SECTION AV

AUDIO VISUAL, NAVIGATION & TELEPHONE SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

EKS00ECJ

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

WARNING:

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

Wiring Diagrams and Trouble Diagnosis

EKS00ECK

When you read wiring diagrams, refer to the followings:

- Refer to GI-14, "How to Read Wiring Diagrams" in GI section
- Refer to PG-2, "POWER SUPPLY ROUTING" for power distribution circuit in PG section

When you perform trouble diagnosis, refer to the followings:

- Refer to GI-10, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES" in PG section
- Refer to GI-23, "How to Perform Efficient Diagnosis for an Electrical Incident" in PG section

AUDIO

PFP:28111

System Description

EKS00INI

WITH CASETTE DECK

Refer to Owner's Manual for audio system operating instructions.
Power is supplied at all times

- through 15A fuse [No. 32, located in the fuse and fusible link box]
- to audio unit terminal 6.

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

- through 10A fuse [No. 4, located in the fuse block (J/B)]
- to audio unit terminal 10.

When audio switch is pushed, audio signals are supplied

- through audio unit terminals 1, 2, 3, 4, 13, 14, 15, and 16
- to terminals 1 and 2 of Front door speaker LH and RH
- to terminals 1 and 2 of Rear speaker LH and RH
- to terminals 1 and 2 of tweeter LH and RH.

When one of audio steering wheel switches is pushed to volume up, seek up, or source, resistance in steering switch circuit changes depending on which button is pushed. This will change voltage. Power is supplied

- from audio unit terminal 26
- through combination switch (spiral cable) terminal 4 and 13
- to audio steering wheel switch terminal 3.

Ground is supplied

- from audio steering wheel switch
- through combination switch (spiral cable) terminal 15 and 7
- to audio unit terminal 29.

When one of audio steering wheel switches is pushed to volume down, seek down, or special, resistance in steering switch circuit changes depending on which button is pushed. This will change voltage. Power is supplied

- from audio unit terminal 27
- through combination switch (spiral cable) terminal 5 and 14
- to audio steering wheel switch terminal 4.

Ground is supplied

- from audio steering wheel switch
- through combination switch (spiral cable) terminal 15 and 7
- to audio unit terminal 29.

SPEED SENSITIVE VOLUME SYSTEM

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

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

New audio units will be delivered to the factories in the “NEW” state, i.e. ready to be linked with the vehicle's NATS. When the audio unit in “NEW” state is first switched on at the factory, it will start up communication with the vehicle's immobilizer control unit (IMMU) and send a code (the “audio unit Code”) to the IMMU. The IMMU will then store this code, which is unique to each audio unit, in its (permanent) memory.

Upon receipt of the code by the IMMU, the NATS will confirm correct receipt of the audio unit code to the audio unit. Hereafter, the audio unit will operate as normal.

During the initialization process, “NEW” is displayed on the audio unit display. Normally though, communication between audio unit and IMMU takes such a short time (300 ms) that the audio unit seems to switch on directly without showing “NEW” on its display.

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 audio unit display. Again, the communication takes such a short time (300 ms) that the audio unit seems to switch on directly without showing “WAIT” on its display.

When the radio is locked

In case of a audio unit being linked with the vehicle's NATS (immobilizer system), disconnection of the link between the audio unit and the IMMU will cause the audio unit to switch into the lock (“SECURE”) mode in which the audio unit is fully inoperative. Hence, repair of the audio unit is basically impossible, unless the audio unit is reset to the “NEW” state for which special decoding equipment is required.

Clarion has provided their authorized service representatives with so called “decoder boxes” which can bring the audio unit back to the “NEW” state, enabling the audio unit to be switched on after which repair can be carried out. Subsequently, when the repaired audio unit is delivered to the final user again, it will be in the “NEW” state to enable re-linking the audio unit to the vehicle's immobilizer system. As a result of the above, repair of the audio unit can only be done by an authorized Clarion representative (when the owner of the vehicle requests repair and can show personal identification).

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 to NEW state by authorized representative of radio manufacturer.	—
Replacement of IMMU	Radio needs to be reset to NEW state by authorized representative of Clarion.	After switching on the radio, it will display “SECURE” after 1 minute.
No communication from IMMU to radio	1. If NATS is malfunctioning, check NATS system. 2. After NATS is repaired, reset radio to NEW state by authorized representative of Clarion.	After switching on the radio, the radio will display “SECURE” after 1 minute. Further use of radio is impossible until communication is established again, or after radio is reset by authorized representative of Clarion.
When initialized between ECM and IMMU.	Radio needs to be reset to NEW status by authorized representative of Clarion.	After switching on the radio, it will display “SECURE” after 1 minute.

PERSONAL AUDIO SETTILNG

Description

- The radio is designed to store several settings (volume, bass, treble, preset stations) 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.

WITHOUT CASETTE DECK

Refer to Owner's Manual for audio system operating instructions.
Power is supplied at all times

- through 15A fuse [No. 32, located in the fuse and fusible link box]
- to audio unit terminal 9.

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

- through 10A fuse [No. 4, located in the fuse block (J/B)]
- to audio unit terminal 3.

When audio switch is pushed, audio signals are supplied

- through audio unit terminals 7, 10, 11, 12, 13, 14, 15, and 16
- to terminals 1 and 2 of Front door speaker LH and RH
- to terminals 1 and 2 of Rear speaker LH and RH
- to terminals 1 and 2 of tweeter LH and RH.

When one of audio steering wheel switches is pushed to volume up, seek up, or source, resistance in steering switch circuit changes depending on which button is pushed. This will change voltage. Power is supplied

- from audio unit terminal 20
- through combination switch (spiral cable) terminal 4 and 13
- to audio steering wheel switch terminal 3.

Ground is supplied

- from audio steering wheel switch
- through combination switch (spiral cable) terminal 15 and 7
- to audio unit terminal 22.

When one of audio steering wheel switches is pushed to volume down, seek down, or special, resistance in steering switch circuit changes depending on which button is pushed. This will change voltage. Power is supplied

- from audio unit terminal 21
- through combination switch (spiral cable) terminal 5 and 14
- to audio steering wheel switch terminal 4.

Ground is supplied

- from audio steering wheel switch
- through combination switch (spiral cable) terminal 15 and 7
- to audio unit terminal 22.

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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 to NEW state by authorized representative of radio manufacturer.	—
Replacement of IMMU	Radio needs to be reset to NEW state by authorized representative of Clarion.	After switching on the radio, it will display “SECURE” after 1 minute.
No communication from IMMU to radio	1. If NATS is malfunctioning, check NATS system. 2. After NATS is repaired, reset radio to NEW state by authorized representative of Clarion.	After switching on the radio, the radio will display “SECURE” after 1 minute. Further use of radio is impossible until communication is established again, or after radio is reset by authorized representative of Clarion.
When initialized between ECM and IMMU.	Radio needs to be reset to NEW status by authorized representative of Clarion.	After switching on the radio, it will display “SECURE” after 1 minute.

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Description

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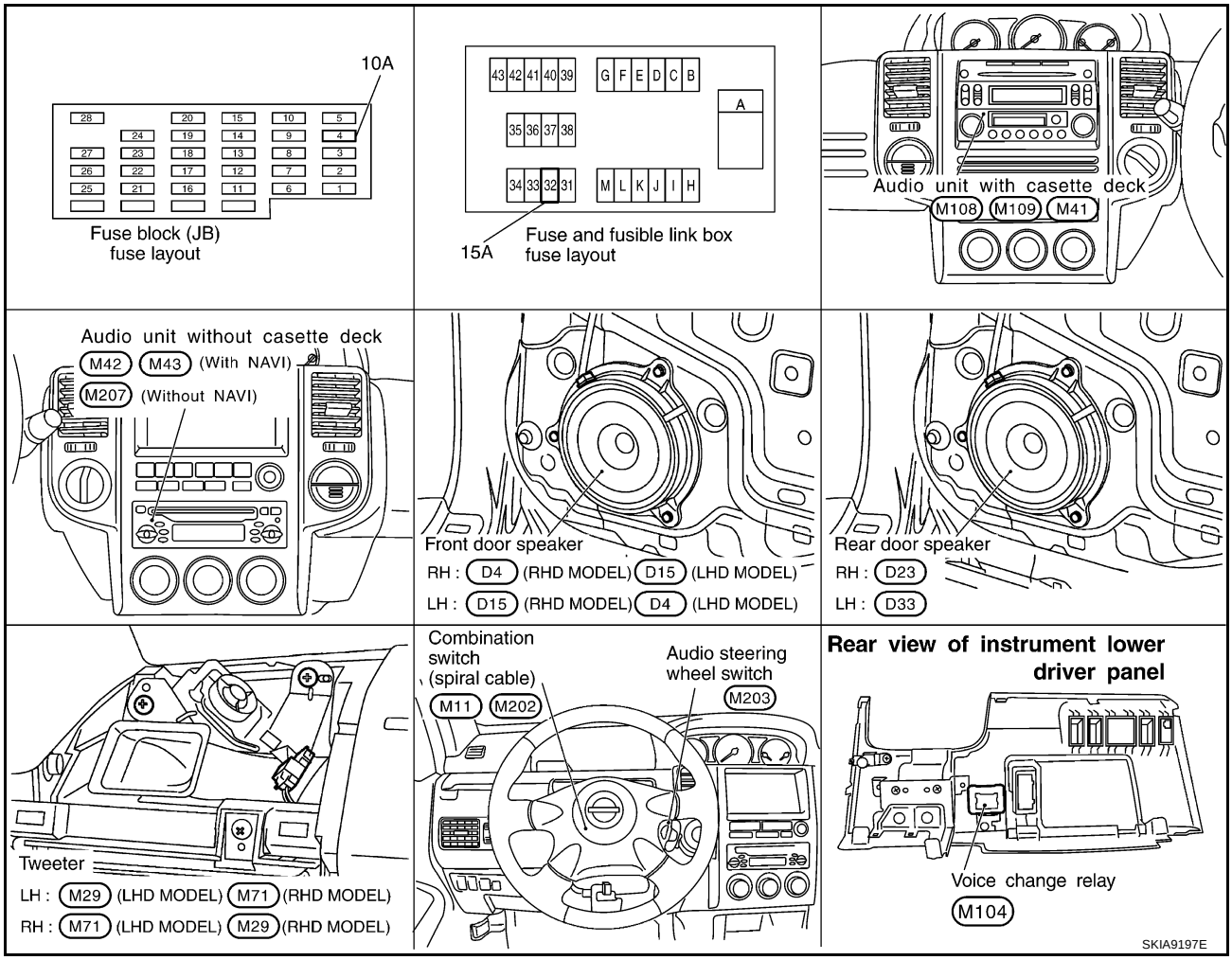
Component Parts Location

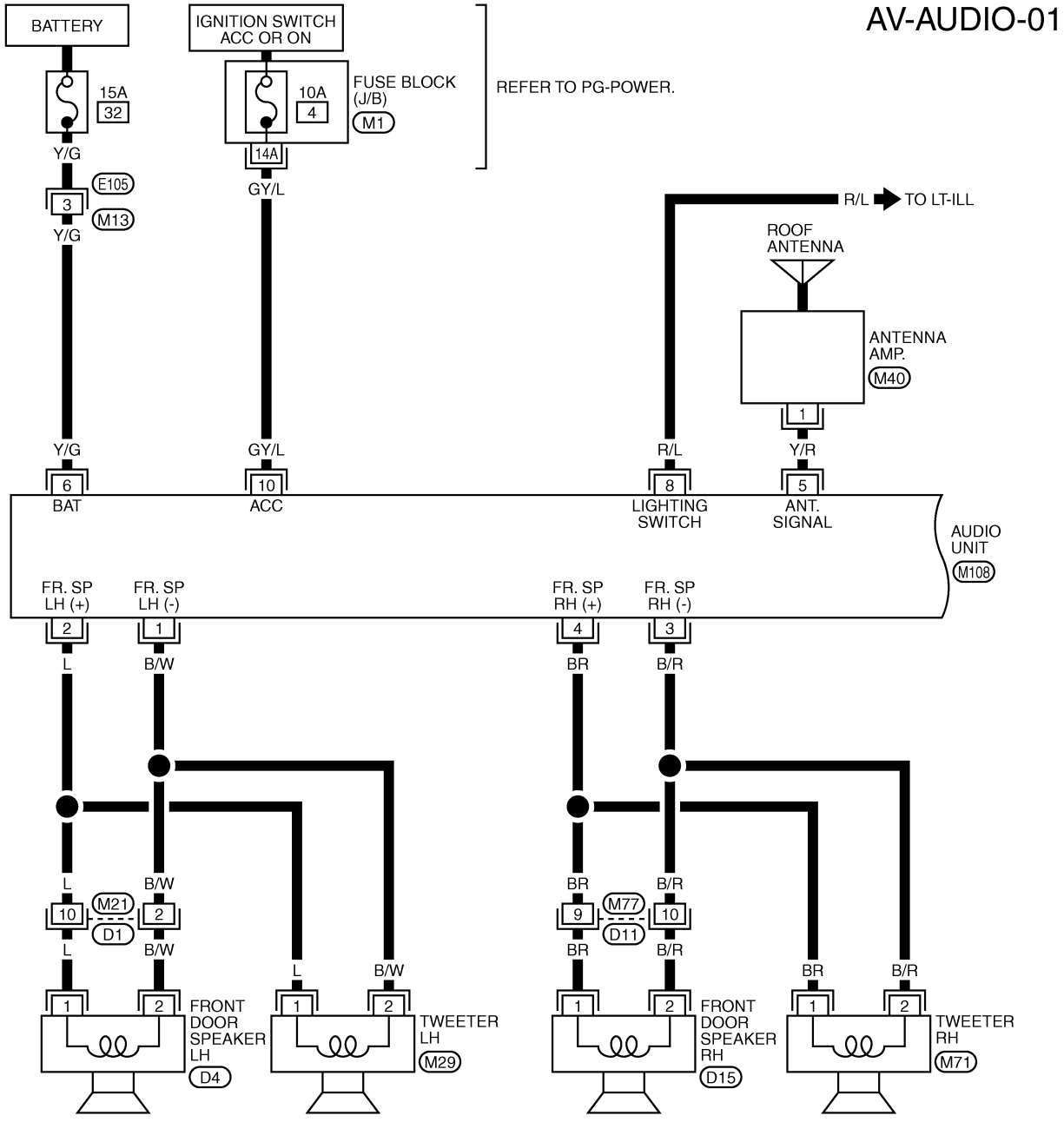
EKS00EHR

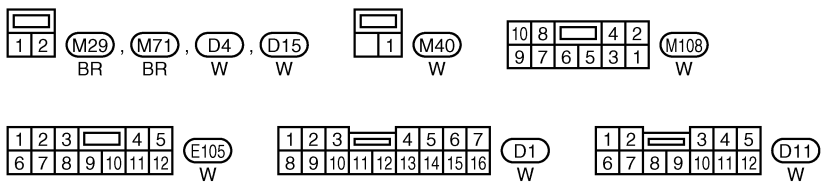


Wiring Diagram —AUDIO— (With Casette Deck)

EKS00ECN

LHD MODELS



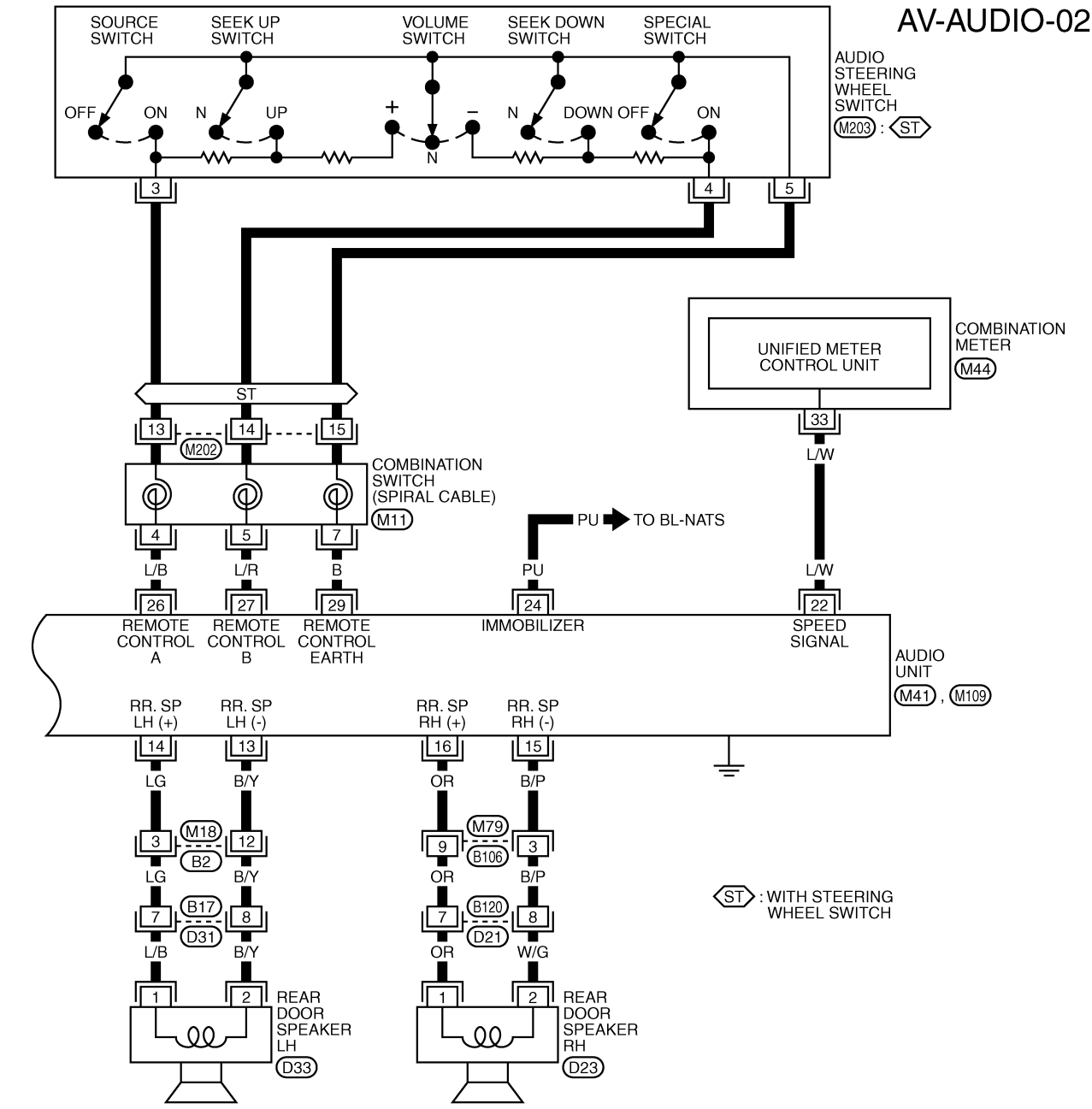


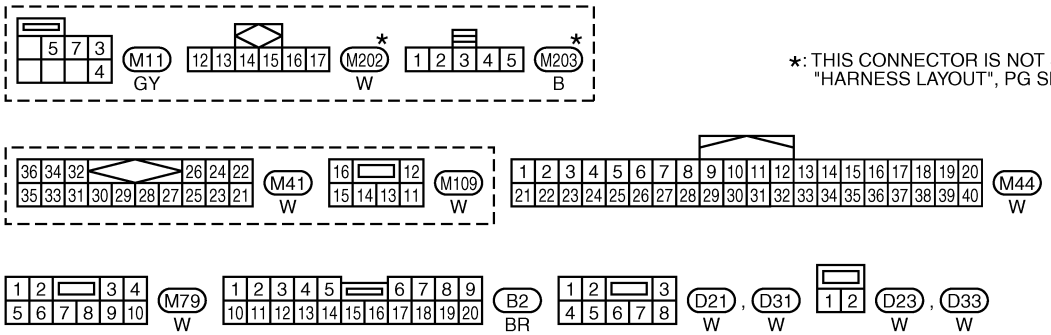
REFER TO THE FOLLOWING.

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1578E

AV-AUDIO-02

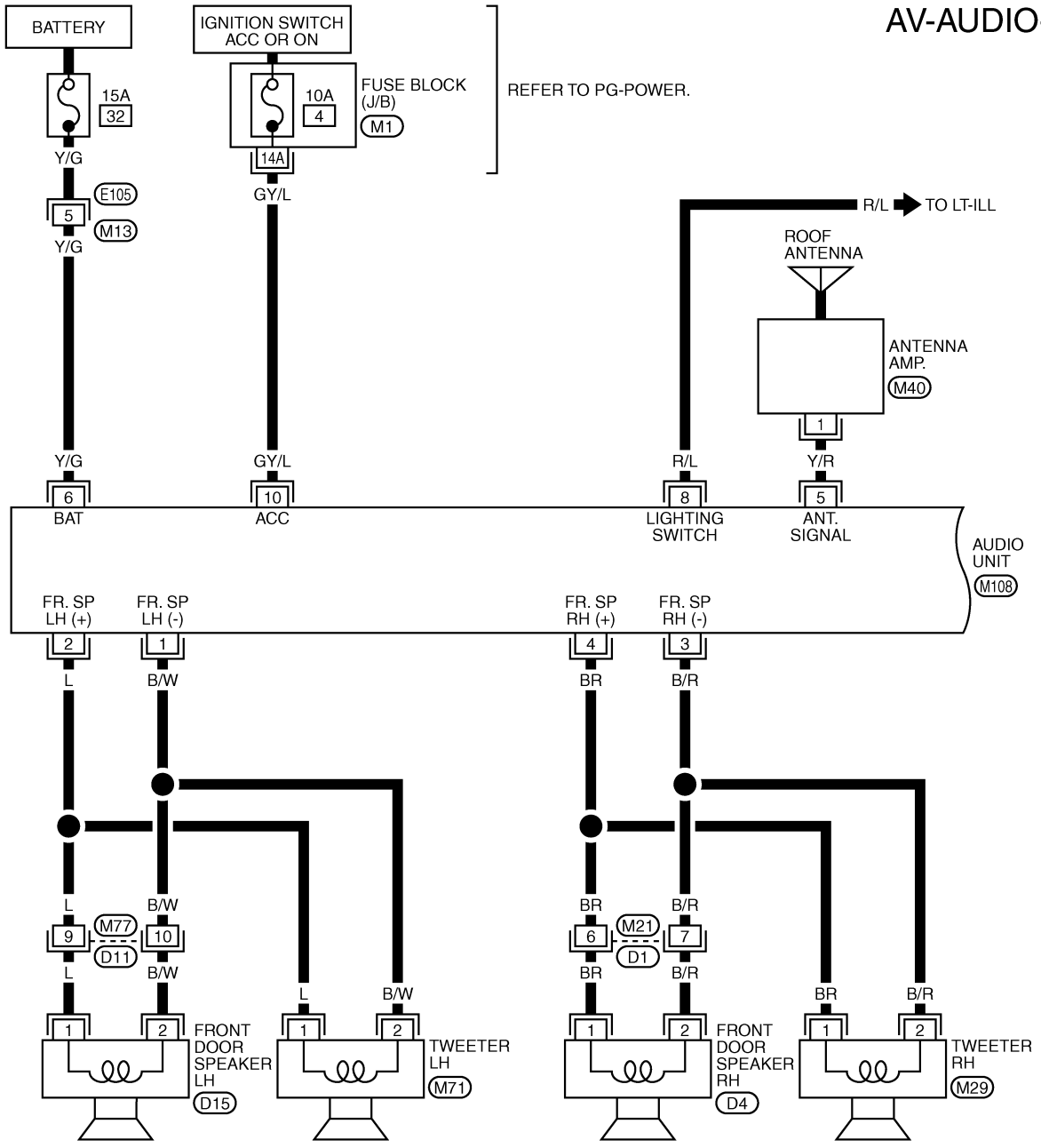


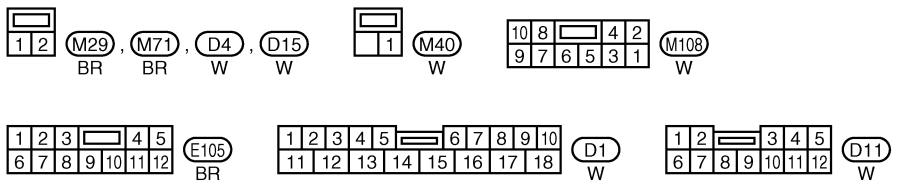


TKWA1579E

RHD MODELS

AV-AUDIO-03

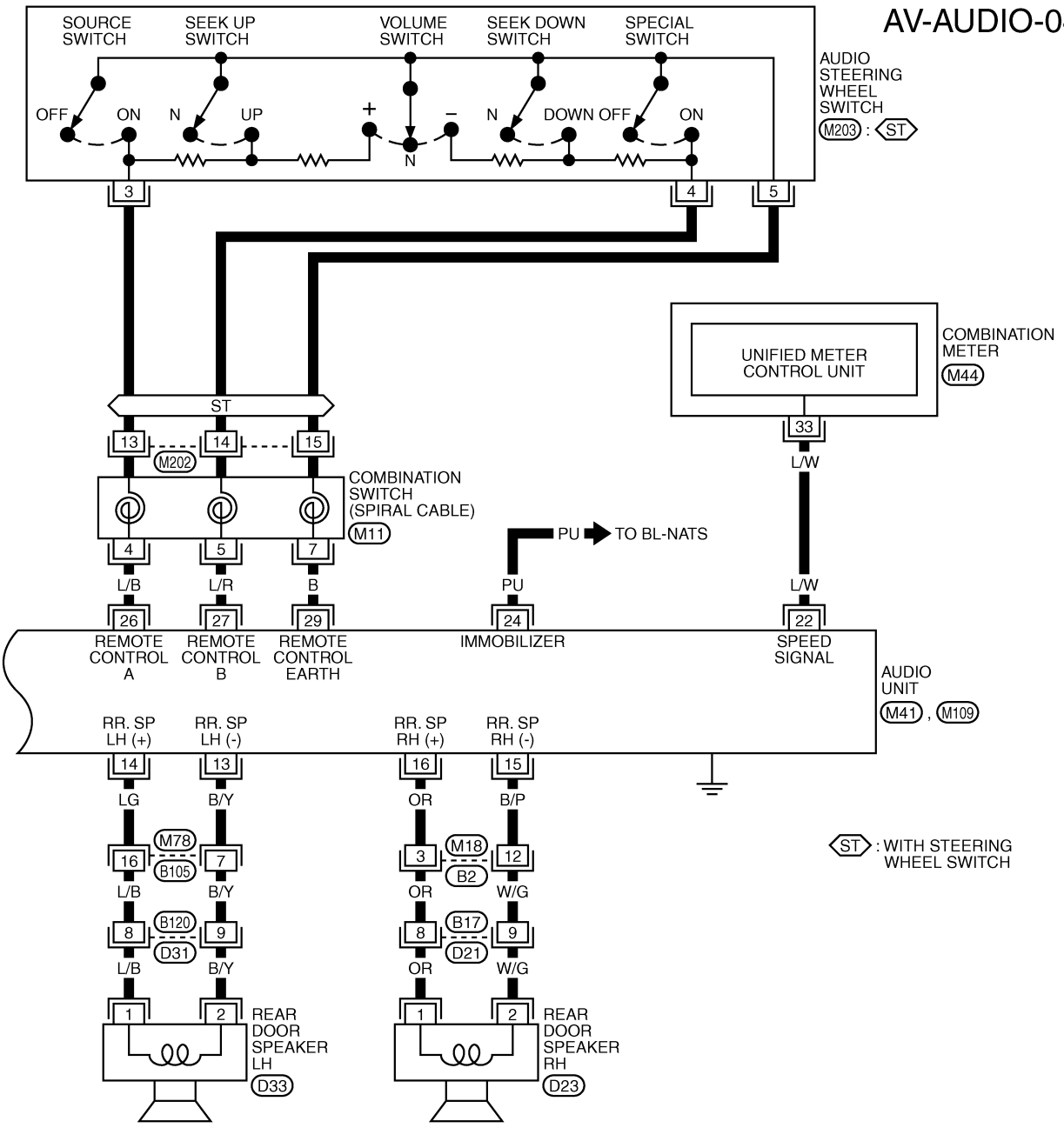


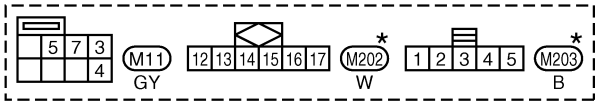


REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

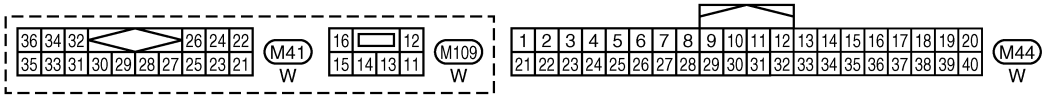
TKWA1580E

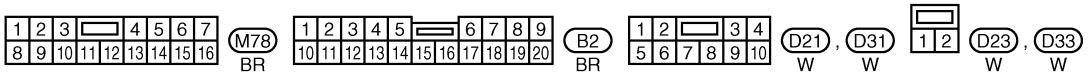
AV-AUDIO-04





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



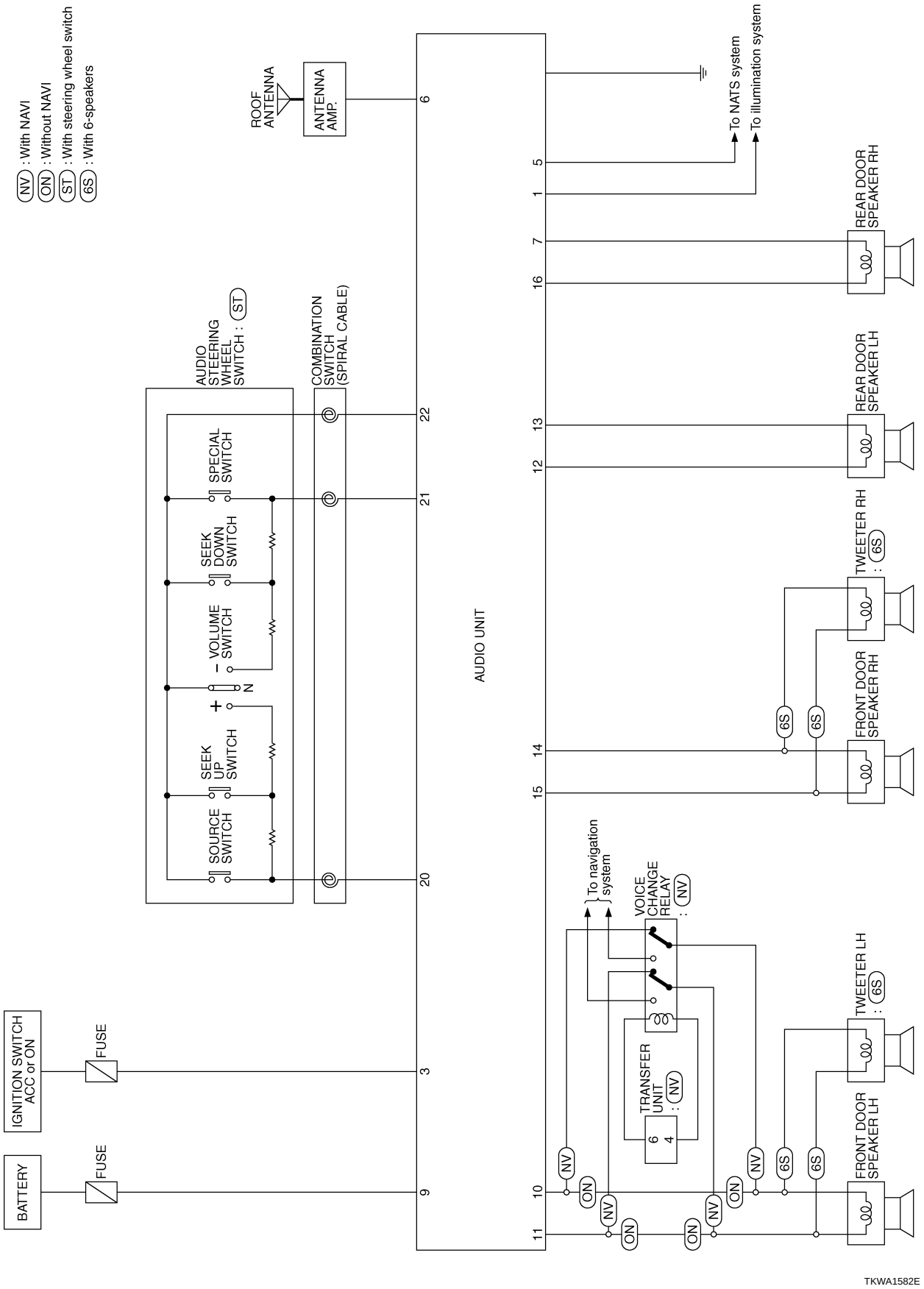


TKWA1581E

Schematic (Without Casette Deck)

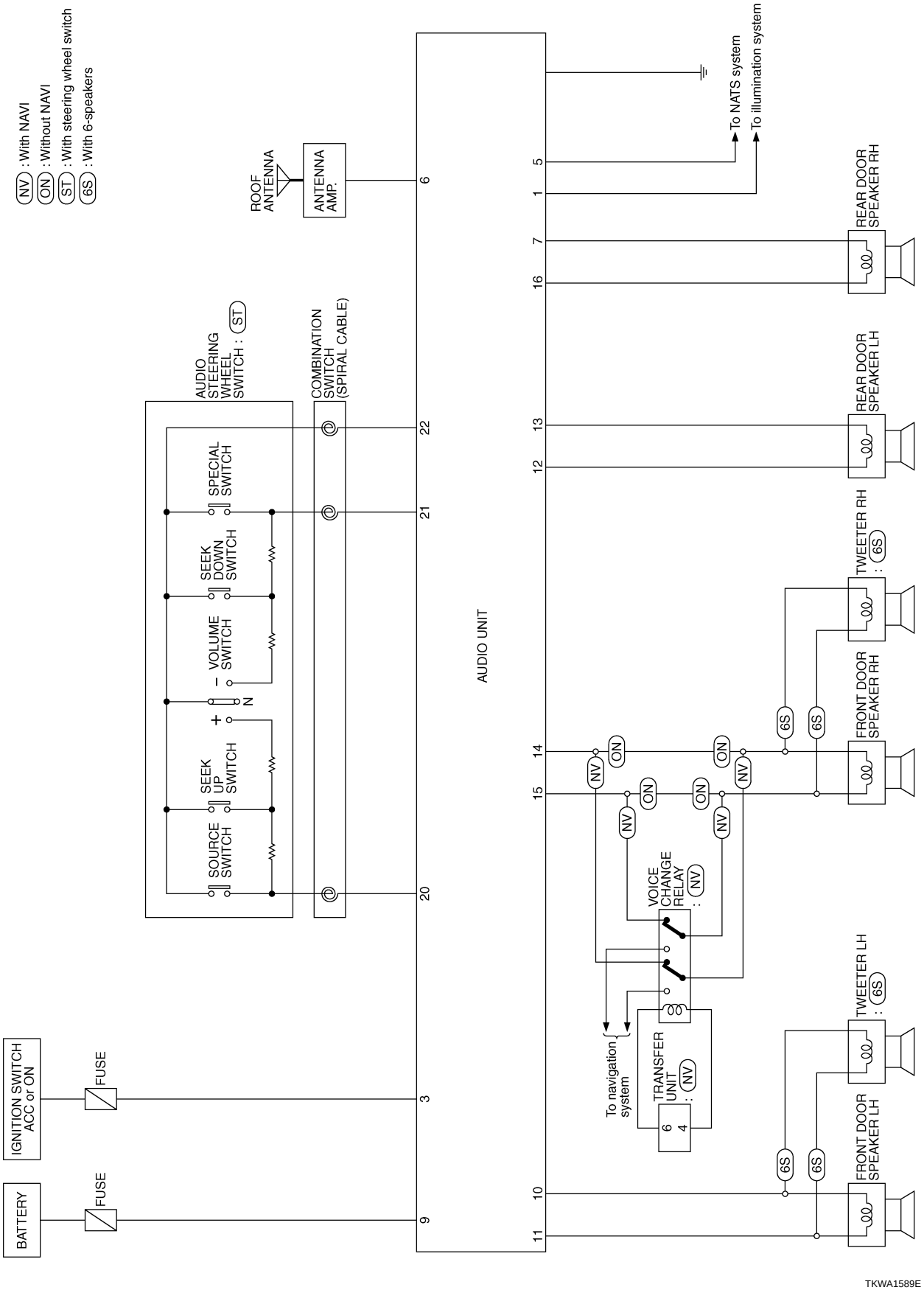
EKS00ECM

LHD MODELS



TKWA1582E

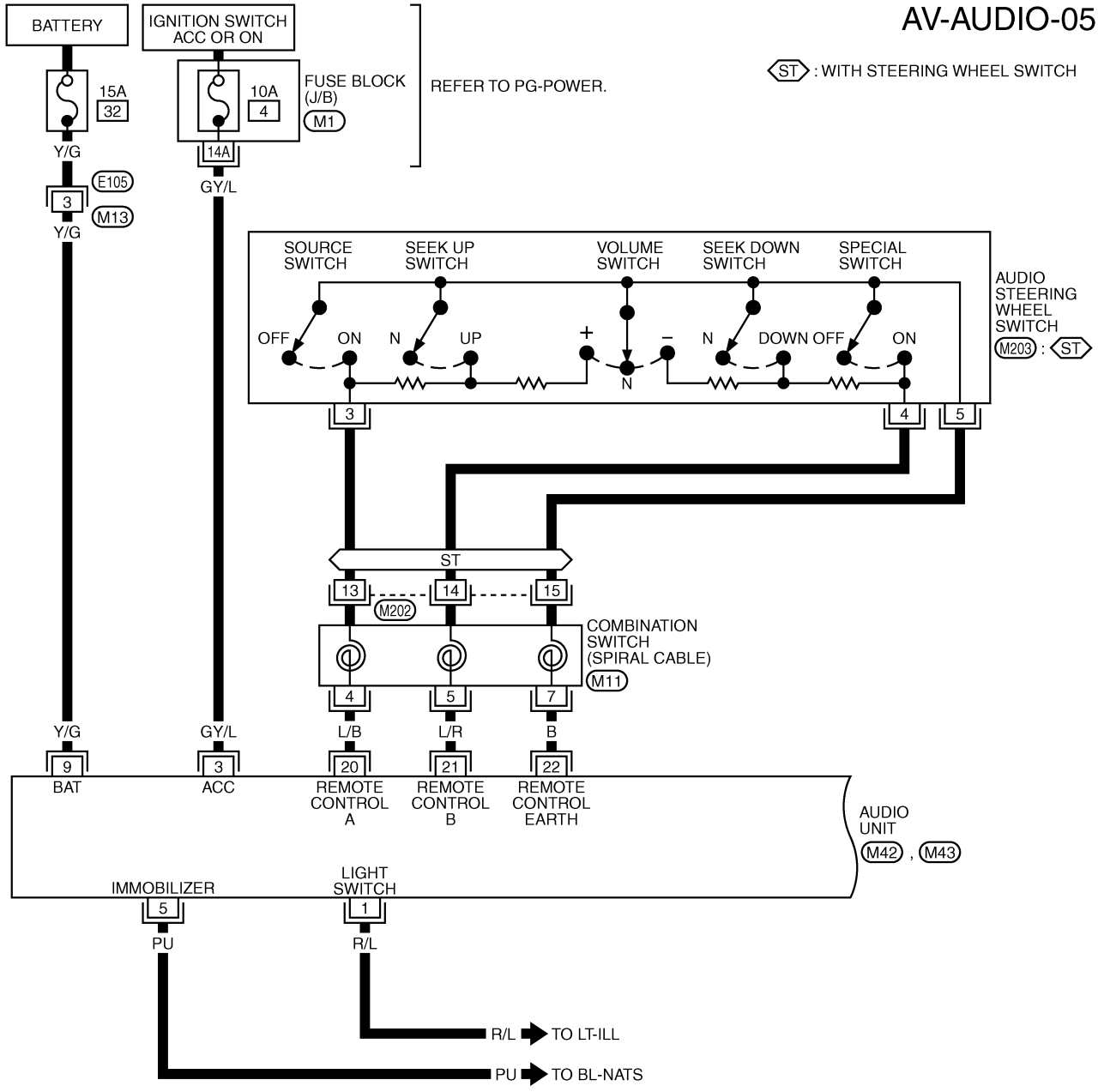
RHD MODELS

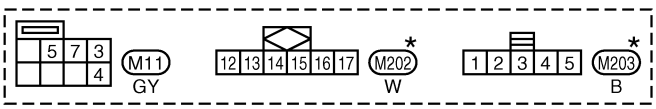

(NV) : With NAVI
(ON) : Without NAVI
(ST) : With steering wheel switch
(6S) : With 6-speakers
BATTERY
FUSE
IGNITION SWITCH ACC or ON
FUSE
ROOF ANTENNA
ANTENNA AMP.
AUDIO STEERING WHEEL SWITCH : (ST)
SOURCE SWITCH
SEEK UP SWITCH
VOLUME SWITCH
SEEK DOWN SWITCH
SPECIAL SWITCH
COMBINATION SWITCH (SPIRAL CABLE)
AUDIO UNIT
To NATS system
To illumination system
REAR DOOR SPEAKER RH
REAR DOOR SPEAKER LH
TWEETER RH : (6S)
FRONT DOOR SPEAKER RH
VOICE CHANGE RELAY : (NV)
TRANSFER UNIT : (NV)
To navigation system
TWEETER LH : (6S)
FRONT DOOR SPEAKER LH
TKWA1589E

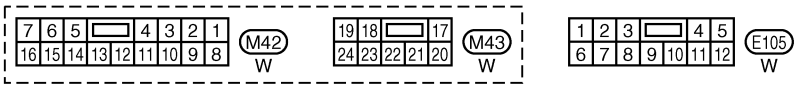
Wiring Diagram —AUDIO— (Without Casette Deck)

EKS00FB9

LHD MODELS WITH NAVIGATION





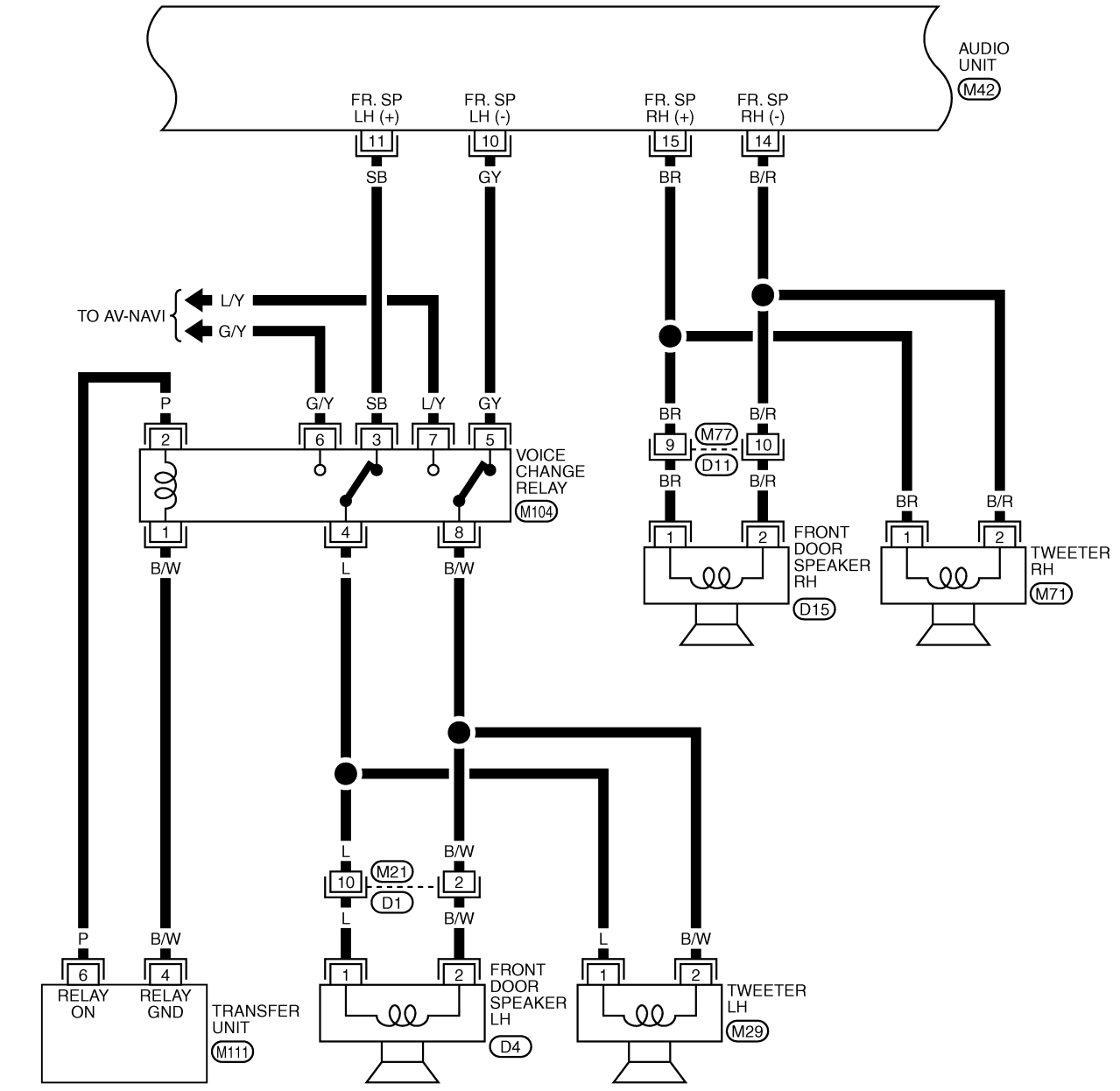


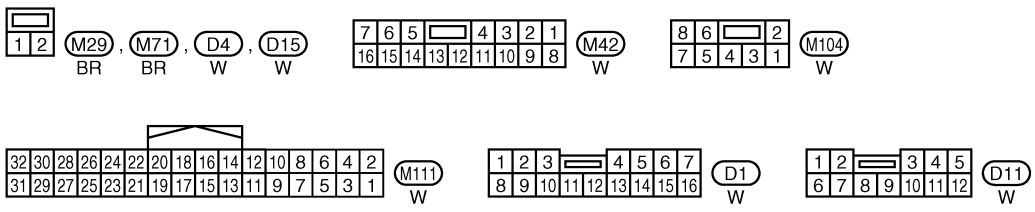
∗: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

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

TKWA1583E

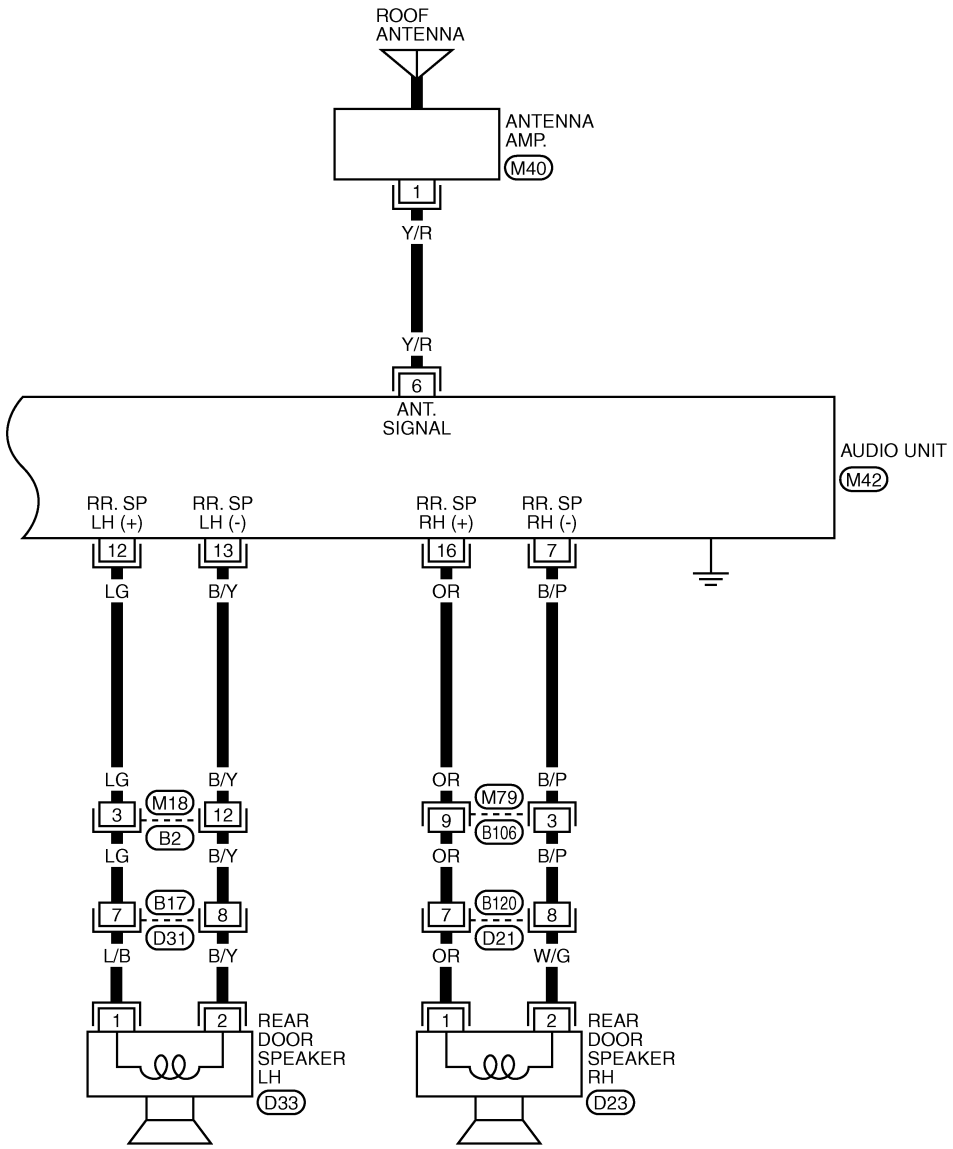
AV-AUDIO-06

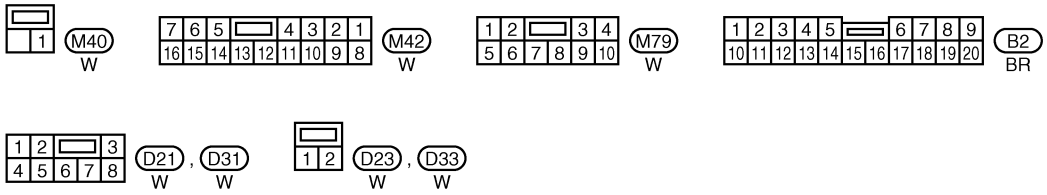




TKWA1584E

AV-AUDIO-07

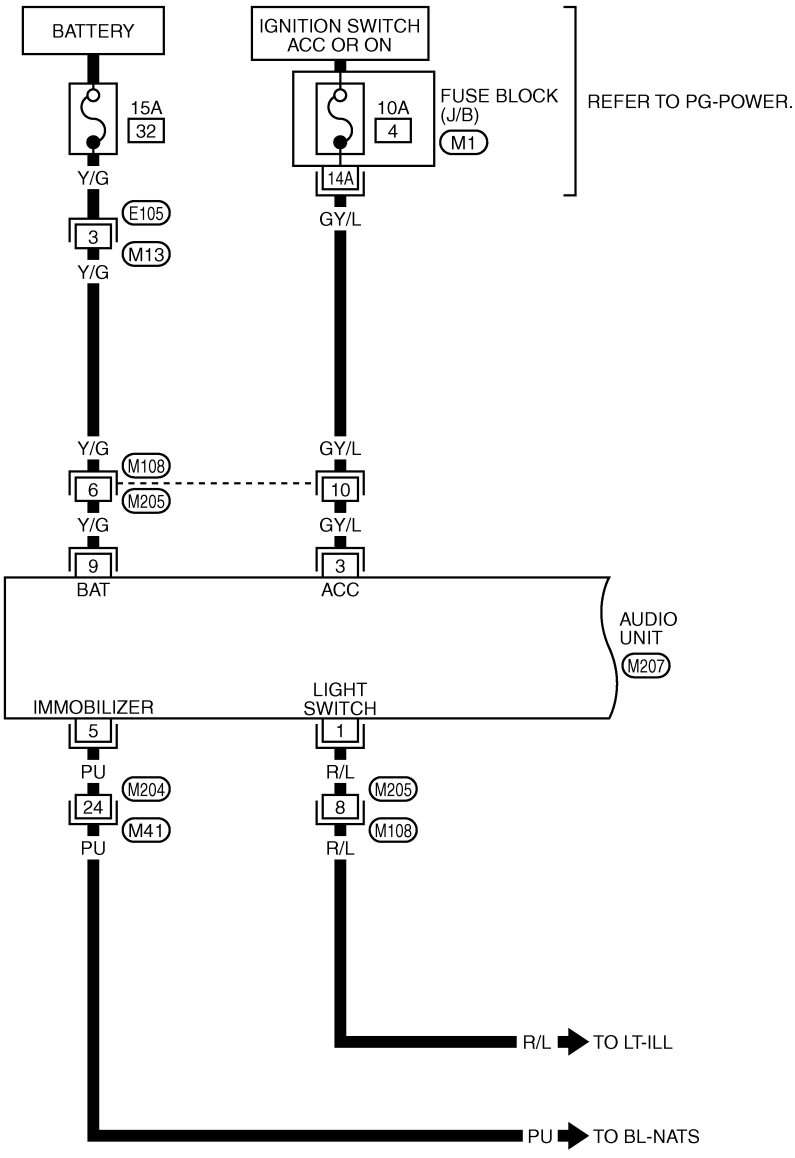


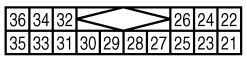


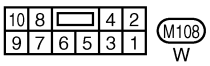
TKWA1585E

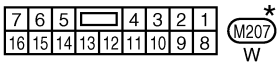
LHD MODELS WITHOUT NAVIGATION

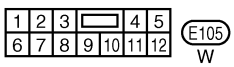
AV-AUDIO-08











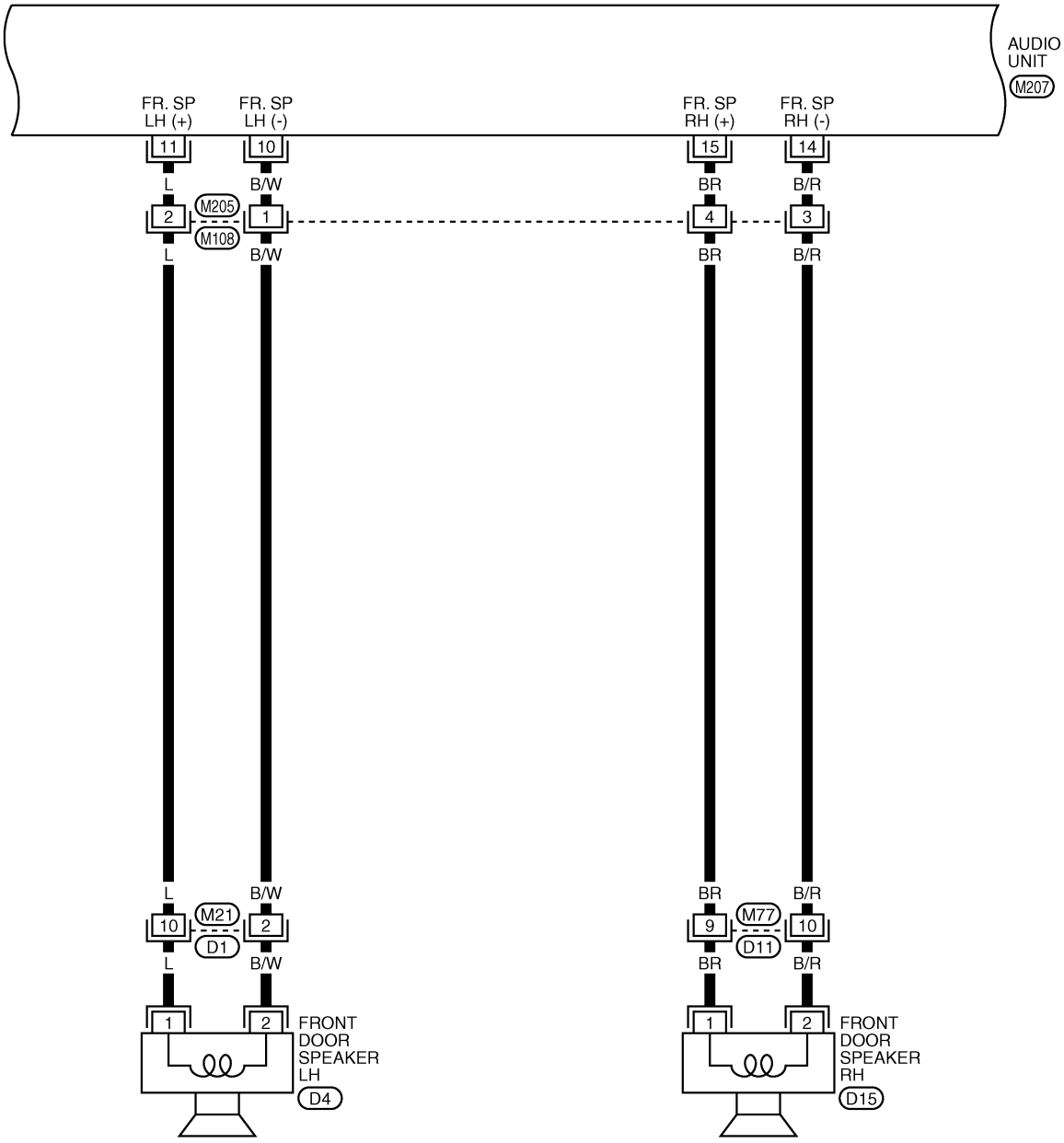
∗: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

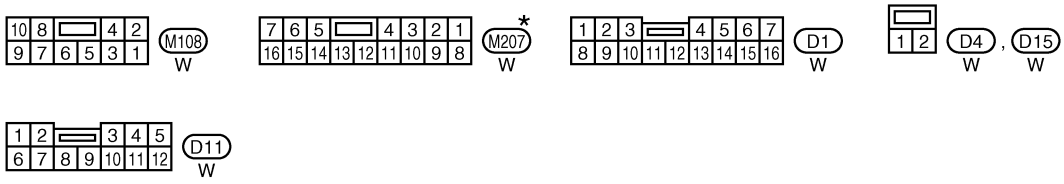
REFER TO THE FOLLOWING.

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1586E

AV-AUDIO-09

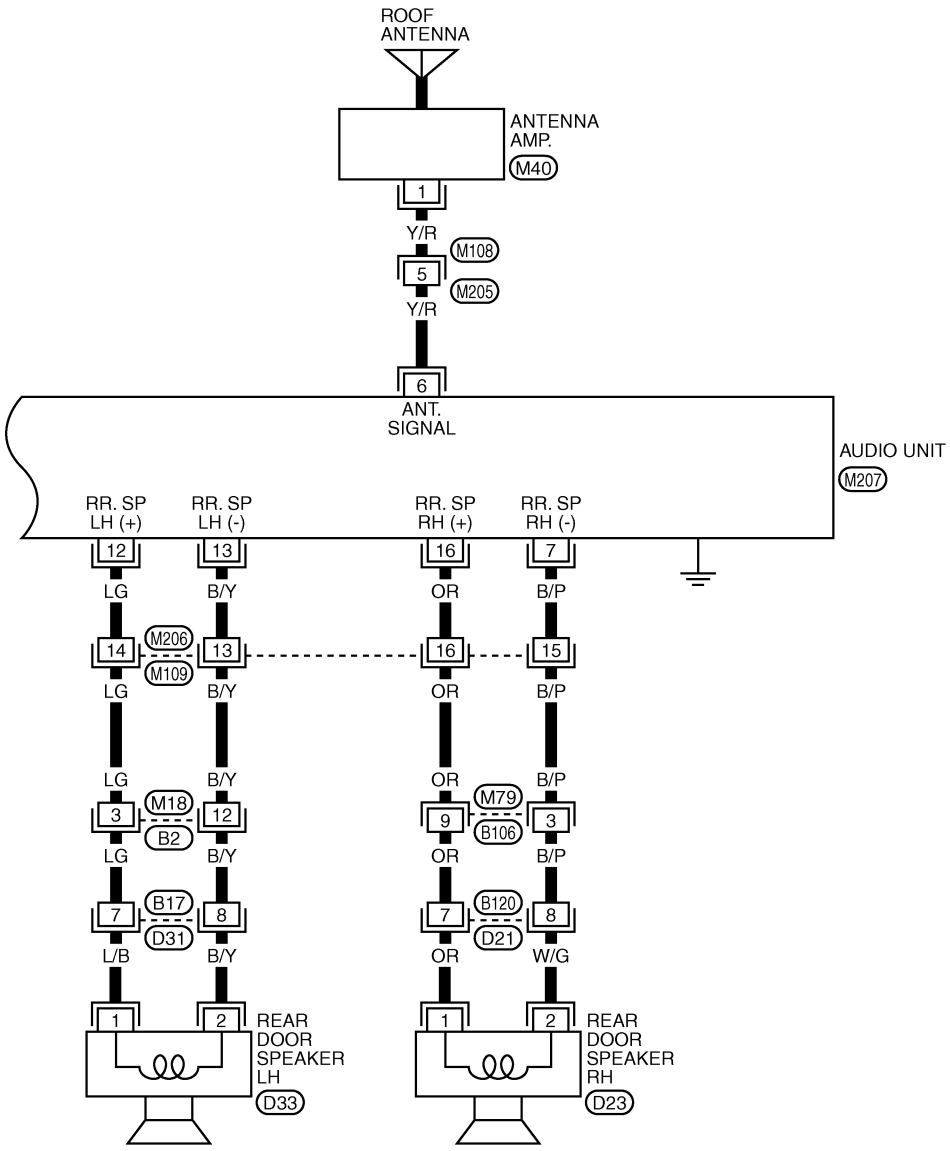


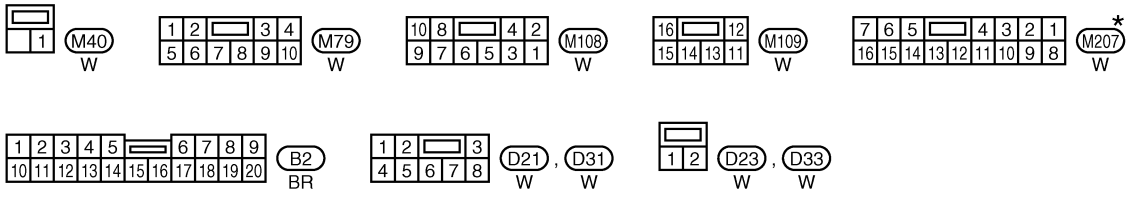


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWA1587E

AV-AUDIO-10



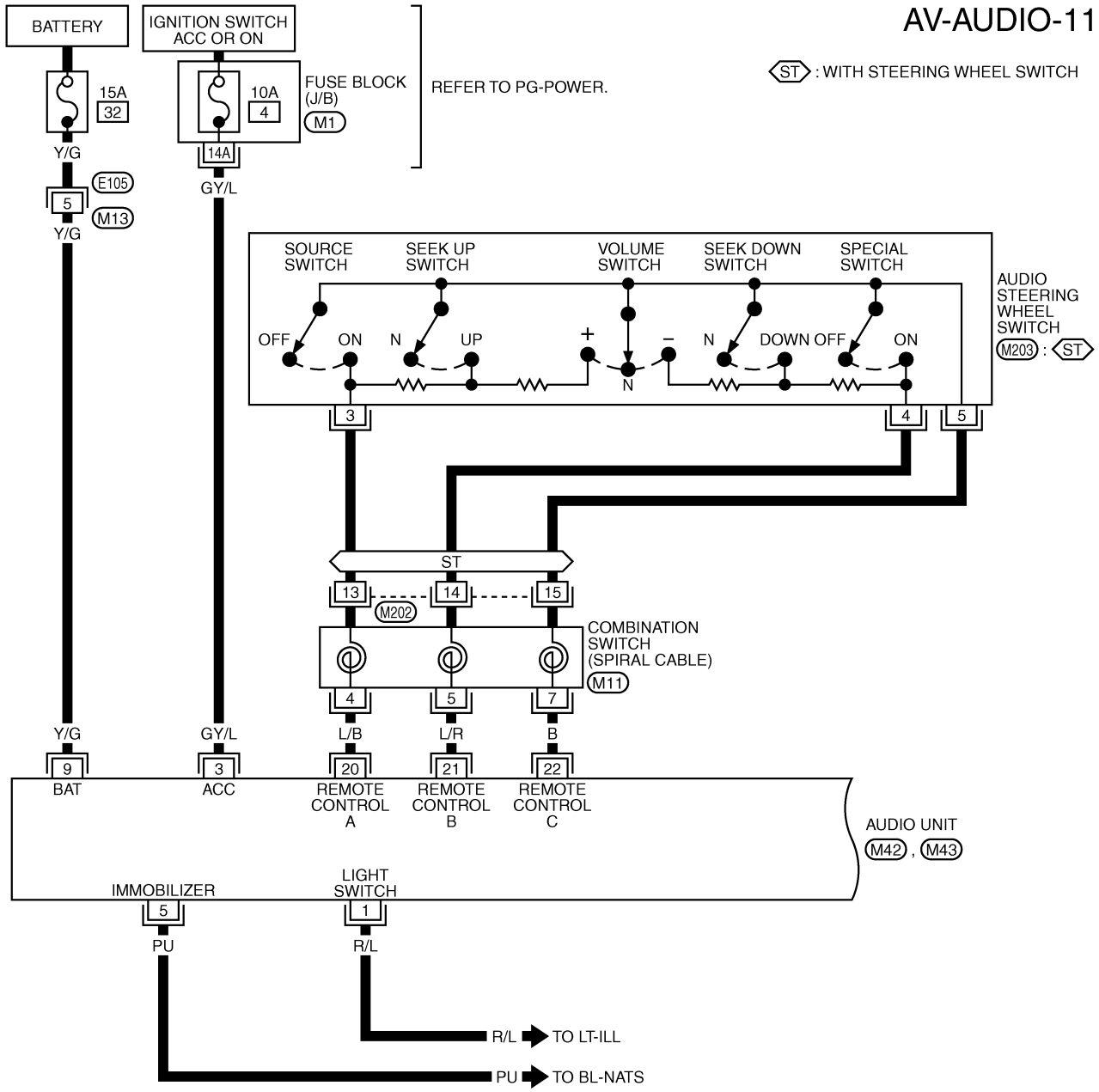


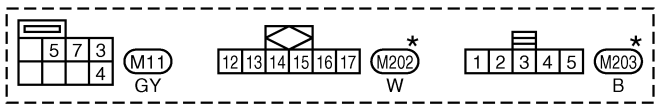
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

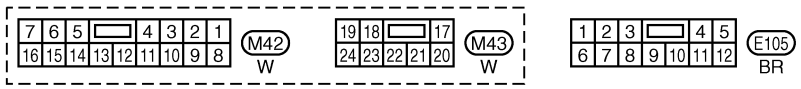
TKWA1588E

RHD MODELS WITH NAVIGATION

AV-AUDIO-11





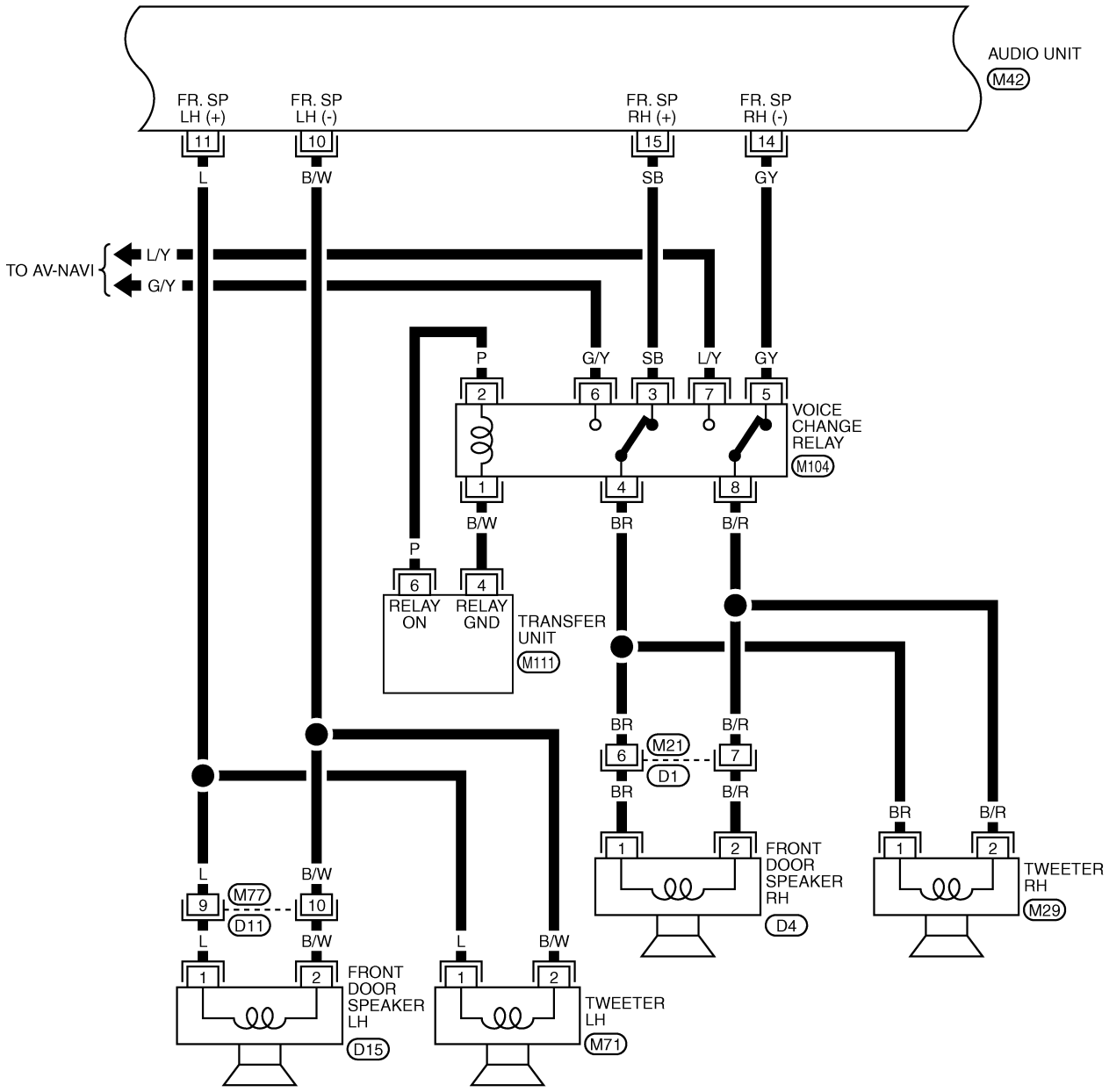


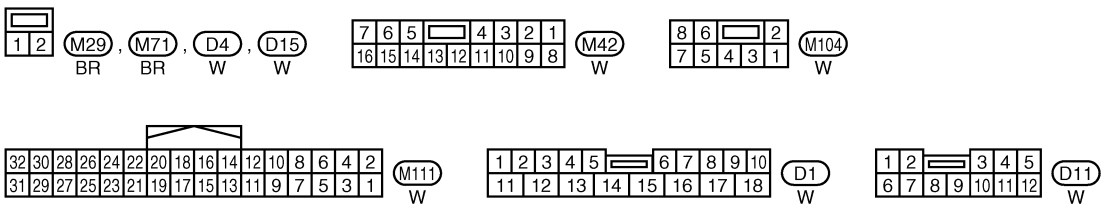
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

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

TKWA1590E

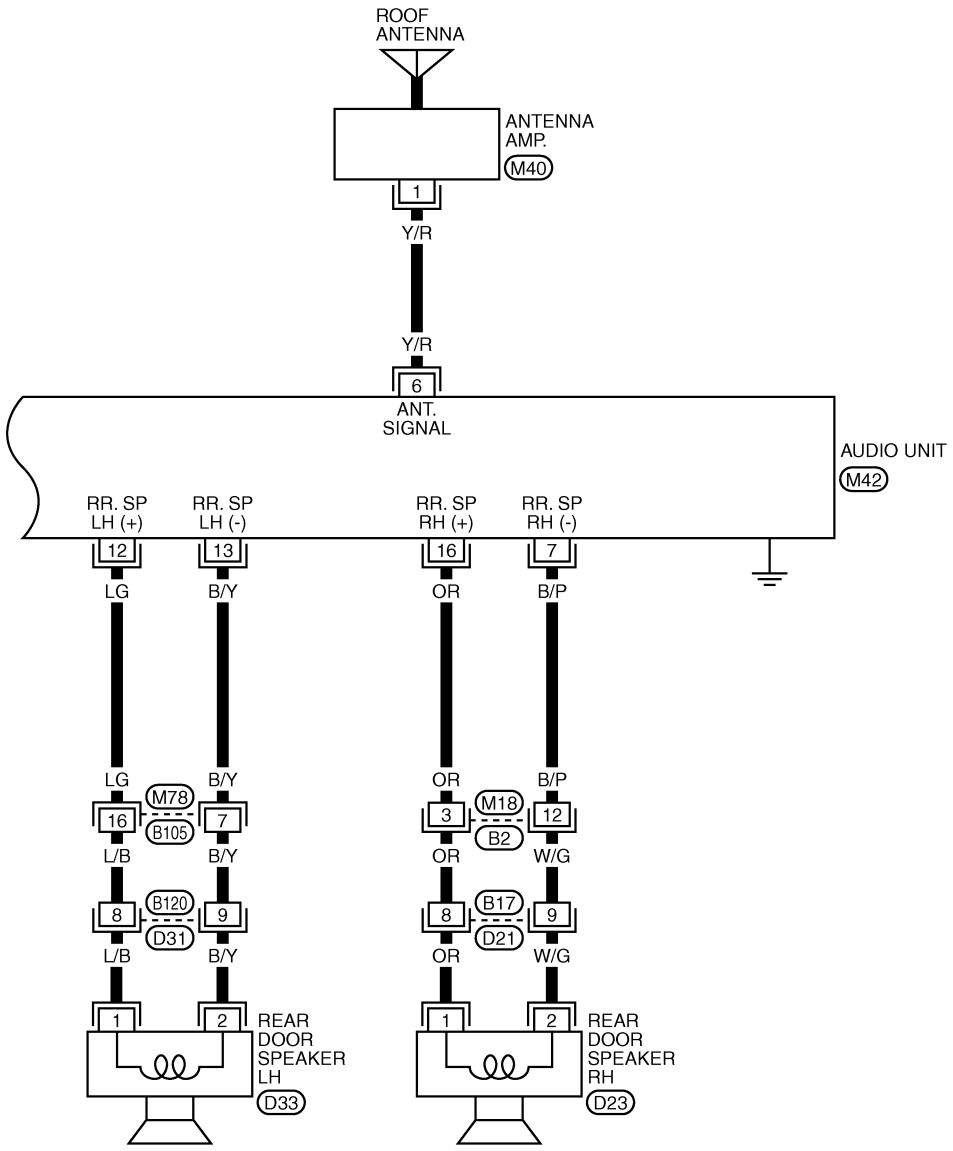
AV-AUDIO-12

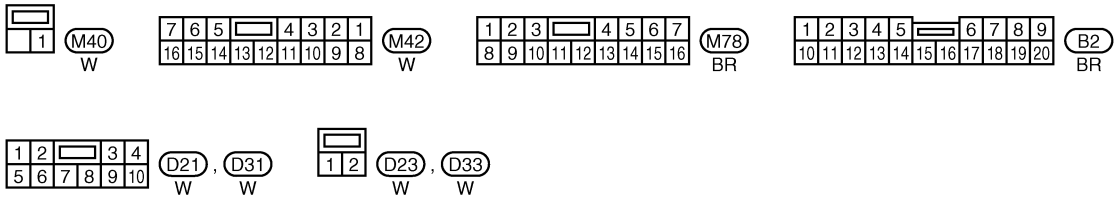




TKWA1591E

AV-AUDIO-13

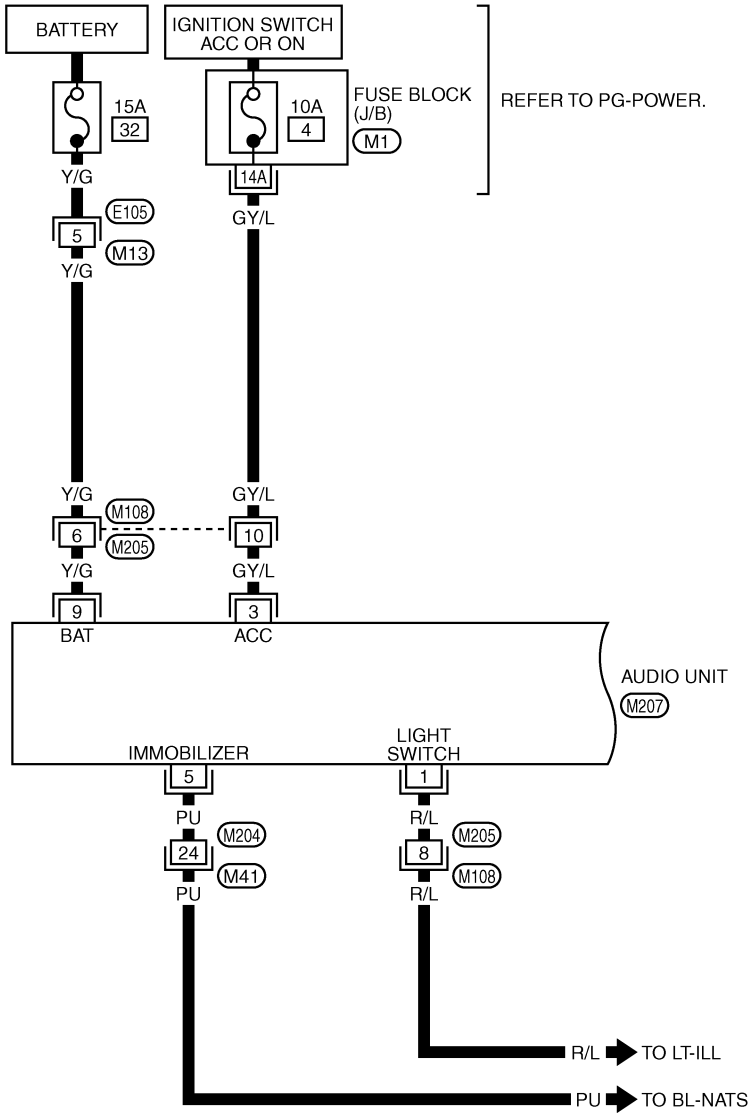


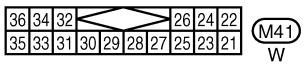


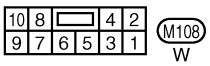
TKWA1592E

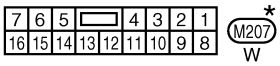
RHD MODELS WITHOUT NAVIGATION

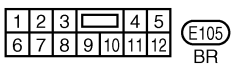
AV-AUDIO-14











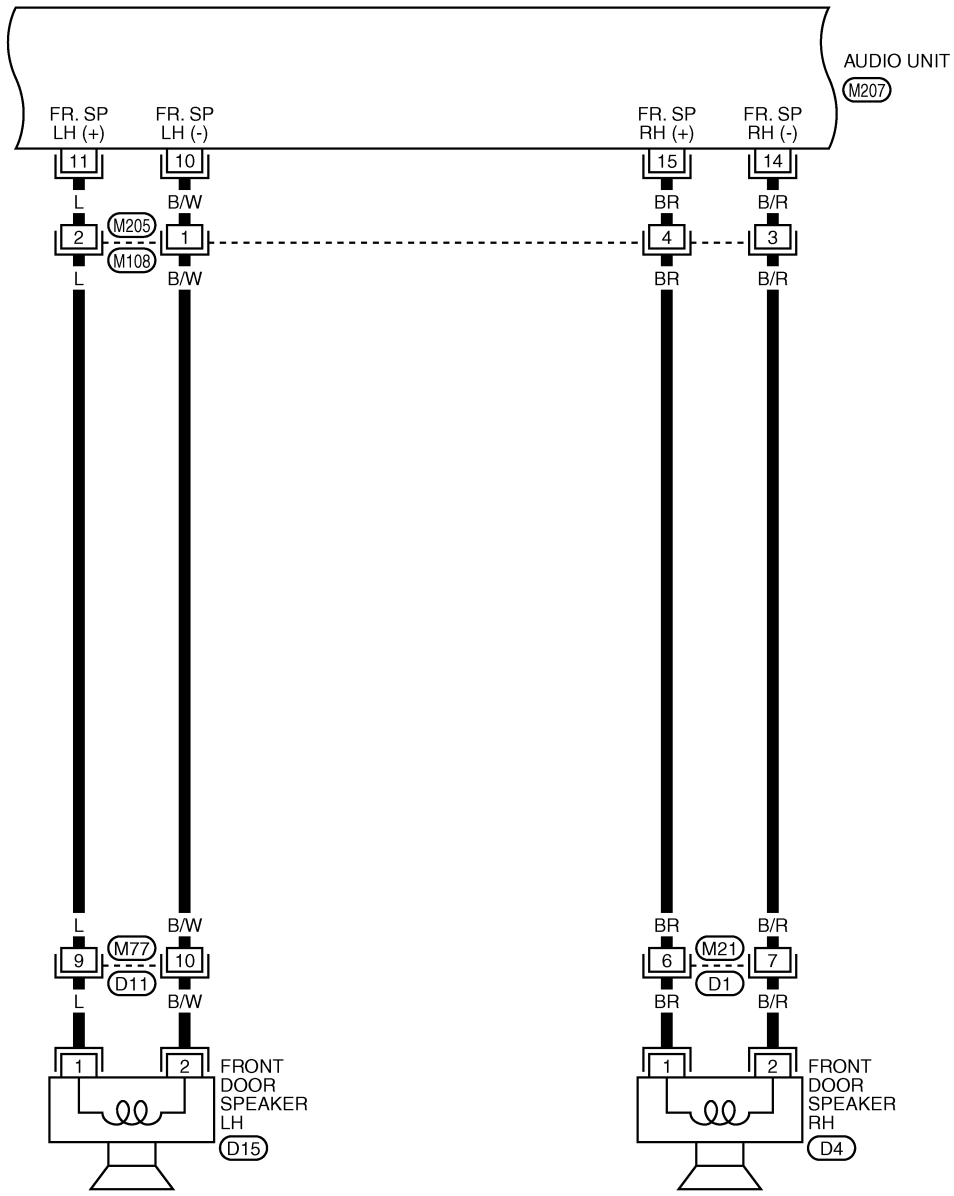
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

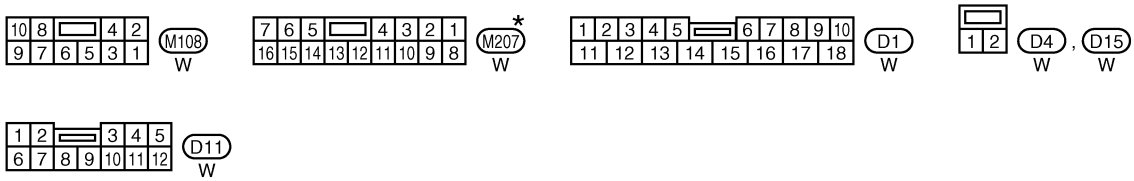
REFER TO THE FOLLOWING.

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1593E

AV-AUDIO-15

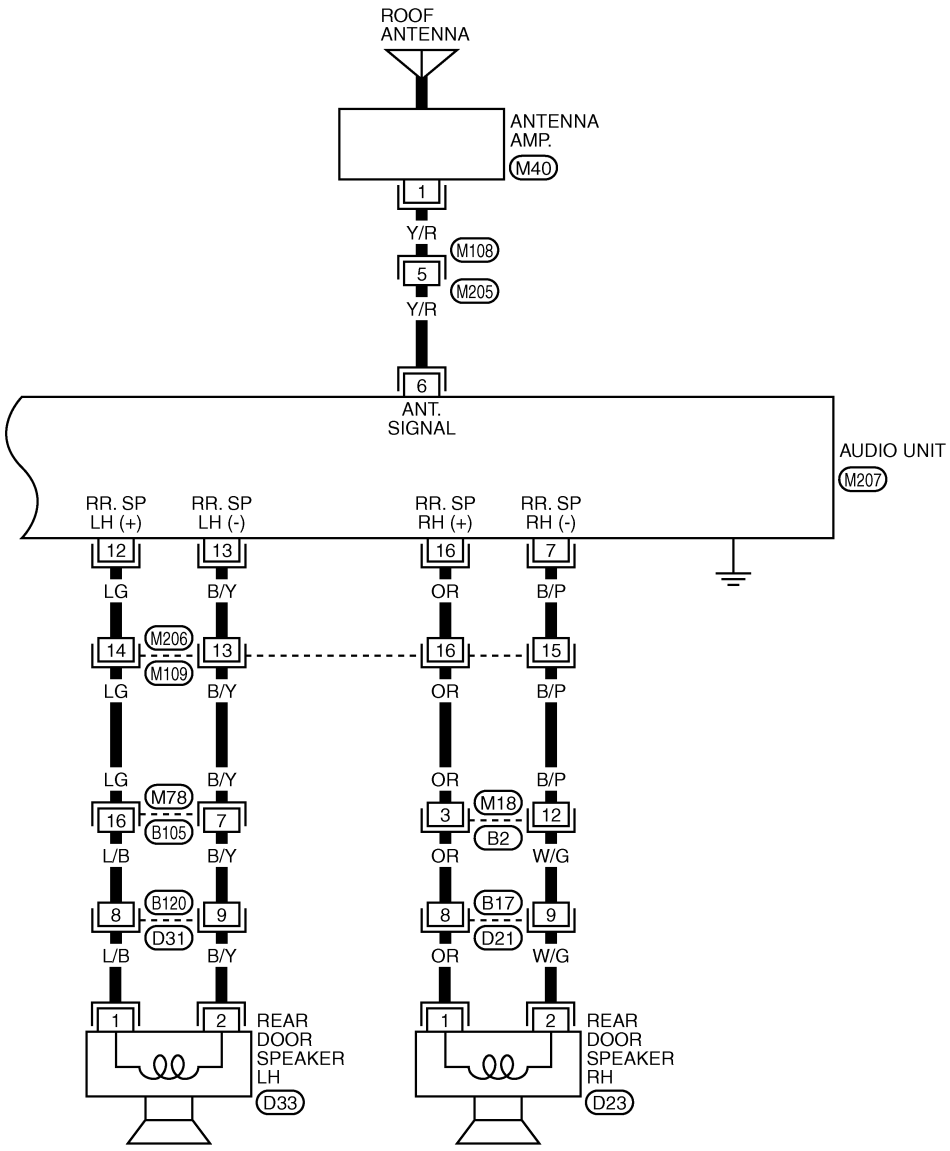


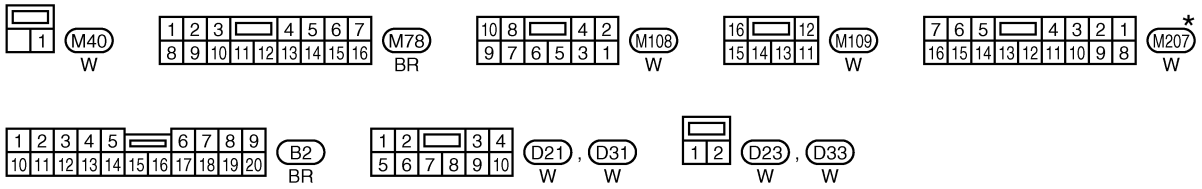


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWA1594E

AV-AUDIO-16



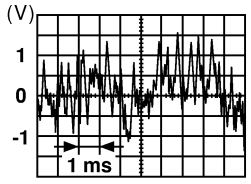
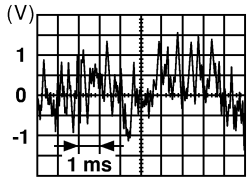
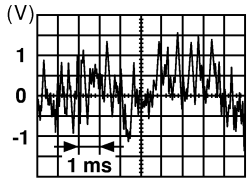
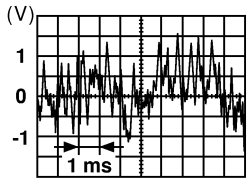
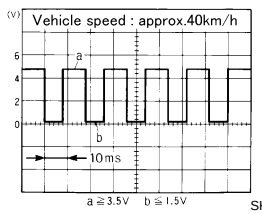


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWA1595E

Terminals and Reference Value for Audio Unit With Casette Deck

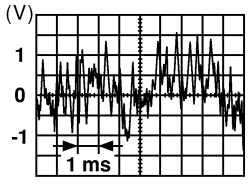
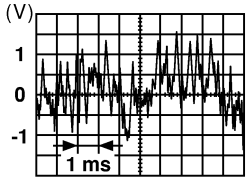
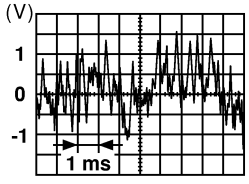
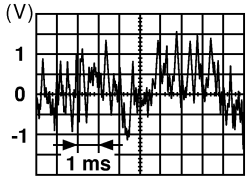
EKS00EHS

Terminal (Wire color) (+)	Terminal (Wire color) (–)	Item	Signal input/ output	Condition: Ignition switch	Condition: Operation	Reference value	Example of symptom
2 (L)	1 (B/W)	Audio sound signal front LH	Output	ON	Receive audio signal	 SKIA0177E	No sound from front door speaker and tweeter LH.
4 (BR)	3 (B/R)	Audio sound signal front RH	Output	ON	Receive audio signal	 SKIA0177E	No sound from front door speaker and tweeter RH.
5 (Y/R)	Ground	Antenna signal	Output	ACC	–	More than approx.10V	Receiving status of radio broadcast becomes bad.
6 (Y/G)	Ground	Battery power	Input	–	–	Battery voltage	System does not work properly.
8 (R/L)	Ground	Lighting switch signal	Input	ON	Lighting switch ON (1st position)	Battery voltage	Audio unit illumination does not function when lighting switch is ON (position 1).
					Lighting switch OFF	Approx.0V	
10 (GY/L)	Ground	ACC power	Input	ACC	–	Battery voltage	System does not work properly.
14 (LG)	13 (B/Y)	Audio sound signal rear LH	Output	ON	Receive audio signal	 SKIA0177E	No sound from rear speaker LH.
16 (OR)	15 (B/P)	Audio sound signal rear RH	Output	ON	Receive audio signal	 SKIA0177E	No sound from rear speaker RH.
22 (L/W)	Ground	Vehicle speed signal (2-pulse)	Input	ON	When vehicle speed is approx.40km/h (25MPH)	 SKIA0168E	Speed sensitive volume system does not work properly.
24 (PU)	–	Immobilizer	–	–	–	–	–

Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
26 (L/B)	Ground	Remote control A	Input	ON	Press SOURCE switch	Approx.0V	Steering wheel audio controls donot function
					Press SEEK UP switch	Approx.1.7V	
					Press VOL UP switch	Approx.3.3V	
					Except for adove	Approx.5V	
27 (L/R)	Ground	Remote control B	Input	ON	Press SPECIAL switch	Approx.0V	Steering wheel audio controls donot function
					Press SEEK DOWN switch	Approx.1.7V	
					Press VOL UP switch	Approx.3.3V	
					Except for adove	Approx.5V	
29 (B)	Ground	Remote control ground	–	ON	–	Approx.0V	–

Terminals and Reference Value for Audio Unit Without Casette Deck

EKS00EHT

Terminal (Wire color) (+)	Terminal (Wire color) (–)	Item	Signal input/ output	Condition: Ignition switch	Condition: Operation	Reference value	Example of symptom
1 (R/L)	Ground	Lighting switch signal	Input	ON	Lighting switch ON (1st position)	Approx.12V	Audio unit illumination does not function when lighting switch is ON (position 1).
					Lighting switch OFF	Approx.0V	
3 (GY/L)	Ground	ACC power	Input	ACC	–	Battery voltage	System does not work properly.
5 (PU)	–	immobilizer	–	–	–	–	–
6 (Y/R)	Ground	Antenna signal	Output	ON	–	More than approx. 10V	Receiving status of radio broadcast becomes bad.
9 (Y/G)	Ground	Battery power	Input	OFF	–	Battery voltage	System does not work properly.
11 (SB)*1 (L)*2	10 (GY)*1 (B/W)*2	Audio sound signal front LH	Output	ON	Receive audio signal	 SKIA0177E	No sound from front door speaker or tweeter LH.
12 (LG)	13 (B/Y)	Audio sound signal rear LH	Output	ON	Receive audio signal	 SKIA0177E	No sound from rear door speaker LH.
15 (SB)*3 (BR)*4	14 (GY)*3 (B/R)*4	Audio sound signal front RH	Output	ON	Receive audio signal	 SKIA0177E	No sound from front door speaker or tweeter RH.
16 (OR)	7 (B/P)	Audio sound signal rear RH	Output	ON	Receive audio signal	 SKIA0177E	No sound from rear speaker RH.
20*5 (L/B)	22*5 (B)	Remote control A	Input	ON	Press SOURCE switch	Approx.0V	Steering wheel audio controls do not function.
					Press SEEK UPswitch	Approx.1.7V	
					Press VOLME UP switch	Approx.3.3V	
					Except for above	Approx.5V	

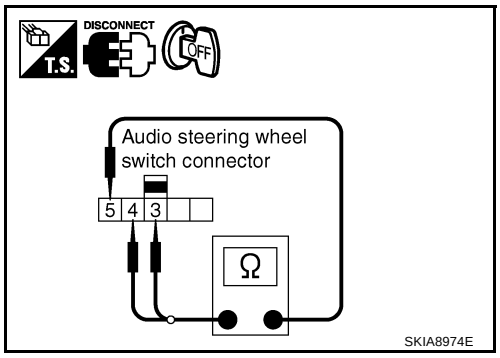
Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
21*5 (L/R)	22*5 (B)	Remote control B	Input	ON	Press SPECIAL switch	Approx.0V	Steering wheel audio controls do not function.
					Press SEEK DOWN switch	Approx.1.7V	
					Press VOLUME DOWN switch	Approx.3.3V	
					Except for above	Approx.5V	
22*5 (B)	Ground	Remote control ground	–	ON	–	Approx.0V	

- *1 : LHD model with navigation system.
- *2 : Except *1.
- *3 : RHD model with navigatiion system.
- *4 : Except *3.
- *5 : With audio steering wheel switch only.

Audio Steering Wheel Switch Resistance Check

EKS00EHW

Terminal		Signal name	Condition	Resistance (Ω)
(+)	(–)			
3	5	Source	Depress source switch.	Approx.0
		Seek down (previous)	Depress (station) down switch.	Approx.165
		Volume (down)	Depress volume down switch.	Approx.652
4	5	Special	Depress special switch.	Approx.0
		Seek up (next)	Depress (station) up switch.	Approx.165
		Volume (up)	Depress volume up switch.	Approx.652



Trouble Diagnoses

EKS00EHY

AUDIO UNIT

Symptom	Possible causes	Repair order
Audio unit inoperative (no digital display and no sound from speakers).	1. 10A fuse 2. 15A fuse 3. Audio unit ground 4. Audio unit	1. Check 10A fuse [No. 4, located in fuse block (J/B)]. Turn ignition switch ON and verify that battery positive voltage is present at terminal 10 (with casette deck) ,3 (without casette deck) of audio unit. 2. Check 15A fuse (No. 32, located in fuse and fusible link box) and verify that battery positive voltage is present at terminal 6 (with casette deck), 9 (without casette deck) of audio unit. 3. Check audio unit ground. 4. Remove audio unit for repair.
Individual rear speaker is noisy or inoperative.	1. Each speaker 2. Output circuit to each speaker	1. Check speaker. 2. Check the output circuits to each speaker between audio unit and each speaker.
AM/FM stations are weak or noisy.	1. Roof antenna 2. Audio unit ground 3. Audio unit	1. Check roof antenna. 2. Check audio unit ground condition. 3. Remove audio unit for repair.
Audio unit generates noise in AM and FM modes with engine running.	1. Poor audio unit ground 2. Loose or missing ground bonding straps 3. Ignition condenser or rear window defogger noise suppressor condenser 4. Ignition coil 5. Audio unit	1. Check audio unit ground. 2. Check ground bonding straps. 3. Replace ignition condenser or rear window defogger noise suppressor condenser. 4. Check ignition coil. 5. Remove audio unit for repair.
Audio unit generates noise in AM and FM modes with accessories on (switch pops and motor noise).	1. Poor audio unit ground 2. Antenna 3. Accessory ground 4. Malfunctioning accessory	1. Check audio unit ground. 2. Check antenna. 3. Check accessory ground. 4. Replace accessory.

Inspection

EKS00EHX

AUDIO UNIT

All voltage inspections are made with:

- Ignition switch ON or ACC
- Audio unit ON
- Audio unit connected

ANTENNA

Using a jumper wire, clip an auxiliary ground between antenna and body.

- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

Audio Steering wheel Switch Does Not operate. (With Casette Deck)

EKS00EJ1

1. AUDIO STEERING WHEEL SWITCH RESISTANCE CHECK

1. Disconnect audio steering wheel switch connector.
2. Check resistance audio steering wheel switch. Refer to AV-32, "Audio Steering Wheel Switch Resistance Check" .

Resistance value is OK?

OK or NG

OK >> GO TO 2.
NG >> Replace audio steering wheel switch.

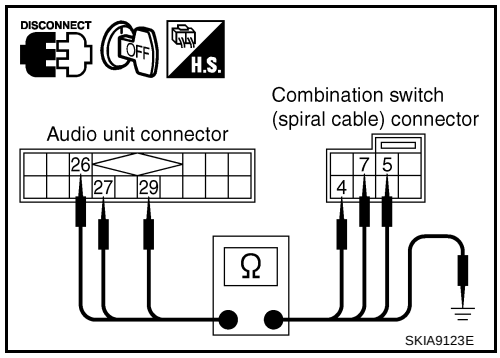
2. AUDIO STEERING WHEEL SWITCH CIRCUIT CHECK

1. Disconnect audio unit connector and combination switch (spiral cable) connector.
2. Check continuity between audio unit harness connector M41 terminal 26 (L/B), 27 (L/R), 29 (B) and combination switch (spiral cable) harness connector M11terminal 4 (L/B), 5 (L/R), 7 (B).

26 (L/B)- 4 (L/B) :Continuity should exist.
27 (L/R)- 5 (L/R) :Continuity should exist.
29 (B) - 7 (B) :Continuity should exist.

3. Check continuity between audio unit harness connector M41 terminal 26 (L/B), 27 (L/R), 29 (B) and ground.

Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

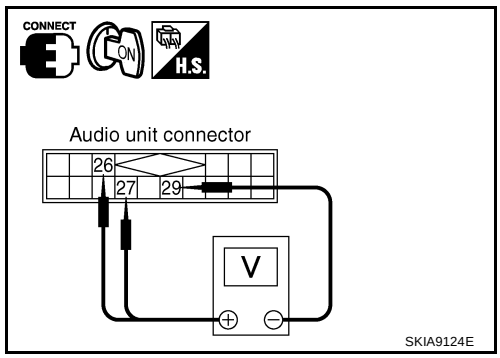
3. CONTROL SIGNAL CHECK

1. Connect audio unit connector and combination switch (spiral cable) connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector M41 terminal 26 (L/B), 27 (L/R) and 29 (B).

26 (L/B) - 29 (B) : Approx 5V
27 (L/R) - 29 (B) : Approx 5V

OK or NG

OK >> Check combination switch (spiral cable).
NG >> Replace audio unit.



Audio Steering Wheel Switch Does Not operate. (Without Casette Deck)

EKS00EJ3

1. AUDIO STEERING WHEEL SWITCH RESISTANCE CHECK

1. Disconnect audio steering wheel switch connector.
2. Check resistance audio steering wheel switch. Refer to AV-32, "Audio Steering Wheel Switch Resistance Check" .

Resistance value is OK?

OK or NG

OK >> GO TO 2.
NG >> Replace audio steering wheel switch.

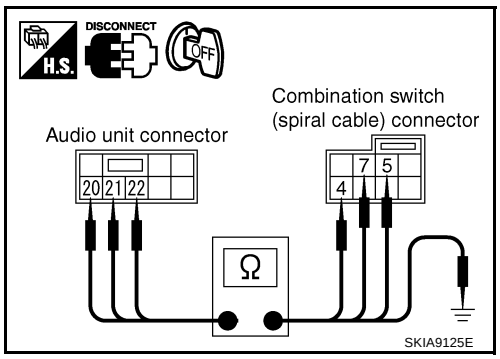
2. AUDIO STEERING WHEEL SWITCH CIRCUIT CHECK

1. Disconnect audio unit connector and combination switch (spiral cable) connector.
2. Check continuity between audio unit harness connector M43 terminal 20 (L/B), 21 (L/R), 22 (B) and combination switch (spiral cable) harness connector M11terminal 4 (L/B), 5 (L/R), 7 (B).

   20 (L/B)- 4 (L/B) :Continuity should exist.
   21 (L/R)- 5 (L/R) :Continuity should exist.
   22 (B) - 7 (B) :Continuity should exist.

3. Check continuity between audio unit harness connector M41 terminal 20 (L/B), 21 (L/R), 22 (B) and ground.

   Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

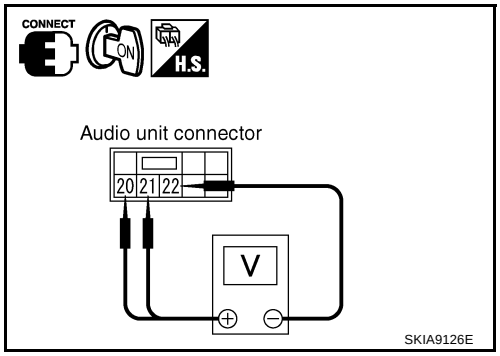
3. CONTROL SIGNAL CHECK

1. Connect audio unit connector and combination switch (spiral cable) connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector M43 terminal 20 (L/B), 21 (L/R) and 22 (B).

   20 (L/B) - 22 (B) : Approx 5V
   21 (L/R) - 22 (B) : Approx 5V

OK or NG

OK >> Check combination switch (spiral cable).
NG >> Replace audio unit.



Speed Sensitive Volume System Does Not Work (With Casette Deck)

EKS00EJ4

1. VEHICLE SPEED OPERATION CHECK

Does speedometer is operated normally?

Yes or No

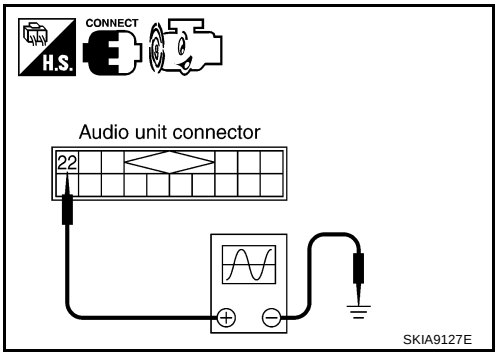
Yes >> GO TO 2.

No >> Check combination meter trouble diagnosis. Refer to DI-26, "Vehicle Speed Signal Inspection [with ESP]" in “COMBINATION METERS”.

2. VEHICLE SPEED SIGNAL CHECK

1. Start engine and drive vehicle at more than 40 km/h (25MPH).
2. Check the signal between audio unit harness connector M41 terminal 22 (L/W) and ground with CONSULT-II or oscilloscope.

22 (L/W) – Ground **:Refer to AV-29, "Terminals and Reference Value for Audio Unit With Casette Deck"**



OK or NG

OK >> Replace audio unit.

NG >> GO TO 3.

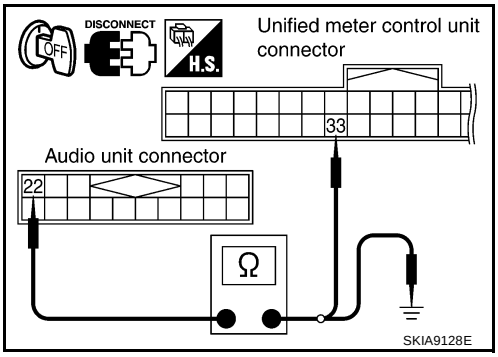
3. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect audio unit connector and combination meter connector.
3. Check continuity between audio unit harness connector M41 terminal 22 (L/W) and Unified meter control unit harness connector M44 terminal 33 (L/W).

22 (L/W) - 33 (L/W) **Continuity should exist.**

4. Check continuity between audio unit harness connector M42 terminal 22 (L/W) and ground.

Continuity should not exist.



OK or NG

OK >> Check combination meter system. Refer to DI-20, "Diagnosis Flow" in “COMBINATION METERS”.

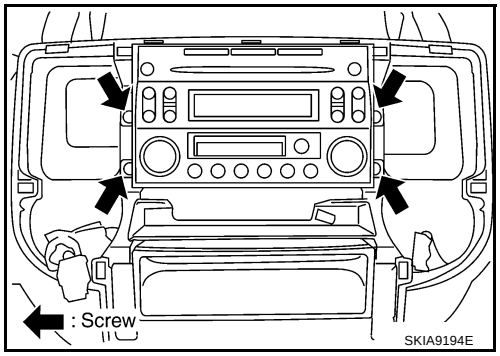
NG >>
- Check connector housings for disconnected or loose terminals.
- Repair harness or connector.

Removal and Installation of Audio unit (With Casette Deck)

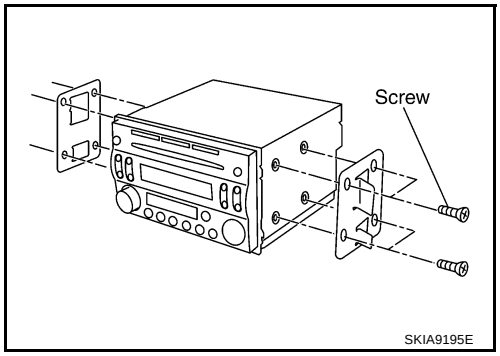
EKS00EKR

REMOVAL

1. Remove instrument cluster lid C. Refer to IP-11, "Removal and Installation" .
2. Remove screws (4) and connector, and remove audio unit.



3. Remove screws (8) and bracket.



INSTALLATION

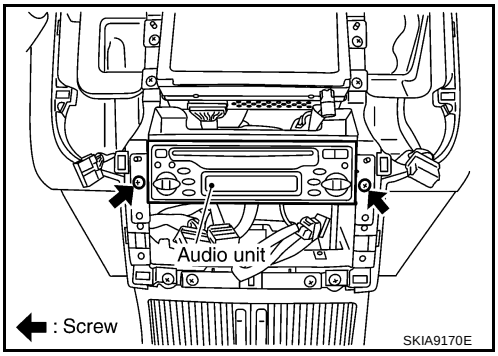
Install in the reverse order removal.

Removal and Installation of Audio Unit (Without Casette Deck)

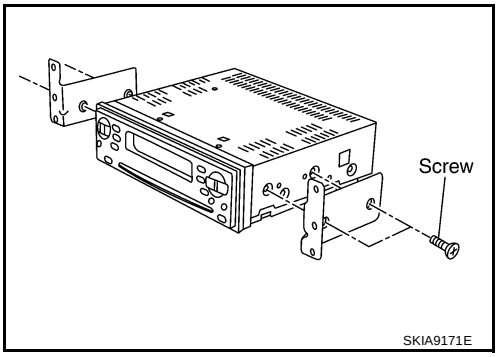
EKS00ECQ

REMOVAL

1. Remove instrument cluster lid C. Refer to IP-11, "Removal and Installation" .
2. Remove screws (2) and remove audio unit.



3. Remove screws (4), and bracket.



INSTALLATION

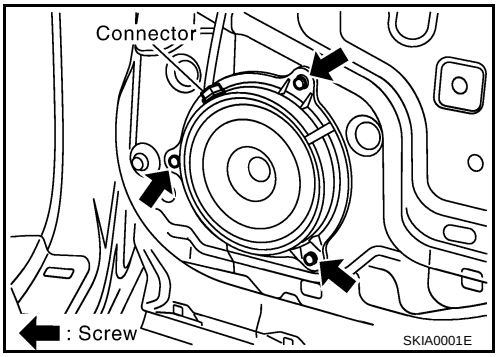
Install in the reverse order removal.

Removal and Installation of Speakers

EKS00ECT

REMOVAL

1. Remove door finisher. Refer to EI-32, "Removal and Installation" .
2. Remove screws (3) and remove speakers.



INSTALLATION

Install in the reverse order of removal.

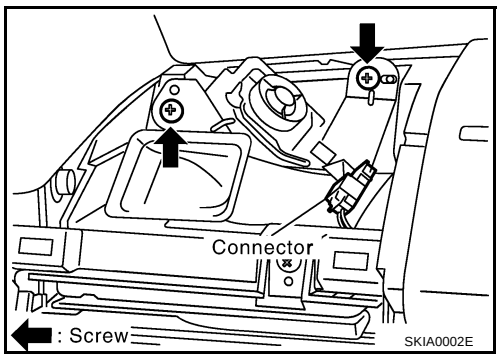
Removal and Installation of Tweeters

EKS00ECU

REMOVAL

1. Remove front speaker grille. Refer to IP-11, "Removal and Installation" .

2. Remove screws (2) and remove tweeters.



INSTALLATION

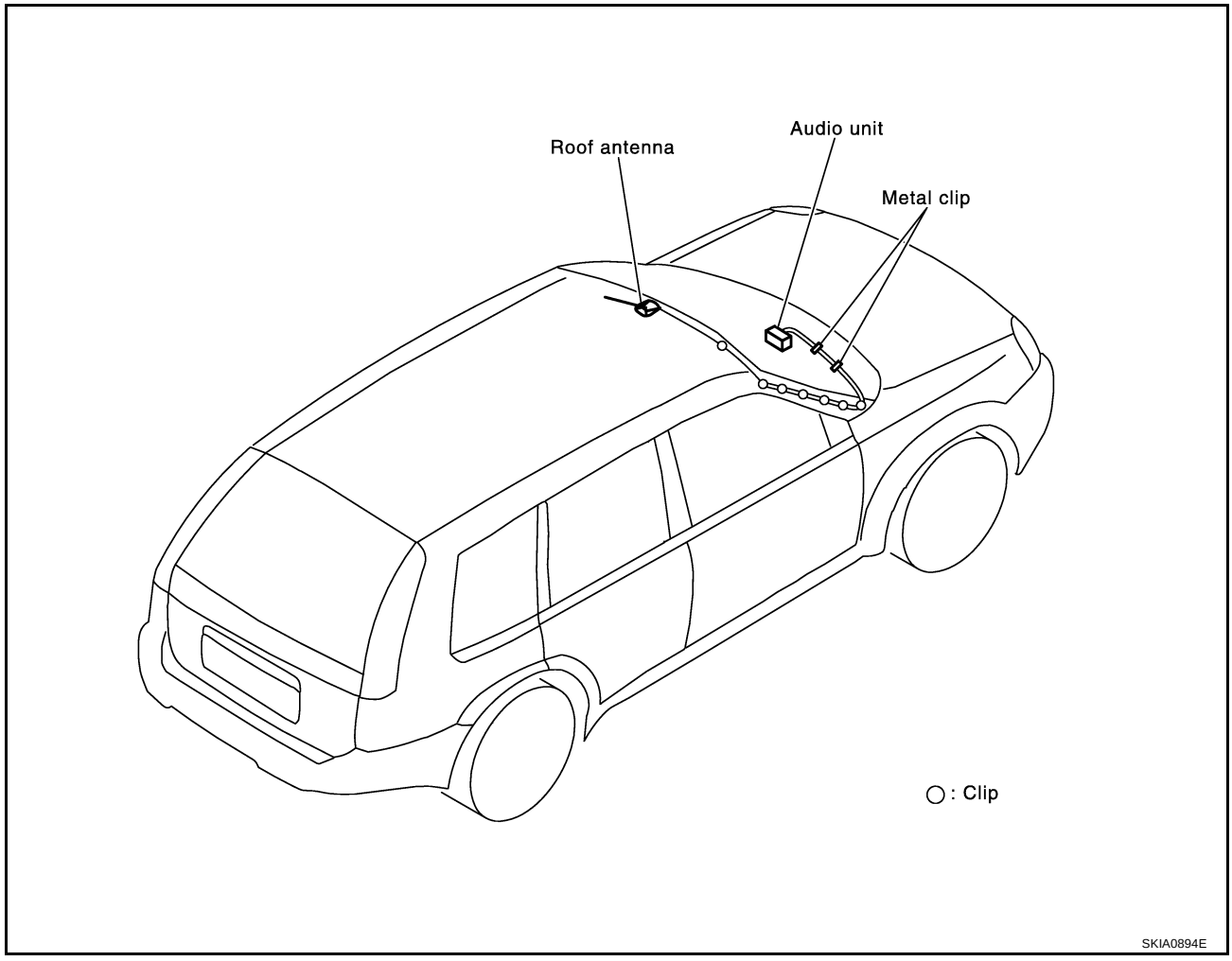
Install in the reverse order of removal.

AUDIO ANTENNA

PFP:28200

Antenna Route

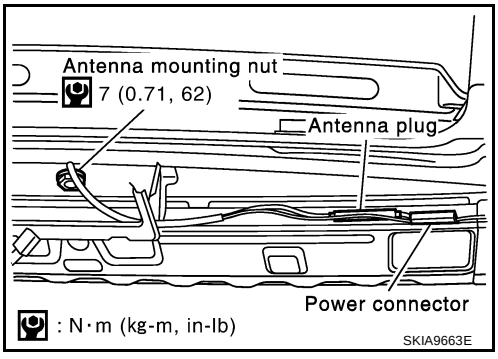
EKS00ECV

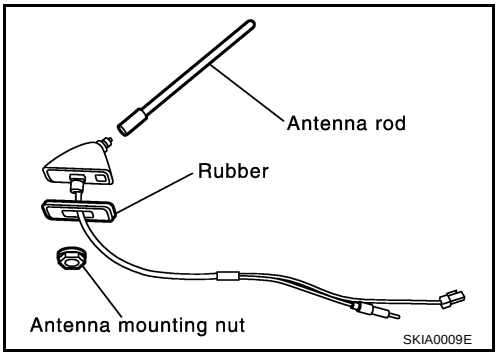


Removal and Installation of Roof Antenna

EKS00ECW

1. Remove headlining.
   - Refer to EI-39, "HEADLINING" in “Exterior/Interior (EI)” section.
2. Remove roof antenna mounting nuts, antenna plug, and power connector. Then remove roof antenna.





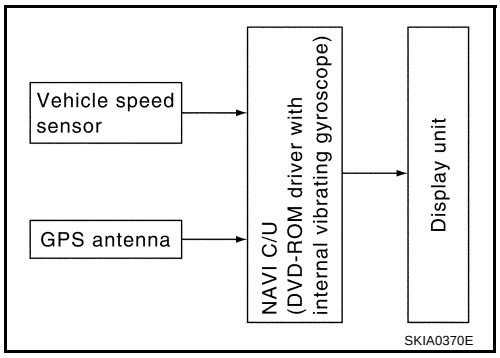
NAVIGATION SYSTEM

PFP:25915

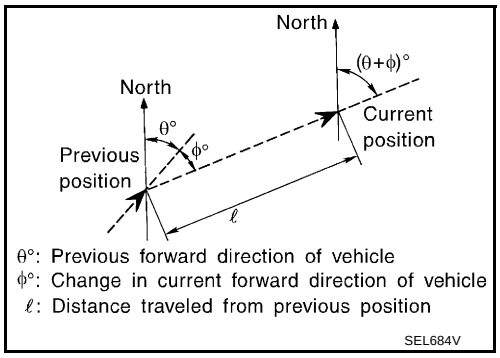
System Description

EKS00F2S

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

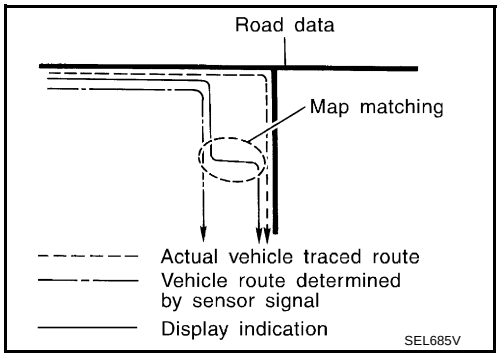
Change in the travel direction of the vehicle is calculated by a gyroscope (angular velocity sensor) and a GPS antenna (GPS information). As the gyroscope and GPS antenna have both merit and demerit, input signals from them are prioritized in each situation. However, this order of priority may change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

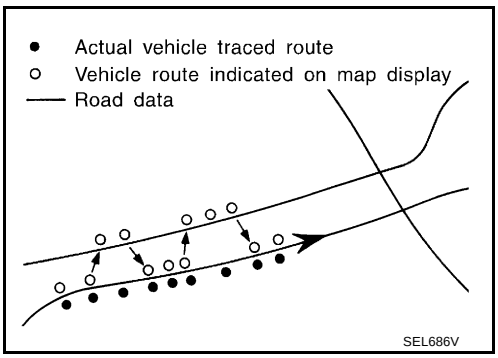
MAP-MATCHING

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.

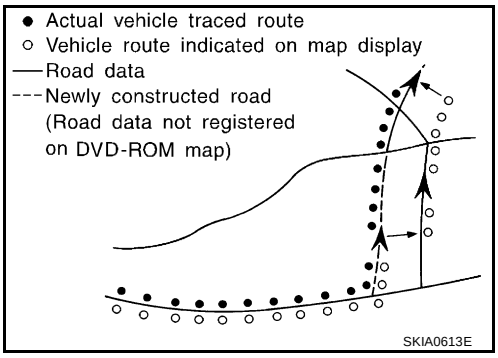
NOTE:
The road map data is based on data stored in the map DVD-ROM.



- 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.

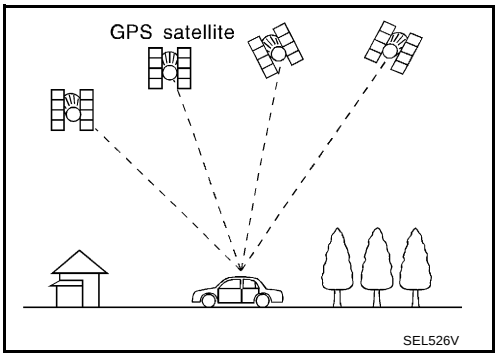


- Map-matching does not function correctly when the road on which the vehicle is driving is new and not recorded in the map DVD-ROM, or when the road pattern stored in the map data and the actual road pattern are different due to repair.
  When driving on a road not present in the map, the map-matching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



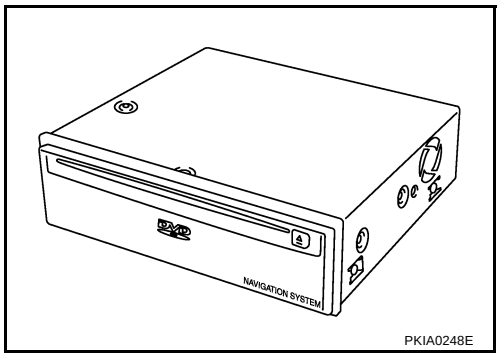
Accuracy of the GPS will deteriorate under the following conditions.

- 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

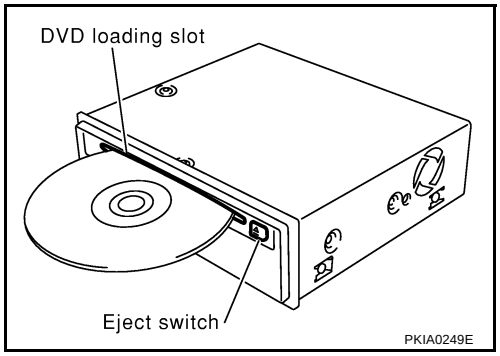
NAVI Control Unit

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



DVD-ROM Drive

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



Map DVD-ROM

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

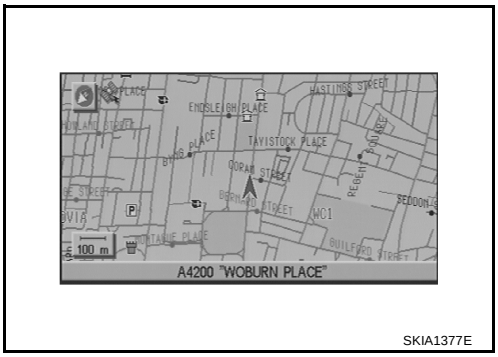
Gyro (Angular Speed Sensor)

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

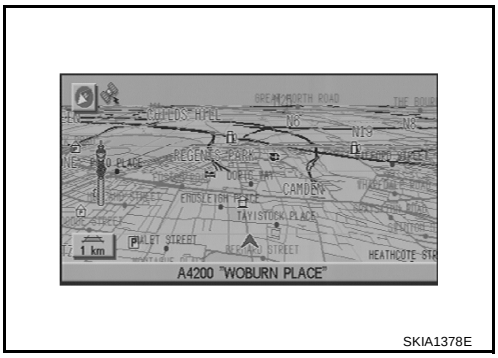
BIRDVIEW®

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

- MAP DISPLAY

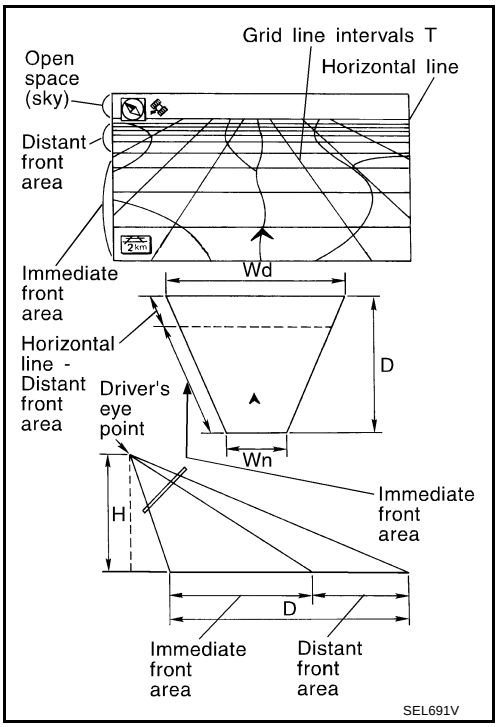


- BIRDVIEW®



Description

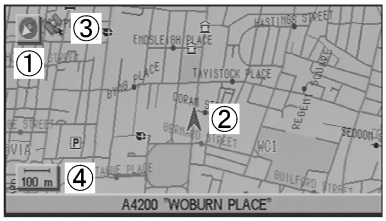
- Display area: Trapezoidal representation showing approximate distances (Wn, D, and Wd).
- Ten horizontal grid lines indicate display width while six vertical grid lines indicate display depth and direction.
- Drawing line area shows open space, depth, and immediate front area. Each area is to a scale 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.



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).

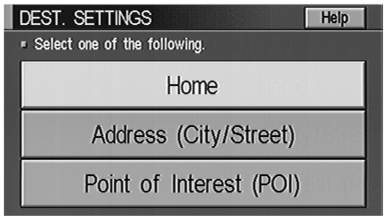


SKIA1379E

FUNCTION OF NAVI SWITCH

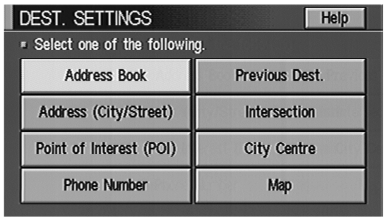
Display With Pushed “DEST” Switch

- Easy Mode



SKIA9542E

- Expert Mode



SKIA9142E

The Function of Each Icon Is as Follows:

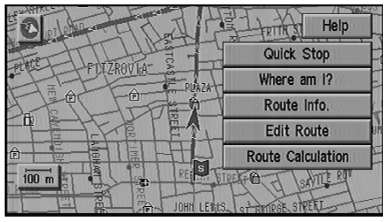
Icon	MODE		Description
	Easy	Expert	
Address Book		×	Favorite place can be saved to memory.
Address (City / Street)	×	×	The destination can be searched from the address.
Point of Interest (POI)	×	×	The destination of favorite facility can be searched.
Phone Number		×	The destination can be searched from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



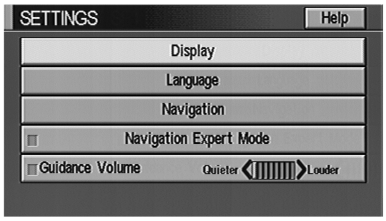
SKIA1383E

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. (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. ● Complete Route ● Turn List ● Route Simulation (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



SKIA9143E

The Function of Each Icon Is as Follows:

Icon	Description
Display	Settings of display can be performed.
Language	Language can be selected for the display and voice guidance. Use the program CD-ROM disc to change the language.
Navigation	Settings and adjusting of navigation can be performed.
Navigation Expert Mode	Easy Mode and Expert Mode can be switched.
Guidance Volume	The volume and/or on/off of voice prompt can be controlled by the joystick.
Help	Explanation of Navigational Functions Appear on the Display.

Display with Pushed “INFO” Button

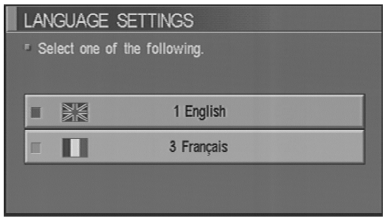
- When the “INFO” button is pushed, the following items will display on the screen.
- Warning message (if there are any) →DRIVE INFORMATION→MAINTENANCE INFOMATION→OFF.

Display items	Display/Setting contents	
DRIVE INFORMATION	Elapsed Time	Displays driving time with a range of 0:00:00 to 9999:59:59.
	Driving Distance [(km) or (miles)]	Displays driving distance with a range of 0.0 to 99999.9.
	Average speed [(km/h) or (MPH)]	Displays average speed with a range of 0.0 to 999.9.
MAINTENANCE INFOMATION	Reminder 1	Maintenance intervals of vehicle's consumables and setting of cycles.
	Reminder 2	Maintenance intervals of vehicle's consumables and setting of cycles.
	Reminder 3	Maintenance intervals of vehicle's consumables and setting of cycles.

“LANGUAGE SETTINGS” 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.



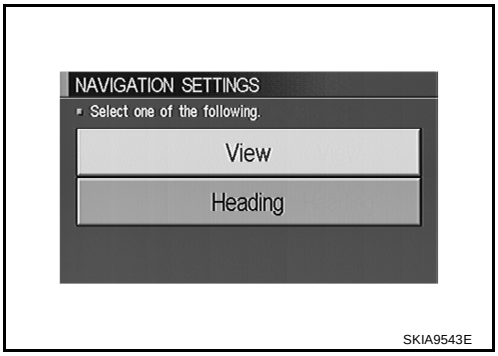
SKIA1399E

“NAVIGATION SETTINGS” mode

How To Perform Navigation Settings

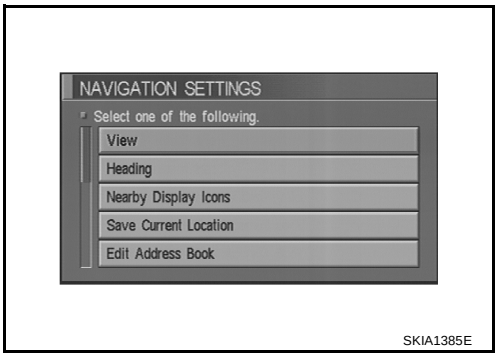
1. Start the engine.
2. Push “SETTING” button.
3. Select “Navigation” key.

- Easy Mode



SKIA9543E

- Expert Mode



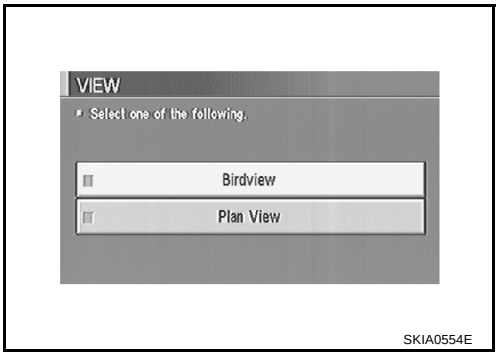
SKIA1385E

Application Items

Icon	MODE		Description	Refer-ence page
	Easy	Expert		
View	×	×	Map display mode can be switched.	AV-50
Heading	×	×	Heading of the map display can be customized for either north heading or the actual driving direction of the vehicle.	AV-50
Nearby Display Icons		×	Icons of facilities can be displayed. Facilities to be displayed can be selected from the variety selections.	AV-51
Save Current Location		×	Current vehicle location can be registered in Address Book.	AV-51
Edit Address Book		×	Address Book can be edited.	AV-51
Clear Memory		×	Address Book, Previous destination or Avoid area can be deleted.	AV-51
Auto Re-route On / Off		×	On / Off of Auto Re-route can be switched.	AV-52
Quick Stop Customer Setting		×	One facility of your selection can be added to your Quick Stop.	AV-52
Set Average speed for Estimated Journey Time		×	Average vehicle speed can be set to calibrate estimated journey time for the destination.	AV-52
GPS Information		×	The GPS data includes longitude, latitude and altitude (distance above sea level) of the present vehicle position, and current date and time for the area in which the vehicle is being driven. Also indicated are the GPS reception conditions and the GPS satellite position.	AV-52
Avoid Area Setting		×	A particular area can be avoided when routing.	AV-53
Tracking On / Off		×	Tracking to the present vehicle position can be displayed.	AV-53
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-53
Switch beep On / Off		×	Button tone can be selected On / Off.	AV-54

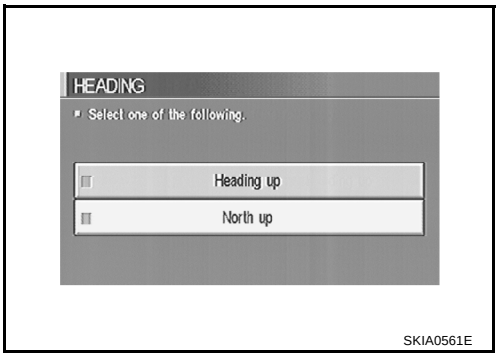
“VIEW” Mode

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



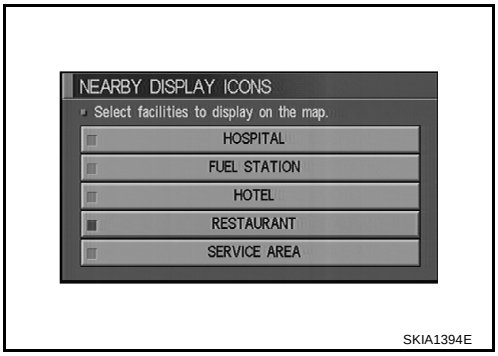
“HEADING” Mode

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



“NEARBY DISPLAY ICONS” Mode

- Select an icon to display on the map screen.

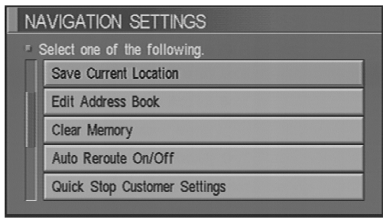


SKIA1394E

“SAVE CURRENT LOCATION” Mode

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

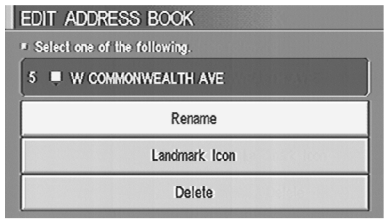
  NOTE:
  “Address Book” can store 50 items max.



SKIA1388E

“EDIT ADDRESS BOOK” Mode

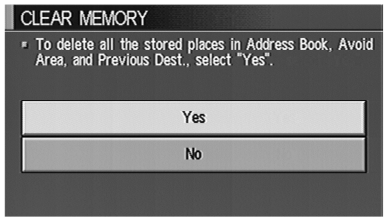
- Edit the items registered in Address Book.



SKIA0560E

“CLEAR MEMORY” Mode

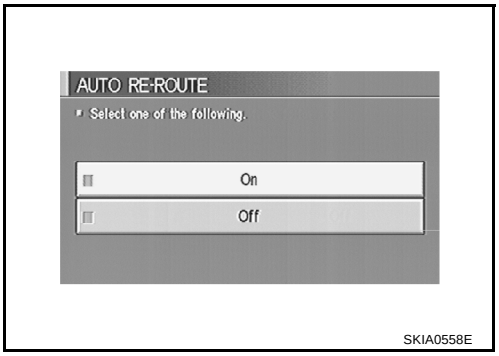
- To delete all the stored places in “Address Book”, “Avoid Area” and “Previous Dest”, select “Yes”.



SKIA9146E

“AUTO RE-ROUTE” Mode

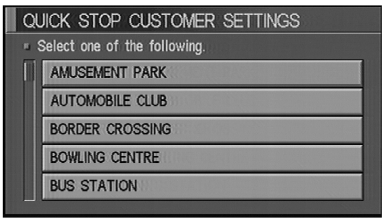
- To Perform the auto re-route of route, select “ON”.
- Not to Perform the auto re-route of route, select “OFF”.



SKIA0558E

“QUICK STOP CUSTOMER SETTINGS” Mode

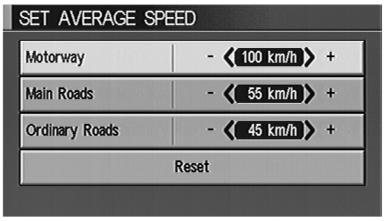
- Select a category for the “Quick Stop” menu.



SKIA1389E

“SET AVERAGE SPEED ” Mode

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

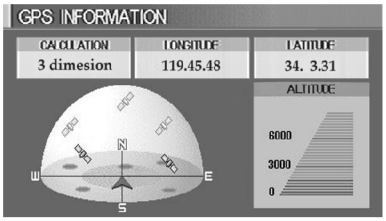


SKIA9544E

“GPS INFORMATION” Mode

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

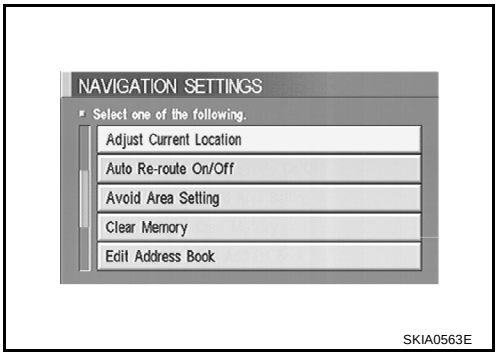
  NOTE:
  Altitude is displayed only in three-dimensional status.



SKIA0555E

“AVOID AREA SETTINGS” Mode

- Areas to avoid can be registered.

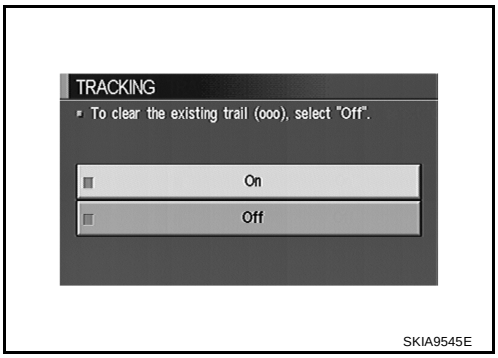


SKIA0563E

“TRACKING” Mode

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

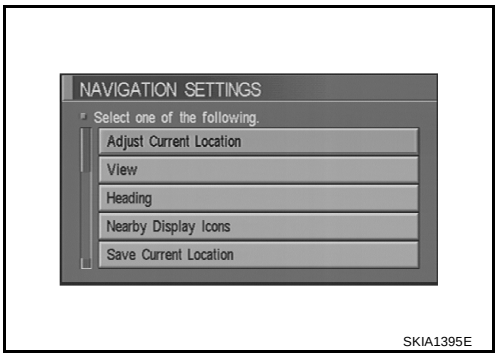
NOTE:
When a trail display is turned OFF, trail data is erased from the memory.



SKIA9545E

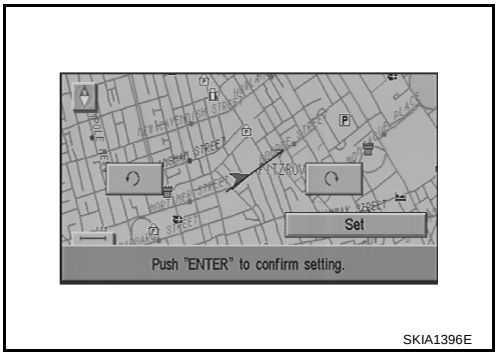
“ADJUST CURRENT LOCATION” Mode

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

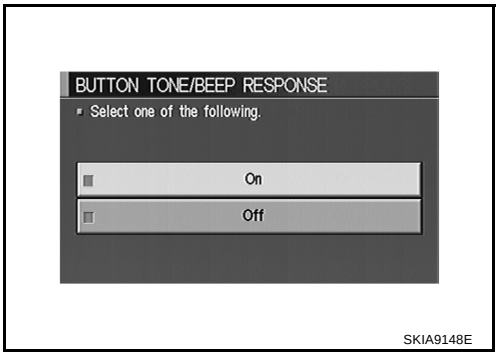
“BUTTON TONE / BEEP RESPONSE” Mode

Select “Switch Beep”.

- When Beep Setting is on (indicator light on), a beep will sound if the button is pushed.

NOTE:
Items in exception of Beep Setting ON/OFF.

- An error beep.
- An interrupted-screen beep.

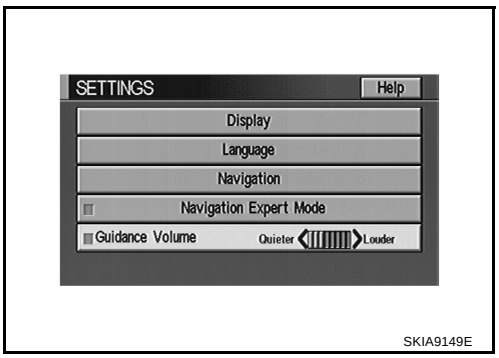


SKIA9148E

“GUIDANCE VOLUME SETTING” MODE

Description

Following voice guidance setting can be changed.



SKIA9149E

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.

Precautions for NAVI Control Unit Replacement

EKS00F2T

- When replacing the NAVI control unit, eject the map DVD-ROM before disconnecting the battery.
- The 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.

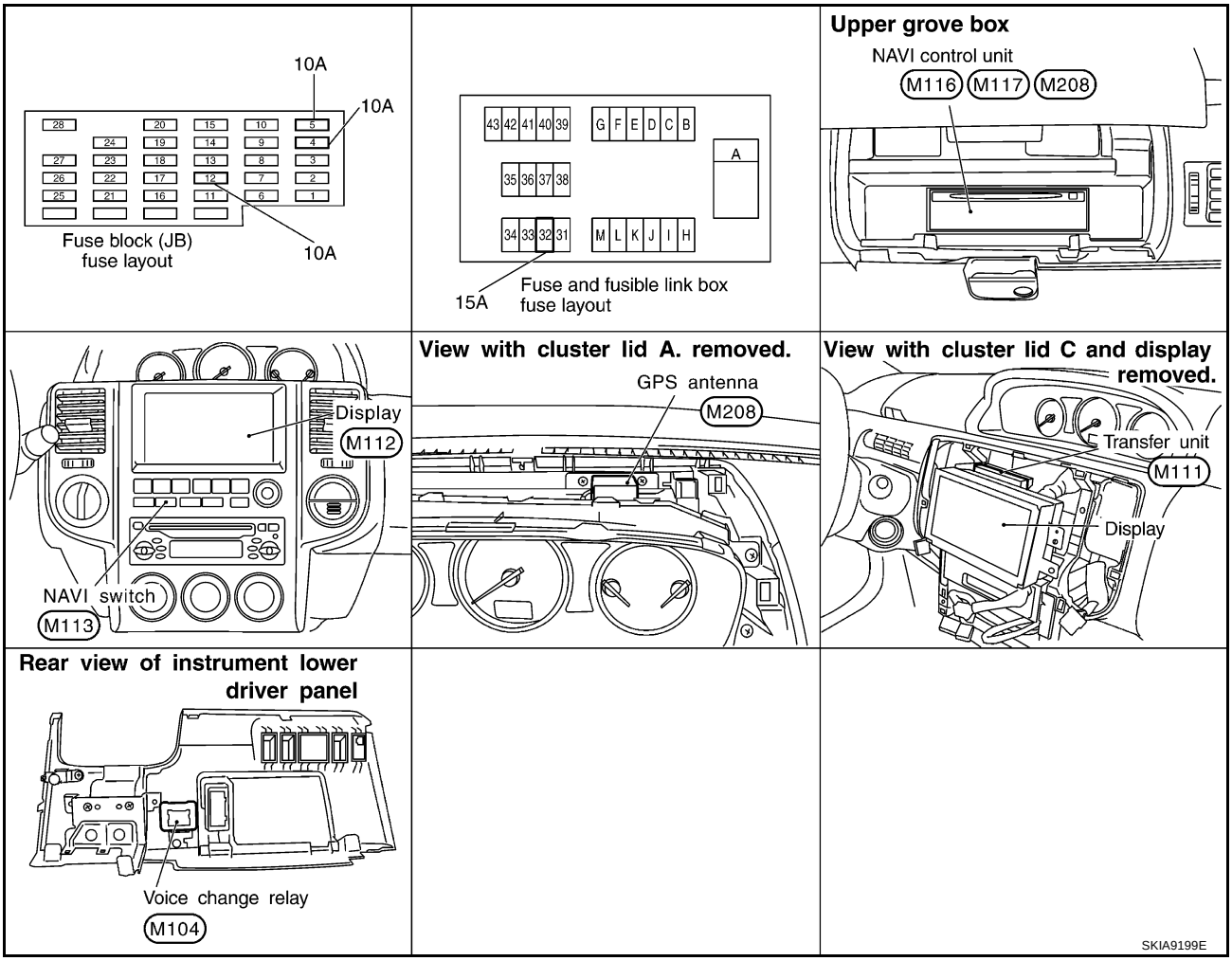
<Image quality>
- **Brightness of light when ON/OFF**
- **Dimming switching**
- **Display color switching**

<Navigation mode>
- **Latest status (map screen/BIRDVIEW® , 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.

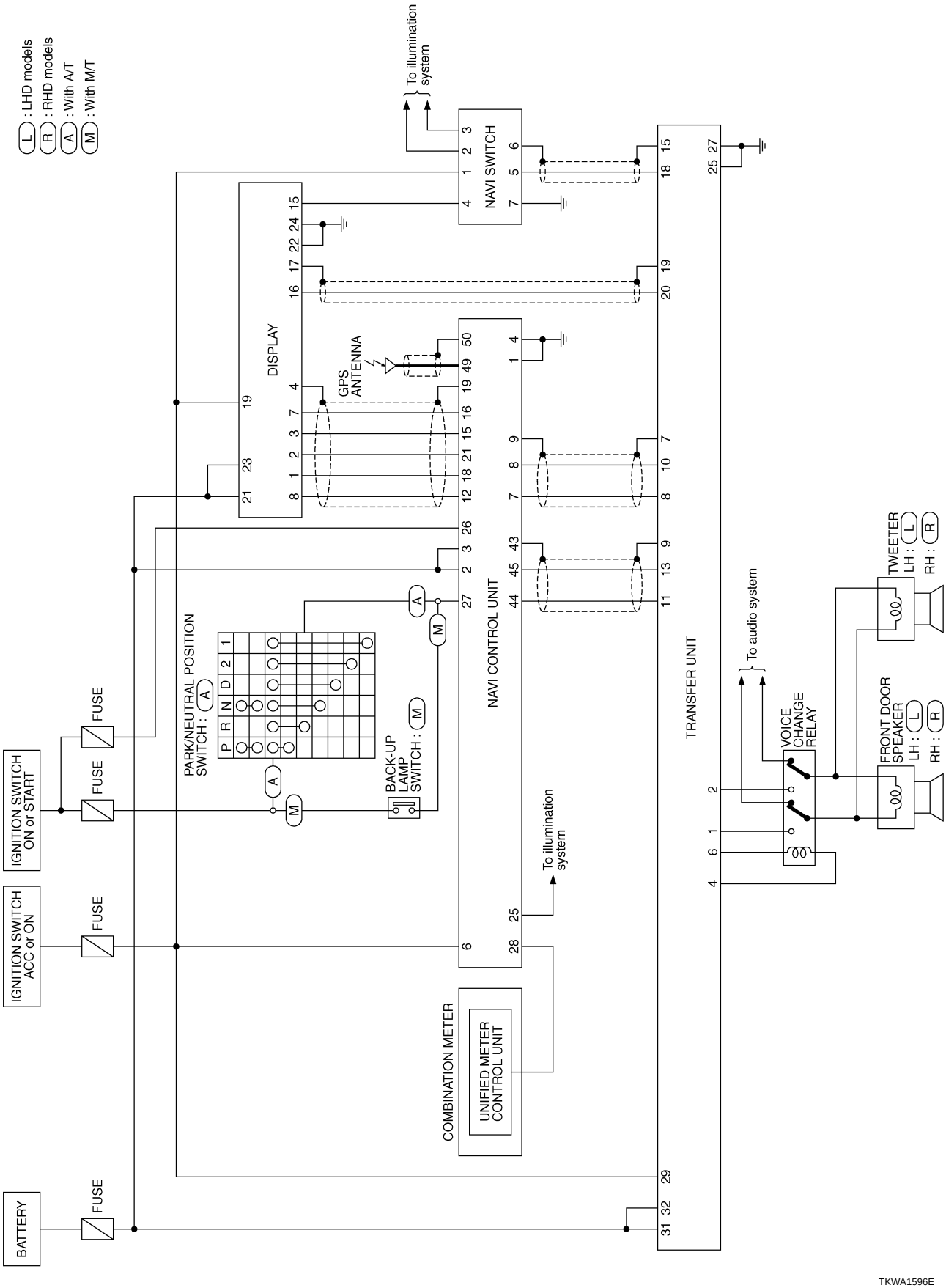
Component Parts And Harness Connector Location

EKS00F2U



Schematic

EKS00F2V

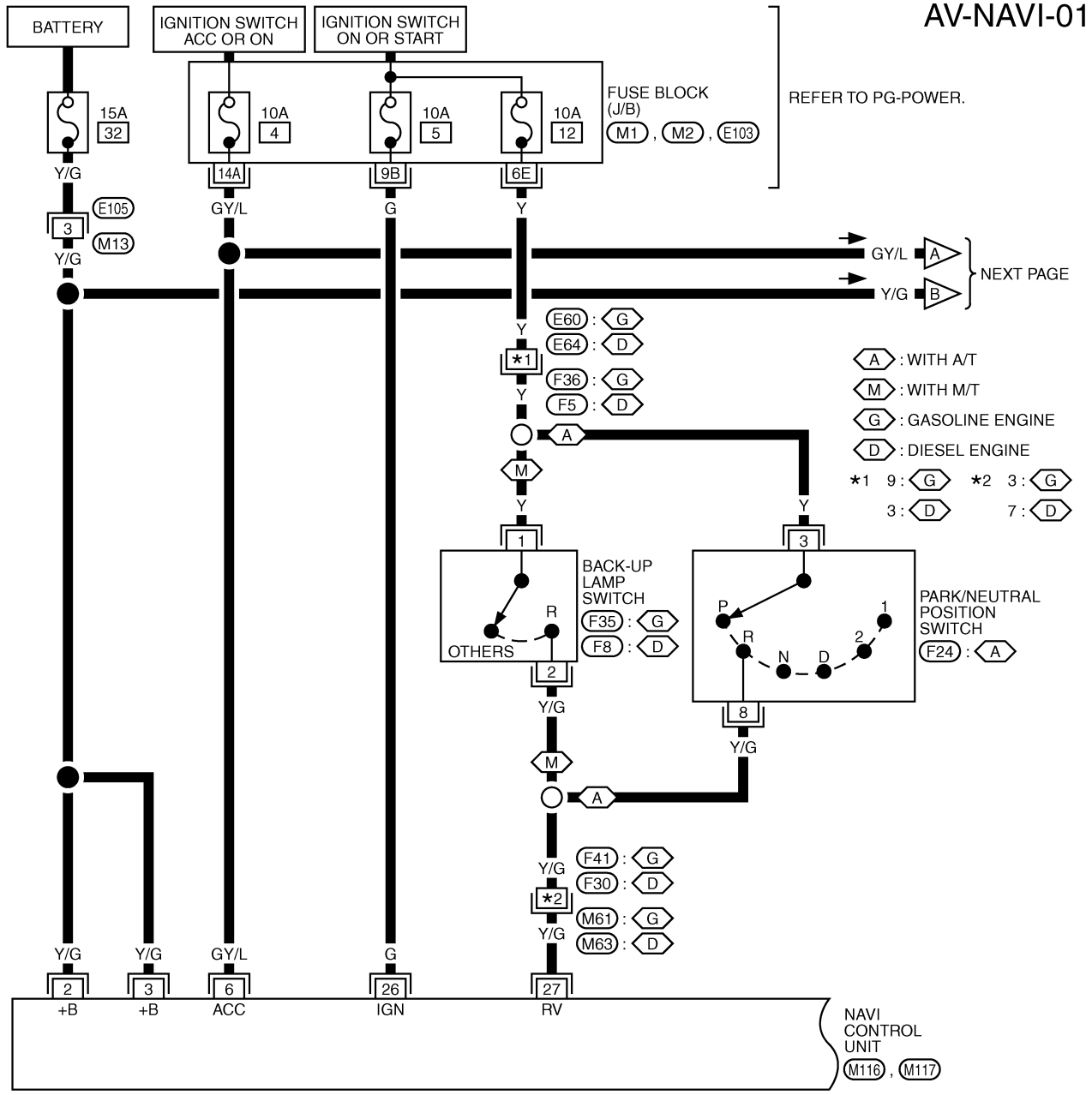


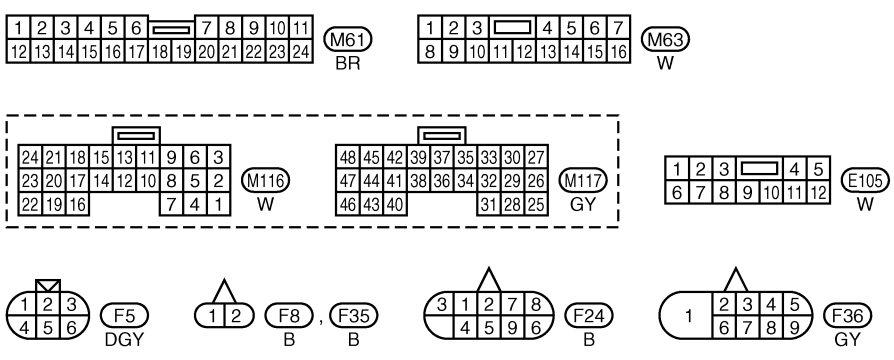
TKWA1596E

Wiring Diagram — NAVI —

EKS00F2W

LHD MODELS

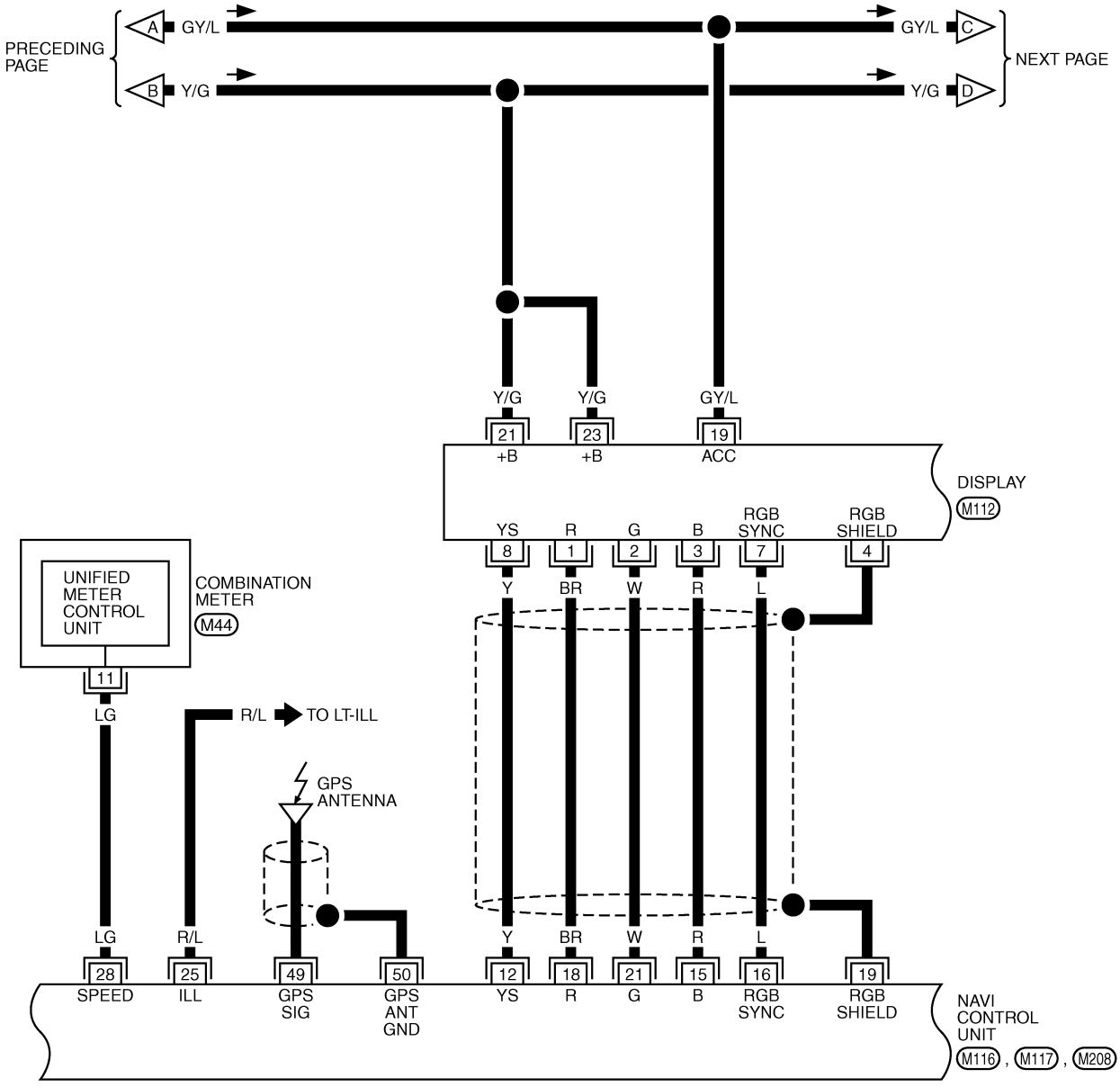


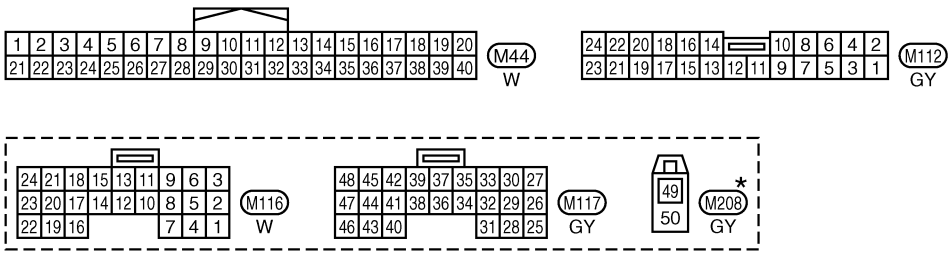


REFER TO THE FOLLOWING.
M1, M2, E103 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1597E

AV-NAVI-02

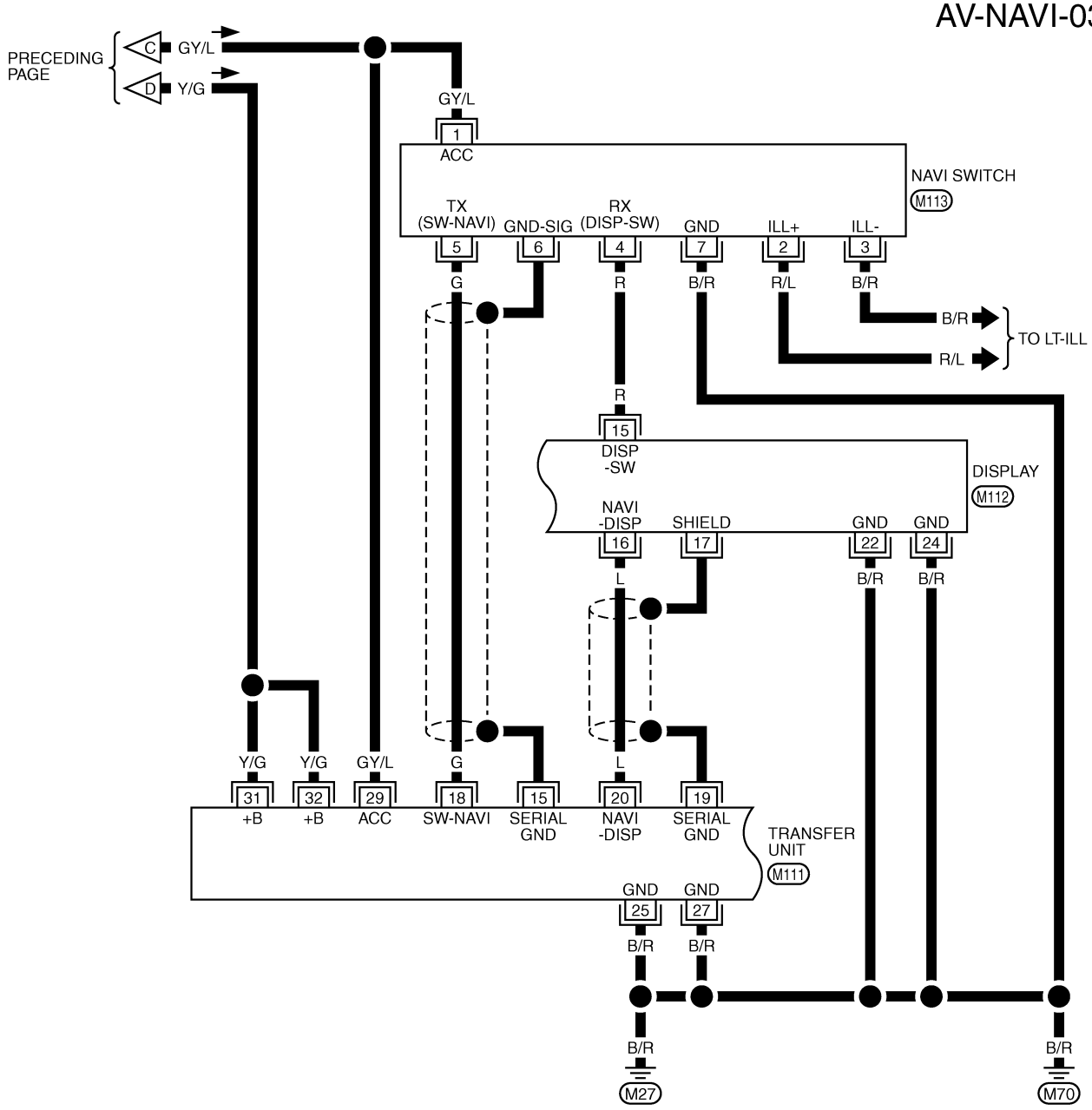


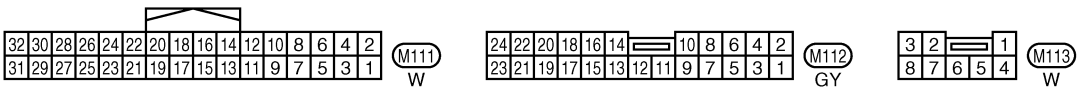


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWA1598E

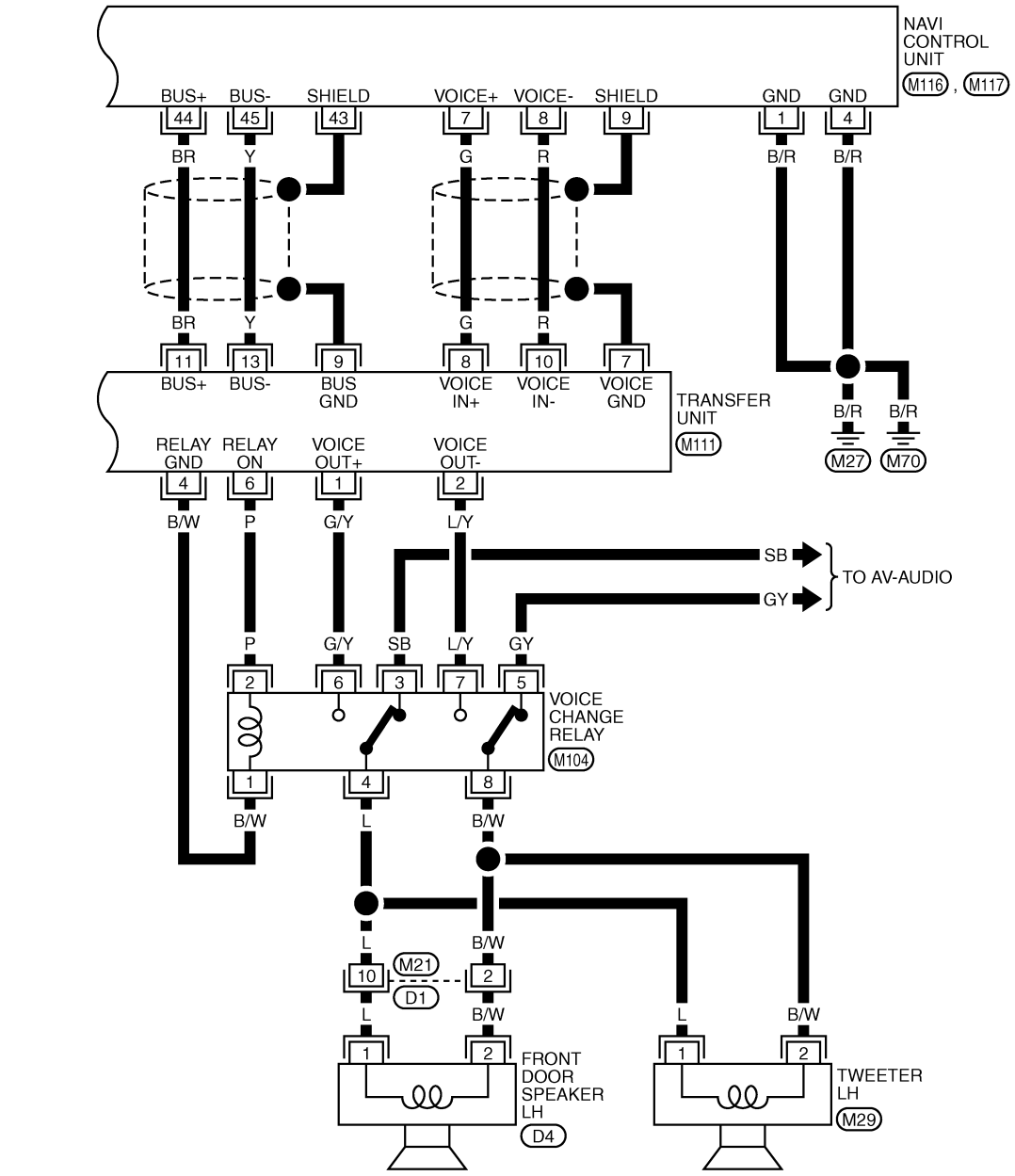
AV-NAVI-03

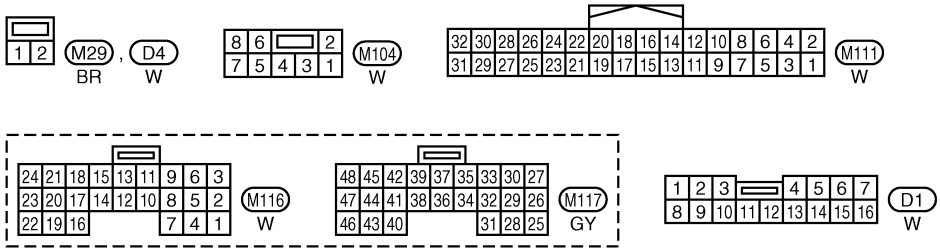




TKWA1599E

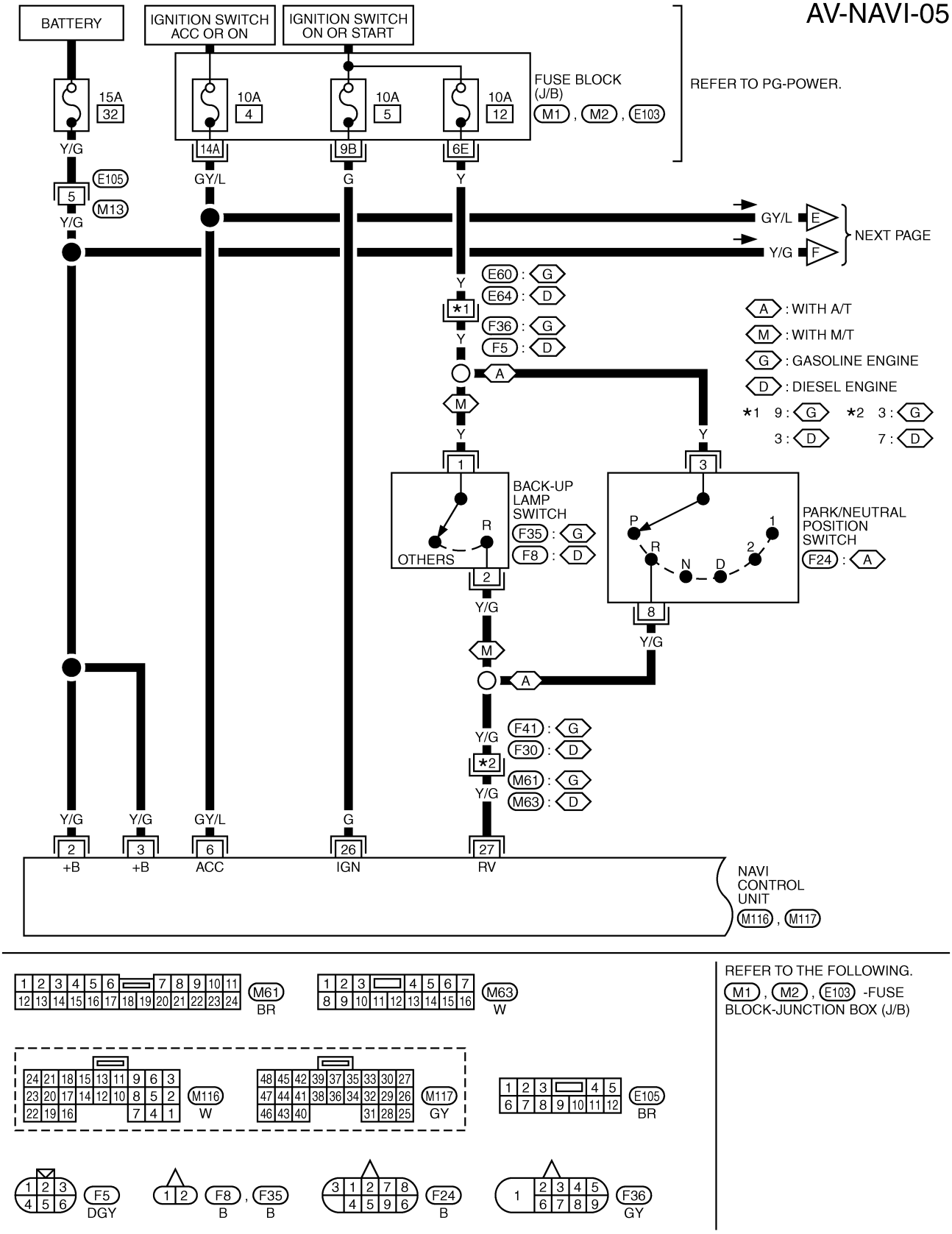
AV-NAVI-04





TKWA1600E

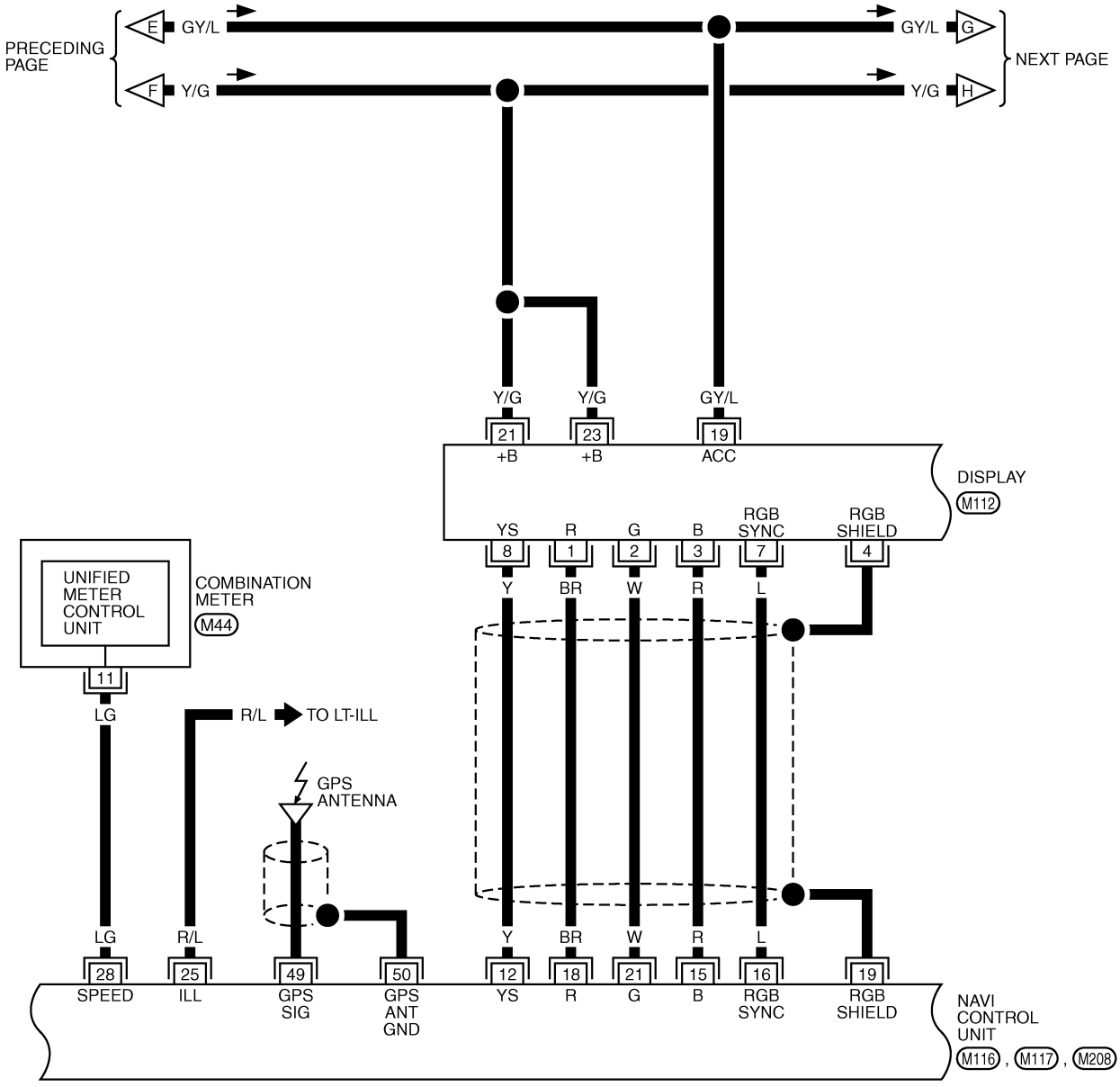
RHD MODELS

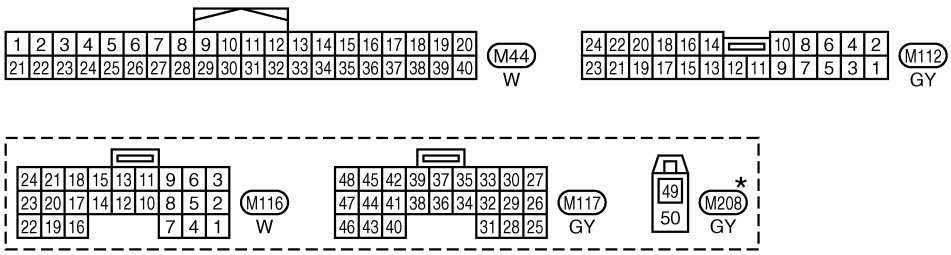


REFER TO THE FOLLOWING.
M1, M2, E103 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA1601E

AV-NAVI-06

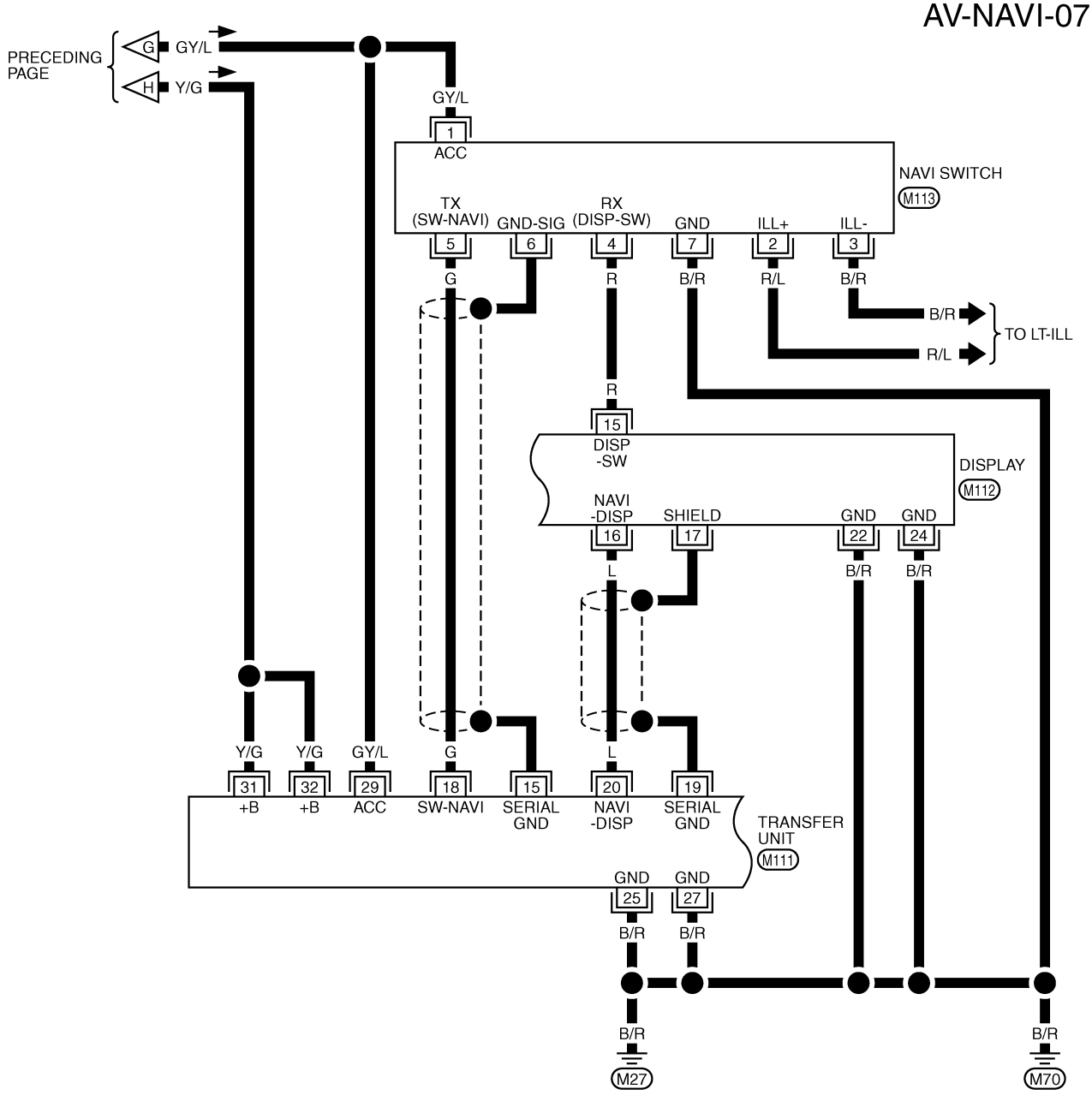


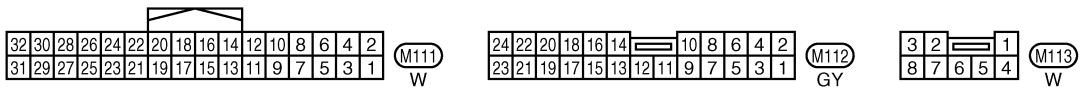


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWA1602E

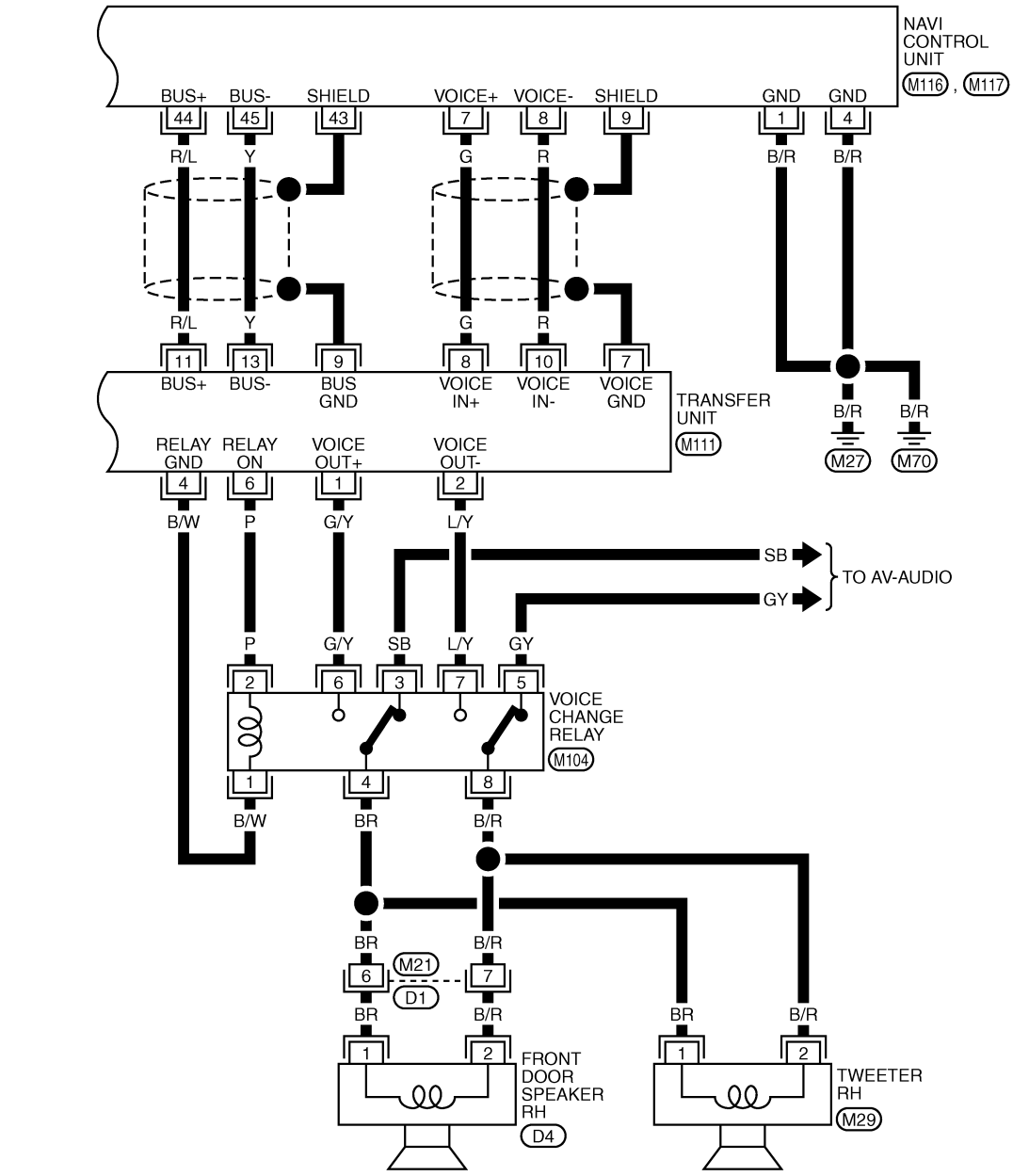
AV-NAVI-07

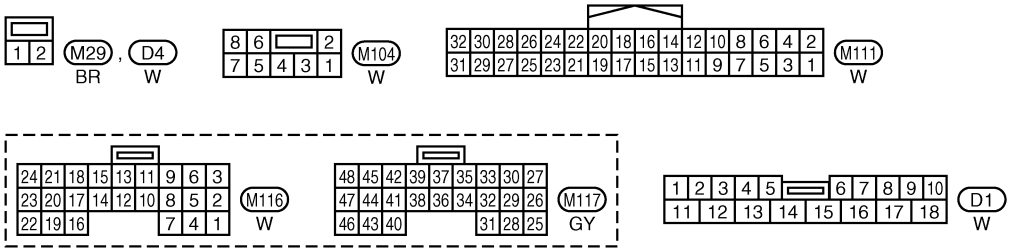




TKWA1603E

AV-NAVI-08





TKWA1604E

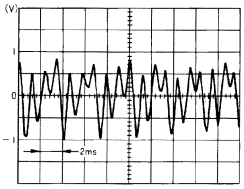
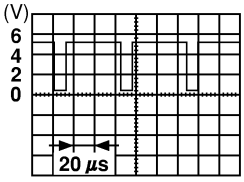
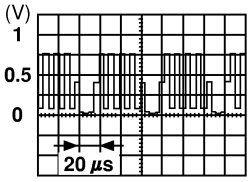
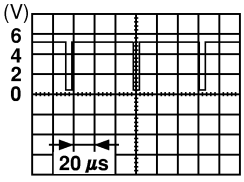
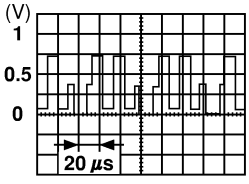
Terminals and Reference Value for NAVI Control unit

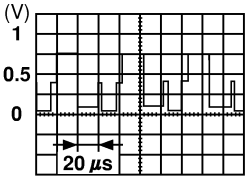
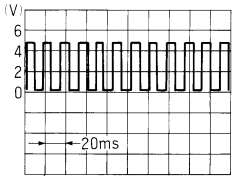
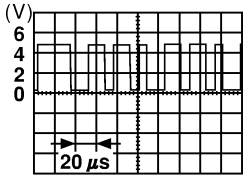
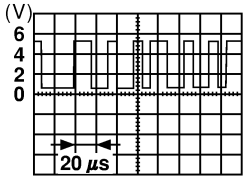
EKS00F2X

- Measure using circuit tester and oscilloscope.
- Measure with connector connected unless otherwise specified.

CAUTION:
Confirm voltage between negative terminal on each unit and ground is approximately 0V.

- If ignition switch ON is required in measurement condition, measure with engine running to prevent battery discharge.

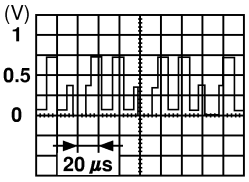
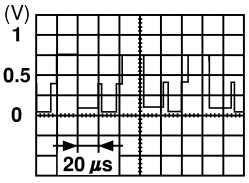
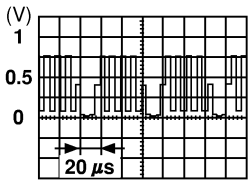
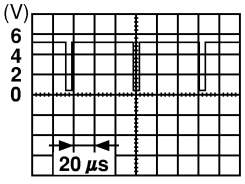
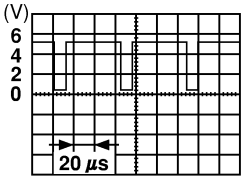
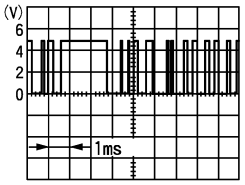
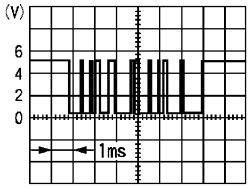
Terminal No. (wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
1 (B/R)	Ground	Ground	–	ON	–	Approx. 0V	–
2 (Y/G)	Ground	Battery	Input	–	–	Battery voltage	System does not work properly.
3 (Y/G)							
4 (B/R)	Ground	Ground	–	ON	–	Approx. 0V	–
6 (GY/L)	Ground	ACC power	Input	ACC	–	Battery voltage	System does not work properly.
7 (G)	8 (R)	Voice guide signal	Output	ON	Push the “VOICE” switch	 SKIA0171J	Only route guide and operation guide are not heard.
9	–	Shield	–	–	–	–	–
12 (Y)	19	RGB area signal	output	ON	Push the “D/N” switch.	 SKIA0162E	RGB screen is not shown.
15 (R)	19	RGB signal (B: blue)	Output	ON	Select “Color bar” of CONFIRMATION/ ADJUSTMENT function.	 SKIA0167E	RGB screen looks yellowish.
16 (L)	19	RGB synchronizing signal	Output	ON	Push the “MAP” switch.	 SKIA0164E	RGB screen is rolling.
18 (BR)	19	RGB signal (R: red)	Output	ON	Select “Color bar” of CONFIRMATION/ ADJUSTMENT function.	 SKIA0165E	RGB screen looks bluish.

Terminal No. (wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
19	–	Shield	–	–	–	–	–
21 (W)	19	RGB signal (G: green)	Output	ON	Select “Color bar” of CONFIRMATION/ ADJUSTMENT function.	 SKIA0166E	RGB screen looks reddish.
25 (R/L)	Ground	Illumination signal	Input	ON	Lighting switch position 1st or 2nd	Battery voltage	Night illumination for switches does not illuminate.
					Lighting switch position OFF	Approx. 0V	
26 (G)	Ground	IGN signal	Input	ON	–	Battery voltage	Vehicle information setting is not possible.
27 (Y/G)	Ground	Reverse signal	Input	ON	Select R-position	Battery voltage	The navigation current-location mark moves strangely when the vehicle is moving backwards.
					Other position	Approx. 0V	
28 (LG)	Ground	Vehicle speed signal (8-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	 ELF1084D	Navigation current-location mark does not indicate the correct position.
43	–	shield	–	–	–	–	–
44 (BR)*1 (R/L)*2	43	Communication signal (+)	Input/ Output	ON	–	 SKIA0175E	System does not work properly.
45 (Y)	43	Communication signal (–)	Input/ Output	ON	–	 SKIA0176E	System does not work properly
49	Ground	GPS antenna signal	Input	ON	Connector is not connected.	Approx. 5V	GPS correction is not possible.
50	–	Shield	–	–	–	–	–

- *1 : LHD models.
- *2 : RHD models.

Terminals and Reference Value for Display

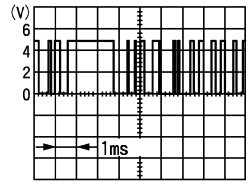
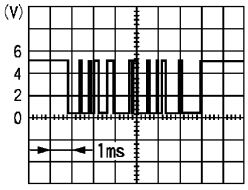
EKS00F2Y

Terminal No. (wire color) (+)	Terminal No. (wire color) (–)	Item	Signal input/ output	Condition: Ignition switch	Condition: Operation	Reference value	Example of symptom
1 (BR)	4	RGB signal (R: red)	Input	ON	Select “Color bar” of CONFIRMATION/ ADJUSTMENT function.	 SKIA0165E	RGB screen looks bluish.
2 (W)	4	RGB signal (G: green)	Input	ON	Select “Color bar” of CONFIRMATION/ ADJUSTMENT function.	 SKIA0166E	RGB screen looks reddish.
3 (R)	4	RGB signal (B: blue)	Input	ON	Select “Color bar” of CONFIRMATION/ ADJUSTMENT function.	 SKIA0167E	RGB screen looks yellowish.
4	–	Shield	–	–	–	–	–
7 (L)	4	RGB synchronizing signal	Input	ON	Push the “MAP” switch.	 SKIA0164E	RGB screen is rolling.
8 (Y)	Ground	RGB area signal	Input	ON	Push the “D/N” switch.	 SKIA0162E	RGB screen is not shown.
15 (R)	Ground	Communication signal (DISP-SW)	Output	ON	Push the “INFO” switch.	 SKIA0835E	System does not work properly.
16 (L)	17	Communication signal (NAVI-DISP)	Input	ON	Push the “INFO” switch.	 SKIA0832E	System does not work properly.

Terminal No. (wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
17	–	Shield	–	–	–	–	–
19 (GY/L)	Ground	ACC power	Input	ACC	–	Battery voltage	System does not work properly.
21 (Y/G)	Ground	Battery power	Input	–	–	Battery voltage	System does not work properly.
22 (B/R)	Ground	Ground	–	ON	–	Approx. 0V	–
23 (Y/G)	Ground	Battery power	Input	–	–	Battery voltage	System does not work properly.
24 (B/R)	Ground	Ground	–	ON	–	Approx. 0V	–

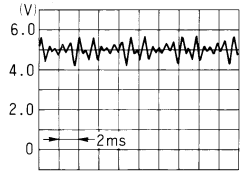
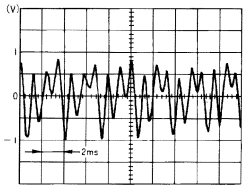
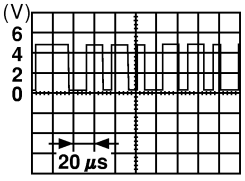
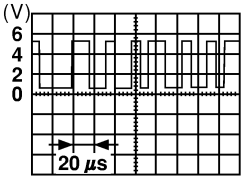
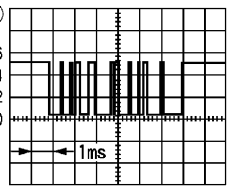
Terminals and Reference Value for NAVI Switch

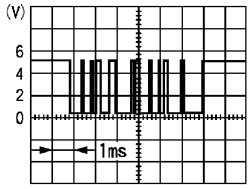
EKS00F2Z

Terminal No. (wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
1 (GY/L)	Ground	ACC power	Input	ACC	–	Battery voltage	All operations do not work.
2 (R/L)	3 (B/R)	Illumination signal	Input	ON	Lighting switch position 1st or 2nd	Battery voltage	Night illumination for switches does not illuminate.
					Lighting switch psition OFF	Approx. 0V	
4 (R)	Ground	Communication signal (DISP-SW)	Input	ON	Push the “INFO” switch	 SKIA0835E	System does not work properly.
5 (G)	6	Communication signal (SW-NAVI)	Output	ON	Push the “INFO” switch	 SKIA0832E	System does not work properly.
6	–	Shield	–	–	–	–	–
7 (B/R)	Ground	Ground	–	ON	–	Approx. 0V	All operations do not work.

Terminals and Reference Value for Transfer Unit

EKS00F30

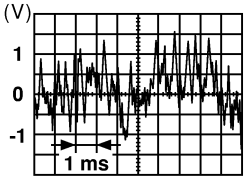
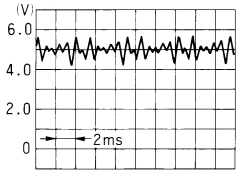
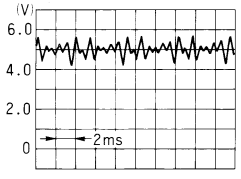
Terminal No. (wire color) (+)	Terminal No. (wire color) (–)	Item	Signal input/ output	Condition: Ignition switch	Condition: Operation	Reference value	Example of symptom
1 (G/Y)	2 (L/Y)	Voice guide signal	Output	ON	Push the “VOICE” switch	 ELL0234D	Only route guide and operation guide are not heard.
6 (P)	4 (B/W)	Voice change relay ON signal	Output	ON	Push the “VOICE” switch	Approx.5V	Only route guide and operation guide are not heard.
7	–	Shield	–	–	–	–	–
8 (G)	10 (R)	Voice guide signal	Input	ON	Push the “VOICE” switch	 SKIA0171E	Only route guide and operation guide are not heard.
9	–	Shield	–	–	–	–	–
11 (BR)*1 (R/L)*2	9	Communication signal (+)	Input/ Output	ON	–	 SKIA0175E	System does not work properly.
13 (Y)	9	Communication signal (–)	Input/ Output	ON	–	 SKIA0176E	.System does not work properly.
15	–	Shield	–	–	–	–	–
18 (G)	15	Communication signal (SW-NAVI)	Input	ON	–	 SKIA0832E	System does not work properly.
19	–	Shield	–	–	–	–	–

Terminal No. (wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
20 (L)	19	Communication signal (NAVI-DISP)	Input	ON	–	 SKIA0832E	System does not work properly.
25 (B/R)	Ground	Ground	–	ON	–	Approx. 0V	–
27 (B/R)	Ground	Ground	–	ON	–	Approx. 0V	–
29 (GY/L)	Ground	ACC power	Input	ACC	–	Battery voltage	System does not work properly.
31 (Y/G)	Ground	Battery	Input	OFF	–	Battery voltage	System does not work properly.
32 (Y/G)	Ground	Battery	Input	OFF	–	Battery voltage	System does not work properly.

- *1 : LHD models.
- *2 : RHD models.

Terminals and Reference Value for Voice Change Relay

EKS00F31

Terminal No. (wire color)		Item	Signal input/ output	Condition		Reference value	Example of symptom
(+)	(–)			Ignition switch	Operation		
2 (P)	1 (B/W)	Voice change relay ON signal	Intput	ON	Push the “VOICE” switch	Approx.5V	Only route guide and operation guide are not heard.
3 (SB)	5 (GY)	Audio sound signal front LH	Input	ON	Receive audio signal	 SKIA0177E	No sound from door speaker and tweeter LH
4 (L)*1 (BR)*2	8 (B/W)*1 (B/R)*2	Voice guide signal	Output	ON	Push the “VOICE” switch	 ELL0234D	Only route guide and operation guide are not heard.
6 (G/Y)	7 (L/Y)	Voice guide signal	Intput	ON	Push the “VOICE” switch	 ELL0234D	Only route guide and operation guide are not heard.

- *1 : LHD models.
- *2 : RHD models.

Self-Diagnosis Function

EKS00F32

DESCRIPTION

- Diagnosis function consists of the self-diagnosis mode performed automatically and the CONFIRMATION/ ADJUSTMENT mode operated manually.
- Self-diagnosis mode checks for connections between the units constituting this system, analyzes each individual unit at the same time, and displays the results on the LCD screen.
- CONFIRMATION/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 History of Errors of the navigation system.

DIAGNOSIS ITEM

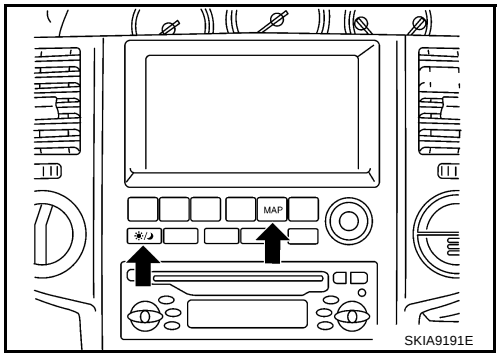
Mode			Description
Self-diagnosis			● NAVI Control unit diagnosis (DVD-ROM drive will not be diagnosed when no map DVD-ROM is in it.). ● Performs diagnosis of each unit and connections between control unit and GPS antenna, as well as between control unit and each unit.
Confirmation / Adjustment	Display		Color tone and shading of the screen can be checked by the display of a color bar and a gray scale.
	Vehicle signals		Analyzes the following vehicle signals: Vehicle speed signal, light signal, ignition switch signal, and reverse signal.
	Navigation	Display Longitude & Latitude	Display the map. Use the joystick to adjust position. Longitude and latitude will be displayed.
		Speed Calibration	Under ordinary conditions, the navigation system distance measuring function will automatically compensate for minute decreases in wheel and tire diameter caused by tire wear or low pressure. Speed calibration immediately restores system accuracy in cases such as when distance calibration is needed because of the use of tire chains in inclement weather.
		Angle Adjustment	Corrects difference between actual turning angle of a vehicle and turning angle of the car mark on the display.
		Initialize Location	This mode is for initializing the current location. Use when the vehicle is transported a long distance on a trailer, etc.
	History of Errors		Diagnosis results previously stored in the memory (before turning ignition switch ON) are displayed in this mode. Time and location when/where the errors occurred are also displayed.

Self-Diagnosis Mode

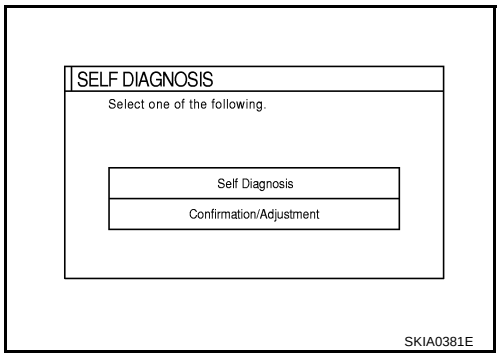
EKS00F33

OPERATION PROCEDURE

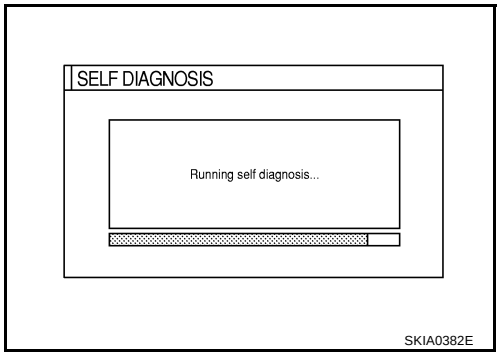
1. Start the engine.
2. Push and hold “MAP” and “DAY/NIGHT” switches simultaneously for 5 seconds or more.
   - Push the “BACK” switch and the initial system screen will be shown.



3. The initial trouble diagnosis screen will be shown, and items “Self-Diagnosis” and “Confirmetion / Adjustment” will become selective.

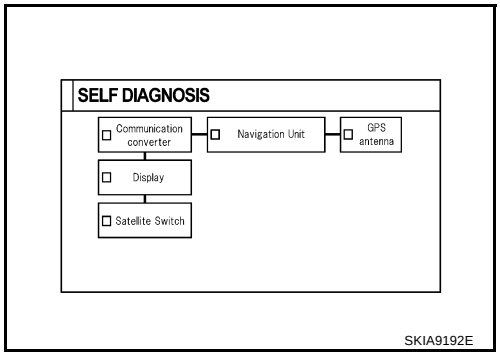


4. Perform self-diagnosis by selecting the “Self-Diagnosis”.
   - Self-diagnosis subdivision screen will be shown and the operation enters the self-diagnosis mode.
   - A bar graph shown below the self-diagnosis subdivision screen indicates progress of the diagnosis.



5. 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.

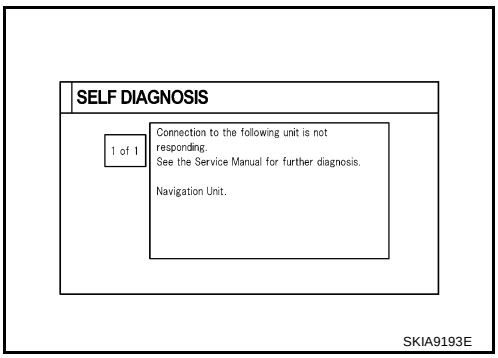


   - If several malfunctions are present in a unit, color of its switch on the screen will be either red, yellow, or gray, determined by the malfunction of the highest priority.
   - Lines between navigation unit and GPS antenna are green or yellow based on diagnosis results.
   - Lines between control unit and units other than those above are gray regardless of diagnosis results.

CAUTION:

- **Navigation Unit = NAVI control unit**
- **Communication converter = Transfer unit**
- **Satellite Switch = NAVI switch**

6. 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 not responding. See the service manual for further diagnosis”.
   - When the switch is red, the following comment will be shown. “Navigation 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.”



SELF–DIAGNOSIS RESULT

Quick reference table

1. Select an applicable diagnosis No. in the diagnosis result quick reference table.
2. Find estimated malfunctioning system in the diagnosis No. table and perform check.
3. Turn the ignition switch to OFF and perform self-diagnosis again.

Diagnosis result quick reference table

Screen switch			Diagnosis No.
Switch color	Navigation Unit	GPS antenna	
Red	×		1
Gray	×		2
Yellow	×		3
	×		4
	×	×	5

CAUTION:

Check the following when the self-diagnosis mode cannot be used.

- NAVI control unit power supply and ground.
- Display power supply and ground.
- NAVI switch power supply and ground.
- Transfer unit power supply and ground.
- AV communication line between NAVI switch and Display, AV communication line between Display and Transfer unit, AV communication line between Transfer unit and NAVI control unit.

Method of diagnosis for malfunctioning system

- When system does not start, indicate malfunction connection between units by outbreak sound from system.

Diagnosis procedure.

1. Turn ignition switch ON. Make sure whether or not route guide start sound which is output from NAVI control unit indicate 10 seconds after.
2. Push and hold “MAP” and “DAY/NIGHT” switches simultaneously for 5 seconds or more. Make sure whether or not 2 times of beep sound or route guide start sound indicate.
3. According to the former two steps , Select an proper diagnosis No. in the diagnosis result quick reference table.
4. Find estimated malfunctioning system from the diagnosis No. table and perform check.

Diagnosis result quick reference table

Procedure 1	Procedure 2	Diagnosis No.
10 seconds after turn ignition switch ON.	Push and hold “MAP” and “DAY/NIGHT” switches simultaneously for 5 seconds or more.	
Route guide start sound appears	Route guide start sound indicates	6
	There is no sound	7
There is no sound	Two times of beep sound from NAVI switch *	8
	There is no sound	9

*:Indicated when pushing both “MAP” and “DAY/NIGHT” simultaneously. (Unnecessary to push them 5 seconds or more.)

Self–diagnosis codes

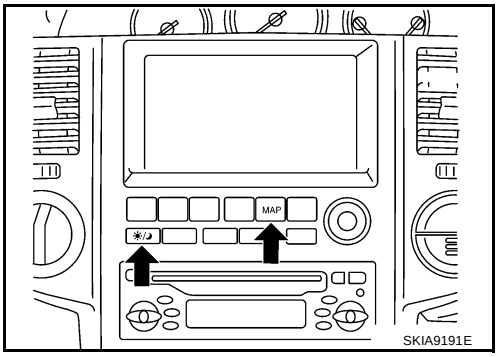
Diagnosis No.	Possible cause	Reference page
1	NAVI control unit malfunction	–
2	NAVI control unit judged no map DVD-ROM is inserted.	–
3	When “DVD-ROM error. Please check disc.” is shown. 1. Eject map DVD-ROM and check if it is compatible with the system. 2. Check ejected DVD-ROM for dirt, damage, and warpage. 3. If no error is found, insert a known good map DVD-ROM of the same type and perform self-diagnosis again. If same result is shown, the NAVI control unit is malfunctioning. If result is normal, the map DVD-ROM is malfunctioning.	–
4	If “Error found in DVD-ROM or DVD-ROM driver in control unit. Please perform diagnosis in accordance with service manual” is shown, carry out same inspection as diagnosis No. 3.	–
5	GPS antenna system 1. Visually check for a broken wire in the GPS antenna coaxial cable. 2. Disconnect the GPS antenna connector and check that approximately 5V is supplied from NAVI control unit. If not, the NAVI control unit is inoperative. If the voltage is supplied, replace the GPS antenna and perform self-diagnosis again. If the same result is shown, the NAVI control unit is inoperative.	–
6	Display power supply and ground circuit. Communication line between display and NAVI switch.	Refer to AV-86
7	NAVI switch power supply and ground circit. Communication line between NAVI switch and transfer unit.	Refer to AV-86
8	NAVI control unit power supply and ground circuit. Communication line between NAVI control unit and transfer unit.	Refer to AV-87
9	Transfer unit power supply and ground circuit. Communication line between transfer unit and display.	Refer to AV-88

CONFIRMATION/ADJUSTMENT Mode

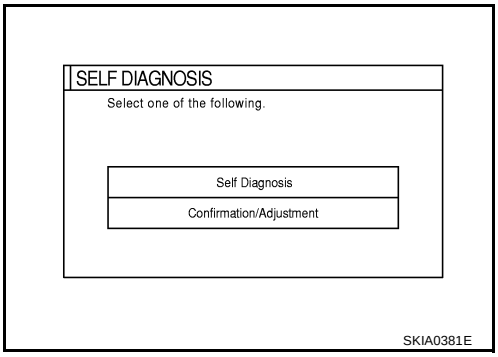
EKS00F34

OPERATION PROCEDURE

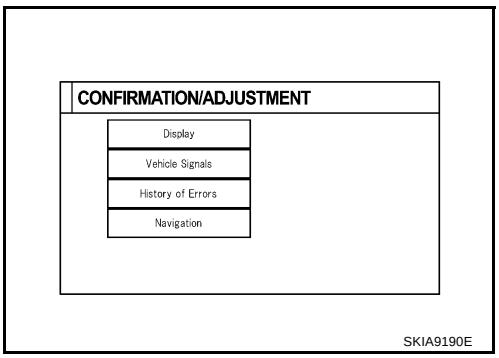
1. Start the engine.
2. Push and hold “MAP” and “DAY/NIGHT” switches simultaneously for 5 seconds or more.
   - Push the “BACK” switch and the initial system screen will be shown.



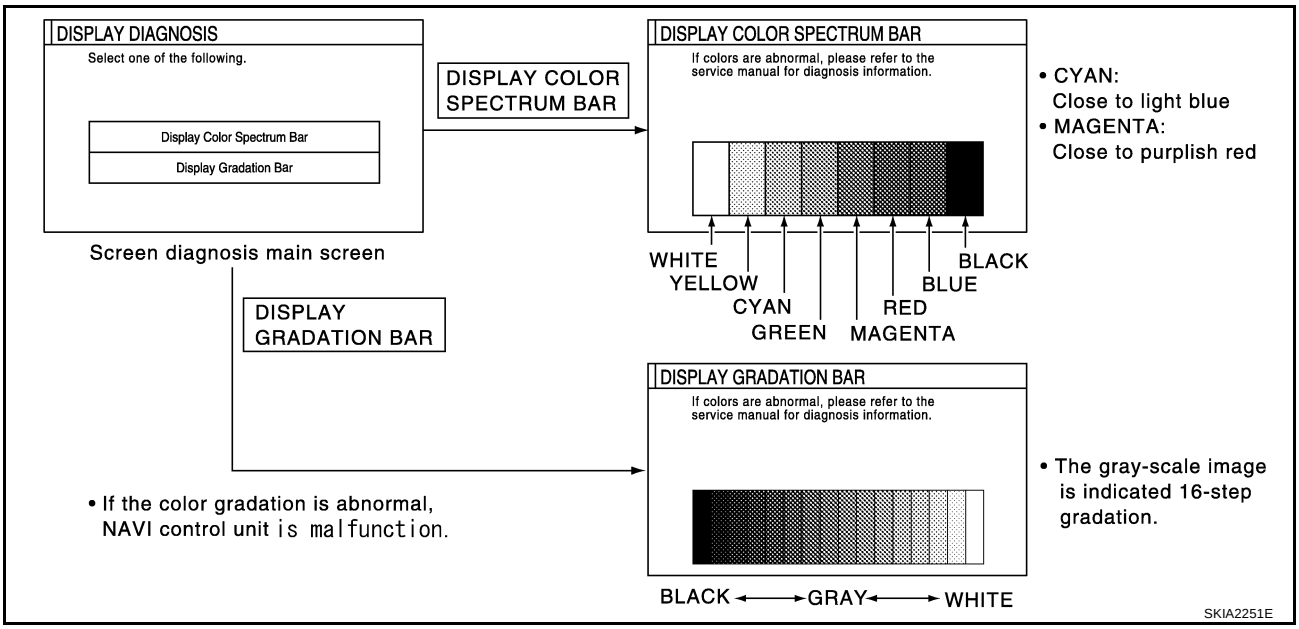
3. The initial trouble diagnosis screen will be shown, and items “Self-Diagnosis” and “Confirmation / Adjustment” will become selective.



4. 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.
5. Select each switch on “Confirmation / Adjustment” screen to display the relevant diagnosis screen.



DISPLAY



CAUTION:

When Display Color Spectrum Bar screen is completed after “BACK” switch is Pushed, the screen color changes once. This is normal.

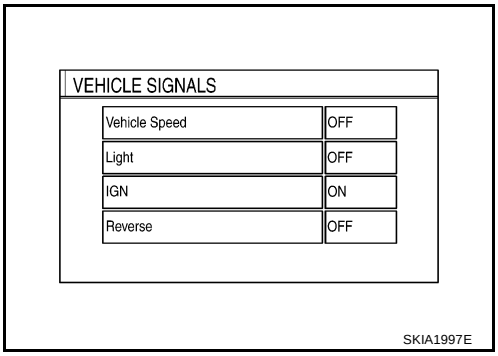
- When RGB signal error occurred in the RGB system, tone of the color bar will change as follows.

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

- When the color of the screen looks unusual, refer to AV-91, "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.



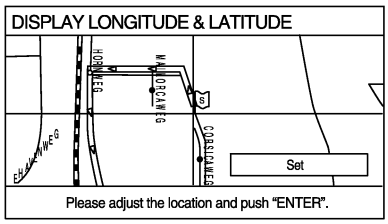
Diagnosis item	Display	Condition	Remarks
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed by approx. 1.5 seconds. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
	-	Ignition switch in ACC position	
Light	ON	Lighting switch ON	–
	OFF	Lighting switch OFF	
IGN	ON	Ignition switch ON	–
	OFF	Ignition switch ACC	
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, refer to AV-89, "Vehicle Speed Signal Check" .
- If light is NG, refer to AV-90, "Illumination Signal Check" .
- If IGN is NG, refer to AV-90, "Ignition Signal Check" .
- If reverse is NG, refer to AV-91, "Reverse Signal Check" .

NAVIGATION

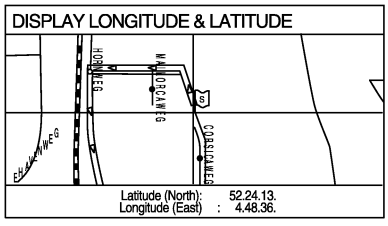
Display Longitude & Latitude

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



SKIA1616E

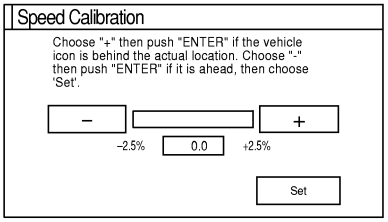
- The longitude and latitude are displayed.



SKIA1617E

Speed Calibration

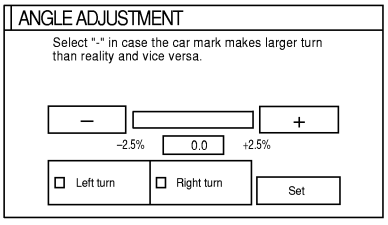
- During normal driving, distance error caused by tire wear and tire pressure change is automatically adjusted for by the automatic distance correction function. This function, on the other hand, is for immediate adjustment, in cases such as driving with tire chain fitted on tires.



SKIA0365E

Angle Adjustment

- Adjusts turning angle output detected by the gyroscope.



SKIA0364E

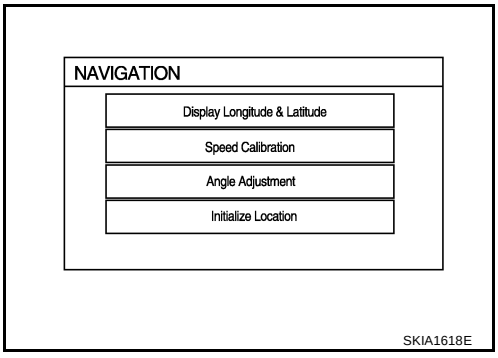
Initialize Location

Description

- Location data for GPS in the Center control unit is intialized 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

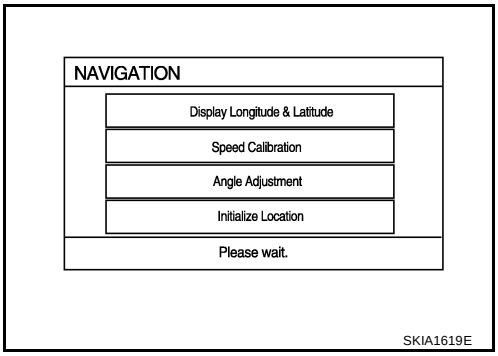
1. select “Initialize Location”, and push “ENTER”.



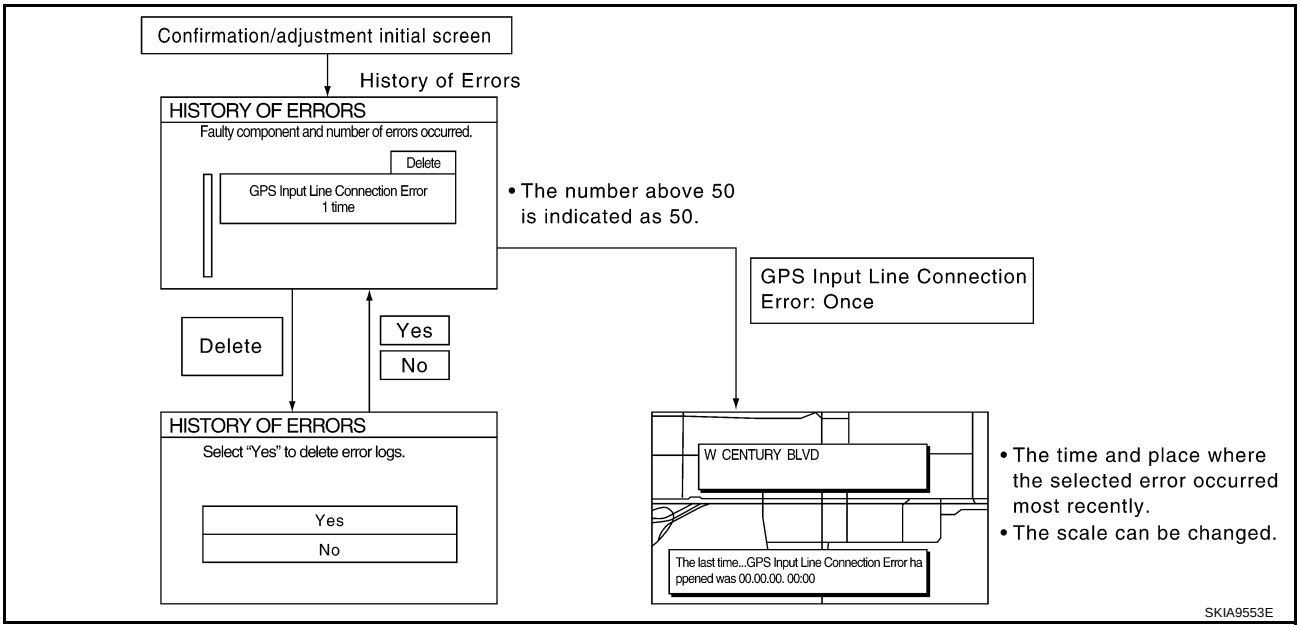
2. A message “Plese wait.” is displayed and then backs to another display of “Confirmation/Adjustment” mode.

NOTE:

- To continue GPS initialized operation, operate as follows back to “Map” screen.
  - Push “BACK” button teice.
  - 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 out side 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 NAVI control unit has malfunctioned.
- Place of the error occurrence is represented by the position of the current-location mark at the time when the error occurred. If the current-location mark has deviated from the correct position, then the place of the error occurrence may be located correctly.
- The maximum number of occurrences which can be stored is 50. For the 51st and later occurrences, the displayed number remains 50.

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

Error item	Possible causes Action/symptom	Example of symptom
Gyro sensor disconnected	Communications malfunction between NAVI control unit and internal gyro ● Perform self-diagnosis. ● When the 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. (Angular velocity cannot be detected.)
GPS disconnected	Communication error between NAVI control unit and internal GPS substrate ● Perform self-diagnosis. ● When the 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. (Location correction using GPS is not performed.) ● GPS receiving status remains gray.
GPS transmission cable malfunction	Malfunctioning transmission wires to NAVI control unit and internal GPS substrate ● Perform self-diagnosis. ● When the 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 NAVI control unit and internal GPS substrate ● Perform self-diagnosis. ● When the 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. (Location correction using GPS is not performed.) ● GPS receiving status remains gray.
GPS TCX0 over GPS TCX0 under	Oscillating frequency of the GPS substrate frequency synchronizing oscillation circuit exceeded (or below) the specification ● Perform self-diagnosis. ● When the 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. (Location correction using GPS is not performed.) ● GPS receiving status remains gray.

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

Power Supply and Ground Circuit Check for NAVI control unit

EKS00F35

1. CHECK FUSE

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

Terminals		Power source	Fuse No.
Connector	Terminal (wire color)		
NAVI control unit M116	2 (Y/G)	Battery	32
	3 (Y/G)		
	6 (GY/L)	Ignition switch ACC or ON	4

OK or NG

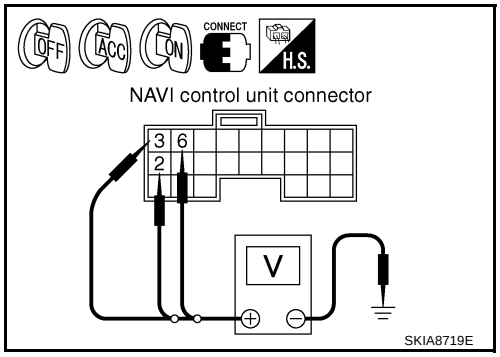
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer toPG-2, "POWER SUPPLY ROUTING" .

2. POWER SUPPLY CIRCUIT CHECK

Check voltage between NAVI control unit and ground.

Terminals			OFF	ACC	ON
(+)		(-)			
Connector	Terminal (wire color)				
NAVI control unit M116	2 (Y/G)	Ground	Battery voltage	Battery voltage	Battery voltage
	3 (Y/G)		Battery voltage	Battery voltage	Battery voltage
	6 (GY/L)		0V	Battery voltage	Battery voltage



OK or NG

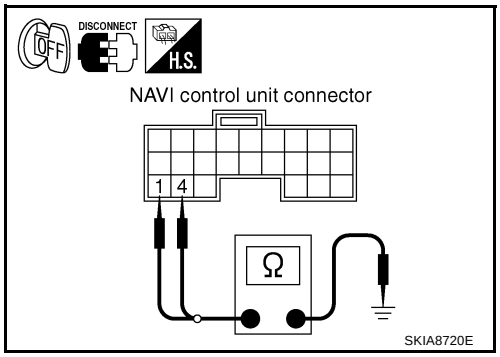
OK >> GO TO 3.

NG >> Repair or replace harness.

3. GROUND CIRCUIT CHECK

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

Terminals			Continuity
(+)		(-)	
Connector	Terminal (wire color)		
NAVI control unit M116	1 (B/R)	Ground	Yes
	4 (B/R)		



OK or NG

OK >> INSPECTION END.

NG >> Repair or replace harness.

Power Supply and Ground Circuit Check for Display

EKS00F36

1. CHECK FUSE

Check that the following fuses of the display are not blown.

Unit	Terminals		Power source	Fuse No.
	Connector	Terminal (wire color)		
Display	M112	21 (Y/G)	Battery	32
		23 (Y/G)		
		19 (GY/L)	Ignition switch ACC or ON	4

OK or NG

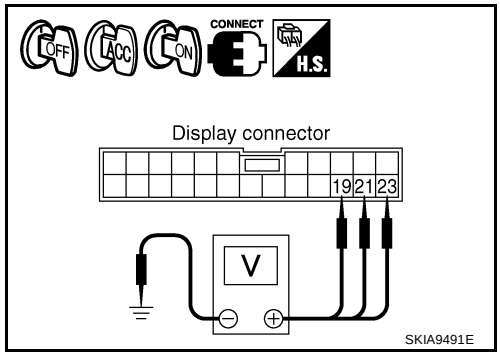
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. POWER SUPPLY CIRCUIT CHECK

Check voltage between display and ground.

Unit	Terminals			OFF	ACC	ON
	(+)		(-)			
	Connector	Terminal (wire color)				
Display	M112	21 (Y/G)	Ground	Battery voltage	Battery voltage	Battery voltage
		23 (Y/G)		Battery voltage	Battery voltage	Battery voltage
		19 (GY/L)		0V	Battery voltage	Battery voltage



OK or NG

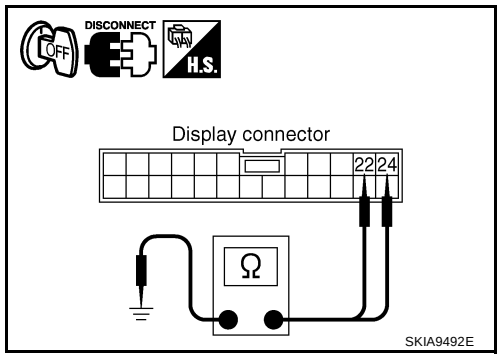
OK >> GO TO 3.

NG >> Repair or replace harness.

3. GROUND CIRCUIT CHECK

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

Unit	Terminals			Continuity
	(+)		(-)	
	Connector	Terminal (wire color)		
Display	M112	22 (B/R)	Ground	Yes
		24 (B/R)		



OK or NG

OK >> INSPECTION END.

NG >> Repair or replace harness.

Power Supply and Ground Circuit Check for NAVI Switch

EKS00F37

1. CHECK FUSE

Check 10A fuse [No.4, located in fuse block (J/B)].

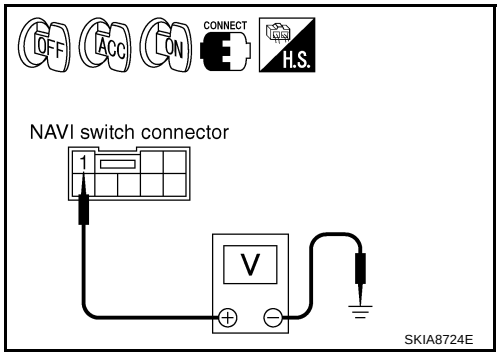
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. POWER SUPPLY CIRCUIT CHECK

Check voltage between NAVI switch and ground.

Unit	Terminals			OFF	ACC	ON
	(+)		(-)			
	Connector	Terminal (wire color)				
NAVI switch	M113	1 (GY/L)	Ground	0V	Battery voltage	Battery voltage



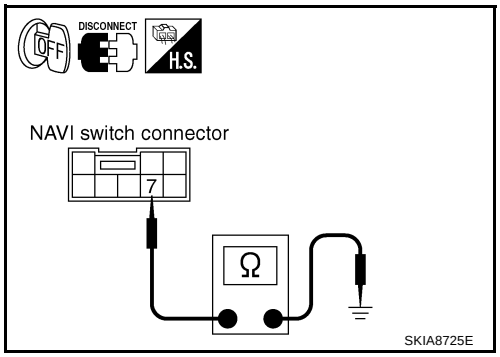
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect NAVI switch connector.
3. Check continuity between NAVI switch harness connector M113 terminal 7 (B/R) and ground.

Continuity should exist.



OK or NG

OK >> INSPECTION END.
NG >> Repair or replace harness.

Power Supply and Ground Circuit Check for Transfer unit

EKS00F38

1. CHECK FUSE

Check that the following fuses of the transfer unit are not blown.

Unit	Terminals		Power source	Fuse No.
	Connector	Terminal (wire color)		
Transfer unit	M111	31 (Y/G)	Battery	32
		32 (Y/G)		
		29 (GY/L)	Ignition switch ACC or ON	4

OK or NG

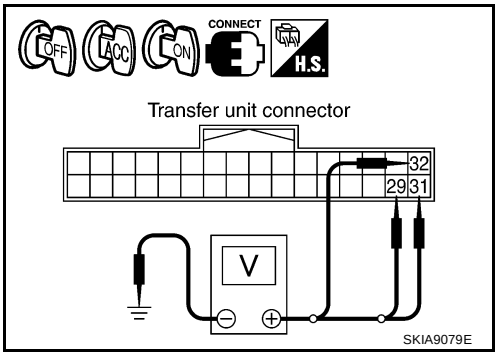
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. POWER SUPPLY CIRCUIT CHECK

Check voltage between transfer unit and ground.

Unit	Terminals			OFF	ACC	ON
	(+)		(-)			
	Connector	Terminal (wire color)				
Transfer unit	M111	31 (Y/G)	Ground	Battery voltage	Battery voltage	Battery voltage
		32 (Y/G)		Battery voltage	Battery voltage	Battery voltage
		29 (GY/L)		0V	Battery voltage	Battery voltage



OK or NG

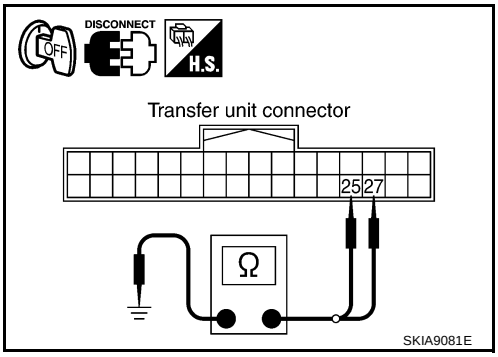
OK >> GO TO 3.

NG >> Repair or replace harness.

3. GROUND CIRCUIT CHECK

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

Unit	Terminals			Continuity
	(+)		(-)	
	Connector	Terminal (wire color)		
Transfer unit	M111	25 (B/R)	Ground	Yes
		27 (B/R)		



OK or NG

OK >> INSPECTION END.

NG >> Repair or replace harness.

Communication Line Check (Between Display and NAVI switch)

EKS00F39

1. CHECK POWER SUPPLY AND GROUND CIRCUIT

1. Check system of power supply and ground circuit display. Refer to AV-83, "Power Supply and Ground Circuit Check for Display" .

OK or NG

OK >> GO TO 2.
NG >> Check the malfunctioning parts.

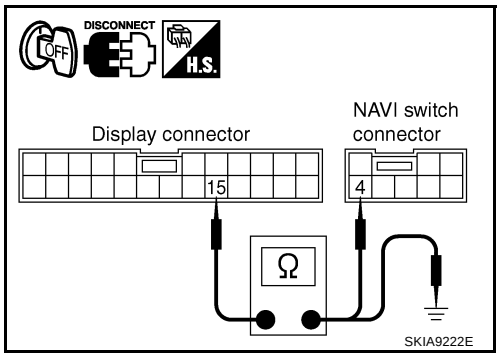
2. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect display connector and NAVI switch connector.
3. Check continuity between display harness connector M112 terminal 15 (R) and NAVI switch harness connector M113 terminal 4 (R).

15 (R) - 4 (R) Continuity should exist.

4. Check continuity between display harness connector M112 terminal 15 (R) and ground.

15 (R) - Ground Continuity should not exist.



OK or NG

OK >> Replace display.
NG >> Repair harness or connector.

Communication Line Check (Between NAVI Switch and Transfer Unit)

EKS00F3A

1. CHECK POWER SUPPLY AND GROUND CIRCUIT

1. Check system of power supply and ground circuit NAVI switch. Refer to AV-84, "Power Supply and Ground Circuit Check for NAVI Switch" .

OK or NG

OK >> GO TO 2.
NG >> Check the malfunctioning parts.

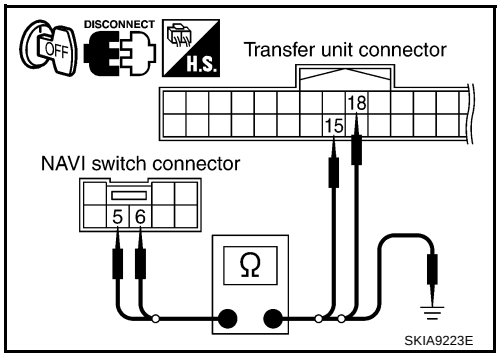
2. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect NAVI switch connector and transfer unit connector.
3. Check continuity between NAVI switch harness connector M113 terminal 5 (G), 6 and transfer unit harness connector M111 terminal 18 (G), 15.

5 (G) - 18 (G) Continuity should exist.
6 - 15 Continuity should exist.

4. Check continuity between NAVI switch harness connector M113 tereminal 5 (G), 6 and ground.

5 (G), 6 - Ground Continuity should not exist.



OK or NG

OK >> Replace NAVI switch.
NG >> Repair harness or connector.

Communication Line Check (Between NAVI Control Unit and Transfer Unit) EKS00F3B

1. CHECK POWER SUPPLY AND GROUND CIRCUIT

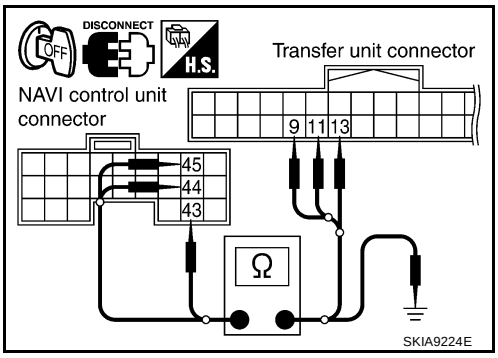
1. Check system of power supply and ground circuit NAVI control unit. Refer to AV-82, "Power Supply and Ground Circuit Check for NAVI control unit" .

OK or NG

OK >> GO TO 2.
NG >> Check the malfunctioning parts.

2. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and transfer unit connector.
3. Check continuity between and NAVI control unit harness connector M117 terminal 43, 44 * , 45 (Y) and transfer unit harness connector M111 terminal 9, 11*, 13 (Y).



43 - 9	**Continuity should exist.**
44* - 11*	**Continuity should exist.**
45 (Y) - 13 (Y)	**Continuity should exist.**

- *** : LHD model (BR) , RHD model (R/L).**

4. Check continuity between NAVI control unit harness connector M117 terminal 43, 44* , 45 (Y) and ground.

43, 44*, 45 (Y) - ground	**Continuity should not exist.**

- *** : LHD model (BR) , RHD model (R/L).**

OK or NG

OK >> Replace NAVI control unit.
NG >> Repair harness or connector.

Communication Line Check (Between Transfer Unit and Display)

EKS00F3C

1. CHECK POWER SUPPLY AND GROUND CIRCUIT

1. Check system of power supply and ground circuit transfer unit. Refer to AV-85, "Power Supply and Ground Circuit Check for Transfer unit" .

OK or NG

OK >> GO TO 2.
NG >> Check the malfunctioning parts.

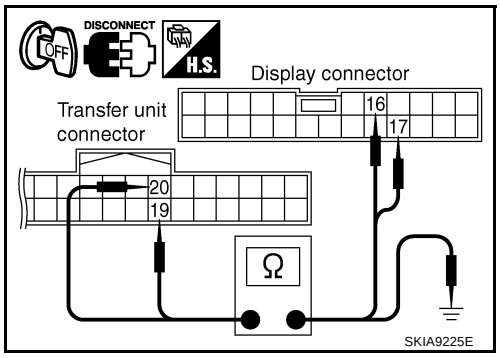
2. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect transfer unit connector and display connector.
3. Check continuity between transfer unit harness connector M111 terminal 19, 20 (L) and display harness connector M112 terminal 17, 16 (L).

19 - 17 **Continuity should exist.**
20 (L) - 16 (L) **Continuity should exist.**

4. Check continuity between transfer unit harness connector M111 tereminal 19, 20 (R/L) and ground.

19, 20 (L) - ground **Continuity should not exist.**



OK or NG

OK >> Replace transfer unit.
NG >> Repair harness or connector.

Vehicle Speed Signal Check

EKS00F3D

1. VEHICLE SPEED OPERATION CHECK

Does speedometer is operated normally?

Yes or No

Yes >> GO TO 2.

No >> Check combination meter trouble diagnosis. Refer to DI-26, "Vehicle Speed Signal Inspection [with ESP]" in “COMBINATION METERS”.

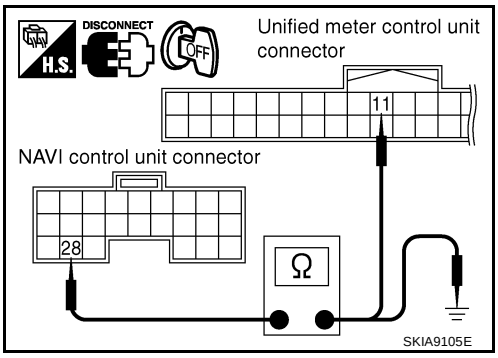
2. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect NAVI control unit connector and combination meter connector.
3. Check continuity between NAVI control unit harness connector M117 terminal 28 (LG) and Unified meter control unit harness connector M44 terminal 11 (LG).

   28 (LG)-11 (LG) Continuity should exist.

4. Check continuity between NAVI control unit harness connector M117 terminal 28 (LG) and ground.

   28 (LG) - Ground Continuity should not exist.



OK or NG

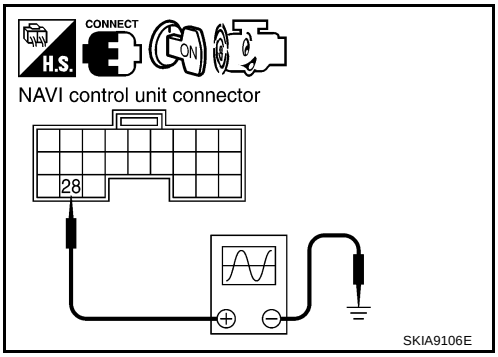
OK >> GO TO 3.

NG >> Repair harness or connector.

3. VEHICLE SPEED SIGNAL CHECK

1. Connect NAVI control unit and combination meter connector.
2. Start engine and drive vehicle at more than 40 km/h (25MPH).
3. Check the signal between NAVI control unit harness connector M117 terminal 28 (LG) and ground with CONSULT-II or oscilloscope.

   28(LG)– Ground : Refer to AV-65, "Terminals and Reference Value for NAVI Control unit" .



OK or NG

OK >> Replace NAVI control unit.

NG >> Check combination meter system. Refer to DI-20, "Diagnosis Flow" in “COMBINATION METERS”.

Illumination Signal Check

EKS00F3E

1. TAIL LAMP OPERATION CHECK

When lighting switch turned 1st or 2nd position, does tail lamp illuminate?

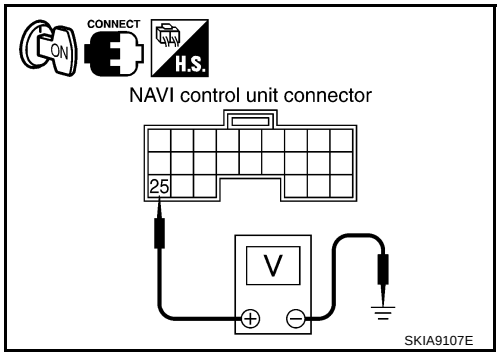
Yes or No

Yes >> GO TO 2.
No >> Go to tail lamp trouble diagnosis.

2. ILLUMINATION SIGNAL CHECK

Check voltage between NAVI control unit and ground.

Terminals			Lighting switch position	Voltage
(+)		(–)		
Connector	Terminal (wire color)			
M117	25 (R/L)	Ground	1st or 2nd position	Battery voltage
			OFF	Approx. 0V



OK or NG

OK >> Replace NAVI control unit.
NG >> Repair harness or connector.

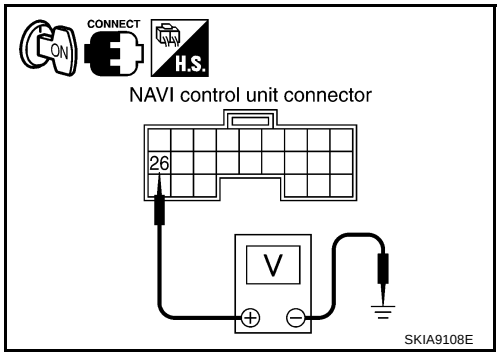
Ignition Signal Check

EKS00F3F

1. IGNITION SIGNAL CHECK

1. Turn the ignition switch ON.
2. Check voltage between NAVI control unit harness connector M117 terminal 26 (G) and ground.

26 (G)- Ground :Battery voltage .



OK or NG

OK >> Replace NAVI control unit.
NG >> Check the following.

- 10A fuse [No.5, located in fuse block (J/B)]
- Harness for open or short between NAVI control unit and fuse

Reverse Signal Check

EKS00F3G

1. REVERSE LAMP CHECK

1. Turn the ignition switch ON.
- With the A/T selector lever in R-position, does “R” in the shift position indicator turned on? (With A/T)
- With the shift lever in R-position. Are reverse lamps turned on? (With M/T)

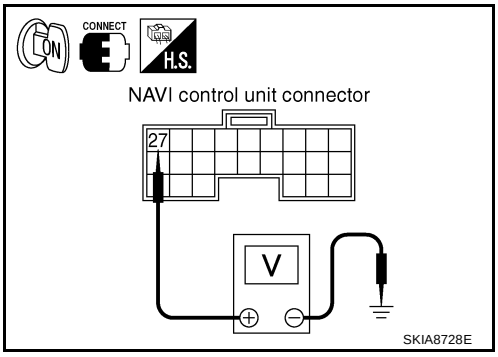
Yes or No

Yes >> GO TO 2.
No >> Check “BACK-UP LAMP” system.

2. REVERSE SIGNAL CHECK

- Shift the A/T selector lever in R-position. (With A/T)
- Shift the shift lever in R-position. (With M/T)
- Check voltage between NAVI control unit and ground.

Terminals			A/T selector lever position	Voltage (V)
(+)		(–)		
Connector	Terminal (wire color)			
M117	27 (Y/G)	Ground	R-position	Battery voltage
			Other than R-position	Approx. 0



OK or NG

OK >> Replace NAVI control unit.
NG >> Check the following.
- Harness for open or short between NAVI control unit and park/neutral position switch (A/T models)
- Harness for open or short between NAVI control unit and back-up lamp switch (M/T models)

Color of RGB Image Is Not Proper

EKS00F3H

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.

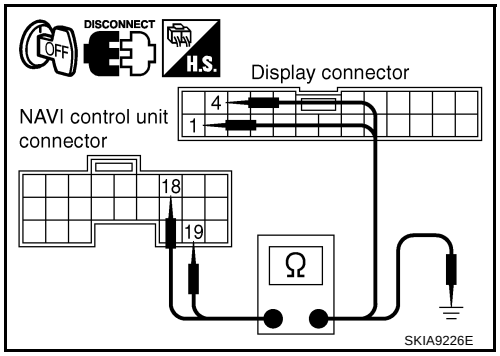
2. RGB HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect NAVI control unit connector and display connector.
3. Check continuity as following.

- **When the screen looks bluish**

Terminals				Continuity
NAVI control unit		Display		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M116	18 (BR)	M112	1 (BR)	Yes
	19		4	

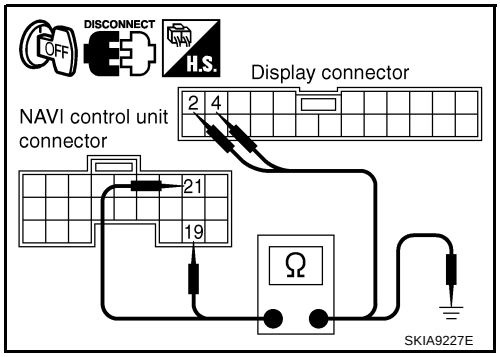
Terminals			Continuity
Connector	Terminal (wire color)	–	
M116	18(BR)	Ground	No
	19		



- **When the screen looks reddish**

Terminals				Continuity
NAVI control unit		Display		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M116	21 (W)	M112	2 (W)	Yes
	19		4	

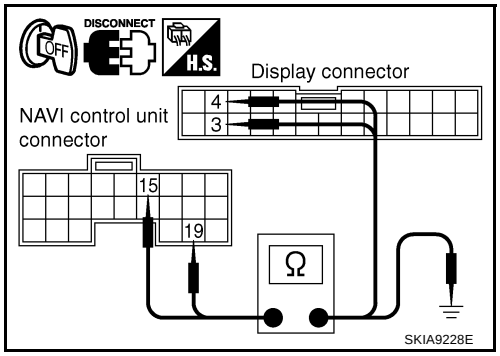
Terminals			Continuity
Connector	Terminal (wire color)	–	
M116	21 (W)	Ground	No
	19		



- **When the screen looks yellowish**

Terminals				Continuity
NAVI control unit		Display		
Connector	Terminal (wire color)	Connector	Terminal (wire color)	
M116	15 (R)	M112	3 (R)	Yes
	19		4	

Terminals			Continuity
Connector	Terminal (wire color)	–	
M116	15 (R)	Ground	No
	19		

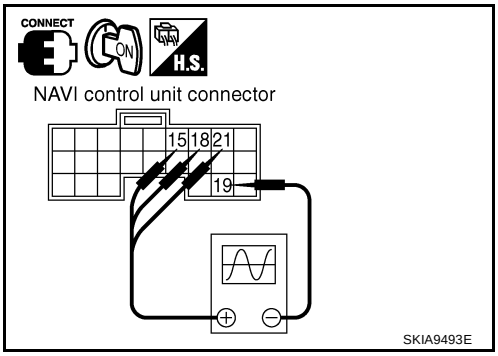


OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

3. RGB SIGNAL CHECK

1. Connect NAVI control unit connector and display connector.
2. Turn the ignition switch ON.
3. Display “Color bar” by “CONFIRMATION/ADJUSTMENT” mode.
4. Check the following with CONSULT-II or oscilloscope.



- **When the screen looks bluish.**
  Voltage signal between NAVI control unit connector M116 terminal 18 (BR) and 19.

  18 (BR) – 19 : Refer to AV-65, "Terminals and Reference Value for NAVI Control unit" .

- **When the screen looks reddish.**
  Voltage signal between NAVI control unit connector M116 terminal 21 (W) and 19.

  21 (W) – 19 : Refer to AV-65, "Terminals and Reference Value for NAVI Control unit" .

- **When the screen looks yellowish.**
  Voltage signal between NAVI control unit connector M116 terminal 15 (R) and 19.

  15 (R) – 19 : Refer to AV-65, "Terminals and Reference Value for NAVI Control unit" .

OK or NG

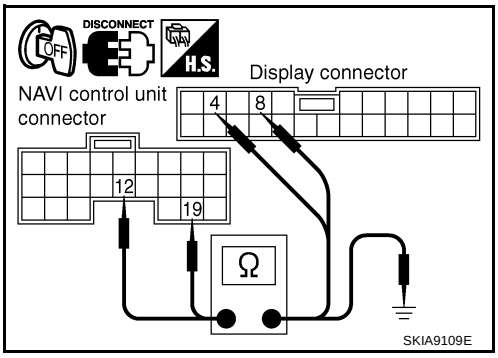
OK >> Replace display.
NG >> Replace NAVI control unit.

RGB Screen Is Not Shown

EKS00F3I

1. HARNESS CHECK

1. Turn the ignition switch OFF.
2. Disconnect NAVI control unit connector and display connector.
3. Check continuity between NAVI control unit harness connector M116 terminal 12 (Y), 19 and display harness connector M112 terminal 8 (Y), 4.



12 (Y) - 8 (Y) Continuity should exist.
19 - 4 Continuity should exist.

4. Check continuity between NAVI control unit harness connector M112 terminal 12 (Y), 19 and ground.

12 (Y),19 - Ground Continuity should not exist.

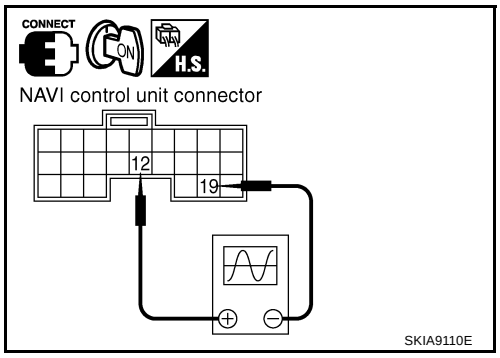
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. RGB AREA SIGNAL CHECK

1. Connect NAVI control unit connector and display connector.
2. Turn ignition switch ON.
3. Push “INFO” switch.
4. Check the signal between NAVI control unit connector M116 terminals 12(Y) and 19 with CONSULT-II or oscilloscope.

12 (Y) - 19 **Refer to** **AV-65, "Terminals and Reference Value for NAVI Control unit"**



OK or NG

OK >> Replace display.
NG >> Replace NAVI control unit.

RGB Screen Is Rolling

EKS00F3J

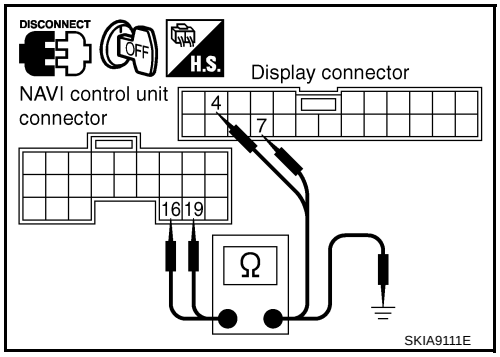
1. RGB SYNCHRONIZING CIRCUIT CHECK

1. Turn the ignition switch OFF.
2. Disconnect NAVI control unit connector and display connector.
3. Check continuity between NAVI control unit harness connector M116 terminals 16 (L), 19 and display harness connector M112 terminals 7 (L), 4.

16 (L) - 7 (L) **Continuity should exist.**
19 - 4 **Continuity should exist.**

4. Check continuity between NAVI control unit harness connector M116 terminal 16 (L), 19 and ground.

16 (L), 19 - Ground **Continuity should not exist**



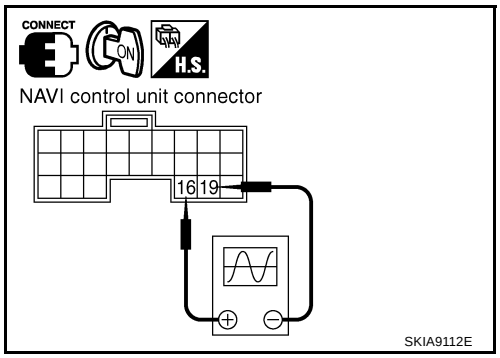
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. RGB SYNCHRONIZING SIGNAL CHECK

1. Connect NAVI control unit connector and display connector.
2. Turn the ignition switch ON.
3. Push the “MAP” switch.
4. Check the signal between NAVI control unit harness connector M116 terminals 16 (L) and 19 with CONSULT-II or oscilloscope.

16 (L) - 19 **: Refer to** **AV-65, "Terminals and Reference Value for NAVI Control unit"** **.**



OK or NG

OK >> Replace display.
NG >> Replace NAVI control unit.

Guide Sound Is Not Heard

EKS00F3K

1. CHECK VOICE GUIDE SETTING.

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

YES or NO

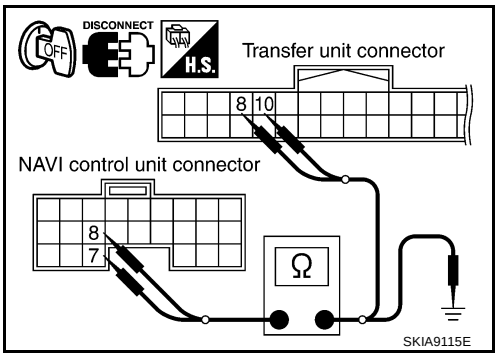
YES >> GO TO 2.
NO >> Switch the setting ON and turn the volume up.

2. VOICE GUIDE CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and transfer unit connector.
3. Check continuity between NAVI control unit harness connector M116 tereminal 7 (G), 8 (R), and transfer unit harness connector M111 terminal 8 (G), 10 (R).

   7 (G) - 8 (G) Continuity should exist.
   8 (R) - 10 (R) Continuity should exist.
4. Check continuity between NAVI control unit harness connector M116 terminal 7 (G), 8 (R) and ground.

   7 (G), 8 (G) - Ground Continuity shuold not exist.



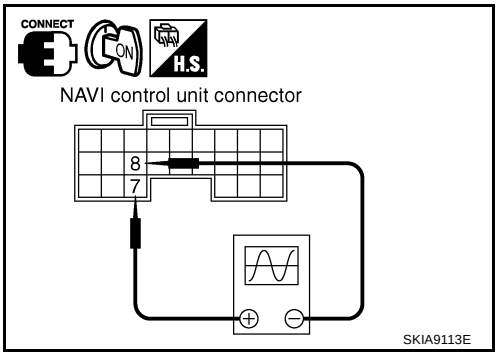
OK or NG

OK >> GO TO 3.
NG >> ● Check connector housings for disconnected or loose terminals.
● Repair harness or connector.

3. VOICE GUIDE SIGNAL CHECK (NAVI CONTROL UNIT)

1. Connect NAVI control unit connector and transfer unit connector.
2. Turn ignition switch ON.
3. Push “VOICE” switch.
4. Check the signal between NAVI control unit harness connector M116 terminal 7 (G) and 8 (R) with CONSULT-II or oscilloscope.

   7 (G) - 8 (R) :Refer to AV-65, "Terminals and Reference Value for NAVI Control unit" .



OK or NG

OK >> GO TO 4.
NG >> Replace NAVI control unit.

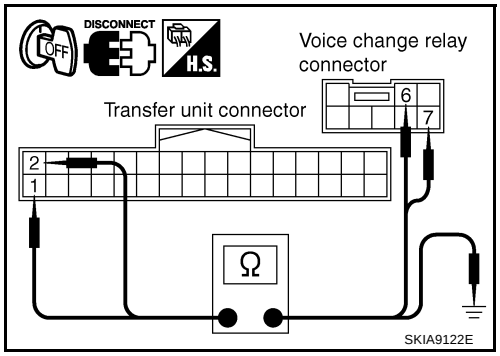
4. VOICE CHANGE RELAY CIRCUIT CHECK 1

1. Turn ignition switch OFF.
2. Disconnect transfer unit connector and voice change relay connector.
3. Check continuity between transfer unit harness connector M111 terminal 1 (G/Y), 2 (L/Y) and voice change relay harness connector M104 terminal 6 (G/Y) , 7 (L/Y).

   1 (G/Y) - 6 (G/Y) **Continuity should exist.**
   2 (L/Y) - 7 (L/Y) **Continuity should exist.**

4. Check continuity between transfer unit harness connector M111 terminal 1 (G/Y), 2 (L/Y) and ground.

   1 (G/Y), 2 (L/Y) - Ground **Continuity should not exist**



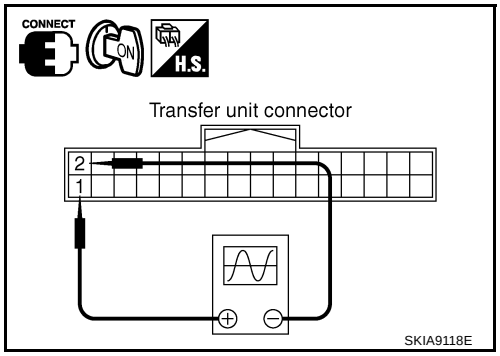
OK or NG

OK >> GO TO 5.
NG >> Repair harness or connector.

5. VOICE GUIDE SIGNAL CHECK (TRANSFER UNIT)

1. Connect transfer unit connector and voice change relay connector.
2. Turn ignition switch ON.
3. Push “VOICE” switch.
4. Check the between transfer unit harness connector M111 terminal 1 (G/Y) and 2 (L/Y) with CONSULT-ll or oscilloscope.

   1 (G/Y) - 2 (L/Y) **:Refer to AV-69, "Terminals and Reference Value for Transfer Unit"**



OK or NG

OK >> GO TO 6
NG >> Replace transfer unit.

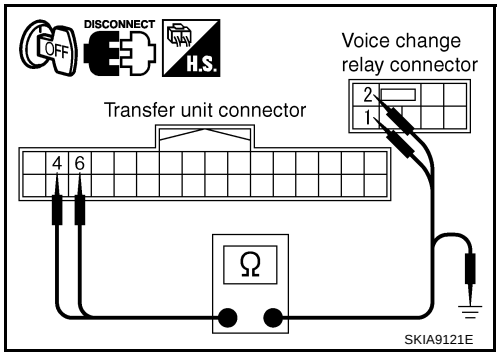
6. VOICE CHANGE RELAY CIRCUIT CHECK 2

1. Turn ignition switch OFF.
2. Disconnect transfer unit connector and voice change relay connector.
3. Check continuity between transfer unit harness connector M111 terminal 6 (P), 4 (B/W) and voice change relay harness connector terminal 2 (P), 1 (B/W).

   6 (P) - 2 (P) **Continuity should exist.**
   4 (B/W) - 1 (B/W) **Continuity should exist.**

4. Check continuity betweem transfer unit harness connector M111 terminal 6 (P), 4(B/W) and ground.

   6 (P), 4 (B/W) - Ground **Continuity should not exist.**



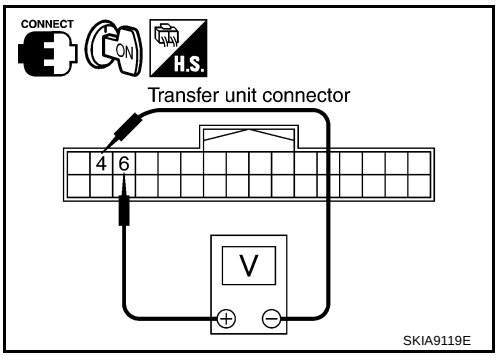
OK or NG

OK >> GO TO 7.
NG >> Repair harness or connector.

7. VOICE CHANGE RELAY ON SIGNAL CHECK

1. Connect voice transfer unit connector.
2. Turn ignition ON.
3. Push “VOICE” switch.
4. Check voltage between transfer unit harness connector M111 terminal 6 (P) and 4 (B/W).

6 (P)- 4 (B/W) **:Approx 5V**



OK or NG

OK >> Replace voice change relay.
NG >> Replace transfer unit.

Display Quality Control Cannot Change Screen

EKS00F3L

1. SYMPTOM CHECK

Do other systems operate normally?

YES or NO

YES >> Replace display.
NO >> Check symptom again.

Driving Test

EKS00F3M

1. DRIVING TEST 1

1. Scroll the map screen to display the area to make correction. Push “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-99, "Example of Symptoms Judged Not Malfunction" 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 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 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 and 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 and 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 =1– 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 NAVI control unit.

NO >> Limit of the location detection capacity of the navigation system.

Example of Symptoms Judged Not Malfunction

EKS00F3N

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. 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. Motion of the image is too slow.	Temperature inside the vehicle is low.	Wait until the temperature inside the vehicle reaches the proper temperature.
Small black or bright spots appear on the screen.	Symptom peculiar to a liquid crystal display.	System is not malfunction.

VEHICLE MARK

Symptom	Cause	Remedy
Map screen and BIRDVIEW® Name of the place vary with the screen.	Some thinning of the character data is done to prevent the display becoming to complex. In some cases and in some locations, the display contents may differ. The same place name, street name, etc. may not be displayed every time on account of the data processing.	System is not malfunction.
Vehicle mark is not positioned correctly.	Vehicle is transferred by ferry or by towing after its ignition switch is turned to OFF.	Drive the vehicle for a while in the GPS satellite signal receiving condition.
Screen will not switch to nighttime mode after the lighting switch is turned ON.	The daytime screen is selected by the ″SWITCH SCREENS″ when the last time the screen dimming setting is done. Switching between daytime/nighttime screen may be inhibited by the automatic illumination adjustment function.	Perform screen dimming and select the nighttime screen by “SWITCH SCREENS”.
Map screen will not scroll in accordance with the vehicle travel.	Current location is not displayed.	Push “MAP” switch to display the current location.
Vehicle mark will not be shown.	Current location is not displayed.	Push “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 satellite signal cannot be received because an obstacle is placed on top of the display.	Do not place anything in the center on top of the display.
	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
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.
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.

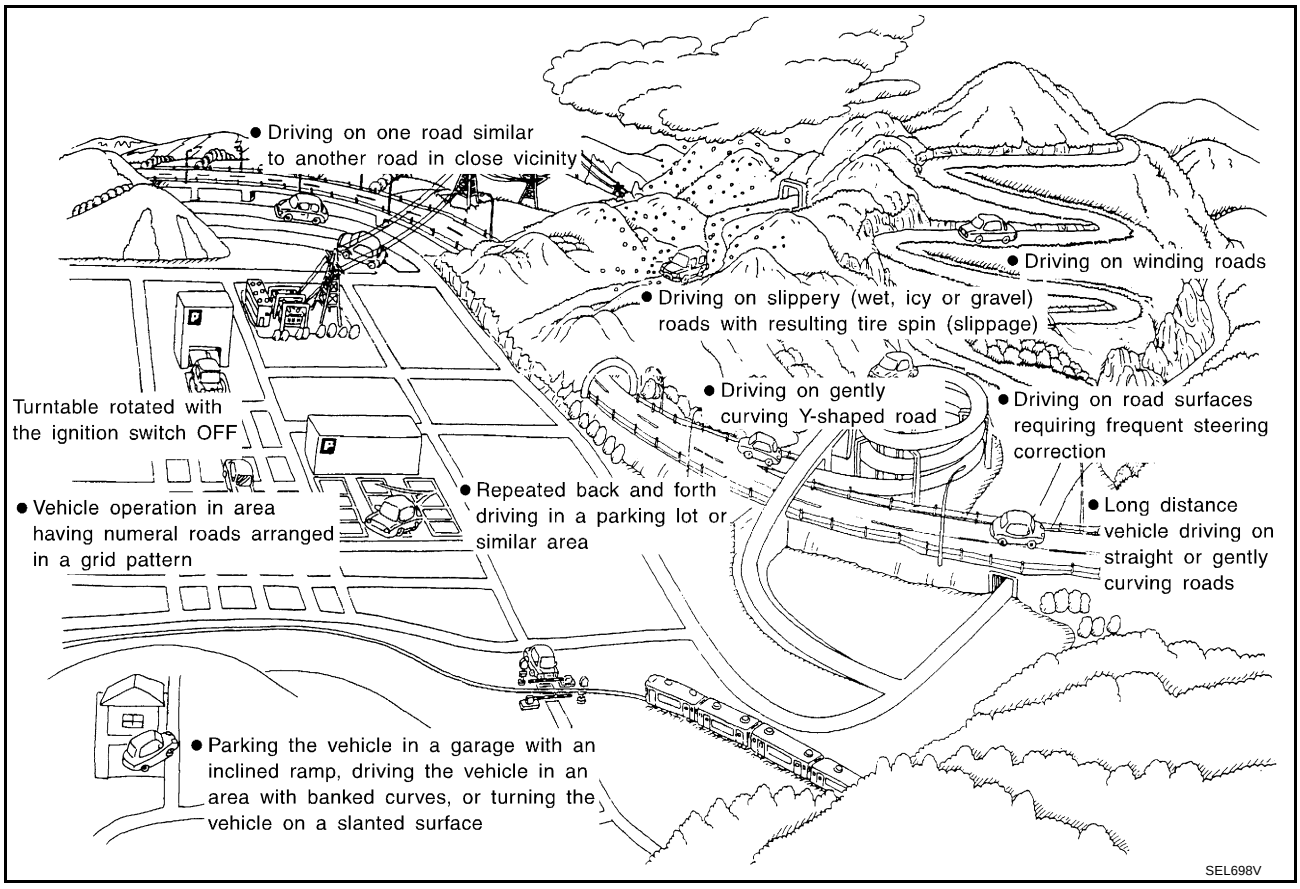
ROUTE SEARCHING

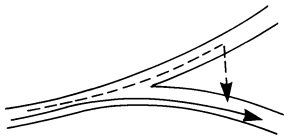
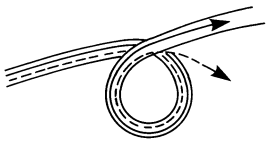
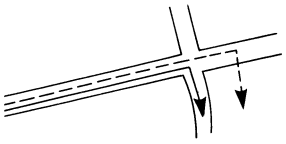
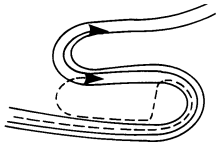
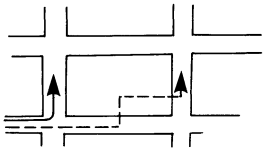
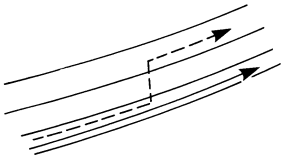
Symptom	Cause	Remedy
No route is shown.	No road to be searched is found around the destination.	Find wider road (orange road or wider) nearby and reset the destination and passing points onto it. Take care of the traveling direction when there are separate up and down roads.
	Starting point and the destination 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(Note) 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.
Detouring route is recommended.	In some areas, highways (gray routes) are not used for the search. (Note). 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 be 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.

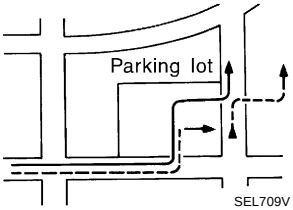
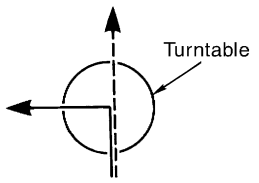
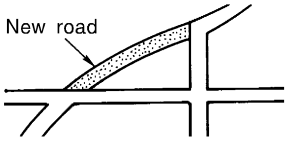
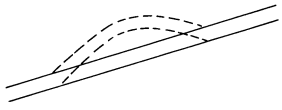
NOTE:
Except for the ordinance-designated cities and the prefectural capitals (Applicable areas may be changed in the updated map disc.)

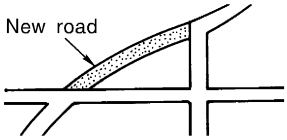
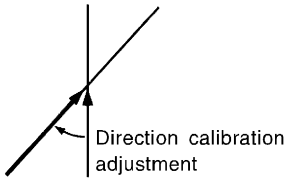
EXAMPLES OF CURRENT-LOCATION MARK DISPLACEMENT

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

Cause (condition)		Driving condition	Remarks (correction, etc.)
Place	In a parking lot  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. 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  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 turntable with the ignition 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  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 (Changed due to repair)  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)		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.

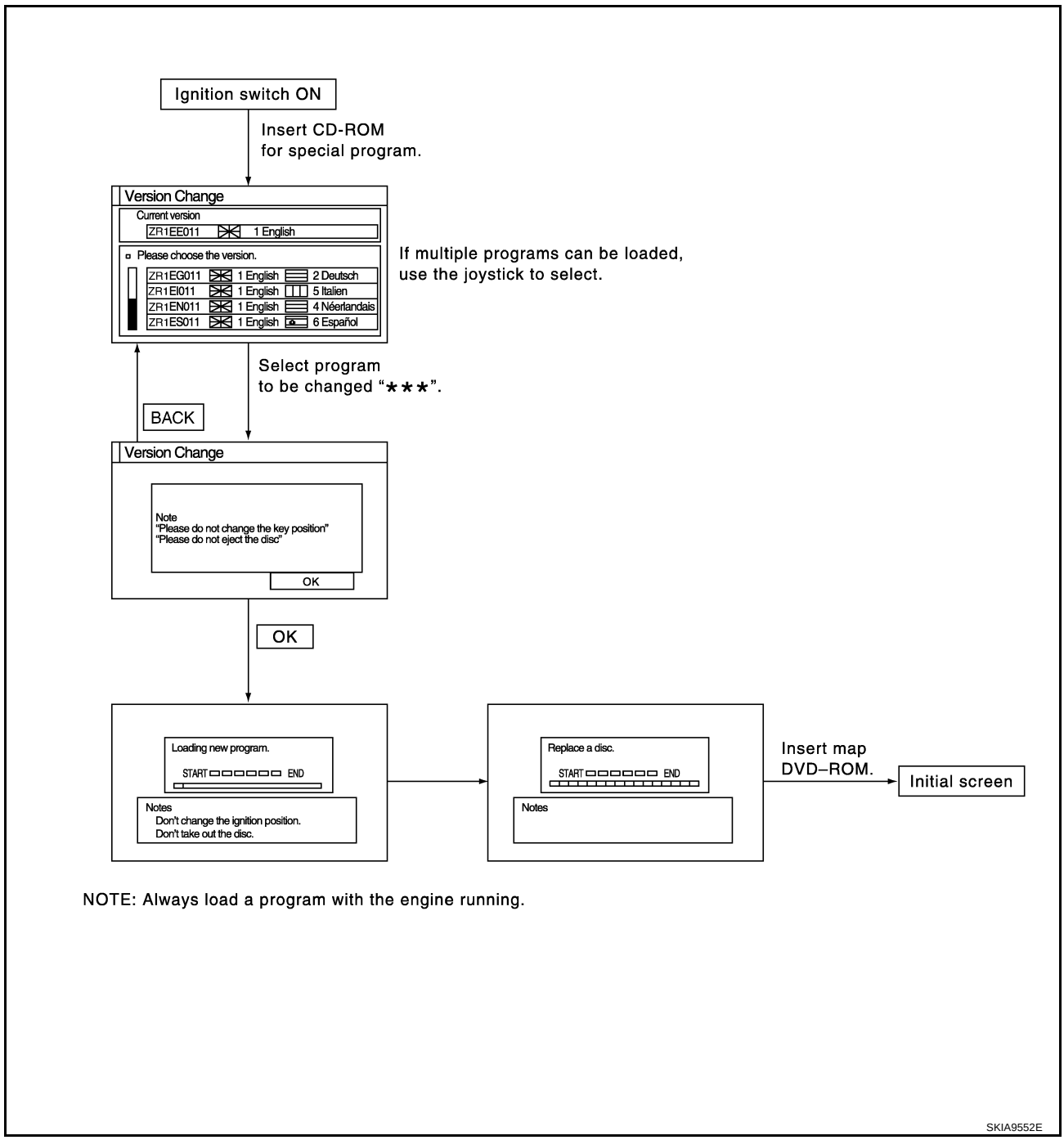
- The current place name displays names which are primarily in the direction of vehicle travel.
- The amount of time before the vehicle travel or turn angle is updated on the screen is longer than for the (flat) map display.
- The conditions for display of place names, roads, and other data are different 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

EKS00F3O

NOTE:

Program loading is operated when the version of soft is upgraded to the latcst one,or when lanfuage is switched



NOTE: Always load a program with the engine running.

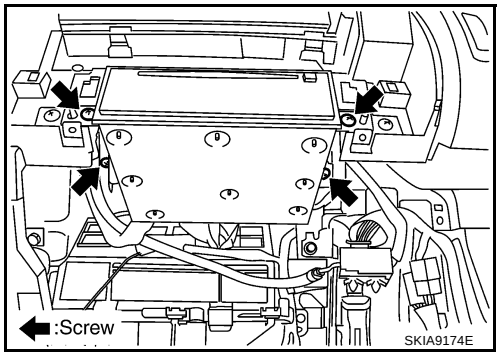
SKIA9552E

Removal and Installation of NAVI control unit

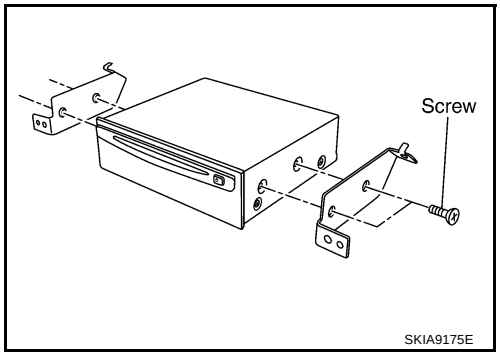
EKS00F3P

REMOVAL

1. Remove upper grovebox. Refer to IP-11, "Removal and Installation" .
2. Remove screws (4) and remove NAVI control unit.



3. Remove screws (4) and remove bracket.



INSTALLATION

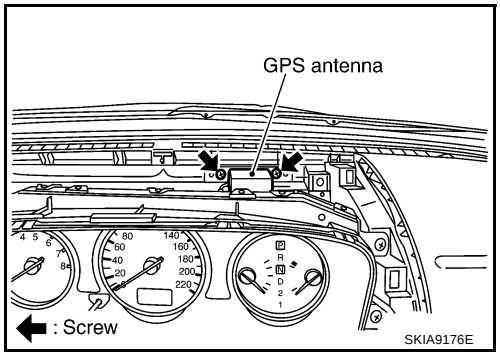
Install in the reverse order of removal.

Removal and Installation of GPS Antenna

EKS00F3Q

REMOVAL

1. Remove cluster lid A. Refer to IP-11, "Removal and Installation" .
2. Remove screws (2) and remove GPS antenna.



INSTALLATION

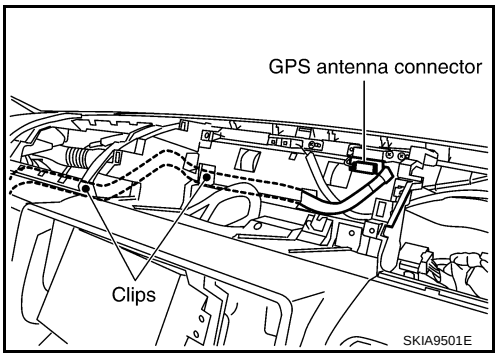
Install in the reverse order of removal.

Removal and Installation of GPS Antenna Feeder

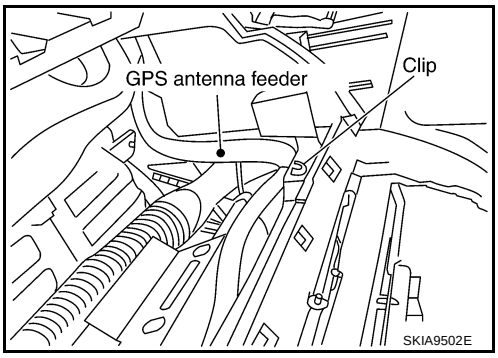
EKS00F3R

REMOVAL

1. Remove combination meter. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove NAVI control unit . Refer to AV-108, "Removal and Installation of NAVI control unit" .
3. Remove front passenger air bag module. Refer to SRS-35, "Removal and Installation" .



4. Remove clips (2) and remove GPS antenna feeder.



INSTALLATION

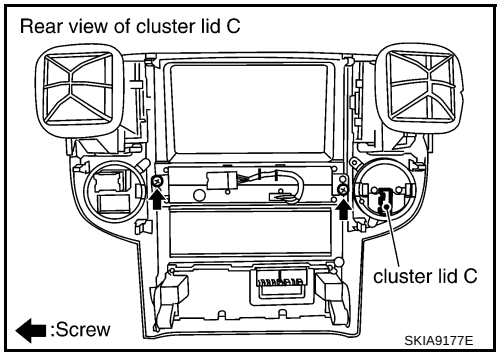
Install in the reverse order of removal.

Removal and Installation of NAVI Switch

EKS00F3S

REMOVAL

1. Remove cluster lid C. Refer to IP-11, "Removal and Installation" .
2. Remove screws (2) and remove NAVI switch.



INSTALLATION

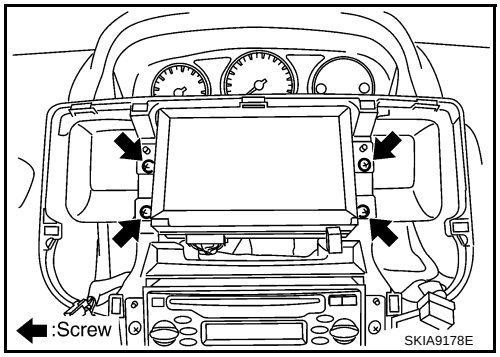
Install in the reverse order of removal.

Removal and Installation of Display

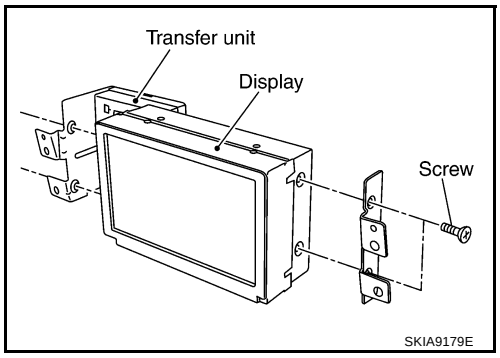
EKS00F3T

REMOVAL

1. Remove cluster lid C. Refer to IP-11, "Removal and Installation" .
2. Remove screws (4) and remove display.



3. Remove screws (4), and remove bracket.



INSTALLATION

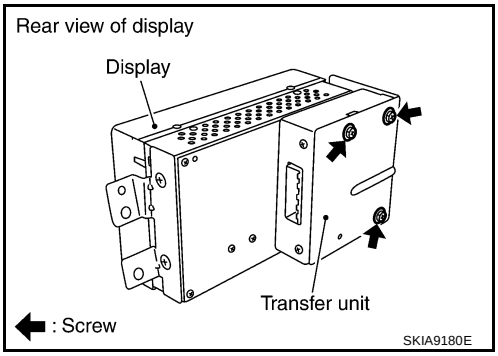
Install in the reverse order of removal.

Removal and Installation of Transfer unit

EKS00F3U

REMOVAL

1. Remove display . Refer to AV-110, "Removal and Installation of Display" .
2. Remove screws (3), and remove transfer unit.



INSTALLATION

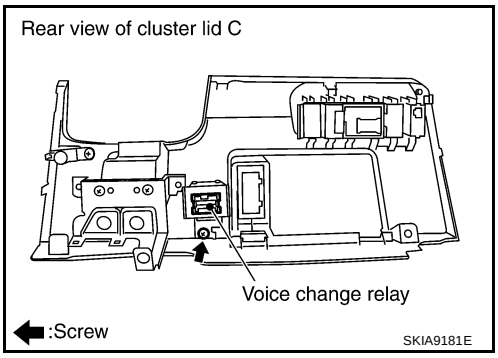
Install in the reverse order of removal.

Removal and Installation of Voice change relay

EKS00F3V

REMOVAL

1. Remove instrument lower driver panel. Refer to IP-11, "Removal and Installation" .
2. Remove screw (1) and remove voice change relay.



INSTALLATION

Install in the reverse order of removal.

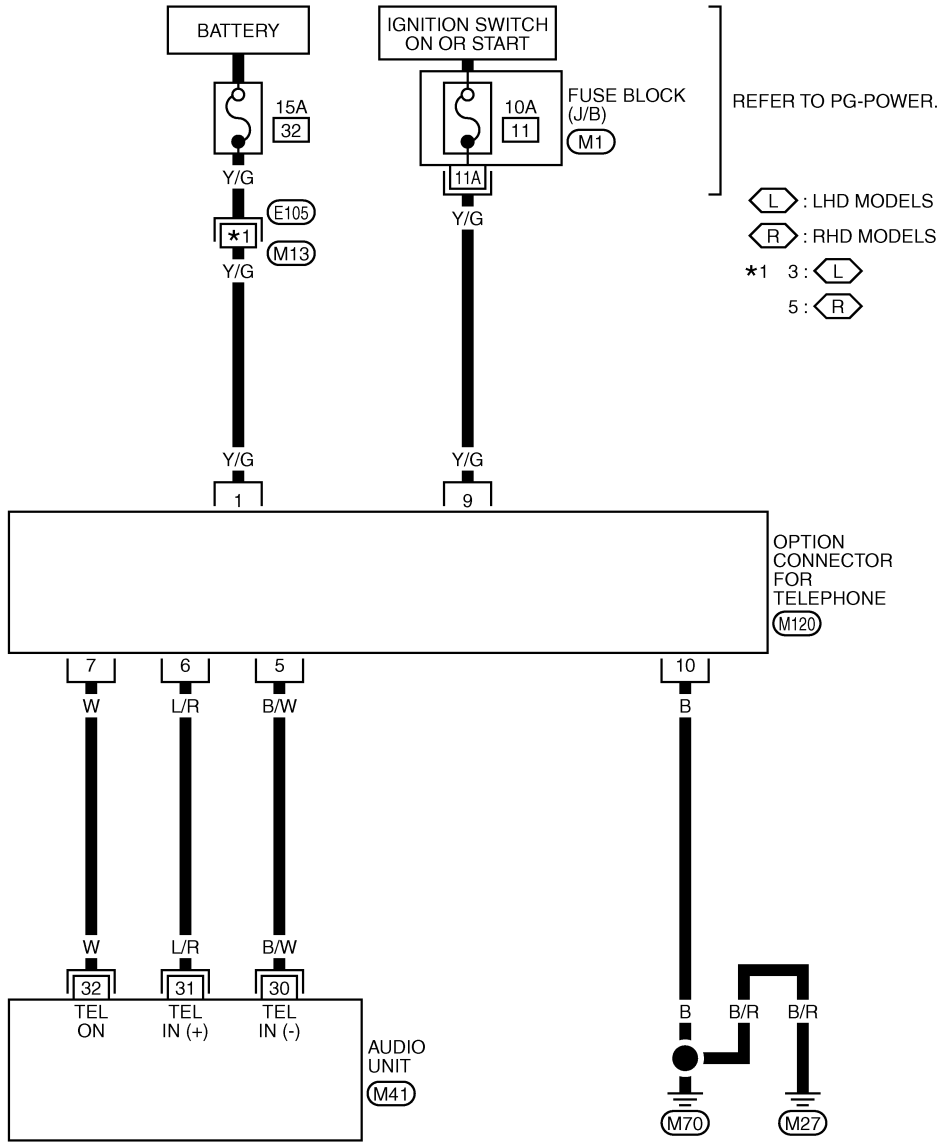
TELEPHONE (PRE WIRE)

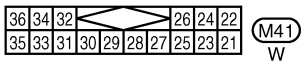
PFP:28342

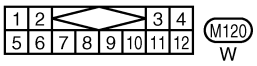
Wiring Diagram — PHONE —

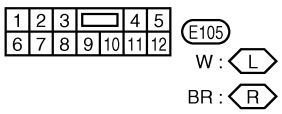
EKS00F2R

AV-PHONE-01









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

TKWB0102E