# SECTION AV

# AUDIO, VISUAL & TELEPHONE SYSTEM

## CONTENTS


**PRECAUTIONS ..... 3**
Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER” ..... 3
Wiring Diagrams and Trouble Diagnosis ..... 3
**AUDIO ..... 4**
System Description ..... 4
AUDIO SYSTEM ..... 4
AV COMMUNICATION LINE ..... 4
NATS AUDIO LINK ..... 4
SPEED DEPENDENT VOLUME CONTROL ..... 5
PERSONAL AUDIO SETTINGS ..... 5
Component Parts Location ..... 5
Schematic ..... 6
VFD MONITOR ..... 6
LCD MONITOR ..... 7
WITH NAVIGATION SYSTEM ..... 8
Wiring Diagram—AUDIO— ..... 9
VFD MONITOR FOR LHD MODELS ..... 9
VFD MONITOR FOR RHD MODELS ..... 13
LCD MONITOR FOR LHD MODELS ..... 17
LCD MONITOR FOR RHD MODELS ..... 21
WITH NAVIGATION SYSTEM FOR LHD MODELS ..... 25
WITH NAVIGATION SYSTEM FOR RHD MODELS ..... 30
Terminals and Reference Value for Audio Unit ..... 35
Terminals and Reference Value for Sub-woofer ..... 37
Terminals and Reference Value for CD Auto Changer ..... 38
Self-Diagnosis Function ..... 38
DESCRIPTION ..... 38
DIAGNOSIS ITEM ..... 39
Self-Diagnosis Mode ..... 39
OPERATION PROCEDURE ..... 39
Trouble Diagnosis ..... 39
PROBLEM WITH RADIO, TAPE, AND CD ..... 39
FOR RADIO ONLY ..... 39
FOR CASSETTE PLAYER ONLY ..... 40
FOR CD ONLY ..... 40
Noise Inspection ..... 40
TYPE OF NOISE AND POSSIBLE CAUSE ..... 40
Power Supply Circuit Inspection ..... 41
Audio System Does Not Turn On. ..... 42
Removal and Installation of Audio Unit ..... 42
Removal and Installation of Door Speaker ..... 43
Removal and Installation of Front Pillar Tweeter ..... 43
**AUDIO ANTENNA ..... 44**
Location of Antenna ..... 44
Removal and Installation of Roof Antenna ..... 45
**TELEPHONE (PRE WIRE) ..... 46**
Wiring Diagram — PHONE — ..... 46
**NAVIGATION SYSTEM ..... 47**
System Description ..... 47
TRAVEL DISTANCE ..... 47
TRAVEL DIRECTION ..... 47
MAP-MATCHING ..... 47
GPS (GLOBAL POSITIONING SYSTEM) ..... 48
COMPONENT DESCRIPTION ..... 49
BIRDVIEW® ..... 49
MAP DISPLAY ..... 50
FUNCTION OF MULTIFUNCTION SWITCH ..... 51
“VIEW” MODE ..... 54
“HEADING” MODE ..... 54
“NEARBY DISPLAY ICONS” MODE ..... 55
“SAVE CURRENT LOCATION” MODE ..... 55
“EDIT ADDRESS BOOK” MODE ..... 55
“CLEAR MEMORY” MODE ..... 55
“AUTO RE-ROUTE” MODE ..... 56
“QUICK STOP CUSTOMER SETTINGS” MODE ..... 56
“SET AVERAGE SPEED FOR ESTIMATED JOURNEY TIME” MODE ..... 56
“GPS INFORMATION” MODE ..... 56
“TRACKING” MODE ..... 57
“ADJUST CURRENT LOCATION” MODE ..... 57
GUIDE VOLUME SETTING ..... 57
NATS NAVI LINK ..... 58
Precautions for AV and NAVI Control Unit Replacement ..... 58
Component Parts Location ..... 59

Location of Antenna ..... 60
Schematic ..... 61
Wiring Diagram —NAVI— ..... 62
Schematic For AV Communication Line ..... 68
Wiring Diagram — COMM — ..... 69
Terminals and Reference Value for AV and NAVI Control Unit ..... 72
Terminals and Reference Value for Display Unit ... 75
Terminals and Reference Value for Multifunction Switch ..... 77
Self-Diagnosis Function ..... 78
DESCRIPTION ..... 78
SELF-DIAGNOSIS ITEM ..... 78
Self-Diagnosis Mode ..... 78
OPERATION PROCEDURE ..... 78
DIAGNOSIS CHART ..... 80
DIAGNOSIS NUMBER CHART ..... 80
CONFIRMATION/ADJUSTMENT Mode ..... 81
OPERATION PROCEDURE ..... 81
DISPLAY ..... 82
VEHICLE SIGNALS ..... 82
NAVIGATION ..... 83
HISTORY OF ERRORS ..... 84
DIAGNOSIS BY HISTORY OF ERRORS ..... 84
AUTO CLIMATE CONTROL ..... 86
SERVICE ..... 86
Power Supply and Ground Circuit Check ..... 87
Check Display Unit, Multifunction Switch Power, and Ground Circuit ..... 88
Vehicle Speed Signal Check ..... 89
Illumination Control Signal Check ..... 90
Ignition Signal Check ..... 90
Reverse Signal Check ..... 91
RGB Screen Is Not Shown. ..... 91
No Screens Appear ..... 92
Color of RGB Image Is Not Proper. ..... 93
RGB Screen Is Rolling ..... 96
Guide Sound Is Not Heard. ..... 96
Multifunction Switch Controls Are Ineffective (Rear Defogger Control Excluded). ..... 97
Air Conditioning Controls (Only) Are Ineffective (Rear Defogger Control Excluded). ..... 100
Rear Defogger Does Not Operate ..... 101
Rear Defogger Indicator Lamp Does Not Illuminate. 102
No Fuel Information Is Displayed/No Warning Message Is Displayed ..... 102
Previous Conditions Are Not Stored. ..... 104
The Position of The Current-Location Mark Is Not Correct. ..... 104
Radio Wave From The GPS Satellite Is Not Received. ..... 104
Display Does Not Change When Screen Adjustment Is Performed. ..... 105
Day/Night Display Switching Is Not Done. Night Illumination for AV and NAVI Control Unit Does Not Illuminate. ..... 105
On Multifunction switch, a Specific Switch Does Not Operate in All Conditions. ..... 105
Driving Information Is Inaccurate. Maintenance Information Is Inaccurate. ..... 105
System Does Not Start. ..... 105
The Current Position Mark Is in the Wrong Place.. 106
The Current-Location Mark Will Not Move Forward/Backward. ..... 107
The Position of the Current-Location Mark Is Not Correct. ..... 107
Driving Test ..... 107
Example of Symptoms Judged Not Abnormal ..... 108
BASIC OPERATION ..... 108
VEHICLE MARK ..... 109
DESTINATION, PASSING POINTS, AND MENU ITEMS CANNOT BE SELECTED/SET. ..... 109
VOICE GUIDE ..... 110
ROUTE SEARCHING ..... 110
EXAMPLES OF CURRENT-LOCATION MARK DISPLACEMENT ..... 111
THE CURRENT POSITION MARK SHOWS A POSITION WHICH IS COMPLETELY WRONG.. 114
THE CURRENT POSITION MARK JUMPS. .... 114
THE CURRENT LOCATION MARK IS IN A RIVER OR THE SEA. ..... 115
WHEN DRIVING ON THE SAME ROAD, SOMETIMES THE CURRENT-LOCATION MARK IS IN THE RIGHT PLACE AND SOMETIMES IT IS THE WRONG PLACE. ..... 115
LOCATION CORRECTION BY MAP MATCHING IS SLOW. ..... 115
ALTHOUGH THE GPS RECEIVING DISPLAY IS GREEN, THE VEHICLE MARK DOES NOT RETURN TO THE CORRECT LOCATION. ..... 115
THE NAME OF THE CURRENT PLACE IS NOT DISPLAYED. ..... 115
CONTENTS OF THE DISPLAY DIFFER FOR THE BIRDVIEW® AND THE (FLAT) MAP SCREEN. ..... 115
Program Loading ..... 116
Removal and Installation of AV&NAVI Control Unit. 116
Removal and Installation of GPS Antenna ..... 117
Removal and Installation of Multifunction Switch . 117
Removal and Installation of Display Unit Assembly. 117

# PRECAUTIONS

PFP:00011

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

EKS0048T

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 harness connectors.**

## Wiring Diagrams and Trouble Diagnosis

EKS0040U

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

# AUDIO

PFP:28111

## System Description

EKS0040V

### AUDIO SYSTEM

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, fusible link and relay block (J/B)]
- to audio unit terminals 3,4.
- to CD auto changer terminal 32

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.

Ground is supplied through the case of the audio unit.
Ground is also supplied to CD auto changer terminal 35 through body grounds B17, B24 and D94.
Ground is also supplied to Sub-woofer terminal 3 through body ground B17, B24 and D94.

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)

### AV COMMUNICATION LINE

Audio system components (Audio unit, Display, etc.) are connected by AV communication line and controlled by signals from the multifunction switch.

### 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. During the code verification process, "WAIT" is shown on the Display unit. Again, the communication takes such a short time that the audio unit seems to switch on directly without showing "WAIT" on the Display unit.

**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.

**NOTE:**
When the “Secure” is displayed on VFD display, the communication of IMMU and radio, radio unit or transponder has problem.

### 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. |
| Transferring radio to another vehicle/ replacement of radio by an “old” part | Radio needs to be reset by using CONSULT-II and the associated Immobi 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 Immobi PIN code. | After switching on the radio, it will display “SECURE” on a green background. |
| No communication from IMMU to radio | 1. If NATS is malfunctioning, check NATS system.<br>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). | 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.

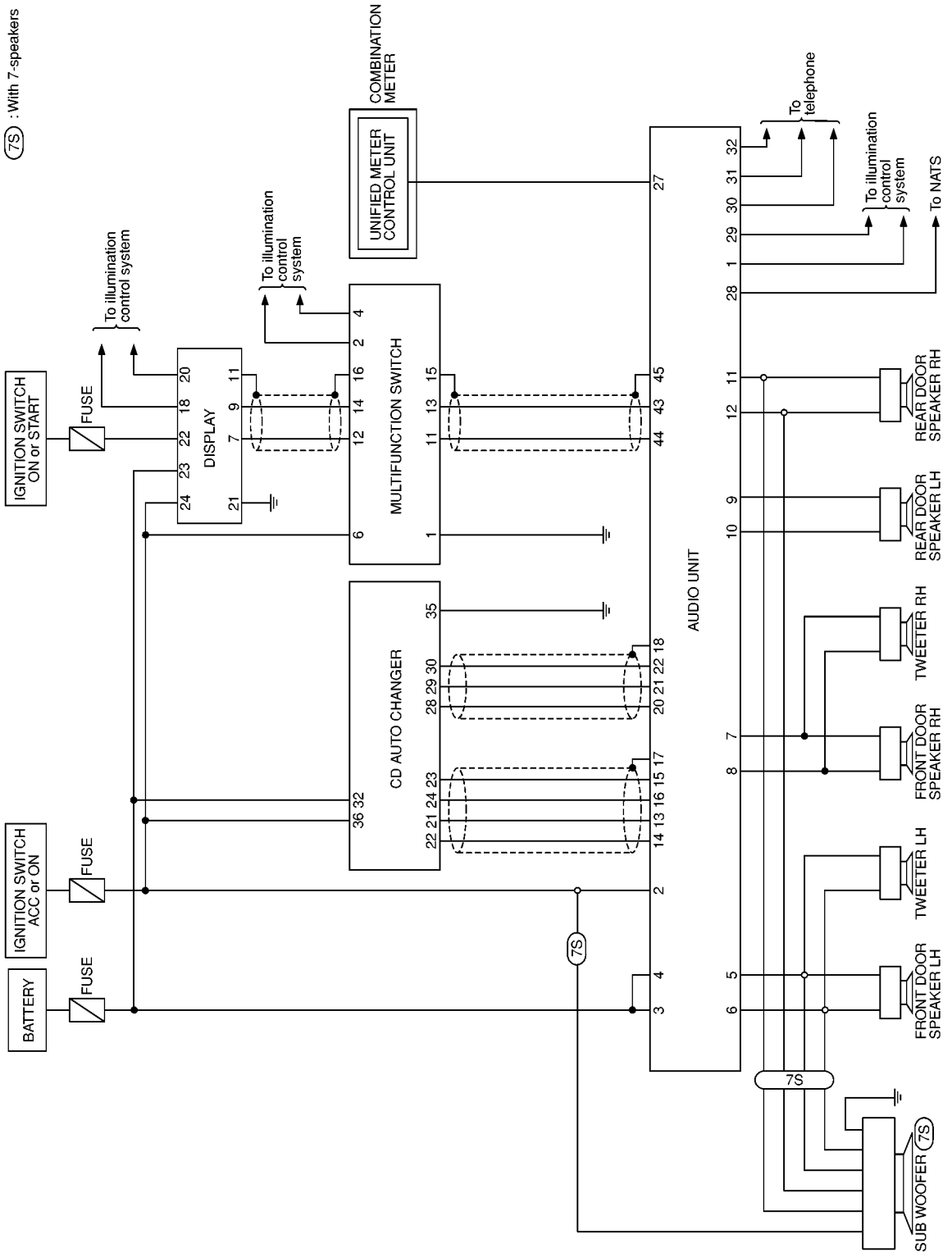
## Component Parts Location

EKS0041L

AV-59, "Component Parts Location" in “NAVIGATION SYSTEM”.

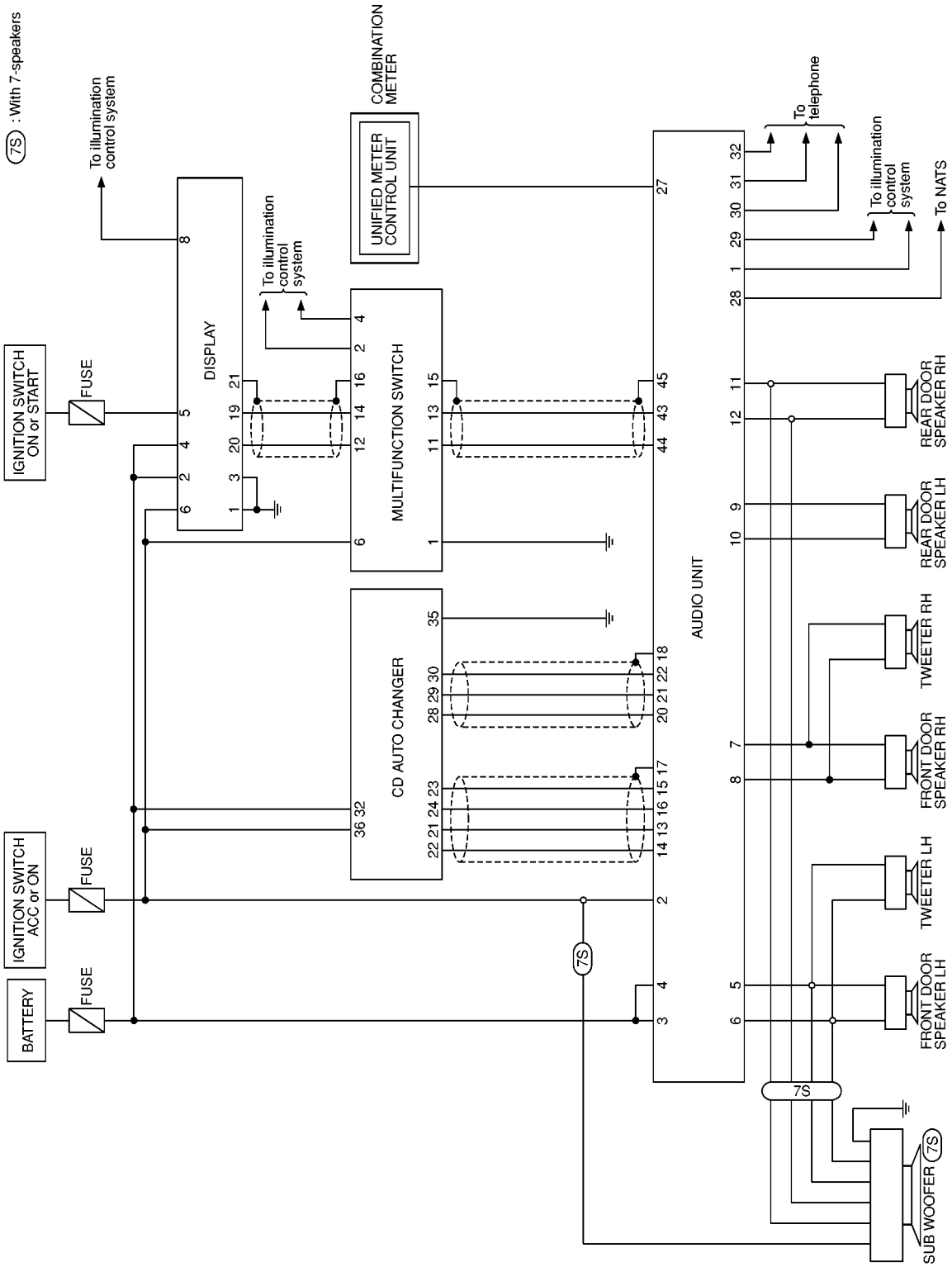
## Schematic
### VFD MONITOR

EKS0040W



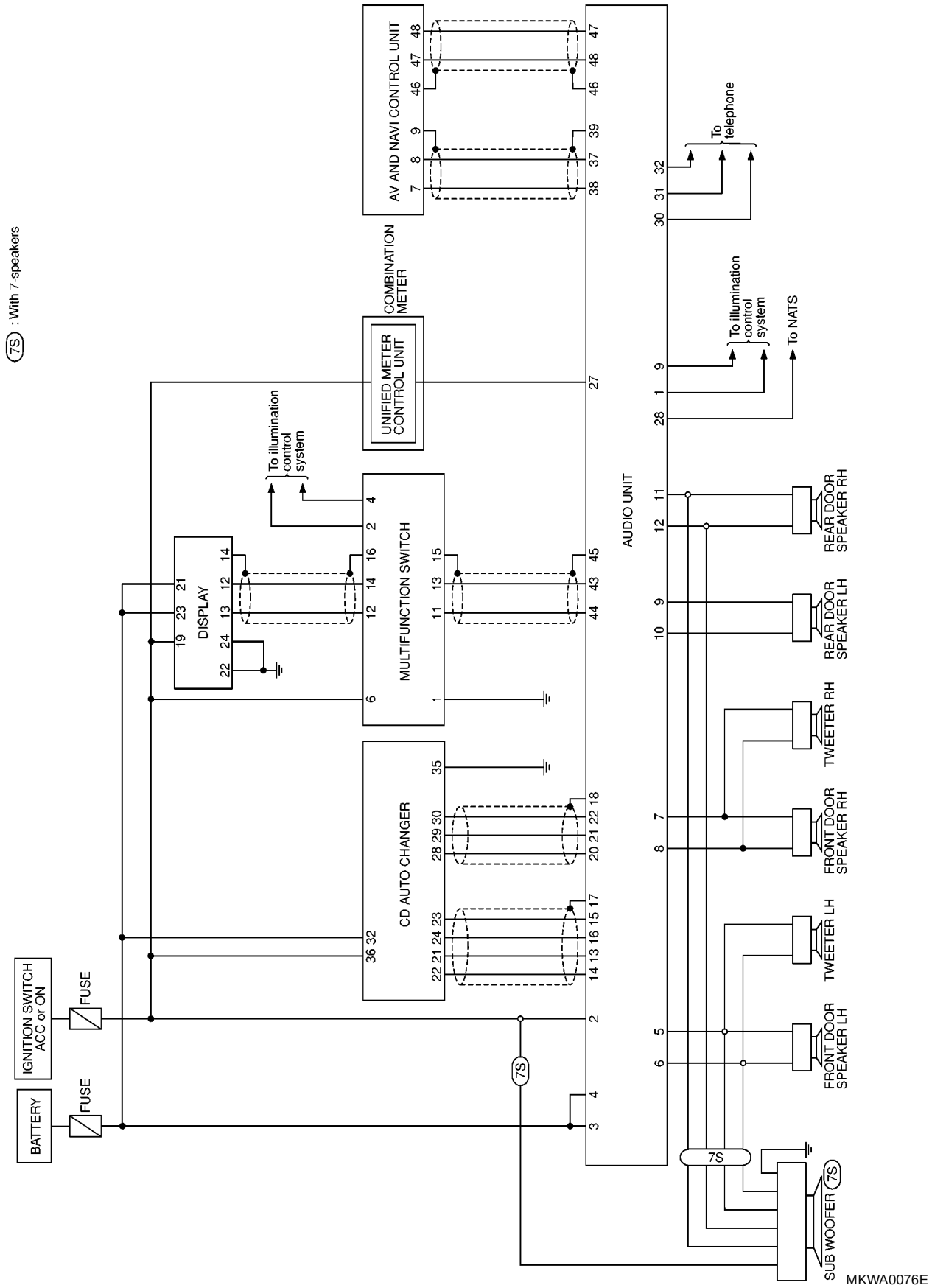

MKWA0058E

## LCD MONITOR




MKWA0067E

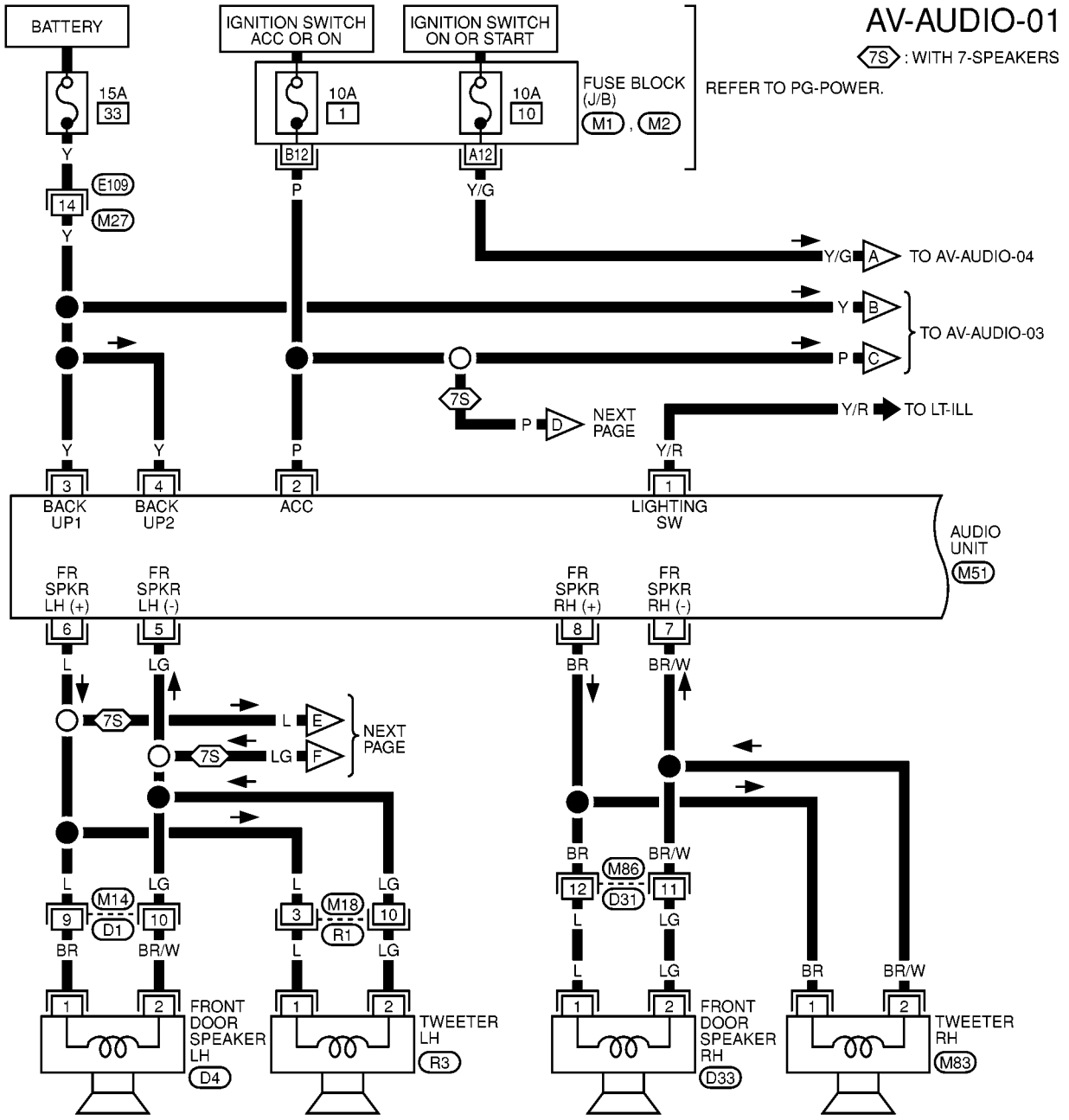
## WITH NAVIGATION SYSTEM

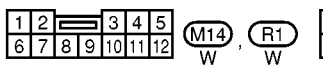


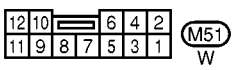
## Wiring Diagram—AUDIO—

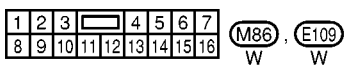
EKS0040X

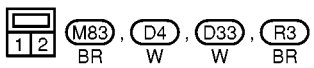
### VFD MONITOR FOR LHD MODELS



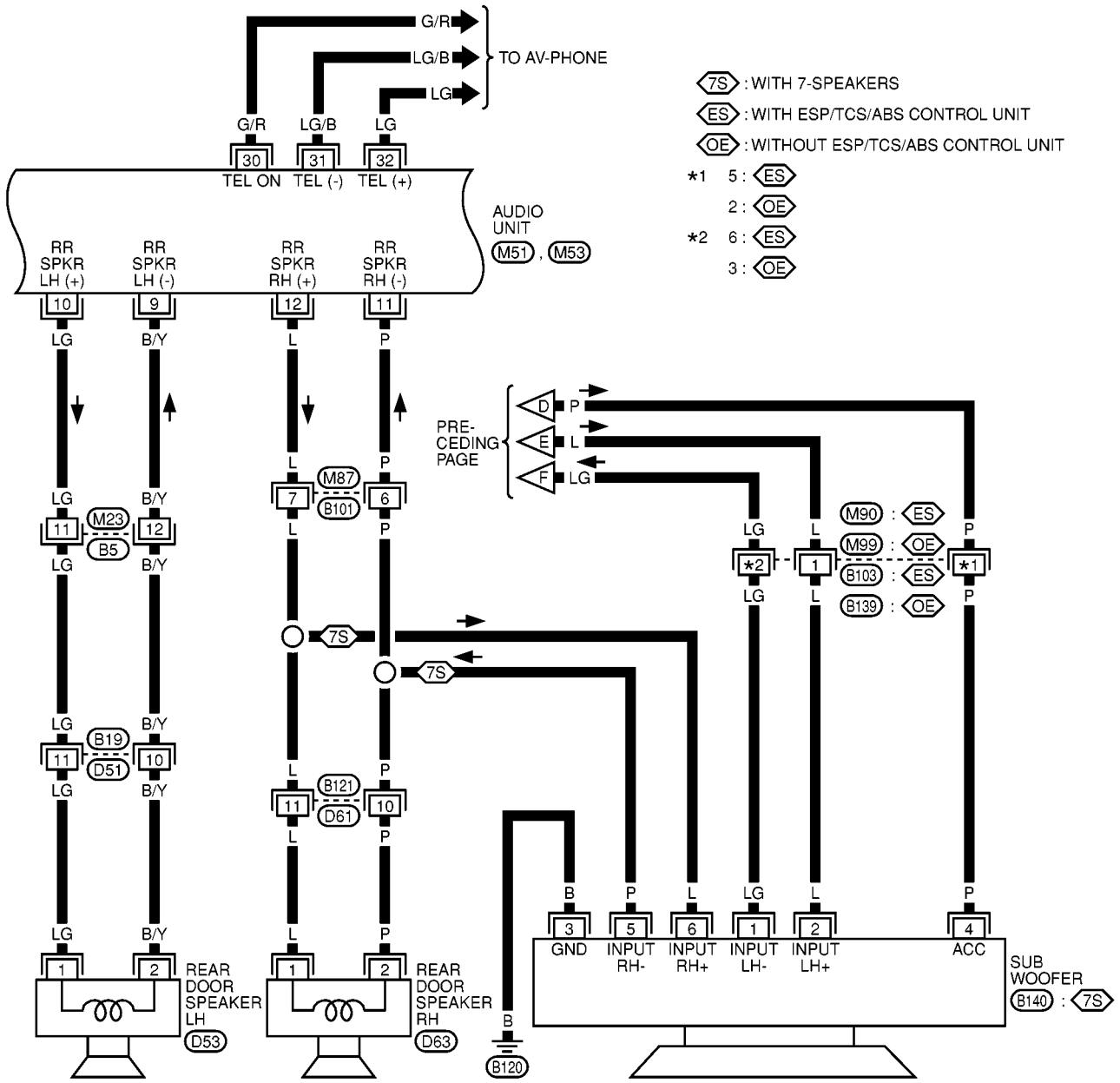



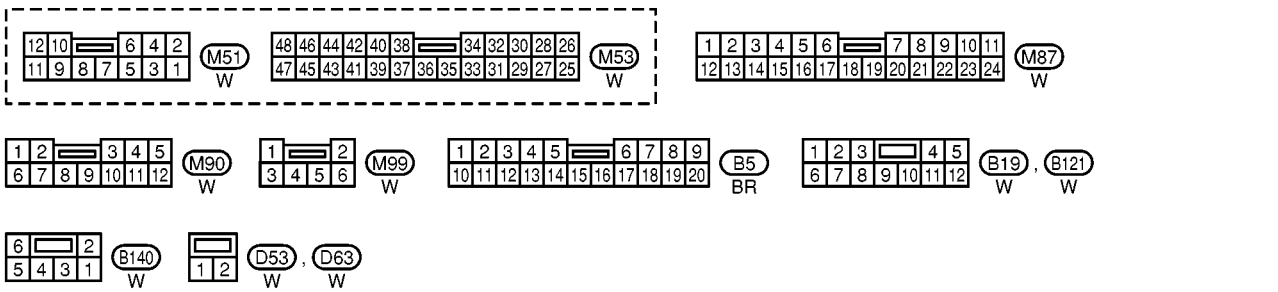




REFER TO THE FOLLOWING.
M1, M2 -FUSE BLOCK- JUNCTION BOX (J/B)

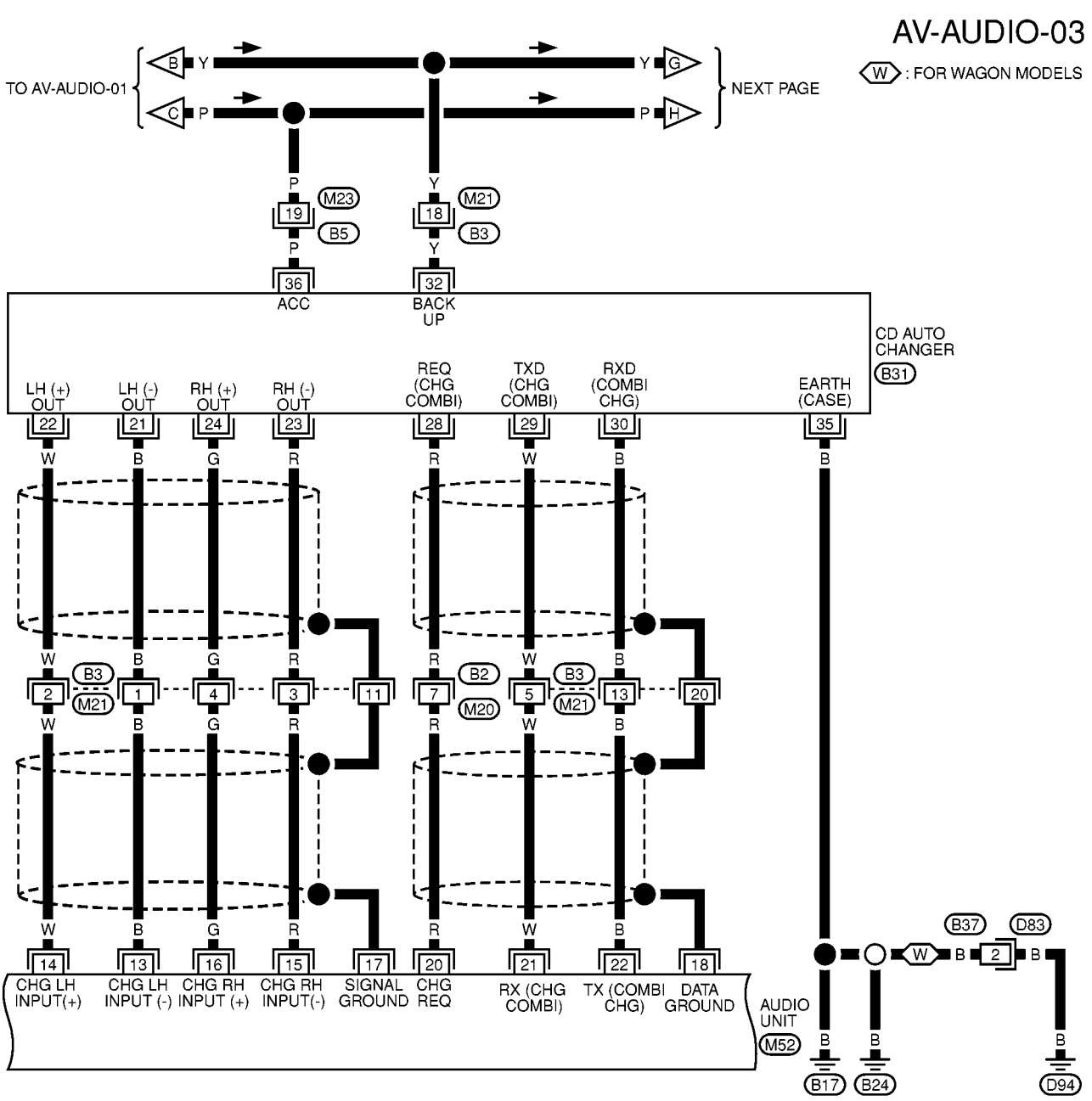
MKWA0059E

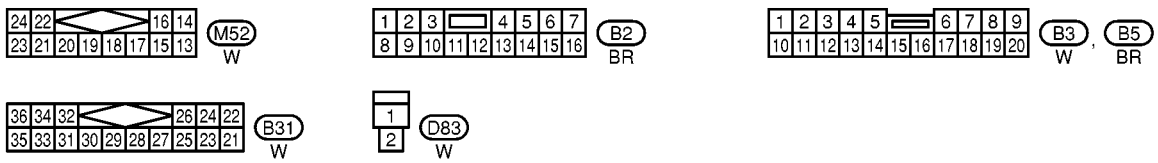
AV-AUDIO-02



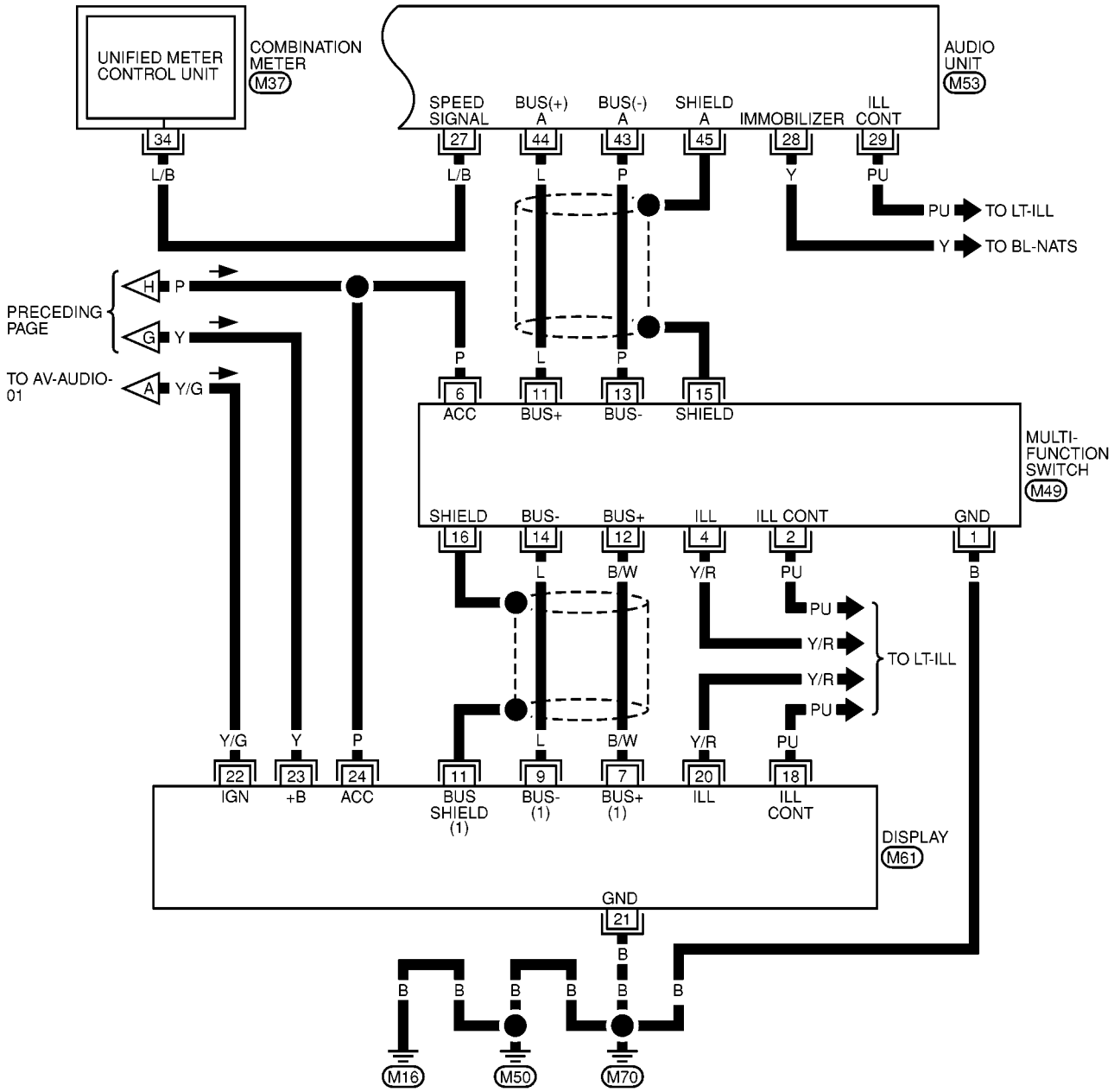

MKWA0060E

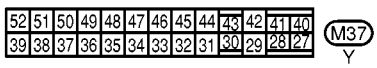

AV-AUDIO-03
W : FOR WAGON MODELS
TO AV-AUDIO-01
NEXT PAGE
B Y
C P
Y G
P H
P M23 19 B5
Y M21 18 B3
P 36 ACC
Y 32 BACK UP
CD AUTO CHANGER B31
LH (+) OUT 22
LH (-) OUT 21
RH (+) OUT 24
RH (-) OUT 23
REQ (CHG COMBI) 28
TXD (CHG COMBI) 29
RXD (COMBI CHG) 30
EARTH (CASE) 35
W B G R R W B B
B3 M21 2 1 4 3 11
B2 M20 7 B3 M21 5 13 20
14 CHG LH INPUT(+)
13 CHG LH INPUT (-)
16 CHG RH INPUT (+)
15 CHG RH INPUT(-)
17 SIGNAL GROUND
20 CHG REQ
21 RX (CHG COMBI)
22 TX (COMBI CHG)
18 DATA GROUND
AUDIO UNIT M52
B37 D83
W B 2 B
B17 B24 D94

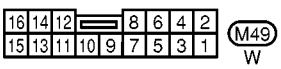

M52 W
B2 BR
B3 W , B5 BR
B31 W
D83 W

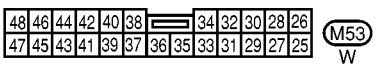
MKWA0061E

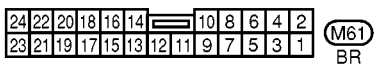
AV-AUDIO-04



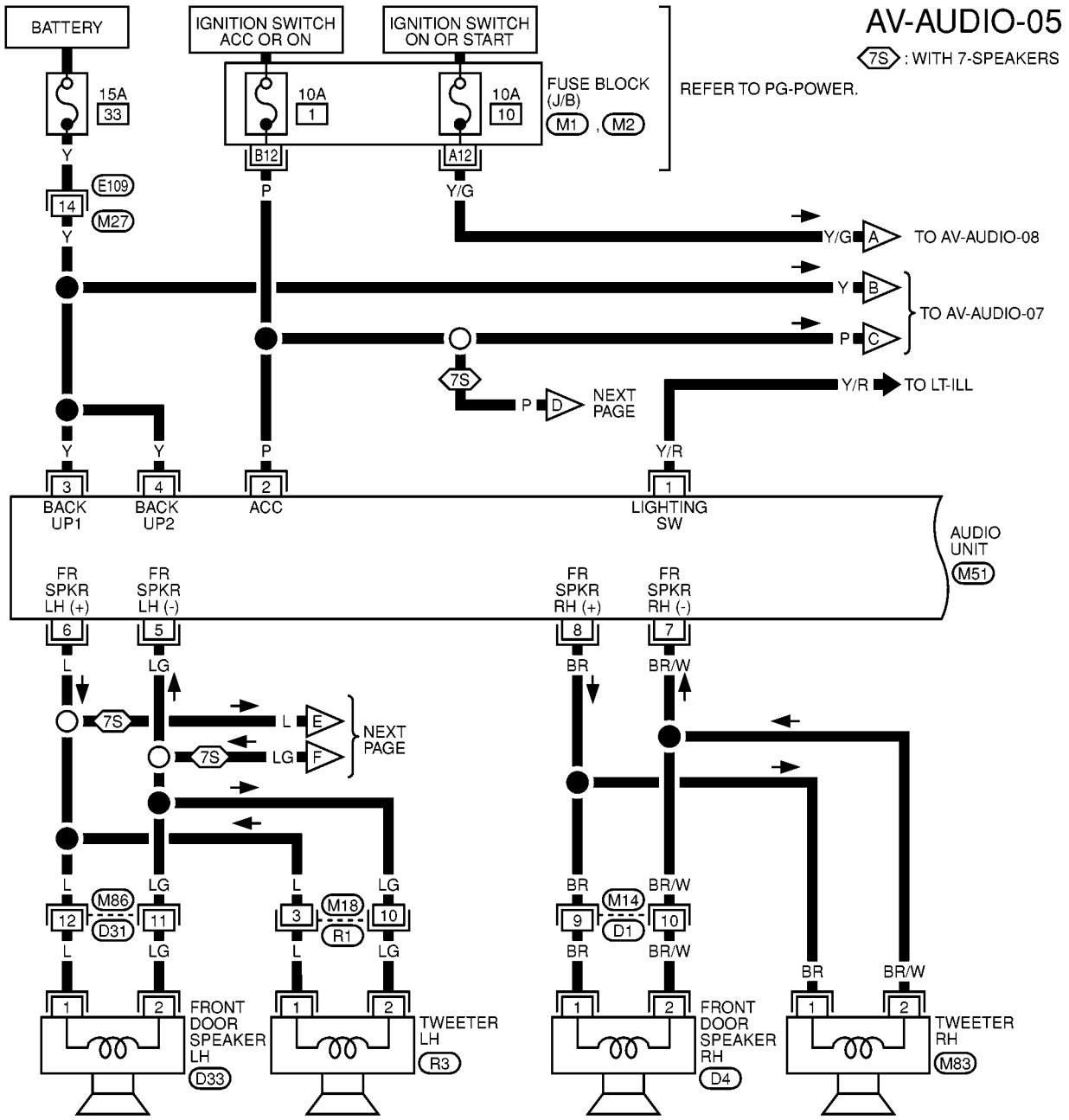



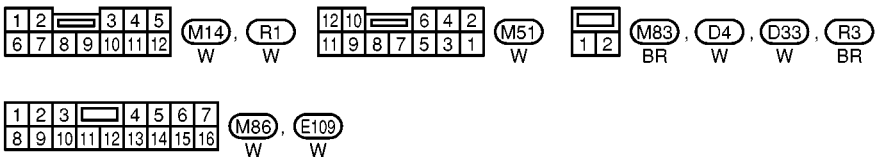




MKWA0062E

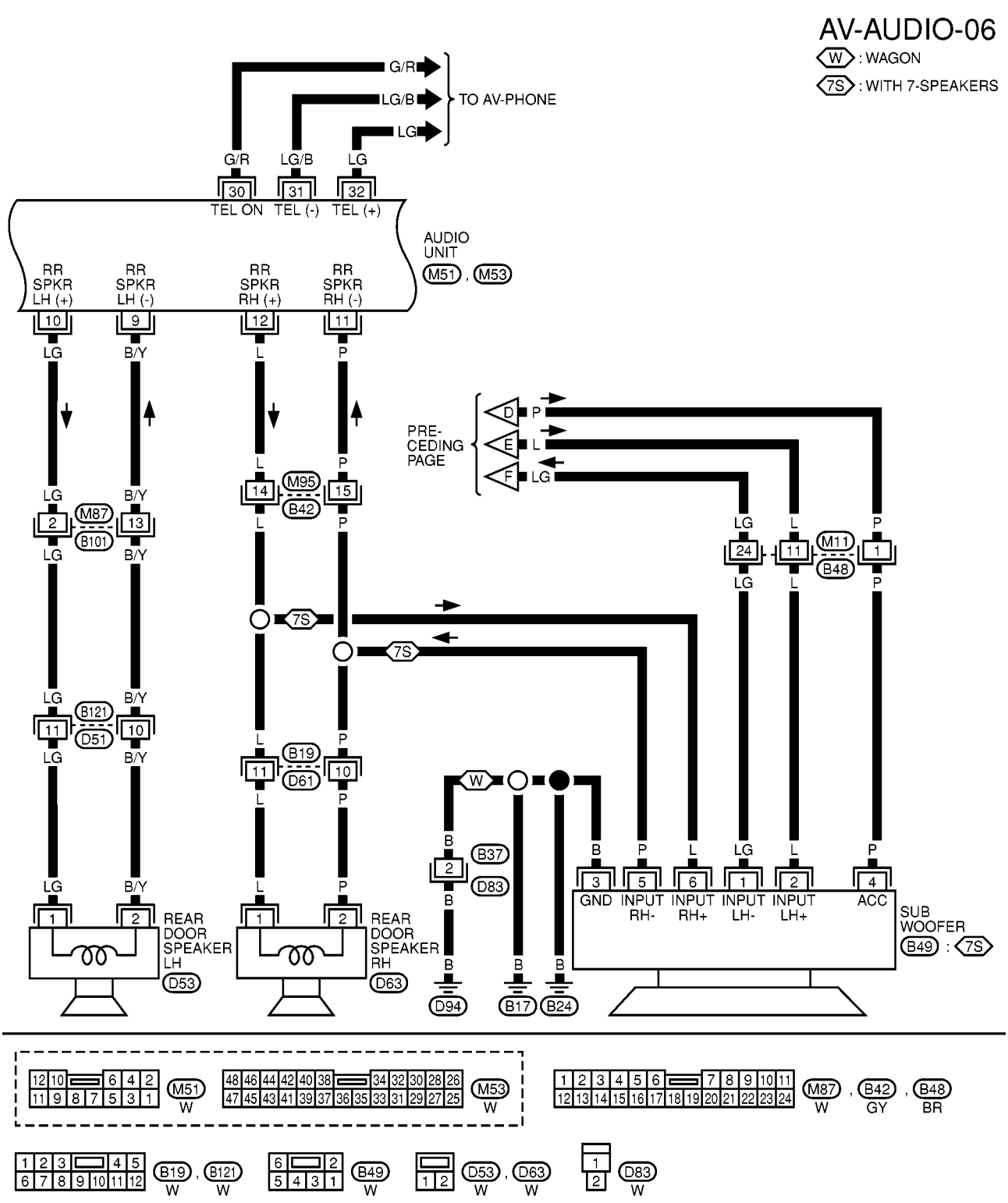
## VFD MONITOR FOR RHD MODELS



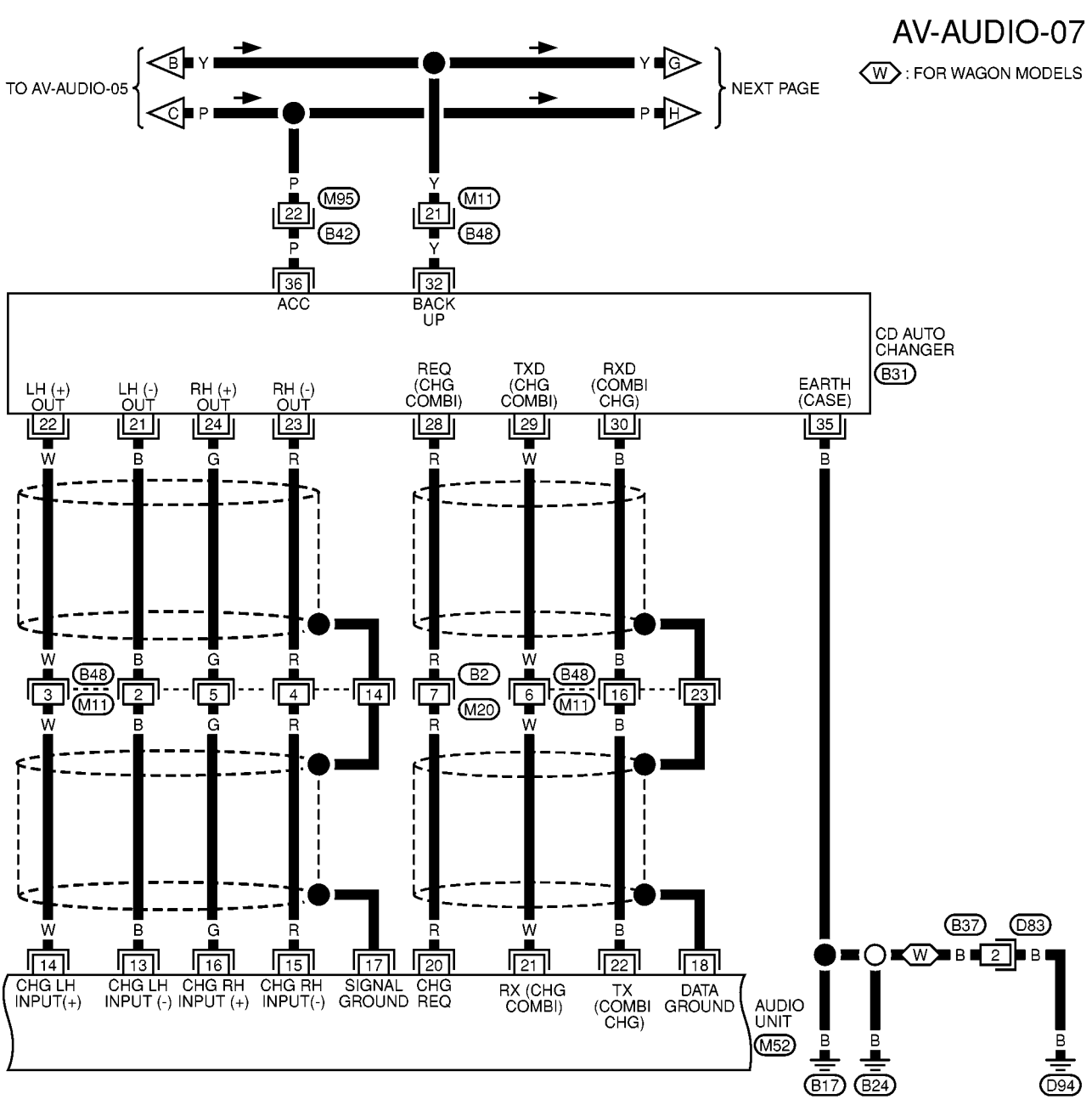



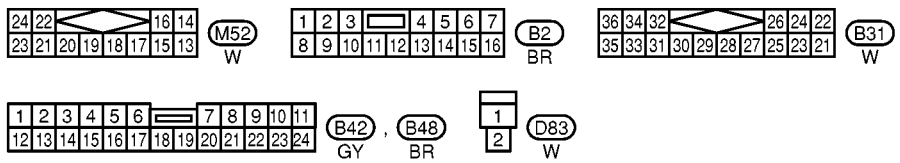

REFER TO THE FOLLOWING.
M1, M2 -FUSE BLOCK - JUNCTION BOX (J/B)

MKWA0063E


AV-AUDIO-06
W : WAGON
7S : WITH 7-SPEAKERS
G/R
LG/B
LG
TO AV-PHONE
30
31
32
TEL ON
TEL (-)
TEL (+)
AUDIO UNIT
M51 , M53
RR SPKR LH (+)
RR SPKR LH (-)
RR SPKR RH (+)
RR SPKR RH (-)
10
9
12
11
LG
B/Y
L
P
PRE-CEDING PAGE
D
E
F
M95
B42
14
15
M87
B101
2
13
M11
B48
24
11
1
7S
B121
D51
B19
D61
W
B37
D83
B17
B24
D94
3
5
6
GND
INPUT RH-
INPUT RH+
INPUT LH-
INPUT LH+
ACC
SUB WOOFER
B49 : 7S
REAR DOOR SPEAKER LH
D53
REAR DOOR SPEAKER RH
D63
M51
W
M53
W
M87
W
B42
GY
B48
BR
B19
W
B121
W
B49
W
D53
W
D63
W
D83
W

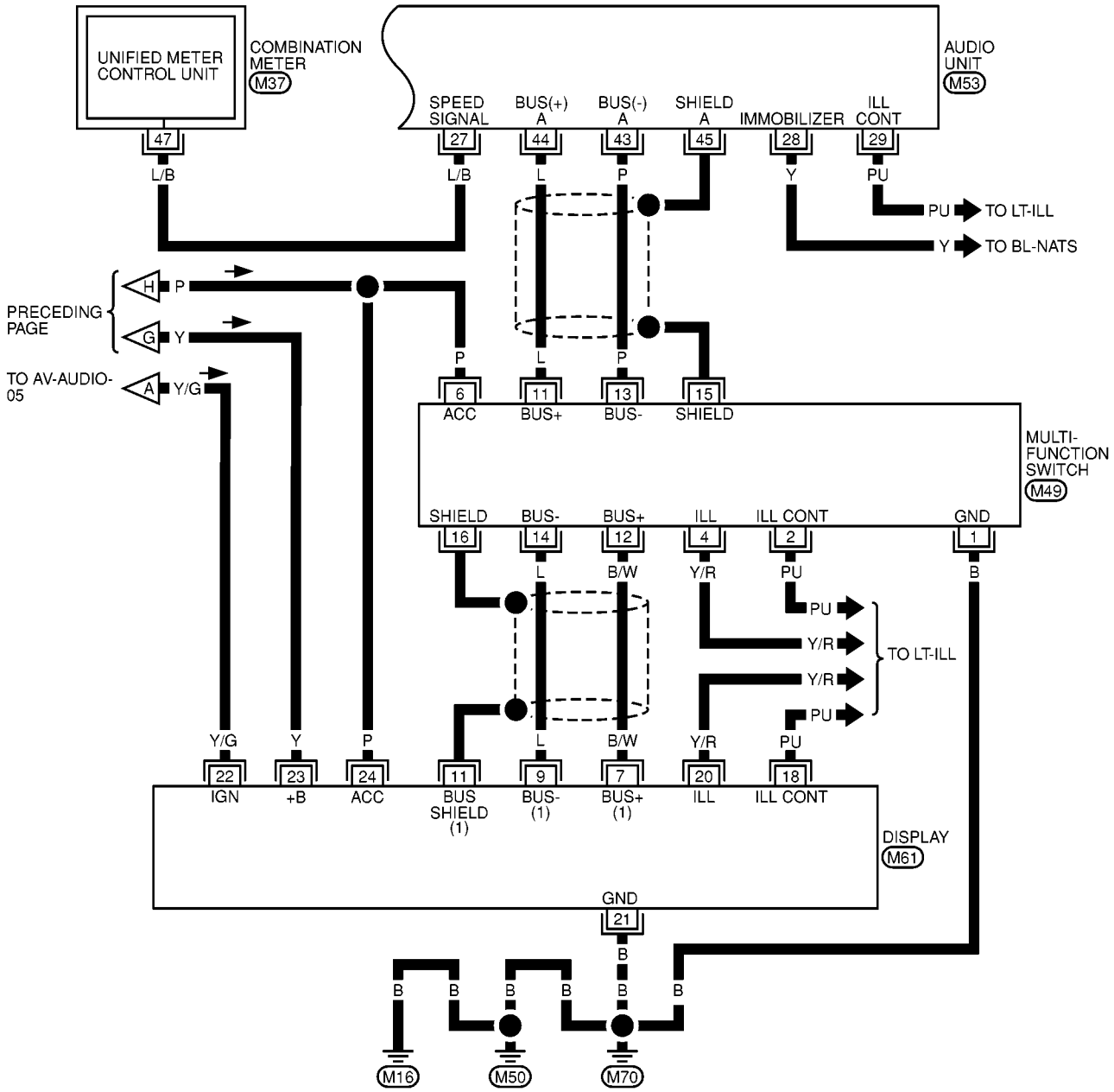
MKWA0064E

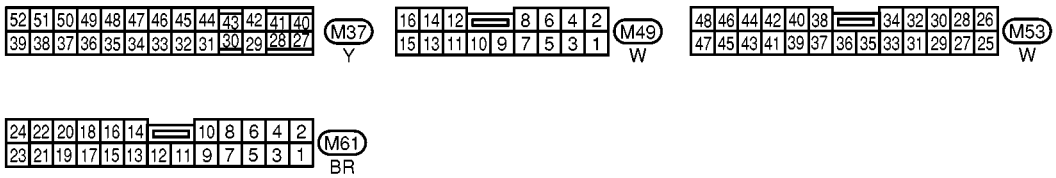

AV-AUDIO-07
W : FOR WAGON MODELS
TO AV-AUDIO-05
NEXT PAGE
B Y
C P
Y G
P H
P M95 22 B42
Y M11 21 B48
P 36 ACC
Y 32 BACK UP
CD AUTO CHANGER B31
LH (+) OUT 22
LH (-) OUT 21
RH (+) OUT 24
RH (-) OUT 23
REQ (CHG COMBI) 28
TXD (CHG COMBI) 29
RXD (COMBI CHG) 30
EARTH (CASE) 35
W B G R R W B B
B48 3 M11
2 5 4 14
B2 7 M20
B48 6 M11
16 23
14 CHG LH INPUT(+)
13 CHG LH INPUT (-)
16 CHG RH INPUT (+)
15 CHG RH INPUT(-)
17 SIGNAL GROUND
20 CHG REQ
21 RX (CHG COMBI)
22 TX (COMBI CHG)
18 DATA GROUND
AUDIO UNIT M52
B37 D83
W B 2 B
B B B
B17 B24 D94


M52 W
B2 BR
B31 W
B42 GY
B48 BR
D83 W

MKWA0065E

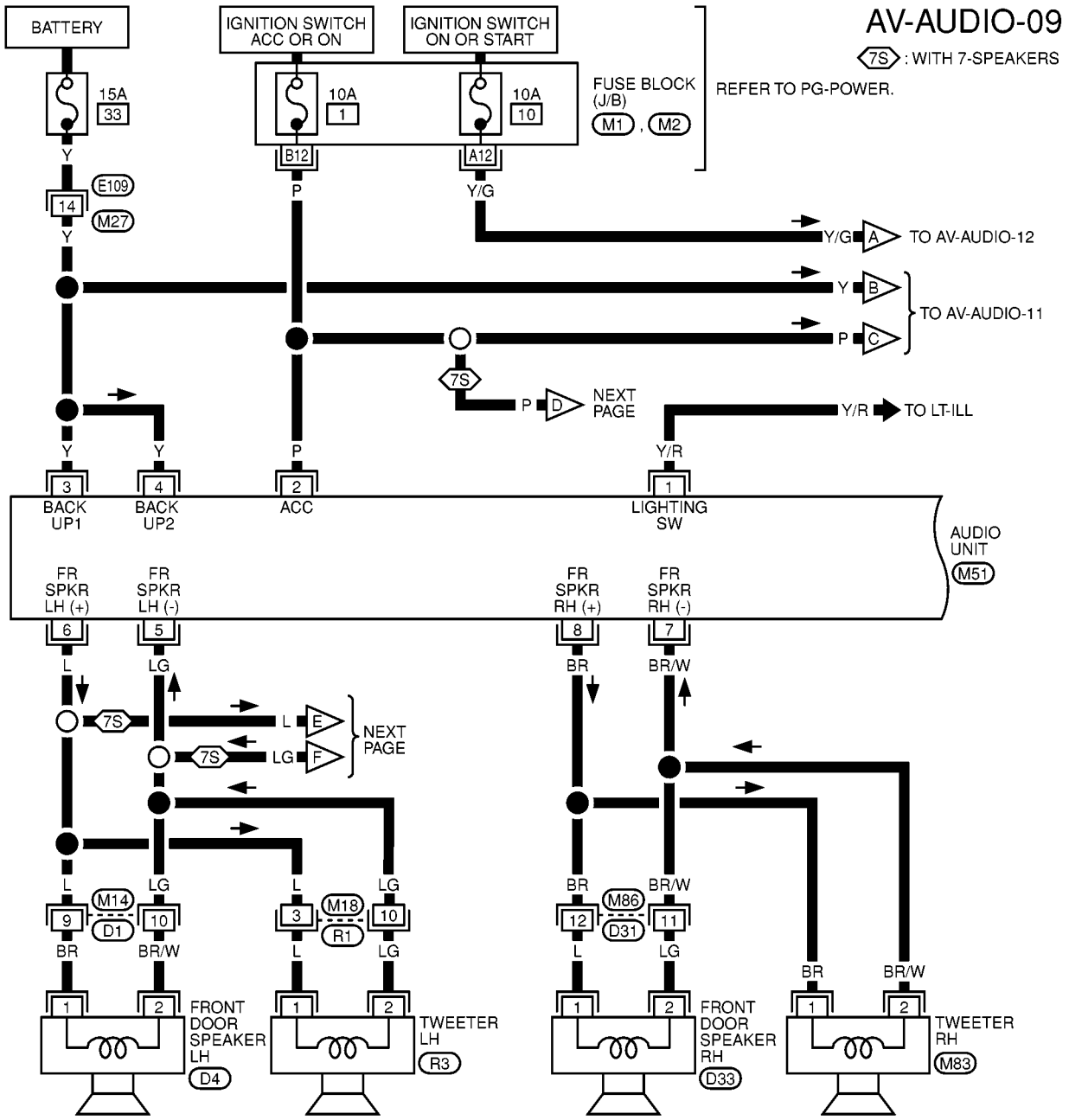
AV-AUDIO-08




MKWA0066E

## LCD MONITOR FOR LHD MODELS

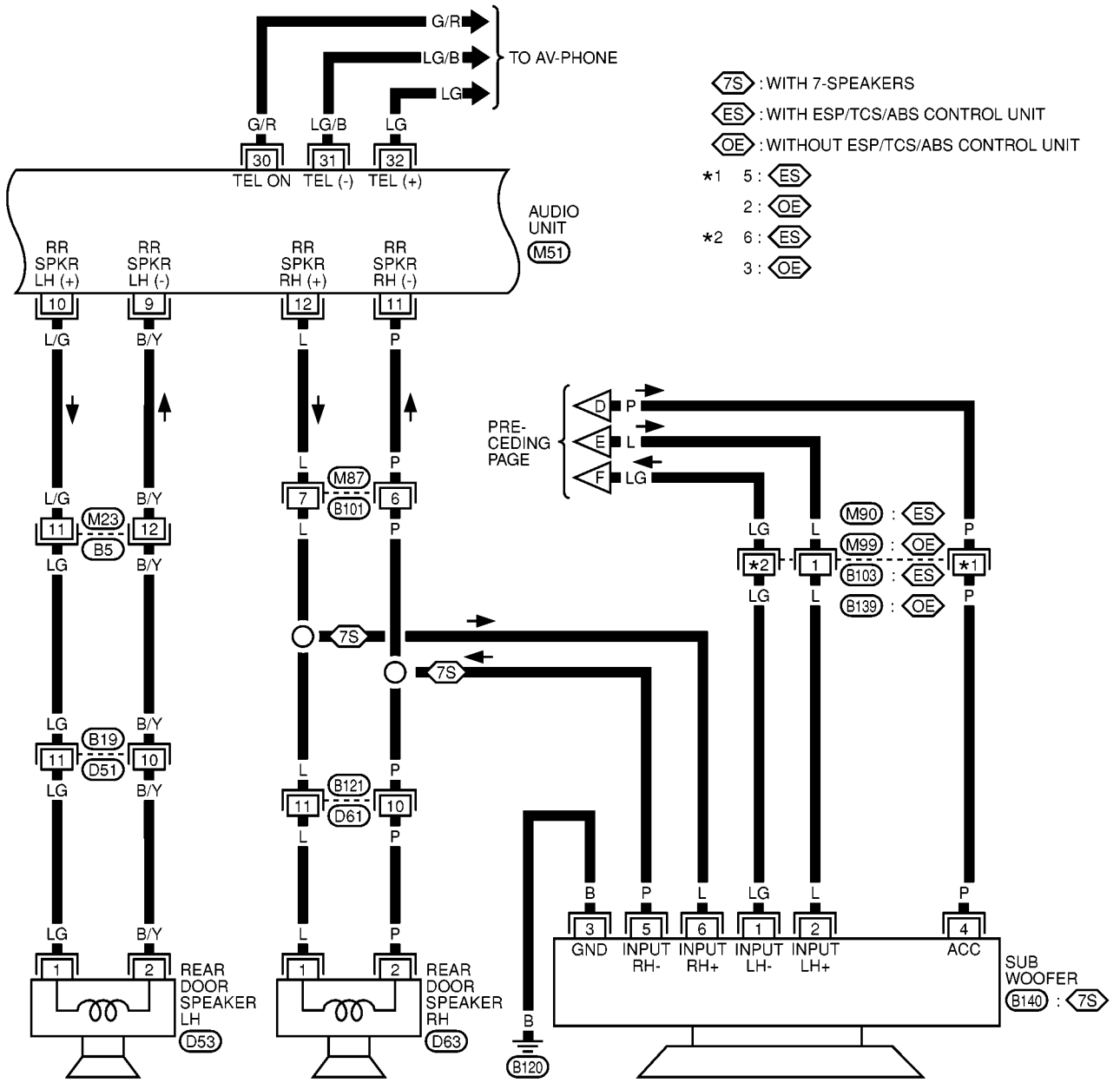


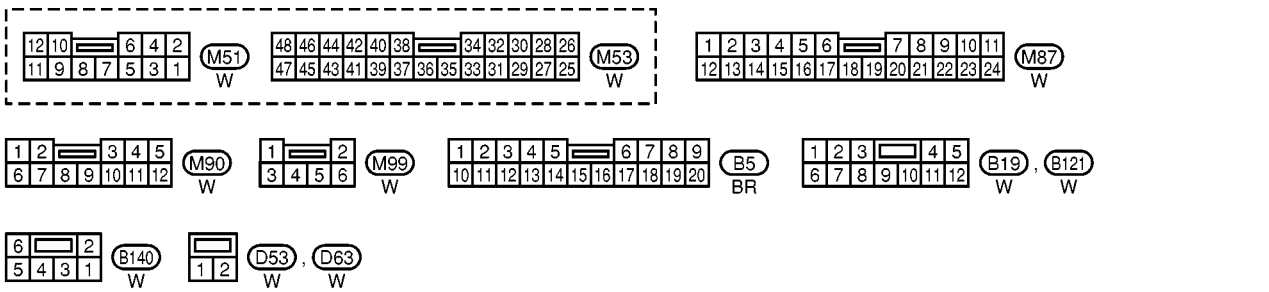

M14, R1 W; M51 W; M83, D4, D33, R3 BR W W BR; M86, E109 W W

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

MKWA0068E

AV-AUDIO-10

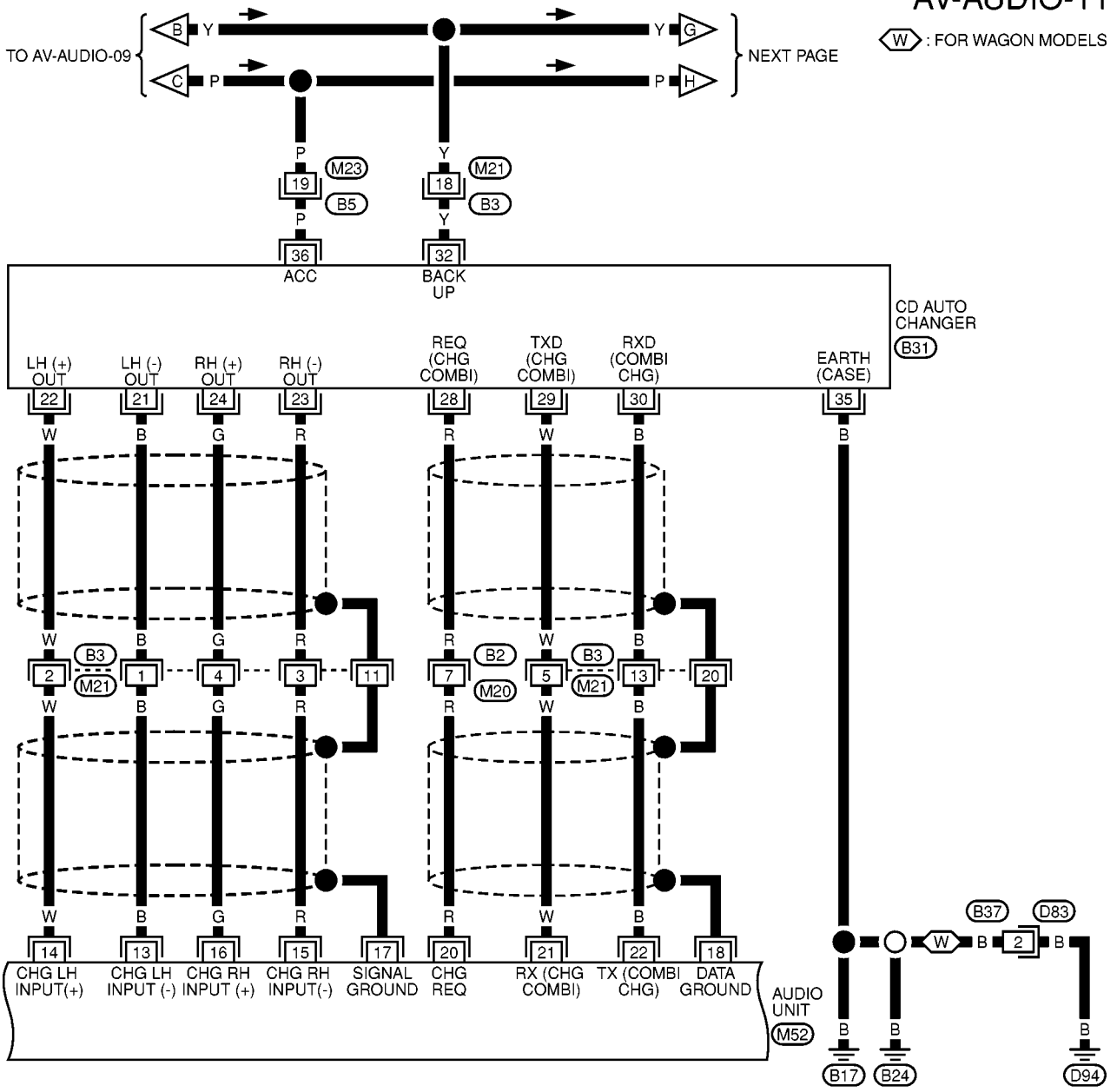


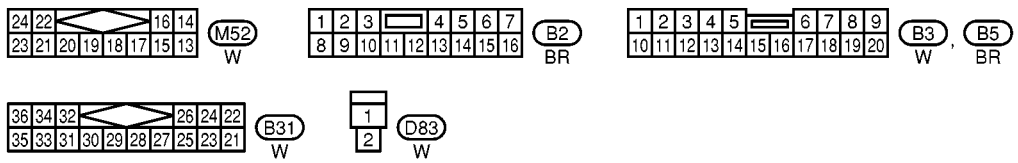




MKWA0069E

AV-AUDIO-11

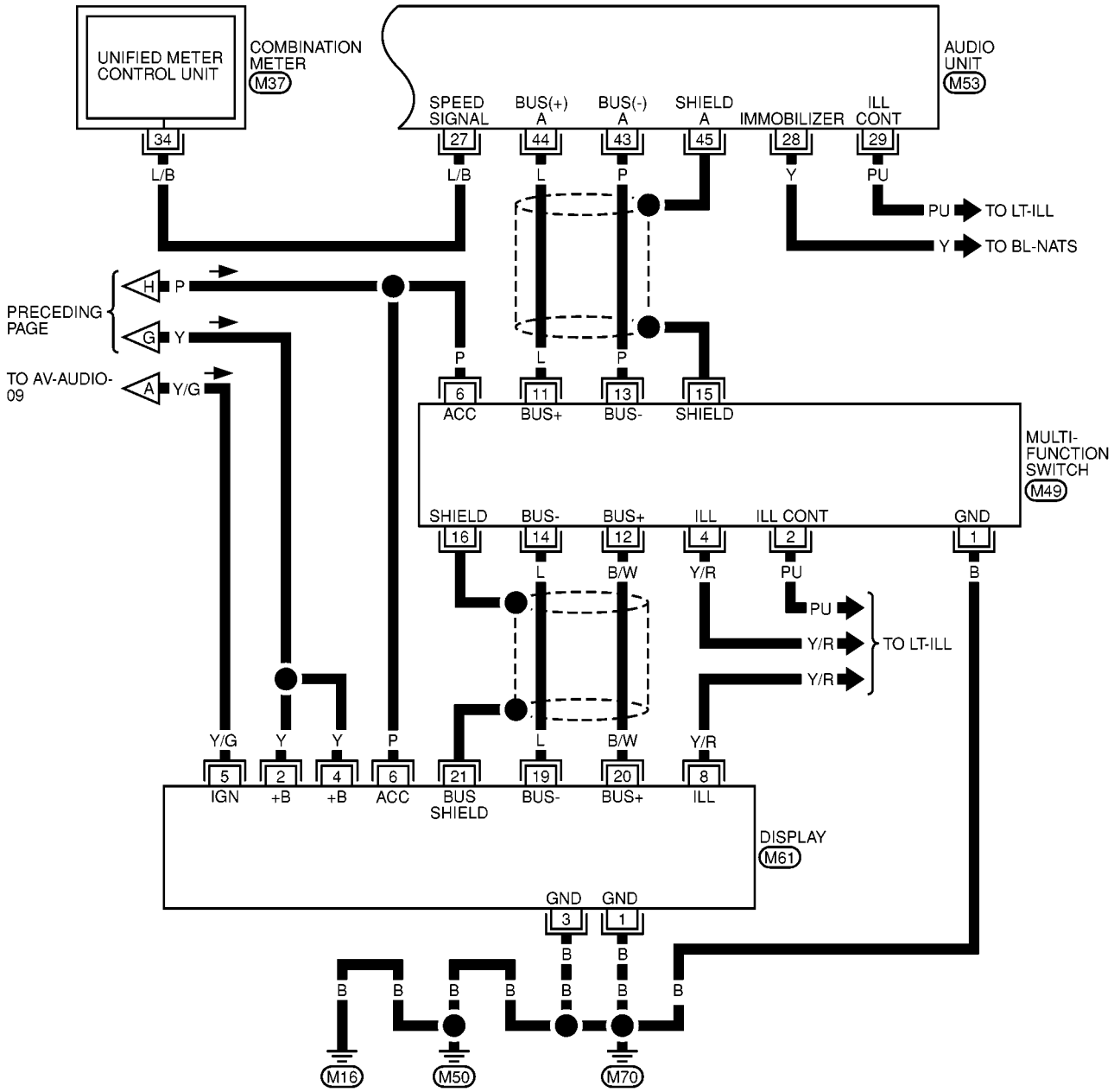
W : FOR WAGON MODELS

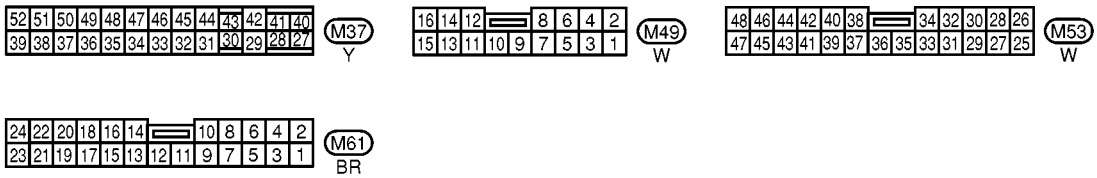



MKWA0070E

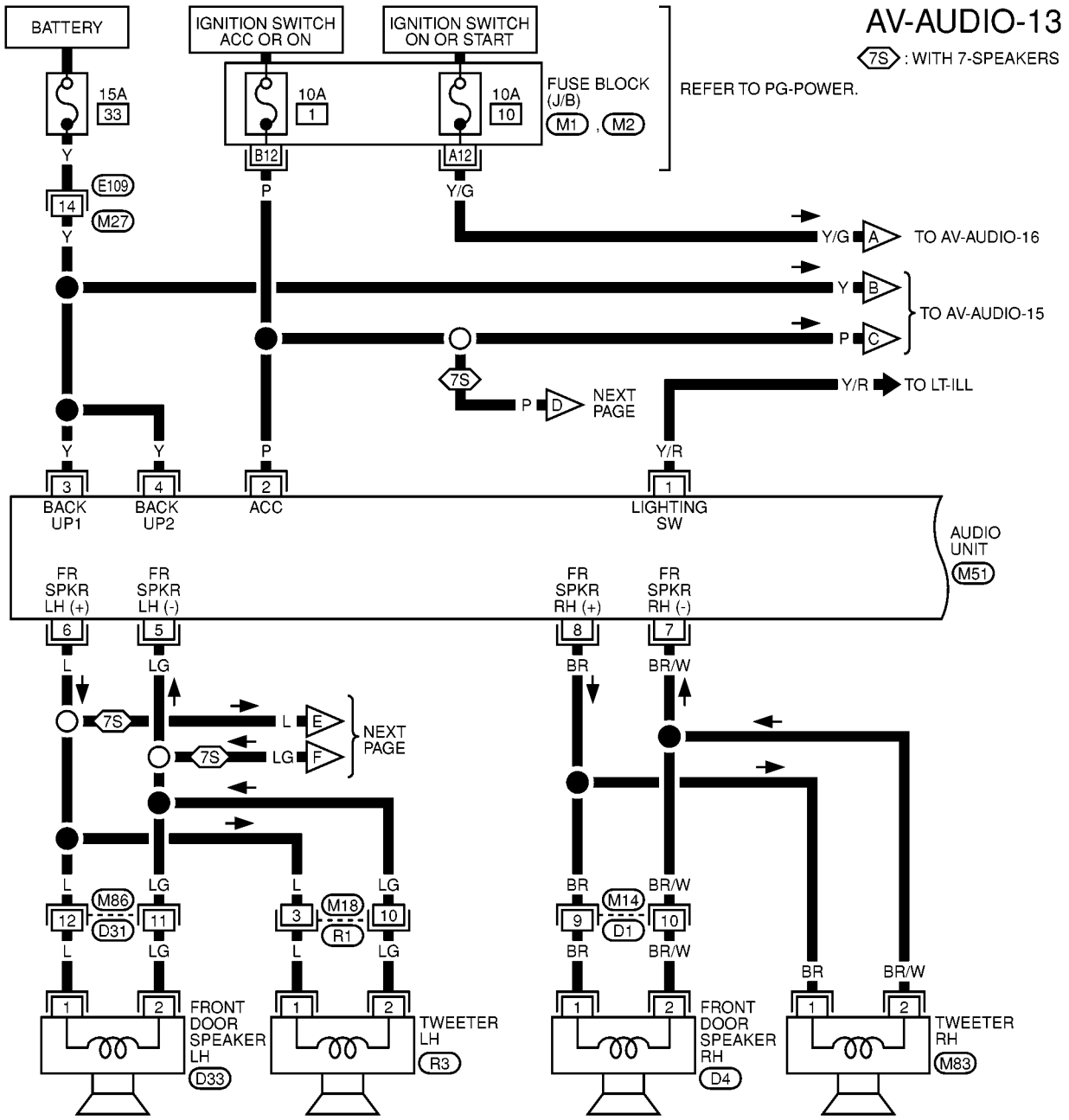
AV-AUDIO-12

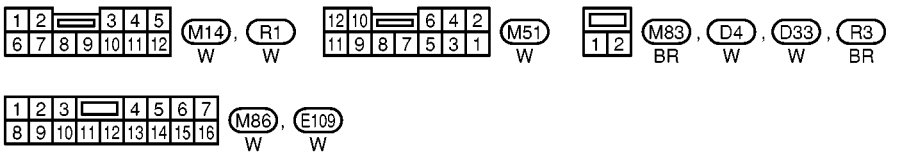



MKWA0071E

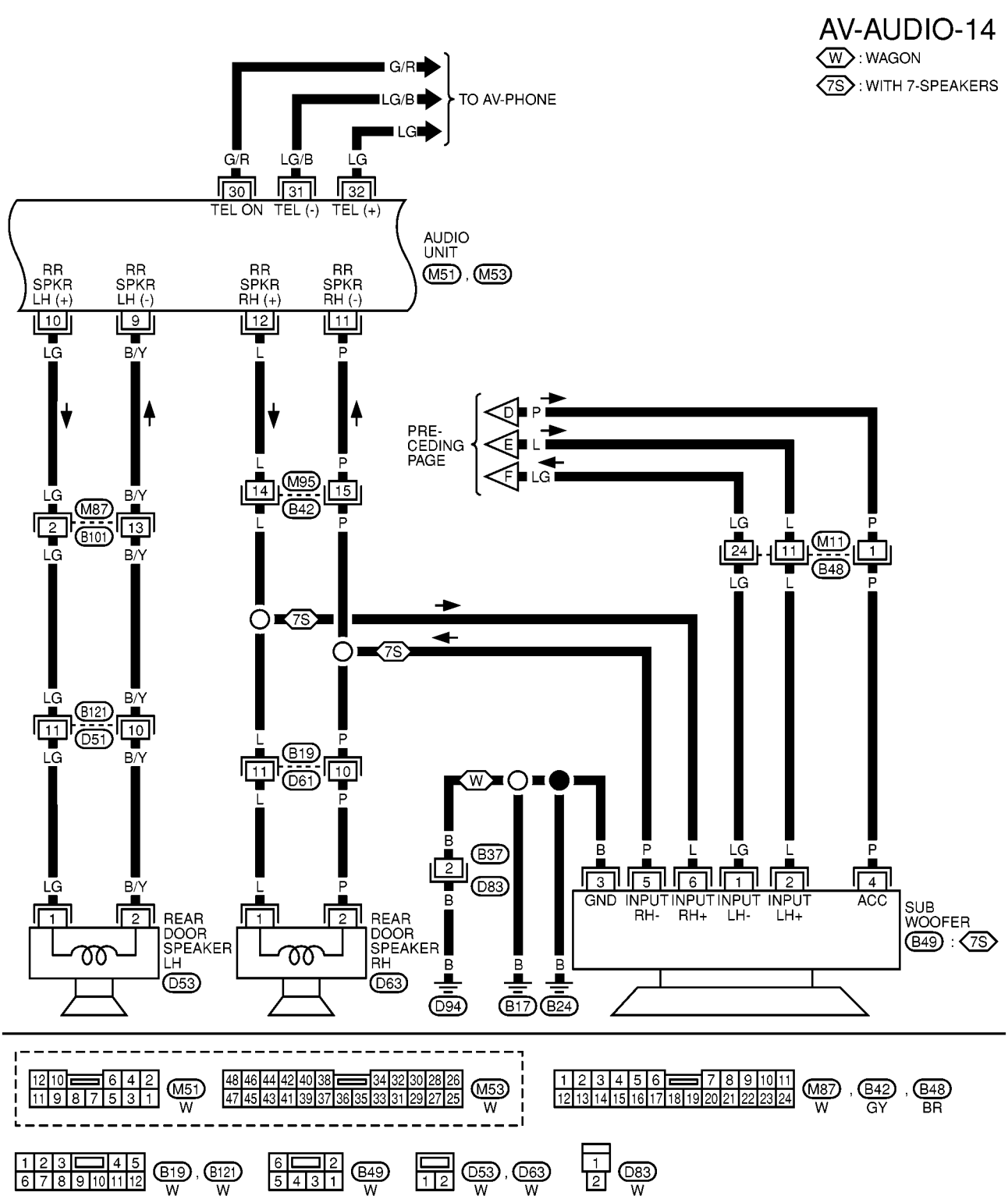
## LCD MONITOR FOR RHD MODELS




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

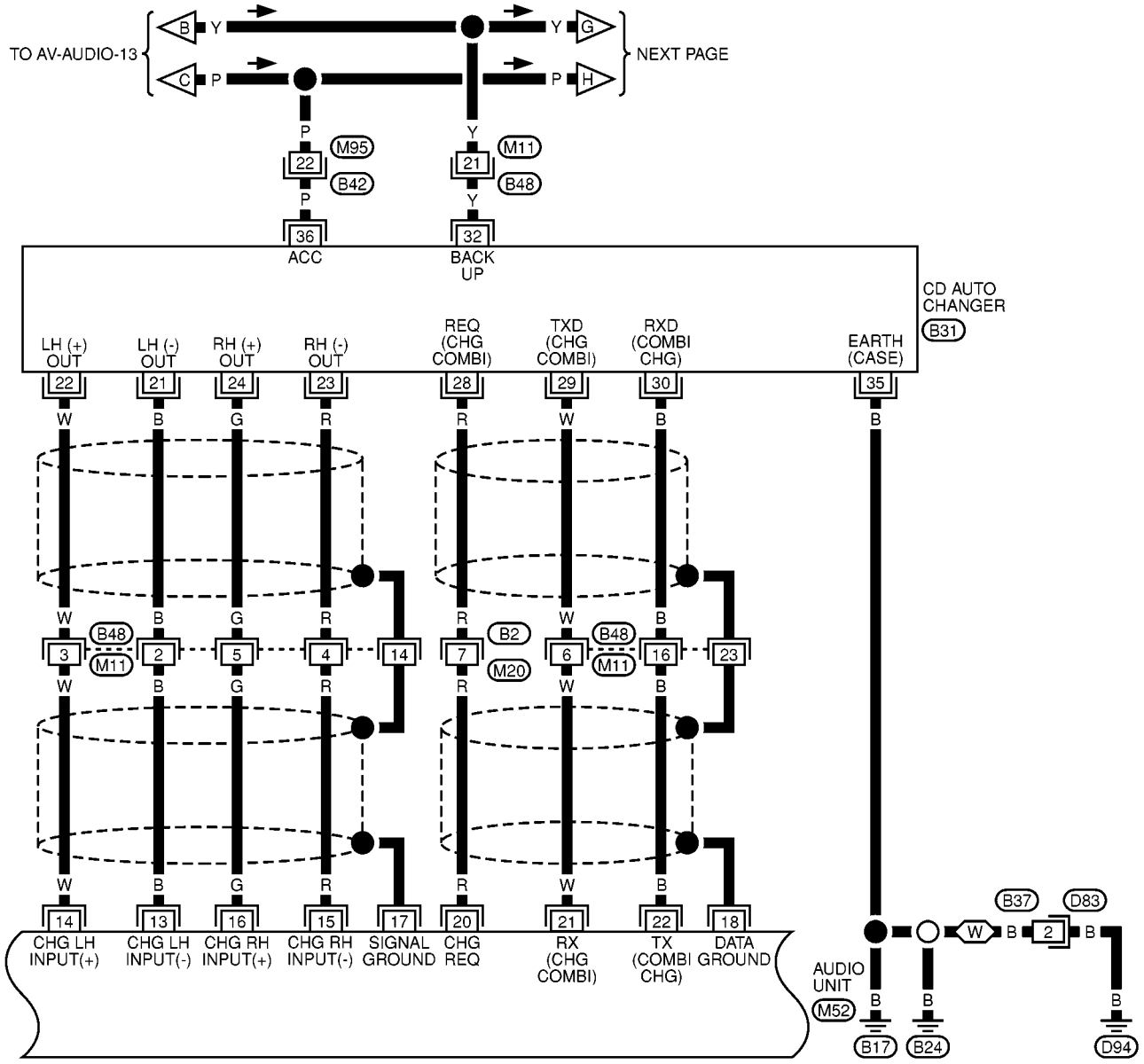
MKWA0072E

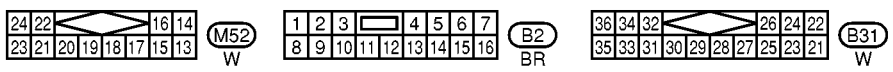

AV-AUDIO-14
W : WAGON
7S : WITH 7-SPEAKERS
G/R
LG/B
LG
TO AV-PHONE
30
31
32
TEL ON
TEL (-)
TEL (+)
AUDIO UNIT
M51 , M53
RR SPKR LH (+)
RR SPKR LH (-)
RR SPKR RH (+)
RR SPKR RH (-)
10
9
12
11
LG
B/Y
L
P
PRE-CEDING PAGE
D
E
F
M95
B42
M87
B101
B121
D51
B19
D61
M11
B48
24
7S
W
B37
D83
B
GND
INPUT RH-
INPUT RH+
INPUT LH-
INPUT LH+
ACC
SUB WOOFER
B49 : 7S
REAR DOOR SPEAKER LH
D53
REAR DOOR SPEAKER RH
D63
D94
B17
B24
M51
W
M53
W
M87
W
B42
GY
B48
BR
B19
W
B121
W
B49
W
D53
W
D63
W
D83
W

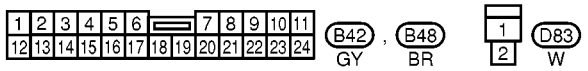
MKWA0073E

AV-AUDIO-15

W : FOR WAGON MODELS

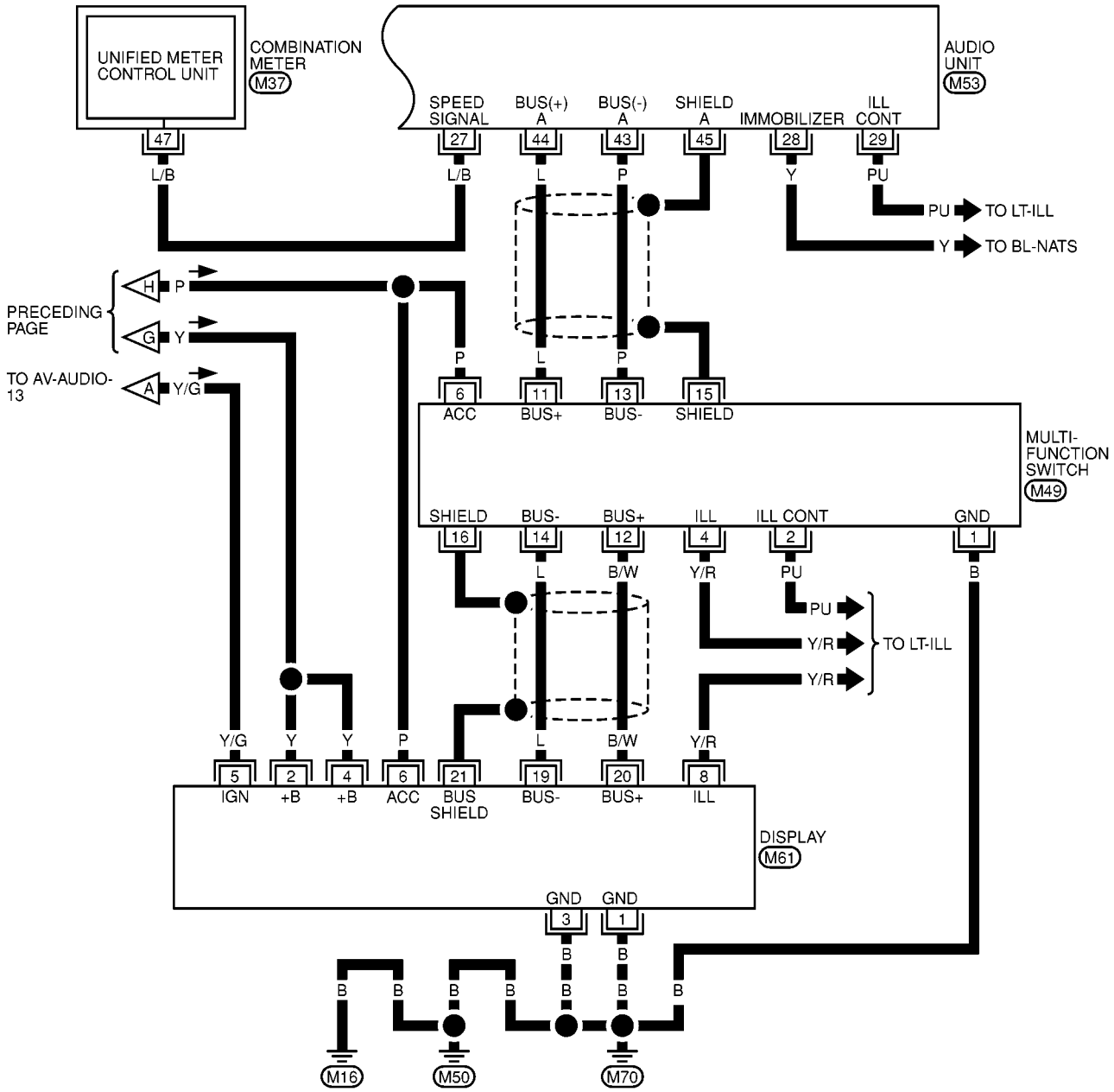


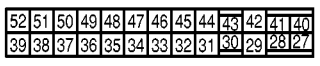



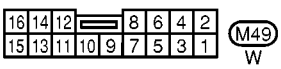


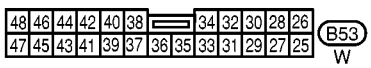
MKWA0074E

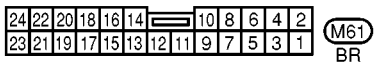
AV-AUDIO-16



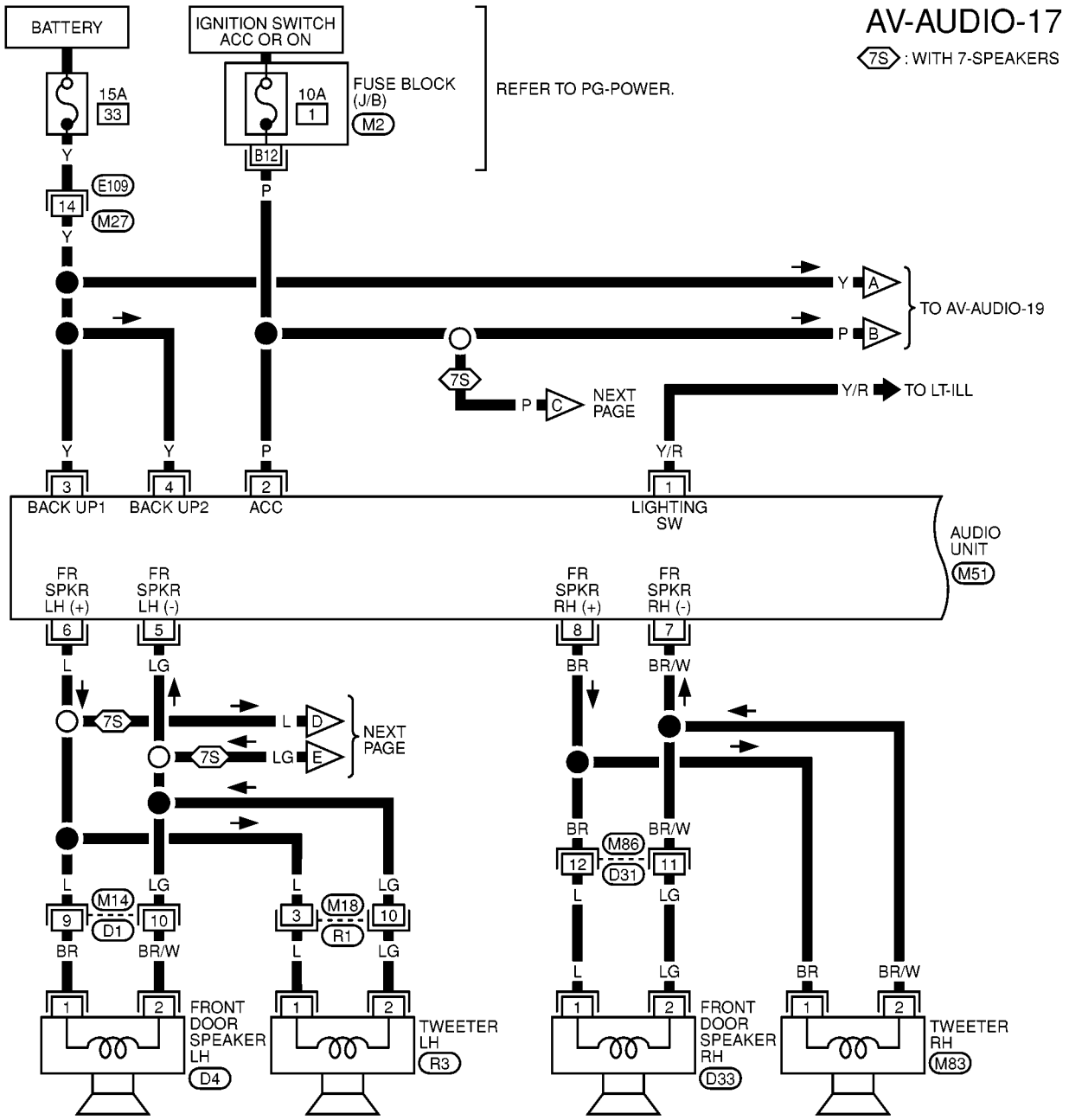



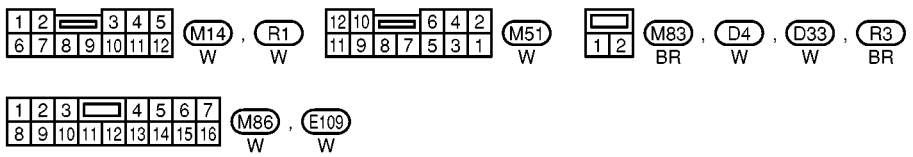




MKWA0075E

## WITH NAVIGATION SYSTEM FOR LHD MODELS

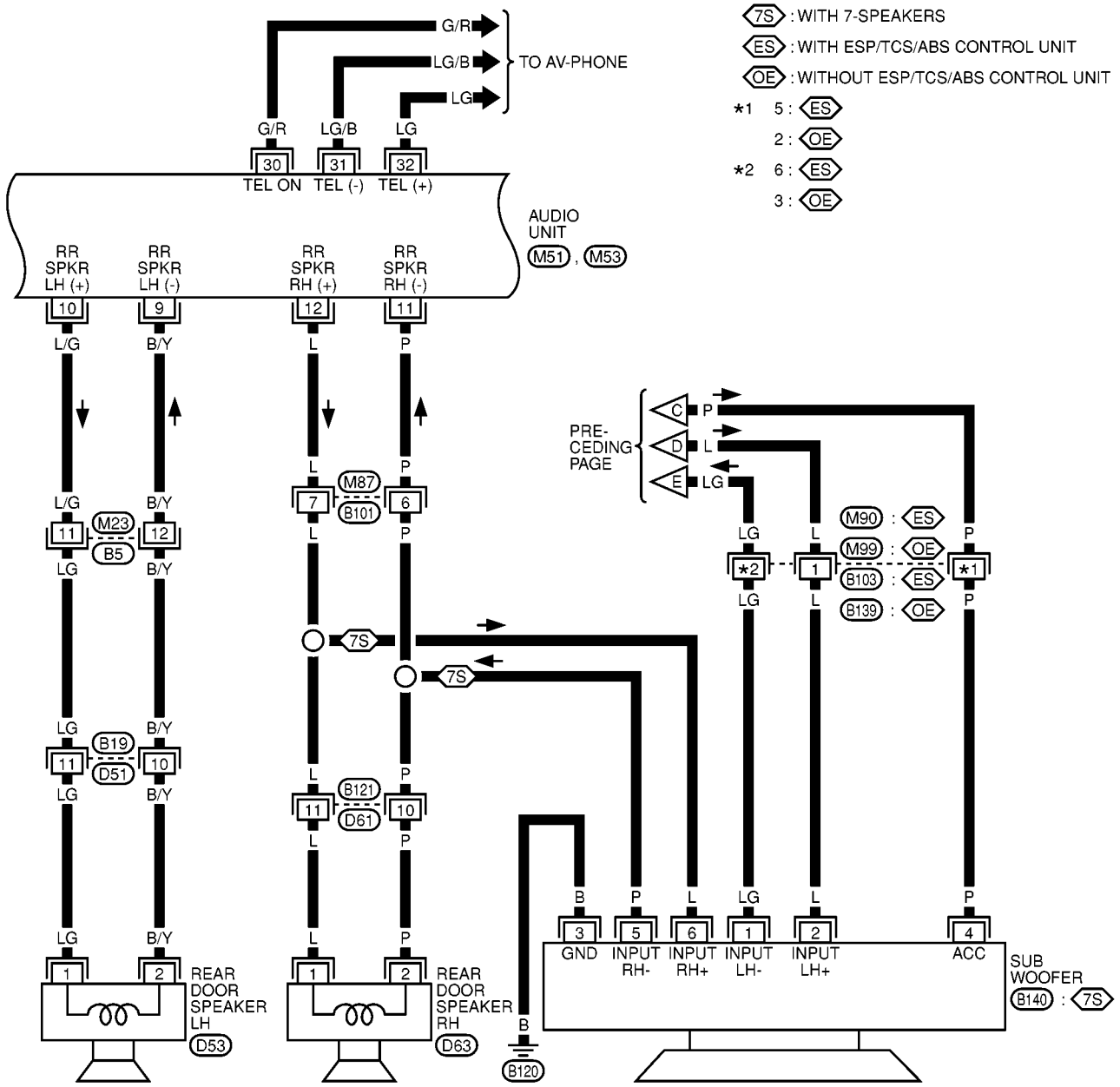


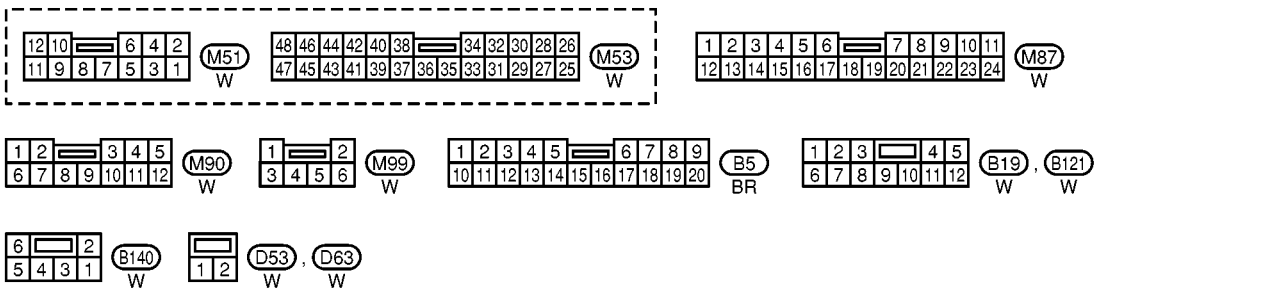




REFER TO THE FOLLOWING.
M2 -FUSE BLOCK-JUNCTION BOX (J/B)

MKWA0077E

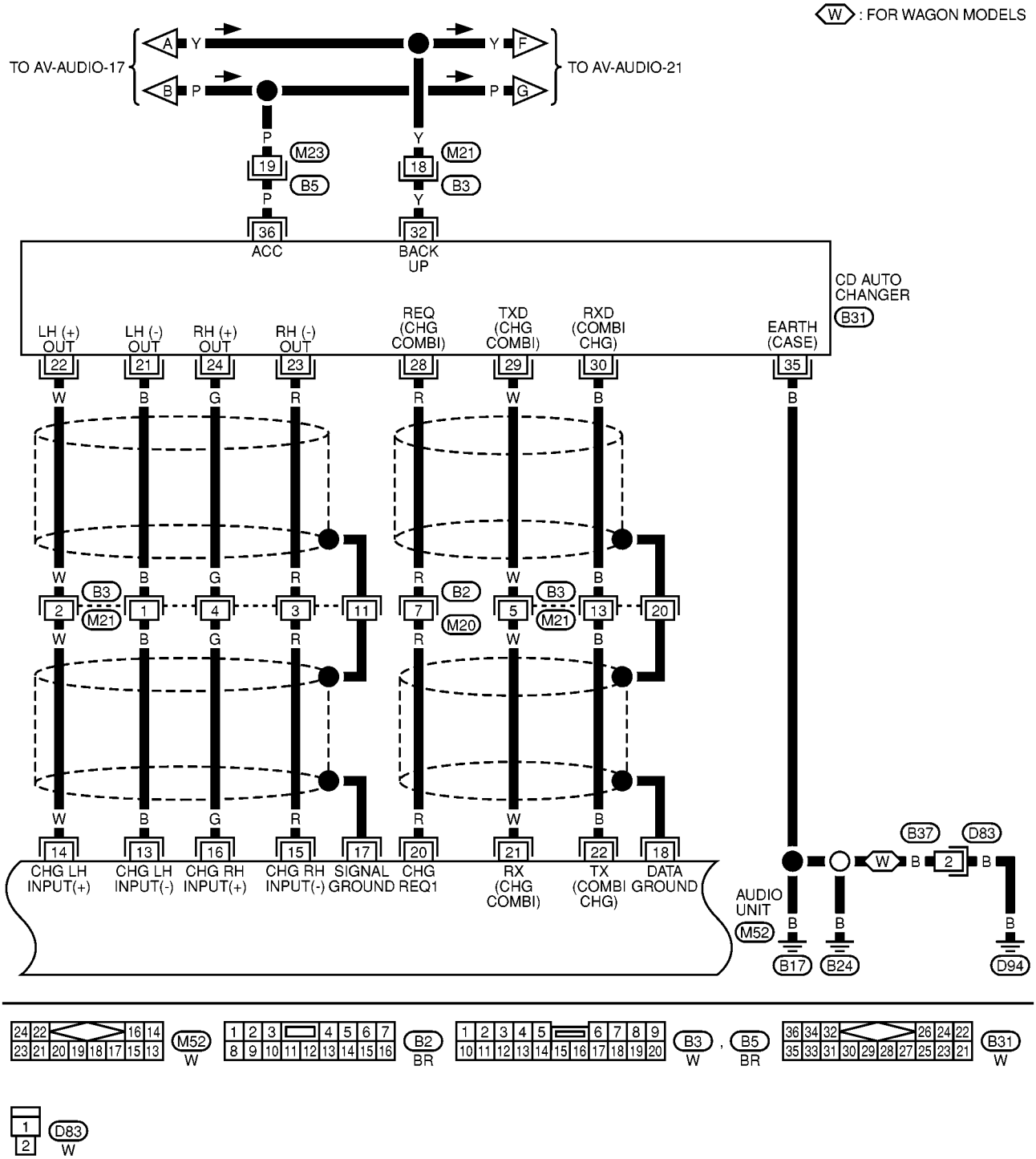
AV-AUDIO-18



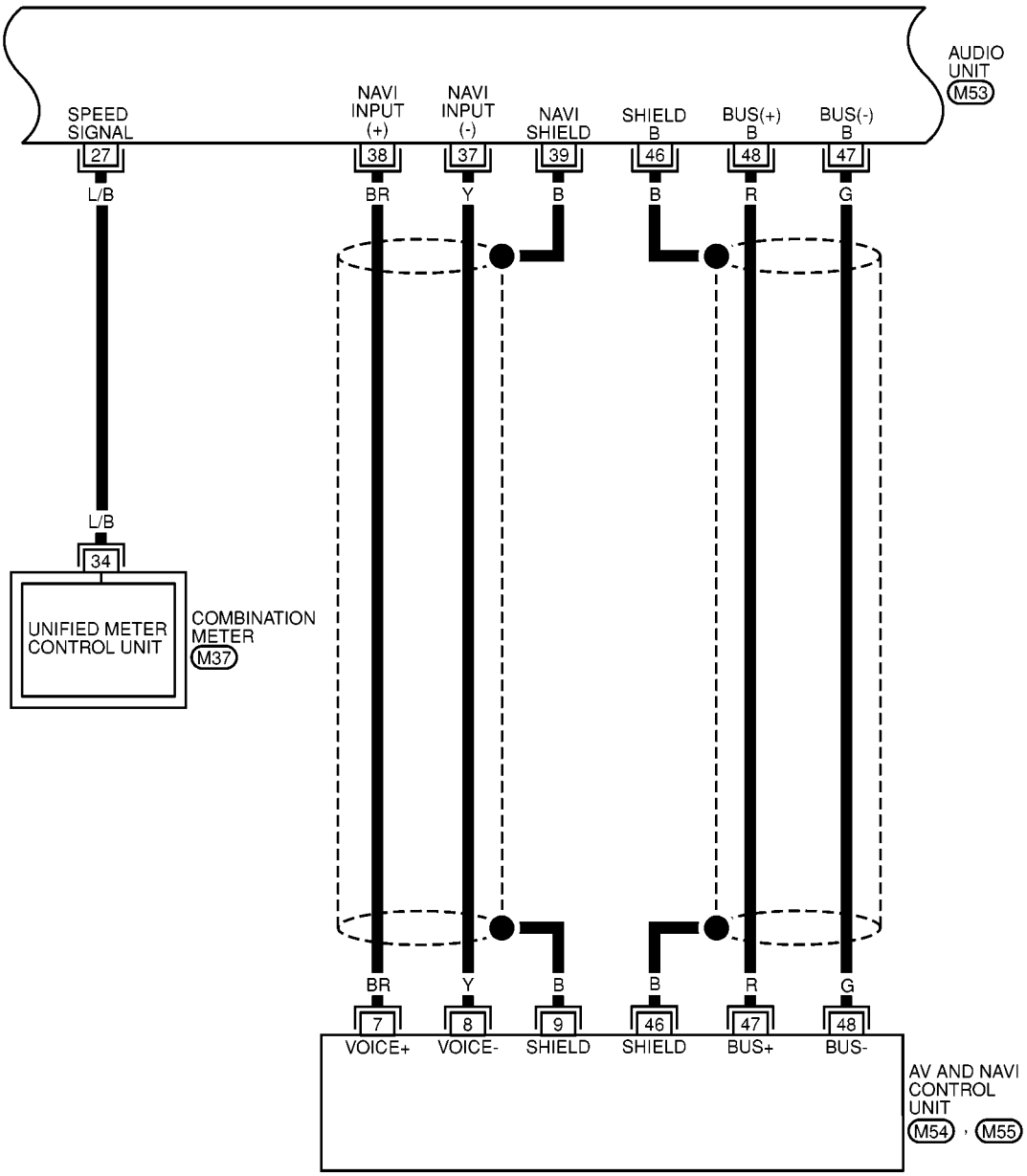

MKWA0078E

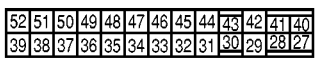
AV-AUDIO-19



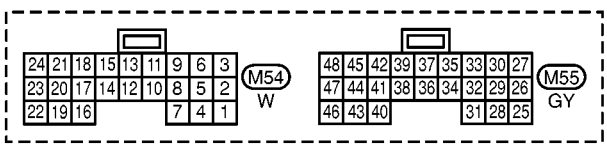

MKWA0079E

AV-AUDIO-20



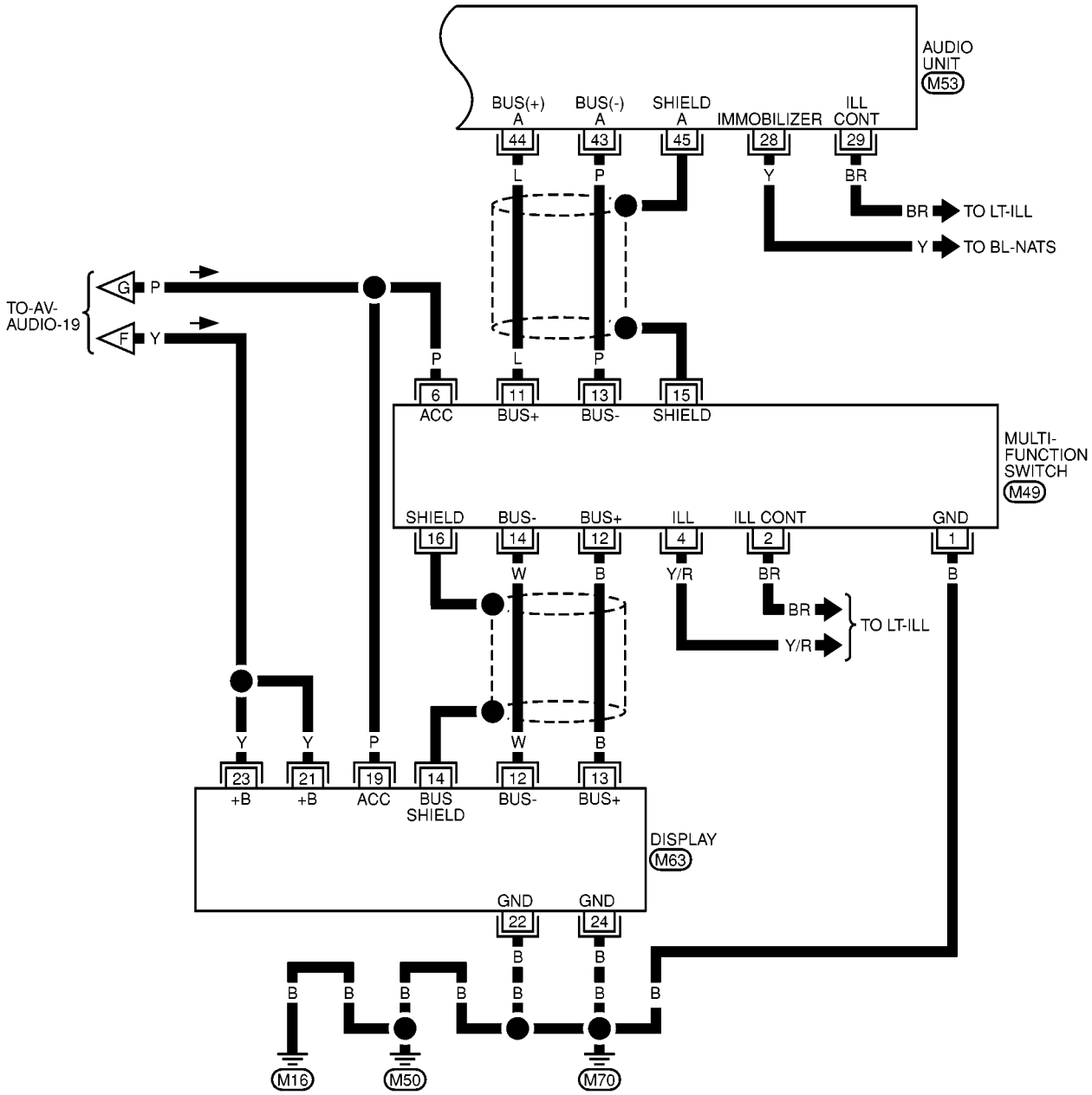



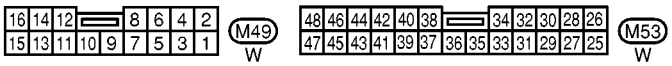


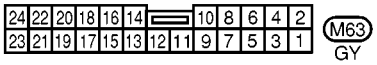



MKWA0080E

AV-AUDIO-21

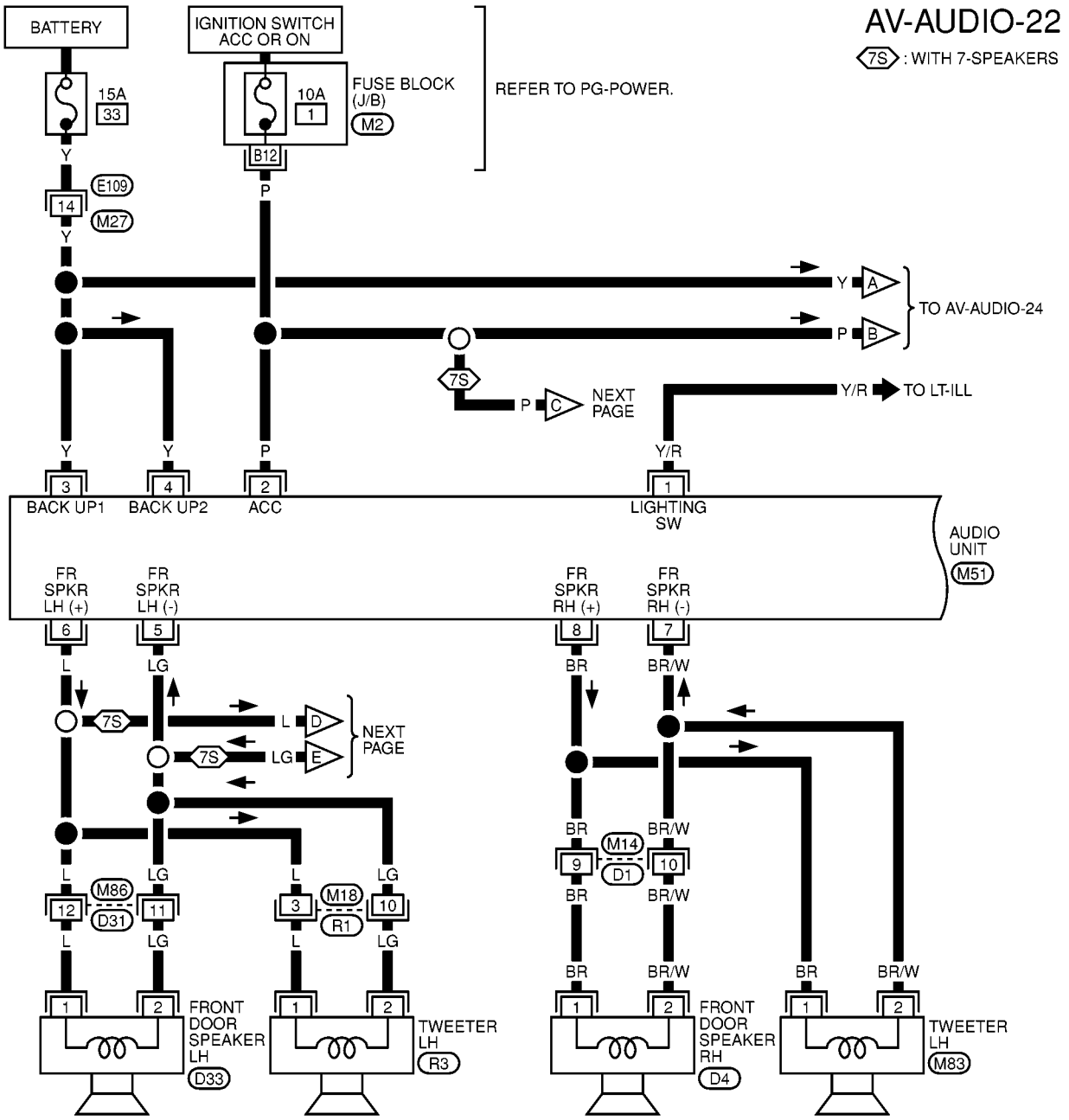



MKWA0081E

## WITH NAVIGATION SYSTEM FOR RHD MODELS




M14, R1 W
M51 W
M83 BR, D4 W, D33 W, R3 BR
M86, E109 W

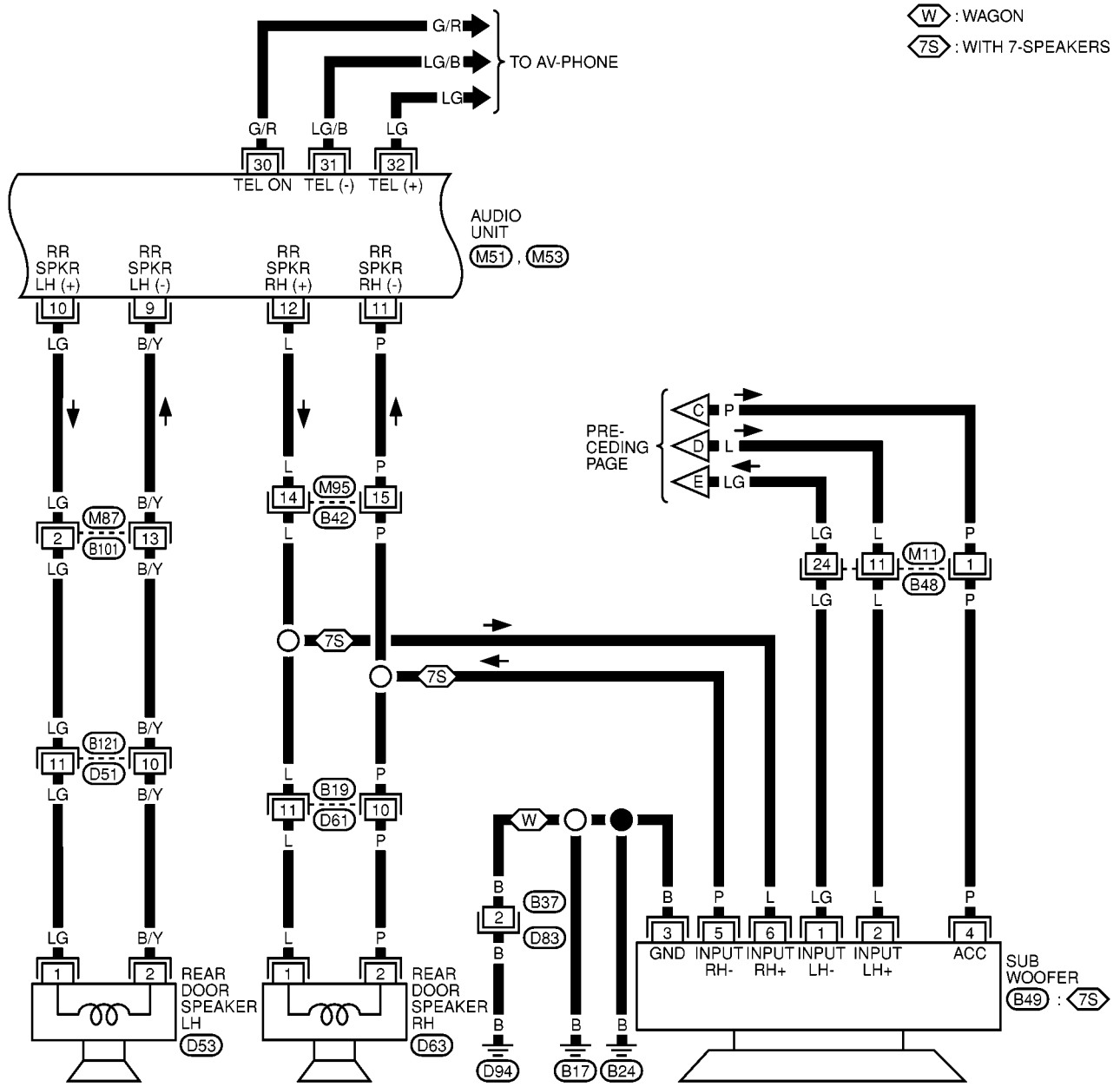
REFER TO THE FOLLOWING.
M2 -FUSE BLOCK-JUNCTION BOX (J/B)

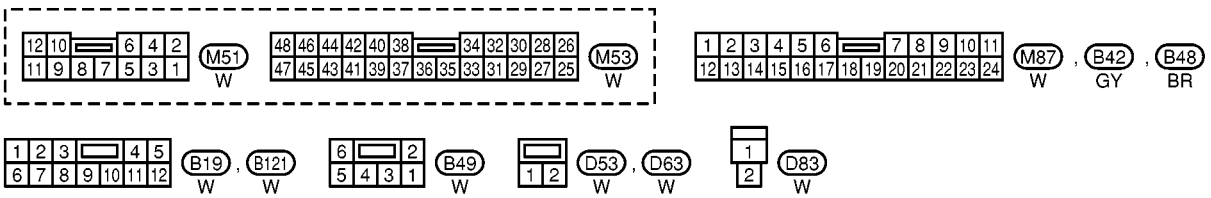
MKWA0082E

AV-AUDIO-23

W : WAGON

7S : WITH 7-SPEAKERS

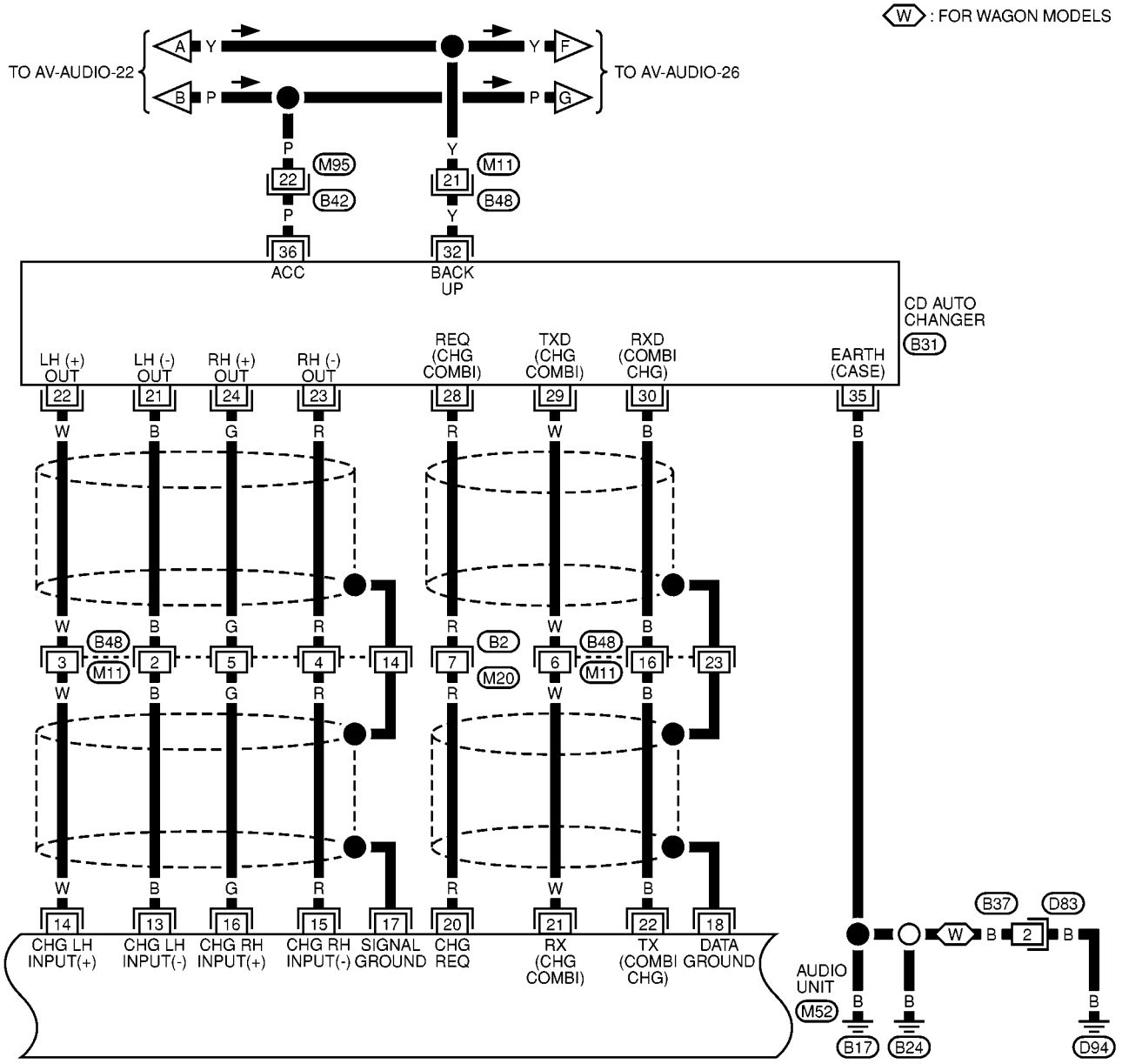


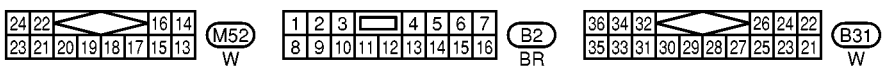




MKWA0083E

AV-AUDIO-24

W : FOR WAGON MODELS

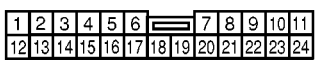


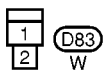







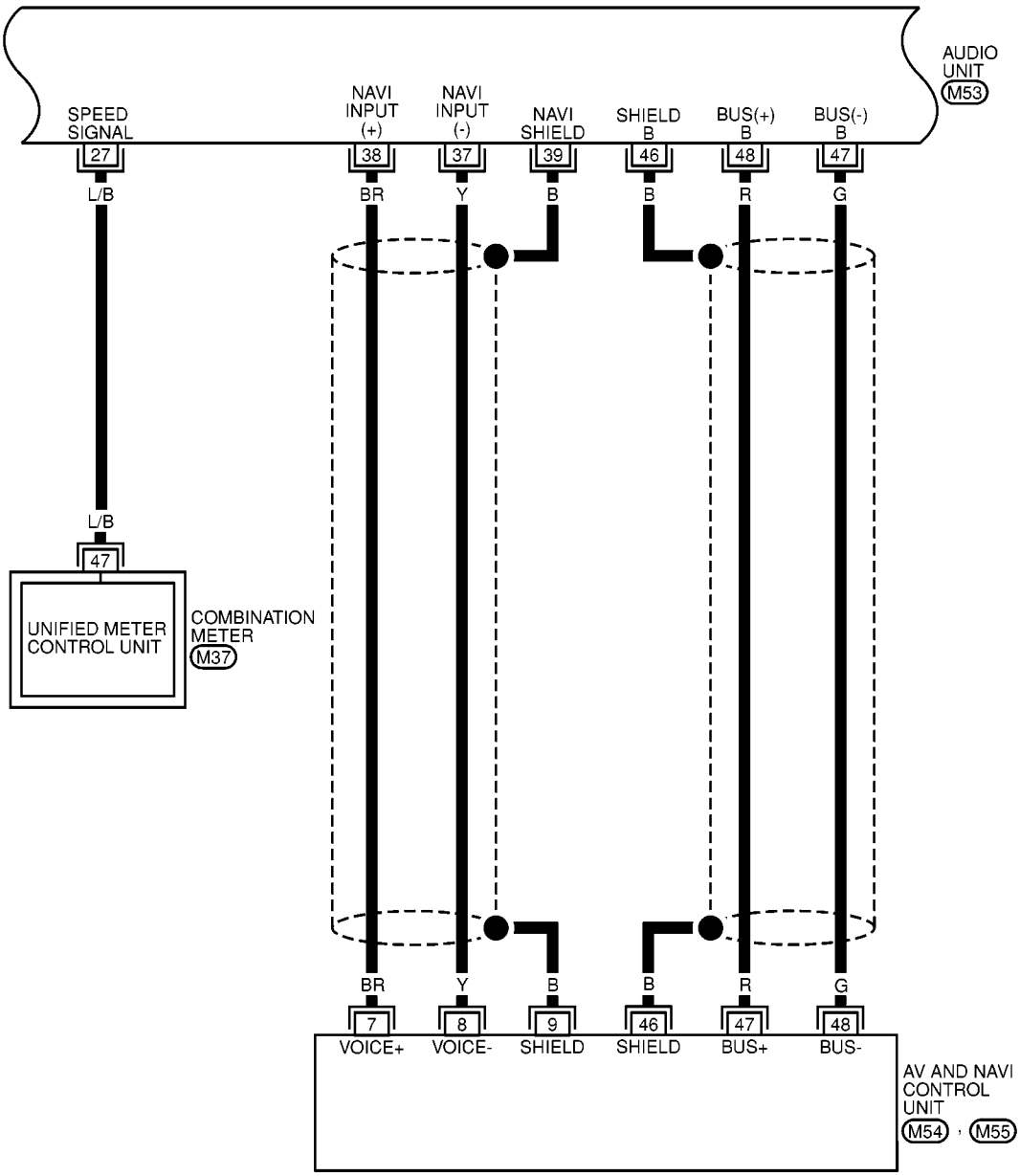


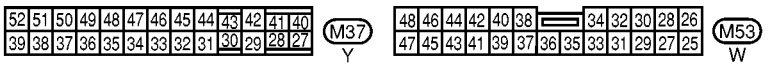



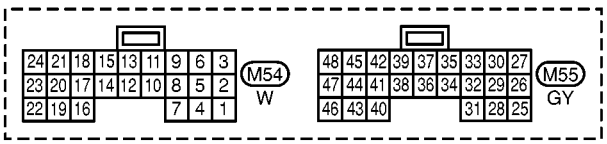




MKWA0084E

AV-AUDIO-25

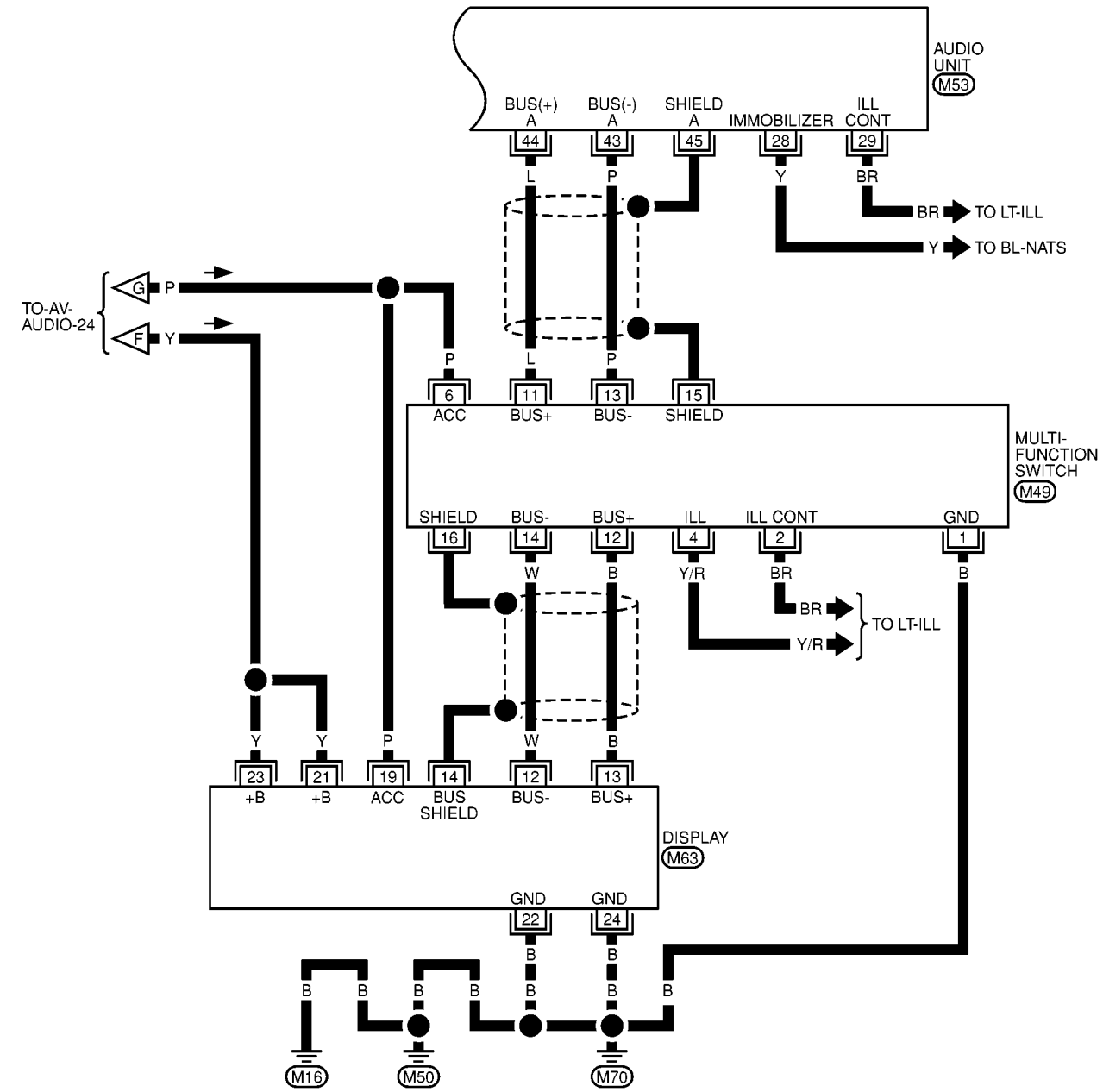


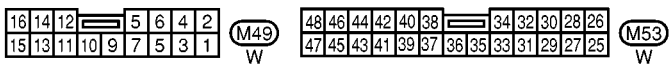



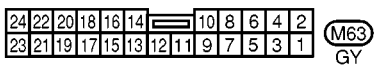




MKWA0085E

AV-AUDIO-26



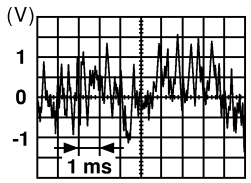
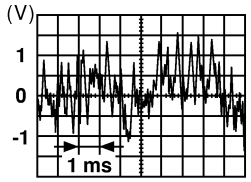
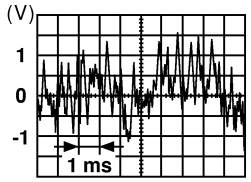
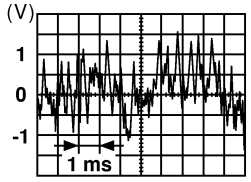
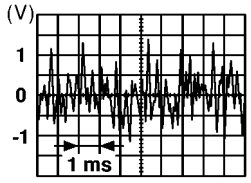



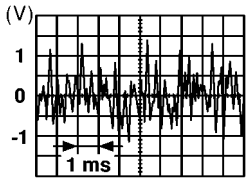
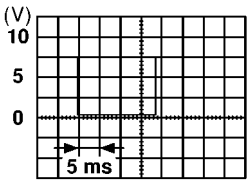
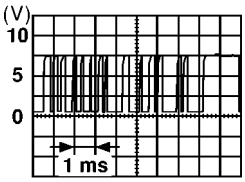
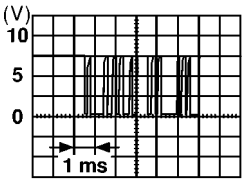
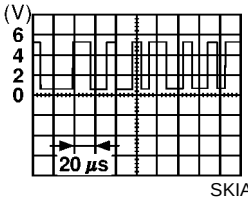



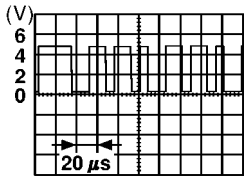
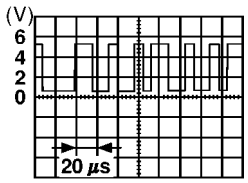
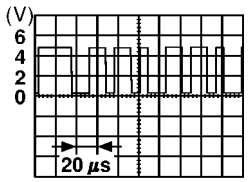

MKWA0086E

## Terminals and Reference Value for Audio Unit

EKS0041O

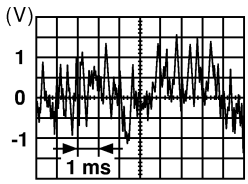
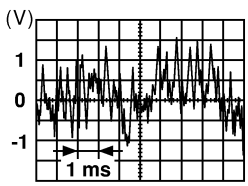
| Terminal No. (wire color) | | Item | Signal input/ output | Condition | | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| + | – | | | Ignition switch | Operation | | |
| 1(Y/R) | ground | Illumination signal | Input | OFF | Lighting switch is ON (position 1). | Battery voltage | Audio unit illumination does not come on when lighting switch is ON (position 1). |
| | | | | | Turn lighting switch OFF. | Approx. 3.0V or less | |
| 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. |

| 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) | ground | Communication signal (CHG REQ) | Input | ON | Insert/eject magazine. |  SKIA0196E | CD Auto changer operation is not possible. |
| 21 (W) | ground | Communication signal (CHG to COMB) | Input | ON | Insert/eject magazine. |  SKIA0197E | CD Auto changer operation is not possible. |
| 22 (G) | ground | Communication signal (COMB to CHG) | Output | ON | Press the disc switch. |  SKIA0198E | CD Auto changer operation is not possible. |
| 29(BR) | 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. |
| 38(BR) | 37(Y) | Voice guide signal | Input | ON | Press the "voice" switch. | TBLサイズ SKIA0171E | Only route guide and operation guide are not heard. |
| 39(B) | - | Shield ground | - | - | - | - | - |
| 43(P) | ground | Communication signal (-) | Input/ output | ON | - |  SKIA0176E | System does not work properly. |

| Terminal No. (wire color) | | Item | Signal input/ output | Condition | | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| + | – | | | Ignition switch | Operation | | |
| 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 (-) | Input/ output | ON | - |  SKIA0176E | System does not work properly. |
| 48(R) | ground | Communication signal (+) | Input/ output | ON | - |  SKIA0175E | System does not work properly. |

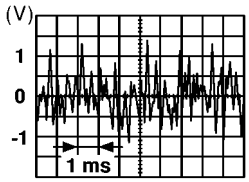
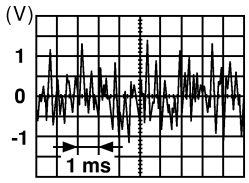
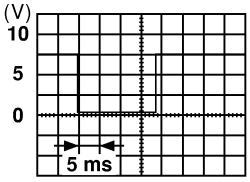
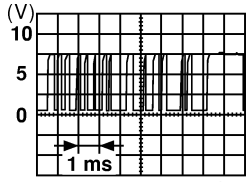
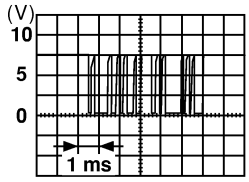
## Terminals and Reference Value for Sub-woofer

EKS004M3

| 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 |  SKIA0177E | 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 |  SKIA0177E | Audio sound not heard sub-woofer. |

## Terminals and Reference Value for CD Auto Changer

EKS00412

| Terminal No. + | Terminal No. - | Signal name | Signal input/ output | Condition: Ignition switch | Condition: Operation | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| 22 (W) | 21 (B) | CD sound signal (LH) | Output | ON | Play CD. |  SKIA0195E | CD sound is not heard from LH speaker. |
| 24 (G) | 23 (R) | CD sound signal (RH) | Output | ON | Play CD. |  SKIA0195E | CD sound is not heard from RH speaker. |
| 28 (R) | ground | Communication signal (CHG REQ) | Output | ON | Insert/eject magazin. |  SKIA0196E | CD Auto changer operation is not possible. |
| 29 (W) | ground | Communication signal (CHG to COMB) | Output | ON | Insert/eject magazin. |  SKIA0197E | CD Auto changer operation is not possible. |
| 30 (G) | ground | Communication signal (COMB to CHG) | Input | ON | Press the disc switch. |  SKIA0198E | 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. |

## Self-Diagnosis Function

EKS004M5

### 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 | ● Check that communication lines between system components are properly connected.<br>● Perform the unit diagnosis of Audio unit and CD Auto changer. |

# Self-Diagnosis Mode

EKS00415

## OPERATION PROCEDURE

- To start the self-diagnosis mode and to check the diagnosis result, AV-78, "Self-Diagnosis Mode" for models with navigation system, and DI-77, "Self-Diagnosis Mode" for models without navigation system.

# Trouble Diagnosis

EKS00417

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

## PROBLEM WITH RADIO, TAPE, AND CD

| Symptom | Check items | Possible cause |
|---|---|---|
| Inoperative | ● Check that the ignition switch is in the ACC position. | ● Audio unit<br>● Audio unit power circuit |
| No sound | ● Check that the volume is not turned down.<br>● Check that the balance and fader control knobs are centered. | ● Audio unit<br>● Audio unit power circuit<br>● Speaker<br>● Sound signal circuit between speaker and Audio unit |
| Poor sound | ● Check that the bass and treble adjustment knobs are centered. | ● Audio unit<br>● CD Auto changer<br>● Speaker |
| Noisy | - | ● Audio unit<br>● CD Auto changer<br>● Each electrical equipment |

## FOR RADIO ONLY

| Symptom | Check items | Possible cause |
|---|---|---|
| No sound | ● Check that the radio is tuned to a station's frequency. | ● Audio unit<br>● Antenna feeder<br>● Roof antenna |
| Noisy | ● Check that the radio is tuned to a station's frequency.<br>● Check that the signal of the received station is not weak.<br>● Check whether or not the malfunction occurs only in a particular area. (Note) | ● Audio unit<br>● Antenna feeder<br>● Roof antenna<br>● Noise prevention parts<br>● Each electrical equipment<br>● Wire harness of each piece of electrical equipment |
| Selected radio stations stored in memory are deleted | - | ● Audio unit<br>● Audio unit power circuit |

**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 CASSETTE PLAYER ONLY

| Symptom | Check items | Possible cause |
|---|---|---|
| Cassette tape cannot be inserted. | ● Check that a cassette tape is not already inserted.<br>● Check that the cassette has no deformation or other unusual conditions. | Audio unit, Audio unit power circuit |
| Cassette tape cannot be ejected. | ● Check that the cassette has no deformation or other unusual conditions.<br>● Check that the cassette tape does not sag. | |
| Auto reverse does not work, or the tape direction changes in the middle of play. | ● There is a problem with tape winding. Check that there is no slack or other unusual conditions.<br>● Check that an old cassette tape is not being used. | Audio unit |
| There is much noise. | ● Check that the cassette tape itself does not have a lot of noise, or that the tape does not have a low recording level. | |
| The sound is not clear. | ● Check that the tune is recorded on tape with Dolby B NR OFF and played with Dolby B NR ON.<br>● Check that the sound quality of the cassette tape itself is not poor. | |
| Sound fluctuates/tape speed not correct. | ● Check that there is no tape winding problem, sagging, stretching, or other unusual conditions.<br>● Check that there is no problem with the recording speed of the cassette tape. | |
| No sound. | ● Check that the cassette tape has been recorded on. | |

### FOR CD ONLY

| Symptom | Check items | Possible cause |
|---|---|---|
| The CD cannot be played. | ● Check that the CD is not upside down.<br>● Check that there is no dirt, damage, or water on the disc. | ● CD Auto changer<br>● Audio unit |
| The sound skips, stops suddenly, or is distorted. | ● Check that there is no dirt, damage, or water on the disc.<br>● Check that the trouble is not due to strong vibration. | |

## Noise Inspection

EKS00418

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. | ● Problem with the motor case ground<br>● Problem with the motor |

| Occurrence condition | Possible cause |
|---|---|
| The noise occurs constantly, not just under certain conditions. | ● Rear defogger coil malfunction<br>● Open circuit in printed heater<br>● Poor ground of antenna amplifier or antenna feeder line |
| A cracking or snapping sound occurs while the vehicle is being driven, especially when it is vibrating excessively. | ● Problem with the ground wire of body parts<br>● Problem with ground due to part installation problem<br>● Problem with wiring connections or a short circuit |

## Power Supply Circuit Inspection

EKS00419

### 1. CHECK FUSE.

- Check that the following fuses of the Audio unit, Sub-woofer and CD Auto changer are not blown, Refer to PG-92, "FUSE BLOCK-JUNCTION BOX(J/B)" and PG-93, "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 |
| | M51 | 2(P) | Ground | ACC power | 1 |
| CD Auto changer | B31 | 32(Y) | Ground | Battery power | 33 |
| | B31 | 36(P) | Ground | ACC power | 1 |
| Sub-woofer | B49 | 4(P) | Ground | ACC power | 1 |

OK or NG

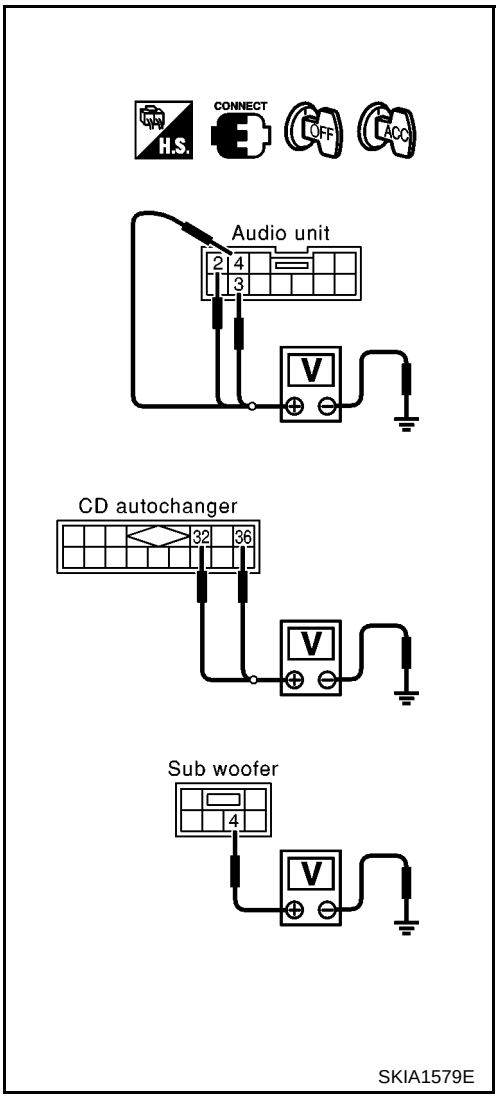
OK >> GO TO 2.

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. (+) Connector | Terminal No. (+) Terminal (wire color) | Terminal No. (-) | Power Source | Ignition switch | Reference voltage (V) |
|---|---|---|---|---|---|---|
| Audio unit | M51 | 3(Y),4(Y) | Ground | Battery power | OFF | Battery voltage |
| | M51 | 2 (P) | Ground | ACC power | ACC | Battery voltage |
| CD Auto changer | B31 | 32 (Y) | Ground | Battery power | OFF | Battery voltage |
| | B31 | 36 (P) | Ground | ACC power | ACC | Battery voltage |
| Sub-woofer | B49 | 4(P) | Ground | ACC power | ACC | Battery voltage |



SKIA1579E

OK or NG

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

## Audio System Does Not Turn On.

EKS0041A

## 1. SELF-DIAGNOSIS

1. Perform self-diagnosis. Refer to AV-78, "Self-Diagnosis Mode" for models with navigation system and DI-77, "Self-Diagnosis Mode" for models LCD DISPLAY without navigation system.

OK or NG

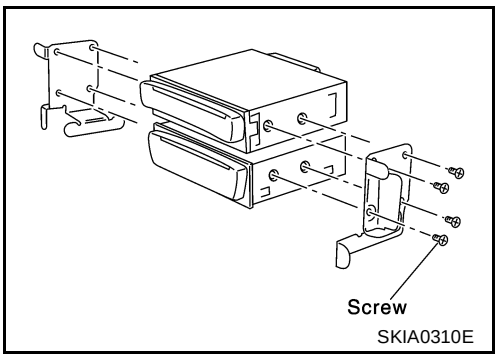
OK >> Replace Audio unit.
NG >> Check the malfunctioned area according to the self-diagnosis result.

## Removal and Installation of Audio Unit

EKS0041V

1. Remove screws (4) and remove ashtray.

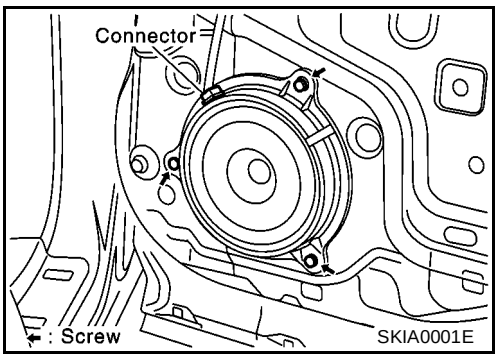
2. Remove screws (4) and remove bracket.




## Removal and Installation of Door Speaker

EKS004JJ

1. Remove door finisher.
   - EI-22, "DOOR FINISHER" in “Exterior/Interior (EI)” section.
2. Remove screws (3) and remove speaker.



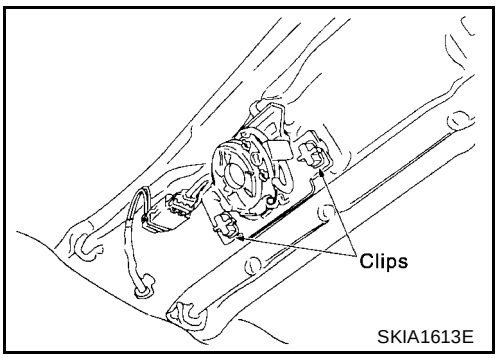

## Removal and Installation of Front Pillar Tweeter

EKS004JK

1. Remove front pillar garnish.
   - EI-25, "BODY SIDE TRIM" in “Exterior/Interior (EI)” section.
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.**

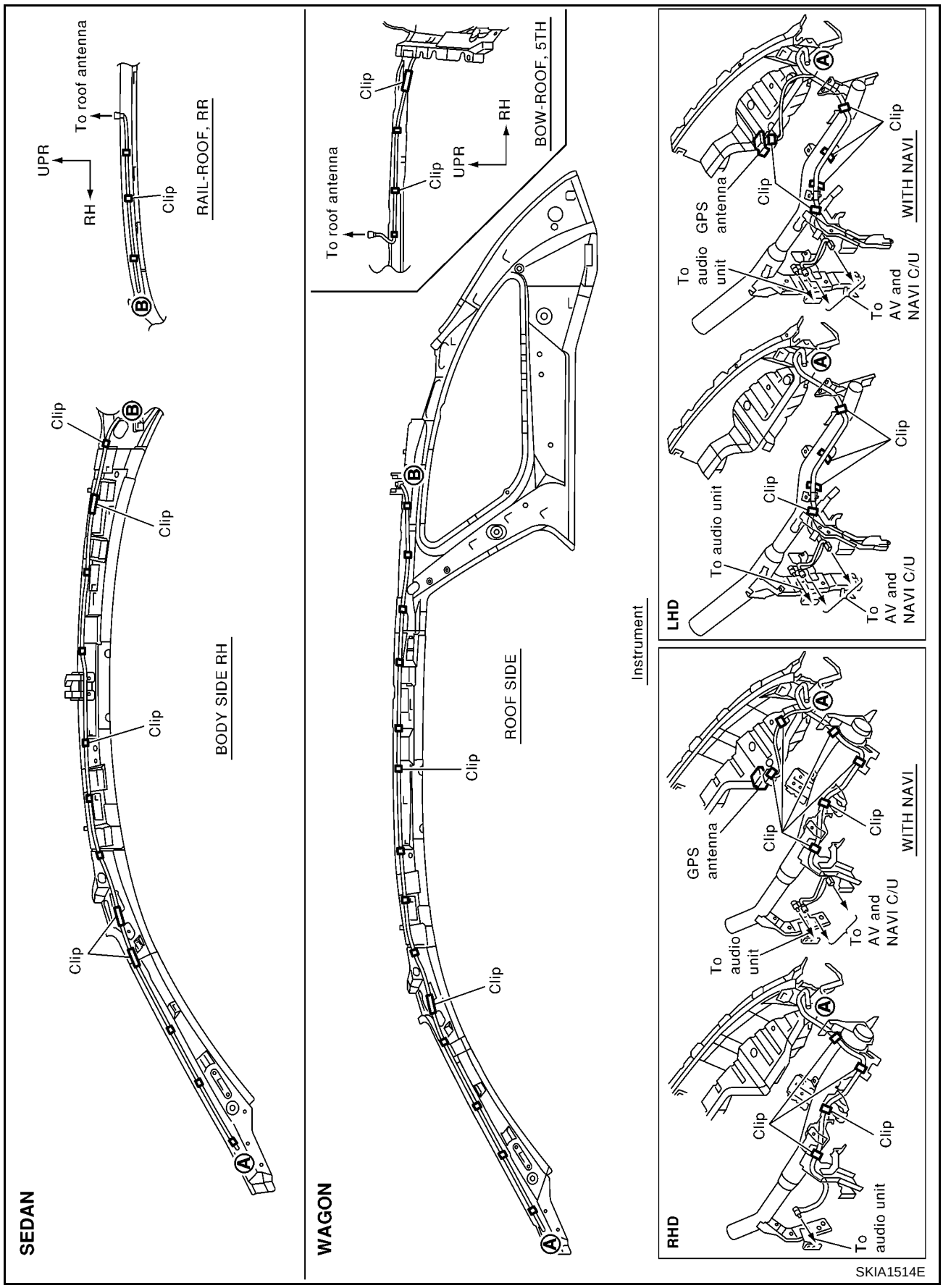


# AUDIO ANTENNA

PFP:28200

## Location of Antenna

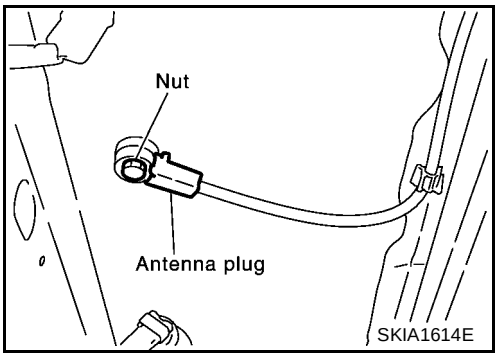
EKS00420



## Removal and Installation of Roof Antenna

EKS00495

1. Remove headlining.
   - EI-32, "HEADLINING" in “Exterior/Interior (EI)” section.
2. Remove roof antenna mounting nuts, antenna plug. Then remove roof antenna.

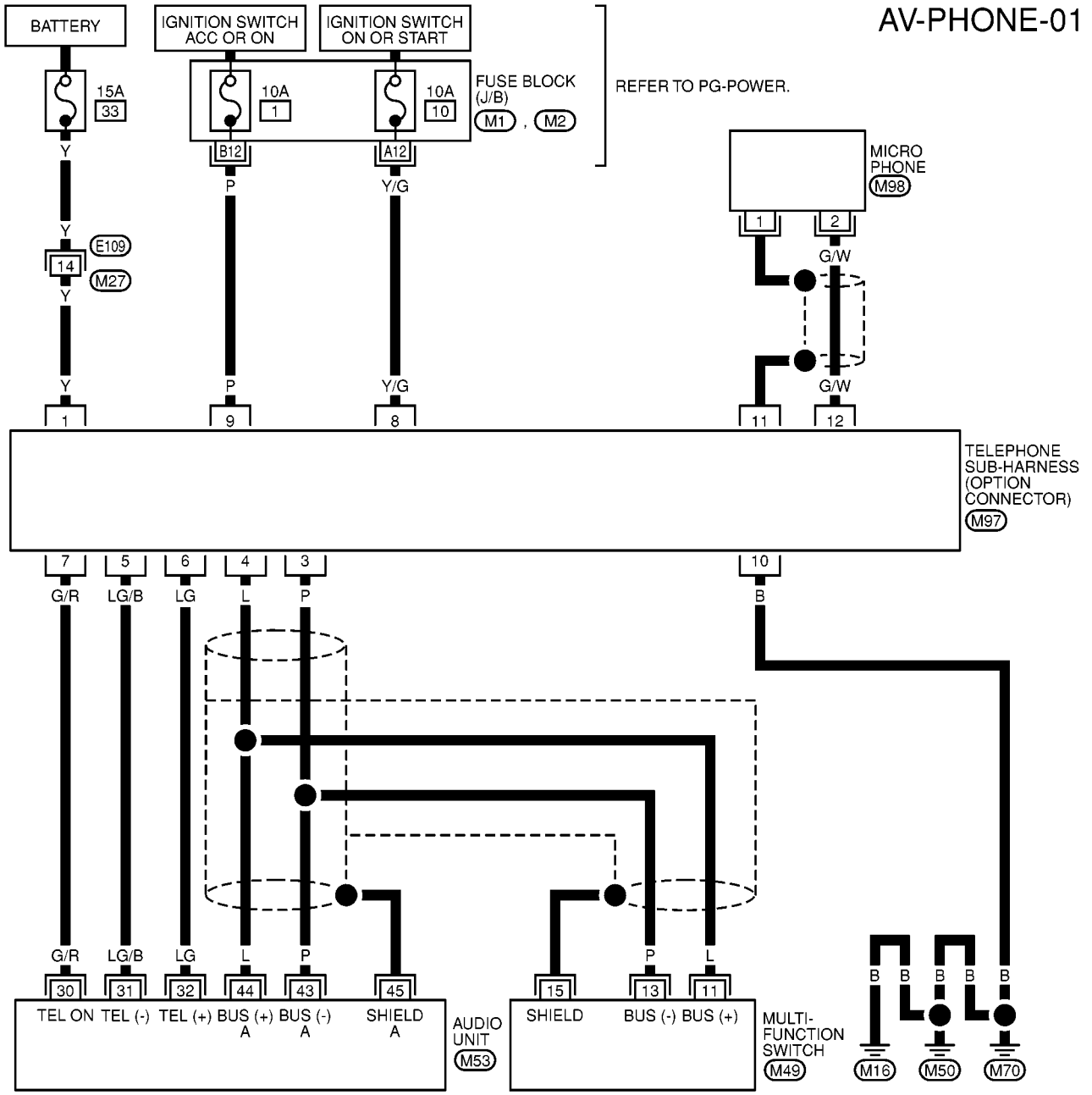


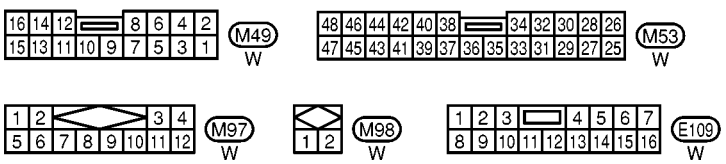
# TELEPHONE (PRE WIRE)

PFP:28342

## Wiring Diagram — PHONE —

EKS00422




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

MKWA0357E

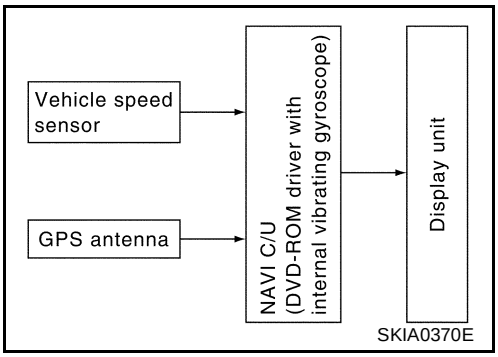
# NAVIGATION SYSTEM

PFP:25915

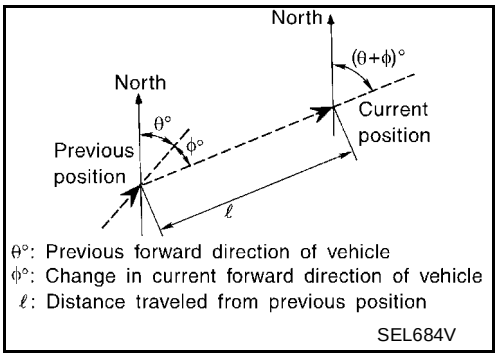
## System Description

EKS00423

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

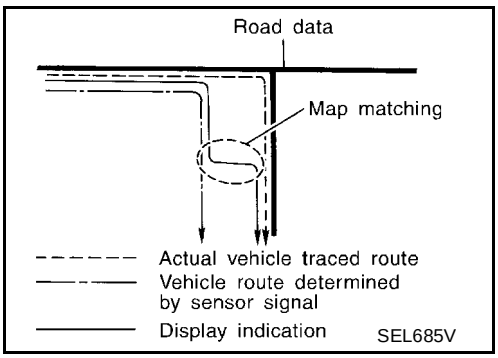
Change in the travel direction of the vehicle is calculated by a gyroscope (angular velocity sensor) and a GPS antenna (GPS information). As the gyroscope and GPS antenna have both merit and demerit, input signals from them are prioritized in each situation. However, this order of priority may change in accordance with more detailed travel conditions so that the travel direction is detected more accurately.

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

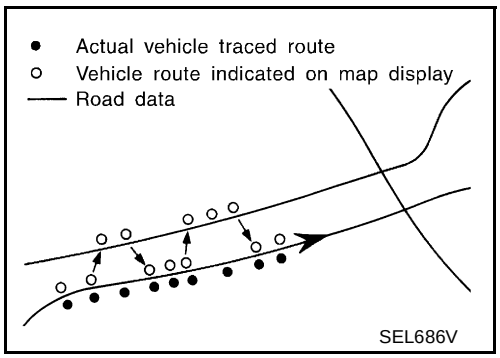
### MAP-MATCHING

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.

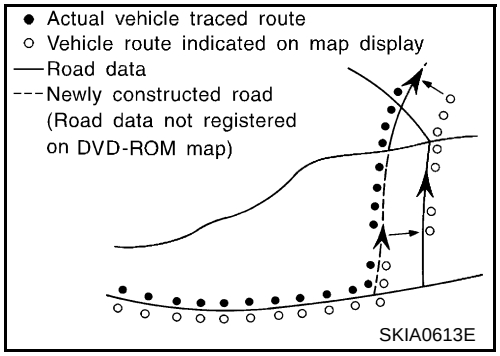
**NOTE:**
The road map data is based on data stored in the map DVD-ROM.



- 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.

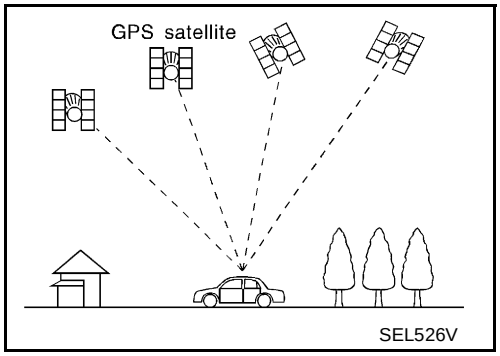



- Map-matching does not function correctly when the road on which the vehicle is driving is new and not recorded in the map DVD-ROM, or when the road pattern stored in the map data and the actual road pattern are different due to repair.
  When driving on a road not present in the map, the map-matching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



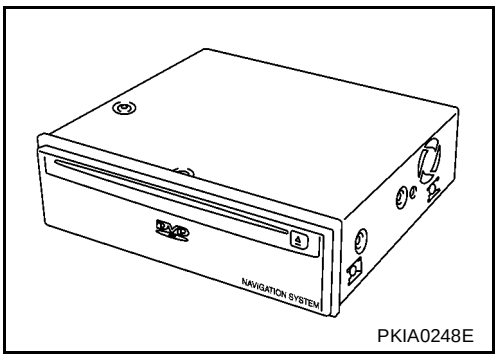

Accuracy of the GPS will deteriorate under the following conditions.

- 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.

## COMPONENT DESCRIPTION

### AV and NAVI Control Unit

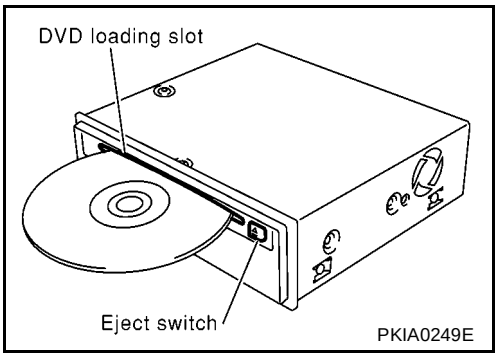
- The gyro (angular speed sensor) and the DVD-ROM drive are built-in units that control the navigation functions.
- Signals are received from the gyro, the vehicle speed sensor, and the GPS antenna. Vehicle location is determined by combining this data with the data contained in the DVD-ROM map. Locational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



PKIA0248E

### DVD-ROM Drive

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



PKIA0249E

### 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.

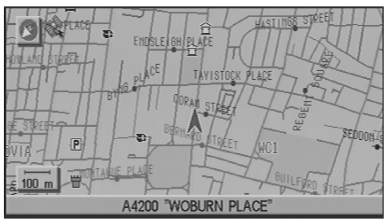
### Gyro (Angular Speed Sensor)

- 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®

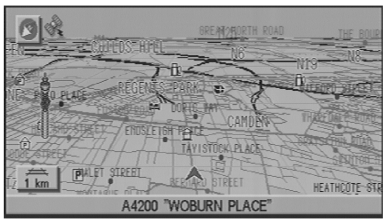
The BIRDVIEW® provides a detailed and easily seen display of road conditions covering the vehicle's immediate to distant area.

- MAP DISPLAY



SKIA1377E

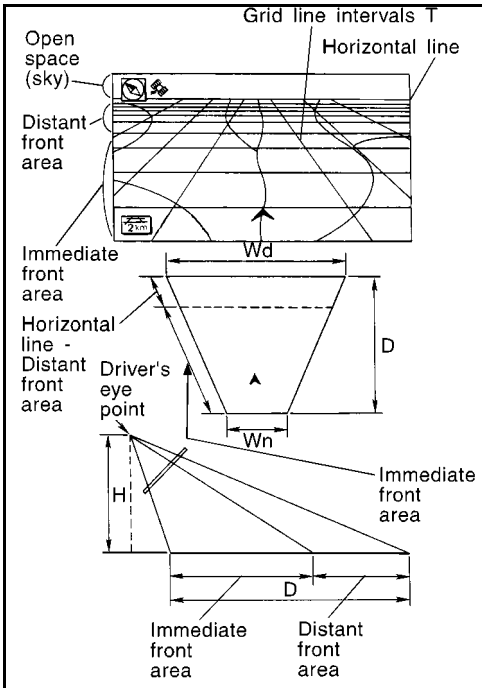
- BIRDVIEW®




SKIA1378E

## Description

- Display area: Trapezoidal representation showing approximate distances (Wn, D, and Wd).
- 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.

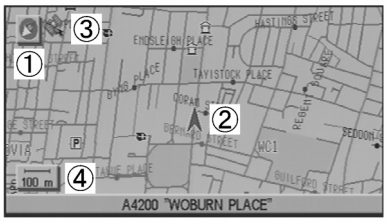



SEL691V

## 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).

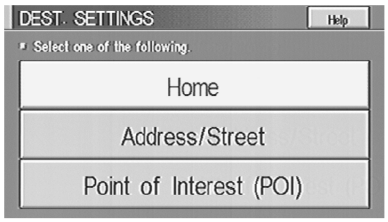



SKIA1379E

## FUNCTION OF MULTIFUNCTION SWITCH

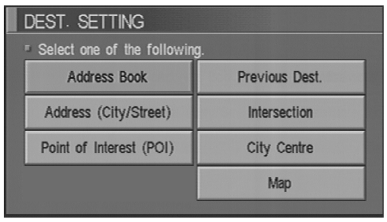
### Display With Pushed “DEST” Switch

- Easy Mode




SKIA1623E

- Expert Mode




SKIA1381E

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

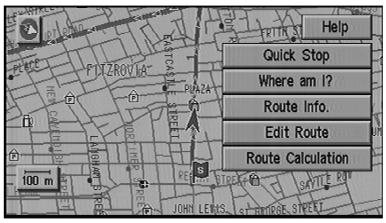
| Icon | MODE | | Description |
|---|---|---|---|
| | Easy | Expert | |
| Address Book | | × | Favorite place can be saved to memory. |
| Address/Street | × | × | The destination can be searched from the address. |
| Point of Interest (POI) | × | × | The destination of favorite facility can be searched. |
| 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


SKIA1382E

- Expert Mode




SKIA1383E

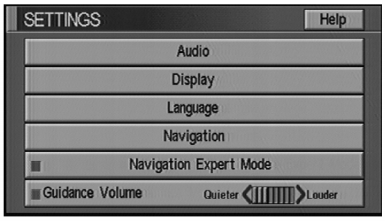
**The Function of Each Icon Is as Follows:**

| Icon | MODE | | Description |
|---|---|---|---|
| | Easy | Expert | |
| Quick Stop | × | × | The selected facility is set as the destination or waypoint.<br>(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.<br>● Complete Route<br>● Turn List<br>● Route Simulation<br>(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

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



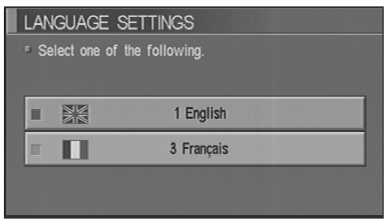

SKIA1384E

| Icon | Description |
|---|---|
| Audio | Sound quality can be adjusted, and also ON/OFF setting of switch beep sound can be performed.<br>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.<br>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.

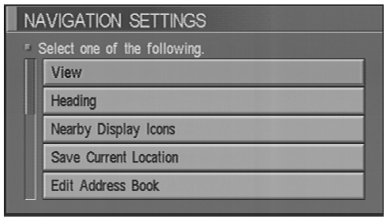



SKIA1399E

### Navigation Settings

How To Perform Navigation Settings

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



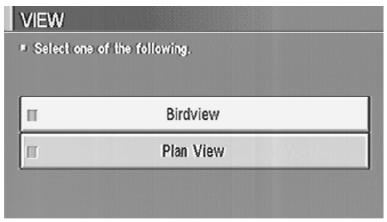

SKIA1385E

## Application Items

| Icon | Description | Reference page |
|---|---|---|
| View | Map display mode can be switched. | AV-54 |
| Heading | Heading of the map display can be customized for either north heading or the actual driving direction of the vehicle. | AV-54 |
| Nearby Display Icons | Icons of facilities can be displayed.<br>Facilities to be displayed can be selected from the variety selections. | AV-55 |
| Save Current Location | Current vehicle location can be registered in Address Book. | AV-55 |
| Edit Address Book | Address Book can be edited. | AV-55 |
| Clear Memory | Address Book, Previous destination or Avoid area can be deleted. | AV-55 |
| Auto Re-route ON/OFF | ON/OFF of Auto Re-route can be switched. | AV-56 |
| Quick Stop Customer Setting | One facility of your selection can be added to your Quick Stop. | AV-56 |
| Set Average speed for Estimated Journey Time | Average vehicle speed can be set to calibrate estimated journey time for the destination. | AV-56 |
| 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.<br>Also indicated are the GPS reception conditions and the GPS satellite position. | AV-56 |
| Avoid Area Setting | A particular area can be avoided when routing. | - |
| Tracking on/off | Tracking to the present vehicle position can be displayed. | AV-57 |
| 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. | AV-57 |

### “VIEW” MODE

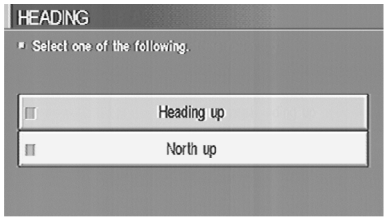
1. Select “Bird View®” or “Plan view” icon.
   - To open the map screen display with Bird View®, select “Bird View®”.
   - To open the map screen display with Plan View, select “Plan View”.




SKIA0554E

### “HEADING” MODE

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




SKIA0561E

## “NEARBY DISPLAY ICONS” MODE

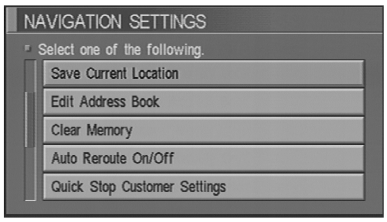
- Select an icon to display on the map screen.


SKIA1394E

## “SAVE CURRENT LOCATION” MODE

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

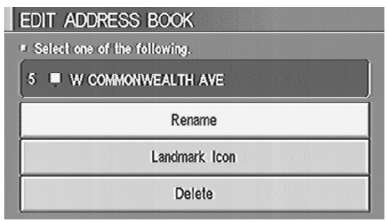
  **NOTE:**
  “Address Book” can store 50 items max.




SKIA1388E

## “EDIT ADDRESS BOOK” MODE

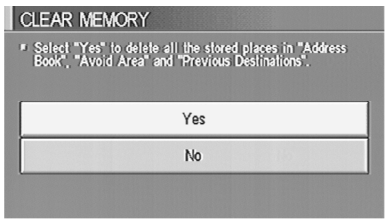
- Edit the items registered in Address Book.




SKIA0560E

## “CLEAR MEMORY” MODE

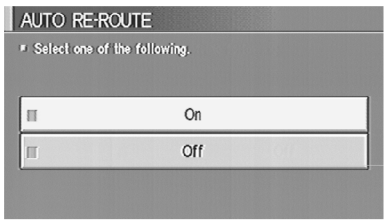
- To delete all the stored places in “Address Book”, “Avoid Area” and “Previous Dest”, select “Yes”.




SKIA0566E

## “AUTO RE-ROUTE” MODE

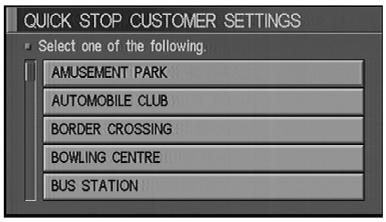
- To Perform the auto re-route of route, select “ON”.
- Not to Perform the auto re-route of route, select “OFF”.




SKIA0558E

## “QUICK STOP CUSTOMER SETTINGS” MODE

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




SKIA1389E

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

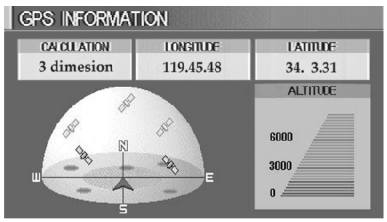
- Set the average vehicle speed to calibrate the estimated journey time for the destination.
- Set three items; “Freeway”, “Main Roads”, and “Ordinary Roads”.


SKIA1397E

## “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.

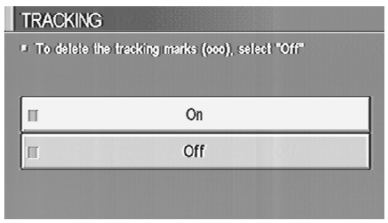



SKIA0555E

## “TRACKING” MODE

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

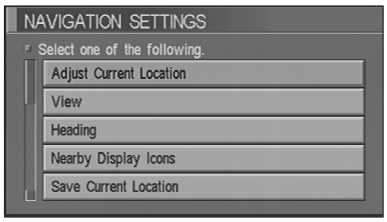
**NOTE:**
When a trail display is turned OFF, trail data is erased from the memory.




SKIA0559E

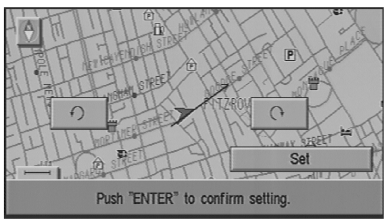
## “ADJUST CURRENT LOCATION” MODE

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




SKIA1395E

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




SKIA1396E

## GUIDE VOLUME SETTING

### Description

Following voice guidance setting can be changed.


SKIA1400E

### 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

EKS00424

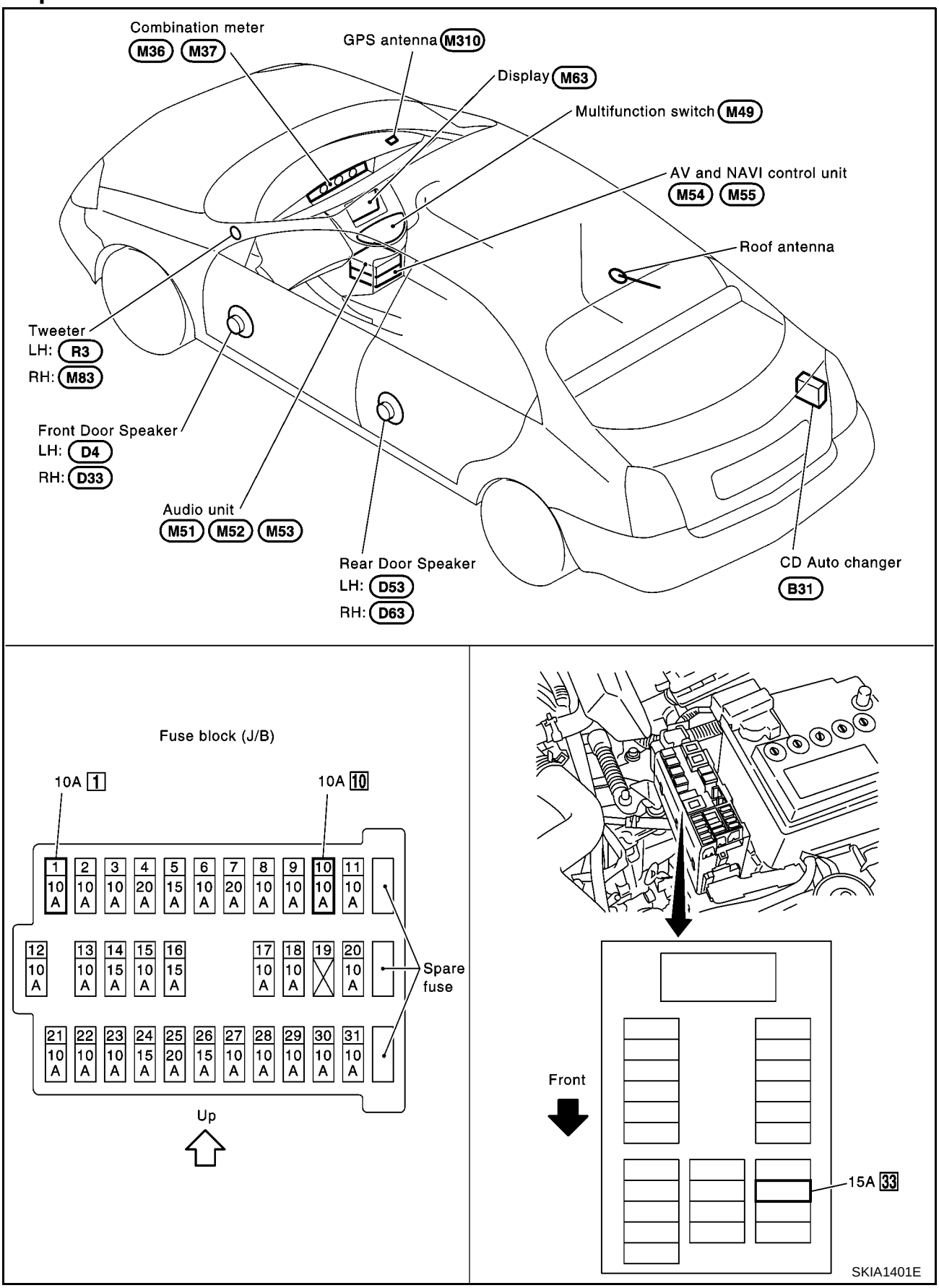
- When replacing the AV and NAVI control unit, eject the map DVD-ROM before disconnecting the battery.
- The AV and NAVI control unit has the following information stored in its memory. Record the memory contents before replacing the control unit, and input them in the new unit as necessary.

| | |
|---|---|
| **<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.

## Component Parts Location

EKS00425



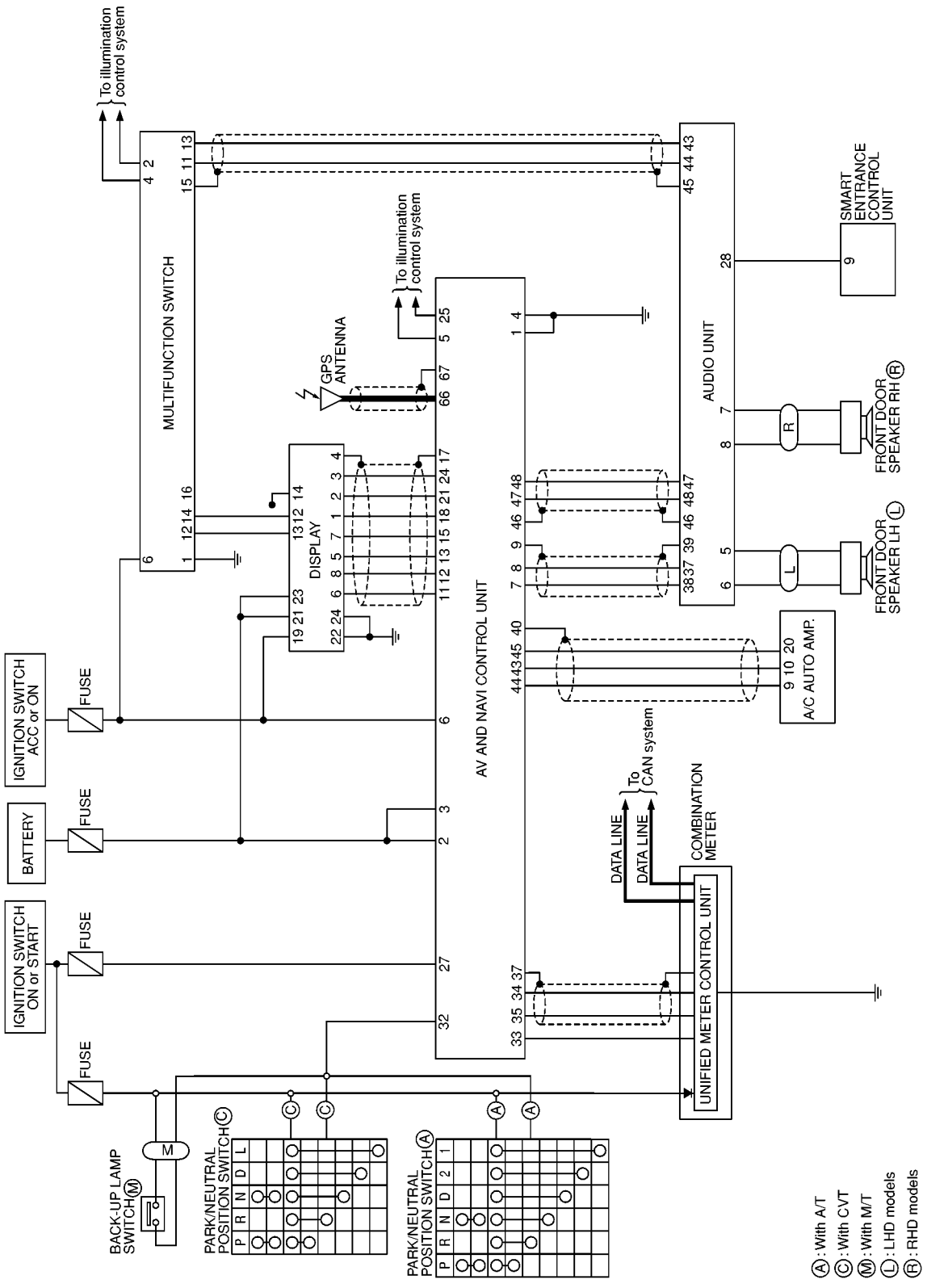
## Location of Antenna

EKS00426

Refer to AV-44, "Location of Antenna" .

## Schematic

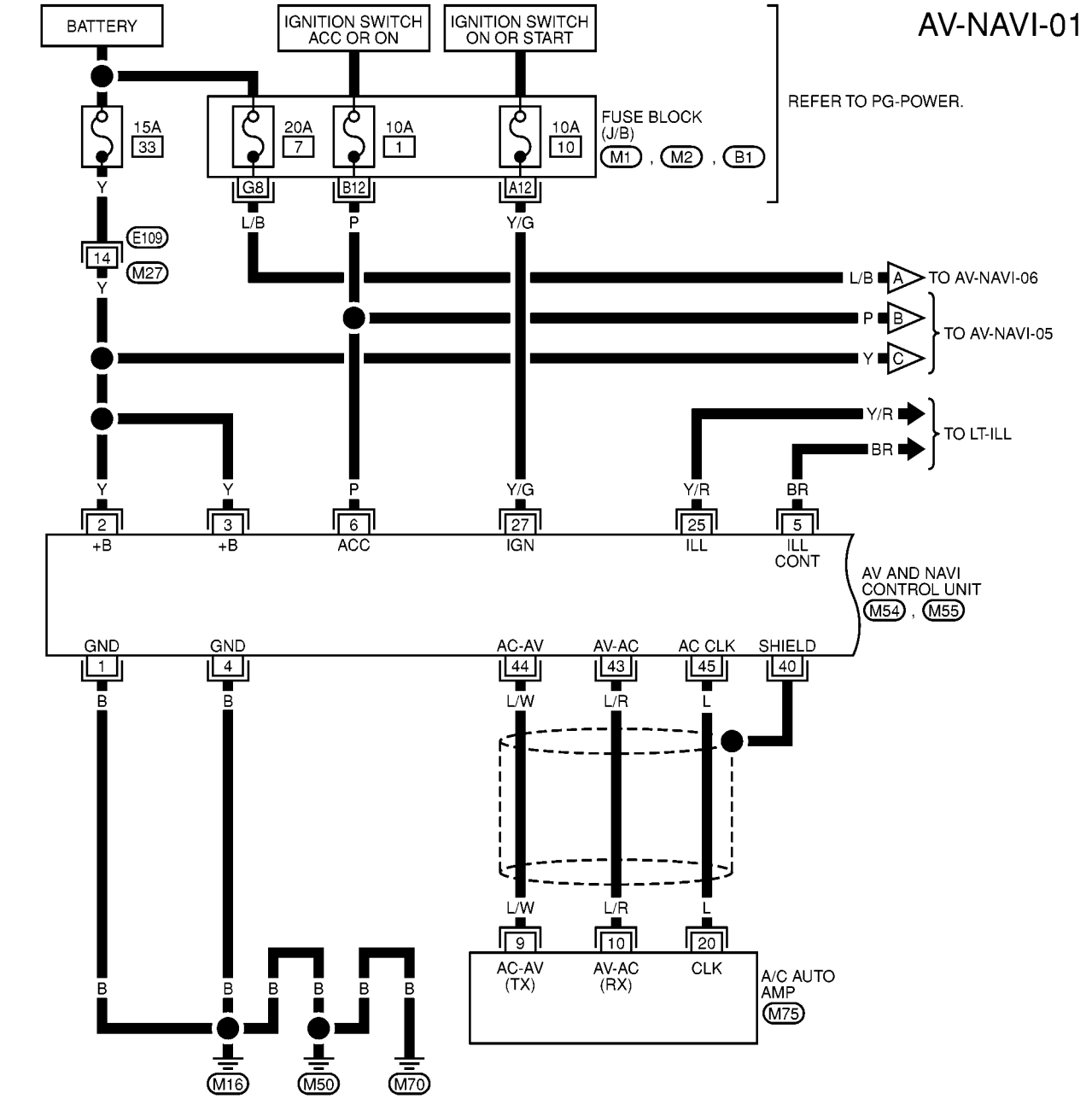
EKS00427

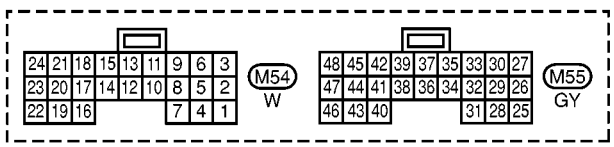



MKWA0087E

## Wiring Diagram —NAVI—

EKS00428

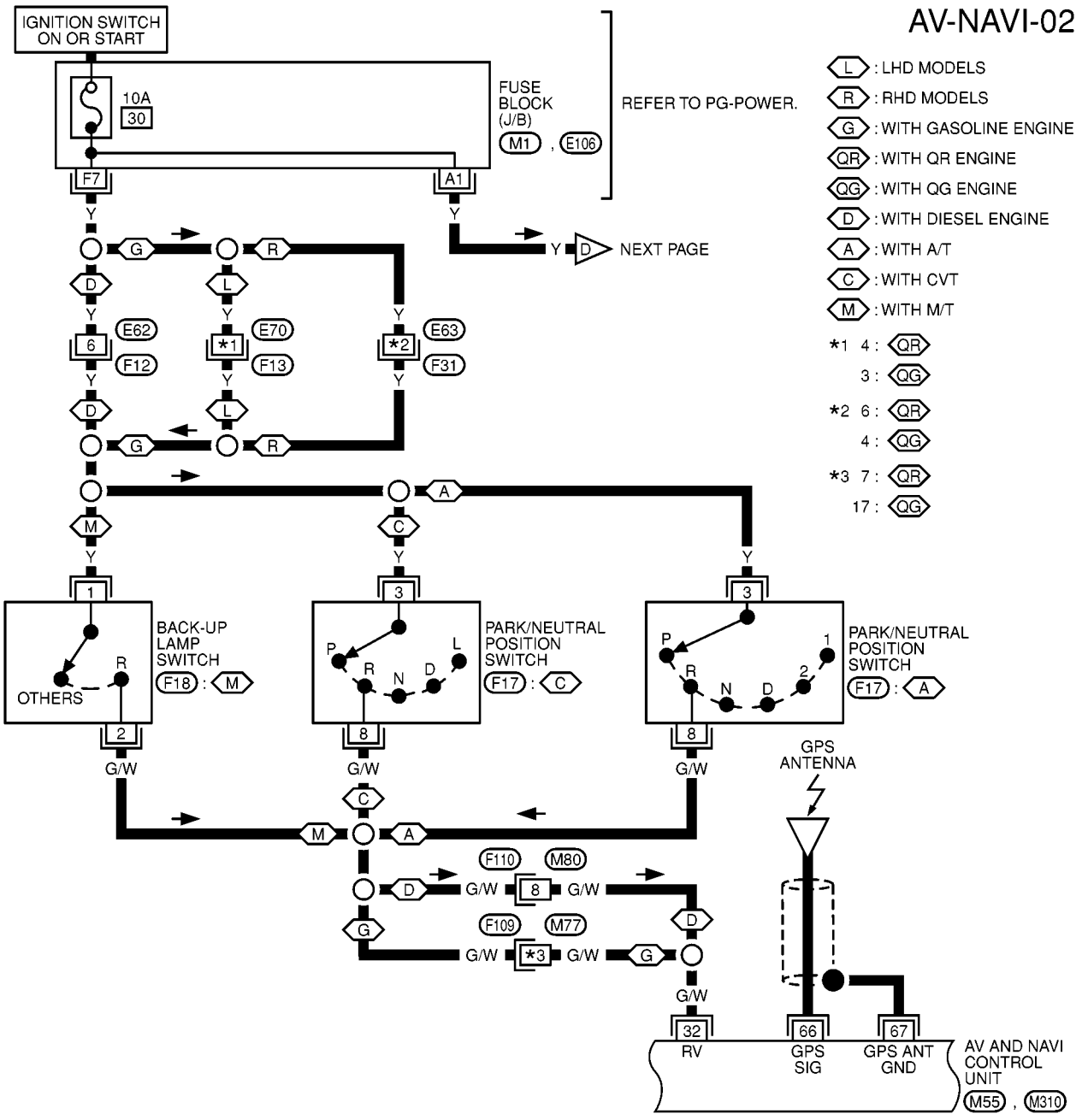




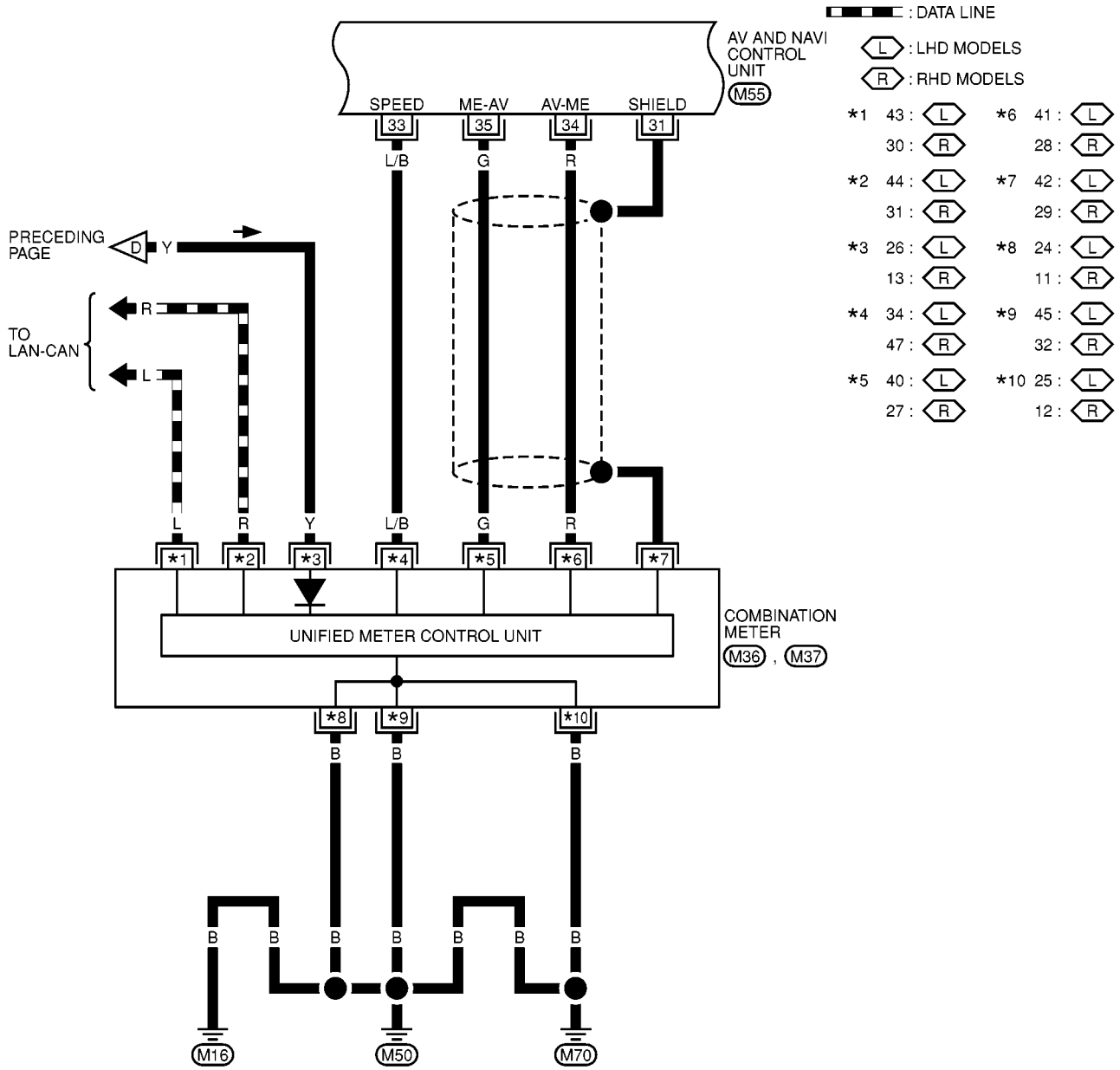
REFER TO THE FOLLOWING.
M1 , M2 , B1
-FUSE BLOCK- JUNCTION BOX (J/B)

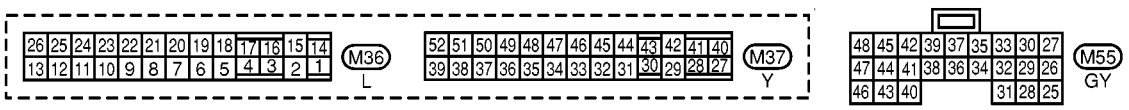
MKWA0088E


AV-NAVI-02
IGNITION SWITCH ON OR START
10A 30
FUSE BLOCK (J/B) M1 , E106
REFER TO PG-POWER.
F7
A1
NEXT PAGE
L : LHD MODELS
R : RHD MODELS
G : WITH GASOLINE ENGINE
QR : WITH QR ENGINE
QG : WITH QG ENGINE
D : WITH DIESEL ENGINE
A : WITH A/T
C : WITH CVT
M : WITH M/T
*1 4 : QR
3 : QG
*2 6 : QR
4 : QG
*3 7 : QR
17 : QG
E62
F12
E70
*1
F13
E63
*2
F31
BACK-UP LAMP SWITCH F18 : M
OTHERS
PARK/NEUTRAL POSITION SWITCH F17 : C
PARK/NEUTRAL POSITION SWITCH F17 : A
G/W
GPS ANTENNA
F110
M80
F109
M77
*3
32
RV
66
GPS SIG
67
GPS ANT GND
AV AND NAVI CONTROL UNIT M55 , M310
M55 GY
M310 GY
F12 GY
F13 B
F17 : A B
F17 : C B
F18 B
F31 B
F109 W
F110 W
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.
REFER TO THE FOLLOWING.
M1 , E106 -FUSE BLOCK-JUNCTION BOX (J/B)

MKWA0089E

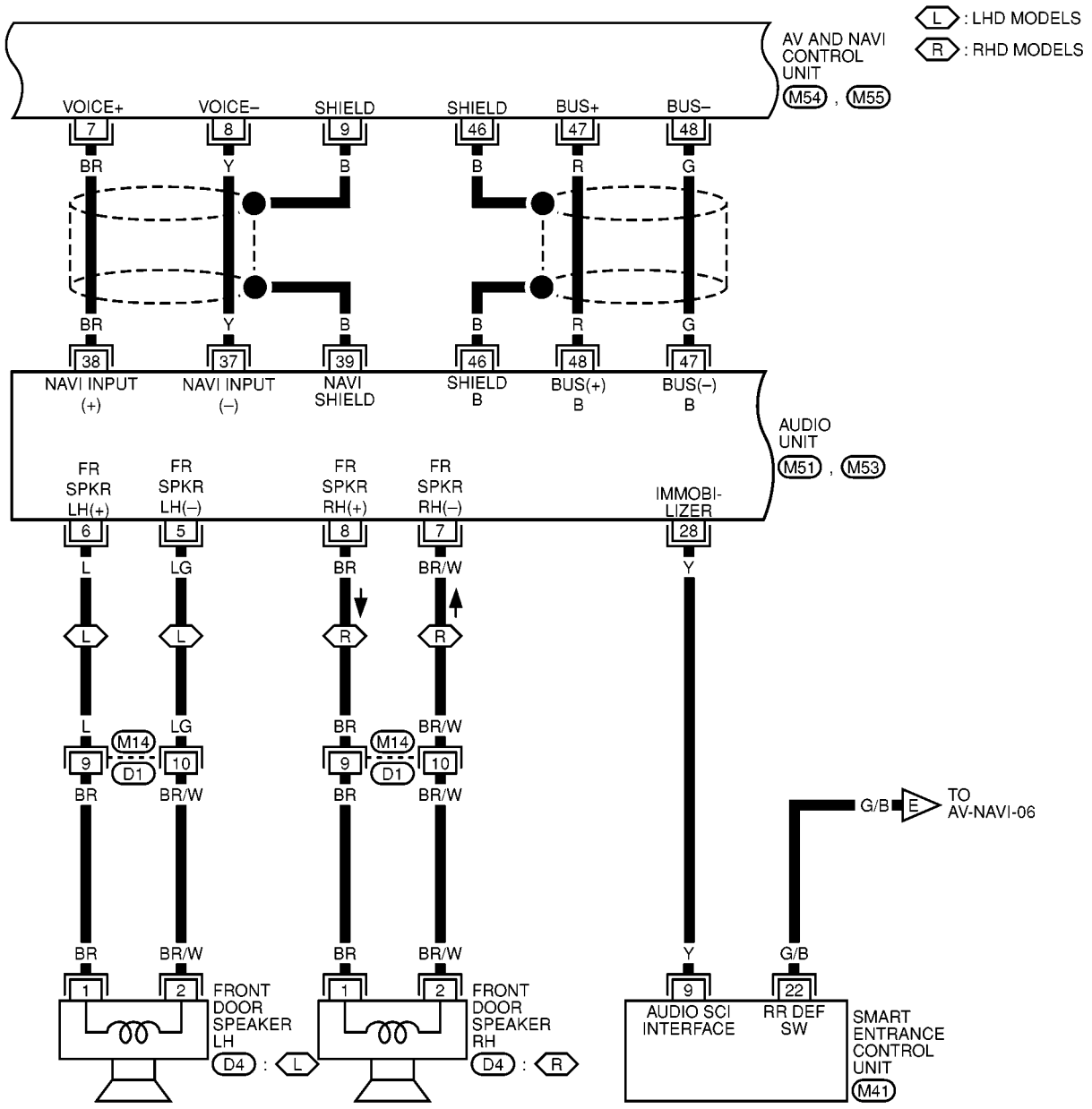
AV-NAVI-03

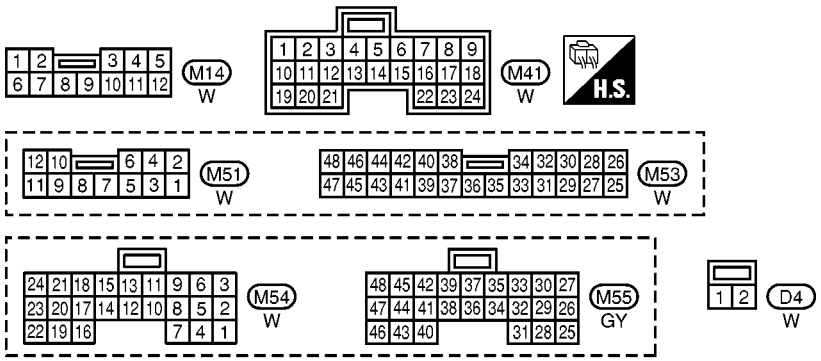



MKWA0090E

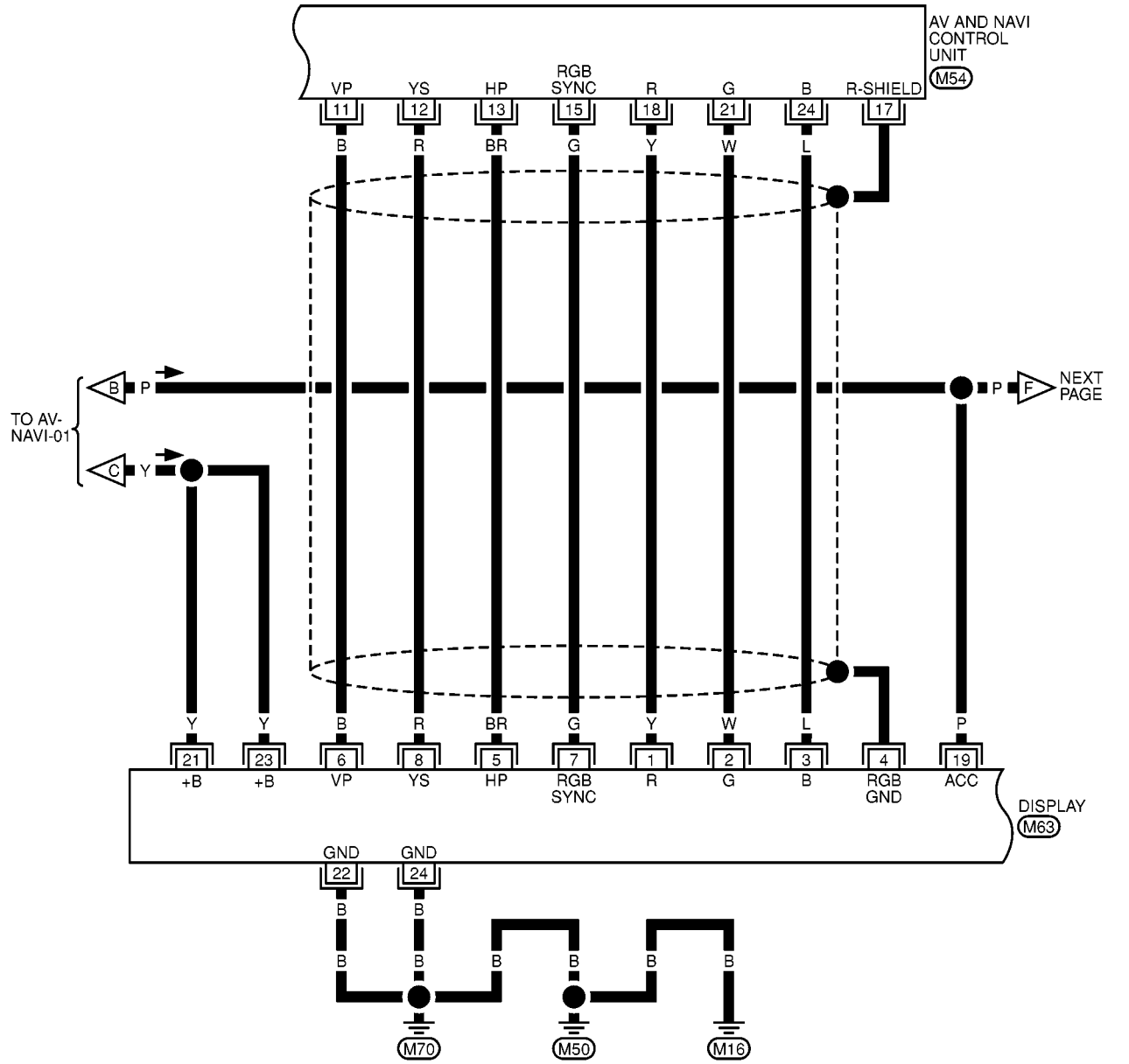
AV-NAVI-04

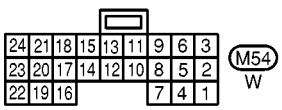


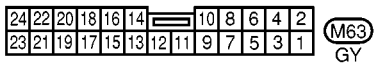




MKWA0091E

AV-NAVI-05

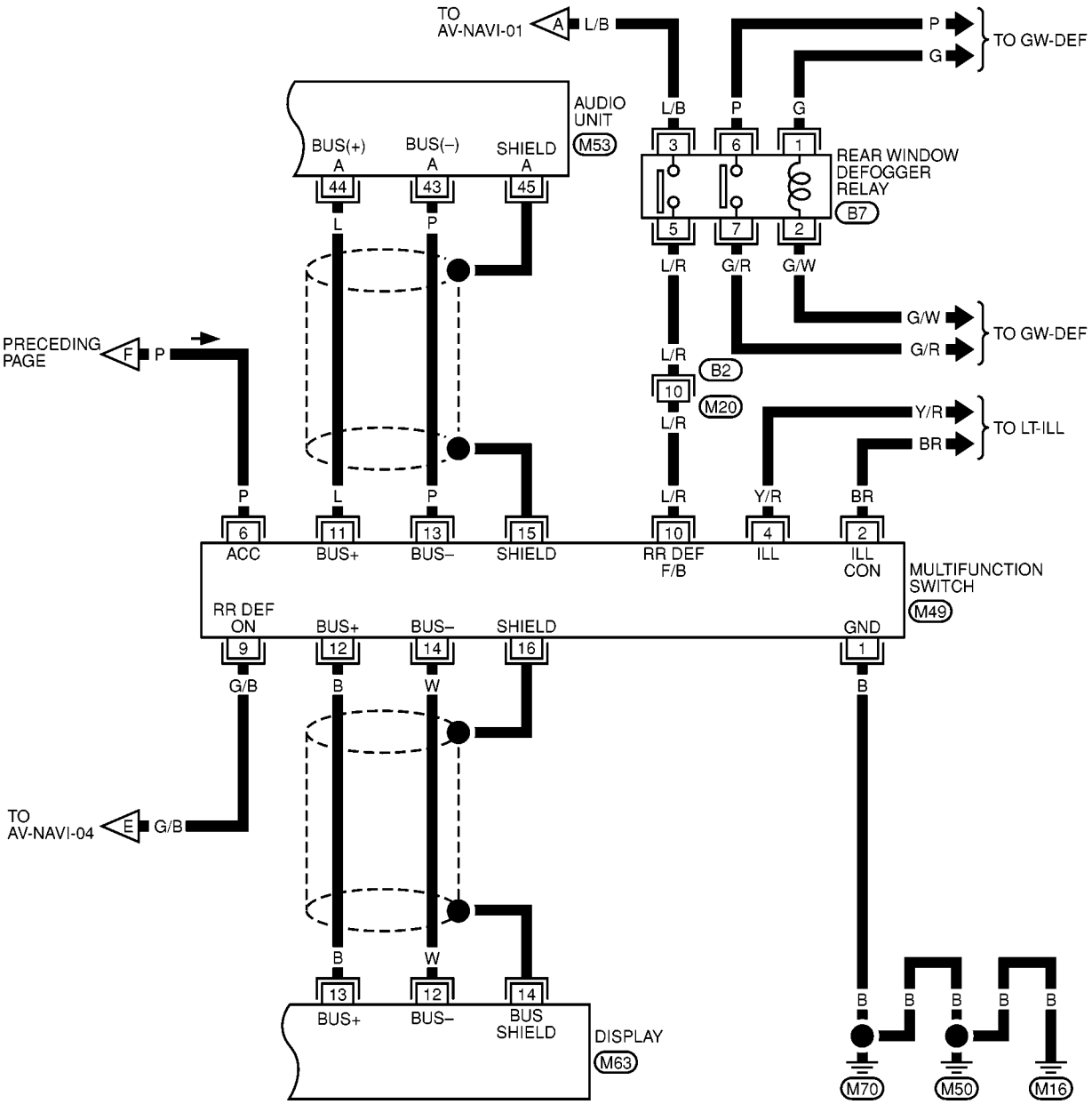


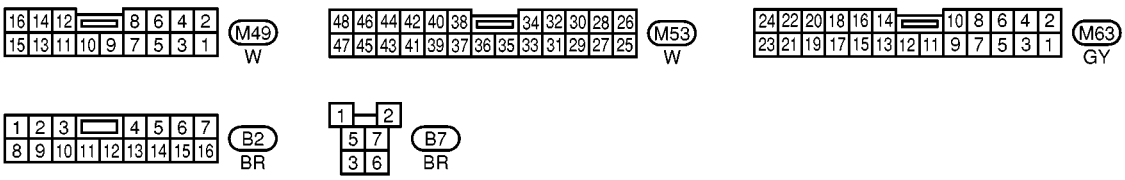




MKWA0092E

AV-NAVI-06

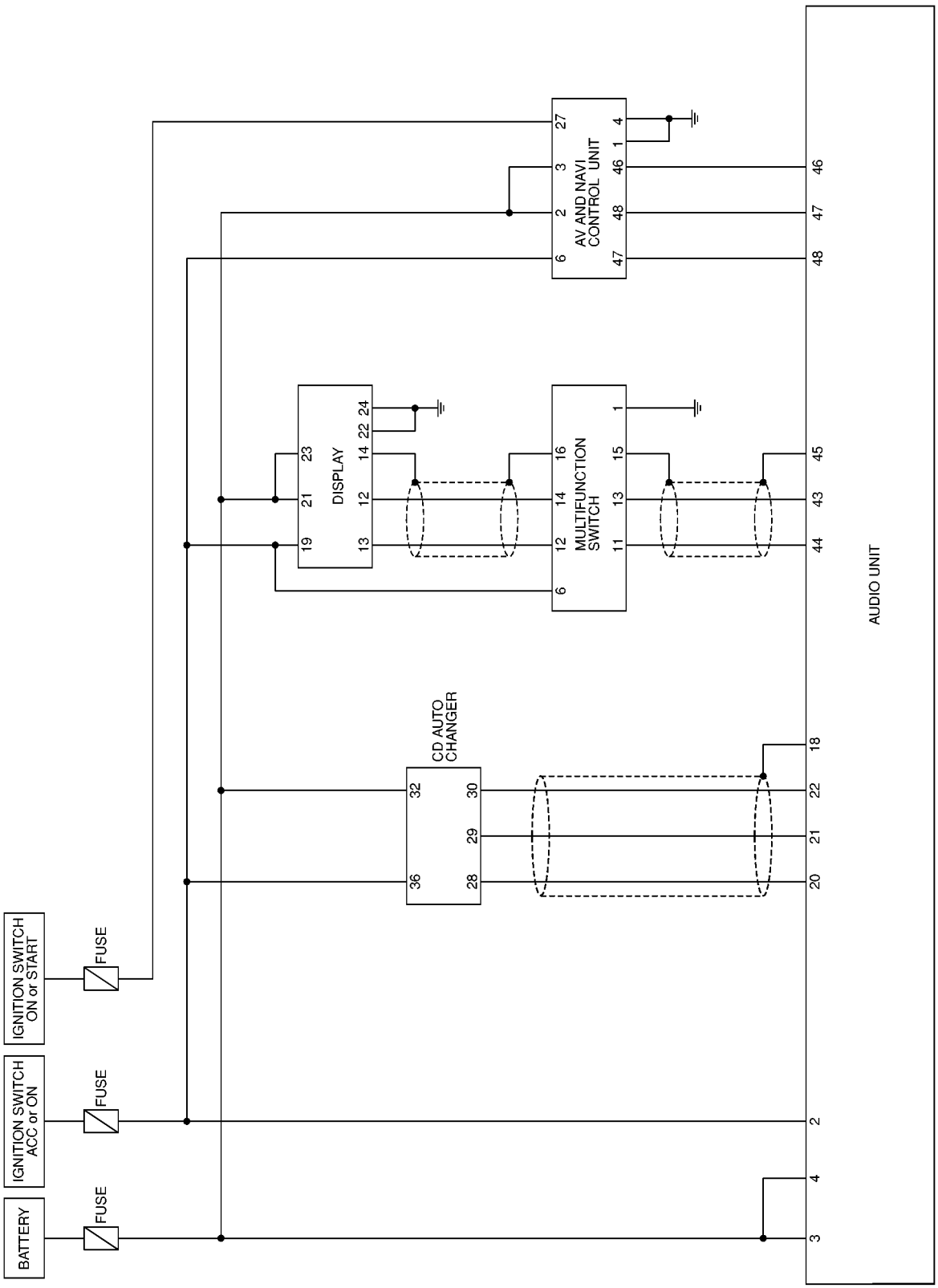



MKWA0093E

## Schematic For AV Communication Line

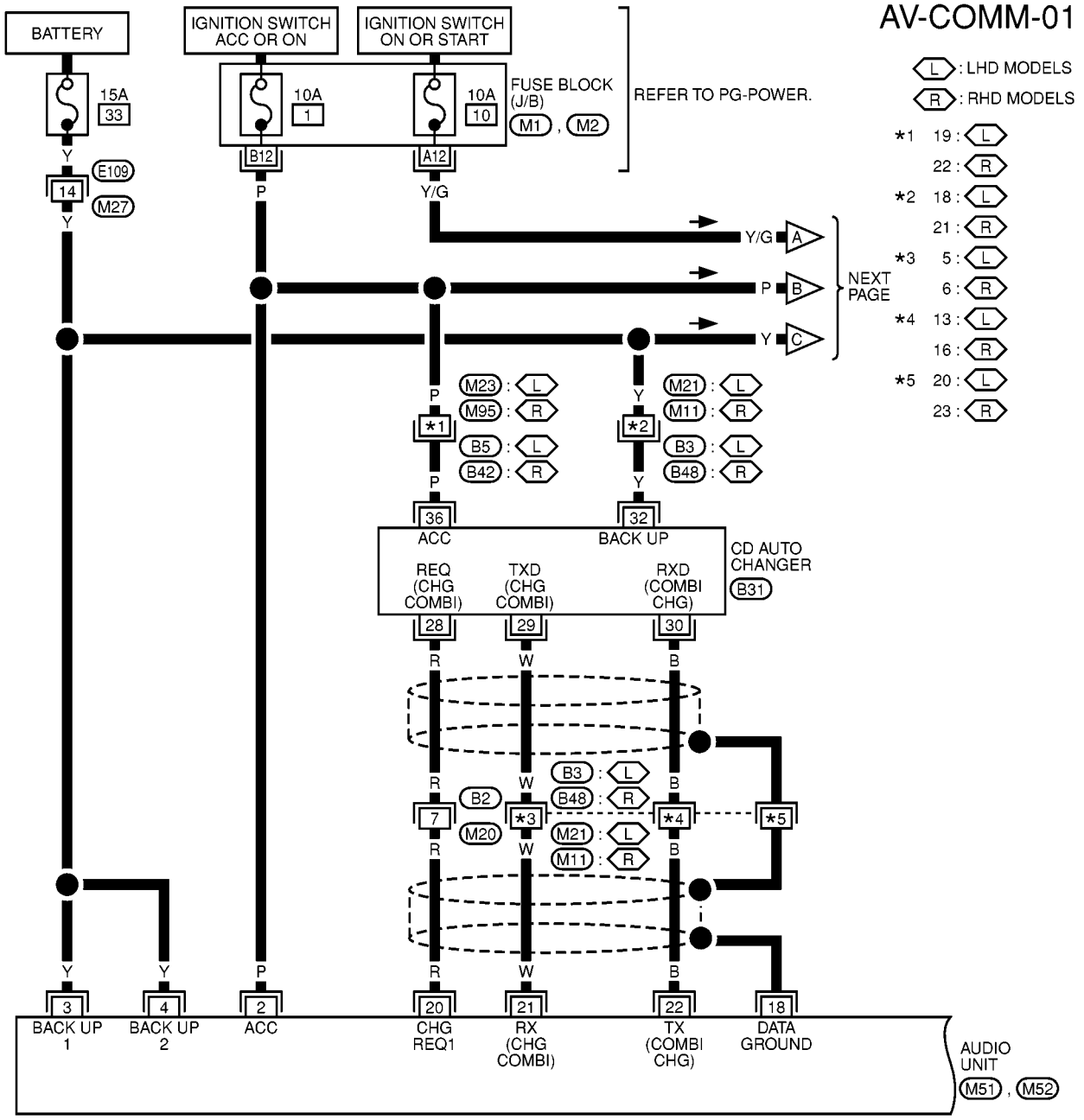
EKS004N4

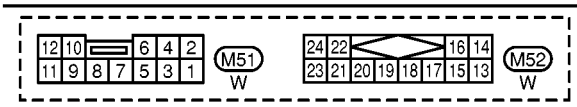


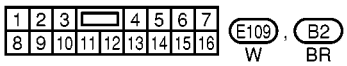

MKWA0200E

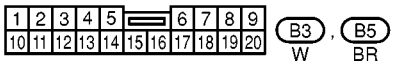
## Wiring Diagram — COMM —

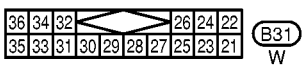
EKS0044Z

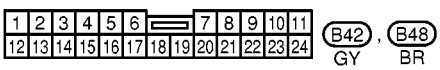


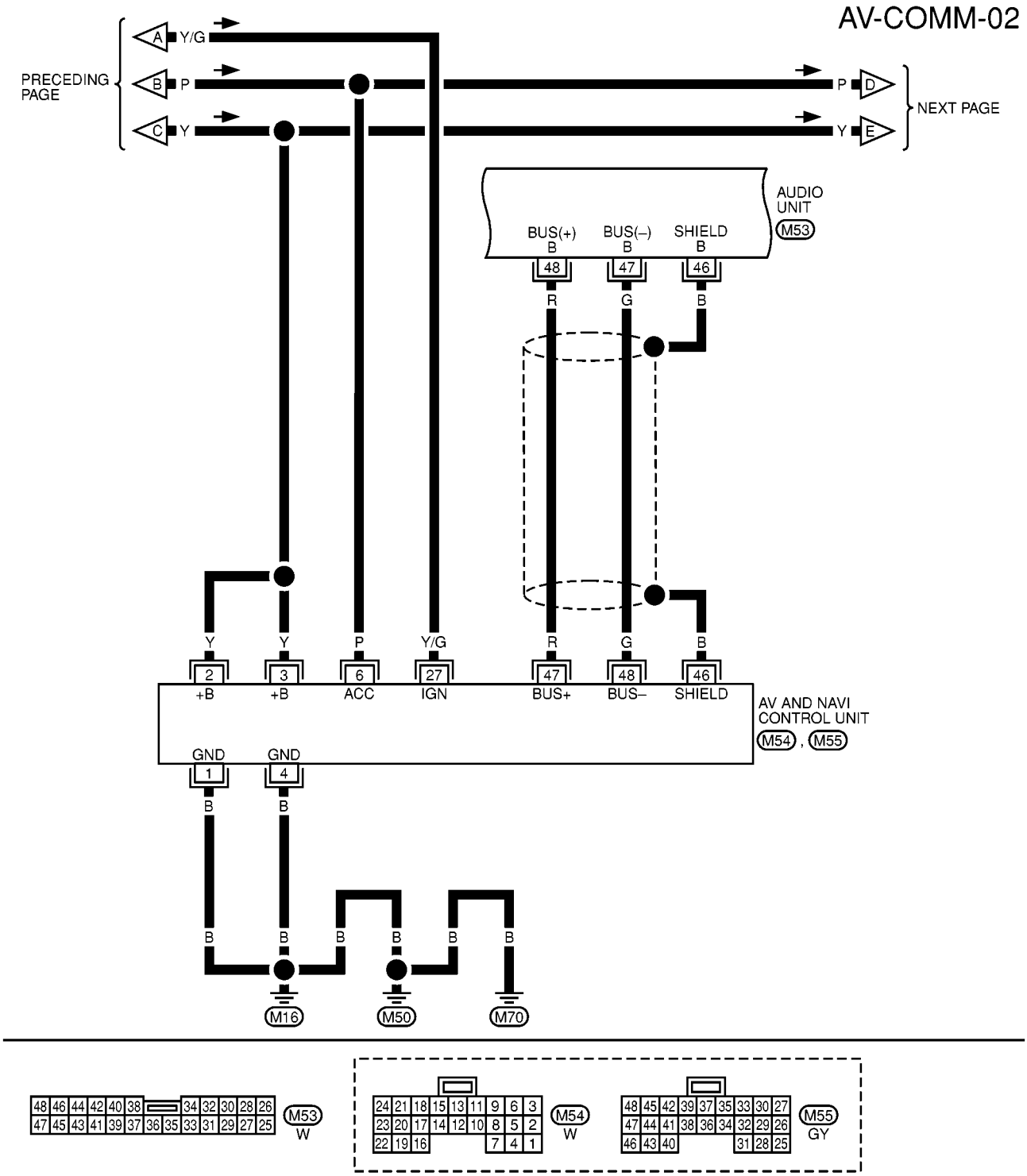



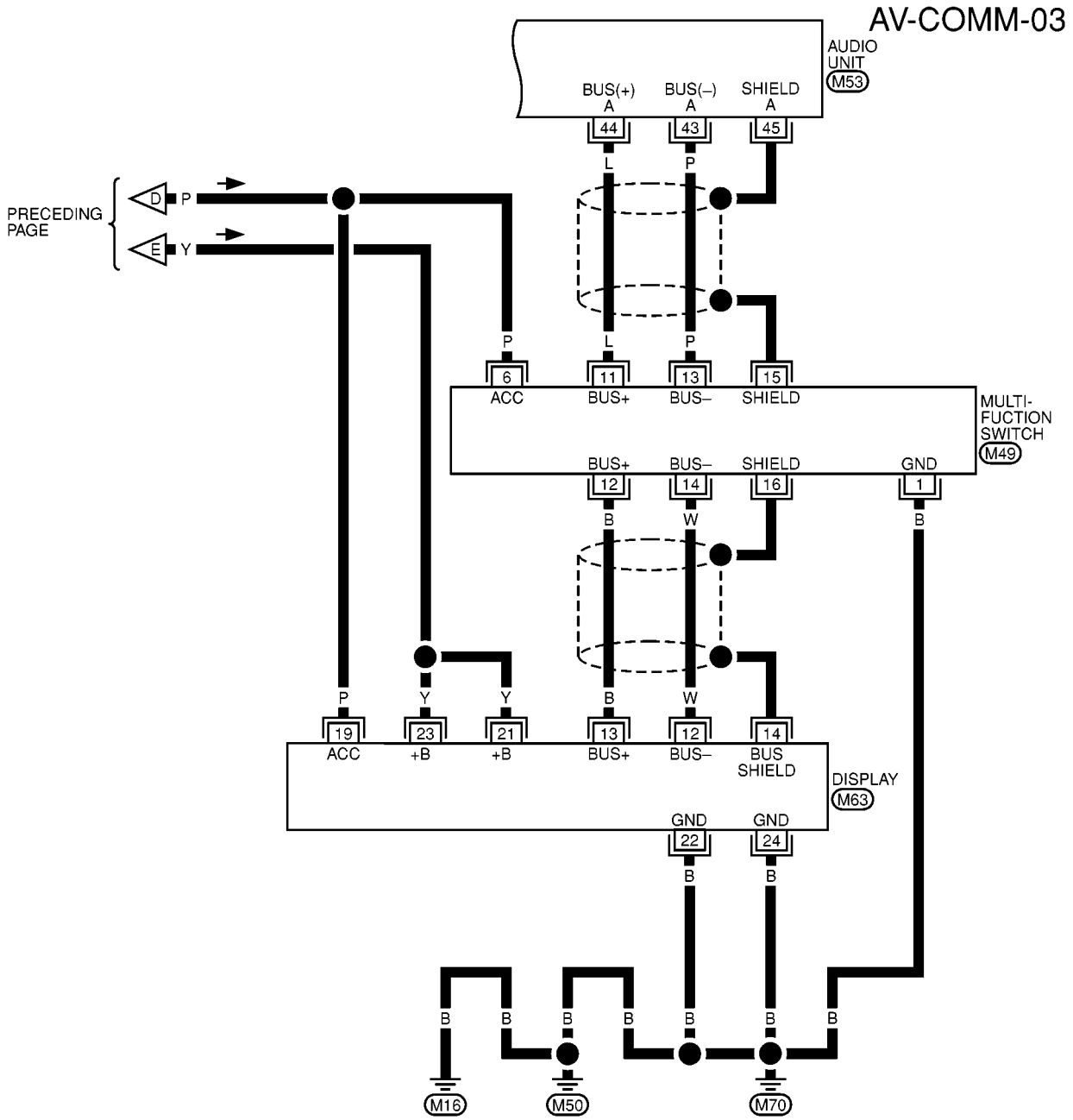



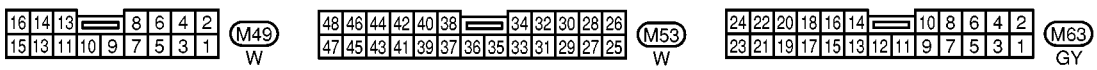

REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

MKWA0205E


AV-COMM-02
PRECEDING PAGE
A Y/G
B P
C Y
P D
Y E
NEXT PAGE
AUDIO UNIT
M53
BUS(+) B
BUS(–) B
SHIELD B
48
47
46
R
G
B
Y
Y
P
Y/G
R
G
B
2
3
6
27
47
48
46
+B
+B
ACC
IGN
BUS+
BUS–
SHIELD
AV AND NAVI CONTROL UNIT
M54 , M55
GND
GND
1
4
B
B
M16
M50
M70
M53
W
M54
W
M55
GY

MKWA0206E


AV-COMM-03
AUDIO UNIT
M53
BUS(+) A
BUS(–) A
SHIELD A
44
43
45
L
P
PRECEDING PAGE
D
P
E
Y
6
ACC
11
BUS+
13
BUS–
15
SHIELD
MULTI-FUCTION SWITCH
M49
12
BUS+
14
BUS–
16
SHIELD
1
GND
B
W
19
ACC
23
+B
21
+B
13
BUS+
12
BUS–
14
BUS SHIELD
DISPLAY
M63
22
GND
24
GND
M16
M50
M70

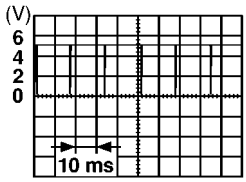
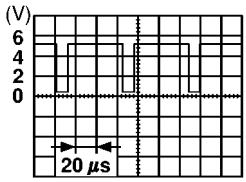
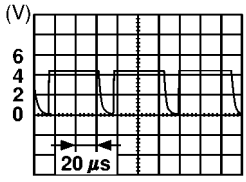

M49
W
M53
W
M63
GY

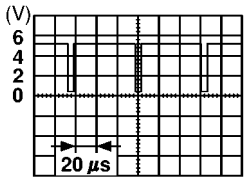
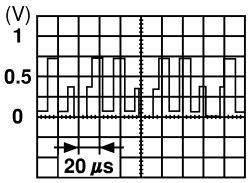
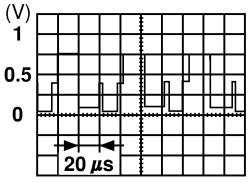
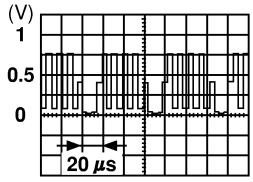
MKWA0207E

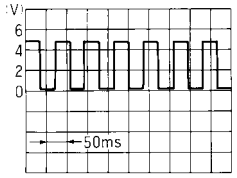
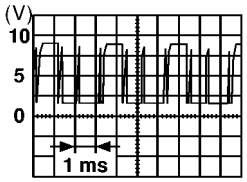
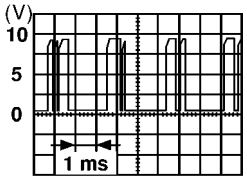
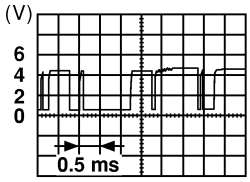
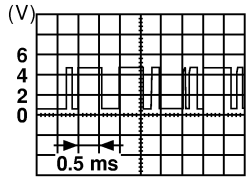
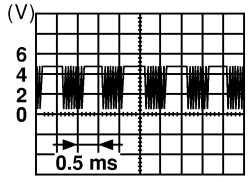
## Terminals and Reference Value for AV and NAVI Control Unit

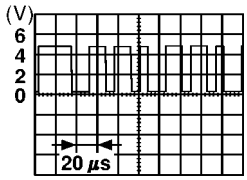
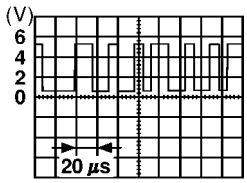
EKS00429

- For measurements made with IGN switch ON, if possible, measure with engine running to prevent battery discharge.
- Use a circuit tester and oscilloscope 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 (BR) | 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. | TBLサイズ SKIA0171E | Only route guide and operation guide are not heard. |
| 9(B) | - | Shield ground | - | - | - | - | - |
| 11 (B) | 17 | Vertical synchronizing signal | Input | ON | - |   SKIA0161E | Superimposed screen is rolling. |
| 12 (R) | 17 | RGB area signal | Output | ON | Press the “info”switch. |   SKIA0162E | RGB screen is not shown. |
| 13 (BR) | 17 | Horizontal synchronizing signal | Input | ON | Select“ Display” in “Setting” mode and display the rear-view picture on the screen. |   SKIA0163E | Superimposed screen is not shown. |

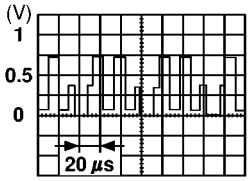
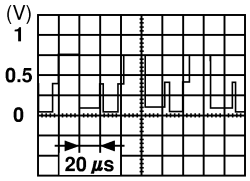
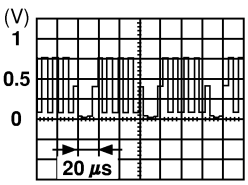
| Terminal No. (wire color) + | Terminal No. (wire color) - | Item | Signal input/ output | Condition: Ignition switch | Condition: Operation | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| 15 (G) | 17 | RGB synchronizing signal | Output | ON | Press the “MAP” switch. |  SKIA0164E | RGB screen is rolling. |
| 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 (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. |
| | | | | | Lighting switch ON (position 1) – Optical sensor is not exposed to light. | Approx. 1.5V or less | |
| 27 (W/ G) | ground | Ignition signal | 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 | AT selector lever in R-position | Battery voltage | The navigation current-location mark moves strangely when the vehicle is moving backwards. |
| | | | | | AT selector lever not in R-position | Approx. 3.0V or less | |

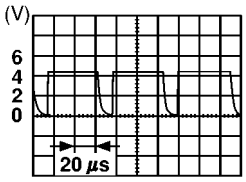
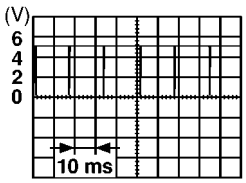
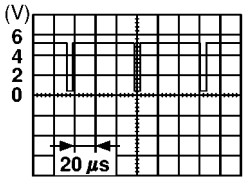
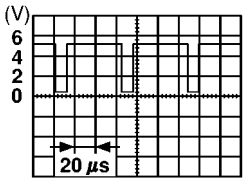
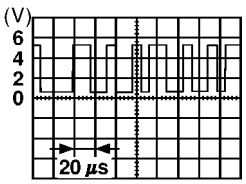
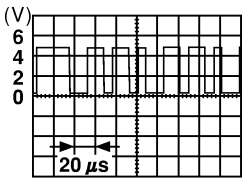
| Terminal No. (wire color) | | Item | Signal input/ output | Condition | | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| + | - | | | Ignition switch | Operation | | |
| 33 (L/ B) | ground | Vehicle speed signal (2-pulse) | Input | ON | When vehicle speed is approx. 40 km/h (25MPH)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

| Terminal No. (wire color) | | Item | Signal input/ output | Condition | | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| + | - | | | Ignition switch | Operation | | |
| 47 (R) | ground | Communication signal (+) | Input/ output | ON | - |  SKIA0175E | System does not work properly. |
| 48 (G) | ground | Communication 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. |

## Terminals and Reference Value for Display Unit

EKS00433

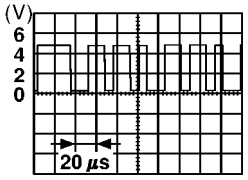
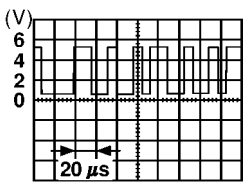
| Terminal No. (wire color) | | Item | Signal input/ output | Condition | | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| + | - | | | Ignition switch | Operation | | |
| 1(Y) | 4 | RGB signal (R: red) | Input | ON | Select “SCREEN ADJUSTMENT” of CONFIRMATION/ADJUSTMENT function. |  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 | - | - | - | - | - |

| 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. |

| Terminal No. (wire color) | | Item | Signal input/ output | Condition | | Voltage | Example of symptom |
|---|---|---|---|---|---|---|---|
| + | - | | | Ignition switch | Operation | | |
| 21(Y) | ground | Battery power | Input | OFF | - | Battery voltage | Screen is not shown. |
| 23(Y) | | | | | | | |
| 22(B) | ground | Ground | - | ON | - | Approx. 0V | – |
| 24(B) | ground | Ground | - | ON | - | Approx. 0V | – |

## Terminals and Reference Value for Multifunction Switch

EKS00434

| 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(BR) | 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 | - | | - | - |

## Self-Diagnosis Function

EKS00435

### 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

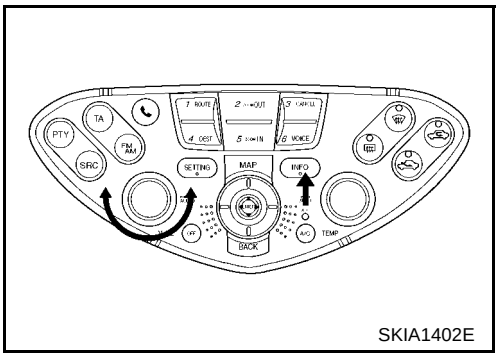
| Mode | | | Diagnosis content |
|---|---|---|---|
| Self-diagnosis | | | ● Control unit diagnosis (DVD-ROM drive will not be diagnosed when no map DVD-ROM is in it.)<br>● Performs diagnosis of connections between C/U and GPS antenna and between C/U and all units. |
| Confirmation/ adjustment | Display | | 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 | Display the map. Use the joystick to adjust position. Longitude and latitude will be displayed. |
| | | Angle adjustment | Corrects difference between actual turning angle of a vehicle and turning angle of the car mark on the display. |
| | | Distance adjustment | Corrects difference between the current-location mark on the display and actual position of the vehicle. |
| | | Initialize Location | Location memorized by AV and NAVI control unit can be initialized in this mode. |
| | Service | | Service schedule can be changed in this mode. |

## Self-Diagnosis Mode

EKS00436

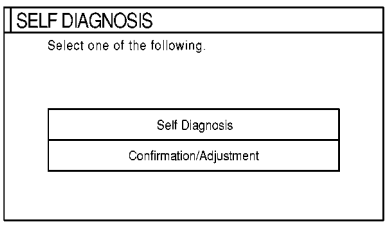
### OPERATION PROCEDURE

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.



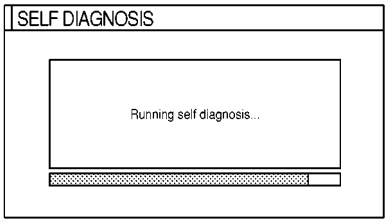
SKIA1402E

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



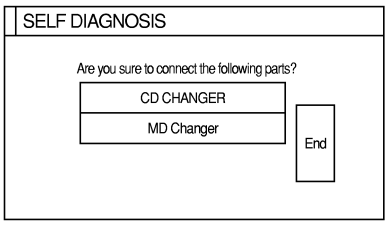
SKIA0381E

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.



SKIA0382E

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.

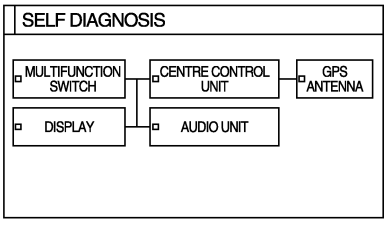


SKIA1403E

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

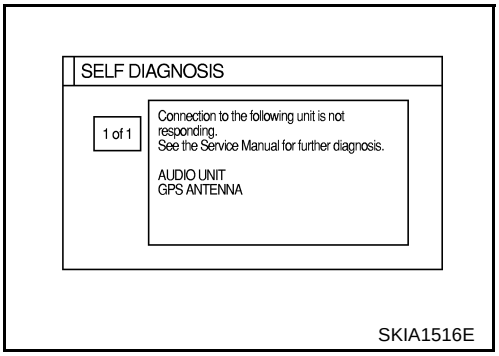
   **Green : No malfunctioning.**
   **Yellow : Cannot be judged by self-diagnosis results.**
   **Red : Unit is malfunctioning.**
   **Gray : Diagnosis has not been done.**

   - 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.



SKIA1404E

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-69, "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 | If "DVD-ROM is malfunctioning. Check disc." is displayed:<br>1. Remove inserted map DVD-ROM and check that it is correct special DVD-ROM.<br>2. Check that there is no dirt, damage, or warping on removed DVD-ROM.<br>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. |
| 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 | ● Display power supply or ground line<br>● AV communication line between Display and multifunction switch |
| Diagnosis 6 | Audio unit power supply or ground line |

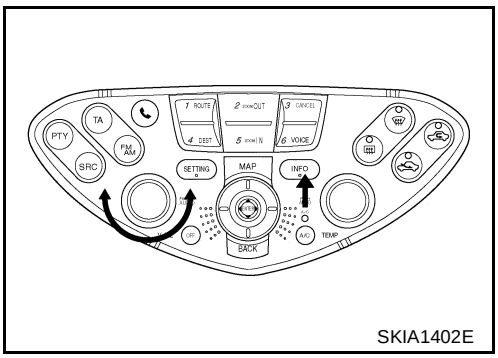
| Diagnosis No. | Possible causes |
|---|---|
| Diagnosis 7 | CD auto changer power supply and ground circuit, Communication line between CD auto changer and audio unit |
| Diagnosis 8 | GPS antenna system<br>1. Visually check for open circuit in GPS antenna coaxial cable.<br>2. Disconnect GPS antenna 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. |

## CONFIRMATION/ADJUSTMENT Mode

EKS00437

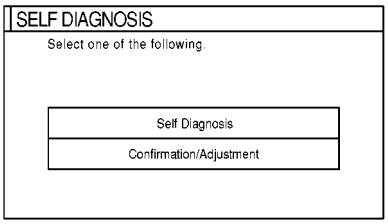
### OPERATION PROCEDURE

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.



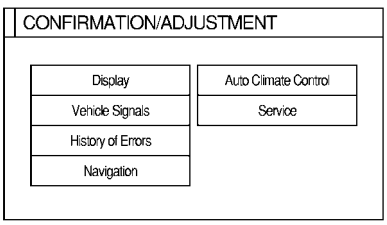

SKIA1402E

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



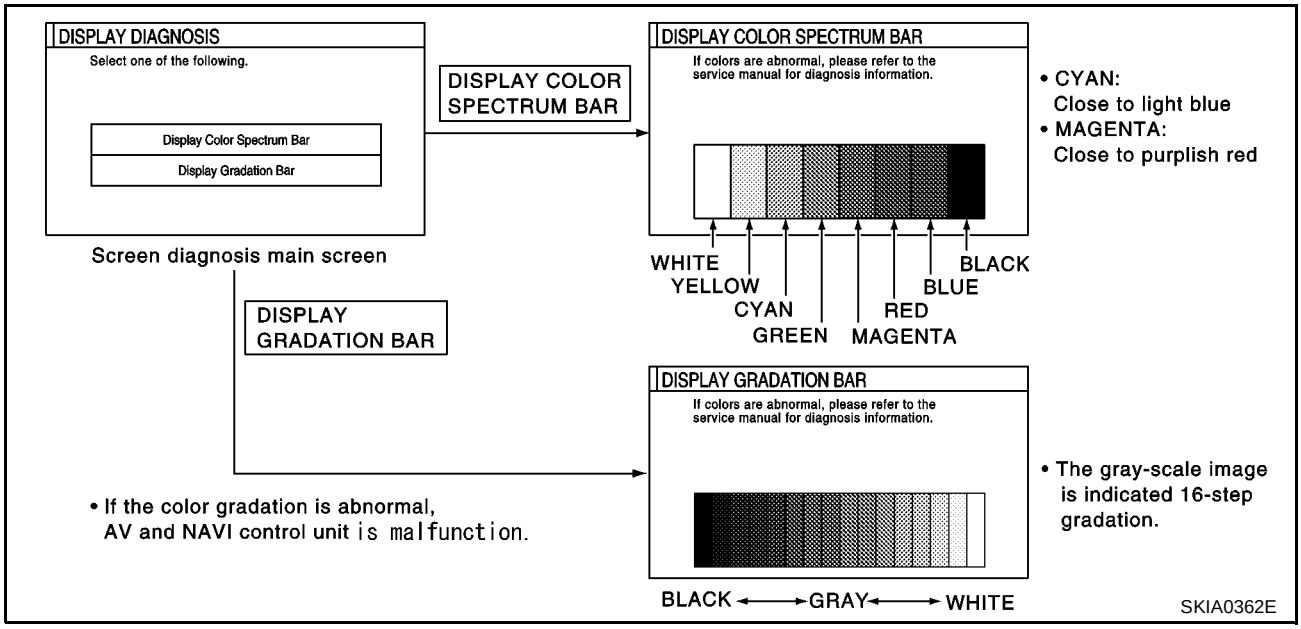

SKIA0381E

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.




SKIA1405E

## DISPLAY



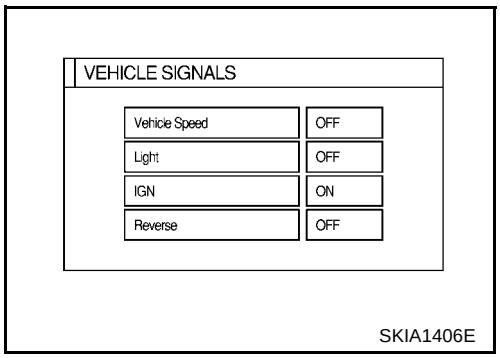

- When RGB signal error occurred in the RGB system, tone of the color bar will change as follows.

  **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-93, "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 | |

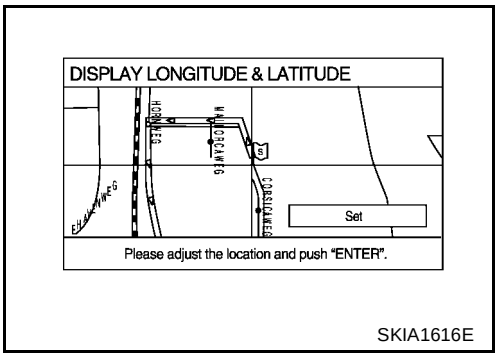
- If vehicle speed is NG, AV-89, "Vehicle Speed Signal Check" .

- If light is NG, AV-90, "Illumination Control Signal Check" .
- If IGN is NG, AV-90, "Ignition Signal Check" .
- If reverse is NG, AV-91, "Reverse Signal Check" .

## NAVIGATION

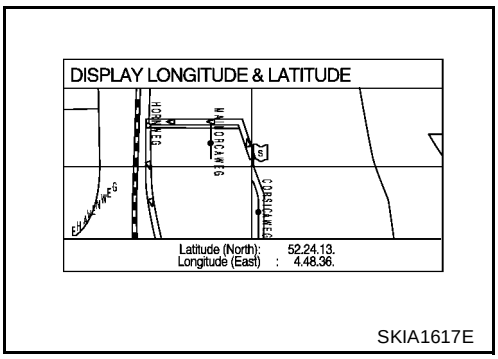
### Display Longitude & Latitude

- Adjust the pointer with using the joystick and touch “Set”.




SKIA1616E

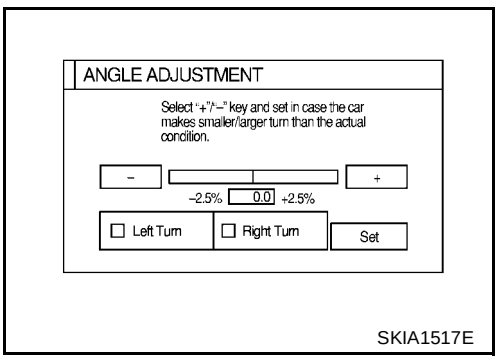
- The longitude and latitude are displayed.




SKIA1617E

### Angle Adjustment

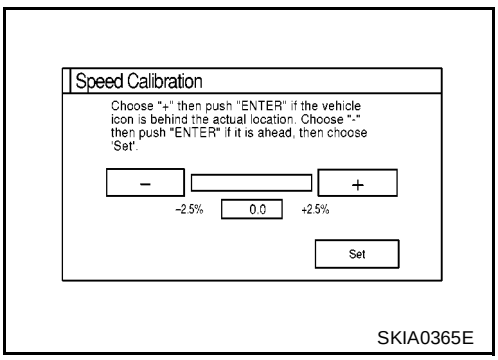
- Adjusts turning angle output detected by the gyroscope.




SKIA1517E

### Speed Calibration

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




SKIA0365E

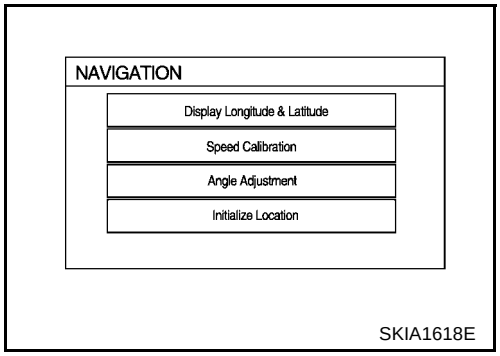
## Initialize Location

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

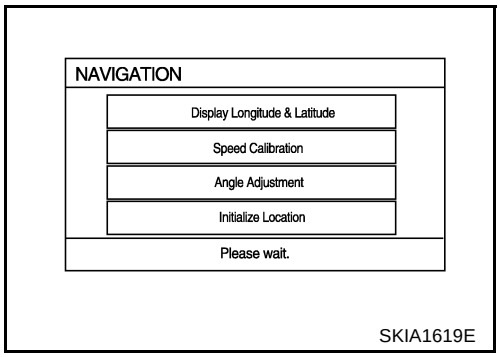
1. Select “Initialize Location”, and push “ENTER”.



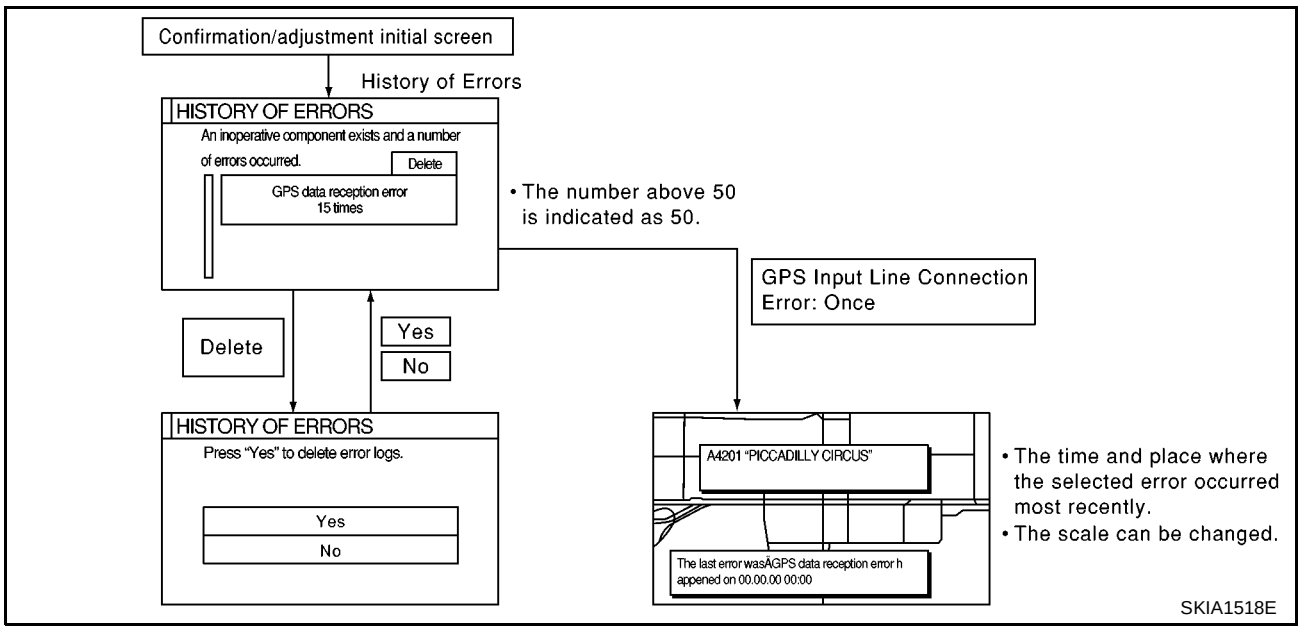

2. A message “Please wait.” is displayed and then backs to another display of “Confirmation/Adjustment” mode.

**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”.

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 max 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<br>Action/symptom | Example of symptom |
|---|---|---|
| Gyro sensor disconnected | Communications malfunction between NAVI control unit and internal gyro<br>● Perform the self-diagnosis.<br>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference. | ● Navigation location detection performance has deteriorated.<br>(Angular velocity cannot be detected.) |
| GPS disconnected | Communication error between AV and NAVI control unit and internal GPS substrate<br>● Perform the self-diagnosis.<br>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference. | ● Navigation location detection performance has deteriorated.<br>(Location correction using GPS is not performed.)<br>● GPS receiving status remains gray. |
| GPS transmission cable malfunction | Malfunctioning transmission wires to AV and NAVI control unit and internal GPS substrate<br>● Perform the self-diagnosis.<br>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference. | ● During self-diagnosis, GPS diagnosis is not performed. |
| GPS input line connection error | Malfunctioning receiving wires to AV and NAVI control unit and internal GPS substrate<br>● Perform the self-diagnosis.<br>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference. | ● Navigation location detection performance has deteriorated.<br>(Location correction using GPS is not performed.)<br>● GPS receiving status remains gray. |
| GPS TCX0 over<br>GPS TCX0 under | Oscillating frequency of the GPS substrate frequency synchronizing oscillation circuit exceeded (or below) the specification<br>● Perform the self-diagnosis.<br>● 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. | ● Navigation location detection performance has deteriorated.<br>(Location correction using GPS is not performed.)<br>● GPS receiving status remains gray. |
| GPS ROM malfunction<br>GPS RAM malfunction | Contents of ROM (or RAM) in GPS substrate are malfunctioning.<br>● Perform the self-diagnosis.<br>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference. | ● Location detection accuracy of the navigation system will deteriorate, depending on the failed area in the memory, because GPS cannot make correct positioning.<br>(Location correction using GPS is not performed.) |

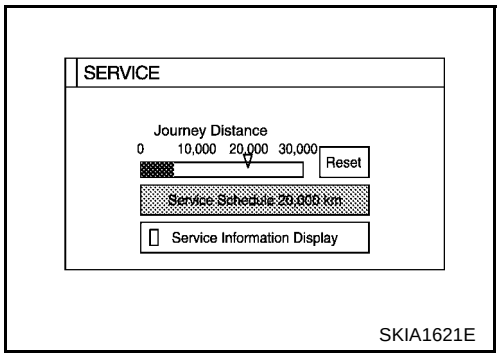
| Error item | Possible causes<br>Action/symptom | Example of symptom |
|---|---|---|
| GPS RTC malfunction | Clock IC in GPS substrate is malfunctioning.<br>● Perform the self-diagnosis.<br>● When the AV and NAVI control unit is judged normal by self-diagnosis, the symptom may be intermittent, caused by strong radio interference. | ● Correct time may not be displayed.<br>● 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.)<br>● Correct time of error occurrence may not be stored in the “History of Errors”. |
| GPS antenna disconnected | Malfunctioning connection between GPS substrate in AV and NAVI control unit and GPS antenna.<br>● Perform the self-diagnosis.<br>● 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. | ● Navigation location detection performance has deteriorated.<br>(Location correction using GPS is not performed.)<br>● GPS receiving status remains gray. |
| Low voltage of GPS | The power voltage supplied to the GPS circuit board has decreased.<br>● Perform the self-diagnosis.<br>● 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. | ● Navigation location detection performance has deteriorated.<br>(Location correction using GPS is not performed.)<br>● GPS receiving status remains gray. |
| DVD-ROM Malfunction<br>DVD-ROM Read error<br>DVD-ROM Response Error | Malfunctioning AV and NAVI control unit<br>Dedicated map DVD-ROM is in the system, but the data cannot be read.<br>● Is map DVD-ROM damaged, warped, or dirty?<br>– If damaged or warped, the map DVD-ROM is malfunctioning.<br>– If dirty, wipe the DVD-ROM clean with a soft cloth.<br>● Perform the self-diagnosis.<br>● When AV and NAVI control unit is judged normal by self-diagnosis, the symptom is judged intermittent, caused by vibration. | -<br>● The map of a particular location cannot be displayed.<br>● Specific guidance information cannot be displayed.<br>● Map display is slow.<br>● Guidance information display is slow.<br>● System has been affected by vibration. |

## AUTO CLIMATE CONTROL

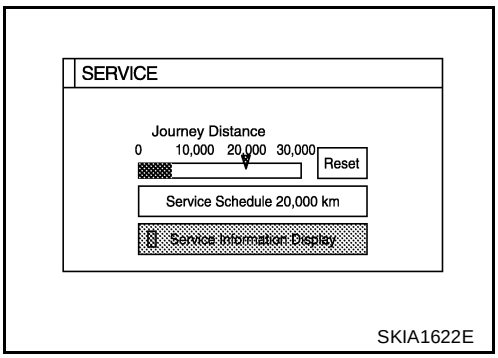
- “ATC Automatic Air Conditioner” ATC-41, "Self-diagnosis Function" for the details.

## SERVICE

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



- 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.



SKIA1622E

## Power Supply and Ground Circuit Check

EKS0042E

### 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 | 3 |
| M54 | 6(P) | ACC power | 2 |

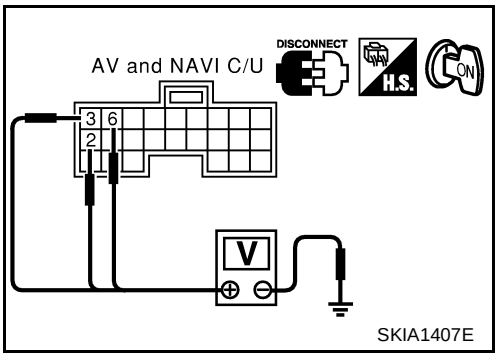
OK or NG

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. Disconnect the AV and NAVI control unit connector.
2. Check voltage between the following harness connector terminals and ground.

| Terminals | | | Power source | Ignition switch | Reference voltage (V) |
|---|---|---|---|---|---|
| (+) | | (-) | | | |
| Connector | Terminal (wire color) | | | | |
| M54 | 2(Y), 3(Y) | Ground | Battery power | OFF | Approx. 12 |
| M54 | 6(P) | Ground | ACC power | ACC | Approx. 12 |



SKIA1407E

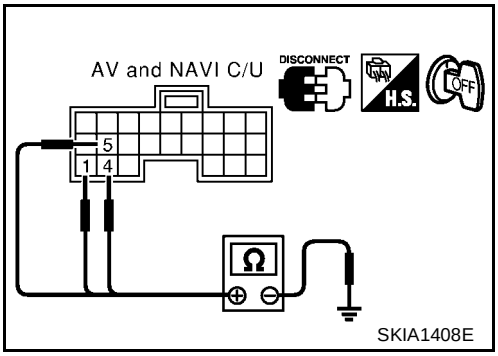
OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between AV and NAVI control unit and fuse.

### 3. GROUND CIRCUIT CHECK

Check continuity between the following AV and NAVI control unit and ground.

| Terminals | | | Ignition switch | Continuity |
|---|---|---|---|---|
| (+) | | (-) | | |
| Connector | Terminal (wire color) | | | |
| M54 | 1(B), 4(B), 5(BR) | Ground | OFF | Yes |



SKIA1408E

OK or NG

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

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

EKS00439

### 1. CHECK FUSE.

- Check for blown fuses at display unit 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

Disconnect display unit or Multifunction switch connector. Measure with body ground as (-) and each of vehicle terminal numbers in the table below as (+).

| Unit | Terminals | | Power source | Fuse No. |
|---|---|---|---|---|
| | Connector | Terminal (wire color) | | |
| Display | M63 | 21(Y), 23(Y) | Battery power | 33 |
| | | 19(P) | ACC power | 2 |
| Multifunction switch | M49 | 6(P) | ACC power | 2 |

OK or NG

OK >> GO TO 3.
NG >> Replace display unit or Multifunction switch power circuit harness.

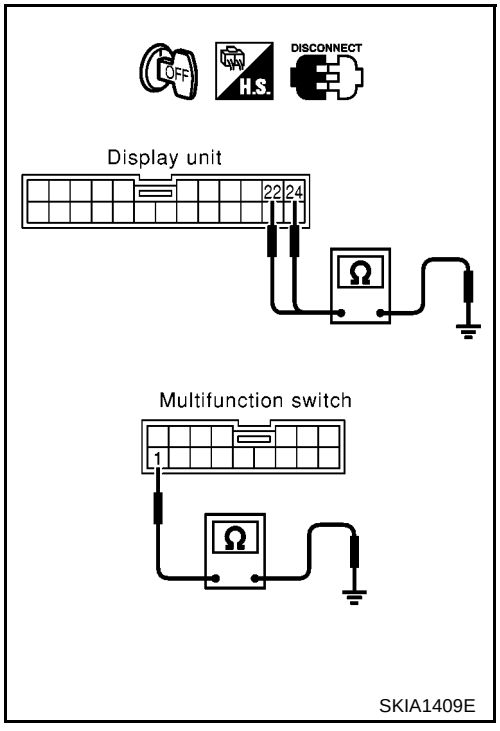
### 3. GROUND CIRCUIT INSPECTION

Check continuity between display unit or multifunction switch at the following vehicle connectors and body ground.

| Unit | Terminals | | | Ignition switch | Continuity |
|---|---|---|---|---|---|
| | (+) | | (-) | | |
| | Connector | Terminal (wire color) | | | |
| Display | M63 | 22(B), 24(B) | Ground | OFF | Yes |
| Multifunction switch | M49 | 1(B) | Ground | OFF | Yes |

OK or NG

OK >> Normal
NG >> Replace ground circuit harness of display unit or Multifunction switch.



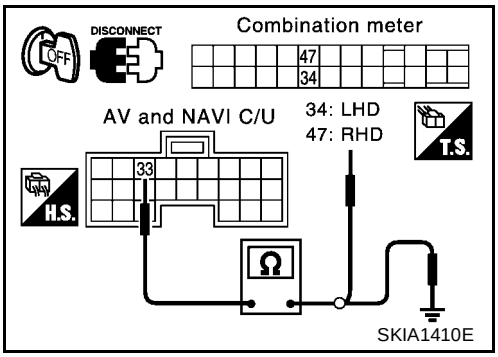
## Vehicle Speed Signal Check

EKS0042F

### 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 |
|---|---|---|---|---|---|
| AV and NAVI control unit(+) | | Combination meter(-) | | | |
| 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 and ground.

| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 33(L/B) | Ground | NO |

OK or NG

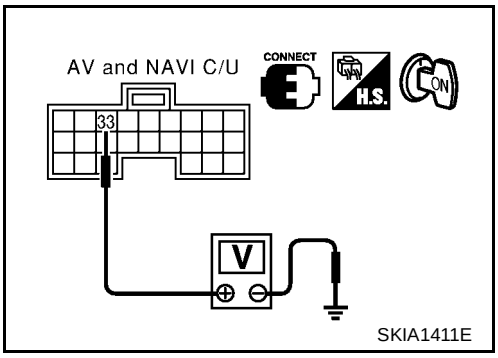
OK >> GO TO 2.

NG >> ● Check harness for open or short between AV and NAVI control unit and combination meter.
● Check connector housings for disconnected or loose terminals.

### 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 and ground.

| Terminals | | | Voltage (V) |
|---|---|---|---|
| (+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 33(L/B) | Ground | Approx. 3.5 or more |




OK or NG

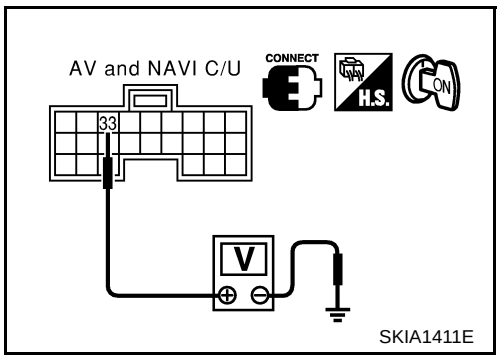
OK >> GO TO 3.

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, check voltage signal between AV and NAVI control unit and ground.

| Terminals | | | Voltage (V) |
|---|---|---|---|
| (+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 33(L/B) | Ground | AV-72, "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-29, "Inspection/Vehicle Speed Signal" (LHD MODELS), DI-58, "Inspection/Vehicle Speed Signal" (RHD MODELS).

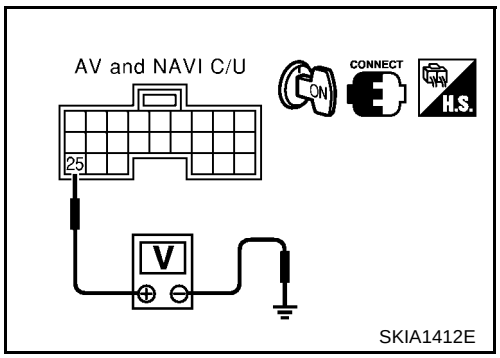
# Illumination Control Signal Check

EKS0042H

## 1. ILLUMINATION CONTROL SIGNAL CHECK

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

| Terminals | | | Light Switch | |
|---|---|---|---|---|
| (+) | | (-) | | |
| Connector | Terminal (wire color) | | ON | OFF |
| M55 | 25(Y/R) | Ground | Approx. 3.5V or more | Approx. 1.5V 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 Combination switch.

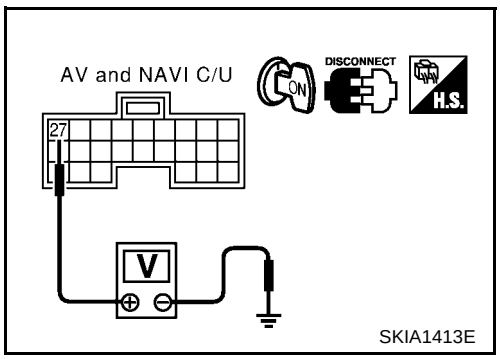
# Ignition Signal Check

EKS0042I

## 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 | |
|---|---|---|---|---|
| (+) | | (-) | | |
| Connector | Terminal (wire color) | | ON | OFF |
| M55 | 27(Y/G) | Ground | Battery voltage | 0V |




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

EKS0042J

### 1. REVERSE LAMP CHECK

1. Turn the ignition switch ON.
2. A/T Shift selector lever into R-position. Does “R” in the shift position indicator come on?

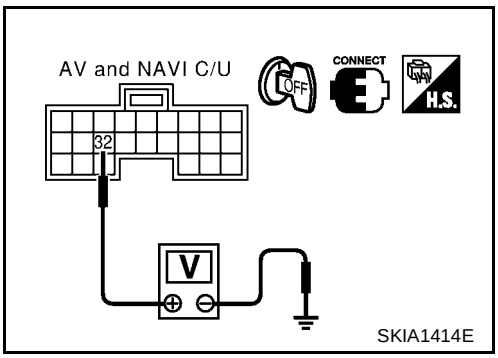
YES or NO

YES >> GO TO 2.
NO >> Check park/neutral position relay system. AT-406, "Park/Neutral Position (PNP) Switch Adjustment"

### 2. REVERSE SIGNAL CHECK

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

| Terminals | | | A/T selector lever position | |
|---|---|---|---|---|
| (+) | | (-) | | |
| Connector | Terminal (wire color) | | R-position | Other than R-position |
| M55 | 32(G/W) | Ground | Battery voltage | 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 park/neutral position relay.

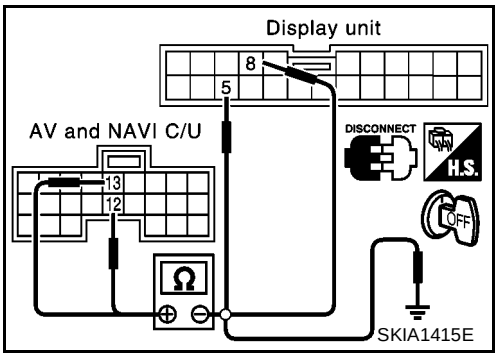
## RGB Screen Is Not Shown.

EKS0042K

### 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 |
| M54 | 13 (BR) | M63 | 5 (BR) | YES |




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

| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M54 | 12(R),13(BR) | Ground | NO |

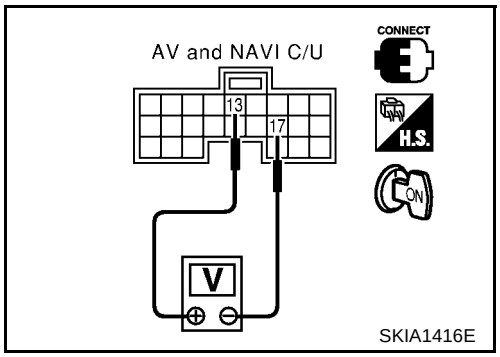
OK or NG

OK >> GO TO 2.
NG >> ● Check harness for open or short between AV and NAVI control unit and Display.
● 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 between AV and NAVI control unit connector terminals 13 and 17.

| Terminals | | | | Voltage (v) |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal | |
| M54 | 13 (BR) | M54 | 17 | AV-72, "Terminals and Reference Value for AV and NAVI Control Unit" |



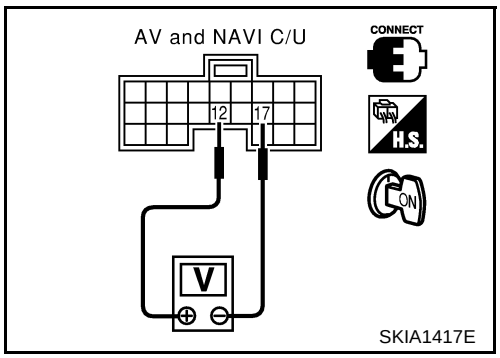

OK or NG

OK >> GO TO 3.
NG >> Replace the display unit.

## 3. RGB AREA SIGNAL CHECK

1. Press “INFO” switch.
2. Check voltage between AV and NAVI control unit connector terminals 12 and 17.

| Terminals | | | | Voltage (v) |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal | |
| M54 | 12 (R) | M54 | 17 | AV-72, "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

EKS0043G

## 1. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 2.
NG >> AV-105, "System Does Not Start."

## 2. DISPLAY UNIT POWER SYSTEM HARNESS CHECK

Check voltage between Display unit and ground. AV-88, "Check Display Unit, Multifunction Switch Power, and Ground Circuit"

OK or NG

OK >> Replace the display unit.
NG >> Open or short in display unit power system harness.

## Color of RGB Image Is Not Proper.

EKS0042L

### 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.

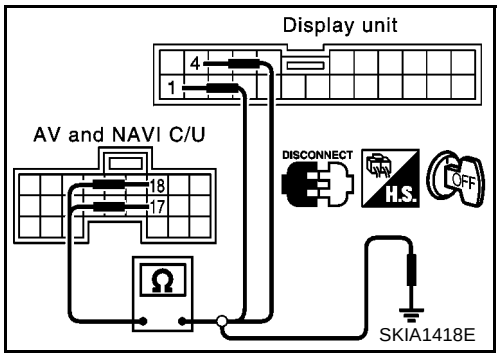
## 2. HARNESS CHECK

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 |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | Display (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M54 | 18 (Y) | M63 | 1 (Y) | YES |
| M54 | 17 | M63 | 4 | YES |

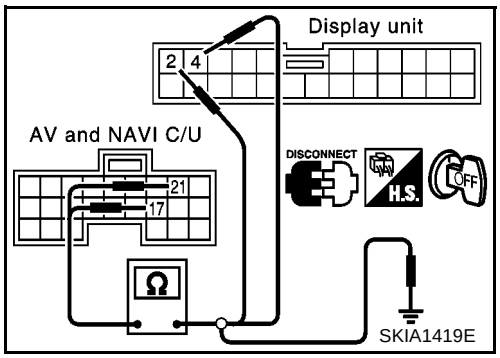
| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M54 | 17, 18 (Y) | Ground | NO |




- When the screen looks reddish

| Terminals | | | | Continuity |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | Display (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M54 | 21 (W) | M63 | 2 (W) | YES |
| M54 | 17 | M63 | 4 | YES |

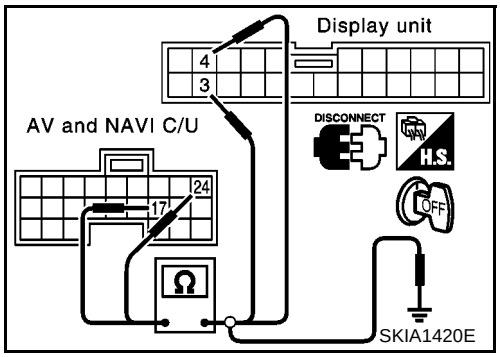
| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M54 | 17, 21 (W) | Ground | NO |




- When the screen looks yellowish

| Terminals | | | | Continuity |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | Display (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M54 | 24 (L) | M63 | 3 (L) | YES |
| M54 | 17 | M63 | 4 | YES |

| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M54 | 17, 24 (L) | Ground | NO |



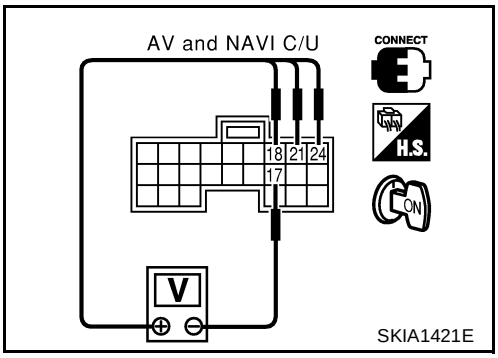

OK or NG

OK >> GO TO 3.

NG >> ● Check harness for open or short between AV and NAVI control unit and Display.
● Check connector housings for disconnected or loose terminals.

## 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 between AV and NAVI control unit terminals 18, 21, 24 and 17.




- When the screen looks bluish

| Terminals | | | | Voltage (v) |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal | |
| M54 | 18 (Y) | M54 | 17 | AV-72, "Terminals and Reference Value for AV and NAVI Control Unit" |

- When the screen looks reddish

| Terminals | | | | Voltage (v) |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal | |
| M54 | 21 (W) | M54 | 17 | AV-72, "Terminals and Reference Value for AV and NAVI Control Unit" |

- When the screen looks yellowish

| Terminals | | | | Voltage (v) |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal | |
| M54 | 24 (L) | M54 | 17 | AV-72, "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.

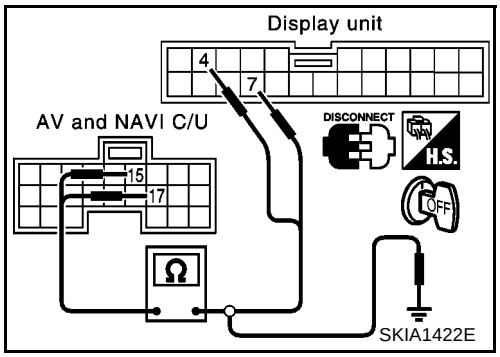
## RGB Screen Is Rolling

EKS0042M

### 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 | 15 (G) | M63 | 7 (G) | YES |
| M54 | 17 | M63 | 4 | YES |




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

| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit (+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M54 | 17, 15 (G) | Ground | NO |

OK or NG

OK >> GO TO 2.

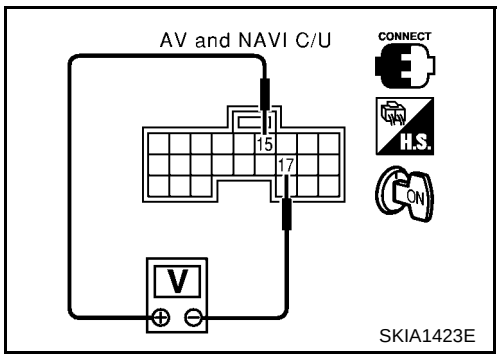
NG >> ● Check harness for open or short between AV and NAVI control unit and Display for open or short circuit.

● 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.

| Terminals | | | | Reference signal |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal | |
| M54 | 15 (G) | M54 | 17 | AV-72, "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.

## Guide Sound Is Not Heard.

EKS0042N

### 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

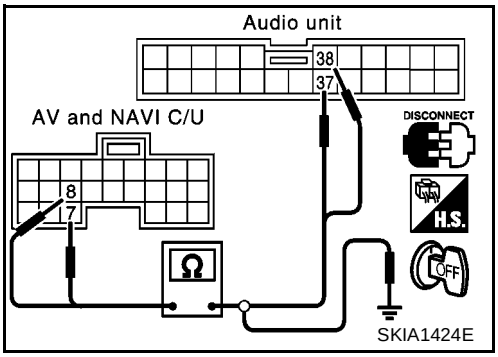
YES >> GO TO 2.

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

## 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 |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | Audio unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M54 | 7 (BR) | M53 | 38 (BR) | YES |
| M54 | 8 (Y) | M53 | 37 (Y) | YES |




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

| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit (+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M54 | 7 (BR), 8 (Y) | Ground | NO |

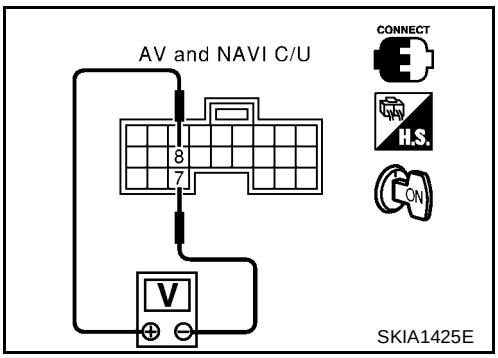
OK or NG

OK >> GO TO 3.
NG >> ● Check harness for open or short between AV and NAVI control unit and Audio unit.
● 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) |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal | |
| M54 | 7 (BR) | M54 | 8(Y) | AV-72, "Terminals and Reference Value for AV and NAVI Control Unit" |




OK or NG

OK >> Replace Audio unit.
NG >> Replace AV and NAVI control unit.

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

EKS0043M

## 1. CHECK POWER AND GROUND SYSTEMS.

1. Check voltage between Multifunction switch and ground. AV-88, "Check Display Unit, Multifunction Switch Power, and Ground Circuit" .

OK or NG

OK >> GO TO 2.
NG >> Malfunction of Multifunction switch ACC power or ground harness

## 2. CHECK SYMPTOM

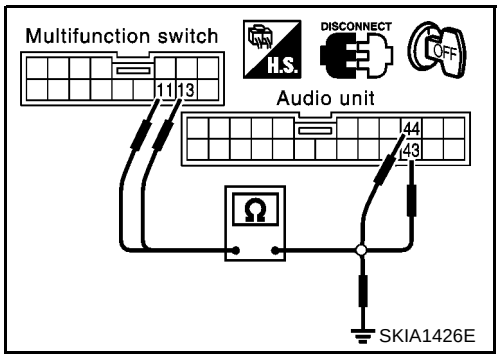
Turn ignition switch to ACC position. Is screen changed to audio control screen when CD is inserted?

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 |
|---|---|---|---|---|
| Multifunction SW (+) | | Audio unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M49 | 11 (L) | M53 | 44 (L) | YES |
| M49 | 13 (P) | M53 | 43 (P) | YES |




4. Check continuity between Multifunction switch terminals 11, 12 and terminal 15.

| Terminals | | | | Continuity |
|---|---|---|---|---|
| Multifunction switch (+) | | Multifunction switch(-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M49 | 11 (L),13 (P) | M49 | 15 | NO |

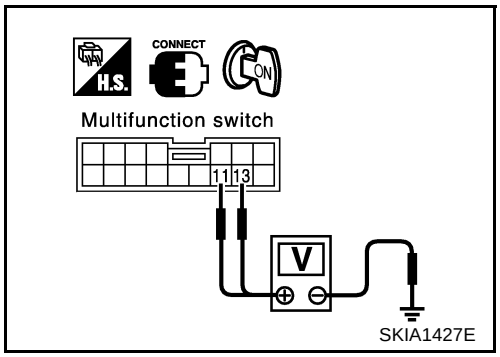
OK or NG

OK >> GO TO 4.
NG >> ● Check harness for open or short between Multifunction switch and Audio unit.
● Check connector housings for disconnected or loose terminals.

## 4. COMMUNICATION SIGNAL INSPECTION

Connect Multifunction switch and Audio unit connectors. Check voltage waveform between Multifunction switch terminals 11, 12 and body ground.

| Terminals | | | Reference signal |
|---|---|---|---|
| Multifunction switch(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M49 | 11 (L),13 (P) | Ground | AV-77, "Terminals and Reference Value for Multifunction Switch" |

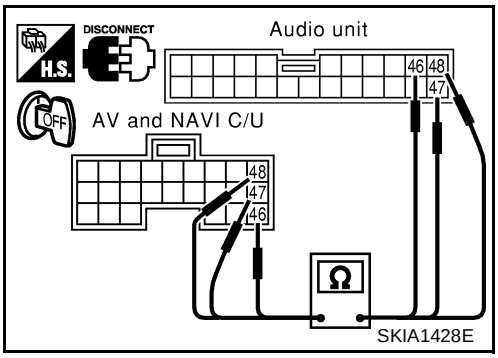



OK or NG

OK >> Replace audio unit.
NG >> Replace Multifunction switch.

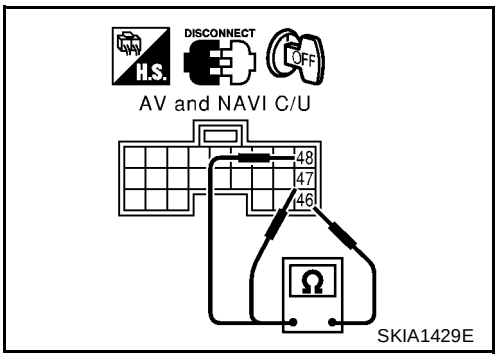
## 5. HARNESS CHECK

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 |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | Audio unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M55 | 46 (B) | M53 | 46 (B) | YES |
| M55 | 47 (R) | M53 | 48 (R) | YES |
| M55 | 48 (G) | M53 | 47 (G) | YES |

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




| Terminals | | | | Continuity |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | AV and NAVI control unit (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M55 | 47 (R), 48 (G) | M55 | 46(B) | NO |

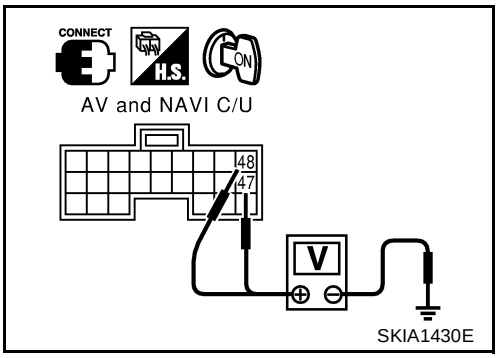
Ok or NG

OK >> GO TO 6.

NG >>
- Check harness for open or short between AV and NAVI control unit and Audio unit.
- Check connector housings for disconnected or loose terminals.

## 6. COMMUNICATION SIGNAL INSPECTION

Connect audio unit to AV and NAVI control unit connector. Check voltage waveform between AV and NAVI control unit terminals 47, 48 and body ground.




| Terminals | | | Reference signal |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 47 (R), 48 (G) | Ground | AV-72, "Terminals and Reference Value for AV and NAVI Control Unit" |

OK or NG

OK >> Replace audio unit.

NG >> Replace AV and NAVI control unit.

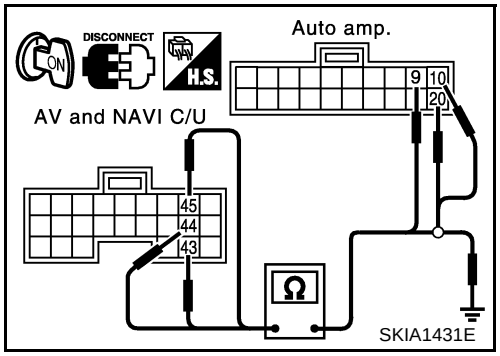
## Air Conditioning Controls (Only) Are Ineffective (Rear Defogger Control Excluded).

EKS0042O

### 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 |
|---|---|---|---|---|
| AV and NAVI control unit (+) | | A/C AUTO AMP. (-) | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M55 | 43 (L/R) | M75 | 10 (L/R) | YES |
| M55 | 44 (L/W) | M75 | 9 (L/W) | YES |
| M55 | 45 (L) | M75 | 20 (L) | YES |




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

| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 43(L/R), 44 (L/W), 45 (L) | Ground | NO |

Ok or NG

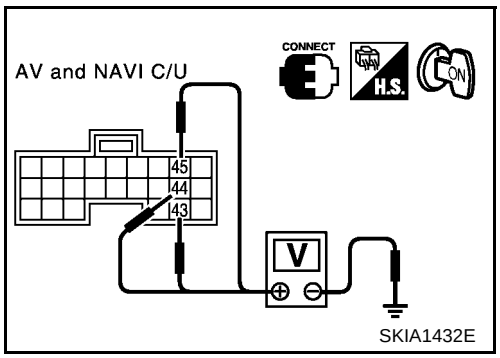
OK >> GO TO 2.

NG >>
- Check harness between A/C AUTO AMP. and AV and NAVI control unit.
- Check connector housings for disconnected or loose terminals.

### 2. A/C–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

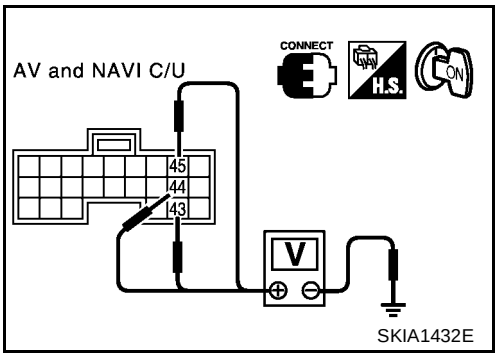
OK >> GO TO 3.

NG >> Replace A/C AUTO AMP.

## 3. A/C - 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 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-72, "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.

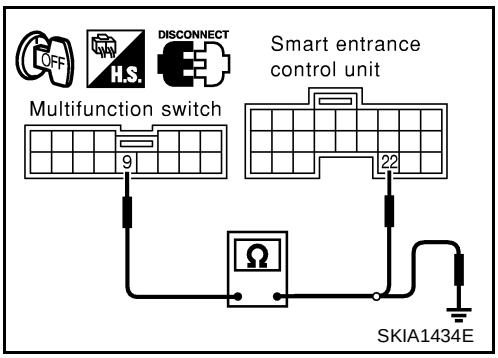
# Rear Defogger Does Not Operate

EKS0043P

## 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 and smart entrance control unit.

| Terminals | | | | Continuity |
|---|---|---|---|---|
| Multifunction switch | | Smart entrance control unit | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | |
| M49 | 9 (G/B) | M41 | 22 (G/B) | YES |




4. Check continuity between Multifunction switch and body ground.

| Terminals | | | Continuity |
|---|---|---|---|
| Multifunction switch | | (-) | |
| Connector | Terminal (wire color) | | |
| M49 | 9 (G/B) | Ground | NO |

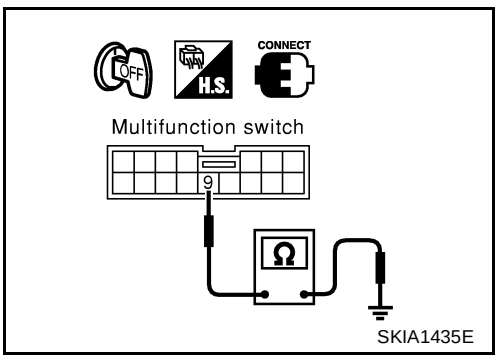
OK or NG

OK >> GO TO 2.
NG >> Open or short in harness between Multifunction switch and smart entrance control unit.

## 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 body ground when rear defogger switch is operated.

| Terminals | | | Continuity | |
|---|---|---|---|---|
| Multifunction switch | | (-) | | |
| Connector | Terminal (wire color) | | Press switch. | Release switch. |
| M49 | 9 (G/B) | Ground | YES | NO |




OK or NG

OK >> Replace smart entrance control unit.
NG >> Replace Multifunction switch.

## Rear Defogger Indicator Lamp Does Not Illuminate.

EKS0043O

### 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?)

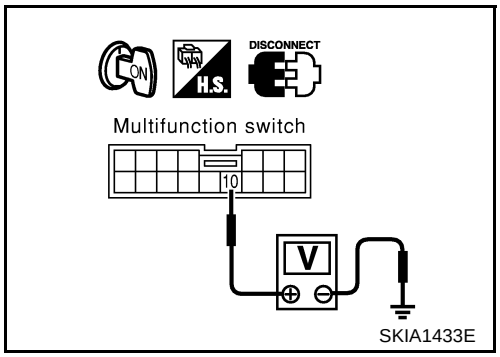
OK or NG

OK >> GO TO 3.
NG >> AV-101, "Rear Defogger Does Not Operate"" item.

### 3. CHECK REAR DEFOGGER INDICATOR LAMP SIGNALS.

Disconnect Multifunction switch connector. Check voltage between Multifunction switch terminal 10 and body ground.

| Terminals | | | Voltage (V) |
|---|---|---|---|
| (+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M49 | 10 (L/R) | ground | Battery voltage |




OK or NG

OK >> Replace Multifunction switch.
NG >> Open or short in harness between Multifunction switch and rear defogger.

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

EKS0042Q

### 1. CHECK DISPLAY CONDITIONS.

Check display conditions for all warning screens.

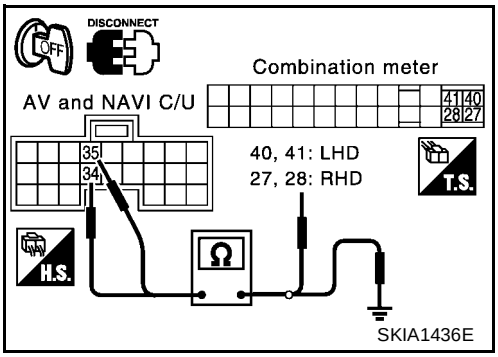
| Display Items | Display condition |
|---|---|
| Parking brake drag, door ajar | PKB switch or any door switch is ON and vehicle speed is approximately 5 km/h (3MPH) or higher. |
| Remaining fuel | After driving approximately 20 km (13MPH) beyond the point where gauge warning lamp illuminates. |
| Other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

>> GO TO 2.

## 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 |
|---|---|---|---|---|---|
| AV and NAVI control unit (+) | | Combination meter (-) | | | |
| Connector | Terminal (wire color) | Connector | Terminal (wire color) | | |
| M55 | 34 (R) | M37 | LHD | 41 (R) | YES |
| | | | RHD | 27(R) | |
| M55 | 35 (G) | M37 | LHD | 40 (G) | YES |
| | | | RHD | 28(G) | |




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

| Terminals | | | Continuity |
|---|---|---|---|
| AV and NAVI control unit(+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 34 (R), 35 (G) | Ground | NO |

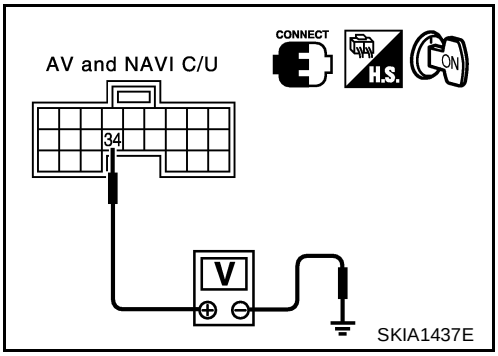
OK or NG

OK >> GO TO 3.
NG >> ● Check harness for open or short between AV and NAVI control unit and combination meter for open or short circuit.
● 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 between AV and NAVI control unit terminal 34 and ground.

| Terminals | | | Voltage (V) |
|---|---|---|---|
| (+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 34 (R) | ground | AV-72, "Terminals and Reference Value for AV and NAVI Control Unit" |



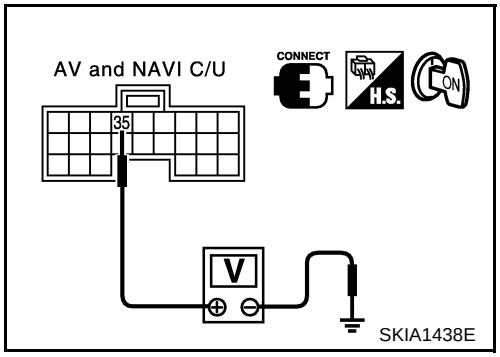

OK or NG

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 between AV and NAVI control unit terminal 35 and ground.

| Terminals | | | Voltage (V) |
|---|---|---|---|
| (+) | | (-) | |
| Connector | Terminal (wire color) | | |
| M55 | 35 (G) | ground | AV-72, "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-29, "Inspection/Vehicle Speed Signal" for LHD models or DI-58, "Inspection/Vehicle Speed Signal" for RHD models.

## Previous Conditions Are Not Stored.

EKS0042S

### 1. BATTERY POWER CHECK

- Check AV and NAVI control unit battery power.
  Refer to AV-87, "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.

EKS0042T

### 1. SELF-DIAGNOSIS

- “Self-diagnosis mode” of the self-diagnosis function AV-78, "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-84, "HISTORY OF ERRORS" of the CONFIRMATION/ADJUSTMENT mode?

YES or NO

YES >> AV-84, "DIAGNOSIS BY HISTORY OF ERRORS".
NO >> AV-107, "Driving Test".

## Radio Wave From The GPS Satellite Is Not Received.

EKS0042U

### 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-78, "Self-Diagnosis Mode" .

OK or NG

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

## Display Does Not Change When Screen Adjustment Is Performed.

EKS0044O

## 1. CHECK SYMPTOM

Do other systems operate properly?

Do operate.>>Replace the display unit.
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.

EKS0044P

## 1. VEHICLE SIGNAL CHECK

1. Start the engine.
2. Diagnose the following items with AV-82, "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-90, "Illumination Control Signal Check".

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

EKS0044Q

- Replace Multifunction switch.

## Driving Information Is Inaccurate. Maintenance Information Is Inaccurate.

EKS0044R

## 1. VEHICLE SPEED SIGNAL INSPECTION

Check vehicle speed signal. AV-89, "Vehicle Speed Signal Check" .

OK or NG

OK >> Replace AV and NAVI control unit.
NG >> Check combination meter system. DI-29, "Inspection/Vehicle Speed Signal" for LHD models or DI-58, "Inspection/Vehicle Speed Signal" for RHD models.

## System Does Not Start.

EKS0044V

## 1. INSPECT POWER SYSTEM.

Inspect power system of AV and NAVI control unit. AV-87, "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.

EKS0044W

### 1. CHECK SYMPTOM

- AV-108, "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-78, "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-84, "HISTORY OF ERRORS" in “CONFIRMATION/ADJUSTMENT” mode?

YES or NO

YES >> AV-84, "DIAGNOSIS BY HISTORY OF ERRORS".
NO >> GO TO 4.

### 4. VEHICLE SIGNAL DIAGNOSIS

- Start the engine.
- Diagnose the following items with AV-82, "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-89, "Vehicle Speed Signal Check" .
- If reverse is NG, proceed to AV-91, "Reverse Signal Check" .

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

EKS0044X

### 1. VEHICLE SIGNAL DIAGNOSIS

- Start the engine.
- Diagnose the following items with AV-82, "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-89, "Vehicle Speed Signal Check" .
- If reverse is NG, proceed to AV-91, "Reverse Signal Check" .

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

EKS004JM

Inspection procedure

### 1. SELF-DIAGNOSIS

- AV-78, "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-84, "HISTORY OF ERRORS" in “CONFIRMATION/ADJUSTMENT” mode?

Is there an error history?

Yes >> AV-84, "DIAGNOSIS BY HISTORY OF ERRORS".
No >> AV-107, "Driving Test"

## Driving Test

EKS0042V

### 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-108, "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

## Example of Symptoms Judged Not Abnormal

EKS0042W

### BASIC OPERATION

| 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.<br>Audio guide volume is too low or too high. | Volume control is set to OFF, MIN or MAX. | Adjust the audio guide volume. |
| | Audio guidance is not available while the vehicle is driving on a dark pink route. | System is not malfunction. |
| Screen is too dark.<br>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.<br>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.<br>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. |
| 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. |

| Symptom | Cause | Remedy |
|---|---|---|
| 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 research 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 research 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. |

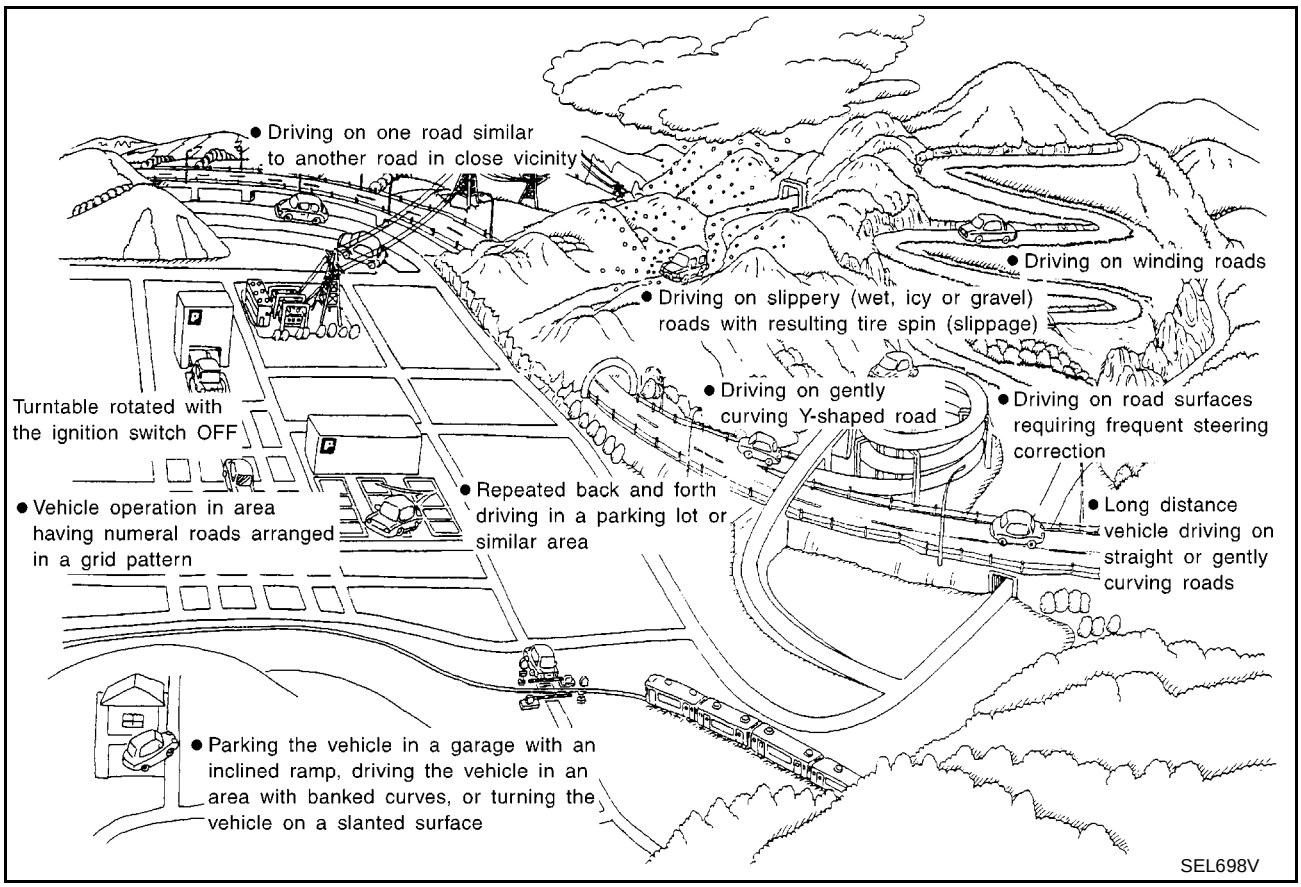
## ROUTE SEARCHING

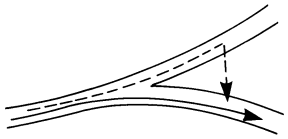
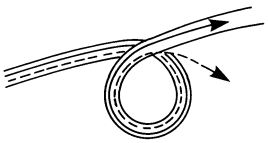
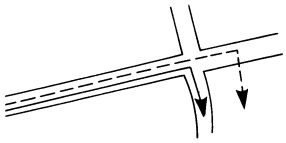
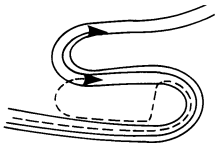
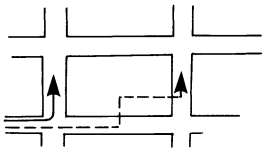
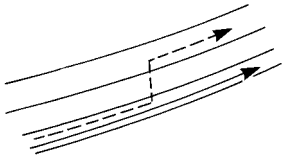
| Symptom | Cause | Remedy |
|---|---|---|
| No route is shown. | No road to be searched is found around the destination. | Find wider road (orange road or wider) nearby and reset the destination and passing points onto it. Take care of the traveling direction when there are separate up and down roads. |
| | 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. |
| 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. |

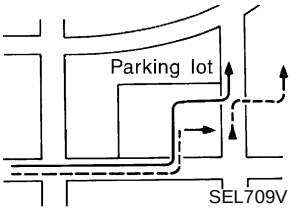
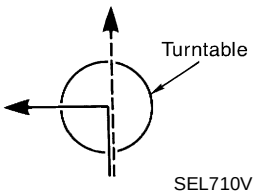
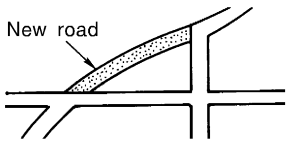
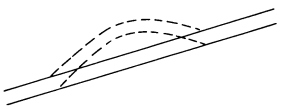
| Symptom | Cause | Remedy |
|---|---|---|
| Detouring route is recommended. | In some areas, highways (gray routes) are not used for the search. Therefore, detour route may be recommended. | Set the route closer to the basic route (gray route). |
| | A detour route may be shown when some traffic regulation (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. |

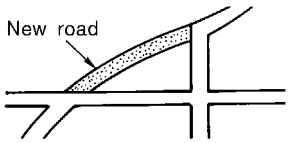
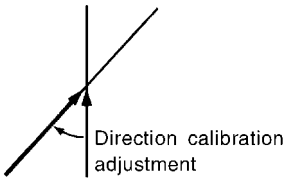
## EXAMPLES OF CURRENT-LOCATION MARK DISPLACEMENT

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.



| Cause (condition) -:While driving ooo:Display | | Driving condition | Remarks (correction, etc.) |
|---|---|---|---|
| Road configuration | Y-intersections<br>  <br>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<br>  <br>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<br>  <br>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<br>  <br>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<br>  <br>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<br>  <br>ELK0197D | When two roads are running in parallel (such as highway and sideway), the map may be matched to the other road by mistake and the vehicle mark may deviate from the correct location. | |

| Cause (condition) -:While driving ooo:Display | | Driving condition | Remarks (correction, etc.) |
|---|---|---|---|
| Place | In a parking lot<br>  <br>SEL709V | 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.<br>When driving in circle or turning the steering wheel repeatedly, direction errors accumulate, and the vehicle mark may deviate from the correct location. | If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction. |
| | Turn table<br>  <br>SEL710V | 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. | |
| | Slippery roads | 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. | |
| | Slopes | 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. | |
| Map data | Road not displayed on the map screen<br>  <br>SEL699V | 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. | |
| | Different road pattern<br>(Changed due to repair)<br>  <br>ELK0201D | 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. | |
| Vehicle | Use of tire chains | When tire chains are used, the mileage is not correctly detected, and the vehicle mark may deviate from the correct road. | 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.) |

| 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. **NOTE:** 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.

### 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.

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

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.

### LOCATION CORRECTION BY MAP MATCHING IS SLOW.

- 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.

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

- 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.

### 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.

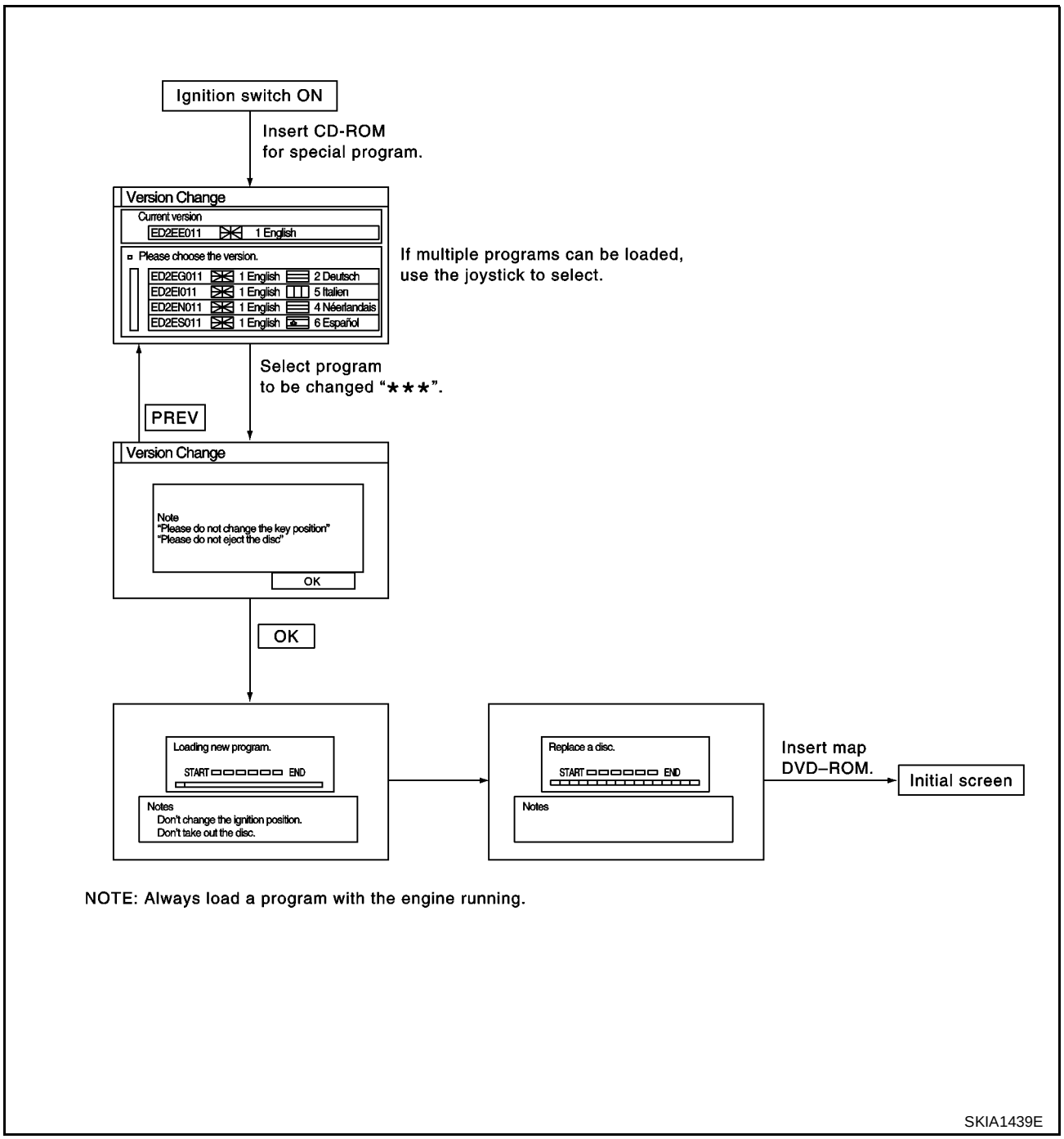
**Difference of the BIRDVIEW® Screen From the Flat Map Screen Are as Follows.**

- 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 to 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.

## Program Loading

EKS0042X

**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

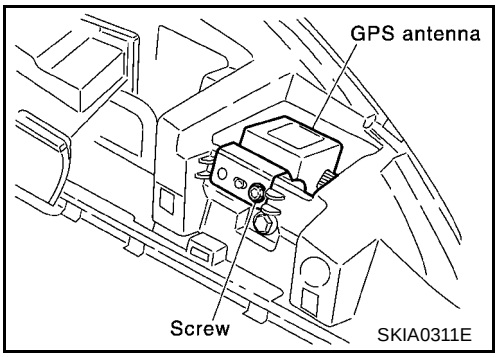
EKS00445

- AV-42, "Removal and Installation of Audio Unit".

## Removal and Installation of GPS Antenna

EKS00446

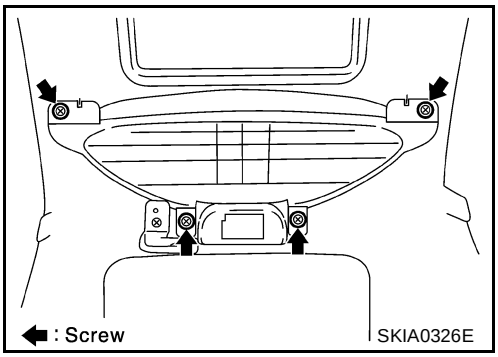
1. Remove cluster lid A. IP-5, "CLUSTER LID A" .
2. Remove screw (1) and remove GPS antenna.




## Removal and Installation of Multifunction Switch

EKS00447

1. Remove cluster lid C. IP-6, "CLUSTER LID C" .
2. Remove screws (4) and remove Multifunction switch from cluster lid C.




## Removal and Installation of Display Unit Assembly

EKS004JN

1. Remove cluster lid C. IP-6, "CLUSTER LID C" .
2. Remove screws (4) and remove display unit.