AC NAVI CONTROL UNIT

DTC Logic

INFOID:0000000012202563

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12AC	DISPLAY TEMPERATURE TOO HIGH (Display temperature too high)	Excessive display circuit temperature is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

U12AD NAVI CONTROL UNIT

DTC Logic

INFOID:0000000012202564

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12AD	ECU TEMPERATURE TOO HIGH (Electronic control unit temperature too High)	Excessive internal ECU circuit temperature is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

U12AE NAVI CONTROL UNIT

DTC Logic

INFOID:0000000012202565

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12AE	INTERNAL AMP TEMP WARNING (Internal amplifier temperature warning)	Excessive internal amplifier circuit temperature is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

U12AF NAVI CONTROL UNIT

DTC Logic

INFOID:0000000012202566

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12AF	CD MECHANISM TEMP WARNING (CD mechanism temperature warning)	Excessive CD mechanism circuit temperature is detected.	Replace the NAVI control unit if the malfunction occurs constantly. Refer to AV-182, "Removal and Installation".

U12B0 POWER SUPPLY VOLTAGE

DTC Logic

INFOID:0000000012202567

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12B0	SUPPLY VOLTAGE UNDER 9V (Supply of the battery voltage less than 9V continued for 20 seconds)	NAVI control unit supply voltage is less than the lower limit.	Power supply circuit

U12B1 POWER SUPPLY VOLTAGE

DTC Logic

INFOID:0000000012202568

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition	Possible cause
U12B1	SUPPLY VOLTAGE OVER 16V (Supply of the battery voltage more than 16V continued for 20 seconds)	NAVI control unit supply voltage is more than the upper limit.	Power supply circuit

U1304 CAMERA IMAGE CALIBRATION

DTC Logic

INFOID:0000000012202569

DTC	Display contents of CONSULT	DTC detection condition	Possible malfunction factor
U1304	CAMERA IMAGE CAL-IB	Camera calibration is incomplete. **NOTE:** Current malfunction is displayed only and is not saved.	Perform camera calibration.

Diagnosis Procedure

INFOID:0000000012202570

1.PERFORM CALIBRATING CAMERA IMAGE

Perform camera calibration when DTC U1304 is detected.

>> Perform camera calibration. Refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

U1305 CONFIG UNFINISH

DTC Logic

INFOID:0000000012202571

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1305	CONFIG UNFINISH	The vehicle specifications of around view monitor control unit is incomplete.	Vehicle specifications for around view monitor control unit is incomplete

NOTE:
Current malfunction is displayed only and is not saved.

Diagnosis Procedure

INFOID:0000000012202572

1.PERFORM CONFIGURATION OF AROUND VIEW MONITOR CONTROL UNIT

Perform configuration of around view monitor control unit when DTC U1305 is detected.

>> Perform configuration of around view monitor control unit. Refer to AV-115, "CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure".

POWER SUPPLY AND GROUND CIRCUIT

NAVI CONTROL UNIT

NAVI CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012202573

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	19
Ignition switch ON or START	3

Is inspection result OK?

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

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between NAVI control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M108	19	OFF	Battery voltage
ACC power supply	M108	7	ACC	Battery voltage
Ignition signal	M109	40	ON	12.0 V

Is inspection result OK?

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

3. CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M108	20	OFF	Existed.

Is inspection result OK?

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

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012202574

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition signal	3

Is the inspection result normal?

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

2. CHECK AROUND VIEW MONITOR CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between around view monitor control unit harness connector and ground.

(+)		(–)	Condition	Standard voltage	Reference voltage (Approx.)
Around view monitor control unit					
Connector	Terminal				
M98	40	Ground	Ignition switch ON	7.0 V or more	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the around view monitor control unit power supply circuit.

3. CHECK AROUND VIEW MONITOR CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the around view monitor control unit connector.
3. Check for continuity between around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M98	39		Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair the around view monitor control unit ground circuit.

MICROPHONE SIGNAL CIRCUIT

Description

INFOID:0000000012202575

NAVI control unit supplies power to microphone. The microphone transmits the sound voice to the NAVI control unit.

Diagnosis Procedure

INFOID:0000000012202576

1.CHECK CONTINUITY BETWEEN NAVI CONTROL UNIT AND MICROPHONE CIRCUIT

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

NAVI control unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	
M109	34	R2	1	Existed
	35		4	
	36		2	

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M109	34	Ground	Not existed
	35		

Is the inspection result normal?

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

2.CHECK VOLTAGE MICROPHONE VCC

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

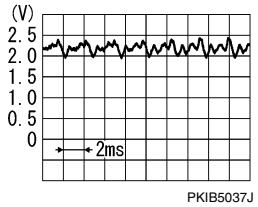
(+)		(–)	Voltage (Approx.)
NAVI control unit			
Connector	Terminal		
M109	35	Ground	5.0 V

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

3.CHECK MICROPHONE SIGNAL

1. Turn ignition switch OFF.
2. Connect microphone connector.
3. Turn ignition switch ON.
4. Check signal between NAVI control unit harness connector.

(+)		(–)	Condition	Reference value
NAVI control unit				
Connector	Terminal			
M109	34	Ground	Give a voice.	 PKIB5037J

Is the inspection result normal?

YES >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".
NO >> Replace microphone. Refer to AV-189, "Removal and Installation".

CAMERA IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000012202577

Around view monitor control unit supplies to the front camera, rear camera and side camera. And then it superimpose the images from each camera and outputs then to the NAVI control unit.

Diagnosis Procedure

INFOID:0000000012202578

1.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit harness connector and around view monitor control unit harness connector.
3. Check continuity between NAVI control unit harness connector and around view monitor control unit harness connector.

NAVI control unit		Around view monitor control unit		Continuity
Connector	Terminal	Connector	Terminal	
M109	41	M98	4	Existed
	42		3	

Is the inspection result normal?

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

2.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT FOR SHORT

Check continuity between NAVI control unit harness connector and ground.

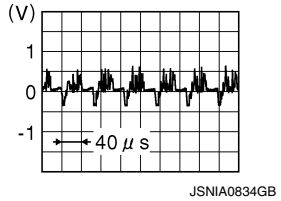
NAVI control unit		Ground	Continuity
Connector	Terminal		
M109	41		Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

3.CHECK CAMERA IMAGE SIGNAL

1. Connect NAVI control unit harness connector and around view monitor control unit harness connector.
2. Turn ignition switch ON.
3. Check the signal between NAVI control unit harness connector and ground.

Terminals			Condition	Reference value
(+)		(–)		
NAVI control unit				
Connector	Terminal			
M109	41	Ground	At camera image is displayed.	

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Is the inspection result normal?

YES >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".
NO >> Replace around view monitor control unit. Refer to AV-190, "Removal and Installation".

STEERING SWITCH SIGNAL A CIRCUIT

Description

INFOID:0000000012202579

Transmits the steering switch signal to NAVI control unit.

Diagnosis Procedure

INFOID:0000000012202580

1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

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

NAVI control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M108	6	M33	24	Existed

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M108	6		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-15, "Exploded View".

3.CHECK NAVI CONTROL UNIT VOLTAGE

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

(+)		(–)		Voltage (Approx.)
NAVI control unit				
Connector	Terminal	Connector	Terminal	
M108	6	M108	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-166, "Component Inspection".

Is the inspection result normal?

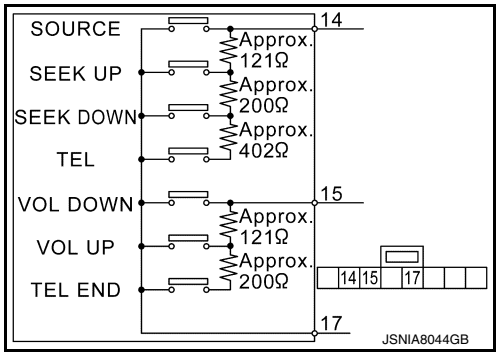
YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-195, "Removal and Installation".

Component Inspection

INFOID:0000000012202581

Measure the resistance between the steering switch connector.

Steering switch		Condition	Resistance (Approx.) Ω
Terminal	Terminal		
14	17	TEL switch ON	709 – 737
		SEEK DOWN switch ON	315 – 327
		SEEK UP switch ON	119 – 123
		SOURCE switch ON	0
15		TEL END switch ON	315 – 327
		VOL UP switch ON	119 – 123
		VOL DOWN switch ON	0



STEERING SWITCH SIGNAL B CIRCUIT

Description

INFOID:0000000012202582

Transmits the steering switch signal to NAVI control unit.

Diagnosis Procedure

INFOID:0000000012202583

1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

NAVI control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M108	16	M33	31	Existed

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M108	16		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-15, "Exploded View".

3.CHECK NAVI CONTROL UNIT VOLTAGE

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

(+)		(–)		Voltage (Approx.)
NAVI control unit				
Connector	Terminal	Connector	Terminal	
M108	16	M108	15	3.3 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-168, "Component Inspection".

Is the inspection result normal?

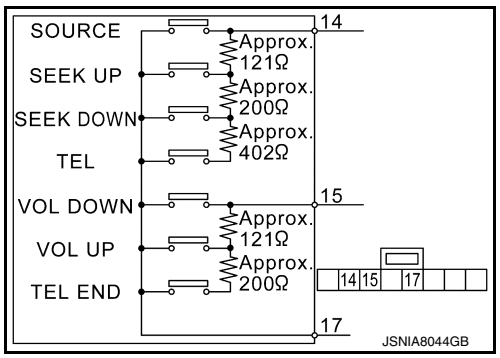
YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-195, "Removal and Installation".

Component Inspection

INFOID:0000000012202584

Measure the resistance between the steering switch connector.

Steering switch		Condition	Resistance (Approx.) Ω
Terminal	Terminal		
14	17	TEL switch ON	709 – 737
		SEEK DOWN switch ON	315 – 327
		SEEK UP switch ON	119 – 123
		SOURCE switch ON	0
15		TEL END switch ON	315 – 327
		VOL UP switch ON	119 – 123
		VOL DOWN switch ON	0



STEERING SWITCH GROUND CIRCUIT

Description

INFOID:0000000012202585

Transmits the steering switch signal to NAVI control unit.

Diagnosis Procedure

INFOID:0000000012202586

1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

NAVI control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M108	15	M33	33	Existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-15, "Exploded View".

3.CHECK GROUND CIRCUIT

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M108	15		Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace NAVI control unit. Refer to AV-182, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-170, "Component Inspection".

Is the inspection result normal?

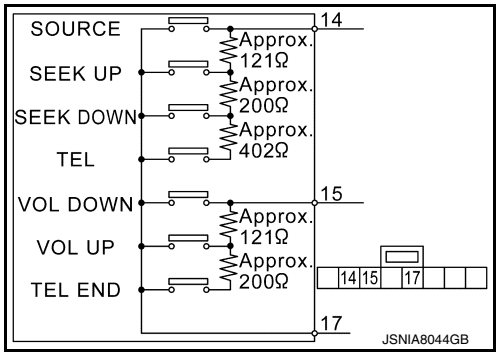
YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-195, "Removal and Installation".

Component Inspection

INFOID:0000000012202587

Measure the resistance between the steering switch connector.

Steering switch		Condition	Resistance (Approx.) Ω
Terminal	Terminal		
14	17	TEL switch ON	709 – 737
		SEEK DOWN switch ON	315 – 327
		SEEK UP switch ON	119 – 123
		SOURCE switch ON	0
15		TEL END switch ON	315 – 327
		VOL UP switch ON	119 – 123
		VOL DOWN switch ON	0



SYMPTOM DIAGNOSIS

NAVIGATION SYSTEM

Symptom Table

INFOID:0000000012202588

RELATED TO NAVIGATION

NOTE:

Combined part of AV switch and NAVI control unit.

Symptoms	Check items		Probable malfunction location / Action to take
Display does not turn ON.	All switches cannot be operated.		• NAVI control unit power supply and ground circuit. Refer to AV-161, "NAVI CONTROL UNIT : Diagnosis Procedure". • Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit. Refer to AV-182, "Removal and Installation".
	All switches can be operated.		Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit. Refer to AV-182, "Removal and Installation".
All switches cannot be operated.	Display does not turn ON.		• NAVI control unit power supply and ground circuit. Refer to AV-161, "NAVI CONTROL UNIT : Diagnosis Procedure". • Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit. Refer to AV-182, "Removal and Installation".
	Display turn ON.		Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit. Refer to AV-182, "Removal and Installation".
Only specified switch cannot be operated.	–		Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit. Refer to AV-182, "Removal and Installation".
Map screen is not displayed. (RGB image other than map is normal.)	• Check that the map SD card is in the SD card slot. • Check “SD Card Access” in “SERVICE SYSTEM SELF TEST”, “SERVICE MENU”.	“OK” is displayed for “SD Card Access”.	Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace Map SD card.
		“OK” is not displayed for “SD Card Access”.	Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit or Map SD card.

Symptoms	Check items		Probable malfunction location / Action to take
Voice guidance is not heard*	Check that the map SD card is in the SD card slot.	“OK” is displayed for SD Card Access.	Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace Map SD card.
	Check “SD Card Access” in “SERVICE SYSTEM SELF TEST”, “SERVICE MENU”.	“OK” is not displayed for SD Card Access.	Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit. Refer to AV-182, "Removal and Installation".
Display does not dim.	Check “Illumination Signal” in “SERVICE SYSTEM STATUS”, “SERVICE MENU”.	“Illumination Signal” reaches 100% when the lighting switch is ON.	Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit. Refer to AV-182, "Removal and Installation".
		“Illumination Signal” does not reach 100% when the lighting switch is ON.	Illumination signal circuit
Vehicle icon does not move.	Check “Speed Signal” in “SERVICE SYSTEM STATUS”, “SERVICE MENU”.	A value of “Speed Signal” changes according to vehicle speeds.	Disconnect the battery negative terminal. Reconnect the terminal. If the same symptom occurs, replace NAVI control unit or GPS antenna.
		A value of “Speed Signal” does not change according to vehicle speeds.	Vehicle speed signal circuit

*: check that voice guidance is set to on in the set up menu of navigation.
*: check that the volume of voice guidance is not set to low.

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
No sound comes out or the level of the sound is low.	No sound from all speakers.	NAVI control unit power supply and ground circuits malfunction. Refer to AV-161, "NAVI CONTROL UNIT : Diagnosis Procedure".
	Only a certain speaker (front right, front left, rear right, or rear left) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between NAVI control unit and speaker. • Malfunction in speaker. • Malfunction in NAVI control unit.
Noise is mixed with audio.	Noise comes out from all speaker.	Malfunction in NAVI control unit.
	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left).	• Poor connector connection of speaker. • Sound signal circuit malfunction between NAVI control unit and speaker. • Malfunction in speaker. • Poor installation of speaker (e.g. backlash and looseness) • Malfunction in NAVI control unit.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.
Radio is not received or poor reception.	• Other audio sounds are normal. • Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	• Antenna amp. ON signal circuit malfunction. • Poor connector connection of antenna or antenna feeder.

RELATED TO USB
NOTE:

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

Symptoms	Check items		Probable malfunction location / Action to take
iPod® or USB memory can not be recognized.	With iPod® or USB memory Connected, check “USB Device” in “SERVICE STATUS”, “SERVICE MENU”.	iPod® or USB memory name is displayed for “USB Device”.	• USB and AUX harness • USB connector and AUX jack • NAVI control unit
		“Removed” is displayed for “USB Device”.	• USB and AUX harness • USB connector and AUX jack

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

RELATED TO AUXILIARY INPUT

NOTE:

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

Symptoms	Check items	Probable malfunction location
No voice sound is heard when AUX mode is selected.	Voice sound is heard when other modes are selected.	• USB and AUX harness • USB connector and AUX jack

RELATED TO CAMERA

Symptoms	Check items	Probable malfunction location / Action to take
The screen switches when pressing the “CAMERA” switch or the shift position is in “R”, however, all views are not displayed.	—	Camera image signal circuit. Refer to AV-165, "Diagnosis Procedure".
It cannot be switched to rear view monitor even when the shift position is in “R”.	The front view image is normal.	Reverse signal circuit (around view monitor control unit).
The predictive course line display in front view and rear view is malfunctioning.	—	Perform “Self Diagnostic Result” of “AVM” with CONSULT. Refer to AV-80, "CONSULT Function".
• The front view screen is not displayed. • The front of Birds-Eye view screen is not displayed.	—	
• The rear view screen is not displayed. • The rear of Birds-Eye view screen is not displayed.	—	
• The front-side screen is not displayed. • The passenger side of Birds-Eye view screen is not displayed.	—	
The driver side of Birds-eye view screen is not displayed.	—	
When shift position is in other than “R”, the front-side and front screen or the Birds-Eye view and front screen remain displaying even if the vehicle speed increases.	—	

RELATED TO STEERING SWITCH

Symptoms	Possible malfunction location / Action to take
All steering switches are not operated.	Steering switch signal ground circuit. Refer to AV-170, "Diagnosis Procedure".
Only specified switch cannot be operated.	Replace steering switch. Refer to AV-195, "Removal and Installation".
“SOURCE”, “SEEK UP”, “SEEK DOWN”, and “TEL” switches are not operated.	Steering switch signal A circuit. Refer to AV-166, "Diagnosis Procedure".
“VOL DOWN”, “VOL UP”, “TEL END” switches are not operated.	Steering switch signal B circuit. Refer to AV-168, "Diagnosis Procedure".

HANDS-FREE PHONE SYMPTOMS

Symptom Table

INFOID:0000000012202589

RELATED TO HANDS-FREE PHONE

Symptoms	Check items	Possible malfunction location/Action to take
Does not recognize cellular phone connection.	Repeat the registration of cellular phone.	NAVI control unit
Hands-free phone cannot be established.	—	NAVI control unit power supply and ground circuit. Refer to AV-161, "NAVI CONTROL UNIT : Diagnosis Procedure".
The other party's voice cannot be heard by hands-free phone.	Audio system sound is normal.	Sound signal (TEL voice, TEL guidance) circuit
	Audio system sound does not sound.	Refer to AV-172, "Symptom Table".

RELATED TO STEERING SWITCH

Symptoms	Possible malfunction location / Action to take
All steering switches are not operated.	Steering switch signal ground circuit. Refer to AV-170, "Diagnosis Procedure".
Only specified switch cannot be operated.	Replace steering switch. Refer to AV-195, "Removal and Installation".
“SOURCE”, “SEEK UP”, “SEEK DOWN”, and “TEL” switches are not operated.	Steering switch signal A circuit. Refer to AV-166, "Diagnosis Procedure".
“VOL DOWN”, “VOL UP”, “TEL END” switches are not operated.	Steering switch signal B circuit. Refer to AV-168, "Diagnosis Procedure".

NORMAL OPERATING CONDITION

Description

INFOID:0000000012202590

NOTE:
For Navigation system operation information, refer to Navigation system Owner's Manual.

BASIC OPERATIONS

Symptom	Possible cause	Possible solution
No image is displayed.	The brightness is at the lowest setting.	Adjust the brightness of the display.
	The display is turned off.	Press "☀/☽" to turn on the display.
No voice guidance is available or the volume is too high or too low.	The volume is not set correctly, or it is turned off.	Adjust the voice guidance volume level.
No map is displayed on the screen.	The map SD card is not inserted.	Insert the map SD card correctly.
	A screen other than map screen is displayed.	Press "MAP".
The screen is too dim. The movement is slow.	The temperature in the interior of the vehicle is low.	Wait until the interior of the vehicle has warmed up.
Some pixels in the display are darker or brighter than others.	This condition is an inherent characteristic of liquid crystal displays.	This is not a malfunction.

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 AUDIO

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

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

Symptom	Cause and Counter measure
Cannot play	Check if the CD was inserted correctly.
	Check if the CD is scratched or dirty.
	Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.
	If there is a mixture of music CD files (CD-DA data) and MP3/WMA 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 CD.
	Check if the CD is protected by copyright.
Poor sound quality	Check if the CD is scratched or dirty.

Symptom	Cause and Counter measure
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.
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.
Buzz/rattle sound from speaker	The majority of rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the rattle.

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

NOTE:

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

MAP SD CARD

Symptom	Possible cause	Possible solution
The message "Error" appears.	The SD card is not recognized by the system.	Check the map SD card data. Files can be lost.
		If you see any damage, replace the map SD card.

RELATED TO ROUTE CALCULATION AND VISUAL GUIDANCE

Symptom	Possible cause	Possible solution
Route information is not displayed.	Route calculation has not yet been performed.	Set the destination and perform route calculation.
	You are not driving on the suggested route.	Drive on the suggested route.
	Route guidance is cancelled.	Turn on the route guidance.
The auto reroute calculation (or detour calculation) suggests the same route as the one previously suggested.	Route calculations took priority conditions into consideration, but the same route was calculated.	This is not a malfunction.
The suggested route is not displayed.	Roads near the destination cannot be calculated.	Reset the destination to a main or ordinary road, and recalculate the route.
	The starting point and destination are too close.	Set a more distant destination.
	The starting point and destination are too far away.	Divide your trip by selecting one or two intermediate destinations, and perform a global route calculation based on multiple route calculations.
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 point or destination.
	The system may suggest an indirect route because route calculation does not take into consideration some areas such as narrow streets.	Reset the destination to a main or ordinary road, and recalculate the route.

Symptom	Possible cause	Possible solution
The landmark information does not correspond to the actual information.	This may be caused by insufficient or incorrect data on the map SD card.	Updated information will be included in the next version of the map SD card.
The suggested route does not exactly connect to the starting point, waypoints, or destination.	There is no data for route calculation closes to these locations.	Set the starting point, waypoints and destination on a main road, and perform route calculation.

RELATED TO VEHICLE ICON

Symptom	Possible cause	Possible solution
Names of roads and locations differ between 2D and 3D view.	This is because the quantity of the displayed information is reduced so that the screen does not become difficult to read. There is also a chance that the names of roads or locations may be displayed several times, and that the names appearing on the screen may be different because of a processing procedure.	This is not a malfunction.
The vehicle icon is not displayed in the correct position.	The vehicle was transported after the ignition switch was pressed off, for example, by a ferry or car transporter.	Drive the vehicle for a while on a road where GPS signals can be received.
	The position and direction of the vehicle icon may be incorrect depending on the driving environments and the levels of positioning accuracy of the navigation system.	This is not a malfunction. Drive the vehicle for a while to automatically correct the position and direction of the vehicle icon.
When the vehicle is travelling on a new road, the vehicle icon is located on another nearby road.	The system automatically places the vehicle icon on the nearest available road, because the new road is not stored in the map data.	Updated road information will be included in the next version of the map SD card.
The screen does not switch to the night screen even after turning on the headlights.	The daytime screen was set the last time the headlights were turned on.	Set the screen to the night screen mode using <Day/Night> when you turn on the headlights.
The map does not scroll even when the vehicle is moving.	The current location map screen is not displayed.	Press “MAP”.
The vehicle icon is not displayed.	The current location map screen is not displayed.	Press “MAP”.
The location of the vehicle icon is misaligned from the actual position.	When using tire chains or replacing the tires, speed calculations based on the speed sensor may be incorrect.	Drive the vehicle for a while [at approximately 30 km/h (19 MPH) for about 30 minutes] to automatically correct the vehicle icon position.
	The map data has an error 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 SD card.

RELATED TO VOICE GUIDANCE

Symptom	Possible cause	Possible solution
Voice guidance is not available	In some cases, 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 voice guidance ON.
	Route guidance is set to off.	Route guidance is set to ON.
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
	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 detour route search ON, no detour route is set to avoid congested areas.	There is no faster route compared to the current route, based on the road network and traffic information.	The automatic detour search is not intended for avoiding traffic jams. It searches for the fasted rote taking into consideration such things as traffic jams.
The route does not avoid road section with traffic information stating 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 displayed differs from information from other media (e.g. radio).	Other media may use different information sources.	Observe the actual road conditions and regulations. Always observe safe driving practices and follow all traffic regulations.

RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Cannot use hands-free phone	Customer will not be able to use a hands-free phone under the following conditions. • The vehicle is outside of the telephone service area. • The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. • The cellular phone is locked to prevent it from being dialed. **NOTE:** While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

RELATED TO TELEPHONE

Symptoms	Cause and Counter measure
System fails to interpret the command correctly.	1. Ensure that the command format is valid.
	2. Ensure that the command is spoken after the tone.
	3. Speak clearly without pausing between words and at a level appropriate to the ambient noise level in the vehicle.
	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). **NOTE:** If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.
	5. If more than one command was said at a time, try saying the commands separately.
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. Refer to AV-77, "On Board Diagnosis Function".

Symptoms	Cause and Counter measure
The system consistently selects the wrong entry from the phone book.	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.

REMOVAL AND INSTALLATION

NAVI CONTROL UNIT

Removal and Installation

INFOID:0000000012202591

REMOVAL

CAUTION:

Before replacing NAVI control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to AV-113, "ADDITIONAL SERVICE WHEN REPLACING NAVI CONTROL UNIT : Description".

1. Remove cluster lid C. Refer to IP-13, "Removal and Installation".
2. Remove NAVI control unit screws.
3. Disconnect NAVI control unit connectors to remove NAVI control unit and brackets as a single unit.
4. Remove brackets screws to remove NAVI control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to perform “Read/Write Configuration” when replacing NAVI control unit. For details, refer to AV-113, "ADDITIONAL SERVICE WHEN REPLACING NAVI CONTROL UNIT : Description".

FRONT DOOR SPEAKER

Removal and Installation

INFOID:0000000012202592

REMOVAL

1. Remove front door finisher. Refer to INT-13, "Removal and Installation".
2. Remove front door speaker screws, then disconnect front door speaker connector and remove front door speaker.

INSTALLATION

Install in the reverse order of removal.

REAR DOOR SPEAKER

Removal and Installation

INFOID:0000000012202593

REMOVAL

1. Remove rear door finisher. Refer to INT-16, "Removal and Installation".
2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

INSTALLATION

Install in the reverse order of removal.

TWEETER

Removal and Installation

INFOID:0000000012202594

REMOVAL

1. Remove front pillar garnish. Refer to INT-18, "FRONT PILLAR GARNISH : Removal and Installation".
2. Remove tweeter clip, then disconnect tweeter connector and remove tweeter.

INSTALLATION

Install in the reverse order of removal.

WOOFER

Removal and Installation

INFOID:0000000012202595

REMOVAL

1. Remove luggage side lower finisher LH. Refer to INT-35, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation".
2. Disconnect woofer connector.
3. Remove woofer screws to remove woofer.

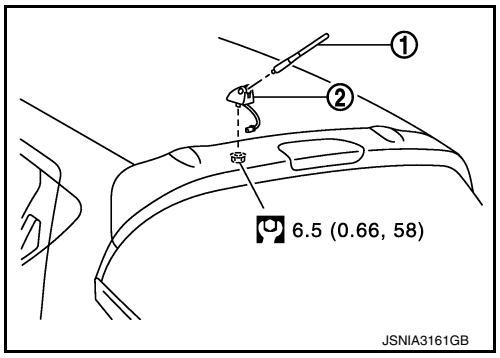
INSTALLATION

Install in the reverse order of removal.

ANTENNA BASE

Exploded View

INFOID:0000000012202596



1. Antenna rod
2. Antenna base

: N·m (kg-m, in-fb)

Removal and Installation

INFOID:0000000012202597

REMOVAL

1. Remove headlining. Refer to INT-27, "NORMAL ROOF : Removal and Installation" (normal roof) or INT-30, "SUNROOF : Removal and Installation" (sunroof).
2. Disconnect antenna feeder connector.
3. Remove nut to remove antenna base.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

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

GPS ANTENNA

Removal and Installation

INFOID:0000000012202598

REMOVAL

1. Remove instrument panel. Refer to IP-13, "Removal and Installation".
2. Remove antenna feeder clip, then remove GPS antenna screw and remove GPS antenna.

INSTALLATION

Install in the reverse order of removal.

MICROPHONE

Removal and Installation

INFOID:0000000012202599

REMOVAL

1. Remove headlining. Refer to INT-27, "NORMAL ROOF : Removal and Installation" (normal roof) or INT-30, "SUNROOF : Removal and Installation" (sunroof).
2. Remove microphone connector and pawl to remove microphone.

INSTALLATION

Install in the reverse order of removal.

AROUND VIEW MONITOR CONTROL UNIT

Removal and Installation

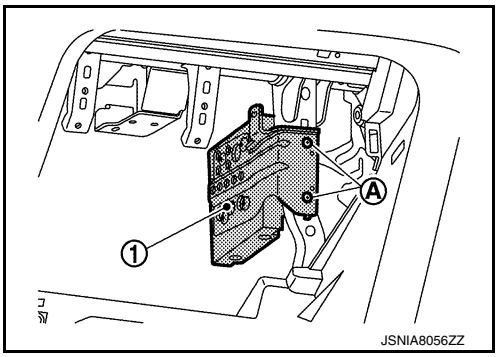
INFOID:0000000012202600

REMOVAL

CAUTION:

Before replacing around view monitor control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to AV-113, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description".

1. Remove globe box assembly. Refer to IP-13, "Removal and Installation".
2. Remove harness clip mounted to the bracket.
3. Remove the mounting screws (A) and pull the around view monitor control unit (1) together with the bracket.



4. Disconnect connectors to remove around view monitor control unit and bracket from the vehicle as a single unit.
5. Remove bracket screws to remove around view monitor control unit.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

CAUTION:

- **Be sure to perform "Read/Write Configuration" when replacing around view monitor control unit. For details, refer to AV-113, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description".**
- **Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.**

FRONT CAMERA

Removal and Installation

INFOID:0000000012202601

REMOVAL

1. Remove front grille. Refer to EXT-26, "Removal and Installation".
2. Remove front camera mounting screws to remove front camera from front grille.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

CAUTION:

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

REAR CAMERA

Removal and Installation

INFOID:0000000012202602

REMOVAL

1. Remove back door lower finisher. Refer to INT-39, "BACK DOOR LOWER FINISHER : Removal and Installation".
2. Remove connector to remove rear view camera.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

CAUTION:

Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

SIDE CAMERA

Removal and Installation

INFOID:0000000012202603

REMOVAL

1. Remove door mirror under cover from door mirror. Refer to MIR-18, "DOOR MIRROR ASSEMBLY : Disassembly and Assembly".
2. Remove screws to remove side camera from door mirror under cover.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform camera image calibration. Refer to AV-116, "CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description".

CAUTION:

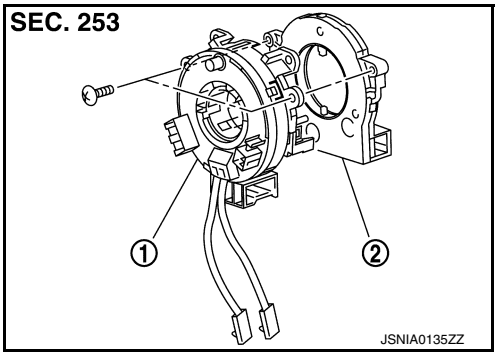
Perform the calibration and perform the writing to the around view monitor control unit when removing and replacing each camera, removing the camera mounting parts (front grille, door mirror, etc.) and replacing the around view monitor control unit.

STEERING ANGLE SENSOR

Exploded View

INFOID:0000000012202604

DISASSEMBLY



1. Spiral cable
2. Steering angle sensor

Removal and Installation

INFOID:0000000012202605

REMOVAL

1. Remove spiral cable. Refer to SR-15, "Removal and Installation".
2. Remove steering angle sensor from spiral cable.

INSTALLATION

1. Install in the reverse order of removal.
2. Perform steering angle sensor neutral position adjustment. Refer to BRC-63, "Description".

STEERING SWITCH

Exploded View

INFOID:0000000012202606

Refer to SR-12, "Exploded View".

Removal and Installation

INFOID:0000000012202607

REMOVAL

Refer to ST-9, "Removal and Installation".

INSTALLATION

Install in the reverse order of removal.

USB CONNECTOR AND AUX JACK

Removal and Installation

INFOID:0000000012202608

REMOVAL

1. Remove cluster tray. Refer to IP-13, "Removal and Installation".
2. Push the pawl from the back of cluster tray to remove USB connector and AUX jack.

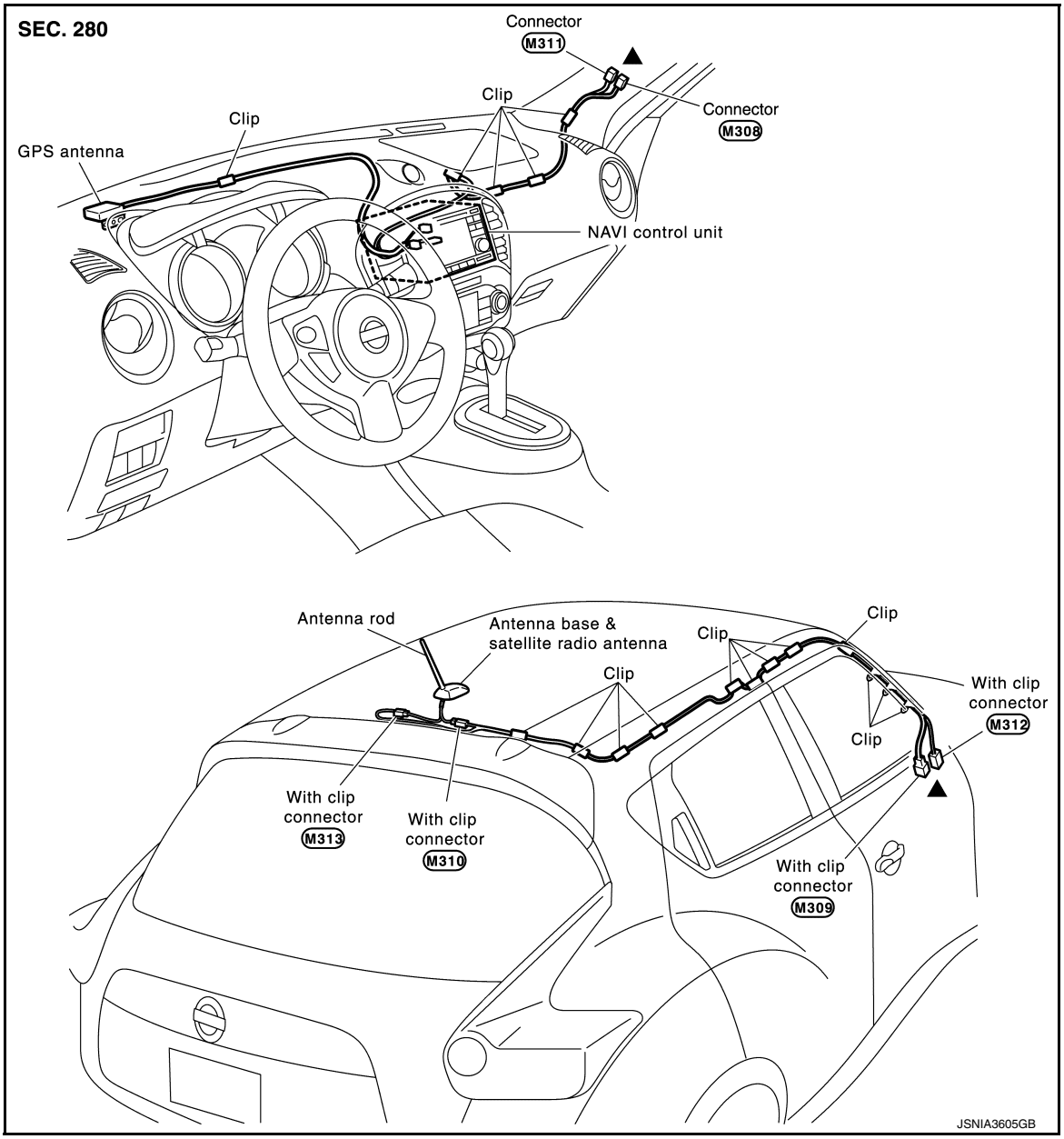
INSTALLATION

Install in the reverse order of removal.

ANTENNA FEEDER

Feeder Layout

INFOID:0000000012202609



▲: Indicates that the part is connected at points with same symbol in actual vehicle.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012202610

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

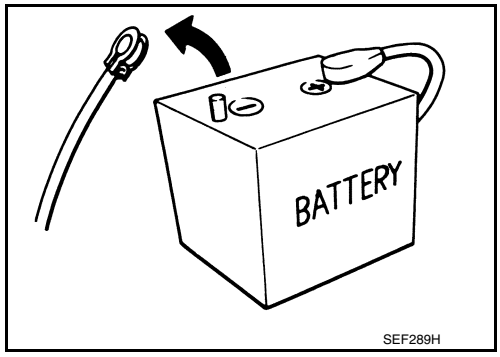
Precautions for Removing Battery Terminal

INFOID:0000000012947016

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		
YD25DDTi	: 2 minutes		



NOTE:

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

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

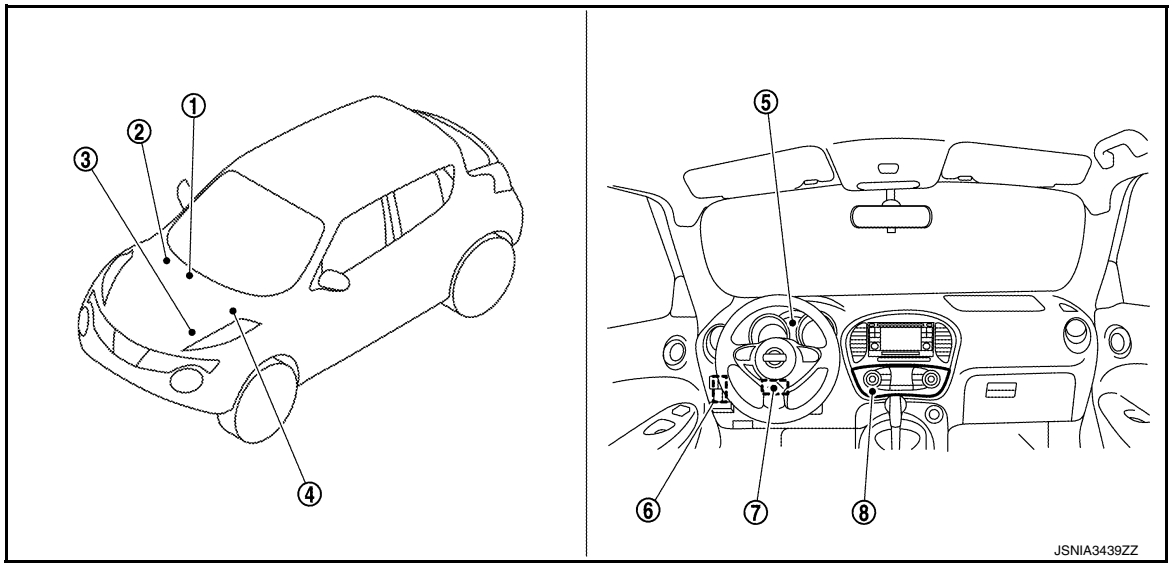
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000012202612



1. A/C auto amp.
   Refer to HAC-7, "Component Parts Location".
2. ABS actuator and electric unit (control unit)
   Refer to BRC-9, "Component Parts Location".
3. ECM
   Refer to EC-27, "ENGINE CONTROL SYSTEM : Component Parts Location" (MR FOR NISMO RS MODELS) or EC-600, "ENGINE CONTROL SYSTEM : Component Parts Location" (MR EXCEPT FOR NISMO RS MODELS).
4. TCM
   Refer to TM-156, "CVT CONTROL SYSTEM : Component Parts Location" (RE0F10B) or TM-361, "CVT CONTROL SYSTEM : Component Parts Location" (RE0F10D).
5. Combination meter
6. BCM
   Refer to BCS-5, "BODY CONTROL SYSTEM : Component Parts Location".
7. EPS control unit
   Refer to STC-5, "Component Parts Location".
8. Multi display unit

Component Description

INFOID:0000000012202613

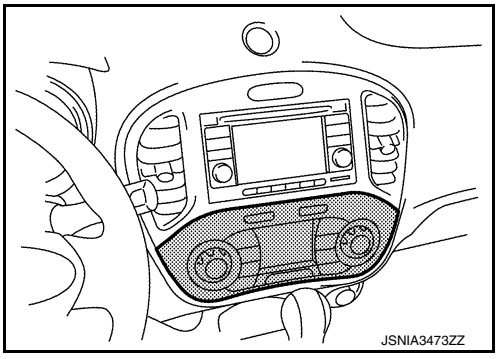
Unit	Description
Multi display unit	• A multi display unit integrating a color display and an operation panel is adopted. • The display indicates the air conditioner operation status, driving mode, information, and setting screen. • The unit transmits operation signals for air conditioner and drive mode to the respective units via CAN communication. • It receives the drive mode selection, information display/setting, and necessary information for controlling the air conditioner control functions from the respective units via CAN communication.
Combination meter	Transmits the following signals to the multi display unit via CAN communication. • Vehicle speed signal • Odometer signal

Unit	Description
ECM	• Transmits the following signals to the multi display unit via CAN communication. - Engine speed signal - Fuel consumption monitor signal - Engine status signal - Engine torque signal - Boost pressure signal • Receives the following signals from TCM via CAN communication and changes over the throttle position characteristic (CVT models). - ECO mode signal - NORMAL mode signal - SPORT mode signal • Receives the following signals from the multi display unit via CAN communication and changes over the throttle position characteristic (M/T models). - ECO mode signal - NORMAL mode signal - SPORT mode signal
BCM	Transmits the position light request signal to the multi display unit via CAN communication.
TCM (CVT models)	• Receives the following signals from the multi display unit via CAN communication and changes over the gear shift line. - ECO mode signal - NORMAL mode signal - SPORT mode signal • Transmits the following signals to ECM via CAN communication. - Drive mode select signal
A/C auto amp.	• Transmits the A/C display signal to the multi display unit via CAN communication. • Receives the following signals from the multi display unit via CAN communication. - ECO mode signal - A/C ECO setting signal - A/C switch operation signal
EPS control unit	Receives the following signals from the multi display unit via CAN communication. • ECO mode signal • NORMAL mode signal • SPORT mode signal
ABS actuator and electric unit (control unit)	Transmits the following signals to the multi display unit via CAN communication. • Side G sensor signal • Decel G sensor signal

Multi Display Unit

INFOID:0000000012202614

- A multi display unit integrating a color display and an operation panel is adopted.
- It is connected to other units via CAN communication and performs the drive mode control, air conditioner control, display of various information, and various settings.
- The display can show the drive mode (NORMAL, SPORT, ECO), drive information (travel time, mileage, average vehicle speed), ECO information (fuel consumption history), setting screen as well as engine power, providing information on the vehicle status according to the driver's operation.
- For the operation switch section, newly developed unique switches are adopted, which respectively have 2 types of symbols and functions.



UNIQUE SWITCH

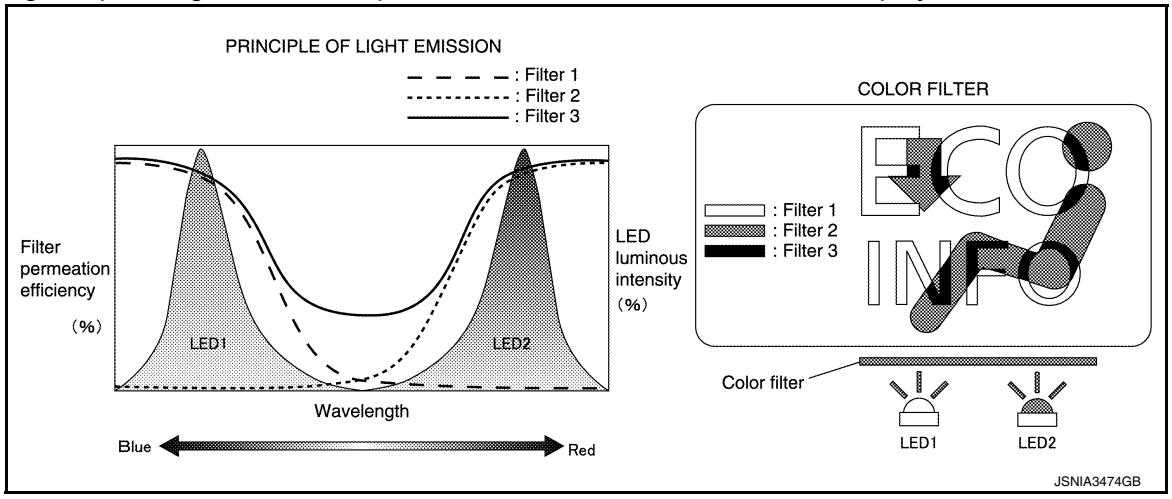
The switch integrates 2 types of LEDs*, filters that pass or absorb specified wavelengths (filter 1, filter 2), and filters adapted to both display colors (filter 3), enabling 2 different symbols to be displayed at a same position by LED changeover.

*: Abbreviation of light emitting diode. It is a semiconductor device that lights up when electric current is applied.

Operation description of unique switch

In drive mode
• LED1 lights up, the light from LED1 passes filter 1 and filter 3, and “ECO INFO” is displayed.

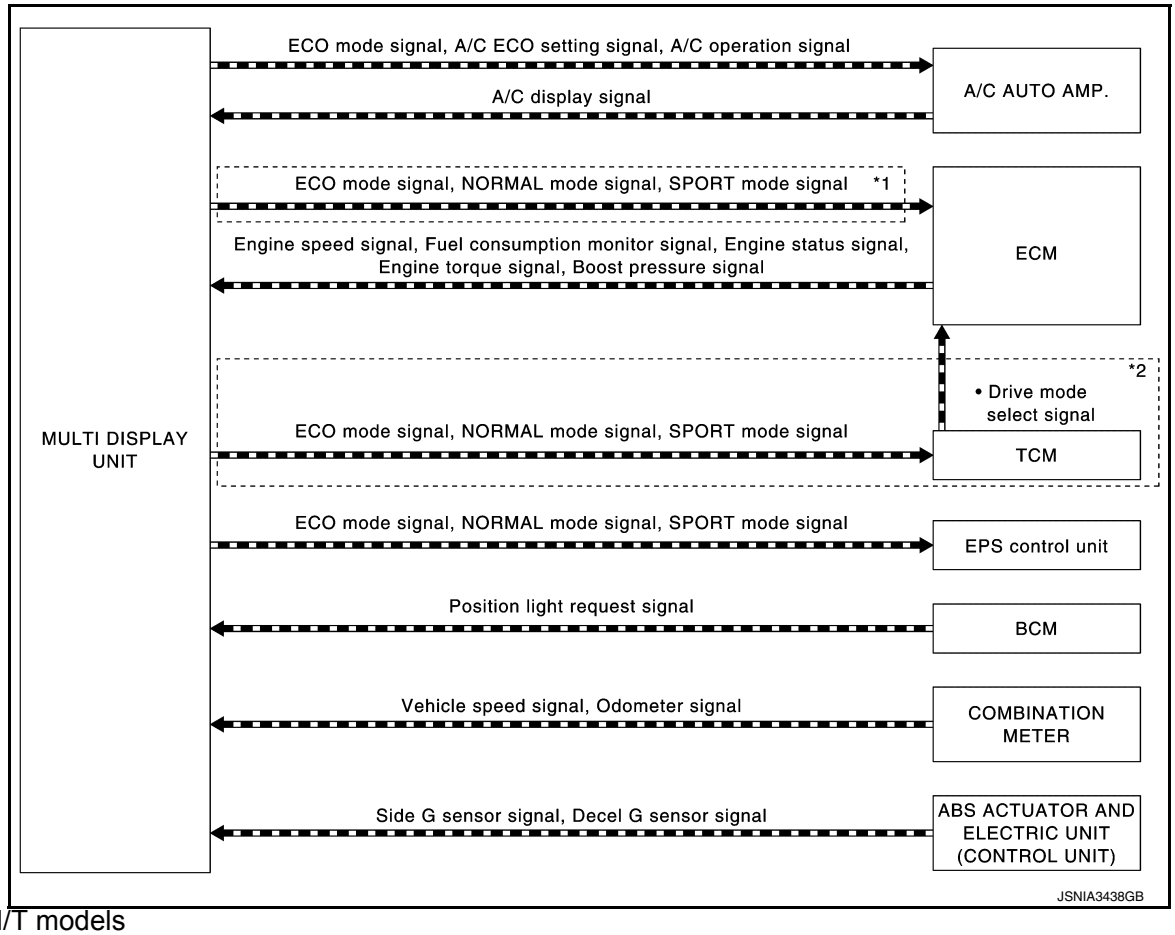
In air conditioner mode
• LED2 lights up, the light from LED2 passes filter 2 and filter 3, and “ ” is displayed.



SYSTEM
INTEGRATED CONTROL SYSTEM
INTEGRATED CONTROL SYSTEM : System Description

INFOID:0000000012202615

SYSTEM DIAGRAM



- *1: M/T models
- *2: CVT models

MULTI DISPLAY UNIT INPUT/OUTPUT SINGNAL

Output signal

Reception unit	Signal name	Description
A/C auto amp.	A/C operation signal	Transmits the air conditioner operation status to the A/C auto amp.
	ECO mode signal	Transmits the “D-MODE” ECO switch status of the multi display unit.
	A/C ECO setting signal	Transmits the “CLIMATE ECO” ON/OFF status on the SET UP screen of the multi display unit.
ECM (M/T models)	ECO mode signal	Transmits the “D-MODE” ECO switch status of the multi display unit.
	NORMAL mode signal	Transmits the “D-MODE” NORMAL switch status of the multi display unit.
	SPORT mode signal	Transmits the “D-MODE” SPORT switch status of the multi display unit.
TCM (CVT models)	ECO mode signal	Transmits the “D-MODE” ECO switch status of the multi display unit.
	NORMAL mode signal	Transmits the “D-MODE” NORMAL switch status of the multi display unit.
	SPORT mode signal	Transmits the “D-MODE” SPORT switch status of the multi display unit.

Reception unit	Signal name	Description
EPS control unit	ECO mode signal	Transmits the “D-MODE” ECO switch status of the multi display unit.
	NORMAL mode signal	Transmits the “D-MODE” NORMAL switch status of the multi display unit.
	SPORT mode signal	Transmits the “D-MODE” SPORT switch status of the multi display unit.

Input signal

Transmit unit	Signal name	Description
A/C auto amp.	A/C display signal	Receives a display signal according to the air conditioner status from the A/C auto amp.
ECM	Engine speed signal	Receives the engine speed signal.
	Engine torque signal	Receives the engine torque signal calculated by ECM.
	Fuel consumption monitor signal	Receives the consumption monitor signal calculated by ECM.
	Boost pressure signal	Receives the boost pressure signal calculated by ECM.
	Engine status signal	Receives the engine status signal.
BCM	Position light request signal	Receives a position light request signal according to the light switch status.
ABS actuator and electric unit (control unit)	Decel G sensor signal	Receives the decel. G sensor signal calculated by the ABS actuator and electric unit (control unit).
	Side G sensor signal	Receives the side G sensor signal calculated by the ABS actuator and electric unit (control unit).
Combination meter	Vehicle speed signal	Receives the vehicle speed signal.
	Odometer signal	Receives the odometer signal.

SYSTEM DESCRIPTION

- The multi display unit receives necessary information for controlling the following functions from the respective units via CAN communication.
- D-MODE function
- Information display/setting
- Air conditioner adjustment function. Refer to HAC-12, "System Description".
- The multi display unit transmits the status of user-selected D-MODE (NORMAL, SPORT, or ECO) to the TCM (CVT models), ECM (M/T models), EPS control unit and A/C auto amp. For the D-MODE functions, refer to DMS-7, "System Description".
- TCM transmits to ECM the D-MODE status (NORMAL, SPORT, or ECO) received from the multi display unit (CVT models).
- ECM (M/T models) and EPS control unit receives the D-MODE status (NORMAL, SPORT, or ECO) from the multi display unit.
- The A/C auto amp. receives the air conditioner switch operation signal, ECO mode signal, and ECO mode switch signal from the multi display unit.
- The multi display unit integrates a diagnosis function that allows a diagnosis by CONSULT.

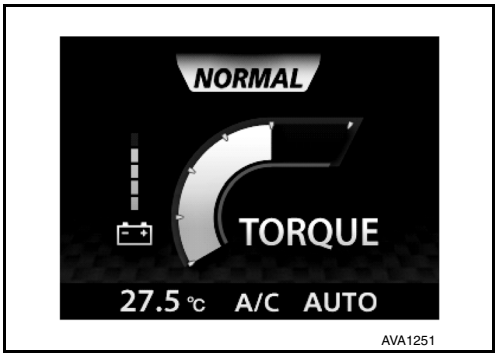
Nissan Dynamic Control System Display/Setting Functions

Category		Display function	Display content
CLIMATE		CLIMATE CONTROL	HAC-12, "System Description"
DRIVE MODE	NORMAL	ENGINE TORQUE GAUGE	Displays the engine torque in 5 grades when NORMAL is selected with the D-MODE switch.
		VOLTMETER	Displays the voltage input to the multi display unit in 5 grades along with engine torque gauge when NORMAL is selected with the D-MODE switch.
	SPORT	BOOST GAUGE	Displays the boost gauge reading in 5 grades when SPORT is selected with the D-MODE switch.
	ECO	INSTANTANEOUS FUEL CONSUMPTION GAUGE	Displays the instantaneous fuel consumption in 5 grades when ECO is selected with the D-MODE switch.

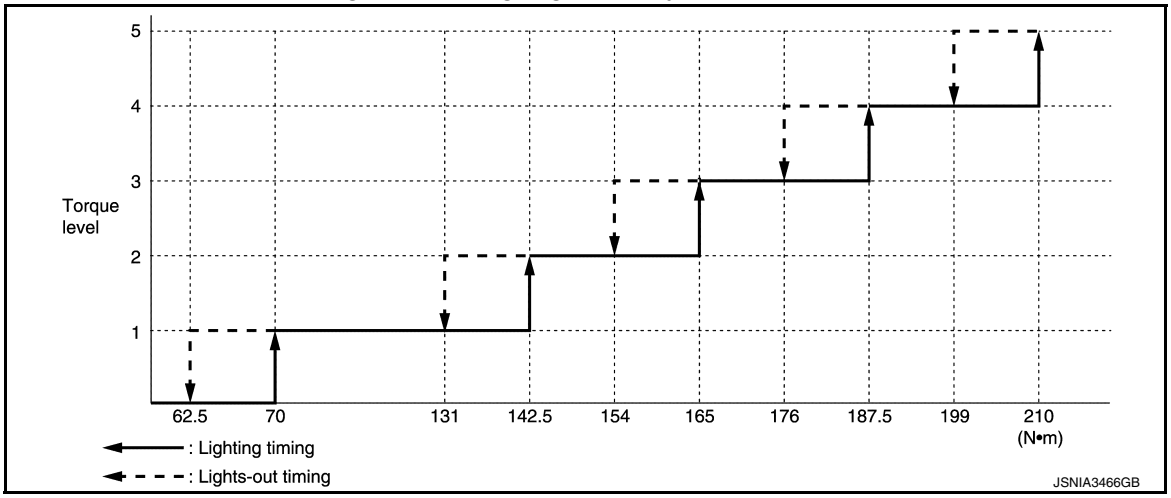
Category		Display function	Display content
Drive Information	G-FORCE		Displays the status of side G and decel. G.
	Drive Information	Travel time	• Displays the total time of key switch ON from a reset to a next reset. • If the total time exceeds 100 hours, the display is reset to "00:00:00" and the time calculation restarts.
		Average speed	Displays the average speed during key switch ON from a reset to a next reset.
		Travel distance	Displays the mileage during key switch ON from a reset to a next reset.
ECO Information		Fuel consumption history	Displays the fuel consumption history data on the basis of daily, weekly, drive interval and reset interval.

Engine Torque Gauge

The engine torque gauge displays the engine torque level in 5 grades based on the engine torque signal received from ECM via CAN communication.

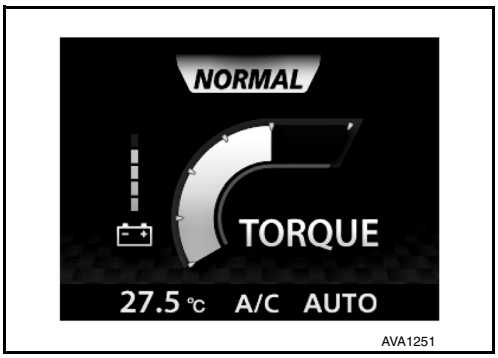


Engine torque gauge display characteristic

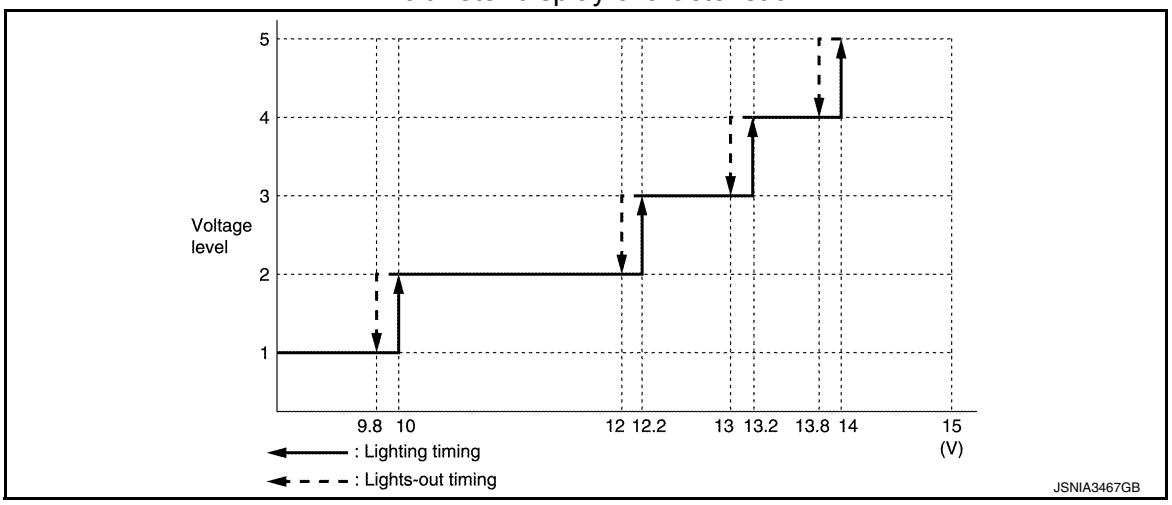


Voltmeter

The voltmeter reads the input voltage of the multi display unit and displays the voltage level in 5 grades according to the reading.

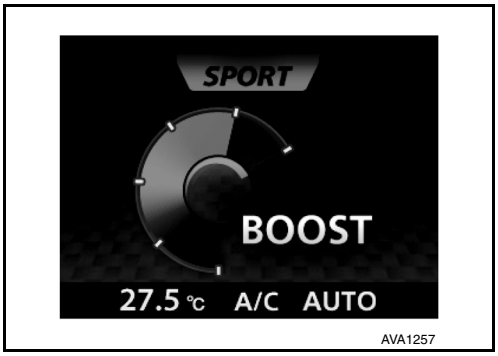


Voltmeter display characteristic

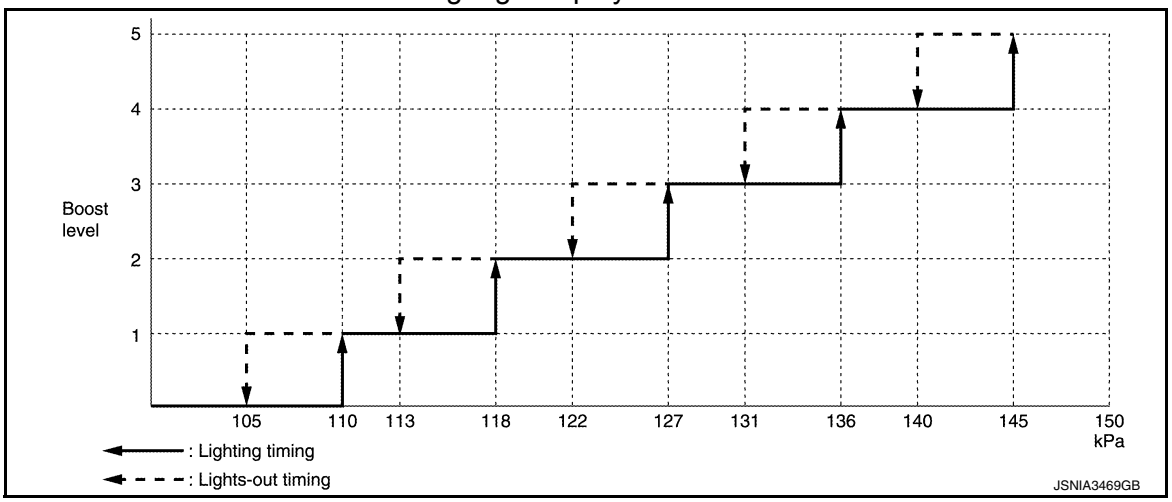


Boost Gauge

The boost gauge displays the boost level in 5 grades based on the boost pressure signal received from ECM via CAN communication.

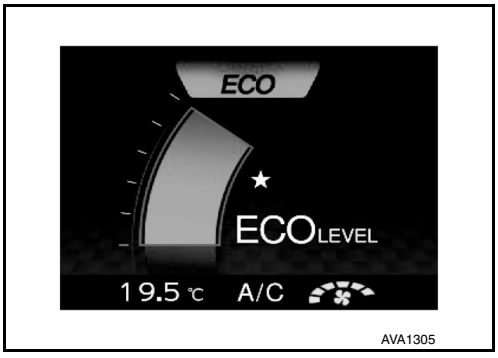


Boost gauge display characteristic

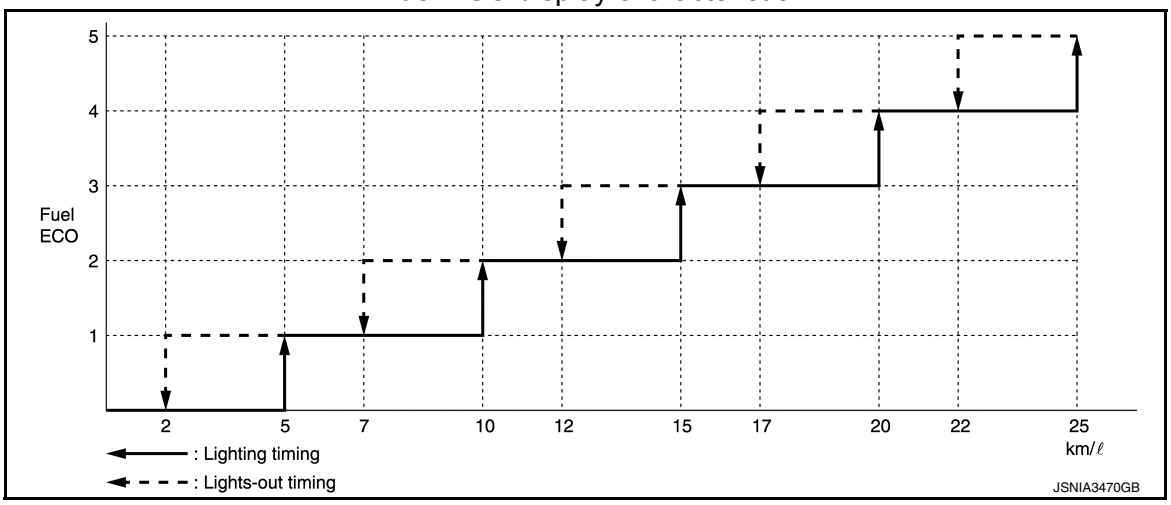


Instantaneous Fuel Consumption

The instantaneous fuel consumption gauge displays the instantaneous fuel consumption in 5 grades, which is calculated from the fuel consumption monitor signal received from ECM via CAN communication and the vehicle speed signal received from the combination meter via CAN communication.

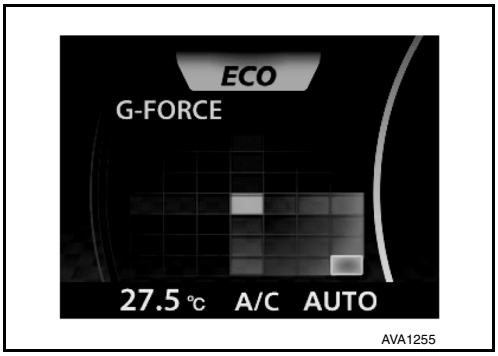


Fuel ECO display characteristic



G-Force

The G-FORCE gauge displays the decel G level and side G level in 3 grades respectively, which are calculated based on the decel G sensor signal and side G sensor signal received from the ABS actuator and electric unit (control unit) via CAN communication.



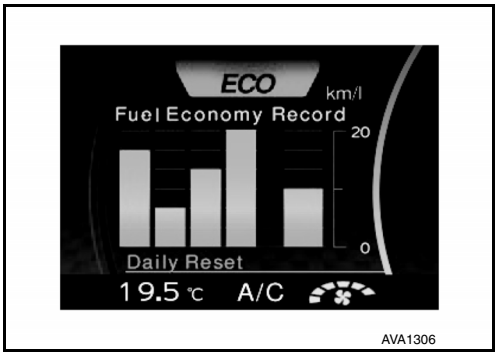
Drive Information

The travel time, average speed, and mileage are displayed as follows.

- Travel time: Displays the time calculated by the multi display unit.
- Average speed: Calculated from the odometer signal and vehicle speed signal received from the combination meter via CAN communication.
- Mileage: Calculated from the odometer signal and vehicle speed signal received from the combination meter via CAN communication.

ECO Information

The fuel economy record is calculated from the fuel consumption monitor signal received from ECM via CAN communication and the vehicle speed signal received from the combination meter via CAN communication.



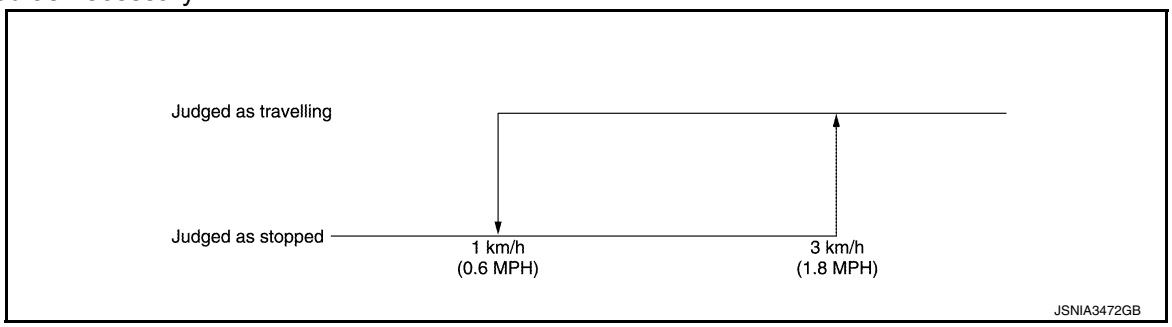
Set Up

The following items can be set.
- Display Brightness
- Button Brightness
- Select Language
- Select Units
- Clock Time Setting
- CLIMATE ECO
- Auto Interior Illumination
- Selective Door Unlock
- Auto Headlight Sensitivity

Display/operation restrictions
- To secure safety, some functions are not allowed for user operation during driving.
- The functions subject to the display/operation restriction are as follows.

Function		Condition	Control content
ECO information (Fuel Economy Record)	Daily Reset, Weekly Reset, Reset at Start, and Manual Reset	Driving	Cannot be operated (Reset, page scroll)
	Daily Reset, and Weekly Reset	When no time is set	Fuel consumption history is not displayed (Warning message appears)
SET UP		Driving	• Item selection and setting are not available • No display

Driving status judgment criterion
- The driving status is judged from the vehicle speed signal received from the combination meter via CAN communication. The driving status is displayed on the multi display unit and operation restrictions are applied as necessary.



HANDLING PRECAUTION

Integrated Control System

INFOID:0000000012202616

- The engine torque, engine power, boost, and instantaneous fuel consumption are provided for information purposes only. They are not intended to prompt the driver to adjust driving style. The readings may be slightly delayed relative to the actual vehicle behaviors. This is not a malfunction.
- The voltmeter reading cannot be used as an indicator for battery replacement because it indicates the input voltage to the multi display unit, not the battery voltage.
- The SET UP screen are viewable and operable only while the vehicle is stopped.
- The ECO information screen is operable only while the vehicle is stopped.
- If no time setting is performed, the daily and weekly fuel consumption history data are not displayed.
- The readings may differ from the actual values depending on driving conditions.

DIAGNOSIS SYSTEM (MULTI DISPLAY UNIT)

CONSULT Function

INFOID:0000000012202617

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with multi display unit.

Diagnosis mode	Description
Self Diagnostic Results	Displays malfunctioning systems stored in the multi display unit.
Data Monitor	Displays the multi display unit input/output data in real time.
Active Test	The multi display unit sends a drive signal to electronic components to check their operation.
CAN Diag Support Monitor	Displays CAN communication status.

SELF DIAGNOSTIC RESULT

Refer to AV-215, "DTC Index".

DATA MONITOR

NOTE:

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

Monitor item	Unit	Description
ECO SW	On / Off	Displays the ECO switch signal status sent via CAN communication.
NORMAL SW	On / Off	Displays the NORMAL switch signal status sent via CAN communication.
SPORTS SW	On / Off	Displays the SPORTS switch signal status sent via CAN communication.
BOOST PRESSURE	kPa	Displays the boost pressure signal value received from ECM via CAN communication.
ENGINE SPEED	Tr/min	Displays the engine speed signal value received from ECM via CAN communication.
ENGINE TORQUE	Nm	Displays the engine torque signal value received from ECM via CAN communication.
BATTERY VOLTAGE	V	Displays the input voltage value.
FUEL CONSUMPTION	mm^3	Displays the fuel consumption signal value received from ECM via CAN communication.
VEHICLE SPEED	km/h	Displays the vehicle speed signal value received from the combination meter via CAN communication.
LONG ACC	G	Displays the decel G signal received from ABS actuator and electric unit (control unit) via CAN communication.
TRANCE ACC	G	Displays the side G signal received from ABS actuator and electric unit (control unit) via CAN communication.
DIST TOTAL	km	Displays the mileage signal value received from the combination meter via CAN communication.
POSI LIGHT REQ	On / Off	Displays the parking lamp signal value received from BCM via CAN communication.
CLUSTER ILL REQ	On / Off	Displays the dimming signal value received from BCM via CAN communication.
ENGINE STATUS	STOP / STALL / RUN / CRA	Displays the engine status signal value received from ECM via CAN communication.
A/C SW*	On / Off	Displays the A/C switch signal status sent via CAN communication.
AUTO SW*	On / Off	Displays the AUTO switch signal status sent via CAN communication.
RR DEF SW*	On / Off	Displays the RR DEF switch signal status sent via CAN communication.
FR DEF SW*	On / Off	Displays the FR DEF switch signal status sent via CAN communication.

Monitor item	Unit	Description
VENT SW1*	On / Off	Displays the air outlet switch signal status sent via CAN communication.
VENT SW2*	VENT / B/L / FOOT / D/F	Displays the air outlet switch signal status sent via CAN communication.
INTAKE SW*	On / Off	Displays the air intake switch signal status sent via CAN communication.
INTAKE SW LONG PUSH*	On / Off	Displays the air intake switch hold signal status sent via CAN communication.
OFF SW*	On / Off	Displays the OFF switch signal status sent via CAN communication.
TEMP SW1*	On / Off	Displays the temperature control dial signal status sent via CAN communication.
FAN SW1*	On / Off	Displays the fan control dial signal status sent via CAN communication.
A/C SW IND	On / Off	Displays the A/C switch indicator signal value received from the A/C auto amp. via CAN communication.
A/C INDICATOR	On / Off	Displays the A/C display signal value received from the A/C auto amp. via CAN communication.
OFF INDICATOR	On / Off	Displays the OFF display signal value received from the A/C auto amp. via CAN communication.
AIR VENT IND	Non-display / VENT / B/L / FOOT / D/F / DEF	Displays the air outlet indicator signal value received from the A/C auto amp. via CAN communication.
FR DEF SW IND	On / Off	Displays the RF DEF indicator signal value received from the A/C auto amp. via CAN communication.
FRE SW IND	On / Off	Displays the FRE indicator signal value received from the A/C auto amp. via CAN communication.
REC SW IND	On / Off	Displays the REC indicator signal value received from the A/C auto amp. via CAN communication.
RR DEF SW IND	On / Off	Displays the RR DEF indicator signal value received from the IPDM E/R via CAN communication.
AUTO IND	Off / Auto	Displays the AUTO indicator signal value received from the A/C auto amp. via CAN communication.
TEMP IND	°C	Displays the temperature setting unit signal value received from the A/C auto amp. via CAN communication.
FAN IND	Off / speed	Displays the fan setting signal value received from the A/C auto amp. via CAN communication.

*: This is not used to determine ON/OFF of the indicator lamp.

ACTIVE TEST

Test Item	Description
INDICATOR	The test activates the switch illuminations, display illuminations, and switch LEDs in the AIR CON mode and D-MODES to see if they are functioning normally.

Indicator

Test Item	Function
INDICATOR	The sequence below is repeated. • All indicators remain ON for 5 seconds in AIR CON mode⇔All indicators remain ON for 5 seconds in D-MODE.

ECU DIAGNOSIS INFORMATION

MULTI DISPLAY UNIT

Reference Value

INFOID:0000000012202618

VALUES ON THE DIAGNOSIS TOOL

NOTE:

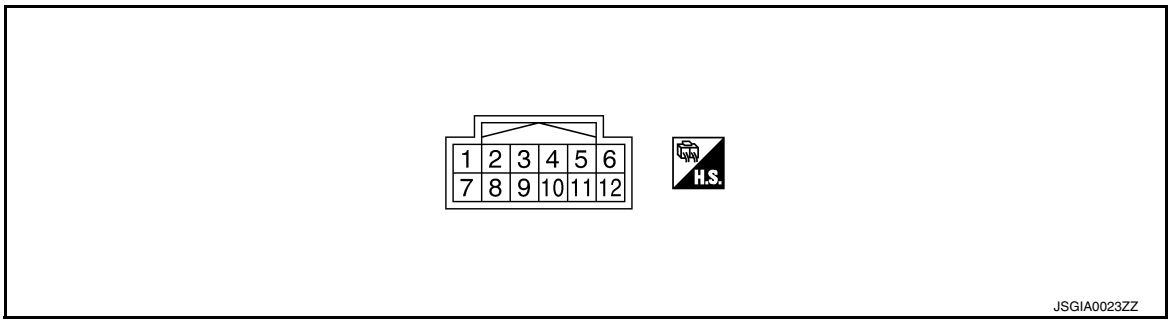
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Test condition		Reference value/Status
ECO SW	Ignition switch ON	ECO mode	On
		Other than the above	Off
NORMAL SW	Ignition switch ON	NORMAL mode	On
		Other than the above	Off
SPORTS SW	Ignition switch ON	SPORT mode	On
		Other than the above	Off
BOOST PRESSURE	Ignition switch ON	Engine running	Values according to boost pressure
ENGINE SPEED [Tr/min]	Ignition switch ON	Engine running	Values according to engine speed
ENGINE TORQUE [Nm]	Ignition switch ON	Engine running	Values according to engine torque
BATTERY VOLTAGE [V]	Ignition switch ON	—	Values according to input voltage
FUEL CONSUMPTION [mm^3]	Ignition switch ON	Engine running	Values according to instantaneous fuel consumption
VEHICLE SPEED [km/h]	Ignition switch ON	Driving	Values according to vehicle speed
LONG ACC [G]	Ignition switch ON	Driving	Values according to decel. G
TRANCE ACC [G]	Ignition switch ON	Driving	Values according to side G
DIST TOTAL [km/h]	Ignition switch ON	—	Values according to mileage
POSI LIGHT REQ	Ignition switch ON	Light SW at 1st or 2nd position	On
		Light switch OFF	Off
CLUSTER ILL REQ	Ignition switch ON	Block the light beam from the auto light sensor when the light switch is in the 1st position, 2nd position or AUTO position.	On
		Expose the auto light sensor to light when the light switch is OFF or in the 1st position, 2nd position or AUTO position.	Off
ENGINE STATUS	Ignition switch ON	Engine stop	STOP
		Engine stall	STALL
		Engine running	RUN
		Engine cranking	CRA
A/C SW*	Ignition switch ON	Cycles On/Off whenever the A/C switch is pressed.	On→Off→On
AUTO SW*	Ignition switch ON	Cycles On/Off whenever the AUTO switch is pressed.	On→Off→On

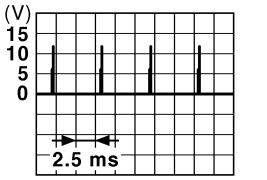
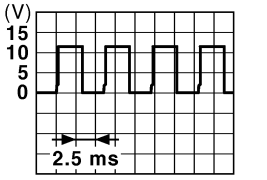
Monitor item	Test condition		Reference value/Status
RR DEF SW*	Ignition switch ON	While the rear DEF switch is held down	On
	Ignition switch ON	Other than the above	Off
FR DEF SW*	Ignition switch ON	Cycles On/Off whenever the front DEF switch is pressed.	On→Off→On
VENT SW1*	Ignition switch ON	Cycles On/Off whenever the VENT, B/L, FOOT, or D/F switch is pressed.	On→Off→On
VENT SW2*	Ignition switch ON	Press the VENT switch.	VENT
		Press the B/L switch.	B/L
		Press the FOOT switch.	FOOT
		Press the D/F switch.	D/F
INTAKE SW*	Ignition switch ON	Cycles On/Off whenever the intake switch is pressed.	On→Off→On
INT SW LONG PUSH*	Ignition switch ON	Cycles On/Off whenever the intake switch is held down.	On→Off→On
Off SW*	Ignition switch ON	Cycles On/Off whenever the OFF switch is held down.	On→Off→On
TEMP SW1*	Ignition switch ON	Cycles On/Off whenever the temperature control dial is turned clockwise or counterclockwise.	On→Off→On
FAN SW1*	Ignition switch ON	Cycles On/Off whenever the fan control dial is turned clockwise or counterclockwise.	On→Off→On
A/C SW IND	Ignition switch ON	A/C switch indicator ON	On
		A/C switch indicator OFF	Off
A/C INDICATOR	Ignition switch ON	A/C indicator ON	On
		A/C indicator OFF	Off
Off INDICATOR	Ignition switch ON	Air conditioner OFF	On
		Other than the above	Off
AIR VENT IND	Ignition switch ON	Air conditioner OFF	Nothing displayed.
		VENT mode	VENT
		B/L mode	B/L
		FOOT mode	FOOT
		D/F mode	D/F
		DEF mode	DEF
FR DEF SW IND	Ignition switch ON	Front DEF switch indicator ON	On
		Other than the above	Off
FRE SW IND	Ignition switch ON	FRE switch indicator ON	On
		Other than the above	Off
REC SW IND	Ignition switch ON	REC switch indicator ON	On
		Other than the above	Off
RR DEF SW IND	Ignition switch ON	Rear DEF switch indicator ON	On
		Other than the above	Off
AUTO IND	Ignition switch ON	MANUAL mode	Off
		AUTO mode	Auto
TEMP IND [°C]	Ignition switch ON	—	Displays the temperature set by the user.
FAN IND	Ignition switch ON	Air conditioner OFF	Off
		Displays a value according to the fan speed.	1 to 7 speed

*: This is not used to determine ON/OFF of the indicator lamp.

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Standard	Reference value (Approx.)
+	–	Signal name	Input/ Output				
1 (Y)	10 (B) 11 (B)	Battery power supply	Input	Ignition switch OFF		9 V – 16 V	Battery power supply
2 (V)	10 (B) 11 (B)	Illumination signal	Input	Ignition switch OFF	Lighting switch 1ST position.	9 V – 16 V	12 V
					Lighting switch OFF position.	0 V	0 V
5 (GR)	10 (B) 11 (B)	Illumination control signal	Input	Ignition switch ON	• Lighting switch 1ST position. • When illumination control level is maximum.	0 V – 16 V	 JPNIA1687GB
					• Lighting switch 1ST position. • When illumination control level is midway.		 JPNIA1686GB
					• Lighting switch 1ST position. • When meter illumination is minimum.		12 V
6 (L)	—	CAN -H	—	—		—	—
7 (LG)	10 (B) 11 (B)	Ignition power supply	Input	Ignition switch ON		9 V – 16 V	Battery power supply
12 (P)	—	CAN -L	—	—		—	—

DTC Inspection Priority Chart

INFOID:0000000012202619

When multiple DTCs are displayed simultaneously, check one by one according to the following priority list.

Priority	DTC inspection priority order item
1	• U1000 : CAN COMM CIRCUIT • U1010 : CONTROL UNIT (CAN)
2	• U1402 : ENGINE SPEED SIGNAL • U1405 : ENGINE TORQUE SIGNAL • U1406 : BOOST PRESSURE INPUT • U1412 : LONG ACC INPUT • U1413 : TRANS ACC INPUT

DTC Index

INFOID:0000000012202620

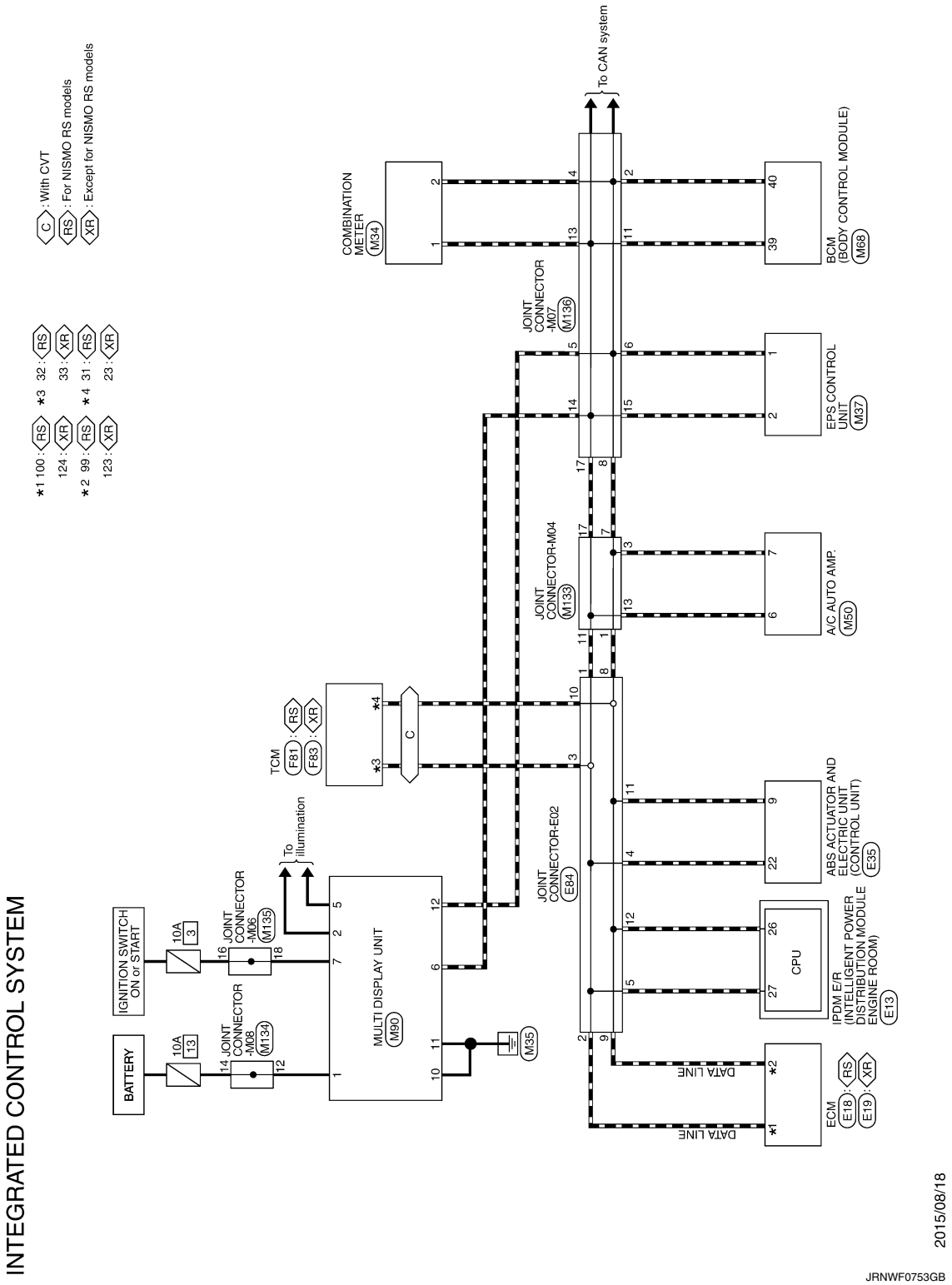
DTC	CONSULT display	Refer to
U1000	CAN COMM CIRCUIT	AV-222, "Diagnosis Procedure"
U1010	CONTROL UNIT (CAN)	AV-223, "Diagnosis Procedure"
U1402	ENGINE SPEED SIGNAL	AV-224, "Diagnosis Procedure"
U1405	ENGINE TORQUE SIGNAL	AV-225, "Diagnosis Procedure"
U1406	BOOST PRESSURE INPUT	AV-226, "Diagnosis Procedure"
U1412	LONG ACC INPUT	AV-227, "Diagnosis Procedure"
U1413	TRANS ACC INPUT	AV-228, "Diagnosis Procedure"

WIRING DIAGRAM

INTEGRATED CONTROL SYSTEM

Wiring Diagram

INFOID:0000000012202621

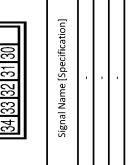


INTEGRATED CONTROL SYSTEM

Connector No.	E13
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH

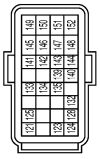
Terminal No.	Color Of Wire	Signal Name [Specification]
23	SB	-
25	BR	-
26	P	-
27	L	-
28	Y	-
30	V	-
31	Y	-
32	R	-
33	G	-
34	L	-

Connector No.	E18
Connector Name	ECM
Connector Type	RH24FGY-RZ8-R-RH



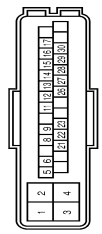
Terminal No.	Color Of Wire	Signal Name [Specification]
99	P	CAN COMMUNICATION LINE (CAN-L)
100	L	CAN COMMUNICATION LINE (CAN-H)
101	V	SENSOR POWER SUPPLY
102	R	ACCELERATOR PEDAL POSITION SENSOR 1
103	BR	PNP SIGNAL
104	R	DATA LINK CONNECTOR
105	GR	SENSOR GROUND
106	Y	POWER SUPPLY FOR ECM (BACKUP)
108	GR	CLUTCH PEDAL POSITION SWITCH
109	O	IGNITION SWITCH
110	P	ASCD STEERING SWITCH
111	B	SENSOR GROUND
112	BR	ECM RELAY (SELF SHUT-OFF)
115	R	STOP LAMP SWITCH
116	G	BRAKE PEDAL POSITION SWITCH
117	Y	FUEL PUMP RELAY
118	O	SENSOR POWER SUPPLY
119	W	ACCELERATOR PEDAL POSITION SENSOR 2
120	Y	SENSOR GROUND
121	G	POWER SUPPLY FOR ECM
122	G	THROTTLE CONTROL MOTOR POWER SUPPLY
123	GR	ECM GROUND
124	GR	ECM GROUND
125	L	A/F SENSOR 1 HEATER
126	W	HEATED OXYGEN SENSOR 2 HEATER
127	GR	ECM GROUND

Connector No.	E19
Connector Name	ECM
Connector Type	RH24FB-RZ8-L-LH



Terminal No.	Color Of Wire	Signal Name [Specification]
121	L	EVAP CONTROL SYSTEM PRESSURE SENSOR
123	P	CAN COMMUNICATION LINE (CAN-L)
124	L	CAN COMMUNICATION LINE (CAN-H)
125	G	SENSOR POWER SUPPLY
128	SB	FUEL TANK TEMPERATURE SENSOR
132	GR	CLUTCH PEDAL POSITION SWITCH
133	LG	IGNITION SWITCH
134	P	ASCD STEERING SWITCH
135	B	SENSOR GROUND
139	R	STOP LAMP SWITCH
140	G	BRAKE PEDAL POSITION SWITCH
141	L	EVAP CANISTER VENT CONTROL VALVE
142	O	SENSOR POWER SUPPLY
143	W	ACCELERATOR PEDAL POSITION SENSOR 2
144	Y	SENSOR GROUND
145	G	POWER SUPPLY FOR ECM
146	V	SENSOR POWER SUPPLY
147	GR	ECM GROUND
148	Y	SENSOR GROUND
149	GR	ECM GROUND
150	R	ACCELERATOR PEDAL POSITION SENSOR 1
151	GR	SENSOR GROUND
152	GR	ECM GROUND

Connector No.	E35
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	RH28FB-NU4-LH

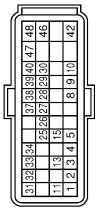


Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	BAT (MTR)
2	L	BAT (SOL)
3	B	GND (SOL)
4	B	GND (MTR)
5	R	VDC_OFF_SW
6	G	ASCD_CANCEL_SW
8	R	STOP_LAMP_SW
9	P	CAN-L
11	BR	DP RR
12	W	DS FR
13	G	VCC
14	R	SERIAL+
15	Y	DS RR
16	V	IGN
17	W	REVERSE SIGNAL
21	Y	DP FR
22	L	CAN-H
23	LG	DP FL
26	G	RR_LH_SENS_VB
27	BR	DS FL
28	B	GND
29	W	SERIAL-
30	BE	RR_LH_SENS_SIG

Connector No.	E84
Connector Name	JOINT CONNECTOR-E02
Connector Type	A12FL

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	L	-
3	L	-
4	L	-
5	L	-
6	L	-
7	P	-
8	P	-
9	P	-
10	P	-
11	P	-
12	P	-

Connector No.	F81
Connector Name	TCM
Connector Type	RH40FB-RZ8-L-RH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	R RANGE SW
2	Y	N RANGE SW
3	W	D RANGE SW
4	V	-
5	B	GROUND
8	BR	CLOCK (SEL 2)
9	G	CHIP SELECT (SEL 1)

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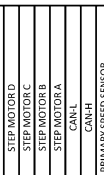
INTEGRATED CONTROL SYSTEM

10	W	DATE I/O (SEL 3)
11	L	P RANGE SW
13	SB	CVT FLUID TEMPERATURE SENSOR
15	P	SECONDARY PRESSURE SENSOR
25	Y	SENSOR GROUND
26	LG	SENSOR POWER SUPPLY
27	GR	STEP MOTOR D
28	V	STEP MOTOR C
29	BG	STEP MOTOR B
30	R	STEP MOTOR A
31	P	CAN-H
32	L	CAN-L
33	BG	PRIMARY SPEED SENSOR
34	R	SECONDARY SPEED SENSOR
37	L	LOCK-UP SELECT SOLENOID VALVE
38	G	TORQUE CONVERTER CLUTCH SOLENOID VALVE
39	W	SECONDARY PRESSURE SOLENOID VALVE
40	Y	LINE PRESSURE SOLENOID VALVE
42	B	GROUND
46	LG	IGNITION POWER SUPPLY
47	BG	BATTERY POWER SUPPLY (MEMORY BACK-UP)
48	Y	IGNITION POWER SUPPLY

Connector No.	F83
Connector Name	TCM
Connector Type	RH40FB-RZB-L-RH



Terminal No.	Color Of Wire	Signal Name [Specification]
2	BR	-
4	W	D RANGE SW
5	LG	N RANGE SW
6	G	R RANGE SW
7	SB	P RANGE SW
11	Y	SENSOR GROUND
12	SB	CVT FLUID TEMPERATURE SENSOR
16	P	SECONDARY PRESSURE SENSOR
17	P	PRIMARY PRESSURE SENSOR
23	P	CAN-L
24	V	INPUT SPEED SENSOR
26	LG	SENSOR POWER SUPPLY

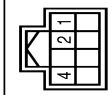
30	Y	LINE PRESSURE SOLENOID VALVE
33	L	CAN-H
34	R	OUTPUT SPEED SENSOR
35	BG	PRIMARY SPEED SENSOR
37	L	SELECT SOLENOID VALVE
38	LG	TORQUE CONVERTER CLUTCH SOLENOID VALVE
39	G	SECONDARY PRESSURE SOLENOID VALVE
40	W	PRIMARY PRESSURE SOLENOID VALVE
41	B	GROUND
42	B	GROUND
45	V	BATTERY POWER SUPPLY
46	GR	BATTERY POWER SUPPLY
47	LG	IGNITION POWER SUPPLY
48	W	IGNITION POWER SUPPLY

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	CAN-H
2	P	CAN-L
4	Y	VEHICLE SPEED SIGNAL (8-PULSE)
5	G	PADDLE SHIFTER UP SWITCH SIGNAL
6	BR	FUEL LEVEL SENSOR SIGNAL
7	R	AIR BAG SIGNAL
8	P	-
9	W	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)
10	SB	PARKING BRAKE SWITCH SIGNAL
11	G	BRAKE FLUID LEVEL SWITCH SIGNAL
13	GR	ILLUMINATION CONTROL SIGNAL
14	R	MANUAL MODE SHIFT UP SIGNAL
15	L	ACC POWER SUPPLY
16	W	MANUAL MODE SHIFT DOWN SIGNAL
17	G	WASHER LEVEL SWITCH SIGNAL
18	R	SECURITY SIGNAL
19	GR	AMBIENT SENSOR SIGNAL
20	R	AMBIENT SENSOR GROUND
21	B	GROUND
22	B	GROUND

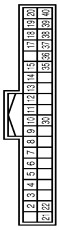
23	B	GROUND
24	L	FUEL LEVEL SENSOR GROUND
25	B	VDC GROUND
26	V	PADDLE SHIFTER DOWN SWITCH SIGNAL
27	LG	BATTERY POWER SUPPLY
28	GR	IGNITION SIGNAL
29	V	PASSENGER SEAT BELT WARNING SIGNAL
31	P	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
36	Y	MANUAL MODE SIGNAL
37	G	NON-MANUAL MODE SIGNAL
38	P	ALTERNATOR SIGNAL

Connector No.	M37
Connector Name	EPS CONTROL UNIT
Connector Type	TH08FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	P	CAN-L
2	L	CAN-H
4	LG	IGN

Connector No.	M50
Connector Name	A/C AUTO AMP.
Connector Type	TH40FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
2	LG	IN-VEHICLE SENSOR SIGNAL
3	V	INTAKE SENSOR SIGNAL
4	GR	AMBIENT SENSOR SIGNAL
5	P	SUNLOAD SENSOR SIGNAL

6	L	CAN-H
7	P	CAN-L
8	W	INTAKE DOOR MOTOR PBR POWER SUPPLY
9	P	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
10	R	SENSOR GROUND
11	LG	IGNITION POWER SUPPLY
12	Y	BATTERY POWER SUPPLY
13	GR	POWER TRANSISTOR CONTROL SIGNAL
14	LG	BLOWER FAN ON SIGNAL
15	Y	A/C ON SIGNAL
17	BR	A/MIX DRIVE SIGNAL 4
18	GR	A/MIX DRIVE SIGNAL 3
19	W	A/MIX DRIVE SIGNAL 2
20	L	A/MIX DRIVE SIGNAL 1
21	G	IGNITION POWER SUPPLY
22	SB	INTAKE DOOR MOTOR PBR F/B SIGNAL
30	B	GROUND
35	G	REC DRIVE SIGNAL
36	V	FRE DRIVE SIGNAL
37	R	MODE DRIVE SIGNAL 4
38	P	MODE DRIVE SIGNAL 3
39	Y	MODE DRIVE SIGNAL 2
40	V	MODE DRIVE SIGNAL 1

Connector No.	M68
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
2	L	COMBI SW INPUT 5
3	GR	COMBI SW INPUT 4
4	BR	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	W	COMBI SW INPUT 1
7	L	KEY CYL UNLOCK SW
8	R	KEY CYL LOCK SW
9	R	STOP LAMP SW 1
10	W	-
12	GR	DOOR LK & UNLK SW LOCK
13	BR	DOOR LK & UNLK SW UNLOCK

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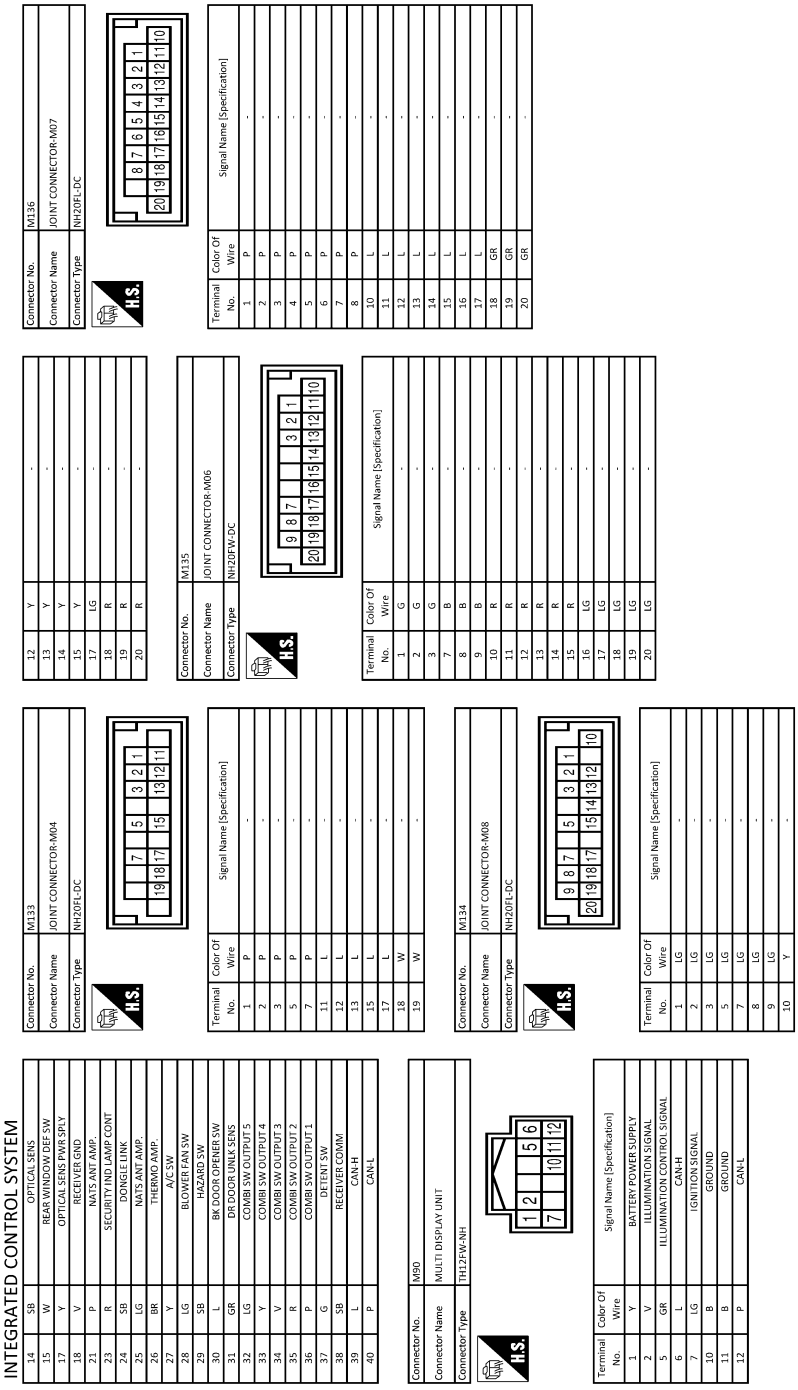

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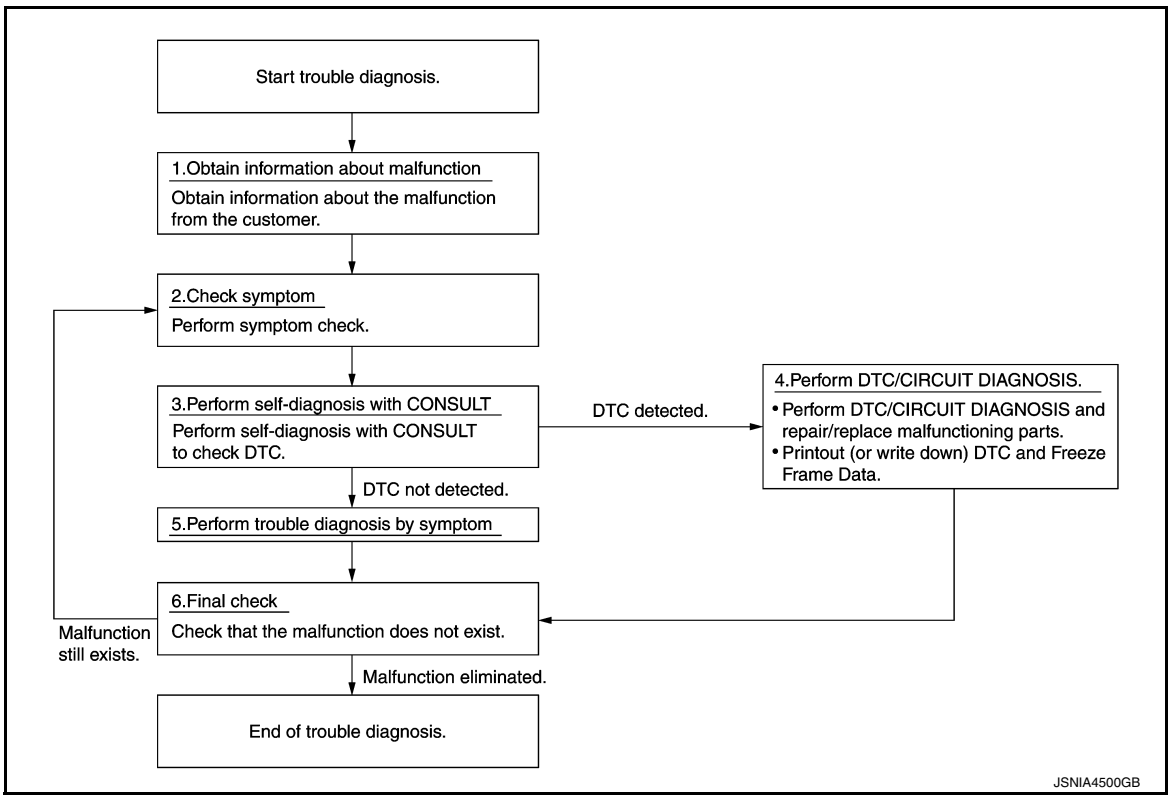
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012202622

DESCRIPTION OF TROUBLE DIAGNOSIS FLOWCHART



DETAILS OF TROUBLE DIAGNOSIS FLOWCHART

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurs.

>> GO TO 2.

2.CHECK SYMPTOM

- Check the symptom based on the information obtained from the customer.
- Check if any other malfunctions are present.

>> GO TO 3.

3.CONSULT SELF-DIAGNOSIS

1. Perform “MULTI DISPLAY” “self diagnosis” by connecting CONSULT.
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

NOTE:
If “CAN COM CIRC [U1000]” is displayed, start the diagnosis from the CAN communication system. Refer to AV-222, "Diagnosis Procedure".

Is any DTC No. displayed?

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

4.DTC/SYSTEM DIAGNOSIS

1. Perform a DTC/system diagnosis and repair or replace any malfunctioning part.
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

>> GO TO 6.

5.PERFORM DIAGNOSIS BY SYMPTOM

Perform a diagnosis by symptom and repair or replace any malfunctioning part.

>> GO TO 6.

6.FINAL CHECK

Check that the multi display unit functions normally.

Does it operate normally?

YES >> End of trouble diagnosis
NO >> GO TO 2.

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000012202623

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-board multiplex communication line with high data communication speed and excellent error detection ability. A modern vehicle is equipped with many ECUs, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, 2 control units are connected with 2 communication lines (CAN-L-line and CAN-H-line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
Refer to LAN-30, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart" for details of the communication signal.

DTC Logic

INFOID:0000000012202624

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Malfunction detection condition	Probable malfunction location
U1000	CAN COMM CIRCUIT	Multi display unit cannot transmit and receive any CAN communication signal for 2 seconds or more	CAN communication system

Diagnosis Procedure

INFOID:0000000012202625

1.PERFORM SELF-DIAGNOSIS

1. Turn the ignition switch ON and hold it for 2 seconds or more.
2. Using CONSULT, check the ”self diagnosis result“ of ”MULTI DISPLAY“.

Is CAN communication system displayed?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-45, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000012202626

Initial diagnosis of multi display unit

DTC Logic

INFOID:0000000012202627

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Malfunction detection condition	Probable malfunction location
U1010	CONTROL UNIT (CAN)	Malfunction is detected during initial diagnosis of multi display unit CAN controller	Multi display unit

Diagnosis Procedure

INFOID:0000000012202628

1.REPLACE THE MULTI DISPLAY UNIT

If DTC U1010 is detected, replace the multi display unit. AV-231, "Removal and Installation".

>> INSPECTION END

U1402 ENGINE SPEED SIGNAL

DTC Logic

INFOID:0000000012202629

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Malfunction detection condition	Probable malfunction location
U1402	ENGINE SPEED SIGNAL	ECM continuously transmits abnormal engine speed signal for 2 seconds or more	ECM

Diagnosis Procedure

INFOID:0000000012202630

1.PERFORM ECM SELF DIAGNOSIS

Using CONSULT, check the “self diagnosis result” of “ENGINE” and repair or replace any malfunctioning parts.

>> Refer to EC-115, "DTC Index" (MR FOR NISMO RS MODELS) or EC-706, "DTC Index" (MR EXCEPT FOR NISMO RS MODELS).

U1405 ENGINE TORQUE SIGNAL

DTC Logic

INFOID:0000000012202631

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Malfunction detection condition	Probable malfunction location
U1405	ENGINE TORQUE SIGNAL	ECM continuously transmits abnormal engine torque signals for 2 seconds or more	ECM

Diagnosis Procedure

INFOID:0000000012202632

1.PERFORM ECM SELF-DIAGNOSIS

Using CONSULT, check the “self diagnosis result” of “ENGINE” and repair or replace any malfunctioning parts.

>> Refer to EC-115, "DTC Index" (MR FOR NISMO RS MODELS) or EC-706, "DTC Index" (MR EXCEPT FOR NISMO RS MODELS).

U1406 BOOST PRESSURE INPUT

DTC Logic

INFOID:0000000012202633

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Malfunction detection condition	Probable malfunction location
U1406	BOOST PRESSURE INPUT	ECM continuously transmits abnormal boost pressure signals for 2 seconds or more	ECM

Diagnosis Procedure

INFOID:0000000012202634

1.PERFORM ECM SELF-DIAGNOSIS

Using CONSULT, check the “self diagnosis result” of “ENGINE” and repair or replace any malfunctioning parts.

>> Refer to EC-115, "DTC Index" (MR FOR NISMO RS MODELS) or EC-706, "DTC Index" (MR EXCEPT FOR NISMO RS MODELS).

U1412 LONG ACC INPUT

DTC Logic

INFOID:0000000012202635

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Malfunction detection condition	Probable malfunction location
U1412	LONG ACC INPUT	Abnormal decel G sensor signals are input from ABS actuator and electric unit (control unit) for 2 seconds or more	ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000012202636

1.PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

Using CONSULT, check the “self diagnosis result” of “ABS” and repair or replace any malfunctioning parts.

>> Refer to BRC-50, "DTC Index".

U1413 TRANS ACC INPUT

DTC Logic

INFOID:0000000012202637

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Malfunction detection condition	Probable malfunction location
U1413	TRANS ACC INPUT	Abnormal side G sensor signals are input from ABS actuator and electric unit (control unit) for 2 seconds or more	ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000012202638

1.PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

Using CONSULT, check the “self diagnosis result” of “ABS” and repair or replace any malfunctioning parts.

>> Refer to BRC-50, "DTC Index".

POWER SUPPLY AND GROUND CIRCUIT
MULTI DISPLAY UNIT

MULTI DISPLAY UNIT : Diagnosis Procedure

INFOID:0000000012202639

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Battery power supply	13
Ignition power	3

Is the check result normal?

YES >> GO TO 2.
NO >> Replace fuse with a new one after repairing the applicable circuit.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between multi display unit harness connector and ground.

Multi display unit				Signal name	Ignition switch	Standard	Reference value
(+)		(–)					
Connector	Terminal	Connector	Terminal				
M90	1	M90	10 11	Battery power supply	OFF	9 V – 16 V	Battery voltage
	7			Ignition power	ON	9 V – 16 V	Battery voltage

Is the check result normal?

YES >> GO TO 3.
NO >> Repair harness between fuse and multi display unit.

3.CHECK GROUND CIRCUIT

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

Multi display unit		Ground	Continuity
Connector	Terminal		
M90	10		Exists
	11		Exists

Is the check result normal?

YES >> INSPECTION END
NO >> Repair the harnesses or connectors.

SYMPTOM DIAGNOSIS

INTEGRATED CONTROL SYSTEM

Symptom Table

INFOID:0000000012202640

Symptoms	Check items	Possible malfunction location/Action to take
Switches are inoperative	All switches do not work.	Perform self-diagnosis of CONSULT. Refer to AV-210, "CONSULT Function".
	Only (one) specified switch does not work.	Replace multi display unit. Refer to AV-231, "Removal and Installation".

REMOVAL AND INSTALLATION

MULTI DISPLAY UNIT

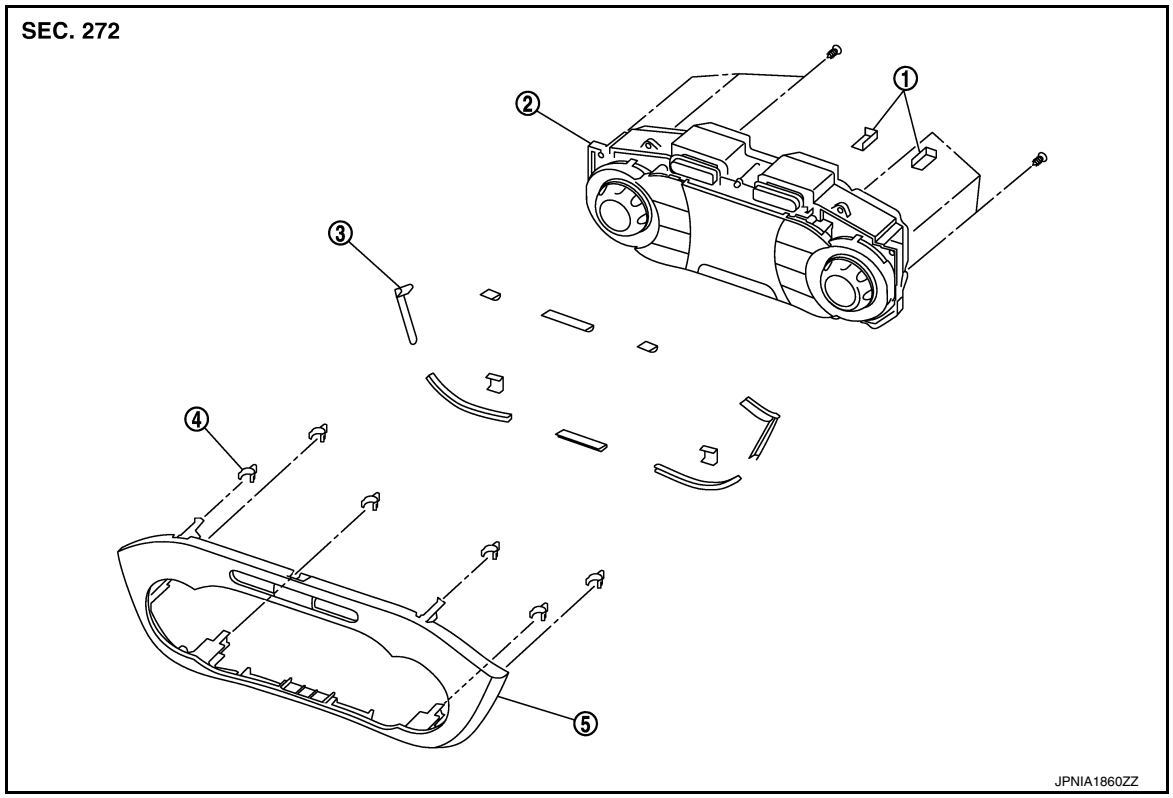
Exploded View

INFOID:0000000012202641

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



1. Silencer tape
2. Multi display unit
3. Silencer tape
4. Clip
5. Control finisher

Removal and Installation

INFOID:0000000012202642

REMOVAL

Refer to IP-12, "Exploded View".

CAUTION:

- **When performing the work, use a shop cloth to protect the parts from damage.**
- **Always fix the harness clamp in position.**

INSTALLATION

Install in the reverse order of removal.