⬥ YAMAHA

RX-V340

AV Receiver

OWNER'S MANUAL
MANUAL DE INSTRUCCIONES
使用说明书

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

1 **To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.**

2 **Install this sound system in a well ventilated, cool, dry, clean place — away from direct sunlight, heat sources, vibration, dust, moisture, and/or cold. Allow ventilation space of at least 30 cm on the top, 20 cm on the left and right, and 20 cm on the back of this unit.**

3 **Locate this unit away from other electrical appliances, motors, or transformers to avoid humming sounds.**

4 **Do not expose this unit to sudden temperature changes from cold to hot, and do not locate this unit in a environment with high humidity (i.e. a room with a humidifier) to prevent condensation inside this unit, which may cause an electrical shock, fire, damage to this unit, and/or personal injury.**

5 **Avoid installing this unit where foreign object may fall onto this unit and/or this unit may be exposed to liquid dripping or splashing. On the top of this unit, do not place:**
   – Other components, as they may cause damage and/or discoloration on the surface of this unit.
   – Burning objects (i.e. candles), as they may cause fire, damage to this unit, and/or personal injury.
   – Containers with liquid in them, as they may fall and liquid may cause electrical shock to the user and/or damage to this unit.

6 **Do not cover this unit with a newspaper, tablecloth, curtain, etc. in order not to obstruct heat radiation. If the temperature inside this unit rises, it may cause fire, damage to this unit, and/or personal injury.**

7 **Do not plug in this unit to a wall outlet until all connections are complete.**

8 **Do not operate this unit upside-down. It may overheat, possibly causing damage.**

9 **Do not use force on switches, knobs and/or cords.**

10 **When disconnecting the power cord from the wall outlet, grasp the plug; do not pull the cord.**

11 **Do not clean this unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.**

12 **Only voltage specified on this unit must be used. Using this unit with a higher voltage than specified is dangerous and may cause fire, damage to this unit, and/or personal injury. YAMAHA will not be held responsible for any damage resulting from use of this unit with a voltage other than specified.**

13 **To prevent damage by lightning, disconnect the power cord from the wall outlet during an electrical storm.**

14 **Do not attempt to modify or fix this unit. Contact qualified YAMAHA service personnel when any service is needed. The cabinet should never be opened for any reasons.**

15 **When not planning to use this unit for long periods of time (i.e. vacation), disconnect the AC power plug from the wall outlet.**

16 **Be sure to read the "TROUBLESHOOTING" section on common operating errors before concluding that this unit is faulty.**

17 **Before moving this unit, press STANDBY/ON to set this unit in standby mode, and disconnect the AC power plug from the wall outlet.**

18 **VOLTAGE SELECTOR (General model only) The VOLTAGE SELECTOR on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply. Voltages are 110V-120V, 220V-240V AC, 50/60 Hz.**

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if this unit itself is turned off. This state is called standby mode. In this state, this unit is designed to consume a very small quantity of power.

IMPORTANT
Please record the serial number of this unit in the space below.
MODEL:
Serial No.:
The serial number is located on the rear of the unit. Retain this Owner's Manual in a safe place for future reference.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

FOR CANADIAN CUSTOMERS
To prevent electric shock, match wide blade of plug to wide slot and fully insert.
This Class B digital apparatus complies with Canadian ICES-003.

CAUTION

CONTENTS

INTRODUCTION

PREPARATION

BASIC OPERATION

ADVANCED OPERATION

ADDITIONAL INFORMATION

English

FEATURES

Built-in 5-channel power amplifier

◆ Minimum RMS output power
(0.1% THD, 1 kHz, 6Ω)
[U.S.A. and Canada models]
Main: 70 W + 70 W
Center: 70 W
Rear: 70 W + 70 W
[Other models]
Main: 60 W + 60 W
Center: 60 W
Rear: 60 W + 60 W

Multi-mode digital sound field processing

◆ Dolby Pro Logic/Dolby Pro Logic II decoder
◆ Dolby Digital/Dolby Digital + Matrix 6.1 Decoder
◆ DTS/DTS + Matrix 6.1 Decoder
◆ CINEMA DSP: Combination of YAMAHA DSP technology and Dolby Pro Logic, Dolby Digital or DTS
◆ Virtual CINEMA DSP
◆ SILENT CINEMA DSP

Sophisticated AM/FM Tuner

◆ 40-Station random access preset tuning
◆ Automatic preset tuning
◆ Preset station shifting capability (Preset editing)

Other features

◆ 96 kHz/24-bit D/A converter
◆ Set menu for optimizing this unit for your Audio/Video system
◆ Test tone generator for easier speaker balance adjustment
◆ 6-channel external decoder input
◆ Optical and coaxial digital audio signal jacks
◆ Sleep timer
◆ Remote control with preset manufacturer codes

■ About this manual

• ☀ indicates a tip for your operation.
• Some operations can be performed by using either the buttons on the main unit or on the remote control. In cases when the button names differ between the main unit and the remote control, the button name on the remote control is given in parentheses.
• This manual is printed prior to production. Design and specifications are subject to change in part for the reason of the improvement in operativity ability, and others. In this case, the product has priority.

GETTING STARTED

Supplied accessories

After unpacking, check that the following parts are contained.

Remote control
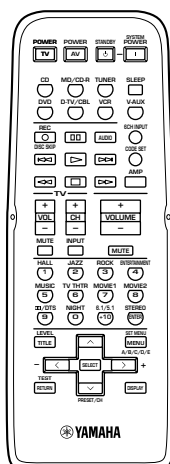
**Batteries (2)
(AA, R06, UM-3)**
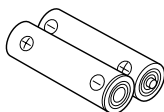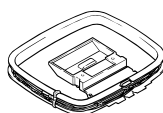
**Indoor FM antenna
(U.S.A., Canada, China,
Korea and General models)**

AM loop antenna
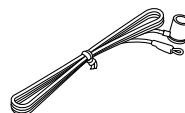
**(Europe, U.K., Australia and
Singapore models)**
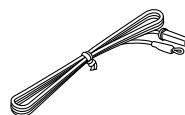
Installing batteries in the remote control

Insert the batteries in the correct direction by aligning the + and – marks on the batteries with the polarity markings (+ and –) inside the battery compartment.
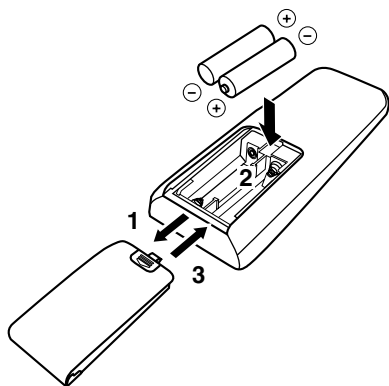
1 **Press the part marked with a ☰ and slide off the battery compartment cover.**

2 **Insert the two batteries supplied (AA, R06, UM-3) according to the polarity markings on the inside of the battery compartment.**

3 **Slide the cover back on so that it snaps into place.**

■ Notes on batteries
• Change all of the batteries if you notice a decrease in the operating range of the remote control.
• Do not use old batteries together with new ones.
• Do not use different types of batteries (such as alkaline and manganese batteries) together. Read the packaging carefully as these different types of batteries may have the same shape and color.
• If the batteries have leaked, dispose of them immediately. Avoid touching the leaked material or letting it come into contact with clothing, etc. Clean the battery compartment thoroughly before installing new batteries.

If the remote control is without batteries for more than 2 minutes, or if exhausted batteries remain in the remote control, the contents of the memory may be cleared. When the memory is cleared, insert new batteries, set up the manufacturer code and program any acquired functions that may have been cleared.

CONTROLS AND FUNCTIONS

Front panel
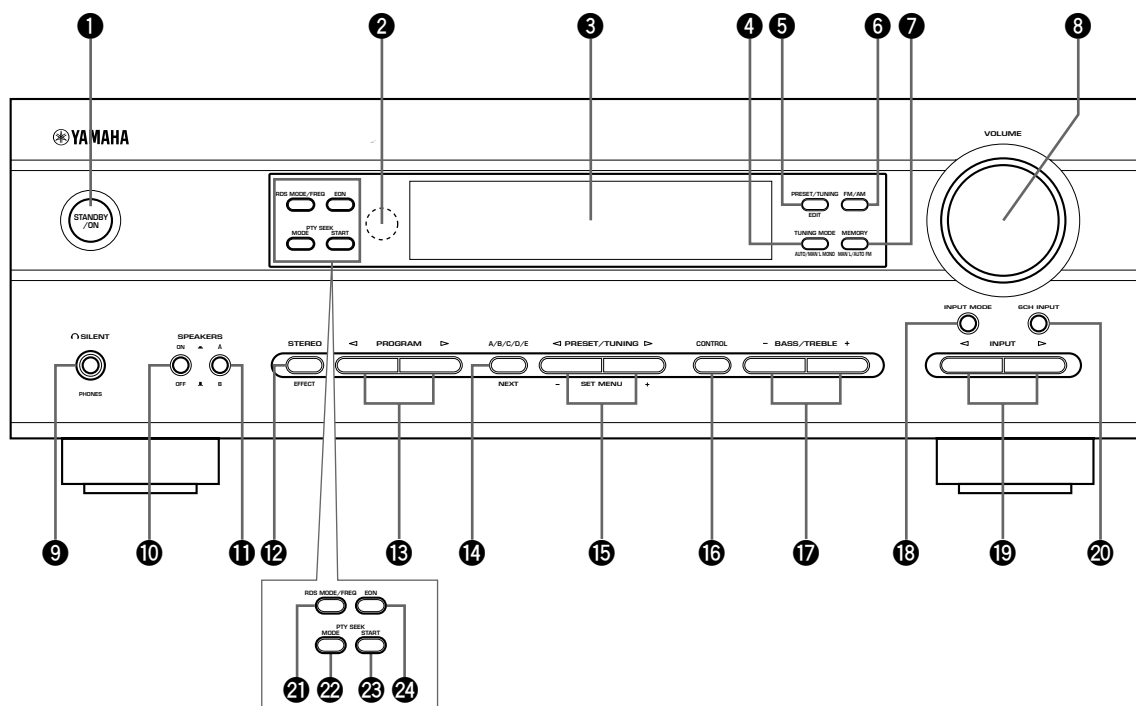
(U.K. and Europe models only)

❶ STANDBY/ON
Turns the unit on, or sets it in standby mode. When you turn the unit on, you will hear a click and there will be a 4 to 5-second delay before it can reproduce sound.

> **Standby mode**
> In this mode, the unit uses a small amount of power in order to receive infrared-signals from the remote control.

❷ Remote control sensor
Receives signals from the remote control.

❸ Front panel display
Shows information about the operational status of the unit.

❹ TUNING MODE (AUTO/MAN'L MONO)
Switches the tuning mode between automatic and manual.

❺ PRESET/TUNING (EDIT)
Switches the function of PRESET/TUNING ◁ / ▷ between selecting a preset station number and tuning (the colon (:) turns on or off).
This button is also used to exchange the assignment of two preset stations with each other.

❻ FM/AM
Switches the reception band between FM and AM.

❼ MEMORY (MAN'L/AUTO FM)
Stores the current station in memory.

❽ VOLUME
Controls the output level of all audio channels.
This does not affect the OUT (REC) level.

❾ ∩ SILENT (PHONES jack)
Allows you to enjoy DSP effects when listening with headphones.
Inserting the plug from your headphones into the PHONES jack does not affect the sound output from the speakers. If you wish to stop the signal output to the speakers, press SPEAKERS ON/OFF so that it is in the OFF position.

❿ SPEAKERS ON/OFF
Turns on or off the speakers that you selected by SPEAKERS A/B.

⓫ SPEAKERS A/B
Selects the set of main speakers connected to the A or B terminals.

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⑫ STEREO (EFFECT)

Switches between normal stereo and DSP effect reproduction. When you select STEREO, the unit mixes down all Dolby Digital and DTS signals (except the LFE channel) as well as those 2-channel signals without effects, to the main left and right speakers.

⑬ PROGRAM ◁ / ▷

Select the DSP program.

⑭ A/B/C/D/E

Selects preset station groups A to E when the unit is in tuner mode.

NEXT

Selects the set menu mode when the unit is not in tuner mode.

⑮ PRESET/TUNING ◁ / ▷

Select preset station numbers 1 to 8 when a colon (:) is displayed in the front panel display.
Select the tuning frequency when a colon (:) is not displayed when the unit is in tuner mode.

SET MENU –/+

Adjust settings on the set menu when the unit is not in tuner mode.

⑯ CONTROL

Switches between Bass (low-frequency response) control mode and Treble (high-frequency response) control mode.

⑰ BASS/TREBLE –/+

Increase or decrease low/high-frequency response when the unit is in Bass/Treble control mode. The sound changes 2dB each time you press one of these buttons. Control range: –10 to +10dB.

⑱ INPUT MODE

Sets the priority for the types of input signals (AUTO, DTS, ANALOG) received when one component is connected to two types of input jacks. You cannot set priority for an audio sources if you have selected 6CH INPUT as the input source.

⑲ INPUT ◁ / ▷

Selects the input source you want to listen to or watch.

⑳ 6CH INPUT

Selects the audio source connected to the 6CH INPUT jacks. This selection takes priority over sources selected with INPUT (or the input selector buttons on the remote control).

(U.K. and Europe models only)

㉑ RDS MODE/FREQ

Press this button when the unit is receiving an RDS station, to cycle the display mode among PS mode, PTY mode, RT mode, CT mode (if the station offers those RDS data service) and/or frequency display mode in turn.

㉒ PTY SEEK MODE

Press this button to set the unit in the PTY SEEK mode.

㉓ PTY SEEK START

Press this button to begin searching for a station after the desired program type has been selected in the PTY SEEK mode.

㉔ EON

Press this button to select a radio program type (NEWS, INFO, AFFAIRS, SPORT) to tune in automatically.

Remote control

This section describes the controls and functions of the
remote control when it is set in AMP mode. Please make
sure to select AMP mode before beginning operation.
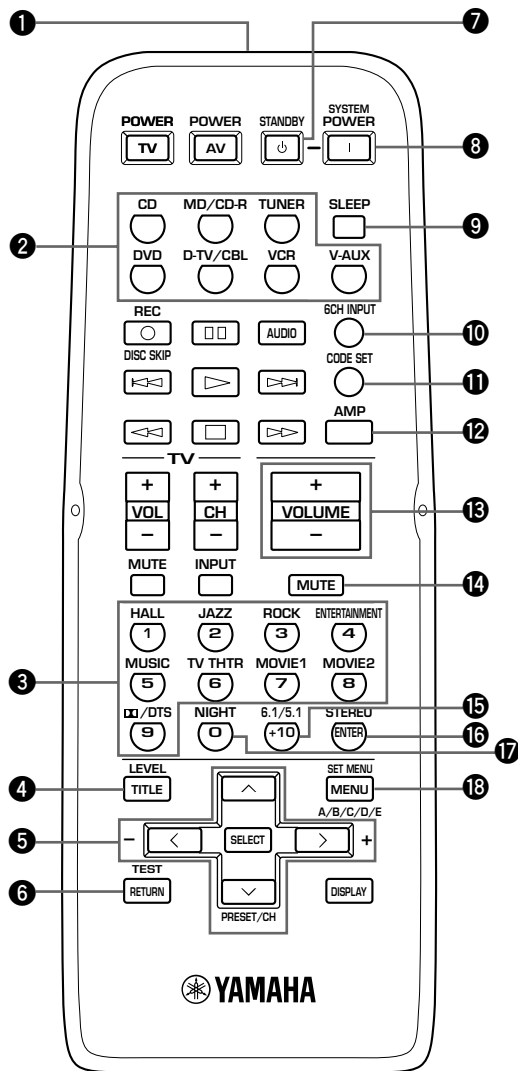
① **Infrared emitter**
Outputs infrared control signals. Aim this emitter at the
component you want to operate.

② **Input selector buttons**
Select the input source and set the remote control to
operate the selected source component.

③ **DSP program**
Select DSP programs when the remote control is in AMP
mode. Press one of these buttons repeatedly to select a
DSP program within a program group.

④ **LEVEL**
Selects the effect speaker channel to adjust.

⑤ **Multi control section**
Used to change and implement settings.

⑥ **TEST**
Outputs a test tone for use when adjusting the speaker
levels.

⑦ **STANDBY**
Sets this unit in standby mode.

⑧ **SYSTEM POWER**
Turns on the power of the unit.

⑨ **SLEEP**
Sets the sleep timer.

⑩ **6CH INPUT**
Selects the audio source connected to the 6CH INPUT
jacks.

⑪ **CODE SET**
Used to set up manufacturer codes (see page 44).

⑫ **AMP**
Switches control from a previously selected component
by using the input selector buttons to this unit.

⑬ **VOLUME +/–**
Increases or decreases the volume level.

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⑭ **MUTE**

Mutes the sound. Press again to restore the audio output to the previous volume level.

⑮ **6.1/5.1**

Switches on or off the Dolby Digital + Matrix 6.1 or DTS + Matrix 6.1 decoder.

⑯ **STEREO**

Switches between normal stereo and DSP effect reproduction. When you select STEREO the unit mixes down all Dolby Digital and DTS signals (except the LFE channel) as well as those 2-channel signals without effect sounds, to the main left and right speakers.

⑰ **NIGHT**

Sets the unit in night listening mode.

⑱ **SET MENU**

Selects the set menu mode.

■ **Using the remote control**

30° 30° **Approximately 6 m (20 feet)**
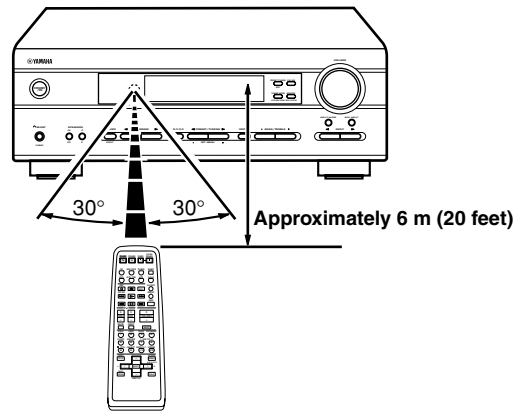
The remote control transmits a directional infrared beam. Be sure to aim the remote control directly at the remote control sensor on the main unit during operation.

■ **Handling the remote control**
• Do not spill water or other liquids on the remote control.
• Do not drop the remote control.
• Do not leave or store the remote control in the following types of conditions:
  – high humidity or temperature such as near a heater, stove or bath;
  – dusty places; or
  – in places subject to extremely low temperatures.

INTRODUCTION

English

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Front panel display

(U.K. and Europe models only)
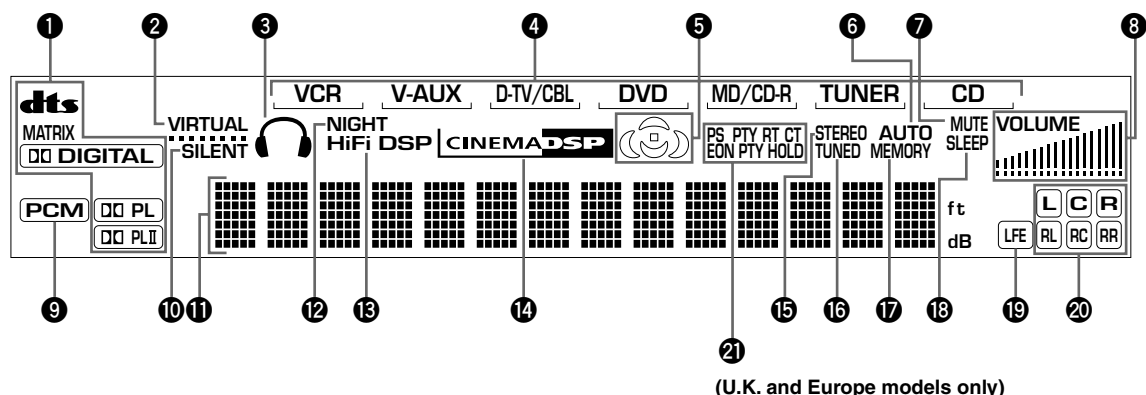
❶ Processor indicators
The indicators for the various decoders light up when the decoders are in use.

❷ VIRTUAL indicator
Lights up when using Virtual CINEMA DSP.

❸ Headphones indicator
Lights up when headphones are connected to the headphone jack.

❹ Input source indicator
Highlights the current input source with a cursor.

❺ Sound field indicator
Displays the sound field management the unit is using when you listen to a DSP sound field program.

❻ AUTO indicator
Shows that this unit is in the automatic tuning mode.

❼ MUTE indicator
Flashes while the MUTE function is on.

❽ VOLUME level indicator
Indicates the volume level.

❾ PCM indicator
Lights up when this unit is reproducing PCM (pulse code modulation) digital audio signals.

❿ SILENT indicator
Lights up when headphones are connected and the digital sound field processor is on.

⓫ Multi-information display
Shows the current DSP program name and other information when you are adjusting or changing settings.

⓬ NIGHT indicator
Lights up when the unit is set to night listening mode.

⓭ HiFi DSP indicator
Lights up when you select a Hi-Fi DSP sound field program.

⓮ CINEMA DSP indicator
Lights up when you select a CINEMA DSP sound field program.

⓯ STEREO indicator
Lights up when the unit is receiving a strong signal from a FM stereo broadcast while the "AUTO" indicator is lit.

⓰ TUNED indicator
Lights up when this unit is tuned to a radio station.

⓱ MEMORY indicator
Flashes to show a station can be stored in memory.

⓲ SLEEP indicator
Lights up while the sleep timer is on.

⓳ LFE indicator
Lights up when the input signal contains an LFE signal.

⓴ Input channel indicator
The indicators for the appropriate sound channels light up when a digital signal from a source is played back.

㉑ RDS indicator (U.K. and Europe models only)
The name(s) of the RDS data offered by the currently received RDS station light(s) up.
EON indicator lights up when an RDS station that offers the EON data service is being received.
PTY HOLD indicator lights up while searching for stations in the PTY SEEK mode.

CONNECTIONS

Before connecting components

CAUTION

Do not connect this unit or other components to the mains power until all connections between the components have been completed.

- Be sure all connections are made correctly, that is to say L (left) to L, R (right) to R, "+" to "+" and "–" to "–". Some components require different connection methods and have different jack names. Refer to the operation instructions for each component you wish to connect to this unit.
- After you have completed all connections, check them again to make sure they are correct.
- The jack names correspond to the names on the input selector.

■ Connecting to digital jacks

This unit has digital jacks for direct transmission of digital signals through either a coaxial or fiber optic cable. You can use the digital jacks to input PCM, Dolby Digital and DTS bitstreams. Use digital connections if you wish to enjoy the multi-channel sound track of DVD material, etc. with DSP effects. Both digital input jacks are acceptable for 96 kHz sampling digital signals.

Note

- The OPTICAL jack on this unit conform to the EIA standard. If you use a fiber optic cable that does not conform to this standard this unit may not function properly.

DIGITAL INPUT jacks
(pages 9 – 11)

Audio component jacks
(page 11)

Video component jacks
(page 10)

Speaker terminals
(page 16)

This jack is reserved for factory use.
Do not connect any equipment to this jack.

6CH INPUT jacks
(page 13)

Antenna input terminals
(page 12)

SUBWOOFER OUTPUT
jack (page 16)
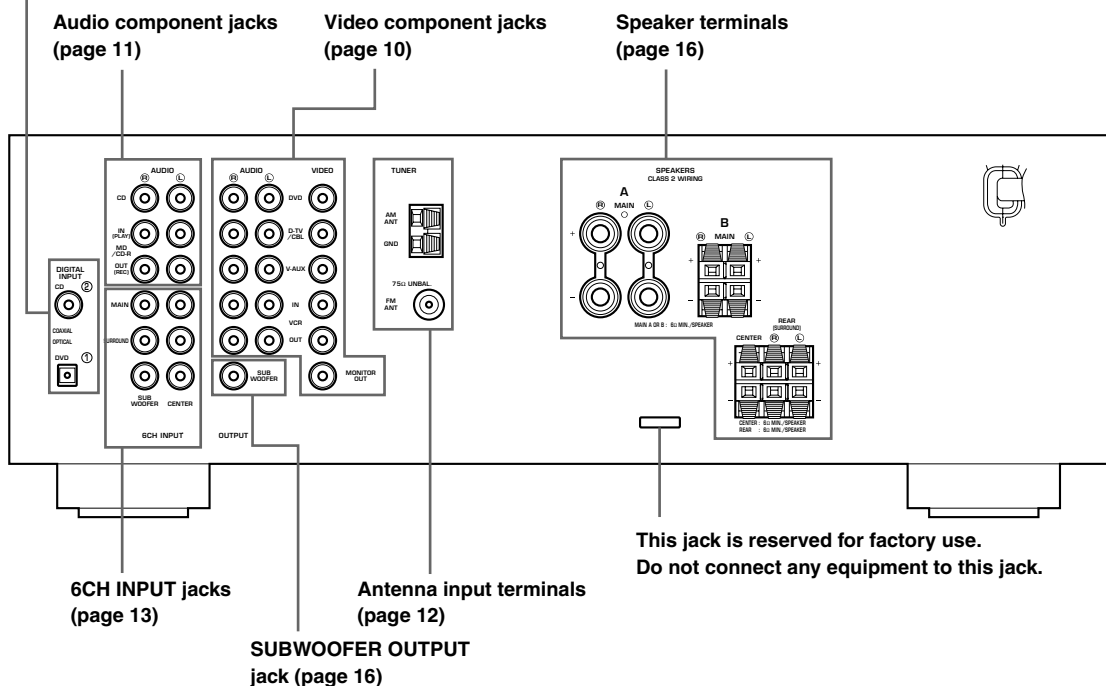
Connecting video components

■ Connecting a video monitor

Connect the video input jack on your video monitor to the MONITOR OUT VIDEO jack.

■ Connecting a DVD player

Connect the optical digital audio signal output jack on your component to the DIGITAL INPUT jack and connect the video signal output jack on the component to the VIDEO jack on this unit.

☀️

• Use the AUDIO jacks on this unit for a video component which does not have optical digital output jack. However, multi-channel reproduction cannot be obtained with audio signals input from the AUDIO jacks.

■ Connecting a digital TV/cable TV

Connect the video signal output jack on your component to the VIDEO jack on this unit.
Connect the audio signal output jacks on the component to the AUDIO jacks on this unit.

■ Connecting another video component

Connect the video signal output jack on your component to the VIDEO jack on this unit.
Connect the audio signal output jacks on the component to the AUDIO jacks on this unit.

■ Connecting a recording component

Connect the audio signal input jacks on your video component to the AUDIO OUT jacks on this unit. Then connect the video signal input jack on the video component to the VIDEO OUT jack on this unit for picture recording.
Connect the audio signal output jacks on your component to the AUDIO IN jacks on this unit. Then connect the video signal output jack on the component to the VIDEO IN jack on this unit to play a source from your recording component.

Note

• Once you have connected a recording component to this unit, keep its power turned on while using this unit. If the power is off, this unit may distort the sound from other components.

DVD player

TV/digital TV/ cable TV

Another video component

OPTICAL OUTPUT

AUDIO OUTPUT
VIDEO OUTPUT
VIDEO OUTPUT
AUDIO OUTPUT
VIDEO OUTPUT
AUDIO OUTPUT

VCR

AUDIO OUTPUT
AUDIO INPUT
VIDEO INPUT
VIDEO OUTPUT

VIDEO INPUT **Video monitor**

→ **indicates audio signal direction**

L **indicates left analog cables**

R **indicates right analog cables**

O **indicates optical cables**

→ **indicates video signal direction**

V **indicates video cables**
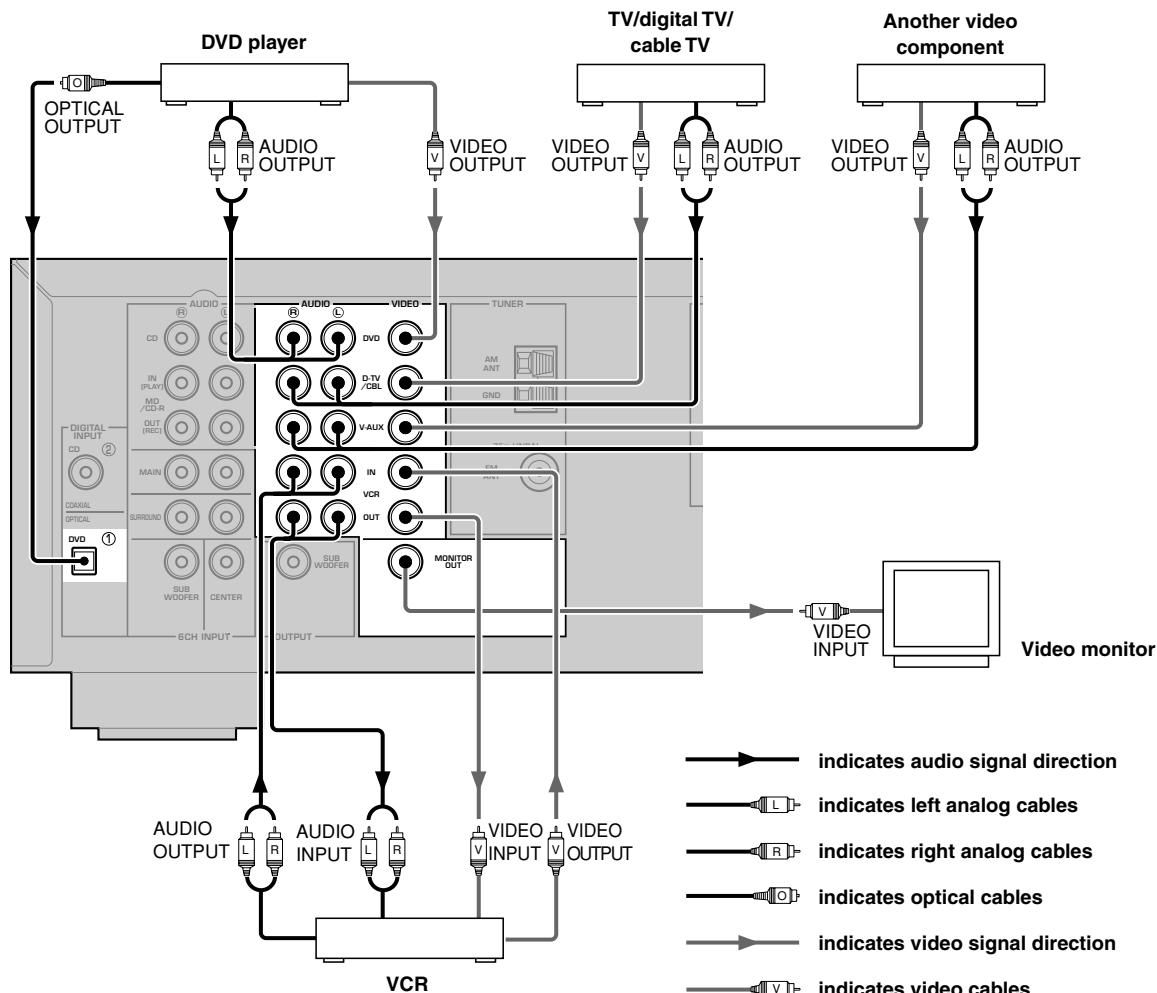
Connecting audio components

■ **Connecting a CD player**
Connect the coaxial digital output jack on your CD player
to the DIGITAL INPUT CD jack on this unit.
☼
• Use the AUDIO jacks on this unit to connect to a CD player
  that does not have a COAXIAL DIGITAL OUTPUT jack, or
  to record from CD players.

■ **Connecting a CD recorder or MD recorder**
Connect the input jacks on your CD recorder or MD
recorder to the MD/CD-R OUT (REC) jacks.
Connect the output jacks on your CD recorder or MD
recorder to the MD/CD-R IN (PLAY) jacks to play a
source from your recording component.

Note

• Once you have connected a recording component to this unit,
  keep its power turned on while using this unit. If the power is
  off, this unit may distort the sound from other components.

PREPARATION
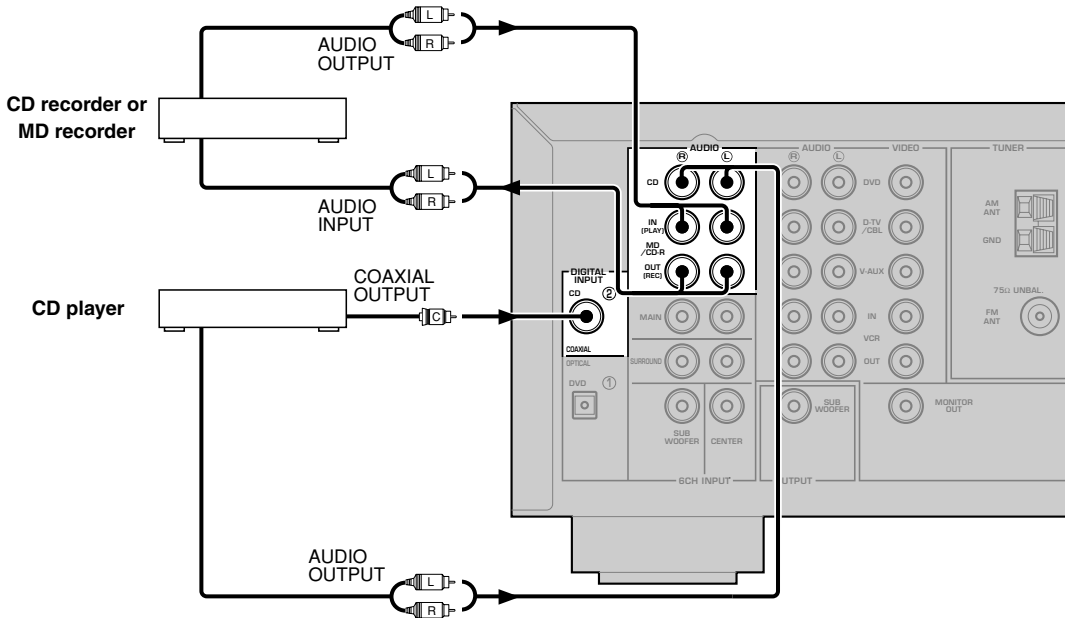
indicates signal direction

indicates left analog cables

indicates right analog cables

indicates coaxial cables

English

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Connecting the antennas

Both AM and FM indoor antennas are included with this unit. In general, these antennas should provide sufficient signal strength.

Connect each antenna correctly to the designated terminals.

AM loop antenna (included)

Indoor FM antenna (included)

Ground (GND terminal)
For maximum safety and minimum interference, connect the antenna GND terminal to a good earth ground. A good earth ground is a metal stake driven into moist earth.
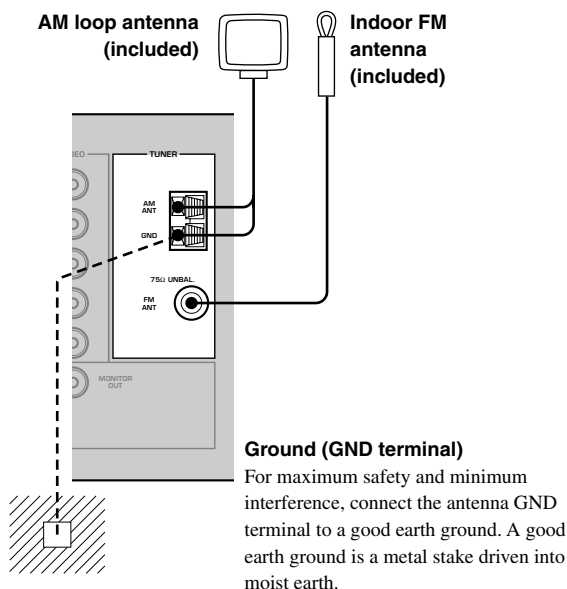
■ **Connecting the AM loop antenna**

1 **Set up the AM loop antenna, then connect it to the terminals on this unit.**
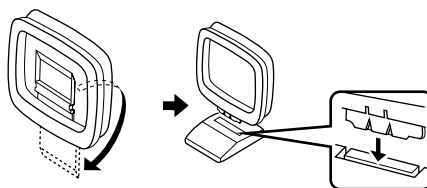
2 **Press and hold the tab to insert the AM loop antenna lead wires into the AM ANT and GND terminals.**

3 **Orient the AM loop antenna for the best reception.**

Notes

• The AM loop antenna should be placed away from this unit.
• The AM loop antenna should always be connected, even if an outdoor AM antenna is connected to this unit.

A properly installed outdoor antenna provides clearer reception than an indoor one. If you experience poor reception quality, an outdoor antenna may improve the quality. Consult the nearest authorized YAMAHA dealer or service center about the outdoor antennas.

FREQUENCY STEP switch (General model only)


```
50 kHz/ 9kHz
100 kHz/10kHz
   FM/AM
FREQUENCY STEP
```

Because the inter-station frequency spacing differs in different areas, set the FREQUENCY STEP switch (located on the rear panel) according to the frequency spacing in your area.
North, Central and South America: 100 kHz/10 kHz
Other areas: 50 kHz/9 kHz
Before setting this switch, disconnect the AC power plug of this unit from the AC outlet.

Connecting an external decoder

This unit is equipped with 6 additional input jacks (MAIN left and right, CENTER, SURROUND left and right and SUBWOOFER) for discrete multi-channel input from a component equipped with a multi-channel decoder and 6 channel output jacks such as a DVD/SACD player.

DVD/SACD player

PREPARATION
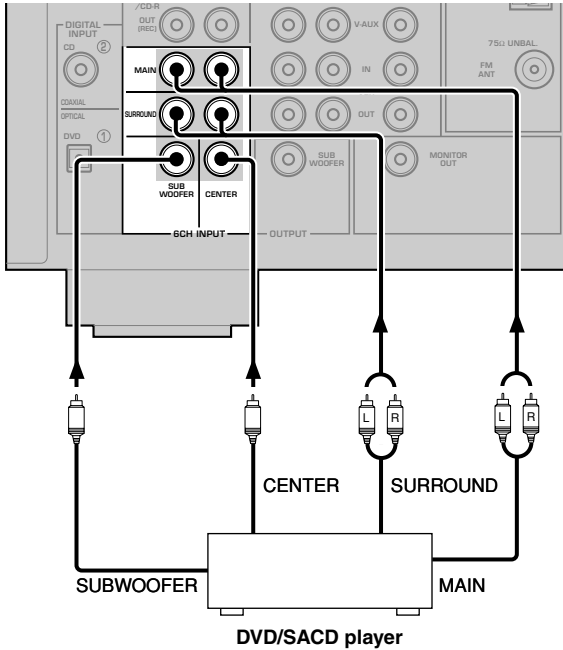
Note

• When you select 6CH INPUT as the input source, the unit automatically turns off the digital sound field processor, and you cannot use DSP programs.

English

Connecting the speakers

■ Speakers

This unit has been designed to provide the best sound-field quality with a 5-speaker system, using main left and right speakers, rear left and right speakers and a center speaker. If you use different brands of speakers (with different tonal qualities) in your system, the tone of a moving human voice and other types of sound may not shift smoothly. We recommend that you use speakers from the same manufacturer or speakers with the same tonal quality.

The main speakers are used for the main source sound plus effect sounds. They will probably be the speakers from your present stereo system. The rear speakers are used for effect and surround sounds. The center speaker is for the center sounds (dialog, vocals, etc.).

The main speakers should be high-performance models and have enough power-handling capacity to accept the maximum output of your audio system. The other speakers do not have to be equal to the main speakers. For precise sound localization, however, it is ideal to use the models of equivalent performance with the main speakers.

Use of a subwoofer expands your sound field

It is also possible to further expand your system with the addition of a subwoofer. The use of a subwoofer is effective not only for reinforcing bass frequencies from any or all channels, but also for reproducing the LFE (low-frequency effect) channel with high fidelity when playing back Dolby Digital or DTS signals. The YAMAHA Active Servo Processing Subwoofer System is ideal for natural and lively bass reproduction.

■ Speaker placement

Refer to the following diagram when you place the speakers.
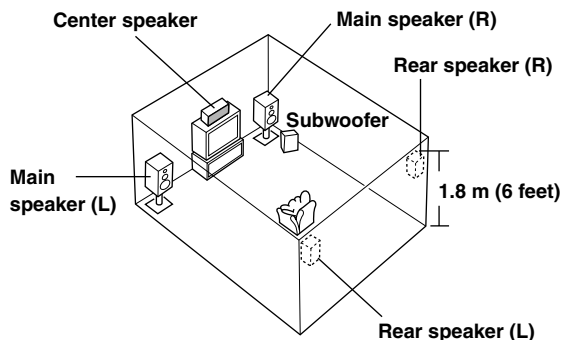
Main speakers

Place the main left and right speakers an equal distance from the ideal listening position. The distance between each speaker and each side of the video monitor should also be the same.

Center speaker

Align the front face of the center speaker with the front face of your video monitor. Place the speaker as close to the monitor as possible (such as directly over or under the monitor) and centrally between the main speakers.

Rear speakers

Place these speakers behind your listening position, facing slightly inwards, about 1.8 m (6 feet) above the floor.

Subwoofer

The position of the subwoofer is not so critical, because low bass sounds are not highly directional. However, it is better to place the subwoofer near the main speakers. Turn it slightly toward the center of the room to reduce wall reflections.

Note

• If you do not use any of effect speakers (rear and/or center), change the settings of "SOUND 1 SPEAKER SET" items at the set menu to direct signals to other terminals you have connected speakers to.

CAUTION

Use magnetically shielded speakers. If these speakers still create interference with the monitor, place the speakers away from the monitor.

■ Connections

Be sure to connect the left channel (L), right channel (R), "+" (red) and "–" (black) in accordance with the markers on this unit, the speakers, and the speaker cables. If the connections are faulty, no sound will be heard from the speakers, and if the polarity of the speaker connections is incorrect, the sound will be unnatural and lack bass.

CAUTION

• Use speakers with the specified impedance shown on the rear panel of this unit.
• Do not let the bare speaker wires touch each other or any metal part of this unit. This could damage this unit and/or the speakers.

---

10 mm (3/8")

1   **2**
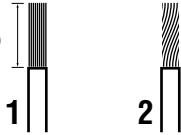
A speaker cord is actually a pair of insulated cables running side by side. One cable is colored or shaped differently, perhaps with a stripe, groove or ridge.

1 Remove approximately 10 mm (3/8") of insulation from each of the speaker cables.

2 Twist the exposed wires of the cable together to prevent short circuits.

Connecting to the MAIN A SPEAKERS terminals

Red: positive (+)
Black: negative (–)
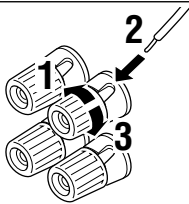
1 Unscrew the knob.

2 Insert one bare wire into the hole in the side of each terminal.

3 Tighten the knob to secure the wire.

☀
(With the exception of U.K., Europe, Korea, and Singapore models)
• You can also use banana plug connectors. First, tighten the knob and then insert the banana plug connector into the end of the corresponding terminal.

Banana plug
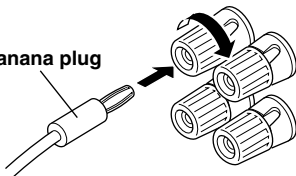
(With the exception of U.K., Europe, Korea, and Singapore models)

Connecting to the MAIN B, CENTER and REAR SPEAKERS terminals

Red: positive (+)
Black: negative (–)
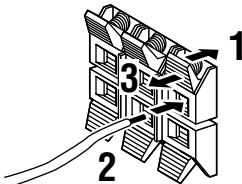
1 Press and open the tab.

2 Insert one bare wire into the hole of each terminal.

3 Release the tab to secure the wire.

PREPARATION

English

Main A speaker
Right   **Left**

Main B speaker
Right   **Left**

Subwoofer system

Center speaker

Right   **Left**
Rear speaker
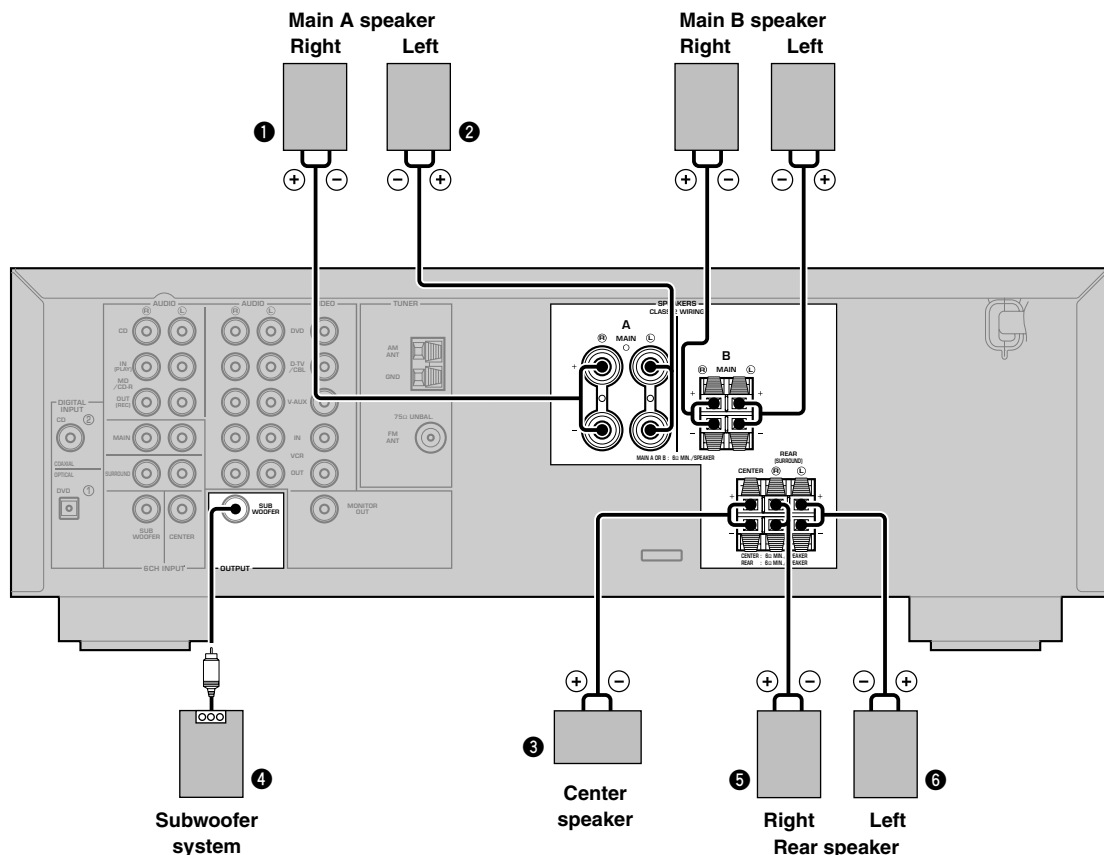
MAIN SPEAKERS terminals
You can connect up to two speaker systems to these terminals. When using only one speaker system, connect it to either of the MAIN A or the MAIN B terminals.

REAR SPEAKERS terminals
A rear speaker system can be connected to these terminals.

CENTER SPEAKER terminals
A center speaker can be connected to these terminals.
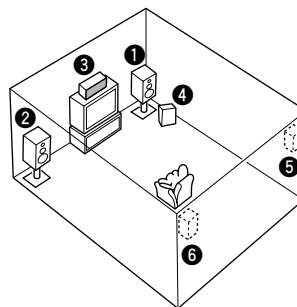
The diagram shows the speaker layout in the listening room.

SUBWOOFER jack
When using a subwoofer with built-in amplifier, including the YAMAHA Active Servo Processing Subwoofer System, connect the input jack of the subwoofer system to this jack. This unit will direct low bass signals distributed from the main, center and/or rear channels to this jack in accordance with your SPEAKER SET selections. The LFE (low-frequency effect) signals generated when Dolby Digital or DTS is decoded are also directed to this jack in accordance with your SPEAKER SET selections.

Notes

• The cut-off frequency of the SUBWOOFER jack is 90 Hz.
• If you do not use a subwoofer, allocate the signals to the main left and right speakers by changing the setting of "SOUND 1 SPEAKER SET" item "1D BASS" on the set menu to MAIN.
• Use the control on the subwoofer to adjust its volume level. You can also adjust the volume level by using this unit's remote control (see "SETTING THE SPEAKER LEVELS" on page 46).

16

Connecting the power supply cords

Turning on the power

When all connections are complete, turn on the power of this unit.

VOLTAGE SELECTOR

(General model)

1

1
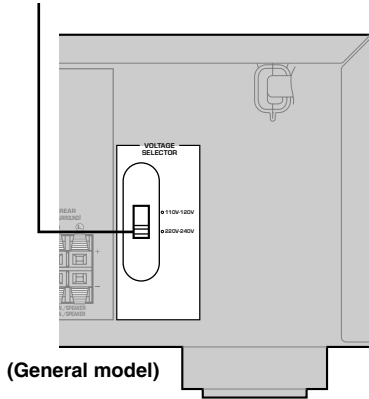
■ **Connecting the AC power cord**
Plug in this unit to a wall outlet.

■ **VOLTAGE SELECTOR (General model only)**
The VOLTAGE SELECTOR on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply. Voltages are 110V-120V/220V-240V AC, 50/60 Hz.
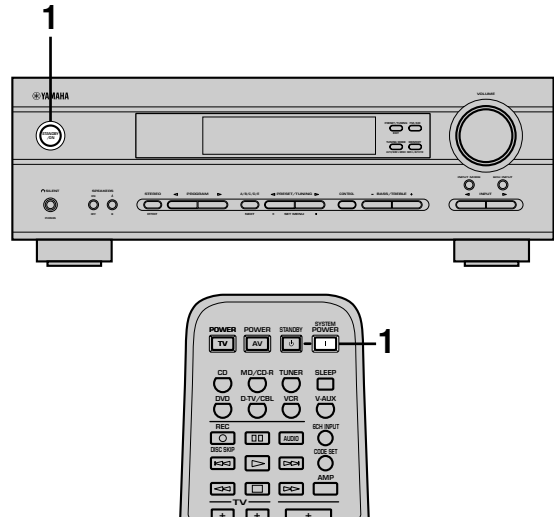
1 **Press STANDBY/ON (SYSTEM POWER on the remote control) to turn on the power of this unit.**

or

Front panel **Remote control**

The level of the main volume, and then the current DSP program name appear on the front panel display.

PREPARATION

English

BASIC SYSTEM SETTINGS

The "BASIC" menu allows you to set some of the basic "SOUND" menu parameters with a minimum of effort. If you wish to configure the unit more precisely to suit your listening environment, use the more detailed parameters from the "SOUND" menu instead of those under the "BASIC" menu (See page 38). Altering any parameters in the BASIC menu will reset all parameters in the "SOUND" menu.

Using the basic menu

Use the remote control to make adjustments.
• Press SPEAKERS A/B on the front panel to select the main speakers you want to use, and set SPEAKERS ON/OFF to the ON position.
• Make sure you disconnect headphones from this unit.
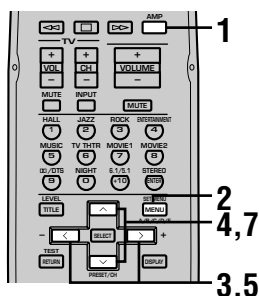
1 Press AMP.

AMP

2 Press SET MENU.
"BASIC MENU" appears on the front panel display, as shown here.

SET MENU
MENU → BASIC MENU
A/B/C/D

If the front panel display changes to show anything other than "BASIC MENU", press ∧ until it displays "BASIC MENU".
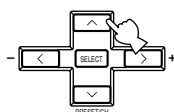
3 Press ⟨ / ⟩ to enter into the BASIC menu.
The front panel display changes as shown here:
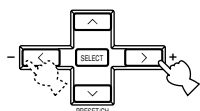
1 SETUP

4 Press ∧ / ∨ to change the display to the setting you want to alter.

SETUP
Changes the speaker and amplifier settings to suit the size of the room you are using. Refer to "Setting the unit to match your speaker system" on page 20 for more information.

SP LEVEL
Adjusts the output levels of the speakers.
Refer to "Setting speaker output levels" on page 20 for more information.

5 Press ⟨ / ⟩ to enter the desired setting mode.

6 Change the unit settings to suit your listening environment. When you have finished, the unit will automatically return to the basic menu.

7 Press ∧ / ∨ to exit from the set menu.
The front panel display changes in the following order:
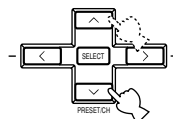
Exit
↑
BASIC
↓↑
SOUND
↓↑
INPUT
↓↑
OPTION
↓
Exit

SET MENU

BASIC   SOUND   INPUT   OPTION

1   SETUP

Press 〈 / 〉 to alter the settings for each parameter. Use ⌄ to move to the next setting.

① **ROOM**

Choose from S/M/L.

② **SUBWOOFER**

Choose either of YES/NONE.

③ **SPEAKERS**

Choose from 2/3/4/5 spk.

CANCEL

④ **SET/CANCEL**

Choose either of SET/CANCEL.

SET

YES

⑤ **CHECK OK:**

Choose either of YES/NO.

2   SP LEVEL

Press 〈 / 〉 to adjust the balance between each speaker and the left main speaker. Use ⌄ to move to the next setting.

① **L-R**

Adjust the balance between the main left and right speakers.

② **C**

Adjust the balance between the main left and center speakers.

③ **RL**

Adjust the balance between the main left and rear left speakers.

④ **RR**

Adjust the balance between the rear left and rear right speakers.

NO

⑤ **SWFR**

Adjust the balance between the main left speaker and the subwoofer.

• After altering the "1 SETUP" parameters, readjust the output levels of the speakers at "2 SP LEVEL".
• See pages 37 – 42 for a detailed explanation of the "SOUND", "INPUT" and "OPTION" menus.

PREPARATION

English

19

Setting the unit to match your speaker system

Follow the instructions below to set the amplifier output to match the size of your room and speakers. Press ∧ / ∨ to cycle through parameters 1 through 4, and ⟨ / ⟩ to alter the parameter setting.
Factory default settings are highlighted.

① **ROOM**
Settings: S, **M**, L
Select the size of the room you have installed your speakers in. Roughly speaking, the room sizes are defined as follows:

[U.S.A. and Canada models]
S: 16ft. x 3ft., 200sq.ft. (4.8 x 4m, 20m^2)
M: 20ft. x 16ft., 300sq.ft. (6.3 x 5.0m, 30m^2)
L: 26ft. x 19ft., 450sq.ft. (7.9 x 5.8m, 45m^2)

[Other models]
S: 3.6m x 2.8m, 10m^2
M: 4.8m x 4.0m, 20m^2
L: 6.3m x 5.0m, 30m^2

② **SUBWOOFER**
Settings: **YES**, NONE
Select YES if you have a subwoofer in your system, or NONE if you do not.

③ **SPEAKERS**
Settings: 2, 3, 4, **5** (spk)
Select the number of speakers you wish to use in your speaker configuration. This number does not include your subwoofer.

Setting	Display	Speaker
2spk	L R	Main L/Main R
3spk	L C R	Main L/Center/Main R
4spk	L R RL RR	Main L/Main R/Rear L/ Rear R
5spk	L C R RL RR	Main L/Center/Main R/ Rear L/Rear R

④ **SET or CANCEL**
Select SET to confirm the changes you made to the above three settings. The unit will output a test tone to the speakers (see ⑤). Alternatively, select CANCEL to exit this menu without altering any of the unit settings.

⑤ **Use the test tone to check the speaker levels.**
When you select SET in ④, the display changes to "CHECK: TestTone", and the unit outputs a test tone to each of the speakers in turn. When the test tone begins, the display changes to "CHECK OK?--YES".

If the volume of the test tone varies between speakers, press ⟨ / ⟩ to change the display to "NO". The unit will automatically enter the "2 SP LEVEL" mode. If the test tone is output at the same volume from all of the speakers, select "CHECK OK: YES". Press ∨ to exit from the SETUP menu.

Notes
• The unit cycles the test tone around each of the speakers in turn twice.
• The indicator of the speaker currently outputting the test tone flashes on the front panel display.

Setting speaker output levels (SP LEVEL)

Use this menu to compare and adjust the test tone output from each speaker to the output from the left main (or left rear) speaker so that the volume level for all speakers is identical. Press ∧ / ∨ to select a speaker, then adjust the balance using ⟨ / ⟩.

Note
• The unit outputs the test tone from the selected speaker and the left main (or left rear) speaker in turn. The indicator of the speaker currently outputting the test tone flashes on the front panel display.

① **L-R**
Adjusts the balance between the main left and right speakers.

② **C**
Adjusts the balance between the main left and center speakers.

③ **RL**
Adjusts the balance between the main left and rear left speakers.

④ **RR**
Adjusts the balance between the rear left and rear right speakers.

⑤ **SWFR**
Adjust the balance between the main left speaker and the subwoofer.

PLAYBACK

1   **7**

3 4 8   7   5 5

1

5   **5**

7

8

1 **Press STANDBY/ON (SYSTEM POWER on the remote control) to turn on the power.**

STANDBY
/ON   or   SYSTEM
POWER

Front panel   **Remote control**
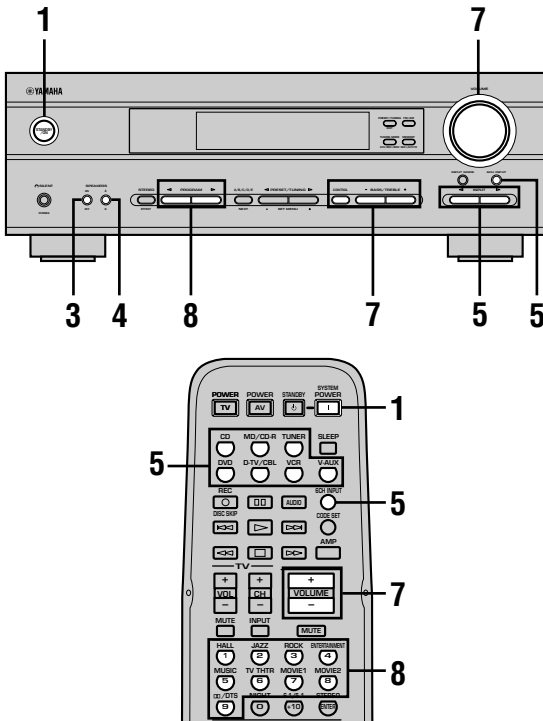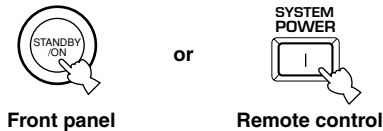
2 **Turn on the video monitor connected to this unit.**

3 **Press and set SPEAKERS ON/OFF inward (ON).**

SPEAKERS
ON ▲ A
OFF ▼ B

4 **Press and set SPEAKERS A/B inward (A) or outward (B) to select the main speakers you want to use.**

SPEAKERS
ON ▲ A
OFF ▼ B
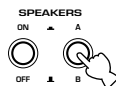
5 **Press INPUT ◁ / ▷ repeatedly (one of the input selector buttons on the remote control) to select the input source.**

The selected input source name and input mode appear on the front panel display for a few seconds.

◁ INPUT ▷   or   CD MD/CD-R TUNER
DVD D-TV/CBL VCR V-AUX

Front panel   **Remote control**

dts   VCR V-AUX D-TV/CBL __DVD__ MD/CD-R TUNER CD

VOLUME
▁▃▅▇
L R

DVD   AUTO

Selected input source
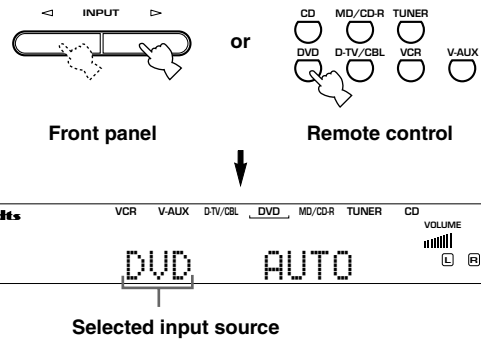
To select the audio source connected to the 6CH INPUT jacks

• Select the input to which the video source component is connected before selecting an audio source.

Press 6CH INPUT until "6CH INPUT" appears on the front panel display.

6CH INPUT   or   6CH INPUT

Front panel   **Remote control**
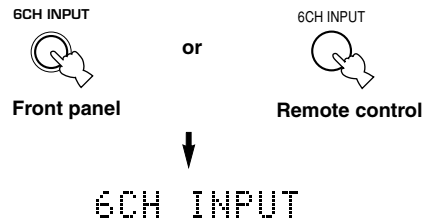
6CH INPUT

Note

• If "6CH INPUT" is shown on the front panel display, no other source can be played. To select another input source, first press 6CH INPUT so that "6CH INPUT" disappears from the front panel display.

BASIC OPERATION

English

21

6 Start playback or select a broadcast station on the source component.
Refer to the operation instructions for the component.

7 Adjust the volume to the desired level.
The volume level is displayed digitally.
Example: –70 dB
Control range: VOLUME MUTE (minimum) to
                0 dB (maximum)
The volume level indicator also shows the current volume level as a bar graph.
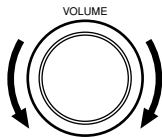
Front panel   **Remote control**

If desired, use CONTROL and BASS/TREBLE –/+. These controls only effect the sound from the main speakers.
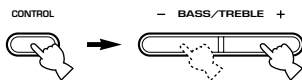
Front panel

Notes

• If you increase or decrease the high-frequency or the low-frequency sound to an extreme level, the tonal quality from the center and rear speakers may not match that of the main left and right speakers.
• If you have connected a recording component to the VCR OUT, or MD/CD-R OUT jacks, and you notice distortion or low volume during playback from other components, try turning the recording component on.

8 Select a DSP program if desired.
Use PROGRAM ◁ / ▷ (DSP program buttons on the remote control) to select a DSP program. See pages 27 – 30 for details about DSP programs. When using the remote control, press AMP before selecting a DSP program.
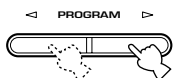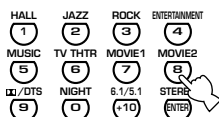
Front panel   **Remote control**

■ BGV (background video) function
The BGV function allows you to view images from a video source together with sounds from an audio source. For example, you can enjoy listening to classical music while watching beautiful scenery from a video source on the video monitor.

Select a source from the video group, then select a source from the audio group using the input selector buttons on the remote control.
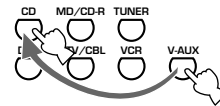
■ To mute the sound

Press MUTE on the remote control.
To resume audio output, press MUTE again.

✲
• You can change the amount by which the unit reduces the volume in "OPTION 3 AUDIO MUTE" in the set menu.
• You can also cancel mute by pressing VOLUME +/–, etc.
• During muting, the MUTE indicator flashes on the front panel display.

■ Night listening mode
This mode reproduces dialogue clearly while reducing the volume of loud sound effects for easier listening at low volumes or at night.

Press NIGHT on the remote control.
Press NIGHT once more to return to normal reproduction.

Note

• Setting the unit in standby mode cancels night listening mode.
✲
• You can use night listening mode with any of the sound field programs.
• The NIGHT indicator on the front panel display lights when the unit is in night listening mode.
• Night listening mode may vary in effectiveness depending on the input source and surround sound settings you use.

■ When you have finished using this unit

Press STANDBY/ON (STANDBY on the remote control) to set this unit in standby mode.

Front panel   **Remote control**

Input modes and indications

This unit is equipped with 2 types of input jacks for the CD and DVD sources only. You can select the type of input signals you wish to use.

Each time you turn on the unit power, the input mode is set to the "INPUT 2 INPUT MODE" setting defined in the set menu.

Press INPUT MODE repeatedly until the desired input mode is shown on the front panel display.

INPUT MODE

Front panel

↓

dts   VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   TUNER   CD

VOLUME

DVD   AUTO   L R

Input mode
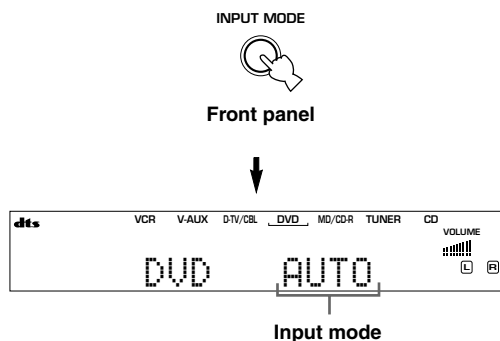
AUTO: In this mode, the input signal is selected automatically as follows:
1) Digital signal
2) Analog signal

DTS: In this mode, only digital input signals encoded with DTS are selected, even if the unit is receiving another signal simultaneously.

ANALOG: In this mode, only analog input signals are selected, even the unit is receiving digital signals at the same time.

Notes

• When AUTO is selected, this unit automatically determines the type of signal. If it detects a Dolby Digital or DTS signal, the decoder automatically switches to the appropriate setting.
• When playing a disc encoded with Dolby Digital or DTS on some LD or DVD players, there is a delay in sound output for a moment when playback resumes after a search, because the unit must select the digital signal again.
• When playing a LD source that has not been digitally recorded, the unit may not output any sound for some LD players. In this case, set the input mode to ANALOG.

■ **Notes on digital signals**

The digital input jacks of this unit can handle 96 kHz sampling digital signals. Note the following when a digital signal with a sampling frequency greater than 48 kHz is input to this unit:
• You cannot use any DSP programs.
• The unit will output sound as 2-channel stereo from the main left and right speakers only. Therefore, you cannot adjust the level of the effect speakers while listening to such a source.

■ **Notes on playing DTS-CD/LDs**

• If the digital output data of the player has been processed in any way, the unit may not be able to perform DTS decoding even if there is a digital connection between this unit and the player.
• If you play a source encoded with a DTS signal and set the input mode to ANALOG, the unit may reproduce the noise of an unprocessed DTS signal. In this case, connect the source to a digital input jack on this unit and set the input mode to AUTO or DTS.
• If you switch the input mode to ANALOG while playing a source encoded with a DTS signal, the unit does not output any sound.
• If you play a source encoded with a DTS signal with the input mode set to AUTO;
  – The unit automatically switches to the DTS-decoding mode (The "**dts**" indicator lights up) after detecting the DTS signal. When playback of the DTS source is completed, the "**dts**" indicator may flash. While this indicator is flashing, the unit can only reproduce DTS source. If you want to play a normal PCM source immediately, change the input mode back to AUTO.
  – When the input mode is set to AUTO and a search or skip operation is performed during playback of a DTS source, the "**dts**" indicator may flash. If this state continues for longer than 30 seconds, the unit will automatically switch from "DTS-decoding" mode to PCM digital signal input mode. The "**dts**" indicator will turn off.

BASIC OPERATION

English

Selecting a sound field program

You can enhance your listening experience by selecting a DSP program. For details about each program, see pages 27 – 30.

PROGRAM ◁ / ▷

1

2,3
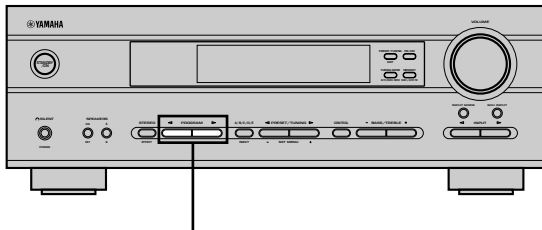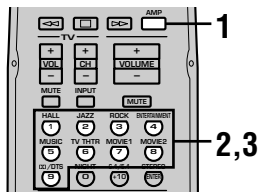
1 **Press AMP.**

AMP

2 **Press one of the numeric buttons on the remote control to select the desired program.**
The name of the selected program appears on the front panel display.

```
HALL   JAZZ   ROCK   ENTERTAINMENT
 1      2      3       4
MUSIC  TV THTR MOVIE1  MOVIE2
 5      6      7       8
/DTS   NIGHT  6.1/5.1  STEREO
 9      0     +10      ENTER
```

dts   VCR V-AUX D-TV/CBL DVD MD/CD-R TUNER CD
       CINEMA DSP (·)   VOLUME
       Adventure
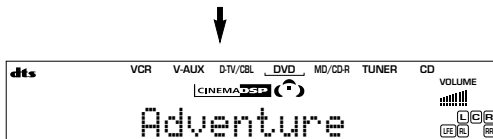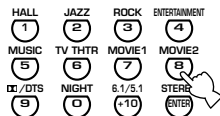
3 **After selecting the desired program, press the same button repeatedly to cycle through sub-programs if available.**
Example: Pressing MOVIE 2 repeatedly switches the sub-program between "Adventure" and "General".

```
HALL   JAZZ   ROCK   ENTERTAINMENT
 1      2      3       4
MUSIC  TV THTR MOVIE1  MOVIE2
 5      6      7       8
/DTS   NIGHT  6.1/5.1  STEREO
 9      0     +10      ENTER
```

dts   VCR V-AUX D-TV/CBL DVD MD/CD-R TUNER CD
       CINEMA DSP (·)   VOLUME
       General
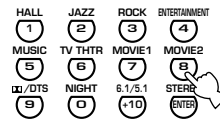
Notes

• There are 9 programs with sub-programs available with this unit. However, the selection depends on the input signal format and not all sub-programs can be used with all input signal formats.
• You cannot use the digital sound field processor with a source connected to the 6CH INPUT jacks of this unit or when the unit is reproducing a digital source with a sampling frequency greater than 48 kHz.
• The acoustics of your listening room affect the DSP program. Minimize the sound reflections in your room to maximize the effect created by the program.
• When you select an input source, this unit automatically selects the last DSP program used with that source.
• When you set this unit in standby mode, it stores the current source and DSP program in memory and automatically selects them when you turn on the power again.
• If the unit receives a Dolby Digital or DTS signal when the input mode is set to AUTO, the DSP program (No. 7–9) automatically switches to the appropriate decoding program.
• When the unit is reproducing a monaural source with PRO LOGIC or PRO LOGIC/Enhanced, or PRO LOGIC II Movie, no sound is output from the main and rear speakers. Sound can only be heard from the center speaker. (If "1A CENTER" on the set menu is set to NON, the center channel sound is output from the main speakers.)

☼
• You can also select DSP program by pressing PROGRAM ◁ / ▷ on the front panel.
• Select a program based on your listening preference. Program names are just for reference.

■ **Selecting PRO LOGIC or PRO LOGIC II**

You can listen to 2-channel sources decoded into five discrete channels by selecting PRO LOGIC or PRO LOGIC II in program No. 9.

PROGRAM ◁ / ▷

2

3
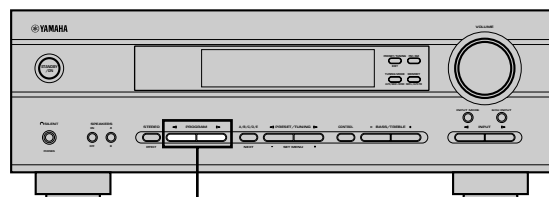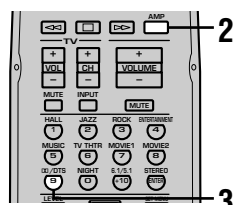
1 **Select a 2-channel source and start playback on the source component.**

2 **Press AMP.**

AMP

3 **Press ▯▯/DTS.**

```
HALL      JAZZ      ROCK    ENTERTAINMENT
 (1)       (2)       (3)       (4)
MUSIC    TV THTR    MOVIE1    MOVIE2
 (5)       (6)       (7)       (8)
▯▯/DTS    NIGHT    6.1/5.1    STEREO
 (9)       (0)      (+10)     (ENTER)
```

```
          VCR   V-AUX  D-TV/CBL   DVD   MD/CD-R  TUNER   CD
                                                       VOLUME
                                                       ▯▯▯▯▯
  ▯▯ PL    PRO LOGIC                                 L    R
```
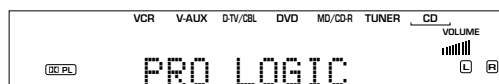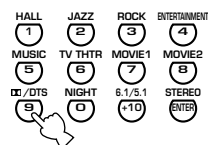
The display cycles as follows each time you press ▯▯/ DTS:
PRO LOGIC→PRO LOGIC Enhanced→PRO LOGIC II Movie→PRO LOGIC II Music→PRO LOGIC→....
☀️
• You can select PRO LOGIC, PRO LOGIC Enhanced, PRO LOGIC II Movie, and PRO LOGIC II Music by pressing PROGRAM ◁ / ▷ on the front panel repeatedly.

■ **Playing Dolby Digital EX or DTS ES material**

Press 6.1/5.1 to turn on the Dolby Digital + Matrix 6.1 or DTS + Matrix 6.1 decoder.

6.1/5.1
(+10)

(Example)
```
 dts      VCR   V-AUX  D-TV/CBL   DVD   MD/CD-R  TUNER   CD
 MATRIX          CINEMA DSP (c)                        VOLUME
                                                       ▯▯▯▯▯
          Matrix 6.1                             L C R
                                                 LFE RL RR
```

The display changes AUTO → Matrix6.1 → OFF each time 6.1/5.1 is pressed.

AUTO: This mode automatically switches Dolby Digital + Matrix 6.1 and DTS + Matrix 6.1 depending on the signal. Virtual rear center speaker does not work for 5.1 channel sources.

Matrix 6.1: This setting produces 6-channel playback of the input source using the Matrix 6.1 decoder. The virtual rear center speaker can be used when playing a 5.1-channel source.

OFF: Virtual rear center speaker does not work in this setting.

Notes

• Some 6.1-channel compatible discs do not have a signal (flag) that this unit can automatically detect. Select "Matrix 6.1" to play these kinds of discs with 6.1-channel sound.
• 6.1-channel playback is not possible even if you press 6.1/5.1 in the following cases:
  ① When effects are turned off.
  ② When the source connected to the 6CH INPUT jacks is being played.
  ③ When the unit is reproducing a Dolby Digital KARAOKE source.
  ④ When headphones are connected to the PHONES jack.
• The input mode resets to AUTO when you turn the unit power off.

BASIC OPERATION

English

25

■ Virtual CINEMA DSP

With Virtual CINEMA DSP, you can enjoy all DSP programs without rear speakers. It creates virtual speakers to reproduce a natural sound field.
You can listen to virtual CINEMA DSP by setting "1C REAR LR" in the set menu to NON. Sound field processing changes to VIRTUAL CINEMA DSP automatically.

Note

• This unit is not set in the virtual CINEMA DSP mode even if "1C REAR LR" is set to NON in the following cases:
  – when the 5ch Stereo, DOLBY DIGITAL, Pro Logic, Pro Logic II, or DTS program is selected;
  – when the sound effect is turned off;
  – when 6CH INPUT is selected as the input source;
  – when a digital signal with a sampling frequency greater than 48 kHz is input to this unit;
  – when using the test tone; or
  – when connecting the headphones.

■ SILENT CINEMA DSP

You can enjoy a powerful sound field similar to what you could expect from actual speakers through headphones, with SILENT CINEMA DSP. You can listen to SILENT CINEMA DSP by connecting your headphones to the PHONES jack while the digital sound field processor is on. The "SILENT" indicator lights up on the front panel display. (When sound effects are off, the unit reproduces the source in normal stereo.)
To listen to sounds with headphones only, press SPEAKERS ON/OFF to turn off the output of all the speakers.

Notes

• This feature is not available when 6CH INPUT is selected or the unit is receiving a digital signal with a sampling frequency greater than 48 kHz.
• The sound from the LFE channel will be mixed and output from the headphones.

■ Normal stereo reproduction

Press STEREO to turn off the sound effect for normal stereo reproduction.
Press STEREO again to turn the sound effect back on.

STEREO   STEREO

or

EFFECT   ENTER

Front panel   **Remote control**

↓

STEREO
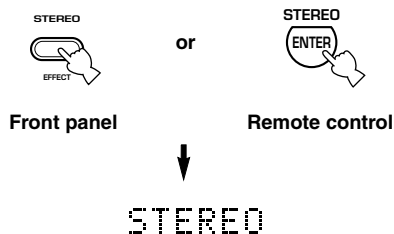
Notes

• If you turn off the sound effects, no sound is output from the center speaker or rear speakers.
• If you turn off the sound effects while the unit is reproducing sound from a Dolby Digital or DTS signal, the dynamic range of the signal is automatically compressed and the unit will mix the sounds of the center and rear speaker channels and output them from the main speakers.
• The volume may be greatly reduced when you turn off the sound effects or if you set "SOUND 4 D. RANGE (dynamic range)" on the set menu to MIN. In this case turn on the sound effect.

☼
• During stereo reproduction, you can display information such as the type, format and sampling frequency of the signal input from the components connected to this unit.

(While playing a source)

1 **Press AMP.**

2 **Press ⌄ to display the information about the input signal.**
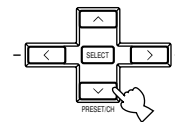
(Format): The display shows the signal format. When the unit cannot detect a digital signal it automatically switches to analog input.

in: The display shows the number of input signal source channels, as follows: For multi-channel soundtrack such as front 3 channels, rear 2 channels and LFE, the display shows "3/2/ LFE".

fs: The display shows the sampling frequency. When the unit is unable to detect the sampling frequency "Unknown" shows in the front panel display.

rate: The display shows the bit rate. When the unit is unable to detect the bit rate "Unknown" shows in the front panel display.

flg: The display shows the flag - data encoded in a DTS or Dolby Digital signal that causes this unit to automatically switch to the appropriate decoder for playback.

DIGITAL SOUND FIELD PROCESSING (DSP)

Understanding sound fields

A sound field is defined as the "characteristic sound reflections of a particular space." In concert halls and other music venues, we hear early reflections and reverberations as well as the direct sound produced by the artist(s). The variations in the early reflections and other reverberations among the different music venues is what gives each venue its special and recognizable sound quality. YAMAHA sent teams of sound engineers all around the world to measure the sound reflections of famous concert halls and music venues, and collect detailed sound field information such as the direction, strength, range, and delay time of those reflections. Then we stored this enormous amount of data in the ROM chips of this unit.

■ Recreating a sound field

Recreating the sound field of a concert hall or an opera house requires localizing the virtual sound sources in your listening room. The traditional stereo system that uses only two speakers is not capable of recreating a realistic sound field. YAMAHA's DSP requires four effect speakers to recreate sound fields based on the measured sound field data. The processor controls the strength and delay time of the signals output from the four effect speakers to localize the virtual sound sources and fully encompass the listener.

Hi-Fi DSP programs

The following list gives you a brief description of the sound fields produced by each of the DSP programs. Keep in mind that most of these are precise digital recreations of actual acoustic environments.

| No.	Program	Features
1	**CONCERT HALL (except China model)**	A large round concert hall with a rich surround effect. Pronounced reflections from all directions emphasize the extension of sounds. The sound field has a great deal of presence, and your virtual seat is near the center, close to the stage.
	HALL IN CHINA (China model only)	An large, extremely famous concert hall in China with approx. 650 seats on the first floor and approx. 500 seats on the second floor. The clear sound field of this gorgeous and majestic hall is suited especially for classic music. Your virtual seat is near the center on the first floor.
2	**JAZZ CLUB**	This is the sound field at stage front in "The Bottom Line", a famous New York jazz club, that seats up to 300 people. Its wide left to right seating arrangement offers a real and vibrant sound.
3	**ROCK CONCERT**	The ideal program for lively, dynamic rock music. The data for this program was recorded at LA's "hottest" rock club. The listener's virtual seat is at the center-left of the hall.
4	**ENTERTAINMENT/ Disco**	This program recreates the acoustic environment of a lively disco in the heart of a big city. The sound is dense and highly concentrated. It is also characterized by a high-energy, "immediate" sound.
	ENTERTAINMENT/ 5ch Stereo	Using this program increases the listening position range. This is a sound field suitable for background music at parties, etc.

CINEMA-DSP

Sound design of CINEMA-DSP

Filmmakers intend for the dialog to be located right on the screen, the effect sound a little farther back, the music spread even farther back, and the surround sound around the listener. Of course, all of these sounds must be synchronized with the images on the screen.

CINEMA-DSP is an upgraded version of YAMAHA DSP specially designed for movie soundtracks. CINEMA-DSP integrates the DTS, Dolby Digital, and Dolby Pro Logic surround sound technologies with YAMAHA DSP sound field programs to provide a surround sound field. It recreates comprehensive movie sound design in your audio room. In CINEMA-DSP sound field programs, YAMAHA's exclusive DSP processing is added to the Main left and right, and Center channels, so the listener can enjoy realistic dialogue, depth of sound, smooth transition between sound sources, and a surround sound field that goes beyond the screen.

When a DTS or Dolby Digital signal is detected, the CINEMA-DSP sound field processor automatically chooses the most suitable sound field program for that signal.
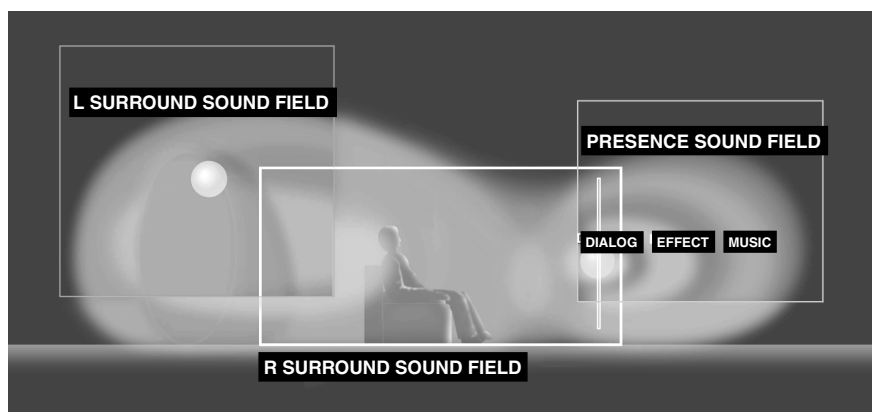
In addition to the DSP, this unit is equipped with a variety of precise decoders; Dolby Pro Logic decoder for Dolby Surround sources, Dolby Pro Logic II decoder for Dolby Surround and 2-channel sources, Dolby Digital/DTS decoder for multi-channel sources and Dolby Digital + Matrix 6.1 or DTS + Matrix 6.1 decoder for adding a rear center channel (the rear center channel is outputted from virtual rear center speaker). You can select CINEMA-DSP programs to optimize these decoders and the DSP sound patterns depending on the input source.

CINEMA-DSP Programs

The following list gives you a brief description of the sound fields produced by each of the DSP programs. Keep in mind that most of these are precise digital recreations of actual acoustic environments. Select the DSP program that you feel sounds best regardless of the name and description given for it below.

■ For audio-video sources: No. 4 to 6

No.	Program	Features
4	ENTERTAINMENT/ Game	This program adds a deep and spatial feeling to video game sounds.
5	MUSIC VIDEO	This program lends an enthusiastic atmosphere to the sound, giving you the feeling you are at an actual jazz or rock concert.
6	TV THEATER/ Mono Movie	This program is provided for reproducing monaural video sources (such as old movies). The program produces the optimum reverberation to create sound depth using only the presence sound field.
	TV THEATER/Variety/ Sports	Though the presence sound field is relatively narrow, the surround sound field employs the sound environment of a large concert hall. This effect enhances the experience of watching various TV programs such as news, variety shows, music programs or sports programs.

■ For movie programs

No.	Program		Features
7	**MOVIE THEATER 1**	**Spectacle**	This program creates the extremely wide sound field of a 70-mm movie theater. It precisely reproduces the source sound in detail, making both the video and the sound field incredibly real. This is ideal for any kind of video source encoded with Dolby Surround, Dolby Digital or DTS (especially large-scale movie productions).
		Sci-Fi	This program clearly reproduces dialog and sound effects in the latest sound form of science fiction films, thus creating a broad and expansive cinematic space amid the silence. You can enjoy science fiction films in a virtual-space sound field that includes Dolby Surround, Dolby Digital and DTS-encoded software employing the most advanced techniques.
8	**MOVIE THEATER 2**	**Adventure**	This program is ideal for precisely reproducing the sound design of the newest 70-mm and multichannel soundtrack films. The sound field is made to be similar to that of the newest movie theaters, so the reverberations of the sound field itself are restrained as much as possible.
		General	This program is for reproducing sounds from 70-mm and multichannel soundtrack films, and is characterized by a soft and extensive sound field. The presence sound field is relatively narrow. It spatially spreads all around and toward the screen, restraining the echo effect of conversations without losing clarity.
9	**Straight Decode**		The built-in decoder reproduces source sounds and sound-effects precisely. No DSP effect is applied in this program.
	Enhanced Mode		This program ideally simulates the multi-surround speaker systems of the 35-mm film theaters. Dolby Pro Logic decoding, Dolby Digital decoding or DTS decoding and digital sound field processing create precise effects without altering the original sound orientation. The surround effects produced by this sound field wrap around the viewer naturally from the back to the left and right, and toward the screen.

Straight Decode

This unit is equipped with various precise decoders;
• Dolby Digital/DTS decoder for multi-channel reproduction of the original sound
• Dolby Pro Logic/Pro Logic II decoder for multi-channel reproduction of 2-channel sources

Select any of the Straight Decode modes in Program 9 (except for the sub-program "Enhanced") to use any of these decoders for reproducing the original sound without any sound effects added. In this case, no DSP effect is applied and the DSP indicator turns off.

Note

• When playing a monaural source with a CINEMA DSP program, the source signal is directed to the center channel, and the main and rear speakers output effect sounds.

BASIC OPERATION

**English**

Sound field effects

The 6-channel soundtracks found on 70-mm film produce precise sound field localization and rich, deep sound without using matrix processing. This unit's MOVIE THEATER programs provide the same quality of sound and sound localization that 6-channel soundtracks do. The built-in Dolby Digital or DTS decoder brings the professional-quality sound designed for movie theaters into your home. With this unit's MOVIE THEATER programs, you can use Dolby Digital or DTS technology to recreate a dynamic sound that gives you the feeling of being in a public theater.

■ Dolby Digital/DTS + DSP sound field effect

Presence DSP sound field

Left surround DSP sound field

Right surround DSP sound field
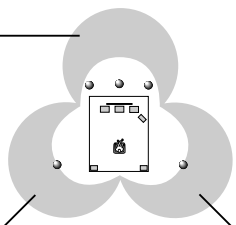
These programs use YAMAHA's tri-field DSP processing on each of the Dolby Digital or DTS signals for the front, left surround, and right surround channels. This processing enables this unit to reproduce the immense sound field and surround expression of a Dolby Digital- or DTS-equipped movie theater without sacrificing the clear separation of all channels.

■ Dolby Digital/DTS + Matrix 6.1 + DSP sound field effect

These programs provide you with the maximum experience of the spacious surround effects by adding an extra rear center DSP sound field created from the virtual rear center speaker.

■ Dolby Pro Logic + DSP sound field effect

Presence DSP sound field

Surround DSP sound field
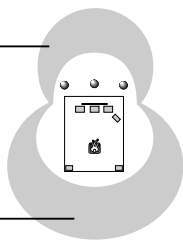
Most movie material has 4-channel (left, center, right, and surround) sound information encoded by Dolby Surround matrix processing and stored on the left and right tracks. These signals are processed by the Dolby Pro Logic decoder. The MOVIE THEATER programs are designed to recreate the spaciousness and delicate nuances of sound that tend to be lost in the encoding and decoding processes.

■ Dolby Pro Logic II

Dolby Pro Logic II decodes Dolby Surround software into 5 discrete full-range channels (3 channels in front and 2 channels in rear). There are 2 modes; MOVIE for movies and MUSIC for 2-channel audio sources.

TUNING

There are 2 methods of tuning; automatic and manual. Automatic tuning is effective when station signals are strong and there is no interference.

■ Automatic tuning

3 3 2

4   1
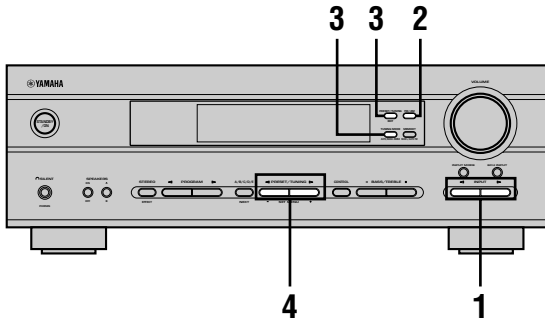
1 Press INPUT ◁ / ▷ (TUNER on the remote control) to select TUNER as the input source.

◁ INPUT ▷   CD MD/CD-R TUNER

or

DVD D-TV/CBL VCR V-AUX
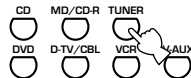
Front panel   **Remote control**

2 Press FM/AM to select the reception band.
"FM" or "AM" appears on the front panel display.

FM/AM ➡ FM **or** AM

3 Press TUNING MODE (AUTO/MAN'L MONO) so that the "AUTO" indicator lights up on the front panel display.

TUNING MODE ➡ AUTO
AUTO/MANUAL   **Lights up**

If the colon (:) appears on the front panel display, press PRESET/TUNING (EDIT) to turn it off.

PRESET/TUNING ➡

VCR V-AUX D-TV/CBL DVD MD/CD-R TUNER
TUNED AUTO
EDIT A AM 1440 kHz

4 Press PRESET/TUNING ◁ / ▷ once to begin automatic tuning.
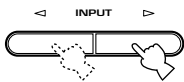Press ▷ to tune in to a higher frequency, or press ◁ to tune in to a lower frequency.

◁ PRESET/TUNING ▷

– SE. MENU

⬇
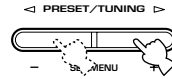
VCR V-AUX D-TV/CBL DVD MD/CD-R TUNER
TUNED AUTO
A AM 1530 kHz

When the unit is tuned in to a station, the "TUNED" indicator lights up and the frequency of the station received is shown on the front panel display.

■ Manual tuning
If the signal from the station you are trying to select is weak, you must tune in to it manually.

1 Select TUNER and the reception band following steps 1 and 2 described in "Automatic tuning" at left.

2 Press TUNING MODE (AUTO/MAN'L MONO) until the "AUTO" indicator disappears from the front panel display.

TUNING MODE ➡ AUTO
AUTO/MANUAL   **Disappears**

If the colon (:) appears on the front panel display, press PRESET/TUNING (EDIT) to turn it off.

PRESET/TUNING ➡

VCR V-AUX D-TV/CBL DVD MD/CD-R TUNER
TUNED
EDIT A AM 1440 kHz

3 Press PRESET/TUNING ◁ / ▷ to tune in to the desired station manually.
Hold down the button to continue searching.

◁ PRESET/TUNING ▷

– SE. MENU
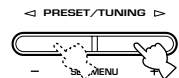
Note

• Manually tuning in to an FM station will automatically change the reception mode to monaural to increase the signal quality.

BASIC OPERATION

English

31

Presetting stations

■ Automatically presetting stations (for FM stations)

You can use the automatic preset tuning feature to store FM stations. This function enables the unit to automatically tune in to FM stations with strong signals, and to store up to 40 (8 stations x 5 groups) of those stations in order. You can then recall any preset station easily by selecting the preset number.

2   1 3

1 Press FM/AM to select the FM band.

FM/AM ➡ FM

2 Press TUNING MODE (AUTO/MAN'L MONO) until the "AUTO" indicator lights up on the front panel display.

TUNING MODE
AUTO/MANUAL ➡ AUTO
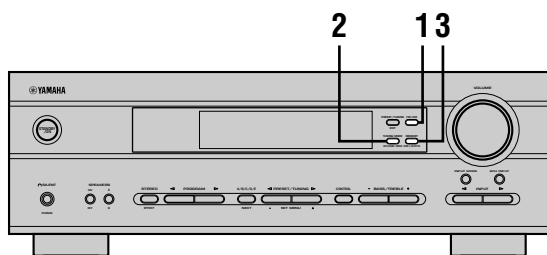**Lights up**

3 Press and hold MEMORY (MAN'L/AUTO FM) for at least 3 seconds.

The preset number and the "MEMORY" and "AUTO" indicators flash. After about 5 seconds, automatic preset tuning starts, beginning at the frequency currently displayed and moving toward the higher frequencies.

MEMORY
MAN'L/AUTO

↓

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   TUNER
AUTO
MEMORY

A1:FM 89.9 MHz
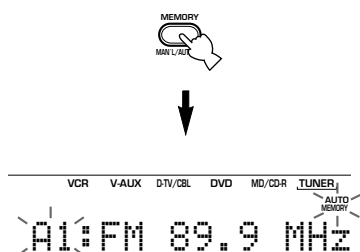
When automatic preset tuning is completed, the front panel display shows the frequency of the last preset station.

Notes

- Any stored station data existing under a preset number is cleared when you store a new station under that preset number.
- If the number of the received stations does not reach E8, automatic preset tuning has automatically stopped after searching all stations.
- Only FM stations with sufficient signal strength are stored automatically by automatic preset tuning. If the station you want to store is weak in signal strength, tune in to it manually in the monaural mode, and store it by following the procedure described in "Manually presetting stations" on page 33.

Automatic preset tuning options

You can select the preset number from which this unit will store FM stations and/or begin tuning toward lower frequencies. After pressing MEMORY in step 3:

1. Press A/B/C/D/E and PRESET/TUNING ◁ / ▷ to select the preset number under which the first station will be stored. Automatic preset tuning will stop when stations have all been stored up to E8.
2. Press PRESET/TUNING (EDIT) to turn off the colon (:) and then press PRESET/TUNING ◁ to begin tuning toward lower frequencies.

Memory back-up

The memory back-up circuit prevents the stored data from being lost even if this unit is set in standby mode, the power cord is disconnected from the AC outlet, or the power supply is temporarily cut due to power failure. However, if the power is cut for more than one week, the preset stations may be cleared. If so, store the stations again.

■ **Manually presetting stations**
You can store up to 40 stations (8 stations x 5 groups) manually.

2,5

3 4
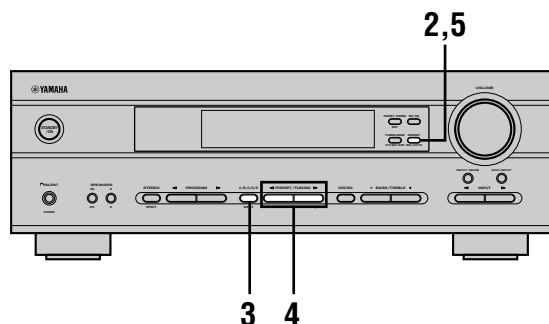
1 **Tune in to a station.**
See page 31 for tuning instructions.

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   **TUNER**

TUNED

A   AM 1440 kHz
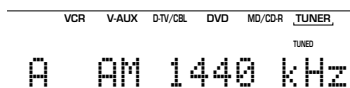
When tuned to a station, the front panel display shows the frequency of the station received.

2 **Press MEMORY (MAN'L/AUTO FM).**
The "MEMORY" indicator flashes for about 5 seconds.

MEMORY
MAN'L/AUT   ➡   — MEMORY —

Flashes
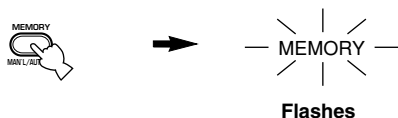
3 **Press A/B/C/D/E repeatedly to select a preset station group (A to E) while the "MEMORY" indicator is flashing.**
The group letter appears. Check that the colon (:) is showing on the front panel display.

A/B/C/D/E

NEXT

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   **TUNER**

TUNED MEMORY

C :AM 1440 kHz
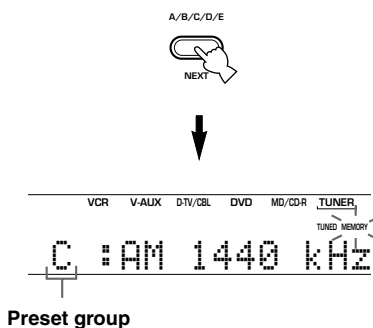
Preset group

4 **Press PRESET/TUNING ◁ / ▷ to select a preset station number (1 to 8) while the "MEMORY" indicator is flashing.**
Press ▷ to select a higher preset station number.
Press ◁ to select a lower preset station number.

◁ PRESET/TUNING ▷

– SE .MENU

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   **TUNER**

TUNED MEMORY

C3:AM 1440 kHz
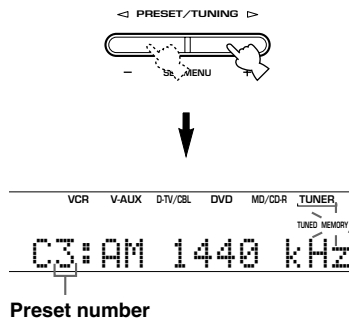
Preset number

5 **Press MEMORY (MAN'L/AUTO FM) on the front panel while the "MEMORY" indicator is flashing.**
The station band and frequency appear on the front panel display with the preset group and number you have selected.

MEMORY
MAN'L/AUT

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   **TUNER**

TUNED

C3:AM 1440 kHz
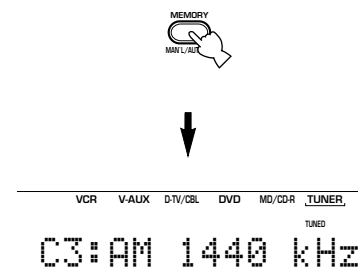
Shows the displayed station has been stored as C3.

6 **Repeat steps 1 to 5 to store other stations.**

Notes
• Any stored station data existing under a preset number is cleared when you store a new station under that preset number.
• The reception mode (stereo or monaural) is stored along with the station frequency.

BASIC OPERATION

English

33

Selecting a preset station

You can recall any desired station simply by selecting the preset station number under which it was stored.

1 2
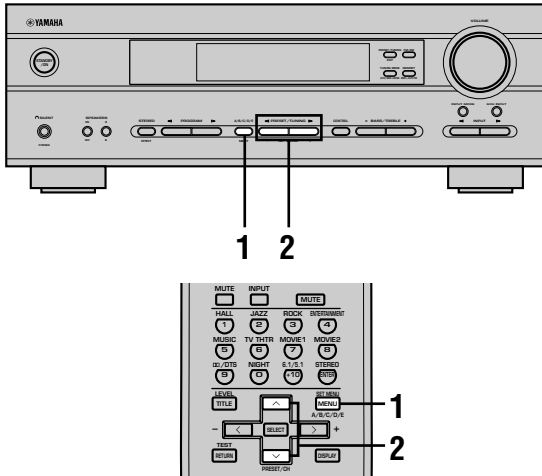
1 Press A/B/C/D/E (A/B/C/D/E on the remote control) to select the preset station group.
The preset group letter appears on the front panel display and changes each time you press A/B/C/D/E.

A/B/C/D/E
NEXT   **or**   SET MENU
                                                  MENU
                                                  A/B/C/D/E

Front panel   **Remote control**

2 Press PRESET/TUNING ◁ / ▷ (PRESET ∧ / ∨ on the remote control) to select a preset station number (1 to 8).
The preset group and number appear on the front panel display along with the station band and frequency, and the "TUNED" indicator lights up.

◁ PRESET/TUNING ▷   – SELECT +
    MENU   **or**   PRESET/CH

Front panel   **Remote control**

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   TUNER
                                          TUNED
C3:AM 1440 kHz
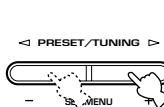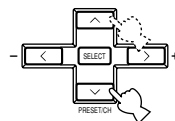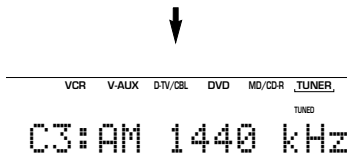
■ Exchanging preset stations
You can exchange the assignment of two preset stations. The example below describes the procedure for exchanging preset station "E1" with "A5".

2,4

1,3 1,3
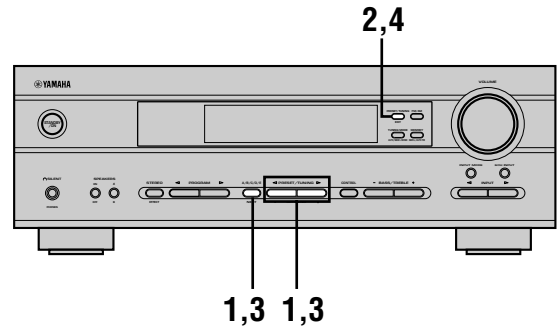
1 Select preset station "E1" by using the A/B/C/D/E and PRESET/TUNING ◁ / ▷.
See "Selecting a preset station" at left.

2 Press and hold PRESET/TUNING (EDIT) for at least 3 seconds.
"E1" and the "MEMORY" indicator flash on the front panel display.

PRESET/TUNING
EDIT

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   TUNER
                                        TUNED MEMORY
E1:FM 87.5 MHz
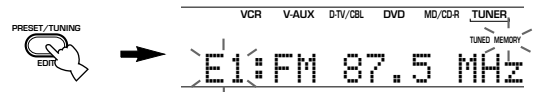
3 Select preset station "A5" by using the A/B/C/D/E and PRESET/TUNING ◁ / ▷.
"A5" and the "MEMORY" indicator flash on the front panel display.

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   TUNER
                                        TUNED MEMORY
A5:FM 90.6 MHz
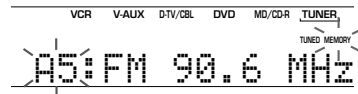
4 Press PRESET/TUNING (EDIT) again.
The stations stored at the two preset assignments are exchanged.

PRESET/TUNING
EDIT

VCR   V-AUX   D-TV/CBL   DVD   MD/CD-R   TUNER
                                          MEMORY
EDIT E1-A5
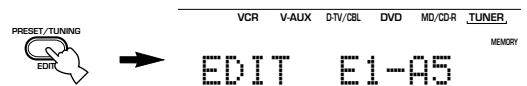
Shows the exchange of stations has been completed.

34

SLEEP TIMER

Use this feature to automatically set this unit in standby mode after the amount of time you have set. The sleep timer is useful when you are going to sleep while this unit is playing or recording a source.

The sleep timer can only be set with the remote control.
☀️
• By connecting a commercially available timer to this unit, you can also set a wake-up timer. Refer to the operation instructions of the timer.

■ Setting the sleep timer
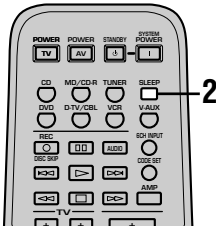
1 **Select a source and start playback on the source component.**

2 **Press SLEEP repeatedly to set the amount of time.**
Each time you press SLEEP, the front panel display changes as shown below.

SLEEP

```
        ┌→ SLEEP 120 min → SLEEP 90 min ─┐
        │                                 │
        └ SLEEP OFF ← SLEEP 30 min ← SLEEP 60 min ←┘
```
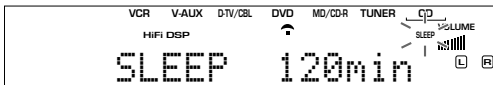

3 **The "SLEEP" indicator lights up on the front panel display soon after the sleep timer has been set.**
The display then returns to the previous indication.

■ Canceling the sleep timer

Press SLEEP repeatedly until "SLEEP OFF" appears on the front panel display.
After a few seconds, "SLEEP OFF" disappears, the "SLEEP" indicator goes off and the display returns to the previous indication.

SLEEP

☀️
• The sleep timer setting can also be canceled by setting this unit in standby mode by using STANDBY on the remote control (or STANDBY/ON on the front panel) or by disconnecting the AC power cord from the AC outlet.

Recording adjustments and other operations are performed on other recording components. Refer to the operation instructions for these components for details on their operation .

2

2
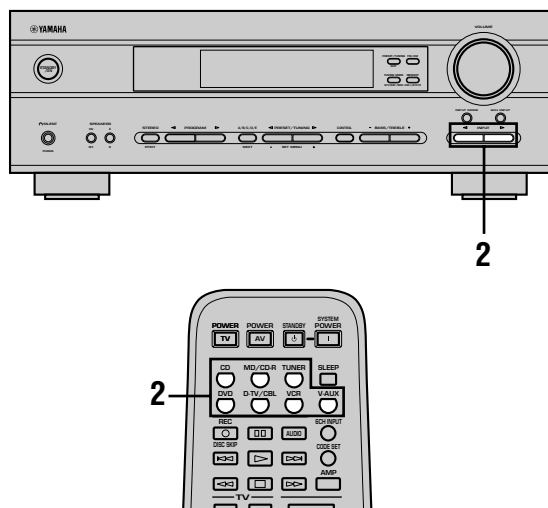
1 **Turn on the power of this unit and all connected components.**

2 **Select the source component you want to record from.**

or

Front panel   **Remote control**
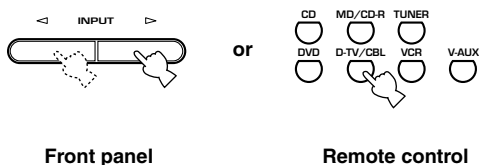
3 **Start playback (or select a broadcast station) on the source component.**

4 **Start recording on the recording component.**

Notes

- Do a test recording before you start an actual recording.
- When this unit is set in standby mode, you cannot record between the components connected to it.
- DSP programs and volume, bass, and treble settings do not affect the recorded material.
- You cannot record from a source connected to the 6CH INPUT jacks on this unit.
- Input sources are not output to the same OUT (REC) channel. (For example, the signal input from VCR IN is not output to VCR OUT.)
- You cannot record audio signals from a source connected to the DIGITAL INPUT jack on this unit because the signals from the DIGITAL INPUT jack and analog input jacks are independent. Please connect a source to the analog in jacks if you wish to record from the analog out jacks.
- Check the copyright laws in your country if you wish to record from records, CDs, radio, etc. Recording of copyrighted material may infringe copyright laws.

If you playback a video source that uses scrambled or encoded signals to prevent it from being dubbed, the picture itself may be disturbed due to those signals.

■ **Special considerations when recording DTS material**

The DTS signal is a digital bitstream. Attempting to digitally record the DTS bitstream will result in noise being recorded. Therefore, if you want to use this unit to record sources that have DTS signals recorded on them, the following considerations and adjustments need to be made.

For LDs, DVDs and CDs encoded with DTS, follow the operating instructions of your player to set it to output an analog signal, if it is compatible with the DTS format.

SET MENU

You can set the following parameters on the set menu to obtain a better sound from the unit. Change the settings to reflect the needs of your listening environment.

Set menu list

The set menus are divided by use and function into the 4 categories listed here.

■ BASIC
The BASIC area contains the basic parameters that you must set before using this unit. It consists of the following menus. See pages 18 – 20 for a detailed explanation.

1 SETUP

2 SP LEVEL (Speaker level)

■ SOUND
The SOUND area contains parameters for altering sound output. It consists of the following menus that you can use to alter the quality and tone of the sound output by the system.

1 SPEAKER SET

2 SP DISTANCE (Speaker distance)

3 LFE LEVEL (Low frequency effect level)

4 D. RANGE (Dynamic range)

5 CENTER GEQ (Center graphic equalizer)

6 HP TONE CTRL (Headphone tone control)

■ INPUT
The INPUT area contains parameters concerned with signal input. It consists of the following menus that you can use to change the assignment of input jacks.

1 I/O ASSIGN

2 INPUT MODE

■ OPTION
This is a supplementary set up menu provided for your convenience. It consists of the following menus that you can use to change display brightness, protect existing settings, and perform other non-essential functions.

1 DISPLAY SET

2 MEM. GUARD

3 AUDIO MUTE

• In the descriptions for each item from the following page, the default setting is indicated in bold.

Adjusting the items on the set menu

Use the remote control to make adjustments.
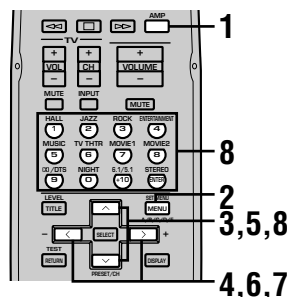
☀️
• You can change set menu parameters while the unit is reproducing sound.
• You can use NEXT and SET MENU +/– on the front panel to change these settings, if the unit is not set to TUNER mode. Press NEXT to select the category or field you wish to change, and SET MENU +/– to change the parameters.

Note
• You cannot change some set menu parameters while the unit is in night listening mode.

1 Press AMP.

AMP

2 Press SET MENU to enter the set menu.

SET MENU
MENU
A/B/C/D

3 Press ∧ / ∨ repeatedly to select the desired menu.

4 Press ⟨ / ⟩ to enter the selected menu.

5 Press ∧ / ∨ repeatedly to select the item you want to adjust.
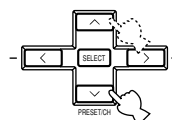
☀️
• By pressing SET MENU repeatedly, you can select items in the same order as when pressing ∨.

6 **Press ⟨ / ⟩ once to enter the setup mode of the selected item.**
The last setting you adjusted appears on the front panel display.

Depending on the menu item, press ∧/∨ to select a sub item.
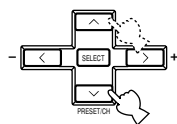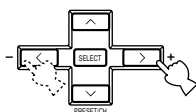
7 **Press ⟨ / ⟩ repeatedly to change the menu item setting.**
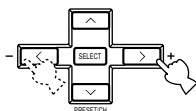
8 **Press ∧ / ∨ repeatedly until the menu disappears or just press one of the DSP program group buttons to exit from the set menu.**

or

Memory back-up
The memory back-up circuit prevents the stored data from being lost even if this unit is in standby mode. However, if the power cord is disconnected from the AC outlet, or the power supply is cut for more than one week, the stored data will be lost. If this happens, adjust the items again.

The BASIC and SOUND menus
The "BASIC" menu allows you to easily set the "SOUND 1 SPEAKER SET" and "SOUND 2 SP DISTANCE" parameters. It is not necessary to reset any of the parameters in the "BASIC" menu, but you can access more detailed parameters in the "SOUND" menu if you wish.

Note
• After altering parameters in the "SOUND" menu, if you select "BASIC 1 SETUP" and then select "SET", the parameters from the "SOUND" menu alter in response to any changes you make in "BASIC 1 SETUP". Do not enter the "BASIC 1 SETUP" menu unless you wish to change these settings. If you accidentally enter the "BASIC 1 SETUP" menu, select CANCEL to return to the "BASIC" menu. (page 19)

SOUND 1 SPEAKER SET
(speaker mode settings)

Use this feature to select suitable output modes for your speaker configuration.

Note
• Some menu item settings have no effect when the unit is reproducing a source with a digital signal sampling frequency greater than 48 kHz.

■ 1A CENTER (center speaker mode)
If you add a center speaker to your speaker configuration, this unit can provide better dialog localization for several listeners and superior synchronization of sound and images.

Choices: LRG (large), **SML** (small), NON (none)

LRG
Select this if you have a large center speaker. The unit directs the entire range of the center channel signal to the center speaker.

SML
Select this if you have a small center speaker. The unit directs the low-frequency signals (90 Hz and below) of the center channel to the speakers selected with "1D BASS".

NON
Select this if you do not have a center speaker. The unit directs all of the center channel signal to the main left and right speakers.

■ 1B MAIN (main speaker mode)
Choices: **LARGE**, SMALL

LARGE
Select this if you have large main speakers. The unit directs the entire range of the main left and right channel signals to the main left and right speakers.

SMALL
Select this if you have small main speakers. The unit directs the low-frequency signals (90 Hz and below) of the main channel to the speakers selected with "1D BASS".

■ 1C REAR LR (rear speaker mode)
Choices: LRG (large), **SML** (small), NON (none)

LRG
Select this if you have large rear left and right speakers or if a rear subwoofer is connected to the rear speakers. The entire range of the rear channel signal is directed to the rear left and right speakers.

SML
Select this if you have small rear left and right speakers. The low-frequency signals (90 Hz and below) of the rear channel are directed to the speakers selected with "1D BASS".

NON
Select this if you do not have rear speakers.

☀
• This unit is set in the virtual CINEMA DSP mode when you select NON for "1C REAR LR".

■ 1D BASS (bass out mode)
LFE signals carry low-frequency effects when this unit decodes a Dolby Digital or DTS signal. Low-frequency signals are defined as 90 Hz and below. The Low-frequency signals can be directed to both main left and right speakers, and to the subwoofer (subwoofer can be used for both stereo reproduction and the DSP program).

Choices: SWFR (subwoofer), MAIN, **BOTH**

SWFR
Select this if you use a subwoofer. The unit directs the LFE signals to the subwoofer.

MAIN
Select this if you do not use a subwoofer. The unit directs LFE signals to the main speakers.

BOTH
The unit directs LFE signals to the subwoofer. Low-frequency signals designated to the main channels in accordance with other speaker mode settings are directed to both main speakers and the subwoofer.

Note
• When you select MAIN for "1D BASS", the unit directs the low-frequency signals (90 Hz and below) of the main channel to the main speakers even if you select SMALL for the main speaker mode.

ADVANCED OPERATION

English

SOUND 2 SP DISTANCE (speaker distance)

Use this feature to adjust the delay applied to center channel sounds. This feature works when there is sound output from the center speakers with a source such as Dolby Digital or DTS. Ideally, the center speaker should be the same distance from the main listening position as the left and right main speakers. However, in most home situations, the center speaker is placed in line with the main speakers. By delaying the sound from the center speaker, you can adjust the apparent distance from the center speaker to the main listening position to make it seem the same as the distance between the listening position and main left and right speakers.

1 Press ∧ / ∨ to select "UNIT".

2 Press ⟨ / ⟩ to select the unit "meters" or "feet" to be used in setting.

3 Press ∧ / ∨ to select the speaker for which you want to adjust the delay.

4 Press ⟨ / ⟩ to set the delay.
Press ⟩ for higher values and ⟨ for lower values.

Center speaker image
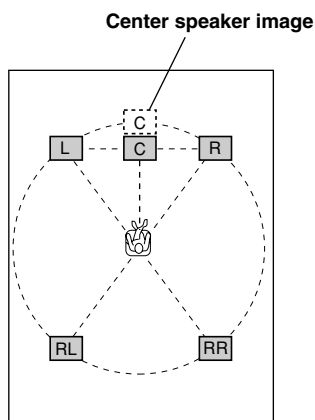
■ Setting by "meters"
Control range: 0.3 to 24.00 m (for main L/R, center, rear L/R)
Initial settings: 3.00 m (for main L/R, center, rear L/R)

■ Setting by "feet"
Control range: 1 to 80 ft (for main L/R, center, rear L/R)
Initial settings: 10.0 ft (for main L/R, center, rear L/R)

Note
• No delay will be set if you set the same distance for the main L/R, center and rear L/R.

SOUND 3   LFE LEVEL

Use this feature to adjust the output level of the LFE (low-frequency effect) channel when playing back a Dolby Digital or DTS signal. The LFE signal carries low-frequency special effect sound which is only added to certain scenes.

Control range:
    SPEAKER .... –20 to 0 dB
    HEADPHONE ..... –20 to 0 dB
Initial setting: 0 dB

1 Press ∧ / ∨ to select the item to be adjusted.

2 Press ⟨ to adjust the LFE level.

Note
• Adjust the LFE level according to the capacity of your subwoofer or headphones.

SOUND 4 D. RANGE (dynamic range)

Use this feature to adjust the dynamic range. This setting is effective only when the unit is decoding Dolby Digital signals.

Choices: **MAX**, STD (standard), MIN (minimum)

MAX
Select MAX for feature films.

STD
Select STD for general use.

MIN
Select MIN for listening to sources at low volume levels.

SOUND 5 CENTER GEQ (center graphic equalizer)

Use this feature to adjust the built-in 5-band graphic equalizer so that the center speaker tonal quality matches that of the left and right main speakers. You can select the 100 Hz, 300 Hz, 1 kHz, 3 kHz, or 10 kHz frequencies.
Control range (dB): –6 to +6
Initial setting: 0 dB for 5-band

1 **Press ⌄ to select a higher frequency and ⌃ to select a lower frequency.**

2 **Press ⟨ / ⟩ to adjust the level of that frequency.**

Note

• You can monitor the center speaker sound while adjusting this parameter by using the test tone. Press TEST before starting the foregoing procedure. Once you begin this procedure, the test tone remains at the center speaker and you can hear how the sound changes as you adjust the various frequency levels. To stop the test tone, press TEST.

SOUND 6 HP TONE CTRL (headphone tone control)

Use this feature to adjust the level of the bass and treble when you are using headphones.

Control range (dB):
    BASS .... –6 to +3
    TRBL (treble) .... –6 to +3
Initial setting:
    BASS .... 0 dB
    TRBL .... 0 dB

INPUT 1 I/O ASSIGN (input/ output assignment)

You can assign jacks according to the component to be used if this unit's DIGITAL INPUT jack settings (component names for jacks) differ from those of the component. This lets you to change the jack assignment and effectively connect more components.
Once assigned, select that component with INPUT ⟨ / ⟩ (or the input selector buttons on the remote control).

■ **1A for OPTICAL INPUT jack**
Choices: (1) **DVD**, MD/CD-R, CD, VCR, V-AUX, D-TV/CBL

■ **1B for COAXIAL INPUT jack**
Choices: (2) **CD**, VCR, V-AUX, D-TV/CBL, DVD, MD/CD-R

Note

• When you connect a component to both the COAXIAL and OPTICAL jacks, priority is given to the input signals from the COAXIAL jack.

INPUT 2 INPUT MODE (initial input mode)

Use this feature to designate the input mode for sources connected to the DIGITAL INPUT jacks when you turn this unit on (see page 23 for details about the input mode).

Choices: **AUTO**, LAST

AUTO
Select this setting to allow the unit to automatically detect the type of input signal and select the appropriate input mode.

LAST
Select this setting to set this unit to automatically select the last input mode used for the respective sources.

ADVANCED OPERATION

English

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OPTION 1   DISPLAY SET

■ DIMMER
Use this to adjust the brightness of the front panel display.

Control range: –4 to **0**

OPTION 2 MEM. GUARD
(memory guard)

Use this feature to prevent accidental changes to settings on the unit.

Choices: ON, **OFF**

Select ON to protect the following features:
• All set menu items
• Main, center, rear speakers, and subwoofer levels
• DSP program parameters

Notes

• When this item is set to ON, you cannot use the test tone.
• When this item is set to ON, you cannot select any other set menu items.

OPTION 3   AUDIO MUTE

Adjusts the amount by which the MUTE function reduces the output volume.

Choices: **MUTE**, –50dB, –20dB

MUTE
Completely halts all output of sound.

–50dB
Reduces the volume of the present sound output by 50dB.

–20dB
Reduces the volume of the present sound output by 20dB.

REMOTE CONTROL FEATURES

In addition to controlling this unit, the remote control can operate other A/V components made by YAMAHA and other manufacturers. To control other components, you must set up the remote control with the manufacturer codes.

Control area

■ **Controlling this unit**
The shaded areas below can be used to control this unit when the AMP mode is selected. Press AMP to select the AMP mode.

Input selector buttons

The buttons in the dotted lines (SYSTEM POWER, STANDBY, SLEEP, 6CH INPUT, VOLUME +/– and MUTE) function in any mode.

Press AMP to control this unit.
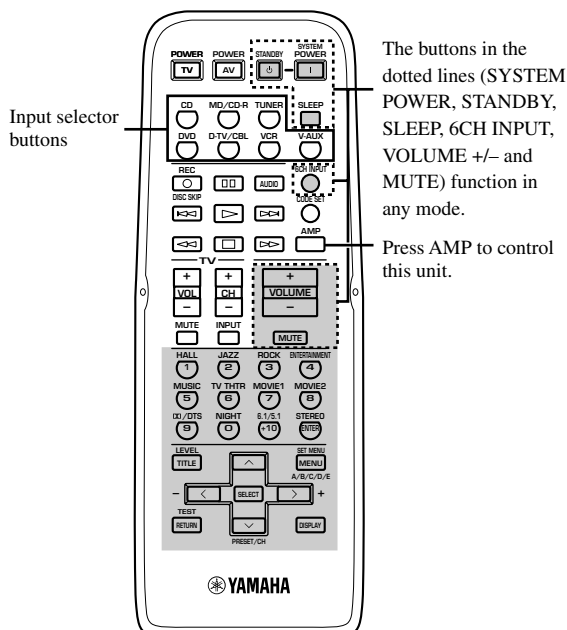
■ **Controlling other component**
The shaded areas below can be used to control other components. Each button has a different function depending on the selected components. Select the component to be controlled by pressing an input selector button.

Input selector buttons switch the control area for each component.
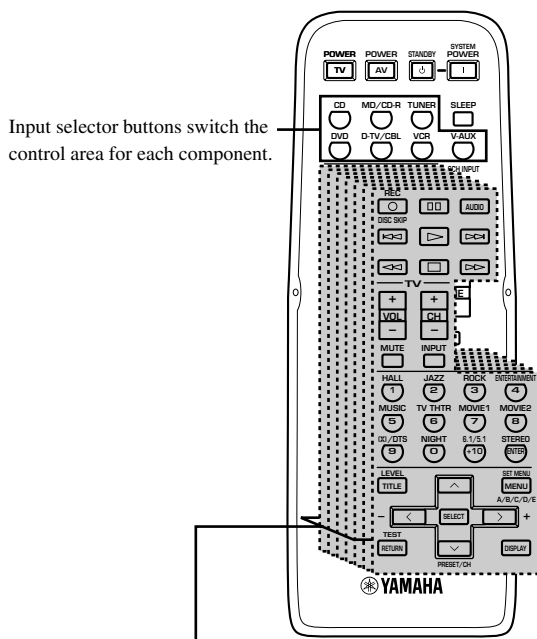
Component control area
You can control up to 7 different components. You can set up manufacturer code.

Setting the manufacturer code

You can control other components with the remote control by setting the appropriate manufacturer code.

The following table shows factory-set component controls (Library: component category) and the manufacturer code for each.

Component control (buttons)	Component category (Library)	Manufacturer	Code
CD	CD player	YAMAHA	199
MD/CD-R	CD recorder	YAMAHA	499
TUNER*1	Tuner	YAMAHA	Fixed
DVD	DVD player	YAMAHA	699
D-TV/CBL*2	–	–	–
V-AUX	–	–	–
VCR	–	–	–

*1 You can control this unit and other Yamaha tuners only.

*2 You can only set TV manufacturer codes for the D-TV/CBL buttons.

1 **Press and hold CODE SET. With CODE SET depressed, press an input selector button to select the component you want to set up.**
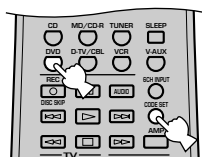
Note

• You must press and hold CODE SET throughout this procedure.

2 **With CODE SET depressed, use the numeric buttons to enter the 3 digit code of your component's manufacturer.**
  • Refer to the LIST OF MANUFACTURER'S CODES at the end of this manual.
  • To reset the code, enter the factory-set code for each component shown in the above table.
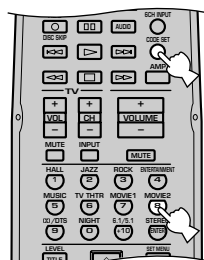
Notes

• If the manufacturer of your component has more than one code, try each of them until you find the correct one.
• You can only assign one manufacturer code to each input selector button.

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Controlling other components

You can operate other components if you have set the manufacturer code for your component in the remote control. Note, however, that some buttons may not operate the component correctly.

Once you select an input source, the remote control switches to the mode for operating the component.
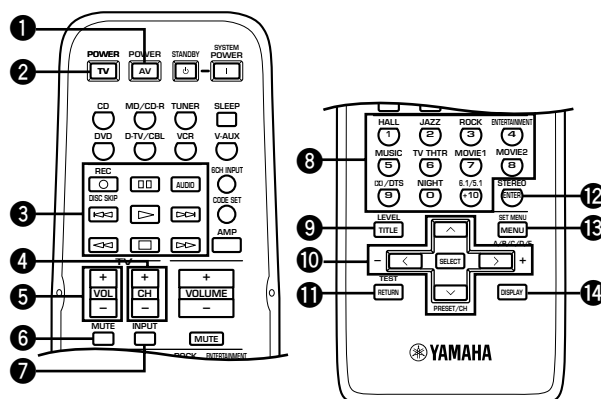
	DVD player	VCR	TV, digital/cable TV	CD player	CD/MD recorder	Tuner
❶ AV POWER	[*1]Power	[*1]Power	[*3]VCR power	[*1]Power	[*1]Power	[*1]Power
❷ TV POWER	[*2]TV power	[*2]TV power	[*2]TV power	[*2]TV power	[*2]TV power	[*2]TV power
❸ REC/DISC SKIP	Disc skip	Rec	[*3]VCR rec	Disc skip	Rec (MD)	
▷	Play	Play	[*3]VCR play	Play	Play	
◁◁	Search backward	Search backward	[*3]VCR search backward	Search backward	Search backward	
▷▷	Search forward	Search forward	[*3]VCR search forward	Search forward	Search forward	
AUDIO	Audio					
▯▯	Pause	Pause	[*3]VCR pause	Pause	Pause	
◁◁	Skip backward			Skip backward	Skip backward	
▷▷▯	Skip forward			Skip forward	Skip forward	
▯	Stop	Stop	[*3]VCR stop	Stop	Stop	
❹ TV CH +	[*2]TV channel up	[*2]TV channel up	TV channel up	[*2]TV channel up	[*2]TV channel up	[*2]TV channel up
TV CH –	[*2]TV channel down	[*2]TV channel down	TV channel down	[*2]TV channel down	[*2]TV channel down	[*2]TV channel down
❺ TV VOL +	[*2]TV volume up	[*2]TV volume up	TV volume up	[*2]TV volume up	[*2]TV volume up	[*2]TV volume up
TV VOL –	[*2]TV volume down	[*2]TV volume down	TV volume down	[*2]TV volume down	[*2]TV volume down	[*2]TV volume down
❻ TV MUTE	[*2]TV mute	[*2]TV mute	TV mute	[*2]TV mute	[*2]TV mute	[*2]TV mute
❼ TV INPUT	[*2]TV input	[*2]TV input	TV input	[*2]TV input	[*2]TV input	[*2]TV input
❽ 1-9, 0, +10	Numeric buttons	Numeric buttons	Numeric buttons	Numeric buttons	Numeric buttons	Preset stations (1-8)
❾ TITLE	Title					
❿ PRESET/CH ∧	Up	VCR channel up				Preset up
PRESET/CH ∨	Down	VCR channel down				Preset down
PRESET/CH ‹	Left					
PRESET/CH ›	Right					
SELECT	Select					
⓫ RETURN	Return					
⓬ ENTER	Title/Index	Enter	Enter	Index	Index	
⓭ MENU	Menu			Menu		A/B/C/D/E
⓮ DISPLAY	Display			Display	Display	

[*1] This button functions only when the original remote control of the component has a POWER button.

[*2] These buttons can operate your TV without switching the input if the manufacturer code is set in D-TV/CBL.

[*3] These buttons can operate your VCR without switching the input to VCR if the manufacturer code is set in VCR.

ADVANCED OPERATION

English

SETTING THE SPEAKER LEVELS

Adjusting the volume during playback

You can adjust the volume of the speakers while listening to sound playback.
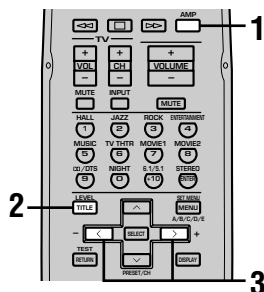
1 Press AMP.

2 Press LEVEL repeatedly to select the speaker you want to adjust.
The unit cycles through the speakers in the following order each time you press LEVEL:
MAIN L→CENTER→MAIN R→
R SUR. (rear R)→L SUR. (rear L)→
SWFR (subwoofer)→.....

☀️
• Pressing LEVEL once opens the level display. Press ∧ / ∨ at this time to select a speaker.

3 Press ⟨ / ⟩ to adjust the speaker volume.
• The center and rear speakers can be adjusted by a maximum of –10dB ~ +10dB.
• The main speakers and subwoofer can be adjusted by a maximum of –20dB ~ 0dB.

Notes
• You cannot adjust speaker levels if the "SOUND 1 SPEAKER SET" parameter in the set menu is set to NON.
• You cannot adjust the subwoofer level if the "1D BASS" parameter in "SOUND 1 SPEAKER SET" in the set menu is set to MAIN.
• If you use LEVEL to adjust speaker levels, the speaker levels you previously set with the test tone will also change.
• If you select "BASIC 1 SETUP" in the set menu and then select "SET", speaker levels change in response to any changes you make in "BASIC 1 SETUP".

Using the test tone

Use the test tone to set speaker levels so that the volume from each speaker is identical when heard from your listening position.
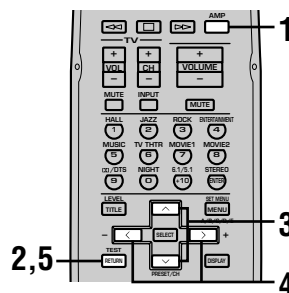
1 Press AMP.

2 Press TEST.
The unit will output a test tone.

3 Press ∧ / ∨ repeatedly to select a speaker to adjust.
Each time you press ∨, the unit will cycle through the speakers in the following order:
TEST LEFT (main L)→TEST CENTER (center)→
TEST RIGHT (main R)→TEST R SUR. (rear R)→
TEST L SUR. (rear L)→TEST SUBWOOFER
(subwoofer)→.....
(Press ∧ to cycle the speakers in the reverse order.)

4 Press ⟨ / ⟩ to adjust speaker volumes.

5 Press TEST when you have completed your adjustment.
The test tone halts.

Notes
• You cannot enter test mode if headphones are connected to the PHONES jack. Remove the headphones from the PHONES jack.
• You cannot adjust speaker volumes if the "SOUND 1 SPEAKER SET" parameter on the set menu is set to NON.
• You cannot adjust the subwoofer level if the "1D BASS" parameter in "SOUND 1 SPEAKER SET" in the set menu is set to MAIN.
• If you select "BASIC 1 SETUP" in the set menu and then select "SET", speaker levels change in response to any changes you make in "BASIC 1 SETUP".

☀️
• Depending on the source the unit is reproducing, the speaker levels set with the test tone may not be to your liking. If this is the case, adjust the speaker levels while listening to the source.

SOUND FIELD PROGRAM PARAMETER EDITING

Changing parameter settings

The initial sound field program settings will provide you with an excellent listening experience as they are. It is not necessary to alter these settings, but you can create an original listening environment by doing so.

Note

• The editable parameters vary depending on the sound field program you select. Refer to the explanation for the parameter.

1 **Press AMP.**

2 **Select a sound field program.**
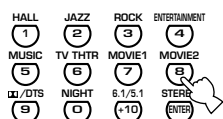
3 **Press ∧ / ∨ to select the parameter you want to change.**
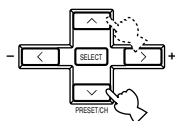
4 **Press ‹ / › to change the parameter setting.**

5 **Repeat steps 2 – 4 if you wish to alter other parameters.**

Note

• You cannot alter these parameters if the "OPTION 2 MEM. GUARD" parameter in the set menu is set to ON. Change this setting to OFF if you wish to alter any other parameters.

ADDITIONAL INFORMATION

English

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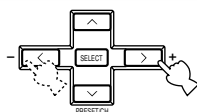
Digital sound field parameter descriptions

You can adjust the values of certain digital sound field parameters so the sound fields are recreated accurately in your listening room. Not all of the following parameters are found in every program.

■ DSP LEVEL
Function: This parameter adjusts the level of all the DSP effect sounds within a narrow range.
Description: Depending on the acoustics of your listening room, you may want to increase or decrease the DSP effect level relative to the direct sound.
Control Range: –6 dB to +3 dB

■ DELAY
Function: Adjusts the time difference between the beginning of the sound from the main speakers and the beginning of the sound effect from the rear speakers. The larger the value, the later the sound effect is generated.
Control range: 1 to 99 ms (Control range varies depending on the input source and the DSP program you use.)

For 5ch Stereo
Function: These parameters adjust the volume level for each channel in 5-channel stereo mode.
Control range: 0 to 100%

■ CT LEVEL (Center level)

■ RL LEVEL (Rear left level)

■ RR LEVEL (Rear right level)

For PRO LOGIC II Music
■ PANORAMA
Function: Extends the front stereo image to include the surround speakers for a wraparound effect.
Choices: OFF/ON, initial setting is OFF.

■ DIMENSION
Function: Gradually adjusts the soundfield either towards the front or towards the rear.
Control range: –3 (towards the rear) to +3 (towards the front), initial setting is STD (standard).

■ CT WIDTH (Center width)
Function: Adjusts the center image from all three front speakers to varying degrees. A larger value adjusts the center image towards the main left and right speakers.
Control range: 0 (center channel sound is output only from center speaker) to 7 (center channel sound is output only from main left and right speakers), initial setting is 3.

TROUBLESHOOTING

Refer to the chart below when this unit does not function properly. If the problem you are experiencing is not listed below or if the instruction below does not help, set this unit to standby mode, disconnect the power cord, and contact the nearest authorized YAMAHA dealer or service center.

■ General

Problem	Cause	Remedy	Refer to page
This unit fails to turn on when STANDBY/ ON (or SYSTEM POWER) is pressed, or enters in standby mode soon after the power has been turned on.	The power cord is not connected or the plug is not completely inserted.	Connect the power cord firmly.	–
	The protection circuitry has been activated.	Make sure all speaker wire connections on this unit and on all speakers are secure and that the wire for each connection is not touching anything other than its respective connection.	15 – 16
	This unit has been exposed to a strong external electric shock (such as lightning and strong static electricity).	Set this unit in standby mode, disconnect the power cord, plug it back in after 30 seconds, then use it normally.	–
No sound.	Incorrect input or output cable connections.	Connect the cables properly. If the problem persists, the cables may be defective.	9 – 16
	No appropriate input source is selected.	Select an appropriate input source with INPUT ◁ / ▷ or 6CH INPUT (or the input selector buttons).	21
	The speaker connections are not secure.	Secure the connections.	15 – 16
	The main speakers have not been selected properly.	Press and set SPEAKERS ON/OFF to ON, and select the proper main speakers with SPEAKERS A/B.	21
	The volume is turned down.	Turn up the volume.	22
	The sound is muted.	Press MUTE or any operation buttons on the unit to cancel mute and adjust the volume.	–
	Digital signals which this unit cannot reproduce are being received from a source component e.g.; a CD-ROM.	Play a source whose signals this unit can reproduce.	–
The sound suddenly goes off.	The protection circuit has been activated because of a short circuit, etc.	Check the speaker wires are not touching each other and then turn the unit back on.	–
	The sleep timer has turned the unit off.	Turn on the power, and play the source again.	–
	The sound is muted.	Press MUTE or any operation buttons on the unit to cancel a mute and adjust the volume.	–

ADDITIONAL INFORMATION

English

Problem	Cause	Remedy	Refer to page
No sound / weak sound from particular speakers.	Incorrect cable connections.	Connect the cables properly. If the problem persists, the cables may be defective.	15
No sound from the effect speakers.	The sound effect is switched off.	Press STEREO to turn it on.	–
	A Dolby Surround, Dolby Digital or DTS decoding DSP program is being used with material not encoded with Dolby Surround, Dolby Digital or DTS.	Select another DSP program.	24 – 29
	A digital signal with a sampling frequency of greater than 48 kHz is input to this unit.		–
No sound from the center speaker.	The output level of the center speaker is set to minimum.	Raise the level of the center speaker.	46
	"SOUND 1A CENTER" on the set menu is set to NON.	Select the appropriate mode for your center speaker.	38
	One of the Hi-Fi DSP programs (1 to 4) has been selected (except for 5ch Stereo).	Select another DSP program.	24 – 29
	The source encoded with a Dolby Digital or DTS signal does not have a center channel signal.		–
No sound from the rear speakers.	The output level of the rear speakers is set to minimum.	Raise the output level of the rear speakers.	46
	A monaural source is being played with program 9.	Select another DSP program.	24 – 29
No sound from the subwoofer.	"SOUND 1D BASS" on the set menu is set to MAIN when a Dolby Digital or DTS signal is being played.	Select SWFR or BOTH.	39
	"SOUND 1D BASS" on the set menu is set to SWFR or MAIN when a 2-channel source is being played.	Select BOTH.	39
	The source does not contain low bass signals (90 Hz and below).		–
Poor bass reproduction.	"SOUND 1D BASS" on the set menu is set to SWFR or BOTH and your system does not include a subwoofer.	Select MAIN.	39
	The speaker mode settings (main, center or rear) on the set menu does not match your speaker configuration.	Select the appropriate position for each speaker based on the size of the speakers in your configuration.	38 – 39

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Problem	Cause	Remedy	Refer to page
A "humming" sound can be heard.	Incorrect cable connections.	Firmly connect the audio plugs. If the problem persists, the cables may be defective.	–
The volume level cannot be increased, or the sound is distorted.	The component connected to the OUT (REC) jacks of this unit is turned off.	Turn on the power to the component.	–
The sound effect cannot be recorded.	It is not possible to record the sound effect with a recording component.		–
The sound field parameters and some other settings on the unit cannot be changed.	"OPTION 2 MEM. GUARD" in the set menu is set to ON.	Set "OPTION 2 MEM. GUARD" in the set menu to OFF.	–
The unit does not operate properly.	The internal microcomputer has been frozen by an external electric shock (such as lightning or excessive static electricity) or by a power supply with low voltage.	Disconnect the AC power cord from the outlet and then plug it in again after about 30 seconds.	–
"CHECK SP WIRES" appears on the front panel display.	The speaker cables are short circuited.	Make sure all speaker cables are connected correctly.	–
There is noise interference from digital or high-frequency equipment, or this unit.	This unit is too close to the digital or high-frequency equipment.	Move this unit further away from such equipment.	–
The unit suddenly turns into standby mode.	The internal temperature has become too high and the overheat protection circuitry has been activated.	Wait until the unit cools down and then turn it back on.	–

ADDITIONAL INFORMATION

English

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■ Tuner

<table>
<tr><th colspan="2">Problem</th><th>Cause</th><th>Remedy</th><th>Refer to page</th></tr>
<tr><td rowspan="6">FM</td><td rowspan="2">FM stereo reception is noisy.</td><td rowspan="2">The characteristics of FM stereo broadcasts may cause this problem when the transmitter is too far away or the antenna input is poor.</td><td>Check the antenna connections. Try using a high-quality directional FM antenna.</td><td>12</td></tr>
<tr><td>Use the manual tuning method.</td><td>31</td></tr>
<tr><td>There is distortion, and clear reception cannot be obtained even with a good FM antenna.</td><td>There is multipath interference.</td><td>Adjust the antenna position to eliminate multipath interference.</td><td>–</td></tr>
<tr><td rowspan="2">The desired station cannot be tuned in with the automatic tuning method.</td><td rowspan="2">The station is too weak.</td><td>Use a high-quality directional FM antenna.</td><td>–</td></tr>
<tr><td>Use the manual tuning method.</td><td>31</td></tr>
<tr><td>Previously preset stations can no longer be tuned in.</td><td>The unit has been disconnected for a long period.</td><td>Re-store the stations.</td><td>32</td></tr>
<tr><td rowspan="3">AM</td><td rowspan="2">The desired station cannot be tuned in with the automatic tuning method.</td><td rowspan="2">The signal is weak or the antenna connections are loose.</td><td>Tighten the AM loop antenna connections and orient it for best reception.</td><td>–</td></tr>
<tr><td>Use the manual tuning method.</td><td>31</td></tr>
<tr><td>There are continuous crackling and hissing noises.</td><td>Noises result from lightning, fluorescent lamps, motors, thermostats and other electrical equipment.</td><td>Use an outdoor antenna and a ground wire. This will help somewhat, but it is difficult to eliminate all noise.</td><td>12</td></tr>
<tr><td colspan="1"></td><td>There are buzzing and whining noises (especially in the evening).</td><td>A TV set is being used nearby.</td><td>Move this unit away from the TV.</td><td>–</td></tr>
</table>

■ Remote control

<table>
<tr><th>Problem</th><th>Cause</th><th>Remedy</th><th>Refer to page</th></tr>
<tr><td rowspan="6">The remote control does not work nor function properly.</td><td>Wrong distance or angle.</td><td>The remote control will function within a maximum range of 6 m (20 feet) and no more than 30 degrees off-axis from the front panel.</td><td>7</td></tr>
<tr><td>Direct sunlight or lighting (from an inverter type of fluorescent lamp, etc.) is striking the remote control sensor of this unit.</td><td>Reposition this unit.</td><td>–</td></tr>
<tr><td>The batteries are weak.</td><td>Replace all batteries with new ones.</td><td>3</td></tr>
<tr><td rowspan="2">The manufacture code has not correctly set.</td><td>Set the code correctly.</td><td>44</td></tr>
<tr><td>Try setting another code of the same manufacturer.</td><td>44</td></tr>
<tr><td>Even if the manufacturer code is correctly set, there are some models that do not respond to the remote control.</td><td></td><td>–</td></tr>
</table>

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GLOSSARY

■ Dolby Surround

Dolby Surround uses a 4 channel analog recording system to reproduce realistic and dynamic sound effects: 2 main left and right channels (stereo), a center channel for dialog (monaural), and a rear channel for special sound effects (monaural). The rear channel reproduces sound within a narrow frequency range.

Dolby Surround is widely used with nearly all video tapes and laser discs, and in many TV and cable broadcasts as well. The Dolby Pro Logic decoder built into this unit employs a digital signal processing system that automatically stabilizes the volume on each channel to enhance moving sound effects and directionality.

■ Dolby Digital

Dolby Digital is a digital surround sound system that gives you completely independent multi-channel audio. With 3 front channels (left, center, and right), and 2 rear stereo channels, Dolby Digital provides 5 full-range audio channels. With an additional channel especially for bass effects, called LFE (low frequency effect), the system has a total of 5.1 channels (LFE is counted as 0.1 channel).

By using 2-channel stereo for the rear speakers, more accurate moving sound effects and surround sound environment are possible than with Dolby Surround. The wide dynamic range (from maximum to minimum volume) reproduced by the 5 full-range channels and the precise sound orientation generated using digital sound processing provide listeners with previously unheard of excitement and realism.

With this unit, any sound environment from monaural up to a 5.1-channel configuration can be freely selected for your enjoyment.

■ Matrix 6.1

The unit incorporates Matrix 6.1 decoder for Dolby Digital and DTS multi-channel software that enables 6.1-channel reproduction by adding the rear center channel to existing 5.1-channel format. (The rear center channel is created from rear left and right channels, and outputted from virtual rear center speaker.) With this additional channel, you can experience more dynamic and realistic moving sound especially with scenes with "fly-over" and "fly-around" effects.

■ Dolby Pro Logic II

Dolby Pro Logic II is an improved technique used to decode vast numbers of existing Dolby Surround software. This new technology enables a discrete 5-channel playback with 2 main left and right channels, 1 center channel, and 2 rear left and right channels (instead of only 1 rear channel for conventional Pro Logic technology). A music mode is also available for 2-channel sources in addition to the movie mode.

■ DTS (Digital Theater Systems) Digital Surround

DTS digital surround was developed to replace the analog soundtracks of movies with a 6-channel digital sound track, and is now rapidly gaining popularity in movie theaters around the world. Digital Theater Systems Inc. has developed a home theater system so that you can enjoy the depth of sound and natural spatial representation of DTS digital surround in your home. This system produces practically distortion-free 6-channel sound (technically, a left, right and center channels, 2 rear channels, plus an LFE 0.1 channel as a subwoofer, for a total of 5.1 channels).

■ LFE 0.1 channel

This channel is for the reproduction of low bass signals. The frequency range for this channel is 20 Hz to 120 Hz. This channel is counted as 0.1 because it only enforces a low frequency range compared to the full-range reproduced by the other 5 channels in a Dolby Digital or DTS 5.1 channel systems.

■ CINEMA DSP

Since the Dolby Surround and DTS systems were originally designed for use in movie theaters, their effect is best felt in a theater having many speakers and designed for acoustic effects. Since home conditions, such as room size, wall material, number of speakers, and so on, can differ so widely, it's inevitable that there are differences in the sound heard as well. Based on a wealth of actually measured data, YAMAHA CINEMA DSP uses YAMAHA original sound field technology to combine Dolby Pro Logic, Dolby Digital and DTS systems to provide the visual and audio experience of movie theater in the listening room of your own home.

■ SILENT CINEMA

YAMAHA has developed a natural, realistic sound effect DSP algorithm for headphones.

Parameters for headphones have been set for each sound field so that accurate representations of all the sound field programs can be enjoyed using headphones.

■ Virtual CINEMA DSP

YAMAHA has developed a virtual CINEMA DSP algorithm that allows you to enjoy DSP sound field surround effects even without any rear speakers by using virtual rear speakers.

It is even possible to enjoy virtual CINEMA DSP using a minimal 2-speaker system that does not include a center speaker.

ADDITIONAL INFORMATION

English

■ **PCM (Linear PCM)**

Linear PCM is a signal format under which an analog audio signal is digitized, recorded and transmitted without using any compression. This is used as a method of recording CDs and DVD audio. The PCM system uses a technique for sampling the size of the analog signal per very small unit of time. Standing for "pulse code modulation", the analog signal is encoded as pulses and then modulated for recording.

■ **Sampling frequency and number of quantized bits**

When digitizing an analog audio signal, the number of times the signal is sampled per second is called the sampling frequency, while the degree of fineness when converting the sound level into a numeric value is called the number of quantized bits.

The range of rates that can be played back is determined based on the sampling rate, while the dynamic range representing the sound level difference is determined by the number of quantized bits. In principle, the higher the sampling frequency, the wider the range of frequencies that can be played back, and the higher the number of quantized bits, the more finely the sound level can be reproduced.

SPECIFICATIONS

AUDIO SECTION

- Minimum RMS Output Power for Main, Center, Rear
  1 kHz, 0.1% THD, 6 Ω
  [U.S.A. and Canada models] .... 70 W
  [Other models] .... 60 W
  1 kHz, 0.7% THD, 6 Ω
  [U.S.A. and Canada models] .... 75 W
  [U.K., Europe, Australia and Korea models] .... 65 W

- DIN Standard Output Power
  [Europe model]
  1 kHz, 0.7% THD, 4 Ω .... 75 W

- Maximum Power (EIAJ)
  [China, Korea and General models]
  1 kHz, 10% THD, 6 Ω .... 80 W

- Dynamic Power (IHF, 6/4/2 Ω)
  [U.S.A. and Canada models] .... 85/100/115 W
  [Other models] .... 75/95/105 W

- Frequency Response
  CD, etc. to Main L/R .... 10 Hz to 100 kHz, −3 dB

- Total Harmonic Distortion
  1 kHz, 30 W, 6 Ω, Main L/R 0.06%

- Signal to Noise Ratio (IHF-A Network)
  CD (250 mV, shorted) to Main L/R, Effect Off .... ≧100 dB

- Residual Noise (IHF-A Network)
  Main L/R .... 150 µV or less

- Channel Separation (1 kHz/10 kHz)
  CD, etc. (5.1 kΩ terminated) to Main L/R .... ≧60 dB/≧45 dB

- Tone Control (Main L/R)
  BASS Boost/Cut .... ±10 dB/100 Hz
  TREBLE Boost/Cut .... ±10 dB/20 kHz

- Phones Output .... 300 mV/470 Ω

- Input Sensitivity
  CD, etc. .... 150 mV/47 kΩ
  6CH INPUT .... 150 mV/47 kΩ

- Output Level
  OUT (REC) .... 150 mV/1.2 kΩ
  OUTPUT SUBWOOFER .... 4 V/1.2 kΩ

VIDEO SECTION

- Video Signal Type .... NTSC or PAL

- Composite Video Signal Level .... 1 Vp-p/75 Ω

- Signal to Noise Ratio .... ≧50 dB

- Frequency Response (MONITOR OUT)
  .... 5 Hz to 10 MHz, −3 dB

FM SECTION

- Tuning Range
  [U.S.A. and Canada models] .... 87.5 to 107.9 MHz
  [Other models] .... 87.50 to 108.00 MHz

- 50 dB Quieting Sensitivity (IHF, 100% mod.)
  Mono/Stereo .... 2.0 µV (17.3 dBf) /25 µV (39.2 dBf)

- Selectivity (400 kHz) .... 70 dB

- Signal to Noise Ratio (IHF)
  Mono/Stereo .... 76 dB/70 dB

- Harmonic Distortion (1 kHz)
  Mono/Stereo 0.2%/0.3%

- Stereo Separation (1 kHz) .... 42 dB

- Frequency Response .... 20 Hz to 15 kHz +0.5, −2 dB

AM SECTION

- Tuning Range .... 530/531 to 1710/1611 kHz

- Usable Sensitivity .... 300 µV/m

GENERAL

- Power Supply
  [U.S.A. and Canada models] .... AC 120 V/60 Hz
  [Australia model] .... AC 240 V/50 Hz
  [U.K., Europe and Singapore models] .... AC 230 V/50 Hz
  [Korea model] .... AC 220 V/60 Hz
  [China model] .... AC 220 V/50 Hz
  [General model] .... AC 110-120 V/220-240 V, 50/60 Hz

- Power Consumption
  [U.S.A. and Canada models] .... 210 W/280 VA
  [Other models] .... 210 W
  Standby Mode .... 0.8 W or less

- Dimension (W x H x D) .... 435 x 151 x 322 mm
  (17-1/8" x 5-15/16" x 12-11/16")

- Weight .... 8 kg (17 lbs 10 oz)

*Specifications are subject to change without notice.

ADDITIONAL INFORMATION

English

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LIST OF MANUFACTURER'S CODES
LISTA DE CÓDIGOS DE FABRICANTES
制造厂家编码表

TV

Yamaha	299 292
Admiral	292 293
Aiwa	294 276 283 284
Akai	295 296
Alba	296
AOC	297
Bell&Howell	292
Bestar	298
Blaupunkt	229 222
Blue sky	298
Brandt	223
Brocsonic	297
Bush	296
Clatronic	298
Craig	224
Croslex	225
Curtis Mathis	297 226
Daewoo	297 298 224 227 228
Daytron	239
Dual	298
Emerson	297 224 239 232
Ferguson	223 265 266
First line	298
Funai	277 278
Fisher	295 233
Fraba	298
GE	293 297 234 235 236
LG/Goldstar	297 298 239 237
Goodmans	296 298 223
Grundig	229 238 249
Hitachi	297 239 242 243 285
ICE	296
Irradio	296
Itt/Nokia	244 245
JC Penny	293 297 234 237
JVC	296 246 247 286
Kendo	298
KTV	297 239
Loewe	298 248
LXI	293 297 225 226 233
Magnavox	297 225 239
Matsui	295
Mitsubishi	299 297 259 287
NEC	297 252 282
Nokia	244 245
Nokia Oceanic	245
Nordmende	265 266
Onwa	296
Panasonic	234 235 236 253 288 211
Philco	297 225 239
Philips	225
Pioneer	226 235 254 255 268
Portland	297 256
Quasar	234 235
Radio Shack	299 293 297
RCA	293 297 234 256 257 258
SABA	223 269 265 266
Samsung	297 239 248 262 275
Sanyo	295 233 279 272 273 274 212
Schneider	296
Scott	297
Sharp	292 239 232 213
Siemens	229
Signature	292
Sony	263 214
Sylvania	297 225
Telefunken	269 264 265 266
Thomson	223 266
Toshiba	292 226 267 215
Videch	297 242
Wards	297 239 232

VCR

Yamaha	399 392 393 394
Admiral	395
Aiwa	396 397 398 329
Akai	322 323 324
Audio Dynamic	392 394
Bell&Howell	393
Blaupunkt	325 326
Brocsonic	327
Bush	322
Canon	325 328
CGM	396 332
Citizen	396
Craig	396
Curtis Mathis	397 328 333
Daewoo	328 334 335
DBX	392 394
Dimensia	333
Emerson	327 334
Fisher	393 336
Funai	397
GE	328 333 387
LG/Goldstar	396 388
Goodmans	334 337
Grundig	332 338
Hitachi	325 333 349 342 343
Instant Replay	325 328
Itt/Nokia	393
JC Penny	392 393 394 328 333 349
JVC	392 394 344 345 346 347
Kendo	396
Kenwood	392 394 396
Loewe	396 337
Luxor	395
LXI	393 396 397 336 349
Magnavox	325 326 328
Marantz	392 394
Marta	396
Matsui	396
Memorex	328 336
Minolta	333 349
Mitsubishi	399 344 348 359 352 353
Multitech	397 348 354
NEC	392 394 344 383
Nokia	393 395
Nokia Oceanic	395
Okano	323
Olympic	325 328
Orion	327
Panasonic	325 328 355 378 384 385 386
Pentax	333 349
Philco	325 328
Philips	325 326 328 337 356 357
Phonola	337
Pioneer	325
Quasar	325 328
RCA/PROSCAN	325 326 328 333 335 349 358 369
Realistic	393 397 328 336 359 362
Samsung	354 358 363 364 365 366
Sansui	394
Sanyo	393 336 367

Schneider	337
Scott	399 335 336 348 359 352 354 358
Seleco	322
Sharp	395 362 382
Siemens	393
Signature 2000	395 397
Sony	368 379 372 373 374 375
Sylvania	397 325 326 328
Symphonic	397
Tandberg	334
Tashiro	396
Tatung	392 394
Teac	392 394 397
Technics	325 328
Telefunken	376 377
Thorn	393 396
Toshiba	335 369 389
Universum	396 327 376
W.WHouse	396
Wards	395 396 336 362

DVD player

Yamaha	699 622 623 647
DENON	623 624
Funai	625
HITACHI	626
JVC	627
KENWOOD	628
Mitsubishi	629
Onkyo	632 633 634
Panasonic	623 635
Philips	699 647
Pioneer	636 637 638
RCA	639
Samsung	642
Sharp	643
Sony	644
Toshiba	634
LG/GOLD STAR	645
THOMSON	646

MD Recorder

Yamaha	599

CD player

Yamaha	199

CD Recorder

Yamaha	499

YAMAHA