MP3 AUDIO SYSTEM

8910-01

GENERAL INFORMATION

1. SPECIFICATIONS

1) MP3 Audio System

Category	Item	Specifications
Audio	Power supply	DC 14.4 V
	Speaker impedance	4 Ω
	Max. power	45 W x 4 ch
	Weight	1,810 g
	Size	310.4 mm (W) x 275.7 mm (H) x 209 mm (D)
Radio	Frequency	FM : 87.5 MHz to 108.0 MHz AM : 531 kHz to 1,602kHz
	Sensitivity	FM: 18 dBu AM: 35 dBu
	S/N ratio (Signal/noise ratio)	FM: 45 db AM: 40 db
	Stereo channel separation	FM: 20 db
MP3 [WMA]/USB	Frequency response	20 Hz to 20 kHz
	S/N ratio (Signal/noise ratio)	60 dB
	Channel separation	54 dB
MP3 [WMA]/AUX	Frequency response	20 Hz to 20 kHz (±3 db)
	S/N ratio (Signal/noise ratio)	50 dB
	Channel separation	35 dB
Bluetooth	Frequency	2,402 to 2,480 MHz
	Item	Supports headset, hands-free, A2DP and AVRCP profile formats (Headset, hands-free: profile for calling) (A2DP, AVRCP: profile for listening music)

3) USB and AUX Jack Assembly

Item	Specifications
Operating temperature	−30˚C to +80˚C

4) Micro Pole Antenna

Item	Specifications
Storage temperature	−40˚C to +80˚C
Operating temperature	−30˚C to +75˚C
Operating voltage	10.5 to 16.0 V
Operating current	12.0 V
Current consumption	Max. 150 mA
I/O impedance	75 Ω (FM)

5) Speaker

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

Modification basis	
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6) Handsfree Microphone

Item	Specifications
Storage temperature	−40˚C to +80˚C
Operating temperature	−40˚C to +80˚C
Sensitivity	−36 ± 2 dB
Impedance	Up to 2.2 kΩ
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

7) 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˚C to +85˚C	
Item	**Resistance**	**Operating voltage**
Volume down	196 Ω ± 1%	0 to 0.4 V
Volume up	1.02 KΩ ± 1%	0.7 to 1.1 V
Mode	2.21 KΩ ± 1%	1.4 to 1.8 V
Power/Mute	34.8 KΩ ± 1%	4.2 to 4.6 V
SEEK up	4.02 KΩ ± 1%	2.1 to 2.5 V
SEEK down	6.98 kΩ ± 1%	2.8 to 3.2 V
Bluetooth (hands-free) - ON	13.3 KΩ ± 1%	3.5 to 3.9 V
Bluetooth (hands-free) - OFF	34.8 KΩ ± 1%	4.2 to 4.6 V

2. CAUTIONS AND WARNINGS FOR SAFETY

WARNING

- This mark indicates situation which, if not observed, may result in an accident or system malfunction.
- Do not disassemble or modify this system.
  Doing so may cause an accident, fire or electric shock.
- Do not use the system if it is malfunctioning (sound or video output problem).
  Doing so may lead to an accident or electric shock.
  Please contact a Ssangyong service dealer immediately.
- The system should be used only when the engine is started.
  Using the system for an extended period of time with the engine off may discharge the battery.
  Do not leave beverages or foreign materials around the system.
- If they enter the system, they may cause a fire.
  The system may break down if a disc not supported by this system is inserted.
- Do not apply impact to or drop this system.
- It may cause malfunction.
  Never leave the system in a hot or cold place for an extended period of time. Therefore, do not park
- the vehicle in a hot or cold place. The ambient temperature should be −30℃ to +80℃ for proper operation.

CAUTION

- This mark indicates potentially hazardous situation which, if not observed, may result in serious injury and material damage.
- Ssangyong is not liable for any personal injury and material damage, caused by violation of traffic regulations or neglect of observing actual traffic and driving situations.
- Colors on display figures in this manual may differ from actual display due to publication concerns.

Modification basis	
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Memo

OVERVIEW AND OPERATING PROCESS

1. OVERVIEW

The MP3 audio system can play radio (FM1, FM2, AM) and other files stored in an external device, such as iPod, through the Bluetooth (handsfree) and USB and AUX ports. 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.

2. COMPONENTS

1 Bluetooth (hands-free) microphone

3 Audio remote control switch

2 MP3 audio head unit

4 USB and AUX jack

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5 Front tweeter speaker

6 Front door speaker

Rear door speaker

Micro pole antenna

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Audio remote control switch

Outputs the signal when power, mode, volume up/down, handsfree, seek up/down, or mute switch is operated.

Bluetooth (hands-free) microphone

It sends the transmission tone signal to the head unit and outputs the receiving tone to the driver's door speaker during hands-free calling.

USB and AUX jack

Transmits the output signals from an external audio device through AUX or USB memory through USB port.

MP3 audio head unit

The audio system plays music files from radio, MP3, USB, and AUX. It has a built-in high output amplifier, providing the high-quality sound.

Micro pole antenna

Micro pole radio antenna is fitted to ensure the high sensitivity.

Bluetooth (hands-free)

Once the pairing is completed after searching for the Bluetooth phone, you can use a various functions and contents in the phone via Bluetooth.

Modification basis	
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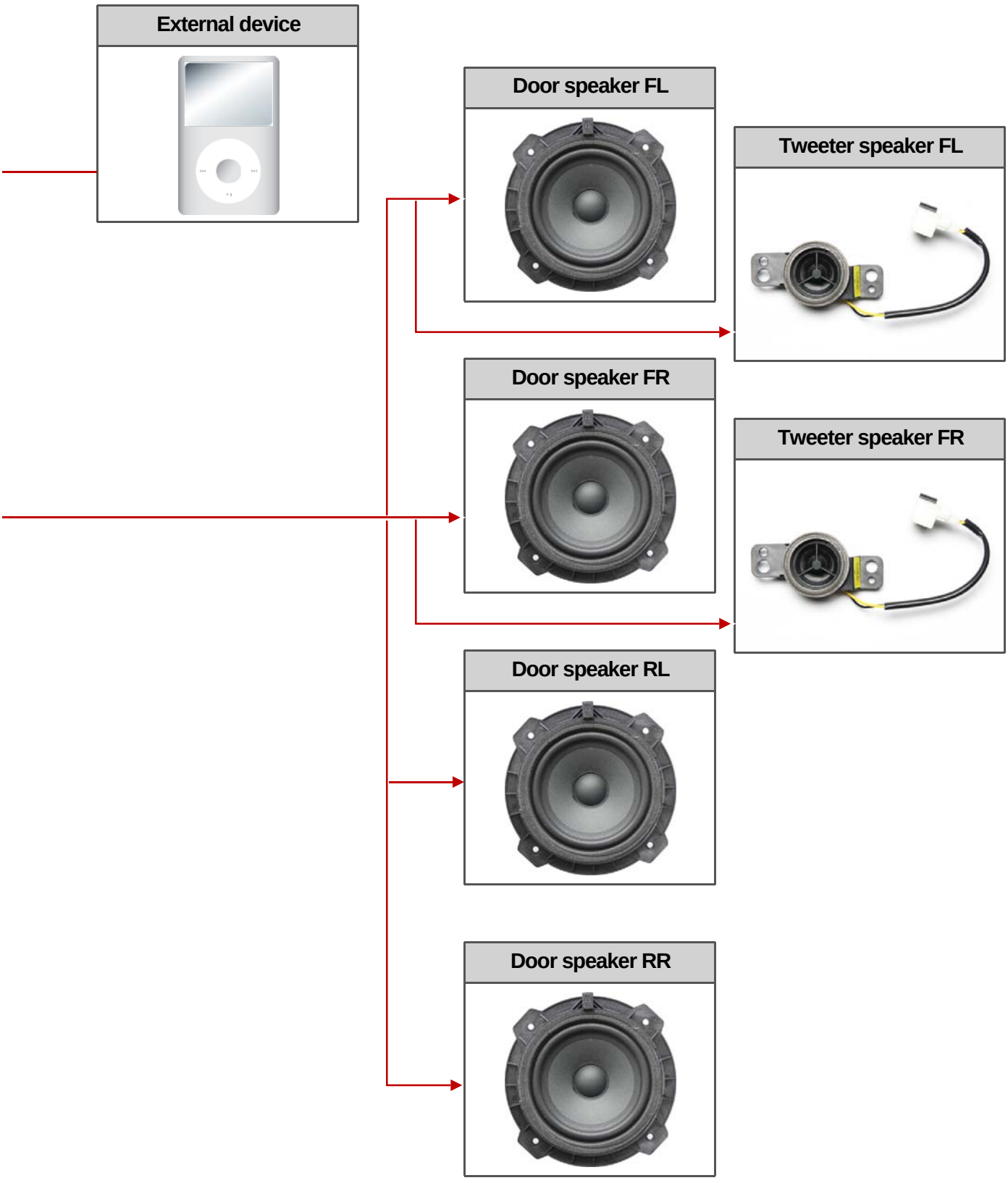

Modification basis	
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3. FEATURES

1) Audio Head Unit

No.	Name	Description
1	Display window	- Displays operation status and various information
2	Radio/AST	- Pressing briefly: Switches between AM and FM radio. - Pressing and holding: Automatically registers and stores radio stations with good reception.
3	Scan	- Pressing briefly: Scans receivable stations. - Pressing and holding: Scans stored stations (1 to 6).
4	Media/Bluetooth	- Selects an external device which is connected via USB, Bluetooth, or AUX.
5	SET/DISP	- Pressing briefly: Starts Setting mode. - Pressing and holding: Closes the Display window.
6	<< ADJ >> button	- Radio mode Pressing briefly: Searches for receivable radio stations. Pressing and holding: Moves up or down the radio stations while the button is pressed. And searches for receivable radio stations at the time of the button release. - MP3/USB/iPod mode Pressing briefly: Moves to previous/next song Pressing and holding: Fast forward/reward

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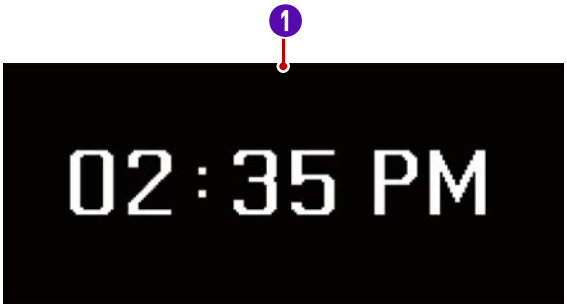
No.	Name	Description
7	Station memory [1 INTRO] to [6 INFO]	- Pressing briefly: Plays or selects one of the stored stations. Or moves up or down folders. - Pressing and holding: Stores the station currently listening to. 1 Intro: Plays songs for the first several seconds set by the user. 2 Repeat: Plays repeatedly. 3 Random: Plays randomly. 4 Folder ∧ / 5 Folder ∨: Moves through the folders. 6 Info: Displays information about the song currently played.
8	Power/Mute Volume adjuster	- Pressing briefly: Switches the system on, activates/deactivates mute. Turns pause function ON/OFF. - Pressing and holding: switches power off. - Turning dial: Adjusts volume.
9	Menu selection: Enter Adjuster: Tuner/File selector	- Turning dial: Moves through the frequencies, songs, or menu items. - Pressing dial: Modifies or selects items or setting values.

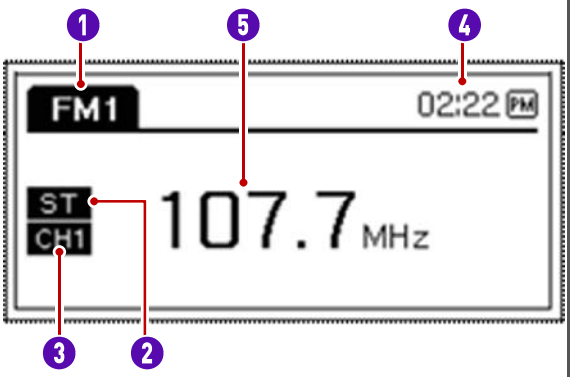
2) Display window

Clock



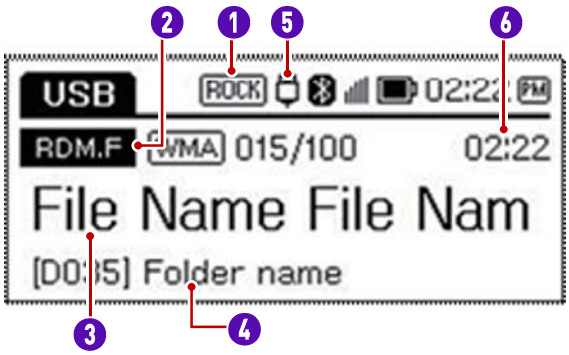
1. Clock display: Displays time.

Radio



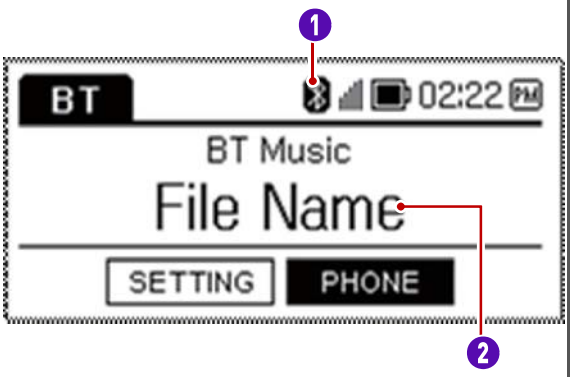
1. Radio/Device: FM1, FM2, AM, USB, Bluetooth, AUX
2. FM stereo reception display
3. Dedicated numbers for stored stations: CH1 to CH6
4. Digital clock
5. Station frequency currently being received

USB



1. EQ : ROCK / POP / JAZZ / CLASSIC / EQ OFF
2. Play mode display:
RPR (Repeat): Repeats a song or all songs in a folder.
INT (Intro): Plays songs in current folder or songs of all folders for the first several seconds set by the user.
RDM (Random): Plays songs in current folder or songs of all folders in random order.
3. Name of the current song that is playing.
4. Name of the current folder.
5. USB connection
6. Other information of current song: Play time.

BT (Bluetooth music)



1. Bluetooth connection.
2. Information of current song.

Modification basis	
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3) Audio Setting

(1) Sound setting

▶ **Set the Bass/Middle/Treble, Balance and EQ (sound effect) for the sound of the output speaker.**

1. When pressing the [SET] button, [Setup List] is displayed.
   - [Setup List] screen is displayed only for 5 seconds.
2. Turn the [TUNE] dial to select [Sound] and press the [ENTER] button.
3. Turn the [TUNE] dial to select a desired setup item and press the [ENTER] button.
   - Select one of Bass, Middle, Treble, Left and Right, Front and Rear, Vehicle speed sensitive volume.
4. Turn the [TUNE] dial or press the [ENTER] button to select the desired setting value.
   - Bass: Sets the bass level (-10 to +10).
   - Middle: Sets the middle level (-10 to +10).
   - Treble: Sets the treble level (-10 to +10).
   - Balance: Sets the LH/RH speaker balance (LEFT 15 to RIGHT 15)
   - Fader: Sets the Front/Rear speaker balance (-10 to +10)
   - AVC (auto volume control): Controls volume automatically in relation to vehicle speed (On ↔ Off)

(2) Clock display, Time setting, Language

▶ **Turn the power off and set the displayed current time and date.**

1. When pressing the [SET] button, [Setup List] is displayed.
   - Setup list screen is displayed only for 5 seconds.
2. Turn the [TUNE] dial to select [System] and press the [ENTER] button.
3. Turn the [TUNE] dial to select a desired setup item and press the [ENTER] button.
   - Select one of Language, Clock display, Time setting, Scroll, Version.
4. Turn the [TUNE] dial or press the [ENTER] button to select the desired setting value. Repeat these steps if several items need to be set. (e.g. YY/MMDD in date setting)
   - Language: English, Korean
   - Clock display: Off, ON
   - Time setting: Sets the current time.(hour/minute/AM/PM)

(3) Radio setting

▶ Listening to a radio station

1. Press the [RADIO/AST] button repeatedly to select the desired radio mode.
   - Select one of FM1, FM2 or AM.
   - The system plays the radio station which is selected previously for that mode.

▷ Searching for radio stations manually

2. Turn the [TUNE] dial to select the desired ratio station.

▷ Searching for radio stations automatically

3. Press and hold <<ADJ>> button or press it more than 2 seconds and release it so that the system searches for one broadcasting frequency with good reception and receives it automatically.

▷ Selecting radio stations with automatic search

4. When pressing the [SCAN] button, the system searches for the radio stations with good reception within the receivable frequency range and plays each radio station for about 5 seconds.
   If you want to listen to a radio station during automatic search, press the [SCAN] button briefly to keep listening to that radio station.

▶ Registering radio stations manually

1. Select a radio station to register.
2. Press one of the [1 INTRO] to [6 INFO] buttons to register the radio station for more than 2 seconds.
   A beep sounds to indicate the registration is completed.
   Repeat the steps 1 and 2 using one of the [1 INTRO] to [6 INFO] buttons for registering other radio stations.
   Using the button previously selected for registering a radio station registers a newly selected radio station for that button.

▶ Registering radio stations automatically

1. Press the [RADIO/AST] button repeatedly to select the desired radio mode.
   - Select one of FM1, FM2 or AM.
   - The system shows the frequency of the previously selected radio station for that radio mode and plays it.
2. Press the [RADIO/AST] button for more than 2 seconds.
   - [AST Scanning] is displayed, and the system searches for 6 radio stations with good reception and registers them one by one to the [1 INTRO] to [6 INFO] buttons (one station for each button).
   Repeat the steps 1 and 2 for registering radio stations for other radio mode.

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▶ **Listening to registered radio stations**

1. Press the [RADIO/AST] button repeatedly to select the desired radio mode.
   - Select one of FM1, FM2 or AM.
   - The system shows the frequency of the previously selected radio station for that radio mode and plays it.
2. Press one of the [1 INTRO] to [6 INFO] buttons to listen to the radio station registered to that button.

(4) Setting the region

1. Press SET button to enter the Setup List. Setup List screen will be displayed for five seconds.
2. Rotate TUNE dial to select the "REGION" then press ENTER button
3. Rotate TUNE dial to select the "General" or "Latin America" then press ENTER button.
   - General : 9kHz step for AM
   - Latin America : 10kHz step for AM
4. Turn your car's ignition key to OFF position. Or turn your car's ignition off by pressing the smart ignition button. Make sure the radio turns off for more than 1 mins.
5. Turn your car's ignition key to ACC or IGN(ON) position. Or turn your car's ignition on by pressing the smart ignition button. To make the Region change apply to this unit.

NOTE

The region setting will change the AM frequency band range and step for your region.

(5) MP3 [WMA, OGG] player

▶ Moving to other song

1. Press the << ADJ >> button repeatedly while playing a song to return to the beginning of the current selection or move to the previous or next song.
2. Press and hold the << ADJ >> button to fast forward or fast rewind until the button is release.
   - The speed of fast forwarding or fast rewinding may not be constant. The volume is low while the button is pressed.
3. Press the [4 FOLDER] or [5 FOLDER] button while playing a MP3/WMA/OGG file to move to other folder.

▶ Changing play mode

1. Press the [1 INTRO] button repeatedly until intro play mode is selected.
   - INT. A: Plays the songs in all folders for the first 10 seconds in sequence.
   - INT. F: Plays the songs in the current folder for the first 10 seconds in sequence.
   - Off: Deactivates intro play.
2. Press the [2 REPEAT] button repeatedly to deactivate repeat mode.
   - RPT.F: Repeats the songs in the current folder in sequence.
   - RPT.S: Repeats the song that is playing continuously.
   - Off: Deactivates repeat mode.
3. Press the [3 RANDOM] button repeatedly until the desired random play mode is selected.
   - RDM.F: Plays the songs in the current folder in random order.
   - RDM.A: Plays the songs of all folders in random order.
   - Off: Deactivates random mode.

▶ Searching for a certain song to play

1. Turn the [TUNE] dial to select a song number or name to play and press the [MENU] button to play that song.

▶ Checking MP3 [WMA] song information

1. Press the [6 INFO] button while playing a song to display information regarding that song including name of the song, artist, album for 5 seconds.

▶ Setting scroll function for info. display

1. Press [SET/DISP] button to display the [Setup List].
   The screen is displayed for 5 seconds.
2. Turn the [TUNE] dial to select [System] and press the [ENTER] button.
3. Turn the [TUNE] dial to select [Scroll] and press the [ENTER] button to select [On] or [Off].
   - Scroll On: Turns on scroll function.
   - Scroll Off: Turns off scroll function.

Modification basis	
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(6) Bluetooth

Check the following before using Bluetooth function.

1. Pairing
   You have to pair the Bluetooth device to the audio system to use it on the audio system of the vehicle by entering the pass code or SSP authentication. You will not need to repeat this procedure after the initial pairing process. (For some devices, entering the pass code may be required for automatic connection.)
2. Connecting
   If the distance between the Bluetooth device and the audio system is within the specified range and other conditions are met, the device will be connected to the audio system automatically. Connecting the device to the system manually is also possible.
3. Handsfree/music streaming
   Once the device is connected to the system, you can use the call features and music playback functions of the device through the audio system. Some devices may not support certain features of this system.

▶ Pairing your phone and car audio system

First, register("pair") a Bluetooth device (mobile phone, etc.) and this unit with each other. You can pair up to five devices. Once pairing is established, there is no need to pair again.
Place the Bluetooth device with 3m(9ft) of this unit.

1. Press and hold Media/BT button for more than 1.5 seconds. The unit enters pairing standby mode.
   The unit information, pass key and standby time will appears on the display.
2. Set the Bluetooth device to search for this unit. A list of detected devices appears in the display of the connecting device. This unit is displayed as "SSANGYONG" on the connecting device. Confirm this by press "YES", "OK" or "Pairing" on your mobile device.
3. If Pass key input is required, input the "1234"(4 digit) number which is displayed on the unit. If the pairing is successes the "Pair success" will be displayed then the Paired device name will be showed. Pairing is required only once for one device. Multiple device can be paired and only one device can be connected for use. If the mobile device support SSP(Simple Secure Pairing) profile then the system will automatically accept the pairing authentication once the mobile device confirm the SSP pairing.
4. Set the Bluetooth device to connect to this unit.

▶ Connecting Bluetooth devices

- Devices are registered once paired and connected with this unit. You can select the registered device and connect it.
- If pairing has already been archived, start operating from here.
- Depending on the device, connection may start automatically after pairing.

1. Connect to this unit using your mobile phone or press Media/BT button 1.5 second or longer to show BT setting where you can select the desired device.

▶ Making a phone call using recent call list

1. When you press the [Call] button for more than 3 seconds, the system displays [REDIAL] and redials the number of the most recent call.

▶ Answering an incoming call

- When a call is received, the bell rings, the "Incoming Call" message is displayed with the number of the caller.

1. Press the [ ] button to accept the call.
   - "Calling" is displayed on the screen during a call and you can have conversations through the microphone and speaker connected to this system. If you don't want to receive a call, press the [End] button to reject it.

▶ Hanging up the call

1. Turn the [TUNE] dial to select the [End call] and press the [ENTER] button.
   Or, press the [END] button.
   - The call is ended and system returns to the previous screen. - However, the connection between the audio system and the phone remains the same.

▶ Adjusting volume

1. Turn the [VOLUME] dial to adjust the volume.
   - Adjusting range: 06 to 45

▶ Mute function

1. Turn the [TUNE] dial to select the [MIC Off] and press the [ENTER] button.
   Then, [MIC Off] is changed to [MIC On].
   To disable the mute function, press the [ENTER] button again. Then, [MIC On] is changed to [MIC Off].

Modification basis	
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Affected VIN	

▶ Private mode

You can switch to private call mode, which only uses a cellular phone, during handsfree talking. (The other party's voice is coming through only the cellular phone, not the speaker of the audio system.)

1. Turn the [TUNE] dial to select the [Private call] during handsfree talking and press the [ENTER] button. Then [Private call] is changed to [Handsfree].
   Turn the [TUNE] dial to select the [Handsfree] while talking on the phone and press the [ENTER] button to return to the handsfree mode.

▶ Playing music on a paired portable device

The audio can be streamed from a Bluetooth phone which supports the audio distribution profile (A2DP) to this audio system.
Prepare music playback function of the mobile phone paired/connected with this audio system.

1. Turn the [VOLUME] dial to decrease the volume.
2. Press the [MEDIA/Bluetooth] button repeatedly to select "Bluetooth Audio".
3. After playing the music using a music playback function of the paired mobile phone, turn the [VOL] dial to adjust the volume.
4. To stop playing the music on a mobile device, press the [RADIO/AST] or [MEDIA/Bluetooth] button to select other function.

▶ Setting Bluetooth mode

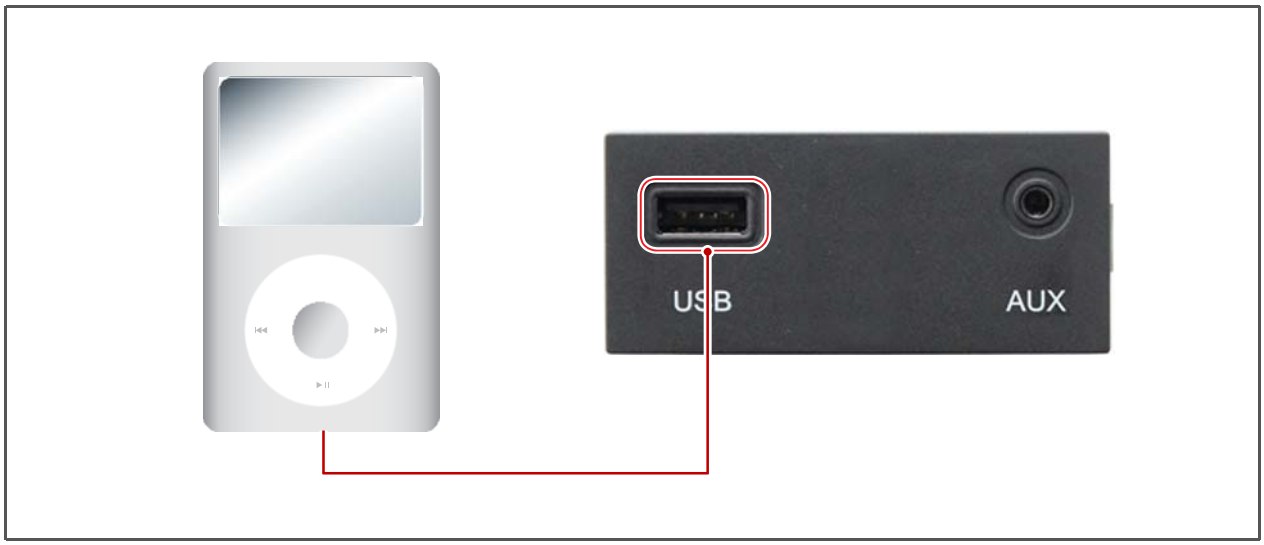
1. When the [MEDIA/Bluetooth] button is pressed for 3 seconds or more, the [Bluetooth Setup List] is displayed.
   - The screen is displayed for 5 seconds.
2. Turn the [TUNE] dial to select a desired Bluetooth setup item and press the [ENTER] button.
   Select one of the Bluetooth ON/OFF, Automatic connect ON/OFF, Add new device, Phone priority, Paired device list, Clear paired device list, Ring tone.
   - Bluetooth ON/OFF: Enables Bluetooth function.
   - Automatic connect ON/OFF: Connects Bluetooth devices when the ignition is turned on.
   - Add new device: Refer to "Pairing Bluetooth device".
   - Phone priority: Sets the priority of the Bluetooth devices for automatic connection.
   - Paired device list: Connects the device automatically or connects HFP/A2DP.
   - Clear paired device list: Removes the paired device from the list.
   - Ring tone: Sets the ring tone to be used for the audio system.

(7) Connecting external devices (USB/AUX)

▶ Playing the contents in USB device

The MP3 audio system can play the music files stored in the USB device which is connected to this system through the USB port.

1. Press and hold the power [⏻] button to turn the audio system off.
2. Connect an external USB device with MP3/WMA/OGG files to the USB port.
   When the audio system is turned on, "USB" message is displayed on the screen and the contents in the USB device are played automatically.
3. Press the [MEDIA/Bluetooth] button repeatedly while the USB device is connected to select the USB function. "USB" message is displayed on the screen and the music files in the USB device are played automatically.
4. The MP3 audio system is compatible with iPod through the USB port.



- This audio system supports iPod products including: iPod Nano /iPod/iPod Touch/ iPhone.
- This audio system may not support some of the iPod/iPhone products. Always use the connecting cable provided with the iPod product when connecting it to the audio system. Other cables may not be compatible and cause the audio system to fail.
- The iPod product can't be charged using an iPod connecting cable.

▶ Using AUX jack

The system also can play the music in an external audio device connected through the AUX jack (3.5 mm stereo mini jack).

1. Turn the [VOLUME] dial to minimize the volume.
2. Turn off the external device and connect its sound output to the AUX jack.
3. Turn on the external device and activates the playback function.
4. Press the [MEDIA/Bluetooth] button repeatedly and select the [AUX] function.
5. Turn the [VOLUME] dial to adjust the volume.

Modification basis	
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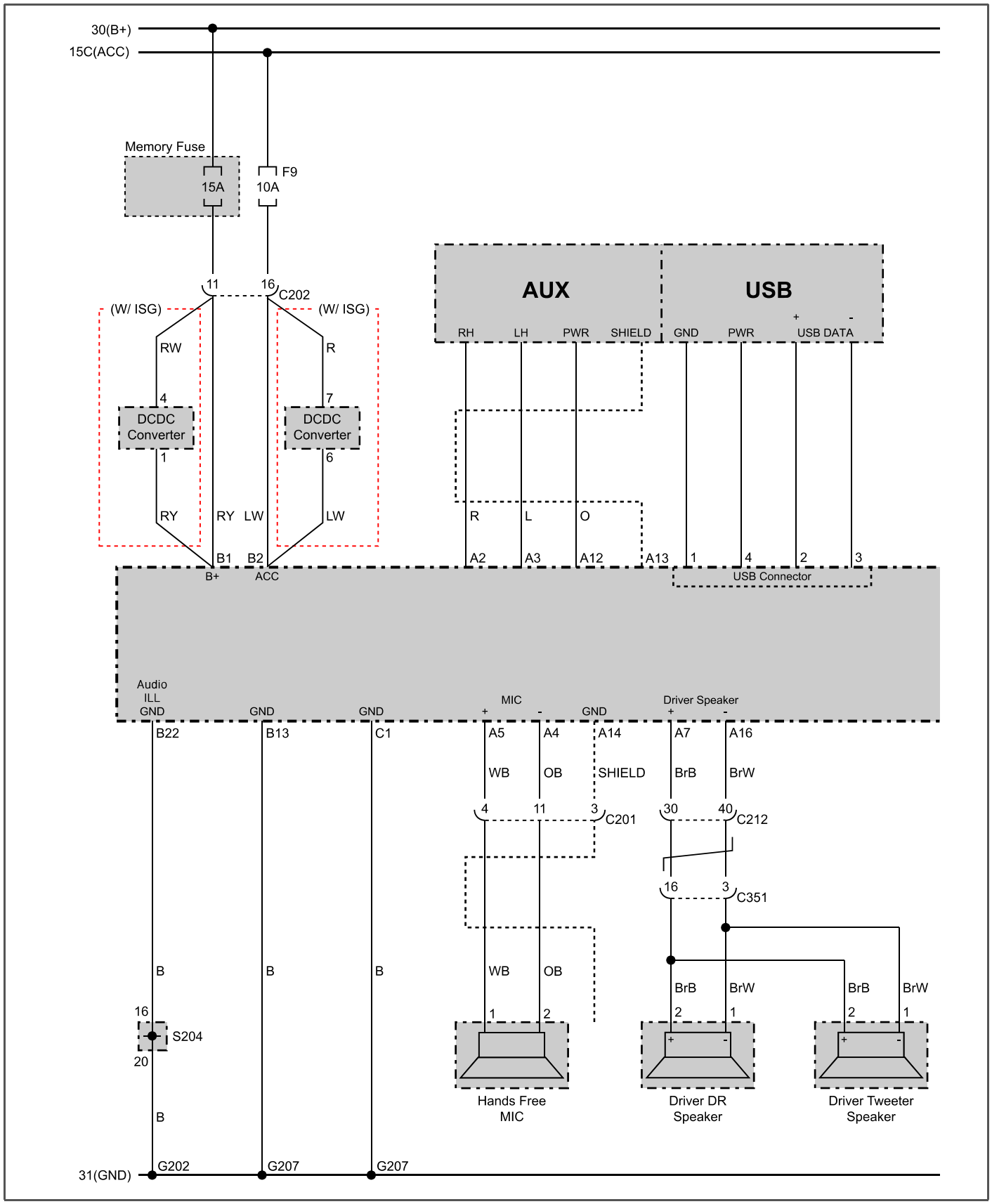
Memo

4. CIRCUIT DIAGRAM



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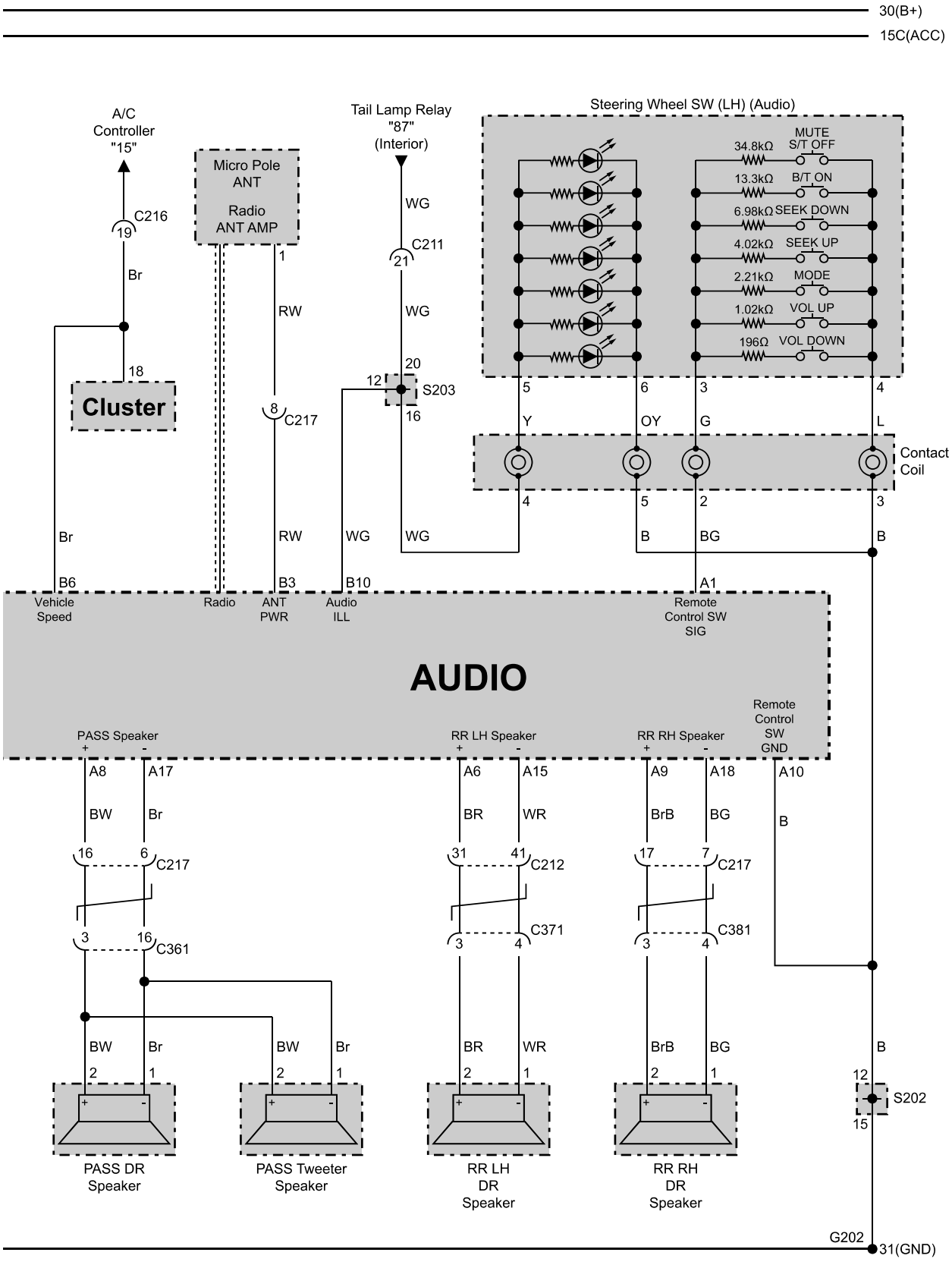

Modification basis	
Application basis	
Affected VIN	