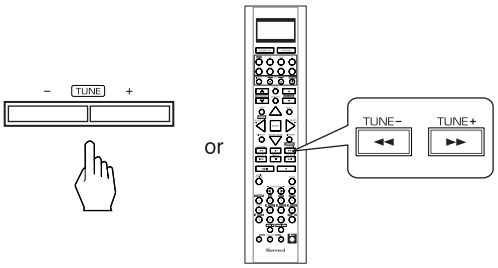
ENGLISH

Channel search

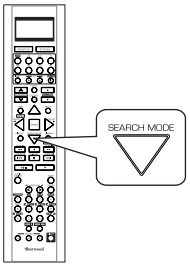
• In the XM mode, press the TUNING UP (+)/DOWN (-) buttons repeatedly to select the desired channel.



Direct search

• Direct search is useful when you already know the channel number.

1. In the XM mode, select the direct search mode.



• Each time this button is pressed, the search mode changes as follows:

→ XM CH ∗ ∗ ∗ → Category name → OFF ┐
(Direct search) (Category search)

■Note:
• When using channel search or preset search, press this button to select the search off.

2. While displaying "XM CH ∗ ∗ ∗", select the desired channel number with pressing the NUMERIC (0 ~ 9) buttons.

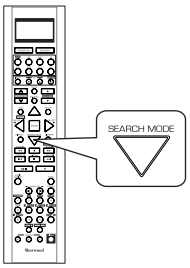
Examples: For "3" : ③
For "27" : ② within 4 seconds → ⑦
For "124" : ① within 4 seconds → ② within 4 seconds → ④

• When "XM CH ∗ ∗ ∗" disappears, repeat again from the above step 1.

Category search

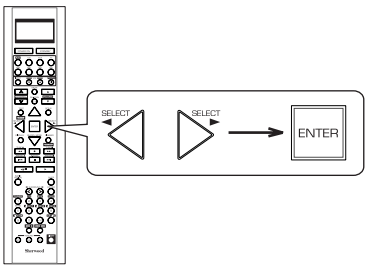
• Category search allows you to select the desired channel by the selected category.

1. In the XM mode, select the category search mode.



• Then a category name is displayed.

2. While displaying a category name, select the desired category, then press the ENTER button.



• Each time these buttons are pressed, one of different categories is selected.
• When a category name disappears, repeat again from the above step 1.

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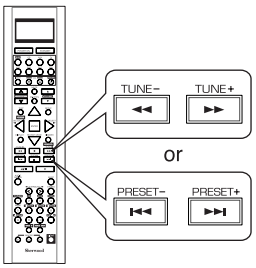
Continued

3. While displaying the selected category, select the desired channel.



Presetting channels

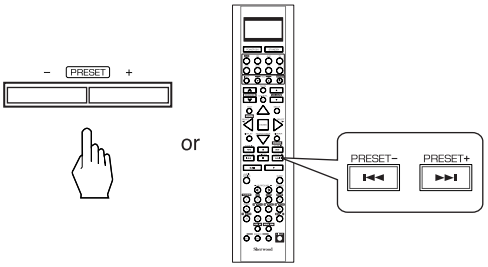
• You can store up to 30 preferred channels in the memory.

1. Select the desired channel with preforming channel search, direct search or category search.

2. To memorize the channels, perform the steps 2 to 4 in "Manual presetting" procedure on page 39.

Preset search

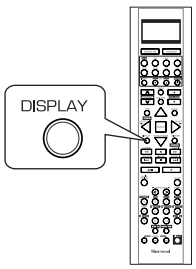
• In the XM mode, select the desired preset channel.



Displaying XM information

• You can display XM information such as channel name, artist name, song title and signal strength.

• In the XM mode,



■Note:
• If the information on artist name, song title or category is not available, it will not be displayed correctly.

■Signal strength display mode

• If the reception is poor, you can check the signal strength of the XM radio signal and adjust the position of the XM antenna until "GOOD" is displayed.

• Each time the DISPLAY button is pressed, the display mode changes as follows:

→ Channel number/name → Artist name → Song title → Category →
Volume ← Surround mode ← Input signal ← Signal strength("GOOD", "MARGINAL", "WEAK", "NO SIGNL") ←

■Error message and status

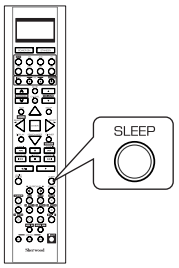
• If an operation takes longer than usual or an error occurs, one of the following messages may be displayed.

Message	Status
ANTENNA	The XM antenna is not connected correctly. Check the antenna.
UPDATING	The XM user encryption code is being updated. Please wait.
NO SIGNL	The signal is too weak. Check the antenna connection and reposition it for the best reception.
LOADING	This receiver is tuning or decoding audio or text data. Please wait.
OFF AIR	The selected XM channel is not currently broadcasting. Select another channel.

OTHER FUNCTIONS

Operating the sleep timer

- The sleep timer allows the system to continue to operate for a specified period of time before automatically shutting off.
- To set the receiver to automatically turn off after the specified period of time.

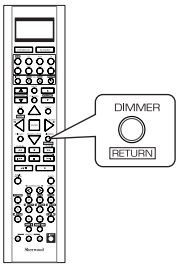


- Each time this button is pressed, the sleep time changes as follows:

→ 10 → 20 → 30 → --- → 90 → OFF
Unit : minutes

- While operating the sleep timer, " ☾ " lights up.

Adjusting the brightness of the fluorescent display



- Each time this button is pressed, the brightness of the fluorescent display changes as follows:

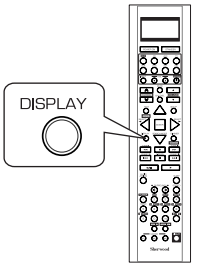
→ ON → dimmer → OFF

- In the display OFF mode, pressing any button will cancel the display OFF mode.

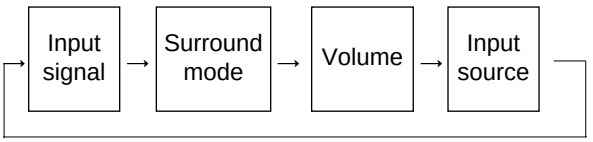
Displaying the audio information

- You can check the audio information on the input source.

- During playback,



- Each time this button is pressed, the display mode changes as follows :



- When the EXTERNAL IN is selected as an input source, the surround mode is not displayed.
- When XM satellite radio function is available in your country, for details on the XM information, see "Displaying XM information" on page 42.

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ROOM 2 SOURCE PLAYBACK

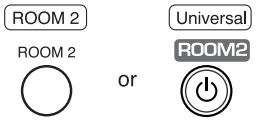
- This function allows enjoying one source in the main room and playing another in a different room at the same time.
- When you connect the multi-room system kit to the IR IN jack of this receiver, you can control this receiver with not only the universal remote control unit but also the ROOM 2 remote control unit in a different room, too. (For details, refer to "CONNECTING MULTI-ROOM SYSTEM KIT" on page 13 and "ROOM 2 Remote Controls" on page 29.)

■ **Notes:**
- The analog signals from the EXTERNAL INs and the digital signals cannot be output to the different room, meaning no playback in a different room.
- You cannot play the ROOM 2 source in any surround mode.

■ When using the buttons on the remote control unit.

1. Press the ROOM 2 button.

- ROOM 2 ~ is displayed for several seconds.
- Each time this button is pressed, the ROOM 2 mode changes as follows :

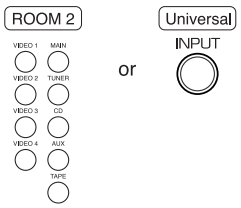


OFF : To turn off the ROOM 2 function. ("R2" goes off .)
↕
ON : To turn it on. ("R2" lights up.)

■ **Note :**
- When the ROOM 2 mode is set to OFF, you cannot adjust the ROOM 2 volume.

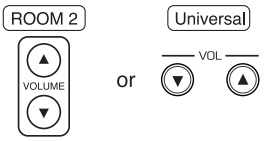
2. Select the desired input as a ROOM 2 source.

- Each time the INPUT button on the universal remote control unit is pressed, the ROOM 2 input can be selected among MAIN source, TUNER, CD, AUX, TAPE, VIDEO 1 ~ VIDEO 4.



3. Adjust the ROOM 2 volume.

- You can adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2" when the ROOM 2 speaker terminals are connected to the speakers in a different room. (For details, refer to "When selecting the AMP ASSIGN" on page 49.)



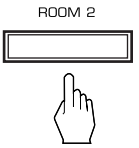
- The MUTE button on the ROOM 2 remote control unit can be available only when the ROOM 2 function is operating.

4. Start play on the component related to the ROOM 2 source.

■ When using the buttons on the front panel.

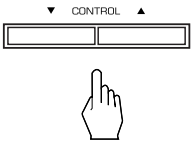
1. Press the ROOM 2 button to enter the ROOM 2 mode.

- ROOM 2 ~ is displayed for several seconds.
- When the ROOM 2 setting mode disappears, press the ROOM 2 button again.



2. Select the desired mode while displaying the ROOM 2 setting mode.

- Each time these buttons are pressed, the mode changes as follows :

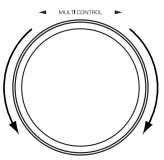


ROOM 2 ~ (ROOM 2 mode) : To turn on or off the ROOM 2 function.
↕
IN ~ (ROOM 2 input) : To select the desired ROOM 2 source.
↕
VOL ~ (ROOM 2 volume) : To adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2".

■ **Note :** When the ROOM 2 mode is set to OFF, the ROOM 2 input and the ROOM 2 volume cannot be selected

3. Set the selected mode as desired.

■ When selecting the ROOM 2 mode.
OFF : To turn off the ROOM 2 function. ("R2" goes off.)
↕
ON : To turn it on. ("R2" lights up.)



■ When selecting the ROOM 2 input.
- You can select the desired among MAIN source, TUNER, CD, AUX, TAPE, VIDEO 1 ~ VIDEO 4 as a ROOM 2 source.

■ When selecting the ROOM 2 volume.
- You can adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2" when the ROOM 2 speaker terminals are connected to the speakers in a different room. (For details, refer to "When selecting the AMP ASSIGN" on page 49.)

4. Start play on the component related to the ROOM 2 source.

■ **Notes:**
- When the EXTERNAL IN is selected as a main input, if the MAIN source is selected as a ROOM 2 input, no audio signal can be heard in the different room (ROOM 2).
- Even when this receiver enters the standby mode, in such a case that "R2" lights up still and the POWER ON/STANDBY button lights up blue as it does in the operating mode, meaning only the ROOM 2 circuitry operates, the ROOM 2 source can be played independently.
- When you do not use the ROOM 2 function, turn off the ROOM 2 function to save electricity.

RECORDING

- The analog signals from the EXTERNAL INs as well as the digital signals from the coaxial or optical digital input can be heard but cannot be recorded.
- When recording the analog signals from CD, AUX, VIDEO 1 ~ 4, be sure to select the "ANALOG" for the AUDIO MODE. (For details, refer to "When selecting the AUDIO MODE" on page 54.)
- The volume and tone (bass, treble) settings have no effect on the recording signals.

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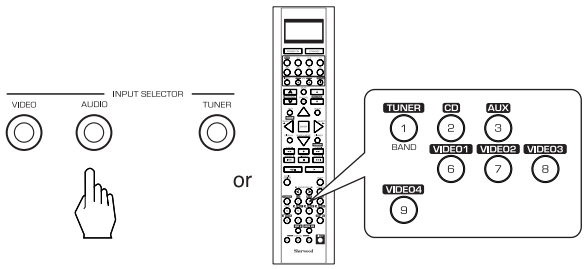
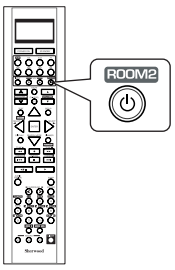
Recording with TAPE

- To record the analog signals onto the recording equipment, be sure to connect the ROOM2 OUT jacks to the recording equipment. (For details, refer to "CONNECTING AUDIO COMPONENTS" on page 8.)

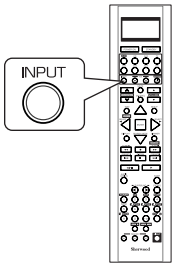
1. Select the desired input as a recording source except for TAPE.



2. Turn on the ROOM 2.



3. Select the MAIN as a ROOM 2 input.



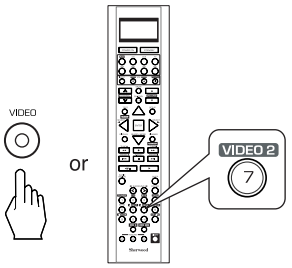
4. Start recording on the TAPE.

5. Start play on the desired input.

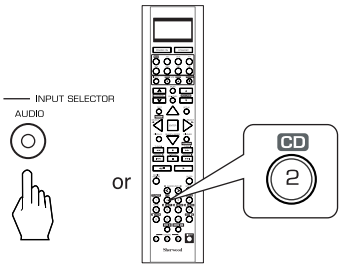
Dubbing the audio and video signals separately onto VIDEO 1

Example: When dubbing the VIDEO 2 video signal and the CD audio signal separately onto VIDEO 1.

1. Select VIDEO 2 as a video recording source.



2. Select CD as an audio recording source.



3. Start recording on the VIDEO 1.

4. Start play on the VIDEO 2 and the CD respectively.

- The audio signal from the CD and the video signal from the VIDEO 2 will be dubbed and you can enjoy them on the TV set and from the speakers.

■ **Note :** Be sure to observe the order of the above steps 1 and 2.

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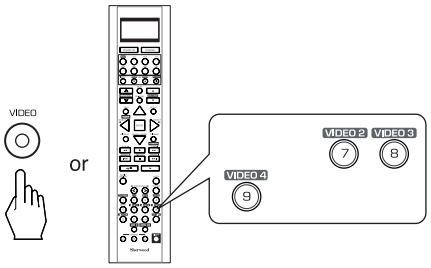
Dubbing from video components onto VIDEO 1

1. Select the desired of VIDEO 2 ~ 4 as a recording source except VIDEO 1.



2. Start recording on the VIDEO 1.

3. Start play on the desired input.

- The audio and video signals from the desired input will be dubbed onto the VIDEO 1 and you can enjoy them on the TV set and from the speakers.

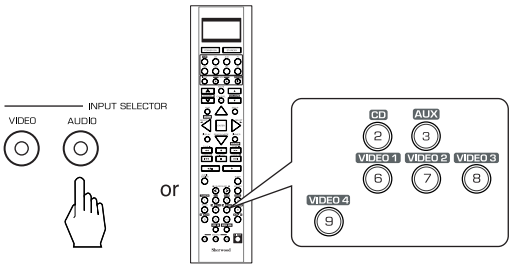
DIGITAL AUDIO RECORDING WITH MD RECORDER

- Only when the OPTICAL DIGITAL OUT of this receiver is connected to the OPTICAL DIGITAL IN of the MD recorder or CD recorder, you can enjoy high-quality sound of digital recording without converting the original signals. Refer to "CONNECTING VIDEO COMPONENTS", "CONNECTING AUDIO COMPONENTS" and "CONNECTING DIGITAL INS and OUT" on pages 6~9 and the operating instructions of the MD recorder or CD recorder.

■ **Notes:**

- Depending on the digital audio signal format input into the HDMI IN connector, some digital signals cannot be output from the OPTICAL DIGITAL OUT jack.
- Digital recording is available for the digital audio program sources such as CDs, MDs, some DVDs, etc.
- In most DVDs and SACDs as well as some CDs, etc., digital recording may not be available depending on the signal format.
- There are some restrictions on recording digital signals. When making digital recordings, refer to the operating instructions of your digital recording equipment to know what restrictions are imposed.

1. Select the desired of CD, AUX, VIDEO 1~4 as a recording source.



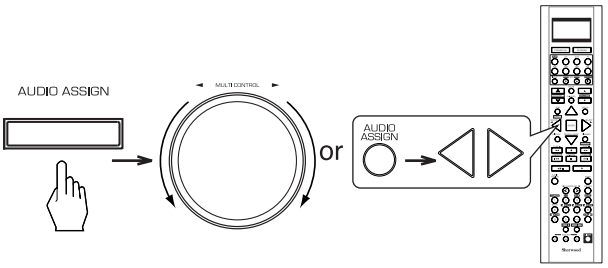
■ **In case of recording the digital audio signal input into a HDMI IN connector**

- Select the desired recording source to which the HDMI IN is connected and assigned and then perform the steps 3 and 4 (, but ignore the step 2).

■ **Note :**

- If the AUDIO MODE is set to the mode other than "HDMI" for the corresponding recording source on the INPUT SETUP menu, the digital audio signals will not be output and there will be no recording. (For details, refer to "When selecting the AUDIO MODE" on page 54.)

2. For digital recording, select the digital input as recording signal input.



■ **Note :**

- If the AUDIO MODE is set to the mode other than "DIGITAL" for the corresponding recording source on the INPUT SETUP menu, the digital audio signals from the selected digital input will not be output and there will be no recording. (For details, refer to "When CD, AUX, VIDEO 1~ 4 is selected as an input source" on page 31 and "When selecting the AUDIO MODE" on page 54.)

3. Start recording on the component connected to the OPTICAL DIGITAL OUT.

4. Start play on the desired input.

OSD Menu Settings

• The OSD (On-Screen Display) menu is a setting menu that is displayed on the monitor TV and allows you to perform the setup procedures easily. In most situations, you will only need to set this once during the installation and layout of your home theater, and it rarely needs to be changed later.
The OSD menu consists of 6 main menus ; system setup, input setup, speaker / room EQ setup, CH level setup, sound parameter and multi room setup. These menus are then divided up into various sub-menus.

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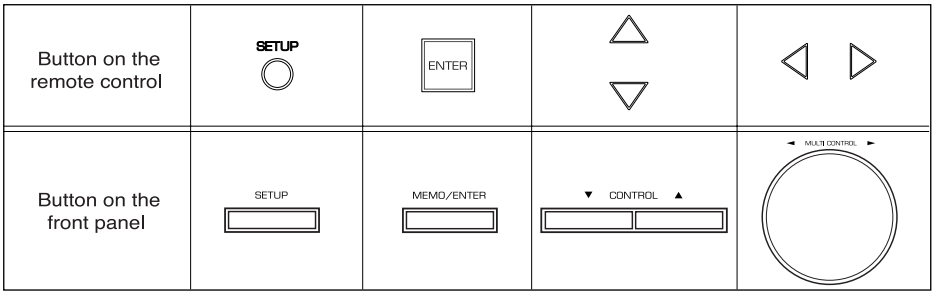
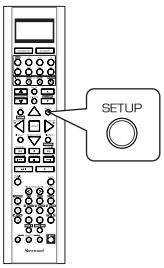
■ **Notes:**
• The OSD menu and the momentary OSD cannot be displayed via the HDMI MONITOR OUT connector.
• Depending on the VIDEO MODE setting and the video connections between this receiver and the video component, the OSD menu and the momentary OSD cannot be displayed via (COMPOSITE) VIDEO MONITOR OUT jack, or the picture is automatically turned off and only the OSD menu can be displayed via COMPONENT MONITOR OUT jacks. (For details, refer to "Relationship between the video input signal and the video output signal" on page 7.)

■ Navigating through the OSD menu
• The explanations here assume you are using the buttons on the remote control when performing the OSD menu operation. However, you can use the buttons on the front panel as well.
The buttons on the front panel correspond to those on the remote control as shown below.



1. Turn the menu screen on.



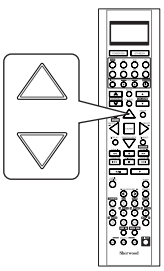

```
        MAIN  MENU

>SYSTEM        SETUP
 INPUT         SETUP
 SPEAKER
 /ROOM EQ      SETUP
 CH  LEVEL     SETUP
 SOUND         PARAMETER
 MULTI ROOM    SETUP

 EXIT
```

• The main menu will be shown.
• To turn the menu screen off, press this button again.

2. Select the desired menu using the CURSOR UP(▲)/DOWN(▼) buttons.



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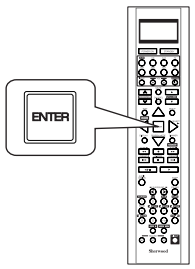
3. Confirm your selection.



■When selecting the SYSTEM SETUP

```
        SYSTEM SETUP
>AMP ASSIGN : BACK←→ROOM2
  SUB W MODE : NORMAL
  HDMI AUDIO OUT  :   OFF
  TONE CONTROL :   OFF
  CINEMA EQ       :   OFF
  BACKGROUND     : BLACK
  MOMENTARY OSD :   ON
  OSD POSITION ADJUST

  RETURN TO MAIN MENU
```

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■When selecting the INPUT SETUP

```
        INPUT SETUP
>VIDEO 1     CONFIG
 VIDEO 2     CONFIG
 VIDEO 3     CONFIG
 VIDEO 4     CONFIG
 CD          CONFIG
 TAPE        CONFIG
 AUX         CONFIG
 TUNER       CONFIG
 EXT. IN     CONFIG

 RETURN TO MAIN MENU
```

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■When selecting the SPEAKER/ROOM EQ SETUP

```
  SPEAKER/R.EQ SETUP

>AUTO SETUP

  SPEAKER    CONFIG
  SPEAKER    DISTANCE
  SPEAKER    CROSSOVER
  ROOM EQ    SETUP


  RETURN TO MAIN MENU
```

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■When selecting the CH LEVEL SETUP

```
     CH LEVEL SETUP
>MODE  :     CALIBRATE
  FRONT LEFT     :     0dB
  CENTER         :     0dB
  FRONT RIGHT    :     0dB
  SURR RIGHT     :     0dB
  BACK/MULTI R   :     0dB
  BACK/MULTI L   :     0dB
  SURR LEFT      :     0dB
  SUBWOOFER      :     0dB
  LFE LEVEL SETUP
  RETURN TO MAIN MENU
```

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■When selecting the SOUND PARAMETER

```
      SOUND PARAMETER

>NIGHT MODE
 DOLBY PLII MUSIC
 DOLBY HEADPHONE
 DOLBY VIRTUAL SPEAKER




 RETURN TO MAIN MENU
```

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■When selecting the MULTI ROOM SETUP

```
     MULTI ROOM SETUP

>ROOM 2     :   OFF
  INPUT     :   MAIN
  VOLUME    :   - - -




 RETURN TO MAIN MENU
```

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- For the setting details, see page in ⇨.
- Adjust the setting(s) in each setting category to your preference.
- When the SETUP button is pressed on a sub-menu, the menu screen will be turned off.

SETTING THE SYSTEM SETUP

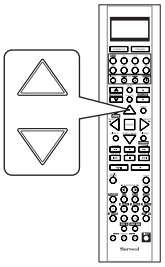
```
SYSTEM SETUP
>AMP ASSIGN : BACK←→ROOM2
 SUB W MODE : NORMAL
 HDMI AUDIO OUT :  OFF
 TONE CONTROL :  OFF
 CINEMA EQ :  OFF
 BACKGROUND :  BLACK
 MOMENTARY OSD :  ON
 OSD POSITION ADJUST
 RETURN TO MAIN MENU
```

- AMP ASSIGN : To assign the surround back channels' power amplifier correctly depending on how to use the speakers.
- SUBWOOFER MODE : To select the desired subwoofer mode.
- HDMI AUDIO OUT : To output the digital audio signals from the HDMI MONITOR OUT connector.
- TONE CONTROL : To adjust the tone (bass and treble) as desired.
- CINEMA EQ : To select the desired cinema EQ mode.
- BACKGROUND : To select the desired background color of the momentary OSD and the OSD menu.
- MOMENTARY OSD : To turn on or off the OSD that shows the status corresponding to each operation momentarily.
- OSD POSITION ADJUST : To adjust the positon of the momentary OSD and the OSD menu.

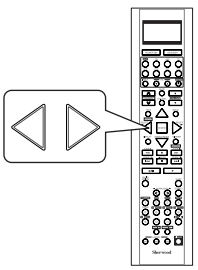
ENGLISH

When selecting the items other than OSD POSITION ADJUST

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



When selecting the AMP ASSIGN

- The surround back channels' power amplifier can drive the surround back speakers, the ROOM 2 speakers or the front bi-amp capable speakers. Depending on how to use the speakers, you should assign the power amplifier correctly. (For details, refer to "CONNECTING SPEAKERS" on page 10 and "CONNECTING ROOM 2 OUTS" on page 12.)

BACK ←→ ROOM 2 : When connecting this receiver to the surround back speakers and the ROOM 2 speakers both, the power amplifier automatically drives the surround back speakers or the ROOM 2 speakers depending on whether the ROOM 2 function is turned off or on.

↕

BI - AMP : To drive the front bi-amp capable speakers when connecting the FRONT and the SURROUND BACK/MULTI channels to them.

↕

SURR BACK : To drive the surround back speakers when connecting the SURROUND BACK/MULTI channels to them.

ROOM 2 : To drive the ROOM 2 speakers when connecting the ROOM 2 channels to them.

Continued

ENGLISH

When selecting the SUBWOOFER MODE

• "SW PLUS＋" mode is valid only when "FRONT" and "CENTER" are set to "FULL RANGE" and "SUBWOOFER" is set to "YES" on the SPEAKER/ROOM EQ SETUP menu. (For details, refer to "SETTING THE SPEAKER/ ROOM EQ SETUP" on page 57.)

NORMAL : When the low frequency signals of channels set to "FULL RANGE" are reproduced from those channels only. In this mode, the low frequency signals that are reproduced from the subwoofer channel is only the low frequency signals of LFE (from the multi-channel sources that contains LFE (Low Frequency Effects) channel, also called the ".1" channel) and the channels set to the setting value other than "FULL RANGE".

↕

SW PLUS＋ : When the low frequency signals of channels set to "FULL RANGE" are reproduced simultaneously from those channels and the subwoofer channel.
In this mode, the low frequency range expands more uniformly through the room, but depending on the size and shape of the room, interference may result in a decrease of the actual volume of the low frequency range.

When selecting the HDMI AUDIO OUT

• The HDMI connection can carry uncompressed digital video signals and digital audio signals. Depending on whether these digital audio signals are output from the HDMI MONITOR OUT of this receiver or not, you should set the HDMI AUDIO OUT correctly.

OFF : Not to output the digital audio signals from the HDMI MONITOR OUT of this receiver, meaning these
↕ signals are heard from the speakers connected to this receiver.
ON : To output the digital audio signals, meaning these signals are heard from the speakers of your TV.

■ **Notes:**

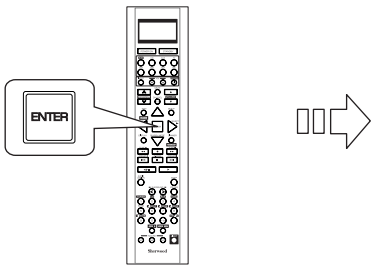
• When the HDMI AUDIO OUT is set to ON, no sound will be heard from the speakers connected to this receiver (except ROOM 2 speakers) even though any input source is selected.
• If your TV cannot support some digital audio formats, no sound may be heard from its speakers even when the HDMI AUDIO OUT is set to ON.

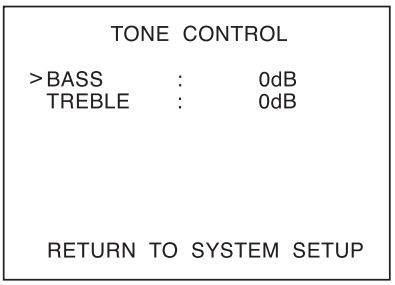
When selecting the TONE CONTROL

OFF : To listen to a program source without the tone effect. ("DIRECT" indicator lights up.)
↕
ON : To adjust the tone for your taste. ("DIRECT" indicator goes off.)

■ When the TONE CONTROL is set to ON to adjust the tone (bass and treble)

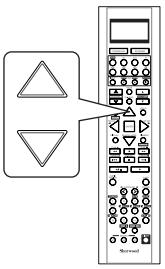
①. Press the ENTER button to enter the tone adjustment mode.





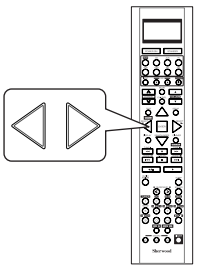
Continued

②. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired tone mode.



ENGLISH

③. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to adjust the selected tone as desired.



- The tone level can be adjusted within the range of -10 ~ +10 dB.
- In general, we recommend the bass and treble to be adjusted to 0 dB (flat level).
- Extreme settings at high volume may damage your speakers.
- To complete tone adjustment, repeat the above steps ② and ③.

When selecting the CINEMA EQ

OFF : To turn off the cinema EQ function.
↕
ON : To compensate for edgy or shrill movie sound tracks.

When selecting the BACKGROUND

BLACK : To display the black as the color background of the momentary OSD and the OSD menu.
↕
BLUE : To display the blue.

■ **Note :** Only when no video signals are input into this unit, the selected background color will be displayed.

When selecting the MOMENTARY OSD

ON : To turn on the OSD function that shows the status corresponding to each operation on this unit
↕ momentarily.
OFF : To turn it off.

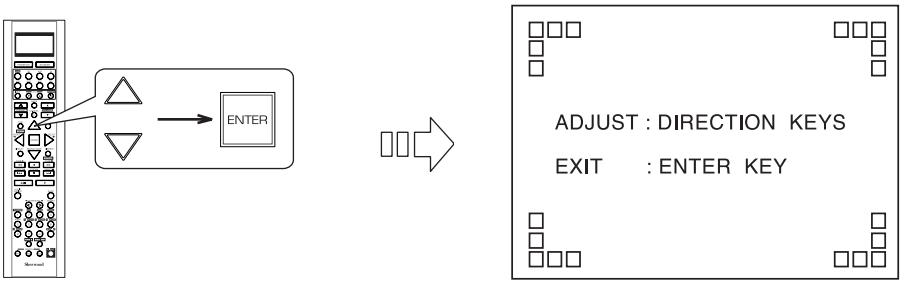
■ **Note** : When outputting the component video signal from the COMPONENT MONITOR OUT jacks as it was input, the momentary OSD cannot be displayed.

ENGLISH

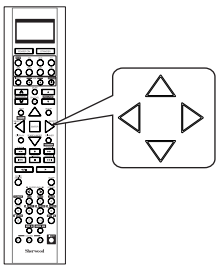
When selecting the OSD POSITION ADJUST

• You can adjust the position of the momentary OSD and the OSD menu that are displayed on the monitor TV.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the OSD POSITION ADJUST, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼)/LEFT(◀)/RIGHT(▶) buttons to adjust the position of the momentary OSD and the OSD menu as desired.



ENGLISH

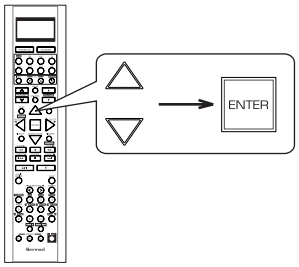
SETTING THE INPUT SETUP

```
        INPUT  SETUP
>VIDEO  1      CONFIG
 VIDEO  2      CONFIG
 VIDEO  3      CONFIG
 VIDEO  4      CONFIG
 CD            CONFIG
 TAPE          CONFIG
 AUX           CONFIG
 TUNER         CONFIG
 EXT . IN      CONFIG

 RETURN  TO  MAIN  MENU
```

• This menu allows you to make the various settings depending on how to use the input sources connected to this receiver.

When selecting the items other than NAME

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired input source, then press the ENTER button.



Example: When selecting the VIDEO 1

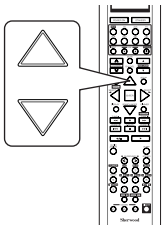
```
     VIDEO  1     CONFIG

>NAME          :   VIDEO   1
 HDMI ASSIGN   :   HDMI    1
 VIDEO ASSIGN  :   COMP    1
 VIDEO MODE    :   AUTO
 AUDIO ASSIGN  :   OPT     1
 AUDIO MODE    :   AUTO
                       Page 1
```

```
AUTO SURROUND  :  OFF
AUD REMASTER   :  OFF
AV SYNC.       :  0  ms
DC TRIGGER     :  OFF
                       Page 2
```

■When selecting the menu of page 2 or page 1.

• Press the CURSOR UP(▲)/DOWN(▼) buttons to select "GO TO NEXT ~ ", then press the ENTER button.

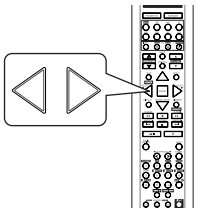
2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



■ Note :

• Depending on the input source, some items other than DC TRIGGER cannot be selected.

3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



Continued

ENGLISH

When selecting the HDMI ASSIGN

- You should assign the connected HDMI INs to the desired of VIDEO 1 ~ VIDEO 4.
  (For details, refer to "CONNECTING VIDEO COMPONENTS" on pages 6 ~ 7.)
- You can select HDMI 1 or HDMI 2.

■ **Note :**

- In such a case that a HDMI IN is assigned to two input sources or more, when these input sources are selected, the uncompressed digital video signals (and digital audio signals when the HDMI AUDIO OUT is set to ON) input into the same HDMI IN can be output from the HDMI MONITOR OUT of this receiver.

When selecting the VIDEO ASSIGN

- You should assign the connected COMPONENT VIDEO INs to the desired of VIDEO 1 ~ 4.
  (For details, refer to "CONNECTING VIDEO COMPONENTS" on pages 6 ~ 7.)
- You can select the desired of COMP 1 ~ 2.

■ **Note :**

- In such a case that a COMPONENT VIDEO IN is assigned to two input sources or more, when these input sources are selected, the component video signals can be viewed from the same COMPONENT VIDEO IN.

When selecting the VIDEO MODE

- You can select the video input signal to be output from the MONITOR OUTs.

AUTO : When there are multiple video input signals, the video input signals are detected and the video input signal to be output from the MONITOR OUTs is selected automatically in the following order :
↕
component video, S-video, composite video.
COMPOSITE : The signal that is input into the (COMPOSITE) VIDEO jack is always played. The composite video input signal is
↕
up-converted and output from the S-VIDEO and COMPONENT MONITOR OUT jacks.
S-VIDEO : The signal that is input into the S-VIDEO jack is always played. The S-Video input signal is converted and
↕
output from the (COMPOSITE) VIDEO and COMPONENT MONITOR OUT jacks.
COMPONENT : The signals that are input into the COMPONENT jacks are always played.
Because video conversion is not performed, no video signals are output from the MONITOR OUT jacks when there are no video signals that are input into the COMPONENT jacks.

- For details, refer to "Relationship between the video input signal and the video output signal" on page 7.

■ **Note :**

- When selecting the VIDEO 4, S-VIDEO cannot be selected.

When selecting the AUDIO ASSIGN

- You should assign the connected DIGITAL INs to the desired of CD, AUX and VIDEO 1 ~ VIDEO 4.
  (For details, refer to "CONNECTING DIGITAL INS AND OUT" on page 9.)
- You can select the desired of OPT 1, OPT 2, COAX1 and COAX 2.

■ **Note :**

- In such a case that a DIGITAL IN is assigned to two input sources or more, when these input sources are selected, the digital audio signals can be heard from the same DIGITAL IN.

When selecting the AUDIO MODE

- You can select the desired audio input signal to be played.

■ **Notes :**

- Be sure to set the AUDIO MODE to the audio input which is connected and assigned to the selected input source.
- When the HDMI AUDIO OUT is set to ON, no sound will be heard from the speakers connected to this receiver (except ROOM 2 speakers).
- When the AUDIO MODE is set to HDMI, you should set the HDMI ASSIGN correctly. If not, "H1", "H2" (, meaning no digital audio signal input from it) or "Hd" (, meaning no HDMI assignment) flickers on the unit's display and no sound will be heard.
- When the AUDIO MODE is set to DIGITAL, you should set the AUDIO ASSIGN correctly. If not, "o1", "c1", etc.(, meaning no digital signal input from it) or "d" (, meaning no audio assignment) flickers on the unit's display and no sound will be heard.

AUTO : When there are multiple audio input signals, the audio input signals are detected and the audio input signal to be played is selected automatically in the priority order of them :
↕
HDMI audio > DIGITAL audio > ANALOG audio
HDMI : The signal that is input into the HDMI IN is always played.
↕
DIGITAL : The signal that is input into the OPTICAL or the COAXIAL DIGITAL IN is always played.
↕
ANALOG : The signal that is input into the analog AUDIO INs is always played.

Continued

When selecting the AUTO SURROUND

- Depending on how to select a surround mode, you can select the auto surround mode or the manual surround mode.

ON (Auto surround mode) : The optimum surround mode will be automatically selected depending on the signal format being input.

↕

OFF (Manual surround mode) : You can select the disired of different surround modes selectable for the signal being input with using the MULTI CONTROL knob or the SURROUND MODE UP/DOWN (>/<) buttons. (For details, refer to "When selecting the manual surround mode with pressing the SURROUND MODE button on the front panel" on page 34.)

■ **Notes :**

- Even when the auto surround mode is selected and the same type of digital signal format is being input, the optimum surround mode may vary depending on whether the speaker type is set to "NO" or not.
- When the auto surround mode is selected, the surround modes other than the optimum surround mode cannot be selected.

When selecting the AUDIO REMASTER

- The remastering processes the input signal digitally and converts its digital sampling frequency to twice the current frequency (88.2/96 kHz) for a more detailed sound reproduction.

ON : To process the input signal digitally and to convert its sampling frequency to 88.2/96 kHz for a more ↕ detailed sound reproduction.

OFF : To turn off the remastering function.

■ **Note :**

- The remastering function have no effect on the input digital signal from the 88.2/96 kHz source or higher as well as the digital signal that is output from the OPTICAL DIGITAL OUT of this receiver.

When selecting the AV SYNC

- There may be a slight time delay between the video and audio signals in case that some video playback equipments may process the video signals later than the audio signals due to signal processing procedure, etc.. Should this happen, you can adjust the time delay of audio signals to synchronize the sound with the picture.
- The time delay can be adjusted within the range of 0 ~ 200 msec.

When selecting the DC TRIGGER

- To turn on the component connected to the DC TRIGGER OUT jack when this input source is selected, you should set the DC TRIGGER to ON for this input source.

OFF : To turn off the DC trigger function.

↕

ON: To turn it on.

- For details, refer to "CONNECTING DC TRIGGER OUT" on page 9.

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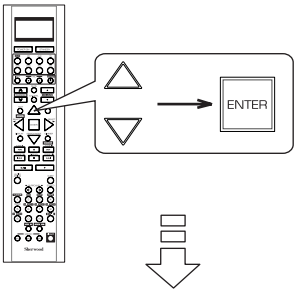
When selecting the NAME

- You can give names to the input sources other than tuner.
- Up to 7 characters can be entered for each name.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired input source, then press the ENTER button.

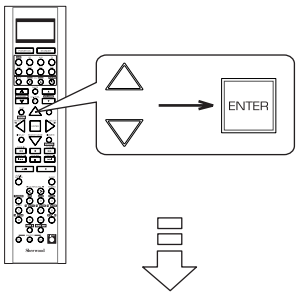


Example: When selecting the VIDEO 1

```
     VIDEO 1     CONFIG

>NAME          :   VIDEO   1
  HDMI ASSIGN     : HDMI   1
  VIDEO ASSIGN    : COMP   1
  VIDEO MODE      : AUTO
  AUDIO ASSIGN    : OPT    1
  AUDIO MODE      : AUTO
```

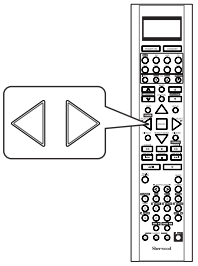
2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the NAME, then press the ENTER button.




```
     VIDEO 1     CONFIG
>NAME          : VIDEO   1
```

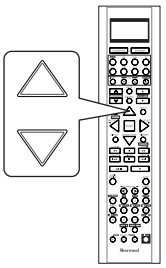
- The first digit flickers.

3. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to select the desired digit.



- Then the selected digit will flicker.

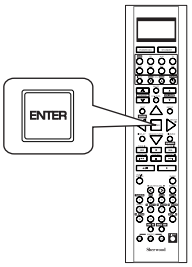
4. Press the CURSOR UP(▲)/DOWN(▼) buttons to enter the desired character on the flickering digit.



- You can enter the desired among blank, A ~ Z, a ~ z, 0 ~ 9, (,), ∗, +, , , -, ., /.

5. Repeat the above steps 3 and 4 to enter the desired characters on the rest of the digits.

6. Confirm your entry.



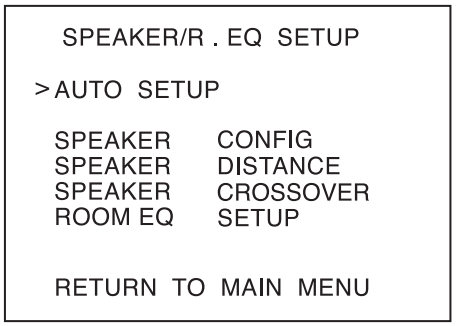
- The name is stored in the memory.

■ To resume its factory input source name.

- Make a blank on each digit and press the ENTER button.

SETTING THE SPEAKER / ROOM EQ SETUP

- After you have installed this receiver and connected all the components, you should adjust the speaker settings for the optimum sound acoustics according to your environment and speaker layout.
- Even when you change speakers, speaker positions, or the layout of your listening environment, you should adjust the speaker settings, too.
- When performing the AUTO SETUP procedure, you need not perform the SPEAKER CONFIGURATION, SPEAKER DISTANCE, SPEAKER CROSSOVER and CH LEVEL SETUP procedures.



- AUTO SETUP : To set the speaker setup and channel level setup automatically.
- SPEAKER CONFIGURATION : To adjust the speakers depending on whether they are connected or not.
- SPEAKER DISTANCE: To select the distance between the listening position and each speaker to set the delay time automatically for optimum surround playback.
- SPEAKER CROSSOVER : To select the desired crossover frequency.
- ROOM EQ SETUP : To adjust the room EQ as desired.

When selecting the AUTO SETUP

- Auto Setup lets you avoid troublesome listening-based speaker setup and achieve good surround sound. Auto Setup has the feature that provides the optimum listening environment at the listening position in your room, where there are often multiple listeners viewing programs together.
  You should connect the supplied microphone to the SETUP MIC jack so that this receiver can analyze the information from a series of test tones emitted from speakers at the listening position and can adjust the configuration, distance, sound level, crossover frequency and frequency response of each speaker automatically.
- If you want to personalize your speaker setup and channel level setup by making the settings manually, perform the "When selecting the SPEAKER CONFIGURATION" on page 59, "When selecting the SPEAKER DISTANCE" on page 60, "When selecting the SPEAKER CROSSOVER" on page 61, "Adjusting each channel level with test tone" on page 35 and "Adjusting the current channel level" on page 36.
- After the auto setup has been completed, set the room EQ as desired. (For details, refer to "When selecting the ROOM EQ SETUP" on page 62.)

■Preparations

①. Check that the speakers are securely connected to this receiver.
- If your subwoofer has adjustable volume and crossover frequency, set the volume halfway and set the crossover frequency to the maximum or the low pass filter off.

②. Connect the supplied microphone to the SETUP MIC jack on the front panel.(For details, refer to "SETUP MIC JACK" on page 16.)

■Notes :

- Because the microphone for Auto Setup is designed for use with this receiver, to use the auto setup function, do not use a microphone other than the one supplied with this receiver.
- After you have completed the auto setup procedure, disconnect the microphone.

1. Place the microphone on a flat level surface at the listening position.

- If possible, use a tripod, etc. to attach the microphone at the same height as your ears would be when you are seated in your listening position.
- Ensure there are no obstacles between the speakers and the microphone.

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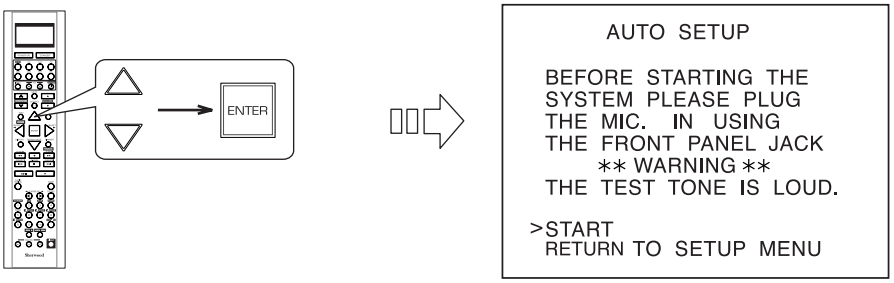
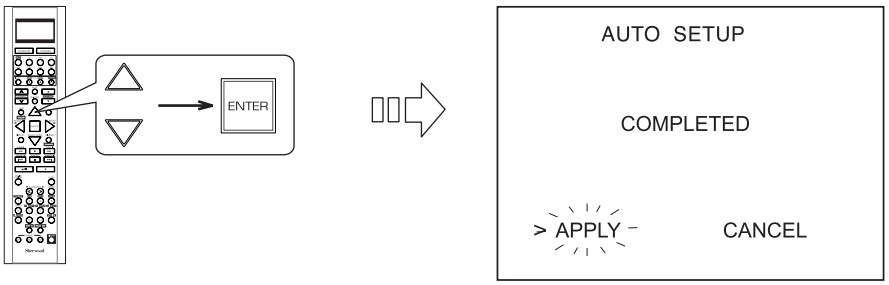
2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the AUTO SETUP, then press the ENTER button.



3. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the START, then press the ENTER button.

When the auto setup has been completed.

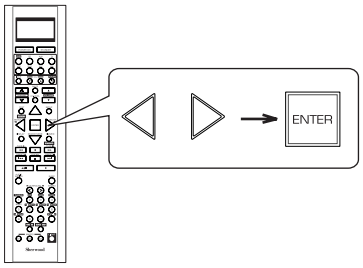


- Loud test tones are output successively and then if a series of auto setup procedure has been completed, "COMPLETED" will be displayed.
- To stop the auto setup procedure while performing it, press the ENTER button.
  In such a case that the auto setup procedure is stopped before "COMPLETED" is displayed, the results of each adjustment may not be memorized.
- If there may be a problem with speaker or microphone connection, error message will be displayed. In this case, turn off the power, check the connection and then retry the auto setup procedure.

■ Notes :

- Before starting auto setup, be sure not to set the HDMI AUDIO OUT to ON.
- Because the test tones are loud, ensure there no infants or small children in the room.
- For best results, ensure the room is as quiet as possible during the auto setup procedure.
  If there is too much ambient noise, the results may not be satisfactory.

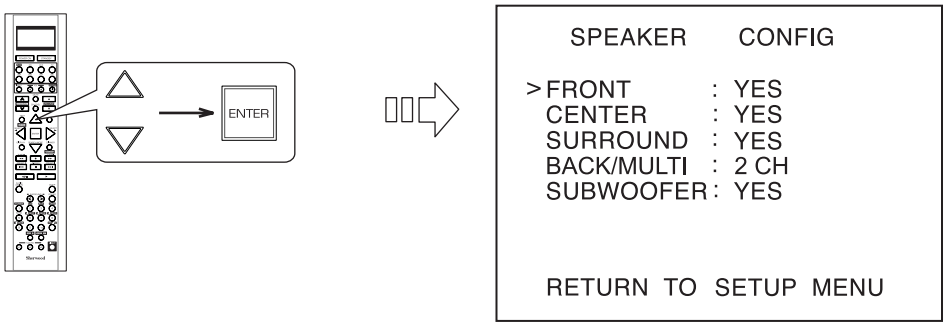
4. To memorize the results, press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to select the APPLY, then press the ENTER button.



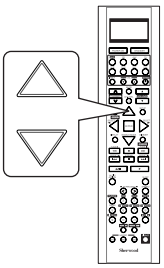
- Then the results are memorized and the SPEAKER/ ROOM EQ SETUP menu is displayed.
- Each time the CURSOR LEFT(◀)/ RIGHT(▶) buttons are pressed, the APPLY or the CANCEL is selected.
- When the CANCEL is selected, the results are not memorized.
- Check the results on each setup menu(SPEKER CONFIGURATION menu on page 59, SPEAKER DISTANCE menu on page 60, SPEAKER CROSSOVER menu on page 61 and CH LEVEL SETUP menu for "CALIBRATE" mode on page 64).
- If the results are not satisfactory, you can retry the auto setup procedure or personalize your speaker setup and channel level setup by making the settings manually. (For details, refer to "When selecting the SPEAKER CONFIGURATION" on page 59, "When selecting the SPEAKER DISTANCE" on page 60, "When selecting the SPEAKER CROSSOVER" on page 61, "Adjusting each channel level with test tone" on page 35 and "Adjusting the current channel level" on page 36.)

When selecting the SPEAKER CONFIGURATION

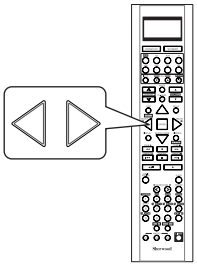
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the SPEAKER CONFIGURATION, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired speaker.



3. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to set the selected speaker as desired.



YES/NO: Select the desired depending on whether the speakers are connected or not.
2CH/1CH: Select the desired depending on the number of speakers connected to SURROUND BACK/ MULTI channels.

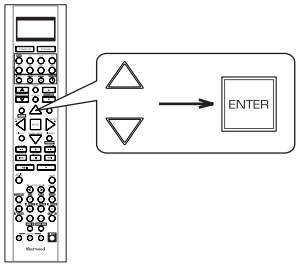
■ **Notes** :
- When speakers are not set to "NO", you should set their distances from listening position and crossover frequencies according to their frequency characteristics. (For details, refer to "When selecting the SPEAKER DISTANCE" on page 60 and "When selecting the SPEAKER CROSSOVER" on page 61.)
- When the "SURROUND" is set to "NO", "BACK/MULTI" cannot be set to "2CH" or "1CH".
- When the surround back channels' power amplifier is assigned to "BI-AMP" or "ROOM 2", the "BACK/MULTI" cannot be selected. (For details, refer to "When selecting the AMP ASSIGN" on page 49.)

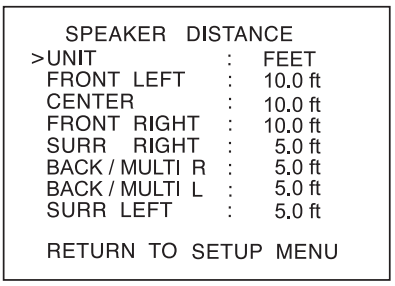
4. Repeat the above steps 2 and 3 until the speakers are all set as desired.

ENGLISH

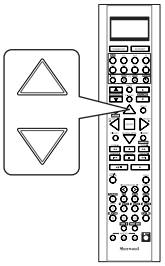
When selecting the SPEAKER DISTANCE

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the SPEAKER DISTANCE, then press the ENTER button.



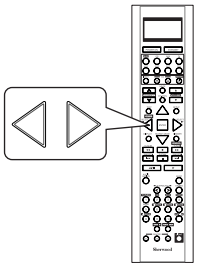


2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



■**Note :**
- You cannot select the subwoofer and the speakers set to "NO".

3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



■When selecting the desired unit
- You can select either METERS or FEET.
- Once a unit is selected, the distances are automatically changed in the selected unit.

■When setting the distance
- You can set the distance within the range of 0.1 ~ 9.0 meters in 0.1 meter intervals (or 0.5 ~ 30 feet in 0.5 feet intervals).

4. Repeat the above steps 2 and 3 until the distances are all set as desired.

■**About the speaker distance**

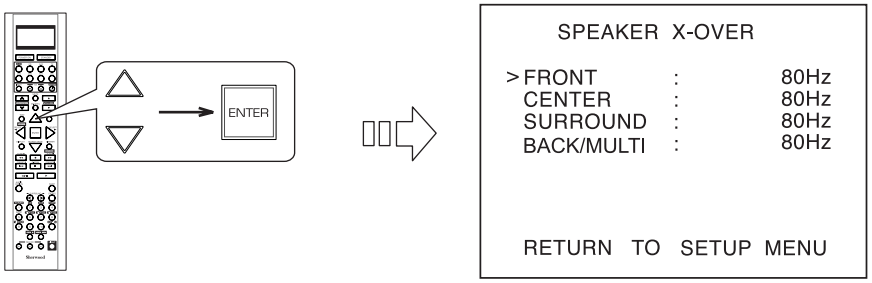
When enjoying multi-channel surround playback with Dolby Digital and DTS sources, etc., it is ideal that the center, surround and surround back speakers should be the same distance from the main listening position as the front speakers. By entering the distance between the listening position and each speaker, the delay times of center, surround and surround back speakers are automatically adjusted to create an ideal listening environment virtually as if the center, surround and surround back speakers were at their ideal locations respectively.

ENGLISH

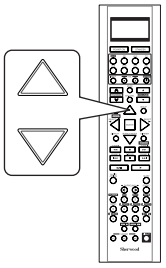
When selecting the SPEAKER CROSSOVER

- Set the crossover frequency according to the frequency characteristics of the speakers connected. (For details on the frequency characteristics, refer to the operating instructions of the speakers.)
- If the frequency range of your speaker is 100 Hz ~ 20 kHz, the crossover frequency should be set to 100 Hz (or slightly higher).
- The low frequencies below the crossover frequency are to output from subwoofer or the speakers which are set to "FULL RANGE" (when not using a subwoofer).

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the SPEAKER CROSSOVER, then press the ENTER button.

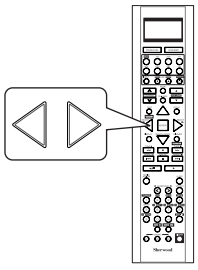


2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired speaker.



■**Note :**
- You cannot select the subwoofer and the speakers set to "NO".

3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the crossover frequency as desired.



- You can adjust the crossover frequency within the range of 40 ~ 250 Hz.
- Select "FULL RANGE" when the selected speaker can fully reproduce the low frequencies below 40 Hz.

4. Repeat the above steps 2 and 3 until the crossover frequencies are all set as desired.

ENGLISH

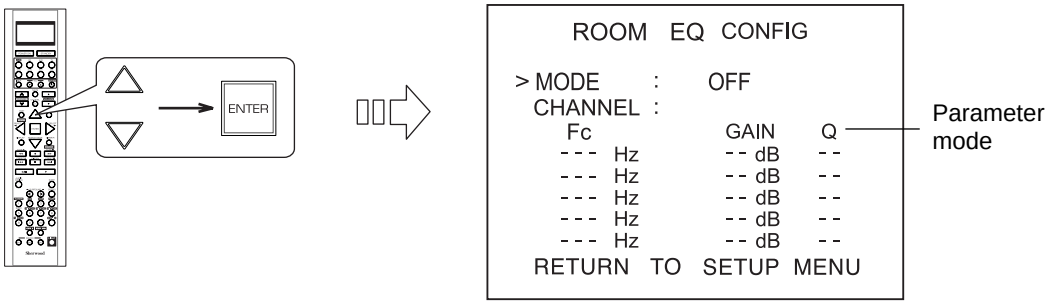
When selecting the ROOM EQ SETUP

- The room EQ is a kind of room equalizer for your speakers. According to the acoustic characteristics of your room measured by the auto setup, the room EQ automatically adjusts the frequency response of your speakers.
- If you use different brands or sizes of speakers for some channels or have a room with unique acoustic characteristics, such as walls, furniture, and the dimensions or the shape of the room, we recommend using the room EQ.

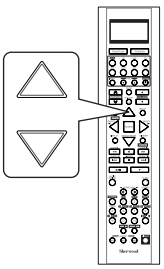
■ **Note :**

- To use the room EQ, first you should finish measuring the acoustic characteristics of your room performing the auto setup.
  (For details, refer to "When selecting the AUTO SETUP" on page 57.)

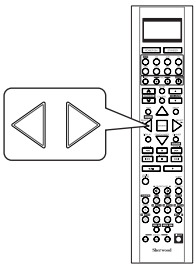
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the ROOM EQ SETUP, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the MODE.



3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired room EQ mode.



OFF : When turning off the room EQ.

FLAT : To adjust the frequency response of all speakers to the flattest response. This mode is suitable for multi channel music surround sound sources.

FRONT : To adjust the frequency response of the surround and the surround back speakers to match the characteristics of the front speakers.

USER : To adjust the tonal quality of the different speakers (except the subwoofer) manually.

■ **Note :**

- Only when the auto setup has been performed, the FLAT and the FRONT modes can be selected.

Continued

■ When selecting the USER mode

- You can adjust the parametric EQ settings to optimize the frequency characteristics of this unit's parametric equalizer to match the acoustic characteristics of your room.
- The parametric equalizer uses a combination of the following three parameters to provide highly precise adjustment of the frequency characteristics.

※ Frequency
- This unit has 5 equalizer bands for each channel. You can adjust the specified frequency bands each within the following frequency ranges :
  20 Hz ~ 120 Hz, 130Hz ~ 500 Hz, 550 Hz ~ 1.9 kHz, 2 kHz ~ 7.5 kHz, 8 kHz ~ 20 kHz

※ Gain
- This parameter is adjustable within the range of -24 ~ +24 dB in 1 dB intervals.

※ Q factor
- The width of the specified frequency band is referred to as the Q factor. This parameter is adjustable within the range of 0 ~ 24 in 1 intervals.

■ Notes :
- When selecting the mode other than "USER" mode, you cannot select the EQ parameters for each channel.
- You cannot select the channel of the subwoofer and the speakers set to "NO".

①. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the CHANNEL, then press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired channel.

②. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the parameter mode, then press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the Fc (Frequency) mode.

③. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired frequency band, then press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired frequency.

④. Repeat the above step ③ until the desired frequency is selected for each frequency band.

⑤. Repeat the above steps ② ~ ④ to adjust the gain of each specified frequency band.

⑥. Repeat the above steps ② ~ ④ to adjust the Q factor of each specified frequency band.

⑦. Repeat the above steps ① ~ ⑥ until the EQ parameters of other channels are all adjusted as desired.

ENGLISH

SETTING THE CH LEVEL SETUP

```
     CH  LEVEL  SETUP
>MODE   :      CALIBRATE
  FRONT LEFT     :      0dB
  CENTER         :      0dB
  FRONT RIGHT    :      0dB
  SURR  RIGHT    :      0dB
  BACK/MULTI  R  :      0dB
  BACK/MULTI  L  :      0dB
  SURR LEFT      :      0dB
  SUBWOOFER      :      0dB
  LFE  LEVEL  SETUP
  RETURN TO MAIN  MENU
```

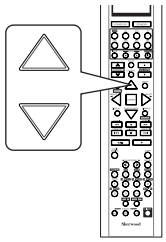
Memory mode

■ **Note :**
• Depending on the speaker settings("NO", etc.), some channels cannot be selected.

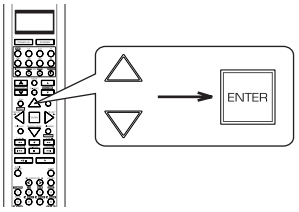
Adjusting the current channel level

• You can adjust the current channel levels as desired. These adjusted levels are just memorized into user's memory("CALIBRATE"), not into preset memory("REFERENCE 1", "REFERENCE 2").
• After adjusting each channel level with test tone, adjust the channel levels either according to the program sources or to suit your tastes.(For details, refer to "Adjusting each channel level with test tone" on page 35.)

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired channel.



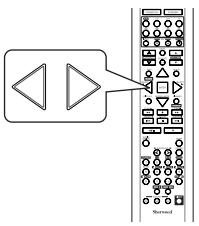
■ When adjusting the LFE LEVEL
①. Press the CURSOR UP(▲)/DOWN(▼)buttons to select the LFE LEVEL SETUP, then press the ENTER button.




```
     LFE  LEVEL  SETUP

>DOLBY  DIGITAL  :      0dB
  DTS            :      0dB
```

②. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired program source.

2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to adjust the level of the selected channel or program source's LFE as desired.



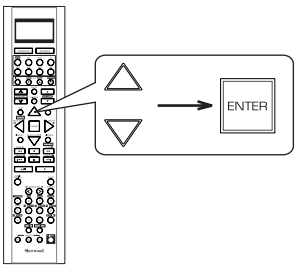
• The LFE level can be adjusted within the range of -10 ~ 0 dB and other channel levels within the range of -15 ~ +15 dB
• In general, we recommend the LFE level to be adjusted to 0 dB.(However, the recommended LFE level for some early DTS software is -10 dB.) If the recommended levels seem too high, lower setting as necessary.

3. Repeat the above steps 1 and 2 to adjust each channel level.

Memorizing the adjusted channel levels

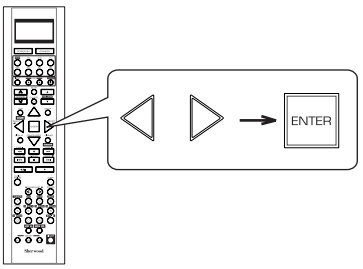
• You can memorize the adjusted channel levels into preset memory("REFERENCE 1", "REFERENCE 2") and recall the memorized whenever you want.

1. After performing the steps 1 ~ 3 in "Adjusting the current channel level" procedure on page 64, press the CURSOR UP(▲)/DOWN(▼) buttons to select a channel (, not the MODE (memory mode) and the LFE LEVEL SETUP), then press the ENTER button.



• The "REFERENCE 1" indication flickers.

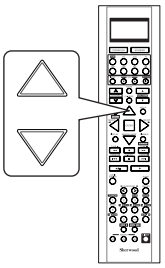
2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired preset memory, then press the ENTER button.



• Each time the CURSOR LEFT(◀) or RIGHT(▶) button is pressed, "REFERENCE 1" or "REFERENCE 2" is selected.
• The adjusted channel levels have now been memorized into the selected memory.

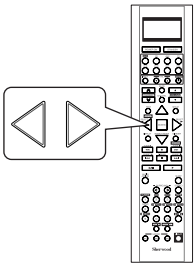
Recalling the memorized channel levels

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the MODE(memory mode).



• "CALIBRATE" may be displayed instead of "REFERENCE 1" or "REFERENCE 2".

2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired one of REFERENCE 1 and REFERENCE 2.



• Then the channel levels memorized into the selected preset memory are recalled.

ENGLISH

SETTING THE SOUND PARAMETER

```
        SOUND  PARAMETER

>NIGHT   MODE
  DOLBY  PLII MUSIC
  DOLBY  HEADPHONE
  DOLBY  VIRTUAL  SPEAKER




  RETURN  TO  MAIN  MENU
```

- NIGHT MODE : To adjust the dynamic range compression that makes faint sound easier to hear at low volume levels.
- DOLBY PLII MUSIC : To adjust the various surround parameters for optimum surround effect.
- DOLBY HEADPHONE : To select the desired listening mode for Dolby Headphone mode.
- DOLBY VIRTUAL SPEAKER : To select the speaker layout to be used actually for each Dolby Virtual Speaker mode.

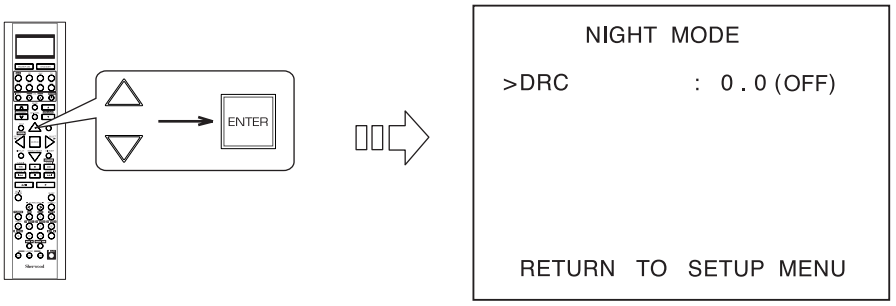
When selecting the NIGHT MODE

- This function compresses the dynamic range of previously specified parts of the Dolby Digital sound track (with extremely high volume) to minimize the difference in volume between the specified and non-specified parts.
  This makes it easy to hear all of the sound track when watching movies at night at low levels.

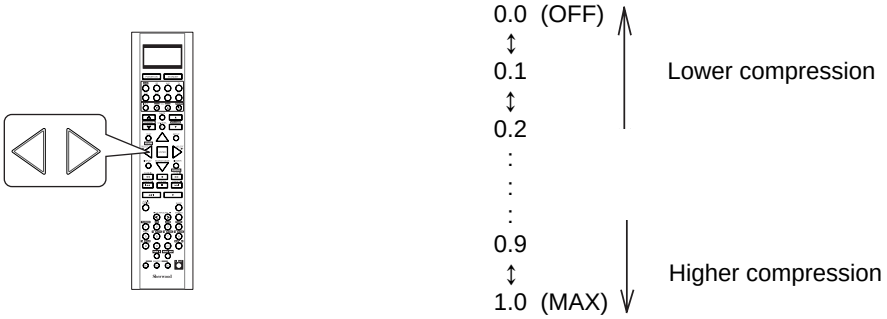
■**Notes:**

- The night mode setting is valid only when the digital signals from the Dolby Digital program source are being input.
- In some Dolby Digital softwares, the night mode setting may not be valid.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the NIGHT MODE, then press the ENTER button.



2. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to adjust the dynamic range compression as desired.



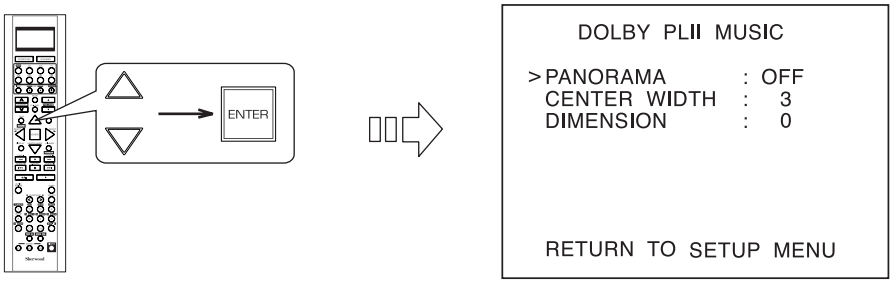
When selecting the DOLBY PLII MUSIC

• You can adjust the various surround parameters for optimum surround effect.

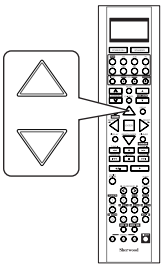
■ **Note:**

• The parameter settings are valid only when listening in either Dolby Pro Logic II Music mode or the Dolby Pro Logic IIx Music mode.

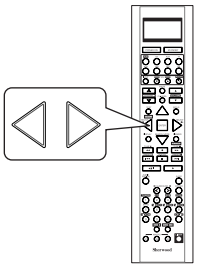
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the DOLBY PLII MUSIC, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired parameter.



3. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to adjust the selected parameter as desired.



■ **When selecting the PANORAMA mode**

This mode extends the front stereo image to include the surround speakers for an exciting "wraparound" effect with side wall imaging. Select "OFF" or "ON"(default value:OFF).

■ **When selecting the CENTER WIDTH control**

This adjusts the center image so it may be heard only from the center speaker, only from the left/right speakers as a phantom image, or from all three front speakers to varying degrees. The control can be set in 8 steps from 0 to 7 (default value : 3).

■ **When selecting the DIMENSION control**

This gradually adjusts the soundfield either towards the front or towards the rear. The control can be set in 7 steps from -3 to +3(default value : 0).

4. Repeat the above steps 2 and 3 to adjust other parameters.

ENGLISH

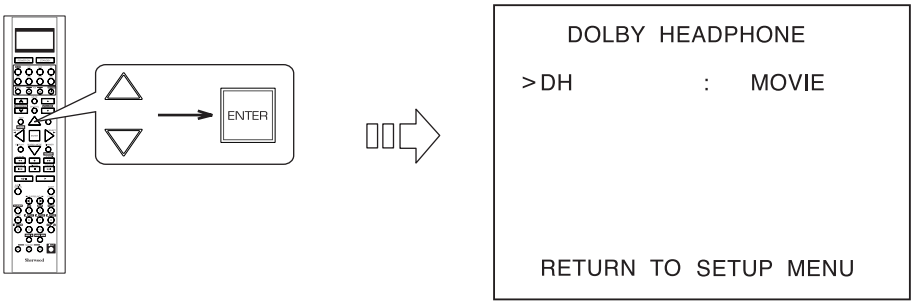
When selecting the DOLBY HEADPHONE

• You can select the desired listening mode for Dolby Headphone mode.

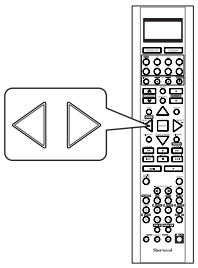
■ **Note:**

• The listening mode setting is valid only when playing analog stereo, PCM 2 channel or Dolby Digital 2 channel source.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the DOLBY HEADPHONE, then press the ENTER button.



2. Press the CURSOR LEFT(◀)/ RIGHT(▶) buttons to select the desired listening mode.



MOVIE : This provides the surround effect suitable for movie sources.

MUSIC 1 : This provides the surround effect suitable for music sources.

MUSIC 2 : This provides less surround effect compared to MUSIC 1 mode.

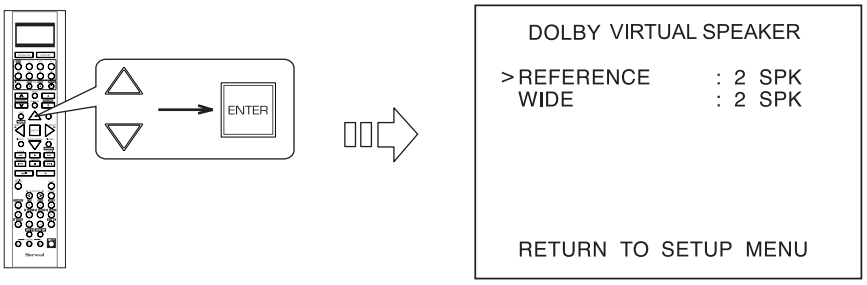
When selecting the DOLBY VIRTUAL SPEAKER

• You can select the speaker layout to be used actually for each Dolby Virtual Speaker mode.

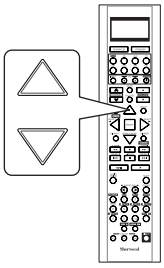
■**Note:**

• The speaker layout settings are valid only when listening in a Dolby Virtual Speaker mode.

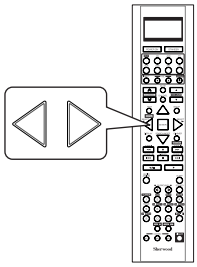
1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the DOLBY VIRTUAL SPEAKER, then press the ENTER button.



2. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired Dolby Virtual Speaker mode.



3. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to select the desired speaker layout.



■When selecting the Dolby Virtual Speaker Reference mode

2 SPK : When using 2 front speakers only.
↕
3 SPK : When using 2 front and center speakers.

■When selecting the Dolby Virtual Speaker Wide mode

2 SPK : When using 2 front speakers only.
↕
3 SPK : When using 2 front and center speakers.
↕
4 SPK : When using 2 front and 2 surround speakers.
↕
5 SPK : When using 2 front, center and 2 surround speakers.

■**Note:**

• When the speakers are set to "NO", the corresponding speaker layouts cannot be selected.

4. Repeat the above steps 2 and 3 to select the desired speaker layout for another Dolby Virtual Speaker mode.

ENGLISH

SETTING THE MULTI ROOM SETUP

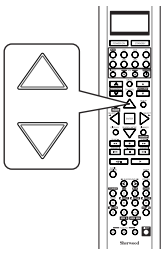
• The ROOM 2 function allows enjoying one source in the main room while playing another in a different room at the same time.

```
        MULTI  ROOM  SETUP

>ROOM 2      :    OFF
  INPUT      :    MAIN
  VOLUME     :    - - -




  RETURN  TO  MAIN  MENU
```

• ROOM 2 : To turn on or off the ROOM 2 function.
• INPUT : To select the desired ROOM 2 source.
• VOLUME : To adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2".

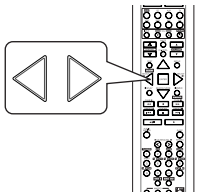
■ **Notes:**
• The analog signals from the EXTERNAL INs and the digital signals cannot be output to the different room, meaning no playback in a different room.
• You cannot play the ROOM 2 source in any surround mode.

1. Press the CURSOR UP(▲)/DOWN(▼) buttons to select the desired item.



■ **Note:**
• The VOLUME cannot be adjusted when the AMP ASSIGN is assigned to "BI-AMP" or "SURR BACK". (For details, refer to "When selecting the AMP ASSIGN" on page 49.)

2. Press the CURSOR LEFT(◀)/RIGHT(▶) buttons to set the selected item as desired.



When selecting the ROOM 2

OFF : To turn off the ROOM 2 function.
↕
ON : To turn it on.

■ **Notes:**
• When the ROOM 2 is set to OFF, the INPUT and the VOLUME cannot be selected.
• When you do not use the ROOM 2 function, set the ROOM 2 to OFF to save electricity.

When selecting the INPUT

• You can select the desired among MAIN source, TUNER, CD, AUX, TAPE, VIDEO 1 ~ VIDEO 4 as a ROOM 2 source.

■ **Note:**
• When the EXTERNAL IN is selected as a main input, if the MAIN source is selected as a ROOM 2 input, no audio signal can be heard in the different room (ROOM 2).

When selecting the VOLUME

• You can adjust the volume on the power amplifier assigned to "BACK ← → ROOM 2" or "ROOM 2" when the ROOM 2 speaker terminals are connected to the speakers in a different room.

■ **Note:**
• You can adjust the VOLUME only when the surround back channels' power amplifier is assigned to "BACK ← → ROOM 2" or "ROOM 2". (For details, refer to "When selecting the AMP ASSIGN" on page 49.)

Troubleshooting Guide

If a fault occurs, run through the table below before taking your receiver for repair.
If the fault persists, attempt to solve it by switching the receiver off and on again. If this fails to resolve the situation, consult your dealer. Under no circumstances should you attempt to repair the receiver yourself. This could void the warranty.

PROBLEM	POSSIBLE CAUSE	REMEDY
No power	• The AC input cord is disconnected. • Poor connection at AC wall outlet or the outlet is dead or off.	• Connect cord securely. • Check the outlet using a lamp or another appliance.
No sound	• The speaker wires are disconnected. • The master volume is adjusted too low. • The MUTE button is pressed to ON. • Incorrect selection of input source. • Incorrect connections between the components. • The HDMI AUDIO OUT is set to ON. • The settings related to audio are set incorrectly.	• Check the speaker connections. • Adjust the master volume. • Press the MUTE button to cancel the muting effect. • Select the desired input source correctly. • Make connections correctly. • Set it to OFF. (For details, refer to "When selecting the HDMI AUDIO OUT" on page 50.) • Set the settings correctly. (For details, refer to "SETTING THE INPUT SETUP" on page 53.)
No sound from the surround speakers	• Surround mode is switched off(stereo mode). • Master volume and surround level are too low. • Monaural source is used. • Surround speaker setting is "NO".	• Select a surround mode. • Adjust master volume and surround level. • Select a stereo or surround source. • Select the desired surround speaker setting.
No sound from the center speaker	• Dolby Virtual Speaker, stereo mode, etc is selected. • Center speaker setting is "NO". • Master volume and center level are too low.	• Select the desired surround mode. • Select the desired center speaker setting. • Adjust master volume and center level.
No sound from the surround back speakers	• The input signal format or the current surround mode cannot support the 7.1(or 6.1) surround. • The surround back channels' power amplifier is assigned to "BI-AMP" or "ROOM 2". • Master volume and surround back level are too low. • Surround back speaker setting is "NO".	• Under the proper situations, perform the 7.1(or 6.1) surround playback.(For details, refer to "ENJOYING SURROUND SOUND" on page 34.) • Assign the power amplifier to the surround back channels.(For details, refer to "When selecting the AMP ASSIGN"on page 49.) • Adjust master volume and surround back level. • Select the desired surround back speaker setting.
No picture	• Video connections between this unit and the monitor TV are not made correctly. • Incorrect selection of input source on the monitor TV. • The settings related to video are set incorrectly.	• Make proper video connections. • Select the input source correctly. • Set the settings correctly. (For details, refer to "SETTING THE INPUT SETUP" on page 53.)
No picture with an HDMI connection	• HDMI connection between this unit and the monitor TV are not made correctly. • The monitor TV or other equipments do not support HDCP.	• Make proper HDMI connection. • This unit will not output video signal unless the connected equipments supports HDCP.
Stations cannot be received	• No antenna is connected. • The desired station frequency is not tuned in. • Antenna is in wrong position.	• Connect an antenna. • Tune in the desired station frequency. • Move antenna and retry tuning.
Preset stations cannot be received	• An incorrect station frequency has been memorized. • The memorized stations are cleared.	• Memorize the correct station frequency. • Memorize the stations again.
Poor FM reception	• No antenna is connected. • The antenna is not positioned for the best reception. • Weak signals.	• Connect an antenna. • Change the position of the antenna. • Install an outdoor FM antenna.
Continuous or intermittent hissing noise during AM reception, especially at night.	• Noise is caused by motors, fluorescent lamps or lightning, etc.	• Keep the receiver away from noise sources. • Install an outdoor AM antenna.
Remote control unit does not operate.	• Batteries are not loaded or exhausted. • The remote sensor is obstructed.	• Replace the batteries. • Remove the obstacle.
OSD function is not available.	• Video connections between this unit and the monitor TV are not made correctly.	• Make proper video connections.

Specifications

ENGLISH

■ AMPLIFIER SECTION
- Power output, stereo mode, 6 Ω, THD 1.0 %, 40 Hz~20 kHz | **2 × 100 W**
- Total harmonic distortion, at -3 dB, 6 Ω, 1 kHz | **0.05%**
- Intermodulation distortion
  60 Hz : 7 kHz= 4 : 1 SMPTE, 6 Ω, 95 W | **0.05%**
- Input sensitivity/impedance
  Line (CD, TAPE, VIDEO) | **300 mV/47kΩ**
- Signal to noise ratio, IHF "A" weighted
  Line (CD, TAPE, VIDEO) | **100 dB**
- Frequency response
  Line (CD, TAPE, VIDEO), 10 Hz ~ 100 kHz | **+0, -3 dB**
- Output level
  ROOM 2 OUT, 2.2 kΩ | **300 mV**
- Bass/Treble control, 100 Hz/10 kHz | **±10 dB**
- Surround mode, only channel driven
  Front power output, 6 Ω, 1 kHz, THD 1.0 % | **110W / 110 W**
  Center power output, 6 Ω, 1 kHz, THD 1.0 % | **110 W**
  Surround power output, 6 Ω, 1 kHz, THD 1.0 % | **110 W / 110W**
  Surround back (/MULTI) / ROOM 2 power output, 6 Ω, 1 kHz, THD 1.0 % | **110 W / 110W**

■ DIGITAL AUDIO SECTION
- Sampling frequency | **32, 44.1, 48, 96 kHz**
- Digital input level
  Coaxial, 75 Ω | **0.5 Vp-p**
  Optical, 660 nm | **-15 ~ -21 dBm**

■ VIDEO SECTION
- Video format | **NTSC**
- Input sensitivity(=Output level), 75 Ω
  Video (Composite(normal)) | **1 Vp-p**
  S-Video (luminance signal) | **1 Vp-p**
  (chrominance signal) | **0.286 Vp-p**
  Component video (R-Y signal) | **0.5 Vp-p**
  (B-Y signal) | **0.5 Vp-p**
  (Y signal) | **1.0 Vp-p**
- HDMI connector | **19 pin**

■ FM TUNER SECTION
- Tuning frequency range | **87.5~108 MHz**
- Usable sensitivity, THD 3%, S/N 30 dB | **12.8 dBf**
- 50 dB quieting sensitivity, mono/stereo | **20.2 / 45.3 dBf**
- Signal to noise ratio, 65 dBf, mono/stereo | **70 / 65 dB**
- Total harmonic distortion, 65 dBf,1 kHz, mono/stereo | **0.5 / 0.8 %**
- Frequency response, 30 Hz~15 kHz | **±3 dB**
- Stereo separation, 1 kHz | **32 dB**
- Capture ratio | **4.0 dB**
- IF rejection ratio | **60 dB**

■ AM TUNER SECTION
- Tuning frequency range | **520~1710 kHz**
- Usable sensitivity | **500 µV/m**
- Signal to noise ratio | **40 dB**
- Selectivity | **25 dB**

■ GENERAL
- Power supply | **120 V ~ 60 Hz**
- Power consumption | **3.7 A**
- Switched AC outlets | **TOTAL 120 W (1 A) max.**
- Dimensions (W × H × D, including protruding parts) | **440 × 141 × 370 mm**(**17-3/8 × 5-1/2 × 14-1/2 inches**)
- Weight (Net) | **10.1 kg (22.3 lbs)**

Note: Design and specifications are subject to change without notice for improvements.

Setup Code Table

TV

AOC	005	003				
Admiral	041	031				
Aiko	014					
Akai	005					
Alaron	026					
Ambassador	024					
America Action	027					
Ampro	043					
Anam	027	047	048	049		
Audiovox	030	027	014	034		
Baysonic	027					
Belcor	003					
Bell & Howell	019	001				
Bradford	027					
Brockwood	003					
Broksonic	028	031				
CXC	027					
Candle	005	011				
Carnivale	005					
Carver	010					
Celebrity	050					
Cineral	030	014				
Citizen	012	005	011	006	014	
Concerto	011					
Contec	027					
Craig	027					
Crosley	010					
Crown	027	006				
Curtis Mathes	007	010	019	008	030	041
	012	005	016	011	001	006
	022	032	038	040		
Daewoo	030	003	006	014	034	035
Daytron	003					
Denon	016					
Dumont	002	003				
Dwin	044	036				
Electroband	050					
Emerson	019	028	031	027	029	025
	003	026	006	024	034	035
Envision	005					
Fisher	019					
Fujitsu	026					
Funai	027	026	023			
Futuretech	027					
GE	007	008	030	041	029	025
	004	015	038	040		
Gibralter	002	005	003			
Goldstar	005	025	003	011		
Gradiente	009	011				
Grunpy	027	026				
Hallmark	025					
Harley Davidson	026					
Harman/Kardon	010					
Havard	027					
Hitachi	016	011	018			
Infinity	010					
Inteq	002					
JBL	010					
JCB	050					
JVC	009	046				
KEC	027					
KTV	027	005	006			
Kenwood	005	003				
LG	011	003				
LXI	007	010	019	020	025	
Logik	001					
Luxman	011					
MGA	017	005	025	003		
MTC	012	005	003	011		
Magnavox	010	005	026			
Magestic	001					
Marantz	010	005				
Matsushita	042					
Magatron	025	016				
Memorex	019	042	031	017	025	011
	001					
Midland	007	002	008	006	015	
Minutz	004					
Mitsubishi	041	017	025	003		
Motorola	041					
Multitech	027					
NAD	020	025	022			
NEC	005	003	011			
NTC	014					
Nikko	005	025	014			
Onwa	027					
Optimus	019	042	022			
Optonica	041	021				
Orion	028	031	026			
Panasonic	008	042				
Penney	007	020	008	012	005	025
	004	003	011	006	015	040
Pilco	010	031	005	016	003	
Philips	010					

ENGLISH

ENGLISH

Pilot	005	003	006			
Pioneer	022					
Portland	003	006	014			
Prism	008					
Proscan	007					
Proton	025	032				
Pulsar	002	003				
Quasar	008	042	021			
RCA	007	008	041	003	013	015
	037	038	039	040		
Radio Shack	007	019	021	027	005	025
	003	011	006			
Realistic	019	021	027	005	025	003
	011	006				
Runco	002	005	033			
SSS	027	003				
Sampo	005	006				
Samsung	012	005	025	003	011	045
Samsux	006					
Sansei	030					
Sansui	031					
Sanyo	019					
Scimitsu	003					
Scotch	025					
Scott	028	027	025	003	026	
Sears	007	010	019	020	025	026
	011	006				
Semivox	027					
Semp	020					
Sharp	041	021	006			
Sherwood	000					
Shogun	003					
Signature	001					
Sony	050					
Soundesign	027	025	026			
Squareview	023					
Starlite	027					
Supreme	050					
Sylvania	010	005				
Symphonic	023					
TMK	025	011	024			
Tandy	041					
Technics	008	042				
Technoi Ace	026					
Techwood	008	011				
Teknika	010	027	017	012	003	026
	011	001	006	014		
Telefunken	011					
Toshiba	019	020	012			
Totevision	006					
Vector Research	005					
Victor	009					
Vidikron	010					
Vidtech	025	003				
Wards	010	021	005	025	004	003
	026	011	001			
White Westinghouse	031	034	035			
Yamaha	005	003				
Zenith	002	031	001	014		

VCR

Admiral	027	021				
Adventura	000					
Aiko	025					
Aiwa	005	000				
Akai	026					
America Action	025					
America High	004					
Asha	023					
Audiovox	005					
Beaumark	023					
Bell & Howell	017					
Brocksonic	021					
Broksonic	020	018	021	001		
CCE	015	025				
Calix	005					
Canon	004					
Carver	081					
Cineral	025					
Citizen	005	025				
Colt	015					
Craig	005	012	023	015	024	
Curtis Mathes	013	004	026	028		
Cybernex	023					
Daewoo	010	025				
Denon	008					
Dynatech	000					
Electrohome	005					
Electrophonic	005					
Emerex	002					
Emerson	005	020	000	018	009	021
	001	025				
Fisher	012	017				
Fuji	004	003				
Funai	000					
GE	013	004	027	023		
Garrard	000					
Go Video	052					
GoldStar	005	006				
Gradiente	000					
HI-Q	012					
Harley Davidson	000					
Harman/Kardon	016	006				
Harwood	015					

Headquarter	011					
Hitachi	000	008	026			
Hughes Net.Sys	008					
JVC	014	026				
Jensen	026					
KEC	005	025				
KLH	015					
Kenwood	014	026	006			
Kodak	004	005				
LXI	005					
Lloyd's	000					
Logik	015					
MEI	004					
MGA	023	009				
MGN Technology	023					
MTC	023	000				
Magnasonic	025					
Magnavox	004	007	016	000	019	
Magnin	023					
Marantz	004	016				
Marta	005					
Matsushita	004	028	029			
Memorex	004	005	027	007	012	023
	000	017	021	011	031	032
Minolta	008					
Mitsubishi	027	014	009			
Motorola	004	027				
Multitech	000	015				
NEC	017	014	026	006		
Nikko	005					
Noblex	023					
Olympus	004					
Opimus	005	027	017	028	029	030
	031	032				
Orion	020	021	001			
Panasonic	004	028	022	029	031	
Penny	004	005	023	008	006	
Pentax	008					
Philco	004	021				
Philips	004	016				
Pilot	005					
Pioneer	014					
Profitronic	023					
Proscan	013					
Protec	015					
Pulsar	007					
Quarter	011					
Quartz	011					
Quasar	004	028	029	031		
RCA	013	004	027	023	008	019
Radio Shack	000					
Radix	005					
Randex	005					

Realistic	004	005	027	012	000	017
	011					
Runco	007					
STS	008					
Samsung	023	010	033			
Sanky	027	007				
Sansui	000	014	021	026	024	
Sanyo	012	023	017	011		
Scott	020	010	018	009		
Sears	004	005	012	000	008	017
	011					
Semp	010					
Sharp	027					
Shintom	015					
Shogun	023					
Singer	015					
Sony	004	002	000	003		
Syvania	004	016	000	009		
Symphonic	000					
TMK	023					
Tatung	026					
Teac	000	026				
Technics	004	028				
Teknika	004	005	000			
Thomas	000					
Toshiba	010	009				
Totevision	005	023				
Unitech	023					
Vector	010					
Vector Research	006					
Video Concepts	010					
Videosonic	023					
Wards	013	004	027	012	016	023
	000	008	015	019		
White WestingHouse	021	025				
XR-100	004	000	015			
Yamaha	006					
Zenith	007	000	021	003		
Ameira High	004 (TV use 008)					
Brocksonic	001					
Colt	015					
Cutis Mathes	004 (TV use 008)					
Daewoo	025					
Emerson	001					
Funai	000					
GE	004 (TV use 008)		013 (TV use 012)			
	027 (TV use 041)		023			
Hitachi	004 (TV use 008)		000			
HQ	000					
Lloyds	000					
MGA	023					
Megavox	016 (TV use 010)		004 (TV use 008)			
	000					

Magnin	023
Memorex	005 028 (TV use 025)
Mitsubishi	027 (TV use 041)
Orion	001
Panasonic	004 (TV use 008) 028 (TV use 042)
Penney	004 (TV use 008) 023
	028 (TV use 042)
Quasar	004 (TV use 008) 028 (TV use 042)
RCA	013 (TV use 012) 004 (TV use 008)
	027 (TV use 041)
Sansui	000
Sanyo	023
Sear	000 005
Sharp	027 (TV use 041)
Sony	002 (TV use 000)
Symphonic	000
Zenith	000

DVD

Harman/Kardon	009
JVC	008
Kenwood	005
Megavox	011
Mitsubishi	016
Onkyo	011
Panasonic	013
Philips	011 006
Pioneer	003 014 026
Proscan	002
RCA	002
Samsung	017
Sherwood	001 012 000 018 019
	020 021 022 023 025
Sony	004
Technics	013
Theta Digital	014
Toshiba	011
Yamaha	013 007
Zenith	011 010

CBL

ABC	002 003 009 030
	007 006 008
Allegro	018 021
Archer	018 026
Bell&Howell	009
Century	018
Citizen	018 021
Comtronics	014
Contec	011
Easten	001
Emerson	026
Everquest	010 014
Focus	022
Garrard	018
Gemini	010
General Instrument	033 276 006 034
GoldStar	017 040
Goodmind	026
Hamlin	012 020 004 013
Hitachi	006
Hytex	007
Jasco	010 018 021
Jerrold	002 007 033 032 009 010
	006 034
Movie Time	015
NSC	015
Oak	011
Optimus	031
Panasonic	016 031
Philips	018
Pioneer	017 025
Popular Mechanics	022
RCA	031
Radio Shack	010 021 026 028
Recoton	022
Regal	012 020
Regency	001
Rembrandt	006
Sherwood	000
SL Marx	014
Smasung	017 014
Scientific Atlanta	003 023 030 027
Signal	010 014
Signature	006
Sprucer	031
Starcom	002 010

Stargate	010	014	026
Starquest	010		
TV86	015		
Teleview	014		
Tocom	007	008	
Tusa	010		
Unika	018		
United Artists	007		
Universal	153	019	
Viewstar	015		
Zenith	024		
Zentek	022		

SAT

AlphaStar	008		
Chaparral	001		
Echostar	009		
Expreevu	009		
General Instrument	016	015	018
HTS	009		
Hitachi	011		
Hughes Net.Sys	007		
JVC	009		
Jerrold	016	015	
Megavox	006	005	
Memorex	006		
Next Level	006		
Panasonic	017		
Philips	006	005	
Primestar	016	015	
RCA	003	002	012
Radio Shack	018		
Realistic	014		
Sherwood	000		
Sony	004		
Star Choice	018		
Toshiba	010		
Uniden	006	005	014
Zenith	013		

AUX-TAPE/MD

Sherwood	000 (for tape deck)
	035 (for MD recorder)

AUX-LD

Denon	007	
Mitsubishi	007	
NAD	007	
Pioneer	007	
Sony	017	018

AUX-TAPE

Aiwa	004	034	
Carver	004		
Harman/Kardon	016	004	
JVC	022	024	
Kenwood	008		
Megavox	004		
Marantz	004		
Onkyo	012	025	
Opimus	002	020	
Panasonic	038		
Pioneer	002	020	011
Sansui	004		
Sony	021	014	026
Technics	038		
Victor	024		
Wards	002		
Yamaha	010	009	

AUX-AMP

Aiwa	029	
Carver	023	
Curtis Mathes	027	
Denon	037	
Harman/Kardon	040	
Linn	023	
Megavox	023	
Marantz	023	
Panasonic	039	
Philips	023	040
Pioneer	003	027
Sony	019	033
Technics	039	
Wards	003	
Yamaha	028	

ENGLISH

AUX-HOME AUTOMATION

GE	043
Lutron	044
One For All	042
Radio Shack	043
Security System	042
Universal X10	042
X10	042

AUX-DBS

Aiwa	045	059	029
Fisher	005		
Harman/Kardon	046		
JBL	046		
JVC	047		
Jerrold	031		
RCA	006		
Scientific Artlanta	032		
Sony	045		
Starcom	031		

AUX-ACCESSARY

Archer	013
GC Electronics	013
Jebsee	013
Rabbit	036
Radio Shack	013

CD

Aiwa	010	030	
Burmester	019		
California Audio Lab	002		
Carver	010	012	020
DKK	001		
Denon	028	034	
Emerson	035		
Fisher	012	033	
Garrard	019	018	
Genexxa	004	035	
Harman/Kardon	010	011	
Hitachi	004		
JVC	007		

Kenwood	003	029	016	024	025
Krell	010				
LXI	035				
Linn	010				
MCS	002				
MTC	019				
Megavox	010	035			
Marantz	002	010	013		
Mission	010				
NSM	010				
Nikko	033				
Onkyo	008	026			
Opimus	001	004	012	035	029
	019	009	021	020	
Panasonic	002	031			
Parasound	019				
Philips	010	023			
Pioneer	004	035	021	017	
Proton	010				
QED	010				
Quasar	002				
RCA	012	035	006	036	
Realistic	012	019	013		
Rotel	010	019			
SAE	010				
Sansui	010	035			
Sanyo	012				
Scott	035				
Sears	035				
Sharp	029	013	037		
Sherwood	013	027	038	039	040 041
	000				
Sony	001	014	022		
Soundesign	009				
Tascam	019				
Teac	019	018	033	013	
Technics	002	031			
Victor	007				
Wards	010	006			
Yamaha	005	015			
Yorx	032				

R-772

Audio/Video Receiver

Sherwood NEWCASTLE

5707-00000-077-0S