

**AVN SYSTEM****0000-00****GENERAL INFORMATION****1. SPECIFICATIONS****1) AVN Head Unit**

Category	Item		Specifications
General	Frequency range	FM	87.5 to 108.0 kHz
		AM	531 to 1,620 kHz
	Operating temperature		-30°C to +75°C
	Operating voltage		9.0 to 16.0 V
	Power supply voltage		DC 13.5 V (-) Ground
	Dark current		3 mA or lower
	Load impedance		4 Ω X 6
	Antenna		80 PF 75 Ω
	Storage capacity		NAND 512 MB
	Weight		1.9 Kg
LCD display	Viewing angle		Up: 65°, Down: 70°, Left: 70°, Right: 70°
	Power supply		5 V (0.771A)
	Input signal		DIGITAL RGB
	Display size		167.8 mm (W) x 104 mm (H) x 6.4 mm (D)
	Display type		7" TFT WVGA (800X480)
	Display aspect ratio		16:9
	Screen size		154.8 X 93.84 mm (bezel open)
	Color		Full color
USB	Compatibility		USB 2.0 (High Speed)

Modification basis	
Application basis	
Affected VIN	

Category	Item	Specifications
GPS receiver	Frequency	GPS: 1,575 GHz GLONASS: 1,608 GHz
	Sensitivity	-142 dbm
	Channel	12ch
Bluetooth	Power supply	3.3 V (Max 200 mA)
NAVI	MAP	TOM TOM MAP
	MAP storage	SD card (8 GB)
Tail lamp color	Daylight color	Panel front: Black metal, Letters: White Button: Black metal, Letters: White
	Illumination color	Button: Orange/Red Display: Full color

## 2) Micro Pole Antenna

Item	Specifications	
Storage temperature	-40 to +105 (°C)	
Operating temperature	-30 to +85 (°C)	
Operating voltage	AM/FM	10.5 to 16.0 V
	GNSS	4.5 to 5.5 V
Current consumption	AM/FM	Max. 100 mA
	GNSS	Max. 30 mA
Input/output impedance	AM/FM	75 Ω
	GNSS	50 Ω

### 3) Rearview Camera

Item	Specifications
Camera system	VGA CMOS (Smart A type)
Image size	1/4"
NTSC output	720 (horizontal) X 480 (vertical)
Image aspect ratio	4:3
Signal type	Video: NTSC Composite
Optical lens	F2.8
Viewing angle	Horizontal 129°, Vertical 89°
Video output voltage	1.0 V e $\pm$ 0.2 V (75 $\Omega$ impedance match)

### 4) Speaker

Item	Specifications	
Front/rear door speaker	Speaker size	5.25 inch
	Max. input	40 W
	Impedance	5 KHz of 4 $\Omega$ $\pm$ 15%
Front tweeter speaker	Speaker size	1 inch
	Max. input	40 W
	Impedance	400 Hz of 4 $\Omega$ $\pm$ 15%

### 5) Handsfree Microphone

Item	Specifications
Storage temperature	-30 to 80 °C
Operating temperature	-40 to 85 °C
Sensitivity	-36 $\pm$ 2 dB
Impedance	Up to 2.2 k $\Omega$
S/N ratio*	65 dB or more

\* S/N ratio (signal to noise ratio): Describes noise level in relation to the signal level in dB

Modification basis	
Application basis	
Affected VIN	

## 6) Steering Wheel Audio Remote Control Switch

Item	Specifications	
Rated voltage	5 V - 0.1 A	
Rated load	5 V - 0.1 A	
Operating temperature	-30 to +85 (°C)	
Item	Resistance	Operating voltage
Volume down	196 $\Omega \pm 1\%$	0 to 0.4 V
Volume up	1.02 K $\Omega \pm 1\%$	0.7 to 1.1 V
Mode	2.21 K $\Omega \pm 1\%$	1.4 to 1.8 V
Power/Mute	34.8 K $\Omega \pm 1\%$	4.2 to 4.6 V
SEEK up	4.02 K $\Omega \pm 1\%$	2.1 to 2.5 V
SEEK down	6.98 k $\Omega \pm 1\%$	2.8 to 3.2 V
Bluetooth (hands-free) - ON	13.3 K $\Omega \pm 1\%$	3.5 to 3.9 V
Bluetooth (hands-free) - OFF	34.8 K $\Omega \pm 1\%$	4.2 to 4.6 V

## 2. CAUTIONS AND WARNINGS FOR SAFETY



### WARNING

- Always pay attention to the actual traffic conditions and observe safe driving rules.
  - Relying on the navigation alone could lead to a serious accident.
  - Minimize the time looking at the navigation screen. Looking at the screen for too long time may cause an accident.
  - Never operate your navigation system while driving the car. A serious accident may occur due to inattentive driving or lack of forward vision
  - Stop the vehicle before manipulating the navigation system.
  - Do not disassemble or modify the navigation system. There is the risk of electrical shock, fire, or accidents.
  - Protect the navigation system from water or foreign objects. It might cause malfunction.
- If you see smoke or flames from the system due to water or foreign objects, stop using the system immediately and have the system serviced by your authorized dealer or distributor.
- This can lead to the system malfunctions.
- Do not use the system if it is malfunctioning (sound or video output problem). This can lead to the critical system errors or serious accidents (fire, electrical shock).
- Never manipulate the system in a clear way. Not following this may lead to an accident.



### CAUTION

- Always observe the traffic rules.
  - The route provided by the navigation can be different from the actual roads.
  - Never operate your navigation system while driving the car. A serious accident may occur due to inattentive driving or lack of forward vision. Stop the vehicle before manipulating the navigation system. Some menus on the touch screen will be deactivated when the vehicle is driven for safety reasons. All menus will be activated again as soon as the vehicle stops.
  - This system is only for a vehicle. Do not use this system in other than a vehicle.
  - Installation or removal of this system requires special technique.
  - When cleaning the touch screen, turn off the system and clean the surface with a dry and soft cloth. Never use any coarse cloth, hard cloth, chemical agent, volatile cleaning solvent (alcohol, benzene, thinner) for cleaning the touch screen. The screen surface can be damaged and discolored. If the navigation system is faulty, have the system serviced by your authorized dealer or distributor.
- Do not apply excessive force to or drop this system.
- Do not apply any impact and pressure to the monitor screen. The LCD panel or touch screen panel
  - can be damaged.

Modification basis	
Application basis	
Affected VIN	

**NOTE**

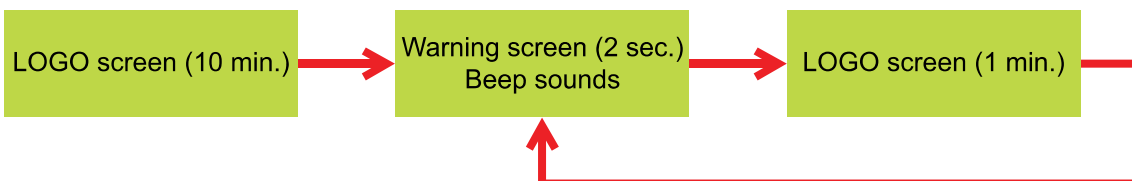
- The screen of HDMI is blocked while the vehicle is driven (at a speed of higher than 0 km/h).



- When the ignition off signal is detected with the AVN system ON, the battery discharged warning message is displayed on the screen.



- A beep sounds when the battery discharged warning message is displayed on the screen.

**Beeping algorithm with warning message**

Modification basis	
Application basis	
Affected VIN	

## OVERVIEW AND OPERATING PROCESS

### 1. OVERVIEW

The AVN system with 7-inch LCD can play the radio (FM1, FM2, AM), contents in a USB device (video, music, photo files), and contents in a device using HDMI.

The system also has hands-free (Bluetooth) feature, rearview camera, external device connection features including USB and HDMI. And, it has a micro pole antenna and its own integrated amplifier to improve the radio frequency reception rate and to provide the high-quality sound.

#### ► AVN head unit touch screen



In the AVN main menu screen, RADIO, NAVI, HDMI, MEDIA, BLUETOOTH MUSIC, BLUETOOTH HANDSFREE menus are displayed. For detailed information about these menus, see the manual for the AVN system.

#### **CAUTION**

When cleaning the touch screen, turn off the system and clean the surface with a dry and soft cloth. Never use any coarse cloth, hard cloth, chemical agent, volatile cleaning solvent (alcohol, benzene, thinner) for cleaning the touch screen.

Modification basis	
Application basis	
Affected VIN	

## 1) Features

Item		Description
Operating system		Win Compact 7
CPU		Freescale i.MX6 Dual Automotive
Memory		ROM - NAND Flash 512 Mbytes
		RAM - DDR3 : 512 Mbytes
Booting time	Radio	Within 15 sec.
	Rearview camera	Within 3 sec.
	Navigation	Map dependent
Touch panel		7" GLASS TO GLASS
Display		7" TFT WVGA (800*480)/16:9 aspect ratio
USB		USB 2.0 (High Speed)
Graphic		2D/3D accelerator, alpha blending, anti-aliasing, gradation
Navigation	Map storage	SD-CARD (8GB_TOM TOM MAP)
	Map update	SD-CARD update
Hands-free		Bluetooth
AVN		Radio (FM/AM)/HDMI/BT(H/F, A2DP), NAVI
Rearview camera		Shifting to R - POWER ON/OFF is unavailable when the rearview camera is operating. - Mode change is unavailable when the rearview camera is operating.
Multimedia	Video	Video codec: Divx, Xvid, WMV9, MPEG Subtitle format: filename.smi Supported file format: mp4, mov, 3gp, m4a, avi, wmv, asf, mkv, flv
	Audio	Audio codec: MP3, OGG, WMA, WAV Supported file format: mp3, aac, ac3, ogg, ape, flac, wma, wav
	Photo	BMP (5 million pixels)/JPG (12 million pixels) GIF (12 million pixels)/PNG (12 million pixels)
HDMI		Version: HDMI 1.4a, HDCP 1.4 Protocol (But Ethernet, ARC, 3D, Full HD not supported)



### NOTE

#### Available functions during driving

1. Bluetooth call
2. Selecting navigation destination

Modification basis	
Application basis	
Affected VIN	



## 2) How To Set AVN System



1. Press and hold the [SETUP] hard key under the AVN head unit front screen for 1.5 sec. or more.



2. The Configuration screen is displayed on the LCD.

### Configurable items

- Sound
- Display
- RDS
- Clock
- System

### (1) Sound setting



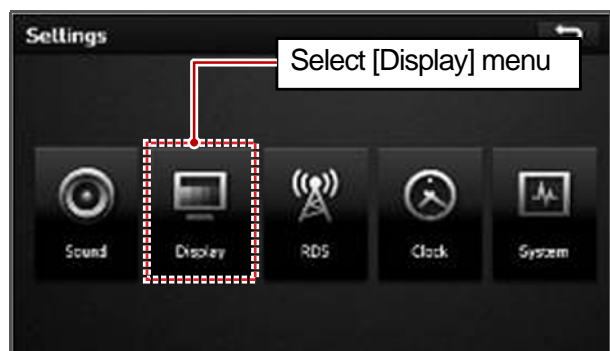
1. Select [Sound] button on the Configuration screen.



2. The Sound setting screen is displayed.
  - Fader/Balance
  - EQ setting
  - Sound setting
  - Other settings
  - Done

Modification basis	
Application basis	
Affected VIN	

## (2) Display setting



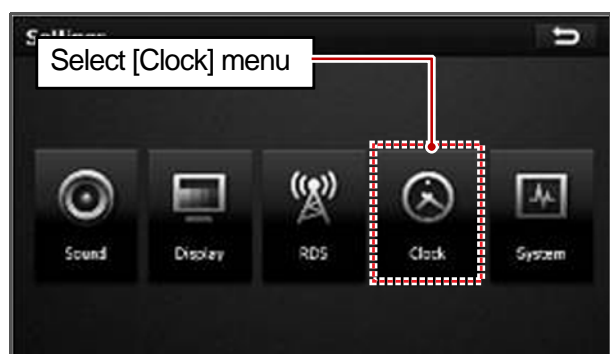
1. Select [Display] button on the Configuration screen.



2. The Display setting screen is displayed.

- Screen
- Brightness
- Ratio
- Screen off
- Other settings
- Done

## (3) Clock setting



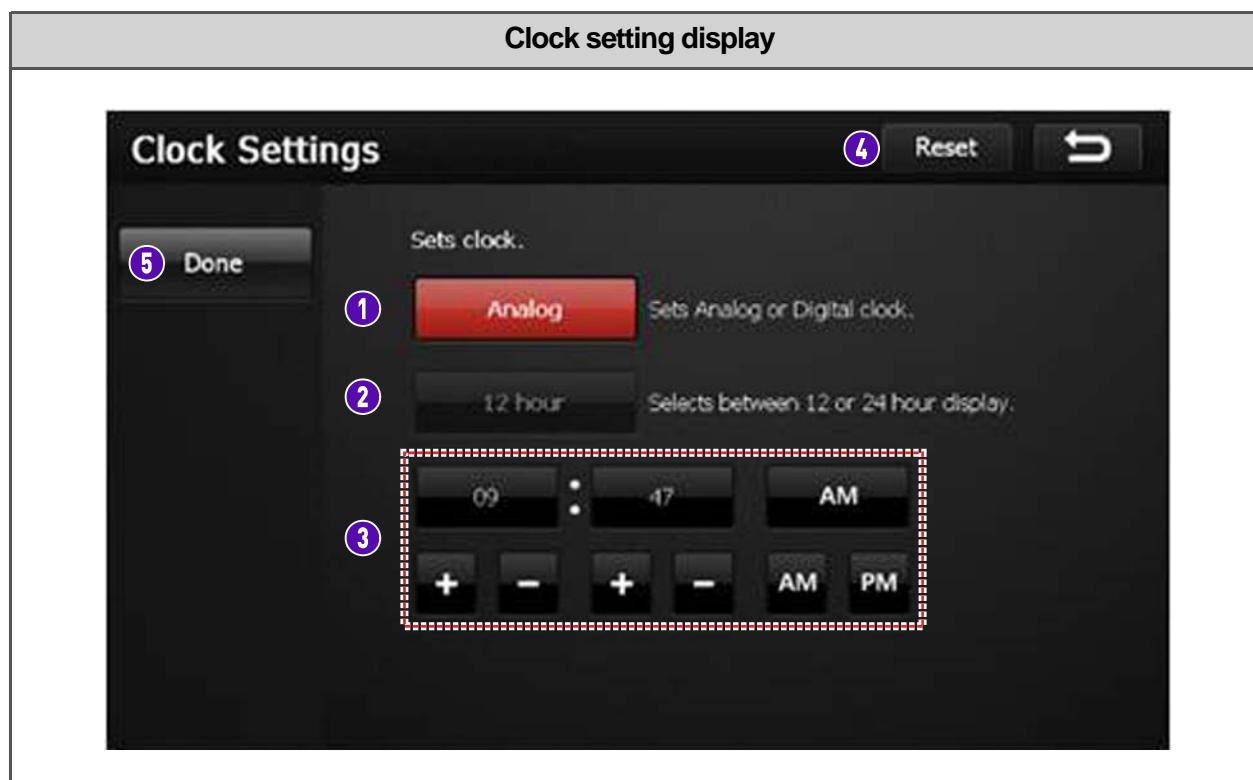
1. Select [Clock] button on the Configuration screen.



2. The Clock setting screen is displayed.

- Analogue clock
- 12-hour clock

Modification basis	
Application basis	
Affected VIN	

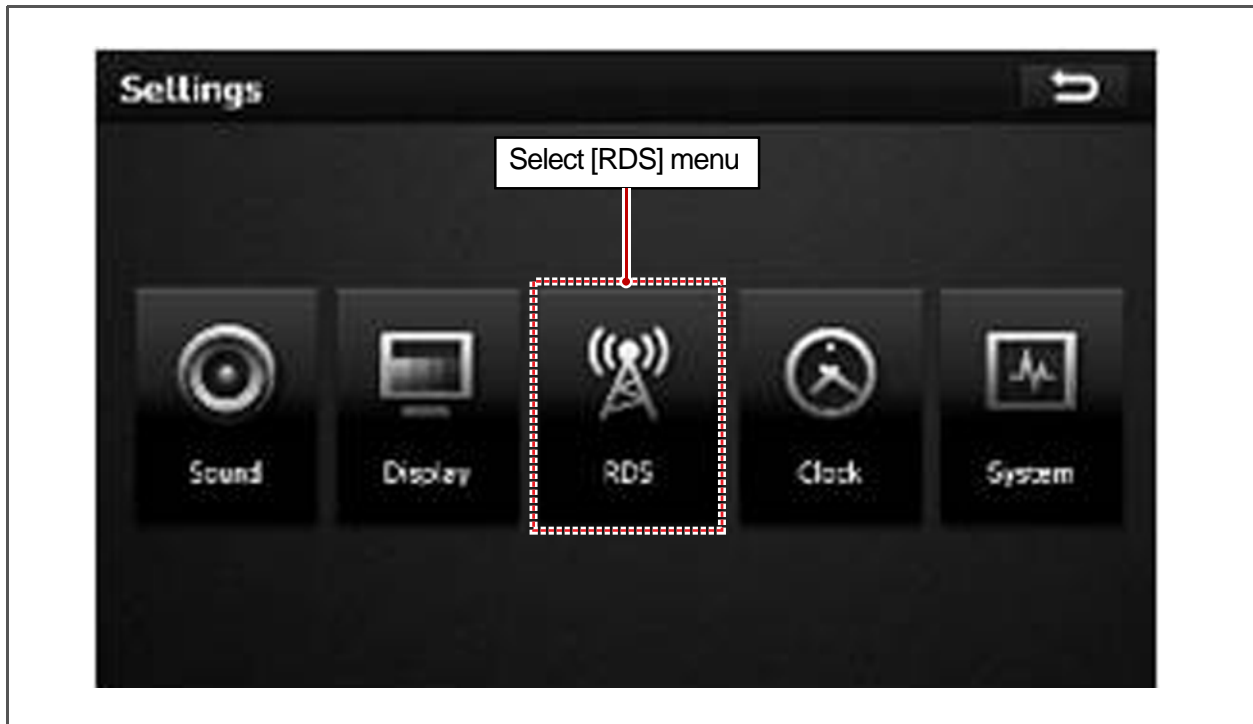


No.	Button	Description
1	Analogue clock	<p>Selects between Digital or Analogue clock (Default: Analogue clock)</p> <p>1. Use this button to select the type of clock displayed on the POWER OFF screen.</p> <p>2. When Analogue clock is selected, the [12-hour clock] button is disabled.</p>
2	12-hour clock	<p>Selects between 12-hour or 24-hour clock (Default: 12-hour clock)</p> <p>1. This button is activated only when [Digital clock] button is selected.</p>
3	Time/AM, PM setting	<p>1. These buttons are activated regardless of the clock type (Analogue, Digital).</p> <p>2. When [AM] or [PM] button is pressed in 24-hour clock mode, the hour format is changed to 12-hour clock mode.</p>
4	Initialization	The time is reset to GPS standard time.
5	Done	-

Modification basis	
Application basis	
Affected VIN	

#### (4) RDS Settings

1. Select [RDS] button on the Configuration screen.



2. The RDS setting screen is displayed.

- RDS Text ON/OFF
- AF(Alternative Frequencies) ON/OFF
- TA(Traffic Announcement) ON/OFF
- REG(Regional) ON/OFF
- PTY(Programme Type) Seek ON/OFF
- PTY(Programme Type) Seek Settings

#### (4) System setting



1. Select [System] button on the Configuration screen.



2. The System setting screen is displayed.

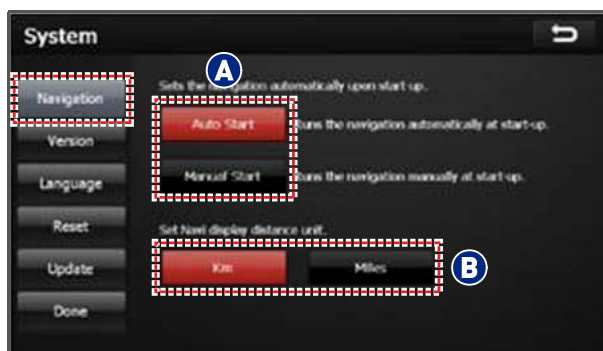
- Navigation
- Version
- Language
- Reset
- Update
- Done



#### NOTE

When entering the System setting screen, the Navigation automatic run/manual run screen is displayed.

#### ► Setting navigation automatic run/manual run

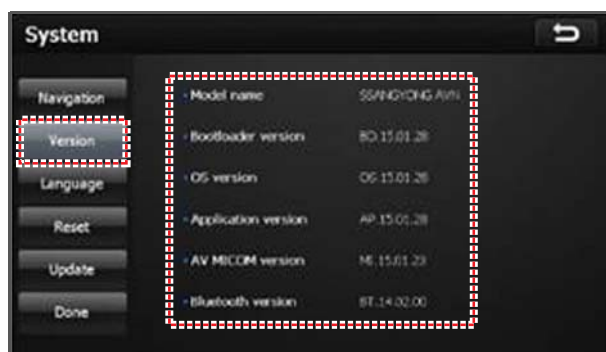


1. Select [Navigation] menu displayed on the System setting screen.

- A. When the vehicle is started, you can set the navigation automatic run/manual run.
- B. You can select the unit of distance from "km" and "mile".

Modification basis	
Application basis	
Affected VIN	

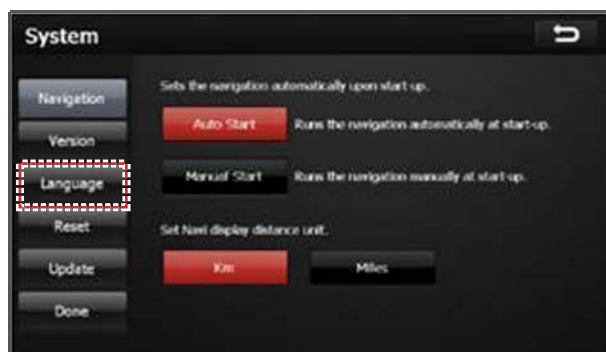
### ► Checking system version



1. You can check the version of the system.

- Model
- Boot loader version
- OS version
- Application version
- AV MICOM version
- Bluetooth version

### ► Language



1. Select [Language] menu displayed on the System setting screen.



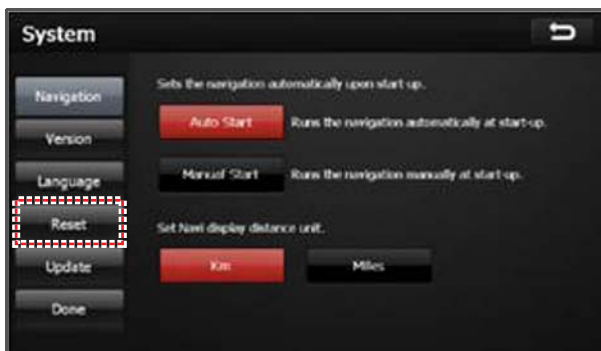
2. The Language setting screen is displayed.

- English
- French
- Italian
- German
- Spanish
- Dutch
- Russian

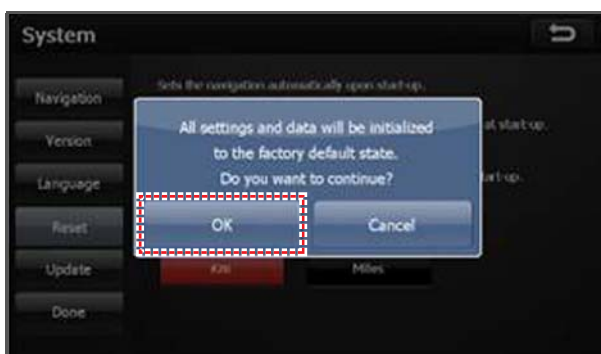
## ► Reset

The AVN system can be initialized by using the [Reset] menu of System setting or hard key under the AVN head unit front screen.

### - Reset by System setting menu



1. Select [Reset] button on the System setting screen.



2. A confirm message is displayed. When the [OK] button is pressed, the initialization starts.

### - Initialization by Hard key



1. Press and hold both the [Mode] and [NAVI] buttons under the AVN head unit front screen.



2. The system is rebooted following the booting screen and log screen.

### CAUTION

After the initialization, all the system returns to the state programmed at the factory. Inform the driver and obtain consent before the initialization.

Modification basis	
Application basis	
Affected VIN	

- The settings and configurations programmed at the factory are as follows:

Item	Mode	Description	
Radio	FM1	87.5 MHz	
USB	Video	File	Automatic selection
		Play time	00 : 00
		Play/Stop	Play
		Repeat mode	All (All/Folder/1)
		Subtitle font size	Big (Big/small)
		Screen mode	Full screen (Full screen/Normal screen/Wide screen)
	Audio	File	Automatic selection
		Play time	00 : 00
		Play/Stop	Play
		Repeat mode	All (All/Folder/1)
		Random	OFF (All/Folder)
		Intro	OFF (All/Folder)
	Photo	File	Automatic selection
		Slide show	OFF
		Slide show time	5 sec. (5 sec./10 sec./30 sec.)
		Rotate	0 (+90/-90)
		Frame	Black

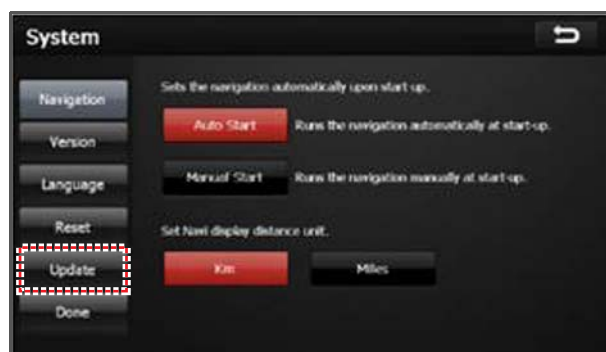


Item	Mode	Description	
Bluetooth	Pairing	Not paired	
	Settings	Bluetooth use	Yes
		Automatic connection	Automatic
		Automatic connection phone list	Empty
		Device name	Ssangyong
		Verification number	1234
	Phone number	Outgoing call	Empty
		Incoming call	Empty
		Missed call	Empty
	Phone book list	Empty	
	Microphone volume	3	
	Hands-free volume	15	
	A2DP volume	15	
Menu	Sound setting	FAD/BAL	0,0
		Surround sound	ON
		EQ	Center
		BEEP	ON
		AVC	ON
	Display setting	Brightness, Contrast, Saturation, Color	0
		Dimming	Auto
		Aspect ratio	Full screen
		Screen off	Disabled
	Clock setting	ON	Analogue, 12-hour clock, 12:00, AM
	Navigation setting	Automatic run	
Volume	AV volume	15	
	Navigation volume	15	
	HDMI volume	15	

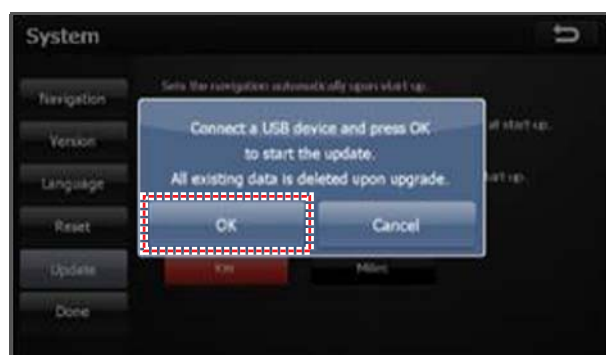
Modification basis	
Application basis	
Affected VIN	

### ► AVN system update

- Update is needed for enhancing the software and new features.
- Remove the SD card and update the system as follows.



1. Select [Update] button on the System setting screen.



2. Insert the USB key which has upgrade files and select [OK] button.
3. The system is automatically updated. When the update is completed, the FM mode screen is displayed and the customize information stored in radio mode is initialized.



### NOTE

#### Navigation upgrade

- To upgrade the navigation system, insert the SD card into the computer.

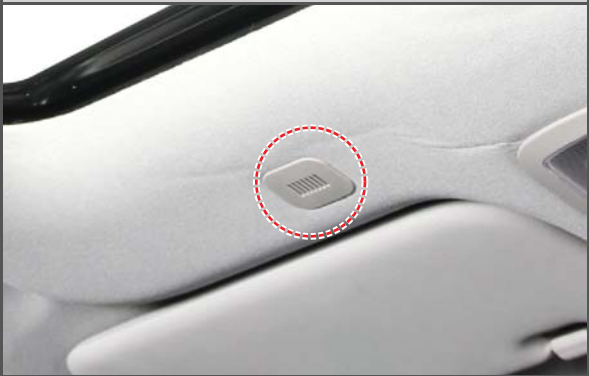
The update may require tens of minutes depending on the data amount.

If the power is cut off during the update or the USB memory stick is removed from the computer, the data may be lost. Update the system with the engine running.

Modification basis	
Application basis	
Affected VIN	

2. SYSTEM LAYOUT

1 Bluetooth (hands-free) microphone



2 AVN head unit



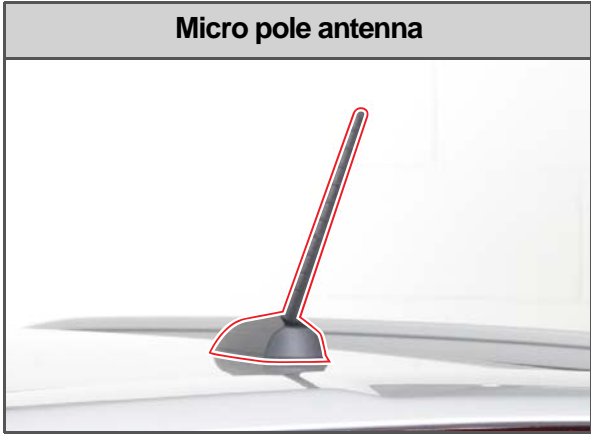
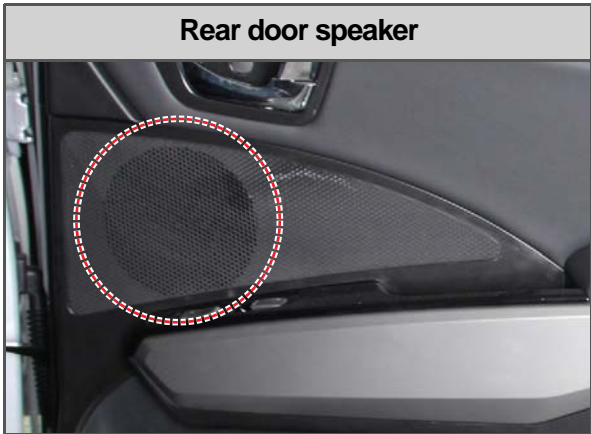
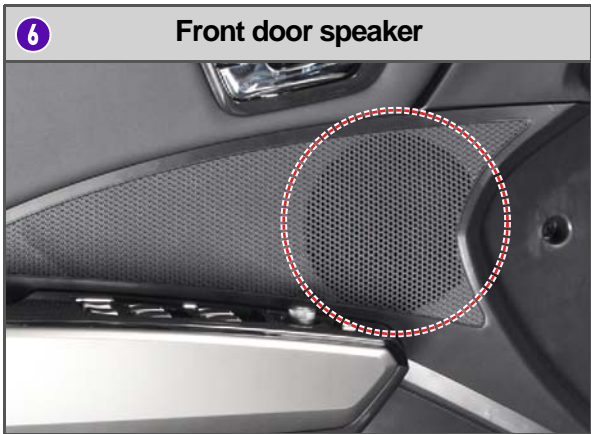
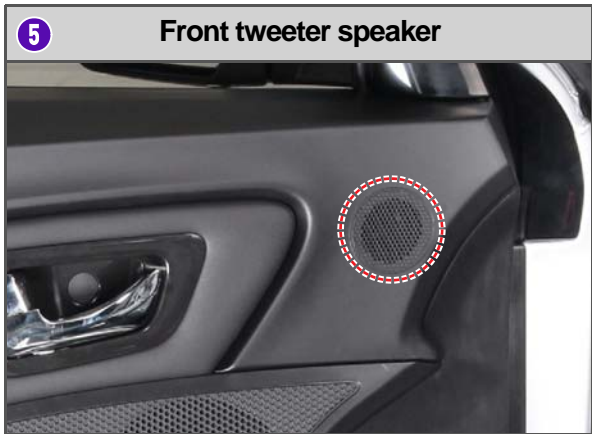
3 Audio remote control switch



4 HDMI jack

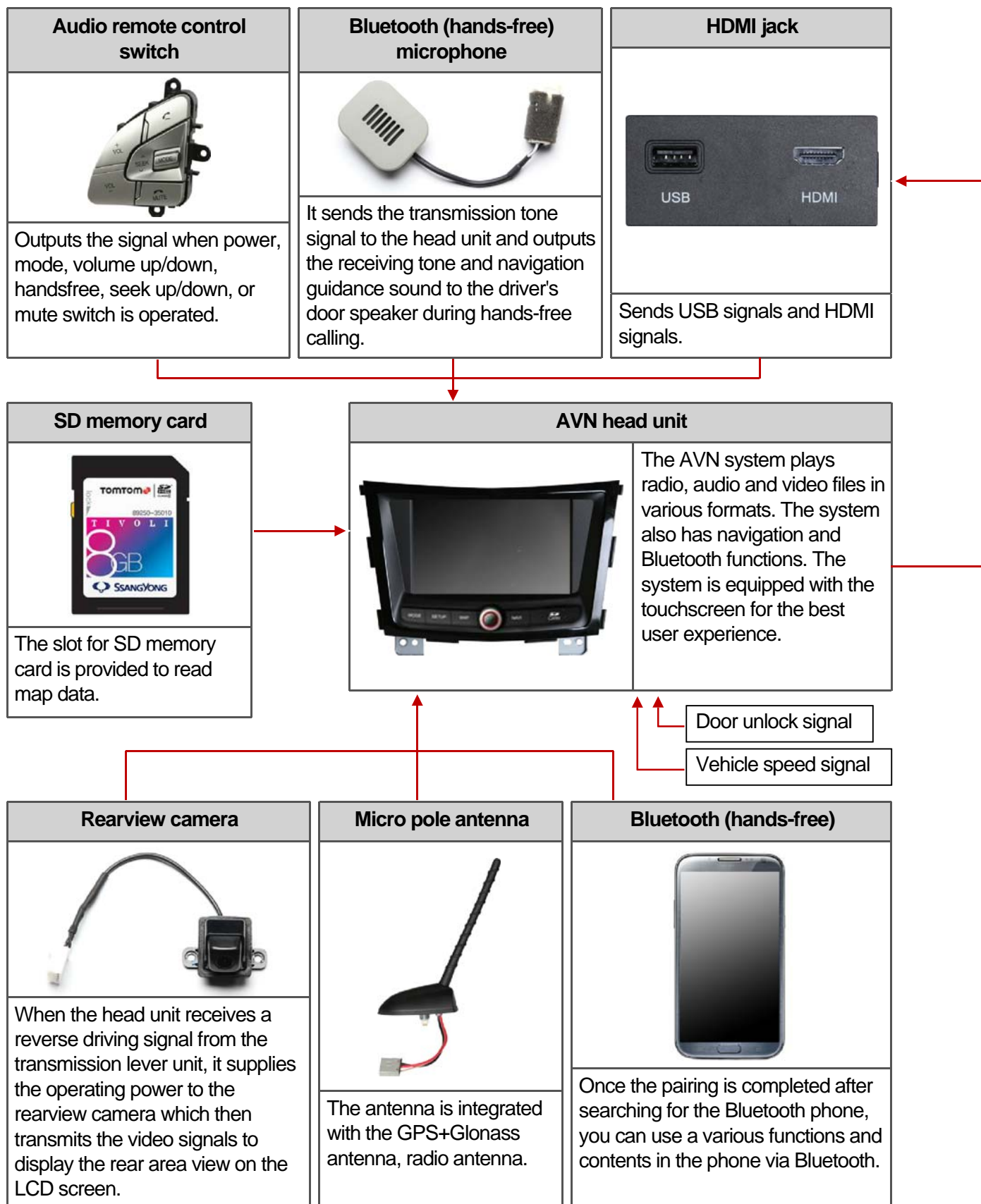


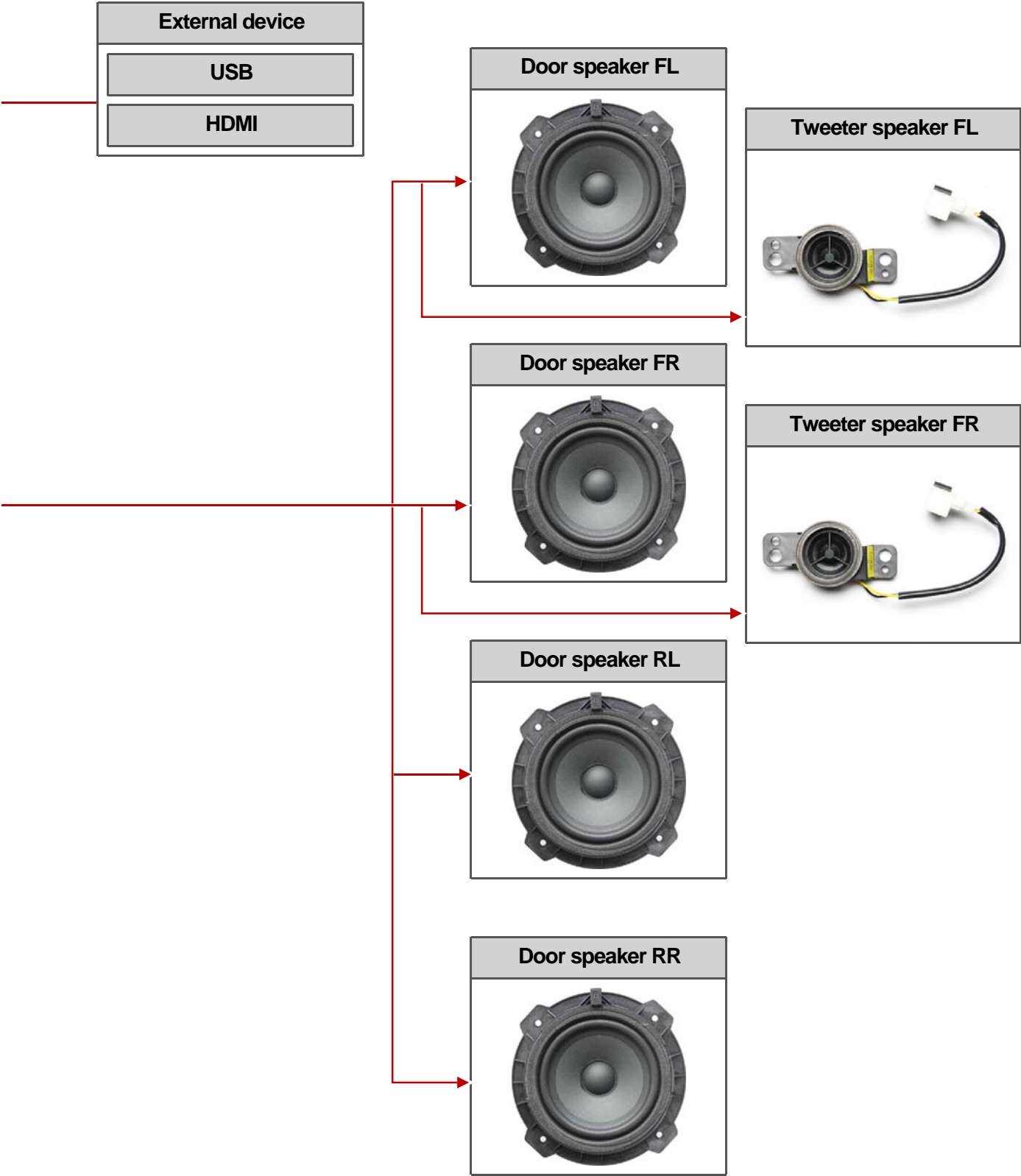
Modification basis	
Application basis	
Affected VIN	



Modification basis	
Application basis	
Affected VIN	

### 3. COMPONENTS





Modification basis	
Application basis	
Affected VIN	



## 4. AVN HEAD UNIT BOOTING SEQUENCE

### - POWER OFF to ACC

The AVN head unit in sleep mode requires about 15 seconds to complete the booting process after receiving the operating signal. To reduce the booting time, the system mode needs to be changed from sleep mode to standby mode after receiving the door unlock and ACC signals.

### - START switch ACC (ON) to OFF

When the ignition key is turned OFF with the AVN head unit ON, the AVN head unit enters standby mode. Then the system decides whether it enters sleep mode or normal mode based on the conditions.



#### NOTE

##### What is standby mode?

The standby mode means that the system maintains its settings for 3 minutes. And it includes the following status:

1. Normal standby with the AVN head unit screen OFF
2. Waiting for other operation signal input within 3 minutes after the ignition is turned OFF.



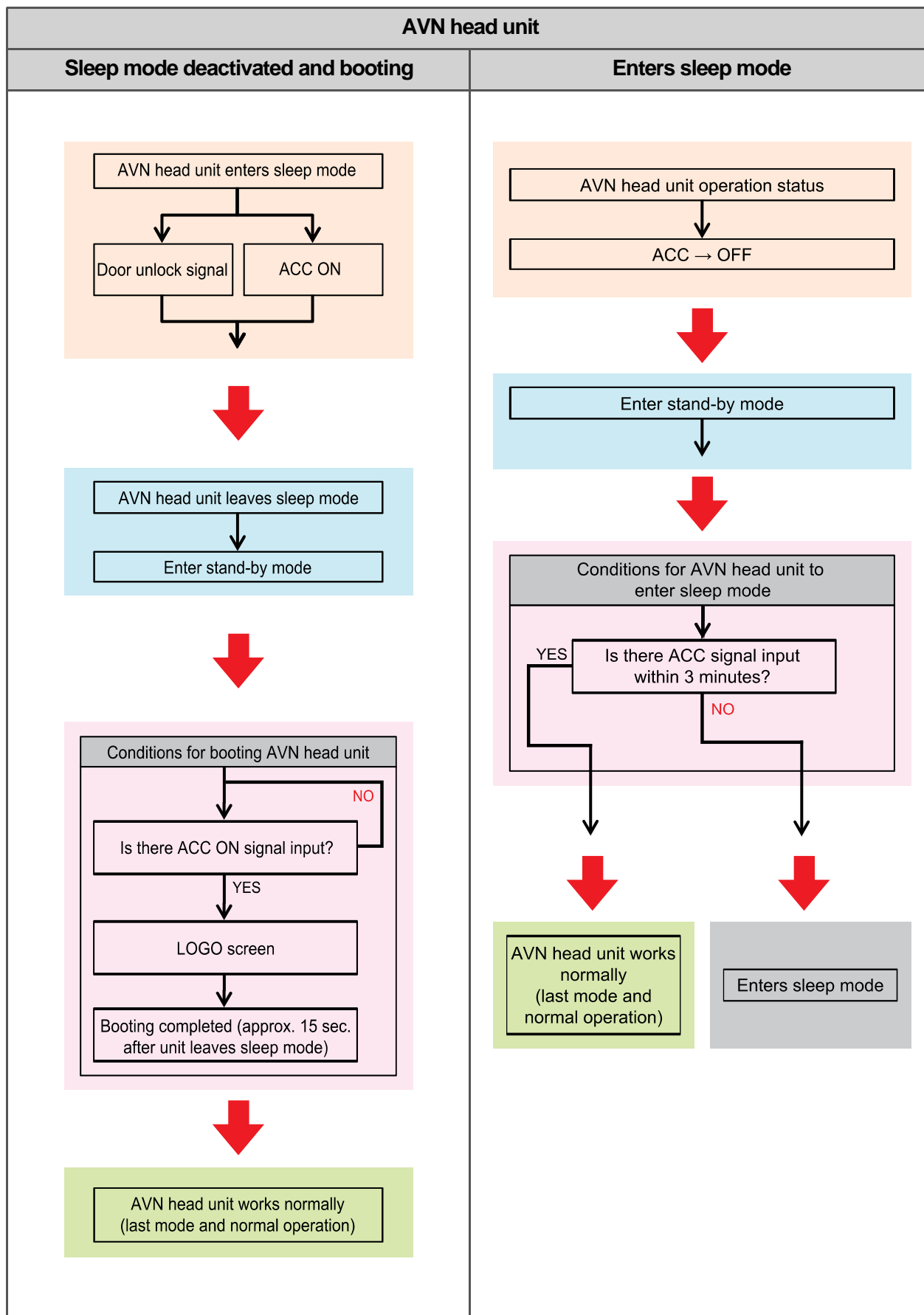
#### NOTE

##### What is sleep mode?

All power supplies are cut off, except the power for the device used to inform reactivation of the system in order to prevent the battery from being discharged.

※ Total dark current of AVN system in low current consumption mode: MAX 3.0 [mA]

Modification basis	
Application basis	
Affected VIN	



Modification basis	
Application basis	
Affected VIN	



## 5. FEATURES

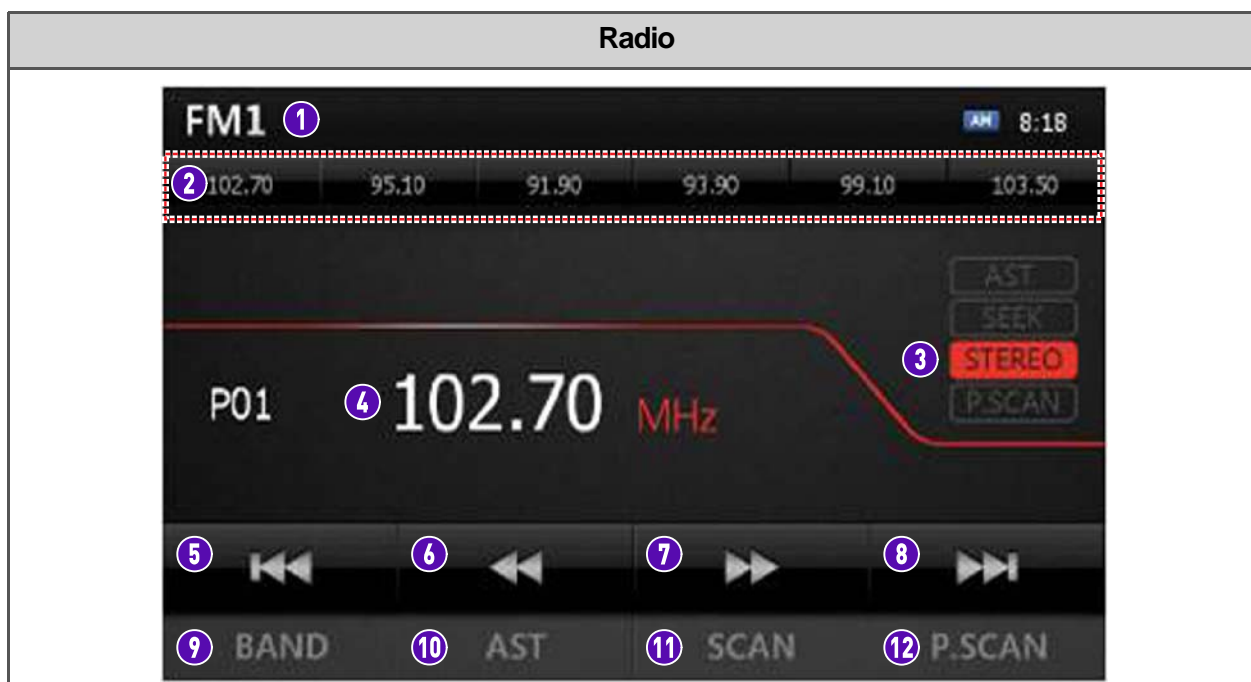
### 1) Switch Functions



No.	Name	Description
1	LCD display	<ul style="list-style-type: none"> <li>- 7" TFT WVGA LCD (Resolution: 800X480)</li> <li>- Normal screen, Full screen, or Wide screen is selectable depending on the video.</li> </ul>
2	Mode	<ul style="list-style-type: none"> <li>- Main mode selection screen</li> <li>- Turning ON the AV mode displays main screen regardless of AV power status.</li> <li>- Press and hold for 1.5 sec. or more in Navigation mode to enter AV mode.</li> </ul>
3	SETUP	<ul style="list-style-type: none"> <li>- Press and hold for 1.5 sec. or more in any mode to display Configuration screen.</li> <li>- Press briefly in Navigation mode to display navigation menus.</li> <li>- Press briefly in radio mode to display RDS menus.</li> </ul>
4	MAP	<ul style="list-style-type: none"> <li>- Pressing this button puts the system in Navigation mode and displays current location on the screen regardless of AVN power status.</li> <li>- In Navigation mode, current location is displayed.</li> <li>- If the system is not in Navigation mode, only Navigation mode is activated with no current location displayed.</li> </ul>
5	POWER/VOL	<ul style="list-style-type: none"> <li>- Used when turning AVN on or off, or adjusting sound volume.</li> <li>- Pressing this button briefly puts the system in Navigation mode.</li> <li>- Press and hold for 1.5 sec. or more with AVN ON or OFF to display clock (AVN goes off).</li> <li>- Turning left or right adjusts volume (Range: 0 to 45).</li> </ul>
6	NAVI	<ul style="list-style-type: none"> <li>- Pressing this button puts the system in Navigation mode</li> <li>- In Navigation mode.</li> <li>- If the system is not in Navigation mode, only Navigation mode is activated with no current location displayed.</li> </ul>
7	SD memory card slot	<ul style="list-style-type: none"> <li>- 8G SD card (with navigation map)</li> </ul>

## 2) AVN LCD Screen

### (1) Radio mode

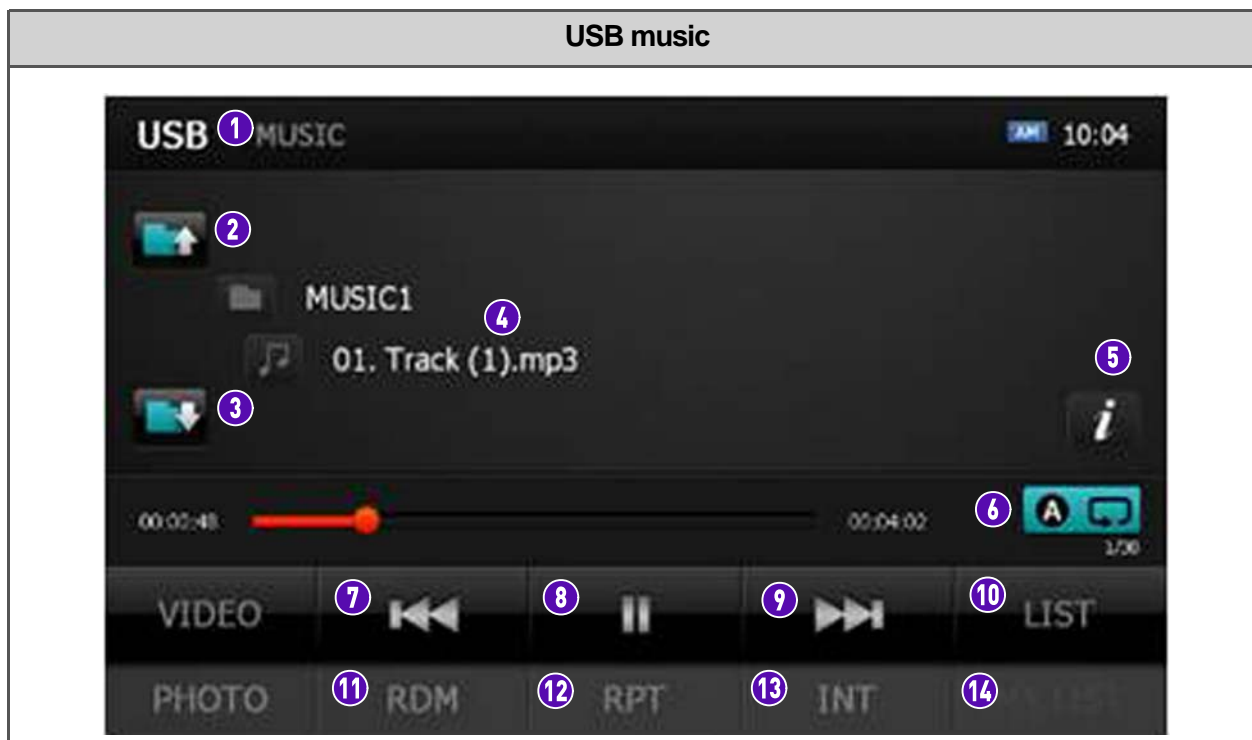


No.	Name	Description
1	Selected mode	- Selected mode is displayed (one of FM1, FM2 or AM).
2	Preset	- Stored station frequency is displayed.
3	Indicator	- AST/SEEK/STEREO/P.SCAN is displayed depending on the currently selected mode.
4	Frequency	- Currently selected station frequency is displayed.
5	SEEK DOWN	- Searches automatically for the strongest station by going down the radio frequency.
6	TUNE DOWN	- Goes down the radio frequency by 1 step (FM: 0.1MHz/AM: 9kHz).
7	TUNE UP	- Goes up the radio frequency by 1 step (FM: 0.1 MHz/AM: 9 kHz).
8	SEEK UP	- Searches automatically for the strongest station by going up the radio frequency.
9	BAND	- Changes the mode in order of FM1→FM2→AM→FM1.
10	AST	- Stores the searched for radio stations in preset buttons automatically in ascending order.
11	SCAN	- Scans for radio stations with strong signals and stays for 5 seconds each time a station is chosen.
12	P.SCAN	- Plays the stations stored in preset no. 1 to 6 buttons for 5 seconds for each station.

Modification basis	
Application basis	
Affected VIN	

**(2) Media mode**

No.	Name	Description
1	Selected mode	- Selected mode is displayed (one of USB video, Music, or Photo).
2	Indicator	- Displays selected repeat pattern.
3	MUSIC	- Runs Media music mode.
4	TRACK DOWN	- Plays previous video while playing a video.
5	PLAY/PAUSE	- Plays or pause a video.
6	TRACK UP	- Plays next video while playing a video.
7	LIST	- Displays the list of video files stored in the USB memory.
8	PHOTO	- Runs Media photo mode.
9	RPT	- Selects repeat pattern in order of current video, all videos in folder, all videos each time the button is pressed.
10	SMALLER	- Selects subtitle font size between small and big each time the button is pressed.
11	NORMAL	- You can select one of Normal screen, Wide screen, or Full screen mode.



No.	Name	Description
1	Selected mode	- Selected mode is displayed (one of USB video, Music, or Photo).
2	Move to parent folder	- Moves to upper level folder of the current one (one step up).
3	Move to subfolder	- Moves to lower level folder of the current one (one step down).
4	Folder name and File name	- Displays the names of current folder and music file currently played.
5	INFO	- Displays the detailed information of music file currently played.
6	Indicator	- Displays the selected mode (one of Random, Repeat, Intro).
7	TRACK DOWN	- Plays the previous music file while playing a song.
8	PLAY/PAUSE	- Plays or pause music.
9	TRACK UP	- Plays the next music file while playing a song.
10	LIST	- Displays the list of music files stored in the USB memory.
11	RDM	- Plays the music files stored in the USB memory randomly.
12	RPT	- Repeats one file or all files stored in the USB memory.
13	INT	- Plays the music files stored in the USB memory in sequence for the first 10 seconds.
14	MY LIST	- You can select and store music files you want in this list and plays songs within this list.

Modification basis	
Application basis	
Affected VIN	



No.	Name	Description
1	Selected mode	- Selected mode is displayed (one of USB video, Music, or Photo).
2	Display	- Displays the current photo file.
3	TRACK DOWN	- Displays the previous image file while displaying an image file.
4	TRACK UP	- Displays the next image file while displaying an image file.
5	SAVE	- Stores the current image as an image which will be displayed if the screen is turned off.
6	LIST	- Displays the list of image files stored in the USB memory.
7	Time interval	- Determines the time interval of slide show.
8	Slide show	- Displays all image files stored in the USB memory in sequence for a preset time interval.
9	Rotate	- Rotates the image by -90 (counterclockwise)/+90 (clockwise).

### (3) Bluetooth mode



No.	Name	Description
1	Selected mode	- Selected mode is displayed (one of Bluetooth music or Phone mode).
2	Name of paired phone	- The name of paired phone is displayed.
3	Phone information	- Information regarding antenna strength, pairing status, and battery strength of the paired phone is displayed.
4	Call status	- Displays dialed numbers, received calls, and registered names.
5	Dial and number soft key	- Used for dialing the number to make a call.
6	Contacts	- Downloads the phonebook from the cell phone. Shows the recent call list.
7	Private	- Switches between handsfree and private call.
8	Connections	- Registers/deletes or connects/disconnects a Bluetooth device.
9	Settings	- Used to change the settings of Bluetooth device of this system.
10	MUSIC	- Switches to Bluetooth MUSIC screen.

Modification basis	
Application basis	
Affected VIN	

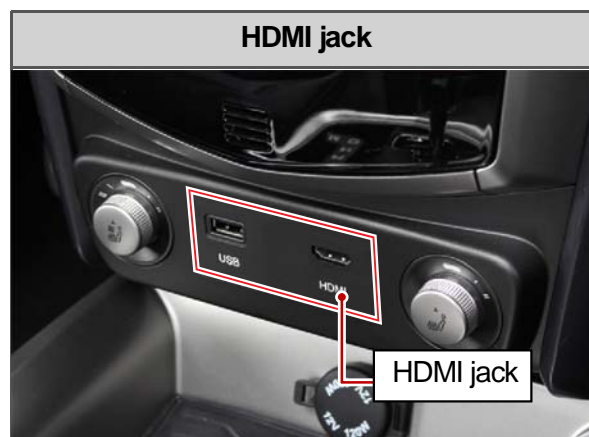


No.	Name	Description
1	Selected mode	- Bluetooth music mode is displayed.
2	PLAY/PAUSE	- Plays or pause a song.
3	TRACK DOWN	- Plays the previous music file while playing a song.
4	TRACK UP	- Plays the next music file while playing a song.
5	PHONE	- Switches to Phone mode. Pressing this switch during a song play switches the system to Phone scree but keeps playing the song.



### 3) External Device Connection

#### ▶ HDMI



1. Select [Mode] button under the AVN head unit front screen.



2. Select [HDMI] button to run HDMI mode.  
If no device is connected to the HDMI jack, the system will not enter HDMI mode.

#### NOTE

If the external device connected to the HDMI jack is disconnected while the media file is playing, the system enters the previously selected mode.

Modification basis	
Application basis	
Affected VIN	





3. During driving, only the sound of the video file is played. The image of the video file does not appear on the screen. (The image will appear on the screen as soon as the vehicle stops.)

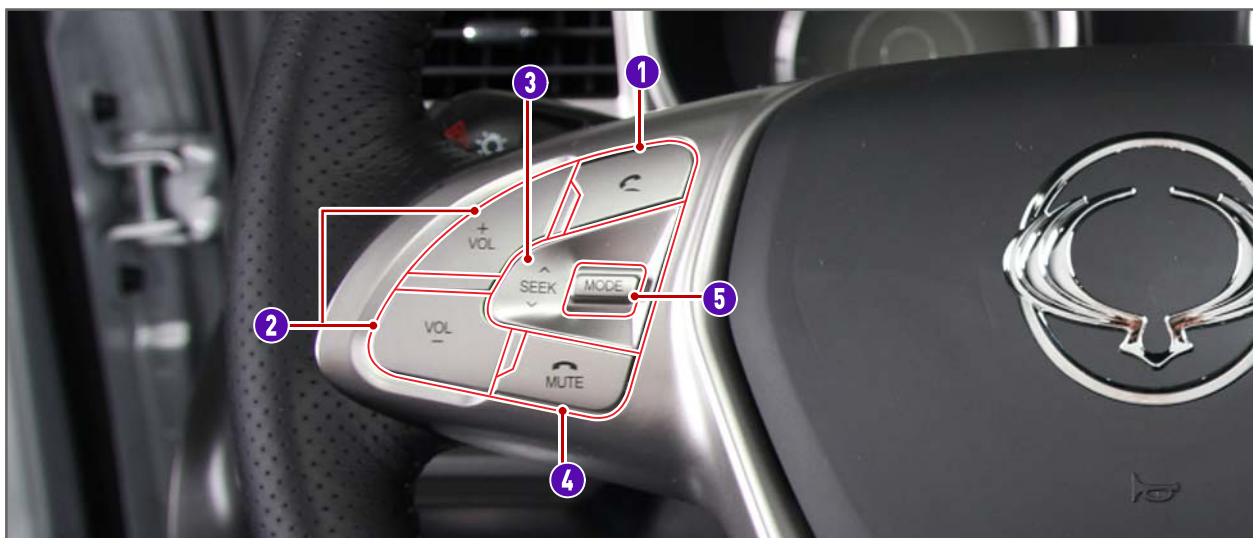


**CAUTION**

When the ignition off signal is detected with the AVN system ON, the battery discharged warning message is displayed on the screen.

Modification basis	
Application basis	
Affected VIN	

#### 4) Audio Remote Control Switch Functions



No.	Name	Description
1	Bluetooth (handsfree) switch	Phone switch which is used for Bluetooth handsfree call with a mobile phone.
2	Volume up/down switch	- Increases/decreases volume
3	SEEK up/down switch	<b>In file play mode</b> - Pressing SEEK up/down switch: Moves to previous/next file while a MP3 or video file is playing. <b>In radio mode</b> - Pressing SEEK up/down switch: Searches for radio stations manually, moves to channel stored. - Pressing and holding SEEK up/down switch: Searches for radio stations automatically.
4	Power/mute switch	<b>With audio power ON</b> - Press and hold to switch it off - Press the switch briefly to mute and press it again to unmute
5	Mode switch	Press and hold the switch to change the audio mode (AM, FM1, FM2).

Modification basis	
Application basis	
Affected VIN	

## 6. NAVIGATION SYSTEM

### 1) Overview

- The navigation system is a high-end system which displays the vehicle's location and driving direction on the real-time digital road map, utilizing location information received from satellites of the GPS, vehicle speed information received from the vehicle speed sensor and information received from the gyro compass, which is built in the navigation system.
- When a destination is set, this system shows a route to that destination in real time.



#### WARNING

- The navigation system is only a supplement device to facilitate convenient driving.
- If operating the system frequently or keeping watching the screen, an accident may occur.



#### CAUTION

The digital map display images used in this manual may differ from actual display due to updates and modifications of the system.

### 2) GPS

- The GPS is an abbreviation for Global Positioning System, which is also called as Satellite Navigation System.
- If the system can receive signals from 4 or more GPS satellites among 24 satellites at an altitude of 20,231 km, it determines the distance between the vehicle and each satellite and between the satellites to find the current location of the vehicle by triangulation process.



#### CAUTION

There can be tolerance between the actual vehicle location and the location displayed on the digital map due to a weather condition, geographical circumstances and GPS satellite condition.

### 3) Tolerance of Actual Vehicle Position by Road Condition

There can be tolerance between the actual vehicle location and displayed location on the digital map depending on road conditions as follows, which is not malfunction:

- A road with many curves
- A road with a sharp curve
- A road in gridiron patterns
- Curves on intersection
- A bumpy road with many curves
- Slippery road, such as icy or rainy roads
- A road not displayed on the map
- A parking lot (driving at low speed)
- A road parallel with its adjacent road
- A Y-shape road with small degree of angle
- A ferry course
- A complex and narrow road

### 4) If GPS Signals is Weak or Cannot be Detected

GPS signals cannot be received or used due to poor reception under the following cases. In the following cases, the system corrects the vehicle location using the vehicle speed information and the value measured by the gyro compass, which is built in the navigation system.

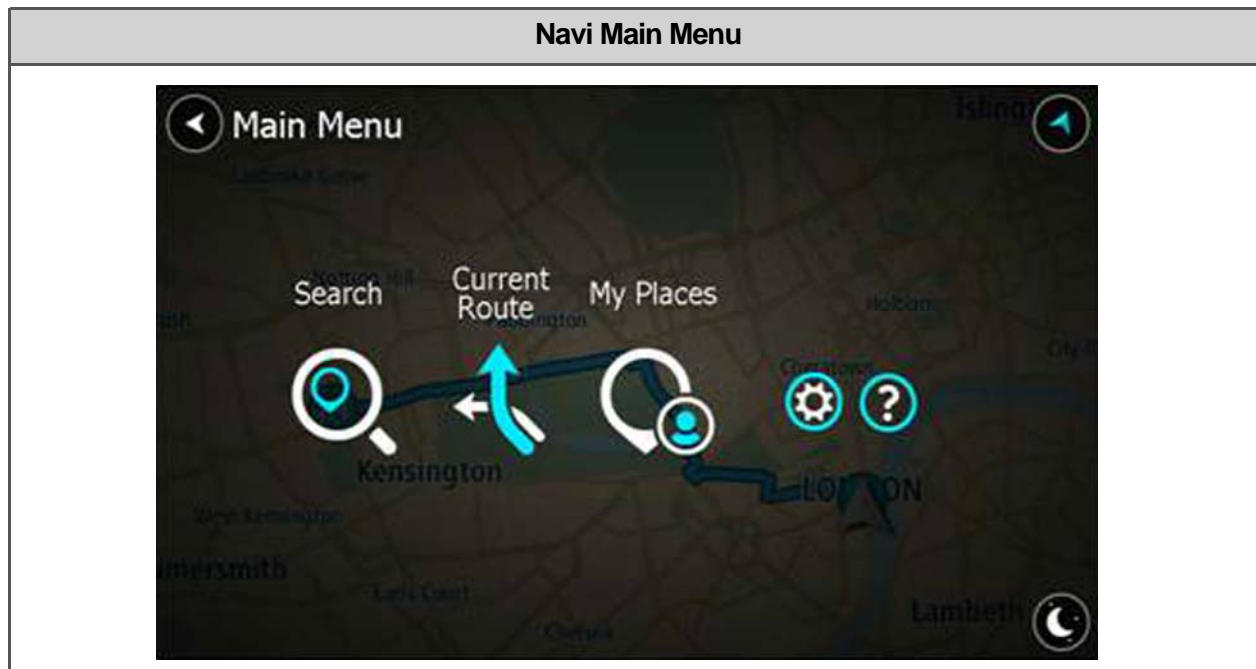
- The vehicle is in an underground parking lot or parking building
- The vehicle is driven at entry or exit of a tunnel or through a tunnel.
- The vehicle is driven through an area with thick woods.
- The vehicle is driven through a dense area with high-rise buildings.
- The vehicle is driven under an overpass.
- The vehicle is driven on a road along a valley.







#### CAUTION

- This device supports the provided SD card.
- This SD card has map files. Do not delete or modify them. Remove the card only when an update is needed.
- Do not copy the data on the SD card to other SD card. The system may not recognize the files or there is a high risk of malfunctions.
- Formatting the SD card erases all data. Back up important data before formatting.
- The provided SD card is only for the vehicle. Copying files other than the map data may cause malfunctions.

Modification basis	
Application basis	
Affected VIN	

## 5) Map Display



Icon	Description
	Displays the keyboard used to search destinations.
	Used to set Clear Route/Change Route Type/ Avoid on This Route/Play Route Preview.
	Used to set/check Home/Recent Destination.
	Used to set Appearance/Route Planning/Sounds & Warnings/System.
	Used to change the map screen brightness between Day/Night modes.
	Help mode.



## Planning a Route



## Route Guidance

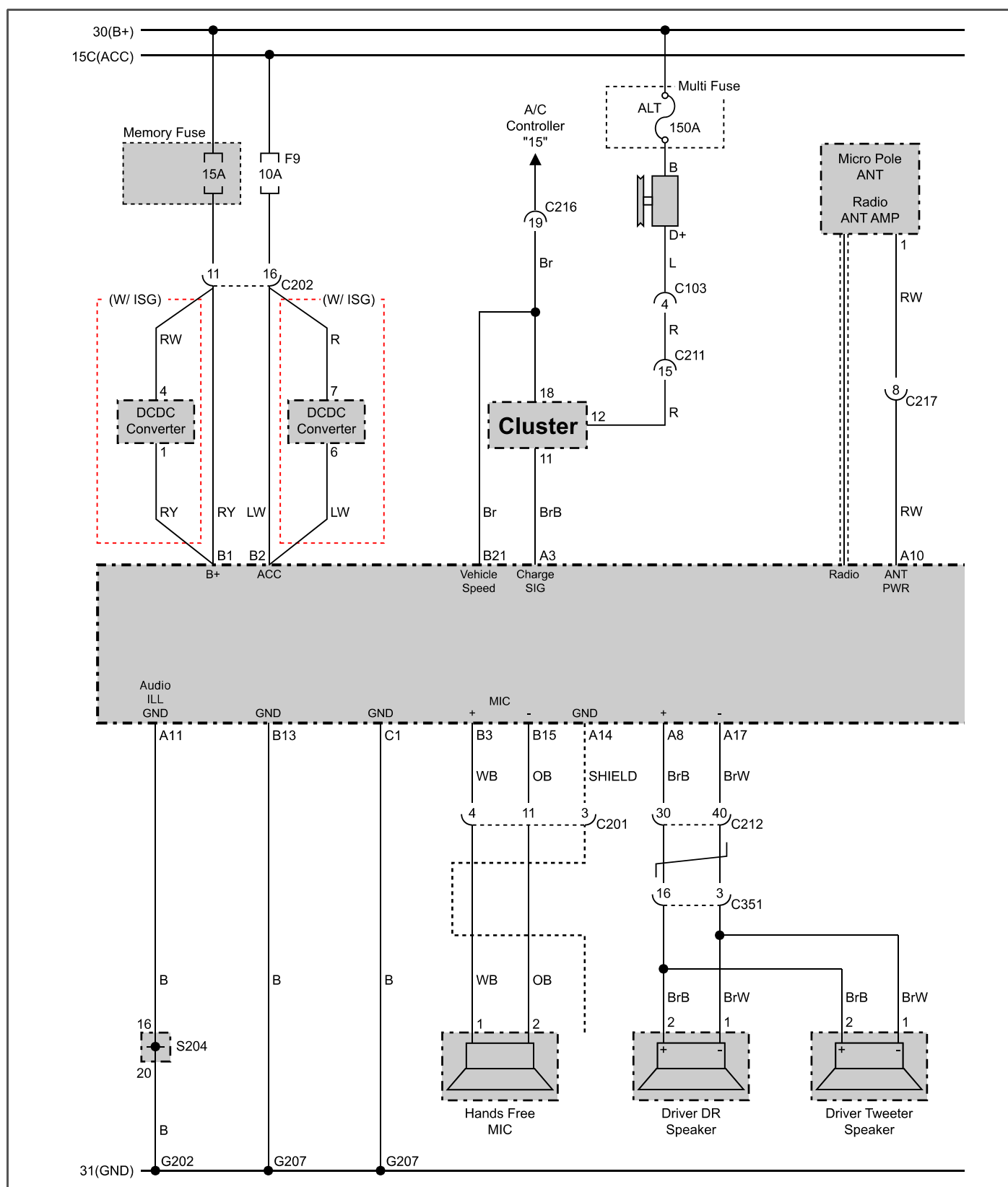


Modification basis	
Application basis	
Affected VIN	

No.	Name	Description
1	Pop-up Menu button	Displays Add to My Places/Use as Starting Point at the top side.
2	Drive Button	Displays the route between the current location and destination.
3	Switch view button	Switches the map between 2D and 3D.
4	Zoom buttons	Zooms the map screen in (+) and out (-).
5	Your destination	Destination
6	Route Bar	Displays the remaining distance and estimated time.
7	Main Menu	Returns to the Main Menu.

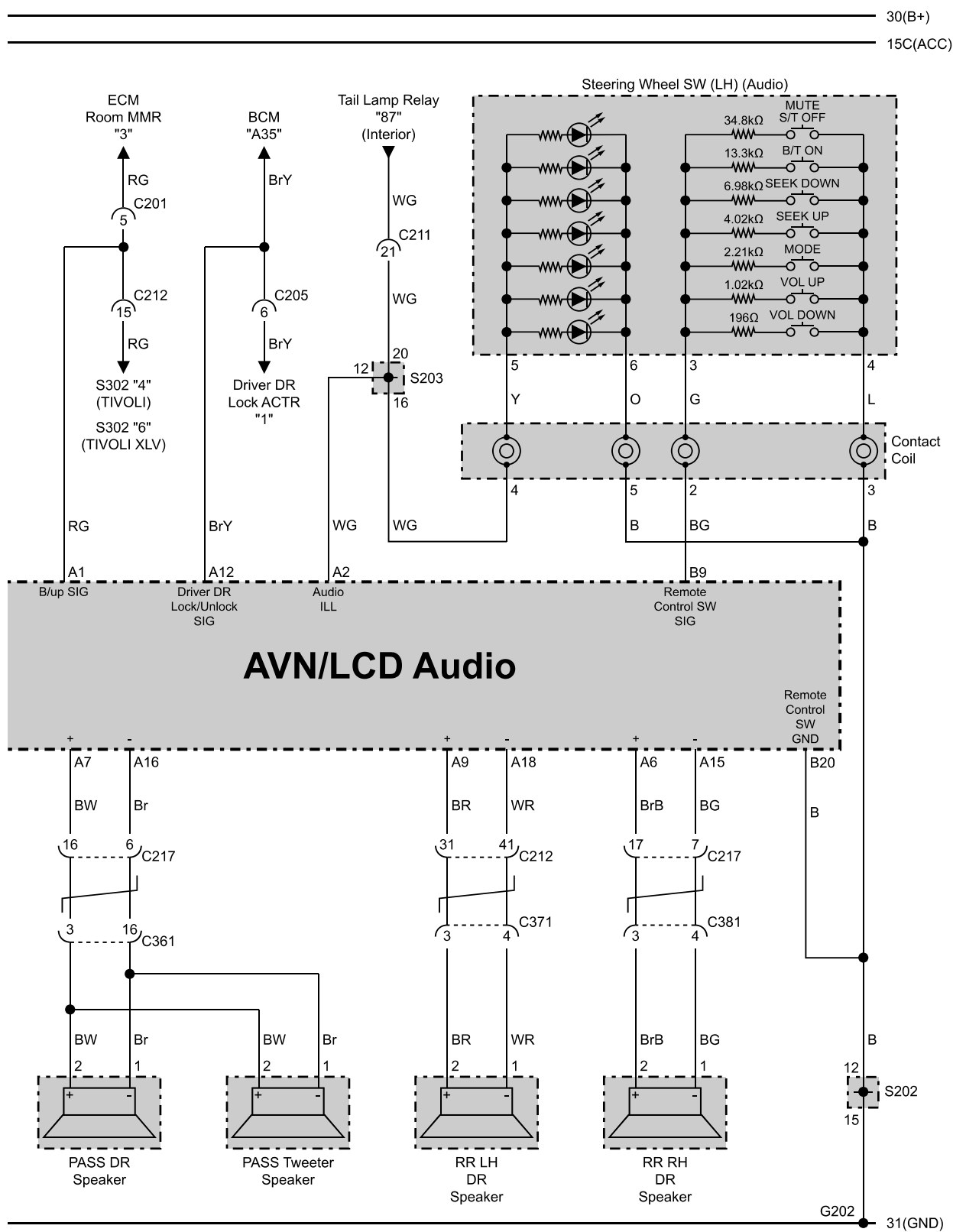
## 7. CIRCUIT DIAGRAM

► Audio, remote control, antenna, rearview camera, speaker



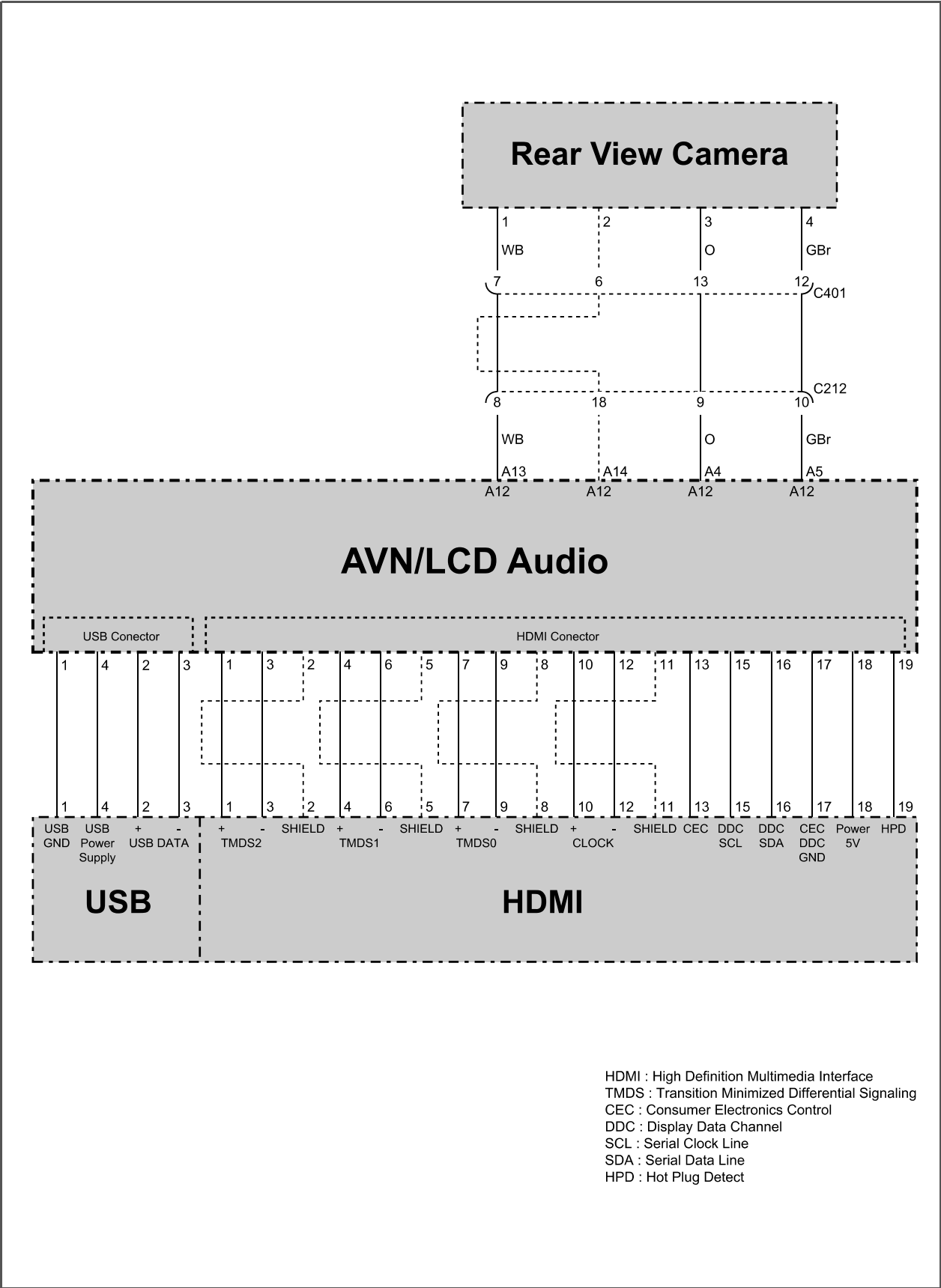
Modification basis	
Application basis	
Affected VIN	





Modification basis	
Application basis	
Affected VIN	

► USB/HDMI jack



Modification basis	
Application basis	
Affected VIN	