SECTION AV
AUDIO, VISUAL & NAVIGATION SYSTEM

CONTENTS

AUDIO WITH NAVIGATION

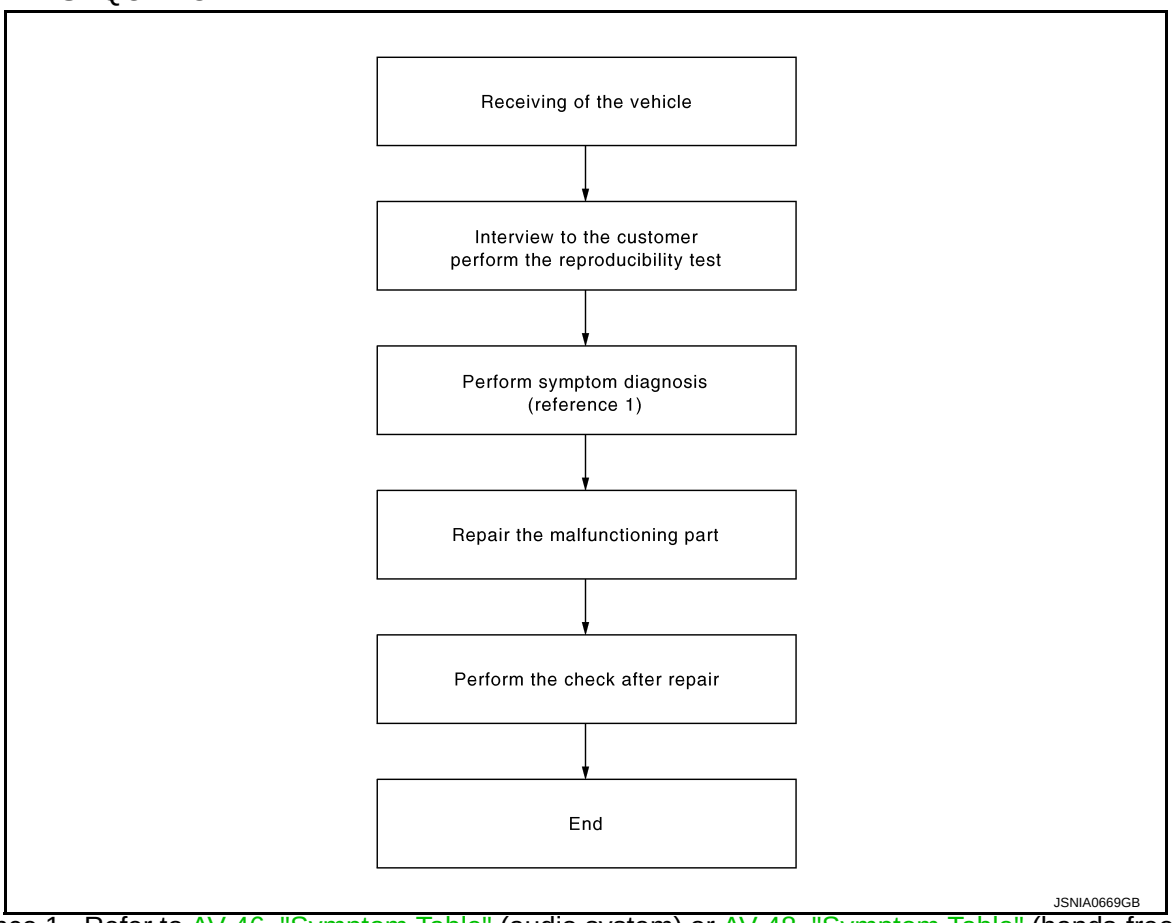
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000007771861

OVERALL SEQUENCE



Reference 1···Refer to AV-46, "Symptom Table" (audio system) or AV-48, "Symptom Table" (hands-free phone system).

DETAILED FLOW

1.CHECK SYMPTOM

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

>> GO TO 2.

2.PERFORM DIAGNOSIS BY SYMPTOM

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-46, "Symptom Table" (audio system) or AV-48, "Symptom Table" (hands-free phone system).

>> GO TO 3.

3.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the malfunctioning parts.

>> GO TO 4.

4.FINAL CHECK

Perform the operation to check that the malfunction symptom is solved or any other symptoms are present.

Is there any symptom?

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

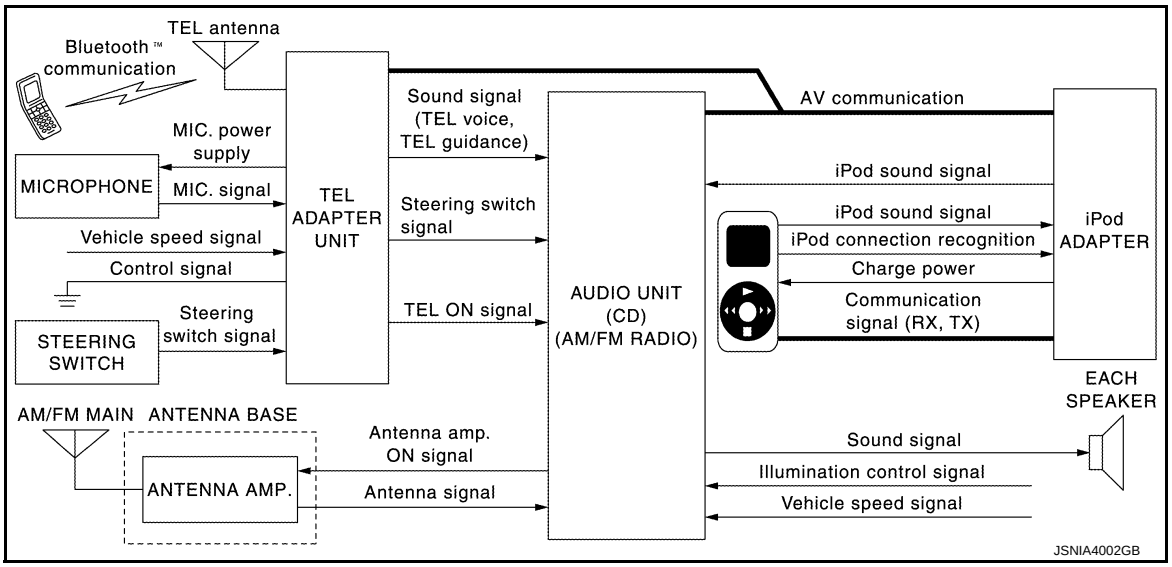
SYSTEM DESCRIPTION

AUDIO SYSTEM

System Diagram

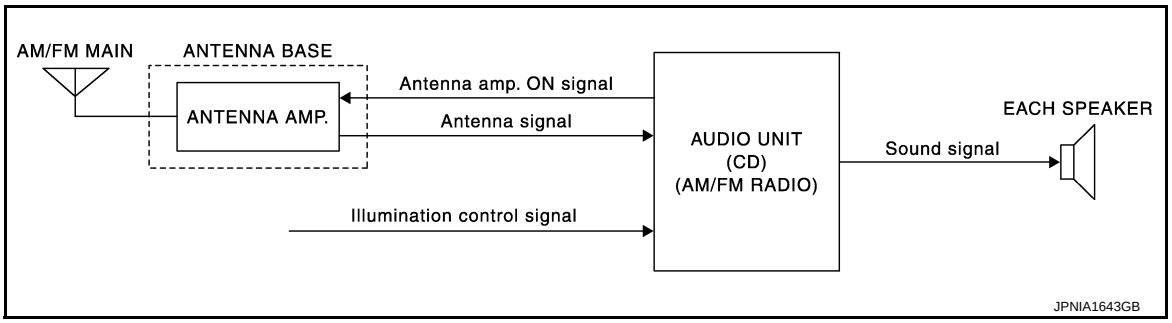
INFOID:0000000007771862

MODELS WITH iPod® CONNECTION FUNCTION AND HANDS-FREE PHONE SYSTEM



NOTE:
An antenna base integrated with radio antenna amp. is adopted.

MODELS WITHOUT iPod® CONNECTION FUNCTION



NOTE:
An antenna base integrated with radio antenna amp. is adopted.
iPod® is a trademark of Apple inc., registered in the U.S. and other countries.

System Description

INFOID:0000000007771863

AUDIO SYSTEM

Audio functions

×: Applicable

	Models without iPod® connection function	Models with iPod® connection function and hands-free phone system
AM/FM radio	×	×
CD	×	×
AUX connection	×	×
iPod® connection	—	×
Speed sensitive volume	—	×
Hands-free phone system	—	×

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When the audio system is on, radio signals are received by the radio antenna. The audio unit then sends audio signals to the each speaker.

FUNCTION DESCRIPTION

AM/FM Radio Mode
- AM/FM radio tuner is built into audio unit.
- Radio signals are received by radio antenna, next they are amplified by antenna amp., and finally the they are input to audio unit. (Antenna amp. is built into antenna base.)
- Audio unit outputs the sound signal to each speaker.

CD Mode
- CD function is built into audio unit.
- Audio unit outputs sound signal to each speaker when CD is inserted to audio unit.

iPod® Connection
- Connect iPod® and iPod adapter with wire harness and iPod adapter input iPod sound signal from iPod®.
- When iPod mode is selected, iPod adapter outputs iPod sound signal to audio unit.
- Audio unit outputs the sound signal to each speaker.

AUX Connection
- When the external device is connected to the AUX (auxiliary) input jack of the audio unit, the external device inputs a sound signal to the audio unit.
- When AUX mode is selected, audio unit outputs sound signal to each speaker.

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

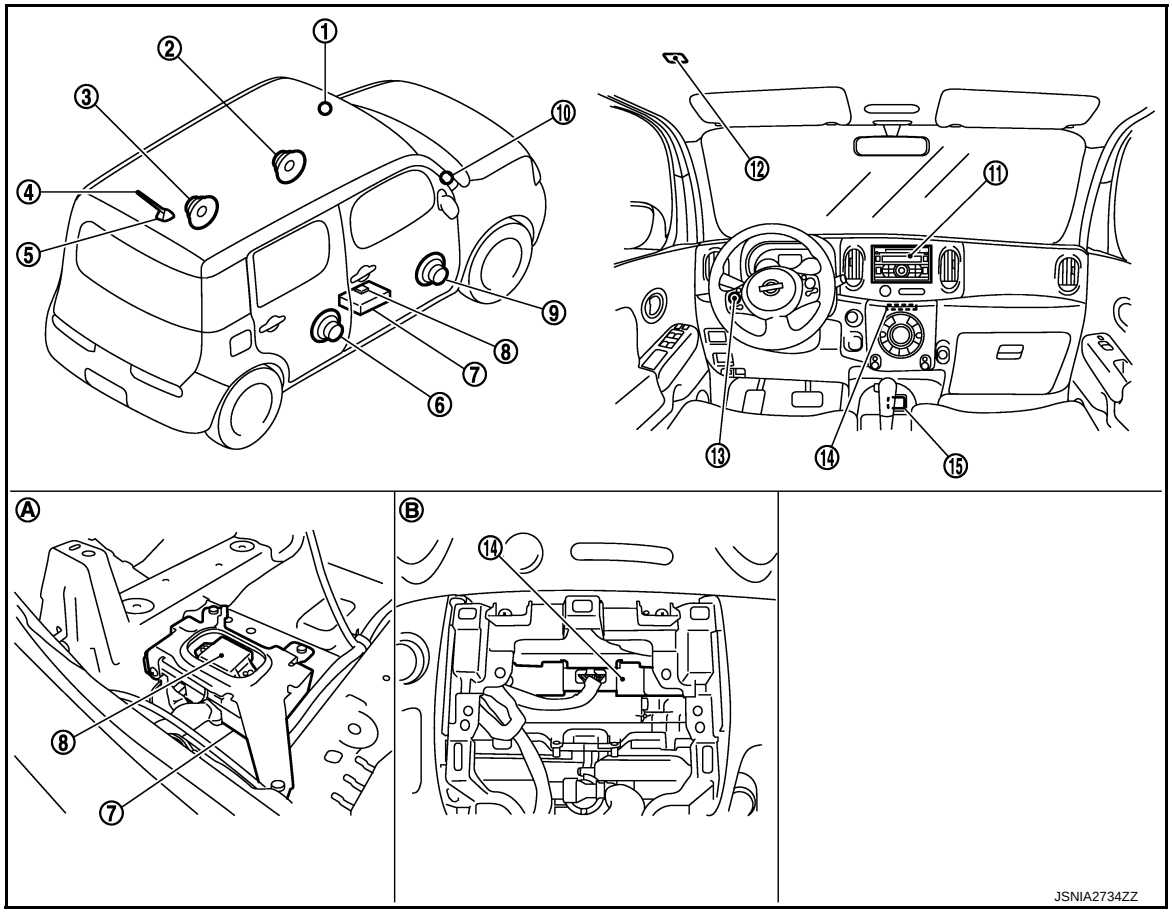
Hands-free phone system

For further information about the hands-free phone system, refer to AV-10, "System Description".

Component Parts Location

INFOID:0000000007771864

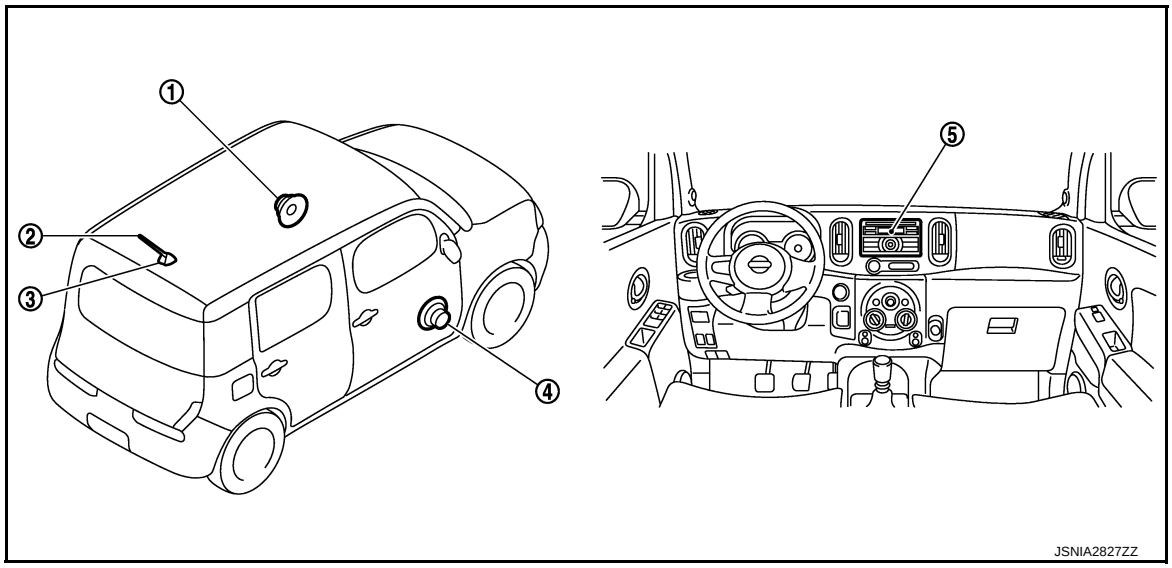
MODELS WITH iPod® CONNECTION FUNCTION



1. Tweeter LH
2. Front door speaker LH
3. Rear door speaker LH
4. Antenna rod
5. Antenna base (antenna amp.)
6. Rear door speaker RH
7. TEL adapter unit
8. TEL antenna
9. Front door speaker RH
10. Tweeter RH
11. Audio unit
12. Microphone
13. Steering switch
14. iPod adapter
15. iPod connector

A. Floor spacer removed condition
B. A/C finisher removed condition

MODELS WITHOUT iPod® CONNECTION FUNCTION



1. Front door speaker LH
2. Antenna rod
3. Antenna base (antenna amp.)
4. Front door speaker RH
5. Audio unit

Component Description

INFOID:0000000007771865

Part name	Description	
Audio unit	Models with iPod® connection function and hands-free phone system	Controls audio system and hands-free phone system functions.
	Except for above.	Controls audio system function.
Steering switch	• Operation for audio and hands-free phone are possible. • Steering switch signal (operation signal) is output to TEL adapter unit. • Steering switch signal (operation signal) is output to audio unit through TEL adapter unit.	
Front door speaker	• Outputs sound signal from audio unit. • Outputs high, mid and low range sounds.	
Tweeter	• Outputs sound signal from audio unit. • Outputs high range sounds.	
Rear door speaker	• Outputs sound signal from audio unit. • Outputs high, mid and low range sounds.	
Antenna base	• An antenna base integrated with antenna amp. • Radio signal received by rod antenna is amplified and transmitted to audio unit. • Power (antenna amp. ON signal) is supplied from audio unit.	
iPod adapter	• Inputs iPod sound signal from iPod®, and outputs iPod sound signal to audio unit. • Receiving/transmitting of iPod® operation signals are performed as follows: - between audio unit and iPod adapter: AV communication. - between iPod® and iPod adapter: serial communication.	
TEL adapter unit	• Inputs the steering switch signal (operation signal) from the steering switch. • Outputs the steering switch signal (operation signal) to audio unit. • Inputs the TEL voice signal from TEL antenna during reception and outputs it to the audio unit. • Inputs the TEL voice signal from microphone during speech recognition and outputs it to the TEL antenna. • Audio unit and TEL adapter unit exchange data by AV communication.	

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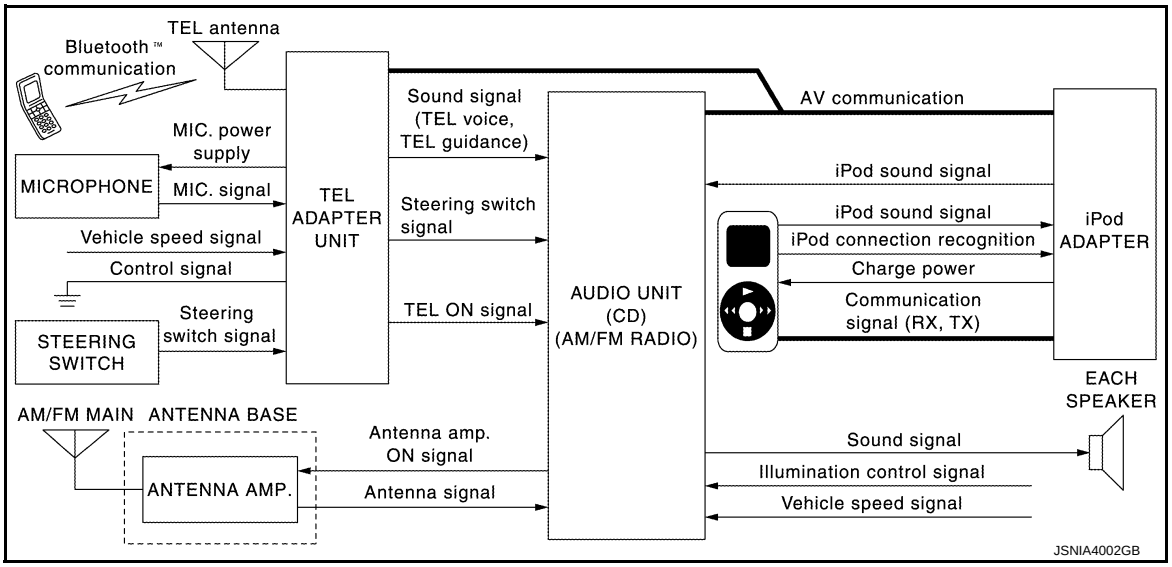
HANDS-FREE PHONE SYSTEM

System Diagram

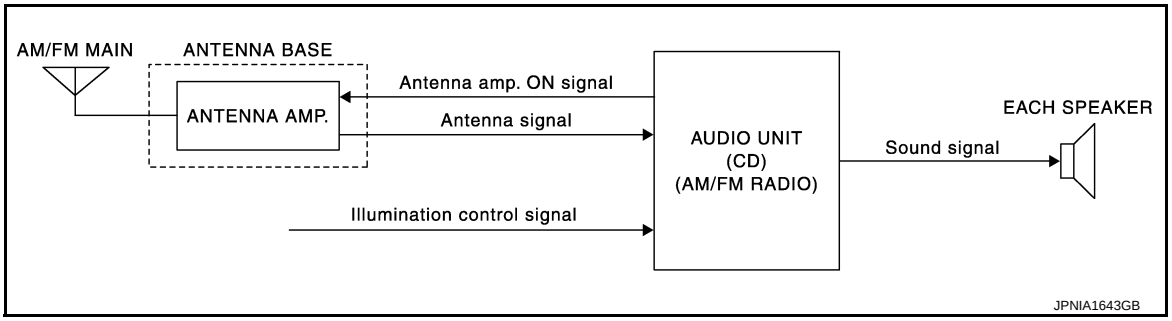
INFOID:0000000007771866

MODELS WITH iPod® CONNECTION FUNCTION AND HANDS-FREE PHONE SYSTEM



NOTE:
An antenna base integrated with radio antenna amp. is adopted.

MODELS WITHOUT iPod® CONNECTION FUNCTION



NOTE:
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System Description

INFOID:0000000007771867

- The connection between cellular phone and TEL adapter unit is performed with Bluetooth™ communication.
- The voice guidance signal is input from the TEL adapter unit to the audio unit and output to the front speaker when operating the telephone.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-17, "Diagnosis Description".

WHEN RECEIVING A CALL

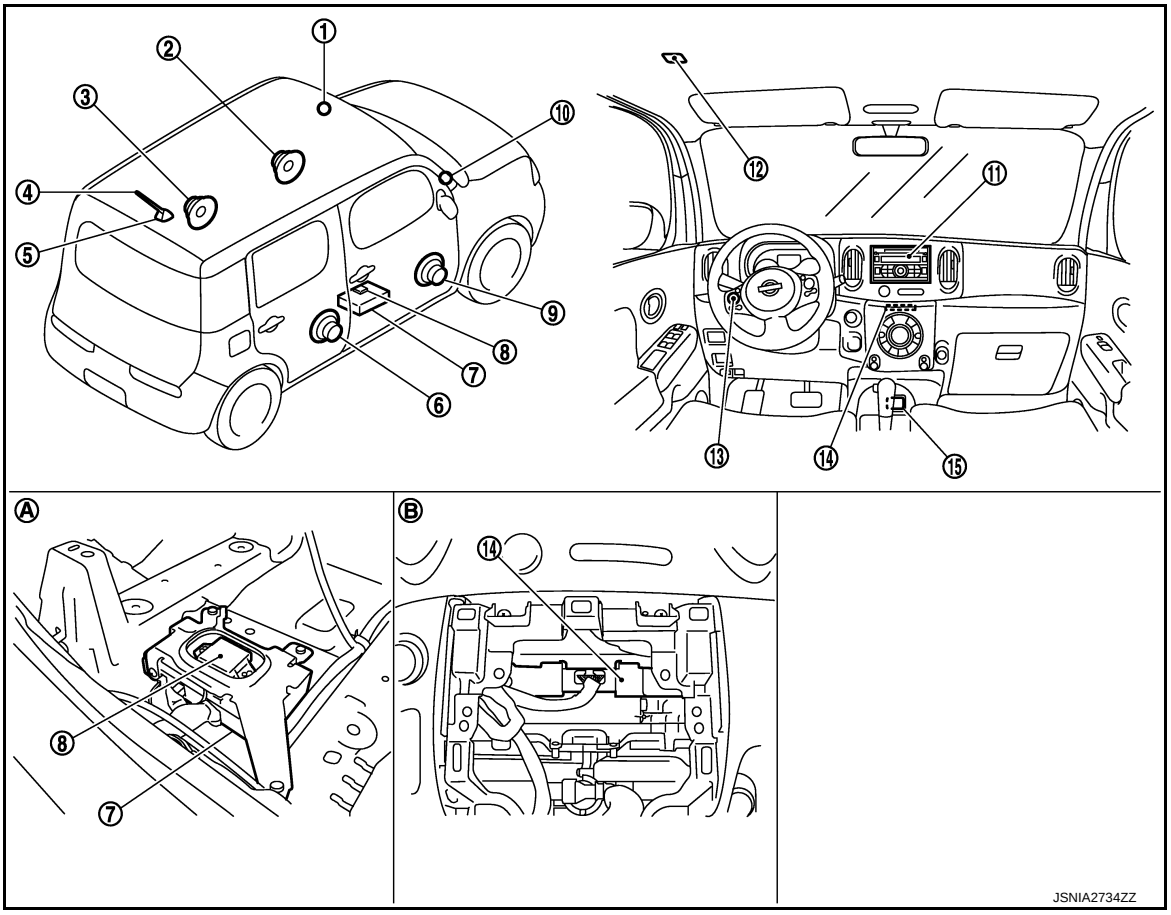
TEL voice signal received with the cellular phone is input from TEL antenna via TEL adapter unit to audio unit with Bluetooth™ communication and output to the front speaker. The operation is performed with the steering switch or voice recognition function.

WHEN A CALL IS ORIGINATED

Speech sound (TEL voice signal) is input from the microphone to the TEL adapter unit. It is input from the TEL antenna via Bluetooth™ communication to the cellular phone. It is transmitted to the phone on the other side. The operation is performed with the steering switch or voice recognition function.

Component Parts Location

INFOID:0000000007771868



1. Tweeter LH
2. Front door speaker LH
3. Rear door speaker LH
4. Antenna rod
5. Antenna base (antenna amp.)
6. Rear door speaker RH
7. TEL adapter unit
8. TEL antenna
9. Front door speaker RH
10. Tweeter RH
11. Audio unit
12. Microphone
13. Steering switch
14. iPod adapter
15. iPod connector

A. Floor spacer removed condition
B. A/C finisher removed condition

Component Description

INFOID:0000000007771869

Part name	Description
Audio unit	• Inputs TEL voice signal or voice guidance signal from TEL adapter unit and outputs it to the front speaker during reception. • Audio unit and TEL adapter unit exchange data by AV communication. • Inputs steering switch signal (operation signal) from steering switch through TEL adapter unit.
Front door speaker	Receives TEL voice and voice guidance signals from audio unit.
Tweeter	
Steering switch	• The hands-free phone system can be operated. • Steering switch signal (operation signal) is output to TEL adapter unit • Steering switch signal (operation signal) is output to audio unit through TEL adapter unit.
Microphone	• Uses when operating the hands-free phone. • Outputs microphone signal (TEL voice signal) to the TEL adapter unit. • The power (microphone VCC) is supplied from the TEL adapter unit.

Part name	Description
TEL adapter unit	• Inputs the TEL voice signal from TEL antenna during reception and outputs into the audio unit. • Inputs the TEL voice signal from microphone during speech recognition and outputs it to the TEL antenna.
TEL antenna	Connects with the cellular phone via Bluetooth™ communication and communicates the TEL voice signal.

DIAGNOSIS SYSTEM (AUDIO UNIT)
MODELS WITH iPod® CONNECTION FUNCTION
MODELS WITH iPod® CONNECTION FUNCTION : Diagnosis Description

INFOID:0000000007771870

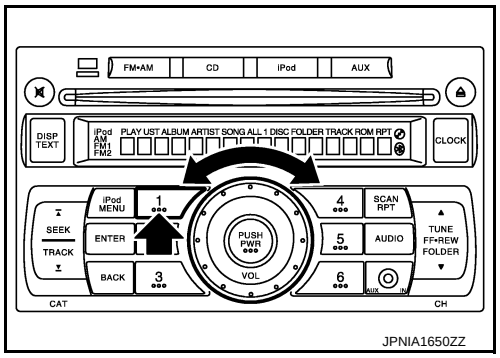
AUDIO UNIT SELF-DIAGNOSIS FUNCTION

Self-diagnosis mode can check the following items.

- Display all icons and segments
- Audio unit hardware/software/CD mechanism/EEPROM versions
- Satellite radio version
- Audio CD changer version
- iPod hardware/software versions

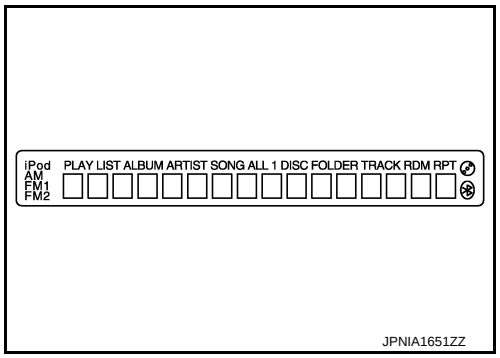
Operation Procedure

1. Turn ignition switch to the ON position.
2. Turn the audio unit off.
3. While pressing the “1” button, turn the volume control dial clockwise or counterclockwise 30 clicks or more. When the self-diagnosis mode is started, a short beep will be heard.



JPNIA1650ZZ

4. Initially, all display segments will be illuminated.



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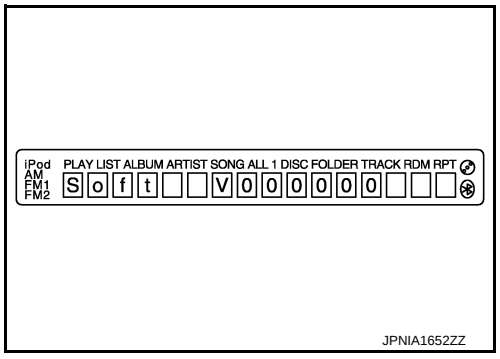
5. Press the “DISP TEXT” switch to enter version diagnostics. “Soft” (audio software version) is displayed.



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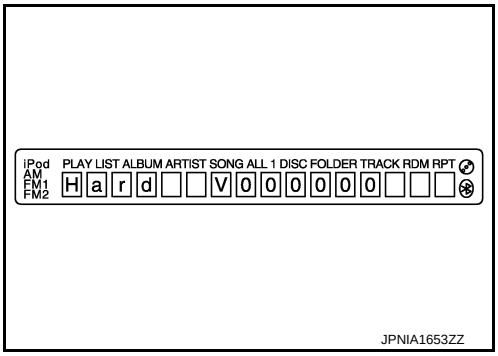
6. Press the “DISP TEXT” switch again to display the “Hard” (audio hardware version).



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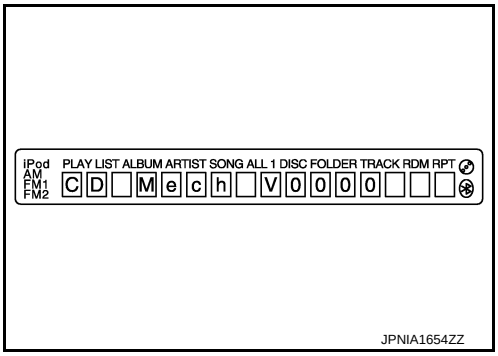
7. Press the “DISP TEXT” switch again to display the “CD Mech” (CD mechanism version).



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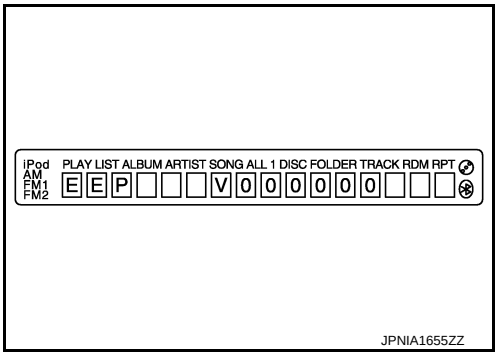
8. Press the “DISP TEXT” switch again to display the “EEP” (audio unit EEPROM version).



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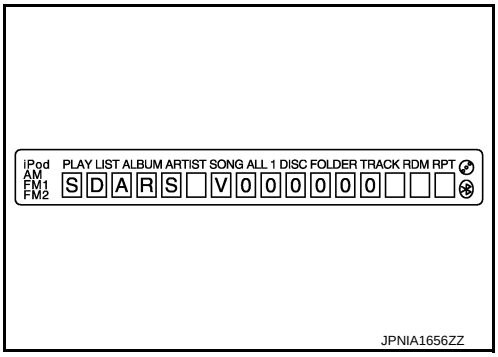
9. Press the “DISP TEXT” switch again to display the “SDARS” (satellite radio version).



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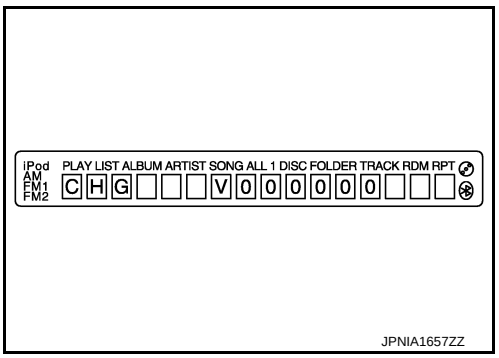
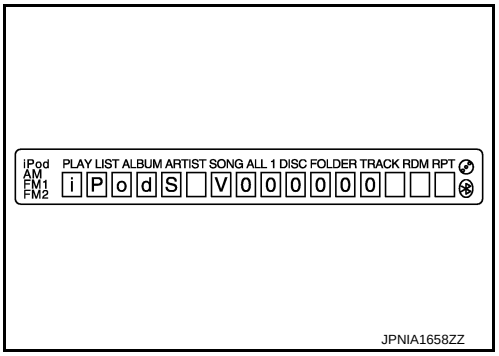
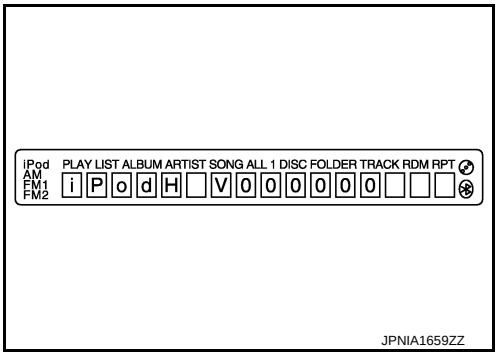
10. Press the “DISP TEXT” switch again to display the “CHG” (audio CD changer version). If audio CD changer is not connected, “FFFFFF” is displayed.



11. Press the “DISP TEXT” switch again to display the “iPodS” (iPod software version). “FFFFFF” is displayed when communication signals between the audio unit and iPod adapter include a malfunction.



12. Press the “DISP TEXT” switch again to display the “iPodH” (iPod hardware version). “FFFFFF” is displayed when communication signals between the audio unit and iPod adapter include a malfunction.



Finishing Self-diagnosis Mode

Self-diagnosis Mode is canceled when turning ignition switch OFF.

MODELS WITHOUT iPod® CONNECTION FUNCTION

MODELS WITHOUT iPod® CONNECTION FUNCTION : Diagnosis Description

INFOID:0000000007771871

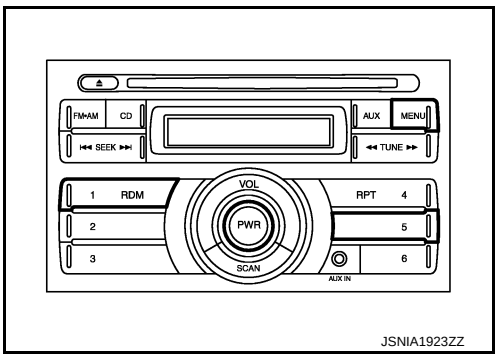
Self-diagnosis mode can check the following items.

- Audio unit software version
- Audio CD changer version

OPERATION PROCEDURE

1. Turn ignition switch to the ON position.
2. Turn the audio unit off.

3. Press “PWR” button while pressing “MENU”, “1” and “5” buttons. When the self-diagnosis mode is started, a short beep will be heard.



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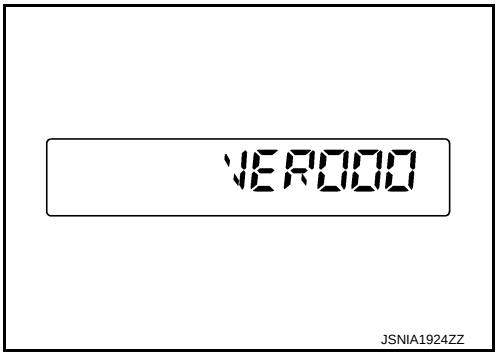
4. Initially, Audio software version is displayed.



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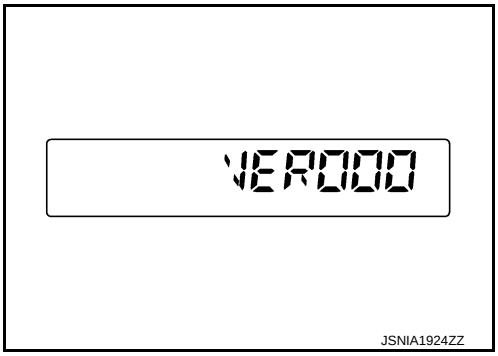
5. Press the “PWR” button to display the audio CD changer version. If audio CD changer is not connected, “FF” is displayed.



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Finishing Self-diagnosis Mode
Self-diagnosis mode is canceled when turning ignition switch OFF.

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

Diagnosis Description

INFOID:0000000007771872

HANDS-FREE PHONE SYSTEM ON BOARD DIAGNOSIS

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

ON BOARD DIAGNOSIS ITEM

The on board diagnosis has 3 modes: the self-diagnosis mode that performs the trouble diagnosis, the speaker adaptation data deleting mode and the hands-free phone system initialization mode.

CAUTION:

- **Perform the diagnosis with the vehicle stopped.**
- **Perform STEP2 if necessary.**

STEP	MODE	Description
STEP 1	Self-diagnosis	The self-diagnosis mode performs the microphone test and the diagnosis of TEL adapter unit, TEL antenna and steering switch, and then reads out the results with the sound and indicates them on the audio screen.
STEP 2	Hands-free phone system initialization	Hands-free phone system initialization mode can perform the initialization of hands-free phone system.
	Speaker adaptation data deleting	The speaker adaptation data deleting mode can delete the speaker adaptation data.

SELF-DIAGNOSIS RESULTS

Self-diagnosis mode reads out the self-diagnosis results and indicates DTC on the audio screen.

NOTE:

- Error count is read out simultaneously when reading out the DTC name.
- The errors are read out continuously when some errors occur at the same time. The DTC displays are combined and displayed. For example, DTC 01100 is displayed when DTC 01000 and DTC 00100 are indicated at the same time.

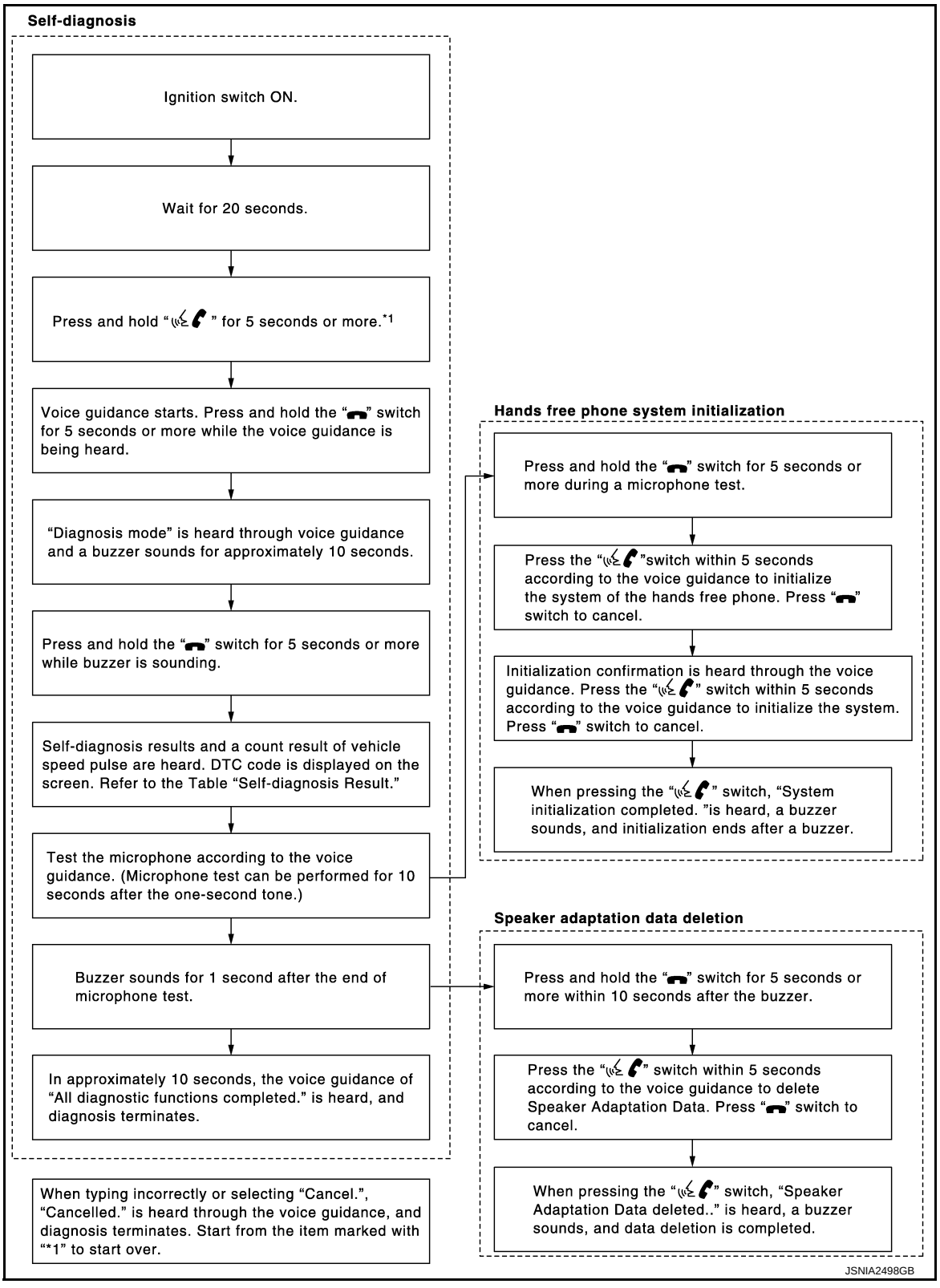
Self-diagnosis results

DTC (Audio screen)	Failure massage	Possible causes
DTC 10000	Internal failure	TEL adapter unit
DTC 01000	Bluetooth antenna open	TEL antenna
DTC 00100	Bluetooth antenna shorted	
DTC 00010	Button ladder A is stuck	Steering switch
DTC 00001	Button ladder B is stuck	
DTC 00000	There are no failure records to report	—

The Details of Error Count

The error count guides “0” when the error occurs. The next time it counts up “1” if it is normal with the ignition switch ON. It continues the count up unless the initialization of hands-free phone system is performed.

FLOW CHART OF TROUBLE DIAGNOSIS



DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

AUDIO UNIT

AUDIO UNIT : Diagnosis Procedure

INFOID:0000000007771873

1. CHECK FUSE

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

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	20

Is inspection result OK?

YES >> GO TO 2.
NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

2. CHECK AUDIO UNIT POWER SUPPLY CIRCUIT

Check voltage between the audio unit and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Voltage
Battery power supply	M46	19	OFF	Battery voltage
ACC power supply		7	ACC	Battery voltage

Is inspection result OK?

YES >> INSPECTION END
NO >> Check harness between audio unit and fuse.

iPod ADAPTER

iPod ADAPTER : Diagnosis Procedure

INFOID:0000000007771874

1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	20

Is the inspection result normal?

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

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between iPod adapter harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Voltage
Battery power supply	M99	5	OFF	Battery voltage
ACC power supply		3	ACC	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check harness between iPod adapter and fuse.

TEL ADAPTER UNIT

TEL ADAPTER UNIT : Diagnosis Procedure

INFOID:0000000007771875

1.CHECK FUSES

Check that the following fuses of the TEL adapter unit are not blown.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	20

Is inspection result OK?

YES >> GO TO 2.
NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Voltage
Battery power supply	B54	1	OFF	Battery voltage
ACC power supply		2	ACC	Battery voltage

Is inspection result OK?

YES >> GO TO 3.
NO >> Check harness between TEL adapter unit and fuse.

3.CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B54	4	OFF	Existed

Is inspection result OK?

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

TELEPHONE ON SIGNAL CIRCUIT

Description

INFOID:0000000007771876

When telephone is being used, TEL adapter unit transmits telephone ON signal to audio unit.

Diagnosis Procedure

INFOID:0000000007771877

1.CHECK CONTINUITY TELEPHONE ON 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 and audio unit harness connector.

TEL adapter unit		Audio unit		Continuity
Connector	Terminal	Connector	Terminal	
B54	11	M49	54	Existed

4. Check continuity between TEL adapter unit harness connector and ground.

TEL adapter unit		Ground	Continuity
Connector	Terminal		
B54	11		Not existed

Is inspection result OK?

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

2.CHECK TELEPHONE ON SIGNAL

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

Audio unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M49	54		While using hands-free phone system.	0 V
			While not using hands-free phone system.	5.0 V

Is inspection result OK?

YES >> INSPECTION END
NO >> Replace audio unit. Refer to AV-55, "Exploded View".

MICROPHONE SIGNAL CIRCUIT

Description

INFOID:0000000007771878

TEL adapter unit supplies power to microphone. The microphone transmits the sound voice to the TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771879

1.CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

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

TEL adapter unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	
B54	7	R21	1	Existed
	8		2	
	29		4	

4. Check continuity between TEL adapter unit harness connector and ground.

TEL adapter unit		Ground	Continuity
Connector	Terminal		
B54	7		Not existed
	29		

Is inspection result OK?

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

2.CHECK MICROPHONE POWER SUPPLY

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

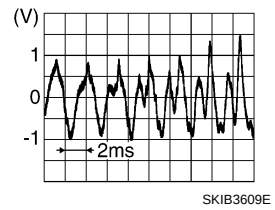
TEL adapter unit		Ground	Voltage (Approx.)
Connector	Terminal		
B54	29		5.0 V

Is inspection result OK?

YES >> GO TO 3.
NO >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".

3.CHECK MICROPHONE SIGNAL

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

TEL adapter unit		TEL adapter unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B54	7	B54	8	Give a voice.	

SKIB3609E

Is inspection result OK?

YES >> INSPECTION END
NO >> Replace microphone. Refer to AV-61, "Exploded View".

CONTROL SIGNAL CIRCUIT

Description

INFOID:0000000007771880

TEL adapter unit identifies the vehicle model according to the control signal and performs the control.

Diagnosis Procedure

INFOID:0000000007771881

1.CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

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

TEL adapter unit			
Connector	Terminals	Ground	Continuity
B54	22		Existed
	23		
	24		
	27		

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".
NO >> Repair harness or connector.

STEERING SWITCH SIGNAL A CIRCUIT (STEERING SWITCH TO TEL ADAPTER UNIT)

Description

INFOID:0000000007771882

- Transmits the steering switch signal to TEL adapter unit.
- Transmits the steering switch signal to audio unit through TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771883

1.CHECK STEERING SWITCH SIGNAL A (STEERING SWITCH TO TEL ADAPTER UNIT) CIRCUIT

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

TEL adapter unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
B54	12	M33	24	Existed

4. Check continuity between TEL adapter unit harness connector and ground.

TEL adapter unit		Ground	Continuity
Connector	Terminal		
B54	12		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK TEL ADAPTER UNIT VOLTAGE

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

(+)		(–)		Voltage (Approx.)
TEL adapter unit				
Connector	Terminal	Connector	Terminal	
B54	12	B54	14	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-26, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-62, "Exploded View".

Component Inspection

INFOID:0000000007771884

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

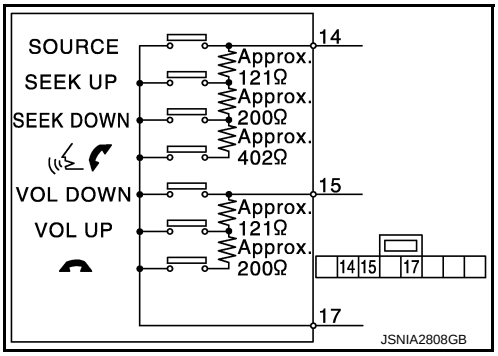
Standard

Between terminals 14 and 17

switch ON	: Approx. 709 – 737 Ω
SEEK DOWN switch ON	: Approx. 315 – 327 Ω
SEEK UP switch ON	: Approx. 119 – 123 Ω
SOURCE switch ON	: Approx. 0 Ω

Between terminals 15 and 17

switch ON	: Approx. 315 – 327 Ω
VOL UP switch ON	: Approx. 119 – 123 Ω
VOL DOWN switch ON	: Approx. 0 Ω



STEERING SWITCH SIGNAL B CIRCUIT (STEERING SWITCH TO TEL ADAPTER UNIT)

Description

INFOID:0000000007771885

- Transmits the steering switch signal to TEL adapter unit.
- Transmits the steering switch signal to audio unit through TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771886

1.CHECK STEERING SWITCH SIGNAL B (STEERING SWITCH TO TEL ADAPTER UNIT) CIRCUIT

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

TEL adapter unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
B54	13	M33	31	Existed

4. Check continuity between TEL adapter unit harness connector and ground.

TEL adapter unit		Ground	Continuity
Connector	Terminal		
B54	13		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK TEL ADAPTER UNIT VOLTAGE

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

(+)		(–)		Voltage (Approx.)
TEL adapter unit				
Connector	Terminal	Connector	Terminal	
B54	13	B54	14	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-28, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-62, "Exploded View".

Component Inspection

INFOID:0000000007771887

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

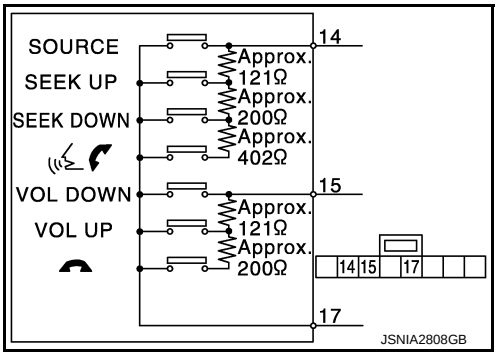
Standard

Between terminals 14 and 17

switch ON	: Approx. 709 – 737 Ω
SEEK DOWN switch ON	: Approx. 315 – 327 Ω
SEEK UP switch ON	: Approx. 119 – 123 Ω
SOURCE switch ON	: Approx. 0 Ω

Between terminals 15 and 17

switch ON	: Approx. 315 – 327 Ω
VOL UP switch ON	: Approx. 119 – 123 Ω
VOL DOWN switch ON	: Approx. 0 Ω



STEERING SWITCH SIGNAL GND CIRCUIT (STEERING SWITCH TO TEL ADAPTER UNIT)

Description

INFOID:0000000007771888

- Transmits the steering switch signal to TEL adapter unit.
- Transmits the steering switch signal to audio unit through TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771889

1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT (STEERING SWITCH TO TEL ADAPTER UNIT)

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

TEL adapter unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
B54	14	M33	33	Existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK GROUND CIRCUIT

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

TEL adapter unit		Ground	Continuity
Connector	Terminal		
B54	14		Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".

4.CHECK STEERING SWITCH

Check steering switch. Refer to AV-29, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-62, "Exploded View".

Component Inspection

INFOID:0000000007771890

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

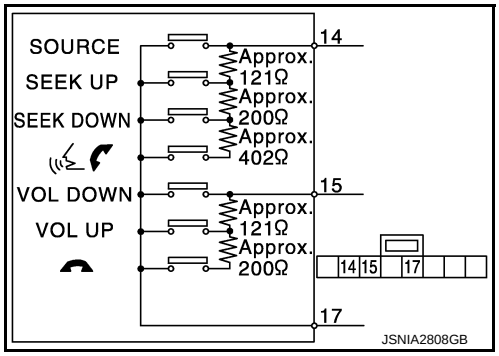
Standard

Between terminals 14 and 17

switch ON	: Approx. 709 – 737 Ω
SEEK DOWN switch ON	: Approx. 315 – 327 Ω
SEEK UP switch ON	: Approx. 119 – 123 Ω
SOURCE switch ON	: Approx. 0 Ω

Between terminals 15 and 17

switch ON	: Approx. 315 – 327 Ω
VOL UP switch ON	: Approx. 119 – 123 Ω
VOL DOWN switch ON	: Approx. 0 Ω



STEERING SWITCH SIGNAL A CIRCUIT (TEL ADAPTER UNIT TO AUDIO UNIT)

Description

INFOID:0000000007771891

- Transmits the steering switch signal to TEL adapter unit.
- Transmits the steering switch signal to audio unit through TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771892

1. CHECK STEERING SWITCH SIGNAL A CIRCUIT (TEL ADAPTER UNIT TO AUDIO UNIT)

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

Audio unit		TEL adapter unit		Continuity
Connector	Terminal	Connector	Terminal	
M46	6	B54	17	Existed

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

Audio unit		Ground	Continuity
Connector	Terminal		
M46	6		Not existed

Is inspection result normal?

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

2. CHECK AUDIO UNIT VOLTAGE

1. Connect audio unit connector and TEL adapter unit connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector terminals.

(+)		(–)		Voltage (Approx.)
Audio unit				
Connector	Terminal	Connector	Terminal	
M46	6	M46	15	3.3 V

Is inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".
NO >> Replace audio unit. Refer to AV-55, "Exploded View".

STEERING SWITCH SIGNAL B CIRCUIT (TEL ADAPTER UNIT TO AUDIO UNIT)

Description

INFOID:0000000007771893

- Transmits the steering switch signal to TEL adapter unit.
- Transmits the steering switch signal to audio unit through TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771894

1. CHECK STEERING SWITCH SIGNAL B CIRCUIT (TEL ADAPTER UNIT TO AUDIO UNIT)

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

Audio unit		TEL adapter unit		Continuity
Connector	Terminal	Connector	Terminal	
M46	16	B54	18	Existed

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

Audio unit		Ground	Continuity
Connector	Terminal		
M46	16		Not existed

Is inspection result normal?

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

2. CHECK AUDIO UNIT VOLTAGE

1. Connect audio unit connector and TEL adapter unit connector.
2. Turn ignition switch ON.
3. Check voltage between audio unit harness connector terminals.

(+)		(–)		Voltage (Approx.)
Audio unit				
Connector	Terminal	Connector	Terminal	
M46	16	M46	15	3.3 V

Is inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".
NO >> Replace audio unit. Refer to AV-55, "Exploded View".

STEERING SWITCH SIGNAL GND CIRCUIT (TEL ADAPTER UNIT TO AUDIO UNIT)

Description

INFOID:0000000007771895

- Transmits the steering switch signal to TEL adapter unit.
- Transmits the steering switch signal to audio unit through TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771896

1. CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT (TEL ADAPTER UNIT TO AUDIO UNIT)

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

Audio unit		TEL adapter unit		Continuity
Connector	Terminal	Connector	Terminal	
M46	15	B54	19	Existed

Is inspection result normal?

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

2. CHECK GROUND CIRCUIT

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

Audio unit		Ground	Continuity
Connector	Terminal		
M46	15		Existed

Is inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-60, "Exploded View".
NO >> Replace audio unit. Refer to AV-55, "Exploded View".

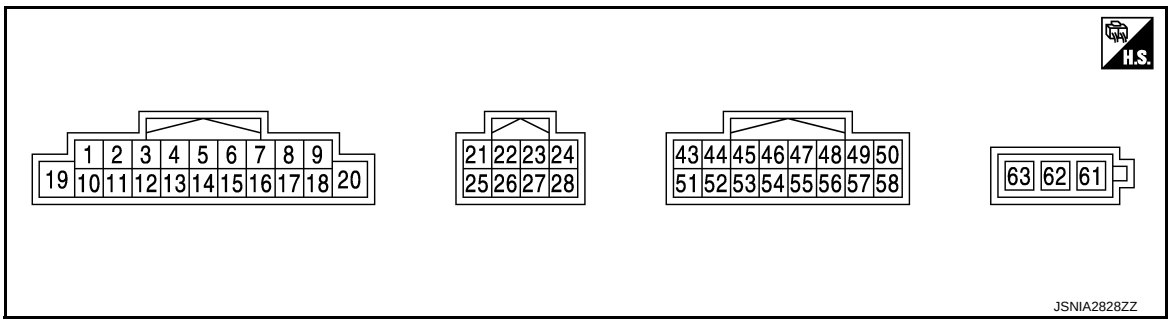
ECU DIAGNOSIS INFORMATION

AUDIO UNIT

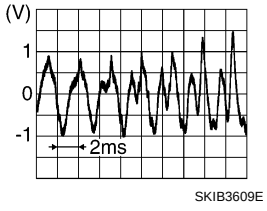
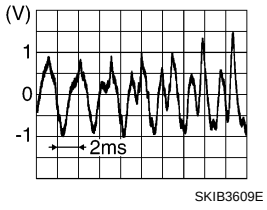
Reference Value

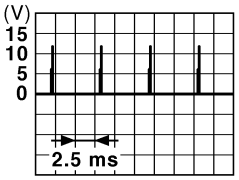
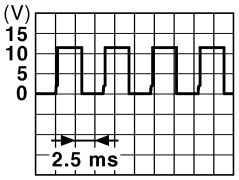
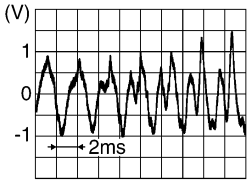
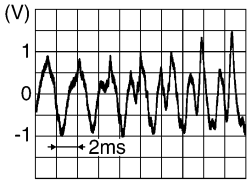
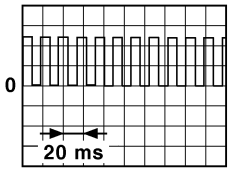
INFOID:0000000007771897

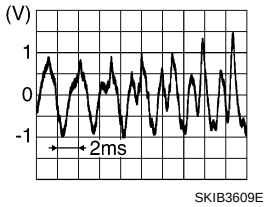
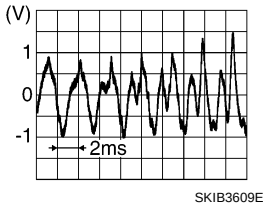
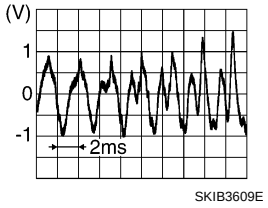
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
2 (W)	3 (P)	Sound signal front speaker LH	Output	Ignition switch ON	Sound output	
4 (V)	5 (R/B)	Sound signal rear speaker LH	Output	Ignition switch ON	Sound output	
6 (W/G)	15 (L/B)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch	0 V
					Keep pressing SEEK UP switch	0.9 V
					Keep pressing SEEK DOWN switch	1.6 V
					Except for above	3.3 V
7 (L/Y)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
9 (W)	8 (B/R)	Illumination control signal	Input	Ignition switch OFF	• Lighting switch 1ST • When meter illumination is maximum	 JPNIA1687GB
					• Lighting switch 1ST • When meter illumination is step 11	 JPNIA1686GB
					• Lighting switch 1ST • When meter illumination is minimum	0 V
11 (G)	12 (R)	Sound signal front speaker RH	Output	Ignition switch ON	Sound output	 SKIB3609E
13 (LG)	14 (GR)	Sound signal rear speaker RH	Output	Ignition switch ON	Sound output	 SKIB3609E
16 (GR/R)	15 (L/B)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL DOWN switch	0 V
					Keep pressing VOL UP switch	0.9 V
					Except for above	3.3 V
18 (L)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB
19 (L)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage

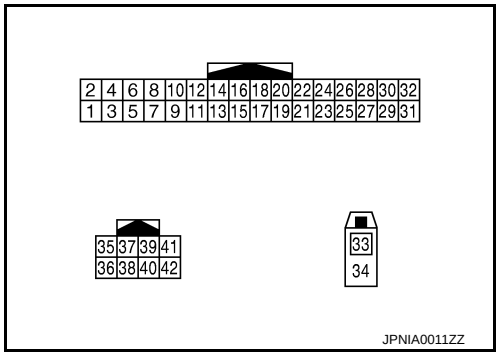
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
21 (R)	25 (W)	iPod sound signal LH	Input	Ignition switch ON	When iPod mode is selected	 SKIB3609E
23 (B)	27 (G)	iPod sound signal RH	Input	Ignition switch ON	When iPod mode is selected	 SKIB3609E
28	—	Shield	—	—	—	—
48 (SB)	—	AV communication signal (H)	Input/ Output	—	—	—
49 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—
54 (O)	Ground	TEL ON signal	Input	Ignition switch ON	While using hands-free phone system	0 V
					While not using hands-free phone system	5.0 V
56 (BR)	57 (Y)	Sound signal (TEL voice, voice guidance)	Input	Ignition switch ON	During voice guide output with the switch pressed	 SKIB3609E
58	—	Shield	—	—	—	—
61	Ground	Antenna amp. ON signal	Output	Ignition switch ON	—	12.0 V
62	—	AM–FM main	Input	—	—	—

TEL ADAPTER UNIT

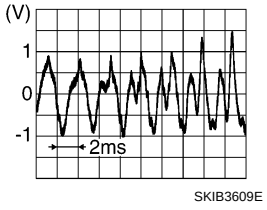
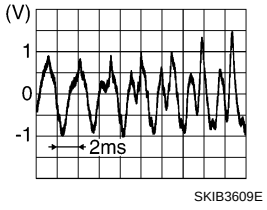
Reference Value

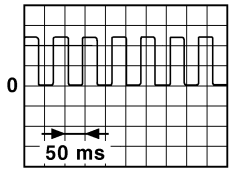
INFOID:0000000007771898

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
2 (L)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage
3 (LG)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
4 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
7 (L)	8	Microphone signal	Input	Ignition switch ON	Give a voice.	
9 (BR)	10 (Y)	Sound signal (TEL voice, voice guidance)	Output	Ignition switch ON	During voice guide output with the switch pressed.	
11 (SB)	Ground	TEL ON signal	Output	Ignition switch ON	While using hands-free phone system.	0 V
					While not using hands-free phone system.	5.0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
12 (W)	14 (GR)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch.	0 V
					Keep pressing SEEK UP switch.	1.3 V
					Keep pressing SEEK DOWN switch.	2.5 V
					Keep pressing switch.	3.4 V
					Except for above.	5.0 V
13 (SB)	14 (GR)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL DOWN switch.	0 V
					Keep pressing VOL UP switch.	1.3 V
					Keep pressing switch.	2.5 V
					Except for above.	5.0 V
17 (GR)	19 (L)	Steering switch signal A	Output	Ignition switch ON	Keep pressing SOURCE switch.	0 V
					Keep pressing SEEK UP switch.	0.9 V
					Keep pressing SEEK DOWN switch.	1.6 V
					Except for above.	3.3 V
18 (P)	19 (L)	Steering switch signal B	Output	Ignition switch ON	Keep pressing VOL DOWN switch.	0 V
					Keep pressing VOL UP switch.	0.9 V
					Except for above.	3.3 V
22 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V
23 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V
24 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V
27 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V
28 (O)	Ground	Vehicle speed signal (2-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0015GB

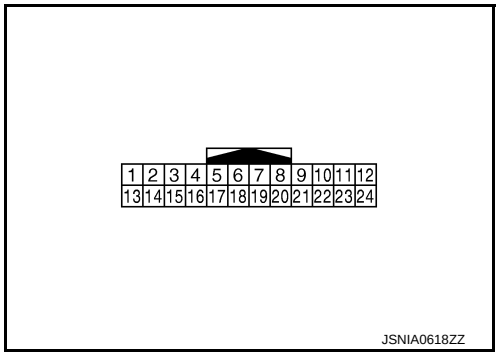
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
29 (R)	Ground	Microphone power supply	Output	Ignition switch ON	—	5.0 V
33	—	TEL antenna signal	Input	—	Not connected to TEL antenna connector.	5.0 V
34	—	Shield	—	—	—	—
35 (SB)	—	AV communication signal (H)	Input/ Output	—	—	—
36 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—
39 (Y/R)	—	Date line	—	—	—	—
40 (Y/R)	—	Date line	—	—	—	—
41 (SB)	—	Date line	—	—	—	—
42 (SB)	—	Date line	—	—	—	—

IPOD ADAPTER

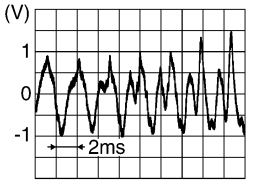
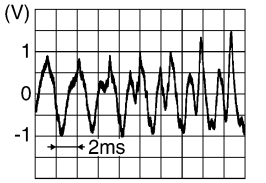
Reference Value

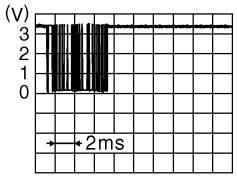
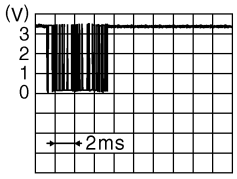
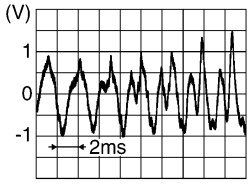
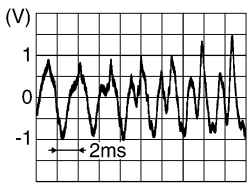
INFOID:0000000007771899

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (R)	13 (W)	iPod sound signal LH	Output	Ignition switch ON	When iPod mode is selected.	
2 (B)	14 (G)	iPod sound signal RH	Output	Ignition switch ON	When iPod mode is selected.	
3 (L/Y)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage
4 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—
5 (L)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
6 (GR)	—	USB D+ signal	—	—	—	—
7 (LG)	—	USB D– signal	—	—	—	—
8 (LG)	Ground	iPod battery charge 12 V	Output	Ignition switch ON	Connected to iPod®	12.0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
9 (P)	Ground	Communication signal (iPod adapter→iPod®)	Output	Ignition switch ON	The wave pattern is displayed just after iPod connection.	 JPNIA0462GB **NOTE:** After the wave pattern display, the value continues Approx 3.3 V
10 (L)	Ground	Communication signal (iPod®→iPod adapter)	Input	Ignition switch ON	Connected to iPod®	 JPNIA0462GB
11 (O)	Ground	ACCESSORY-IDENTIFY	—	Ignition switch ON	Connected to iPod®	0 V
12 (G/R)	23 (G/Y)	iPod sound signal RH	Input	Ignition switch ON	When iPod mode is selected.	 SKIB3609E
15	—	Shield	—	—	—	—
16 (SB)	—	AV communication signal (H)	Input/ Output	—	—	—
17 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
19	—	Shield	—	—	—	—
20 (BR)	Ground	iPod battery charge 5 V	Output	Ignition switch ON	Connected to iPod®	5.0 V
21 (W/B)	Ground	iPod connection recognition signal	Input	Ignition switch ON	Not connected to iPod®	4.0 V
					Connected to iPod®	0 V
22 (G/O)	Ground	ACCESSORY-DETECT	—	Ignition switch ON	Connected to iPod®	0 V
24 (G/O)	23 (G/Y)	iPod sound signal LH	Input	Ignition switch ON	When iPod mode is selected.	 SKIB3609E

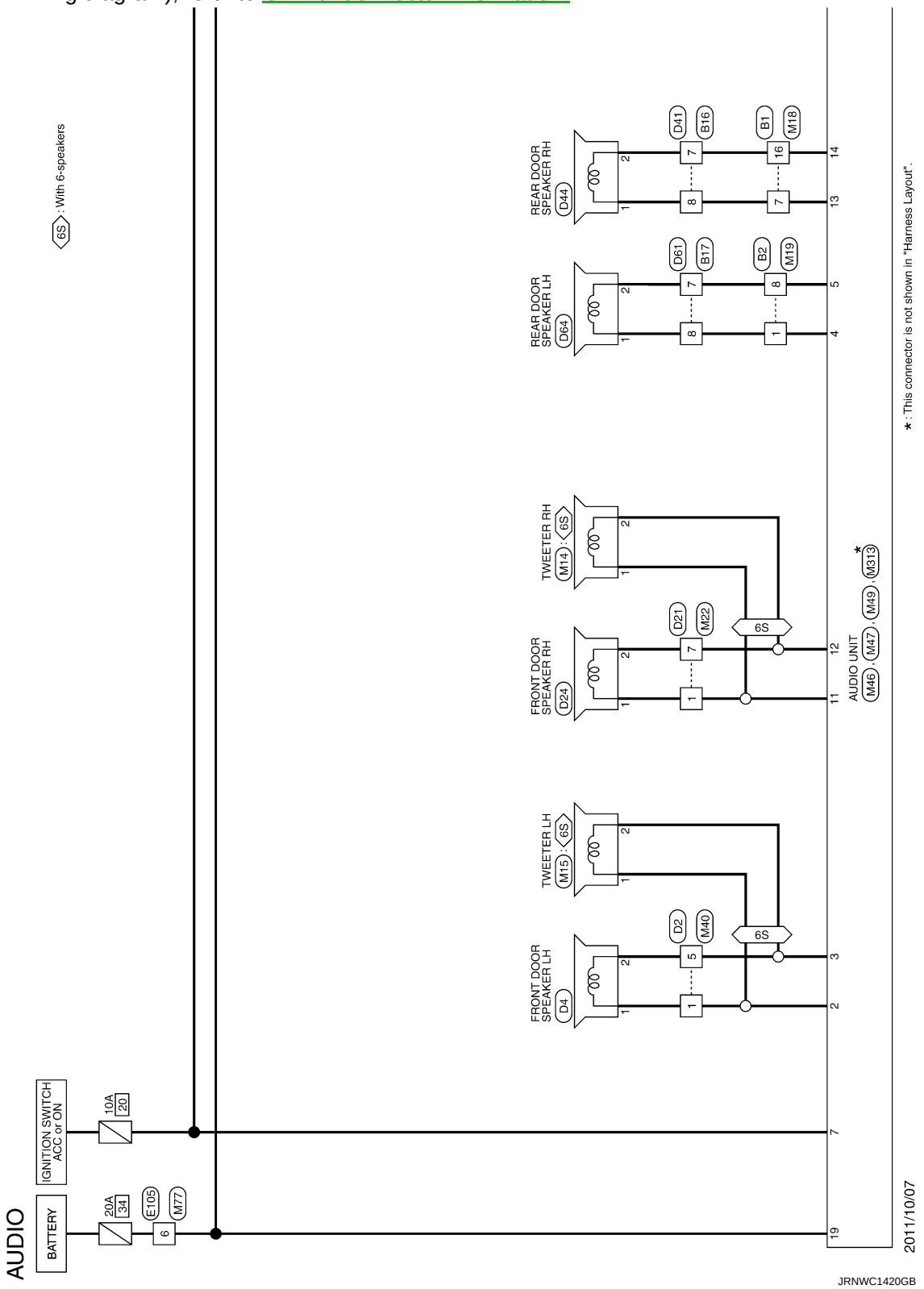
WIRING DIAGRAM

AUDIO WITHOUT NAVIGATION

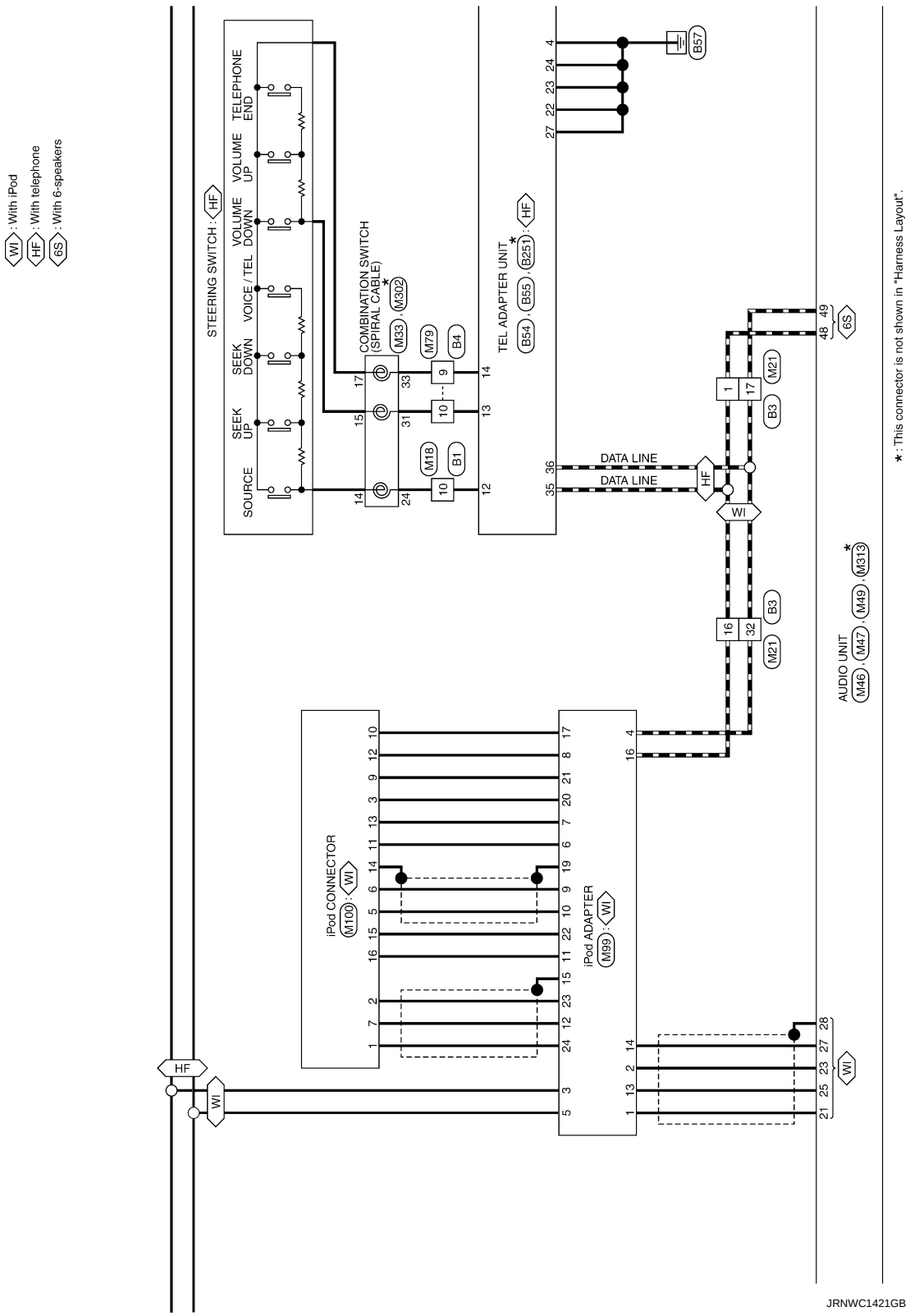
Wiring Diagram

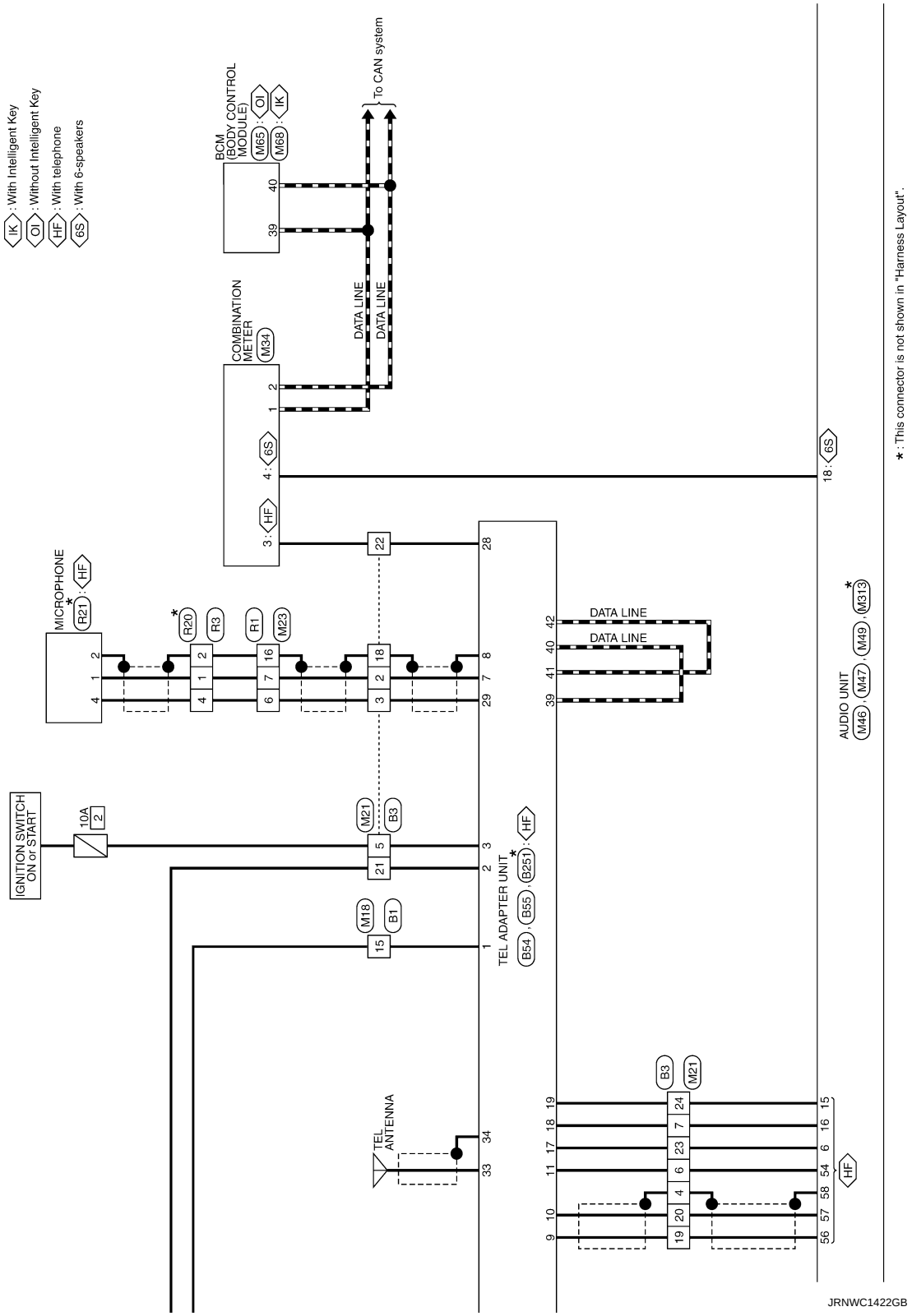
INFOID:0000000007771900

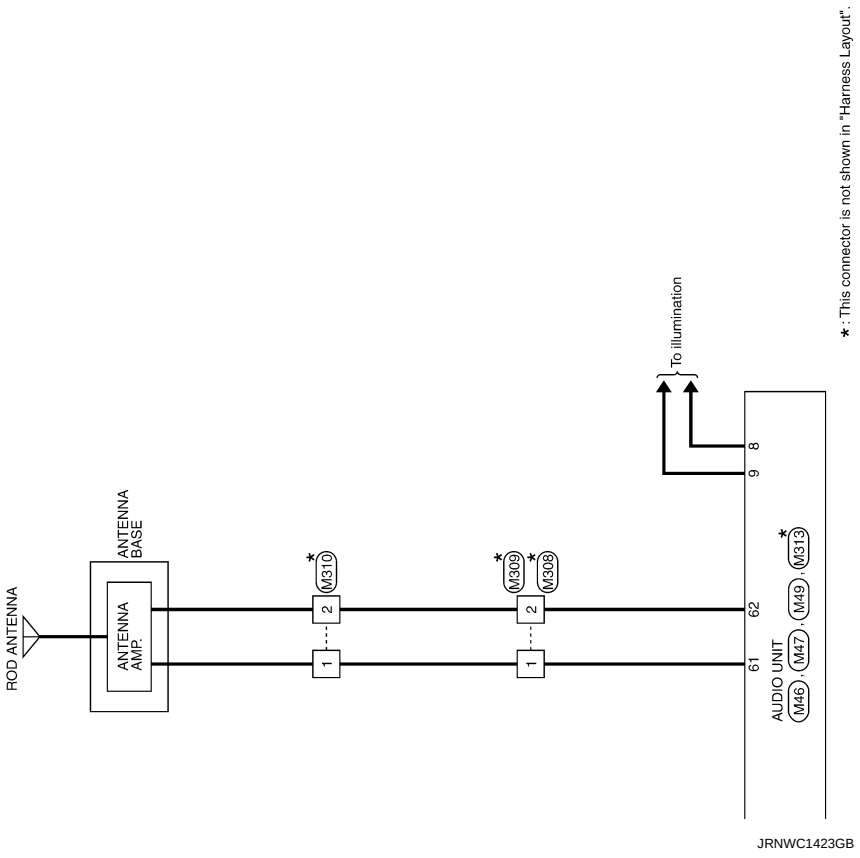
For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if notdescribed in wiring diagram), refer to GI-12, "Connector Information".



JRNWC1420GB


WI : With iPod
HF : With telephone
6S : With 6-speakers
STEERING SWITCH : HF
TELEPHONE END
VOLUME UP
VOLUME DOWN
VOICE / TEL
SEEK DOWN
SEEK UP
SOURCE
COMBINATION SWITCH (SPIRAL CABLE)*
M302
M33
M79
B4
M18
B1
TEL ADAPTER UNIT*
B54 , B55 , B251* : HF
B57
DATA LINE
DATA LINE
HF
WI
6S
M21
B3
AUDIO UNIT
M46 , M47 , M49 , M313*
iPod CONNECTOR
M100 : WI
iPod ADAPTER
M99 : WI
HF
WI
WI
*: This connector is not shown in "Harness Layout".
JRNWC1421GB


IK : With Intelligent Key
OI : Without Intelligent Key
HF : With telephone
6S : With 6-speakers
BCM (BODY CONTROL MODULE)
M65 : OI
M68 : IK
To CAN system
COMBINATION METER
M34
DATA LINE
DATA LINE
MICROPHONE
M21 : HF
R21
R20
R3
R1
M23
IGNITION SWITCH ON or START
10A
2
M21
B3
M18
B1
TEL ADAPTER UNIT
B54 : B55 : B251 : HF
TEL ANTENNA
DATA LINE
DATA LINE
AUDIO UNIT
M46 : M47 : M49 : M313
B3
M21
HF
* : This connector is not shown in "Harness Layout".
JRNWC1422GB


★: This connector is not shown in "Harness Layout".
To illumination
8
9
ANTENNA BASE
ROD ANTENNA
ANTENNA AMP.
M310
2
1
M309
M308
2
1
M313
62
61
M49
M47
M46
AUDIO UNIT
JRNWC1423GB

SYMPTOM DIAGNOSIS

AUDIO SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000007771901

AUDIO SYSTEM

Symptoms	Check items	Possible malfunction location / Action to take
Audio unit does not start.	—	Audio unit power supply and ground circuit. Refer to AV-19, "AUDIO UNIT : Diagnosis Procedure".
Audio sound is not heard or volume is small.	Sound is not heard only from the specific places.	Sound signal circuit of malfunctioning system.
No sound comes out or the level of the sound is low.	No sound from all speakers.	Audio unit power supply and ground circuit. Refer to AV-19, "AUDIO UNIT : Diagnosis Procedure".
	Only a certain speaker (front right, front left, rear right, or rear left) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit of malfunctioning system between audio unit and speaker. • Malfunction in speaker. • Malfunction in audio unit.
Noise is mixed with audio.	Noise comes out from all speaker.	Malfunction in audio unit.
	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left).	• Poor connector connection of speaker. • Sound signal circuit of malfunctioning system between audio unit and speaker. • Malfunction in speaker. • Poor installation of speaker (e.g. backlash and looseness) • Malfunction in audio unit.
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.
Radio is not received or poor reception.	• Other audio sounds are normal. • Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	• Antenna amp. ON signal circuit malfunction. • Poor connector connection of antenna or antenna feeder. • Loose antenna base mounting nut. Refer to AV-59, "Exploded View".

RELATED TO iPod®

Trouble Diagnosis Chart by Symptom

Connect another iPod® and check if the symptom is reproduced or not. If the symptom is reproduced, diagnose the vehicle. If no malfunction is detected, replace the iPod harness.

NOTE:

- It is unable to read a connection between iPod® and iPod harness.
- Charging of iPod® with no 5 V charging circuit is not supported. (e.g. iPod 1G mechanical scroll wheel, iPod Classic 2G touch-sensitive wheel, and iPod Classic 3G 4 touch button)

Trouble diagnosis chart by symptom

Symptoms	Check items	Possible malfunction location / Action to take
There is no sound from the iPod®.	Other audio sounds are normal.	• iPod sound signal circuit between audio unit and iPod adapter. • iPod sound signal circuit between iPod® and iPod adapter.

Symptoms	Check items	Possible malfunction location / Action to take
“iPod No connect” is displayed when “iPod” switch is pressed.	• iPod battery charging is normal. • iPod software and hardware version are displayed when performing audio unit self-diagnosis.	Communication circuit between iPod® and iPod adapter.
	• iPod battery charging is normal. • iPod software and hardware version are not displayed when performing audio unit self-diagnosis.	AV communication circuit between audio unit and iPod adapter.
	iPod battery charge does not work.	iPod adapter power supply and ground circuit. Refer to AV-19, "iPod ADAPTER : Diagnosis Procedure".
iPod® cannot charge the battery.	Not chargeable even when connecting other iPod®. Refer to NOTE.	iPod battery charge 5 V circuit between iPod® and iPod adapter.

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

RELATED TO STEERING SWITCH

Symptoms	Possible malfunction location / Action to take
All steering switches are not operated.	Steering switch signal ground circuit. (steering switch to TEL adapter unit) Refer to AV-29, "Diagnosis Procedure".
“SOURCE”, “SEEK UP”, “VOL UP”, “SEEK DOWN” and “VOL DOWN” switches are not operated.	Steering switch signal ground circuit. (TEL adapter unit to audio unit) Refer to AV-33, "Diagnosis Procedure".
Only specified switch cannot be operated.	Replace steering switch.
“”, “SOURCE”, “SEEK UP” and “SEEK DOWN” switches are not operated.	Steering switch signal A circuit. (steering switch to TEL adapter unit) Refer to AV-25, "Diagnosis Procedure".
“SOURCE”, “SEEK UP” and “SEEK DOWN” switches are not operated.	Steering switch signal A circuit. (TEL adapter unit to audio unit) Refer to AV-31, "Diagnosis Procedure".
“”, “VOL UP” and “VOL DOWN” switches are not operated.	Steering switch signal B circuit. (steering switch to TEL adapter unit) Refer to AV-27, "Diagnosis Procedure".
“VOL UP” and “VOL DOWN” switches are not operated.	Steering switch signal B circuit. (TEL adapter unit to audio unit) Refer to AV-32, "Diagnosis Procedure".

HANDS-FREE PHONE SYMPTOMS

Symptom Table

INFOID:0000000007771902

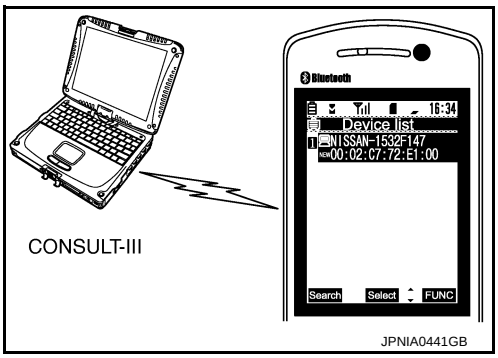
RELATED TO HANDS-FREE PHONE

- Check that the cellular phone is corresponding type (Bluetooth™ enabled) when the hands-free related malfunction vehicle is in service before performing a diagnosis.
- There is a case that malfunction occurs due to the version change of the phone type, etc. even though it is a corresponding type. Therefore, confirm it by changing the cellular phone to another corresponding type phone, and check that it operates normally. It is necessary to distinguish whether the cause is the vehicle or cellular phone. Check to ensure the customer's phone is supported by checking the phone compatibility for the hands-free system.

Simple Check for Bluetooth™ Communication

If cellular phone and TEL adapter unit cannot be connected with Bluetooth™ communication, following procedure allows the technician to judge which device has malfunction.

1. Turn on a cellular phone, not connecting Bluetooth™ communication.
2. Start CONSULT-III, then start Windows®.
3. Set CONSULT-III near a cellular phone.
4. When operated Bluetooth™ registration by cellular phone, check if CONSULT-III* would be displayed on the device name.
   (If other Bluetooth™device is located near cellular phone, a name of the device would be displayed also.)
   NOTE:
   *:Displayed device name is “NISSAN-********”.



- If no device name is displayed, cellular phone is malfunction. Repair the cellular phone first, then perform diagnosis.
- If CONSULT-III is displayed on device name, cellular phone is normal. Perform diagnosis as per the following table.

Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Possible malfunction location/Action to take
Does not recognize cellular phone connection.	Repeat the registration of cellular phone.	TEL adapter unit
Hands-free phone cannot be established.	Both the reception and the speech cannot be performed.	• TEL adapter unit power supply and ground circuit. Refer to AV-20, "TEL ADAPTER UNIT : Diagnosis Procedure". • Control signal circuit • AV communication circuit between audio unit and TEL adapter unit.
	• Both the reception and the speech cannot be performed. • Audio can be operated by steering switch.	TEL ON signal circuit.
The other party's voice cannot be heard by hands-free phone.	Audio system sound is normal.	Sound signal (telephone voice, telephone guidance) circuit
	Audio system sound does not sound.	Refer to AV-46, "Symptom Table".
Originating sound is not heard by the other party with hands-free phone communication.	Sound operation function is normal.	TEL adapter unit
	Sound operation function does not work.	Microphone signal circuit. Refer to AV-22, "Diagnosis Procedure".

RELATED TO STEERING SWITCH

Symptoms	Possible malfunction location / Action to take
All steering switches are not operated.	Steering switch signal ground circuit. (steering switch to TEL adapter unit) Refer to AV-29, "Diagnosis Procedure".
Only specified switch cannot be operated.	Replace steering switch.
"", "SOURCE", "SEEK UP" and "SEEK DOWN" switches are not operated.	Steering switch signal A circuit. (steering switch to TEL adapter unit) Refer to AV-25, "Diagnosis Procedure".
"", "VOL UP" and "VOL DOWN" switches are not operated.	Steering switch signal B circuit. (steering switch to TEL adapter unit) Refer to AV-27, "Diagnosis Procedure".

NORMAL OPERATING CONDITION

Description

INFOID:0000000007771903

RELATED TO AUDIO

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

NOTE:

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

Symptoms	Cause and Counter measure
Cannot play	Check that the disc was inserted correctly.
	Check that the disc is scratched or dirty.
	Check if there is condensation inside the player. If there is, wait until the condensation is gone (about 1 hour) before using the player.
	If there is a temperature increase error, the CD player will play correctly after it returns to the normal temperature.
	Files with extensions other than ".MP3", ".WMA", ".mp3", or ".wma" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.
	Check if the disc or the file is generated in an irregular format. This may occur depending on the variation or the setting of MP3/WMA writing applications or other text editing applications.
	Check if the finalization process, such as session close and disc close, is done for the disc.
	Check if the disc is protected by copyright.
Poor sound quality	Check if the disc is scratched or dirty.
	Bit rate may be too low.
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA CD, or if it is a multisession disc, some time may be required before the music starts playing.
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width, etc., might not match the specifications. Try using the slowest writing speed.
Skipping with high bit rate files	Skipping may occur with large quantities of data, such as for high bit rate data.
Move immediately to the next song when playing.	When a non-MP3/WMA file has been given an extension of ".MP3", ".WMA", ".mp3" or ".wma", or when play is prohibited by copyright protection, there will be approximately 5 seconds of no sound and then the player will skip to the next song.
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the writing software. Therefore, the files might not play in the desired order.
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.

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

NOTE:

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

RELATED TO TELEPHONE

Symptoms	Cause and Counter measure
System fails to interpret the command correctly.	1. Ensure that the command format is valid.
	2. Ensure that the command is spoken after the tone.
	3. Speak clearly without pausing between words and at a level appropriate to the ambient noise level in the vehicle.
	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). **NOTE:** If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.
	5. If more than one command was said at a time, try saying the commands separately.
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. Refer to AV-17, "Diagnosis Description".
The system consistently selects the wrong entry from the phone book.	1. Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the “List Names” command.
	2. Replace one of the names being confused with a new name.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000007771904

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

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, 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 “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

WARNING:

Always observe the following items for preventing accidental activation.

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

Precaution for Trouble Diagnosis

INFOID:0000000007771905

AV COMMUNICATION SYSTEM

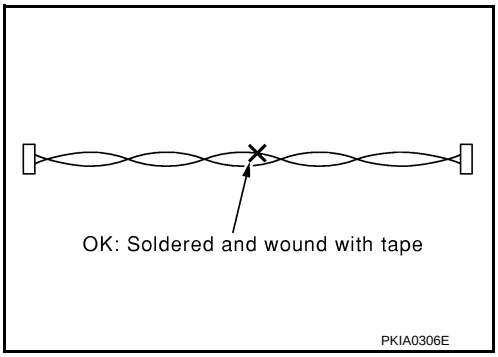
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

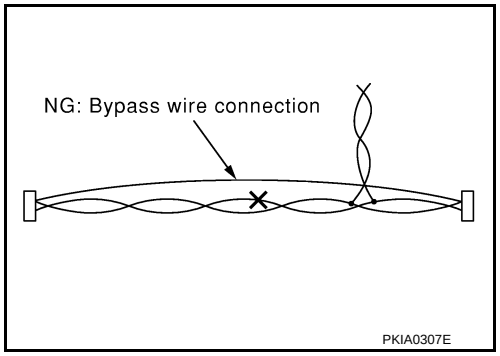
INFOID:0000000007771906

AV COMMUNICATION SYSTEM

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



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

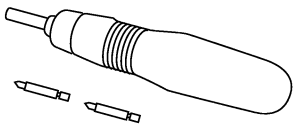


PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000007771907

Tool name	Description
Power tool  PBIC0191E	Loosening screws

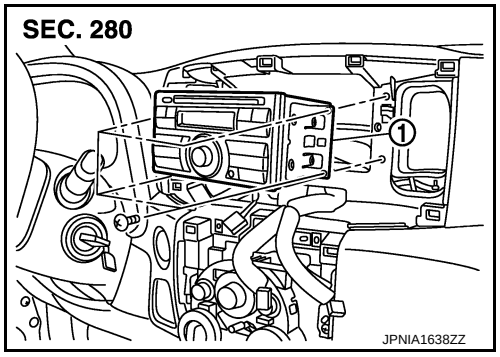
REMOVAL AND INSTALLATION

AUDIO UNIT

Exploded View

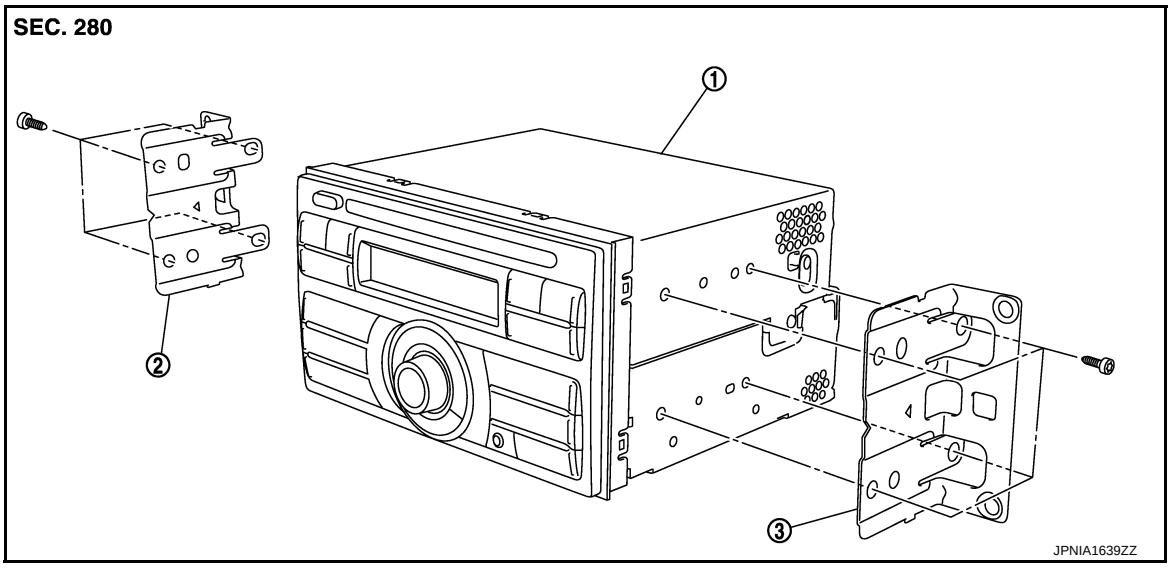
INFOID:0000000007771908

REMOVAL



1. Audio unit

DISASSEMBLY



1. Audio unit
2. Bracket LH
3. Bracket RH

Removal and Installation

INFOID:0000000007771909

REMOVAL

1. Remove cluster lid C. Refer to IP-12, "Exploded View".
2. Remove audio unit screws, then disconnect audio unit connector and remove audio unit.
3. Remove bracket screws to remove audio unit.

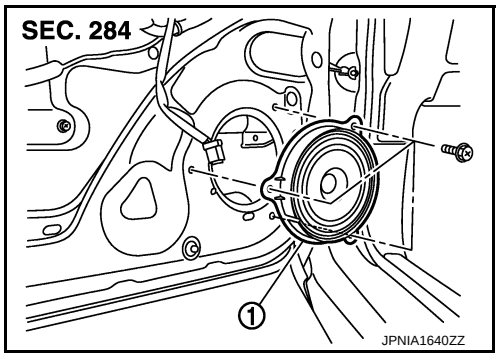
INSTALLATION

Install in the reverse order of removal.

FRONT DOOR SPEAKER

Exploded View

INFOID:0000000007771910



1. Front door speaker

Removal and Installation

INFOID:0000000007771911

REMOVAL

1. Remove front door finisher. Refer to INT-12, "Exploded View".
2. Remove front door speaker screws, then disconnect front door speaker connector and remove front door speaker.

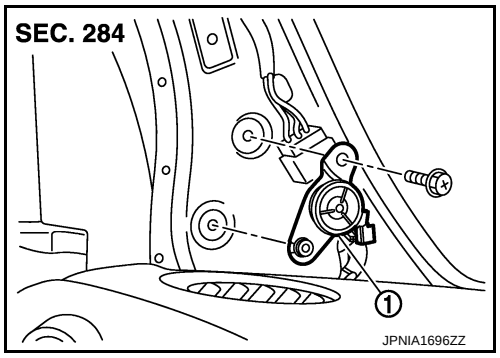
INSTALLATION

Install in the reverse order of removal.

TWEETER

Exploded View

INFOID:0000000007771912



1. Tweeter

Removal and Installation

INFOID:0000000007771913

REMOVAL

1. Remove front pillar garnish. Refer to INT-16, "Exploded View".
2. Remove tweeter screw and clip, then disconnect tweeter connector and remove tweeter.

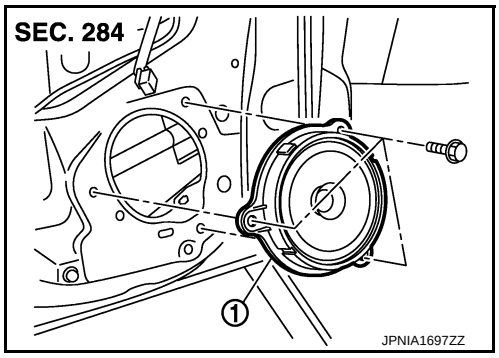
INSTALLATION

Install in the reverse order of removal.

REAR DOOR SPEAKER

Exploded View

INFOID:0000000007771914



1. Rear door speaker

Removal and Installation

INFOID:0000000007771915

REMOVAL

1. Remove rear door finisher. Refer to INT-14, "Exploded View".
2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

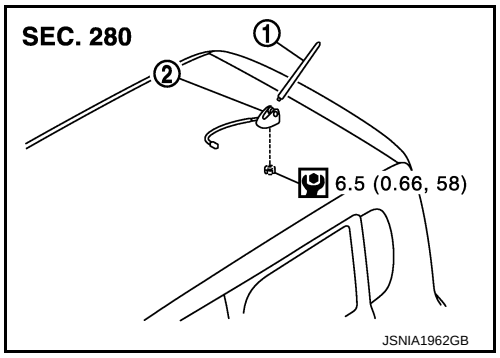
INSTALLATION

Install in the reverse order of removal.

ANTENNA BASE

Exploded View

INFOID:0000000007771916



1. Antenna rod
2. Antenna base

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000007771917

REMOVAL

1. Remove luggage side upper finisher. Refer to INT-24, "Exploded View".
2. Remove assist grip and headlining clips. Refer to INT-21, "Exploded View".
3. Pull headlining (rear). Obtain a service area.
4. Remove antenna base mounting nut.
5. Remove antenna base.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

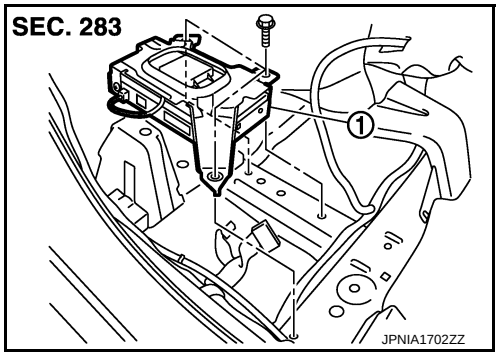
If the antenna base mounting nut is tightened looser than the specified torque, then this will lower the sensitivity of the antenna. On the other hand, if the nut is tightened tighter than the specified torque, then this will deform the roof panel.

TEL ADAPTER UNIT

Exploded View

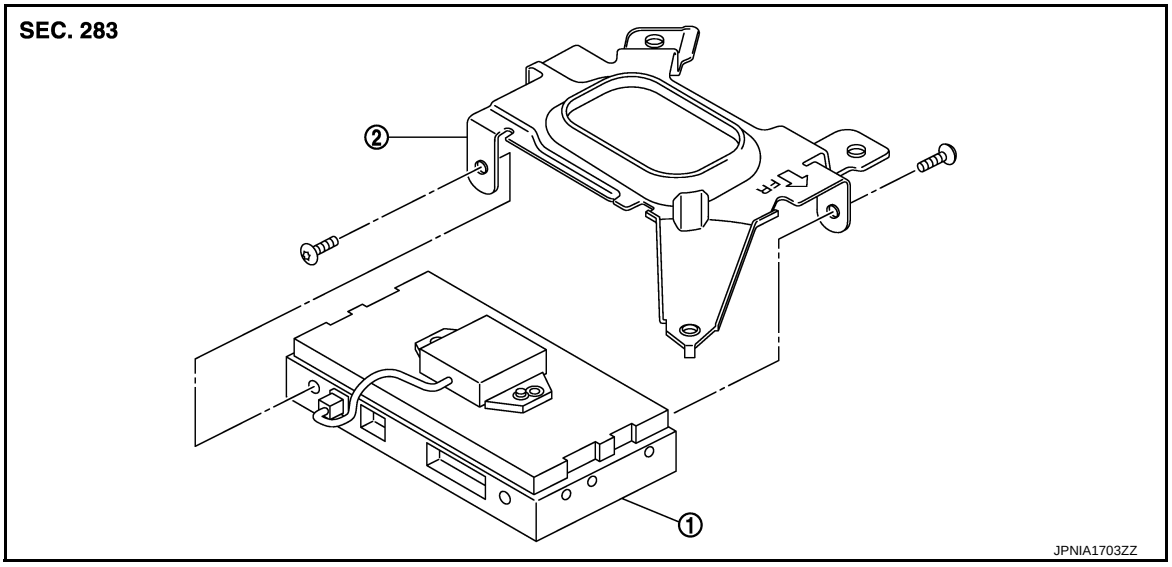
INFOID:0000000007771918

REMOVAL



1. TEL adapter unit

DISASSEMBLY



1. TEL adapter unit
2. Bracket

Removal and Installation

INFOID:0000000007771919

REMOVAL

1. Remove rear floor spacer RH. Refer to INT-19, "Exploded View".
2. Disconnect TEL adapter unit connector.
3. Remove TEL adapter unit screws, then remove TEL adapter unit.
4. Remove bracket screws, and then remove TEL adapter unit.

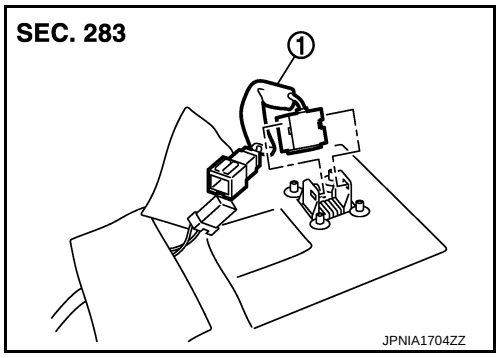
INSTALLATION

Install in the reverse order of removal.

MICROPHONE

Exploded View

INFOID:0000000007771920



1. Microphone

Removal and Installation

INFOID:0000000007771921

REMOVAL

1. Remove front pillar garnish LH and center pillar upper garnish LH. Refer to INT-16, "Exploded View".
2. Remove sunvisor assy, map lamp assy, assist grip LH, and inside mirror cover. Refer to INT-21, "Exploded View".
3. Pull headlining (left front). Obtain a service area.
4. Remove microphone connector and pawl to remove microphone.

INSTALLATION

Install in the reverse order of removal.

STEERING SWITCH

Exploded View

INFOID:0000000007771922

Refer to ST-8, "Exploded View".

Removal and Installation

INFOID:0000000007771923

REMOVAL

Refer to ST-8, "Removal and Installation".

INSTALLATION

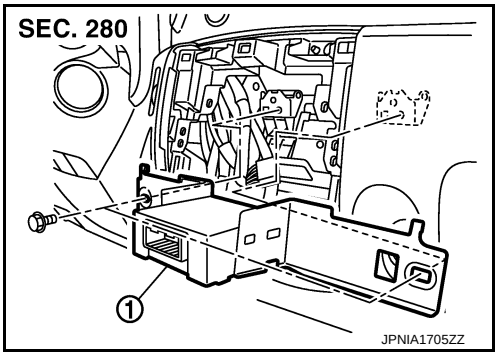
Install in the reverse order of removal.

IPOD ADAPTER

Exploded View

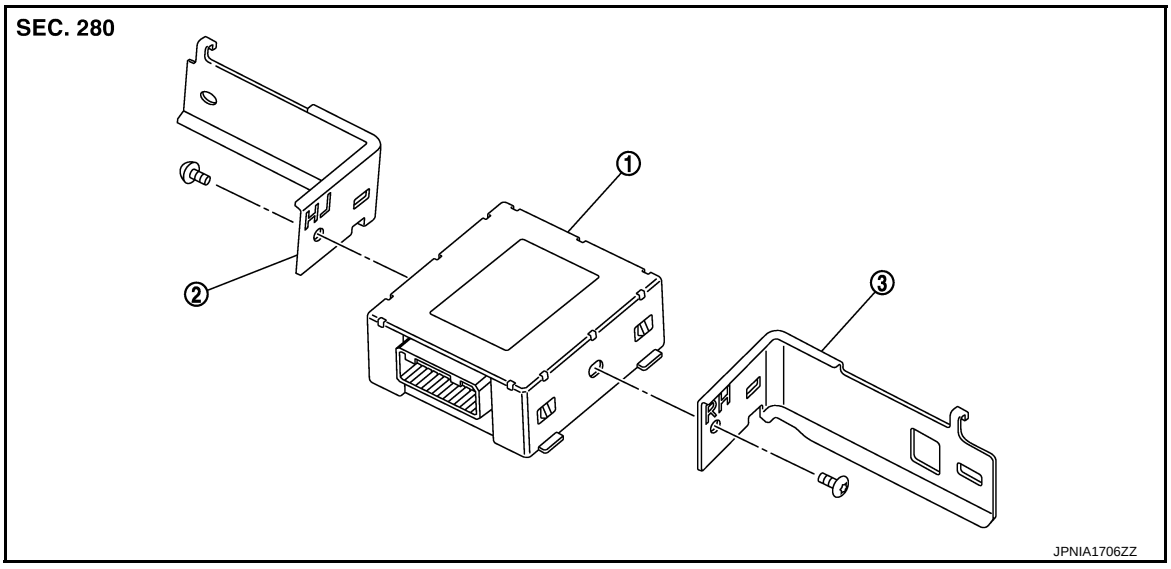
INFOID:0000000007771924

REMOVAL



1. iPod adapter

DISASSEMBLY



1. iPod adapter
2. Bracket LH
3. Bracket RH

Removal and Installation

INFOID:0000000007771925

REMOVAL

1. Remove A/C finisher. Refer to IP-12, "Exploded View".
2. Remove iPod adapter connector and screws to remove iPod adapter.

INSTALLATION

Install in the reverse order of removal.

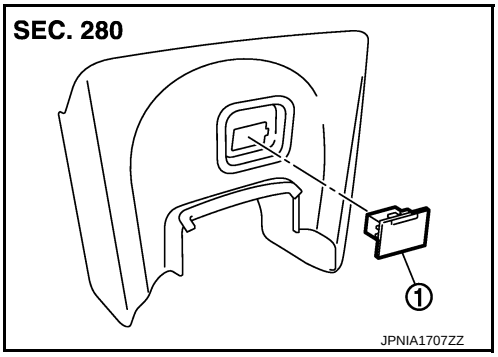
IPOD CONNECTOR

Exploded View

INFOID:0000000007771926

REMOVAL
Refer to IP-12, "Exploded View".

DISASSEMBLY



1. iPod connector

Removal and Installation

INFOID:0000000007771927

REMOVAL

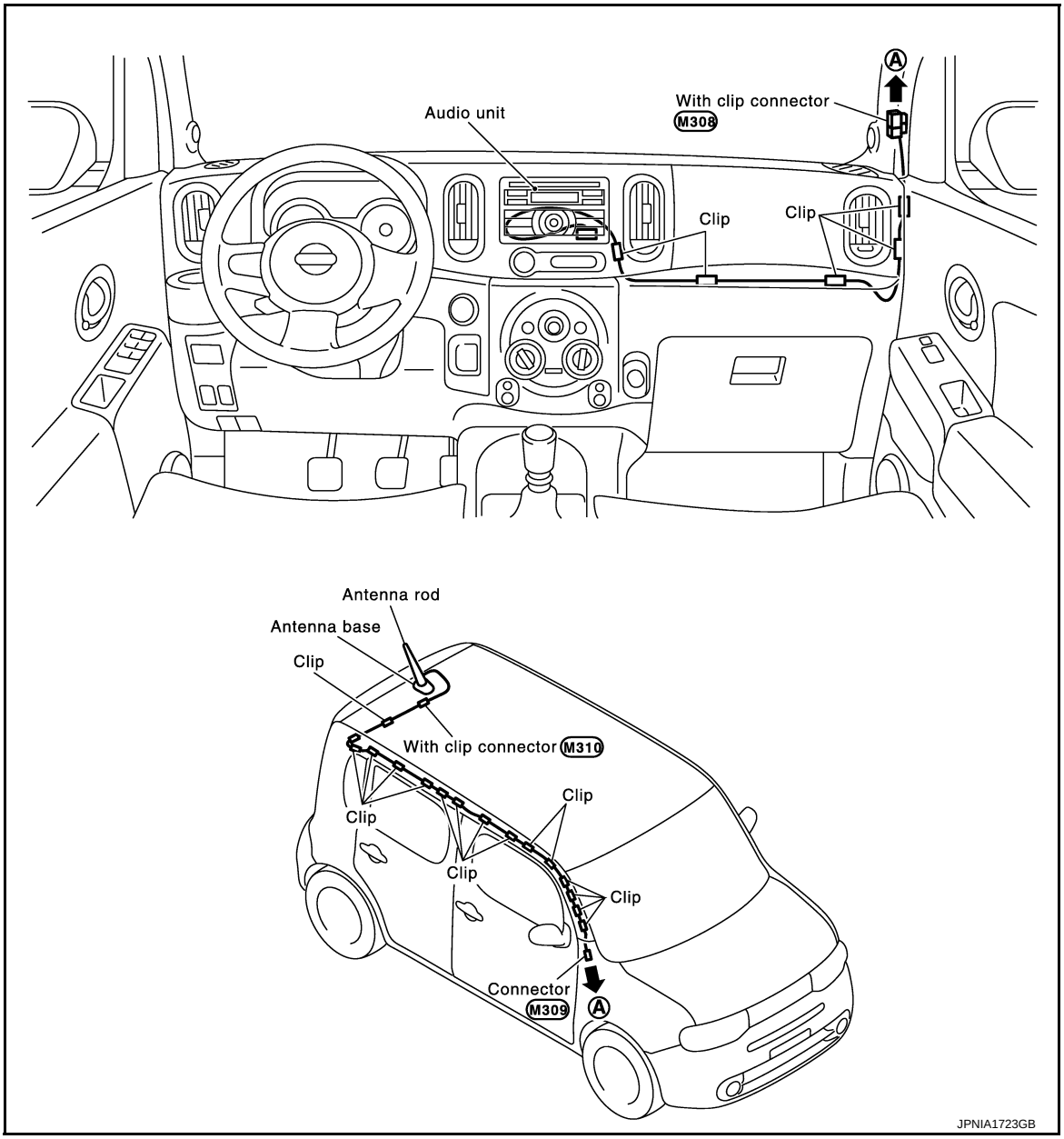
1. Remove instrument lower cover. Refer to IP-12, "Exploded View".
2. Push the pawl from the back of instrument lower cover to remove iPod connector.

INSTALLATION
Install in the reverse order of removal.

ANTENNA FEEDER

Harness Layout

INFOID:0000000007771928



PRECAUTION

PRECAUTIONS

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

INFOID:0000000007771929

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

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, 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 “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

WARNING:

Always observe the following items for preventing accidental activation.

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

Precaution for Trouble Diagnosis

INFOID:0000000007771930

AV COMMUNICATION SYSTEM

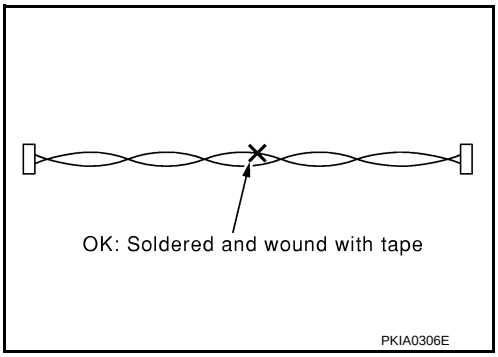
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

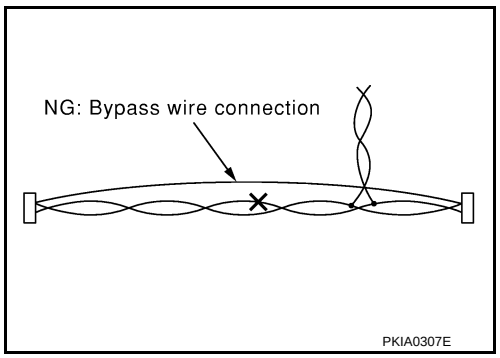
INFOID:0000000007771931

AV COMMUNICATION SYSTEM

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



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

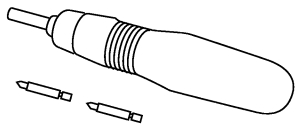


PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000007771932

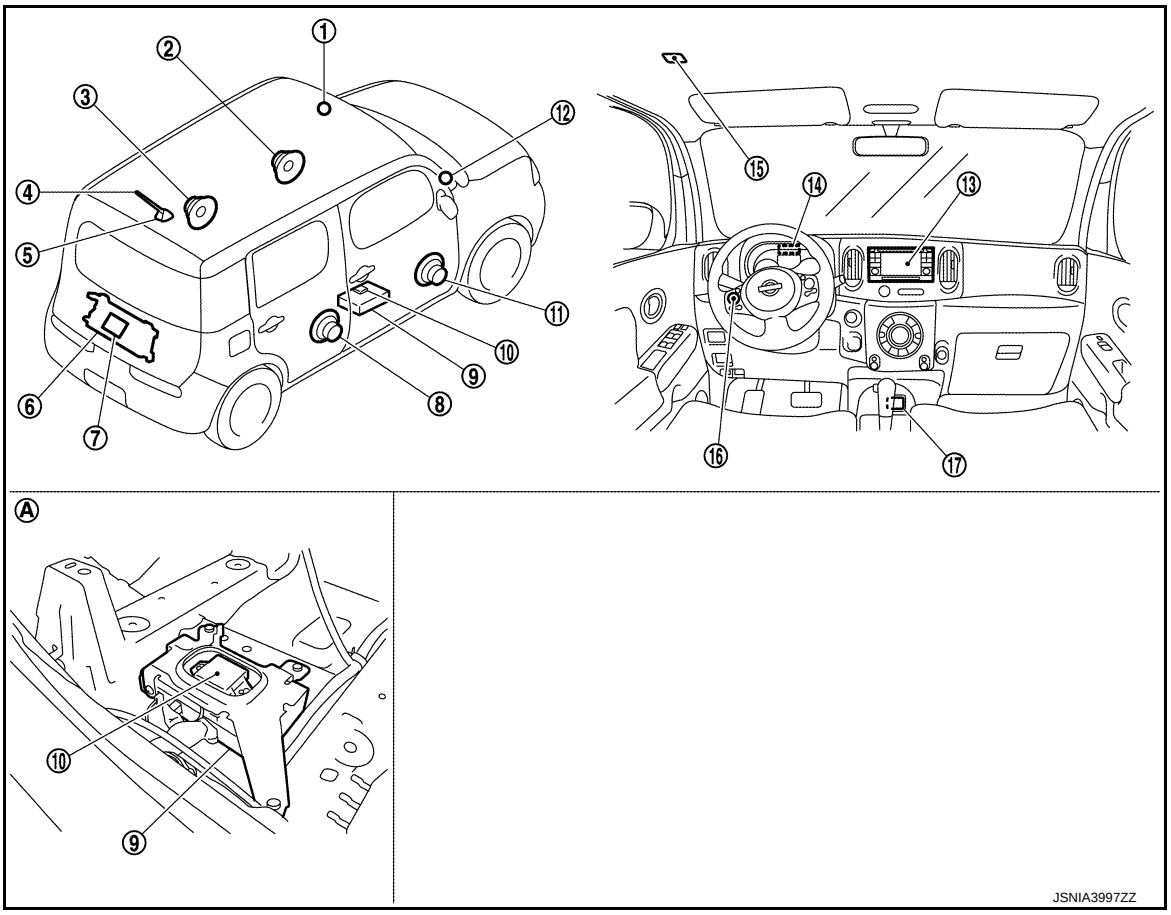
Tool name	Description
Power tool  PBIC0191E	Loosening screws

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000007771933



1. Tweeter LH
2. Front door speaker LH
3. Rear door speaker LH
4. Antenna rod
5. Antenna base (antenna amp. and satellite radio antenna)
6. Woofer
7. Rear view camera
8. Rear door speaker RH
9. TEL adapter unit
10. TEL antenna
11. Front door speaker RH
12. Tweeter RH
13. NAVI control unit
14. GPS antenna
15. Microphone
16. Steering switch
17. USB connector and AUX jack

A. Floor spacer removed condition

Component Description

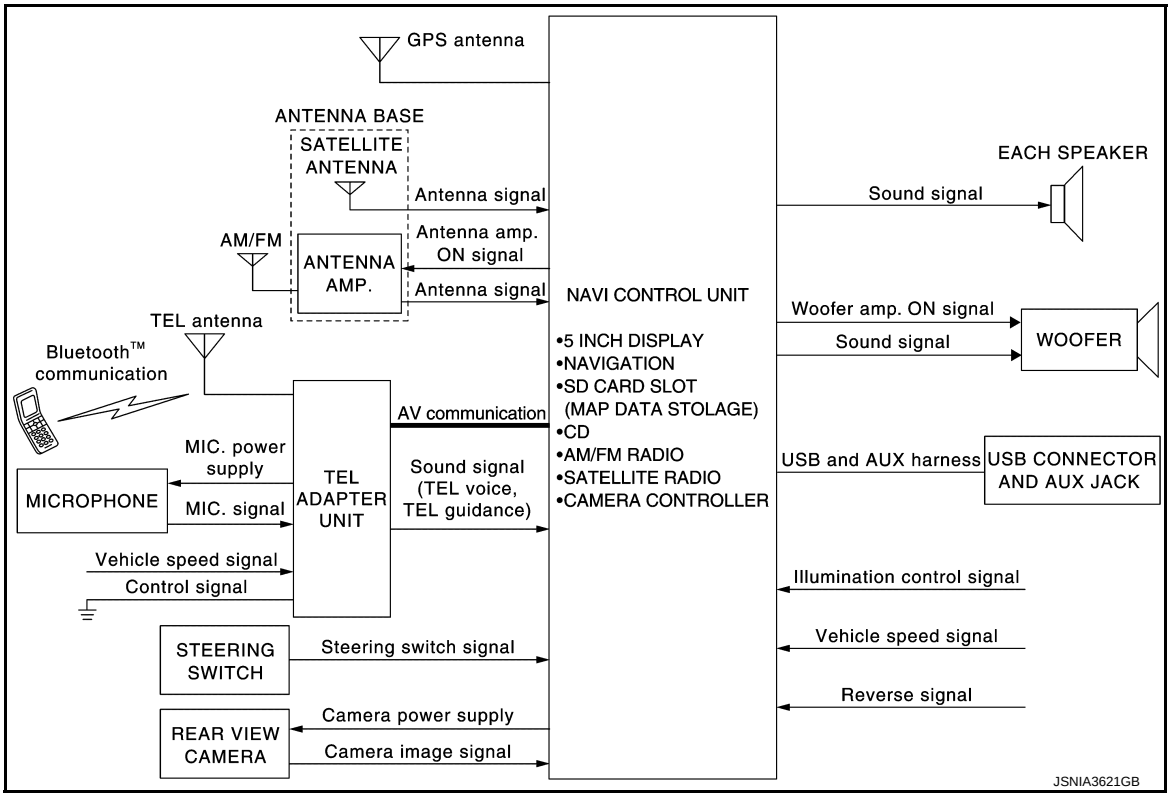
INFOID:0000000007771934

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

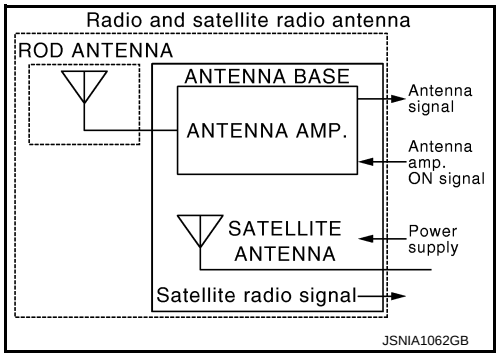
SYSTEM

System Diagram

INFOID:0000000007771935



NOTE:
An antenna base integrated with radio antenna amp. and satellite radio antenna is adopted.



System Description

INFOID:0000000007771936

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

- Map data on SD-card.
- Full support for playback of music from iPod® and USB device.
- High resolution color 5 inch display with touch panel function.
- FM/AM twin digital tuner.
- USB mass storage connection.
- Satellite radio.
- Hands-free phone system.

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

NAVIGATION SYSTEM FUNCTION

Description

- The navigation system can be operated by control panel of the NAVI control unit and display (touch panel) of the NAVI control unit.

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

POSITION DETECTION PRINCIPLE

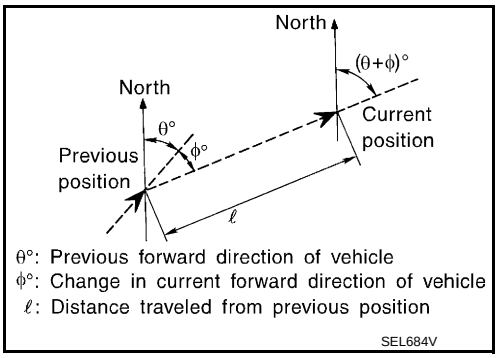
The navigation system periodically calculates the vehicle's current position according to the following three signals:

- Travel distance of the vehicle as determined by the vehicle speed sensor
- Turning angle of the vehicle as determined by the gyroscope (angular velocity sensor)
- Direction of vehicle travel as determined by the GPS antenna (GPS information)

The current position of the vehicle is then identified by comparing the calculated vehicle position with map data read from the map SD-card (map-matching), and indicated on the screen as a vehicle mark. More accurate data is judged and used by comparing vehicle position detection results found by the GPS with the result by map-matching.

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

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



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

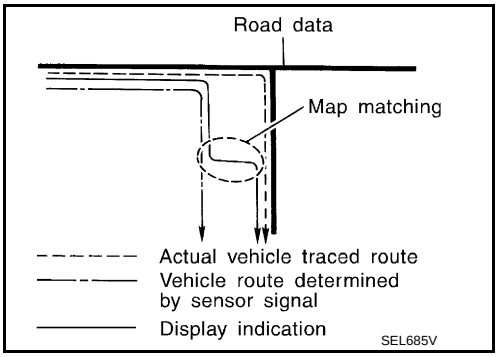
More accurate traveling direction is detected because priorities are set for the signals from these two devices according to the situation.

MAP-MATCHING

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

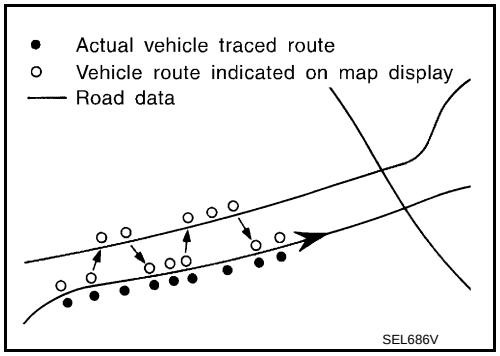
NOTE:

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

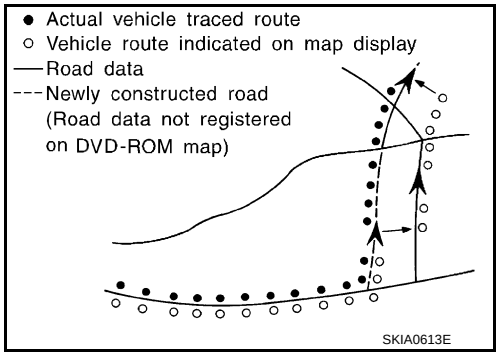


The vehicle position may not be corrected under the following circumstances and after driving for a certain time when GPS information is difficult to receive. In this case, the vehicle mark on the display must be corrected manually.

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

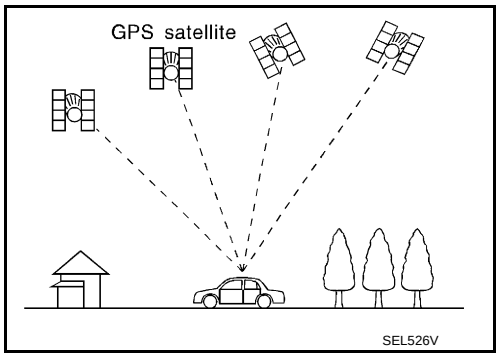


- Map-matching does not function correctly when a road on which the vehicle is driving is new and not recorded in the map SD-card, or when road pattern stored in the map data and the actual road pattern are different due to repair.
  The map-matching function may find another road and position the vehicle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



GPS (Global Positioning System)

GPS (Global Positioning System) is developed for and is controlled by the US Department of Defense. The system utilizes GPS satellites (NAVSTAR), transmitting out radio waves while flying on an orbit around the earth at an altitude of approximately 21,000 km (13,049 mile).
The receiver calculates the travel position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves that four or more GPS satellites transmit (three-dimensional positioning). The GPS receiver calculates the travel position in two dimensions (latitude/longitude) with the previous altitude data if the GPS receiver receives only three radio waves (two-dimensional positioning). GPS position correction is not performed while stopping the vehicle.



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

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

SATELLITE RADIO FUNCTION

- Satellite radio function is built into NAVI control unit.
- Sound signal (satellite radio) is received by satellite radio antenna and transmitted to NAVI control unit. NAVI control unit outputs sound signal to each speaker and woofer.

AUXILIARY INPUT FUNCTION

- Sound can be output from an external device by connecting a device with USB connector and AUX jack.

- AUX sound signals are transmitted to each speaker and woofer via NAVI control unit.

REAR VIEW MONITOR FUNCTION

Camera Image Operation Principle

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

USB CONNECTION FUNCTION

- iPod® or music files in USB memory can be played.
- Sound signals are transmitted from USB connector and AUX jack to the NAVI control unit and output to each speaker and woofer.
- iPod® is recharged when connected to USB connector and AUX jack.

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

NOTE:

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

SPEED SENSITIVE VOLUME SYSTEM

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

HANDS-FREE PHONE SYSTEM

- TEL adapter unit is controlled with AV communication from NAVI control unit.
- The connection between cellular phone and TEL adapter unit is performed with Bluetooth™ communication.
- The voice guidance signal is input from the TEL adapter unit to the NAVI control unit and output to the front speaker when operating the cellular phone.
- TEL adapter unit has the on board self-diagnosis function. Refer to AV-78, "Diagnosis Description".

When A Call Is Originated

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

When Receiving A Call

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

DIAGNOSIS SYSTEM (NAVI CONTROL UNIT)

On Board Diagnosis Function

INFOID:0000000007771937

On-Board Diagnosis Item

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

Service test mode

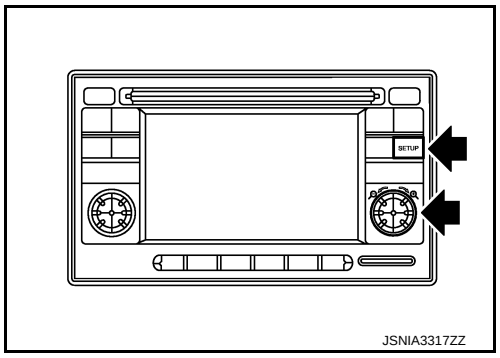
Mode		Item	Content
Service version		—	The version data of the parts is shown displayed.
Service radio	FM monitor	—	The Change Mediator monitors the dynamic values of the current tuner. If the band is switched within the radio monitor context, the active monitor is switched as well.
	AM monitor	—	
	XM monitor	—	The version data is displayed.
	XM functions	• Clear XM Chipset NVM • Reset all XM settings • XM CBM debug mode ON/OFF • External Diag mode ON/OFF	The current system status is displayed.
Service configuration	Touch Display Calibration	—	The function allows connection of the position detection accuracy of the touch panel.

Mode		Item	Content
Service system status	Running system status	• SD card slot access • Power Supply • Speed Signal • Direction Signal • Illumination Signal • GPS Antenna • BTHFU Status • Radio Antenna • USB Device • iPod® firmware version • Steering wheel key	The current system status is displayed.
	System history	• SD-card Slot - Sub-Unit Connection Malfunction • Programming Error • Radio-Antenna Circuit Malfunction • FM-Antenna 1 Connection Malfunction • GPS Antenna Circuit Malfunction • CD-Drive Mechanical Malfunction • CD Read Malfunction • Power Supply voltage: Lower Limit Exceeded • Power Supply voltage: Upper Limit Exceeded • Reduced system Functionality due to over temperature • Display switched OFF due to over temperature • SD card removed without being de-mounted • Codeplug missing	The history of the system status is reported in the report memory, displayed.
	Speaker test 100 Hz	—	This activates a sequence of test tone outputs to the four speaker lines one after the other for 1 second. The frequency can be chosen by user selection (100 Hz and 4 kHz).
	Speaker test 4 kHz		
	Display test	—	This provides a test sequence where test displays (plain colored display: e.g. white, black, red, blue, green) are shown one after the other. The respective color is shown for an indicated period of time (parameter). After the display test, the design of the display previously available is stored. While the screen shows a plain colored display, a pixel malfunction may be detected.

Mode	Item	Content
Service system configuration	• 2/4 pulse speed • Clock ON/OFF • Camera guidelines • Equalizing settings • RF tuning • Antenna type • Sound system • Sub Out • Steering wheel	The device is configured by a connected hardware circuit. The parameter is influenced.
Self test	• SD-card Access Malfunction • Radio-Antenna Circuit Malfunction • GPS Antenna Circuit Malfunction • XM Antenna Circuit Malfunction	A system self test is executed: the result is stored into the error memory which is shown afterwards as a list of codes of the detected malfunctions.

METHOD OF STARTING

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



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END ON-BOARD DIAGNOSIS

Turn OFF ignition switch.

DIAGNOSIS SYSTEM (TEL ADAPTER UNIT)

Description

INFOID:0000000007771938

During on board diagnosis the diagnosis function of TEL adapter unit starts with the operation of the steering switch and performs the diagnosis when ignition switch ACC.

Diagnosis Description

INFOID:0000000007771939

ON BOARD DIAGNOSIS ITEM

The on board diagnosis has 3 modes: the self-diagnosis mode that performs the trouble diagnosis, the speaker adaptation data deleting mode and the hands-free phone system initialization mode.

CAUTION:

- **Perform the diagnosis with the vehicle stopped.**
- **Perform STEP2 if necessary.**

STEP	MODE	Description
STEP 1	Self-diagnosis	The self-diagnosis mode performs the microphone test and the diagnosis of TEL adapter unit, TEL antenna and steering switch, and then reads out the results with the sound and indicates them on the audio screen.
STEP 2	Hands-free phone system initialization	Hands-free phone system initialization mode can perform the initialization of hands-free phone system.
	Speaker adaptation data deleting	The speaker adaptation data deleting mode can delete the speaker adaptation data.

SELF-DIAGNOSIS RESULTS

Self-diagnosis mode reads out the self-diagnosis results and indicates DTC on the audio screen.

NOTE:

- Error count is read out simultaneously when reading out the DTC name.
- The errors are read out continuously when some errors occur at the same time. The DTC displays are combined and displayed. For example, DTC 01100 is displayed when DTC 01000 and DTC 00100 are indicated at the same time.

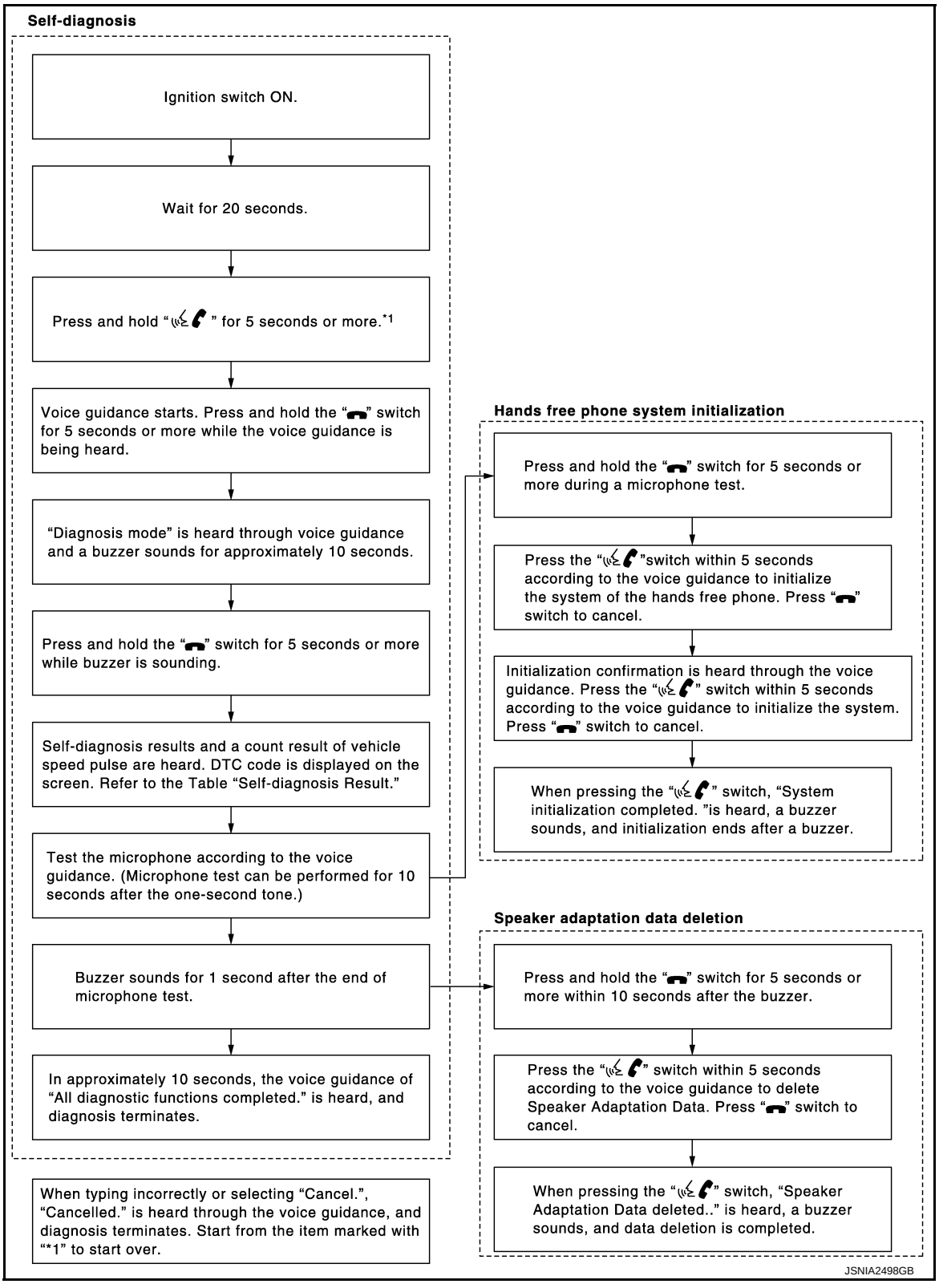
Self-diagnosis results

DTC (Audio screen)	Failure massage	Possible causes
DTC 10000	Internal failure	TEL adapter unit
DTC 01000	Bluetooth antenna open	TEL antenna
DTC 00100	Bluetooth antenna shorted	
DTC 00010	Button ladder A is stuck	Steering switch
DTC 00001	Button ladder B is stuck	
DTC 00000	There are no failure records to report	—

The Details of Error Count

The error count guides “0” when the error occurs. The next time it counts up “1” if it is normal with the ignition switch ON. It continues the count up unless the initialization of hands-free phone system is performed.

FLOW CHART OF TROUBLE DIAGNOSIS



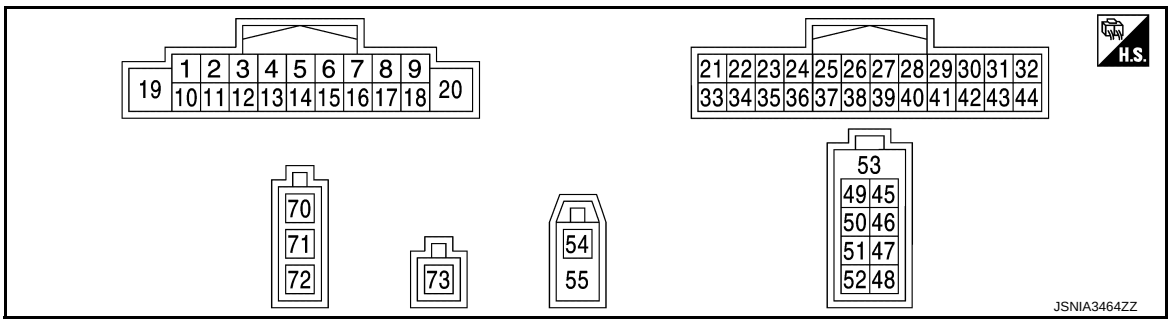
ECU DIAGNOSIS INFORMATION

NAVI CONTROL UNIT

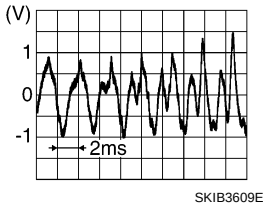
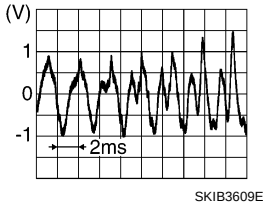
Reference Value

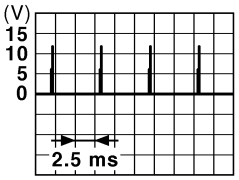
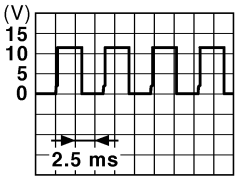
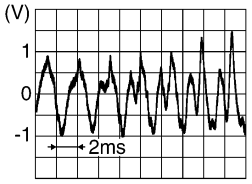
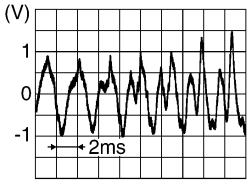
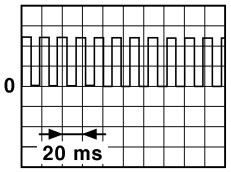
INFOID:0000000007771940

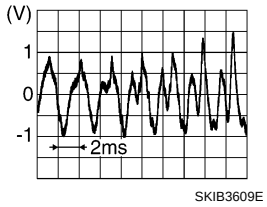
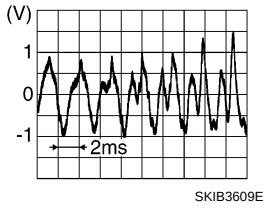
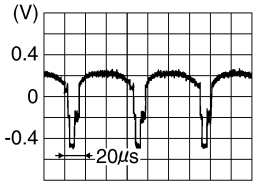
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (Y/B)	Ground	Woofer amp. ON signal	Output	Ignition switch ON	—	12.0 V
2 (W)	3 (P)	Sound signal front speaker LH	Output	Ignition switch ON	Sound output.	 SKIB3609E
4 (V)	5 (R/B)	Sound signal rear speaker LH	Output	Ignition switch ON	Sound output.	 SKIB3609E
6 (W/L)	15 (L/G)	Steering switch signal A	Input	Ignition switch ON	Keep pressing SOURCE switch.	0 V
					Keep pressing SEEK UP switch.	1.4 V
					Keep pressing SEEK DOWN switch.	2.5 V
					Keep pressing switch.	3.5 V
					Except for above.	5.0 V
7 (L/Y)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
9 (W)	8 (B/R)	Illumination control signal	Input	Ignition switch ON	• Lighting switch 1ST • When meter illumination is maximum	 JPNIA1687GB
					• Lighting switch 1ST • When meter illumination is step 11	 JPNIA1686GB
					• Lighting switch 1ST • When meter illumination is minimum	0 V
11 (G)	12 (R)	Sound signal front speaker RH	Output	Ignition switch ON	Sound output.	 SKIB3609E
13 (LG)	14 (GR)	Sound signal rear speaker RH	Output	Ignition switch ON	Sound output.	 SKIB3609E
16 (GR/R)	15 (L/G)	Steering switch signal B	Input	Ignition switch ON	Keep pressing VOL DOWN switch.	0 V
					Keep pressing VOL UP switch.	1.4 V
					Keep pressing switch.	2.5 V
					Except for above.	5.0 V
18 (V/R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
19 (L)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
20 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
22 (B)	Ground	EQ2	—	Ignition switch ON	—	0 V
23 (B)	Ground	EQ3	—	Ignition switch ON	—	0 V
24 (B)	Ground	EQ4	—	Ignition switch ON	—	0 V
25 (Y/R)	Ground	Reverse signal	Input	Ignition switch ON	Selector lever is in R position.	12.0 V
					Selector lever is in other than R position.	0 V
30 (P)	31 (L)	Sound signal woofer	Output	Ignition switch ON	Sound output.	 SKIB3609E
34 (BR)	35 (Y)	Sound signal (TEL voice, voice guidance)	Output	Ignition switch ON	During voice guide output with the switch pressed.	 SKIB3609E
36 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
37	—	Shield	—	—	—	—
38 (SB)	—	AV communication signal (H)	Input/ Output	—	—	—
39 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—
41 (G/Y)	Ground	Camera image signal	Input	Ignition switch ON	At rear view camera image displayed	 SKIB0827E
42	—	Shield	—	—	—	—

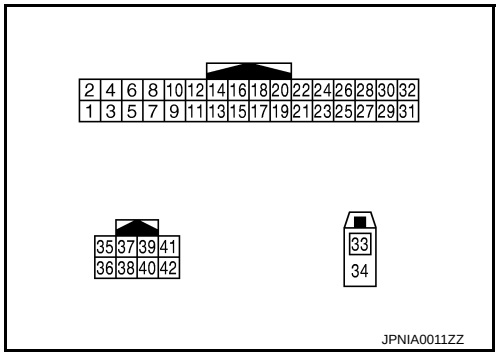
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
43 (G/O)	Ground	Camera power supply	Output	Ignition switch ON	At rear view camera image is displayed.	6.0 V
					Except for above.	0 V
44 (G/R)	Ground	Camera ground	—	Ignition switch ON	—	0 V
45 (G)	—	USB ground	—	—	—	—
46 (R)	—	USB D– signal	Input/ Output	—	—	—
47 (L)	—	USB D+ signal	Input/ Output	—	—	—
48 (W)	—	V BUS signal	Output	—	—	—
49 (W)	—	AUX sound signal LH	Input	—	—	—
50 (G)	—	AUX sound signal RH	Input	—	—	—
51 (R)	—	AUX sound signal ground	—	—	—	—
53	—	Shield	—	—	—	—
54	Ground	GPS antenna signal	Input	ON	Not connected to GPS antenna connector.	5.0 V
55	—	Shield	—	—	—	—
70	Ground	Antenna amp. ON signal	Output	Ignition switch ON	—	12.0 V
71	—	Antenna signal	Input	—	—	—
73	—	Satellite radio antenna signal	Input	—	—	—

TEL ADAPTER UNIT

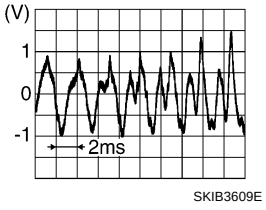
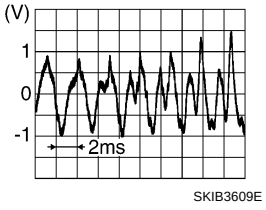
Reference Value

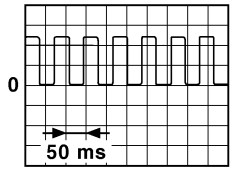
INFOID:0000000007771941

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
2 (L)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage
3 (LG)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
4 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
7 (L)	8	Microphone signal	Input	Ignition switch ON	Give a voice.	 SKIB3609E
9 (BR)	10 (Y)	Sound signal (TEL voice, voice guidance)	Output	Ignition switch ON	During voice guide output with the switch pressed.	 SKIB3609E
20 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V
21 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
24 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V
27 (B)	Ground	Control signal	—	Ignition switch ON	—	0 V
28 (O)	Ground	Vehicle speed signal (2-pulse)	Input	Ignition switch ON	When vehicle speed is approx. 40 km/h (25 MPH)	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0015GB
29 (R)	Ground	Microphone power supply	Output	Ignition switch ON	—	5.0 V
33	—	TEL antenna signal	Input	—	Not connected to TEL antenna connector.	5.0 V
34	—	Shield	—	—	—	—
35 (SB)	—	AV communication signal (H)	Input/ Output	—	—	—
36 (LG)	—	AV communication signal (L)	Input/ Output	—	—	—
39 (Y/R)	—	Data line	—	—	—	—
40 (Y/R)	—	Data line	—	—	—	—
41 (SB)	—	Data line	—	—	—	—
42 (SB)	—	Data line	—	—	—	—

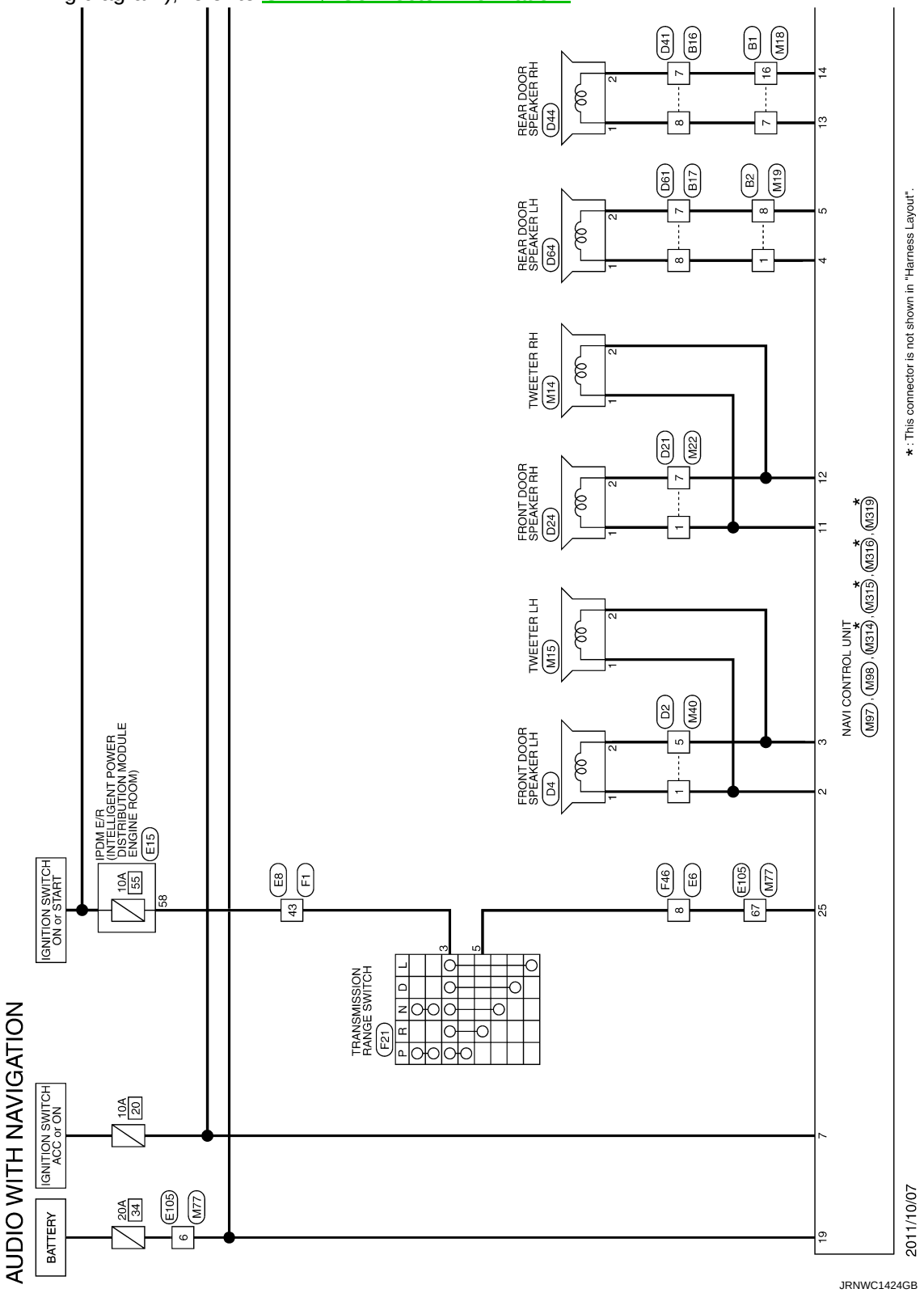
WIRING DIAGRAM

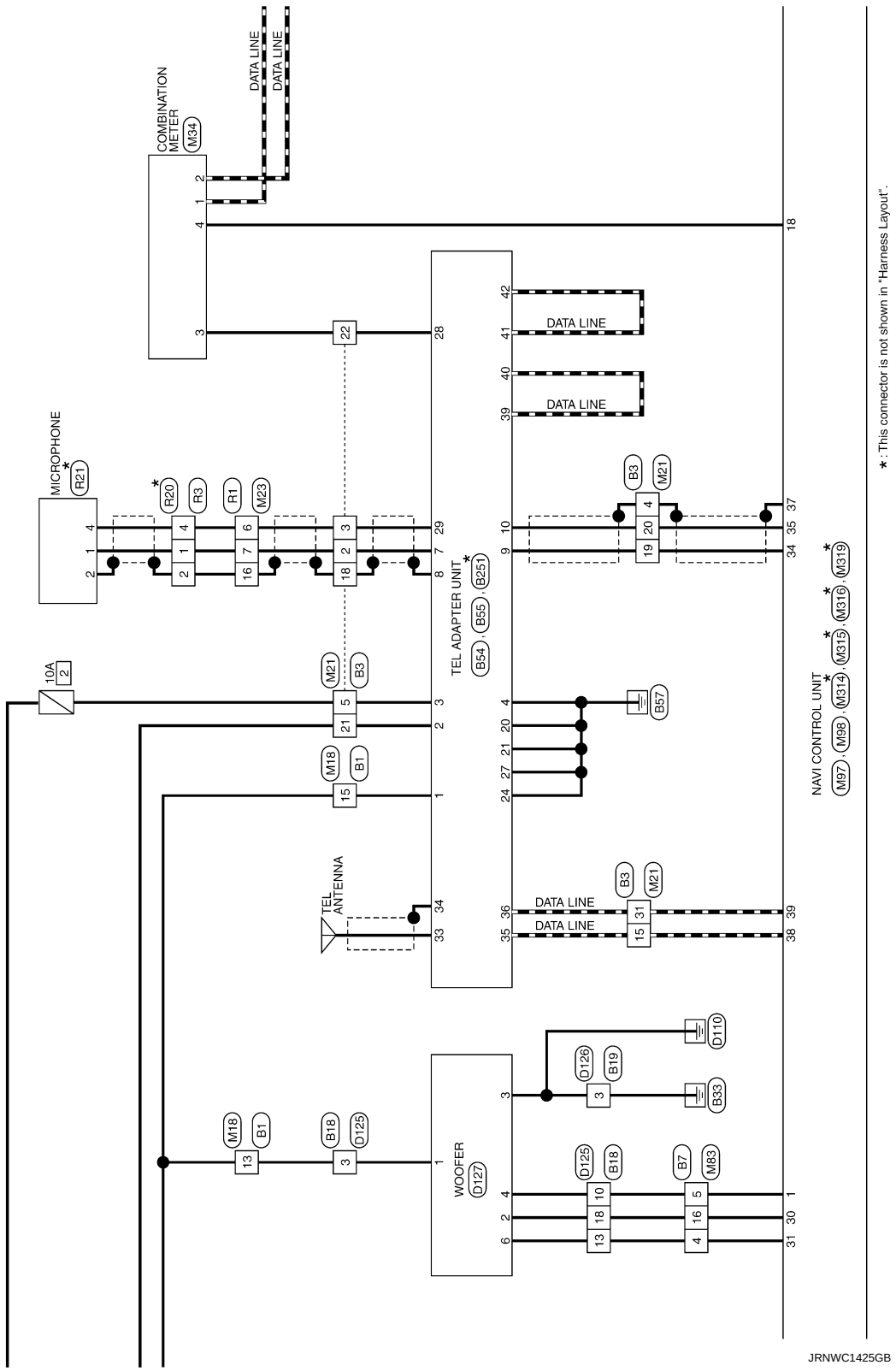
AUDIO WITH NAVIGATION

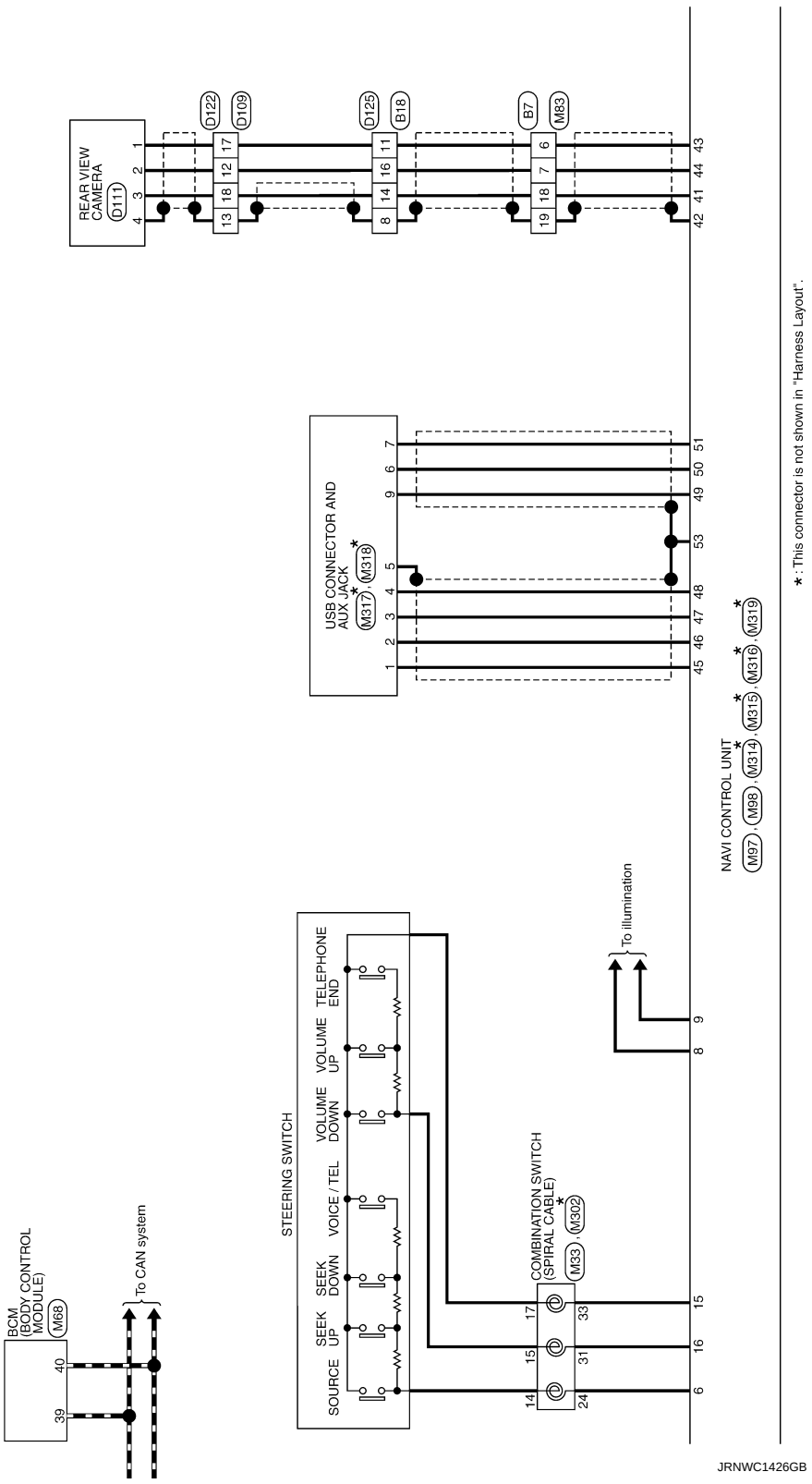
Wiring Diagram

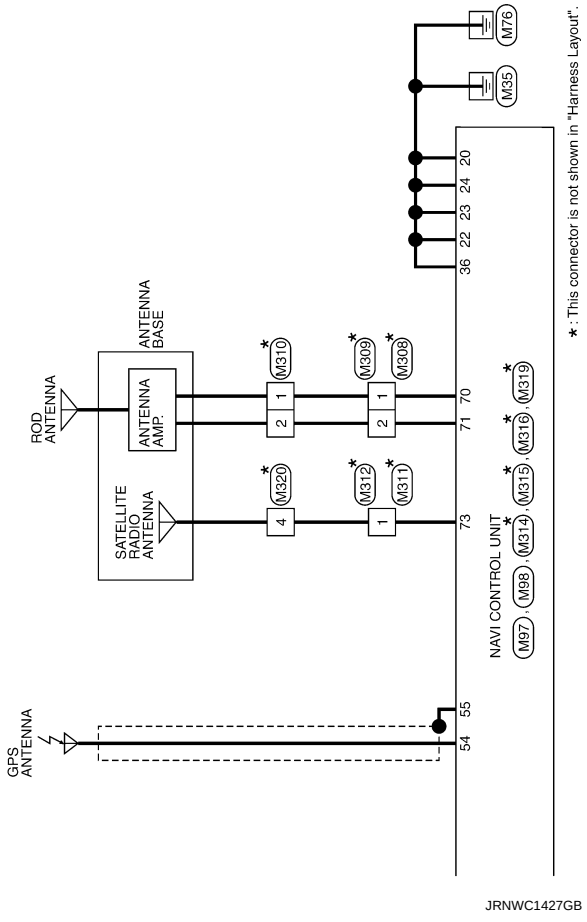
INFOID:0000000007771942

For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if notdescribed in wiring diagram), refer to GI-12, "Connector Information".




COMBINATION METER
M34
DATA LINE
DATA LINE
MICROPHONE
R21
R20
R3
R1
M23
TEL ADAPTER UNIT
B54
B55
B251
10A
2
M21
B3
M18
B1
TEL ANTENNA
B57
WOOFER
D127
D126
B19
D110
B33
B18
D125
M83
B7
NAVI CONTROL UNIT
M97
M98
M314
M315
M316
M319
DATA LINE
DATA LINE
DATA LINE
DATA LINE
★: This connector is not shown in "Harness Layout".
JRNWC1425GB


REAR VIEW CAMERA
D111
D122
D109
D125
B18
B7
M83
USB CONNECTOR AND AUX JACK
M317
M318
NAVI CONTROL UNIT
M97
M98
M314
M315
M316
M319
STEERING SWITCH
SOURCE
SEEK UP
SEEK DOWN
VOICE / TEL
VOLUME DOWN
VOLUME UP
TELEPHONE END
COMBINATION SWITCH (SPIRAL CABLE)
M33
M302
To illumination
BCM (BODY CONTROL MODULE)
M68
To CAN system
★: This connector is not shown in "Harness Layout".
JRNWC1426GB


M76
M35
20
24
23
22
36
ANTENNA BASE
ROD ANTENNA
ANTENNA AMP.
SATELLITE RADIO ANTENNA
M310
M309
M308
M320
M312
M311
M319
M316
M315
M314
M98
M97
NAVI CONTROL UNIT
70
71
73
55
54
GPS ANTENNA
*: This connector is not shown in "Harness Layout".
JRNWC1427GB

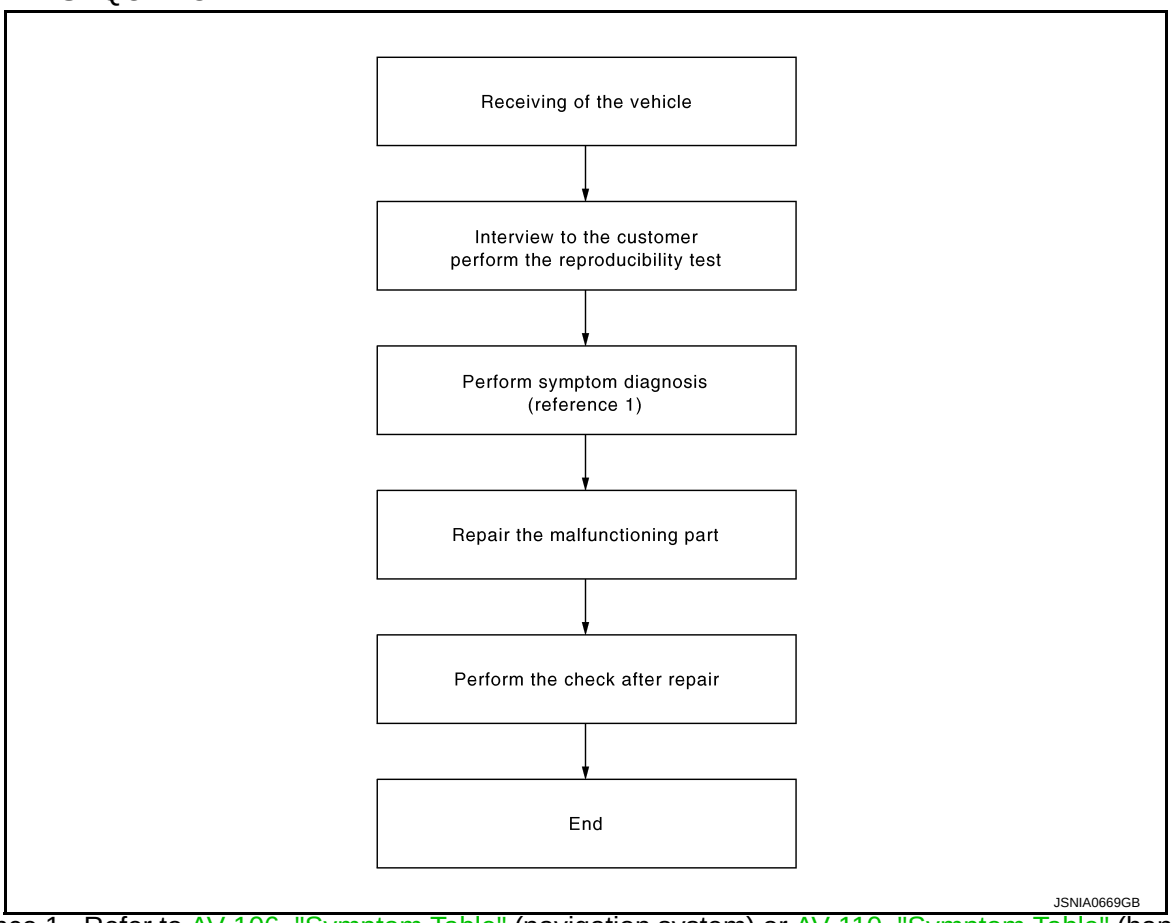
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000007771943

OVERALL SEQUENCE



Reference 1···Refer to AV-106, "Symptom Table" (navigation system) or AV-110, "Symptom Table" (hands-free phone system).

DETAILED FLOW

1.CHECK SYMPTOM

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

>> GO TO 2.

2.PERFORM DIAGNOSIS BY SYMPTOM

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to AV-106, "Symptom Table" (navigation system) or AV-110, "Symptom Table" (hands-free phone system).

>> GO TO 3.

3.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the malfunctioning parts.

>> GO TO 4.

4. FINAL CHECK

Perform the operation to check that the malfunction symptom is solved or any other symptoms are present.

Is there any symptom?

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

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

NAVI CONTROL UNIT

NAVI CONTROL UNIT : Diagnosis Procedure

INFOID:0000000007771944

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	20

Is inspection result OK?

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

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between NAVI control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value (Approx.)
Battery power supply	M97	19	OFF	Battery voltage
ACC power supply	M97	7	ACC	Battery voltage

Is inspection result OK?

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

3.CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	M97	20	OFF	Continuity should exist.

Is inspection result OK?

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

TEL ADAPTER UNIT

TEL ADAPTER UNIT : Diagnosis Procedure

INFOID:0000000007771945

1.CHECK FUSES

Check that the following fuses of the TEL adapter unit are not blown.

Power source	Fuse No.
Battery	34
Ignition switch ACC or ON	20

Is inspection result OK?

YES >> GO TO 2.
NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between TEL adapter unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Voltage
Battery power supply	B54	1	OFF	Battery voltage
ACC power supply		2	ACC	Battery voltage

Is inspection result OK?

YES >> GO TO 3.
NO >> Check harness between TEL adapter unit and fuse.

3.CHECK GROUND CIRCUIT

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

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B54	4	OFF	Existed

Is inspection result OK?

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

WOOFER AMP. ON SIGNAL CIRCUIT

Description

INFOID:0000000007771946

When the audio system is turned on, a voltage signal is supplied from the NAVI control unit to the woofer. When this signal is received, the woofer will turn on.

Diagnosis Procedure

INFOID:0000000007771947

1.CHECK CONTINUITY WOOFER AMP. ON SIGNAL CIRCUIT

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

NAVI control unit		Woofer		Continuity
Connector	Terminal	Connector	Terminal	
M97	1	D127	4	Existed

4. Check continuity between woofer harness connector and ground.

Woofer		Ground	Continuity
Connector	Terminal		
D127	4		Not existed

Is inspection result OK?

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

2.CHECK VOLTAGE AMP. ON SIGNAL

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

NAVI control unit		Ground	Voltage (Approx.)
Connector	Terminal		
M97	1		12.0 V

Is inspection result OK?

YES >> Replace woofer. Refer to AV-120, "Exploded View".
NO >> Replace NAVI control unit. Refer to AV-116, "Removal and Installation".

MICROPHONE SIGNAL CIRCUIT

Description

INFOID:0000000007771948

TEL adapter unit supplies power to microphone. The microphone transmits the sound voice to the TEL adapter unit.

Diagnosis Procedure

INFOID:0000000007771949

1.CHECK CONTINUITY BETWEEN TEL ADAPTER UNIT AND MICROPHONE CIRCUIT

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

TEL adapter unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	
B54	7	R21	1	Existed
	8		2	
	29		4	

4. Check continuity between TEL adapter unit harness connector and ground.

TEL adapter unit		Ground	Continuity
Connector	Terminal		
B54	7		Not existed
	29		

Is inspection result OK?

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

2.CHECK MICROPHONE POWER SUPPLY

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

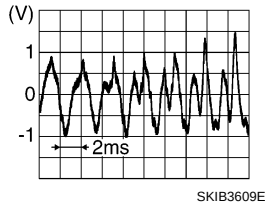
TEL adapter unit		Ground	Voltage (Approx.)
Connector	Terminal		
B54	29		5.0 V

Is inspection result OK?

YES >> GO TO 3.
NO >> Replace TEL adapter unit. Refer to AV-123, "Exploded View".

3.CHECK MICROPHONE SIGNAL

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

TEL adapter unit		TEL adapter unit		Condition	Reference value
Connector	Terminal	Connector	Terminal		
B54	7	B54	8	Give a voice.	 SKIB3609E

Is inspection result OK?

YES >> INSPECTION END
NO >> Replace microphone. Refer to AV-124, "Exploded View".

CONTROL SIGNAL CIRCUIT

Description

INFOID:0000000007771950

TEL adapter unit identifies the vehicle model according to the control signal and performs the control.

Diagnosis Procedure

INFOID:0000000007771951

1.CHECK CONTINUITY CONTROL SIGNAL CIRCUIT

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

TEL adapter unit			Continuity
Connector	Terminals		
B54	20	Ground	Existed
	21		
	24		
	27		

Is the inspection result normal?

YES >> Replace TEL adapter unit. Refer to AV-123, "Exploded View".
NO >> Repair harness or connector.

CAMERA IMAGE SIGNAL CIRCUIT

Description

INFOID:0000000007771952

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

Diagnosis Procedure

INFOID:0000000007771953

1.CHECK CONTINUITY CAMERA POWER SUPPLY CIRCUIT

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

NAVI control unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M98	43	D111	1	Existed

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M98	43		Not existed

Is inspection result normal?

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

2.CHECK VOLTAGE CAMERA POWER SUPPLY

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

(+)		(–)	Condition	Voltage (Approx.)
NAVI control unit				
Connector	Terminal			
M98	43	Ground	Shift position is in “R”.	6.0 V

Is inspection result normal?

YES >> GO TO 3.
NO >> Replace NAVI control unit. Refer to AV-116, "Removal and Installation".

3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

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

NAVI control unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M98	41	D111	3	Existed

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

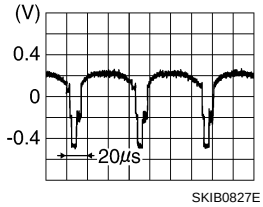
NAVI control unit		Ground	Continuity
Connector	Terminal		
M98	41		Not existed

Is inspection result normal?

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

4. CHECK CAMERA IMAGE SIGNAL

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

(+)		(–)	Condition	Reference value
NAVI control unit				
Connector	Terminal			
M98	41	Ground	At rear view camera image is displayed.	

SKIB0827E

Is inspection result normal?

YES >> Replace NAVI control unit. Refer to AV-116, "Removal and Installation".
NO >> Replace rear view camera. Refer to AV-126, "Removal and Installation".

STEERING SWITCH SIGNAL A CIRCUIT

Description

INFOID:0000000007771954

Transmits the steering switch signal to NAVI control unit.

Diagnosis Procedure

INFOID:0000000007771955

1.CHECK STEERING SWITCH SIGNAL A CIRCUIT

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

NAVI control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M97	6	M33	24	Existed

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M97	6		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK NAVI CONTROL UNIT VOLTAGE

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

(+)		(–)		Voltage (Approx.)
NAVI control unit				
Connector	Terminal	Connector	Terminal	
M97	6	M97	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace NAVI control unit. Refer to AV-116, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-100, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-125, "Exploded View".

Component Inspection

INFOID:0000000007771956

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

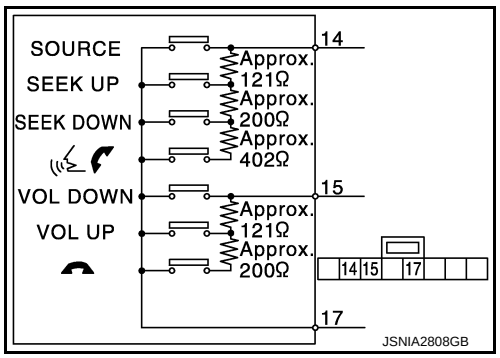
Standard

Between terminals 14 and 17

switch ON	: Approx. 709 – 737 Ω
SEEK DOWN switch ON	: Approx. 315 – 327 Ω
SEEK UP switch ON	: Approx. 119 – 123 Ω
SOURCE switch ON	: Approx. 0 Ω

Between terminals 15 and 17

switch ON	: Approx. 315 – 327 Ω
VOL UP switch ON	: Approx. 119 – 123 Ω
VOL DOWN switch ON	: Approx. 0 Ω



STEERING SWITCH SIGNAL B CIRCUIT

Description

INFOID:0000000007771957

Transmits the steering switch signal to NAVI control unit.

Diagnosis Procedure

INFOID:0000000007771958

1.CHECK STEERING SWITCH SIGNAL B CIRCUIT

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

NAVI control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M97	16	M33	31	Existed

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M97	16		Not existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK NAVI CONTROL UNIT VOLTAGE

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

(+)		(–)		Voltage (Approx.)
NAVI control unit				
Connector	Terminal	Connector	Terminal	
M97	16	M97	15	5.0 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace NAVI control unit. Refer to AV-116, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-102, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-125, "Exploded View".

Component Inspection

INFOID:0000000007771959

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

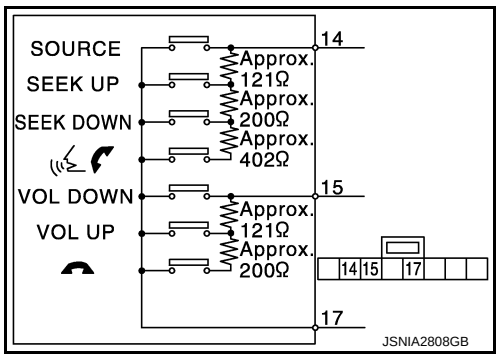
Standard

Between terminals 14 and 17

switch ON	: Approx. 709 – 737 Ω
SEEK DOWN switch ON	: Approx. 315 – 327 Ω
SEEK UP switch ON	: Approx. 119 – 123 Ω
SOURCE switch ON	: Approx. 0 Ω

Between terminals 15 and 17

switch ON	: Approx. 315 – 327 Ω
VOL UP switch ON	: Approx. 119 – 123 Ω
VOL DOWN switch ON	: Approx. 0 Ω



STEERING SWITCH GROUND CIRCUIT

Description

INFOID:0000000007771960

Transmits the steering switch signal to NAVI control unit.

Diagnosis Procedure

INFOID:0000000007771961

1.CHECK STEERING SWITCH SIGNAL GROUND CIRCUIT

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

NAVI control unit		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M97	15	M33	33	Existed

Is the inspection result normal?

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

2.CHECK SPIRAL CABLE

Check spiral cable.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace spiral cable. Refer to SR-13, "Exploded View".

3.CHECK GROUND CIRCUIT

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

NAVI control unit		Ground	Continuity
Connector	Terminal		
M97	15		Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace NAVI control unit. Refer to AV-116, "Removal and Installation".

4.CHECK STEERING SWITCH

1. Turn ignition switch OFF.
2. Check steering switch. Refer to AV-104, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace steering switch. Refer to AV-125, "Exploded View".

Component Inspection

INFOID:0000000007771962

Measure the resistance between the steering switch connector terminals 14 to 17 and 15 to 17.

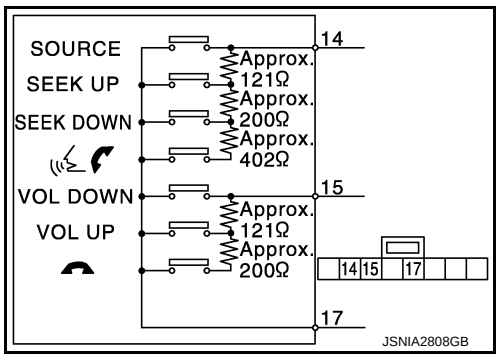
Standard

Between terminals 14 and 17

switch ON	: Approx. 709 – 737 Ω
SEEK DOWN switch ON	: Approx. 315 – 327 Ω
SEEK UP switch ON	: Approx. 119 – 123 Ω
SOURCE switch ON	: Approx. 0 Ω

Between terminals 15 and 17

switch ON	: Approx. 315 – 327 Ω
VOL UP switch ON	: Approx. 119 – 123 Ω
VOL DOWN switch ON	: Approx. 0 Ω



SYMPTOM DIAGNOSIS

NAVIGATION SYSTEM

Symptom Table

INFOID:0000000007771963

RELATED TO NAVIGATION

NOTE:

Combined part of AV switch and NAVI control unit.

Symptoms	Check items		Probable malfunction location / Action to take
Display does not turn ON.	All switches cannot be operated.		NAVI control unit power supply and ground circuit. Refer to AV-92, "NAVI CONTROL UNIT : Diagnosis Procedure".
	All switches can be operated.		NAVI control unit
All switches cannot be operated.	Display does not turn ON.		NAVI control unit power supply and ground circuit. Refer to AV-92, "NAVI CONTROL UNIT : Diagnosis Procedure".
	Display turn ON.		NAVI control unit
Only specified switch cannot be operated.	–		NAVI control unit
Map screen is not displayed. (RGB image other than map is normal.)	• Check that the map SD-card is in the SD-card slot. • Check “SD Card Access” in “SERVICE SYSTEM SELF TEST”, “SERVICE MENU”.	“OK” is displayed for “SD Card Access”.	Map SD-card
		“OK” is not displayed for “SD Card Access”.	• NAVI control unit • Map SD-card
Voice guidance is not heard.	Audio sound is normal.		NAVI control unit
Display does not dim.	Check “Illumination Signal” in “SERVICE SYSTEM STATUS”, “SERVICE MENU”.	“Illumination Signal” reaches 100% when the lighting switch is ON.	NAVI control unit
		“Illumination Signal” does not reach 100% when the lighting switch is ON.	Illumination control signal circuit
Vehicle icon does not move.	Check “Speed Signal” in “SERVICE SYSTEM STATUS”, “SERVICE MENU”.	A value of “Speed Signal” changes according to vehicle speeds.	NAVI control unit
		A value of “Speed Signal” does not change according to vehicle speeds.	Vehicle speed signal circuit
Map matching is not complete GPS icon is not displayed	Check “GPS Antenna” in “SERVICE SYSTEM SELF TEST”, “SERVICE MENU”.	“Connected” is displayed for “GPS Antenna”.	NAVI control unit
		“Connected” is not displayed for “GPS Antenna”.	GPS antenna
Traffic information (XM Traffic) is not received.	Check “XM Antenna” in “SERVICE SYSTEM SELF TEST”, “SERVICE MENU”.	“Detected” is displayed for “XM Antenna”.	NAVI control unit
		“Detected” is not displayed for “XM Antenna”.	• Antenna base • Antenna feeder

RELATED TO AUDIO

Symptoms	Check items		Probable malfunction location / Action to take
NAVI control unit does not start.	—	NAVI control unit power supply and ground circuit. Refer to AV-92, "NAVI CONTROL UNIT : Diagnosis Procedure".	NAVI control unit does not start.
No sound comes out or the level of the sound is low.	No sound from all speakers.	NAVI control unit power supply and ground circuit. Refer to AV-92, "NAVI CONTROL UNIT : Diagnosis Procedure".	No sound comes out or the level of the sound is low.
	Only a certain speaker (front right, front left, rear right, or rear left) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit of malfunctioning system between NAVI control unit and speaker. • Malfunction in speaker. • Malfunction in NAVI control unit.	
Noise is mixed with audio.	Noise comes out from all speaker.	Malfunction in NAVI control unit.	Noise is mixed with audio.
	Noise comes out only from a certain speaker (front right, front left, rear right, or rear left).	• Poor connector connection of speaker. • Sound signal circuit of malfunctioning system between NAVI control unit and speaker. • Malfunction in speaker. • Poor installation of speaker (e.g. backlash and looseness) • Malfunction in NAVI control unit.	
	Noise is mixed with radio only (when the car hits a bump or while driving over bad roads).	Poor connector connection of antenna or antenna feeder.	
Radio is not received or poor reception.	• Other audio sounds are normal. • Any radio cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	• Antenna amp. ON signal circuit malfunction. • Poor connector connection of antenna or antenna feeder. • Loose antenna base mounting nut. Refer to AV-121, "Exploded View".	Radio is not received or poor reception.
Satellite radio is not received.	It change to satellite radio mode.	• Antenna feeder (satellite radio) • Satellite antenna (antenna base)	Satellite radio is not received.
	It does not change to satellite radio mode.	NAVI control unit Refer to AV-116, "Removal and Installation".	

Symptoms	Check items		Probable malfunction location / Action to take
Speed sensitive volume system does not work.	Check “Speed Signal” in “SERVICE SYSTEM STATUS”, “SERVICE MENU”.	A value of “Speed Signal” changes according to vehicle speeds.	NAVI control unit
		A value of “Speed Signal” does not change according to vehicle speeds.	Vehicle speed signal circuit
Traffic information (XM Traffic) is not received.	Check “XM Antenna” in “SERVICE SYSTEM SELF TEST”, “SERVICE MENU”.	“Detected” is displayed for “XM Antenna”.	NAVI control unit
		“Detected” is not displayed for “XM Antenna”.	• Antenna base • Antenna feeder

RELATED TO USB

NOTE:

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

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

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

RELATED TO AUXILIARY INPUT

NOTE:

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

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

RELATED TO STEERING SWITCH

Symptoms	Possible malfunction location / Action to take
All steering switches are not operated.	Steering switch signal ground circuit. Refer to AV-104, "Diagnosis Procedure".
Only specified switch cannot be operated.	Steering switch
“ ”, “SEEK UP”, “SEEK DOWN” and “SOURCE” switches are not operated.	Steering switch signal A circuit. Refer to AV-100, "Diagnosis Procedure".
“ ”, “VOL UP” and “VOL DOWN” switches are not operated.	Steering switch signal B circuit. Refer to AV-102, "Diagnosis Procedure".
The steering switch operates improperly. (The above phenomena excluded.)	EQ2, EQ3 and EQ4 circuit

RELATED TO CAMERA

Symptoms	Check items		Probable malfunction location / Action to take
Camera image is not shown.	The guide line display is normal.		• Rear view camera image signal circuit • Rear view camera power supply and ground circuits Refer to AV-98, "Diagnosis Procedure".
The screen is not switched to camera image.	Check “Direction Signal” in “SERVICE SYSTEM STATUS”, “SERVICE MENU”.	“Reverse” is displayed for “Direction Signal” when the shift lever is in R.	NAVI control unit
		“Reverse” is not displayed for “Direction Signal” when the shift lever is in R.	Reverse signal circuit
The guide line display is malfunctioning.	—		EQ2, EQ3 and EQ4 circuit

HANDS-FREE PHONE SYMPTOMS

Symptom Table

INFOID:0000000007771964

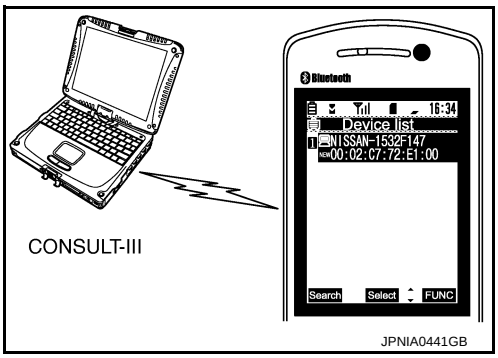
RELATED TO HANDS-FREE PHONE

- Check that the cellular phone is corresponding type (Bluetooth™ enabled) when the hands-free related malfunction vehicle is in service before performing a diagnosis.
- There is a case that malfunction occurs due to the version change of the phone type, etc. even though it is a corresponding type. Therefore, confirm it by changing the cellular phone to another corresponding type phone, and check that it operates normally. It is necessary to distinguish whether the cause is the vehicle or cellular phone. Check to ensure the customer's phone is supported by checking the phone compatibility for the hands-free system.

Simple Check for Bluetooth™ Communication

If cellular phone and TEL adapter unit cannot be connected with Bluetooth™ communication, following procedure allows the technician to judge which device has malfunction.

1. Turn on a cellular phone, not connecting Bluetooth™ communication.
2. Start CONSULT-III, then start Windows®.
3. Set CONSULT-III near a cellular phone.
4. When operated Bluetooth™ registration by cellular phone, check if CONSULT-III* would be displayed on the device name.
   (If other Bluetooth™device is located near cellular phone, a name of the device would be displayed also.)
   NOTE:
   *:Displayed device name is “NISSAN-********”.



- If no device name is displayed, cellular phone is malfunction. Repair the cellular phone first, then perform diagnosis.
- If CONSULT-III is displayed on device name, cellular phone is normal. Perform diagnosis as per the following table.

Trouble Diagnosis Chart by Symptom

Symptoms	Check items	Possible malfunction location/Action to take
Does not recognize cellular phone connection.	Repeat the registration of cellular phone.	TEL adapter unit
Hands-free phone cannot be established.	—	• TEL adapter unit power supply and ground circuit. Refer to AV-92, "TEL ADAPTER UNIT : Diagnosis Procedure". • Control signal circuit Refer to AV-97, "Diagnosis Procedure". • AV communication circuit between NAVI control unit and TEL adapter unit.
The other party's voice cannot be heard by hands-free phone.	Audio system sound is normal.	Sound signal (TEL voice, TEL guidance) circuit
	Audio system sound does not sound.	Refer to AV-106, "Symptom Table".
Originating sound is not heard by the other party with hands-free phone communication.	Voice recognition function is normal.	TEL adapter unit
	Voice recognition function does not work.	Microphone signal circuit. Refer to AV-95, "Diagnosis Procedure".

RELATED TO STEERING SWITCH

Symptoms	Possible malfunction location / Action to take
All steering switches are not operated.	Steering switch signal ground circuit. Refer to AV-104, "Diagnosis Procedure".
Only specified switch cannot be operated.	Replace steering switch. Refer to AV-125, "Exploded View".

Symptoms	Possible malfunction location / Action to take
“ ”, “SEEK UP”, “SEEK DOWN” and “SOURCE” switches are not operated.	Steering switch signal A circuit. Refer to AV-100, "Diagnosis Procedure".
“ ”, “VOL UP” and “VOL DOWN” switches are not operated.	Steering switch signal B circuit. Refer to AV-102, "Diagnosis Procedure".
The steering switch operates improperly. (The above phenomena excluded.)	EQ2, EQ3 and EQ4 circuit

NORMAL OPERATING CONDITION

Description

INFOID:0000000007771965

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

BASIC OPERATIONS

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

NOTE:
Locations stored in the Address Book and other memory functions may be lost if the vehicle's battery is disconnected or becomes discharged. If this occurs, service the vehicle's battery as necessary and re-enter the information in the Address Book.

RELATED TO AUDIO

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

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

Symptom	Cause and Counter measure
Cannot play	Check if the CD was inserted correctly.
	Check if the CD is scratched or dirty.
	Check if there is condensation inside the player, and if there is, wait until the condensation is gone (about 1 hour) before using the player.
	If there is a temperature increase error, the player will play correctly after it returns to the normal temperature.
	If there is a mixture of music CD files (CD-DA data) and MP3/WMA files on a CD, only the music CD files (CD-DA data) will be played.
	Files with extensions other than ".MP3", ".WMA", ".mp3", or ".wma" cannot be played. In addition, the character codes and number of characters for folder names and file names should be in compliance with the specifications.
	Check if the disc or the file is generated in an irregular format, This may occur depending on the variation or the setting of MP3/WMA writing applications or other text editing applications.
	Check if the finalization process, such as session close and disc close, is done for the CD.
	Check if the CD is protected by copyright.

Symptom	Cause and Counter measure
Poor sound quality	Check if the CD is scratched or dirty.
It takes a relatively long time before the music starts playing.	If there are many folder or file levels on the MP3/WMA CD, or if it is a multisession disc, some time may be required before the music starts playing.
Music cuts off or skips	The writing software and hardware combination might not match, or the writing speed, writing depth, writing width might not match the specifications. Try using the slowest writing speed.
Skipping with high bit rate files	Skipping may occur with large quantities if data such as for high bit rate data.
Move immediately to the next song when playing	When a non-MP3/WMA file has been given an extension of ".MP3", ".WMA", ".mp3" or ".wma", or when play is prohibited by copyright protection, the player will skip to the next song.
The songs do not play back in the desired order.	The playback order is the order in which the files were written by the software, so the files might not play in the desired order.
Poor reception only from a certain radio broadcast station.	Check incoming radio wave signal strength of applicable broadcast station.

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

NOTE:

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

MAP SD-CARD

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

RELATED TO ROUTE CALCULATION AND VISUAL GUIDANCE

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

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

RELATED TO VEHICLE ICON

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

RELATED TO VOICE GUIDANCE

Symptom	Possible cause	Possible solution
Voice guidance is not available	In some cases, voice guidance is not available even when the vehicle should make a turn.	This is not a malfunction.
	The vehicle has deviated from the suggested route.	Go back to the suggested route or request route calculation again
	Voice guide is set to off.	Turn voice guidance ON.
	Route guidance is set to off.	Route guidance is set to ON.
The guidance contact does not correspond to the actual condition.	The contact of voice guidance may vary, depending on the types of intersections at which turn are made.	Follow all traffic rules and regulations.

RELATED TO TRAFFIC INFORMATION

Symptom	Possible cause	Possible solution
The traffic information is not displayed	The traffic information is not set to on.	Set the traffic information to on.
	You are in an area where traffic information is not available	Scroll to an area where traffic information is available
	You have not subscribed to XM NavTraffic or, your subscription to XM NavTraffic has expired.	Check your subscription status of XM NavTraffic.
	The map scale is set at a level where the display of icons is impossible.	Check that the map scale is set at a level in which the display of icons is possible.
With the automatic detour route search ON, no detour route is set to avoid congested areas.	There is no faster route compared to the current route, based on the road network and traffic information.	The automatic detour search is not intended for avoiding traffic jams. It searches for the fasted rote taking into consideration such things as traffic jams.
The route does not avoid road section with traffic information stating it is closed due to road construction.	The navigation system is designed not to avoid this event because the actual period of closure may differ from the declared roadwork period.	Observe the actual road condition and follow the instructions on road for detour when necessary. If the road closure is for certain, use detour function and set the detour distance to avoid the closed road section.
Traffic information displayed differs from information from other media (e.g. radio).	Other media may use different information sources.	Observe the actual road conditions and regulations. Always observe safe driving practices and follow all traffic regulations.

RELATED TO TELEPHONE

Symptoms	Cause and Counter measure
System fails to interpret the command correctly.	1. Ensure that the command format is valid.
	2. Ensure that the command is spoken after the tone.
	3. Speak clearly without pausing between words and at a level appropriate to the ambient noise level in the vehicle.
	4. Ensure that the ambient noise level is not excessive (for example, windows open or defroster on). **NOTE:** If it is too noisy to use the phone, it is likely that the voice commands will not be recognized.
	5. If more than one command was said at a time, try saying the commands separately.
	6. If the system consistently fails to recognize commands, the voice training procedure should be carried out to improve the recognition response for the speaker. Refer to AV-78, "Diagnosis Description".
The system consistently selects the wrong entry from the phone book.	1. Ensure that the phone book entry name requested matches what was originally stored. This can be confirmed by using the “List Names” command.
	2. Replace one of the names being confused with a new name.

REMOVAL AND INSTALLATION

NAVI CONTROL UNIT

Removal and Installation

INFOID:0000000007771966

REMOVAL

1. Remove cluster lid C. Refer to IP-12, "Exploded View".
2. Remove NAVI control unit screws, then disconnect NAVI control unit connector and remove NAVI control unit.
3. Remove bracket screws to remove NAVI control unit.

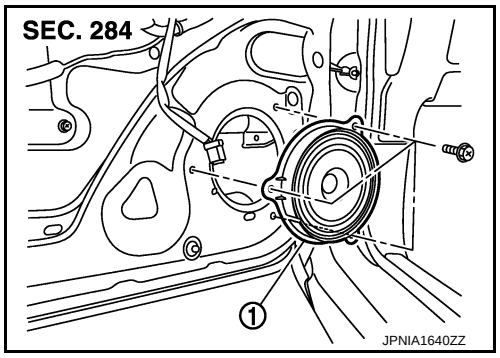
INSTALLATION

Install in the reverse order of removal.

FRONT DOOR SPEAKER

Exploded View

INFOID:0000000007771967



1. Front door speaker

Removal and Installation

INFOID:0000000007771968

REMOVAL

1. Remove front door finisher. Refer to INT-12, "Exploded View".
2. Remove front door speaker screws, then disconnect front door speaker connector and remove front door speaker.

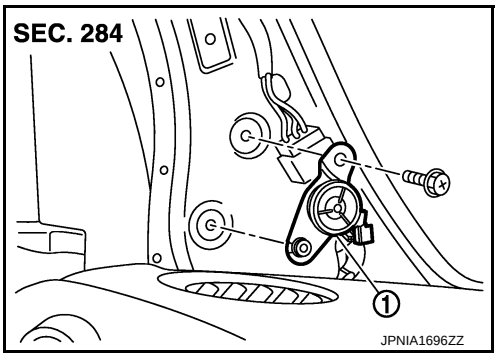
INSTALLATION

Install in the reverse order of removal.

TWEETER

Exploded View

INFOID:0000000007771969



1. Tweeter

Removal and Installation

INFOID:0000000007771970

REMOVAL

1. Remove front pillar garnish. Refer to INT-16, "Exploded View".
2. Remove tweeter screw and clip, then disconnect tweeter connector and remove tweeter.

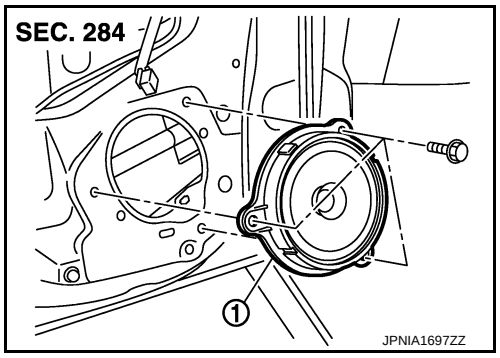
INSTALLATION

Install in the reverse order of removal.

REAR DOOR SPEAKER

Exploded View

INFOID:0000000007771971



1. Rear door speaker

Removal and Installation

INFOID:0000000007771972

REMOVAL

1. Remove rear door finisher. Refer to INT-14, "Exploded View".
2. Remove rear door speaker screws, then disconnect rear door speaker connector and remove rear door speaker.

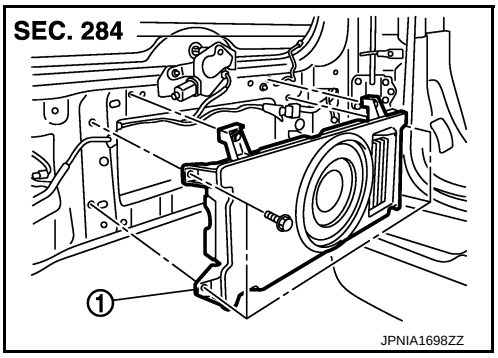
INSTALLATION

Install in the reverse order of removal.

WOOFER

Exploded View

INFOID:0000000007771973



1. Woofer

Removal and Installation

INFOID:0000000007771974

REMOVAL

1. Remove back door finisher lower. Refer to INT-27, "Exploded View".
2. Remove screws and clips, then disconnect woofer connector and remove the woofer.

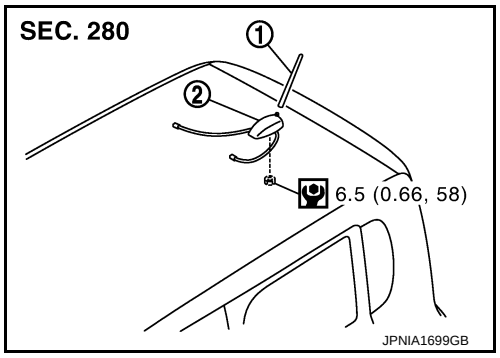
INSTALLATION

Install in the reverse order of removal.

ANTENNA BASE

Exploded View

INFOID:0000000007771975



1. Antenna rod
2. Antenna base

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000007771976

REMOVAL

1. Remove luggage side upper finisher. Refer to INT-24, "Exploded View".
2. Remove assist grip and headlining clips. Refer to INT-21, "Exploded View".
3. Pull headlining (rear). Obtain a service area.
4. Remove antenna base mounting nut.
5. Remove antenna base.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

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

GPS ANTENNA

Removal and Installation

INFOID:0000000007771977

REMOVAL

1. Remove instrument panel. Refer to IP-12, "Exploded View".
2. Remove GPS antenna screw to remove GPS antenna.

INSTALLATION

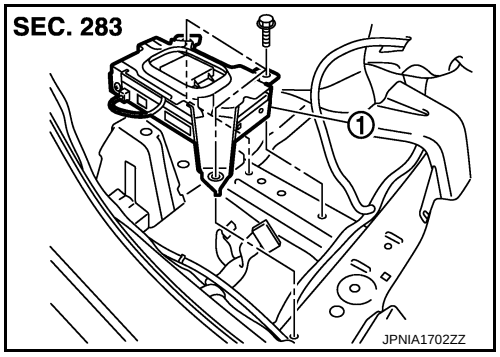
Install in the reverse order of removal.

TEL ADAPTER UNIT

Exploded View

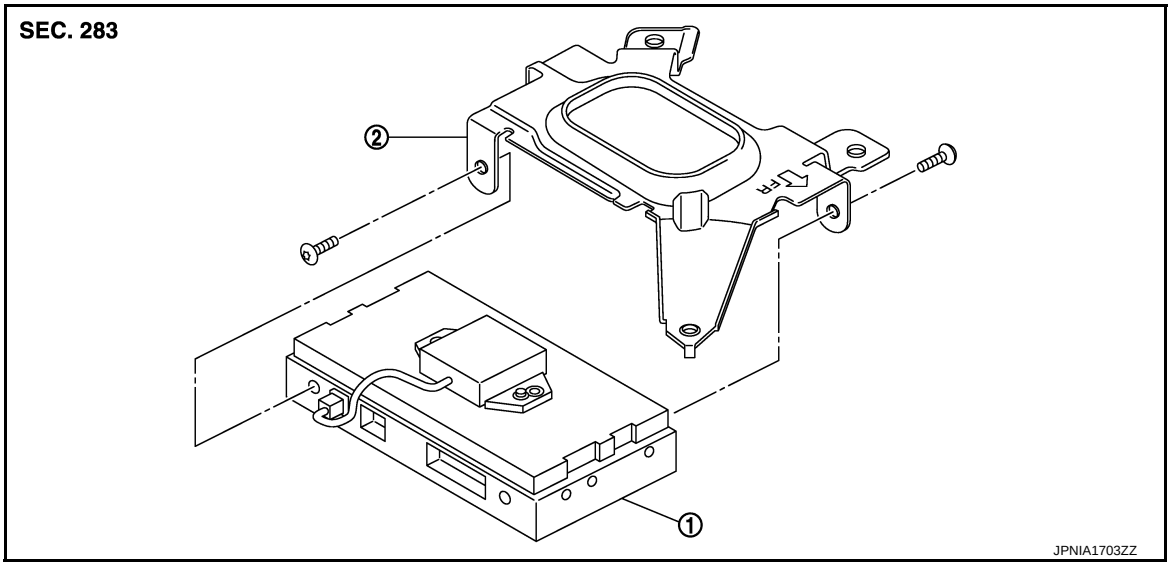
INFOID:0000000007771978

REMOVAL



1. TEL adapter unit

DISASSEMBLY



1. TEL adapter unit
2. Bracket

Removal and Installation

INFOID:0000000007771979

REMOVAL

1. Remove rear floor spacer RH. Refer to INT-19, "Exploded View".
2. Disconnect TEL adapter unit connector.
3. Remove TEL adapter unit screws, then remove TEL adapter unit.
4. Remove bracket screws, and then remove TEL adapter unit.

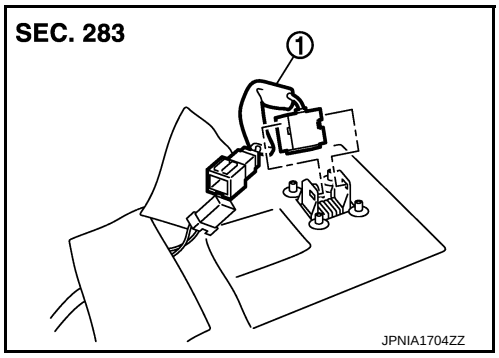
INSTALLATION

Install in the reverse order of removal.

MICROPHONE

Exploded View

INFOID:0000000007771980



1. Microphone

Removal and Installation

INFOID:0000000007771981

REMOVAL

1. Remove front pillar garnish LH and center pillar upper garnish LH. Refer to INT-16, "Exploded View".
2. Remove sunvisor assy, map lamp assy, assist grip LH, and inside mirror cover. Refer to INT-21, "Exploded View".
3. Pull headlining (left front). Obtain a service area.
4. Remove microphone connector and pawl to remove microphone.

INSTALLATION

Install in the reverse order of removal.

STEERING SWITCH

Exploded View

INFOID:0000000007771982

Refer to ST-8, "Exploded View".

Removal and Installation

INFOID:0000000007771983

REMOVAL

Refer to ST-8, "Removal and Installation".

INSTALLATION

Install in the reverse order of removal.

REAR VIEW CAMERA

Removal and Installation

INFOID:0000000007771984

REMOVAL

1. Remove back door finisher lower. Refer to INT-27, "Exploded View".
2. Disconnect rear view camera connector.
3. Remove rear view camera nuts to remove rear view camera.

INSTALLATION

Install in the reverse order of removal.

USB CONNECTOR AND AUX JACK

Removal and Installation

INFOID:0000000007771985

REMOVAL

1. Remove instrument lower cover. Refer to IP-12, "Exploded View".
2. Push the pawl from the back of instrument lower cover to remove USB connector and AUX jack.

INSTALLATION

Install in the reverse order of removal.

ANTENNA FEEDER

Feeder Layout

INFOID:0000000007771986