

SECTION **AV**

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AUDIO VISUAL, NAVIGATION & TELEPHONE SYSTEM

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PRECAUTIONS

PRECAUTIONS

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

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

Precautions for Battery Service

NKS002KD

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

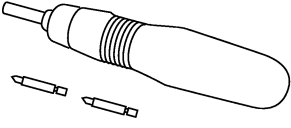
PREPARATION

PREPARATION

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Commercial Service Tools

NKS002F0

Tool name	Description
Power tool  PBIC0191E	Loosening bolts and nuts

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AUDIO

System Description BASE SYSTEM

NKS002F1

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

- through 15A fuse [No. 37, 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. 6, located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.

Audio unit and A/C and audio controller are connected by FPC (Flexible Print Circuit).

A/C and audio controller integrates A/C switches and audio switches.

When A/C and audio controller is pressed to audio switch, it sends audio signal to audio unit. Then audio signals are supplied

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

When one of steering wheel audio control switches is pressed to volume up, seek up, or mode ON, the resistance in steering wheel audio control switch circuit changes depending on which button is pressed. This will change the output voltage.

Power is supplied

- from audio unit terminal 22
- through combination switch (spiral cable) terminals 24 and 20
- to steering wheel audio control switch.

Ground is supplied

- from steering wheel audio control switch
- through combination switch (spiral cable) terminals 17 and 31
- to audio unit terminal 25.

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

- from audio unit terminal 23
- through combination switch (spiral cable) terminals 32 and 16
- to steering wheel audio control switch.

Ground is supplied

- from steering wheel audio control switch
- through combination switch (spiral cable) terminals 17 and 31
- to audio unit terminal 25.

BOSE SYSTEM

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

Power is supplied at all times

- through 15A fuse [No. 37, located in the fuse and fusible link box]
- to audio unit terminal 6,
- to BOSE speaker amp. terminal 1.

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

- through 10A fuse [No. 6, located in the fuse block (J/B)]
- to audio unit terminal 10.

AUDIO

Ground is supplied through the case of the audio unit.

Ground is also supplied

- to BOSE speaker amp. terminal 17
- through body ground B5 and B29.

Audio unit and A/C and audio controller are connected by FPC (Flexible Print Circuit).

A/C and audio controller integrates A/C switches and audio switches.

When A/C and audio controller is pressed to audio switch, it sends audio signal to audio unit.

Then, audio signals are supplied

- through audio unit terminals 1, 2, 3, 4, 13, 14, 15, and 16
- to BOSE speaker amp. terminals 23, 24, 25, 26, 27, 28, 29, and 30.

Audio signals are amplified by the BOSE speaker amp.

The amplified audio signals are supplied

- through BOSE speaker amp. terminals 13, 14, 15, and 16
- to terminals 1 and 2 of front door speaker LH and RH
- to terminals 1 and 2 of tweeter LH and RH,
- through BOSE speaker amp. terminals 9, 10, 11, and 12
- to terminals 1 and 2 of rear door speaker LH and RH,
- through BOSE speaker amp. terminals 2, 3, 18 and 19
- to terminals 1 and 2 of woofer LH and RH.

Without Telephone System

When one of steering wheel audio control switches is pressed to volume up seek up or mode ON, the resistance in steering wheel audio control switch circuit changes depending on which button is pressed. This will change the output voltage.

Power is supplied

- from audio unit terminal 22
- through combination switch (spiral cable) terminals 24 and 20
- to steering wheel audio control switch.

Ground is supplied

- from steering wheel audio control switch
- through combination switch (spiral cable) terminals 17 and 31
- to audio unit terminal 25.

When one of steering wheel audio control switches is pressed to volume down, seek down or power ON, the resistance in steering wheel audio control switch circuit changes depending on which button is pressed. This will change the output voltage.

Power is supplied

- from audio unit terminal 23
- through combination switch (spiral cable) terminals 32 and 16
- to steering wheel audio control switch.

Ground is supplied

- from steering wheel audio control switch
- through combination switch (spiral cable) terminals 17 and 31
- to audio unit terminal 25.

With Telephone System

When one of steering wheel audio control switches is pressed to volume up, seek up or PTT ON, the resistance in steering wheel audio control switch circuit changes depending on which button is pressed. This will change the output voltage.

Power is supplied

- from audio unit terminal 12
- through combination switch (spiral cable) terminals 24 and 20
- to steering wheel audio control switch.

Ground is supplied

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- from steering wheel audio control switch
- through combination switch (spiral cable) terminals 17 and 31
- to audio unit terminal 14.

When one of steering wheel audio control switches is pressed to volume down, seek down or mode ON, the resistance in steering wheel audio control switch circuit changes depending on which button is pressed. This will change the output voltage.

Power is supplied

- from audio unit terminal 13
- through combination switch (spiral cable) terminals 32 and 16
- to steering wheel audio control switch.

Ground is supplied

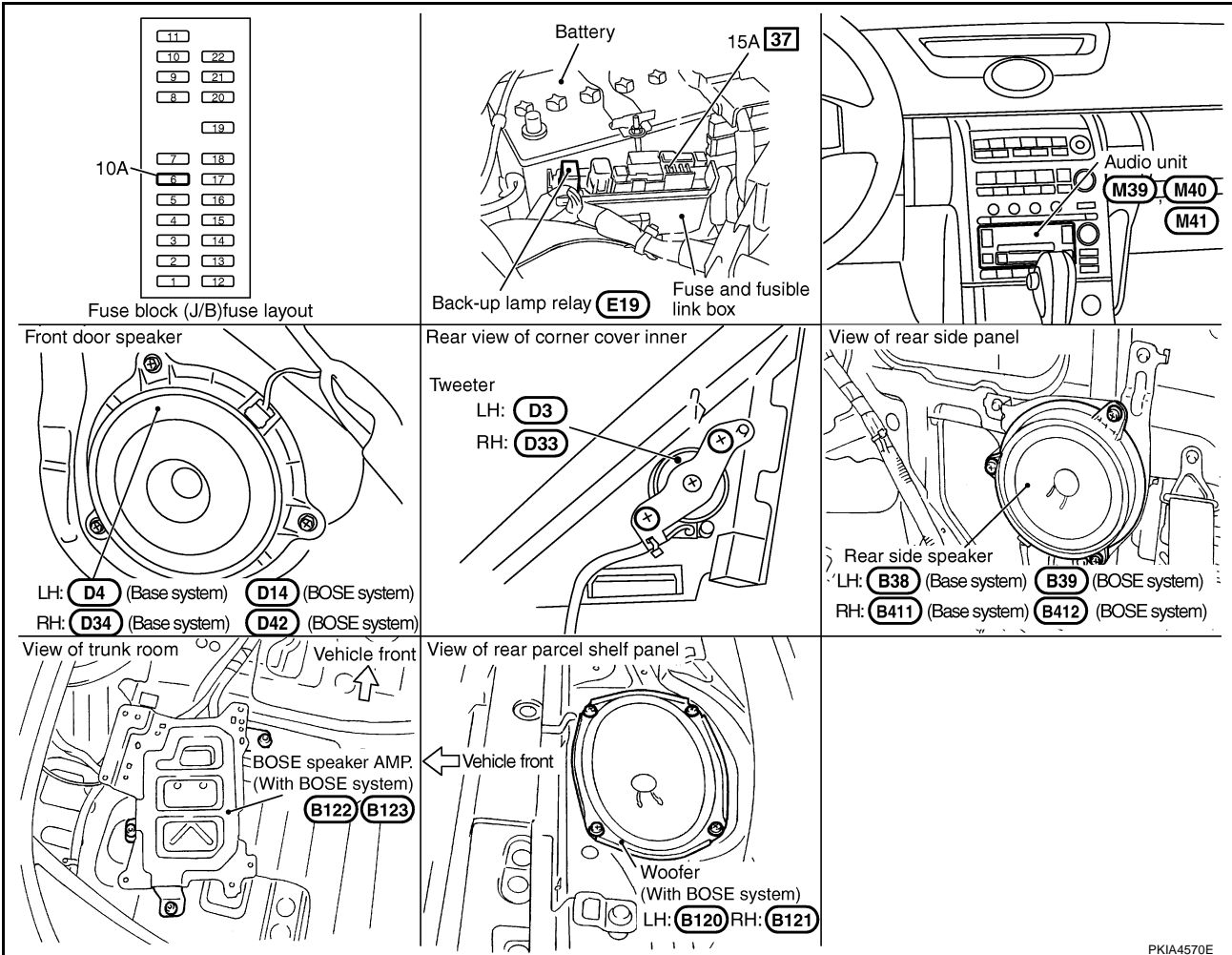
- from steering wheel audio control switch
- through combination switch (spiral cable) terminals 17 and 31
- to audio unit terminal 14.

SPEED SENSITIVE VOLUME SYSTEM

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

Component Parts Location

NKS002F2

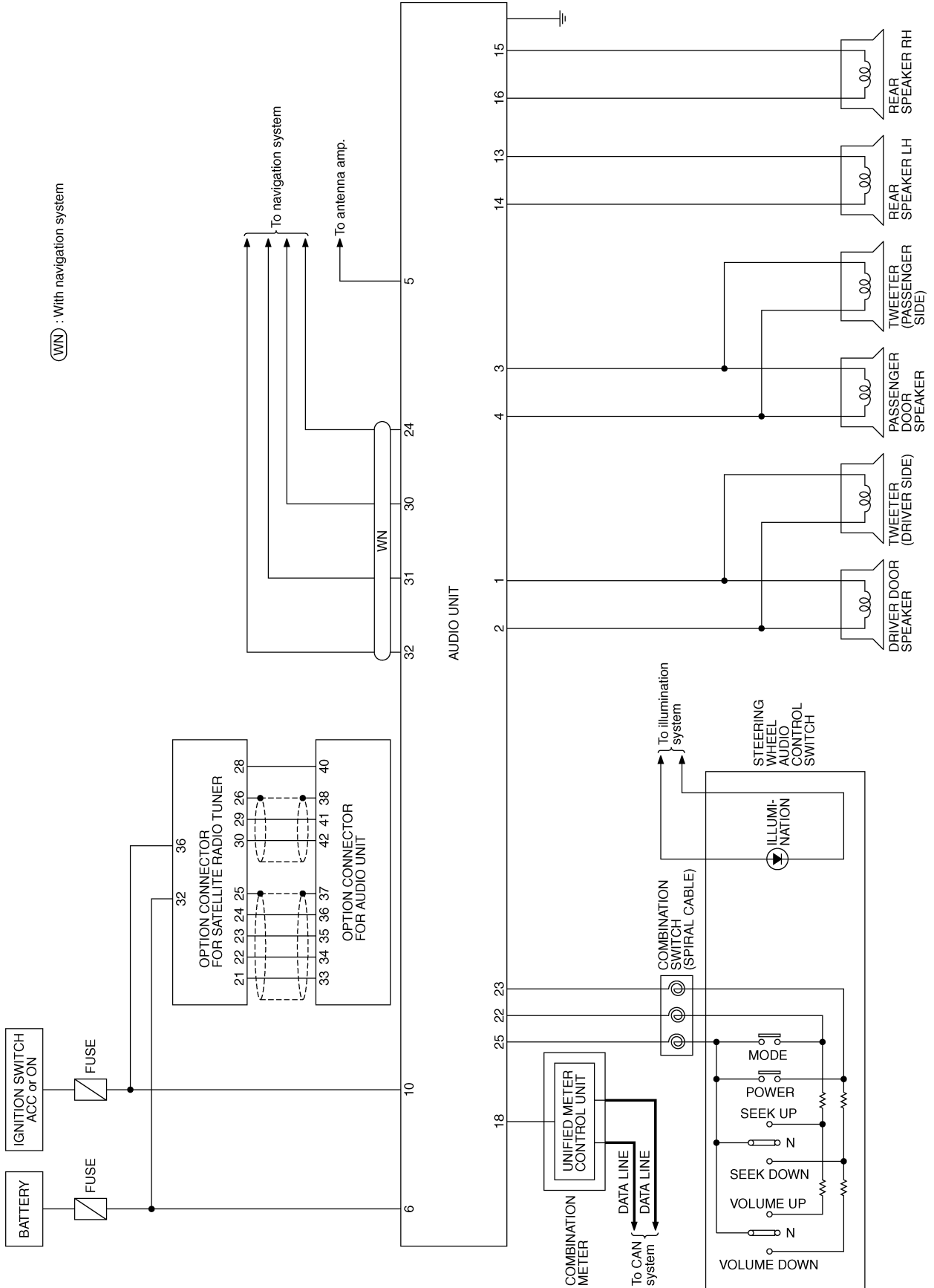


AUDIO

Schematic / Base System

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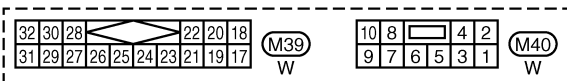
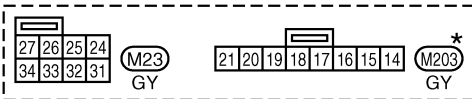
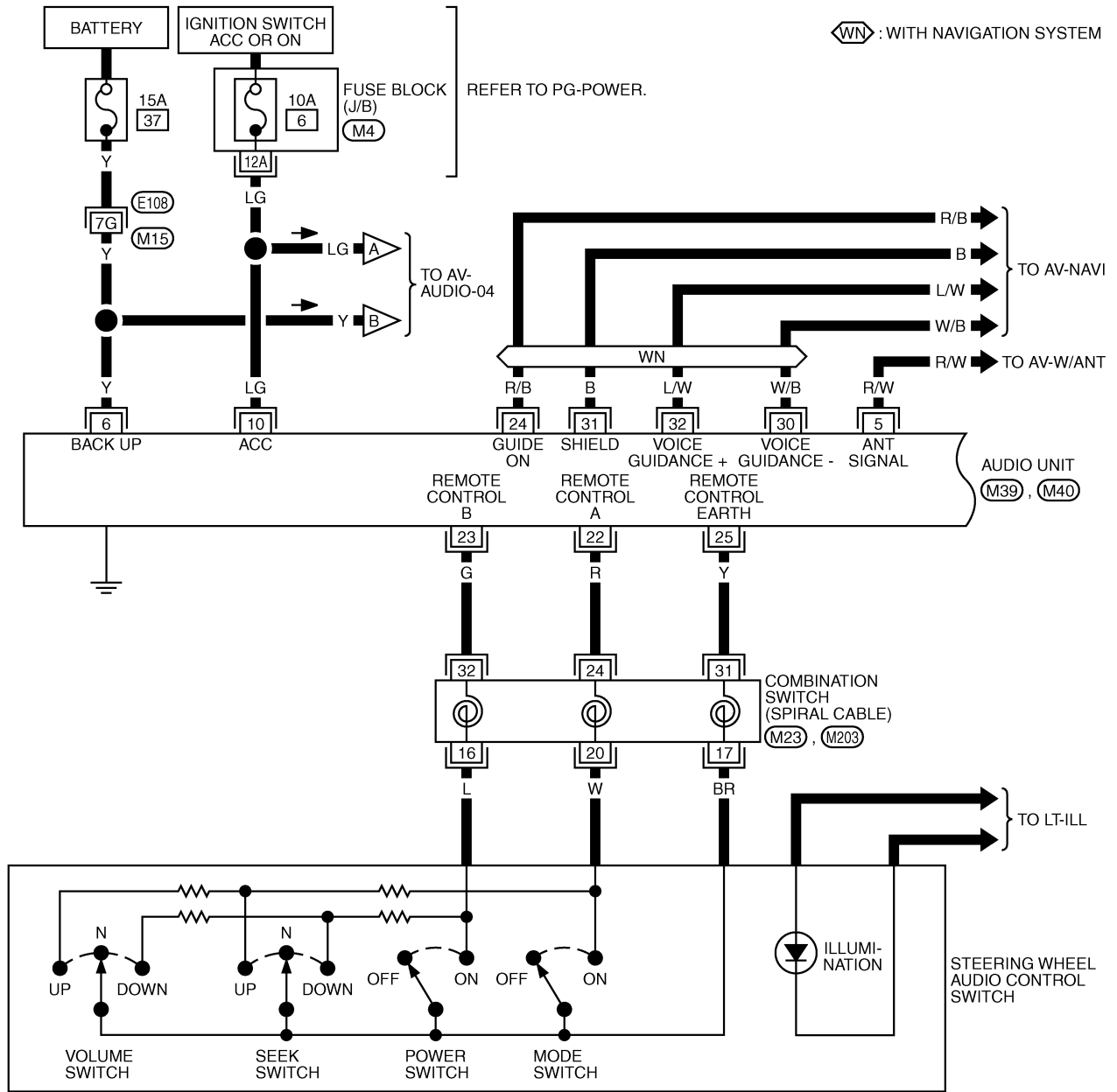
AUDIO

Wiring Diagram —AUDIO— / Base System

NKS00001

AV-AUDIO-01

: WITH NAVIGATION SYSTEM



REFER TO THE FOLLOWING.

-SUPER MULTIPLE JUNCTION (SMJ)

-FUSE BLOCK-JUNCTION BOX (J/B)

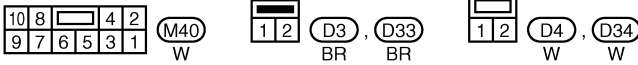
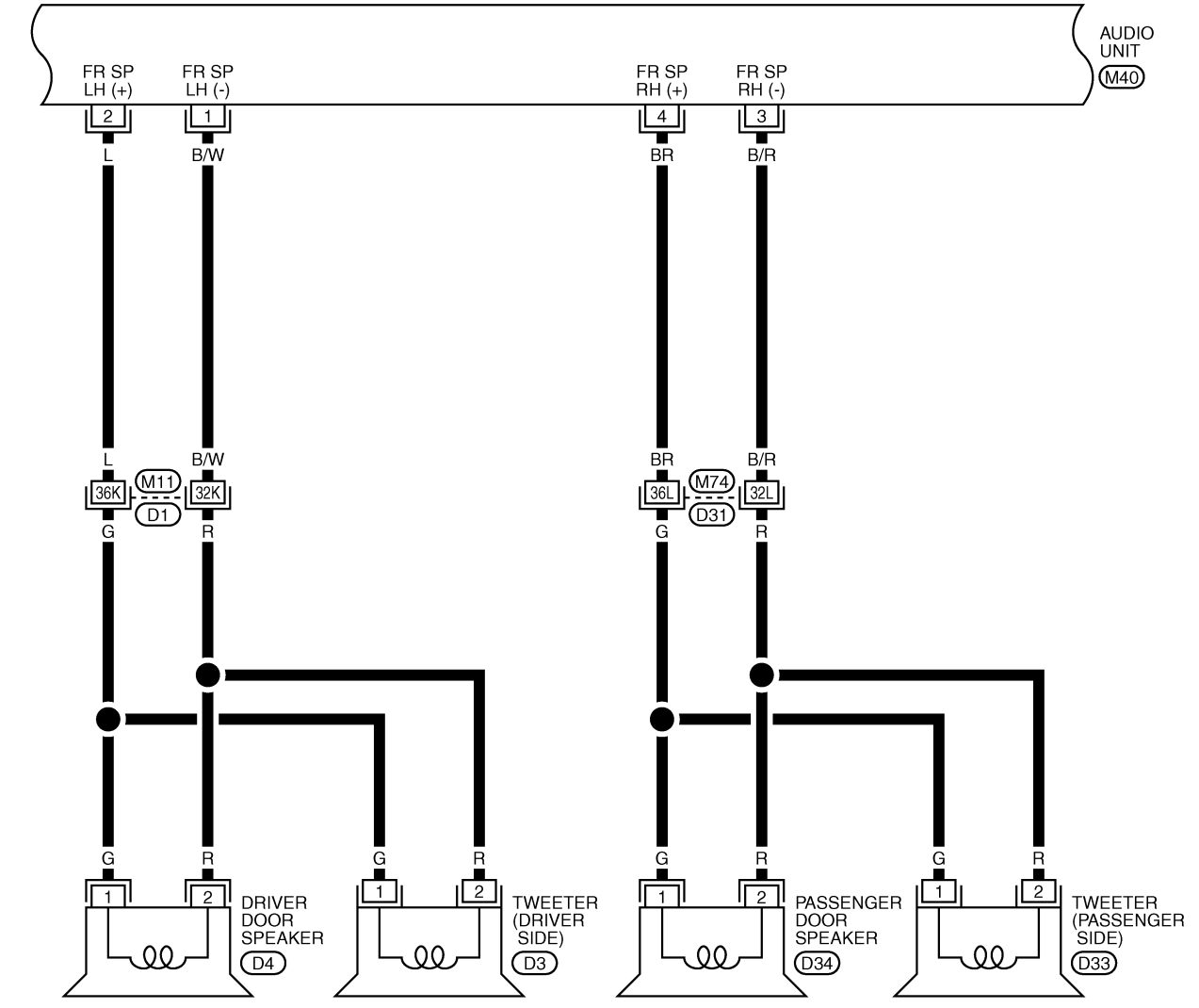
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

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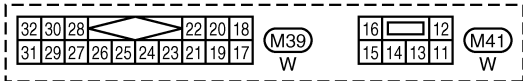
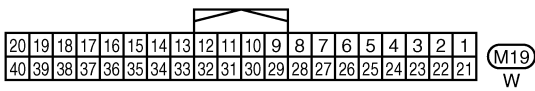
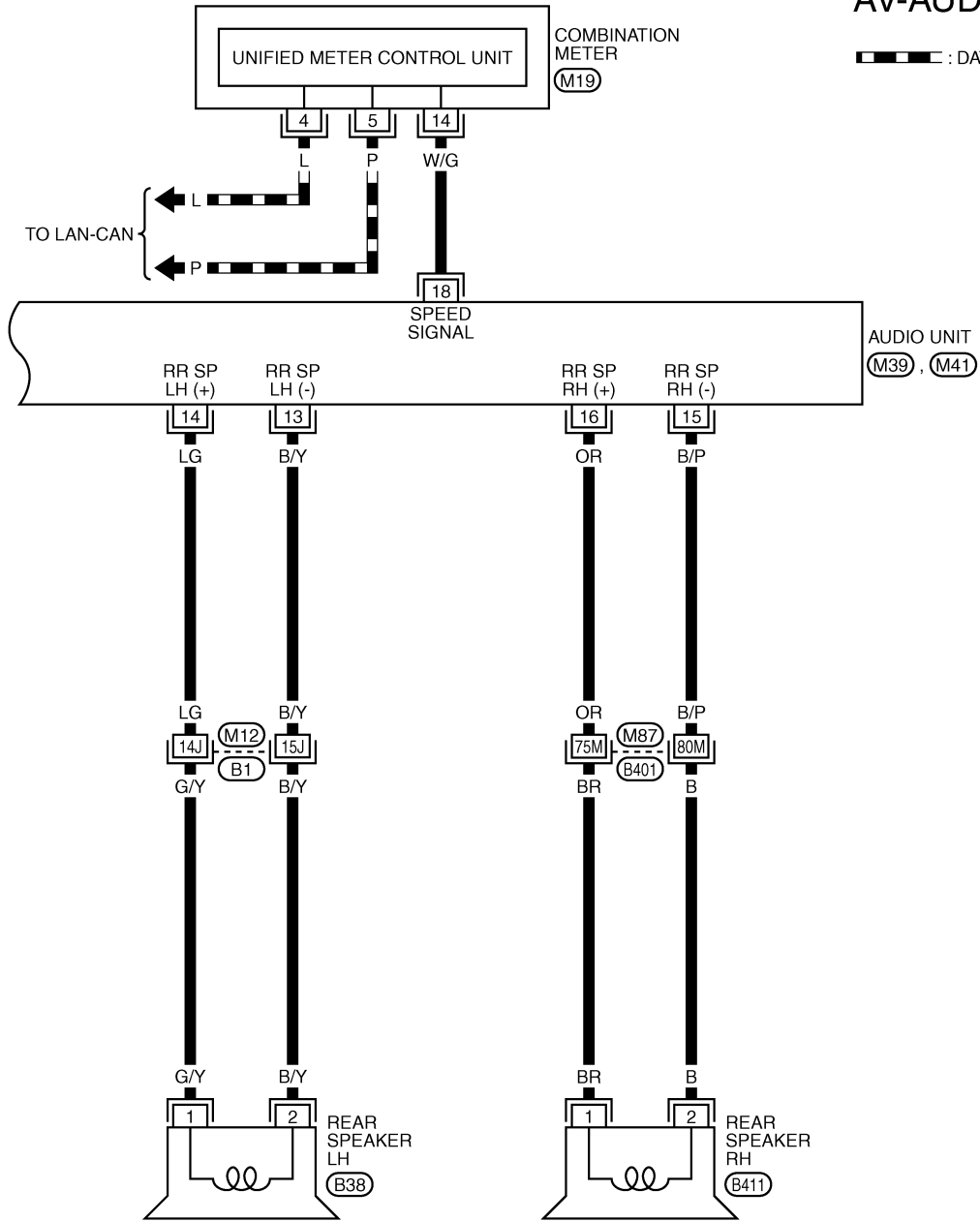
REFER TO THE FOLLOWING.
 (D1), (D31) -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3497E

AUDIO

AV-AUDIO-03

▬ : DATA LINE



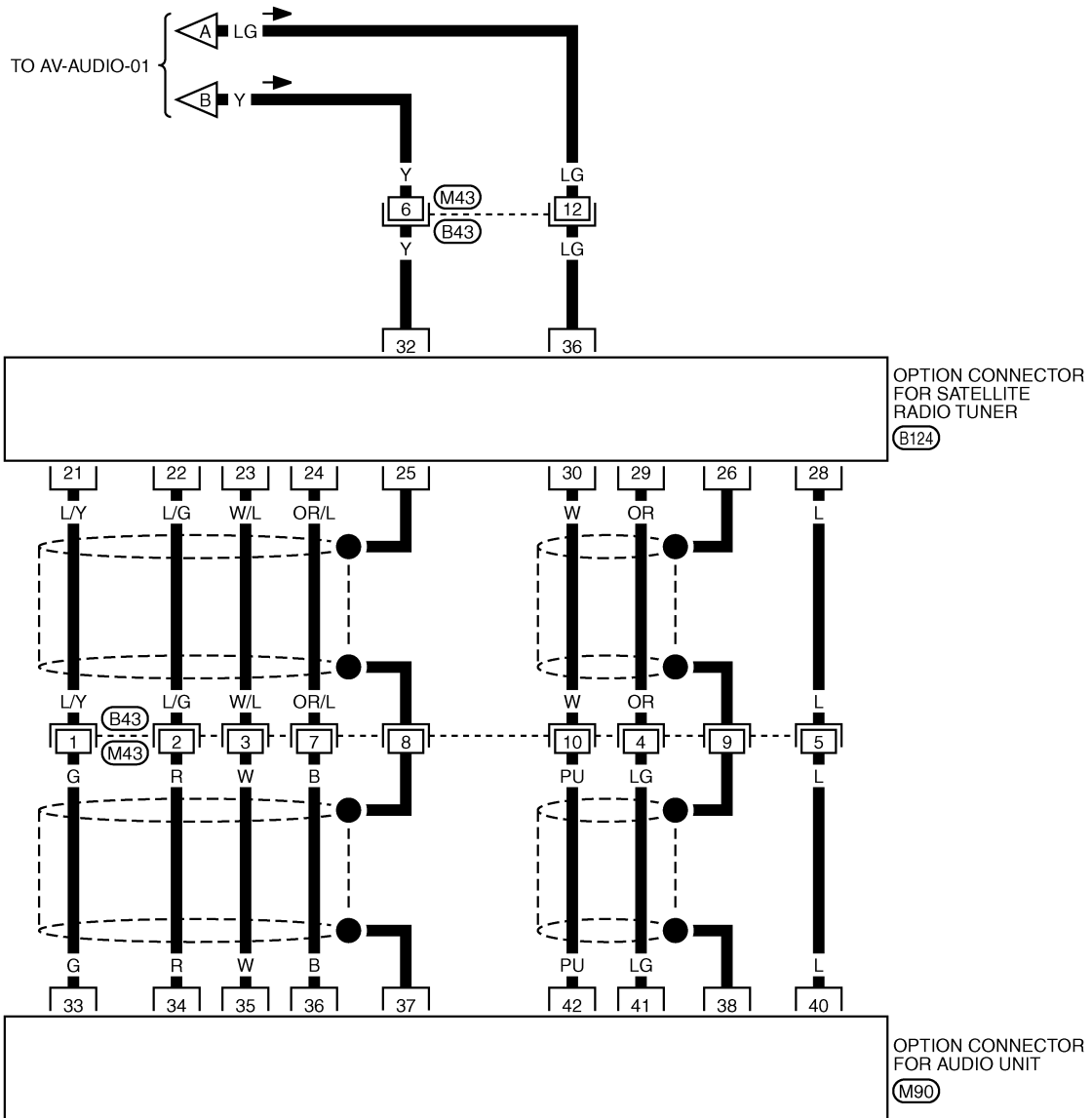
REFER TO THE FOLLOWING.

(B1), (B401) -SUPER MULTIPLE JUNCTION (SMJ)

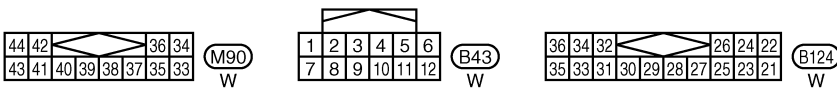
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AUDIO

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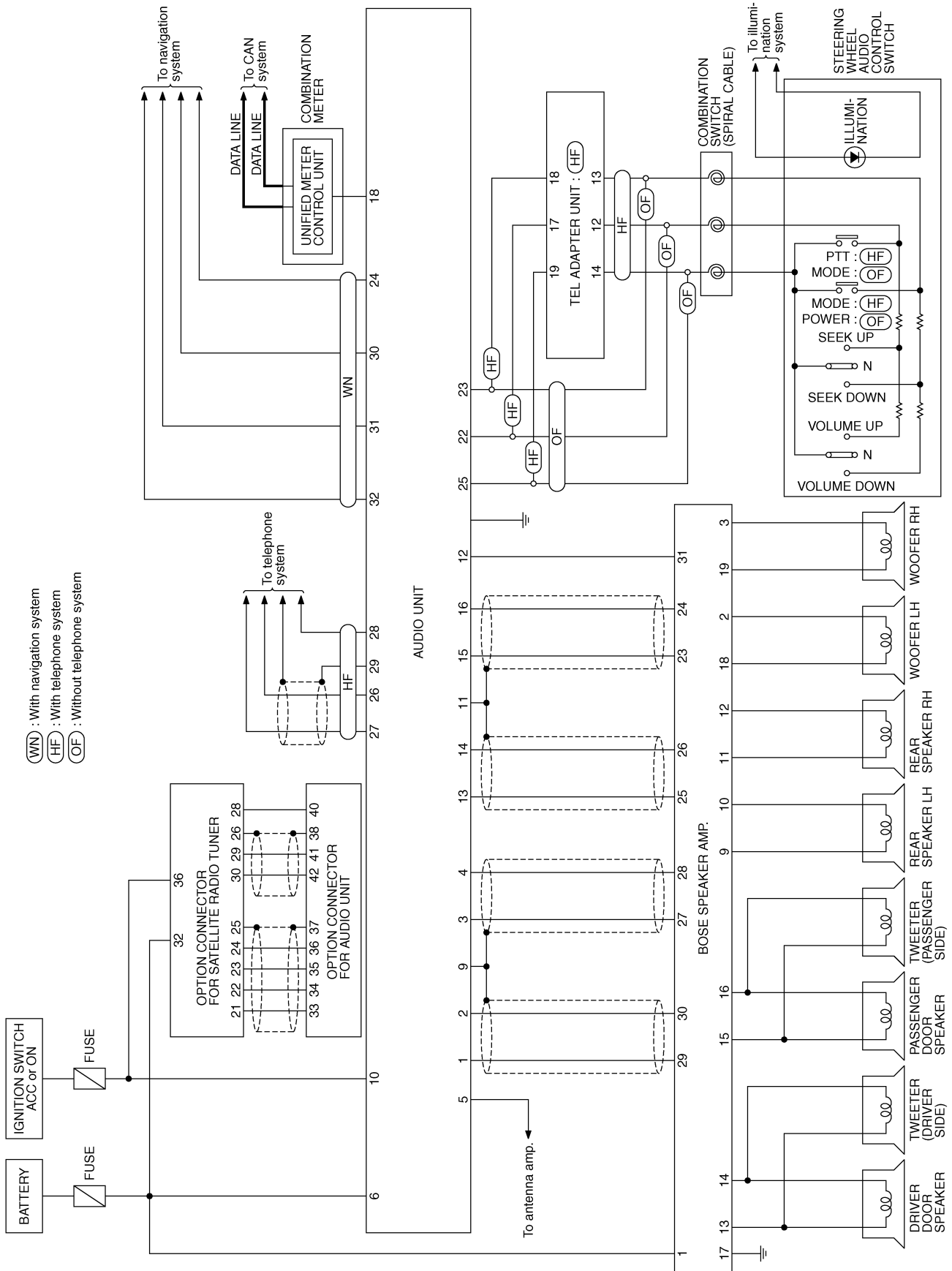


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AUDIO

Schematic / BOSE System

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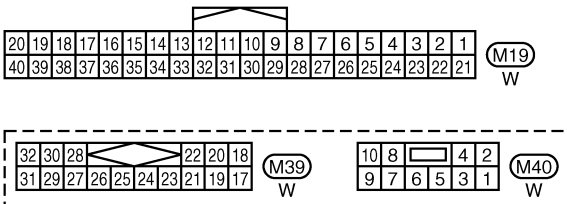
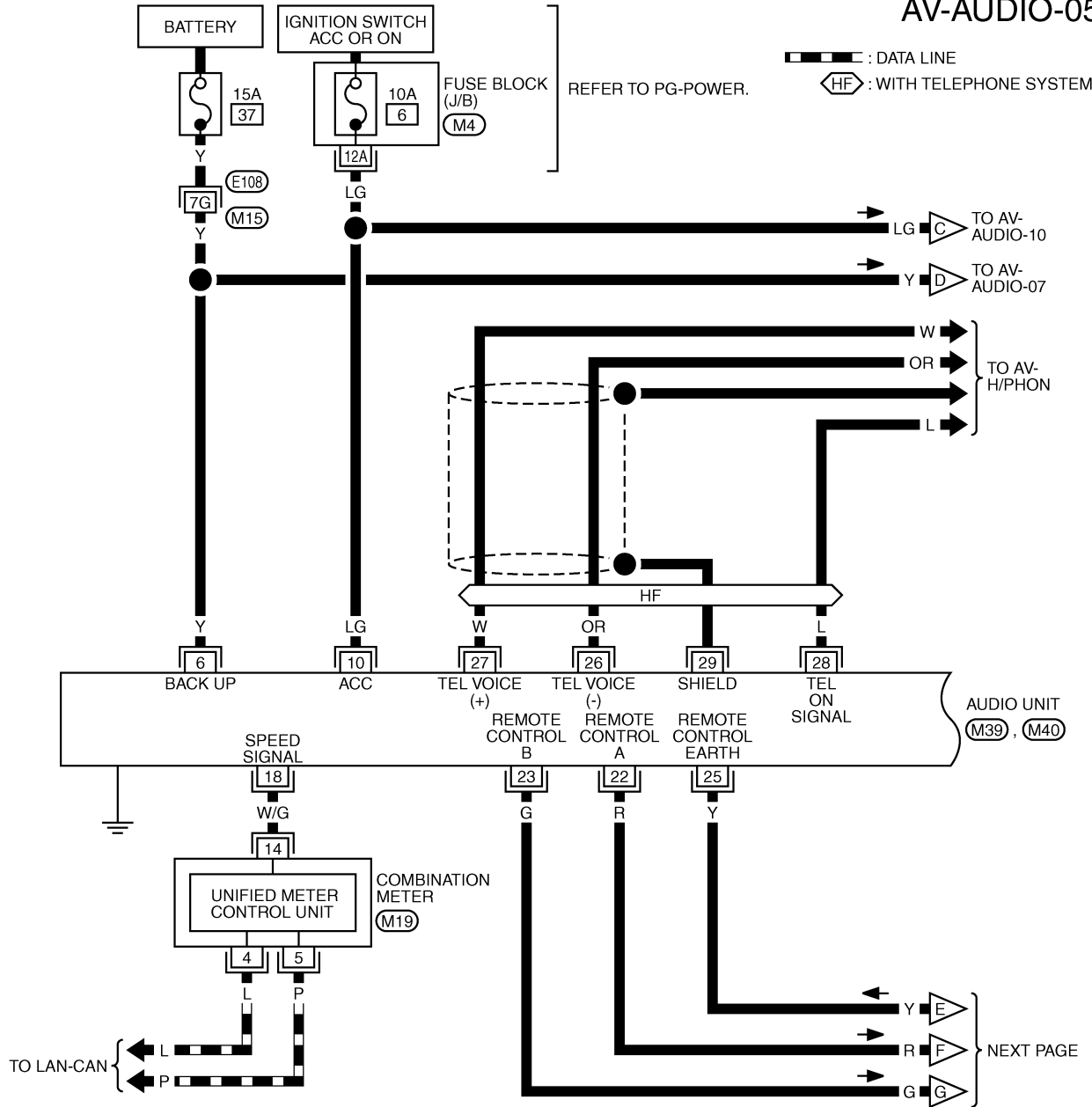
TKWM3500E

AUDIO

Wiring Diagram — AUDIO — / BOSE System

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AV-AUDIO-05



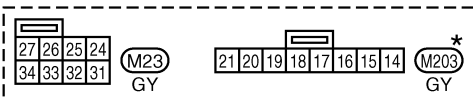
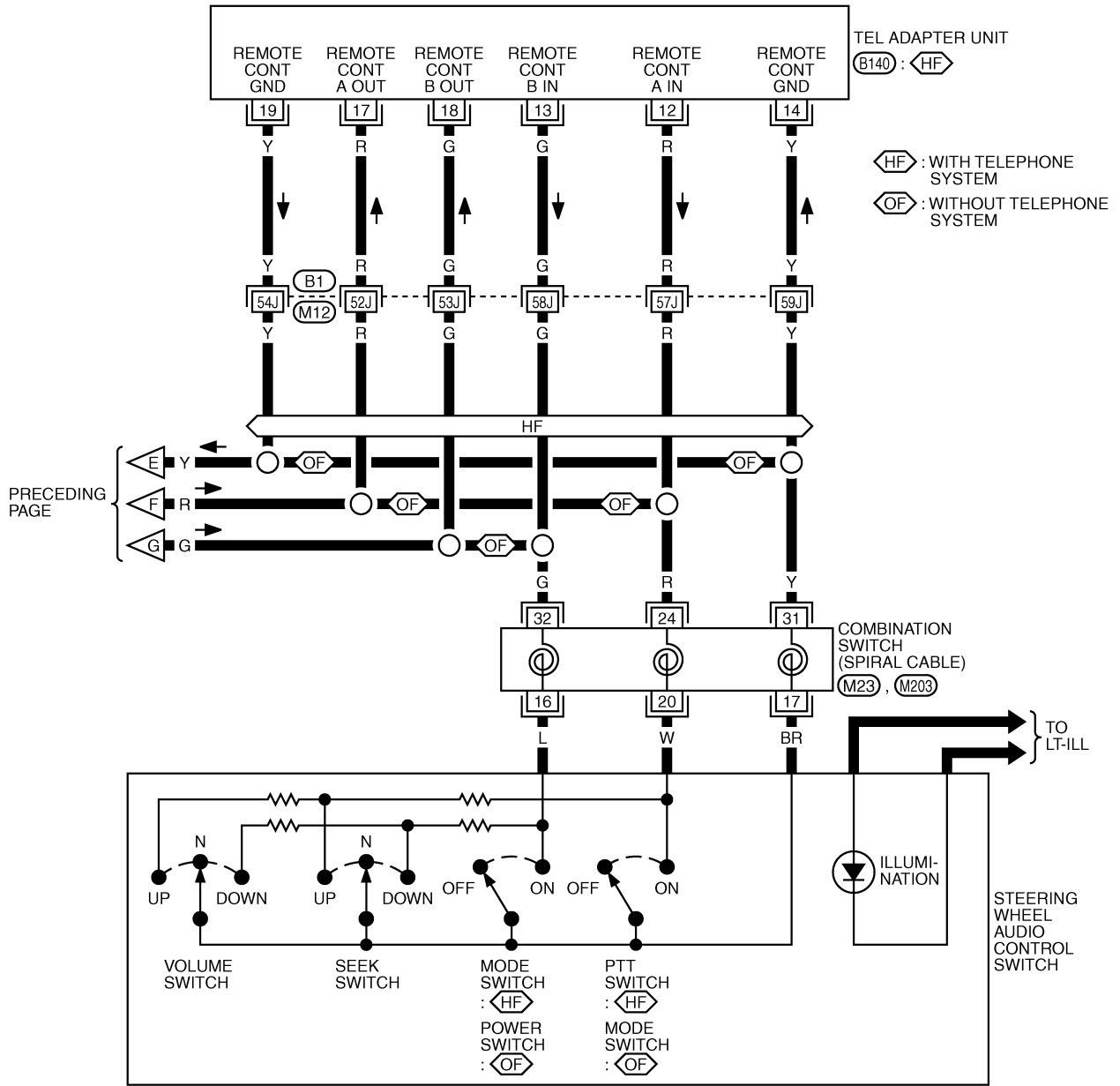
REFER TO THE FOLLOWING.

- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4) -FUSE BLOCK-JUNCTION BOX (J/B)

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AUDIO

AV-AUDIO-06



REFER TO THE FOLLOWING.

(B1) -SUPER MULTIPLE JUNCTION (SMJ)

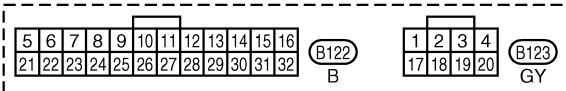
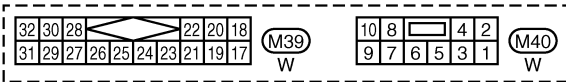
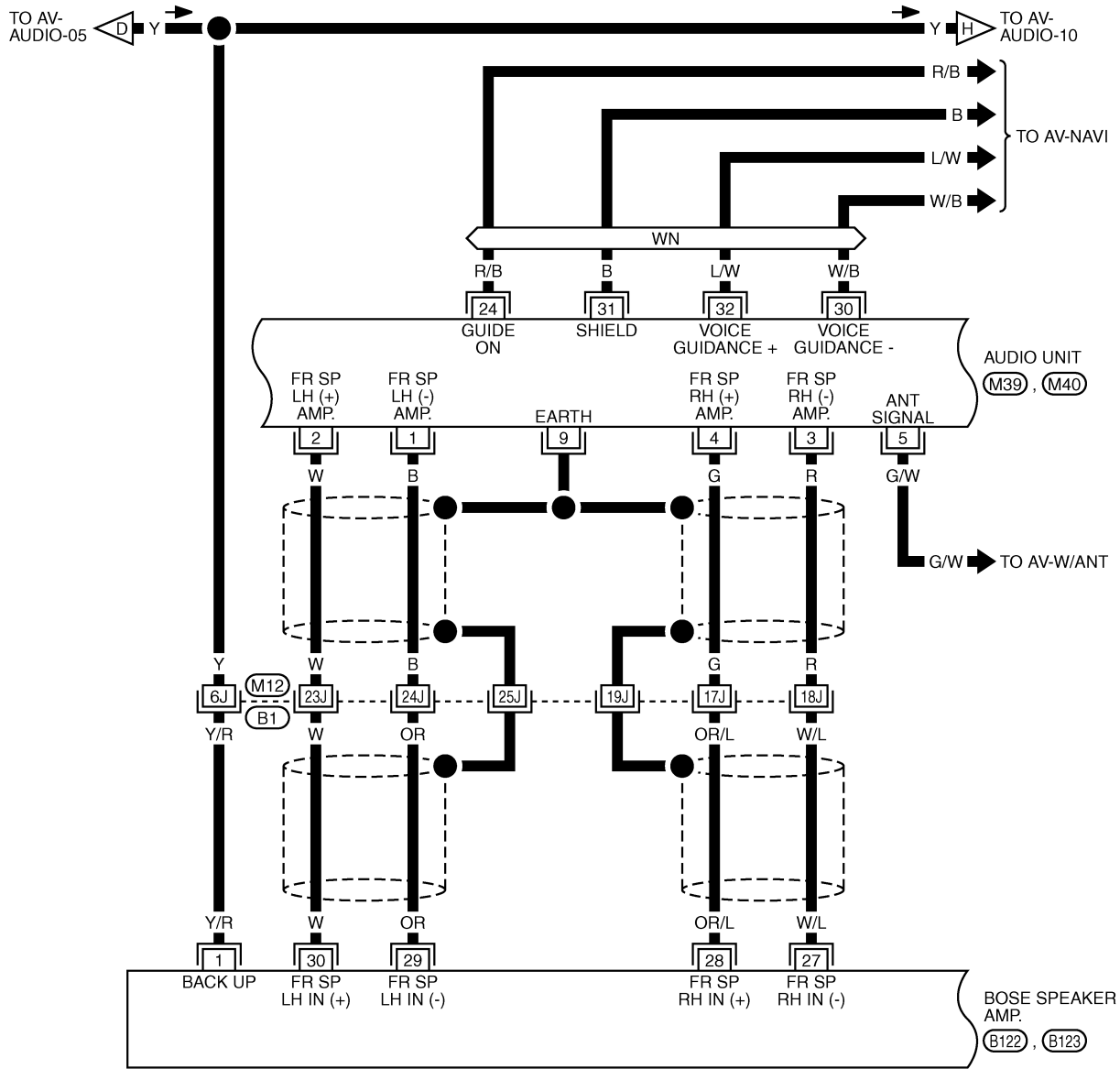
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

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AUDIO

AV-AUDIO-07

◊WN◊ : WITH NAVIGATION SYSTEM



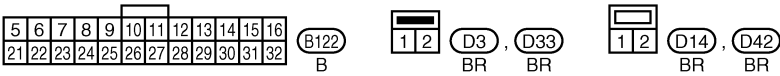
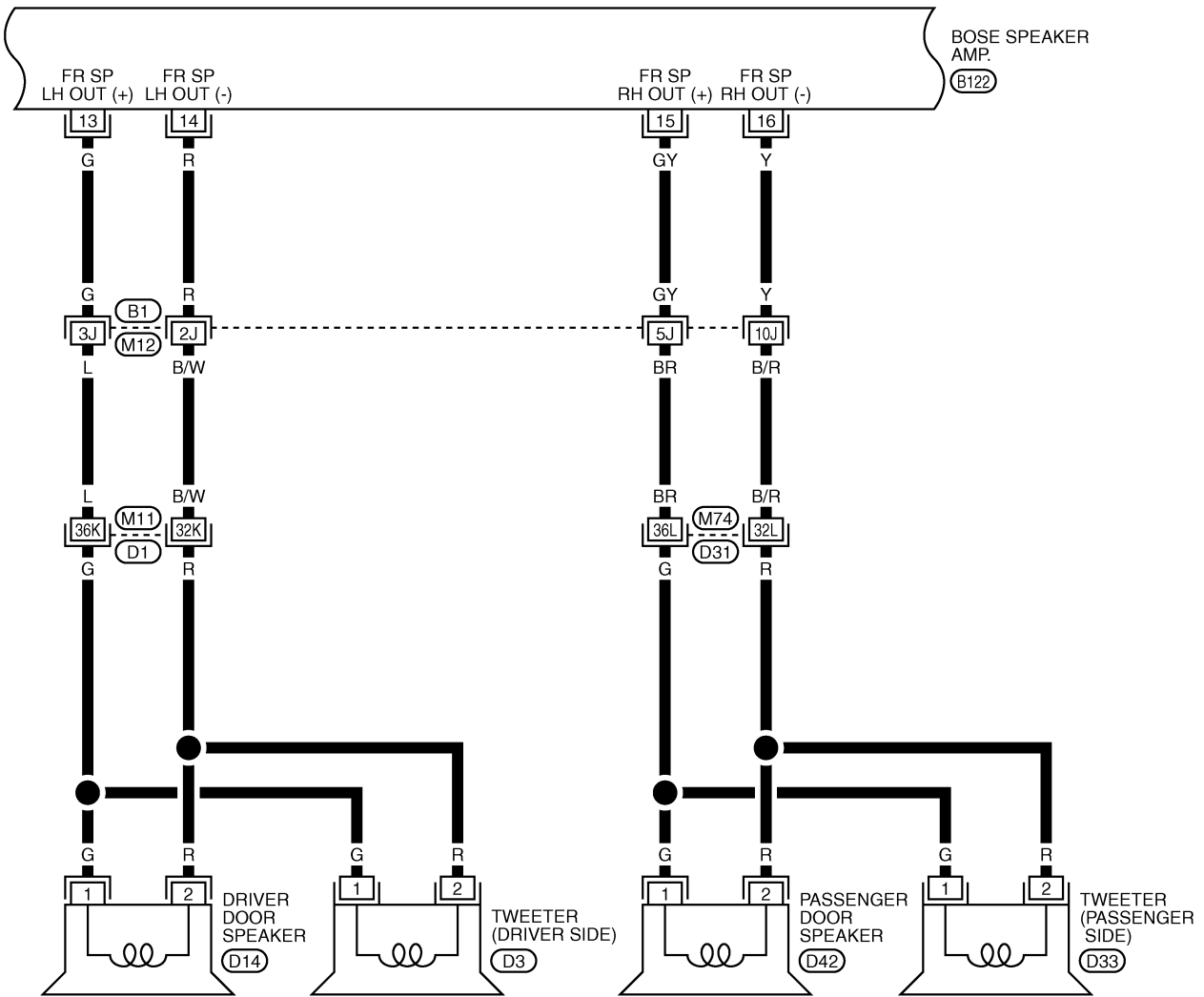
REFER TO THE FOLLOWING.

◊B1◊ -SUPER MULTIPLE JUNCTION (SMJ)

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AUDIO

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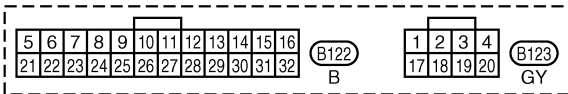
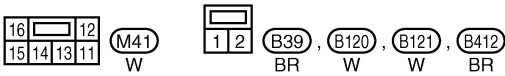
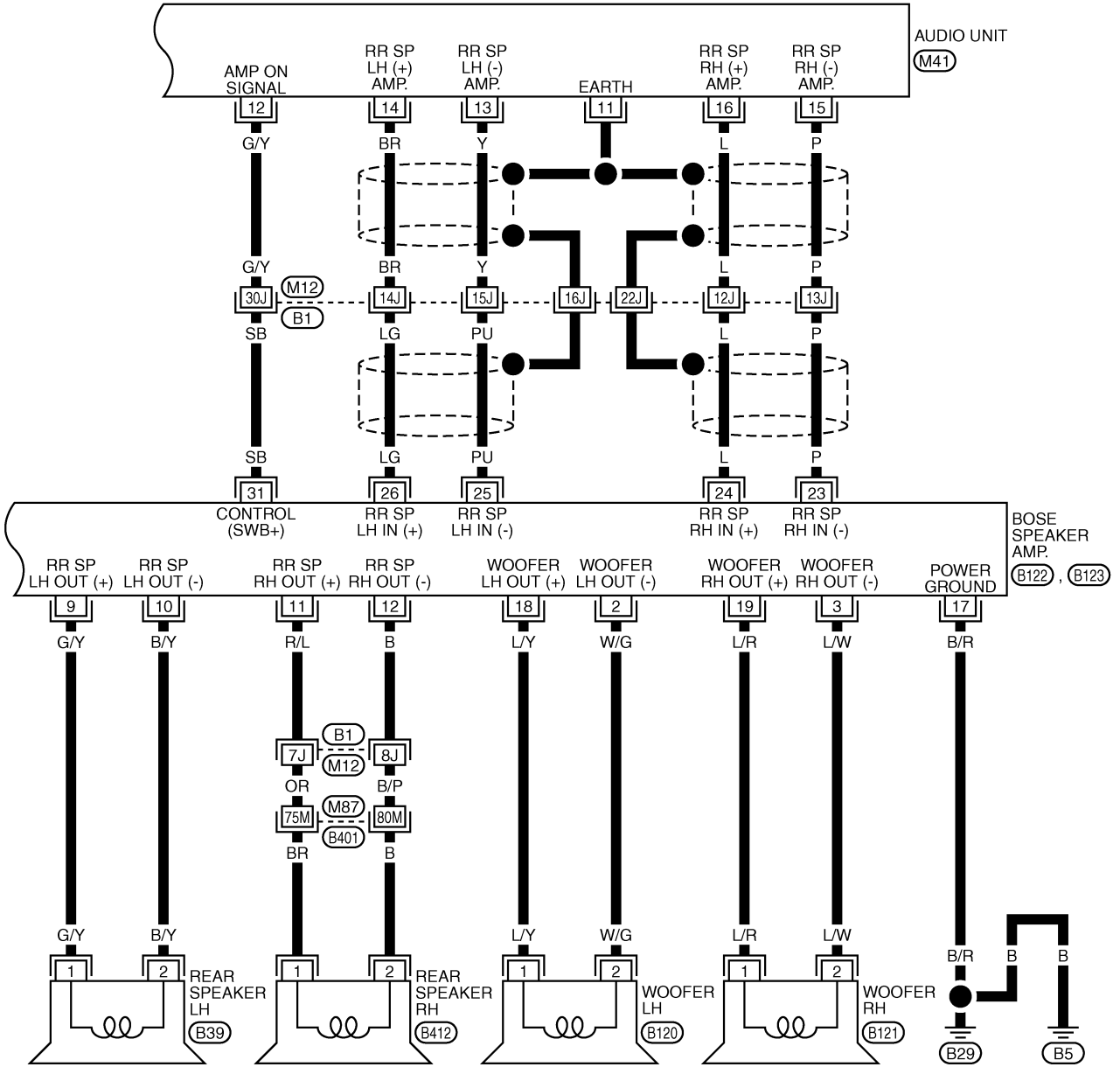


REFER TO THE FOLLOWING.
B1 , D1 , D31 -SUPER
 MULTIPLE JUNCTION (SMJ)

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AUDIO

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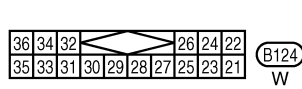
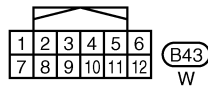
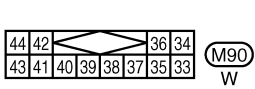
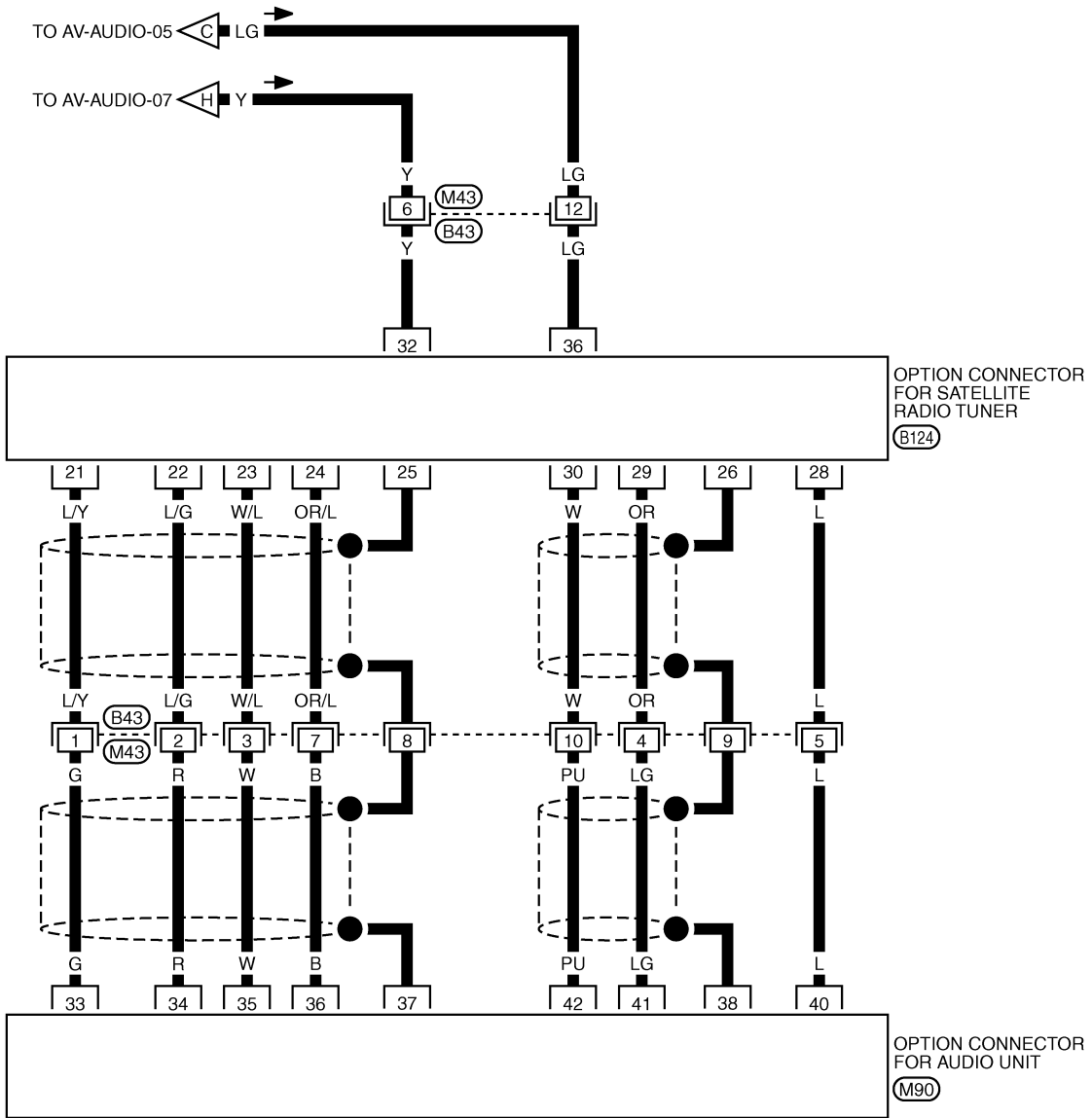


REFER TO THE FOLLOWING.
 (B1), (B401) -SUPER MULTIPLE JUNCTION (SMJ)

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AUDIO

AV-AUDIO-10

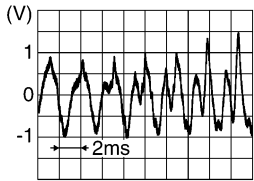
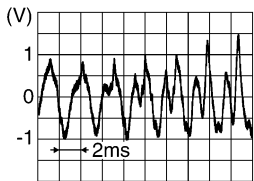
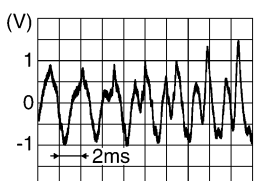
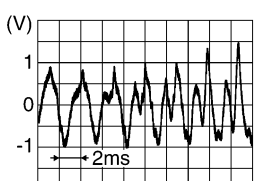
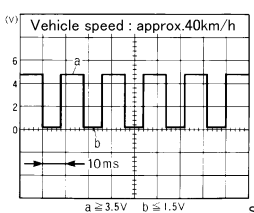


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AUDIO

Terminals and Reference Value for Audio Unit for Base System

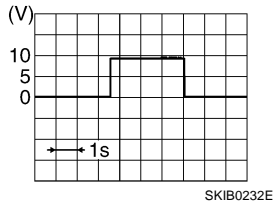
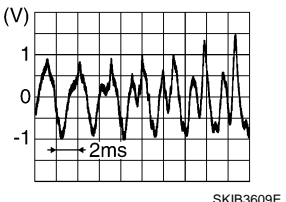
NKS002F3

Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value
+	-			Ignition switch	Operation	
2 (L)	1 (B/W)	Audio signal front LH	Output	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
4 (BR)	3 (B/R)	Audio signal front RH	Output	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
5 (R/W)	Ground	Antenna signal	output	ON	—	Approx. 12 V
6 (Y)	Ground	Battery power supply	Input	—	—	Battery voltage
10 (LG)	Ground	ACC power sup- ply	Input	ON	Ignition switch ACC or ON	Battery voltage
14 (LG)	13 (B/Y)	Audio signal rear LH	Output	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
16 (OR)	15 (B/P)	Audio signal rear RH	Output	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
18 (W/G)	Ground	Vehicle speed signal (2-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	 <p style="text-align: right; font-size: small;">SKIA0168E</p>
22 (R)	Ground	Remote control A	Input	ON	Press MODE switch	Approx. 0 V
					Press SEEK UP switch	Approx. 1.7 V
					Press VOL UP switch	Approx. 3.3 V
					Except for above	Approx. 5 V

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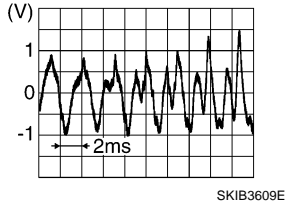
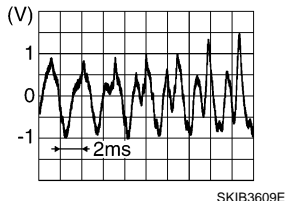
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AUDIO

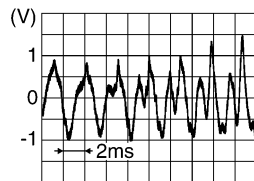
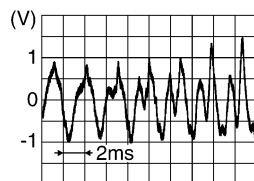
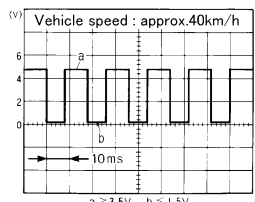
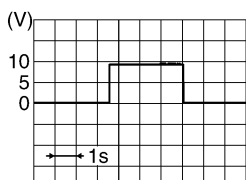
Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value
+	-			Ignition switch	Operation	
23 (G)	Ground	Remote control B	Input	ON	Press POWER switch	Approx. 0 V
					Press SEEK DOWN switch	Approx. 1.7 V
					Press VOL DOWN switch	Approx. 3.3 V
					Except for above	Approx. 5 V
24 (R/B)	Ground	Voice guidance ON signal (With navigation system)	Input	ON	Press the "VOICE" switch	
25 (Y)	—	Remote control ground	—	ON	—	—
31	—	Shield (With navigation system)	—	—	—	—
32 (L/W)	30 (W/B)	Voice guidance signal (With navigation system)	Input	ON	When inputting voice guidance	

Terminals and Reference Value for Audio Unit for BOSE System

NKS002F4

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
2 (W)	1 (B)	Audio signal front LH	Output	ON	Receive audio signal	
4 (G)	3 (R)	Audio signal front RH	Output	ON	Receive audio signal	
5 (G/W)	Ground	Antenna signal	Output	ON	—	Approx. 12 V
6 (Y)	Ground	Battery power supply	—	—	—	Battery voltage
9	—	Shield	—	—	—	Approx. 0 V

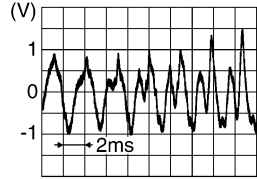
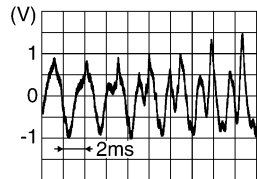
AUDIO

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
10 (LG)	Ground	ACC power supply	Input	ON	—	Battery voltage
11	—	Shield	—	—	—	Approx. 0 V
12 (G/Y)	Ground	Amp. ON signal	Output	ON	—	Approx. 12 V
14 (BR)	13 (Y)	Audio signal rear LH	Output	ON	Receive audio signal	 SKIB3609E
16 (L)	15 (P)	Audio signal rear RH	Output	ON	Receive audio signal	 SKIB3609E
18 (W/G)	Ground	Vehicle speed signal (2- pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	 SKIA0168E
22 (R)	Ground	Remote control A	Input	ON	Press MODE switch*1	Approx. 0 V
					Press SEEK UP switch	Approx. 1.7 V
					Press VOL UP switch	Approx. 3.3 V
					Except for above	Approx. 5 V
23 (G)	Ground	Remote control B	Input	ON	Press POWER switch*2	Approx. 0 V
					Press SEEK DOWN switch	Approx. 1.7 V
					Press VOL DOWN switch	Approx. 3.3 V
					Except for above	Approx. 5 V
24 (R/B)	Ground	Voice guidance ON signal (With navigation sys- tem)	Input	ON	Press the "VOICE" switch	 SKIB0232E
25 (Y)	—	Remote control ground	—	ON	—	—

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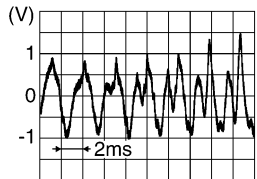
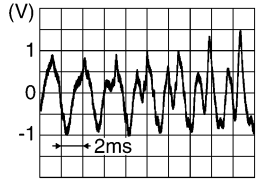
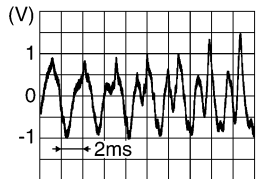
AUDIO

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
27 (W)	26 (OR)	TEL voice signal	Input	ON	When inputting TEL voice signal	 <small>SKIB3609E</small>
28 (L)	Ground	Tel ON signal	Input	ON	When using TEL	Approx. 0V
					When not using TEL	Approx. 5V
29	—	Shield	—	—	—	Approx. 0V
31	—	Shield (With nav- igation system)	—	—	—	—
32 (L/W)	30 (W/B)	Voice guidance signal (With navi- gation system)	Input	ON	When inputting voice guidance	 <small>SKIB3609E</small>

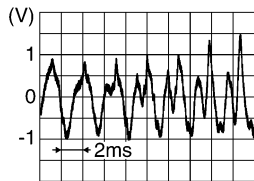
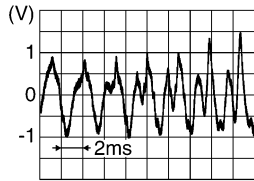
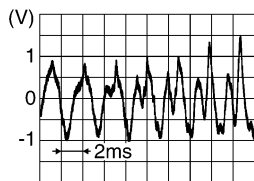
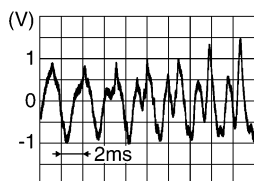
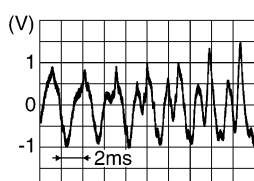
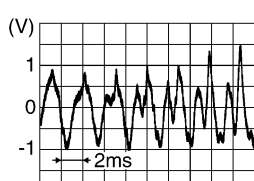
*1 With telephone system: PTT switch

*2 With telephone system: MODE switch

Terminals and Reference Value for BOSE Speaker Amp. NKS002F5

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
1 (Y/R)	Ground	Battery power supply	Input	—	—	Battery voltage
9 (G/Y)	10 (B/Y)	Audio signal rear LH	Output	ON	Receive audio sig- nal	 <small>SKIB3609E</small>
11 (R/L)	12 (B)	Audio signal rear RH	Output	ON	Receive audio sig- nal	 <small>SKIB3609E</small>
13 (G)	14 (R)	Audio signal front LH	Output	ON	Receive audio sig- nal	 <small>SKIB3609E</small>

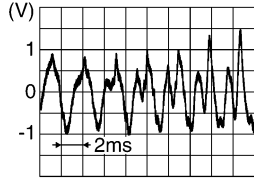
AUDIO

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
15 (GY)	16 (Y)	Audio signal front RH	Output	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
17 (B/R)	Ground	Ground	—	—	—	—
18 (L/Y)	2 (W/G)	Audio signal woofer LH	Output	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
19 (L/R)	3 (L/W)	Audio signal woofer RH	Output	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
24 (L)	23 (P)	Audio signal rear RH	Input	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
26 (LG)	25 (PU)	Audio signal rear LH	Input	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
28 (OR/L)	27 (W/L)	Audio signal front RH	Input	ON	Receive audio sig- nal	 <p style="text-align: right; font-size: small;">SKIB3609E</p>

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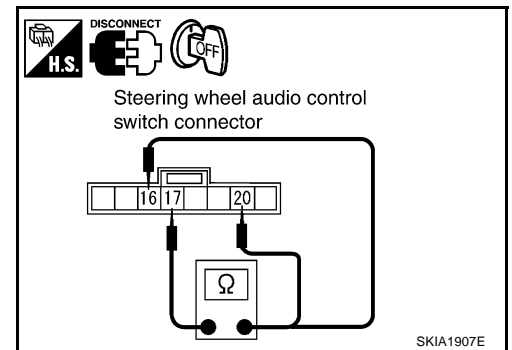
AUDIO

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
30 (W)	29 (OR)	Audio signal front LH	Input	ON	Receive audio sig- nal	 SKIB3609E
31 (SB)	Ground	Amp. ON signal	Input	ON	—	Approx. 12 V

Steering Wheel Audio Control Switch Resistance Inspection

NKS002F7

Terminal	Signal name	Condition	Resistance (Ω)	
16	17	Power	Depress power switch*1 .	Approx. 0
	17	Seek down (previous)	Depress (station) down switch.	Approx. 165
		Volume (down)	Depress volume down switch.	Approx. 652
20	17	Mode	Depress mode switch*2 .	Approx. 0
	17	Seek up (next)	Depress (station) up switch.	Approx. 165
		Volume (up)	Depress volume up switch.	Approx. 652



*1 With telephone system: MODE switch

*2 With telephone system: PTT switch

AUDIO

NKS002J9

Trouble Diagnosis

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

Symptom	Possible malfunction location
Audio system does not work properly.	<ul style="list-style-type: none"> ● Audio unit power supply circuit ● Audio unit
No sound can be heard from all speakers.	Base system <ul style="list-style-type: none"> ● Audio unit
	BOSE system <ul style="list-style-type: none"> ● BOSE speaker amp. power supply and ground circuit ● BOSE speaker amp. ON signal circuit ● Audio unit ● BOSE speaker amp.
No sound can be heard from one or several speakers.	Base system <ul style="list-style-type: none"> ● Audio signal circuit between audio unit and speaker ● Speaker ● Tweeter ● Audio unit
	BOSE system <ul style="list-style-type: none"> ● Audio signal circuit between audio unit and BOSE speaker amp. ● Audio signal circuit between BOSE speaker amp. and speaker ● Speaker ● Tweeter ● Audio unit ● BOSE speaker amp.
No sound can be heard from woofer.	<ul style="list-style-type: none"> ● Woofer amp. power supply and ground circuit ● Audio signal circuit between BOSE speaker amp. and woofer ● Audio signal circuit between woofer amp. and woofer ● Woofer ● BOSE speaker amp.
No sound can be heard from radio or noise is caught.	<ul style="list-style-type: none"> ● Antenna amp. ON signal circuit ● Antenna feeder ● Antenna ● Antenna amp. ● Audio unit

NOTE:

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

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

AUDIO

NKS002FA

Power Supply Circuit Inspection

1. CHECK FUSE

Check the following fuses of the BOSE speaker amp. and audio unit.

Unit	Connector	Terminal	Signal name	Fuse No.
Audio unit	M40	6	Battery power	37
		10	Ignition switch ACC or ON	6
BOSE speaker amp.	B123	1	Battery power	37

OK or NG

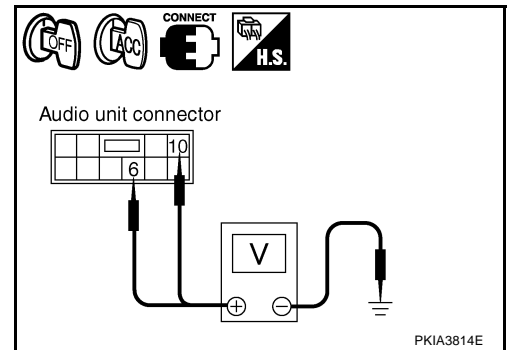
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

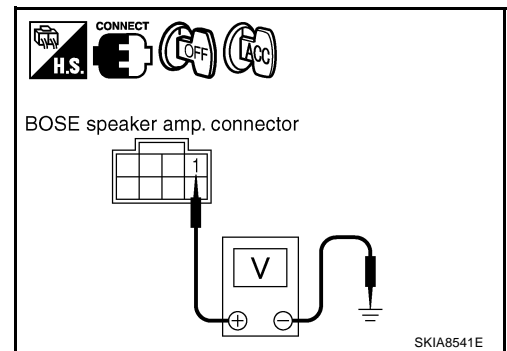
1. Check voltage between the audio unit harness connector and ground.

Unit	Terminal No.			OFF	ACC
	(+)		(-)		
	Connector	Terminal			
Audio unit	M40	6	Ground	Battery voltage	Battery voltage
		10	Ground	0 V	Battery voltage



2. Check voltage between BOSE speaker amp. harness connector and ground.

Unit	Terminal No.			OFF	ACC
	(+)		(-)		
	Connector	Terminal			
BOSE speaker amp.	B123	1	Ground	Battery voltage	Battery voltage



OK or NG

OK >> ● INSPECTION END (Base system)

● GO TO 3. (BOSE system)

NG >> Repair harness or connector.

AUDIO

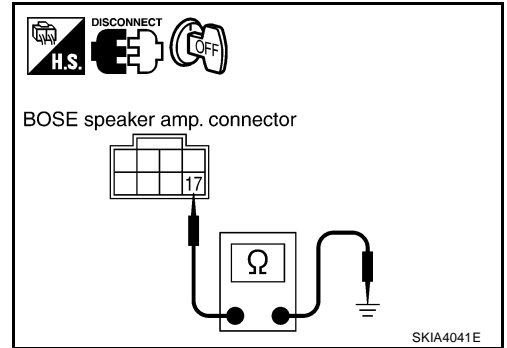
3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BOSE speaker amp. connector.
3. Check continuity between BOSE speaker amp. harness connector B123 terminal 17 and ground.

17 - Ground : Continuity should exist.

OK or NG

- OK >> INSPECTION END
 NG >> Repair harness or connector.



Steering Wheel Audio Control Switch Does Not Operate WITHOUT TELEPHONE SYSTEM

NKS002FB

1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

1. Turn ignition switch OFF.
2. Disconnect of steering wheel audio control switch connector.
3. Check resistance of steering wheel audio control switch. Refer to [AV-26. "Steering Wheel Audio Control Switch Resistance Inspection"](#).

Resistance value is OK?

YES or NO

- YES >> GO TO 2.
 NO >> Replace steering wheel audio control switch.

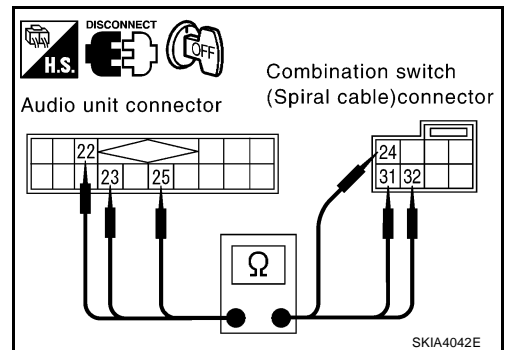
2. CHECK STEERING WHEEL AUDIO CONTROL SWITCH CIRCUIT

1. Disconnect audio unit connector.
2. Check continuity between audio unit harness connector M39 and combination switch (spiral cable) harness connector M23.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
M39	22	M23	24	Yes
	23		32	
	25		31	

OK or NG

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



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3. CHECK AUDIO UNIT

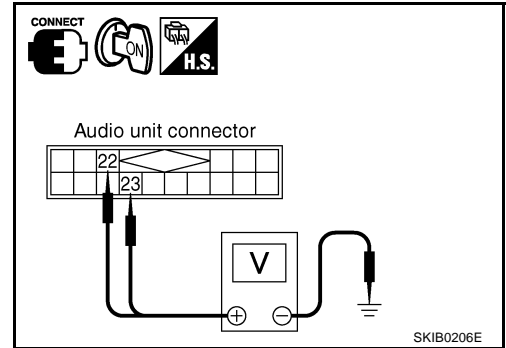
1. Connect audio unit connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector M39 terminal 22, 23 and ground.

22 - Ground : Approx. 5 V

23 - Ground : Approx. 5 V

OK or NG

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



WITH TELEPHONE SYSTEM

Refer to [AV-105, "Steering Wheel Audio Control Switch Does Not Operate"](#).

Speed Sensitive Volume System Does Not Work

NKS002FC

1. CHECK VEHICLE SPEED OPERATION

Does speedometer operate normally?

YES or NO

YES >> GO TO 2.

NO >> Perform combination meter trouble diagnosis. Refer to [DI-15, "Vehicle Speed Signal Inspection"](#) in "COMBINATION METERS".

2. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect audio unit connector and combination meter connector.
3. Check continuity between audio unit harness connector M39 terminal 18 and combination meter harness connector M19 terminal 14.

18 - 14 : Continuity should exist.

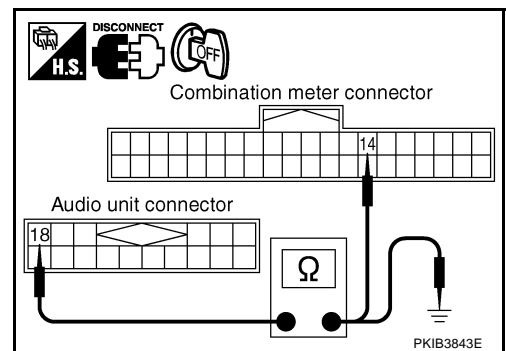
4. Check continuity between audio unit harness connector M39 terminal 18 and ground.

18 - Ground : Continuity should exist.

OK or NG

OK >> GO TO 3.

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



AUDIO

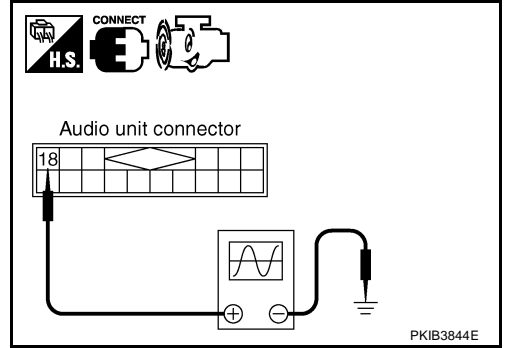
3. CHECK VEHICLE SPEED SIGNAL

1. Connect audio unit connector and combination meter connector.
2. Start engine and drive vehicle at more than 40 km/h (25 MPH).
3. Check the signal between audio unit harness connector M39 terminal 18 and ground with CONSULT-II or oscilloscope.

18 – Ground : Refer to [AV-21, "Terminals and Reference Value for Audio Unit for Base System"](#) or [AV-22, "Terminals and Reference Value for Audio Unit for BOSE System"](#) .

OK or NG

- OK >> Replace audio unit.
NG >> Check combination meter system. Refer to [DI-13, "PRELIMINARY CHECK"](#) in "COMBINATION METERS".



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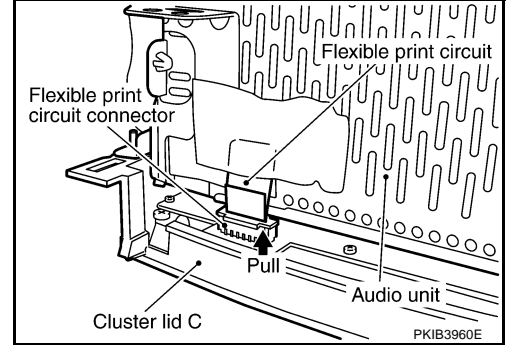
AUDIO

NKS002HO

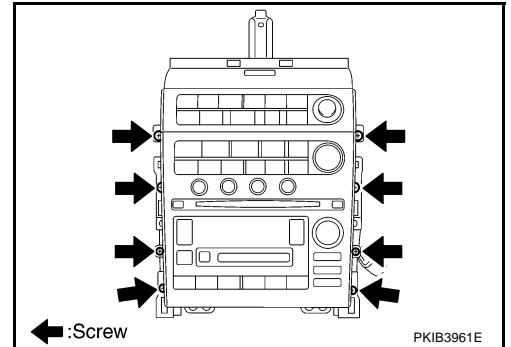
Removal and Installation for Audio Unit

REMOVAL

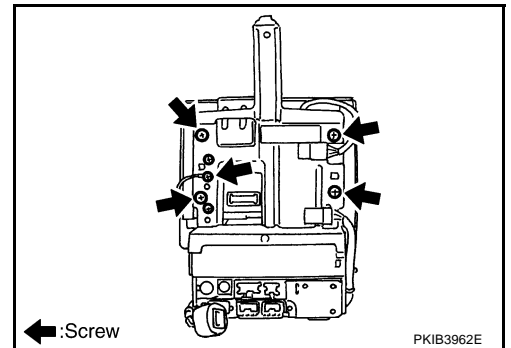
1. Remove cluster lid C. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#).
2. Unlock FPC (Flexible Print Circuit) connector lock on A/C and audio controller side.
3. Pull off flexible print circuit from connector.



4. Remove screws (8). Remove audio unit and display unit assembly (with navigation system) from cluster lid C.



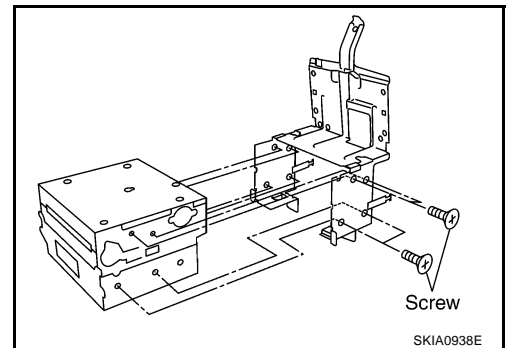
5. Separate audio unit from display unit assembly (with navigation system).



6. Remove 8 screws, and then bracket.

CAUTION:

- Be careful not to allow foreign material to drop into CD slot.



INSTALLATION

Installation is the reverse order of removal.

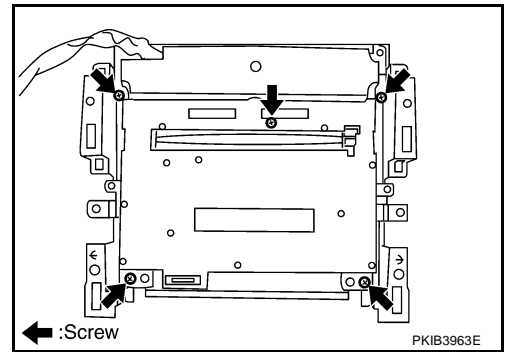
AUDIO

Removal and Installation for A/C and Audio Controller

NKS002HP

REMOVAL

1. Remove audio unit and display unit assembly (with navigation system) from cluster lid C. Refer to [AV-32, "Removal and Installation for Audio Unit"](#).
2. Remove NAVI switch (with navigation system). Refer to [AV-91, "Removal and Installation of NAVI Switch"](#).
3. Remove screws (5) and remove A/C and audio controller.



INSTALLATION

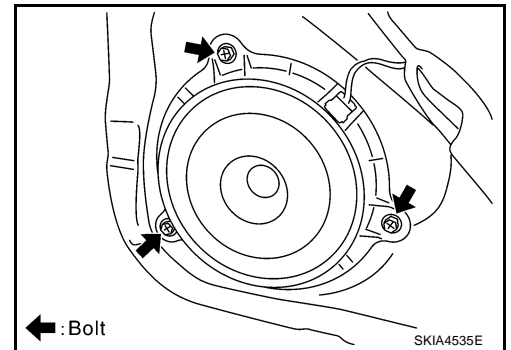
Installation is the reverse order of removal.

Removal and Installation of Door Speaker

REMOVAL

1. Remove door finisher. Refer to [EI-29, "DOOR FINISHER"](#).
2. Remove bolts (3), and remove speaker.

NKS002HQ



INSTALLATION

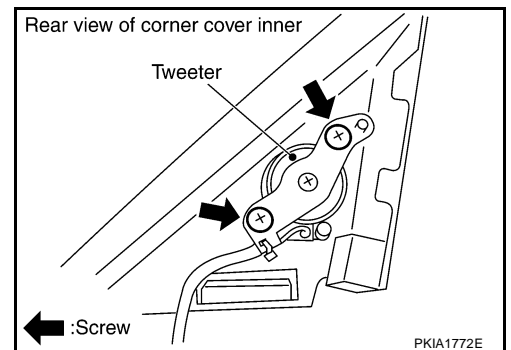
Installation is the reverse order of removal.

Removal and Installation of Tweeter Behind Door Mirror

REMOVAL

1. Remove corner cover inner. Refer to [EI-29, "DOOR FINISHER"](#).
2. Remove screws (2), and remove tweeter behind door mirror.

NKS002HR



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of Rear Side Speaker

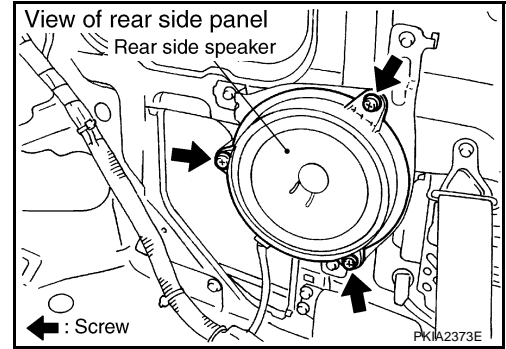
REMOVAL

1. Remove rear side finisher. Refer to [EI-31, "BODY SIDE TRIM"](#).

NKS002HS

AUDIO

2. Remove screws (3) and remove speaker.



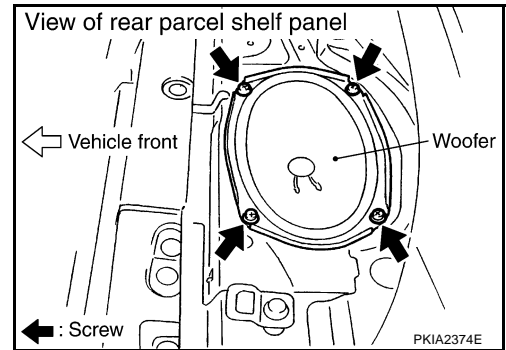
INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of Woofer REMOVAL

1. Remove rear parcel shelf finisher. Refer to [EI-33, "REAR PARCEL SHELF FINISHER"](#).
2. Remove screws (4), and remove woofer.

NKS002HT



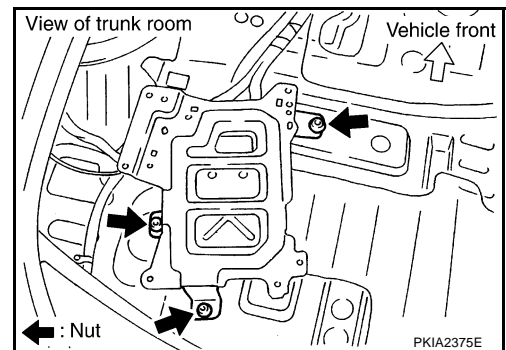
INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of BOSE Speaker Amp. REMOVAL

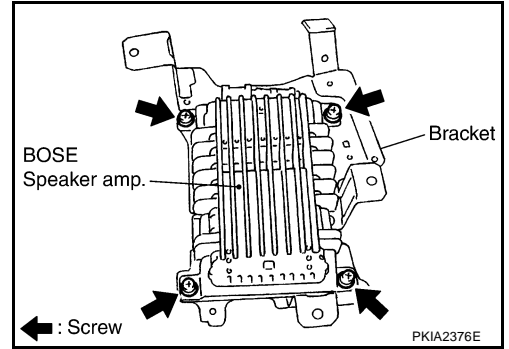
1. Remove luggage floor carpet and spare tire cover. Refer to [EI-38, "Removal and Installation for Trunk Room Trim"](#).
2. Remove trunk side box. Refer to [EI-38, "Removal and Installation for Trunk Room Trim"](#).
3. Remove TEL adapter unit connectors and TEL antenna feeder clip. (With telephone system)
4. Remove nuts (3), and remove BOSE speaker amp. from trunk room floor.

NKS002HU



AUDIO

5. Remove bolts (4), and remove bracket.



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of Steering Wheel Audio Control Switch

NKS002FL

Refer to [PS-11, "Disassembly and Assembly"](#) .

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ANTENNA

ANTENNA

PFP:28200

System Description (Radio Antenna)

NKS002FM

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

- through 10A fuse [No. 6, located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the antenna amp.

When the radio switch is turned ON, antenna signal is supplied

- through audio unit terminal 5
- to the antenna amp. terminal 2.

Then the antenna amp. is activated.

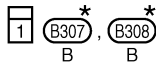
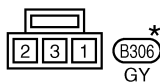
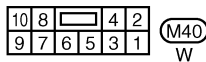
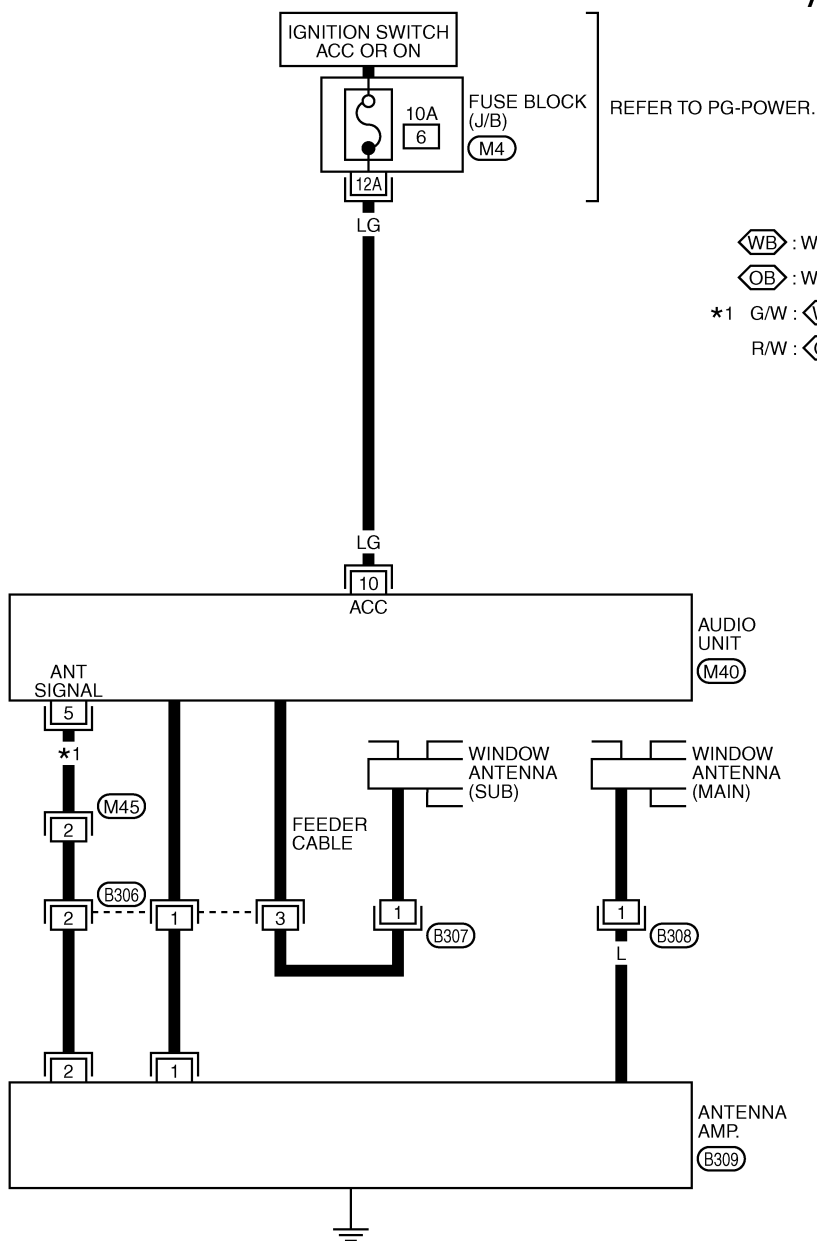
The amplified radio signals are supplied to the audio unit through the antenna amp.

ANTENNA

Wiring Diagram —W/ANT— (Radio Antenna)

NKS002FN

AV-W/ANT-01



REFER TO THE FOLLOWING.
M4 - FUSE BLOCK-JUNCTION BOX (J/B)

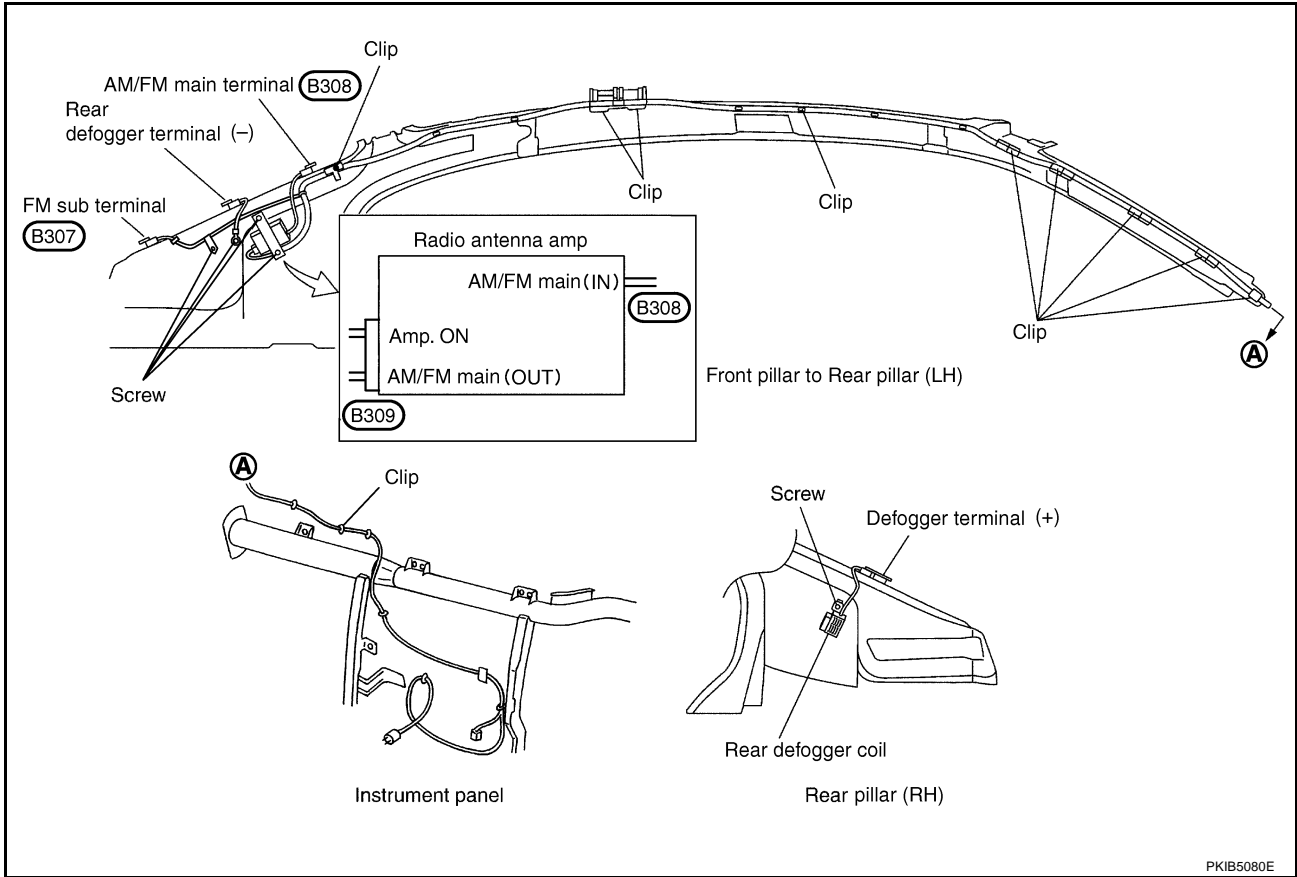
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3507E

ANTENNA

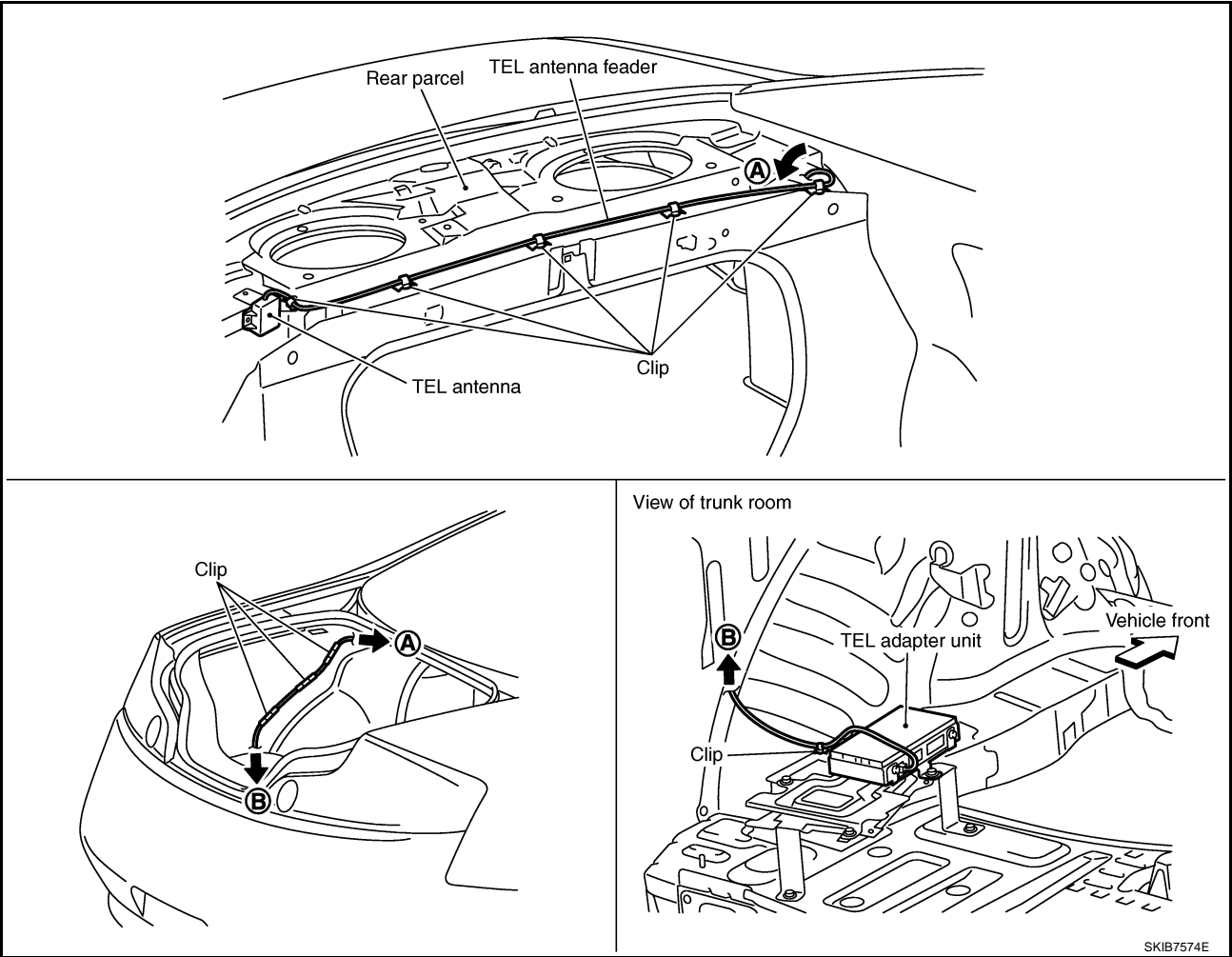
NKS002FO

Location of Antenna RADIO ANTENNA



ANTENNA

TEL ANTENNA



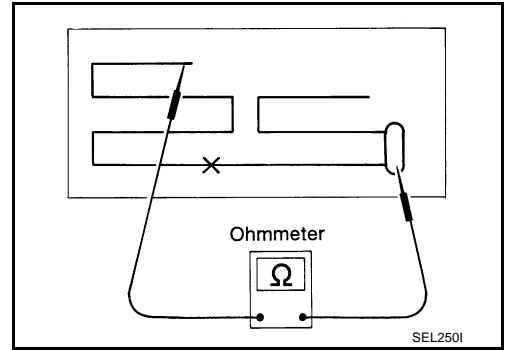
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Window Antenna Repair ELEMENT CHECK

NKS002FP

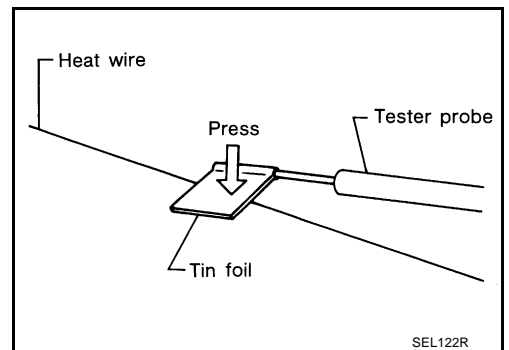
1. Attach probe circuit tester (ohm setting) to antenna terminal on each side.

AV



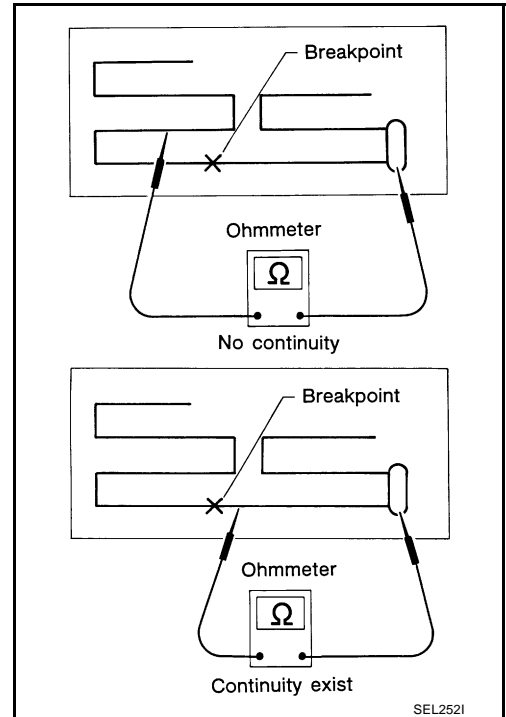
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- When measuring continuity, wrap tin foil around the top of probe. Then, press the foil against the wire with finger.

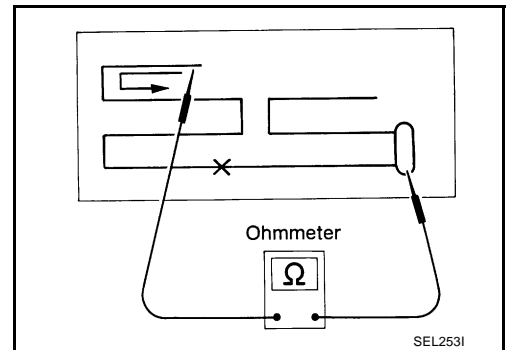


ANTENNA

2. If an element is broken, no continuity will exist.



3. To locate a break, move probe along element. Tester needle will swing abruptly when probe passes the broken point.



ELEMENT REPAIR

Refer to [GW-81, "Filament Repair"](#) .

NAVIGATION SYSTEM

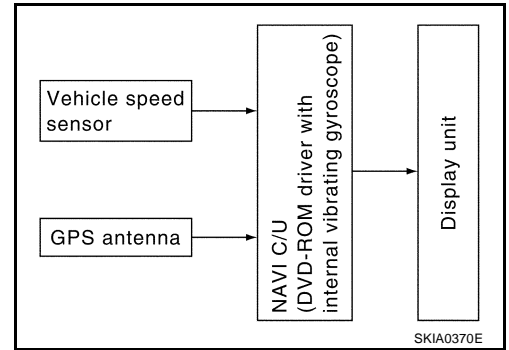
PFP:25915

System Description

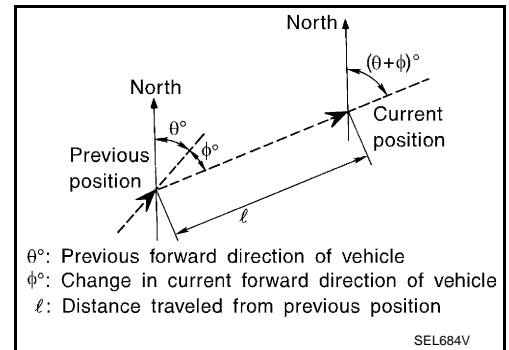
NKS002FO

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 as a current-location mark.



My accurate data is judged and used by comparing vehicle position detection results found by the GPS with the result by map-matching. The current vehicle position will be calculated by detecting the distance the vehicle moved from the previous calculation point and its direction.



TRAVEL DISTANCE

Travel distance calculations are based on the vehicle speed sensor input signal. Therefore, the calculation may become incorrect as the tires wear down. To prevent this, an automatic distance fine adjustment function has been adopted.

TRAVEL DIRECTION

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

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

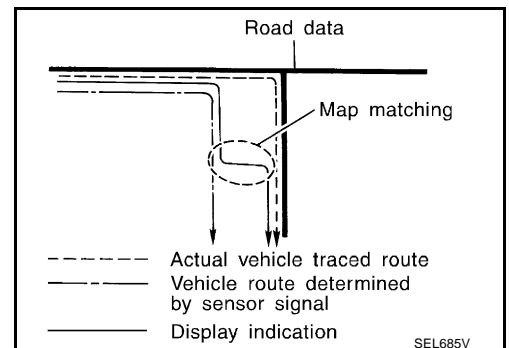
MAP-MATCHING

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.

In the following cases, 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.

CAUTION:

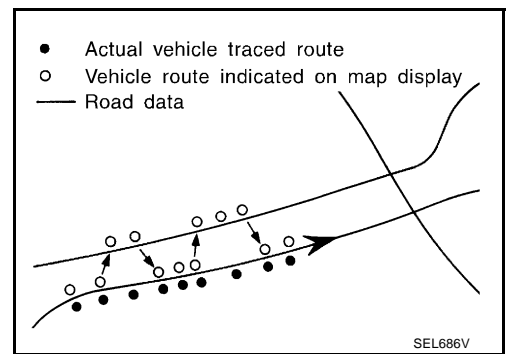
The road map data is based on data stored in the map DVD-ROM.



NAVIGATION SYSTEM

- In map-matching, alternative routes are prepared and prioritized in addition to the road judged currently driven. Due to the distance and/or direction error, the incorrect road may be prioritized and current location mark may be repositioned to the wrong road.

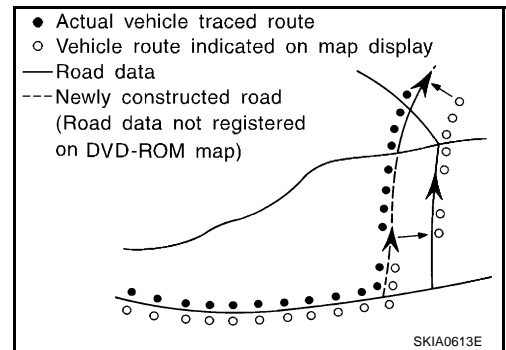
When two roads are running in parallel, they are judged to the same priority. Therefore, the current-location mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road.



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

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

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

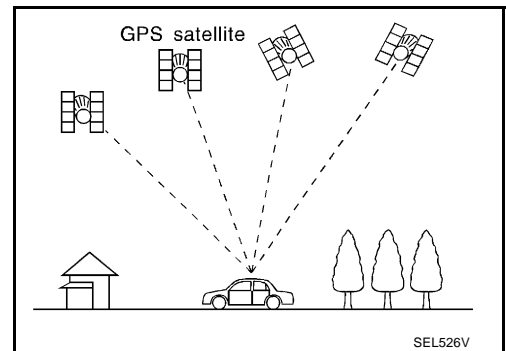


GPS (GLOBAL POSITIONING SYSTEM)

GPS (Global Positioning System) has been developed and controlled by the US Department of Defense. The system utilizes GPS satellite (NAVSTAR), sending out radio waves while flying on an orbit around the earth at the height of approx. 21,000 km (13,000 miles). The GPS receiver calculates the vehicle's position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves received from four or more GPS satellites (three-dimensional positioning). If radio waves were received only from three GPS satellites, the GPS receiver calculates the vehicle's position in two dimensions (latitude/longitude), utilizing the altitude data calculated previously by using radio waves from four or more GPS satellites (two-dimensional positioning).

Accuracy of the GPS will deteriorate under the following conditions.

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

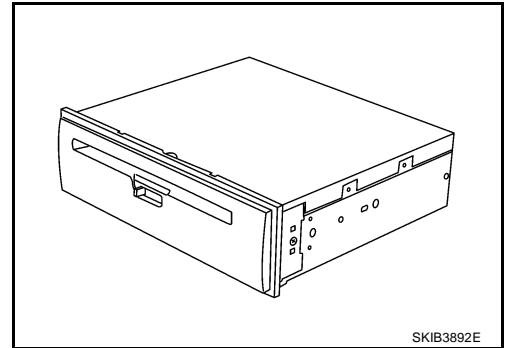


NAVIGATION SYSTEM

COMPONENT DESCRIPTION

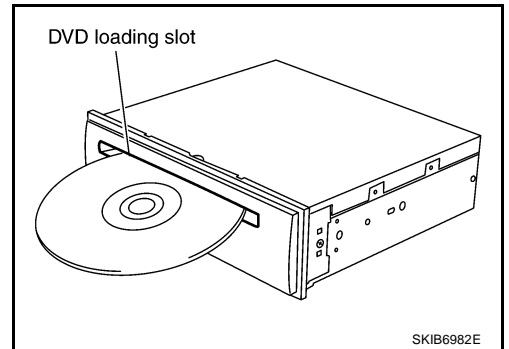
NAVI Control Unit

- 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 these data with the data contained in the DVD-ROM map. Locational information is shown on LCD (liquid crystal display) screen.



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 is not recommended.

Gyro (Angular Speed Sensor)

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

WARNING INDICATIONS

When combination meter receives warning signal from door switch, combination meter warning lamp is illuminated.

Then combination meter sends warning signal to NAVI control unit to display warning indications on the screen.

Warning indicators	Warning lamps in instrument panel	Warning detection and cancel conditions		Cases of malfunction
Door Open	Door	Detection condition	Vehicle is running [approx. 5 km/h (3 MPH) or faster] and door ajar of any of the doors is detected.	Door is open.
		Cancel condition	Vehicle is stopped and all the doors close.	

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AV

NAVIGATION SYSTEM

Precautions for NAVI Control Unit Replacement

NKS002FR

- 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>

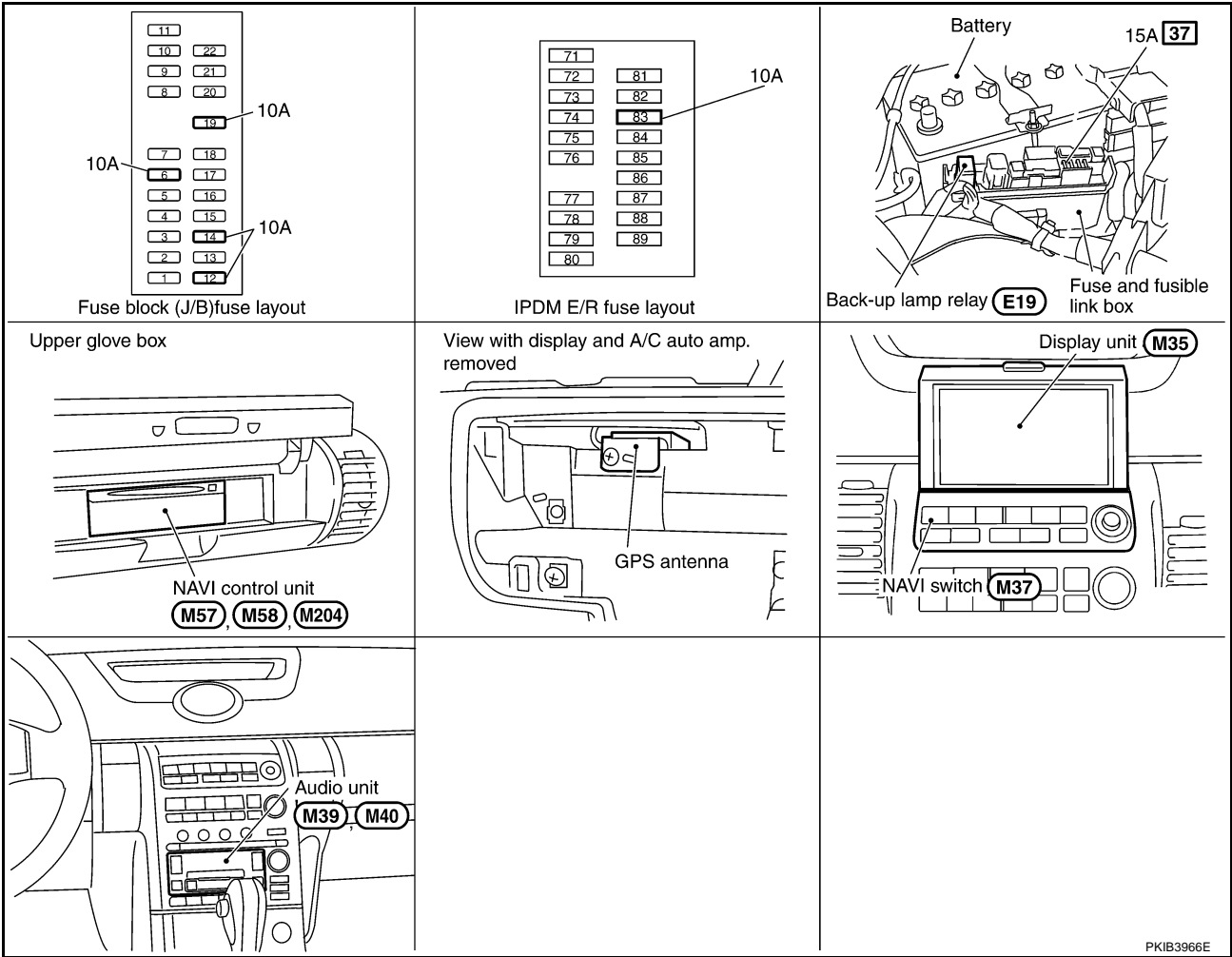
- **Latest status (map screen/BIRD VIEW™, reduced scale, rotation angle of map screen, route guidance ON/OFF, track ON/OFF, etc.)**
- **Current position**
- **Destination, passing point 1 - 5**
- **Registered places, their names, etc.**

NOTE:

Only removing the battery does not erase the memory.

Component Parts Location

NKS002FS

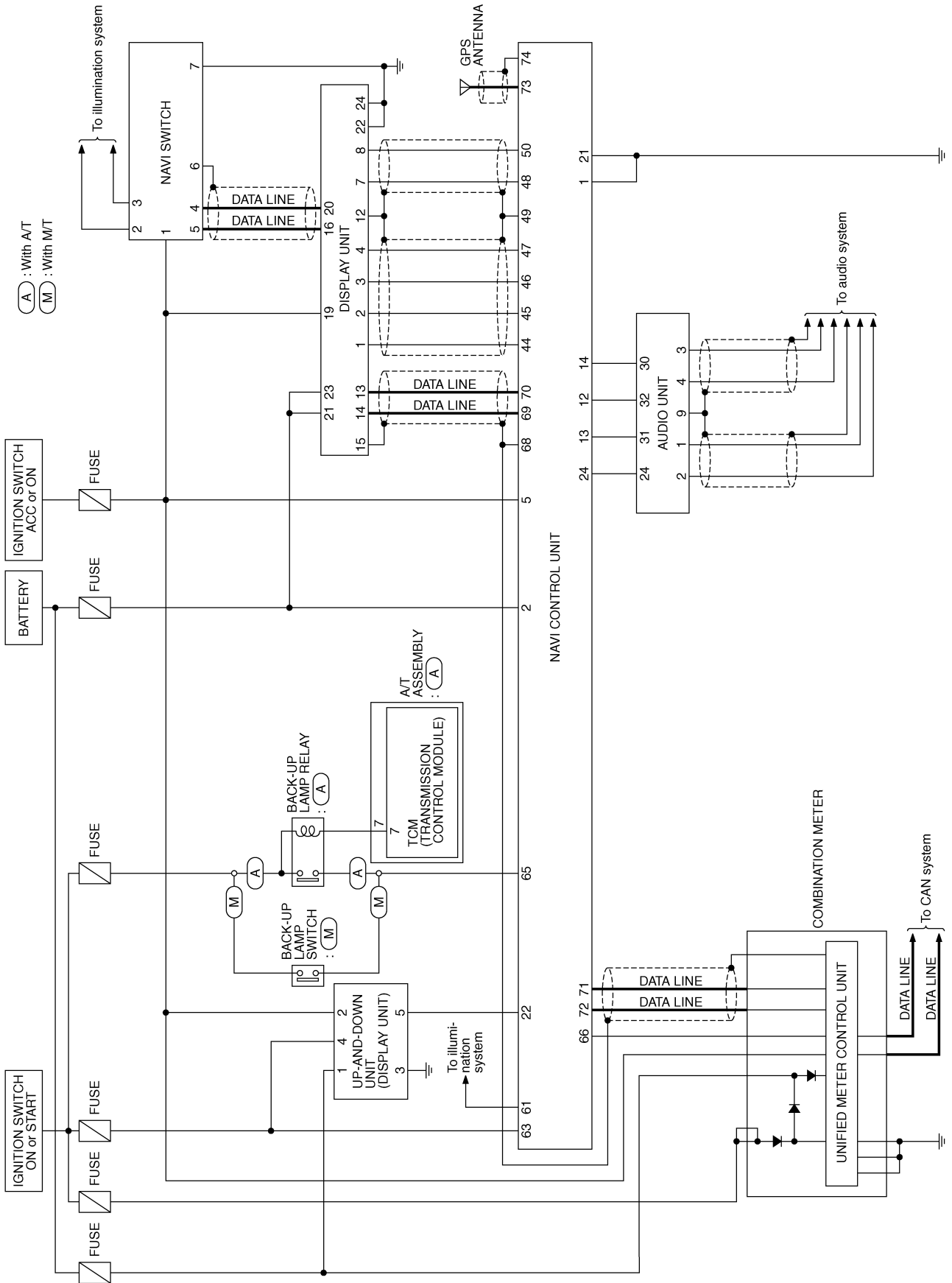


NAVIGATION SYSTEM

Schematic

NKS000P9

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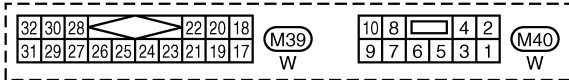
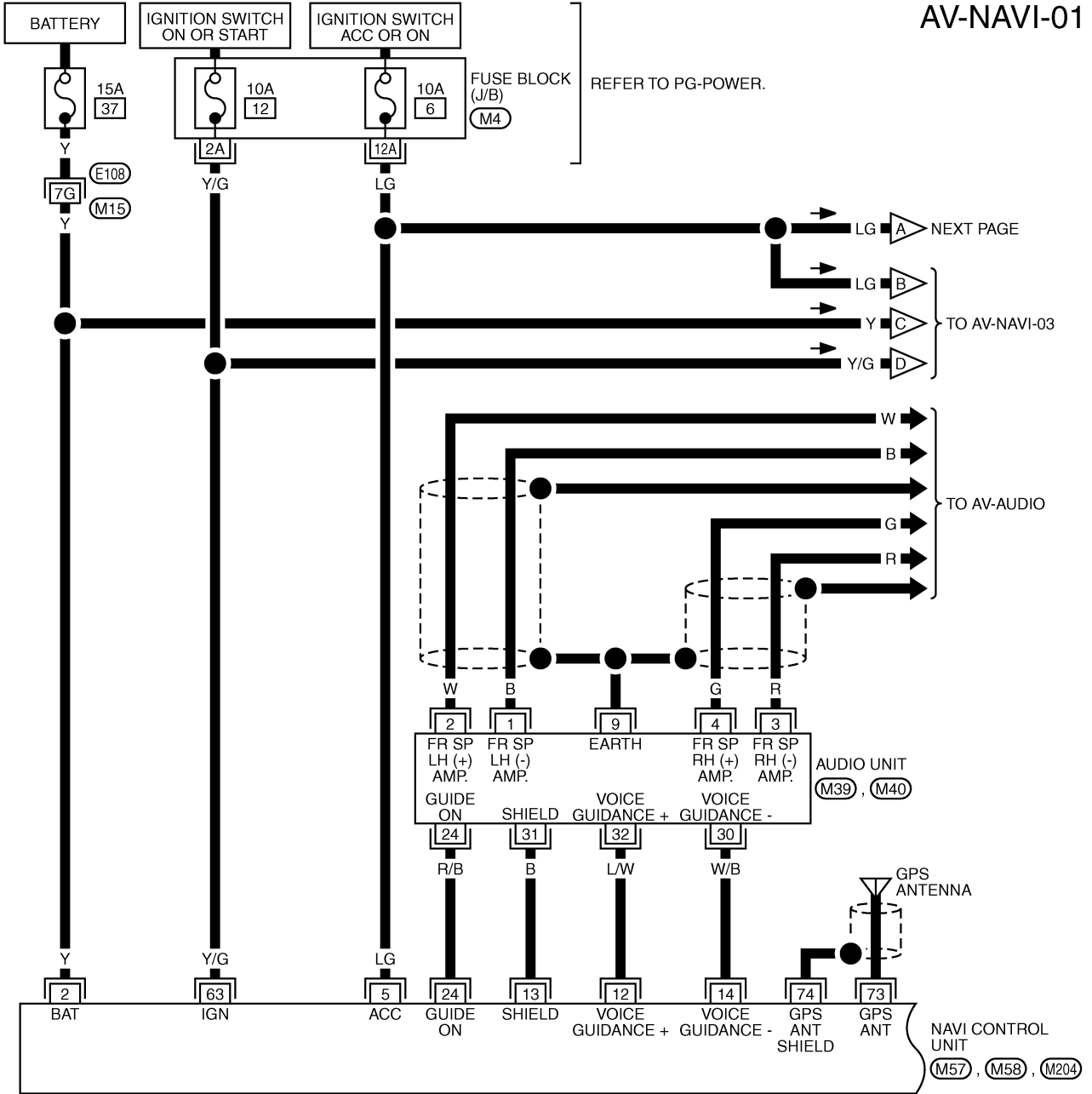
TKWM3508E

NAVIGATION SYSTEM

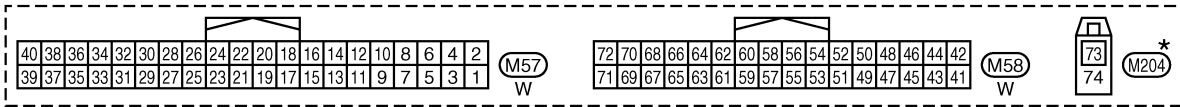
Wiring Diagram —NAVI—

NKS000PA

AV-NAVI-01



REFER TO THE FOLLOWING.
 (E108) -SUPER MULTIPLE JUNCTION (SMJ)
 (M4) -FUSE BLOCK-JUNCTION BOX (J/B)



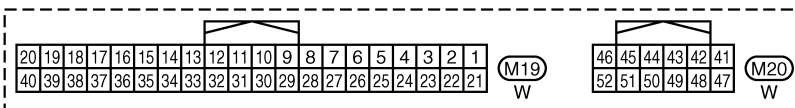
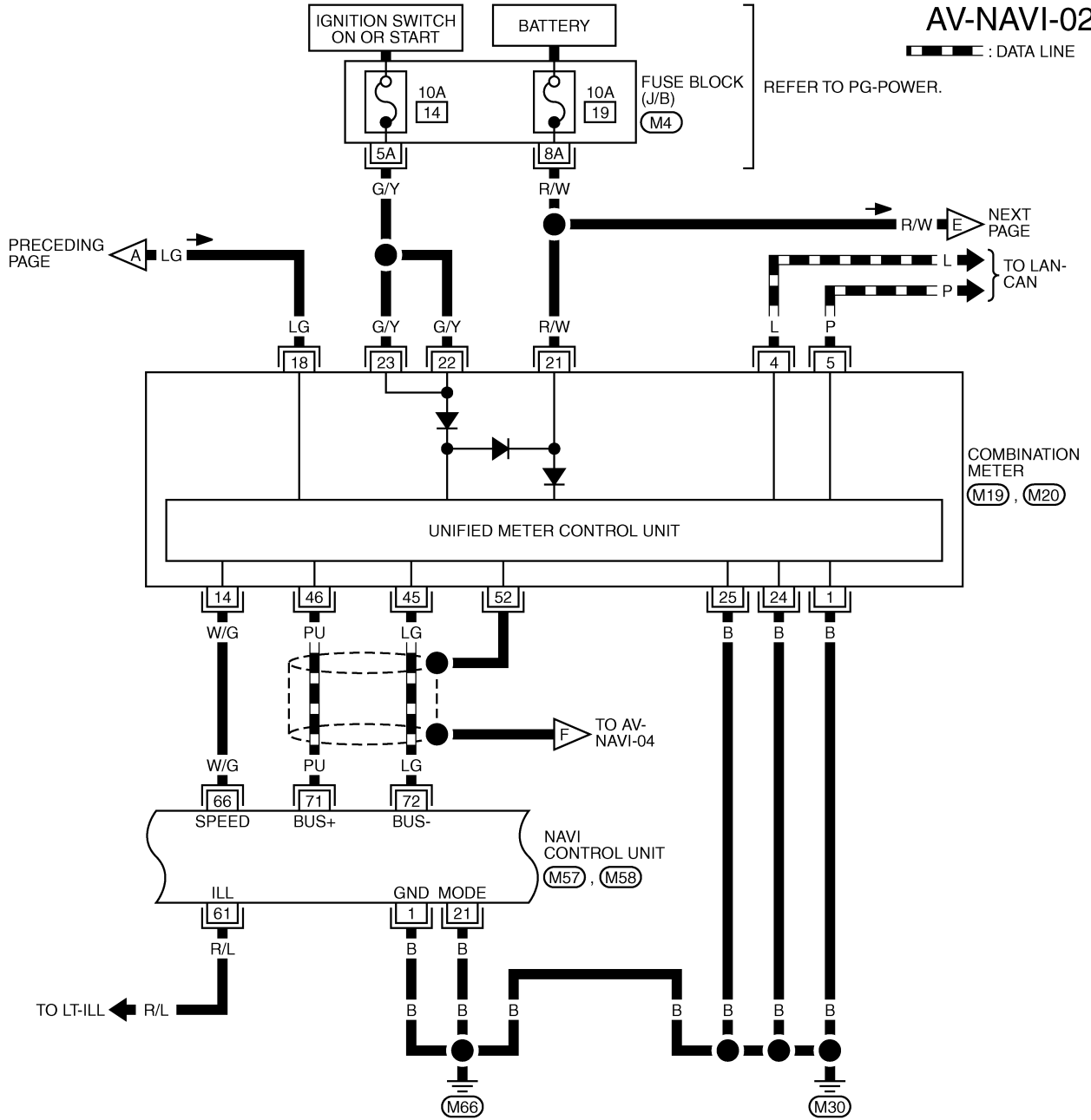
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3509E

NAVIGATION SYSTEM

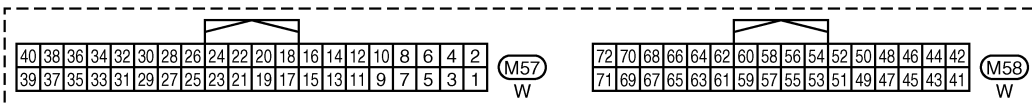
AV-NAVI-02

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M4) - FUSE BLOCK-JUNCTION BOX (J/B)

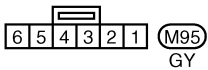
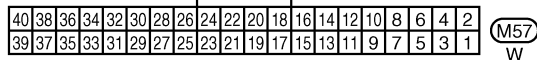
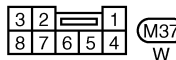
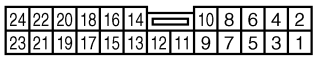
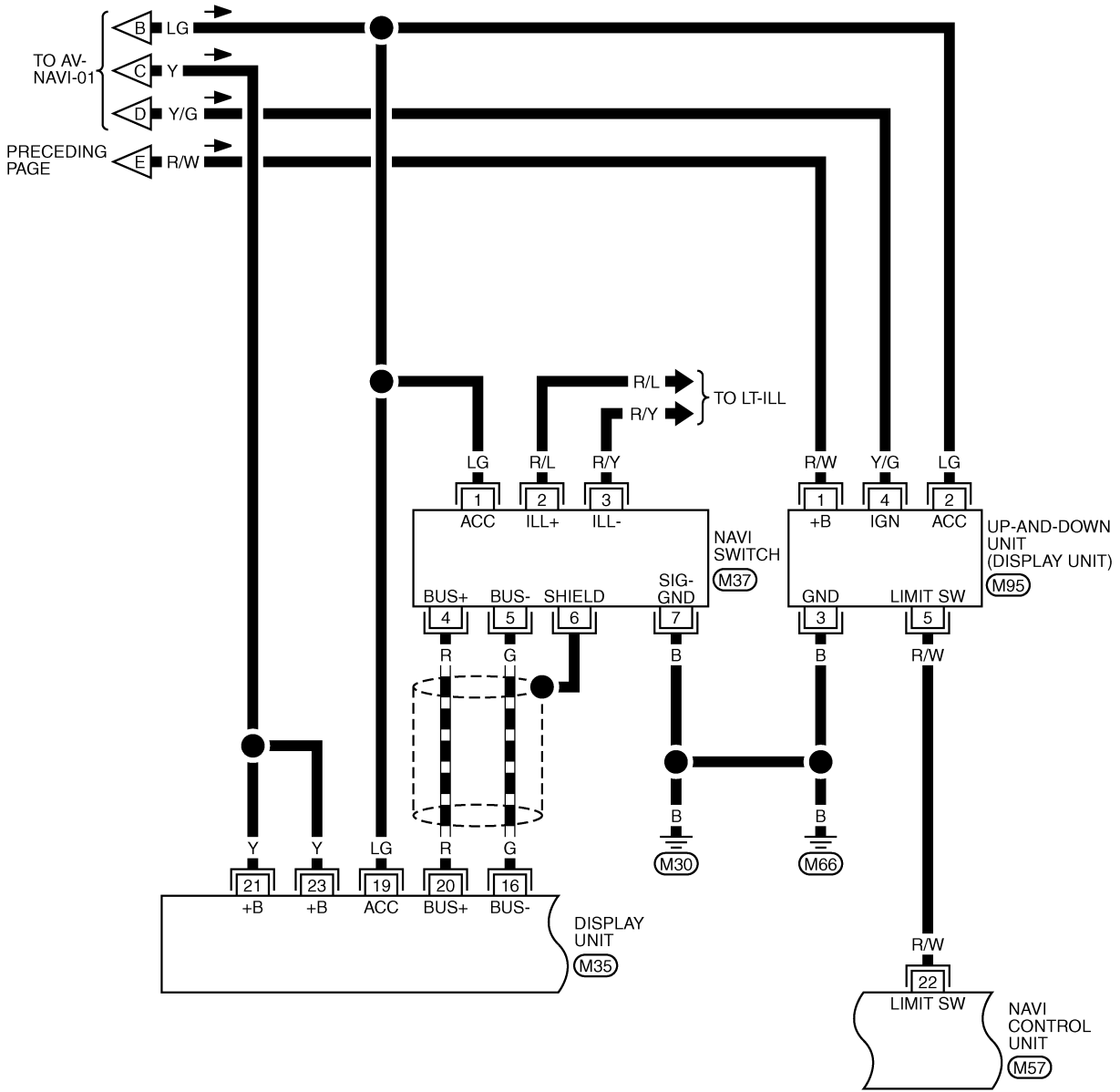


TKWM3510E

NAVIGATION SYSTEM

AV-NAVI-03

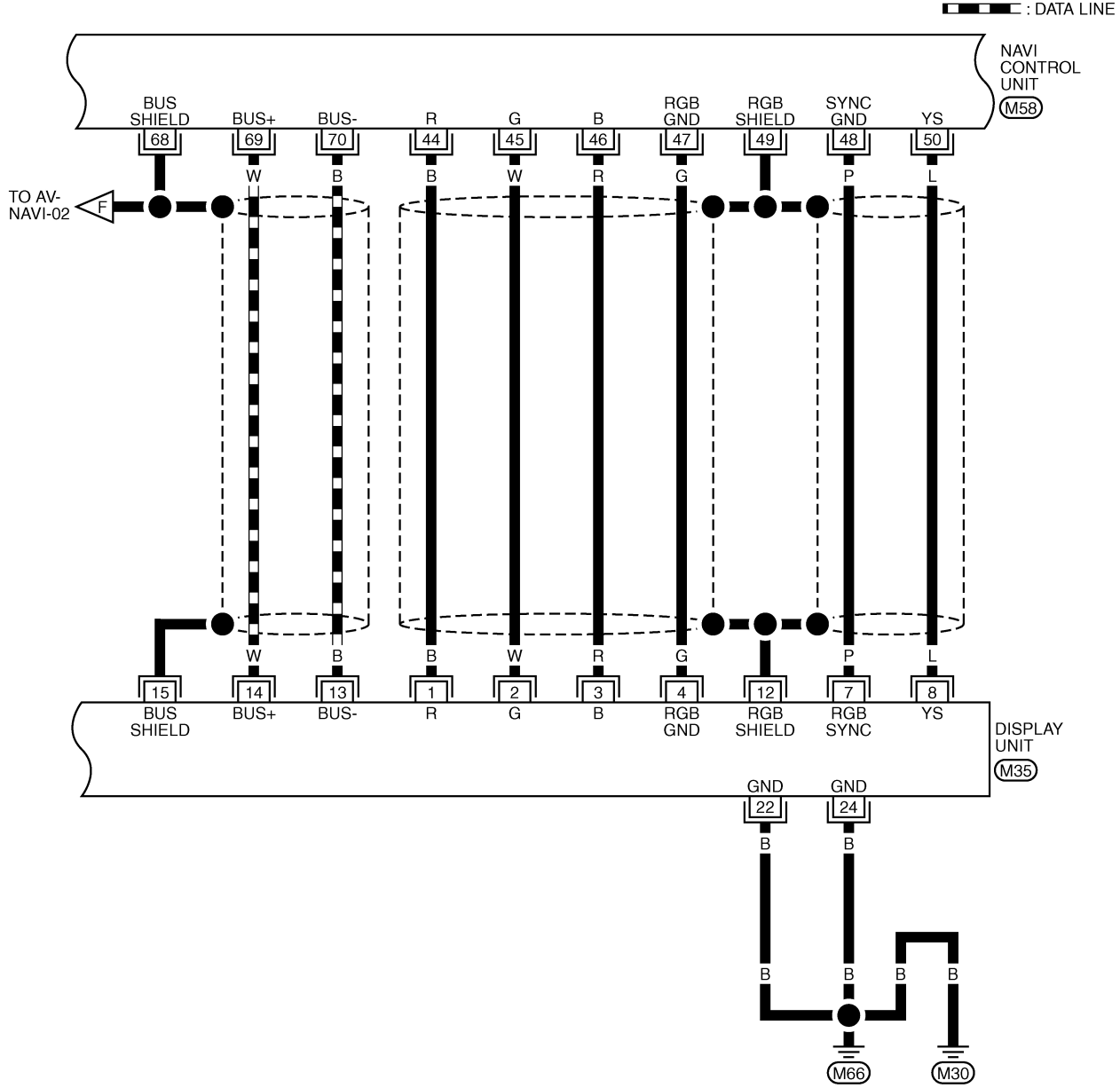
▬ : DATA LINE



TKWM3511E

NAVIGATION SYSTEM

AV-NAVI-04



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

(M35) W

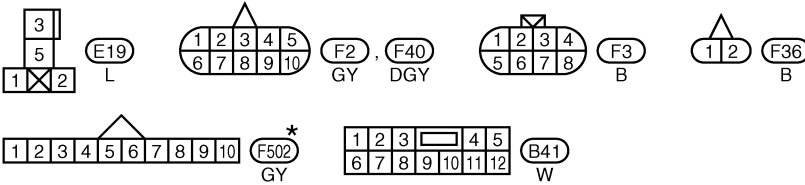
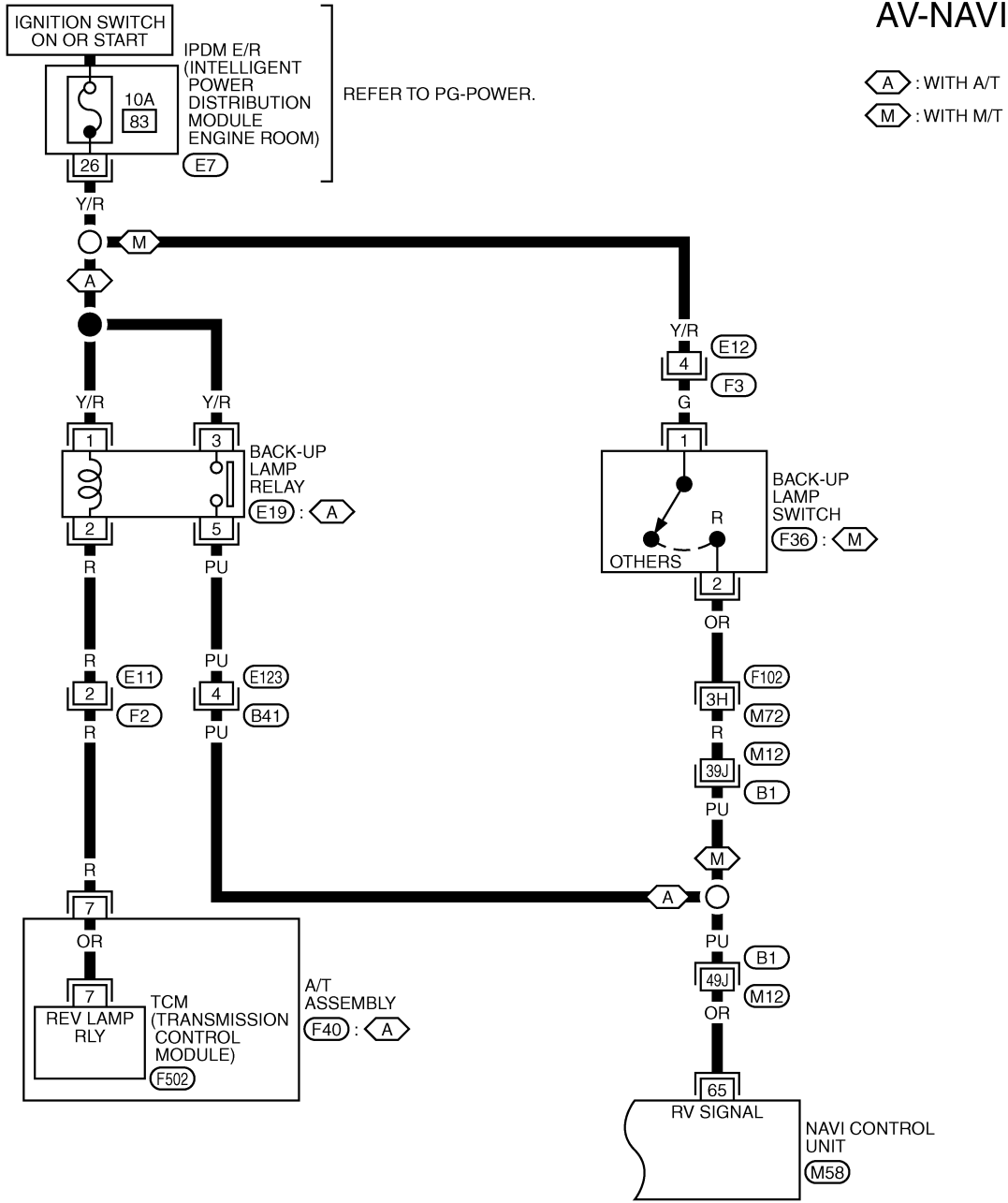
72	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42
71	69	67	65	63	61	59	57	55	53	51	49	47	45	43	41

(M58) W

TKWM3512E

NAVIGATION SYSTEM

AV-NAVI-05



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

REFER TO THE FOLLOWING.
 (F102), (B1) -SUPER MULTIPLE JUNCTION (SMJ)

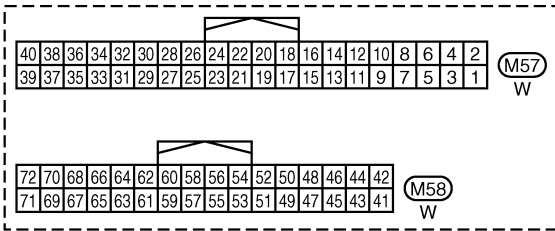
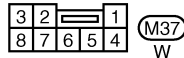
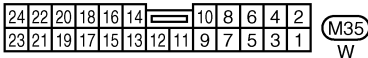
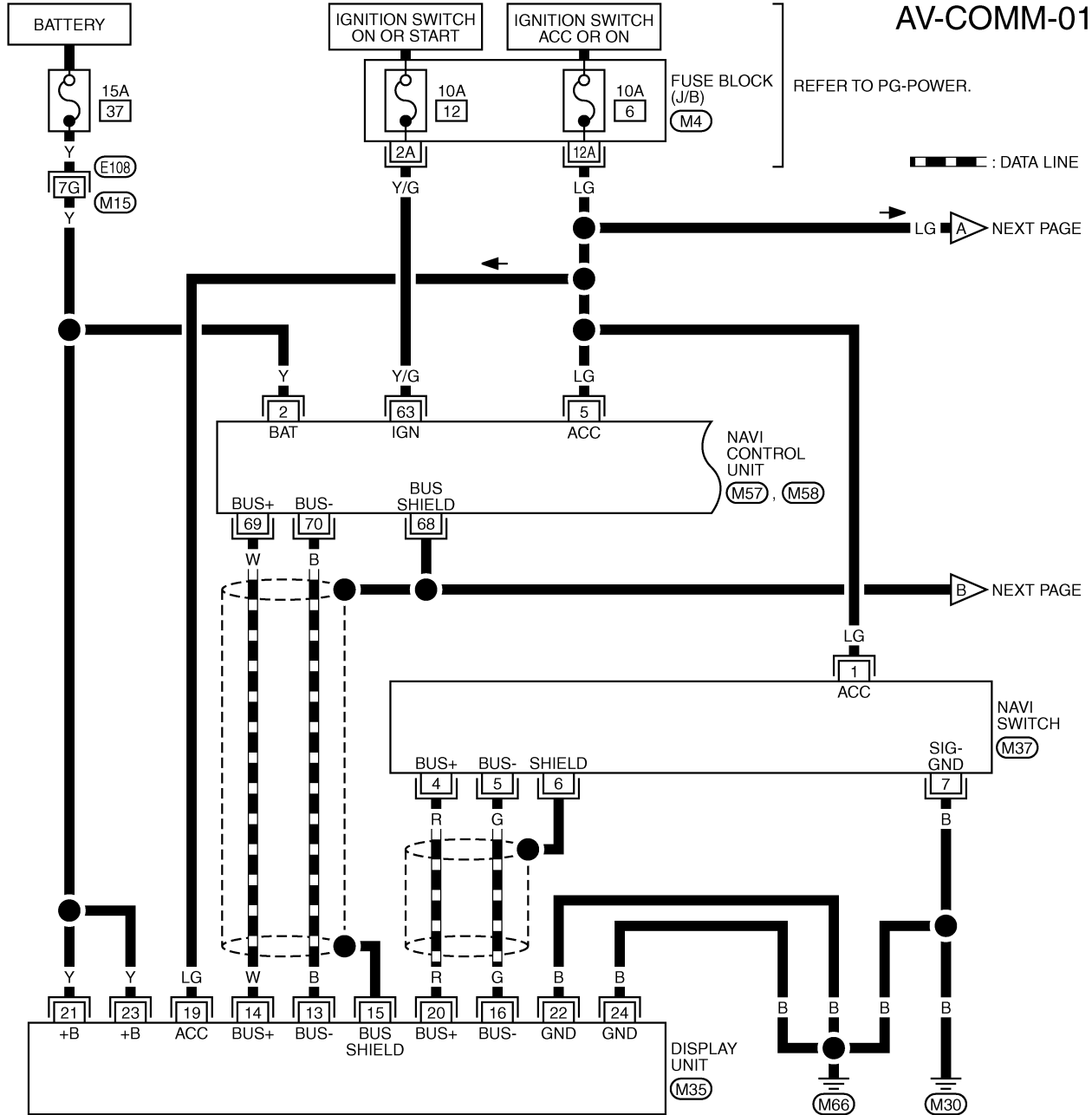
TKWM3513E

NAVIGATION SYSTEM

Wiring Diagram — COMM—

NKS000PB

AV-COMM-01



REFER TO THE FOLLOWING.

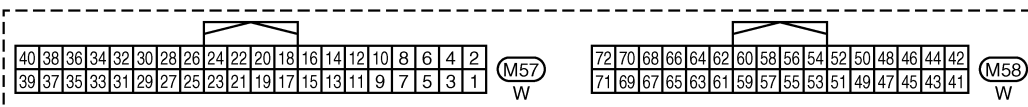
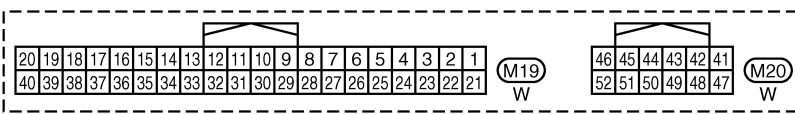
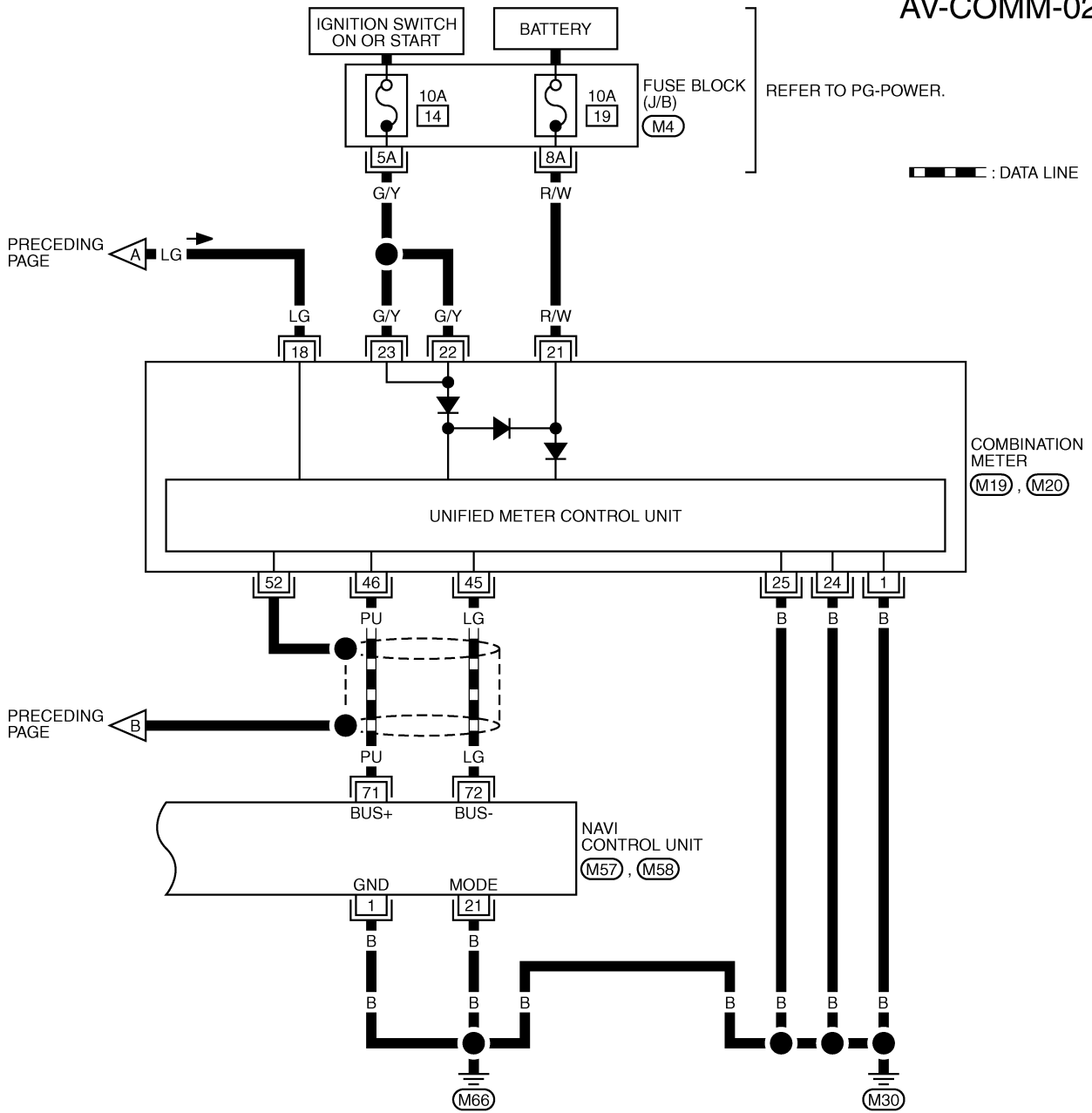
(E108) -SUPER MULTIPLE JUNCTION (SMJ)

(M4) -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM3514E

NAVIGATION SYSTEM

AV-COMM-02

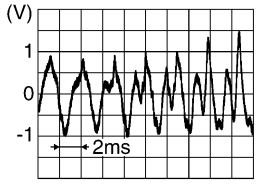
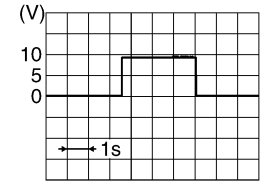
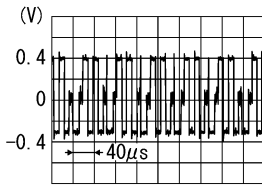
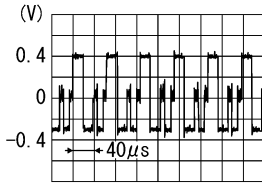
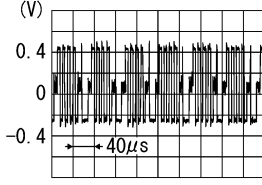


TKWM3515E

NAVIGATION SYSTEM

Terminals and Reference Value for NAVI Control Unit

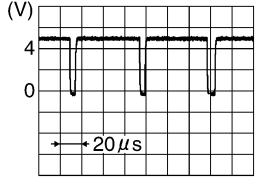
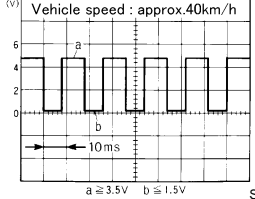
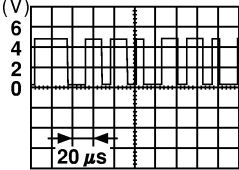
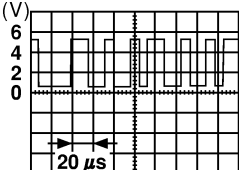
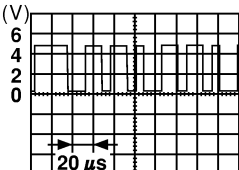
NKS002FT

Terminal (Wire color)		Item	Signal Input/ output	Condition		Reference value
+	-			Ignition switch	Operation	
1 (B)	Ground	Ground	—	ON	—	Approx. 0 V
2 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
5 (LG)	Ground	ACC power supply	Input	ACC	—	Battery voltage
12 (L/W)	14 (W/B)	Voice guidance signal	Output	ON	When inputting voice guidance.	 <p style="text-align: right; font-size: small;">SKIB3609E</p>
13	—	Shield	—	—	—	—
21 (B)	Ground	Ground	—	ON	—	Approx. 0 V
22 (R/W)	Ground	Limit switch signal	Input	ON	Display unit is opened.	Approx. 5 V
					Except for above	Approx. 0 V
24 (R/B)	Ground	Voice guidance ON signal	Output	ON	Press the "VOICE" switch.	 <p style="text-align: right; font-size: small;">SKIB0232E</p>
44 (B)	47 (G)	RGB signal (R: red)	Output	ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	 <p style="text-align: right; font-size: small;">SKIB2238J</p>
45 (W)	47 (G)	RGB signal (G: green)	Output	ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	 <p style="text-align: right; font-size: small;">SKIB2236J</p>
46 (R)	47 (G)	RGB signal (B: blue)	Output	ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	 <p style="text-align: right; font-size: small;">SKIB2237J</p>
47 (G)	Ground	RGB ground	—	ON	—	Approx. 0 V

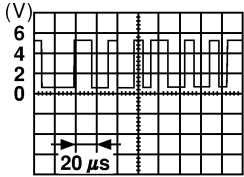
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NAVIGATION SYSTEM

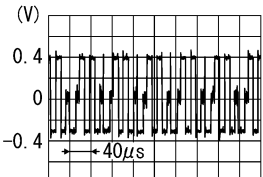
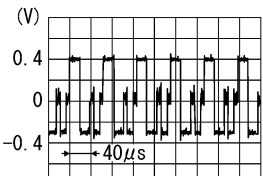
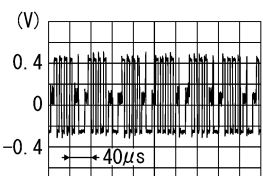
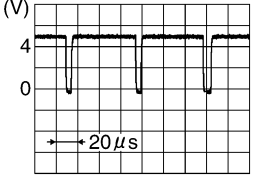
Terminal (Wire color)		Item	Signal Input/ output	Condition		Reference value
+	-			Ignition switch	Operation	
48 (P)	Ground	RGB synchronizing signal	Output	ON	—	 <p style="text-align: right; font-size: small;">SKIB3603E</p>
49	—	Shield	—	—	—	—
50 (L)	Ground	RGB area (YS) signal	Output	ON	When inputting RGB image.	Approx. 5 V
61 (R/L)	Ground	Illumination signal	Input	OFF	Lighting switch position 1st or 2nd	Approx. 12 V
					Lighting switch position OFF	Approx. 0 V
63 (Y/G)	Ground	Ignition signal	Input	ON	—	Battery voltage
65 (OR)	Ground	Reverse signal	Input	ON	Select lever in R position.	Approx. 12 V
					Other than selector lever in R position.	Approx. 0 V
66 (W/G)	Ground	Vehicle speed signal (2-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH).	 <p style="text-align: right; font-size: small;">SKIA0168E</p>
68	—	Shield	—	—	—	—
69 (W)	Ground	Communication signal (+)	Input/ Output	ON	Press the "BACK" switch.	 <p style="text-align: right; font-size: small;">SKIA0175E</p>
70 (B)	Ground	Communication signal (-)	Input/ Output	ON	Press the "BACK" switch.	 <p style="text-align: right; font-size: small;">SKIA0176E</p>
71 (PU)	Ground	Communication signal (+)	Input/ Output	ON	—	 <p style="text-align: right; font-size: small;">SKIA0175E</p>

NAVIGATION SYSTEM

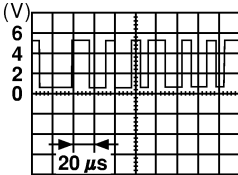
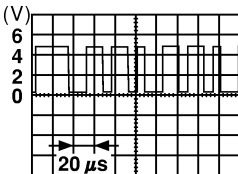
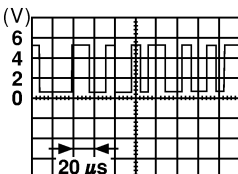
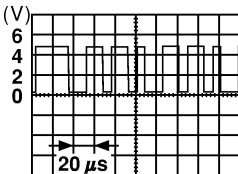
Terminal (Wire color)		Item	Signal Input/ output	Condition		Reference value
+	-			Ignition switch	Operation	
72 (LG)	Ground	Communication signal (-)	Input/ Output	ON	—	 <small>SKIA0176E</small>
73	Ground	GPS signal	Input	ON	Connector is not connected.	Approx. 5 V
74	—	Shield	—	—	—	—

Terminals and Reference Value for Display Unit

NKS002FU

Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value
(+)	(-)			Ignition switch	Operation	
1 (B)	4 (G)	RGB signal (R: red)	Input	ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	 <small>SKIB2238J</small>
2 (W)	4 (G)	RGB signal (G: green)	Input	ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	 <small>SKIB2236J</small>
3 (R)	4 (G)	RGB signal (B: blue)	Input	ON	Start confirmation/adjustment mode, and then display color bar by selecting "Color Spectrum Bar" on DISPLAY DIAGNOSIS screen.	 <small>SKIB2237J</small>
4 (G)	Ground	RGB Ground	—	ON	—	Approx. 0 V
7 (P)	Ground	RGB synchronizing signal	Input	ON	—	 <small>SKIB3603E</small>
8 (L)	Ground	RGB area (YS) signal	Input	ON	When inputting RGB image.	Approx. 5 V
12	—	Shield	—	—	—	—

NAVIGATION SYSTEM

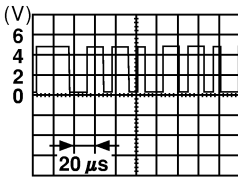
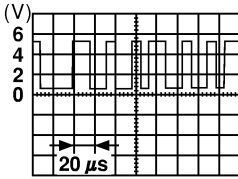
Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value
(+)	(-)			Ignition switch	Operation	
13 (B)	Ground	Communication signal (-)	Input/ Output	ON	Press the "BACK" switch.	 <small>SKIA0176E</small>
14 (W)	Ground	Communication signal (+)	Input/ Output	ON	Press the "BACK" switch.	 <small>SKIA0175E</small>
15	—	Shield	—	—	—	—
16 (G)	Ground	Communication signal (-)	Input/ Output	ON	Press the "BACK" switch.	 <small>SKIA0176E</small>
19 (LG)	Ground	ACC power supply	Input	ACC	—	Battery voltage
20 (R)	Ground	Communication signal (+)	Input/ Output	ON	Press the "BACK" switch.	 <small>SKIA0175E</small>
21 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
22 (B)	Ground	Ground	—	ON	—	Approx. 0 V
23 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
24 (B)	Ground	Ground	—	ON	—	Approx. 0 V

Terminals and Reference Value for NAVI Switch

NKS002FV

Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value
(+)	(-)			Ignition switch	Operation	
1 (LG)	Ground	ACC power supply	Input	ACC	—	Battery voltage

NAVIGATION SYSTEM

Terminal (Wire color)		Item	Signal input/ output	Condition		Reference value
(+)	(-)			Ignition switch	Operation	
2 (R/L)	Ground	Illumination signal (+)	Input	OFF	Lighting switch position 1st or 2nd	Approx. 12 V
					Lighting switch position OFF	Approx. 0 V
3 (R/Y)	Ground	Illumination signal (-)	—	OFF	Illumination control switch is operated by lighting switch in ON position.	Change between 0 and 12 V
4 (R)	Ground	Communication signal (+)	Input/ Output	ON	Press the "BACK" switch.	 SKIA0175E
5 (G)	Ground	Communication signal (-)	Input/ Output	ON	Press the "BACK" switch.	 SKIA0176E
6	—	Shield	—	—	—	—
7 (B)	Ground	Ground	—	ON	—	Approx. 0 V

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Terminals and Reference Value for Audio Unit for Base System

NKS002FW

Refer to [AV-21, "Terminals and Reference Value for Audio Unit for Base System"](#) .

Terminals and Reference Value for Audio Unit for BOSE System

NKS002FX

Refer to [AV-22, "Terminals and Reference Value for Audio Unit for BOSE System"](#) .

AV

NAVIGATION SYSTEM

NKS002FY

Self-Diagnosis Function 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 diagnoses that require operation and judgment by an operator (malfunction 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

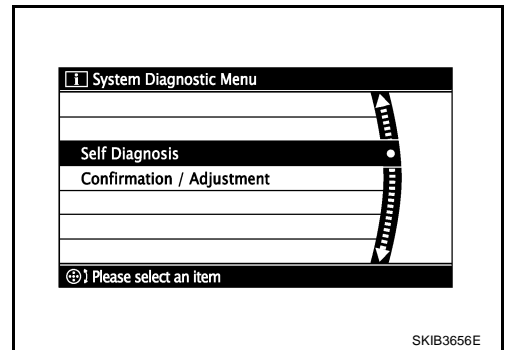
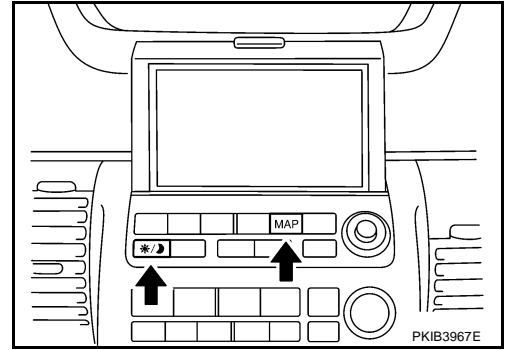
Mode		Description	
Self Diagnosis		<ul style="list-style-type: none"> ● NAVI control unit diagnosis and connection diagnosis between NAVI control unit and each unit ● The DVD-ROM drive diagnosis of NAVI control unit and the connection diagnosis between NAVI control unit and GPS antenna can be performed (DVD-ROM drive will not be diagnosed when no map DVD-ROM is in it.) 	
Confirmation/ Adjustment	Display Diagnosis	The tint can be confirmed by the color spectrum bar display. The shading of color can be confirmed by the gradation bar display.	
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, lights, ignition switch, and reverse.	
	Navigation	Steering Angle Adjustment	When there is a difference between the actual turning angle and the vehicle mark turning angle, it can be adjusted.
		Speed Calibration	When there is a difference between the current-location mark and the actual location, it can be adjusted.
	Error History	The system malfunction and the frequency when occurred in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.	
Delete Unit Connection Log		Erase the connection history of unit and error history	

NAVIGATION SYSTEM

Self-Diagnosis Operation Procedure

1. Start the engine.
2. Press and hold "MAP" and "*/>" switches simultaneously for 5 seconds or more.
 - Press the "PREVIOUS" 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.

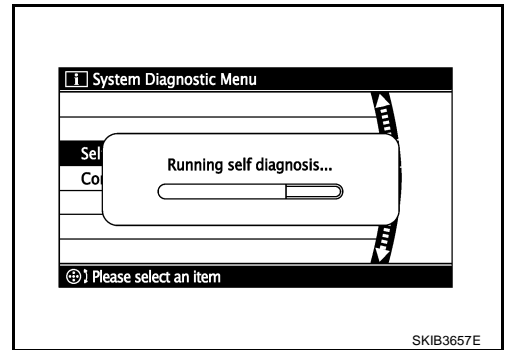
NKS002FZ



Self Diagnosis Mode

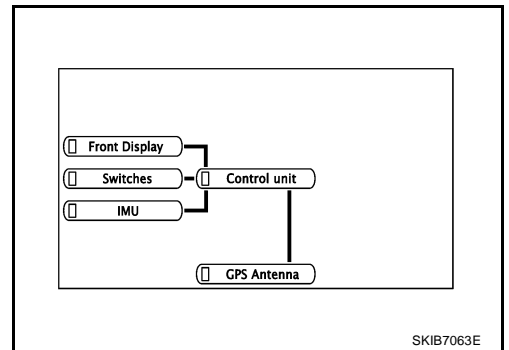
1. Start the diagnosis function, and then select "Self Diagnosis".
 - Self-diagnosis subdivision screen will be shown and the operation will enter the self-diagnosis mode.
 - The bar graph visible on self-diagnosis screen displays progress of the diagnosis.

NKS002G0



2. Diagnosis results are displayed when the self-diagnosis is completed. Each unit name and connection lines between each unit will be colored according to the diagnosis results, as follows.

Diagnosis results	Unit	Con- nection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
DVD-ROM drive undiagnosed	Gray	Green
DVD-ROM and DVDROM drive malfunction	Yellow	Green
Unit returned an error ^{Note}	Red	Green

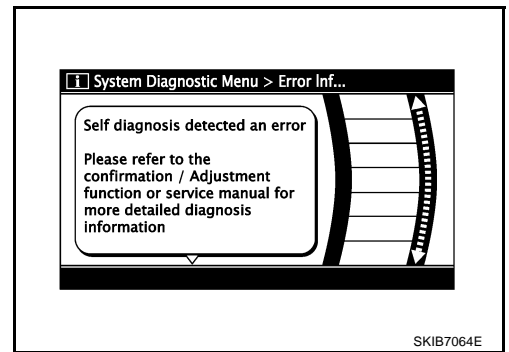


Note: Only control unit (NAVI control unit) is displayed in red.

- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > yellow > gray.

NAVIGATION SYSTEM

- Select a switch on the "Diagnosis results" screen and comments for the trouble diagnosis results will be shown.



SKIB7064E

DIAGNOSIS RESULT

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

Control Unit Is Red, Gray, or Yellow

Switch color	Description	Possible malfunction/Action to take
Red	NAVI control unit malfunction is detected.	Replace NAVI control unit. Refer to AV-90, "Removal and Installation of NAVI Control Unit" .
Yellow	<ul style="list-style-type: none"> ● Malfunction is detected on DVD-ROM drive pickup lens in NAVI control unit ● There is dirt and damage on the map disc 	<ul style="list-style-type: none"> ● Map disc ● NAVI control unit
Gray	DVD-ROM not inserted is detected.	Insert map disc.

Connection Line Between Units Is Yellow

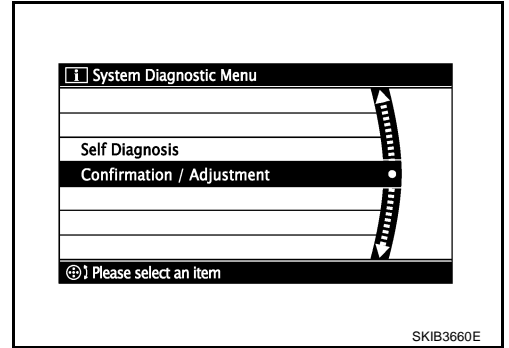
Applicable parts	Description	Probable malfunction location
Control unit to GPS Antenna	GPS antenna connection malfunction is detected.	<ul style="list-style-type: none"> ● GPS antenna feeder ● GPS antenna ● NAVI control unit
Control unit to IMU (Combination meter)	<ul style="list-style-type: none"> ● Combination meter power supply and ground circuit malfunction is detected. ● Malfunction is detected on communication circuit between combination meter and NAVI control unit. ● Malfunction is detected on communication signal between combination meter and NAVI control unit. 	<ul style="list-style-type: none"> ● Combination meter power supply and ground circuit ● Combination meter ● NAVI control unit

NAVIGATION SYSTEM

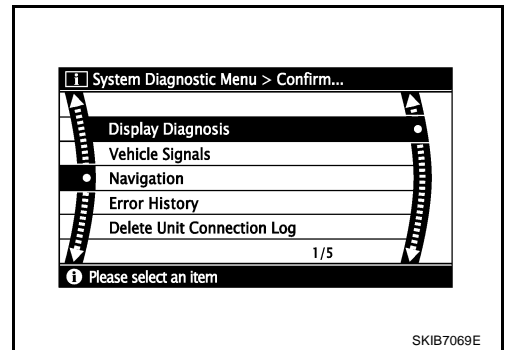
Confirmation/Adjustment Mode

NKS002G1

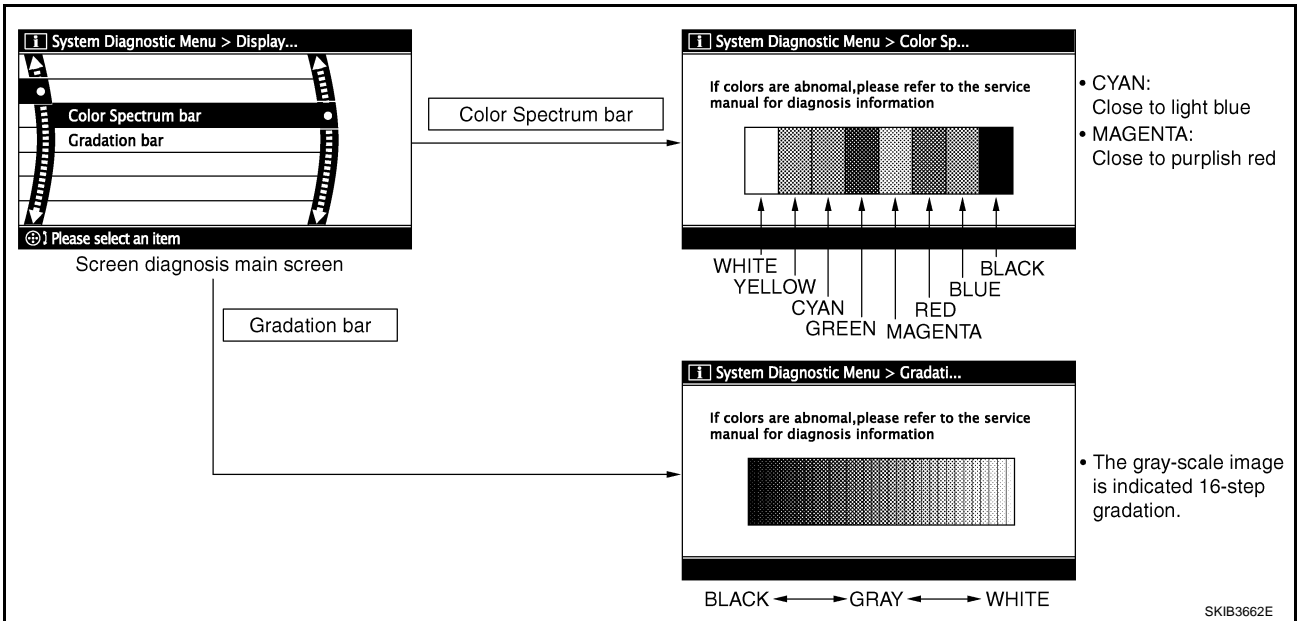
1. Start the diagnosis function, and then select "Confirmation/Adjustment".



2. Select each screen switch of Confirmation/Adjustment screen to display the relevant diagnosis screen. Press the "BACK" switch to return to the initial screen of Confirmation/Adjustment.



DISPLAY DIAGNOSIS



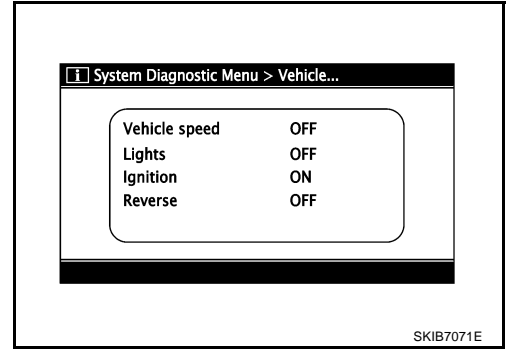
If RGB signal is malfunctioning, the tint of the color bar display is as follows.

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

NAVIGATION SYSTEM

VEHICLE SIGNALS

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



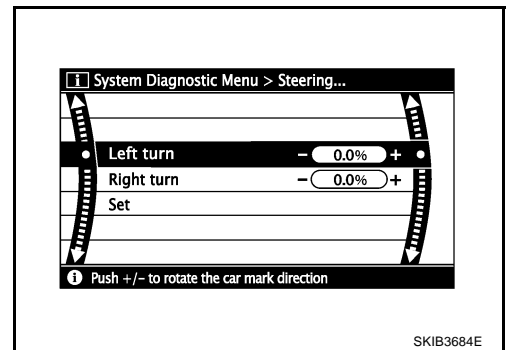
Diagnosis item	Display	Vehicle status	Remarks
Vehicle speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
	—	Ignition switch in ACC position	
Lights	ON	Lighting switch ON	—
	OFF	Lighting switch OFF	
Ignition	ON	Ignition switch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

- If vehicle speed is NG, refer to [AV-68. "Vehicle Speed Signal Inspection"](#) .
- If lights are NG, refer to [AV-69. "Illumination Signal Inspection"](#) .
- If IGN is NG, refer to [AV-69. "Ignition Signal Inspection"](#) .
- If reverse is NG, refer to [AV-70. "Reverse Signal Inspection \(With A/T\)"](#) or [AV-70. "Reverse Signal Inspection \(With M/T\)"](#) .

NAVIGATION

Steering Angle Adjustment

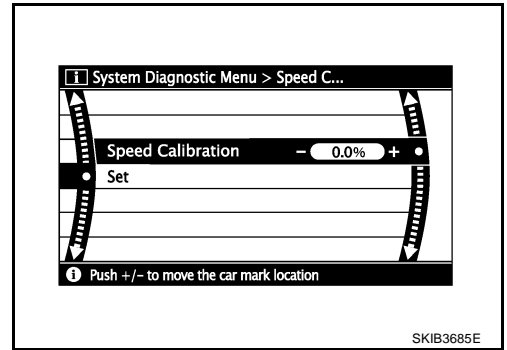
The steering angle output value detected with the gyroscope can be adjusted.



NAVIGATION SYSTEM

Speed Calibration

Usually the automatic distance correction function adjusts the deviation in distance caused by the tires wearing down or the tire pressure change. If prompt adjustment is necessary when the tire chains are installed etc., perform this procedure.



ERROR HISTORY

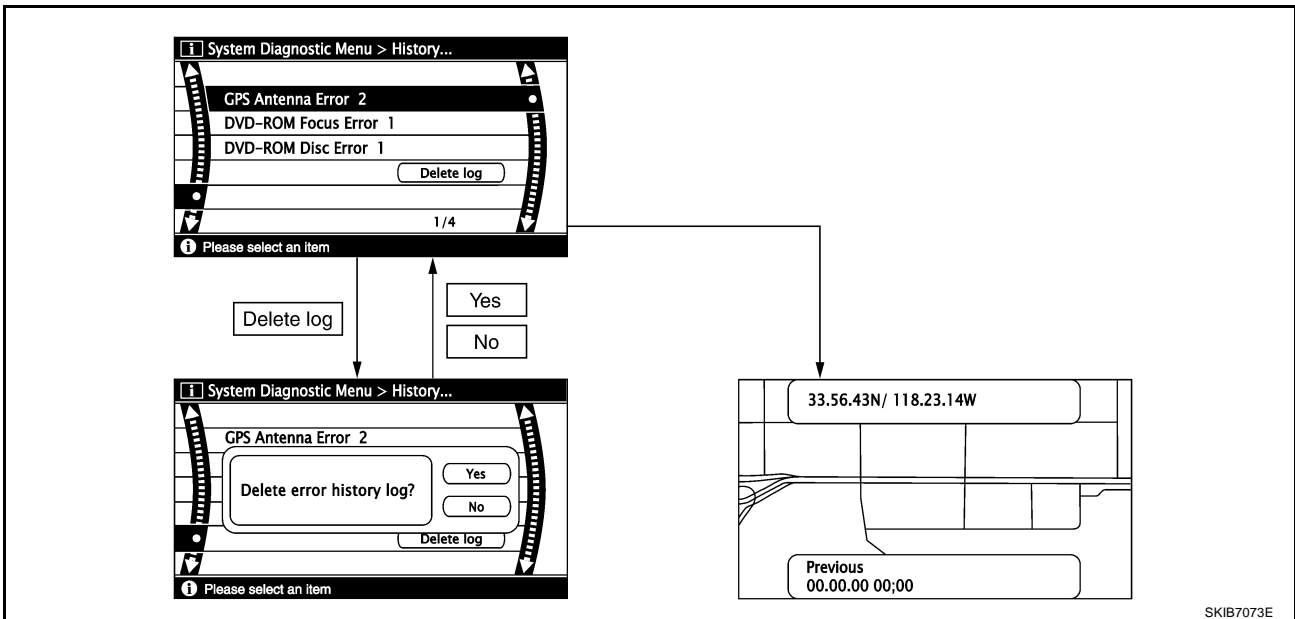
The diagnostic results of "Self-diagnosis" indicate only malfunction detected during the current "Self-diagnosis".

If an error occurred before the ignition switch was turned ON, and does not occur again until "Self-diagnosis" is completed, the diagnosis result is judged normal. Therefore, errors in the past which cannot be found by "Self-diagnosis", must be found by checking the "Error record".

The error history shows the error occurrence frequency in the past. The frequency of occurrence is displayed by 2 types: the count down type and the count up type. The type is predetermined according to the error item. In "Error History", time and place that the selected error last occurred are displayed. Be careful about the following.

- If there is a malfunction with the GPS antenna circuit board in the NAVI control unit, the correct date of occurrence may not be displayed.
- Place of the error occurrence is represented by the position of the current-location mark at the time an error occurred. If current-location mark has deviated from the correct position, then the place of the error occurrence cannot be located correctly.

Transition Screen



Count Up Type

- At the time the ignition switch is turned ON if the error is detected, the counter increases by 1. If it is normal when the ignition switch is turned ON, the counter remains the same.
- The upper limit of the counter is 50. 51 or more is displayed as 50. It can be reset to 0 by "Delete log" switch.

NAVIGATION SYSTEM

Error Item

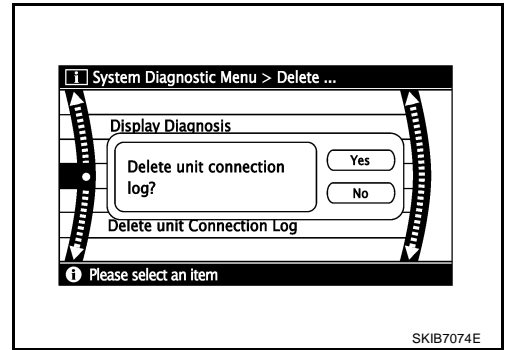
Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by analyzing the combination of display items

Error item	Description	Possible cause/Action to take
Switches Connection Error	<ul style="list-style-type: none"> ● NAVI switch power supply and ground circuit malfunction is detected. ● Malfunction is detected on communication circuit between NAVI switch and display unit. ● Malfunction is detected on communication signal between NAVI switch and NAVI control unit. 	<ul style="list-style-type: none"> ● Communication circuit between NAVI switch and display unit ● NAVI switch power supply and ground circuit ● NAVI switch ● NAVI control unit ● Display unit
Front Display Connection Error	<ul style="list-style-type: none"> ● Display unit power supply and ground circuit malfunction is detected. ● Malfunction is detected on communication signal between Display unit and NAVI control unit. 	<ul style="list-style-type: none"> ● Display unit power supply and ground ● Display unit ● NAVI control unit
<ul style="list-style-type: none"> ● Front Display Connection Error ● Switches Connection Error 	Malfunction is detected on communication circuit between display unit and NAVI control unit.	<ul style="list-style-type: none"> ● Communication circuit between display unit and NAVI control unit ● Display unit ● NAVI control unit
IMM Connection Error	<ul style="list-style-type: none"> ● Combination meter power supply and ground circuit malfunction is detected. ● Malfunction is detected on communication circuit between NAVI control unit and combination meter. ● Malfunction is detected on communication signal between NAVI control unit and combination meter. 	<ul style="list-style-type: none"> ● Communication circuit between NAVI control unit and combination meter ● Combination meter power supply and ground circuit ● Combination meter ● NAVI control unit
GPS Antenna Error	GPS antenna connection malfunction is detected.	<ul style="list-style-type: none"> ● GPS antenna feeder ● GPS antenna ● NAVI control unit
FLASH-ROM Error Of Control Unit	NAVI control unit malfunction is detected.	Replace NAVI control unit
Connection Of Gyro	NAVI control unit malfunction is detected.	Replace NAVI control unit
GPS Communication Error	GPS malfunction is detected.	If the symptoms such as the GPS receipt malfunction occur, intermittent malfunction caused by strong radio interference may be detected. If the malfunction always occurs, replace NAVI control unit.
GPS ROM Error		
GPS RAM Error		
GPS RTC Error		
DVDROM Communication Error	<ul style="list-style-type: none"> ● Malfunction is detected on DVD-ROM drive pickup lens in NAVI control unit. ● There is dirt and damage on the map disc. 	<ul style="list-style-type: none"> ● Map disc ● NAVI control unit
DVD-ROM Read Error		
DVD-ROM Disc Error		
DVD-ROM Mechanism not Detected		
DVD-ROM Mechanism Error		
DVD-ROM Focus Error		
DVD-ROM TOC Error		
DVD-ROM Seek Error		
DVD-ROM Error Correction Error		
DVD-ROM Data Transfer Error		
DVD-ROM Data Error		
DVD-ROM Time-out		
DVD-ROM Loading / Eject Error		

NAVIGATION SYSTEM

DELETE UNIT CONNECTION LOG

The connection history of unit and error history that is recorded in NAVI control unit can be cleared, the connection history of the removed unit can be cleared.



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NAVIGATION SYSTEM

Power Supply and Ground Circuit Inspection for NAVI Control Unit

NKS002.G2

1. CHECK FUSE

Check the following fuses of the NAVI control unit.

Terminals		Power source	Fuse No.
Connector	Terminal		
M57	2	Battery power	37
	5	Ignition switch ACC or ON	6
M58	63	Ignition switch ON or START	12

OK or NG

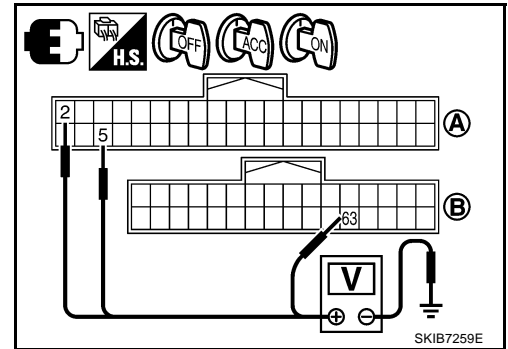
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between NAVI control unit harness connector (A) M57, (B) M58 and ground.

Terminals			OFF	ACC	ON
(+)		(-)			
Connector	Terminal				
M57	2	Ground	Battery voltage	Battery voltage	Battery voltage
	5		0 V	Battery voltage	Battery voltage
M58	63		0 V	0 V	Battery voltage



OK or NG

OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

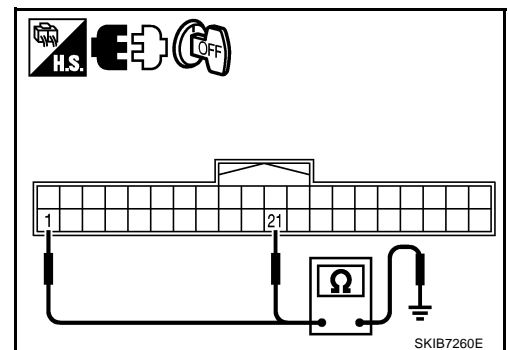
1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector.
3. Check continuity between NAVI control unit harness connector and ground.

Terminals			Continuity
Connector	Terminal	Ground	
M57	1	Ground	Yes
	21		

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



NAVIGATION SYSTEM

Power Supply and Ground Circuit Inspection for Display Unit and NAVI Switch

NKS002G3

1. CHECK FUSE

Check the following fuses of the display unit and NAVI switch.

Unit	Terminals		Power source	Fuse No.
	Connector	Terminal		
Display unit	M35	21	Battery power	37
		23		
		19	Ignition switch ACC or ON	
NAVI switch	M37	1		

OK or NG

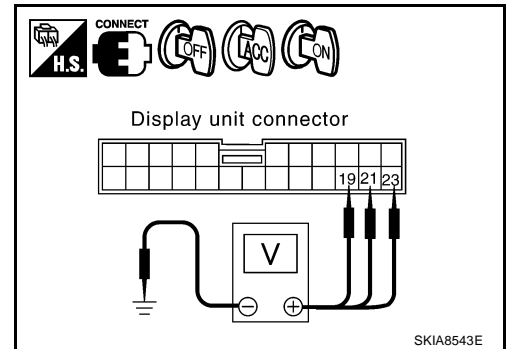
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

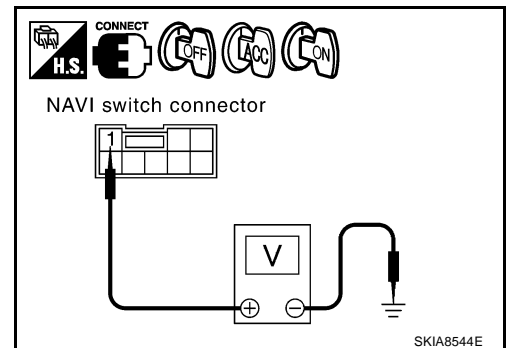
1. Check voltage between display unit harness connector and ground.

Unit	Terminals			OFF	ACC	ON
	(+)		(-)			
	Connector	Terminal				
Display unit	M35	21	Ground	Battery voltage	Battery voltage	Battery voltage
		23		Battery voltage	Battery voltage	
		19		0 V	Battery voltage	Battery voltage



2. Check voltage between NAVI switch harness connector and ground.

Unit	Terminals			OFF	ACC	ON
	(+)		(-)			
	Connector	Terminal				
NAVI switch	M37	1	Ground	0 V	Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

NG >> Check the following.

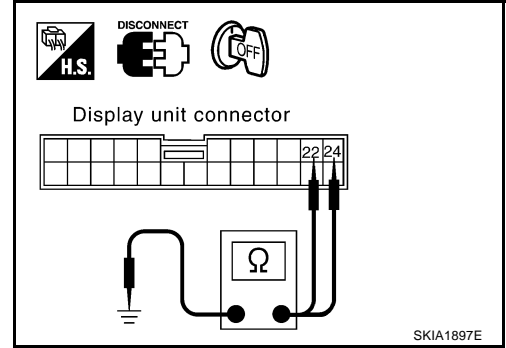
- Harness for open or short between display unit and fuse.
- Harness for open or short between NAVI switch and fuse.

NAVIGATION SYSTEM

3. CHECK GROUND CIRCUIT

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

Unit	Terminals			Continuity
	Connector	Terminal		
Display unit	M35	22	Ground	Yes
		24		

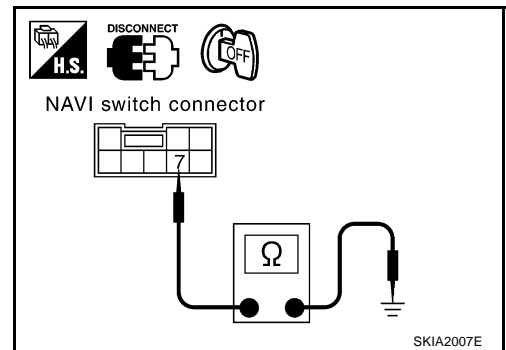


4. Disconnect NAVI switch connector.
5. Check continuity between NAVI switch harness connector M37 terminal 7 and ground.

7 – Ground : Continuity should exist.

OK or NG

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



Vehicle Speed Signal Inspection

1. CHECK VEHICLE SPEED OPERATION

Does speed meter operate normally?

YES or NO

- YES >> GO TO 2.
 NO >> Check combination meter trouble diagnosis. Refer to [DI-12, "Self-Diagnosis Mode of Combination Meter"](#).

2. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and combination meter connector.
3. Check continuity between NAVI control unit harness connector (A) M58 terminal 66 and combination meter harness connector (B) M19 terminal 14.

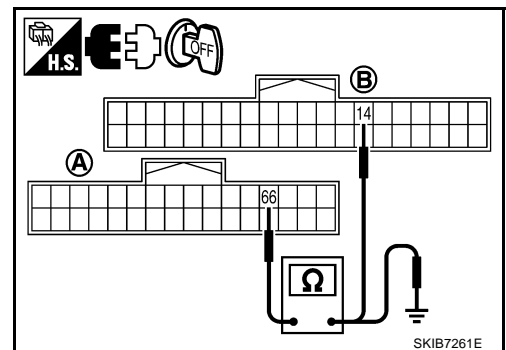
66 – 14 : Continuity should exist.

4. Check continuity NAVI control unit harness connector (A) M58 terminal 66 and ground.

66 – Ground : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> ● Check harness for open or short between NAVI control unit and combination meter.
 ● Check connector housings for disconnected or loose terminals.



NAVIGATION SYSTEM

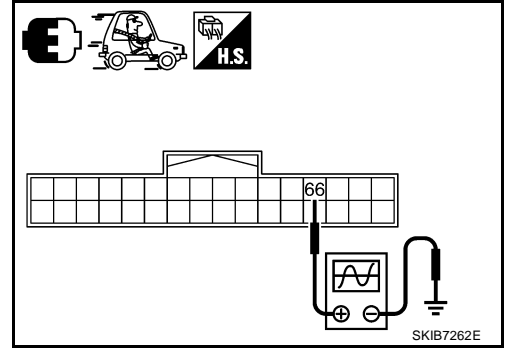
3. CHECK VEHICLE SPEED SIGNAL

1. Connect NAVI control unit connector and combination meter connector.
2. Drive vehicle at a constant speed of 40 km/h (25 MPH).
3. Check the signal between NAVI control unit harness connector M58 terminal 66 and ground with CONSULT-II or oscilloscope.

66 – Ground : Refer to [AV-53, "Terminals and Reference Value for NAVI Control Unit"](#) .

OK or NG

- OK >> Replace NAVI control unit.
 NG >> Check combination meter system. Refer to [DI-12, "Self-Diagnosis Mode of Combination Meter"](#) .



NKS002G5

Illumination Signal Inspection

1. CHECK TAIL LAMP OPERATION

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

YES or NO

- YES >> GO TO 2.
 NO >> Go to tail lamp trouble diagnosis. Refer to [LT-120, "Parking, License Plate, Side Marker and Tail Lamps Do Not Illuminate"](#) .

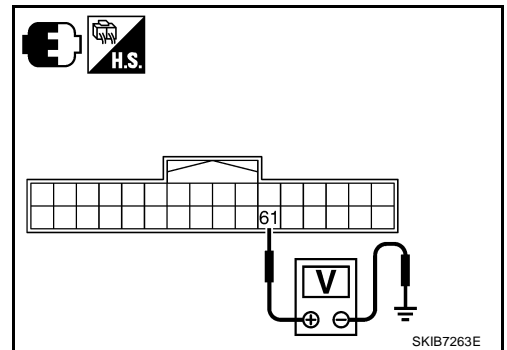
2. CHECK ILLUMINATION SIGNAL

Check voltage between NAVI control unit harness connector and ground.

Terminals		Lighting switch position	Voltage (V)
(+)	(-)		
Connector	Terminal		
M58	61	1st or 2nd position	Approx. 12 V
		OFF	Approx. 0 V

OK or NG

- OK >> Replace NAVI control unit.
 NG >> Check harness for open or short between NAVI control unit and IPDM E/R. Refer to [LT-113, "Wiring Diagram — TAIL/L —"](#) .



NKS002G6

Ignition Signal Inspection

1. CHECK FUSE

Make sure that the following fuses of the NAVI control unit.

Terminals		Power source	Fuse No.
Connector	Terminal		
M58	63	Ignition switch ON or START	12

OK or NG

- OK >> GO TO 2.
 NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#) .

NAVIGATION SYSTEM

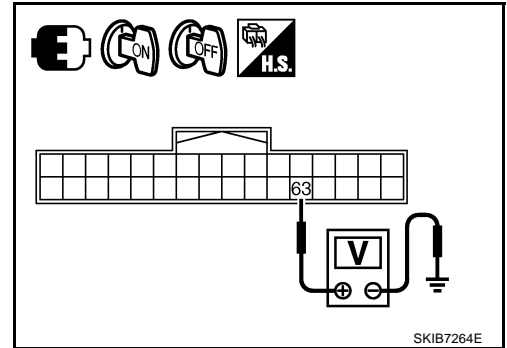
2. CHECK IGNITION SIGNAL

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

Terminals		Ignition switch position
(+)		
Connector	Terminal	(-)
M58	63	Ground
		ON
		OFF
		Battery voltage
		Approx. 0 V

OK or NG

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



SKIB7264E

NKS002G7

Reverse Signal Inspection (With A/T)

1. CHECK REVERSE LAMP

1. Turn ignition switch ON.
2. With the A/T selector lever in R position, is the indicator turned on?

YES or NO

- YES >> GO TO 2.
 NO >> Check back-up lamp system. Refer to [LT-107, "BACK-UP LAMP"](#) .

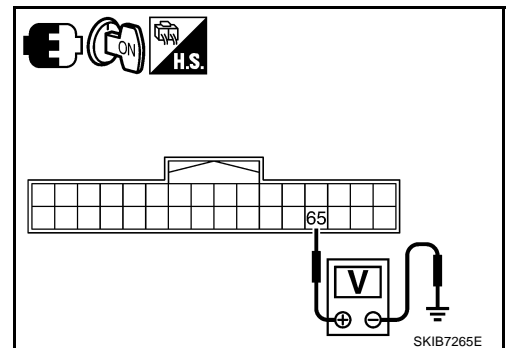
2. CHECK REVERSE SIGNAL

1. With the A/T selector lever in R position.
2. Check voltage between NAVI control unit harness connector and ground.

Terminals		A/T selector lever position	Voltage (V)
(+)			
Connector	Terminal	(-)	
M58	65	Ground	
		R position	Battery voltage
		Other than R position	Approx. 0 V

OK or NG

- OK >> Replace NAVI control unit.
 NG >> Check harness for open or short between NAVI control unit and back-up lamp relay.



SKIB7265E

NKS002G8

Reverse Signal Inspection (With M/T)

1. CHECK REVERSE LAMP

1. Turn ignition switch ON.
2. With the selection lever in R-position, are the reverse lamps turned on?

YES or NO

- YES >> GO TO 2.
 NO >> Check back-up lamp system. Refer to [LT-107, "BACK-UP LAMP"](#) .

NAVIGATION SYSTEM

2. CHECK REVERSE SIGNAL

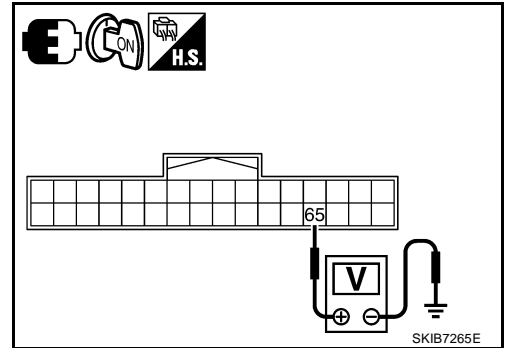
1. Shift the selector lever to R-position.
2. Check voltage between NAVI control unit harness connector and ground.

Terminals		Selector lever position	Voltage (V)
(+)			
Connector	Terminal	(-)	
M58	65	Ground	R-position Battery voltage
			Other than R-position Approx. 0 V

OK or NG

OK >> Replace NAVI control unit.

NG >> Harness for open or short between NAVI control unit and back-up lamp switch.



Navigation System Is Not Operated by NAVI Switch

NKS002G9

1. CHECK POWER SUPPLY AND GROUND CIRCUIT (DISPLAY UNIT AND NAVI SWITCH)

Check power supply and ground circuit. Refer to [AV-67, "Power Supply and Ground Circuit Inspection for Display Unit and NAVI Switch"](#).

OK or NG

OK >> GO TO 2.

NG >> Repair malfunctioning parts.

2. CHECK HARNESS (BETWEEN NAVI SWITCH AND DISPLAY UNIT)

1. Turn ignition switch OFF.
2. Disconnect display unit connector and NAVI switch connector.
3. Check continuity between display unit harness connector M35 terminals 16, 20 and NAVI switch harness connector M37 terminals 5, 4.

16 – 5 : Continuity should exist.

20 – 4 : Continuity should exist.

4. Check continuity between display unit harness connector M35 terminals 16, 20 and ground.

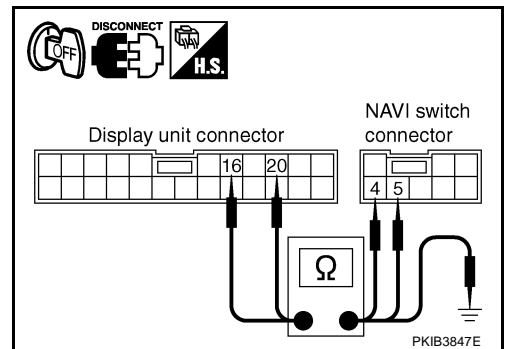
16 – Ground : Continuity should exist.

20 – Ground : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



NAVIGATION SYSTEM

3. CHECK HARNESS (BETWEEN DISPLAY UNIT AND NAVI CONTROL UNIT)

1. Disconnect NAVI control unit connector and display unit connector.
2. Check continuity between NAVI control unit harness connector (A) M58 terminals 69, 70 and display unit harness connector (B) M35 terminals 14, 13.

69 – 14 : Continuity should exist.

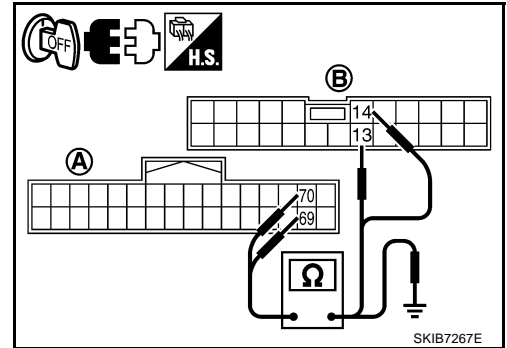
70 – 13 : Continuity should exist.

3. Check continuity between NAVI control unit harness connector (A) M58 terminals 69, 70 and ground.

69 – Ground : Continuity should exist.

70 – Ground : Continuity should exist.

Continuity should not exist.



OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.

4. CHECK NAVI SWITCH

Replace with normal NAVI switch and recheck the symptom.

Is the function normal?

YES >> Replace with normal NAVI switch.

NO >> GO TO 5.

5. CHECK DISPLAY UNIT

Replace with normal display unit and recheck the symptom.

Is the function normal?

YES >> Replace with normal display unit.

NO >> Replace NAVI control unit.

Screen Is Not Shown

NKS002GA

1. CHECK DISPLAY UNIT

Check if brightness of screen changes when “☀/☾” switch on NAVI switch is turned on after turning on ignition switch.

Does brightness of screen change?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK DISPLAY UNIT POWER SUPPLY AND GROUND CIRCUIT

Check display unit power supply and ground circuit. Refer to [AV-67. "Power Supply and Ground Circuit Inspection for Display Unit and NAVI Switch"](#).

OK or NG

OK >> Replace display unit.

NG >> Repair malfunctioning parts.

NAVIGATION SYSTEM

3. CHECK NAVI CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check NAVI control unit power supply and ground circuit. Refer to [AV-67, "Power Supply and Ground Circuit Inspection for Display Unit and NAVI Switch"](#) .

OK or NG

- OK >> GO TO 4.
- NG >> Repair malfunctioning parts.

4. CHECK RGB (YS) SIGNAL

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and display unit connector.
3. Check continuity between NAVI control unit harness connector (A) M58 terminal 50 and display unit harness connector (B) M35 terminal 8.

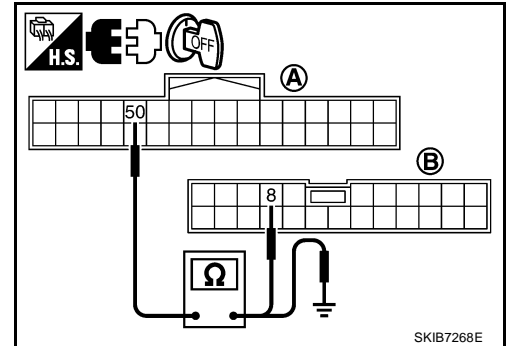
50 – 8 : Continuity should exist.

4. Check continuity between NAVI control unit harness connector (A) M58 terminal 50 and ground.

50 – Ground : Continuity should not exist.

OK or NG

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



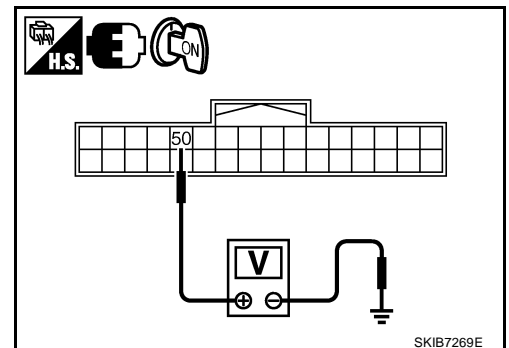
5. CHECK RGB AREA SIGNAL

1. Connect NAVI control unit connector and display unit connector.
2. Turn ignition switch ON.
3. Check signal between NAVI control unit harness connector M58 terminals 50 and 49 with CONSULT-II or oscilloscope.

50 – Ground : Approx. 5 V

OK or NG

- OK >> GO TO 6.
- NG >> Replace NAVI control unit.



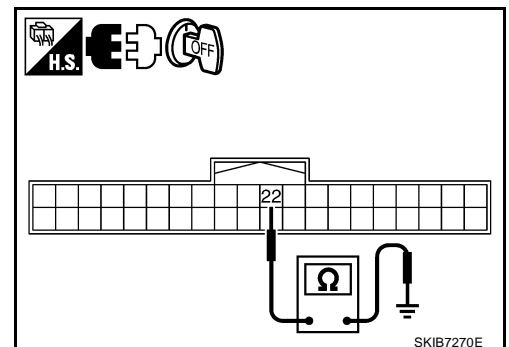
6. CHECK LIMIT SWITCH SIGNAL

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and up and down unit (Display unit).
3. Check continuity between NAVI control unit harness connector M57 terminal 22 and ground.

22 – Ground : Continuity should not exist.

OK or NG

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



NAVIGATION SYSTEM

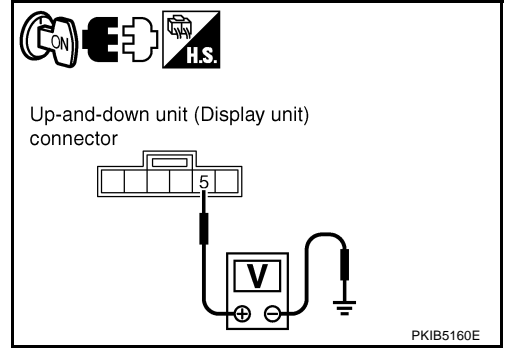
7. CHECK NAVI CONTROL UNIT INPUT SIGNAL

1. Connect NAVI control unit connector.
2. Turn ignition switch ON.
3. Check voltage between up-and-down unit (display unit) harness connector M95 terminal 5 and ground.

5 – Ground : Approx. 5 V

OK or NG

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



Color of RGB Image Is Not Proper (Bluish)

1. CHECK RGB HARNESS

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and display unit connector.
3. Check continuity between NAVI control unit harness connector (A) M58 and display unit harness connector (B) M35.
4. Check continuity between NAVI control unit harness connector (A) M58 and ground.

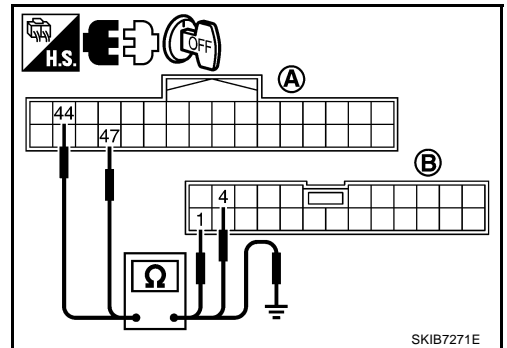
– When the screen looks bluish

Terminals				Continuity
NAVI control unit		Display unit		
Connector	Terminal	Connector	Terminal	
M58	44	M35	1	Yes
	47		4	

Terminals				Continuity
NAVI control unit		Ground		
Connector	Terminal			
M58	44			No
	47			

OK or NG

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



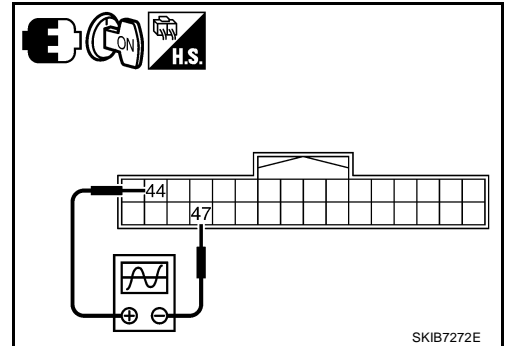
NAVIGATION SYSTEM

2. CHECK RGB SIGNAL

1. Connect NAVI control unit connector and display unit connector.
2. Turn ignition switch ON.
3. Display "Color bar" by "CONFIRMATION/ADJUSTMENT" mode.
4. Check the signal between NAVI control unit harness connector M 58 terminals 44 and 47 with CONSULT-II or oscilloscope.

● When the screen looks bluish

Terminals				Voltage (v)
NAVI control unit (+)		NAVI control unit (-)		
Connector	Terminal	Connector	Terminal	
M58	44	M58	47	Refer to AV-53, "Terminals and Reference Value for NAVI Control Unit" .



OK or NG

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

Color of RGB Image Is Not Proper (Reddish)

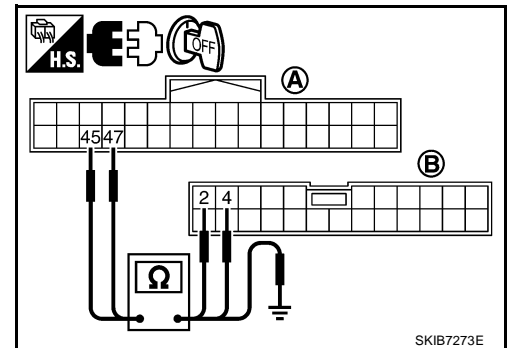
NKS002GC

1. CHECK RGB HARNESS

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit harness connector and display unit harness connector.
3. Check continuity between NAVI control unit harness connector (A) M58 and display unit harness connector (B) M35.
4. Check continuity between NAVI control unit harness connector (A) M58 and ground.

- When the screen looks reddish

Terminals				Continuity
NAVI control unit		Display unit		
Connector	Terminal	Connector	Terminal	
M58	45	M35	2	Yes
	47		4	



Terminals				Continuity
NAVI control unit		Ground		
Connector	Terminal			
M58	45	No		
	47			

OK or NG

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

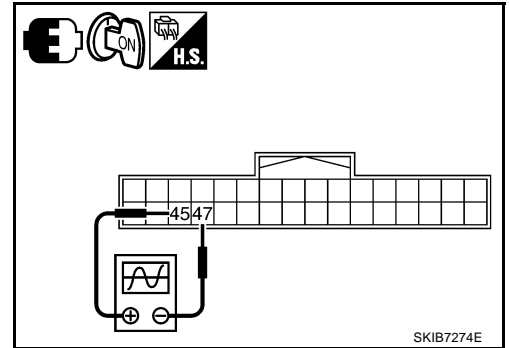
NAVIGATION SYSTEM

2. CHECK RGB SIGNAL

1. Connect NAVI control unit connector and display unit connector.
2. Turn ignition switch ON.
3. Display "Color bar" by "CONFIRMATION/ADJUSTMENT" mode.
4. Check the signal between NAVI control unit harness connector M 58 terminals 45 and 47 with CONSULT-II or oscilloscope.

- **When the screen looks reddish.**

Terminals				Voltage (V)
NAVI control unit (+)		NAVI control unit (-)		
Connector	Terminal	Connector	Terminal	
M58	45	M58	47	Refer to AV-53, "Terminals and Reference Value for NAVI Control Unit" .



OK or NG

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

Color of RGB Image Is Not Proper (Yellowish)

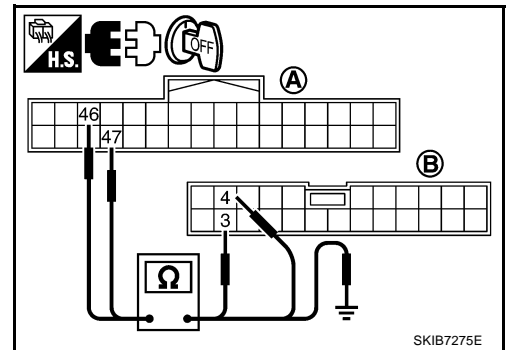
NKS002GD

1. CHECK RGB HARNESS

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and display unit connector.
3. Check continuity between NAVI control unit harness connector (A) M58 and display unit harness connector (B) M35.
4. Check continuity between NAVI control unit harness connector (A) M58 and ground.

- **When the screen looks yellowish**

Terminals				Continuity
NAVI control unit		Display unit		
Connector	Terminal	Connector	Terminal	
M58	46	M35	3	Yes
	47		4	



Terminals				Continuity
NAVI control unit		Ground		
Connector	Terminal			
M58	46			No
	47			

OK or NG

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

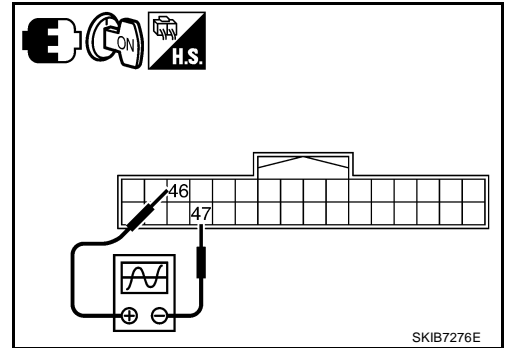
NAVIGATION SYSTEM

2. CHECK RGB SIGNAL

1. Connect NAVI control unit connector and display unit connector.
2. Turn ignition switch ON.
3. Display "Color bar" by "CONFIRMATION/ADJUSTMENT" mode.
4. Check the signal between NAVI control unit harness connector M58 terminals 46 and 47 with CONSULT-II or oscilloscope.

● **When the screen looks yellowish**

Terminals				Voltage (V)
NAVI control unit (+)		NAVI control unit (-)		
Connector	Terminal	Connector	Terminal	
M58	46	M58	47	Refer to AV-53, "Terminals and Reference Value for NAVI Control Unit" .



OK or NG

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

RGB Screen Is Rolling

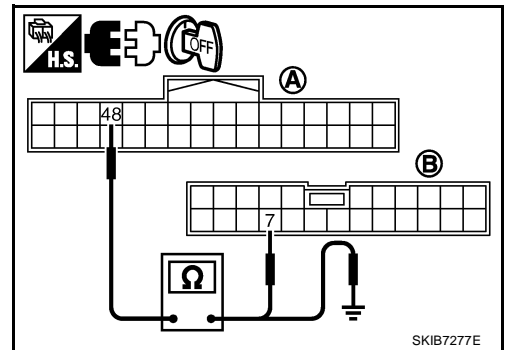
1. CHECK RGB SYNCHRONIZING CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and display unit connector.
3. Check continuity between NAVI control unit harness connector (A) M58 and display unit harness connector (B) M35.

Terminals				Continuity
NAVI control unit		Display unit		
Connector	Terminal	Connector	Terminal	
M58	48	M35	7	Yes

4. Check continuity between NAVI control unit harness connector (A) M58 and ground.

Terminals				Continuity
NAVI control unit		Ground		
Connector	Terminal			
M58	48		No	



OK or NG

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

A
B
C
D
E
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M

NAVIGATION SYSTEM

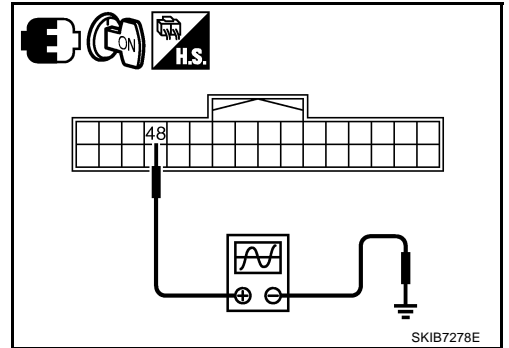
2. CHECK RGB SYNCHRONIZING SIGNAL

1. Connect NAVI control unit connector and display unit connector.
2. Turn ignition switch ON.
3. Press the "MAP" switch.
4. Check the signal between NAVI control unit harness connector M58 terminal 48 and 49 with CONSULT-II or oscilloscope.

48 - Ground : Refer to [AV-53, "Terminals and Reference Value for NAVI Control Unit"](#) .

OK or NG

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



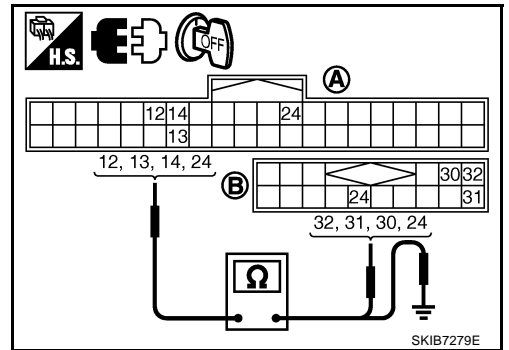
NKS002GF

Voice Guidance Is Not Heard

1. CHECK VOICE GUIDANCE HARNESS

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and audio unit connector.
3. Check continuity between NAVI control unit harness connector (A) M57 and audio unit harness connector (B) M39.

Terminals				Continuity
NAVI control unit		Audio unit		
Connector	Terminal	Connector	Terminal	
M57	12	M39	32	Yes
	13		31	
	14		30	
	24		24	



4. Check continuity between NAVI control unit harness connector (A) M58 and ground.

Terminals				Continuity
NAVI control unit		Ground		
Connector	Terminal			
M57	12	Ground		No
	13			
	14			
	24			

OK or NG

- OK >> GO TO 2.
- NG >>
 - Check harness for open or short between NAVI control unit and audio unit.
 - Check connector housings for disconnected or loose terminals.

NAVIGATION SYSTEM

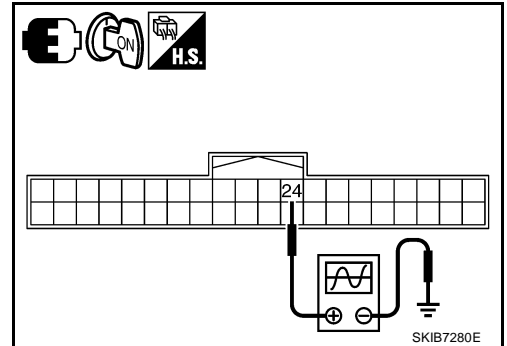
2. CHECK VOICE GUIDANCE ON SIGNAL

1. Connect NAVI control unit connector and audio unit connector.
2. Turn ignition switch ON.
3. Press "VOICE" switch.
4. Check the signal between NAVI control unit harness connector M58 terminal 24 and ground with CONSULT-II or oscilloscope.

24 – Ground : Refer to [AV-53, "Terminals and Reference Value for NAVI Control Unit"](#) .

OK or NG

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



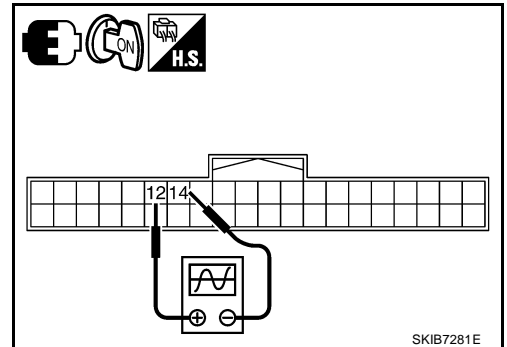
3. CHECK VOICE GUIDANCE SIGNAL

1. Press the "VOICE" switch.
2. Check the signal between NAVI control unit harness connector M58 terminals 12 and 14 with CONSULT-II or oscilloscope.

Terminals			Reference Signal
(+)		(-)	
Connector	Terminal		
M58	12	14	Refer to AV-53, "Terminals and Reference Value for NAVI Control Unit" .

Ok or NG

- OK >> Replace audio unit.
 NG >> Replace NAVI control unit



No Fuel Information Is Displayed

NKS002GG

1. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis. Refer to [AV-59, "Self Diagnosis Mode"](#) .

Is self-diagnosis result OK?

- YES >> GO TO 2.
 NO >> Check applicable parts.

2. CHECK COMBINATION METER

Using CONSULT-II select "ECM SELF-DIAGNOSIS" to check CAN communication between ECM and combination meter. Refer to [EC-121, "CONSULT-II Function \(ENGINE\)"](#) .

OK or NG

- OK >> Replace combination meter.
 NG >> Check applicable parts.

Vehicle Condition Setting Is Not Possible

NKS002GH

1. CHECK VEHICLE SPEED SIGNAL

Check vehicle speed signal. Refer to [AV-68, "Vehicle Speed Signal Inspection"](#) .

OK or NG

- OK >> Replace NAVI control unit.
 NG >> Check combination meter system. Refer to [DI-12, "Self-Diagnosis Mode of Combination Meter"](#) .

NAVIGATION SYSTEM

No Warning Message Is Displayed (Warning Lamp In Combination Meter Illuminates)

NKS002GI

1. CHECK DISPLAY CONDITION

Check display condition of warning screen.

Warning screen	Display condition
Door Open	When door switch is ON and vehicle speed is more than 5 km/h (3 MPH)

>> GO TO 2.

2. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis. Refer to [AV-59, "Self Diagnosis Mode"](#).

Is self-diagnosis result OK?

- YES >> Replace combination meter.
- NO >> Check applicable parts.

The Position of The Current-Location Mark Is Not Correct

NKS002GJ

1. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis function in "Self-diagnosis mode". Refer to [AV-59, "Self Diagnosis Mode"](#).

OK or NG

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

2. PERFORM ERROR HISTORY DIAGNOSIS

Was any error stored in [AV-63, "ERROR HISTORY"](#) of the CONFIRMATION/ADJUSTMENT mode?

YES or NO

- YES >> [AV-63, "ERROR HISTORY"](#).
- NO >> [AV-81, "Driving Test"](#).

Radio Wave From The GPS Satellite Is Not Received

NKS002GK

1. CHECK ENVIRONMENT

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

OK or NG

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

2. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis function. Refer to [AV-59, "Self Diagnosis Mode"](#).

OK or NG

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

Driving Test

NKS002GL

1. DRIVING TEST 1

1. Scroll the map screen to display the area to make correction. Press "ENTER" and select "ADJUST CURRENT LOCATION".
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 [AV-82, "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

- Does any malfunction occur when the proper test in the following test patterns is performed?
- Test pattern
 - Driving test it to find 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, and 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, and 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
 - <When the current-location mark skips at the same position, to determine, 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 = 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

NAVIGATION SYSTEM

NKS002GM

Example of Symptoms Judged Not Malfunction

NOTE:

For navigation system operation information, refer to navigation system owner's manual.

BASIC OPERATION

Symptom	Cause	Remedy
No image is shown.	Display brightness adjustment is set fully to DARK side.	Adjust the display brightness.
No guidance sound is heard. Audio guidance volume is too low or too high.	Volume control is set to OFF, MIN or MAX.	Adjust the audio guidance 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 bird view TM Name of the place vary with the screen.	Some thinning of the character data is done to prevent the display becoming too complex. In some cases and in some locations, the display contents may differ. The same place name, street name, etc. may 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 screens may be inhibited by the automatic illumination adjustment function.	Perform screen dimming and select the nighttime screen by "SWITCH SCREENS".
Map screen will not scroll in accordance with the vehicle travel.	Current location is not displayed.	Press "MAP" switch to display the current location.
Vehicle mark will not be shown.	Current location is not displayed.	Press "MAP" switch to display the current location.
Accuracy indicator (GPS satellite mark) on the map screen stays gray.	GPS satellite signal is intercepted because the vehicle is in or behind a building.	Move the vehicle out to an open space.
	GPS 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 retards 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.

NAVIGATION SYSTEM

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

Symptom	Cause	Remedy
Destination cannot be set.	Destination to be set is on an ex-Pathway.	Set the destination on an ordinary road.
Passing point is not searched when re-searching the route.	The vehicle has already passed the passing point, or the system judged so.	To include the passing points that have been passed into the route again, set the route again.
Route information will not be displayed.	Route searching has not been done.	Set the destination and perform route searching.
	Vehicle mark is not on the recommended route.	Drive on the recommended route.
	Route guidance is turned OFF.	Turn the route guidance ON.
	Route information is not available on the dark pink route.	System is not malfunction.
After the route searching, no guidance 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 guidance signs related to the recommended route will be shown.)	Drive on the recommended route.
Automatic route searching is not possible.	Vehicle is driving on a highway (gray route), or no recommended route is available.	Drive on a road to be searched. Or re-search the route manually. In this case, however, the whole route will be searched.
Performed automatic detour search (or detour search). However, the result is the same as that of the previous search.	Performed search with every condition 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 GUIDANCE

Symptom	Cause	Remedy
Voice guidance will not operate.	Note: Voice guidance is only available at intersections that satisfy certain conditions. Therefore, guidance may not be given even when the route on the map changes direction.	System is not malfunction.
	The vehicle is not on the recommended route.	Return to the recommended route or re-search the route.
	Voice guidance is turned OFF.	Turn the voice guidance ON.
	Route guidance is turned OFF.	Turn the route guidance ON.
Voice guidance does not match the actual road pattern.	Voice guidance 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.

NAVIGATION SYSTEM

Symptom	Cause	Remedy
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 guidance 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.

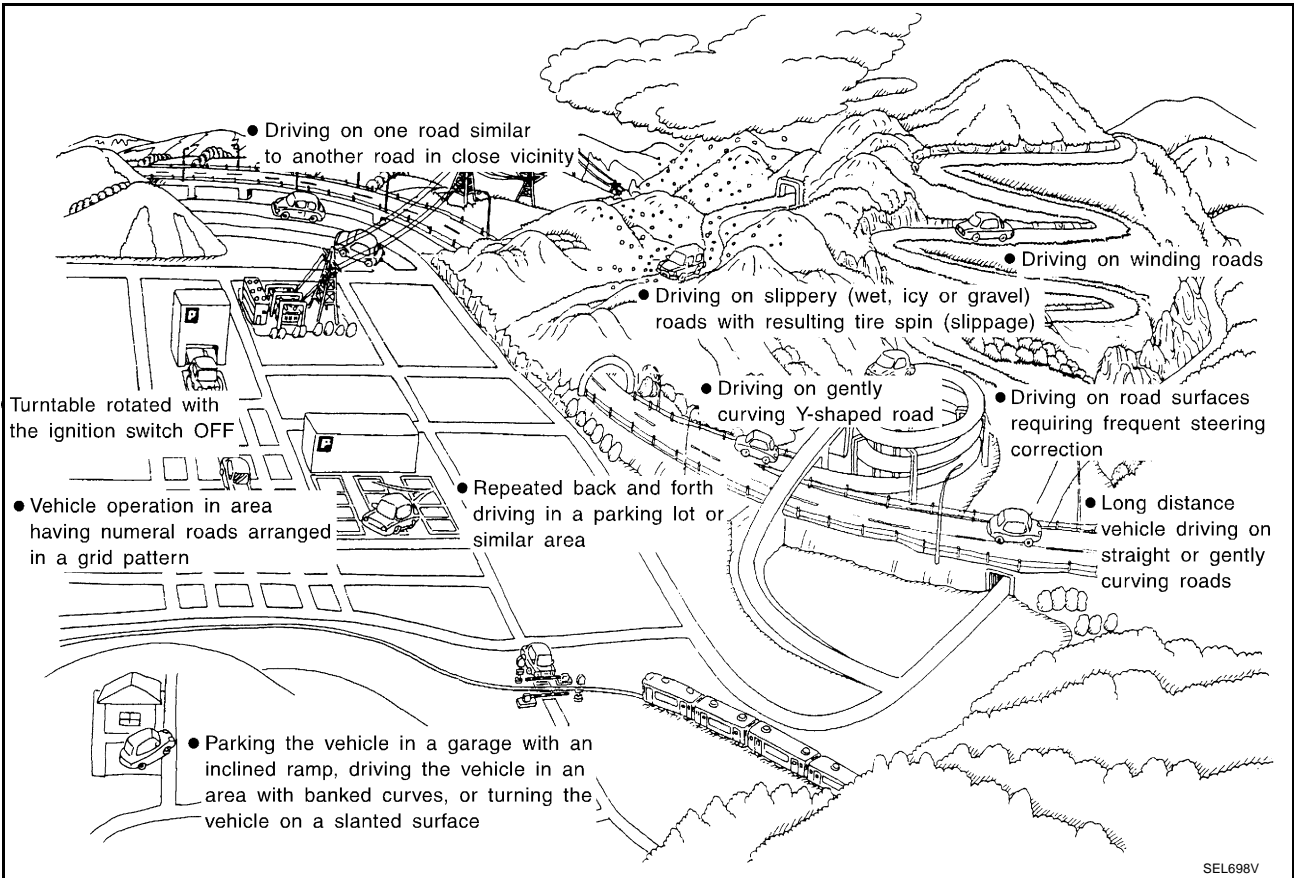
NOTE:

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

NAVIGATION SYSTEM

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.

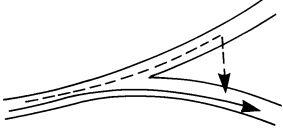
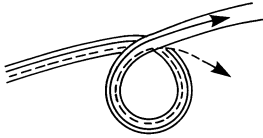
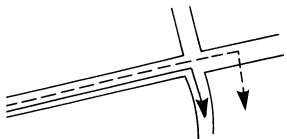
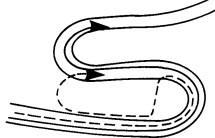
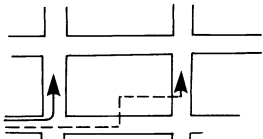
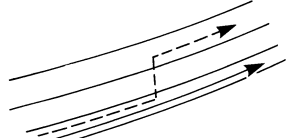


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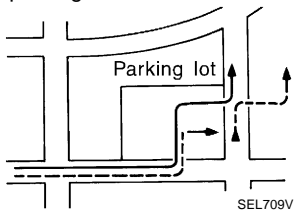
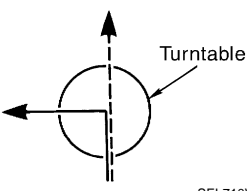
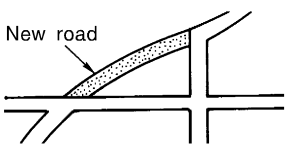
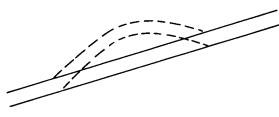
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NAVIGATION SYSTEM

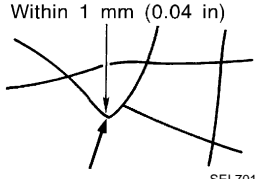
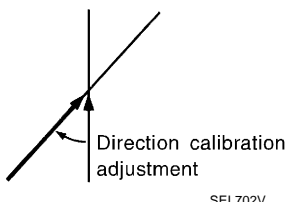
	Cause (condition) : While driving	Driving condition	Remarks (correction, etc.)
Road configura- tion	<p>Y-intersections</p>  <p style="text-align: center; font-size: small;">ELK0192D</p>	<p>At a Y intersection or similar gradual division of roads, error the direction of travel deduced by the sensor may result in the current-location mark appearing on the wrong road.</p>	
	<p>Spiral roads</p>  <p style="text-align: center; font-size: small;">ELK0193D</p>	<p>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.</p>	
	<p>Straight roads</p>  <p style="text-align: center; font-size: small;">ELK0194D</p>	<p>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.</p>	If after traveling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
	<p>Zigzag roads</p>  <p style="text-align: center; font-size: small;">ELK0195D</p>	<p>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.</p>	
	<p>Roads laid out in a grid pattern</p>  <p style="text-align: center; font-size: small;">ELK0196D</p>	<p>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.</p>	
	<p>Parallel roads</p>  <p style="text-align: center; font-size: small;">ELK0197D</p>	<p>When two roads are running in parallel (such as highway and side-way), the map may be matched to the other road by mistake and the vehicle mark may deviate from the correct location.</p>	

NAVIGATION SYSTEM

	Cause (condition) : While driving	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 traveling 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 turn table 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 traveling 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.)

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NAVIGATION SYSTEM

	Cause (condition) : While driving	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 traveling 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 	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. Caution: Whenever possible, use detailed map for the correction.
	Direction when location is corrected 	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 traveling with the ignition OFF, for example when traveling by ferry or when being towed, the location before travel is displayed. If the precise location can be detected with GPS, the location will be corrected.

THE CURRENT POSITION MARK JUMPS

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

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

NAVIGATION SYSTEM

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

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

WHEN DRIVING ON THE SAME ROAD, SOMETIMES THE CURRENT-LOCATION MARK IS IN THE RIGHT PLACE AND SOMETIMES IT IS IN 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 BIRD VIEW™ AND THE (FLAT) MAP SCREEN Difference of the Bird View™ Screen From the Flat Map Screen Are as Follows.

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

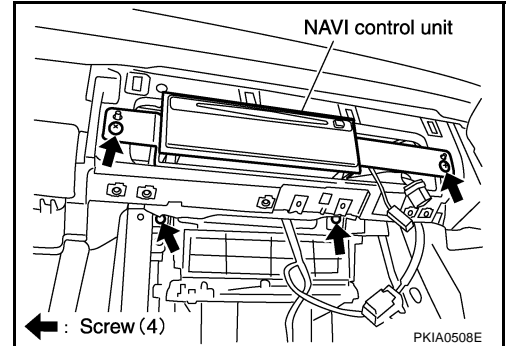
NAVIGATION SYSTEM

Removal and Installation of NAVI Control Unit

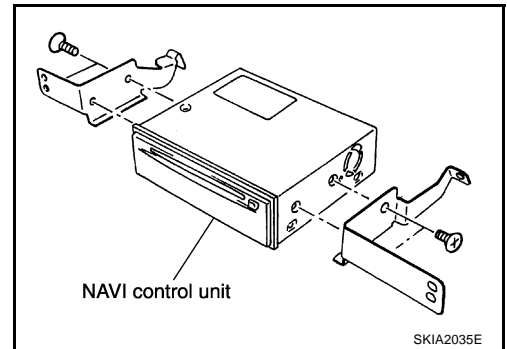
NKS002G0

REMOVAL

1. Remove center box assembly. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) .
2. Remove screws (4), and remove NAVI control unit.



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



INSTALLATION

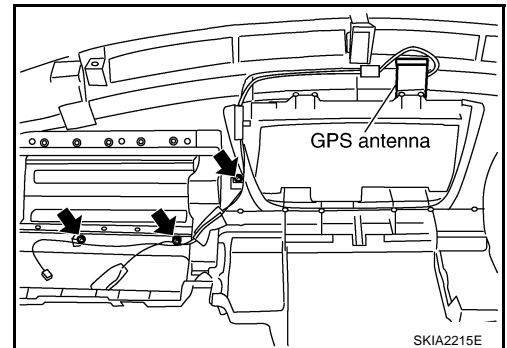
Installation is the reverse order of removal.

Removal and Installation of GPS Antenna

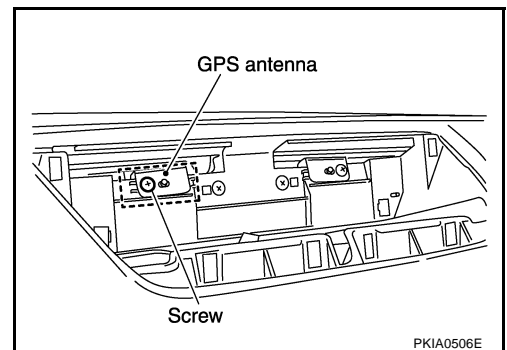
NKS002GP

REMOVAL

1. Remove instrument panel and antenna feeder installation screws on backside. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) .



2. Remove screw and remove GPS antenna.



INSTALLATION

Installation is the reverse order of removal.

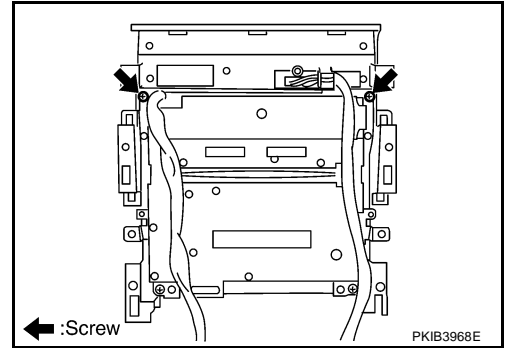
NAVIGATION SYSTEM

Removal and Installation of NAVI Switch

NKS002GQ

REMOVAL

1. Remove cluster lid C. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) .
2. Remove audio unit and display unit assembly. Refer to [AV-32, "Removal and Installation for Audio Unit"](#) .
3. Remove screws (2) and remove NAVI switch from cluster lid C.



INSTALLATION

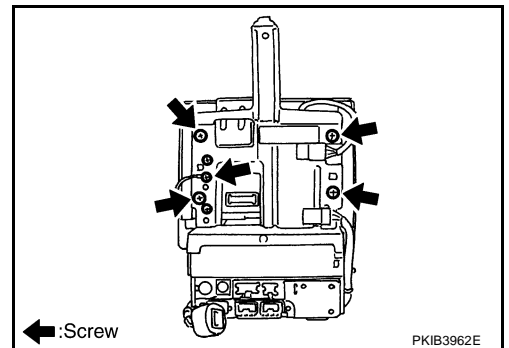
Installation is the reverse order of removal.

Removal and Installation of Display Unit

NKS002GR

REMOVAL

1. Remove cluster lid C. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) .
2. Remove audio unit and display unit assembly from cluster lid C. Refer to [AV-32, "Removal and Installation for Audio Unit"](#) .
3. Remove screws (5) and remove display unit assembly from audio unit bracket.



INSTALLATION

Installation is the reverse order of removal.



TELEPHONE

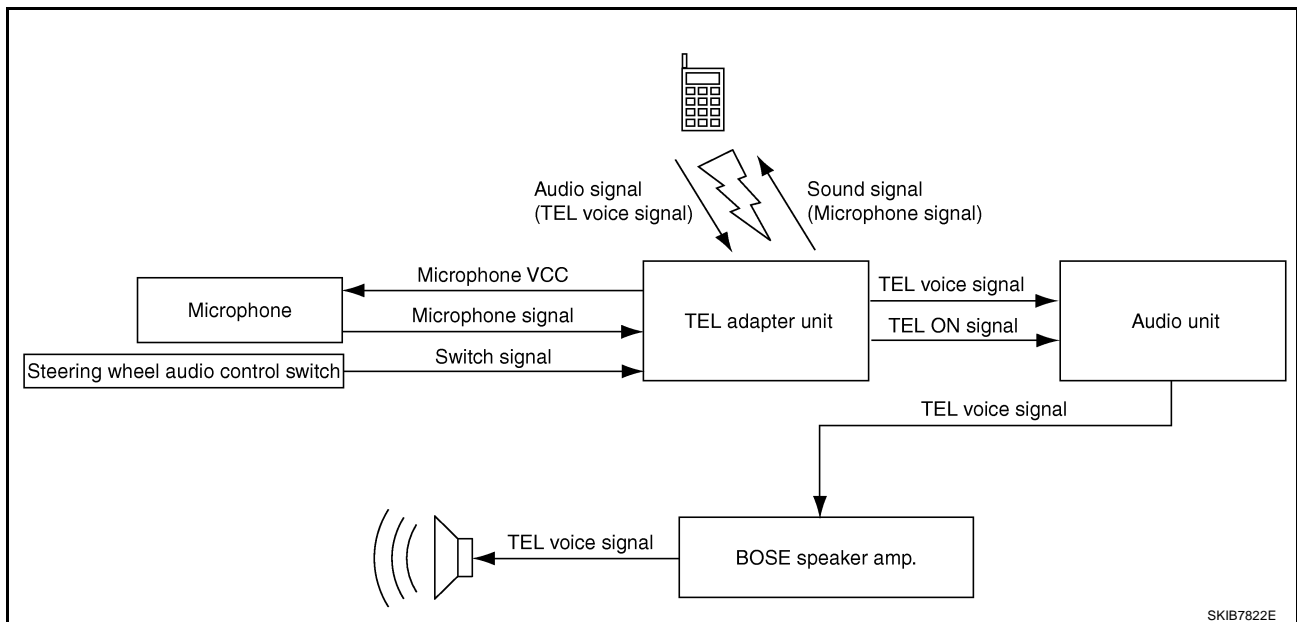
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TELEPHONE

System Description HANDS-FREE PHONE SYSTEM

NKS002GS

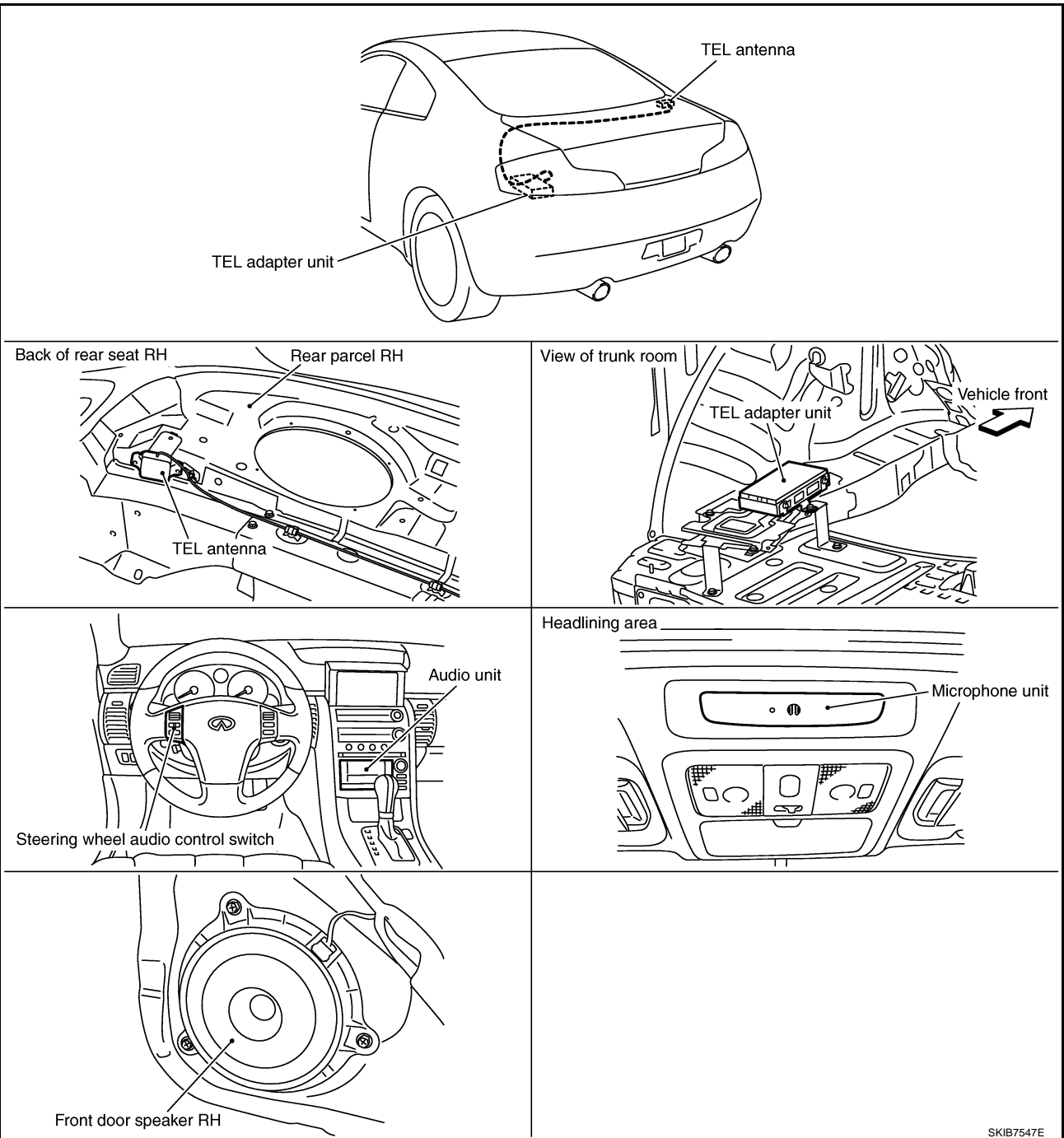
- For Hands-free phone system operation information, refer to Owner's Manual.
- TEL adapter unit has Bluetooth module. It can perform wireless hands-free telephone calls using a cellular phone in vehicle compartment.
- 5 or less cellular phones can be registered into the TEL adapter unit.
- Hands-free phone mode starts by transmitting switch signal to TEL adapter unit when pressing  button.
- Hands-free phone mode ends by transmitting switch signal to TEL adapter unit when pressing  button.
- When uttering to the microphone, microphone signal (audio signal) is transmitted from the microphone to the TEL adapter unit and transmitted to the cellular phone with the Bluetooth® communication.
- Audio sound is muted when turning audio ON while hands-free phone system works.
- Sound signal transmits to receiver's telephone through microphone unit, TEL adapter unit, and TEL antenna when sending voice.
- Sound signal outputs to front RH speakers through TEL antenna, TEL adapter unit, audio unit, and BOSE speaker amp. when receiving voice.



TELEPHONE

Component Parts Location

NKS002GT



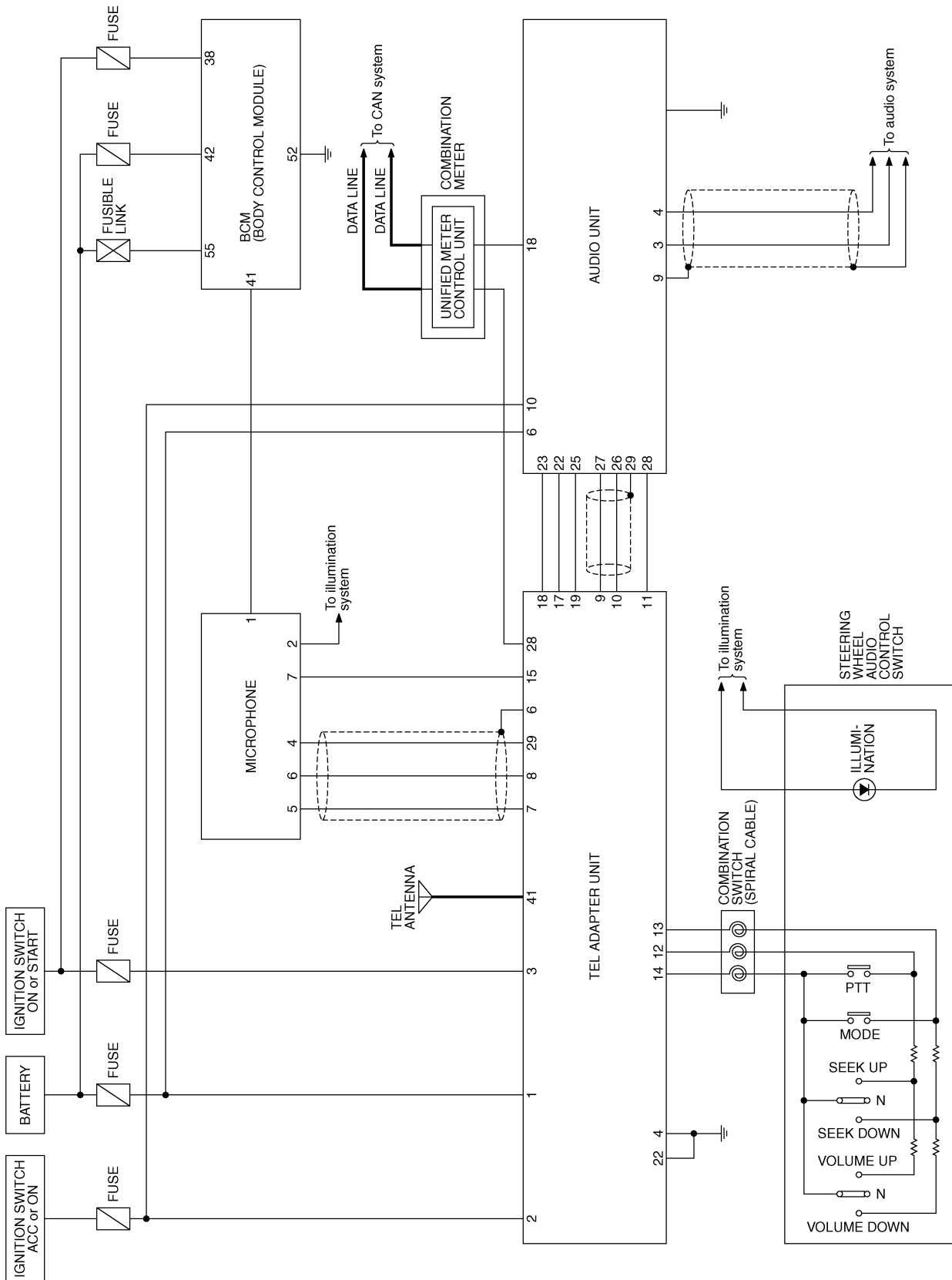
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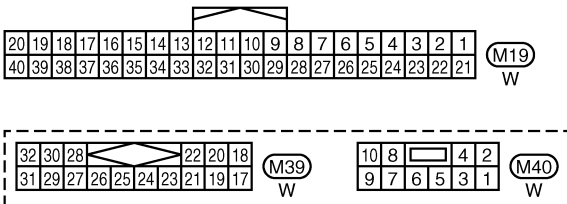
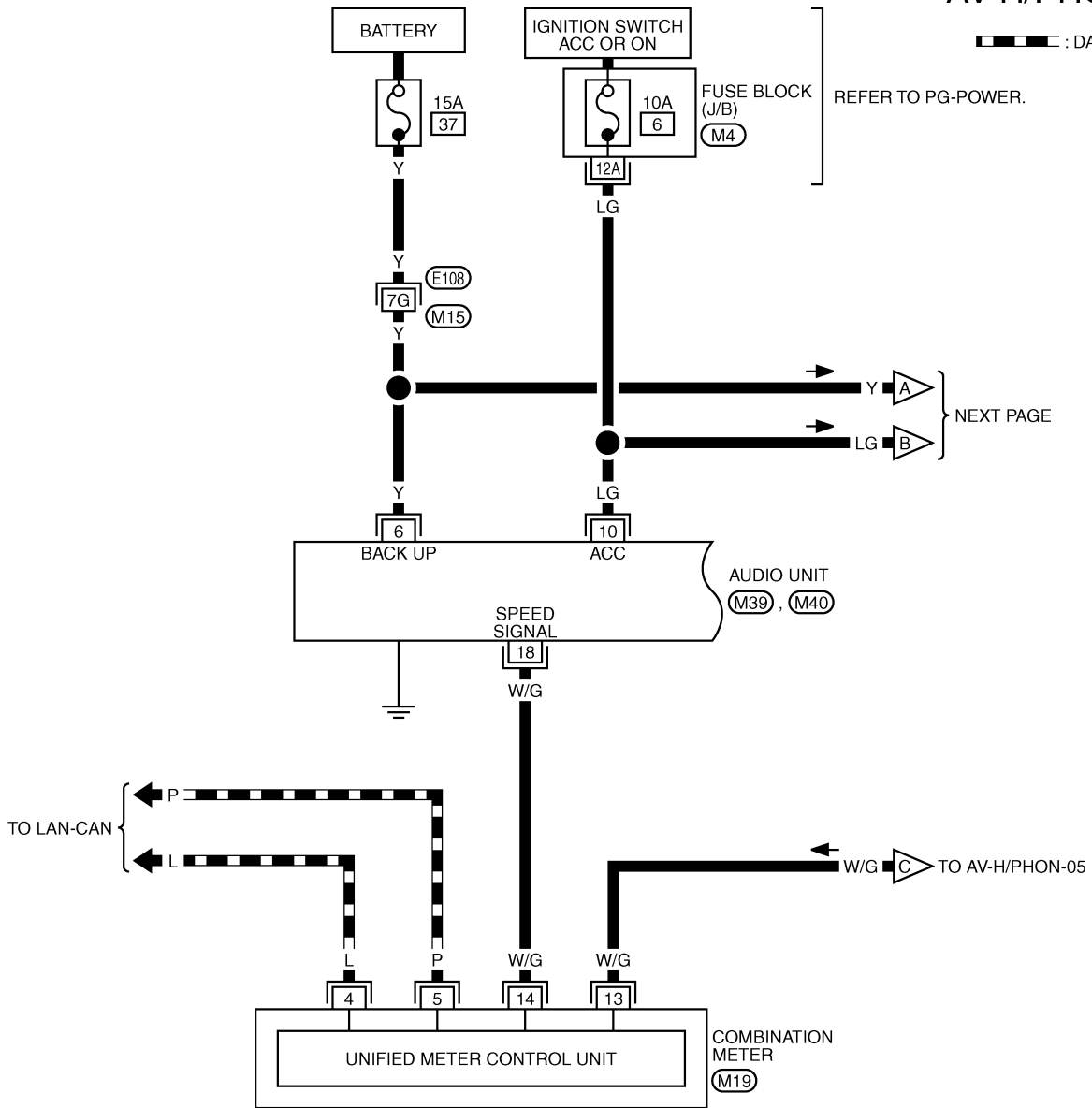
TELEPHONE

Wiring Diagram —H/PHON—

NKS002GV

AV-H/PHON-01

▬ : DATA LINE



REFER TO THE FOLLOWING.

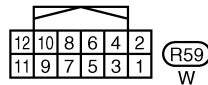
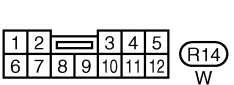
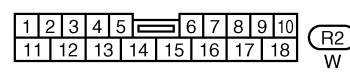
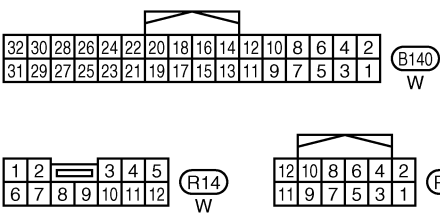
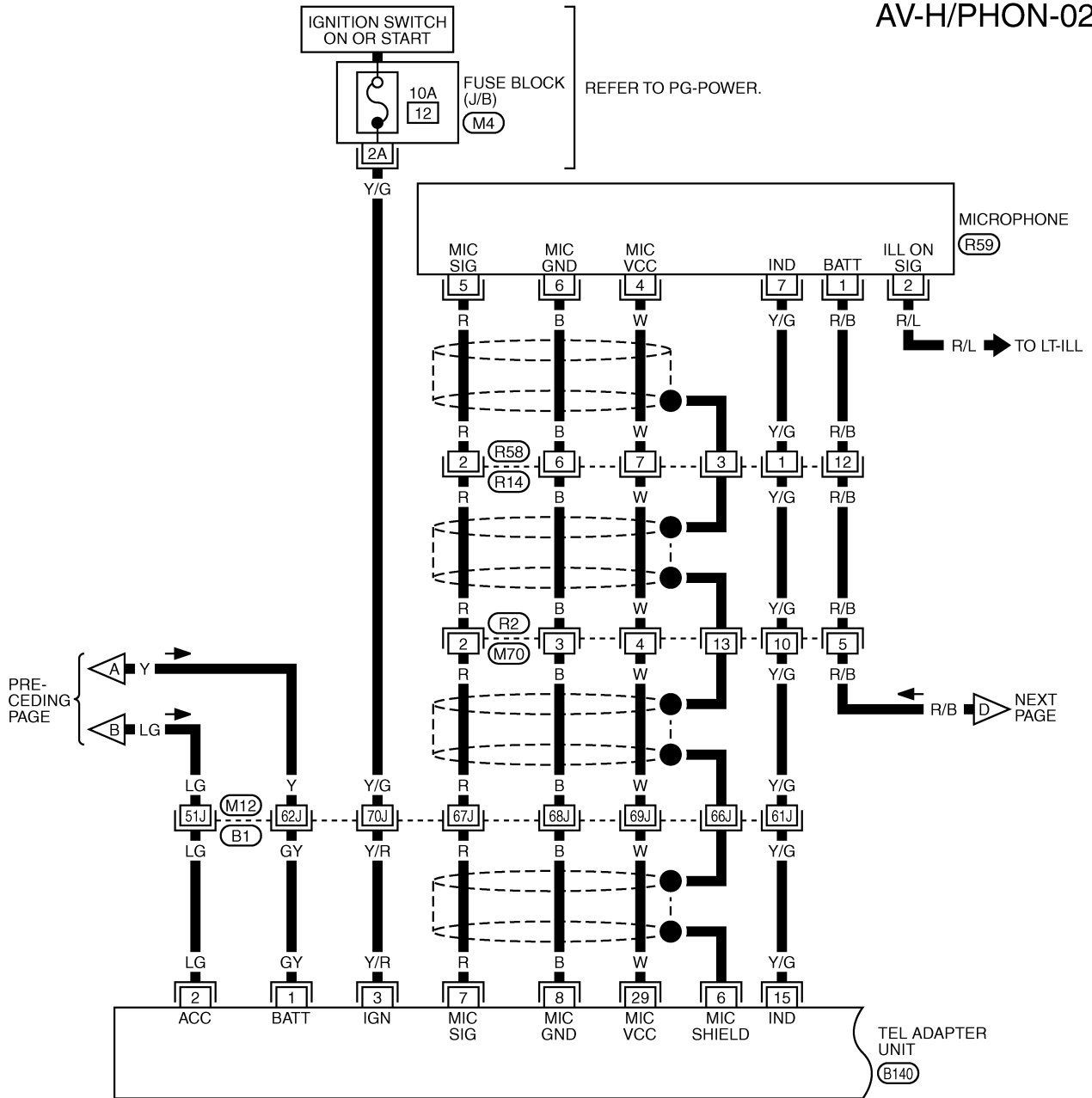
(E108) -SUPER MULTIPLE JUNCTION (SMJ)

(M4) -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM3517E

TELEPHONE

AV-H/PHON-02

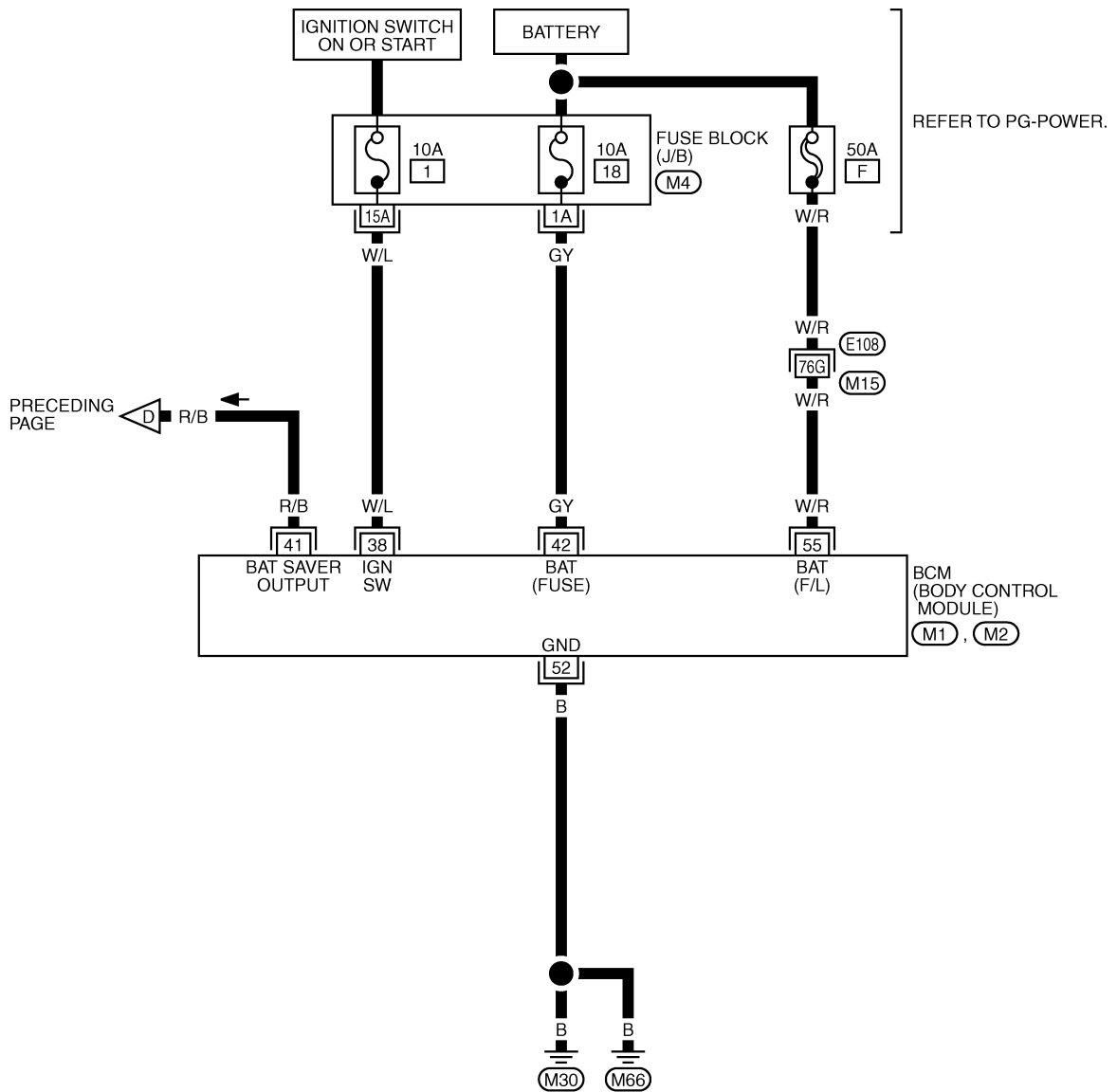


REFER TO THE FOLLOWING.
 (B1) -SUPER MULTIPLE JUNCTION (SMJ)
 (M4) -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM3518E

TELEPHONE

AV-H/PHON-03



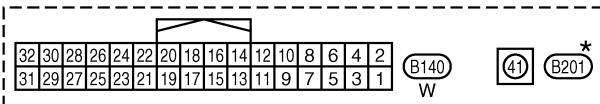
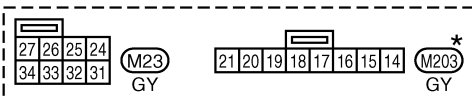
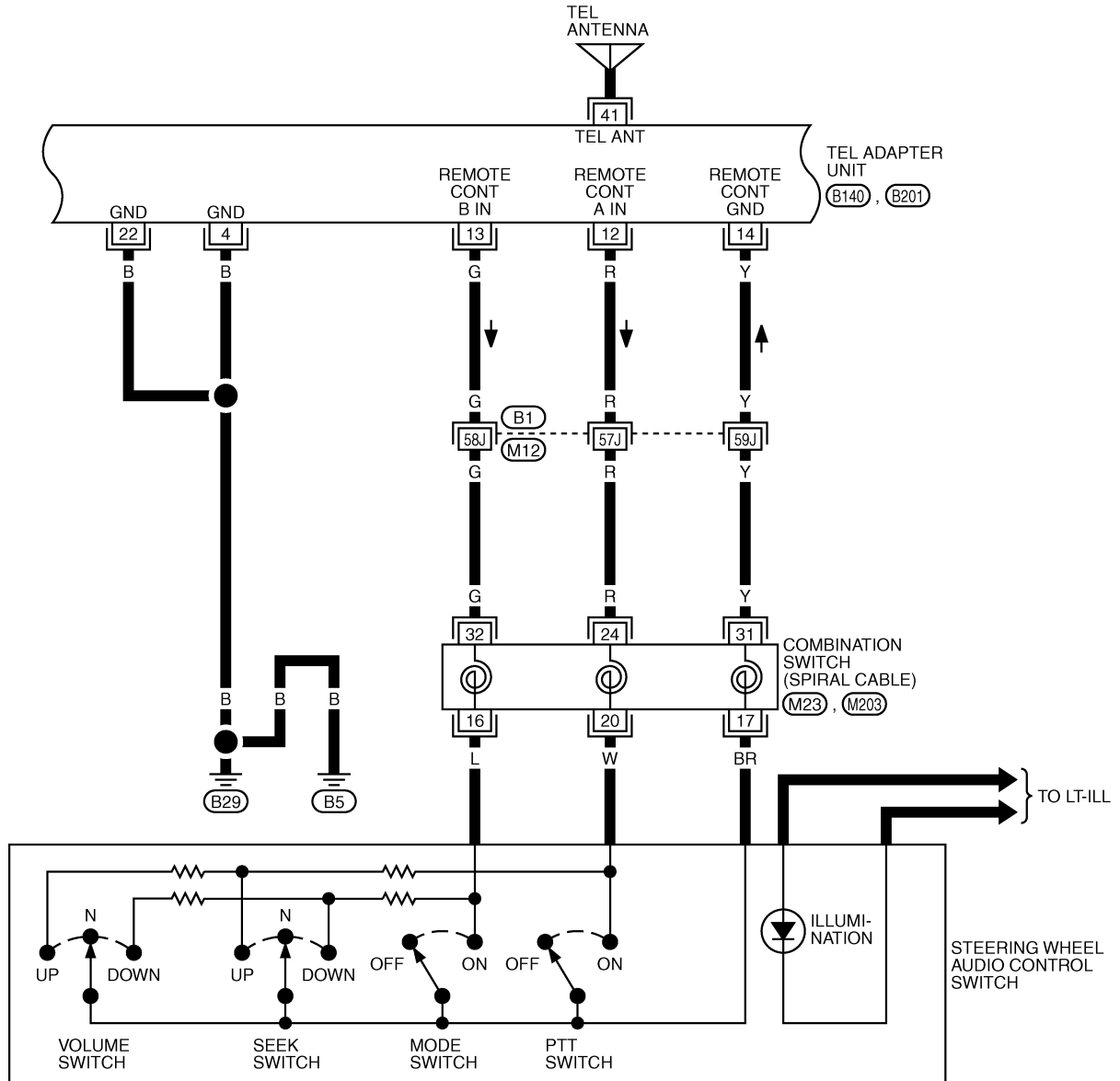
REFER TO THE FOLLOWING.

- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M2) ELECTRICAL UNITS

TKWM3519E

TELEPHONE

AV-H/PHON-04



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

REFER TO THE FOLLOWING.

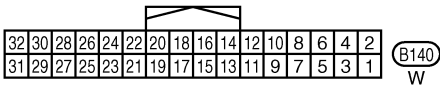
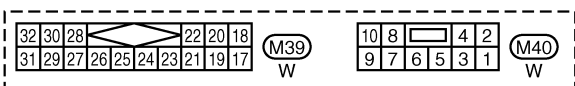
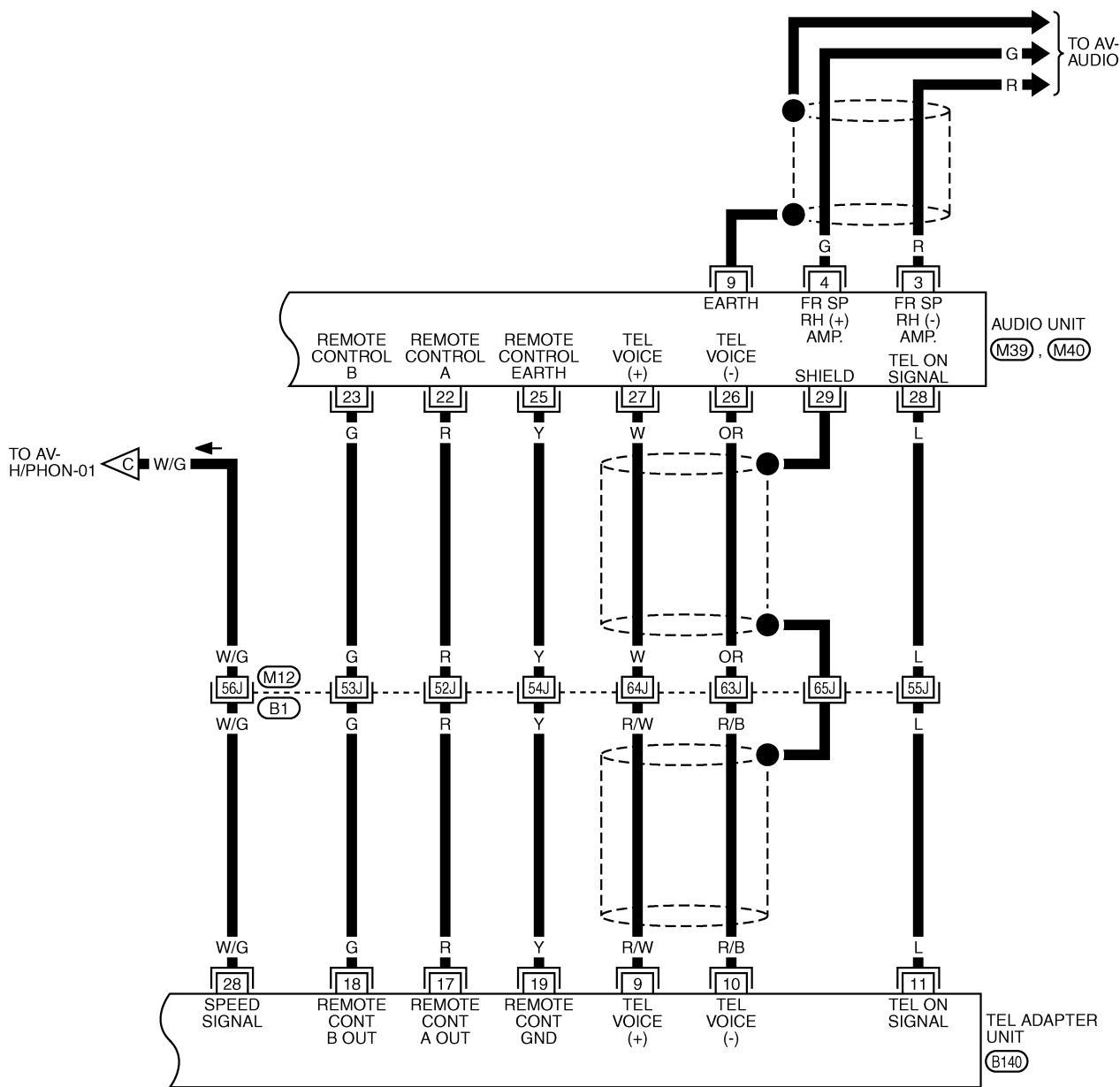
(B1) -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3520E

TELEPHONE

AV-H/PHON-05

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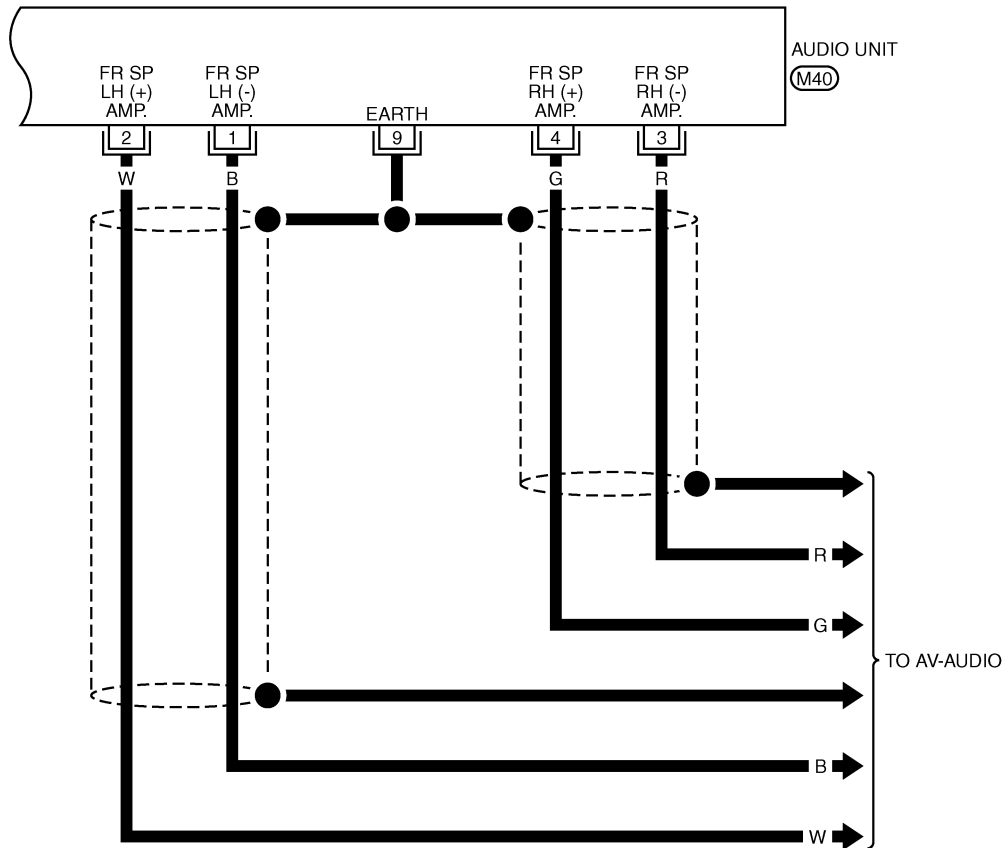


REFER TO THE FOLLOWING.
 (B1) -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3521E

TELEPHONE

AV-H/PHON-06



10	8	4	2		
9	7	6	5	3	1

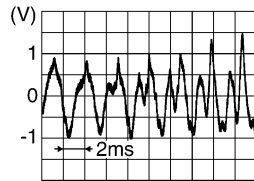
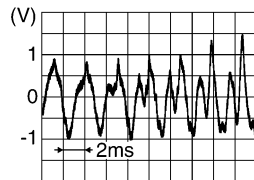


(M40)
W

TKWM3522E

TELEPHONE

Terminals and Reference Value for TEL Adapter Unit

NKS002GW

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
1 (GY)	Ground	Battery power supply	Input	OFF	—	Battery voltage
2 (LG)	Ground	ACC power supply	Input	ACC	—	Battery voltage
3 (Y/R)	Ground	Ignition signal	Input	ON	—	Battery voltage
4 (B)	Ground	Ground	—	ON	—	Approx. 0 V
6	—	Shield	—	—	—	—
7 (R)	8 (B)	MIC. signal	Input	ON	Uttering in front of the microphone while using the hands-free phone system.	 SKIB3609E
9 (R/W)	10 (R/B)	TEL voice signal	Output	ON	Receiving the party's voice while using the hands-free phone system.	 SKIB3609E
11 (L)	Ground	TEL ON signal	Output	ON	While using hands-free phone system.	Approx. 0 V
					While not using handsfree phone system.	Approx. 5 V
12 (R)	Ground	Remote control A	Input	ON	Press  switch	Approx. 0 V
					Press SEEK UP switch	Approx. 1.7 V
					Press VOL UP switch	Approx. 3.3 V
					Except for above	Approx. 5 V
13 (G)	Ground	Remote control B	Input	ON	Press  switch	Approx. 0 V
					Press SEEK DOWN switch	Approx. 1.7 V
					Press VOL DOWN switch	Approx. 3.3 V
					Except for above	Approx. 5 V
14 (Y)	Ground	Remote control ground	—	ON	—	Approx. 0 V

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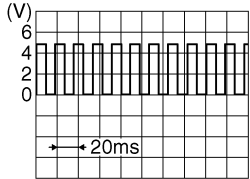
J

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TELEPHONE

Terminal (Wire color)		Item	Signal input/out- put	Condition		Reference value
+	-			Ignition switch	Operation	
15 (Y/G)	Ground	Indicator signal	Output	ON	Microphone indica- tor ON, and lighting switch OFF	Approx. 1.3 V
					Microphone indica- tor ON, and lighting switch ON	Approx. 0.8 V
					Microphone unit indicator OFF	Approx. 12 V
17 (R)	Ground	Remote control A	Output	ON	Press  switch	Approx. 0 V
					Press SEEK UP switch	Approx. 1.7 V
					Press VOL UP switch	Approx. 3.3 V
					Except for above	Approx. 5 V
18 (G)	Ground	Remote control B	Output	ON	Press  switch	Approx. 0 V
					Press SEEK DOWN switch	Approx. 1.7 V
					Press VOL DOWN switch	Approx. 3.3 V
					Except for above	Approx. 5 V
19 (Y)	Ground	Remote control ground	—	ON	—	Approx. 0 V
22 (B)	Ground	Ground	—	ON	—	Approx. 0 V
28 (W/G)	Ground	Vehicle speed signal (8-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	 SKIA6649J
29 (W)	Ground	MIC. VCC	Output	ON	—	Approx. 5 V
41	—	TEL signal	—	—	—	—

Terminals and Reference Value for Audio Unit for BOSE System

NKS002GX

Refer to [AV-22, "Terminals and Reference Value for Audio Unit for BOSE System"](#) .

Steering Wheel Audio Control Switch Resistance Inspection

NKS002GY

Refer to [AV-26, "Steering Wheel Audio Control Switch Resistance Inspection"](#) .

Self-Diagnosis Function


NKS002QB

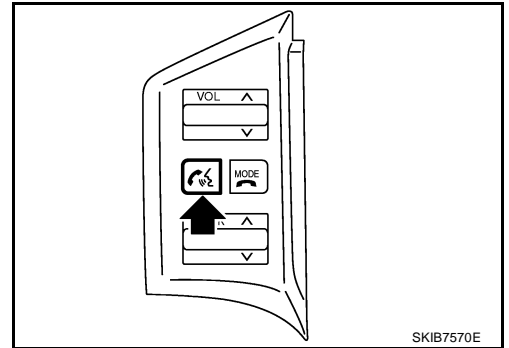
The followings are diagnosis functions performed by TEL adapter unit.

- Performs the unit self-diagnosis and antenna diagnosis, and informs results with the indicator and voice guidance.
- Informs vehicle speed pulse count from the time of key switch ON with voice guidance, and enables to check vehicle speed signal.
- Outputs voice giving to microphone with speaker, and enables to check microphone function.

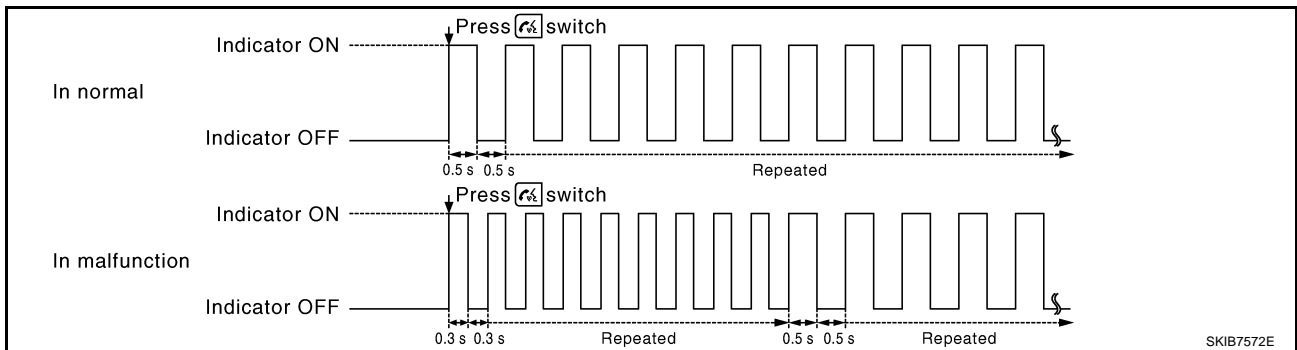
TELEPHONE



OPERATION PROCEDURE

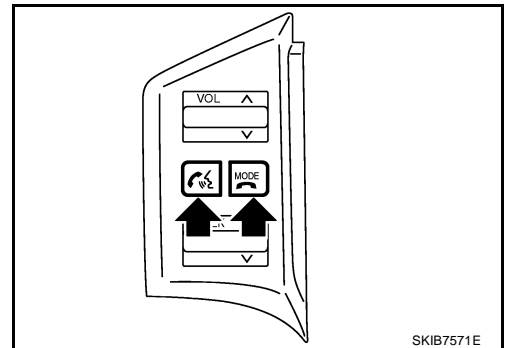
1. Start the engine.
2. Press and hold  switch for 5 seconds or more.





- This allows the indicator to blink concurrently with voice guidance outputs, and determines if there is any current error in the state of blinking.
- When the indicator does not blink, check the microphone power supply circuit, and then repair malfunctioning part.



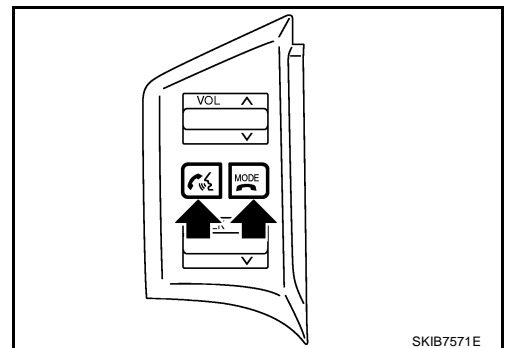
3. Press both  and  switch simultaneously while voice guidance outputs.





4. Press  and  switch simultaneously while beep sound outputs.

CAUTION:

Turn ignition switch OFF and return to Step 1 again if beep sound does not output. Replace TEL adapter unit if beep sound still does not output.



5. Perform the followings.
 - Check how many times indicator flashes within 5 seconds after pressing  and  switch.
 - Inform the malfunction and vehicle speed pulse from the time of ignition switch ON with voice.

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TELEPHONE

NOTE:

Vehicle speed pulse is reset to 0 when turning ignition switch OFF.

Number of indicator flashes	Voice guidance	Malfunction	Possible solution
1	Internal failure	TEL adapter unit is malfunctioning	Replace TEL adapter unit
2	Bluetooth antenna open	TEL antenna feeder is open	Replace TEL antenna
3	Bluetooth antenna shorted	TEL antenna feeder is short	

6. Beep sounds (while 1 second) outputs 3 seconds after voice guidance of microphone check.
7. Voice giving to microphone outputs from speaker. Microphone function can be checked.
8. Diagnosis mode exits after a beep sounds.

TELEPHONE

Basic Inspection of Hands-Free Phone

NKS002QC

Check the parts or circuit listed below when the hands-free phone system is inoperative at all or a communication error exists between TEL and TEL adapter unit.

- TEL
- TEL adapter unit power supply circuit


1. CHECK INDICATOR OPERATION

1. Turn ignition switch ACC.
2. Check the indicator is blinking.

OK or NG

- OK >> GO TO 2
 NG >> Check indicator circuit and MIC. circuit.

2. CHECK STEERING WHEEL AUDIO CONTROL SWITCH OPERATION

1. Press the  switch.
2. Check the indicator is blinking.

OK or NG

- OK >> INSPECTION END
 NG >> Check steering wheel audio control switch circuit.

Steering Wheel Audio Control Switch Does Not Operate

NKS002H0

1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

1. Turn ignition switch OFF.
2. Disconnect steering wheel audio control switch connector.
3. Check resistance steering wheel audio control switch. Refer to [AV-26, "Steering Wheel Audio Control Switch Resistance Inspection"](#).

Resistance value is OK?

YES or NO

- YES >> GO TO 2.
 NO >> Replace steering wheel audio control switch.

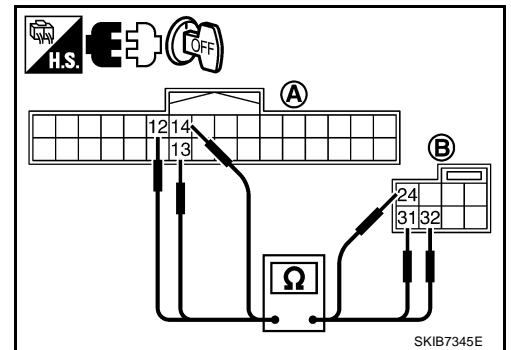
2. CHECK (1): STEERING WHEEL AUDIO CONTROL SWITCH CIRCUIT

1. Disconnect TEL adapter unit connector.
2. Check continuity between TEL adapter unit harness connector (A) B140 and combination switch (spiral cable) harness connector (B) M23.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
B140	12	M23	24	Yes
	13		32	
	14		31	

OK or NG

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



TELEPHONE

3. CHECK (2): STEERING WHEEL AUDIO CONTROL SWITCH CIRCUIT

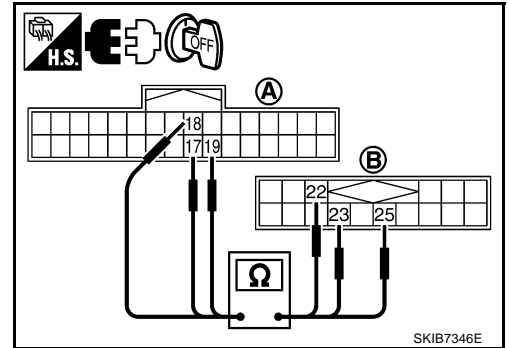
1. Disconnect audio unit connector.
2. Check continuity between TEL adapter unit harness connector (A) B140 and audio unit harness connector (B) M39.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
B140	17	M39	22	Yes
	18		23	
	19		25	

OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.



4. CHECK AUDIO UNIT

1. Connect audio unit connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector M39 terminals 22, 23 and ground.

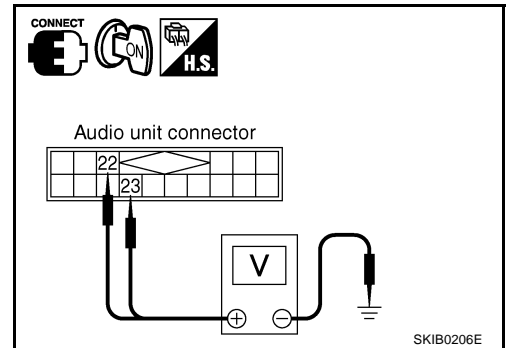
22 - Ground : Approx. 5 V

23 - Ground : Approx. 5 V

OK or NG

OK >> GO TO 5.

NG >> Replace audio unit.



5. CHECK TEL ADAPTER UNIT

1. Connect TEL adapter unit connector.
2. Turn ignition switch ON.
3. Check voltage between TEL adapter unit harness connector B140 terminals 12, 13 and ground.

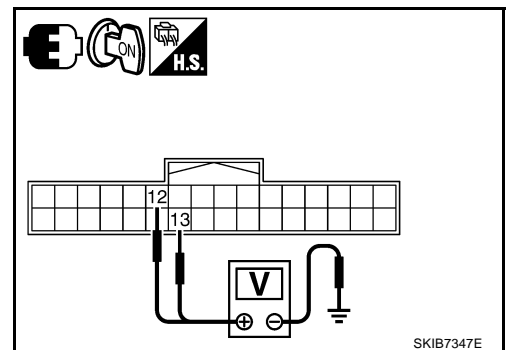
12 - Ground : Approx. 5 V

13 - Ground : Approx. 5 V

OK or NG

OK >> Replace steering wheel audio control switch.

NG >> Replace TEL adapter unit.



TELEPHONE

NKS002H1

Voice Activated Control Function Does Not Operate

NOTE:

Even under the normal condition, TEL voice guidance may not occur when pressing steering wheel audio control switch.

TEL VOICE GUIDANCE IS HEARD WHEN PRESSING STEERING WHEEL AUDIO CONTROL SWITCH

1. CHECK HARNESS BETWEEN TEL ADAPTER UNIT AND MICROPHONE UNIT

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector and microphone unit connector.
3. Check continuity between TEL adapter unit harness connector (A) B140 and microphone unit harness connector (B) R59.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
B140	7	R59	5	Yes
	8		6	
	29		4	

4. Check continuity between TEL adapter unit harness connector (A) B140 and ground.

Terminals			Continuity
Connector	Terminal	—	
B140	7	Ground	No
	8		
	29		

OK or NG

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

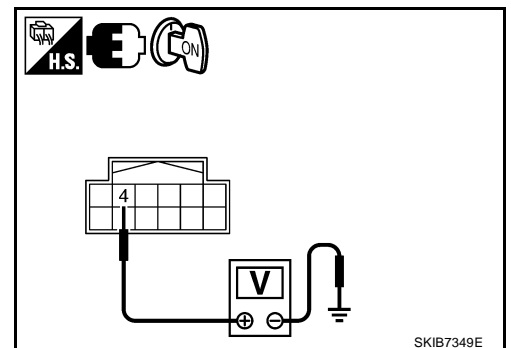
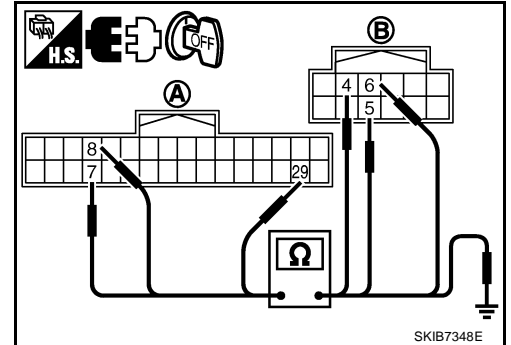
2. CHECK MIC. POWER SUPPLY

1. Connect TEL adapter unit connector and microphone unit connector.
2. Turn ignition switch ON.
3. Check voltage between microphone unit harness connector R59 terminal 4 and ground.

4 - Ground : Approx. 5 V

YES or NO

- YES >> GO TO 3.
 NO >> Replace TEL adapter unit.



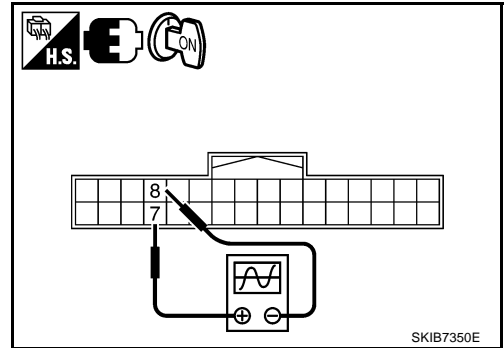
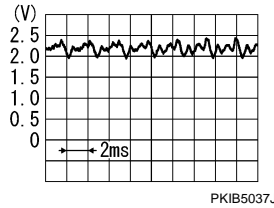
TELEPHONE

3. CHECK MIC. SIGNAL

1. Check signal between TEL adapter unit harness connector B140 terminals 7 and 8.

7 – 8:

When giving a voice



OK or NG

- OK >> Replace TEL adapter unit.
- NG >> Replace microphone unit.

TEL VOICE GUIDANCE IS NOT HEARD WHEN PRESSING STEERING WHEEL AUDIO CONTROL SWITCH

1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH CIRCUIT

Refer to [AV-29, "Steering Wheel Audio Control Switch Does Not Operate"](#).

OK or NG

- OK >> GO TO 2.
- NG >> Replace applicable parts.

2. CHECK TEL VOICE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TEL adapter unit connector and audio unit connector.
3. Check continuity between TEL adapter unit harness connector (A) B140 and audio unit harness connector (B) M39.

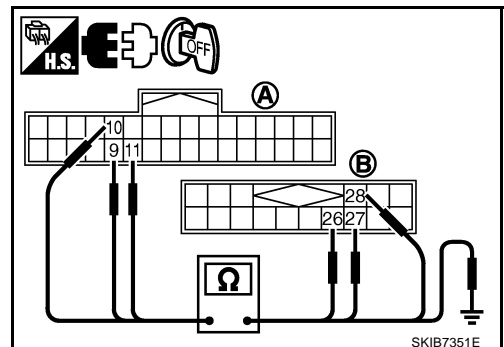
Terminals				Continuity
Connector	Terminal	Connector	Terminal	
B140	9	M39	27	Yes
	10		26	
	11		28	

4. Check continuity between TEL adapter unit harness connector (A) B140 and ground.

Terminals			Continuity
Connector	Terminal	—	
B140	9	Ground	No
	10		
	11		

OK or NG

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



TELEPHONE

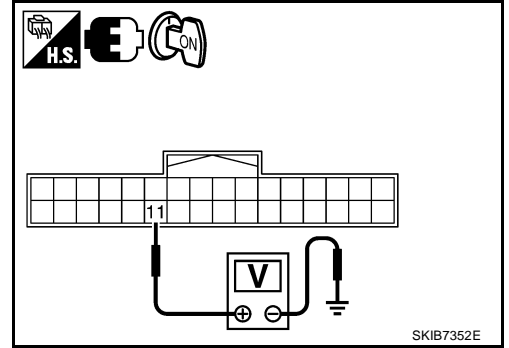
3. CHECK MUTE SIGNAL

1. Connect TEL adapter unit connector and audio unit connector.
2. Turn ignition switch ON.
3. Check voltage between TEL adapter unit harness connector B140 terminal 11 and ground.

11 - Ground : Approx. 5 V

OK or NG

- OK >> GO TO 4.
NG >> Replace audio unit.

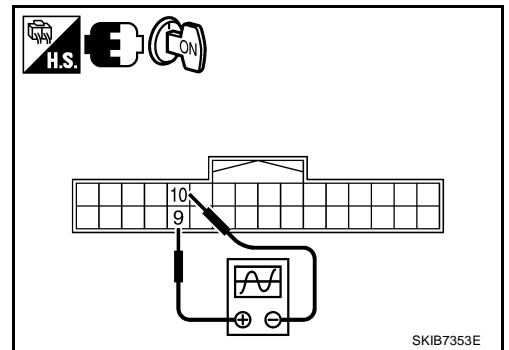
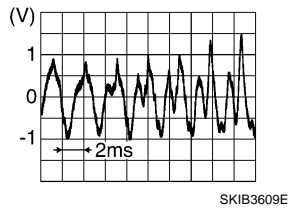


4. CHECK TEL VOICE SIGNAL

1. Check signal between TEL adapter unit harness connector B140 terminals 9 and 10.

When giving a voice

9 - 10:



OK or NG

- OK >> Replace audio unit.
NG >> Replace TEL adapter unit.

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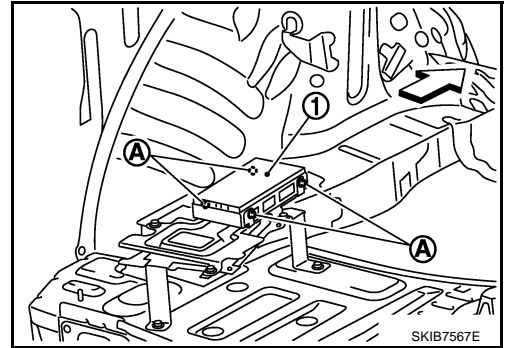
Removal and Installation of TEL Adapter Unit

NKS002H2

↶: Vehicle front

REMOVAL

1. Remove luggage floor carpet and spare tire cover. Refer to [EI-38, "TRUNK ROOM TRIM & TRUNK LID FINISHER"](#).
2. Remove trunk side box. Refer to [EI-38, "TRUNK ROOM TRIM & TRUNK LID FINISHER"](#).
3. Remove TEL adapter unit connector.
4. Remove bolts (A) 4, and remove satellite radio tuner (1) from trunk room side.



INSTALLATION

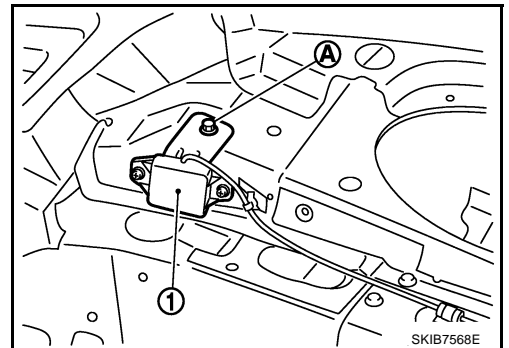
Installation is the reverse order of removal.

Removal and Installation for TEL Antenna

NKS002H3

REMOVAL

1. Remove luggage floor carpet and spare tire cover. Refer to [EI-38, "Removal and Installation for Trunk Room Trim"](#).
2. Remove trunk side box. Refer to [EI-38, "Removal and Installation for Trunk Room Trim"](#).
3. Remove rear parcel shelf finisher. Refer to [EI-33, "REAR PARCEL SHELF FINISHER"](#).
4. Remove TEL antenna feeder connector and clips. Refer to [AV-39, "TEL ANTENNA"](#).
5. Remove bolt (A), and remove TEL antenna (1) from vehicle.



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of Microphone Unit

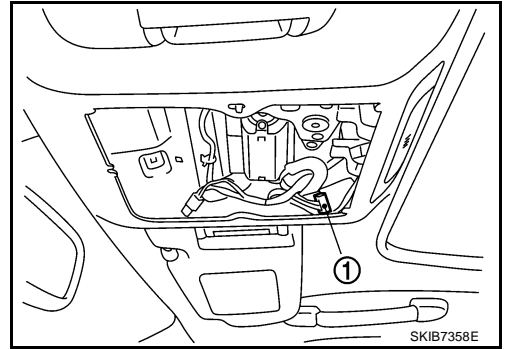
NKS002H4

REMOVAL

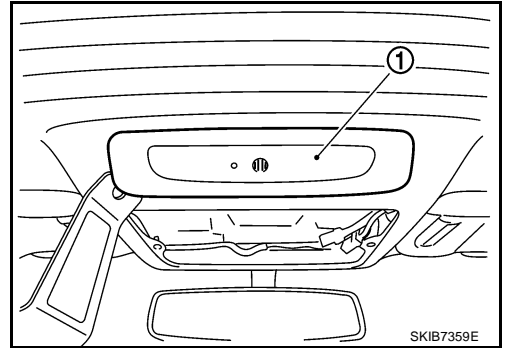
1. Remove spot lamp. Refer to [EI-36, "HEADLINING"](#).

TELEPHONE

2. Disconnect microphone unit connector (1).



3. Insert a clip driver or suitable tool and disengage the pawl fittings of the microphone unit (1).



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of Steering Wheel Audio Control Switch

NKS002H5

Refer to [PS-11, "Disassembly and Assembly"](#).

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