

# SECTION AV

## AUDIO, VISUAL, NAVIGATION & TELEPHONE SYSTEM

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# PRECAUTIONS

## PRECAUTIONS

PFP:00011

### Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

EKS0091X

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. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### **WARNING:**

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

### Wiring Diagrams and Trouble Diagnosis

EKS0091Y

When you read wiring diagrams, refer to the following:

- [GI-14, "How to Read Wiring Diagrams"](#) in GI section
- [PG-3, "POWER SUPPLY ROUTING"](#) for power distribution circuit in GI section

When you perform trouble diagnosis, refer to the following:

- [GI-11, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES"](#) in GI section
- [GI-24, "How to Perform Efficient Diagnosis for an Electrical Incident"](#) in GI section

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## AUDIO

PFP:28111

### System Description AUDIO SYSTEM

EKS0091Z

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

Power is supplied at all times

- through 15A fuse (No. 33, located in the fuse and fusible link box)
- to audio unit terminals 3 and 4,
- to CD auto changer terminal 32,
- to display unit terminal 2 and 4 (without NAVI system) or
- to display terminal 21 and 23 (with NAVI system).

With the ignition switch in the ON or START position (without NAVI system), power is supplied

- through 10A fuse [No.10, located in the fuse block (J/B)]
- to display unit terminal 5.

With the ignition switch in the ACC or ON position, power is supplied

- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to audio unit terminal 2,
- to CD auto changer terminal 36,
- to Sub-woofer terminal 4,
- to multifunction switch terminal 6
- to display unit terminal 6 (without NAVI system) or
- to display terminal 19 (with NAVI system).

Ground is supplied through the case of the audio unit.

Ground is also supplied

- through body grounds B17 and B24 (sedan models),
- through body grounds B17, B24 and D94 (wagon models) or
- through body grounds B17 B24 and B55 (hatch back models)
- to CD auto changer terminal 35.

Ground is also supplied

- through body ground B120 (LHD models)
- through body grounds B17 and B24 (RHD sedan models)
- through body grounds B17, B24 and D94 (RHD wagon models)
- through body grounds B17, B24 and B55 (RHD hatch back models)
- to sub-woofer terminal 3.

Ground is also supplied

- through body grounds M16, M50, M70 and F115 (gasoline engine models) or
- to multifunction switch terminal1 and
- to display unit terminals 1 and 3 (without NAVI system) or
- to display terminals 22 and 24 (with NAVI system).

Audio signals are supplied

- through audio unit terminals 5, 6, 7, 8, 9, 10, 11, 12
- to terminals 1 and 2 of front door speaker LH and RH
- to terminals 1 and 2 of rear door speaker LH and RH
- to terminals 1 and 2 of tweeter LH and RH
- to terminals 1, 2, 5 and 6 of Sub-woofer (with 7 speakers).

CD (audio) signals are supplied

- through CD auto changer terminals 21, 22, 23, 24, 28, 29 and 30
- to audio unit terminals 13, 14, 15, 16, 20, 21 and 22.

# AUDIO

## AV COMMUNICATION LINE

Audio system is contained and the AV communication line is connected as followings.

- Display unit terminals 19 and 20 (without NAVI system) or
- Display terminals 12 and 13 (with NAVI system), and
- Multifunction switch terminals 12 and 14.
- Multifunction switch terminals 11 and 13, and
- Audio unit terminals 43 and 44.
- Audio unit terminals 47 and 48, and
- AV and NAVI control unit terminals 47 and 48 (with navigation system).

The operation is controlled by operation signals from multifunction switch, then audio screen is displayed.

## NAVIGATION SYSTEM OF GUIDANCE VOICE OPERATION

When navigation system is used, guidance voice signal is supplied

- from AV and NAVI control unit terminals 7 and 8
- to audio unit terminals 37 and 38.

Navigation system of guidance voice will be sounded.

## NATS AUDIO LINK

### Description

The link with the NATS IMMU implies that the audio unit can basically only be operated if connected to the matching NATS IMMU to which the audio unit was initially fitted on the production line.

Since radio operation is impossible after the link with the NATS is disrupted theft of the audio unit is basically useless since special equipment is required to reset the audio unit.

### Initialization process for audio units that are linked to the NATS IMMU

- Perform initialization with CONSULT-II
- For initialization, refer to "CONSULT-II operation manual NATS".

### Normal operation

Each time the audio unit is switched on afterwards, the audio unit code will be verified between the audio unit and the NATS before the audio unit becomes operational.

### When the radio is locked

When NATS link problems occur "SECURE" message will be displayed in three ways indicating three different NATS link problems.

"Secure" on a red background indicates that there is a problem in the link between NAVI control unit and Audio, suggesting that there is either a Navigation system fault or the NAVI control unit has previously been fitted in another vehicle.

"Secure" on a green background indicates that there is a problem in the link between NATS IMMU and Audio, suggesting that there is an audio fault or the audio unit has previously been fitted in another vehicle.

"Secure" on a yellow background indicates that the transponder (NATS key) is not working correctly or it has previously been fitted in another vehicle.

When a "Secure" message (of any type) is displayed, it can be cleared by re-initializing the NATS system using CONSULT-II and the associated Immobilizer PIN code (there is no need to return the audio to a Clarion service centre). If re-initializing fails to clear a "Secure" message then the component (identified by background color) is faulty and should be replaced.

## Service Procedure

Item	Service procedure	Description
Battery disconnection	No additional action required.	—
Radio needs repair	Repair needs to be done by authorized representative of radio manufacturer since radio cannot be operated unless it is reset to NEW state, using special decoding equipment.	—
Replacement of radio by new part	No additional action required.	Radio is delivered in NEW state.

## AUDIO

Item	Service procedure	Description
Transferring radio to another vehicle/ replacement of radio by an "old" part	Radio needs to be reset by using CONSULT-II and the associated Immobilizer PIN code (there is no need to return the audio or NAVI units to a Clarion service centre).	—
Replacement of IMMU	The communication between IMMU and radio need to be reset by using CONSULT-II and the associated Immobilizer PIN code.	After switching on the radio, it will display "SECURE" on a green background.
No communication from IMMU to radio	<ol style="list-style-type: none"> <li>1. If NATS is malfunctioning, check NATS system.</li> <li>2. After NATS is repaired, reset radio to "Secure" on a green background state by using CONSULT-II and the associated Immobilizer PIN code (there is no need to return the audio to a Clarion service centre).</li> </ol>	After switching on the radio, the display unit will display "SECURE" on a green background. Further use of radio is impossible until communication is established again, or after radio is reset by using CONSULT-II and the associated Immobilizer PIN code (there is no need to return the audio to a Clarion service centre).

## SPEED DEPENDENT VOLUME CONTROL

### Description

If activated, the radio output volume will be automatically adjusted to compensate for increased driving noises at higher driving speeds.

The radio receives a speed signal from the combination meter and selects the output volume.

## PERSONAL AUDIO SETTINGS

### Description

The radio is designed to store several settings (volume, bass, treble, preset stations and level of speed dependent volume control) with every NATS ignition key used. Up to a maximum of 4 NATS keys can be registered. During the communication mentioned under "Anti-Theft System", the radio will recognize the used ignition key and select the accompanying settings.

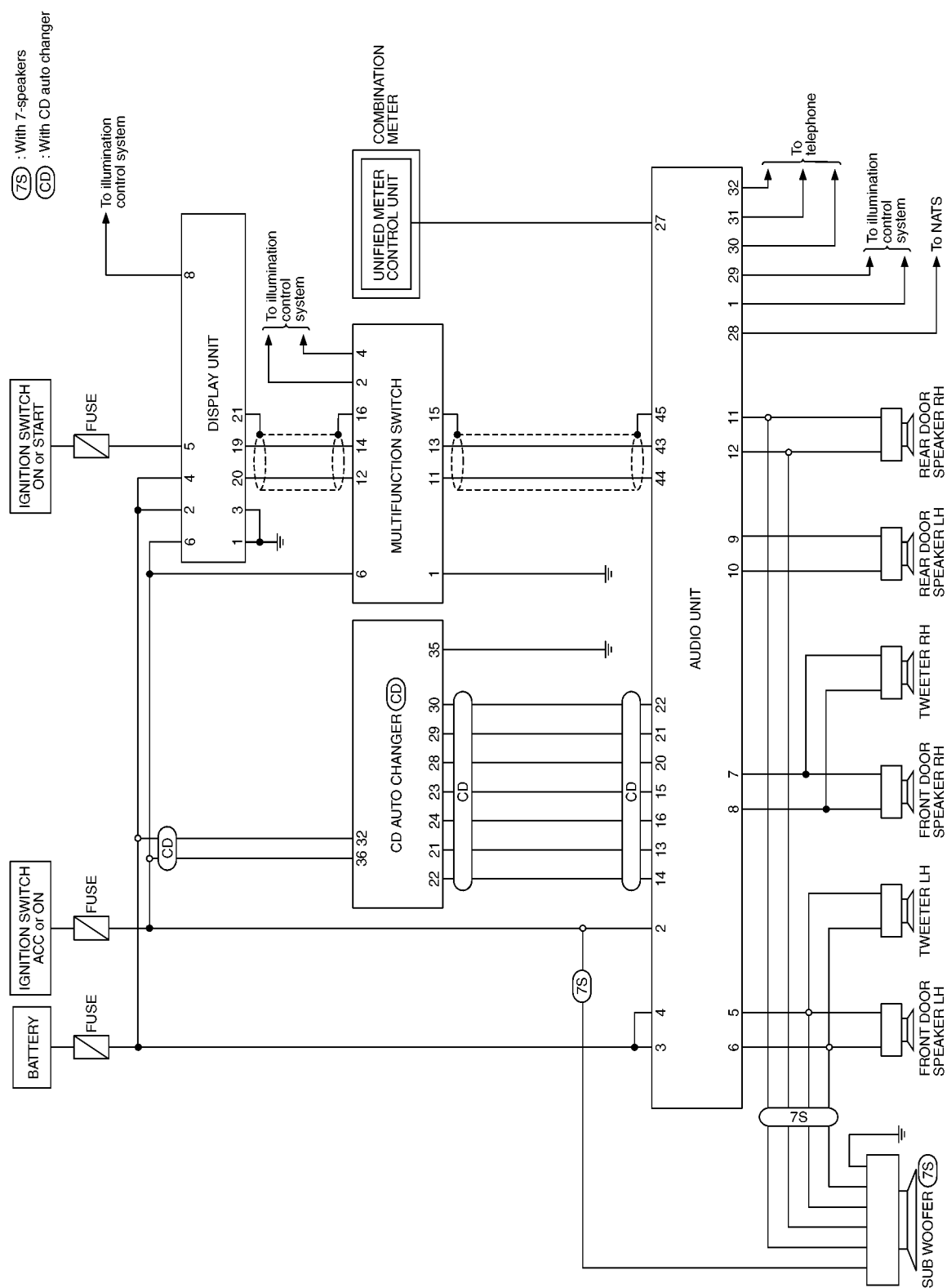
## Component Parts Location

EKS009J0

[AV-51, "Component Parts Location"](#) in "NAVIGATION SYSTEM".

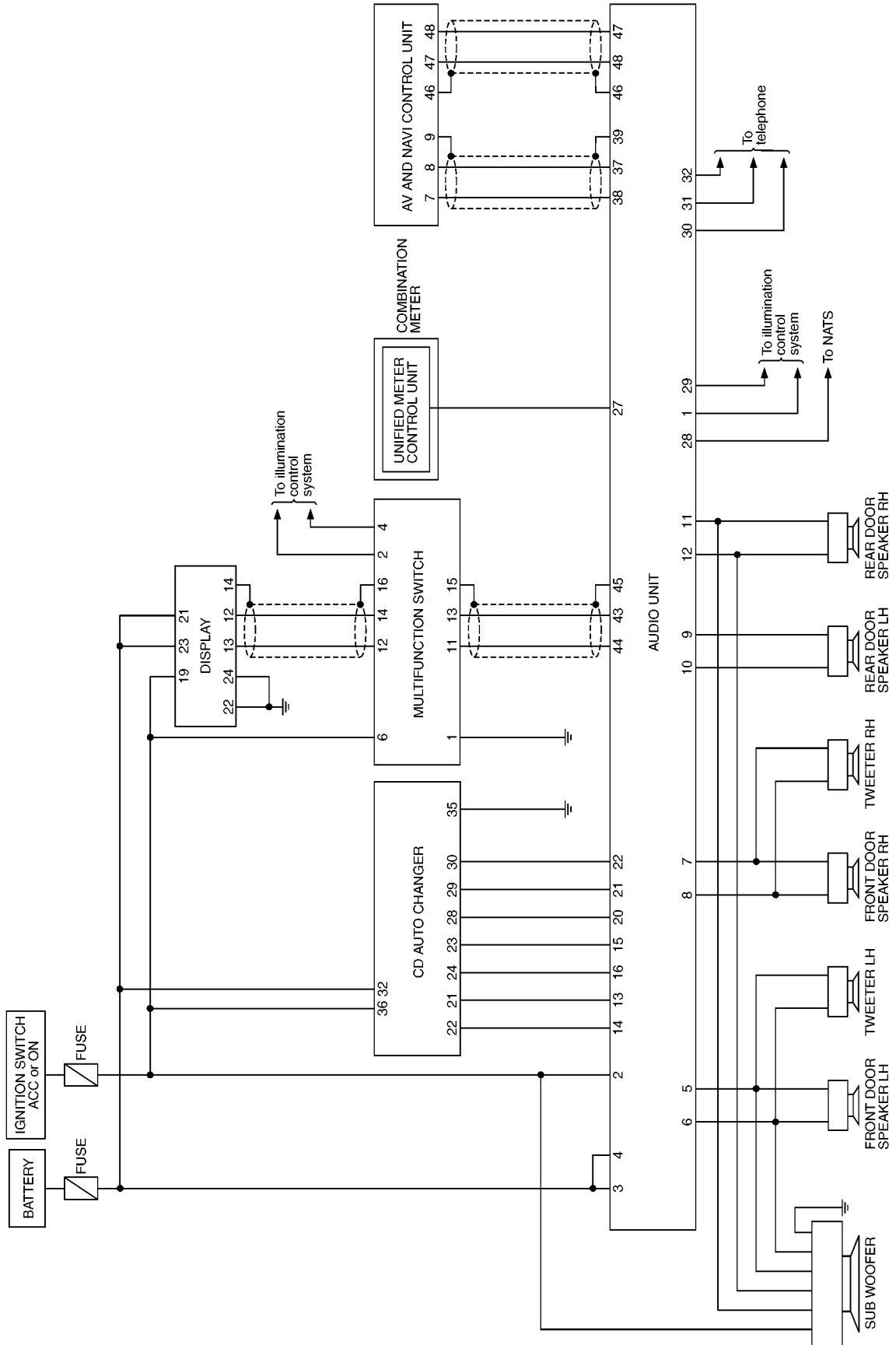
Schematic  
WITHOUT NAVIGATION SYSTEM

EKS009J1



# AUDIO

## WITH NAVIGATION SYSTEM

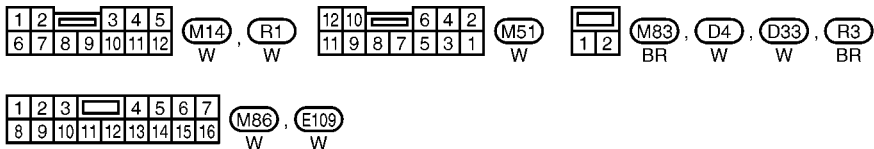
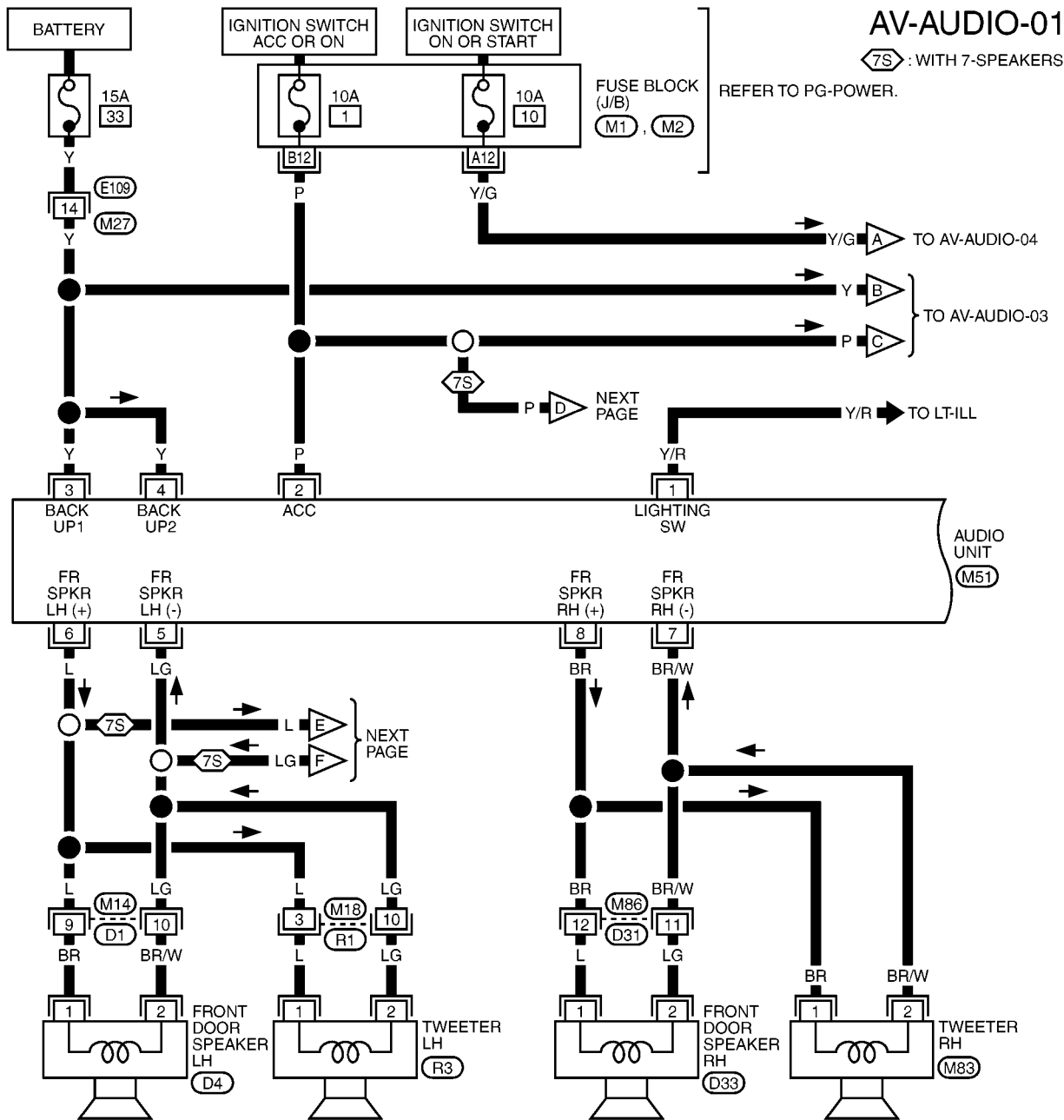


MKWA0910E



Wiring Diagram—AUDIO—  
WITHOUT NAVIGATION SYSTEM FOR LHD MODELS

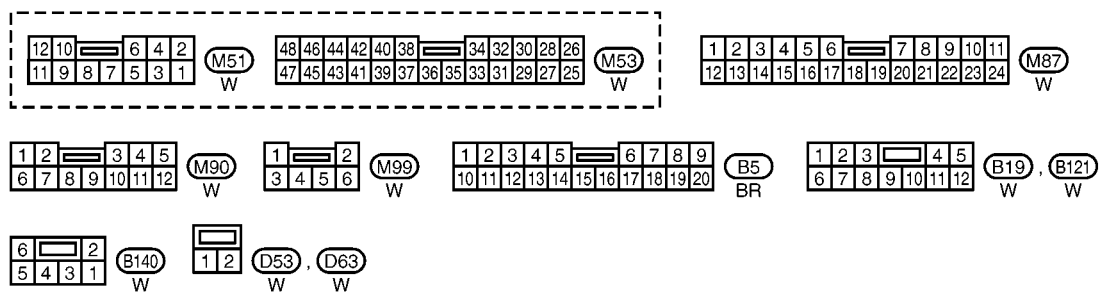
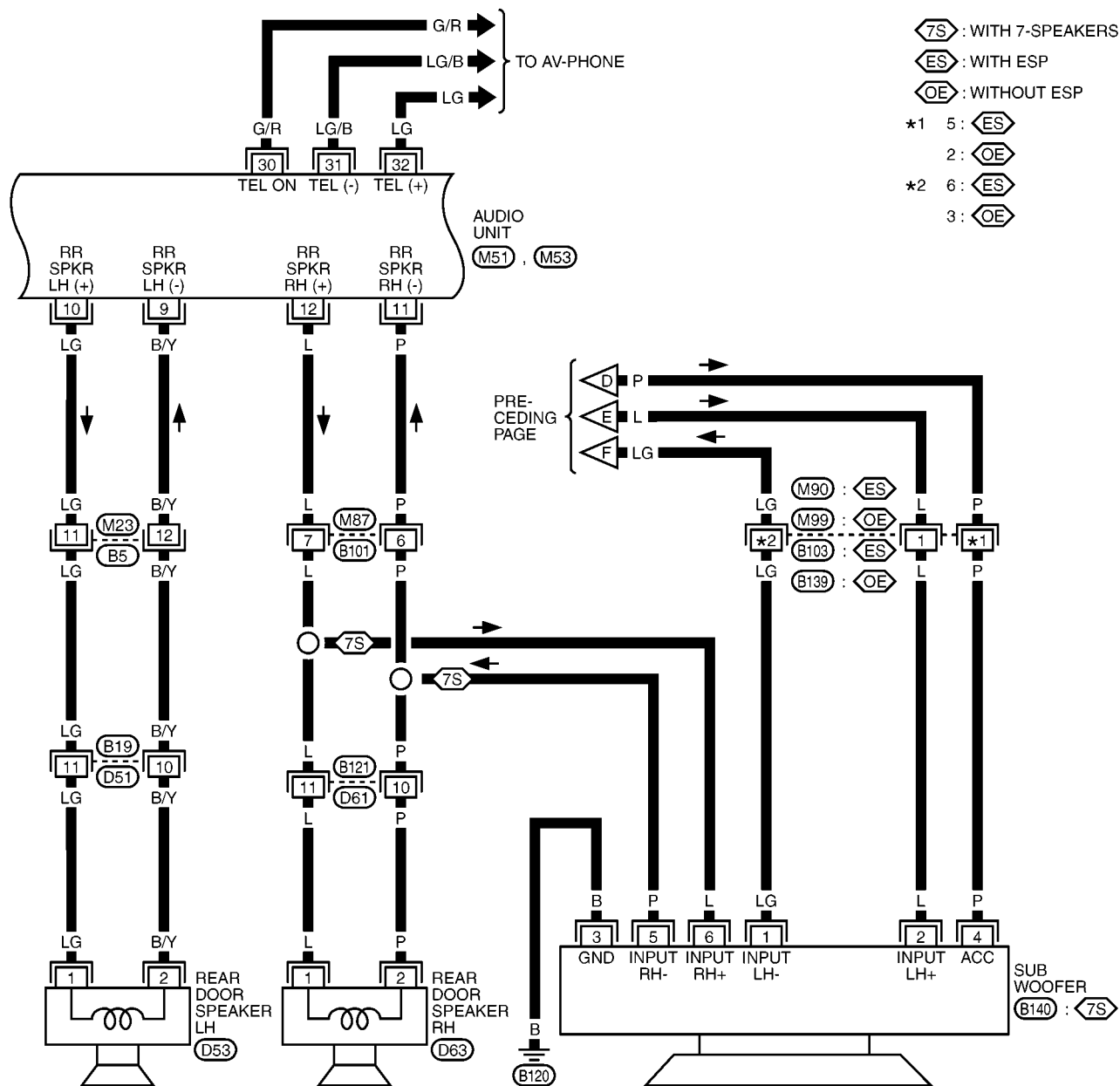
EKS009J2



REFER TO THE FOLLOWING.  
M1, M2 - FUSE BLOCK-  
JUNCTION BOX (J/B)

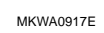
## AUDIO

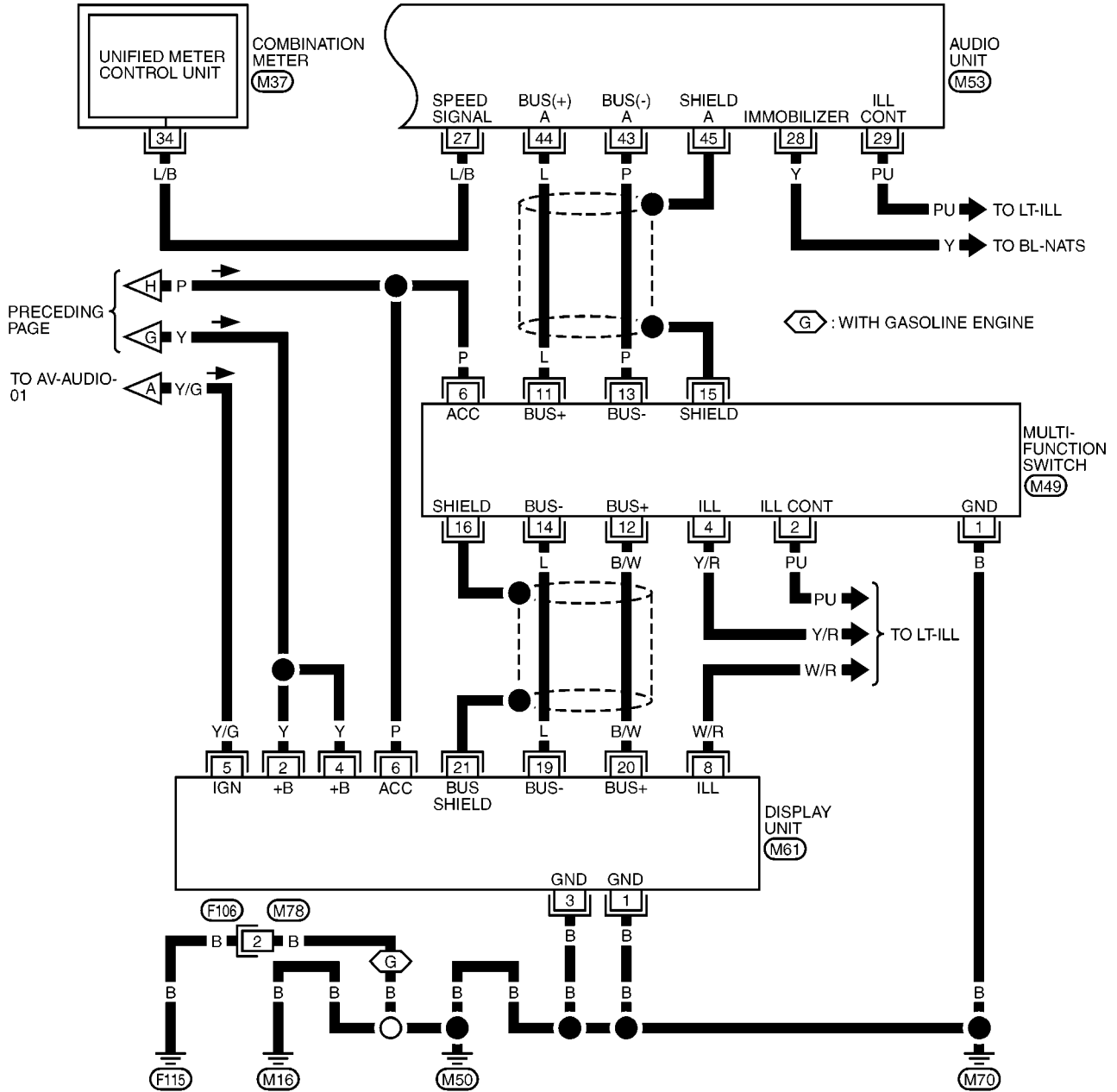
## AV-AUDIO-02



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## AV





52	51	50	49	48	47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32	31	30	29	28	27

(M37)  
Y

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

(M49)  
W

48	46	44	42	40	38	34	32	30	28	26
47	45	43	41	39	37	36	35	33	31	29

(M53)  
W

24	22	20	18	16	14	10	8	6	4	2
23	21	19	17	15	13	12	11	9	7	5

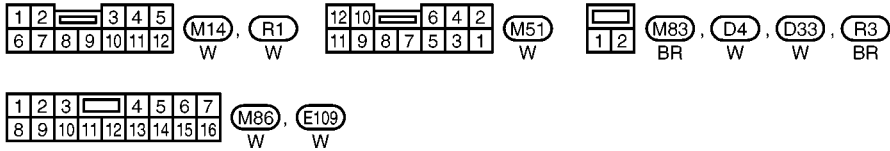
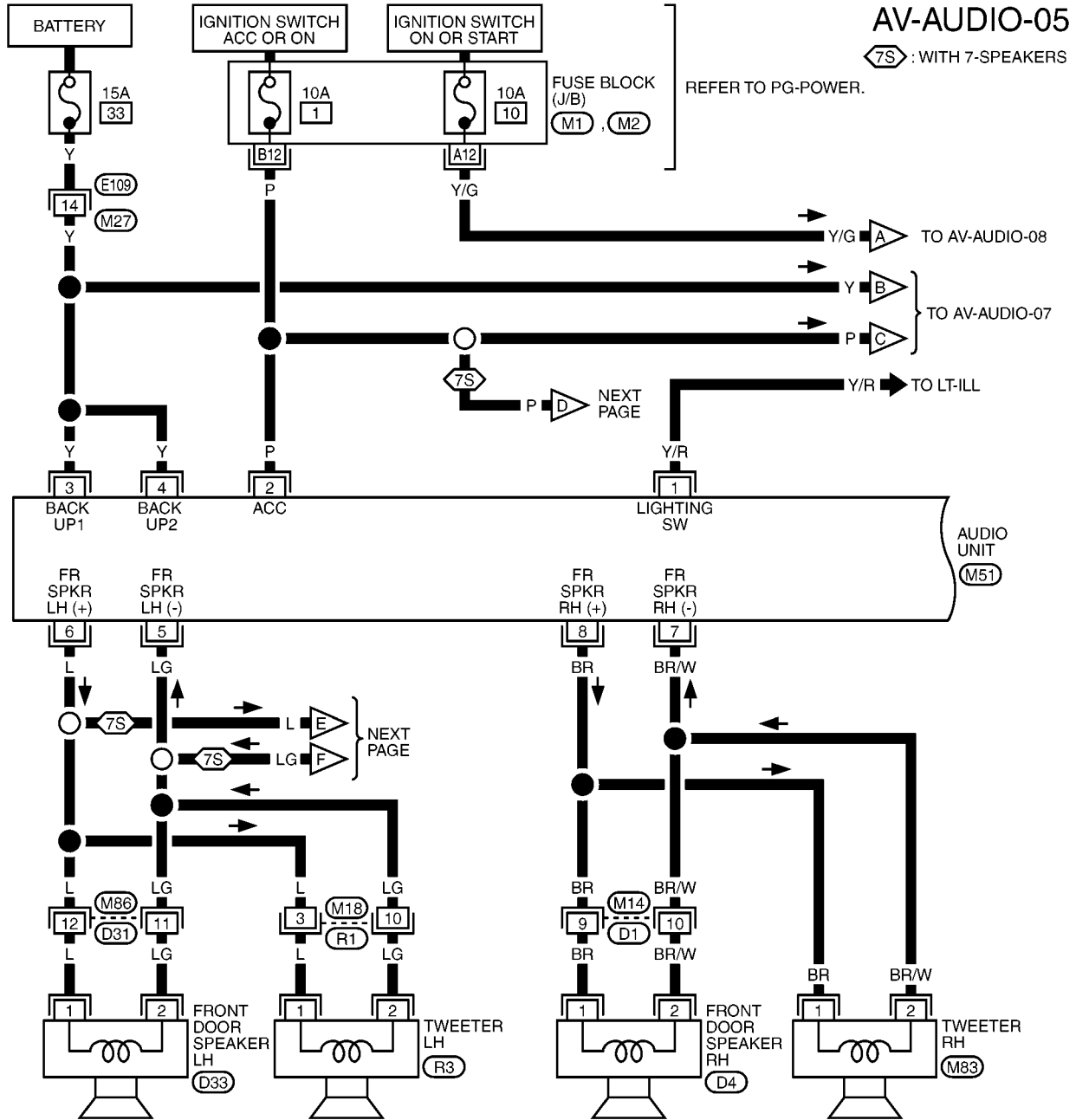
(M61)  
BR

1
2

(F106)  
W

# AUDIO

## WITHOUT NAVIGATION SYSTEM FOR RHD MODELS



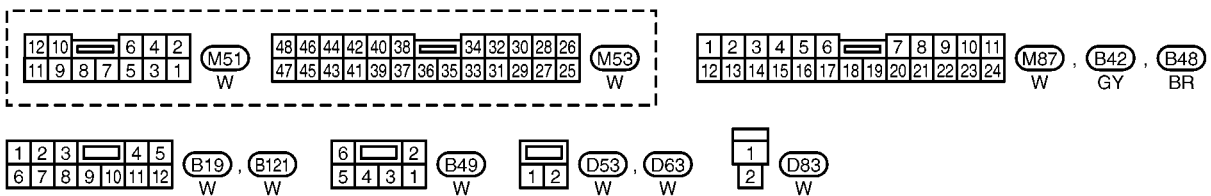
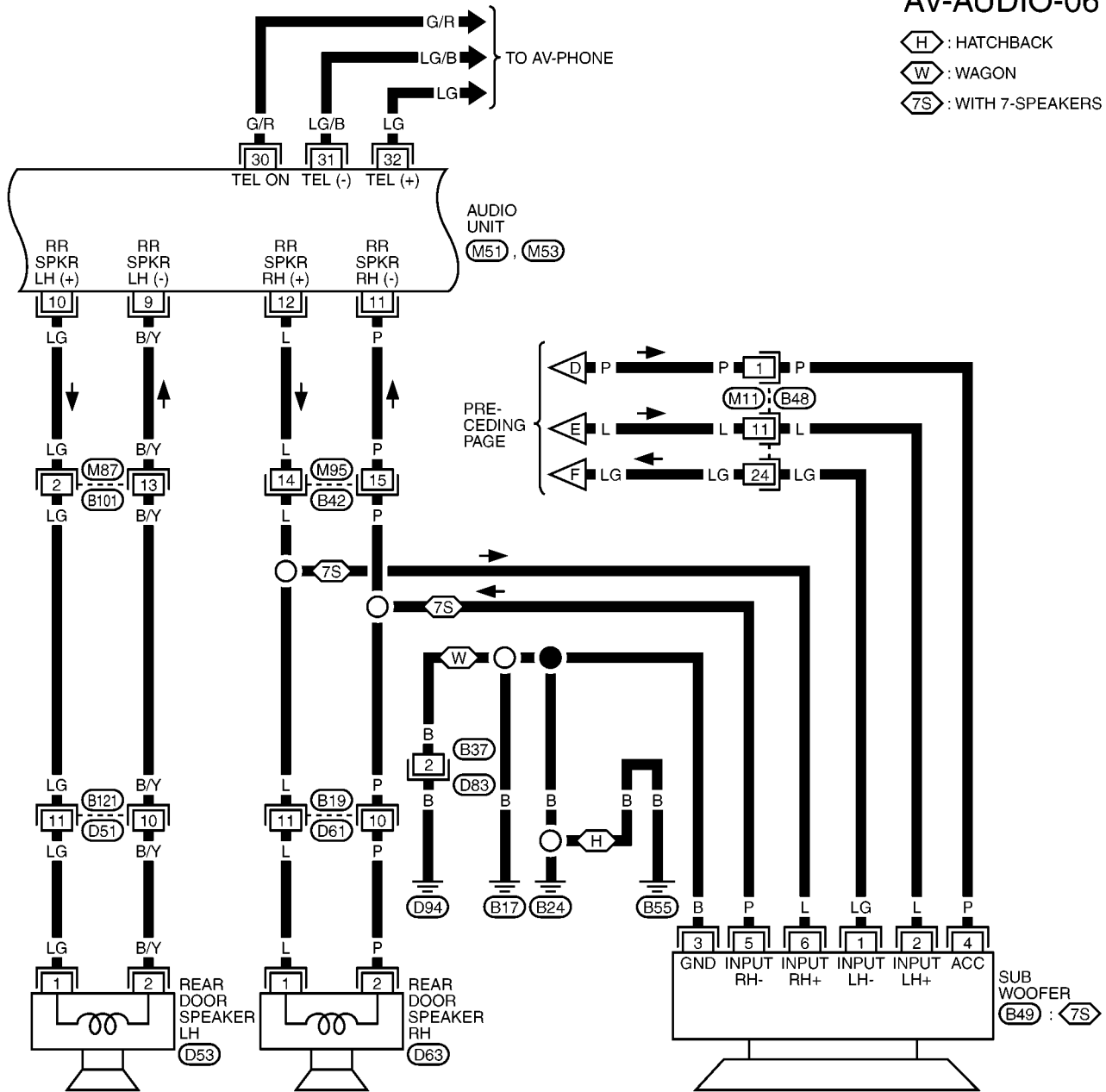
# AUDIO

## AV-AUDIO-06

**(H)** : HATCHBACK

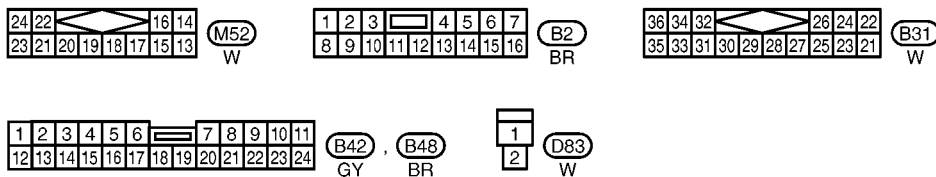
**(W)** : WAGON

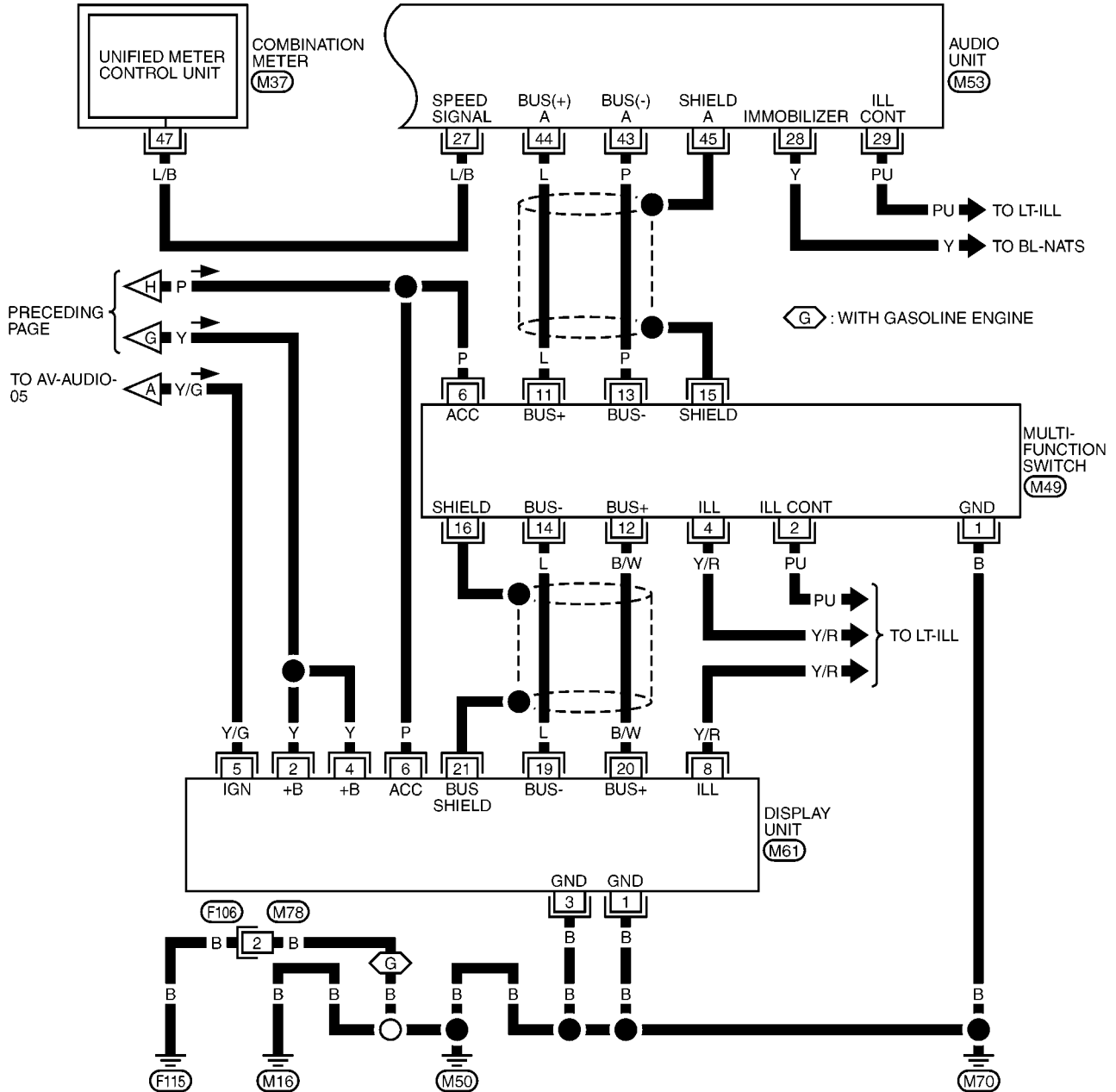
**(7S)** : WITH 7-SPEAKERS



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AV  
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## AV





52	51	50	49	48	47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32	31	30	29	28	27

(M37)  
Y

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

(M49)  
W

48	46	44	42	40	38			34	32	30	28	26
47	45	43	41	39	37	36	35	33	31	29	27	25

M53

W

(M53)  
W

24	22	20	18	16	14			10	8	6	4	2
23	21	19	17	15	13	12	11	9	7	5	3	1

M61

(M61)  
BR

1
2

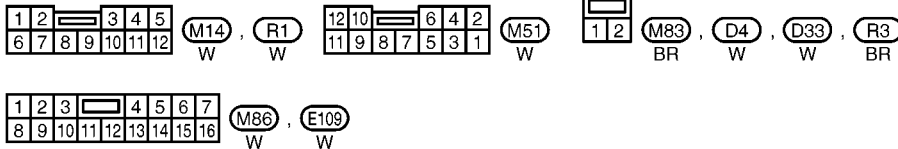
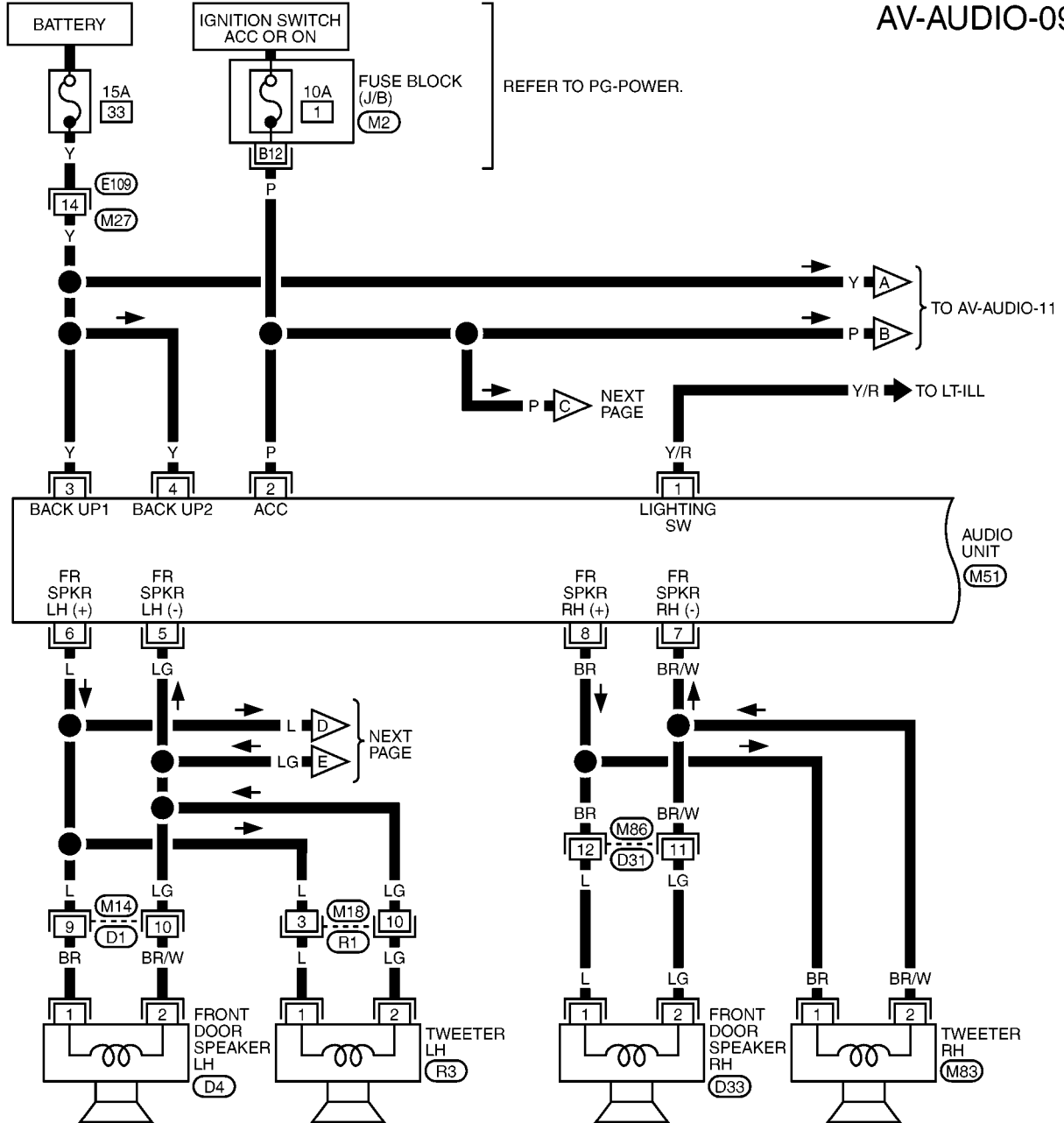
(F106)  
W



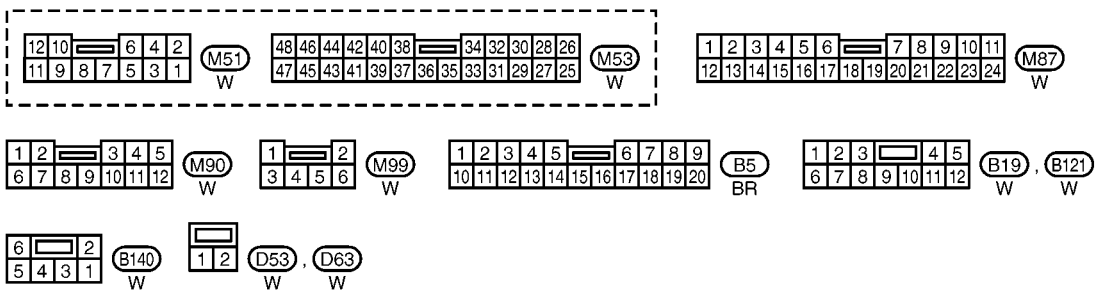
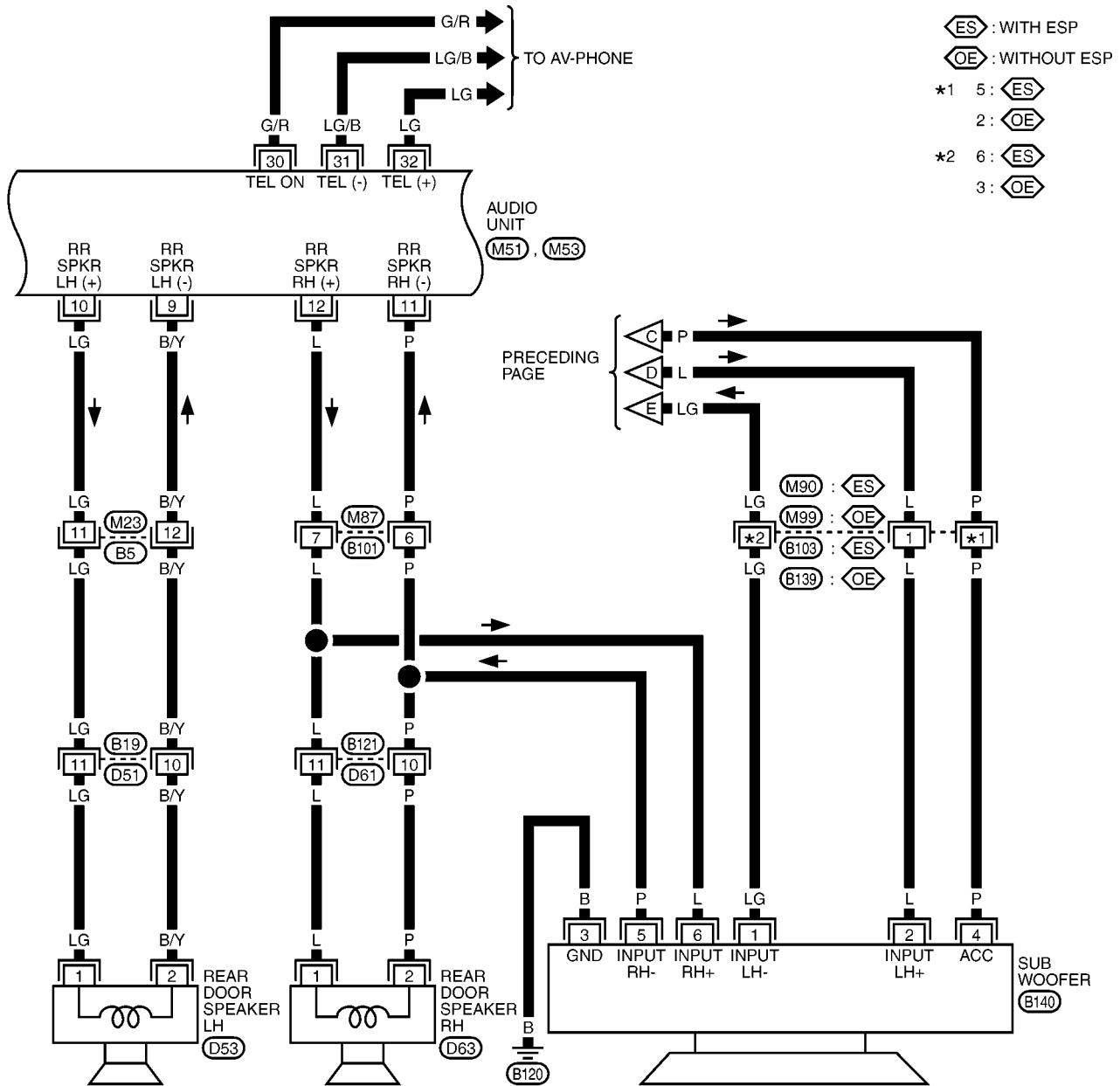
# AUDIO

## WITH NAVIGATION SYSTEM FOR LHD MODELS

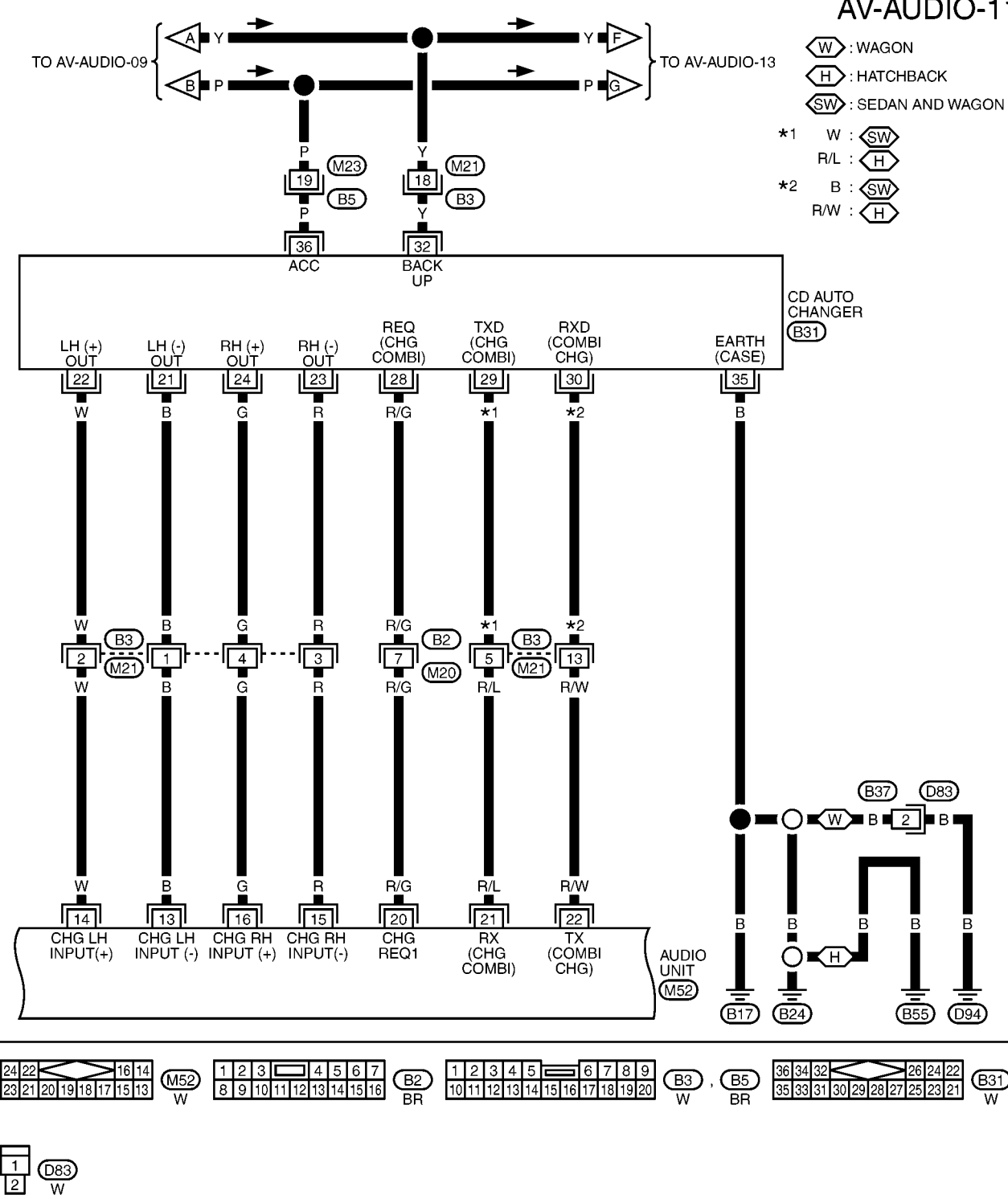
AV-AUDIO-09



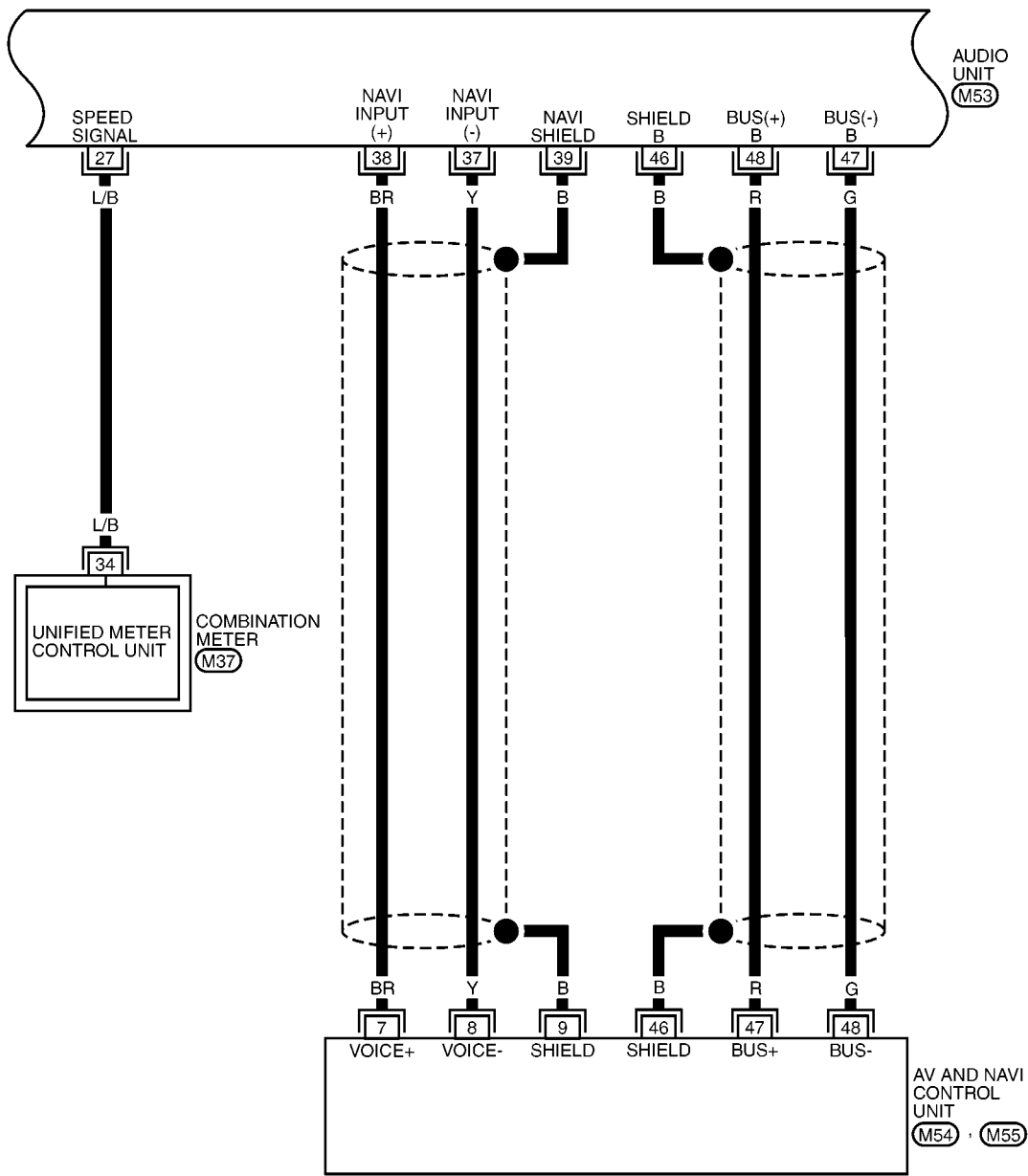
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 (M2) - FUSE BLOCK-  
 JUNCTION BOX (J/B)



AV-AUDIO-11



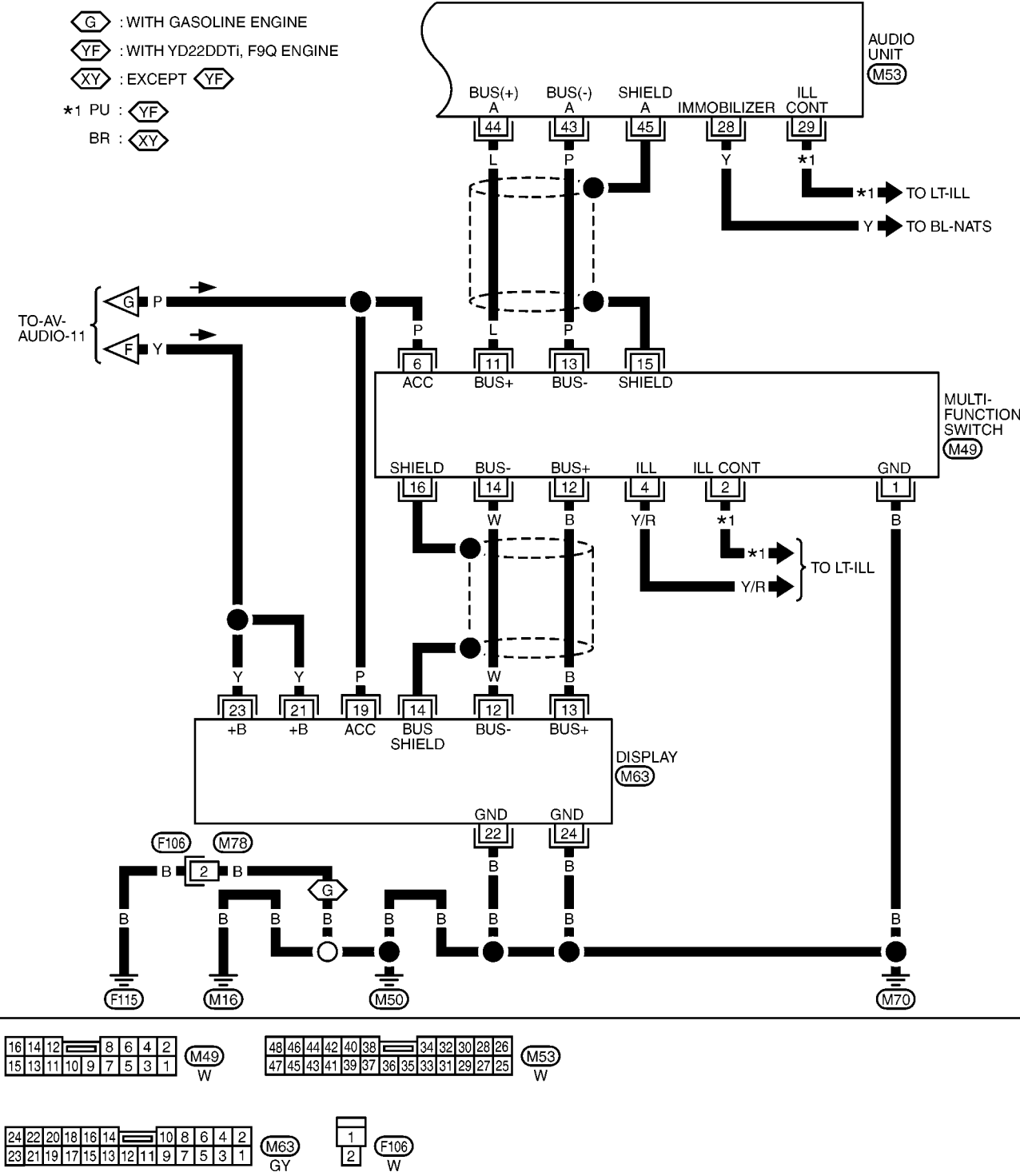
AV



52	51	50	49	48	47	46	45	44	43	42	41	40	M37 Y	48	46	44	42	40	38	34	32	30	28	26	M53 W
39	38	37	36	35	34	33	32	31	30	29	28	27		47	45	43	41	39	37	36	35	33	31	29	

24	21	18	15	13	11	9	6	3	M54 W	48	45	42	39	37	35	33	30	27	M55 GY
23	20	17	14	12	10	8	5	2		47	44	41	38	36	34	32	29	26	
22	19	16				7	4	1		46	43	40				31	28	25	

AV-AUDIO-13

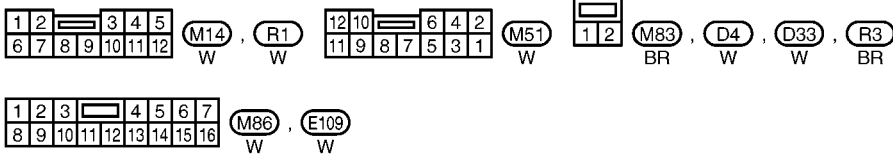
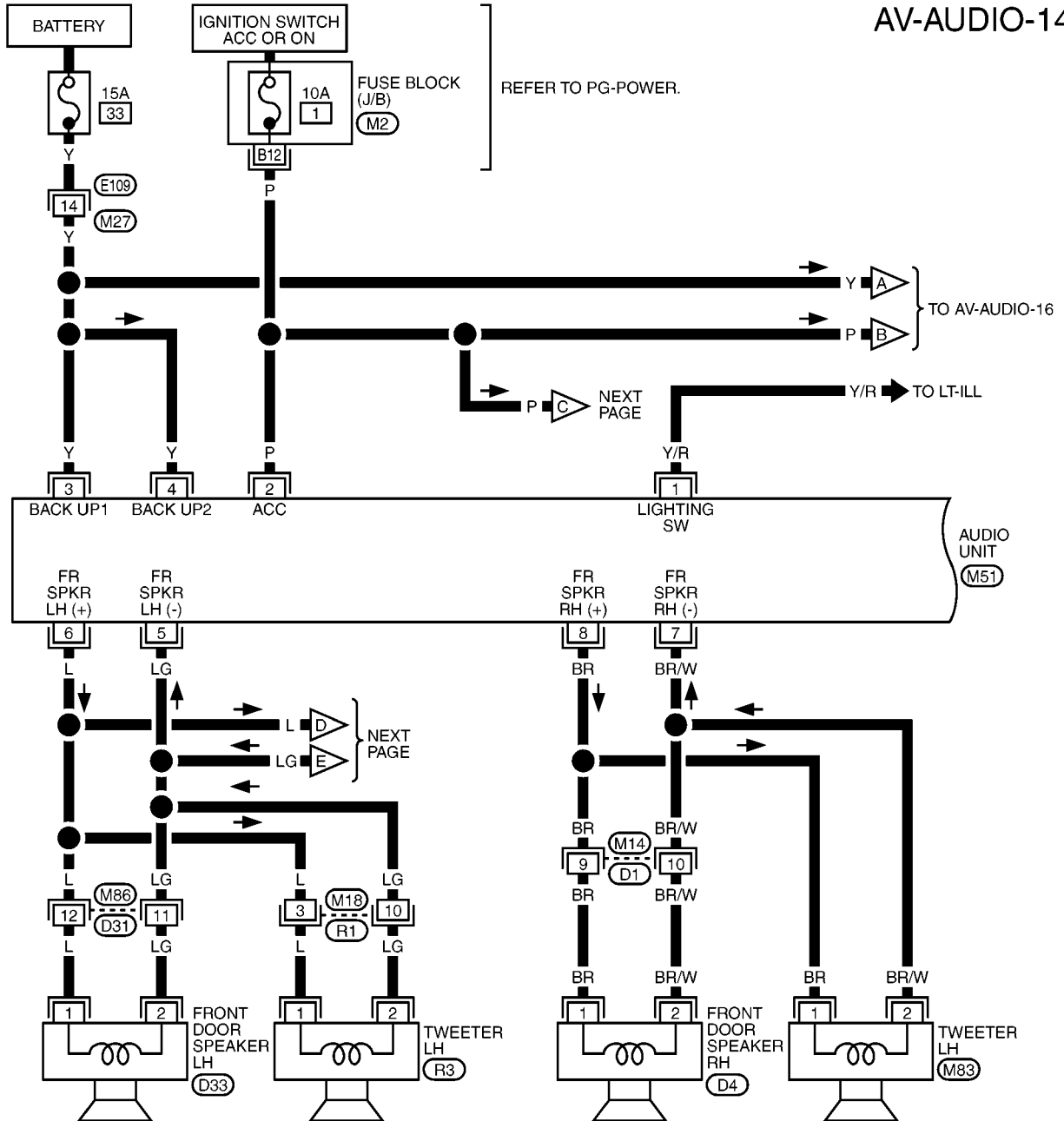


AV

# AUDIO

## WITH NAVIGATION SYSTEM FOR RHD MODELS

AV-AUDIO-14



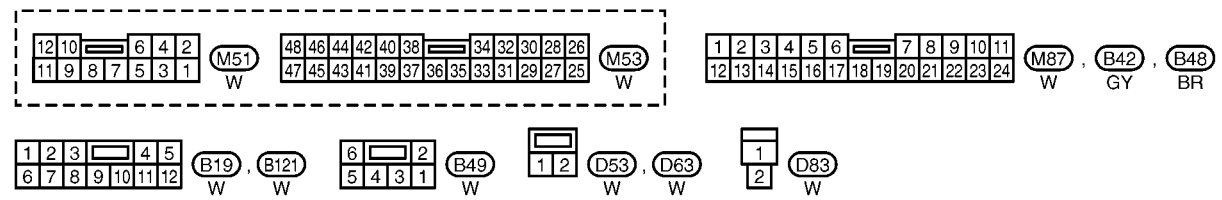
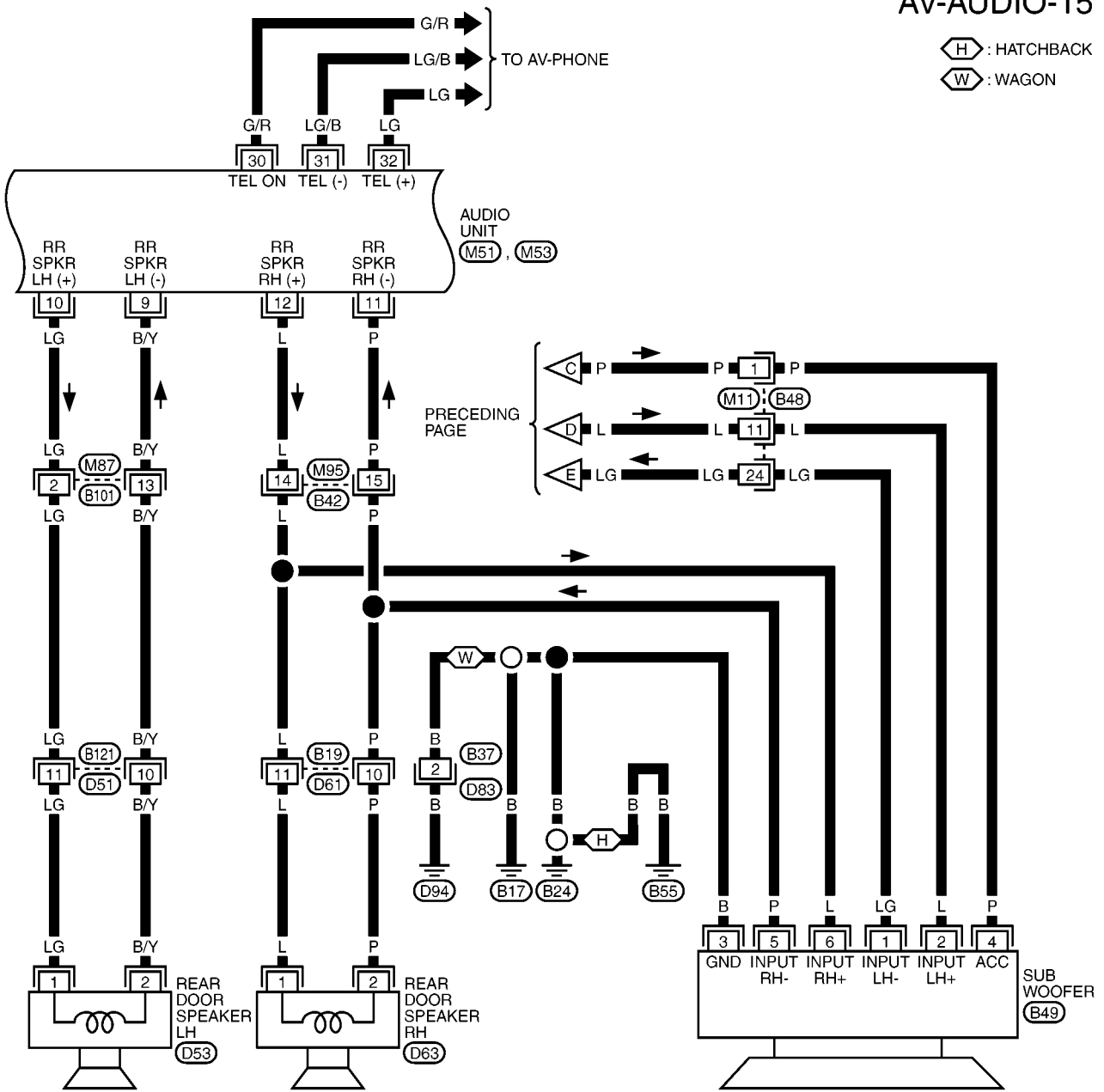
REFER TO THE FOLLOWING.

M2 - FUSE BLOCK-  
JUNCTION BOX (J/B)

# AUDIO

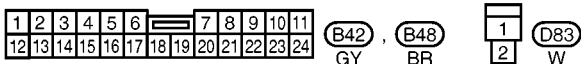
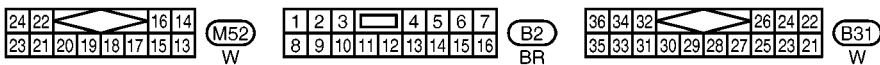
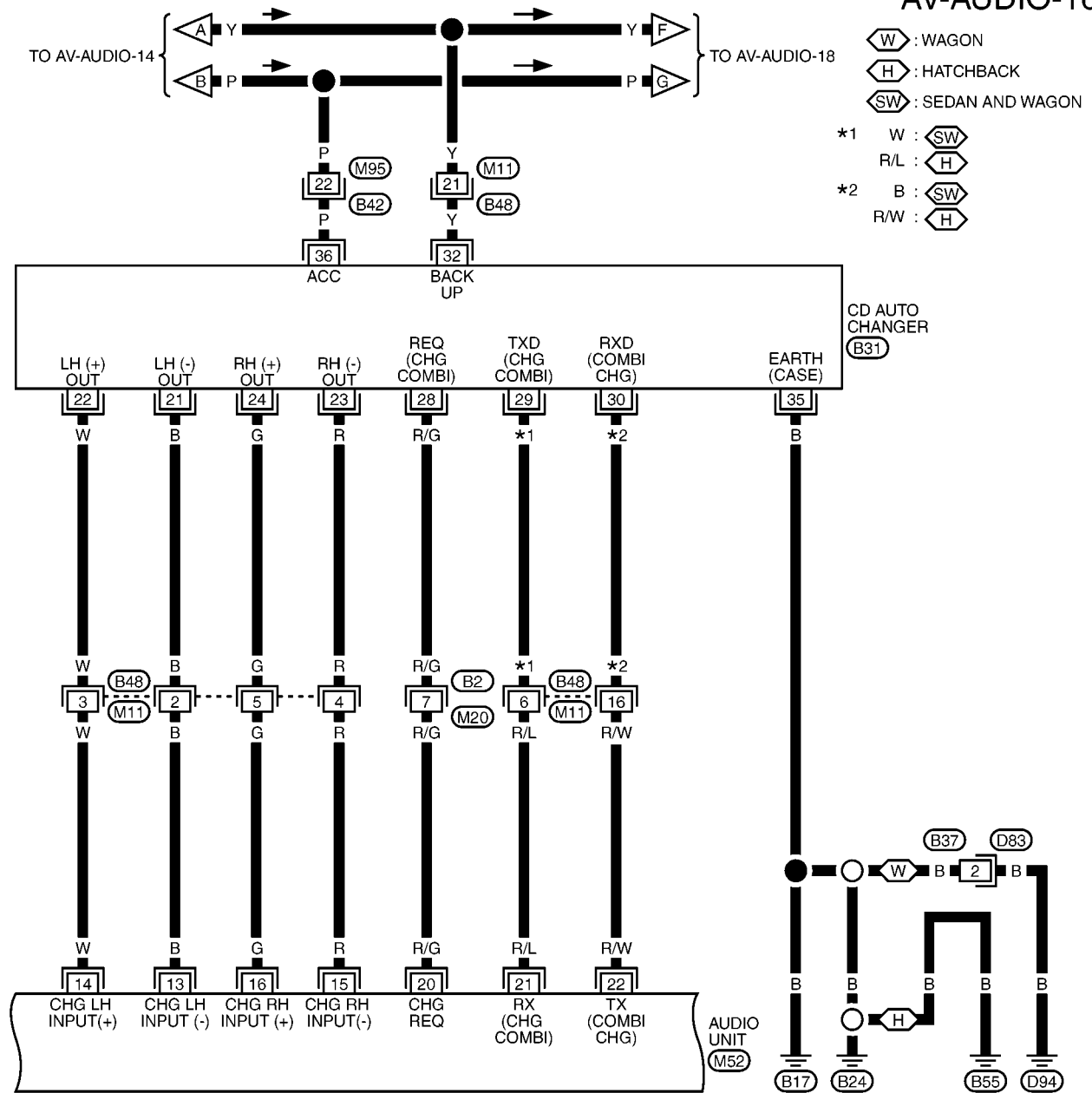
## AV-AUDIO-15

H : HATCHBACK  
W : WAGON



# AUDIO

## AV-AUDIO-16





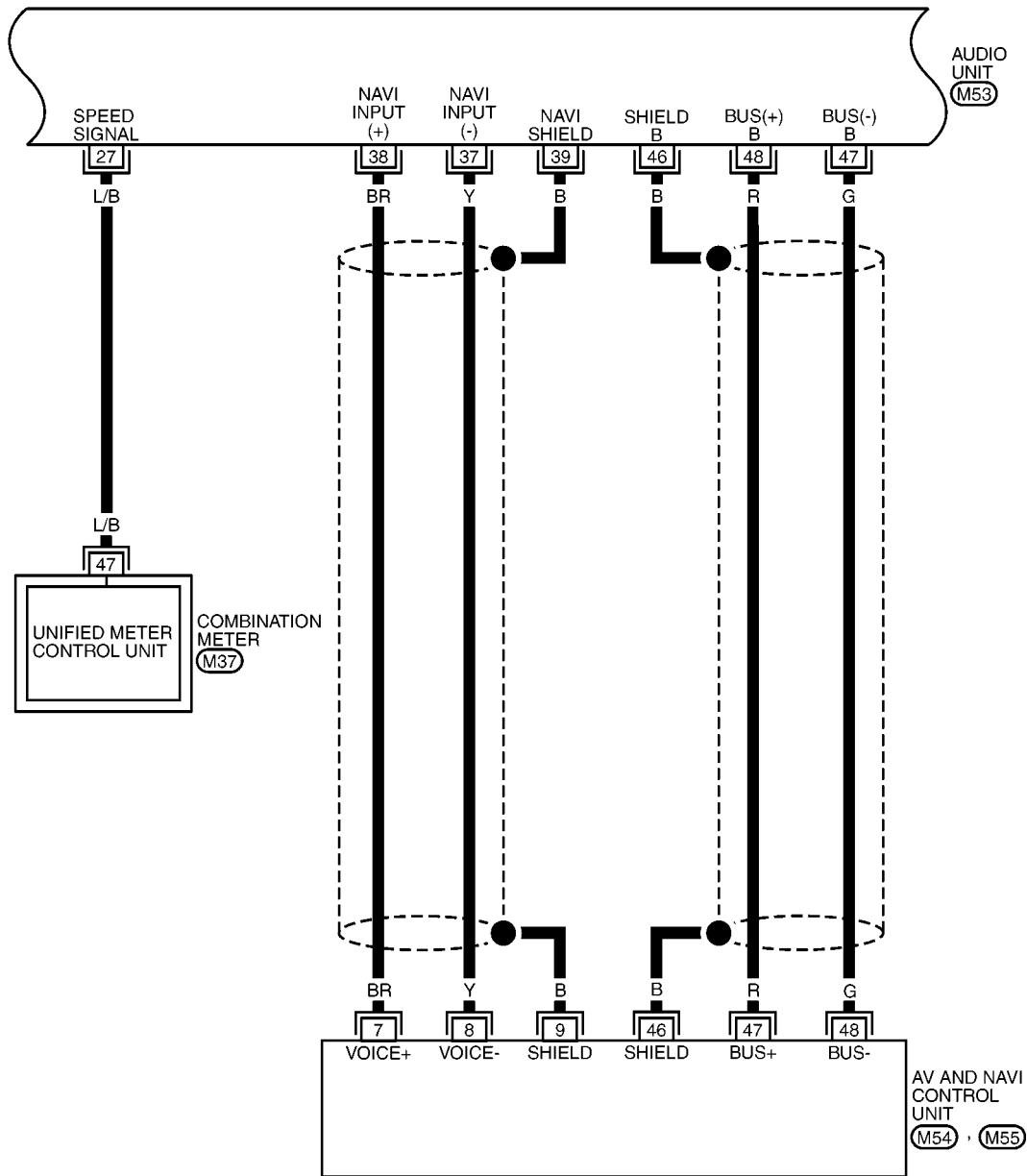


Figure 10 shows two 4x4 grids of numbers. The left grid is labeled M37 and has a 'Y' below it. The right grid is labeled M53 and has a 'W' below it. Both grids have a double-lined box around the number 38 in the top row, fourth column.

52	51	50	49	48	47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32	31	30	29	28	27

M37  
Y

48	46	44	42	40	38		34	32	30	28	26	
47	45	43	41	39	37	36	35	33	31	29	27	25

M53  
W

Figure 10 shows two 3x9 grids of numbers. The left grid is labeled M54 W and has a box above the top row containing the number 1. The right grid is labeled M55 GY and has a box above the top row containing the number 1. Both grids have a dashed line above them.

24	21	18	15	13	11	9	6	3
23	20	17	14	12	10	8	5	2
22	19	16				7	4	1

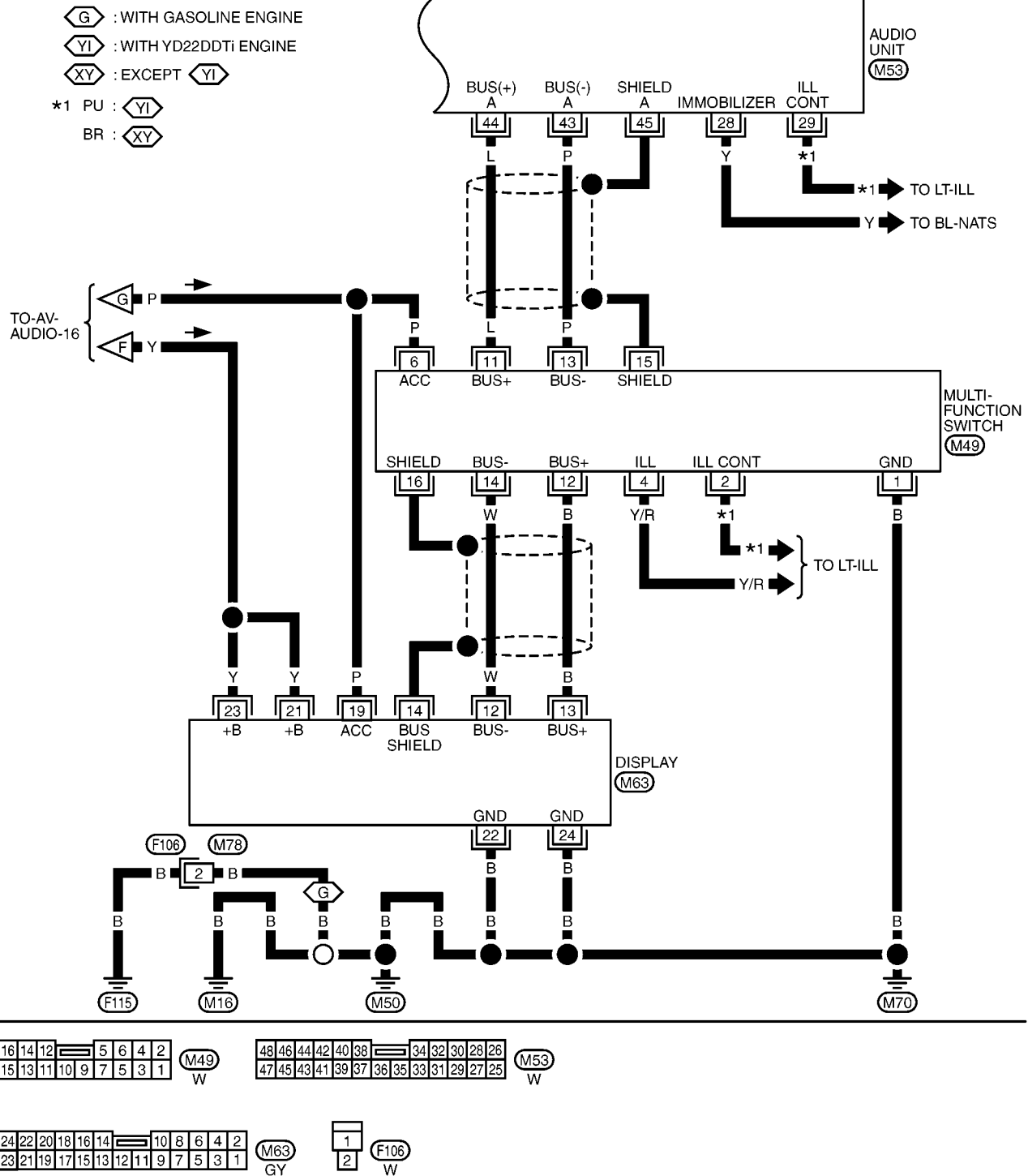
M54  
W

48	45	42	39	37	35	33	30	27
47	44	41	38	36	34	32	29	26
46	43	40				31	28	25

M55  
GY

# AUDIO

## AV-AUDIO-18

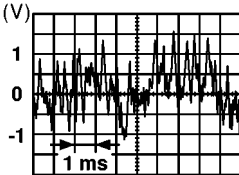
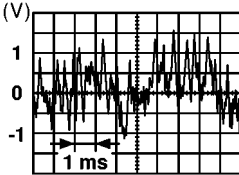
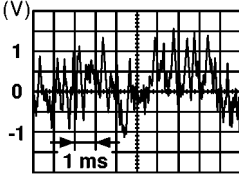
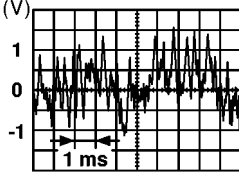
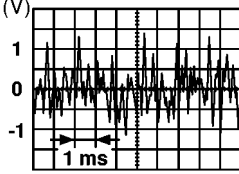


MKWA0926E

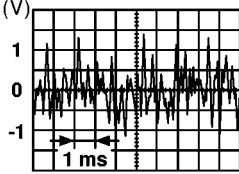
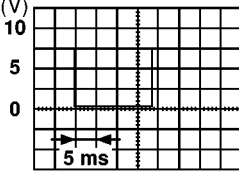
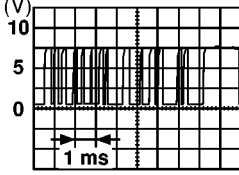
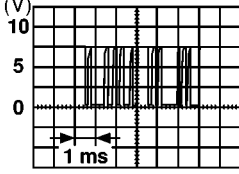
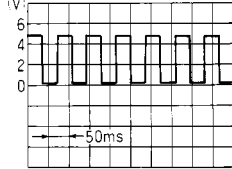
## Terminals and Reference Value for Audio Unit

EKS009J3

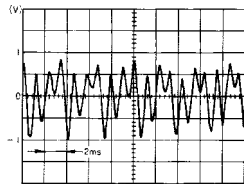
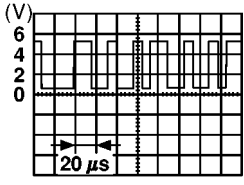
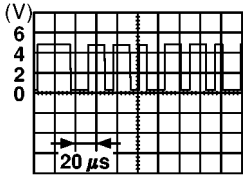
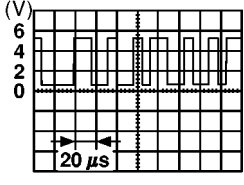
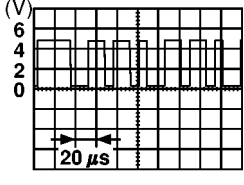
# AUDIO

Terminal No. (wire color)		Item	Signal input/output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
1(Y/R)	Ground	Illumination signal	Input	OFF	Lighting switch is ON (position 1). Turn lighting switch OFF.	Battery voltage Approx. 3.0V or less	Audio unit illumination does not come on when lighting switch is ON (position 1).
2(P)	Ground	ACC power	Input	ACC	-	Battery voltage	Audio unit operation is not possible.
3(Y)	Ground	Battery power	Input	OFF	-	Battery voltage	Audio unit operation is not possible.
4(Y)	Ground	Battery power	Input	OFF	-	Battery voltage	Audio unit operation is not possible.
6(L)	5(LG)	Speaker output (front LH)	Output	ON	Receive radio broadcast	 SKIA0177E	No sound from front LH speaker.
8(BR)	7(BR/W)	Speaker output (front RH)	Output	ON	Receive radio broadcast	 SKIA0177E	No sound from front RH speaker.
10(LG)	9(B/Y)	Speaker output (rear LH)	Output	ON	Receive radio broadcast	 SKIA0177E	No sound from rear LH speaker.
12(L)	11(P)	Speaker output (rear RH)	Output	ON	Receive radio broadcast	 SKIA0177E	No sound from rear RH speaker.
14 (W)	13 (B)	CD sound signal (LH)	Input	ON	Play CD.	 SKIA0195E	CD sound is not heard from LH speaker.

# AUDIO

Terminal No. (wire color)		Item	Signal input/output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
16 (G)	15 (R)	CD sound signal (RH)	Input	ON	Play CD.	 SKIA0195E	CD sound is not heard from RH speaker.
20 (R/G)	Ground	Communication signal (CHG REQ)	Input	ON	Insert/eject magazine.	 SKIA0196E	CD Auto changer operation is not possible.
21 (R/L)	Ground	Communication signal (CHG to COMB)	Input	ON	Insert/eject magazine.	 SKIA0197E	CD Auto changer operation is not possible.
22 (R/W)	Ground	Communication signal (COMB to CHG)	Output	ON	Press the disc switch.	 SKIA0198E	CD Auto changer operation is not possible.
27 (L/B)	Ground	vehicle speed signal (2-pulse)	Input	ON	When vehicle speed signal is approx. 20 km/h (12MPH)	 ELF1080D	Speed dependent volume control does not operate.
28 (Y)	Ground	Immobilizer	-	-	-	-	Audio is locked
29 (PU)	Ground	Illumination control signal	Input	ON	Illumination control switch is operated by lighting switch in 1st position.	Changes between approx. 0 and approx. 12V.	Audio unit illumination cannot be controlled.

# AUDIO

Terminal No. (wire color)		Item	Signal input/output	Condition		Voltage	Example of symptom
(+)	(-)			Ignition switch	Operation		
38 (BR)	37 (Y)	Voice guide signal (with navigation system)	Input	ON	Press the "voice" switch.	 SKIA0171J	Only route guide and operation guide are not heard.
39(B)	-	Shield ground (with navigation system)	-	-	-	-	-
43(P)	Ground	Communication signal (-)	Input/output	ON	-	 SKIA0176E	System does not work properly.
44(L)	Ground	Communication signal (+)	Input/output	ON	-	 SKIA0175E	System does not work properly.
45	-	Shield ground	-	-	-	-	-
46(B)	-	Shield ground	-	-	-	-	-
47(G)	Ground	Communication signal (-) (with navigation system)	Input/output	ON	-	 SKIA0176E	System does not work properly.
48(R)	Ground	Communication signal (+) (with navigation system)	Input/output	ON	-	 SKIA0175E	System does not work properly.

A

B

C

D

E

F

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I

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AV

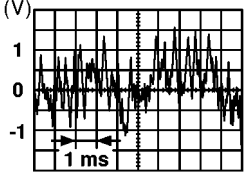
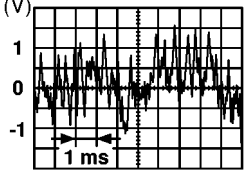
L

M

# AUDIO

## Terminals and Reference Value for Sub-woofer

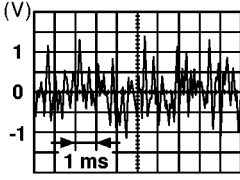
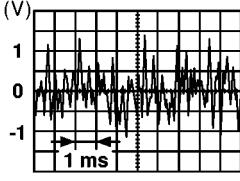
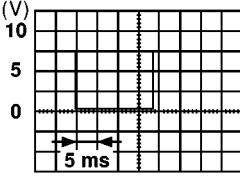
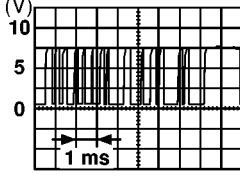
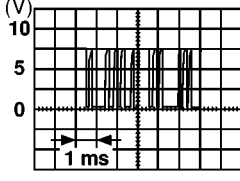
EKS009J4

Terminal No. (wire color)		Item	Signal input/output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
2(L)	1(LG)	Audio sound signal (LH)	Input	ON	Receive radio broadcast	 <p>SKIA0177E</p>	Audio sound not heard sub-woofer.
3(B)	Ground	Ground	-	ON	-	-	-
4(P)	Ground	ACC power	Input	ACC	-	Battery voltage	Sub-woofer does not work.
6(L)	5(P)	Audio sound signal (RH)	Input	ON	Receive radio broadcast	 <p>SKIA0177E</p>	Audio sound not heard sub-woofer.

# AUDIO

## Terminals and Reference Value for CD Auto Changer

EKS009J5

Terminal No. (wire color)		Signal name	Signal input/ output	Condition		Voltage	Example of symptom
(+)	(-)			Ignition switch	Operation		
22 (W)	21 (B)	CD sound signal (LH)	Output	ON	Play CD.	 <p>SKIA0195E</p>	CD sound is not heard from LH speaker.
24 (G)	23 (R)	CD sound signal (RH)	Output	ON	Play CD.	 <p>SKIA0195E</p>	CD sound is not heard from RH speaker.
28 (R/G)	Ground	Communi- cation sig- nal (CHG REQ)	Output	ON	Insert/eject mag- azin.	 <p>SKIA0196E</p>	CD Auto changer operation is not possible.
29 (*1)	Ground	Communi- cation sig- nal (CHG to COMB)	Output	ON	Insert/eject mag- azin.	 <p>SKIA0197E</p>	CD Auto changer operation is not possible.
30 (*2)	Ground	Communi- cation sig- nal (COMB to CHG)	Input	ON	Press the disc switch.	 <p>SKIA0198E</p>	CD Auto changer operation is not possible.
32 (Y)	Ground	Battery power	Input	OFF	-	Battery voltage	CD Auto changer operation is not possible.
35 (B)	Ground	Ground	-	ON	-	Approx. 0V	-
36 (P)	Ground	ACC power	Input	ACC	-	Battery voltage	CD Auto changer operation is not possible.

\*1: Sedan and wagon models (W) or hatch back models (R/L)

\*2: Sedan and wagon models (B) or hatch back models (R/W)

# AUDIO

## Self-Diagnosis Function

EKS009J6

### DESCRIPTION

- Diagnosis function consists of the self-diagnosis mode, and the "CONFIRMATION/ADJUSTMENT" mode.
- Self-diagnosis mode checks for connection among Audio unit, and CD Auto changer and analyzes each unit, then displays the results.

### DIAGNOSIS ITEM

Mode	Description
Self-diagnosis	<ul style="list-style-type: none"> <li>● Check that communication lines between system components are properly connected.</li> <li>● Perform the unit diagnosis of Audio unit and CD Auto changer.</li> </ul>

## Self-Diagnosis Mode OPERATION PROCEDURE

EKS009J7

- To start the self-diagnosis mode and to check the diagnosis result, [AV-71, "Self-Diagnosis Mode"](#) for models with navigation system, [DI-63, "Self-Diagnosis Mode"](#) for models without navigation system.

## Trouble Diagnosis

EKS009J8

- The majority of the audio troubles are the result of outside causes (bad CD, electromagnetic interference, etc.). Check the inspection items below to diagnose the malfunction.

### PROBLEM WITH RADIO, TAPE, AND CD

Symptom	Check items	Possible cause
Inoperative	<ul style="list-style-type: none"> <li>● Check that the ignition switch is in the ACC position.</li> </ul>	<ul style="list-style-type: none"> <li>● Audio unit</li> <li>● Audio unit power circuit</li> </ul>
No sound	<ul style="list-style-type: none"> <li>● Check that the volume is not turned down.</li> <li>● Check that the balance and fader control knobs are centered.</li> </ul>	<ul style="list-style-type: none"> <li>● Audio unit</li> <li>● Audio unit power circuit</li> <li>● Speaker</li> <li>● Sound signal circuit between speaker and Audio unit</li> </ul>
Poor sound	<ul style="list-style-type: none"> <li>● Check that the bass and treble adjustment knobs are centered.</li> </ul>	<ul style="list-style-type: none"> <li>● Audio unit</li> <li>● CD Auto changer</li> <li>● Speaker</li> </ul>
Noisy	-	<ul style="list-style-type: none"> <li>● Audio unit</li> <li>● CD Auto changer</li> <li>● Each electrical equipment</li> </ul>

### FOR RADIO ONLY

Symptom	Check items	Possible cause
No sound	<ul style="list-style-type: none"> <li>● Check that the radio is tuned to a station's frequency.</li> </ul>	<ul style="list-style-type: none"> <li>● Audio unit</li> <li>● Antenna feeder</li> <li>● Roof antenna</li> </ul>
Noisy	<ul style="list-style-type: none"> <li>● Check that the radio is tuned to a station's frequency.</li> <li>● Check that the signal of the received station is not weak.</li> <li>● Check whether or not the malfunction occurs only in a particular area. (Note)</li> </ul>	<ul style="list-style-type: none"> <li>● Audio unit</li> <li>● Antenna feeder</li> <li>● Roof antenna</li> <li>● Noise prevention parts</li> <li>● Each electrical equipment</li> <li>● Wire harness of each piece of electrical equipment</li> </ul>
Selected radio stations stored in memory are deleted	-	<ul style="list-style-type: none"> <li>● Audio unit</li> <li>● Audio unit power circuit</li> </ul>



# AUDIO

## NOTE:

- This is noise resulting from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources. It is not a malfunction.
- 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 the waves sent directly from the broadcast station arriving at the antenna at a different time from the waves which reflect off of mountains or buildings.

## FOR CD ONLY

Symptom	Check items	Possible cause
The CD cannot be played.	<ul style="list-style-type: none"> <li>● Check that the CD is not upside down.</li> <li>● Check that there is no dirt, damage, or water on the disc.</li> </ul>	<ul style="list-style-type: none"> <li>● CD Auto changer</li> <li>● Audio unit</li> </ul>
The sound skips, stops suddenly, or is distorted.	<ul style="list-style-type: none"> <li>● Check that there is no dirt, damage, or water on the disc.</li> <li>● Check that the trouble is not due to strong vibration.</li> </ul>	

## Noise Inspection

EKS009J9

The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunction. Check if noise is caused and/or changed by engine rotation, ignition switch turned to each position, and operation of each piece of electrical equipment, and determine the cause.

## NOTE:

The source of the noise can be found easily by listening to the noise while removing the fuses of electrical components, one by one.

## TYPE OF NOISE AND POSSIBLE CAUSE

Occurrence condition		Possible cause
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	● Problem with the ignition condenser.
	A whistling noise occurs while the engine speed is high. A booming noise occurs while the engine is running and the light switch is ON.	● Problem with the alternator
The occurrence of the noise is linked with the operation of the fuel pump.		● Problem with the fuel pump condenser
Noise only occurs when various electrical components are operating.	A cracking or snapping sound occurs with the operation of various switches.	● Relay malfunction, radio malfunction
	The noise occurs when various motors are operating.	<ul style="list-style-type: none"> <li>● Problem with the motor case ground</li> <li>● Problem with the motor</li> </ul>
The noise occurs constantly, not just under certain conditions.		<ul style="list-style-type: none"> <li>● Rear defogger coil malfunction</li> <li>● Open circuit in printed heater</li> <li>● Poor ground of antenna amplifier or antenna feeder line</li> </ul>
A cracking or snapping sound occurs while the vehicle is being driven, especially when it is vibrating excessively.		<ul style="list-style-type: none"> <li>● Problem with the ground wire of body parts</li> <li>● Problem with ground due to part installation problem</li> <li>● Problem with wiring connections or a short circuit</li> </ul>

# AUDIO

## Power Supply Circuit Inspection

EKS009JA

### 1. CHECK FUSE

- Check that the following fuses of the Audio unit, Sub-woofer and CD Auto changer are not blown, Refer to [PG-113, "FUSE BLOCK - JUNCTION BOX \(J/B\)"](#) and [PG-114, "FUSE AND FUSIBLE LINK BOX"](#).

Unit	Terminals		Signal name	Fuse No.	
	(+)				(-)
	Connector	Terminal (wire color)			
Audio unit	M51	3(Y), 4(Y)	Ground	Battery power	33
		2(P)		ACC power	1
CD Auto changer	B31	32(Y)		Battery power	33
		36(P)		ACC power	1
Sub-woofer	B140 (LHD) B49 (RHD)	4(P)		ACC power	1

OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to [PG-3, "POWER SUPPLY ROUTING"](#).

### 2. POWER SUPPLY CIRCUIT CHECK

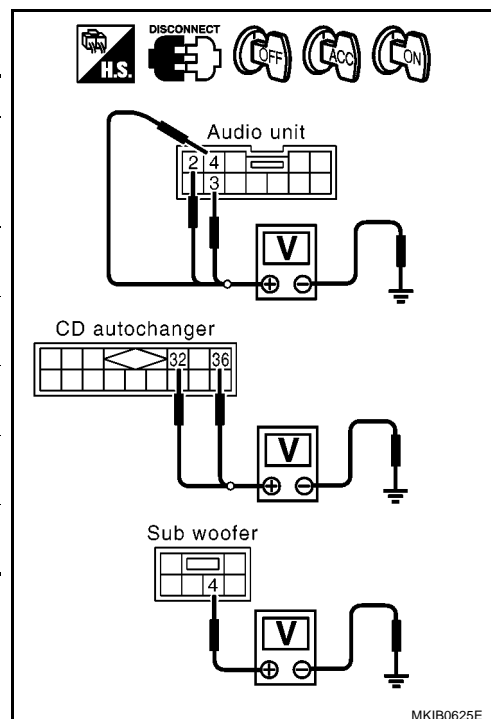
Disconnect the connector. Check voltage between the following harness connector terminal (+) and body ground (-).

Unit	Terminal No.		(-)	Ignition switch		
	(+)			OFF	ACC	ON
	Connector	Terminal (wire color)				
Audio unit	M51	3(Y), 4(Y)	Ground	Battery voltage	Battery voltage	Battery voltage
		2 (P)		0V	Battery voltage	Battery voltage
CD Auto changer	B31	32 (Y)		Battery voltage	Battery voltage	Battery voltage
		36 (P)		0V	Battery voltage	Battery voltage
Sub- woofer	B140 (LHD) B49 (RHD)	4(P)		0V	Battery voltage	Battery voltage

OK or NG

OK >> Inspection end.

NG >> Repair or replace harness.



MKIB0625E

## Audio System Does Not Turn On

EKS009JB

### 1. SELF-DIAGNOSIS

Perform self-diagnosis. Refer to [AV-71, "Self-Diagnosis Mode"](#) for models with navigation system, [DI-63, "Self-Diagnosis Mode"](#) for models without navigation system.

OK or NG

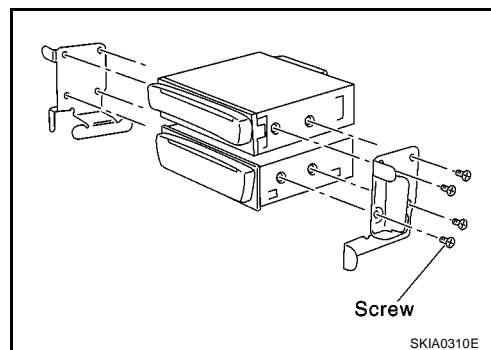
OK >> Replace Audio unit.

NG >> Check the malfunctioned area according to the self-diagnosis result.

## Removal and Installation of Audio Unit

EKS009JC

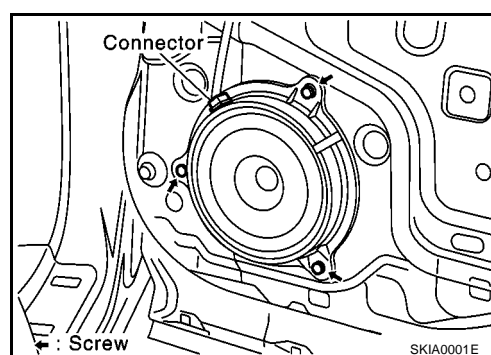
1. Remove screws (4) and remove ashtray.
2. Remove screws (4) and remove bracket.



## Removal and Installation of Door Speaker

EKS009JD

1. Remove door finisher.
  - Refer to EI section in P12 ESM (SM2E00-1P12E0E).
2. Remove screws (3) and remove speaker.



## Removal and Installation of Front Pillar Tweeter

EKS009JE

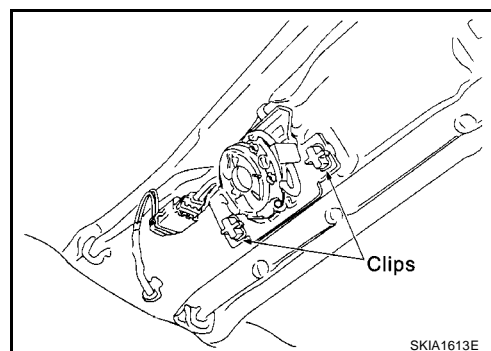
1. Remove front pillar garnish.
  - Refer to EI section in P12 ESM (SM2E00-1P12E0E).
2. Insert a clip remover or similar tool between the clip and front pillar, then remove the front-pillar tweeter.

### NOTE:

- Remove the clip together with the front-pillar tweeter.
- If it will not come off, break the clip and remove the front-pillar tweeter.

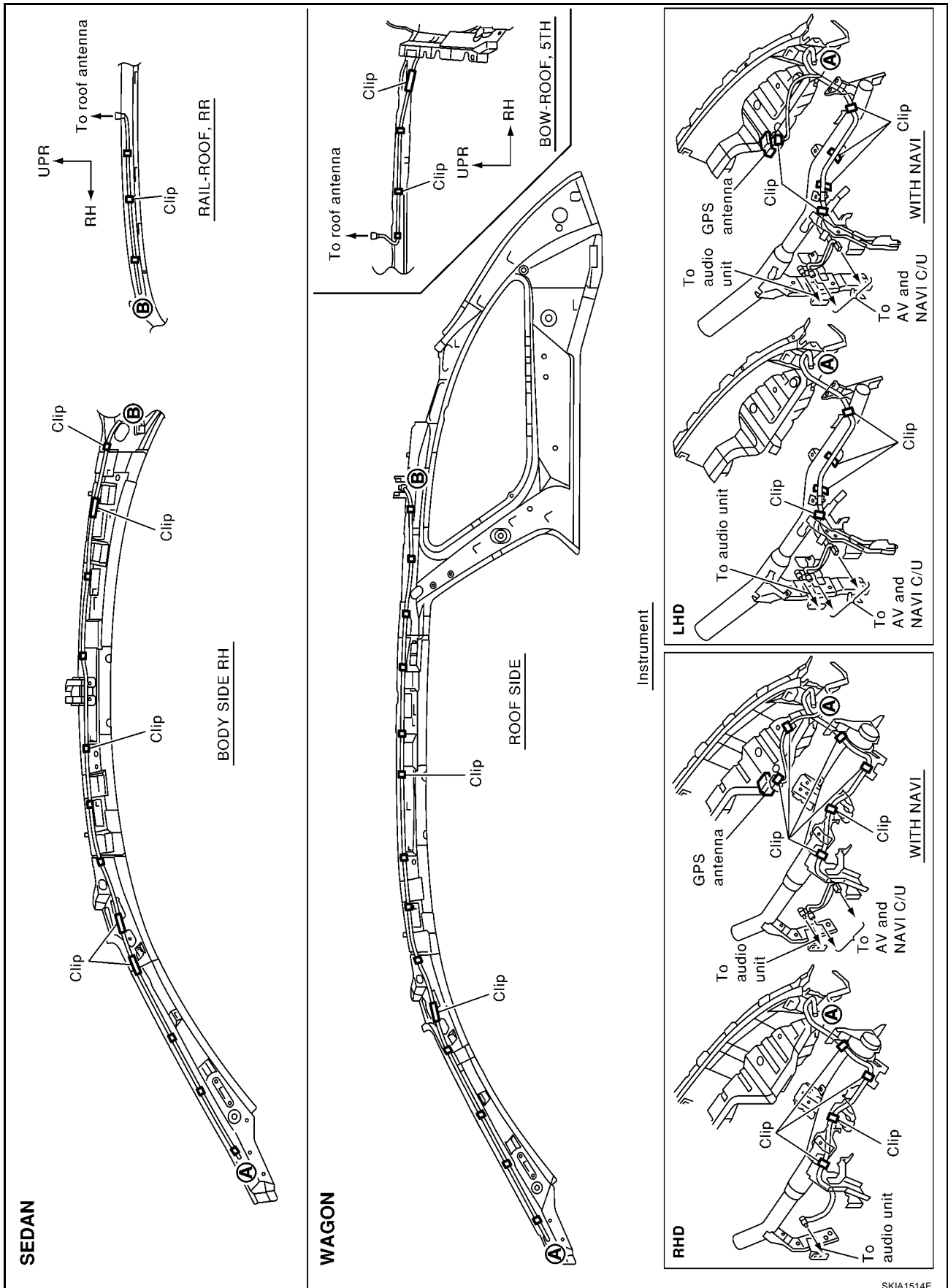
### CAUTION:

If clips were broken when removing front pillar tweeters, attach new clips before reinstalling to vehicle.



## Location of Antenna

EKS009JF



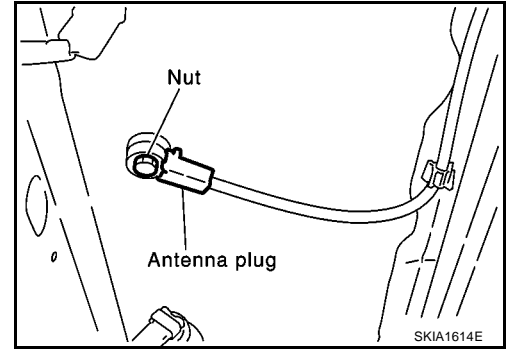
SKIA1514E

# AUDIO ANTENNA

## Removal and Installation of Roof Antenna

EKS009JG

1. Remove headlining.
  - Refer to EI section in P12 ESM (SM2E00-1P12E0E).
2. Remove roof antenna mounting nuts, antenna plug. Then remove roof antenna.



A

B

C

D

E

F

G

H

I

J

AV

L

M

# TELEPHONE (PRE WIRE)

PFP:28342

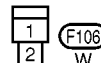
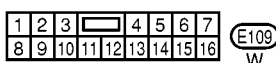
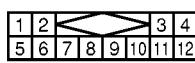
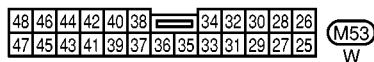
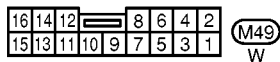
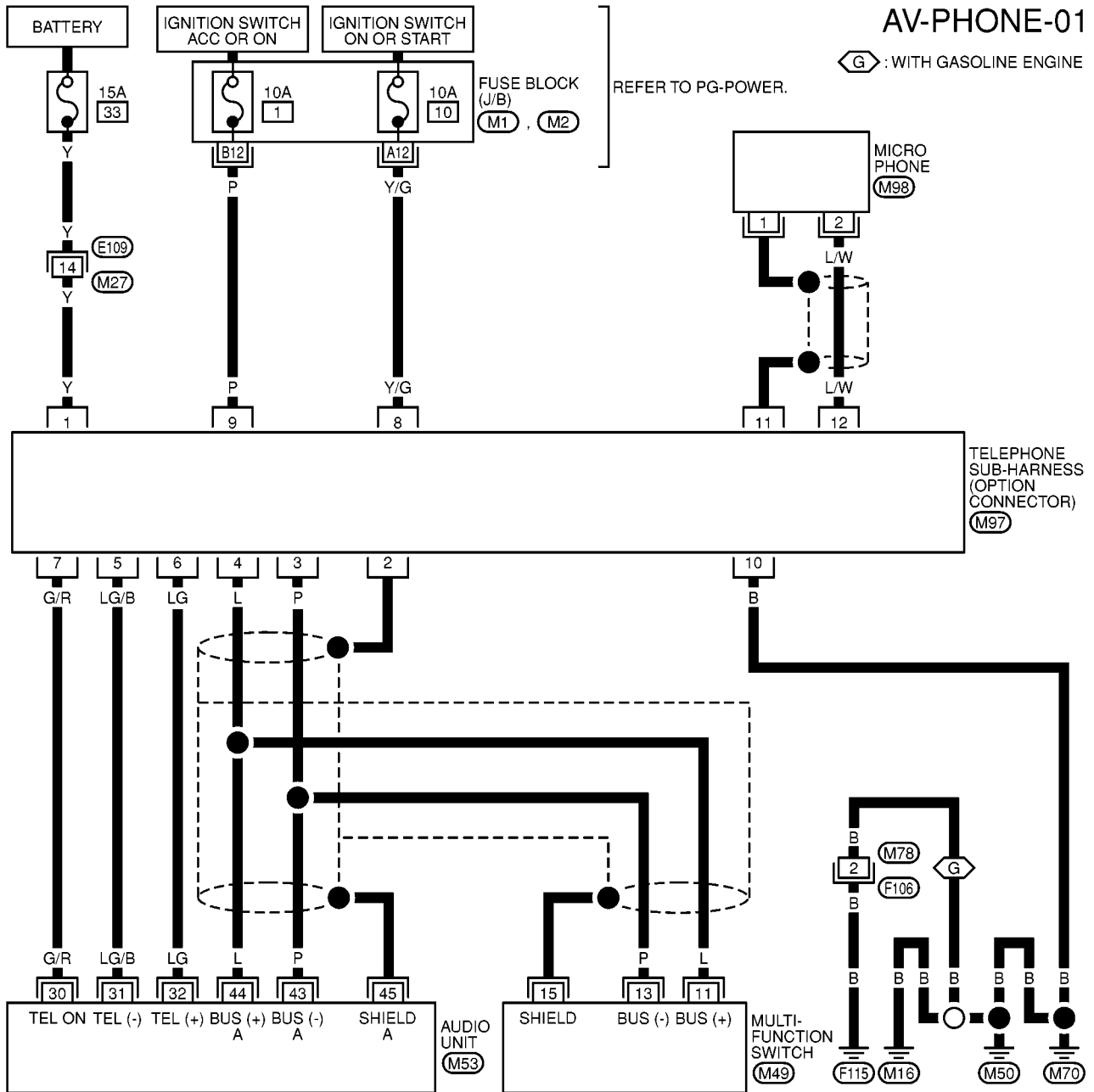
## TELEPHONE (PRE WIRE)

### Wiring Diagram — PHONE —



EKS009JH

#### AV-PHONE-01

 : WITH GASOLINE ENGINE



REFER TO THE FOLLOWING.

 ,  -FUSE BLOCK-JUNCTION BOX (J/B)

## NAVIGATION SYSTEM

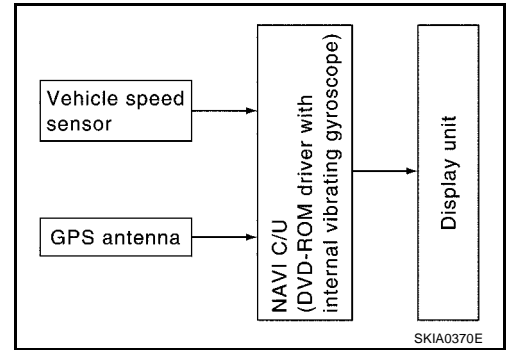
PPF:25915

### System Description

EKS009JI

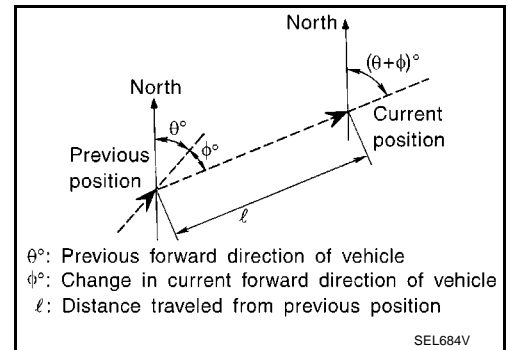
The navigation system periodically calculates the vehicle's current position according to the following three signals: Travel distance of the vehicle as determined by the vehicle speed sensor, turning angle of the vehicle as determined by the gyroscope (angular velocity sensor), and the direction of 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 DVD-ROM, which is stored in the DVD-ROM drive (map-matching), and indicated on the screen with a current-location mark.



By comparing the vehicle position detection results found by the GPS and by map-matching, more accurate vehicle position data can be used.

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 fine adjustment 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). As the gyroscope and GPS antenna have both merit and demerit, input signals from them are prioritized in each situation. However, this order of priority may change in accordance with more detailed travel conditions so that the travel direction is detected more accurately.

Type	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	<ul style="list-style-type: none"> <li>Can detect the vehicle's turning angle quite accurately.</li> </ul>	<ul style="list-style-type: none"> <li>Direction errors may accumulate when the vehicle is driven for long distances without stopping.</li> </ul>
GPS antenna (GPS information)	<ul style="list-style-type: none"> <li>Can detect the vehicle's travel direction (North/South/East/West).</li> </ul>	<ul style="list-style-type: none"> <li>Correct direction cannot be detected when the vehicle speed is low.</li> </ul>

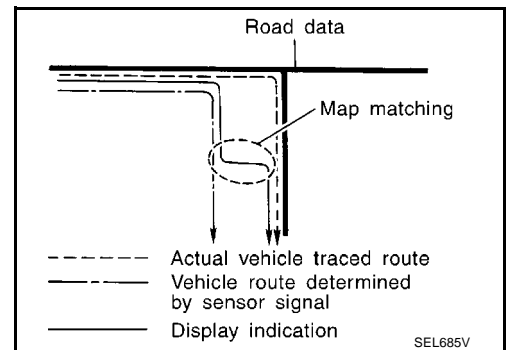
### MAP-MATCHING

Map-matching is a function that repositions the vehicle on the road map when a new location is judged to be the most accurate. This is done by comparing the current vehicle position, calculated by the method described in the position detection principle, with the road map data around the vehicle, read from the map DVD-ROM stored in the DVD-ROM drive.

Therefore, the vehicle position may not be corrected after the vehicle is driven over a certain distance or time in which GPS information is hard to receive. In this case, the current-location mark on the display must be corrected manually.

#### NOTE:

The road map data is based on data stored in the map DVD-ROM.

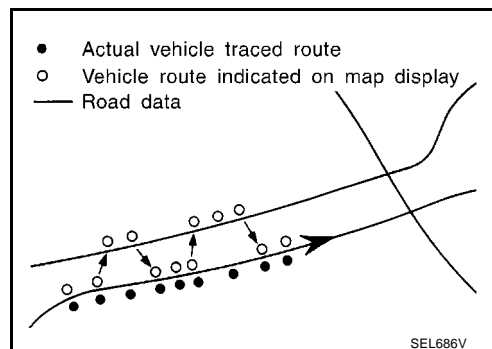


# NAVIGATION SYSTEM

- 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 current-location mark has been repositioned.

If there is an error in distance and/or direction, the alternative routes will be shown in different order of priority, and the wrong road can be avoided.

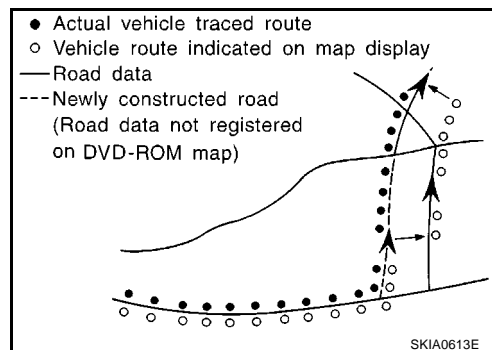
If two roads are running in parallel, they are of the same priority. Therefore, the current-location mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road.



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

When driving on a road not present in the map, the map-matching function may find another road and position the current-location mark on it. Then, when the correct road is detected, the current-location mark may leap to it.

- Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data read from the map DVD-ROM is limited. Therefore, when there is an excessive gap between the current vehicle position and the position on the map, correction by map-matching is not possible.



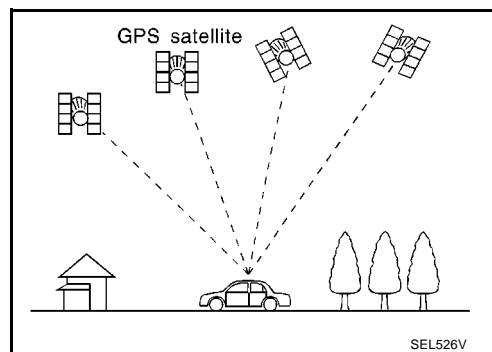
## GPS (GLOBAL POSITIONING SYSTEM)

GPS (Global Positioning System) has been developed and controlled by the US Department of Defense. The system utilizes GPS satellite (NAVSTAR), sending out radio waves while flying on an orbit around the earth at the height of approx. 21,000 km(13,000 miles).

The GPS receiver calculates the vehicle's position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves received from four or more GPS satellites (three-dimensional positioning). If radio waves were received only from three GPS satellites, the GPS receiver calculates the vehicle's position in two dimensions (latitude/longitude), utilizing the altitude data calculated previously by using radio waves from four or more GPS satellites (two-dimensional positioning).

Accuracy of the GPS will deteriorate under the following conditions.

- In two-dimensional positioning, the GPS accuracy will deteriorate when the altitude of the vehicle position changes.
- There may be an error of approximately 10 m (30 ft.) in position detected by three-dimensional positioning, which is more accurate than two-dimensional positioning. The accuracy can be even lower depending on the arrangement of the GPS satellites utilized for the positioning.
- Position detection is not possible when the vehicle is in an area where radio waves from the GPS satellite do not reach, such as in a tunnel, parking lot in a building, and under an elevated highway. Radio waves from the GPS satellites may not be received when some object is located over the GPS antenna.
- Position correction by GPS is not available while the vehicle is stopped.



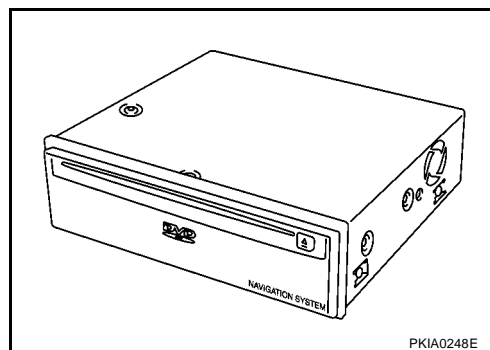


# NAVIGATION SYSTEM

## COMPONENT DESCRIPTION

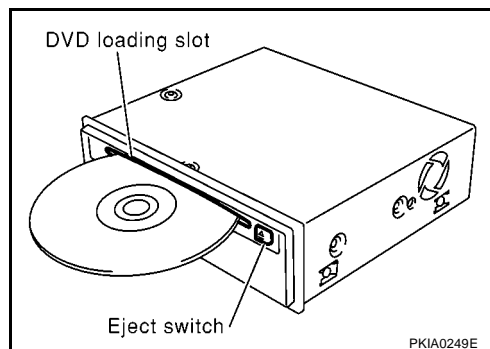
### AV and NAVI Control Unit

- The gyro (angular speed sensor) and the DVD-ROM drive are built-in units that control the navigation functions.
- Signals are received from the gyro, the vehicle speed sensor, and the GPS antenna. Vehicle location is determined by combining this data with the data contained in the DVD-ROM map. Locational information is shown on liquid crystal display panel.



### DVD-ROM Drive

Maps, traffic control regulations, and other pertinent information can be easily read from the DVD-ROM disc.



### Map DVD-ROM

- The map DVD-ROM has maps, traffic control regulations, and other pertinent information.
- To improve DVD-ROM map matching and route determination functions, the DVD-ROM uses an exclusive Nissan format. Therefore, the use of a DVD-ROM provided by other manufacturers cannot be used.

### Gyro (Angular Speed Sensor)

- The oscillator gyro sensor is used to detect changes in vehicle steering angle.
- The gyro is built into the navigation (AV and NAVI) control unit.

### BIRDVIEW®

The BIRDVIEW® provides a detailed and easily seen display of road conditions covering the vehicle's immediate to distant area.

- MAP DISPLAY



# NAVIGATION SYSTEM

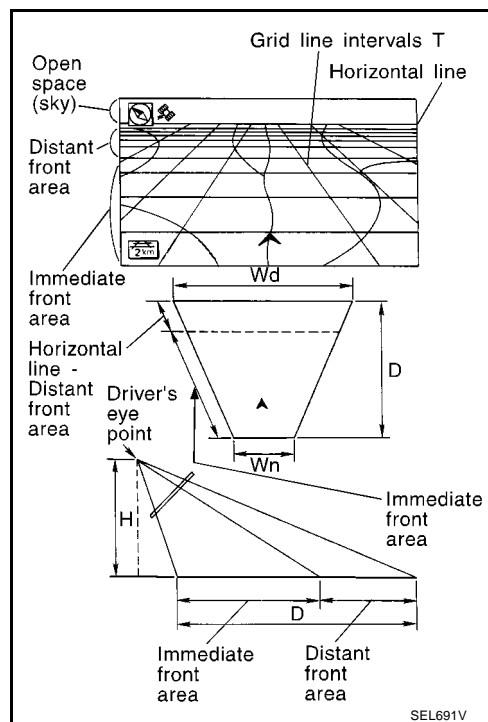
- BIRDVIEW®



SKIA1378E

## Description

- Display area: Trapezoidal representation showing approximate distances ( $W_n$ ,  $D$ , and  $W_d$ ).
- Ten horizontal grid lines indicate display width while six vertical grid lines indicate display depth and direction.
- Drawing line area shows open space, depth, and immediate front area. Each area is to a scale of approximately 5:6:25.
- Pushing the "ZOOM IN" button during operation displays the scale change and the view point height on the left side of the screen.  
The height of the view point increases or decreases when "ZOOM" or "WIDE" is selected with the joystick.



## MAP DISPLAY

Function of each icon is as follows:

1. Azimuth indication.
2. Position marker.
  - The tip of the arrow shows the current position. The shaft of the arrow indicates the direction in which the vehicle is traveling.
3. GPS reception signal (indicates current reception conditions).
4. Distance display (shows the distance in a reduced scale).



SKIA1379E

# NAVIGATION SYSTEM

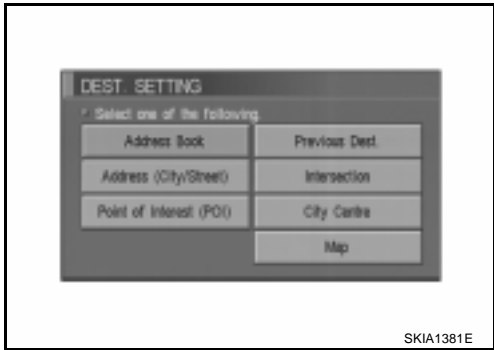
## FUNCTION OF MULTIFUNCTION SWITCH

### Display With Pushed “DEST” Switch

- Easy Mode



- Expert Mode

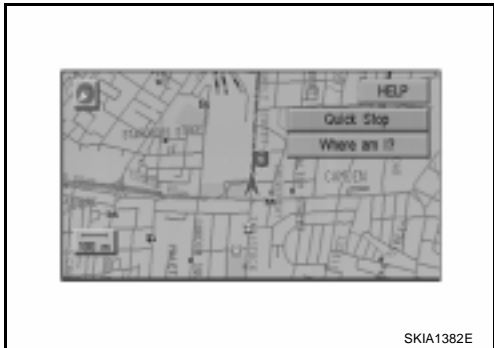


### The Function of Each Icon Is as Follows:

Icon	MODE		Description
	Easy	Expert	
Address Book		×	Favorite place can be saved to memory.
Address/Street	×	×	The destination can be searched from the address.
Point of Interest (POI)	×	×	The destination of favorite facility can be searched.
Previous Dest.		×	The previous ten destinations stored in memory are displayed.
Intersection		×	The destination can be searched from the intersection.
City Center		×	The destination can be searched from city name.
Map		×	The destination can be searched from the map.
Home	×		Sets the home as a destination.
Help	×		Explanation of Navigational functions appear on the Display.

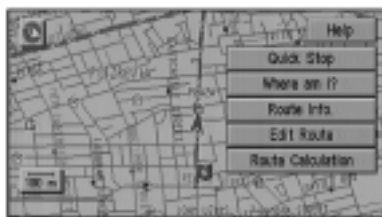
### Display With Pushed “ROUTE” Switch

- Easy Mode



# NAVIGATION SYSTEM

- Expert Mode



SKIA1383E

## The Function of Each Icon Is as Follows:

Icon	MODE		Description
	Easy	Expert	
Quick Stop	×	×	The selected facility is set as the destination or waypoint. (Route guidance has been turned OFF or the destination has been reached)
Where am I?	×	×	Next, current and previous street names can be displayed.
Route Info.*		×	The following items can be set. <ul style="list-style-type: none"> <li>● Complete Route</li> <li>● Turn List</li> <li>● Route Simulation</li> </ul> (Displayed only when the destination area has been set.)
Edit Route*		×	Change the destination or add the transit points of the route set in the route guide. (Displayed only when the automatic reroute function has been turned OFF and the recommended route is not followed.)
Route Calculation		×	This key is used to start the route calculation after all the settings are completed.
Help	×		Explanation of Navigational functions appear on the Display.

\*: When destinations have been entered, route guidance has been turned OFF or destination has been reached, "Route Info." and "Edit Route" are not displayed.

## Display With Pushed "SETTING" Switch



SKIA1384E

# NAVIGATION SYSTEM

## The Function of Each Icon Is as Follows:

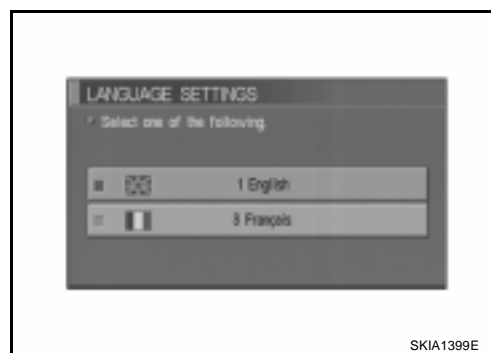
Icon	Description
Audio	Sound quality can be adjusted, and also ON/OFF setting of switch beep sound can be performed. Noise Compensation ON/OFF setting can be performed.
Display	Settings of display can be performed.
Language	Language can be selected for the display and voice guidance. Use the program CD-ROM disc to change the language.
Navigation	Settings and adjusting of navigation can be performed.
Navigation Expert Mode	Easy Mode and Expert Mode can be switched.
Guidance Volume	The volume and/or on/off of voice prompt can be controlled by the joystick.
Help	Explanation of Navigational Functions Appear on the Display.

### “LANGUAGE” mode

- Select one of the languages which appear on the screen.

#### NOTE:

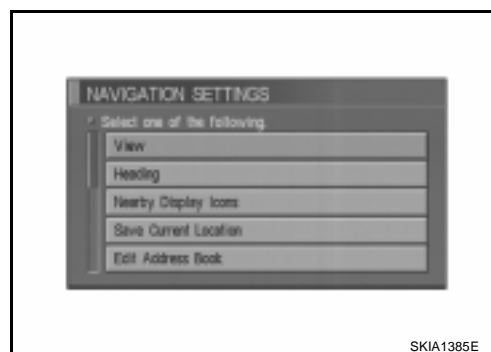
Languages that do not appear on the screen must be loaded from program disk.



### Navigation Settings

#### How To Perform Navigation Settings

1. Start the engine.
2. Push “SETTING” switch.
3. Select “NAVIGATION”.



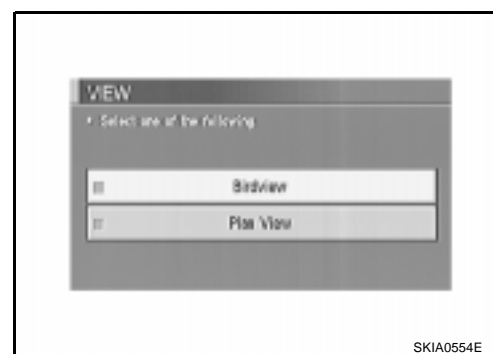
# NAVIGATION SYSTEM

## Application Items

Icon	Description	Reference page
View	Map display mode can be switched.	<a href="#">AV-46</a>
Heading	Heading of the map display can be customized for either north heading or the actual driving direction of the vehicle.	<a href="#">AV-46</a>
Nearby Display Icons	Icons of facilities can be displayed. Facilities to be displayed can be selected from the variety selections.	<a href="#">AV-47</a>
Save Current Location	Current vehicle location can be registered in Address Book.	<a href="#">AV-47</a>
Edit Address Book	Address Book can be edited.	<a href="#">AV-47</a>
Clear Memory	Address Book, Previous destination or Avoid area can be deleted.	<a href="#">AV-47</a>
Auto Re-route ON/OFF	ON/OFF of Auto Re-route can be switched.	<a href="#">AV-48</a>
Quick Stop Customer Setting	One facility of your selection can be added to your Quick Stop.	<a href="#">AV-48</a>
Set Average speed for Estimated Journey Time	Average vehicle speed can be set to calibrate estimated journey time for the destination.	<a href="#">AV-48</a>
GPS Information	The GPS data includes longitude, latitude and altitude (distance above sea level) of the present vehicle position, and current date and time for the area in which the vehicle is being driven. Also indicated are the GPS reception conditions and the GPS satellite position.	<a href="#">AV-48</a>
Avoid Area Setting	A particular area can be avoided when routing.	-
Tracking on/off	Tracking to the present vehicle position can be displayed.	<a href="#">AV-49</a>
Adjust Current Location	Current location of position marker can be adjusted. Direction of position marker also can be calibrated when heading direction of the vehicle on the display is not matched with the actual direction.	<a href="#">AV-49</a>

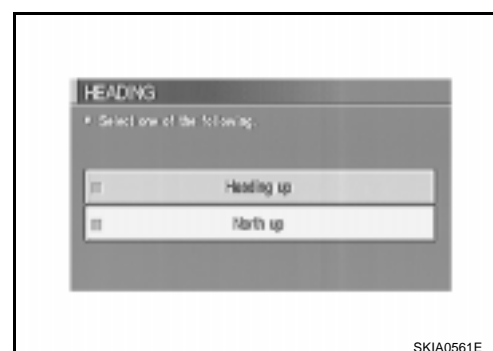
## “VIEW” MODE

- Select “Bird View®” or “Plan view” icon.
  - To open the map screen display with Bird View®, select “Bird View®”.
  - To open the map screen display with Plan View, select “Plan View”.



## “HEADING” MODE

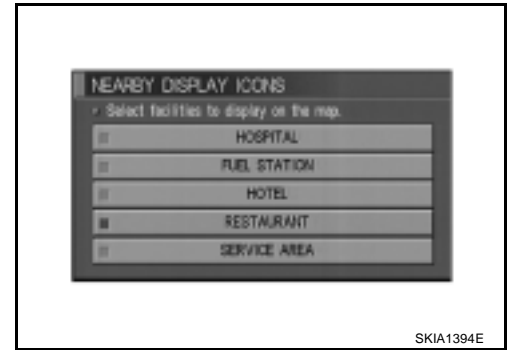
- To display North up, select “North up”.
- To display the car heading up, select “Heading up”.



# NAVIGATION SYSTEM

## “NEARBY DISPLAY ICONS” MODE

- Select an icon to display on the map screen.

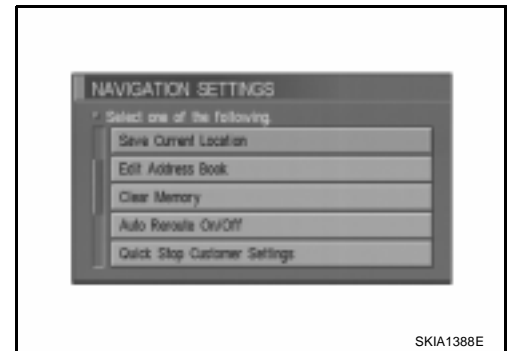


## “SAVE CURRENT LOCATION” MODE

- The current vehicle location can be registered in “Address Book”.

### NOTE:

“Address Book” can store 50 items max.



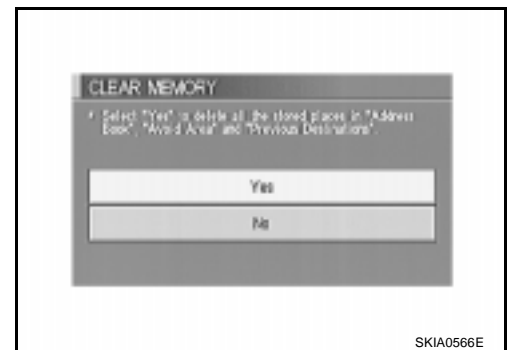
## “EDIT ADDRESS BOOK” MODE

- Edit the items registered in Address Book.



## “CLEAR MEMORY” MODE

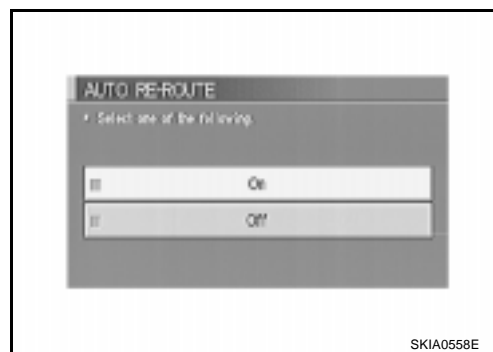
- To delete all the stored places in “Address Book”, “Avoid Area” and “Previous Dest”, select “Yes”.



# NAVIGATION SYSTEM

## “AUTO RE-ROUTE” MODE

- To Perform the auto re-route of route, select “ON”.
- Not to Perform the auto re-route of route, select “OFF”.



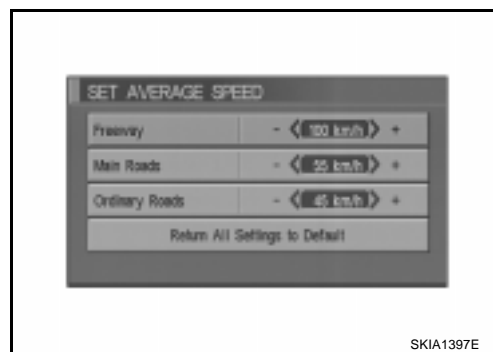
## “QUICK STOP CUSTOMER SETTINGS” MODE

- Select a category for the “Quick Stop” menu.



## “SET AVERAGE SPEED FOR ESTIMATED JOURNEY TIME” MODE

- Set the average vehicle speed to calibrate the estimated journey time for the destination.
- Set three items; “Freeway”, “Main Roads”, and “Ordinary Roads”.

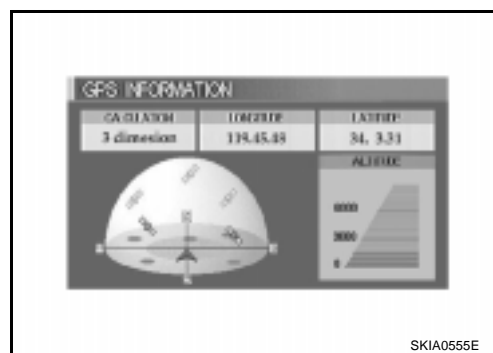


## “GPS INFORMATION” MODE

- Latitude, longitude, altitude, astrometric state, and satellite location are displayed as GPS information.

### NOTE:

Altitude is displayed only in three-dimensional status.





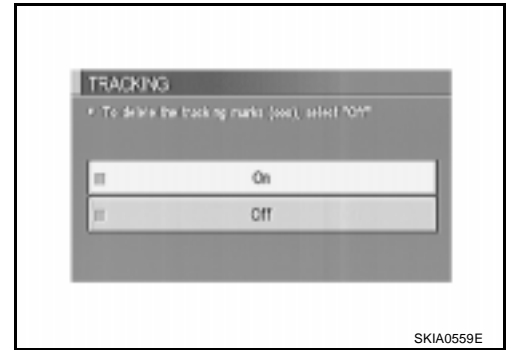
# NAVIGATION SYSTEM

## “TRACKING” MODE

- To leave no trail on the map, select “Off”.
- To leave a trail in the map, select “On”.

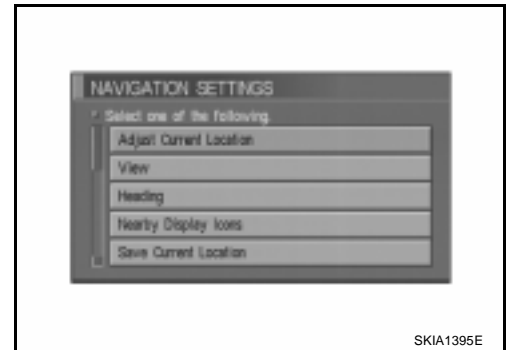
### NOTE:

When a trail display is turned OFF, trail data is erased from the memory.

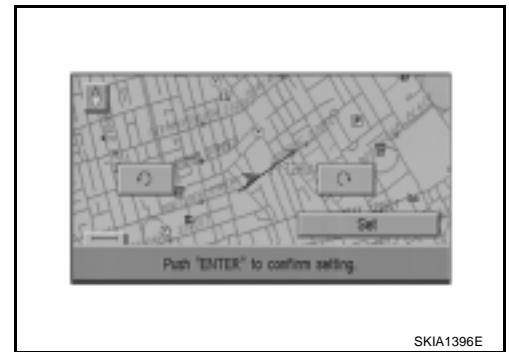


## “ADJUST CURRENT LOCATION” MODE

1. Select an icon “right” or “left” to calibrate the heading direction. (Arrow marks will rotate corresponding to the calibration key.)



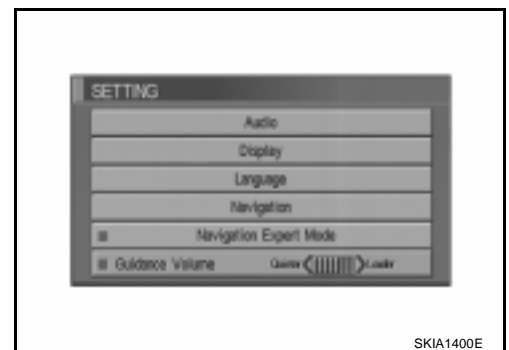
2. Select “Set”. Then the vehicle mark will be matched to the arrow mark.



## GUIDE VOLUME SETTING

### Description

Following voice guidance setting can be changed.



### Activation/Deactivation Setting

- The voice prompt can be turned on/off by pressing the “Guidance Volume” button.

### Voice Volume Setting

- Volume of the voice can be controlled by bending the joystick to left/right.

## NATS NAVI LINK

### Description

The link with the NATS IMMU implies that the AV and NAVI control unit can basically only be operated if connected to the matching NATS IMMU to which the AV and NAVI control unit was initially fitted on the production line.

The Navigation system does not operate because it is judged that the code collation with NATS IMMU is illegal when the control unit of other cars is installed.

### Precautions for AV and NAVI Control Unit Replacement

EKS009JJ

- When replacing the AV and NAVI control unit, eject the map DVD-ROM before disconnecting the battery.
- The AV and NAVI control unit has the following information stored in its memory. Record the memory contents before replacing the control unit, and input them in the new unit as necessary.

#### <RADIO>

- Preset frequency
- Area for indicating station, selection of overlapped stations

#### <CD>

- Program status

#### <Sound quality>

- Volume balance memory set values
- Equalizer memory set values

#### <Image quality>

- Brightness of light when ON/OFF
- Dimming switching
- Display color switching

#### <Navigation mode>

- Latest status (map screen/bird view®, reduced scale, rotation angle of map screen, route guide ON/OFF, track ON/OFF, etc.)
- Current position
- Destination, passing point 1 - 5
- Registered places, their names, etc.

### NOTE:

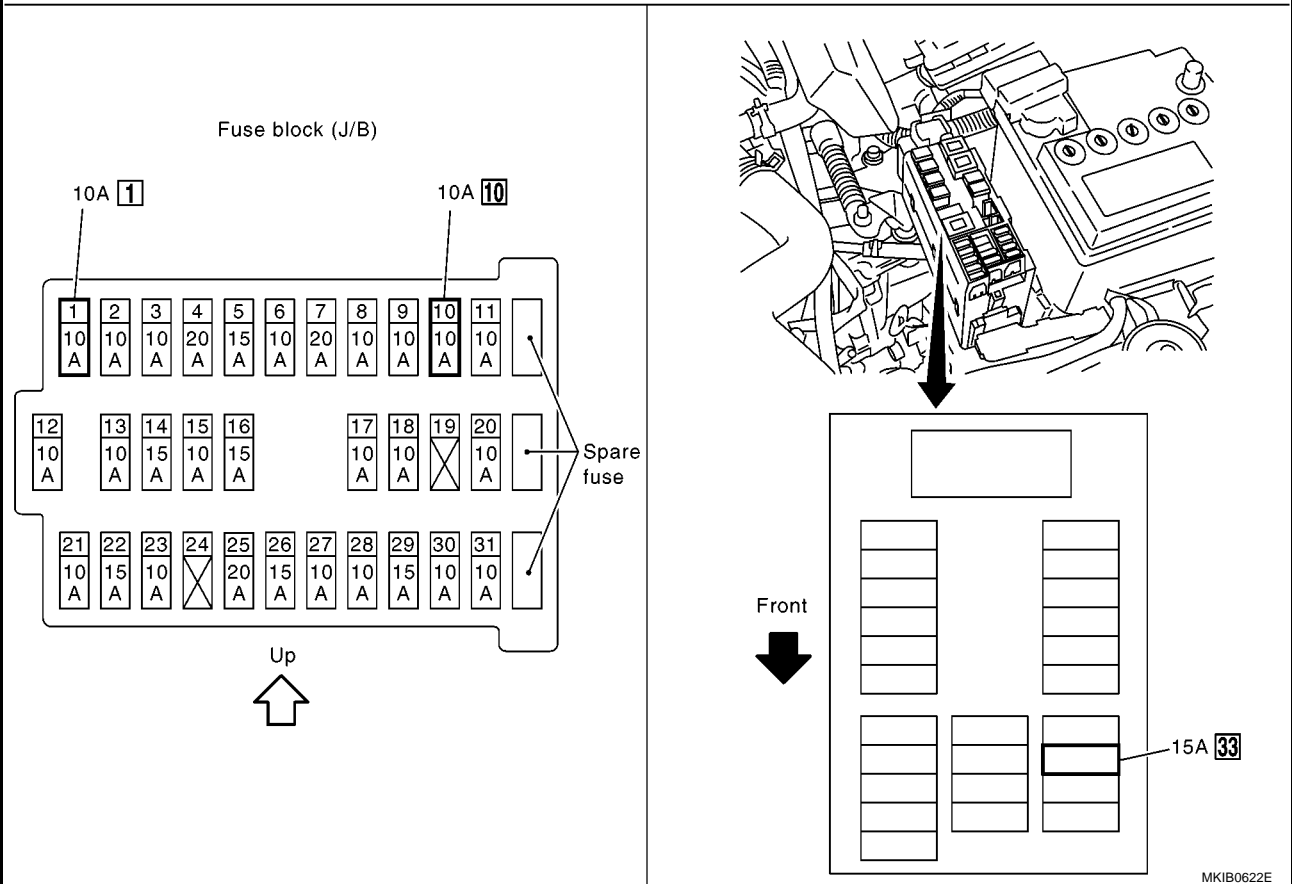
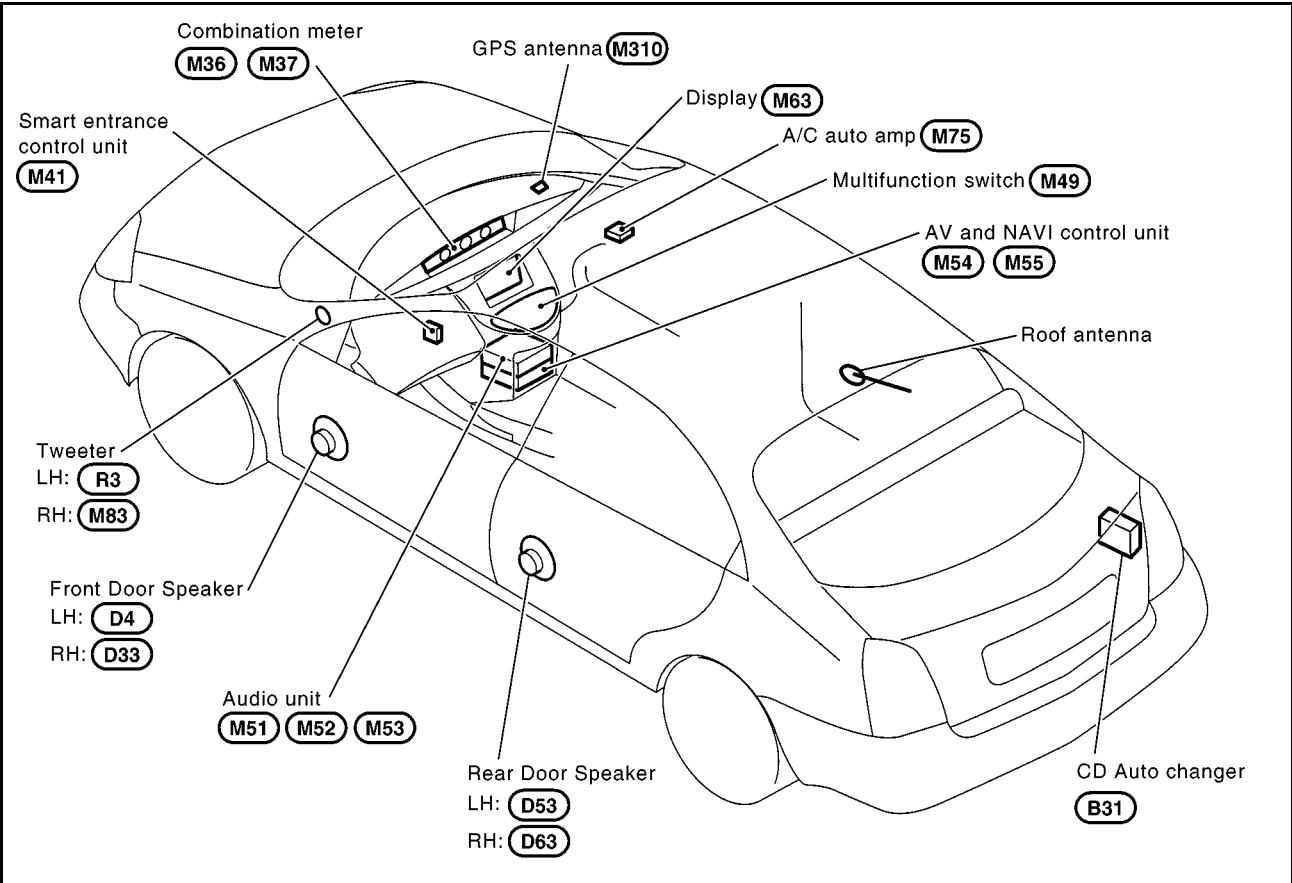
Only removing the battery does not erase the memory.

# NAVIGATION SYSTEM

## Component Parts Location

EKS009JK

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
AV  
L  
M



MKIB0622E

## Location of Antenna

EKS009JL

Refer to [AV-36, "Location of Antenna"](#) .

## Schematic

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
AV  
L  
M

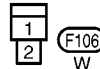
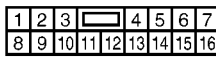
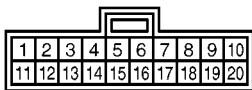
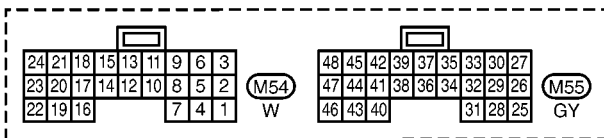
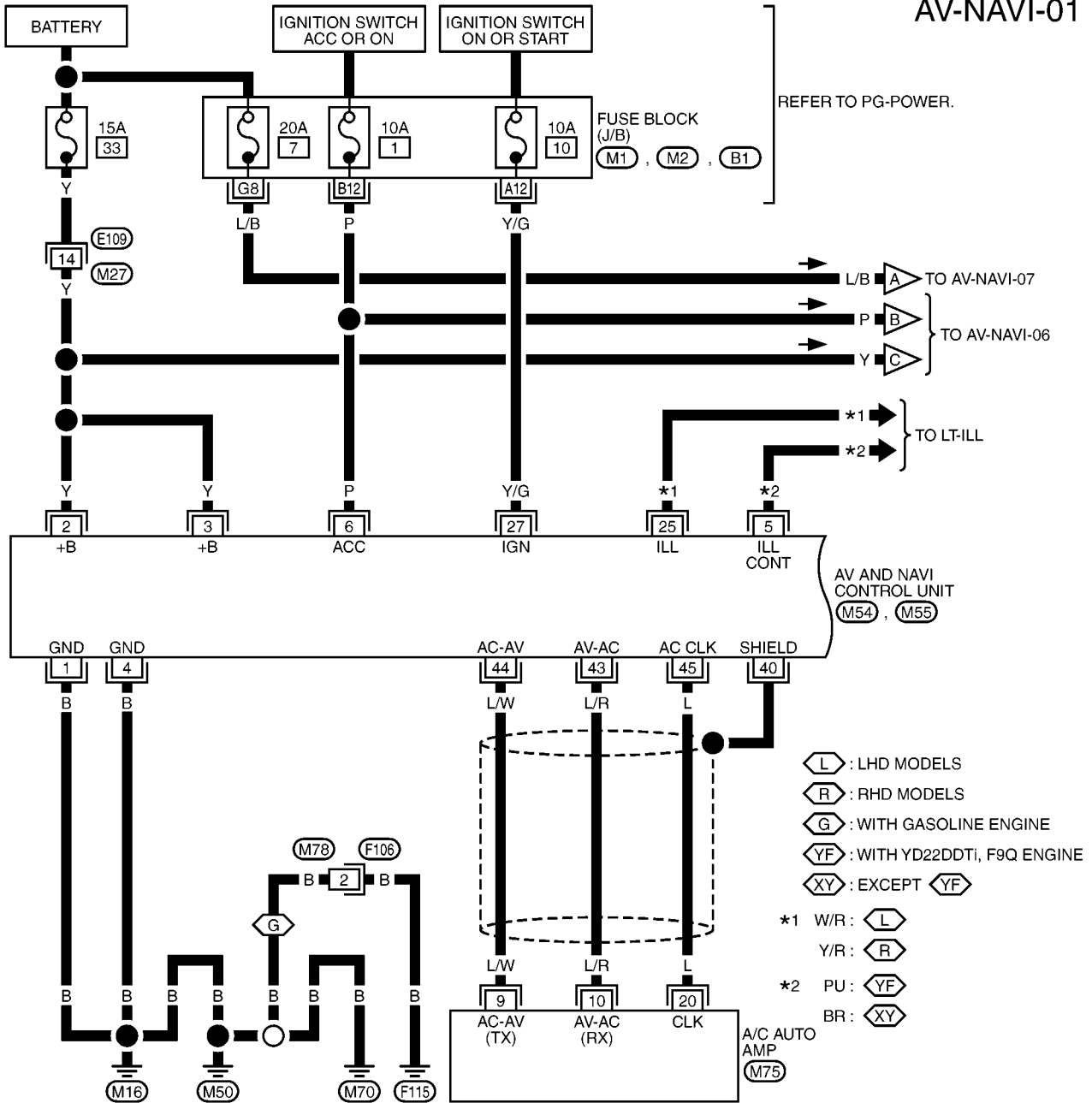


# NAVIGATION SYSTEM

## Wiring Diagram —NAVI—

EKS009JN

AV-NAVI-01



REFER TO THE FOLLOWING.

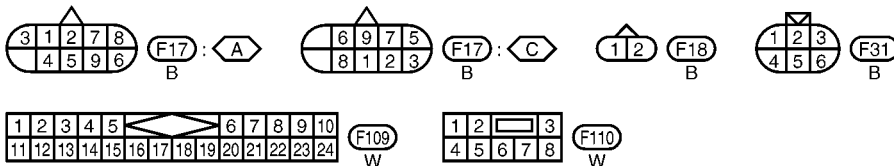
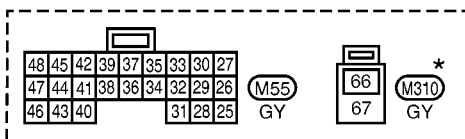
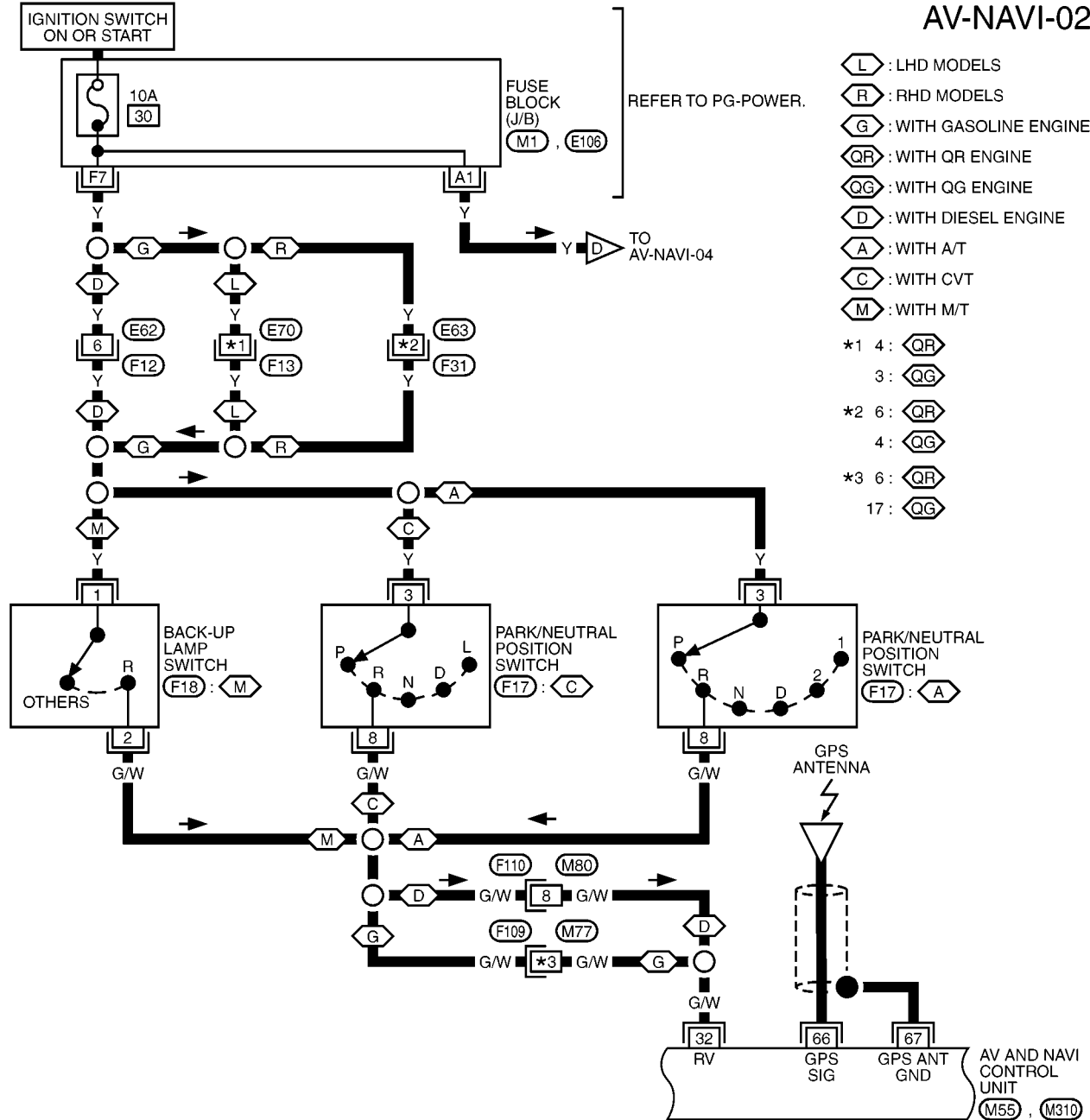
(M1), (M2), (B1)

-FUSE BLOCK- JUNCTION BOX (J/B)

# NAVIGATION SYSTEM

EXCEPT FOR YD22DDTI AND F9Q ENGINE MODELS

AV-NAVI-02



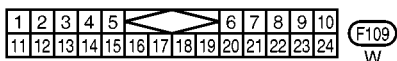
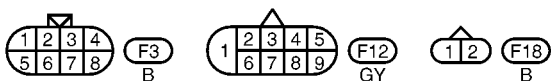
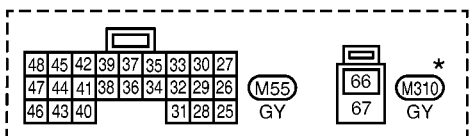
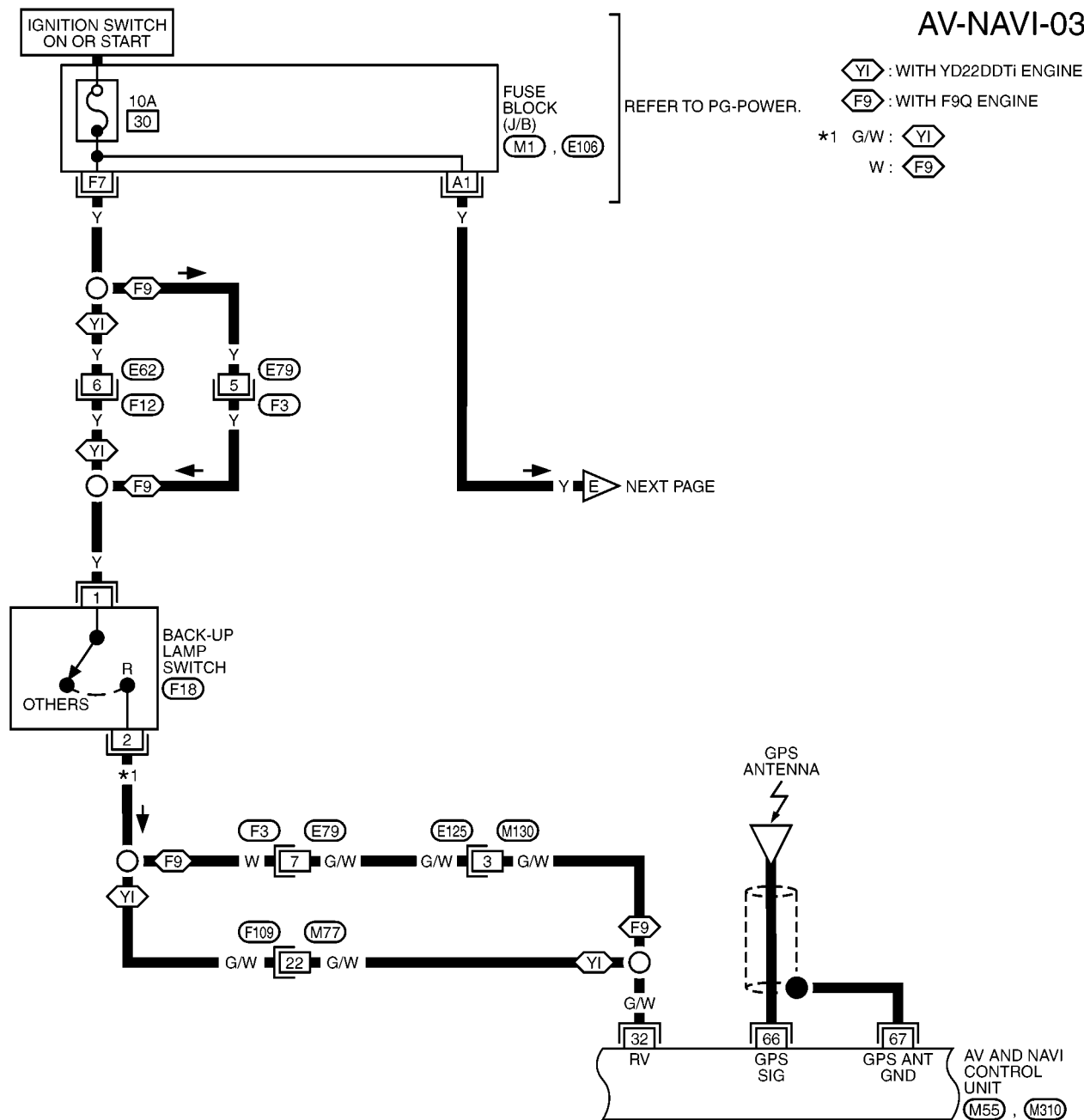
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.  
(M1, E106) - FUSE BLOCK-  
JUNCTION BOX (J/B)

## NAVIGATION SYSTEM

**FOR YD22DDTI AND F9Q ENGINE MODELS**

## AV-NAVI-03



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

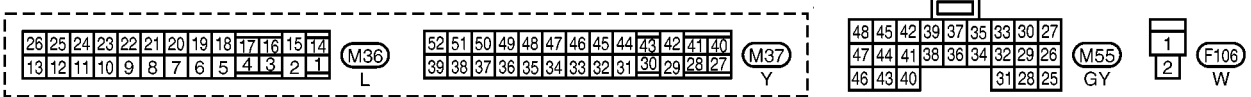
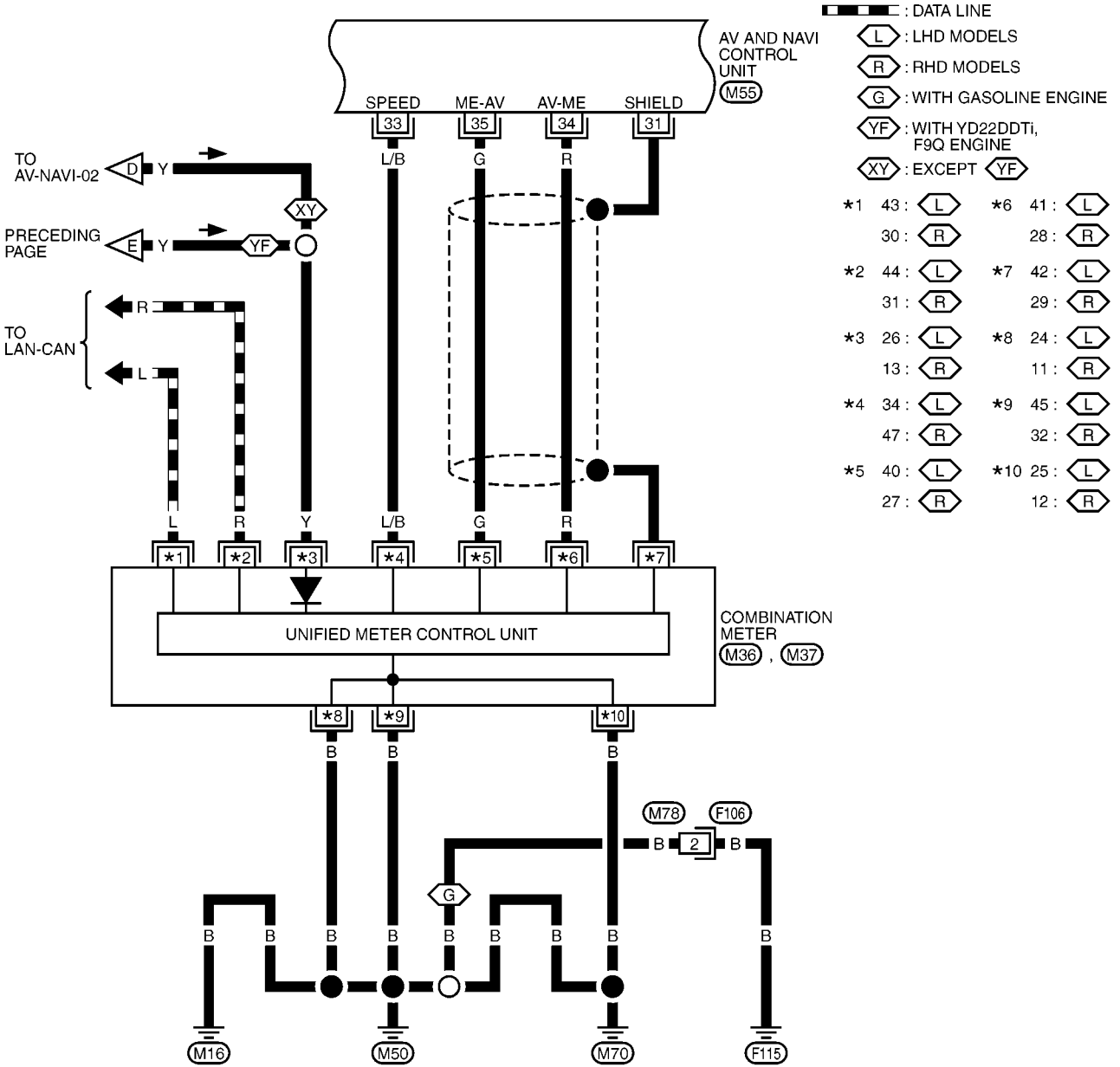
REFER TO THE FOLLOWING.

**(M1), (E106) -FUSE BLOCK-  
JUNCTION BOX (J/B)**



# NAVIGATION SYSTEM

## AV-NAVI-04

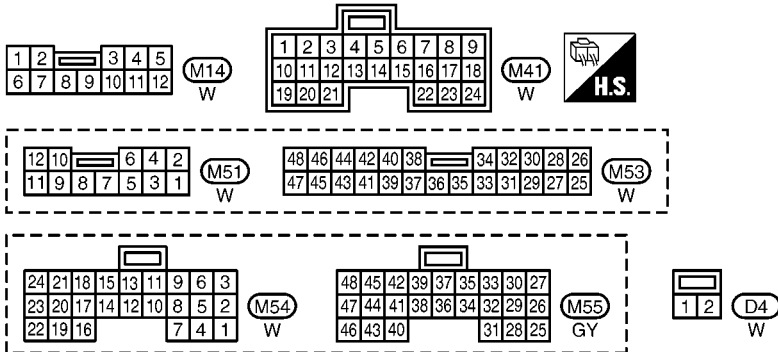
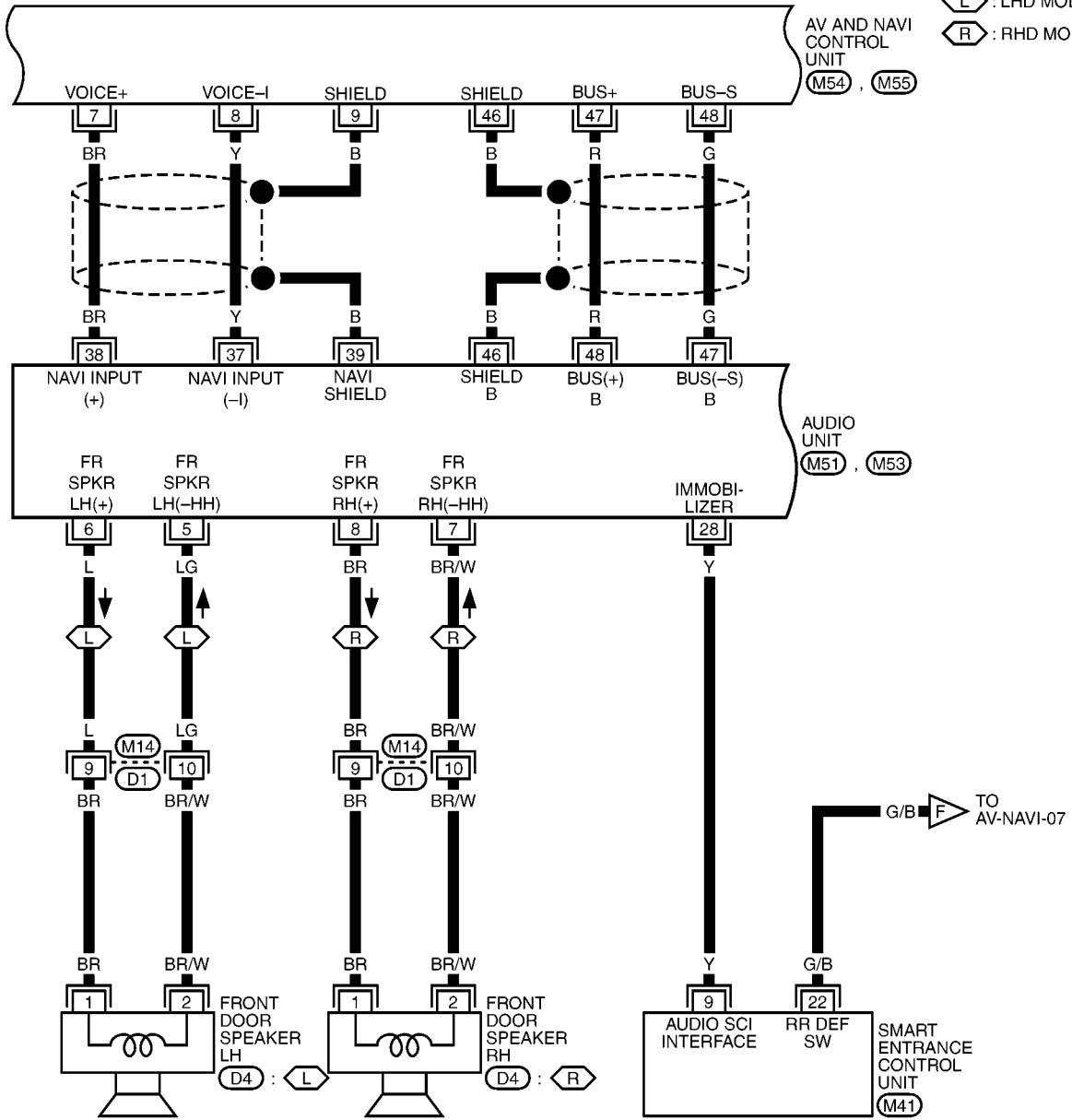


MKWA0930E

# NAVIGATION SYSTEM

## AV-NAVI-05

L : LHD MODELS  
R : RHD MODELS

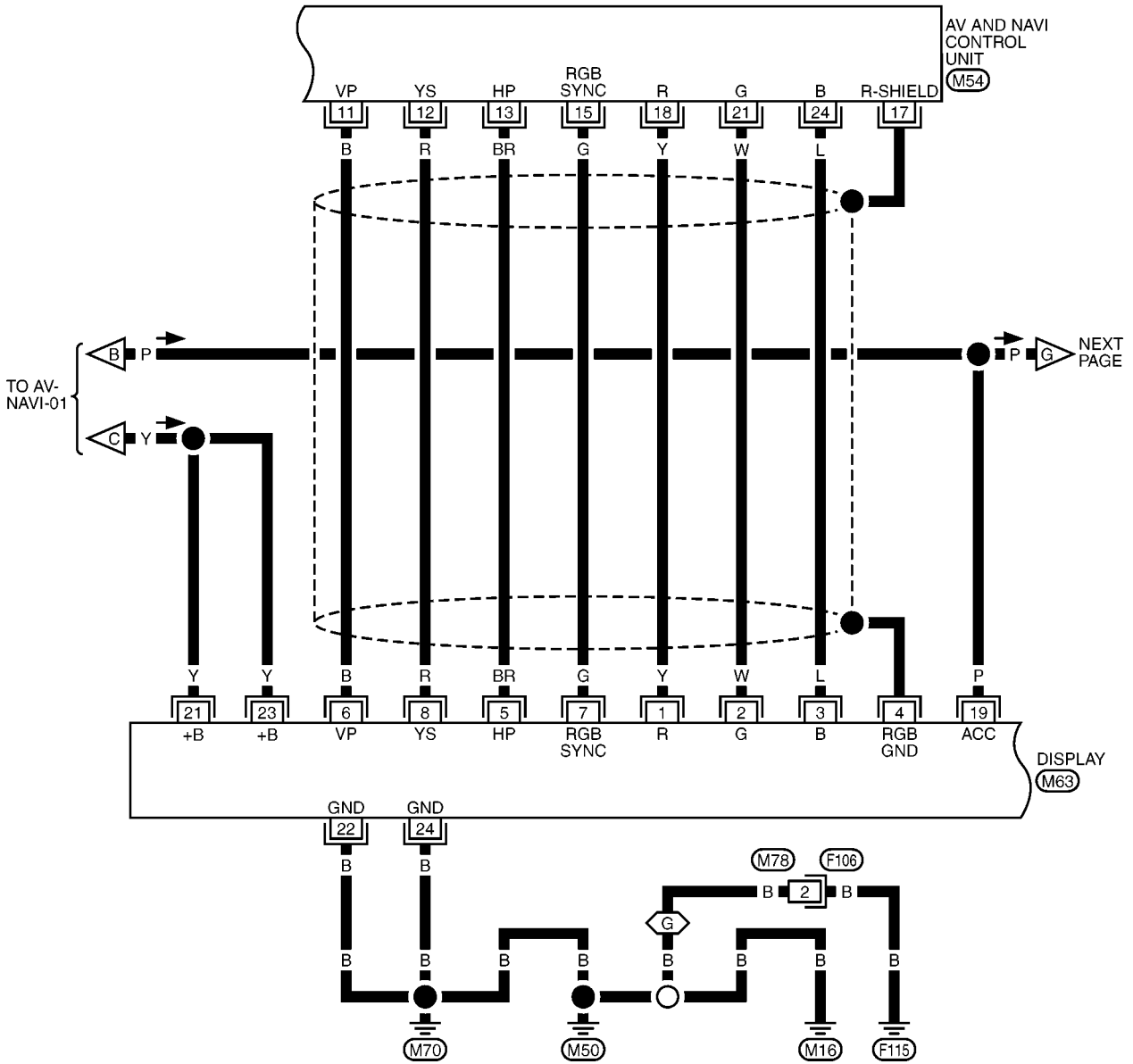


MKWA0931E

# NAVIGATION SYSTEM

AV-NAVI-06

 : WITH GASOLINE ENGINE



24	21	18	15	13	11	9	6	3
23	20	17	14	12	10	8	5	2
22	19	16				7	4	1

(M54) W

24	22	20	18	16	14			10	8	6	4	2
23	21	19	17	15	13	12	11	9	7	5	3	1

M63

GY

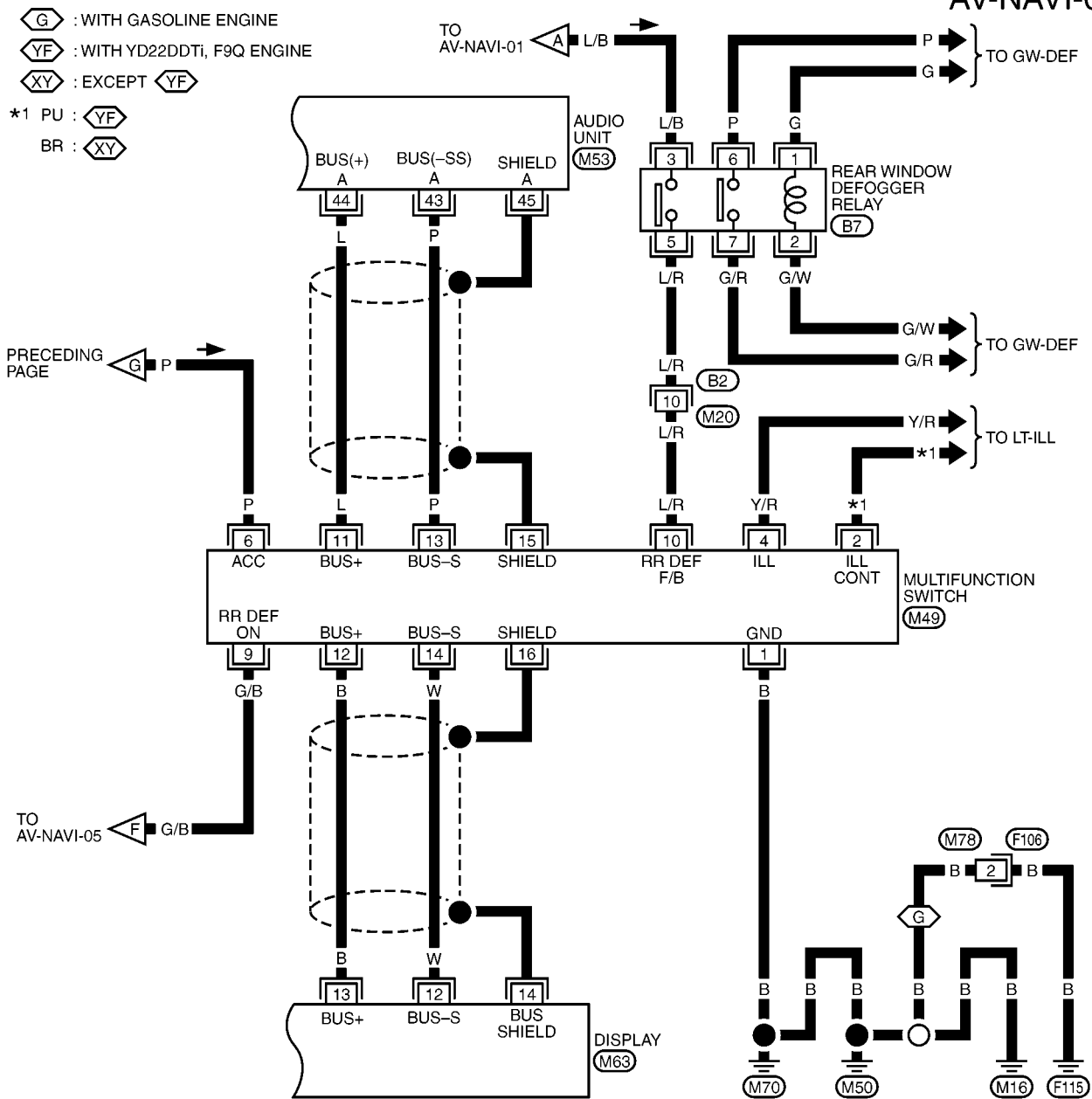
1
2

(F106) W

MKWA0932E

# NAVIGATION SYSTEM

AV-NAVI-07



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

(M49) W

48	46	44	42	40	38	34	32	30	28	26
47	45	43	41	39	37	36	35	33	31	29

(M53) W

24	22	20	18	16	14	10	8	6	4	2
23	21	19	17	15	13	12	11	9	7	5

(M63) GY

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

(B2) BR

1	2
5	7
3	6

(B7) BR

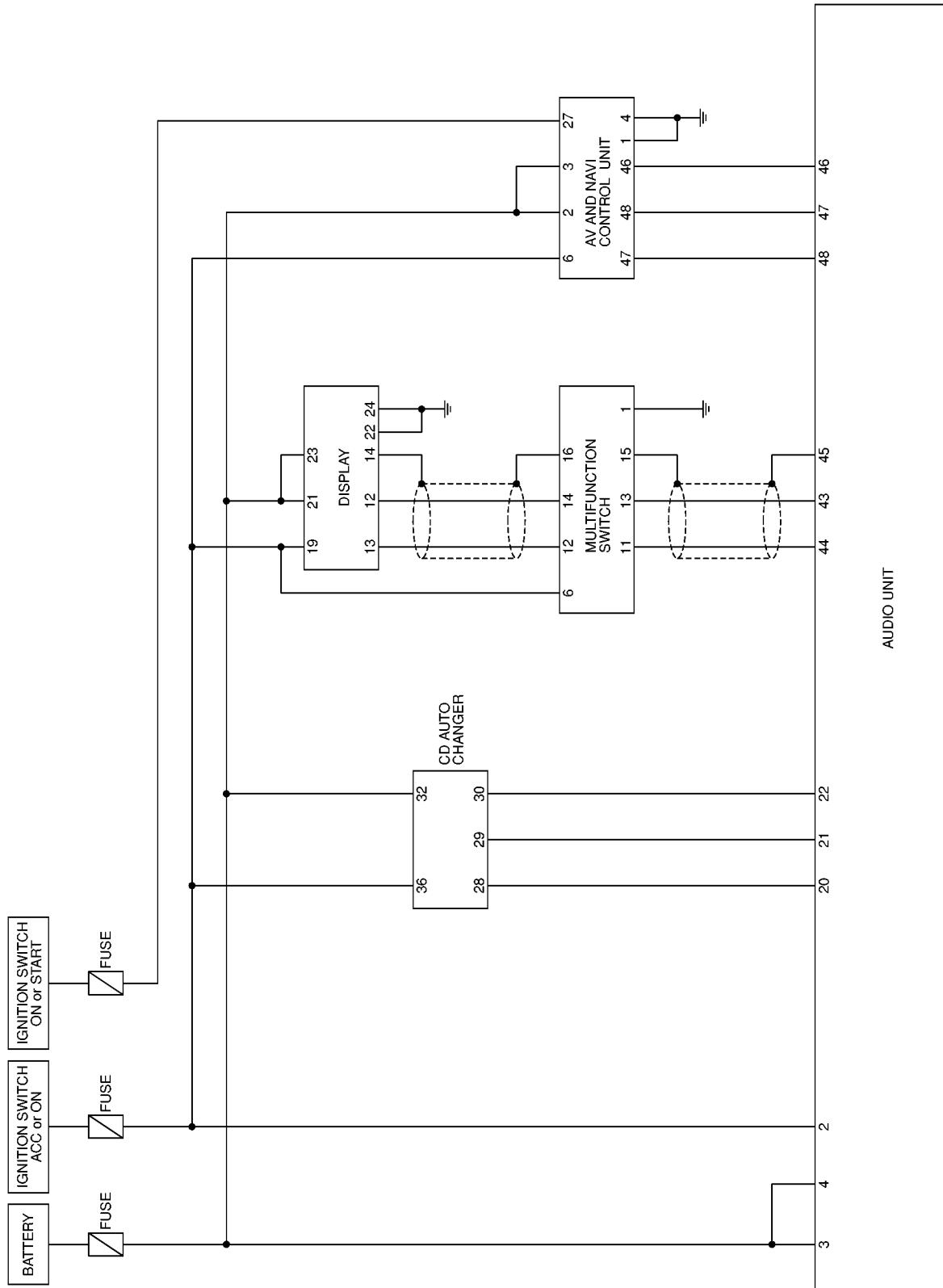
1
2

(F106) W

# NAVIGATION SYSTEM

## Schematic for AV Communication Line

EKS009JO



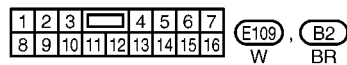
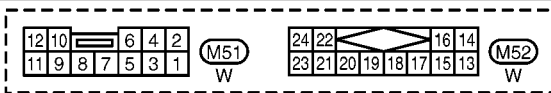
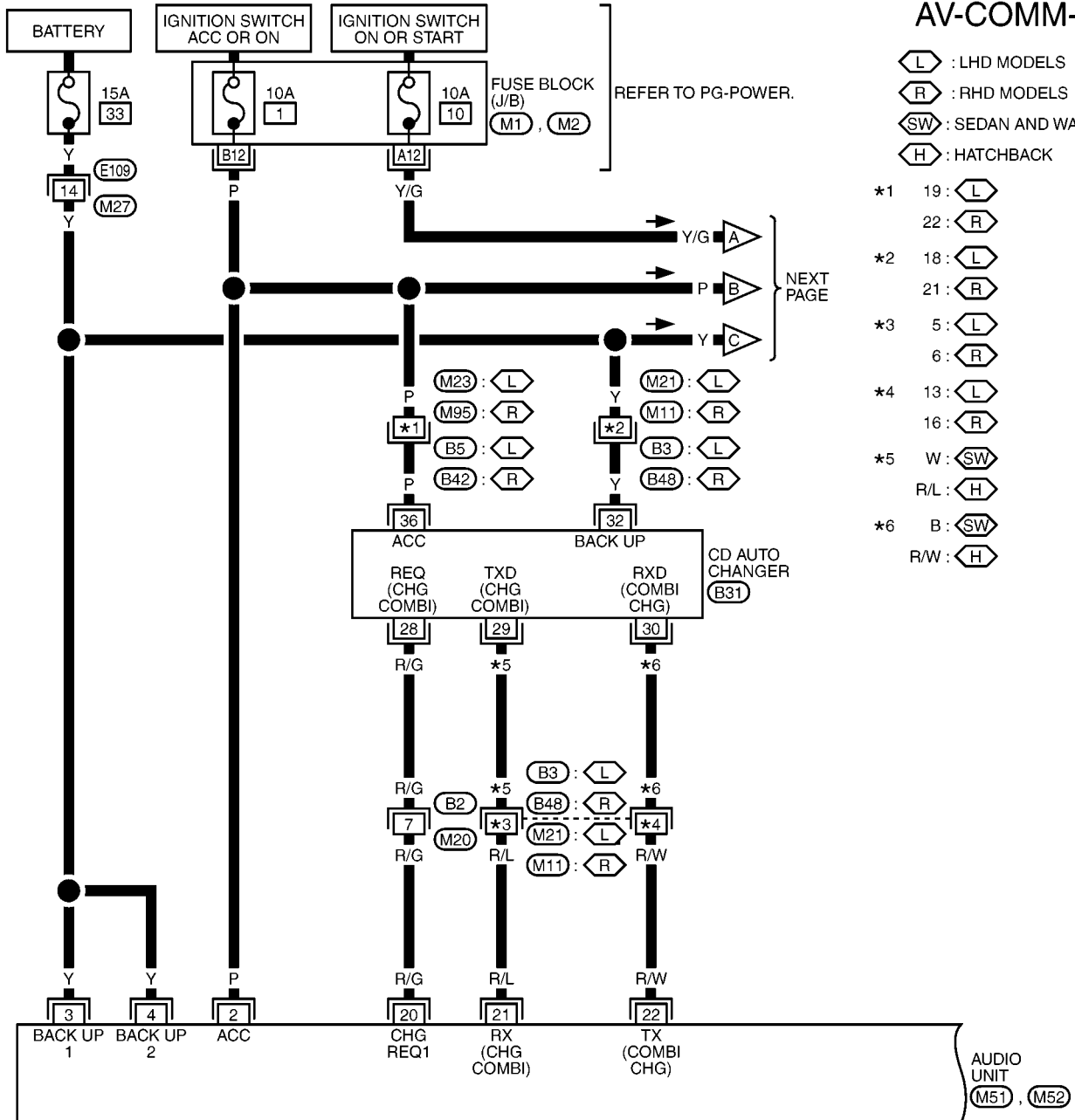
MKWA0506E

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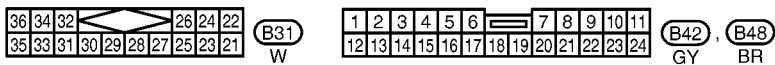
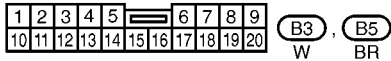
# NAVIGATION SYSTEM

## Wiring Diagram — COMM —

EKS009JP



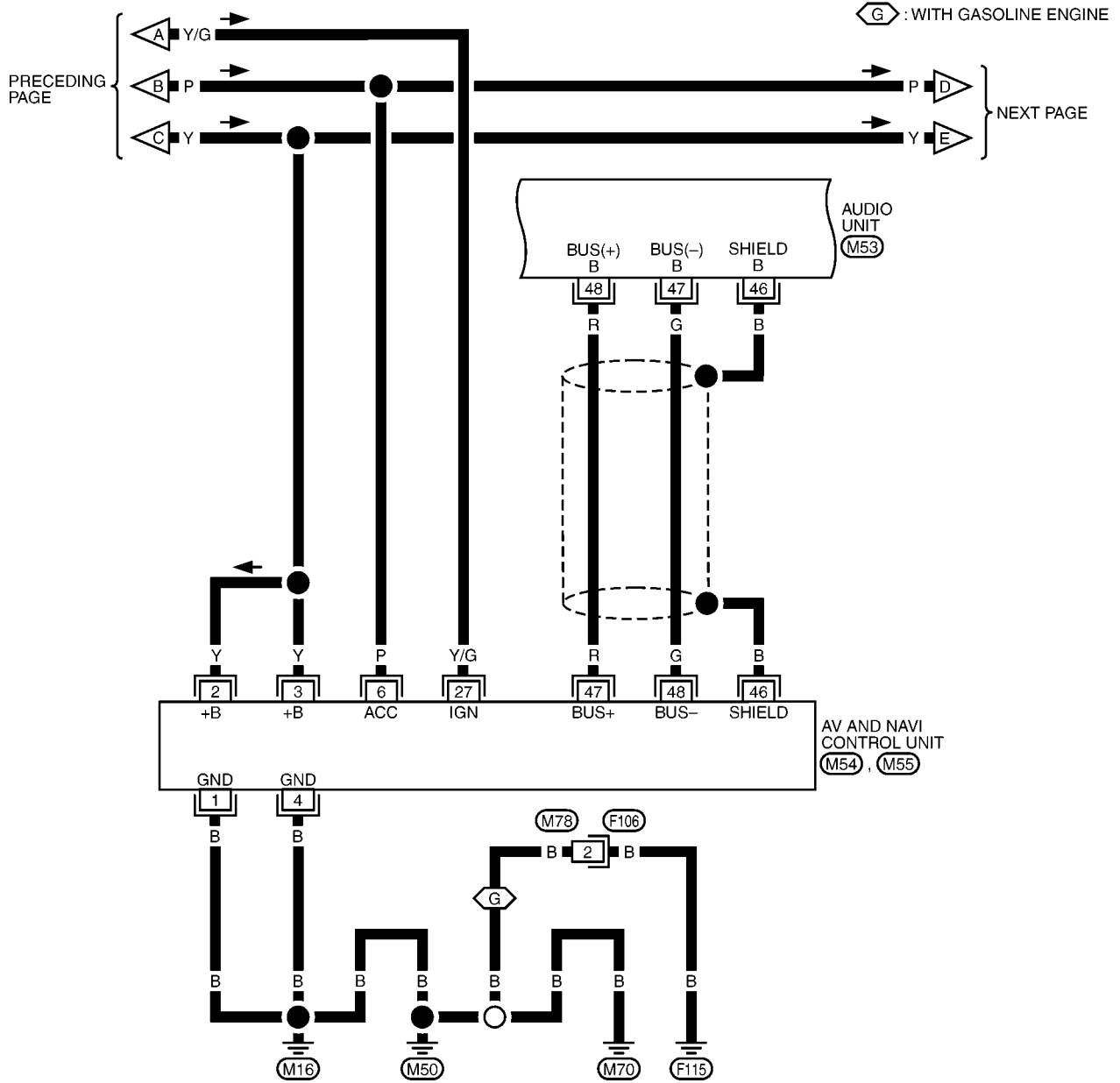
REFER TO THE FOLLOWING.  
 (M1), (M2) - FUSE BLOCK-  
 JUNCTION BOX (J/B)



MKWA0934E

# NAVIGATION SYSTEM

AV-COMM-02



48	46	44	42	40	38	36	35	33	32	30	28	26
47	45	43	41	39	37	36	35	33	31	29	27	25

(M53) W

24	21	18	15	13	11	9	6	3
23	20	17	14	12	10	8	5	2
22	19	16				7	4	1

(M54) W

48	45	42	39	37	35	33	30	27
47	44	41	38	36	34	32	29	26
46	43	40				31	28	25

(M55) GY

1
2

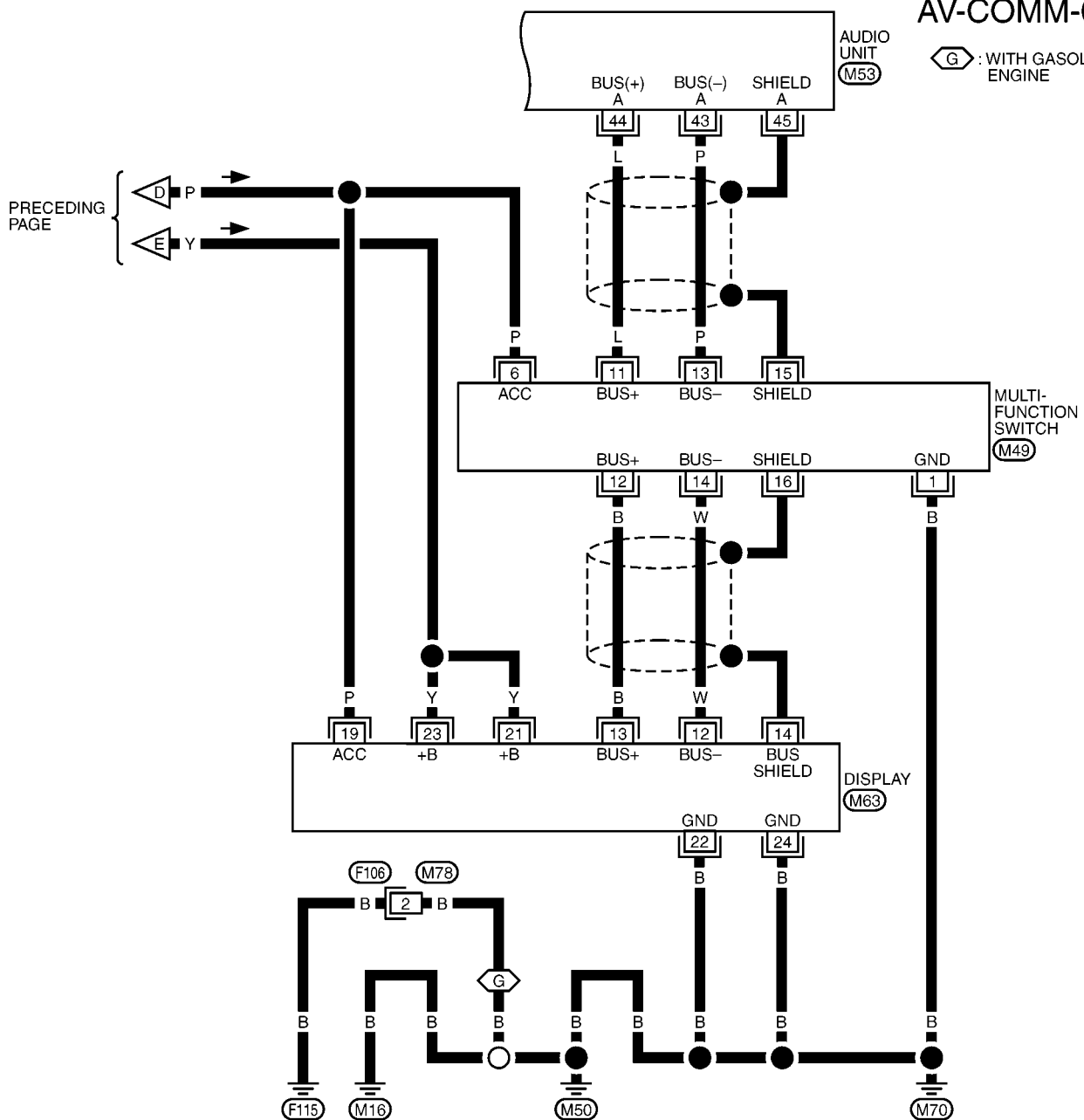
(F106) W

MKWA0935E

# NAVIGATION SYSTEM

AV-COMM-03

⬡ : WITH GASOLINE ENGINE



16	14	13	8	6	4	2
15	13	11	10	9	7	5

(M49)  
W

48	46	44	42	40	38	34	32	30	28	26
47	45	43	41	39	37	36	35	33	31	29

(M53)  
W

24	22	20	18	16	14	10	8	6	4	2
23	21	19	17	15	13	12	11	9	7	5

(M63)  
GY

1	F106
2	W

MKWA0936E

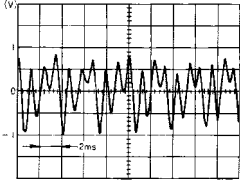
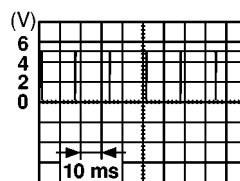
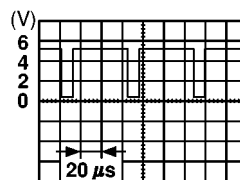
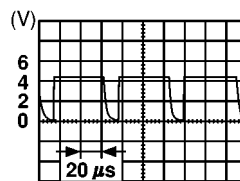


# NAVIGATION SYSTEM

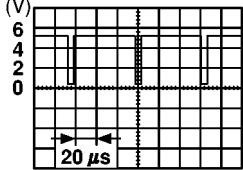
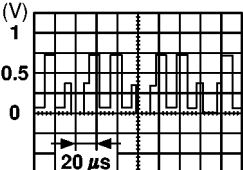
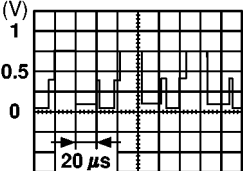
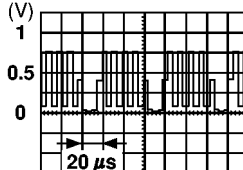
## Terminals and Reference Value for AV and NAVI Control Unit

EKS009JQ

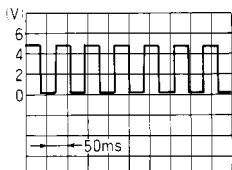
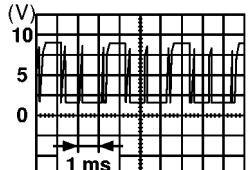
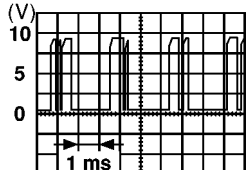
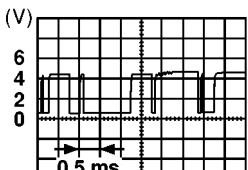
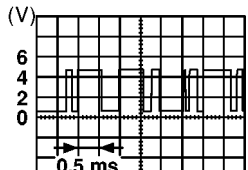
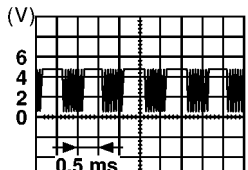
- For measurements made with IGN switch ON, if possible, measure with engine running to prevent battery discharge.
- Use a circuit tester and oscilloscope or CONSULT-II for measurement.

Terminal No. (wire color)		Item	Signal input/ output	Condition		Voltage	Example of symptom
(+)	(-)			Ignition switch	Operation		
1 (B)	ground	Ground	-	ON	-	Approx. 0V	-
2 (Y)	ground	Battery power	Input	OFF	-	Battery voltage	System does not work properly.
3 (Y)							
4 (B)	ground	Ground	-	ON	-	Approx. 0V	-
5 (*)	ground	Illumination ground	-	ON	-	Approx. 0V	-
6 (P)	ground	ACC signal	Input	ACC	-	Battery voltage	System does not work properly.
7 (BR)	8 (Y)	voice guide signal	Output	ON	Press the "voice" switch.	 <p>SKIA0171J</p>	Only route guide and operation guide are not heard.
9(B)	-	Shield ground	-	-	-	-	-
11 (B)	17	Vertical syn- chronizing signal	Input	ON	-	 <p>SKIA0161E</p>	Superimposed screen is rolling.
12 (R)	17	RGB area signal	Output	ON	Press the "info" switch.	 <p>SKIA0162E</p>	RGB screen is not shown.
13 (BR)	17	Horizontal synchroniz- ing signal	Input	ON	Select "Display" in "Setting" mode and display the rear- view picture on the screen.	 <p>SKIA0163E</p>	Superimposed screen is not shown.

# NAVIGATION SYSTEM

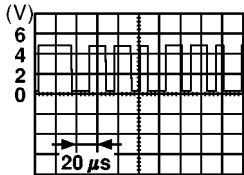
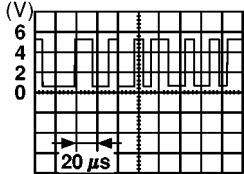
Terminal No. (wire color)		Item	Signal input/ output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
15 (G)	17	RGB syn- chronizing signal	Output	ON	Press the "MAP" switch.	 SKIA0164E	RGB screen is roll- ing.
17	ground	RGB Ground	-	ON	-	Approx. 0V	-
18 (Y)	17	RGB signal (R: red)	Output	ON	Select "SCREEN ADJUSTMENT" of CONFIRMATION/ ADJUSTMENT function.	 SKIA0165E	RGB screen looks bluish.
21 (W)	17	RGB signal (G: green)	Output	ON	Select "SCREEN ADJUSTMENT" of CONFIRMATION/ ADJUSTMENT function.	 SKIA0166E	RGB screen looks reddish.
24 (L)	17	RGB signal (B: blue)	Output	ON	Select "SCREEN ADJUSTMENT" of CONFIRMATION/ ADJUSTMENT function.	 SKIA0167E	RGB screen looks yellowish.
25 (W/R) :LHD models (Y/R) :RHD models	ground	Illumination control sig- nal	Input	ON	Optical sensor is exposed to light.	Approx. 3.5V or more	Screen does not switch between day- time mode and night- time mode.
					Optical sensor is not exposed to light.	Approx. 1.5V or less	
27 (Y/G)	ground	Ignition sig- nal	Input	ON	-	Battery voltage	A/C operation is not possible. Vehicle information setting is not possible.
31	-	Shield ground	-	-	-	-	-
32 (G/W)	ground	Reverse signal	Input	ON	Shift lever in R-posi- tion	Battery voltage	The navigation cur- rent-location mark moves strangely when the vehicle is moving backwards.
					Shift lever not in R- position	Approx. 3.0V or less	

# NAVIGATION SYSTEM

Terminal No. (wire color)		Item	Signal input/ output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
33 (L/B)	ground	Vehicle speed sig- nal (2-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25MPH)	 ELF1080D	Navigation current- location mark does not indicate the cor- rect position.
34 (R)	ground	Communi- cation signal (AV - ME)	Output	ON	Display the vehicle information screen.	 SKIA0169E	Clock cannot be adjusted. Vehicle information screen is not shown.
35 (G)	ground	Communi- cation signal (ME - AV)	Input	ON	Perform various settings on the vehi- cle information screen.	 SKIA0170E	Clock cannot be adjusted. Vehicle information screen is not shown.
40	-	Shield ground	-	-	-	-	-
43 (L/R)	ground	A/C commu- nication sig- nal (AV - AC)	Output	ON	-	 SKIA0172E	A/C operation is not possible.
44 (L/W)	ground	A/C commu- nication sig- nal (AV - AC)	Input	ON	-	 SKIA0173E	A/C status is not indi- cated correctly.
45 (L)	ground	A/C clock signal	Input	ON	-	 SKIA0174E	A/C status is not indi- cated correctly.
46(B)	-	Shield ground	-	-	-	-	-

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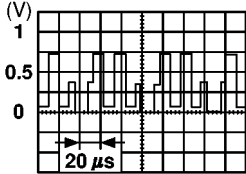
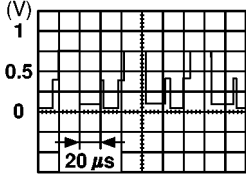
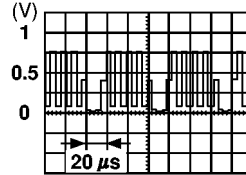
# NAVIGATION SYSTEM

Terminal No. (wire color)		Item	Signal input/ output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
47 (R)	ground	Communi- cation signal (+)	Input/ output	ON	-	 SKIA0175E	System does not work properly.
48 (G)	ground	Communi- cation signal (-)	Input/ output	ON	-	 SKIA0176E	System does not work properly.
66	67	GPS signal	Input	ON	Connector is not connected.	Approx. 5 V	Navigation system GPS correction is not possible.

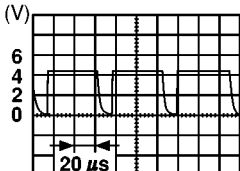
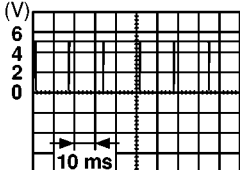
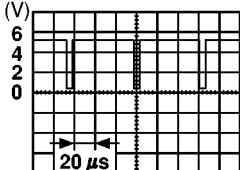
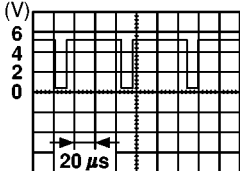
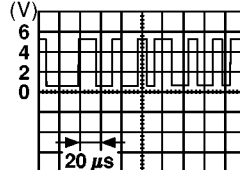
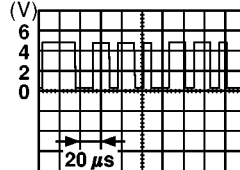
\*: For YD22DDTi and F9Q engine models (PU) or Except for YD22DDTi and F9Q engine models (BR)

## Terminals and Reference Value for Display

EKS009JR

Terminal No. (wire color)		Item	Signal input/ output	Condition		Voltage	Example of symp- tom
( + )	( - )			Ignition switch	Operation		
1(Y)	4	RGB signal (R: red)	Input	ON	Select "SCREEN ADJUSTMENT" of CONFIRMATION/ ADJUSTMENT function.	 SKIA0165E	RGB screen looks bluish.
2(W)	4	RGB signal (G: green)	Input	ON	Select "SCREEN ADJUSTMENT" of CONFIRMATION/ ADJUSTMENT function.	 SKIA0166E	RGB screen looks reddish.
3(L)	4	RGB signal (B: blue)	Input	ON	Select "SCREEN ADJUSTMENT" of CONFIRMATION/ ADJUSTMENT function.	 SKIA0167E	RGB screen looks yellowish.
4	-	Shield ground	-	-	-	-	-

# NAVIGATION SYSTEM

Terminal No. (wire color)		Item	Signal input/output	Condition		Voltage	Example of symptom
(+)	(-)			Ignition switch	Operation		
5(BR)	4	Horizontal synchronizing signal	Output	ON	Select "Display" in "Setting" mode and display the rear view picture on the screen.	 SKIA0163E	Superimposed screen is not shown.
6(B)	4	Vertical synchronizing signal	Output	ON	-	 SKIA0161E	Superimposed screen is rolling.
7(G)	4	RGB synchronizing signal	Input	ON	Press the "MAP" switch.	 SKIA0164E	RGB screen is rolling.
8(R)	4	RGB area signal	Input	ON	Press the "info" switch.	 SKIA0162E	RGB screen is not shown.
12(W)	ground	Communication signal (-)	Input/output	ON	-	 SKIA0176E	System does not work properly.
13(B)	ground	Communication signal (+)	Input/output	ON	-	 SKIA0175E	System does not work properly.
14	-	Shield ground	-	-	-	-	-
19(P)	ground	ACC signal	Input	ACC	-	Battery voltage	Screen is not shown.
21(Y)	ground	Battery power	Input	OFF	-	Battery voltage	Screen is not shown.
23(Y)							

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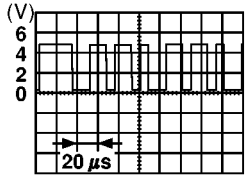
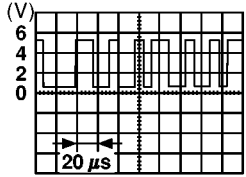
AV

# NAVIGATION SYSTEM

Terminal No. (wire color)		Item	Signal input/output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
22(B)	ground	Ground	-	ON	-	Approx. 0V	-
24(B)	ground	Ground	-	ON	-	Approx. 0V	-

## Terminals and Reference Value for Multifunction Switch

EKS009JS

Terminal No. (wire color)		Item	Signal input/output	Condition		Voltage	Example of symptom
( + )	( - )			Ignition switch	Operation		
1(B)	ground	Ground	-	ON	-	-	All operations do not work.
2(*)	ground	Illumination control signal	Input	ON	Illumination control switch is operated by lighting switch in 1st position.	Changes between approx. 0 and approx. 12V.	Multifunction Switch illumination cannot be controlled.
4(Y/R)	ground	Illumination control signal	Input	ON	Lighting switch ON (position 1)	Optical sensor is exposed to light. Approx. 3.5V or more	Screen does not switch between daytime mode and nighttime mode.
					Optical sensor is not exposed to light.	Approx. 1.5V or less	
6(P)	ground	ACC	Input	ACC	-	Battery voltage	All operations do not work.
9(G/B)	ground	Rear defogger ON signal	Output	ON	Press rear defogger switch.	Approx. 5V	Rear defogger does not work.
					-	Approx. 0V	
10(L/R)	ground	Rear defogger indicator signal	Input	ON	Turn rear defogger switch ON.	Battery voltage	Rear defogger indicator does not illuminate.
					OFF	Approx. 0V	
11(L) 12(B)	ground	Communication signal (+)	Input/output	ON	-	 SKIA0175E	System does not work properly.
13(P) 14(W)	ground	Communication signal (-)	Input/output	ON	-	 SKIA0176E	System does not work properly.
15 16	ground	Shield ground	-	ON	-	-	-

\*: For YD22DDTi and F9Q engine models (PU) or Except for YD22DDTi and F9Q engine models (BR)

# NAVIGATION SYSTEM

## Self-Diagnosis Function

EKS009JT

### DESCRIPTION

- Diagnosis function consists of the self-diagnosis mode performed automatically and the confirmation/adjustment mode operated manually.
- Self-diagnosis mode checks connections between all units and performs individual unit diagnosis for all units in system. Results are displayed on LCD display.
- Check/adjustment mode is used to perform trouble diagnosis that require operation and judgment by an operator (trouble that cannot be automatically judged by the system), to check/change the set value, and to display the error record of the navigation system.

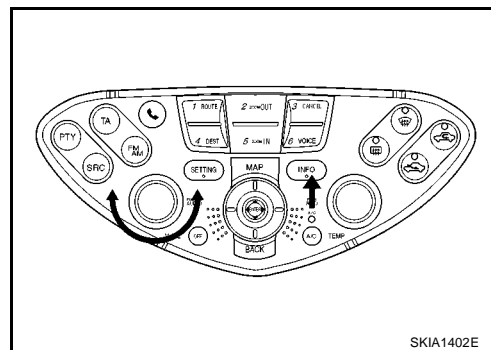
### SELF-DIAGNOSIS ITEM

Mode		Diagnosis content
Self-diagnosis		<ul style="list-style-type: none"> <li>• Control unit diagnosis (DVD-ROM drive will not be diagnosed when no map DVD-ROM is in it.)</li> <li>• Performs diagnosis of connections between C/U and GPS antenna and between C/U and all units.</li> </ul>
Confirmation/ adjustment	Display	Color tone and shading of the screen can be checked by the display of a color bar and a gray scale.
	Vehicle signals	The following signals can be diagnosed: vehicle speed, parking brake, light, IGN (IGN SW), and reverse.
	History of Errors	Displays the navigation system-related problems that occurred in the past and the number of their occurrence. When a trouble symptom is selected, the time and place of the latest occurrence will be shown.
	Auto Climate Control	All A/C screen displays on LCD monitor and the A/C SW indicator lamp are illuminated.
	Navigation	Display Longitude & Latitude
		Angle adjustment
		Distance adjustment
		Initialize Location
	Service	Service schedule can be changed in this mode.

## Self-Diagnosis Mode OPERATION PROCEDURE

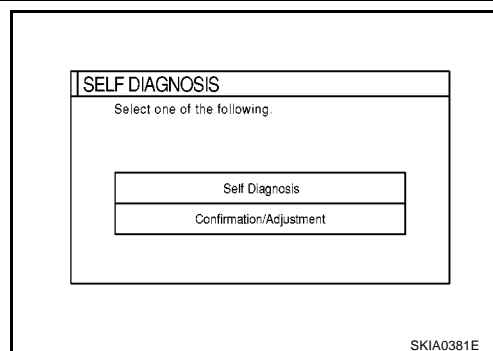
EKS009JU

1. Start the engine.
2. Turn the audio system off.
3. While pressing the "INFO" switch, turn the volume control dial clockwise or counterclockwise for 30 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
  - Shifting from current screen to previous screen is performed by pressing "BACK" switch.

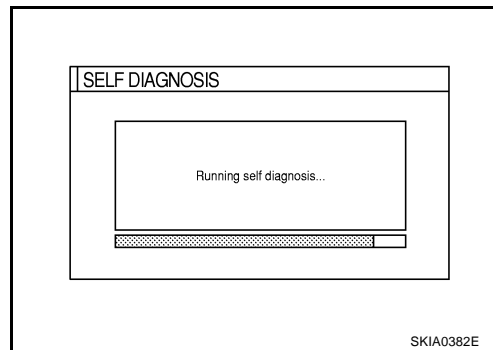


# NAVIGATION SYSTEM

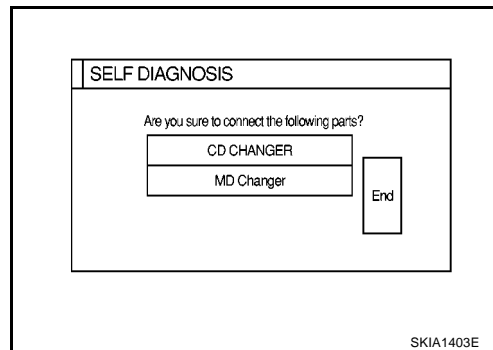
4. The initial trouble diagnosis screen will be shown, and items "SELF-DIAGNOSIS" and "CONFIRMATION/ADJUSTMENT" will become selective.



5. Perform self-diagnosis by selecting the "SELF-DIAGNOSIS".
  - Self-diagnosis subdivision screen will be shown and the operation enters the self-diagnosis mode.
  - A bar graph shown below the self-diagnosis subdivision screen indicates progress of the diagnosis.



6. When the self-diagnosis completes, optional part confirmation screen will be shown.
  - When connection of an optional part is judged faulty, a screen to check if the optional part is actually fitted on the vehicle or not will be shown. When fitted, select the switch of the part on the screen and press "END". Then the "Self-diagnosis" screen will be shown.
  - When the optional part is connected normally, the switch for the part will not appear on the screen.



7. On the "Self-diagnosis" screen, each unit name will be colored according to the diagnosis result, as follows.

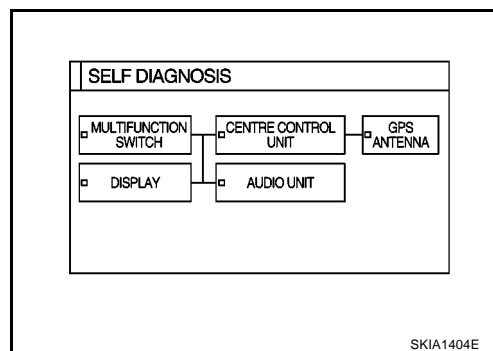
**Green** : No malfunctioning.

**Yellow** : Cannot be judged by self-diagnosis results.

**Red** : Unit is malfunctioning.

**Gray** : Diagnosis has not been done.

- If several malfunctions are present in a unit, color of its switch on the screen will be either red, yellow, or gray, determined by the malfunction of the highest priority.

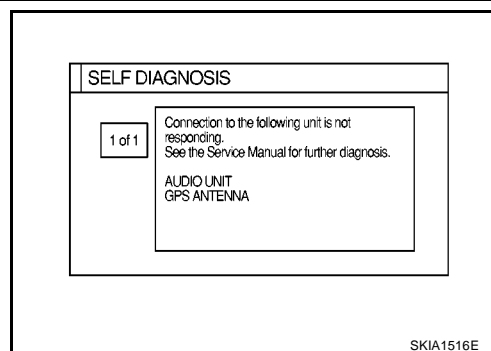




# NAVIGATION SYSTEM

8. Select a switch on the “Self-diagnosis” screen and comments for the diagnosis results will be shown.

- When the switch is green, the following comment will be shown. “Self-diagnosis was successful. Further diagnosis and adjustments are recommended. Follow the “confirmation and adjustments” menu or refer to the service manual”.
- When the switch is yellow, the following comment will be shown. “Connection to the following unit is abnormal. See the service manual for further details”.
- When the switch is red, the following comment will be shown. “Center Control Unit is abnormal”.
- When the switch is gray, the following comment will be shown. “Self-diagnosis for DVD-ROM DRIVER of NAVI was not conducted because no DVD-ROM was available”.



## DIAGNOSIS CHART

1. Find applicable diagnosis number from chart.
2. Find possible causes from diagnosis number chart. Perform check with [AV-62, "Wiring Diagram — COMM —"](#).
3. Turn ignition switch ON, then perform self-diagnosis again.

Screen switch						Diagnosis No.
Switch color	Control unit	Display	Audio unit	CD auto changer	GPS antenna	
Red	×					Diagnosis 1
Gray	×					Diagnosis 2
Yellow	×					Diagnosis 3
	×					Diagnosis 4
	×	×				Diagnosis 5
	×		×	×		Diagnosis 6
				×		Diagnosis 7
	×				×	Diagnosis 8

### CAUTION:

If multifunction switch is malfunctioning, self-diagnosis mode cannot be started.

## DIAGNOSIS NUMBER CHART

Diagnosis No.	Possible causes
Diagnosis 1	Control unit (AV and NAVI C/U) is malfunctioning.
Diagnosis 2	AV and NAVI C/U determines that no map DVD-ROM is inserted.
Diagnosis 3	<p>If “DVD-ROM is malfunctioning. Check disc.” is displayed:</p> <ol style="list-style-type: none"> <li>1. Remove inserted map DVD-ROM and check that it is correct special DVD-ROM.</li> <li>2. Check that there is no dirt, damage, or warping on removed DVD-ROM.</li> <li>3. If above checks reveal nothing unusual, insert another map DVD-ROM with same contents. Then check whether same diagnosis result is obtained when “Self-diagnosis” is performed. If result is same, AV and NAVI C/U is malfunctioning. If not same, map DVD-ROM should be replaced.</li> </ol>
Diagnosis 4	“DVD-ROM or DVD-ROM driver in C/U is malfunctioning. Follow maintenance procedures to diagnose.” is displayed: Perform check as described in Diagnosis 3.
Diagnosis 5	<ul style="list-style-type: none"> <li>● Display power supply or ground line</li> <li>● AV communication line between Display and multifunction switch</li> </ul>
Diagnosis 6	Audio unit power supply or ground line

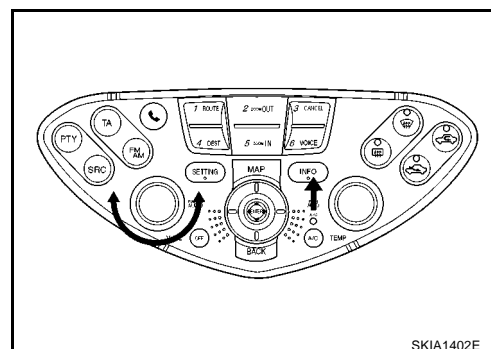
# NAVIGATION SYSTEM

Diagnosis No.	Possible causes
Diagnosis 7	CD auto changer power supply and ground circuit, Communication line between CD auto changer and audio unit
Diagnosis 8	<p>GPS antenna system</p> <p>1. Visually check for open circuit in GPS antenna coaxial cable.</p> <p>2. Disconnect GPS antenna connector and check AV and NAVI C/U outputs approx. 5V. If there is no voltage, AV and NAVI C/U is malfunctioning. If there is, replace GPS antenna. If connection is inoperative after performing self-diagnosis again, AV and NAVI C/U is malfunctioning.</p>

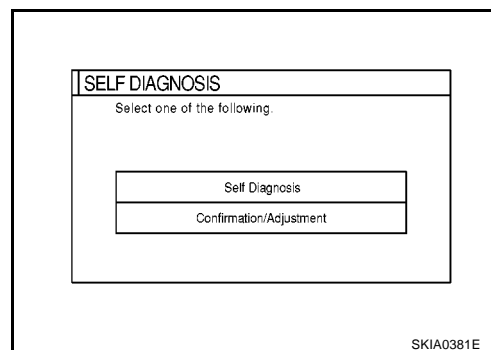
## CONFIRMATION/ADJUSTMENT Mode OPERATION PROCEDURE

EKS009JV

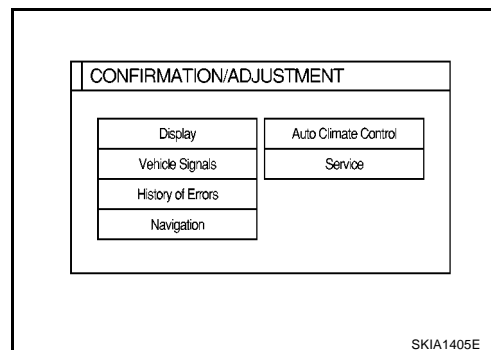
1. Start the engine.
2. Turn the audio system off.
3. While pressing the "INFO" switch, turn the volume control dial clockwise or counterclockwise for 30 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
  - Shifting from current screen to previous screen is performed by pressing "BACK" switch.



4. The initial trouble diagnosis screen will be shown, and items "SELF-DIAGNOSIS" and "CONFIRMATION/ADJUSTMENT" will become selective.

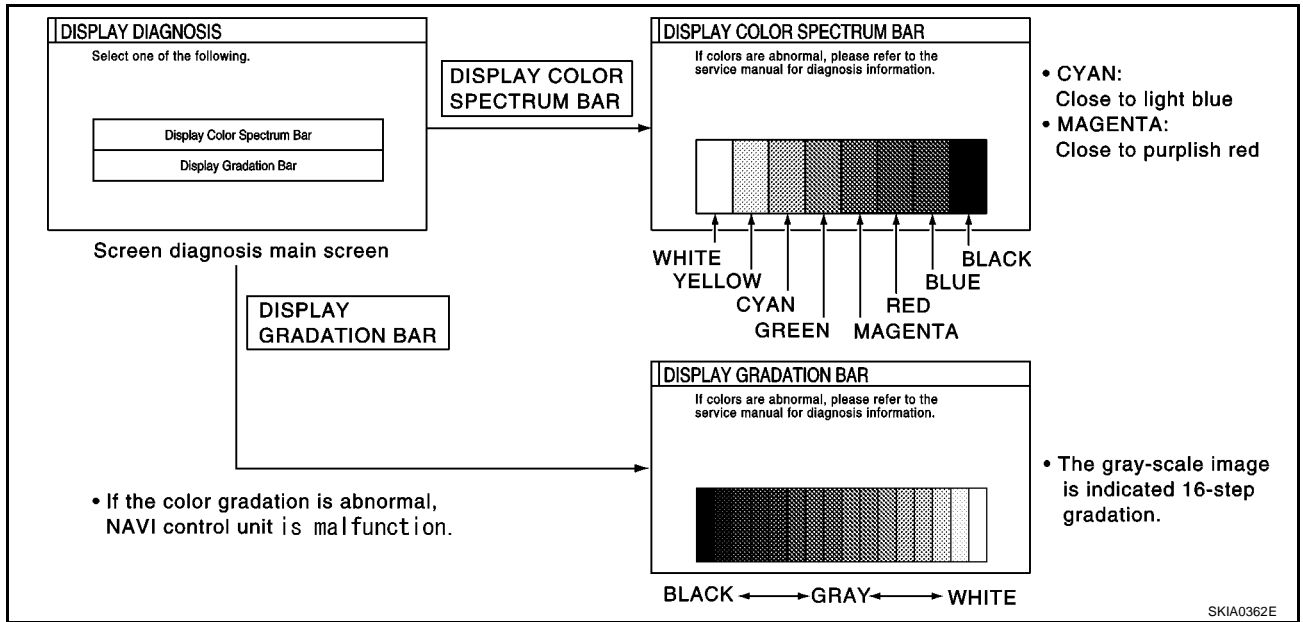


5. When "CONFIRMATION/ADJUSTMENT" is selected on the initial trouble diagnosis screen, the operation will enter the CONFIRMATION/ADJUSTMENT mode. In this mode, check and adjustment of each item will become possible.
6. Select each switch on "CONFIRMATION/ADJUSTMENT" screen to display the relevant diagnosis screen.



# NAVIGATION SYSTEM

## DISPLAY



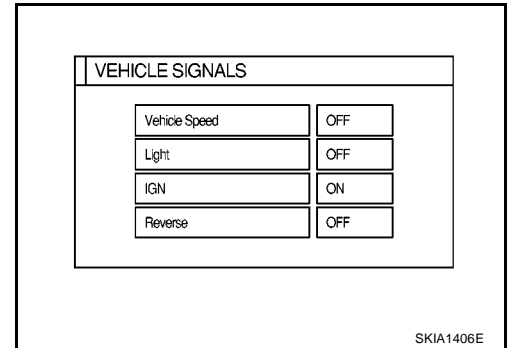
- When RGB signal error occurred in the RGB system, tone of the color bar will change as follows.

**R (red) signal error** : Screen looks bluish  
**G (green) signal error** : Screen looks yellowish  
**B (blue) signal error** : Screen looks reddish

- When the color of the screen looks unusual, [AV-86, "Color of RGB Image Is Not Proper"](#).

## VEHICLE SIGNALS

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



Diagnosis item	Display	Condition	Remarks
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed by approx. 1.5 seconds. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
	-	Ignition switch in ACC position	
Lights	ON	Lighting switch ON	-
	OFF	Lighting switch OFF	
IGN	ON	Ignition switch ON	-
	OFF	Ignition switch ACC or OFF	
Reverse	ON	Selector lever in R-position	Changes in indication may be delayed by approx. 1.5 seconds. This is normal.
	OFF	Selector lever in other than R-position	
	-	Ignition switch in ACC position	

- If vehicle speed is NG, [AV-82, "Vehicle Speed Signal Check"](#).

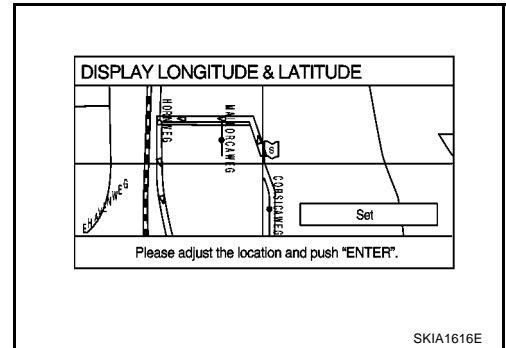
# NAVIGATION SYSTEM

- If light is NG, [AV-83, "Illumination Control Signal Check"](#) .
- If IGN is NG, [AV-84, "Ignition Signal Check"](#) .
- If reverse is NG, [AV-84, "Reverse Signal Check"](#) .

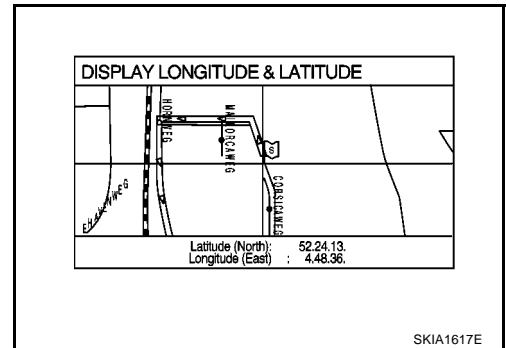
## NAVIGATION

### Display Longitude & Latitude

- Adjust the pointer with using the joystick and touch "Set".

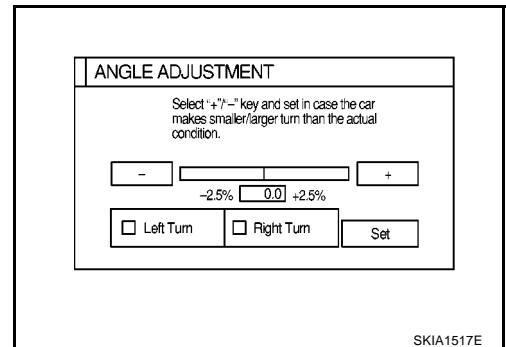


- The longitude and latitude are displayed.



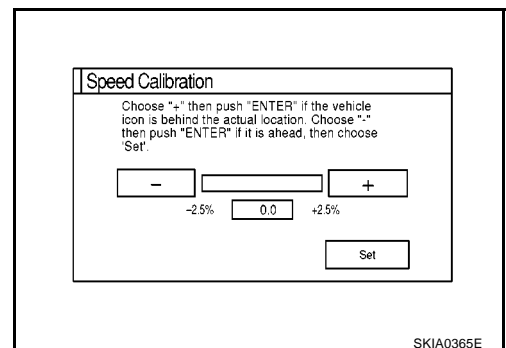
### Angle Adjustment

- Adjusts turning angle output detected by the gyroscope.



### Speed Calibration

- During normal driving, distance error caused by tyre wear and tyre pressure change is automatically adjusted for by the automatic distance correction function. This function, on the other hand, is for immediate adjustment, in cases such as driving with tyre chain fitted on tyres.



# NAVIGATION SYSTEM

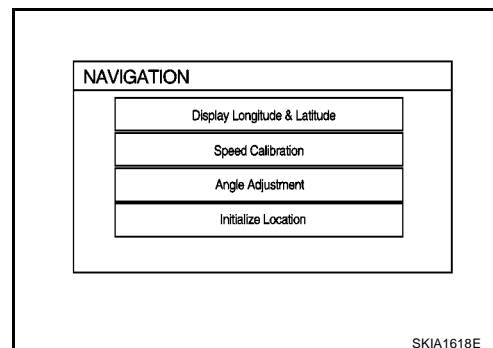
## Initialize Location

### Description

- Location data for GPS in the Center control unit is initialized in Europe by this mode. Then it is possible for Center control unit to receive GPS signals for short time.

How to perform "Initialize location" mode

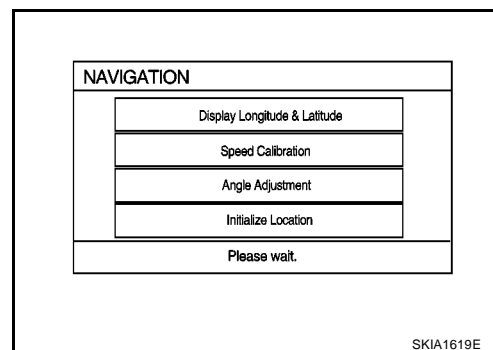
- Select "Initialize Location", and push "ENTER".



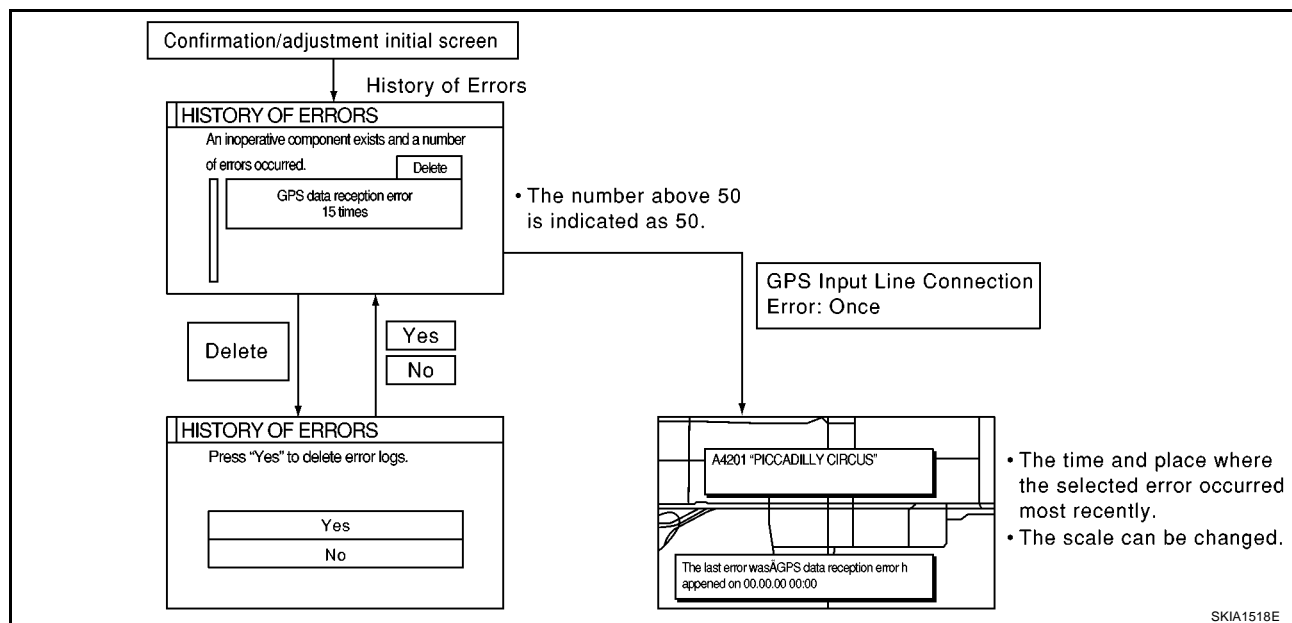
- A message "Please wait." is displayed and then backs to another display of "Confirmation/Adjustment" mode.

### NOTE:

- To continue GPS initialized operation, operate as follows back to "Map" screen.
  - Push "BACK" button twice.
  - Push "MAP" button.
- After above operation, GPS indicator changes to green color within half a minute, unless improper GPS located condition.
- This operation should be performed in outside field.



## HISTORY OF ERRORS



## DIAGNOSIS BY HISTORY OF ERRORS

The "Self-diagnosis" results indicate whether an error occurred during the period from when the ignition switch is turned to ON until "Self-diagnosis" is completed.

If an error occurred before the ignition switch was turned to ON and does not occur again until the "Self-diagnosis" is completed, the diagnosis result will be judged normal. Therefore, those errors in the past, which cannot be found by the "Self-diagnosis," must be found by diagnosing the "History of Errors".

## NAVIGATION SYSTEM

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

- Correct time of the error occurrence may not be displayed when the GPS antenna substrate within the AV and NAVI control unit has malfunctioned.
- Place of the error occurrence is represented by the position of the current-location mark at the time when the error occurred. If the current-location mark has deviated from the correct position, then the place of the error occurrence may be located correctly.
- The maximum number of occurrences which can be stored is 50. For the 51st and later occurrences, the displayed number remains 50.

When a reproducible malfunction occurred but its cause cannot be identified because several errors are present, record the item, number and place (longitude/latitude) of error occurrence (or delete the History of Errors), then turn the ignition switch from OFF to ON to reproduce the malfunction. Check the History of Errors to find the items which show an increased number of occurrences, and diagnose the item.

Error item	Possible causes	Example of symptom
	Action/symptom	
Gyro sensor disconnected	Communications malfunction between NAVI control unit and internal gyro	<ul style="list-style-type: none"> <li>● Navigation location detection performance has deteriorated. (Angular velocity cannot be detected.)</li> </ul>
	<ul style="list-style-type: none"> <li>● Perform the self-diagnosis.</li> <li>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference.</li> </ul>	
GPS disconnected	Communication error between AV and NAVI control unit and internal GPS substrate	<ul style="list-style-type: none"> <li>● Navigation location detection performance has deteriorated. (Location correction using GPS is not performed.)</li> <li>● GPS receiving status remains gray.</li> </ul>
	<ul style="list-style-type: none"> <li>● Perform the self-diagnosis.</li> <li>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference.</li> </ul>	
GPS transmission cable malfunction	Malfunctioning transmission wires to AV and NAVI control unit and internal GPS substrate	<ul style="list-style-type: none"> <li>● During self-diagnosis, GPS diagnosis is not performed.</li> </ul>
	<ul style="list-style-type: none"> <li>● Perform the self-diagnosis.</li> <li>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference.</li> </ul>	
GPS input line connection error	Malfunctioning receiving wires to AV and NAVI control unit and internal GPS substrate	<ul style="list-style-type: none"> <li>● Navigation location detection performance has deteriorated. (Location correction using GPS is not performed.)</li> <li>● GPS receiving status remains gray.</li> </ul>
	<ul style="list-style-type: none"> <li>● Perform the self-diagnosis.</li> <li>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference.</li> </ul>	
GPS TCX0 over GPS TCX0 under	Oscillating frequency of the GPS substrate frequency synchronizing oscillation circuit exceeded (or below) the specification	<ul style="list-style-type: none"> <li>● Navigation location detection performance has deteriorated. (Location correction using GPS is not performed.)</li> <li>● GPS receiving status remains gray.</li> </ul>
	<ul style="list-style-type: none"> <li>● Perform the self-diagnosis.</li> <li>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference, or the control unit may have been subjected to excessively high or low temperatures.</li> </ul>	
GPS ROM malfunction GPS RAM malfunction	Contents of ROM (or RAM) in GPS substrate are malfunctioning.	<ul style="list-style-type: none"> <li>● Location detection accuracy of the navigation system will deteriorate, depending on the failed area in the memory, because GPS cannot make correct positioning. (Location correction using GPS is not performed.)</li> </ul>
	<ul style="list-style-type: none"> <li>● Perform the self-diagnosis.</li> <li>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference.</li> </ul>	

# NAVIGATION SYSTEM

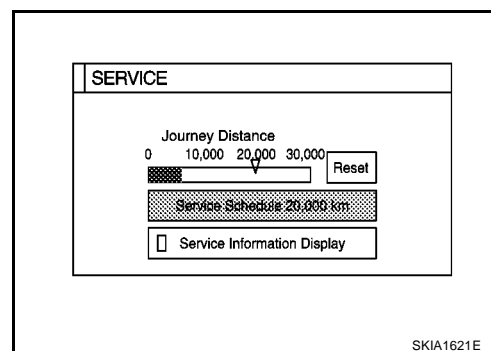
Error item	Possible causes	Example of symptom
	Action/symptom	
GPS RTC malfunction	Clock IC in GPS substrate is malfunctioning.	<ul style="list-style-type: none"> <li>Correct time may not be displayed.</li> </ul>
	<ul style="list-style-type: none"> <li>Perform the self-diagnosis.</li> <li>When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference.</li> </ul>	<ul style="list-style-type: none"> <li>After the power is turned on, the system always takes some time until GPS positioning becomes possible. (The GPS receiver starts positioning without re-collecting the whole satellite information when it judged the data stored in the receiver is correct.)</li> <li>Correct time of error occurrence may not be stored in the "History of Errors".</li> </ul>
GPS antenna disconnected	Malfunctioning connection between GPS substrate in AV and NAVI control unit and GPS antenna.	<ul style="list-style-type: none"> <li>Navigation location detection performance has deteriorated. (Location correction using GPS is not performed.)</li> <li>GPS receiving status remains gray.</li> </ul>
	<ul style="list-style-type: none"> <li>Perform the self-diagnosis.</li> <li>When connection between AV and NAVI control unit and GPS antenna is judged normal by self-diagnosis, the symptom may be intermittent, caused by impact or vibration.</li> </ul>	
Low voltage of GPS	The power voltage supplied to the GPS circuit board has decreased.	<ul style="list-style-type: none"> <li>Navigation location detection performance has deteriorated. (Location correction using GPS is not performed.)</li> <li>GPS receiving status remains gray.</li> </ul>
	<ul style="list-style-type: none"> <li>Perform the self-diagnosis.</li> <li>When connection between AV and NAVI control unit and GPS antenna is judged normal by self-diagnosis, the symptom may be intermittent, caused by impact or vibration.</li> </ul>	
DVD-ROM Malfunction DVD-ROM Read error DVD-ROM Response Error	Malfunctioning AV and NAVI control unit	-
	Dedicated map DVD-ROM is in the system, but the data cannot be read.	<ul style="list-style-type: none"> <li>The map of a particular location cannot be displayed.</li> <li>Specific guidance information cannot be displayed.</li> <li>Map display is slow.</li> <li>Guidance information display is slow.</li> <li>System has been affected by vibration.</li> </ul>
	<ul style="list-style-type: none"> <li>Is map DVD-ROM damaged, warped, or dirty? <ul style="list-style-type: none"> <li>If damaged or warped, the map DVD-ROM is malfunctioning.</li> <li>If dirty, wipe the DVD-ROM clean with a soft cloth.</li> </ul> </li> <li>Perform the self-diagnosis.</li> <li>When AV and NAVI control unit is judged normal by self-diagnosis, the symptom is judged intermittent, caused by vibration.</li> </ul>	

## AUTO CLIMATE CONTROL

- "ATC Automatic Air Conditioner" [ATC-48, "Self-diagnosis Function"](#) for the details.

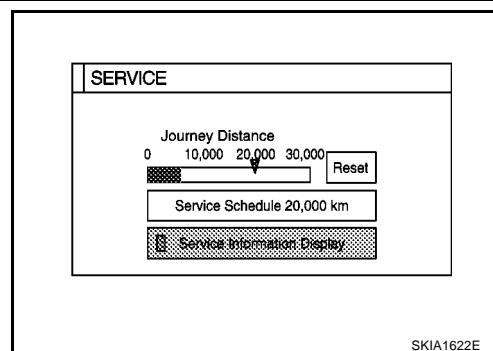
## SERVICE

- To set Service schedule, change Journey distance with joystick. At the same time, the marker of journey distance will be moved.



# NAVIGATION SYSTEM

- To reset to initial distance, select “Reset” and push “ENTER”.
- When the indicator of “Service Information Display” is set green, the color of the journey distance marker will be red. And automatically Service information screen will be displayed when journey distance is reached on service schedule.



## Power Supply and Ground Circuit Check

EKS009JW

### 1. CHECK FUSE

Check that the following fuses of the AV and NAVI control unit are not blown.

Terminals		Power source	Fuse No.
Connector	Terminal (wire color)		
M54	2 (Y), 3 (Y)	Battery power	33
M55	27 (Y/G)	Ignition power	10
M54	6 (P)	ACC power	1

OK or NG

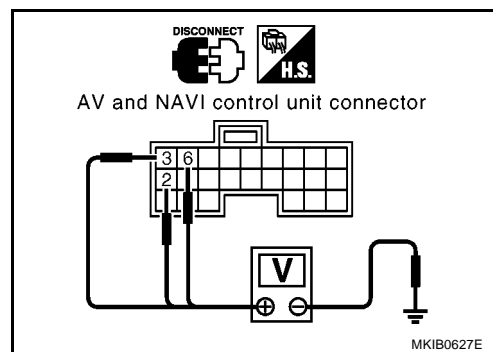
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate case of problem before installing new fuse. [PG-3, "POWER SUPPLY ROUTING"](#) .

### 2. POWER SUPPLY CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect the AV and NAVI control unit connector.
3. Check voltage between AV and NAVI control unit and ground.

Terminals		Ignition switch position			
(+) (+)		(-)	OFF	ACC	ON
Connector	Terminal (wire color)				
M54	2 (Y)	Ground	Battery voltage	Battery voltage	Battery voltage
	3 (Y)		Battery voltage	Battery voltage	Battery voltage
	6 (P)		0V	Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between AV and NAVI control unit and fuse.



# NAVIGATION SYSTEM

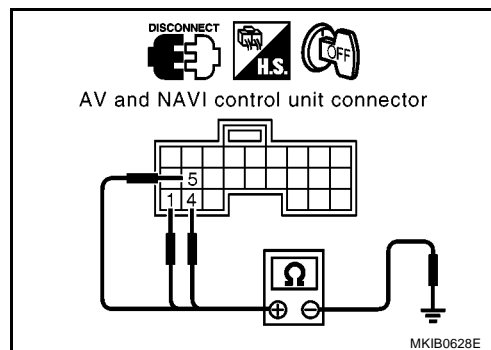
## 3. GROUND CIRCUIT CHECK

Check continuity between the following AV and NAVI control unit harness connector M54 terminal 1 (B), 4 (B), 5 (PU or BR) and ground.

**Continuity should exist.**

OK or NG

- OK >> Inspection end.  
NG >> Repair or replace harness.



## Check Display, Multifunction Switch Power, and Ground Circuit

EKS009JX

### 1. CHECK FUSE

Check for blown fuses at display along with multifunction switch fuses listed below.

Unit	Terminal No.	Signal designation	Fuse No.
Display	21(Y), 23(Y)	Battery	33
	19(P)	ACC	1
Multifunction switch	6(P)	ACC	1

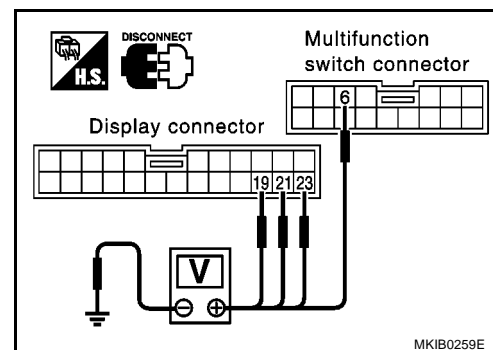
OK or NG

- OK >> GO TO 2.  
NG >> Replace the fuse.

### 2. POWER SUPPLY CIRCUIT INSPECTION

- Turn ignition switch OFF.
- Disconnect display or multifunction switch connector.
- Check voltage between as following unit and ground.

Unit	Terminals		Ignition switch position		
	Connector	Terminal (wire color)	OFF	ACC	ON
Display	M63	21 (Y)	Battery voltage	Battery voltage	Battery voltage
		23 (Y)	Battery voltage	Battery voltage	Battery voltage
		19(P)	0V	Battery voltage	Battery voltage
Multifunction switch	M49	6(P)	0V	Battery voltage	Battery voltage



OK or NG

- OK >> GO TO 3.  
NG >> Replace display or multifunction switch power circuit harness.

# NAVIGATION SYSTEM

## 3. GROUND CIRCUIT INSPECTION

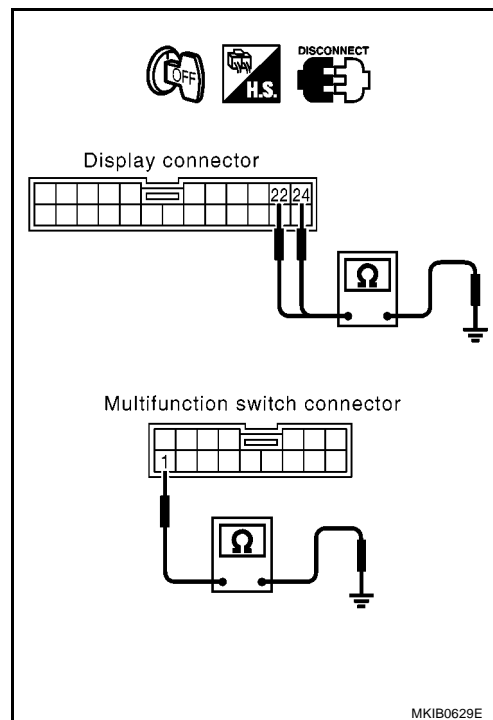
Check continuity between display or multifunction switch and ground.

Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
M63	22 (B)	Ground	Yes
	24 (B)		
M49	1 (B)		

OK or NG

OK >> Normal.

NG >> Replace ground circuit harness of display or multifunction switch.



## Vehicle Speed Signal Check

### 1. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect AV and NAVI control unit connector and combination meter connector.
3. Check continuity AV and NAVI control unit and combination meter.

Terminals				Continuity
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M55	33 (L/B)	M37	LHD 34 (L/B)	Yes
			RHD 47 (L/B)	

4. Check continuity AV and NAVI control unit harness connector terminal 33(L/B) and ground.

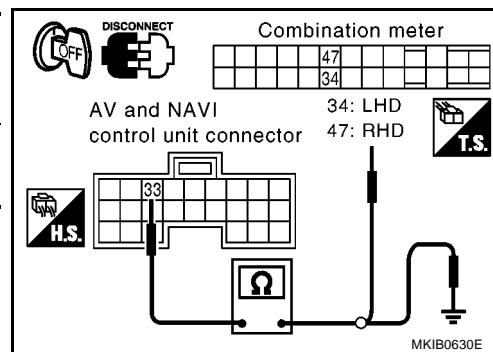
**Continuity should not exist.**

OK or NG

OK >> GO TO 2.

NG >> ● Repair harness.

- Check connector housings for disconnected or loose terminals.



# NAVIGATION SYSTEM

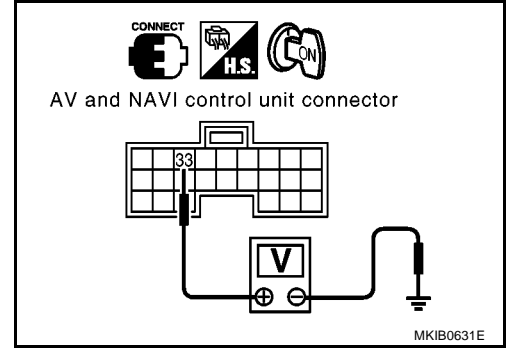
## 2. VEHICLE SPEED SIGNAL CHECK 1

1. Connect AV and NAVI control unit connector and combination meter connector.
2. Turn the ignition switch ON.
3. Check voltage between AV and NAVI control unit harness connector M55 terminal 33 (L/B) and ground.

**Approx. 3.5 V or more.**

OK or NG

- OK >> GO TO 3.  
NG >> Replace AV and NAVI control unit.



## 3. VEHICLE SPEED SIGNAL CHECK 2

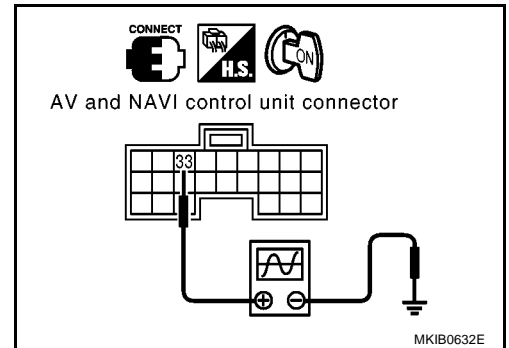
1. Connect combination meter connector.
2. While driving vehicle at a constant speed.
3. Check voltage signal between AV and NAVI control unit and ground with oscilloscope or CONSULT-II.

**33 (L/B)-ground**

**: AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"**

OK or NG

- OK >> Replace AV and NAVI control unit.  
NG >> Check combination meter system. DI-14, "Combination Meter Self-Diagnosis" (LHD MODELS), DI-37, "Combination Meter Self-Diagnosis" (RHD MODELS).



## Illumination Control Signal Check

EKS009JZ

### 1. ILLUMINATION CONTROL SIGNAL CHECK

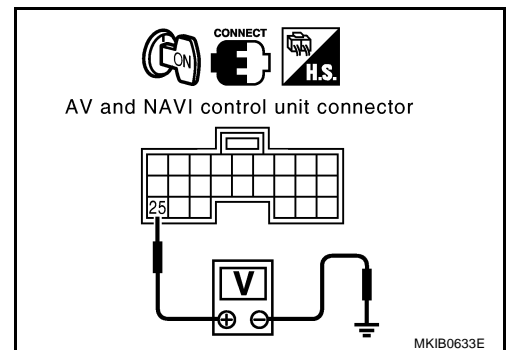
1. Turn the ignition switch ON.
2. Check voltage between AV and NAVI control unit and ground.

Terminals			Lighting switch condition	Voltage (V)
(+) (Connector)		(-) (Terminal (wire color))		
M55	25(*1)	Ground	1st or 2nd position	Approx. 3.5V or more
			OFF	Approx. 1.5V or less

\*1:LHD (W/R), RHD (Y/R)

OK or NG

- OK >> Replace AV and NAVI control unit.  
NG >> Check harness for open or short between AV and NAVI control unit and combination switch.



# NAVIGATION SYSTEM

## Ignition Signal Check

EKS009K0

### 1. IGNITION SIGNAL CHECK

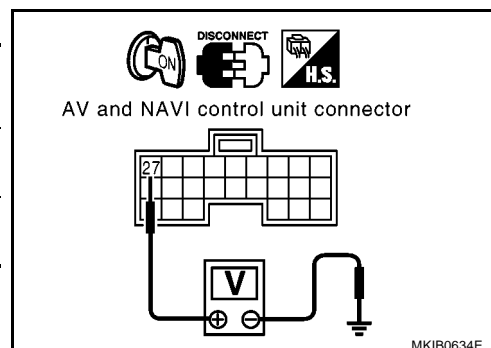
1. Disconnect the AV and NAVI control unit connector.
2. Turn the ignition switch ON.
3. Check voltage between AV and NAVI control unit and ground.

Terminals			Ignition switch position		
(+) (wire color)		(-)			
Connector	Terminal		OFF	ACC	ON
M55	27 (Y/G)	Ground	0V	0V	Battery voltage

OK or NG

OK >> Replace AV and NAVI control unit.

NG >> Check harness for open or short between AV and NAVI control unit and fuse.



## Reverse Signal Check

EKS009K1

### 1. REVERSE SIGNAL CHECK

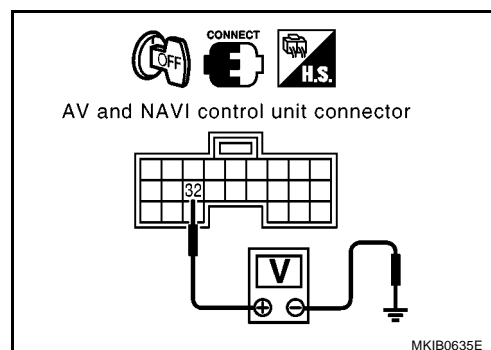
1. With the selector lever in R-position.
2. Check voltage between AV and NAVI control unit and ground.

Terminals			Shift selector lever position	Voltage (V)
(+)		(-)		
Connector	Terminal (wire color)			
M55	32(G/W)	Ground	R-position	Battery voltage
			Other than R-position	Approx. 3.0V or less

OK or NG

OK >> Replace AV and NAVI control unit.

NG >> Check harness for open or short between AV and NAVI control unit and back lamp switch.



# NAVIGATION SYSTEM

## RGB Screen Is Not Shown

EKS009K2

### 1. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect AV and NAVI control unit connector and Display connector.
3. Check continuity between AV and NAVI control unit and Display.

Terminals				Continuity
AV and NAVI control unit (+)		Display (-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M54	12 (R)	M63	8 (R)	Yes
	13 (BR)		5 (BR)	

4. Check continuity between AV and NAVI control unit and ground.

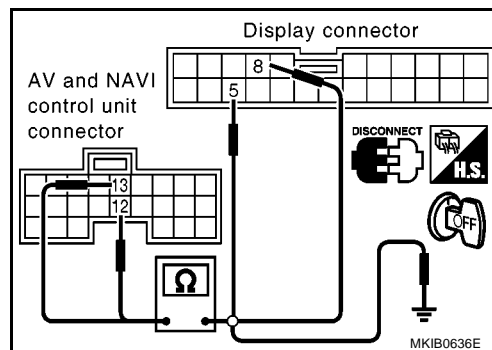
Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
M54	12(R), 13(BR)	Ground	No

OK or NG

OK >> GO TO 2.

NG >> ● Repair harness.

- Check connector housings for disconnected or loose terminals.



### 2. HORIZONTAL SYNCHRONIZATION SIGNAL CHECK

1. Connect AV and NAVI control unit connector and Display connector.
2. Turn the ignition switch ON.
3. Check voltage signal between AV and NAVI control unit connector terminals 13 (BR) and 17 with oscilloscope or CONSULT-II.

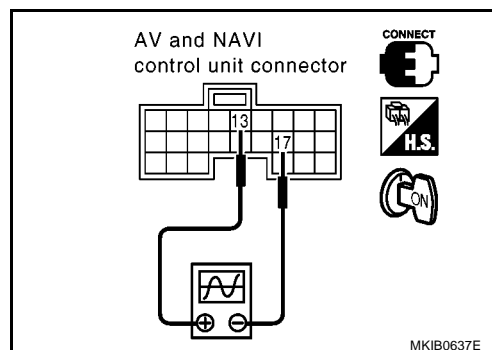
13 (BR)-17

: [AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"](#)

OK or NG

OK >> GO TO 3.

NG >> Replace the display unit.



AV

L

M

### 3. RGB AREA SIGNAL CHECK

1. Press "INFO" switch.
2. Check voltage signal between AV and NAVI control unit connector terminals 12 (R) and 17 with oscilloscope or CONSULT-II.

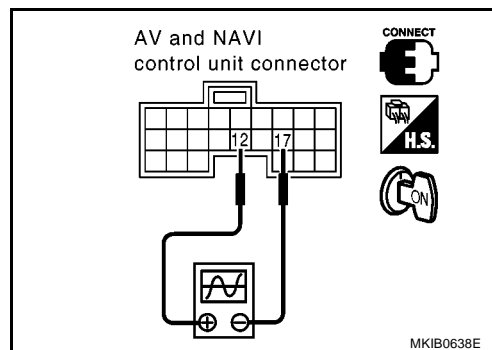
12 (R) - 17

: [AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"](#)

OK or NG

OK >> Replace the display unit.

NG >> Replace AV and NAVI control unit.



---

## No Screens Appear

EKS009K3

### 1. CHECK SYMPTOM

---

Check possibility to operate air conditioning and audio unit by multifunction switch.

OK or NG

OK >> GO TO 2.

NG >> [AV-98, "System Does Not Start"](#)

### 2. DISPLAY POWER SYSTEM HARNESS CHECK

---

Check voltage between Display unit and ground. [AV-81, "Check Display, Multifunction Switch Power, and Ground Circuit"](#)

OK or NG

OK >> Replace the display unit.

NG >> Open or short in display power system harness.

## Color of RGB Image Is Not Proper

EKS009K4

### 1. COLOR BAR DIAGNOSIS CHECK

---

Check color tone by "SCREEN ADJUSTMENT" of CONFIRMATION/ADJUSTMENT function.

OK or NG

OK >> Inspection end.

NG >> GO TO 2.

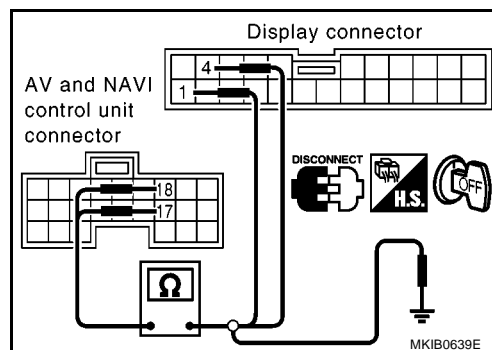
# NAVIGATION SYSTEM

## 2. HARNESS CHECK

1. Turn the ignition switch OFF.
  2. Disconnect AV and NAVI control unit connector and Display connector.
  3. Check continuity between AV and NAVI control unit and Display.
  4. Check continuity between AV and NAVI control unit and ground.
- When the screen looks bluish

Terminals				Continuity
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M54	18 (Y)	M63	1 (Y)	Yes
	17		4	Yes

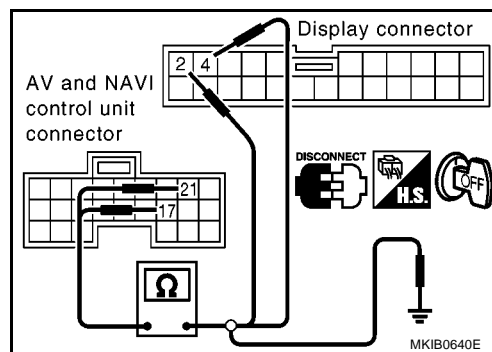
Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
M54	17, 18 (Y)	Ground	No



- When the screen looks reddish

Terminals				Continuity
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M54	21 (W)	M63	2 (W)	Yes
	17		4	Yes

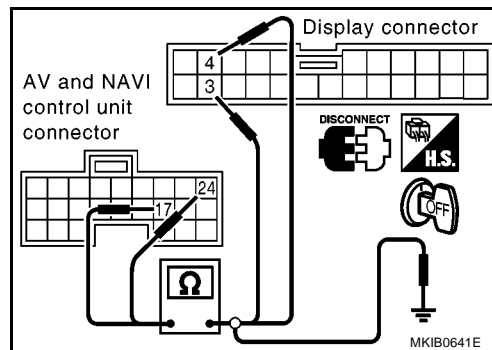
Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
M54	17, 21 (W)	Ground	No



- When the screen looks yellowish

Terminals				Continuity
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M54	24 (L)	M63	3 (L)	Yes
	17		4	Yes

Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
M54	17, 24 (L)	Ground	No



OK or NG

OK >> GO TO 3.

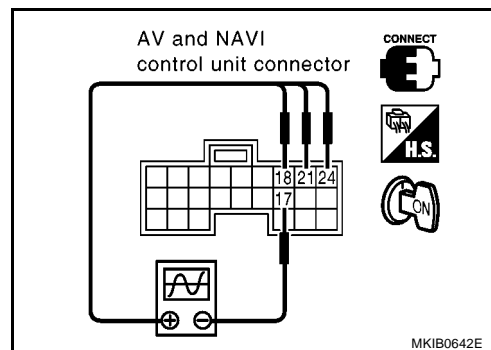
NG >> ● Repair harness.

- Check connector housings for disconnected or loose terminals.

# NAVIGATION SYSTEM

## 3. RGB SIGNAL CHECK

1. Connect AV and NAVI control unit connector and Display connector.
2. Turn the ignition switch ON.
3. Display "Color bar" by "CONFIRMATION/ADJUSTMENT" mode.
4. Check voltage signal between AV and NAVI control unit terminals 18, 21, 24 and 17 with oscilloscope or CONSULT-II.



- When the screen looks bluish

Terminals				Voltage (v)
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal	
M54	18 (Y)	M54	17	<a href="#">AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"</a>

- When the screen looks reddish

Terminals				Voltage (v)
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal	
M54	21 (W)	M54	17	<a href="#">AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"</a>

- When the screen looks yellowish

Terminals				Voltage (v)
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal	
M54	24 (L)	M54	17	<a href="#">AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"</a>

### OK or NG

- OK >> Replace the display unit.  
 NG >> Replace AV and NAVI control unit.



# NAVIGATION SYSTEM

## RGB Screen Is Rolling

EKS009K5

### 1. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect AV and NAVI control unit connector and Display connector.
3. Check continuity between AV and NAVI control unit and Display.

Terminals				Continuity
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M54	15 (G)	M63	7 (G)	Yes
	17		4	Yes

4. Check continuity between AV and NAVI control unit and ground.

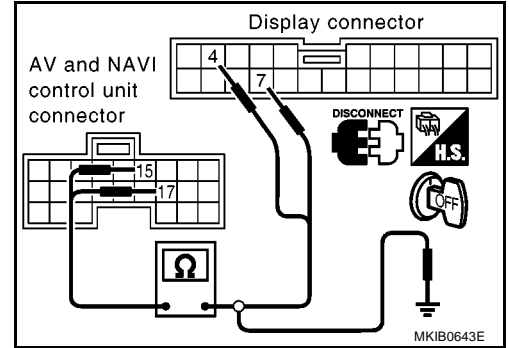
Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
M54	17, 15 (G)	Ground	No

#### OK or NG

OK >> GO TO 2.

NG >> ● Check harness for open or short between AV and NAVI control unit and Display for open or short circuit.

- Check connector housings for disconnected or loose terminals.



### 2. RGB SYNCHRONIZING SIGNAL CHECK

1. Connect AV and NAVI control unit connector and Display connector.
2. Turn the ignition switch ON.
3. Check voltage between AV and NAVI control unit terminals 15 and 17.

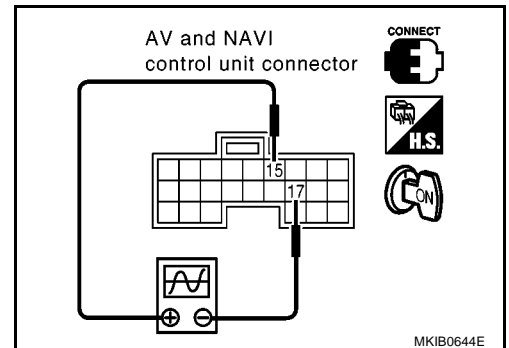
15 (G)-17

: [AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"](#)

#### OK or NG

OK >> Replace the display.

NG >> Replace AV and NAVI control unit.



## Guide Sound Is Not Heard

EKS009K6

### 1. CHECK VOICE GUIDE SETTING

- While driving in the dark pink route, voice guide does not operate.(note)
- Is volume setting not switched ON?

#### NOTE:

Voice guide is only available at intersections that satisfy certain conditions (indicated by ● on the map). Therefore, guidance may not be given even when the route on the map changes direction.

#### Yes or No

Yes >> GO TO 2.

No >> Switch the setting ON and turn the volume up.

# NAVIGATION SYSTEM

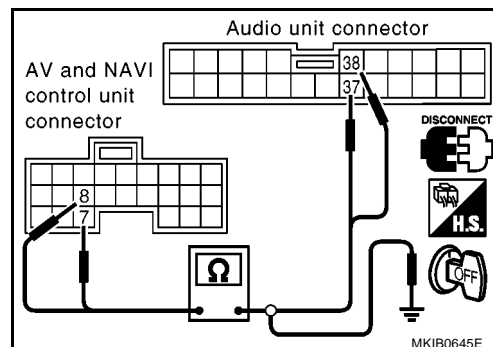
## 2. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect AV and NAVI control unit connector and Audio unit connector.
3. Check continuity between AV and NAVI control unit and Audio unit.

Terminals				Continuity
(+) (+)		(-) (-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M54	7 (BR)	M53	38 (BR)	Yes
	8 (Y)		37 (Y)	Yes

4. Check continuity between AV and NAVI control unit and ground.

Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
M54	7 (BR), 8 (Y)	Ground	No



OK or NG

OK >> GO TO 3.

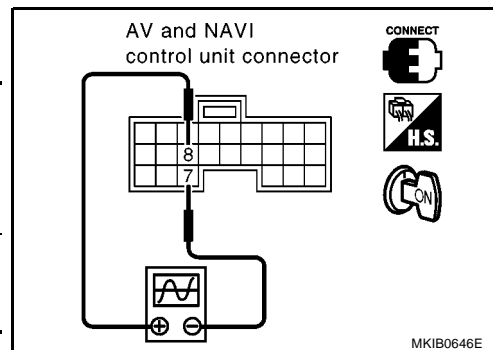
NG >> ● Repair harness.

- Check connector housings for disconnected or loose terminals.

## 3. VOICE GUIDE CHECK

1. Connect AV and NAVI control unit connector and Audio unit connector.
2. Turn the ignition switch ON.
3. Check voltage signal between AV and NAVI control unit terminals 8 and 7.

Terminals				Voltage (v)
(+) (+)		(-) (-)		
Connector	Terminal (wire color)	Connector	Terminal	
M54	7 (BR)	M54	8 (Y)	<a href="#">AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"</a>



OK or NG

OK >> Replace Audio unit.

NG >> Replace AV and NAVI control unit.

## Multifunction Switch Controls Are Ineffective (Rear Defogger Control Excluded)

EKS009K7

### 1. CHECK POWER AND GROUND SYSTEMS

Check voltage between multifunction switch and ground. [AV-81, "Check Display, Multifunction Switch Power, and Ground Circuit"](#).

OK or NG

OK >> GO TO 2.

NG >> Malfunction of multifunction switch ACC power or ground harness

# NAVIGATION SYSTEM

## 2. CHECK SYMPTOM

Turn ignition switch to ACC position. Is screen changed to audio control screen when CD is inserted?

Switches.>>GO TO 3.

Does not switch.>>GO TO 5.

## 3. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect multifunction switch connector and Audio unit connector.
3. Check continuity between multifunction switch and Audio unit.

Terminals				Continuity
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M49	11 (L)	M53	44 (L)	Yes
	13 (P)		43 (P)	

4. Check continuity between multifunction switch harness connector M49 terminals 11(L), 13 (P) and ground.

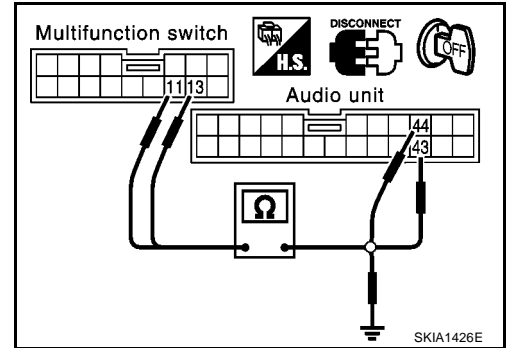
**Continuity should not exist.**

OK or NG

OK >> GO TO 4.

NG >> ● Replace harness.

- Check connector housings for disconnected or loose terminals.



## 4. COMMUNICATION SIGNAL INSPECTION

1. Turn ignition switch OFF.
2. Connect multifunction switch and Audio unit connectors.
3. Check voltage signal between multifunction switch harness connector M49 terminals 11(L), 13 (P) and ground.

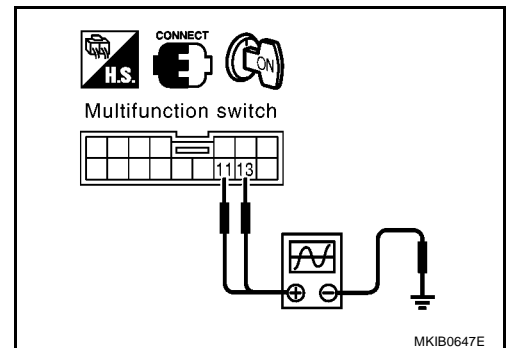
**11 (L), 13 (P) - ground**

**: AV-70, "Terminals and Reference Value for Multifunction Switch"**

OK or NG

OK >> Replace audio unit.

NG >> Replace multifunction switch.



# NAVIGATION SYSTEM

## 5. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect AV and NAVI control unit connector and Audio unit connector.
3. Check continuity between AV and NAVI control unit and Audio unit.

Terminals				Continuity
(+) Connector		(-) Connector		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M55	46 (B)	M53	46 (B)	Yes
	47 (R)		48 (R)	
	48 (G)		47 (G)	

4. Check continuity between terminals 47, 48 and 46.

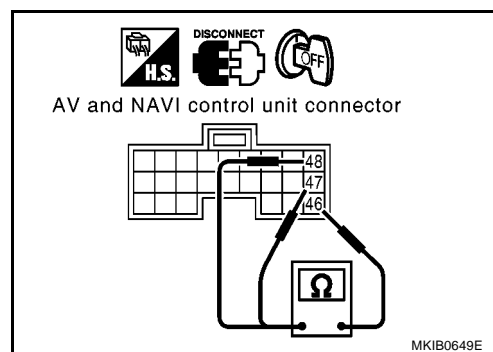
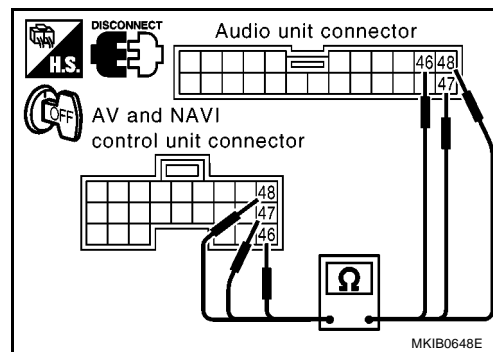
Terminals				Continuity
(+)		(-)		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M55	47 (R), 48 (G)	M55	46(B)	No

Ok or NG

OK >> GO TO 6.

NG >> ● Replace harness.

- Check connector housings for disconnected or loose terminals.



## 6. COMMUNICATION SIGNAL INSPECTION

1. Connect audio unit to AV and NAVI control unit connector.
2. Check voltage signal between AV and NAVI control unit terminals 47 (R), 48 (G) and ground.

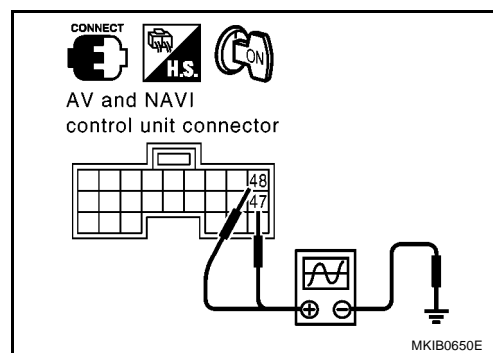
47 (R), 48 (G)-ground

:AV-65. "Terminals and Reference Value for AV and NAVI Control Unit"

OK or NG

OK >> Replace audio unit.

NG >> Replace AV and NAVI control unit.



# NAVIGATION SYSTEM

## Air Conditioning Controls (Only) Are Ineffective (Rear Defogger Control Excluded)

EKS009K8

### 1. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect A/C auto amp. connector and AV and NAVI control unit connector.
3. Check continuity between A/C auto amp. and AV and NAVI control unit.

Terminals				Continuity
(+) Connector		(-) Connector		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M55	43 (L/R)	M75	10 (L/R)	Yes
	44 (L/W)		9 (L/W)	
	45 (L)		20 (L)	

4. Check continuity between AV and NAVI control unit and ground.

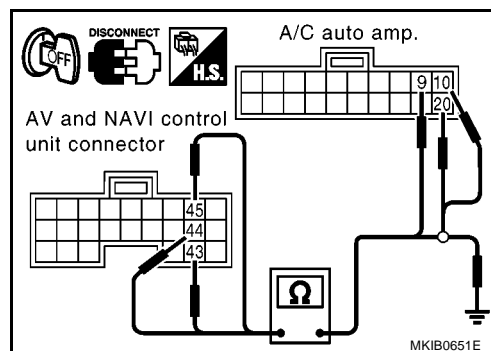
Terminals			Continuity
(+) Connector		(-)	
Terminal (wire color)			
M55	43(L/R), 44 (L/W), 45 (L)	Ground	No

Ok or NG

OK >> GO TO 2.

NG >> ● Check harness between A/C auto amp. and AV and NAVI control unit.

- Check connector housings for disconnected or loose terminals.



### 2. AC-AV, AV-AC, AC-CLK COMMUNICATION SIGNAL CHECK

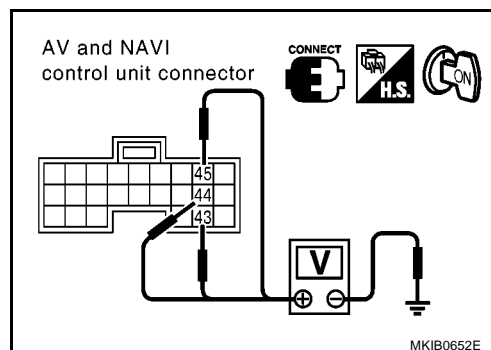
1. Connect A/C AUTO AMP. connector.
2. Turn the ignition switch ON.
3. Check voltage between AV and NAVI control unit and ground.

Terminals			Voltage (V)
(+)		(-)	
Connector	Terminal (wire color)		
M55	43(L/R), 44(L/W), 45 (L)	Ground	Approx. 3.5 or more

OK or NG

OK >> GO TO 3.

NG >> Replace A/C AUTO AMP.



AV

L

M

# NAVIGATION SYSTEM

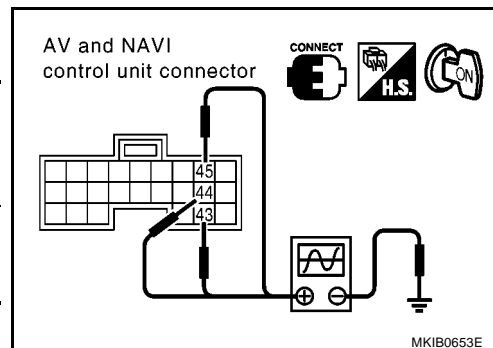
## 3. AC - AV, AV- AC, AC - CLK COMMUNICATION SIGNAL CHECK

1. Connect AV and NAVI control unit connector.
2. Turn the ignition switch ON.
3. Check voltage signal between AV and NAVI control unit terminals 43, 44, 45 and ground.

Terminals			Reference signal
(+)		(-)	
Connector	Terminal (wire color)		
M55	43(L/R), 44(L/W), 45 (L)	Ground	AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"

OK or NG

- OK >> Replace A/C auto amplifier.  
 NG >> Replace AV and NAVI control unit.



## Rear Defogger Does Not Operate

EKS009K9

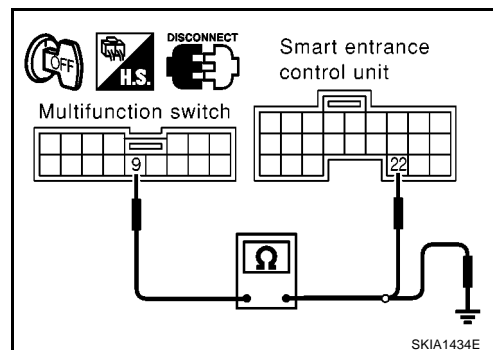
### 1. HARNESS INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect multifunction switch connector and smart entrance control unit connector.
3. Check continuity between multifunction switch harness connector M49 terminal 9 (G/B) and smart entrance control unit harness connector M41 terminal 22 (G/B).

**Continuity should exist.**

4. Check continuity between multifunction switch harness connector M49 terminal 9 (G/B) and ground.

**Continuity should not exist.**



OK or NG

- OK >> GO TO 2.  
 NG >> Repair harness.

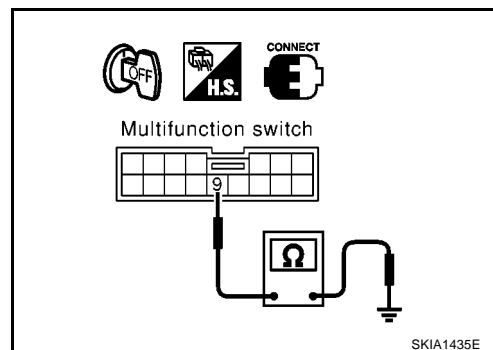
### 2. CHECK REAR DEFOGGER ON SIGNAL

1. Connect multifunction switch connector and smart entrance control unit connector.
2. Turn the ignition switch ON.
3. Check continuity between multifunction switch and ground when rear defogger switch is operated.

Terminals			Rear defogger switch condition	Continuity
(+)		(-)		
Connector	Terminal (wire color)			
M49	9 (G/B)	Ground	Pressed	Yes
			Released	No

OK or NG

- OK >> Replace smart entrance control unit.  
 NG >> Replace multifunction switch.



# NAVIGATION SYSTEM

## Rear Defogger Indicator Lamp Does Not Illuminate

EKS009KA

### 1. CHECK POSITION OF IGNITION SWITCH

Is ignition switch ON?

OK or NG

OK >> GO TO 2.

NG >> Rear defogger does not operate if ignition switch is not ON.

### 2. CHECK OPERATION OF REAR DEFOGGER

Does rear defogger operate when rear defogger switch is turned ON? (Does fogging disappear?)

Yes or No

Yes >> GO TO 3.

No >> Check rear defogger system. Refer to [AV-94, "Rear Defogger Does Not Operate"](#).

### 3. CHECK REAR DEFOGGER INDICATOR LAMP SIGNALS

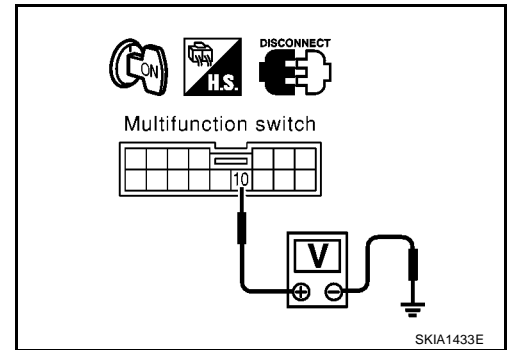
1. Turn ignition switch OFF.
2. Disconnect multifunction switch connector.
3. Check voltage between multifunction switch connector M49 terminal 10 (L/R) and ground.

**Battery voltage should exist.**

OK or NG

OK >> Replace multifunction switch.

NG >> Check harness for open or short between multifunction switch and rear defogger relay.



## No Fuel Information Is Displayed/No Warning Message Is Displayed

EKS009KB

### 1. CHECK DISPLAY CONDITIONS

Check display conditions for all warning screens.

Display Items	Display condition
Parking brake drag, door ajar	PKB switch or any door switch is ON and vehicle speed is approximately 5 km/h (3MPH) or higher.
Remaining fuel	After driving approximately 20 km (13MPH) beyond the point where gauge warning lamp illuminates.
Other than above	Gauge warning lamp illuminated.

>> GO TO 2.

# NAVIGATION SYSTEM

## 2. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect connectors of combination meter and AV and NAVI control unit.
3. Check continuity between AV and NAVI control unit and combination meter.

Terminals					Continuity
(+)		(-)			
Connector	Terminal (wire color)	Connector	Terminal (wire color)		
M55	34 (R)	M37	LHD	41 (R)	Yes
			RHD	28(R)	
	35 (G)		LHD	40 (G)	Yes
			RHD	27(G)	

4. Check continuity between AV and NAVI control unit and ground.

Terminals			Continuity
(+) (+)		(-) (-)	
Connector	Terminal (wire color)		
M55	34 (R), 35 (G)	Ground	No

OK or NG

OK >> GO TO 3.

NG >> ● Repair harness.

- Check connector housings for disconnected or loose terminals.

## 3. COMMUNICATION SIGNAL (AV-ME) CHECK

1. Connect connectors of combination meter and AV and NAVI control unit.
2. Turn the ignition switch ON.
3. Check voltage signal between AV and NAVI control unit terminal 34 and ground.

Terminals			Voltage (V)
(+) (+)		(-) (-)	
Connector	Terminal (wire color)		
M55	34 (R)	Ground	AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"

OK or NG

OK >> GO TO 4.

NG >> Replace AV and NAVI control unit.

## 4. COMMUNICATION SIGNAL (ME-AV) CHECK

1. Turn ignition switch to ON and display "VEHICLE ELECTRONIC SYSTEMS" screen.
2. Check voltage signal between AV and NAVI control unit harness connector M55 terminal 35 (G) and ground.

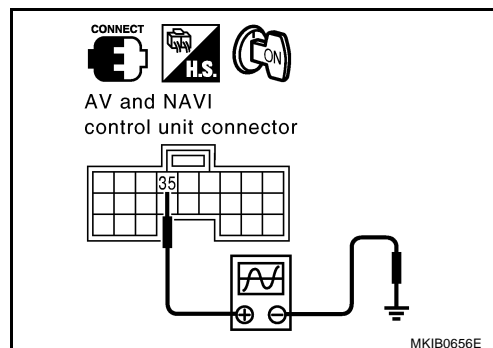
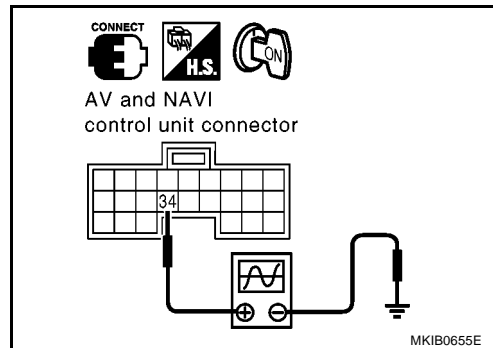
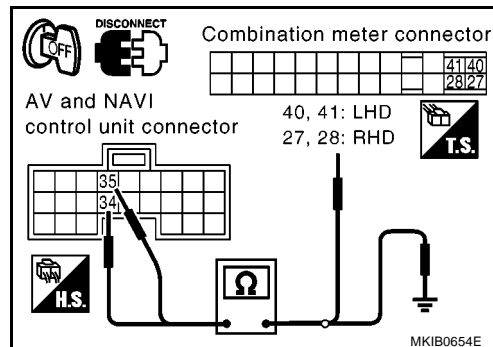
**35 (G)- ground**

**: [AV-65, "Terminals and Reference Value for AV and NAVI Control Unit"](#)**

OK or NG

OK >> Replace AV and NAVI control unit.

NG >> Check combination meter system. [DI-14, "Combination Meter Self-Diagnosis"](#) for LHD models or [DI-37, "Combination Meter Self-Diagnosis"](#) for RHD models.





## Previous Conditions Are Not Stored

EKS009KC

### 1. BATTERY POWER CHECK

- Check AV and NAVI control unit battery power.  
Refer to [AV-80, "Power Supply and Ground Circuit Check"](#).

#### OK or NG

- OK >> Replace AV and NAVI control unit.
- NG >> Check AV and NAVI control unit battery power system harness.

## The Position of The Current-Location Mark Is Not Correct

EKS009KD

### 1. SELF-DIAGNOSIS

- "Self-diagnosis mode" of the self-diagnosis function [AV-71, "Self-Diagnosis Mode"](#).

#### OK or NG

- OK >> GO TO 2.
- NG >> Check the applicable parts.

### 2. HISTORY OF ERRORS DIAGNOSIS

- Was any error stored in [AV-77, "HISTORY OF ERRORS"](#) of the CONFIRMATION/ADJUSTMENT mode?

#### Yes or No

- Yes >> [AV-77, "DIAGNOSIS BY HISTORY OF ERRORS"](#).
- No >> [AV-100, "Driving Test"](#).

## Radio Wave From The GPS Satellite Is Not Received

EKS009KE

### 1. ENVIRONMENT CHECK

- Check if any metal object that intercepts radio waves or an object that emits radio waves (such as a portable phone) is located near the GPS antenna. Check if the vehicle is shielded by a building.

#### OK or NG

- OK >> ● System is normal.  
The GPS antenna may not be able to receive radio waves from the GPS satellite if it is shielded by metal object or an object emitting radio waves is placed near it.
- NG >> GO TO 2.

### 2. SELF-DIAGNOSIS

- Refer to [AV-71, "Self-Diagnosis Mode"](#).

#### OK or NG

- OK >> Replace GPS antenna.
- NG >> Check the applicable parts.

## Display Does Not Change When Screen Adjustment Is Performed

EKS009KF

### 1. CHECK SYMPTOM

Do other systems operate properly?

- Do operate.>>Replace the display.
- Do not operate.>>Check the problem again.

## Day/Night Display Switching Is Not Done. Night Illumination for AV and NAVI Control Unit Does Not Illuminate

EKS009KG

### 1. VEHICLE SIGNAL CHECK

1. Start the engine.
2. Diagnose the following items with [AV-75, "VEHICLE SIGNALS"](#) in CONFIRMATION/ADJUSTMENT mode.

#### <Lamp signals>

Lighting switch position 1 : ON

Lighting switch OFF : OFF

#### OK or NG

OK >> Replace AV and NAVI control unit.

NG >> [AV-83, "Illumination Control Signal Check"](#).

## On Multifunction Switch, a Specific Switch Does Not Operate in All Conditions

EKS009KH

- Replace multifunction switch.

## Driving Information Is Inaccurate. Maintenance Information Is Inaccurate

EKS009KI

### 1. VEHICLE SPEED SIGNAL INSPECTION

Check vehicle speed signal. [AV-82, "Vehicle Speed Signal Check"](#).

#### OK or NG

OK >> Replace AV and NAVI control unit.

NG >> Check combination meter system. [DI-14, "Combination Meter Self-Diagnosis"](#) for LHD models or [DI-37, "Combination Meter Self-Diagnosis"](#) for RHD models.

## System Does Not Start

EKS009KJ

### 1. INSPECT POWER SYSTEM

Inspect power system of AV and NAVI control unit. [AV-80, "Power Supply and Ground Circuit Check"](#).

#### OK or NG

OK >> Replace AV and NAVI control unit.

NG >> Malfunction in power system of AV and NAVI control unit

## The Current Position Mark Is in the Wrong Place

EKS009KK

### 1. CHECK SYMPTOM

- [AV-101, "Example of Symptoms Judged Not Abnormal"?](#)

#### Yes or No

Yes >> The limit of the navigation location detection capability has been reached.

No >> GO TO 2.

### 2. SELF-DIAGNOSIS

- Perform [AV-71, "Self-Diagnosis Mode"](#).

#### OK or NG

OK >> GO TO 3.

NG >> Check the applicable parts.

## 3. ERROR RECORD DIAGNOSIS

- Is there an error listed in [AV-77, "HISTORY OF ERRORS"](#) in "CONFIRMATION/ADJUSTMENT" mode?

Yes or No

- Yes >> [AV-77, "DIAGNOSIS BY HISTORY OF ERRORS"](#).  
No >> GO TO 4.

## 4. VEHICLE SIGNAL DIAGNOSIS

- Start the engine.
- Diagnose the following items with [AV-75, "VEHICLE SIGNALS"](#) in "CONFIRMATION/ADJUSTMENT" mode.

### <Vehicle speed signal>

Vehicle running : ON

While the vehicle is stopped : OFF

### <Reverse signal>

Selector lever in R-position : ON

Selector lever in other than R-position : OFF

OK or NG

- OK >> Replace AV and NAVI control unit.  
NG >> ● If vehicle speed is NG, proceed to [AV-82, "Vehicle Speed Signal Check"](#).  
● If reverse is NG, proceed to [AV-84, "Reverse Signal Check"](#).

## The Current-Location Mark Will Not Move Forward/Backward

EKS009KL

### 1. VEHICLE SIGNAL DIAGNOSIS

- Start the engine.
- Diagnose the following items with [AV-75, "VEHICLE SIGNALS"](#) in "CONFIRMATION/ADJUSTMENT" mode.

### <Vehicle speed signal>

Vehicle running : ON

While the vehicle is stopped : OFF

### <Reverse signal>

Selector lever in R-position : ON

Selector lever in other than R-position : OFF

OK or NG

- OK >> Replace AV and NAVI control unit.  
NG >> ● If vehicle speed is NG, proceed to [AV-82, "Vehicle Speed Signal Check"](#).  
● If reverse is NG, proceed to [AV-84, "Reverse Signal Check"](#).

## The Position of the Current-Location Mark Is Not Correct

EKS009KM

Inspection procedure

### 1. SELF-DIAGNOSIS

- [AV-71, "OPERATION PROCEDURE"](#) in "Self-Diagnosis Mode."

OK or NG

- OK >> GO TO 2.  
NG >> Check the applicable parts.

## 2. ERROR RECORD DIAGNOSIS

- Is there an error listed in [AV-77, "HISTORY OF ERRORS"](#) in "CONFIRMATION/ADJUSTMENT" mode?

Is there an error history?

- Yes >> [AV-77, "DIAGNOSIS BY HISTORY OF ERRORS"](#).  
No >> [AV-100, "Driving Test"](#)

## Driving Test

EKS009KN

### 1. DRIVING TEST 1

1. Scroll the map screen to display the area to make correction. Press "ENTER" and select "CURRENT LOCATION CORRECTION".
2. Correct direction of the vehicle mark.
3. Perform the distance correction of the CONFIRMATION/ADJUSTMENT mode.

#### NOTE:

Normally, adjustment is not necessary because this system has automatic distance correction function. However, when a tire chain is fitted, adjustment in accordance with the tire diameter ratio must be made.

4. Are symptoms applicable to the [AV-101, "Example of Symptoms Judged Not Abnormal"](#) present after driving the vehicle?

Yes or No

- Yes >> Limit of the location detection capacity of the navigation system  
No >> GO TO 2.

### 2. DRIVING TEST 2

- Did any problem occur when the proper test in the following test patterns is performed?
- Test pattern  
Driving test finds the difference between the symptoms monitored with and without each sensor.
  - Test pattern 1: Test method with no GPS location correction  
Disconnect the GPS antenna connector connected to the AV and NAVI control unit. Accurately adjust the current position and the direction, then drive the vehicle.
  - Test pattern 2: Test method with no map-matching  
Accurately adjust the current position and the direction. Eject the map DVD-ROM from the AV and NAVI control unit with the ignition switch turned to OFF, then drive the vehicle. After driving, insert the map DVD-ROM back in the unit, display the track of the vehicle on the map screen and compare it with the actual road configuration.
- Sample tests
  - <To determine if the current-location mark skips at the same position, if so, whether it is caused by map-matching or by GPS>  
Perform test pattern 1.
  - <To determine if the pattern of streets displayed is correct or not>  
Perform test pattern 1 & 2.  
Compare the track of the vehicle on the map screen and the actual road configuration. For fairly accurate tracking, plotting shall be made every several hundred meters.
  - <When the distance is adjusted accurately>  
Perform test pattern 1 & 2.  
Drive on a road of which distance is accurately known (by utilizing distance posts on a highway). Calculate the rate of change (increased/decreased) of the distance by comparing with the actual distance.  
Correction = A/B  
A: Distance shown on the screen  
B: Actual distance

Yes or No

- Yes >>
  - If adjustment is insufficient, perform adjustment again.
  - If any error is found in the map, please let us know.
  - Replace AV and NAVI control unit
- No >> Limit of the location detection capacity of the navigation system

# NAVIGATION SYSTEM

## Example of Symptoms Judged Not Abnormal BASIC OPERATION

EKS009KO

Symptom	Cause	Remedy
No image is shown.	Display brightness adjustment is set fully to DARK side.	Adjust the display brightness.
No guide sound is heard. Audio guide volume is too low or too high.	Volume control is set to OFF, MIN or MAX. Audio guidance is not available while the vehicle is driving on a dark pink route.	Adjust the audio guide volume. System is not malfunction.
Screen is too dark. Motion of the image is too slow.	Temperature inside the vehicle is low.	Wait until the temperature inside the vehicle reaches the proper temperature.
Small black or bright spots appear on the screen.	Symptom peculiar to a liquid crystal display.	System is not malfunction.

## VEHICLE MARK

Symptom	Cause	Remedy
Map screen and BIRDVIEW ® Name of the place vary with the screen.	Some thinning of the character data is done to prevent the display becoming to complex. In some cases and in some locations, the display contents may differ. The same place name, street name, etc. may not be displayed every time on account of the data processing.	System is not malfunction.
Vehicle mark is not positioned correctly.	Vehicle is transferred by ferry or by towing after its ignition switch is turned to OFF.	Drive the vehicle for a while in the GPS satellite signal receiving condition.
Screen will not switch to nighttime mode after the lighting switch is turned ON.	The daytime screen is selected by the "SWITCH SCREENS" when the last time the screen dimming setting is done. Switching between daytime/nighttime screen may be inhibited by the automatic illumination adjustment function.	Perform screen dimming and select the nighttime screen by "SWITCH SCREENS".
Map screen will not scroll in accordance with the vehicle travel.	Current location is not displayed.	Press "MAP" switch to display the current location.
Vehicle mark will not be shown.	Current location is not displayed.	Press "MAP" switch to display the current location.
Accuracy indicator (GPS satellite mark) on the map screen stays gray.	GPS satellite signal is intercepted because the vehicle is in or behind a building.	Move the vehicle out to an open space.
	GPS signal cannot be received because something is placed on driver's side instrument panel.	Do not place anything on driver's side instrument panel.
	GPS satellites are located badly.	Wait until the location becomes better.
Vehicle location accuracy is low.	Accuracy indicator (GPS satellite mark) on the map screen stays gray.	Current location is not determined.
	Vehicle speed setting by the vehicle speed pulse has been deviated (advanced or retarded) from the actual vehicle speed because tire chain is fitted or the system has been used on another vehicle.	Drive the vehicle for a while [for approx. 30 minutes at approx. 30 km/h(19 MPH)] and the deviation will be automatically adjusted. If advancement or retard still occur, perform the distance adjustment by CONFIRMATION/ADJUSTMENT mode of diagnosis function.
	Map data has error or omission. (Vehicle mark is always deviated to the same position.)	As a rule, an updated map DVD-ROM will be released once a year.

## DESTINATION, PASSING POINTS, AND MENU ITEMS CANNOT BE SELECTED/SET

Symptom	Cause	Remedy
Destination cannot be set.	Destination to be set is on an expressway.	Set the destination on an ordinary road.
Passing point is not searched when re-searching the route.	The vehicle has already passed the passing point, or the system judged so.	To include the passing points that have been passed into the route again, set the route again.

## NAVIGATION SYSTEM

Symptom	Cause	Remedy
Route information will not be displayed.	Route searching has not been done.	Set the destination and perform route searching.
	Vehicle mark is not on the recommended route.	Drive on the recommended route.
	Route guide is turned OFF.	Turn the route guide ON.
	Route information is not available on the dark pink route.	System is not malfunction.
After the route searching, no guide sign will appear as the vehicle goes near the entrance/exit to the toll road.	Vehicle mark is not on the recommended route. (On the display, only guide signs related to the recommended route will be shown.)	Drive on the recommended route.
Automatic route searching is not possible.	Vehicle is driving on a highway (gray route), or no recommended route is available.	Drive on a road to be searched. Or re-search the route manually. In this case, however, the whole route will be searched.
Performed automatic detour search (or detour search). However, the result is the same as that of the previous search.	Performed search with every conditions considered. However, the result is the same as that of the previous search.	System is not malfunction.
Passing points cannot be set.	More than five passing points were set.	Passing points can be set up to five. To stop at more than five points, perform sharing in several steps.
When setting the route, the starting point cannot be selected.	The current vehicle location is always set as the starting point of a route.	System is not malfunction.
Some menu items cannot be selected.	The vehicle is being driven.	Stop the vehicle at a safe place and then operate the system.

### VOICE GUIDE

Symptom	Cause	Remedy
Voice guide will not operate.	Note: Voice guide is only available at intersections that satisfy certain conditions (indicated by ● on the map). Therefore, guidance may not be given even when the route on the map changes direction.	System is not malfunction.
	The vehicle is not on the recommended route.	Return to the recommended route or re-search the route.
	Voice guide is turned OFF.	Turn the voice guide ON.
	Route guide is turned OFF.	Turn the route guide ON.
Voice guide does not match the actual road pattern.	Voice guide may vary with the direction to which the vehicle is turn and the connection of the road to other roads.	Drive in conformity to the actual traffic rules.

### ROUTE SEARCHING

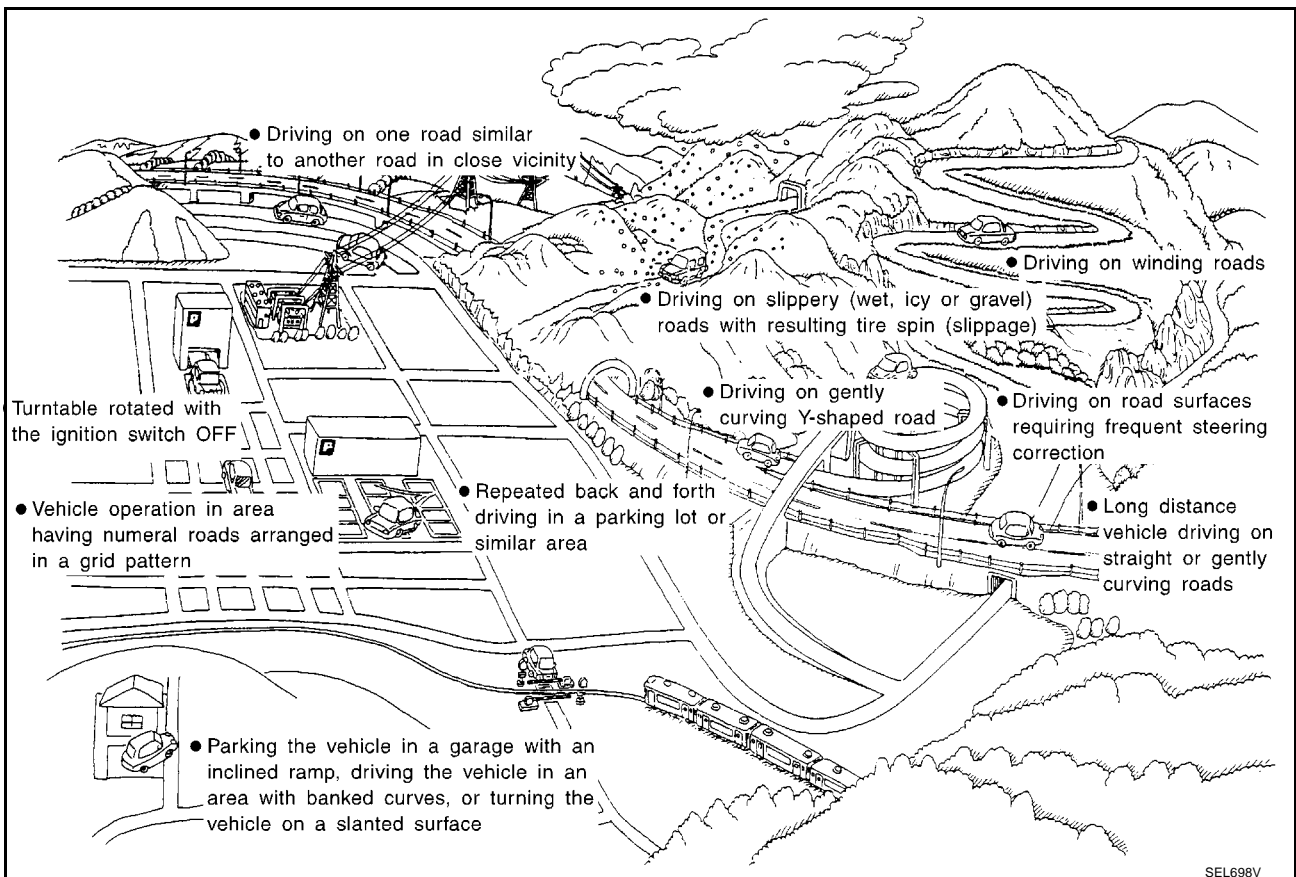
Symptom	Cause	Remedy
No route is shown.	No road to be searched is found around the destination.	Find wider road (orange road or wider) nearby and reset the destination and passing points onto it. Take care of the traveling direction when there are separate up and down roads.
	Starting point and the destination are too close.	Set the destination at more distant point.
	Conditional traffic regulation (day of the week/ time of the day) is set at the area around the current position or the destination.	Turn the time-regulating search conditions OFF. Turn "Avoid regulation time" in the search conditions OFF.
Indicated route is intermittent.	In some areas, highways (gray routes) are not used for the search. Therefore, the route to the current position or the passing points may be intermittent.	System is not malfunction.

# NAVIGATION SYSTEM

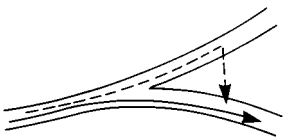
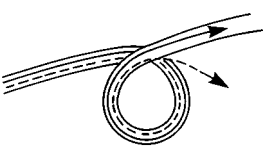
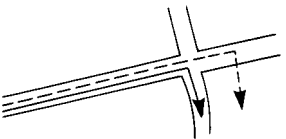
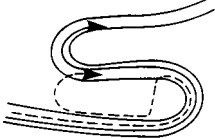
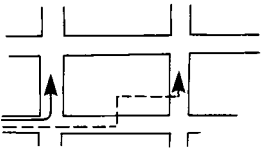
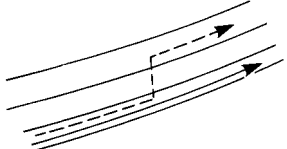
Symptom	Cause	Remedy
When the vehicle has passed the recommended route, it is deleted from the screen.	A recommended route is controlled by each section. When the vehicle has passed the passing point 1, then the map data from the starting point up to the passing point 1 will be deleted. (The data may remain undeleted in some area.)	System is not malfunction.
Detouring route is recommended.	In some areas, highways (gray routes) are not used for the search. Therefore, detour route may be recommended.	Set the route closer to the basic route (gray route).
	A detour route may be shown when some traffic regulation (one-way traffic, etc.) is set at the area around the starting point or the destination.	Slightly move the starting point or the destination, or set the passing point on the route of your choice.
	In the area where highways (gray routes) are used for the search, left turn has priority around the current position and the destination (passing points). For this reason, the recommended route may be detouring.	System is not malfunction.
Landmarks on the map do not match the actual ones.	This can happen due to omission or error in the map data.	As a rule, an updated map DVD-ROM will be released once a year. Wait until the latest map has become available.
Recommended route is far from the starting point, passing points, and destination.	Starting point, passing points, and destination of the route guide were set far from the desired points because route searching data around these area were not stored.	Reset the destination onto the road nearby. If this road is one of the highways (gray routes), an ordinary road nearby may be displayed as the recommended route.

## EXAMPLES OF CURRENT-LOCATION MARK DISPLACEMENT

Vehicle's travel amount is calculated by reading its travel distance and turning angle. Therefore, if the vehicle is driven in the following manner, an error will occur in the vehicle's current location display. If correct location has not been restored after driving the vehicle for a while, perform location correction.

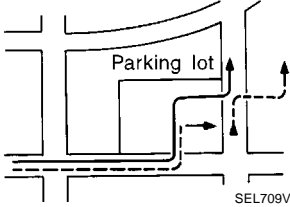
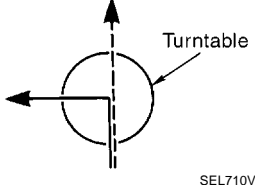
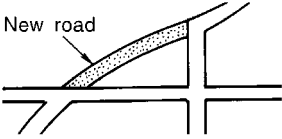



# NAVIGATION SYSTEM

Cause (condition) -:While driving ooo:Display			Driving condition	Remarks (correction, etc.)
Road configuration	Y-intersections	 ELK0192D	At a Y intersection or similar gradual division of roads, error the direction of travel deduced by the sensor may result in the current-location mark appearing on the wrong road.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
	Spiral roads	 ELK0193D	When driving on a large, continuous spiral road (such as loop bridge), turning angle error is accumulated and the vehicle mark may deviate from the correct location.	
	Straight roads	 ELK0194D	When driving on a long, straight road and slow curve without stopping, map-matching does not work effectively enough and distance errors may accumulate. As a result, the vehicle mark may deviate from the correct location when the vehicle turned at a corner.	
	Zigzag roads	 ELK0195D	When driving on a zigzag road, the map may be matched to other roads in the similar direction nearby at every turn, and the vehicle mark may deviate from the correct location.	
	Roads laid out in a grid pattern	 ELK0196D	When driving at where roads are laid out in a grid pattern, where many roads are running in the similar direction nearby, the map may be matched to them by mistake and the vehicle mark may deviate from the correct location.	
	Parallel roads	 ELK0197D	When two roads are running in parallel (such as highway and sideways), the map may be matched to the other road by mistake and the vehicle mark may deviate from the correct location.	

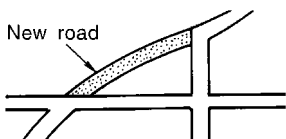
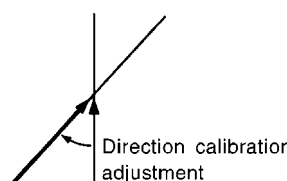


# NAVIGATION SYSTEM

Cause (condition) -:While driving ooo:Display		Driving condition	Remarks (correction, etc.)
Place	<p>In a parking lot</p> 	<p>When driving in a parking lot, or other location where there are no roads on the map, matching may place the vehicle mark on a nearby road. When the vehicle returns to the road, the vehicle mark may have deviated from the correct location.</p> <p>When driving in circle or turning the steering wheel repeatedly, direction errors accumulate, and the vehicle mark may deviate from the correct location.</p>	<p>If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.</p>
	<p>Turn table</p> 	<p>When the ignition switch is OFF, the navigation system cannot get the signal from the gyroscope (angular speed sensor). Therefore, the displayed direction may be wrong and the correct road may not be easily returned to after rotating the vehicle on a turn table with the ignition switch OFF.</p>	
	<p>Slippery roads</p>	<p>On snow, wet roads, gravel, or other roads where tires may slip easily, accumulated mileage errors may cause the vehicle mark to deviate from the correct road.</p>	
	<p>Slopes</p>	<p>When parking in sloped garages, when travelling on banked roads, or in other cases where the vehicle turns when tilted, an error in the turning angle will occur, and the vehicle mark may deviate from the road.</p>	
Map data	<p>Road not displayed on the map screen</p> 	<p>When driving on new roads or other roads not displayed on the map screen, map matching does not function correctly and matches the location to a nearby road. When the vehicle returns to a road which is on the map, the vehicle mark may deviate from the correct road.</p>	
	<p>Different road pattern (Changed due to repair)</p> 	<p>If the road pattern stored in the map data and the actual road pattern are different, map matching does not function correctly and matches the location to a nearby road. The vehicle mark may deviate from the correct road.</p>	
Vehicle	<p>Use of tire chains</p>	<p>When tire chains are used, the mileage is not correctly detected, and the vehicle mark may deviate from the correct road.</p>	<p>Drive the vehicle for a while. If the distance is still deviated, adjust it by using the distance adjustment function. (If the tire chain is removed, recover the original value.)</p>

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# NAVIGATION SYSTEM

Cause (condition) -:While driving   ooo:Display		Driving condition	Remarks (correction, etc.)
Precautions for driving	Just after the engine is started	If the vehicle is driven off just after the engine is started when the gyroscope (angular speed sensor) correction is not completed, the vehicle can lose its direction and may have deviated from the correct location.	Wait for a short while before driving after starting the engine.
	Continuous driving without stopping	When driving long distances without stopping, direction errors may accumulate, and the current-location mark may deviate from the correct road.	Stop and adjust the orientation.
	Abusive driving	Spinning the wheels or engaging in other kinds of abusive driving may result in the system being unable to perform correct detection, and may cause the vehicle mark to deviate from the correct road.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
How to correct location	Position correction accuracy  SEL699V	If the accuracy of location settings is poor, accuracy may be reduced when the correct road cannot be found, particularly in places where there are many roads.	Enter in the road displayed on the screen with an accuracy of approx. 1 MM. <b>NOTE:</b> Whenever possible, use detailed map for the correction.
	Direction when location is corrected  SEL702V	If the accuracy of location settings during correction is poor, accuracy may be reduced afterwards.	Perform direction correction.

## THE CURRENT POSITION MARK SHOWS A POSITION WHICH IS COMPLETELY WRONG

In the following cases, the current-location mark may appear on completely different position in the map depending on the GPS satellite signal receiving conditions. In this case, perform location correction and direction correction.

- When location correction has not been done
  - If the receiving conditions of the GPS satellite signal is poor, if the current-location mark becomes out of place, it may move to a completely different location and not come back if location correction is not done. The position will be corrected if the GPS signal can be received.
- When the vehicle has traveled by ferry, or when the vehicle has been being towed
  - Because calculation of the current location cannot be done when travelling with the ignition OFF, for example when traveling by ferry or when being towed, the location before travel is displayed. If the precise location can be detected with GPS, the location will be corrected.

## THE CURRENT POSITION MARK JUMPS

In the following cases, the current-location mark may appear to jump as a result of automatic correction of the current location.

- When map matching has been done
  - If the current location and the current-location mark are different when map matching is done, the current-location mark may seem to jump. At this time, the location may be "corrected" to the wrong road or to a location which is not on a road.
- When GPS location correction has been done
  - If the current location and the current-location mark are different when the location is corrected using GPS measurements, the current-location mark may seem to jump. At this time, the location may be "corrected" to a location which is not on a road.

# NAVIGATION SYSTEM

## THE CURRENT LOCATION MARK IS IN A RIVER OR THE SEA

The navigation system moves the current location mark with no distinction between land and rivers or sea. If the location mark is somehow out of place, it may appear that the vehicle is driving in a river or the sea.

A

## WHEN DRIVING ON THE SAME ROAD, SOMETIMES THE CURRENT-LOCATION MARK IS IN THE RIGHT PLACE AND SOMETIMES IT IS THE WRONG PLACE

B

The conditions of the GPS antenna (GPS data) and gyroscope (angular speed sensor) change gradually. Depending on the road traveled and the operation of the steering wheel, the location detection results will be different. Therefore, even on a road on which the location has never been wrong, conditions may cause the vehicle mark to deviate.

C

## LOCATION CORRECTION BY MAP MATCHING IS SLOW

D

- The map matching function needs to refer to the data of the surrounding area. It is necessary to drive some distance for the function to work.
- Because map matching operates on this principle, when there are many roads running in similar directions in the surrounding area, no matching determination may be made. The location may not be corrected until some special feature is found.

E

## ALTHOUGH THE GPS RECEIVING DISPLAY IS GREEN, THE VEHICLE MARK DOES NOT RETURN TO THE CORRECT LOCATION

F

- The GPS accuracy has an error of about 10 m (30 ft.). In some cases the current-location mark may not be on the correct street, even when GPS location-correction is done.
- The navigation system compares the results of GPS location detection with the results from map-matching location detection. The one which is determined to have higher accuracy is used.
- GPS location correction may not be performed when the vehicle is stopped.

G

H

## THE NAME OF THE CURRENT PLACE IS NOT DISPLAYED

The current place name may not be displayed if there are no place names displayed on the map screen.

## CONTENTS OF THE DISPLAY DIFFER FOR THE BIRDVIEW® AND THE (FLAT) MAP SCREEN

I

### Difference of the BIRDVIEW® Screen From the Flat Map Screen Are as Follows

- The current place name displays names which are primarily in the direction of vehicle travel.
- The amount of time before the vehicle travel or turn angle is updated on the screen is longer than for the (flat) map display.
- The conditions for display of place names, roads, and other data are different for nearby areas and for more distant areas.
- Some thinning of the character data is done to prevent the display becoming too complex. In some cases and in some locations, the display contents may differ.
- The same place name, street name, etc. may be displayed multiple times.

J

AV

L

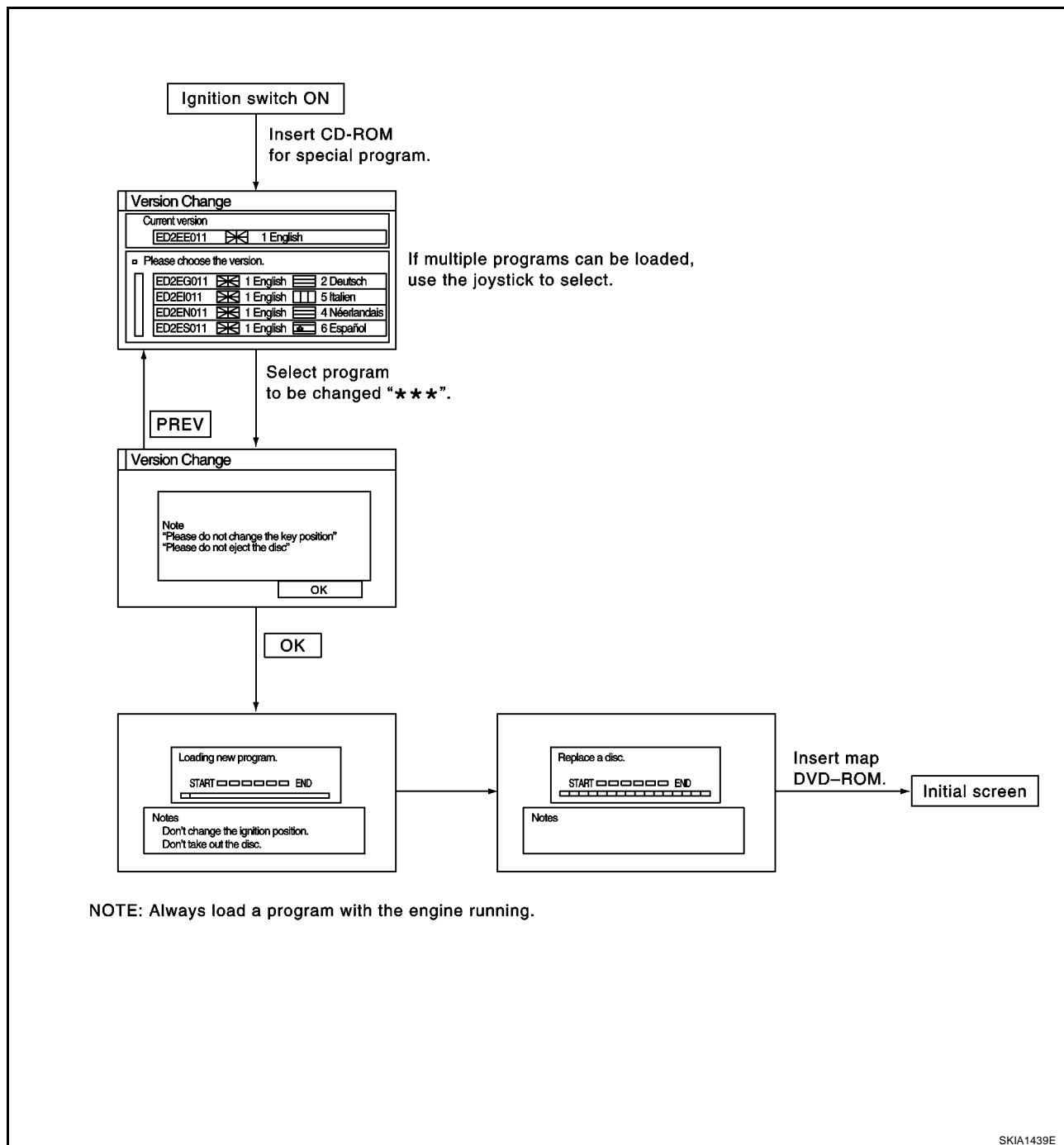
M

## Program Loading

EKS009KP

### NOTE:

Program loading is operated when the version of soft is upgraded to the latest one, or when language is switched.



## Removal and Installation of AV&NAVI Control Unit

EKS009KQ

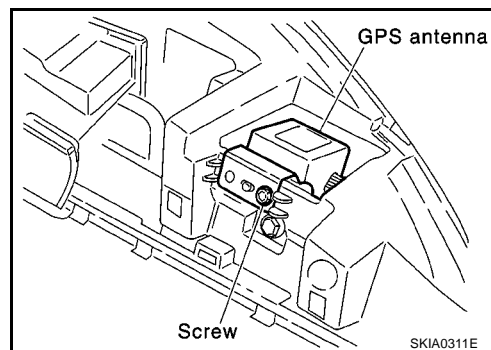
- [AV-35, "Removal and Installation of Audio Unit".](#)

# NAVIGATION SYSTEM

## Removal and Installation of GPS Antenna

EKS009KR

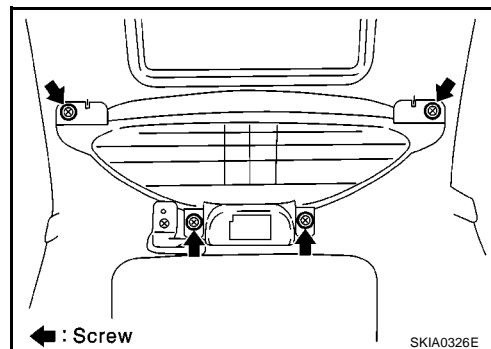
1. Remove cluster lid A. Refer to IP section in P12 ESM (SM2E00-1P12E0E).
2. Remove screw (1) and remove GPS antenna.



## Removal and Installation of Multifunction Switch

EKS009KS

1. Remove cluster lid C. Refer to IP section in P12 ESM (SM2E00-1P12E0E).
2. Remove screws (4) and remove multifunction switch from cluster lid C.



## Removal and Installation of Display Assembly

EKS009KT

1. Remove cluster lid C. Refer to IP section in P12 ESM (SM2E00-1P12E0E).
2. Remove screws (4) and remove display.

