B

RX-V765

AV Receiver

OWNER'S MANUAL

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 an 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 objects 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 cable from the wall outlet, grasp the plug; do not pull the cable.

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, keep the power cord and outdoor antennas disconnected from a wall outlet or the unit during a lightning 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 Install this unit near the AC outlet and where the AC power plug can be reached easily.

17 Be sure to read the "Troubleshooting" section on common operating errors before concluding that this unit is faulty.

18 Before moving this unit, press Ⓐ**MAIN ZONE ON/OFF** to set this unit in the standby mode, and disconnect the AC power plug from the wall outlet.

19 VOLTAGE SELECTOR (Asia and General models only)
The VOLTAGE SELECTOR on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC wall outlet. Voltages are:
..... AC 110/120/220/230–240 V, 50/60 Hz (General model)
.....AC 220/230–240 V, 50/60 Hz (Asia model)

20 The batteries shall not be exposed to excessive heat such as sunshine, fire or like.

21 Excessive sound pressure from earphones and headphones can cause hearing loss.

22 When replacing the batteries, be sure to use batteries of the same type. Danger of explosion may happen if batteries are incorrectly replaced.

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

As long as this unit is connected to the AC wall outlet, it is not disconnected from the AC power source even if you turn off this unit by Ⓐ**MAIN ZONE ON/OFF**. In this state, this unit is designed to consume a very small quantity of power.

■ For U.K. customers

If the socket outlets in the home are not suitable for the plug supplied with this appliance, it should be cut off and an appropriate 3 pin plug fitted. For details, refer to the instructions described below.

Note

The plug severed from the mains lead must be destroyed, as a plug with bared flexible cord is hazardous if engaged in a live socket outlet.

■ Special Instructions for U.K. Model

IMPORTANT
THE WIRES IN MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:

Blue: NEUTRAL
Brown: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.
Making sure that neither core is connected to the earth terminal of the three pin plug.

Pb

Information for Users on Collection and Disposal of Old Equipment and used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

[Information on Disposal in other Countries outside the European Union]

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

Limited Guarantee for European Economic Area (EEA) and Switzerland

Thank you for having chosen a Yamaha product. In the unlikely event that your Yamaha product needs guarantee service, please contact the dealer from whom it was purchased. If you experience any difficulty, please contact Yamaha representative office in your country. You can find full details on our website (**http://www.yamaha-hifi.com/** or **http://www.yamaha-uk.com/** for U.K. resident).

The product is guaranteed to be free from defects in workmanship or materials for a period of two years from the date of the original purchase. Yamaha undertakes, subject to the conditions listed below, to have the faulty product or any part(s) repaired, or replaced at Yamaha's discretion, without any charge for parts or labour. Yamaha reserves the right to replace a product with that of a similar kind and/or value and condition, where a model has been discontinued or is considered uneconomic to repair.

Conditions

1. The original invoice or sales receipt (showing date of purchase, product code and dealer's name) MUST accompany the defective product, along with a statement detailing the fault. In the absence of this clear proof of purchase, Yamaha reserves the right to refuse to provide free of charge service and the product may be returned at the customer's expense.
2. The product MUST have been purchased from an AUTHORISED Yamaha dealer within the European Economic Area (EEA) or Switzerland.
3. The product must not have been the subject of any modifications or alterations, unless authorised in writing by Yamaha.
4. The following are excluded from this guarantee:
   a. Periodic maintenance and repair or replacement of parts due to normal wear and tear.
   b. Damage resulting from:
      (1) Repairs performed by the customer himself or by an unauthorised third party.
      (2) Inadequate packaging or mishandling, when the product is in transit from the customer. Please note that it is the customer's responsibility to ensure the product is adequately packaged when returning the product for repair.
      (3) Misuse, including but not limited to (a) failure to use the product for its normal purpose or in accordance with Yamaha's instructions on the proper use, maintenance and storage, and (b) installation or use of the product in a manner inconsistent with the technical or safety standards in force in the country where it is used.
      (4) Accidents, lightning, water, fire, improper ventilation, battery leakage or any cause beyond Yamaha's control.
      (5) Defects of the system into which this product is incorporated and/or incompatibility with third party products.
      (6) Use of a product imported into the EEA and/or Switzerland, not by Yamaha, where that product does not conform to the technical or safety standards of the country of use and/or to the standard specification of a product sold by Yamaha in the EEA and/or Switzerland.
      (7) Non AV (Audio Visual) related products.
      (Products subject to "Yamaha AV Guarantee Statement" are defined in our website at **http://www.yamaha-hifi.com/** or **http://www.yamaha-uk.com/** for U.K. resident.)
5. Where the guarantee differs between the country of purchase and the country of use of the product, the guarantee of the country of use shall apply.
6. Yamaha may not be held responsible for any losses or damages, whether direct, consequential or otherwise, save for the repair or replacement of the product.
7. Please backup any custom settings or data, as Yamaha may not be held responsible for any alteration or loss to such settings or data.
8. This guarantee does not affect the consumer's statutory rights under applicable national laws in force or the consumer's rights against the dealer arising from their sales/purchase contract.

Contents

INTRODUCTION

Features

■ Built-in 7-channel power amplifier

- Minimum RMS Output Power (20 Hz-20 kHz, 0.08% THD, 8 Ω)
- FRONT L/R: 95 W + 95 W
- CENTER: 95 W
- SURROUND L/R: 95 W + 95 W
- SURROUND BACK L/R: 95 W + 95 W

■ Speaker/Preout outputs

- Speaker jacks (7-channel + presence 2-channel), preout output jacks (7-channel, and subwoofer preout jack x 2)

■ Input/Output terminals

Input terminals

- HDMI input x 4
- Audio/Video input
  [Audio] Digital input (coaxial) x 2, digital input (optical) x 2, analog input x 2
  [Video] Component video x 2, S-video x 1, composite video x 4
- Audio input (analog) x 2
- Phono input x 1
- Multi-channel audio input x 1
- Dock input x 1
- V-AUX input
  [Audio] Analog x 1, stereo mini jack x 1
  [Video] Composite video x 1

Output terminals

- Monitor output
  [Audio/Video] HDMI x 1
  [Video] Component video x 1, Composite video x 1
- Audio/Video output
  [Audio] Analog x 1
  [Video] Composite video x 1
- Audio output
  Analog x 1
- Zone2 output
  Analog x 1

Other terminals

Remote input x 1, Remote output x 1
Trigger output x 1

■ Proprietary Yamaha technology for the creation of sound fields

- CINEMA DSP 3D
- Compressed Music Enhancer mode
- Virtual CINEMA DSP
- SILENT CINEMA™

■ Digital audio decoders

- Dolby TrueHD, Dolby Digital Plus
- DTS-HD Master Audio, DTS-HD High Resolution Audio, DTS Express
- Dolby Digital, Dolby Digital EX
- DTS, DTS 96/24, DTS-ES Matrix 6.1, DTS-ES Discrete 6.1
- Dolby Pro Logic, Dolby Pro Logic II, Dolby Pro Logic IIx
- DTS NEO:6
- DSD

■ Sophisticated FM/AM tuner

- 40-station random and direct preset tuning
- Automatic preset tuning
- Radio Data System tuning

■ HDMI™ (High-Definition Multimedia Interface)

- HDMI interface for standard, enhanced or high-definition video as well as multi-channel digital audio
  – Automatic audio and video synchronization (lip sync) information capability
  – Deep Color video signal (30/36 bit) transmission capability
  – "x.v.Color" video signal transmission capability
  – High refresh rate and high resolution video signals capability
  – High definition digital audio format signals capability
- Analog video to HDMI digital video up-conversion (composite video → HDMI, component video → HDMI) capability for monitor out
- Analog video input up-scaling for HDMI digital video output 576i or 576p → 720p, 1080i or 1080p
- HDMI control capability

■ DOCK jack

- DOCK jack to connect a Yamaha iPod universal dock (such as YDS-11, sold separately) or Bluetooth wireless audio receiver (such as YBA-10, sold separately)

■ Automatic speaker setup features

- "YPAO" (Yamaha Parametric Room Acoustic Optimizer) for automatically optimizing speaker outputs suitable for listening environments

■ Other features

- 192-kHz/24-bit D/A converter
- OSD (on-screen display) menus that allow you to optimize this unit to suit your individual audiovisual system
- Pure Direct mode for pure hi-fi sound for all sources
- Adaptive dynamic range controlling capability
- SCENE function that allows you to change input sources and sound field programs with one key
- Sleep timer
- Multi-zone function

About this manual

- Some operations can be performed by using either the keys on the front panel or the ones on the remote control. In case the key names differ between the front panel and the remote control, the key 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 as a result of improvements, etc. In case of differences between the manual and product, the product has priority.
- "Ⓐ**MAIN ZONE ON/OFF**" or "5**HDMI 1**" (example) indicates the name of the parts on the front panel or the remote control. Refer to the "Controls diagram" or "Part names and functions" on page 4 for the information about each position of the parts.
- ☼ indicates a tip for your operation.
- ☞ indicates the page describing the related information.

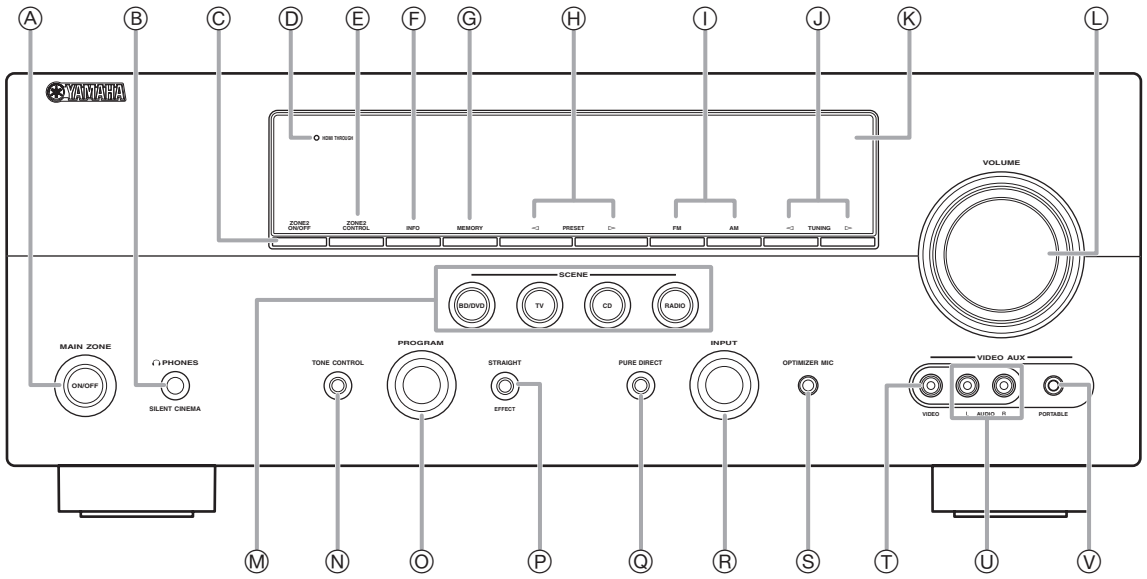
Supplied accessories

Check that you received all of the following parts.

- Remote control (see page 9)
- Batteries (AAA, R03, UM-4) x 2 (see page 9)
- Optimizer microphone (see page 21)
- AM loop antenna (see page 20)
- Indoor FM antenna (see page 20)
- Controls diagram

Part names and functions

Front panel



Ⓐ **MAIN ZONE ON/OFF**
Turns this unit on and off (see page 20).

Ⓑ **PHONES jack**
For connecting headphones (see page 26).

Ⓒ **ZONE2 ON/OFF**
Switches Zone2 between on and off (see page 54).

Ⓓ **HDMI THROUGH**
During standby, lights up under the following conditions:
- the HDMI control function is enabled (see page 50).
- an HDMI signal input to this unit passes through this unit and output (see page 50).

Ⓔ **ZONE2 CONTROL**
Enables operation of a receiver set in Zone2, including input source switching, volume control and tuner operation, with the main amplifier or remote control after this key is pressed.

Ⓕ **INFO**
Changes information on the front panel display, such as input source and sound field program name (see page 26).

Ⓖ **MEMORY**
Registers FM/AM stations as preset stations (see page 32).

Ⓗ **PRESET ⊲ / ⊳**
Selects an FM/AM preset station (see page 32).

Ⓘ **FM/AM**
Changes the tuner bands between FM and AM.

Ⓙ **TUNING ⊲ / ⊳**
Changes FM/AM frequencies.

Ⓚ **Front panel display**
Displays information on this unit (see page 6).

Ⓛ **VOLUME control**
Controls the volume of this unit (see page 24).

Ⓜ **SCENE**
Switches between linked sets of input sources and sound field programs (see page 24).

Ⓝ **TONE CONTROL**
Adjusts high-frequency/low-frequency output of speakers/headphones (see page 24).

Ⓞ **PROGRAM selector**
Changes sound field programs (see page 27).

Ⓟ **STRAIGHT**
Toggles between the selected sound field program and straight decoding mode (see page 30).

Ⓠ **PURE DIRECT**
Changes mode to Pure Direct mode (see page 25). This key lights up when Pure Direct mode is on.

Ⓡ **INPUT selector**
Selects an input source (see page 24).

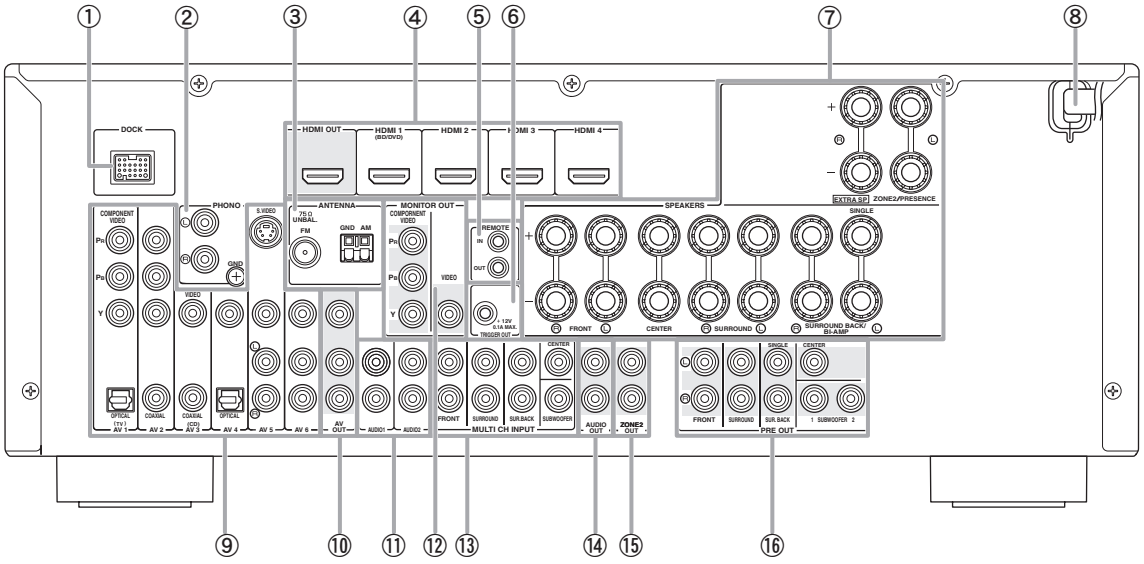
Ⓢ **OPTIMIZER MIC jack**
For connecting the supplied optimizer microphone and adjusting output characteristics of speakers (see page 21).

Ⓣ **VIDEO (VIDEO AUX) jack**
For connecting the video output cable of a camcorder or game console (see page 19).

Ⓤ **AUDIO L/R (VIDEO AUX) jack**
For connecting the audio output cable of a camcorder or game console (see page 19).

Ⓥ **PORTABLE (VIDEO AUX) jack**
For connecting the audio output cable of a portable music player (see page 19).

Rear panel



① **DOCK jack**
For connecting a Yamaha iPod universal dock (YDS-11, sold separately) or a Bluetooth wireless audio receiver (YBA-10, sold separately) (see page 19).

② **PHONO jacks**
For connecting a turntable (see page 17).

③ **ANTENNA jacks**
For connecting supplied FM and AM antennas (see page 20).

④ **HDMI OUT/HDMI 1-4 jacks**
For connecting an HDMI-compatible video monitor or external components for HDMI inputs 1-4 (see page 16).

⑤ **REMOTE IN/OUT jacks**
For connecting an external component that supports the remote control function (see page 19).

⑥ **TRIGGER OUT jack**
For connecting an external terminal with a trigger input terminal to operate it linked with operation of this unit. For example, when an electric screen that supports a trigger input is connected, it opens and closes linked with operation of an input source selected in this unit.

⑦ **SPEAKERS terminals**
For connecting front right and left, center, surround and surround back speakers (see page 11). Connect the presence speakers (see page 12) or the speakers for Zone2 (see page 53) to the EXTRA SP jacks.

⑧ **Power Cable**
Connect this cable to an AC wall outlet (see page 20).

⑨ **AV 1-6 jacks**
For connecting external components for audio/video inputs 1-6 (see page 16).

⑩ **AV OUT jacks**
Outputs audio/video signals from a selected analog input source to an external component (see page 17).

⑪ **AUDIO 1/2 jacks**
For connecting external components for audio inputs 1-2 (see page 17).

⑫ **MONITOR OUT terminals**
Outputs video signals from this unit to a video monitor, such as a TV (see page 15).

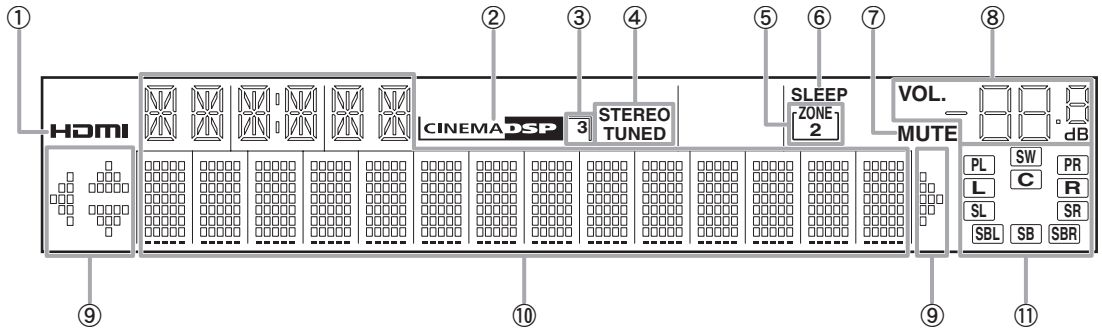
⑬ **MULTI CH INPUT terminals**
For connecting a player that supports a multi-channel output (see page 18).

⑭ **AUDIO OUT jacks**
Outputs audio signals from a selected analog input source to an external component (see page 17).

⑮ **ZONE2 OUT jacks**
Outputs sound of this unit to an external amplifier set in a different zone.

⑯ **PRE OUT terminals**
For connecting a subwoofer with built-in amplifier (see page 11) or an external power amplifier (see page 18).

Front panel display



① **HDMI indicator**
Lights up during normal communication when HDMI is selected as an input source.

② **CINEMA DSP indicator**
Lights up when a sound field program that uses CINEMA DSP is selected.

③ **CINEMA DSP 3D indicator**
Lights up when CINEMA DSP 3D is activated.

④ **Tuner indicator**
Lights up during receiving radio broadcast signals from an FM/AM station (see page 31).

⑤ **ZONE2 indicator**
Lights up when Zone2 is turned on (see page 53).

⑥ **SLEEP indicator**
Lights up when the sleep timer is activated (see page 38).

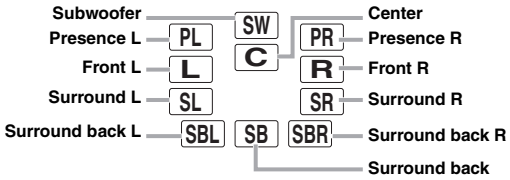
⑦ **MUTE indicator**
Flashes when audio is muted.

⑧ **VOLUME indicator**
Displays volume levels.

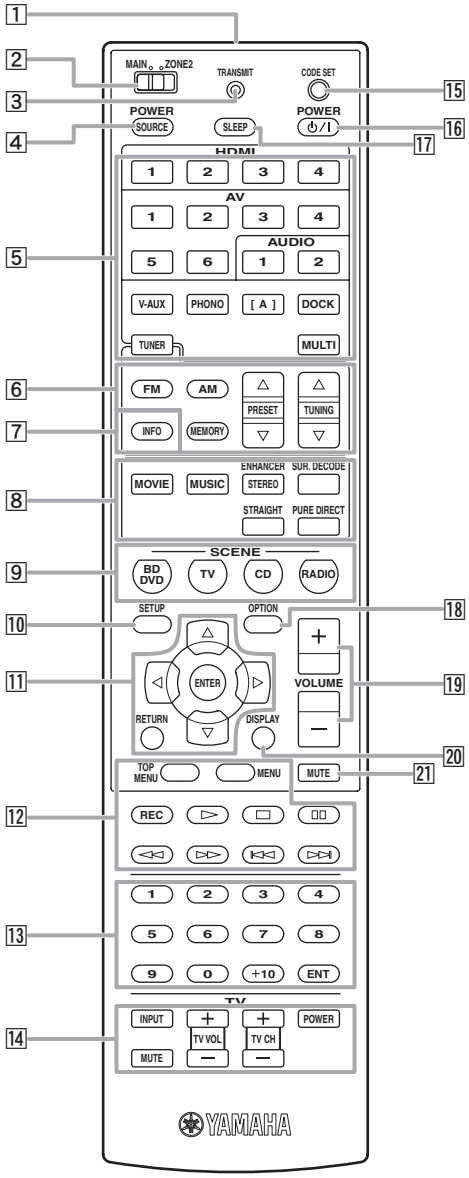
⑨ **Cursor indicators**
Light up when corresponding cursors on the remote control are available for operations.

⑩ **Multi information display**
Displays menu items and settings for the current operation.

⑪ **Speaker indicators**
Indicate speaker terminals from which signals are currently output.



Remote control



1 **Remote control signal transmitter**
Transmits infrared signals.

2 **MAIN/ZONE2**
Switches the zone to be operated by the remote control between the Main zone and Zone2 (see page 54).

3 **TRANSMIT**
Lights up when a signal is output from the remote control.

4 **SOURCE POWER**
Switches an external component on and off.

5 **Input selection keys**

HDMI 1-4	Select HDMI inputs 1 through 4.
AV 1-6	Select AV inputs 1 through 6.
AUDIO 1/2	Select AUDIO inputs 1 and 2.
V-AUX	Selects the V-AUX jack on the front panel of this unit.
PHONO	Selects a component such as a turntable that is connected to the PHONO jack on the rear panel as an input source.
[A]	To control external components using the 12 **External component operation keys** separately from operations of this unit (see page 55).
DOCK	Selects a Yamaha iPod universal dock/Bluetooth wireless audio receiver connected to the DOCK jack.
TUNER	Selects the FM/AM tuner.
MULTI	Selects a signal input from the MULTI CH INPUT jack on the rear panel as an input source.

6 **Tuner keys**

FM	Select the FM band or AM band.
AM	
MEMORY	Presets radio stations.
PRESET △ / ▽	Select a preset station.
TUNING △ / ▽	Change tuning frequencies.

7 **INFO**
Changes information on the front panel display, such as input source and sound field program name (see page 26).

8 **Sound selection keys**
Selects sound field programs (see page 27).

9 **SCENE**
Switch between linked sets of input sources and sound field programs (see page 24).

10 **SETUP**
Displays the SETUP menu (see page 47).

11 **Cursors △ / ▽ / ◁ / ▷/ENTER/RETURN**

Cursors △ / ▽ / ◁ / ▷	Select menu items displayed on the front panel display or on a video monitor, or change settings.
ENTER	Confirms a selected item.
RETURN	Returns to the previous screen or ends the menu display.

12 **External component operation keys**
Operate recording, playback etc. of external components (see page 55).

13 **Numeric keys**
Enter numbers.

14 **TV control keys**
Enable operations of a monitor such as a TV and a projector.

15 **CODE SET**
Sets remote control codes for external component operations (see page 55).

16 **POWER**
Switches this unit on and standby.

17 **SLEEP**
Switches the sleep timer operations (see page 38).

18 **OPTION**
Displays the OPTION menu (see page 39).

19 **VOLUME +/–**
Adjust the volume of this unit (see page 24).

20 **DISPLAY**
Changes the operation mode of the iPod connected to the Yamaha iPod universal dock (see page 35).

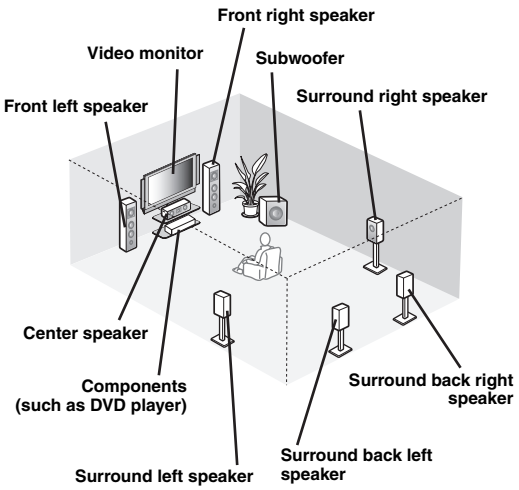
21 **MUTE**
Turns the mute function of the sound output on and off (see page 25).

Quick start guide

When you use this product for the first time, perform the steps below. See the related pages for details of operations and settings.

Step 1: Prepare items for setup

Prepare speakers, DVD player, cables, and other items necessary for setup.
For example, prepare the following items for setting up a 7.1-channel sound system.



Requirements		qty.
Speakers	**Front speaker**	2
	Center speaker	1
	Surround speaker	2
	Surround back speaker	2
Active subwoofer		1
Speaker cable		5
Subwoofer cable		1
Reproduction component such as DVD player		1
Video monitor such as TV		1
Video cable or HDMI cable		2
Audio cable		2

- Prepare at least two (front) speakers. Speakers other than front speakers may be used in the following order of preference:
  1 Two surround speakers
  2 One center speaker
  3 One or two surround back speakers
- If your video monitor is a CRT, we recommend that you use magnetically shielded speakers.
- An audio cable is not required when you use an HDMI cable.

Step 2: Set up your speakers

Place your speakers in the room and connect them to this unit.

- Placing speakers ☞P. 10
- Connecting speakers ☞P. 11

- This unit has a YPAO (Yamaha Parametric Room Acoustic Optimizer) that automatically optimizes this unit based on room acoustic characteristics (audio characteristics of the speakers, speaker positions, and room acoustics, etc.).
  You can enjoy good balanced sound without special knowledge by using the YPAO technology (see page 21).

Step 3: Connect your components

Connect your TV, DVD player, or other components.

- Connecting a video monitor ☞P. 15
- Connecting other components ☞P. 16
- Connecting a multi-format player or an external decoder ☞P. 18
- Connecting an external amplifier ☞P. 18
- Connecting a Yamaha iPod universal dock or Bluetooth wireless audio receiver ☞P. 19
- Connecting the FM and AM antennas ☞P. 20

Step 4: Turn on the power

Connect the power cable and turn on this unit.

- Connecting the power cable ☞P. 20
- Turning this unit on and off ☞P. 20

Step 5: Select the input source and start playback

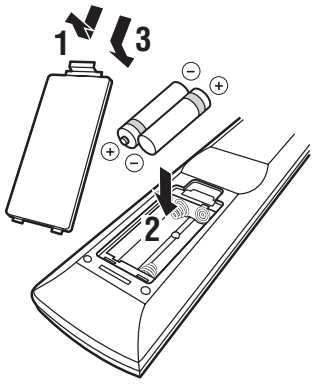
Select the component connected in the step 3 as an input source and start playback.

- Basic procedure ☞P. 24
- Selecting sound field programs ☞P. 27

- This unit supports the SCENE function that changes the input source and sound field program at one time. Four SCENE are preset for different purposes for Blu-ray disc, DVD and CD. You can select from a SCENE from those just by pressing a remote control key. See page 24 for details.

Preparing remote control

Installing batteries in the remote control



1 Take off the battery compartment cover.

2 Insert the two supplied batteries (AAA, R03, UM-4) according to the polarity markings (+ and –) on the inside of the battery compartment.

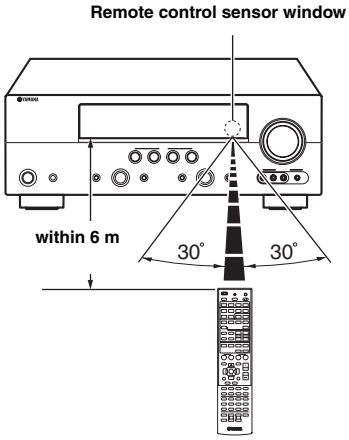
3 Snap the battery compartment cover back into place.

Notes

- Change all batteries if you notice the following conditions:
  – the operation range of the remote control narrows.
  – the transmit indicator does not flash or is dim.
- Do not use old batteries together with new ones.
  This may shorten the life of the new batteries or cause old batteries to leak.
- Do not use different types of batteries (such as alkaline and manganese batteries) together. Specification of batteries may be different even though they look the same.
- If you find leaking batteries, discard the batteries immediately, taking care not to touch the leaked material. If the leaked material comes into contact with your skin or gets into your eyes or mouth, rinse it away immediately and consult a doctor. Clean the battery compartment thoroughly before installing new batteries.
- Dispose of the old batteries correctly in accordance with your local regulations.
- 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. In such a case, install new batteries and set the remote control code.

Using the remote control

The remote control transmits a directional infrared ray. Be sure to aim the remote control directly at the remote control sensor on this unit during operation.



Notes

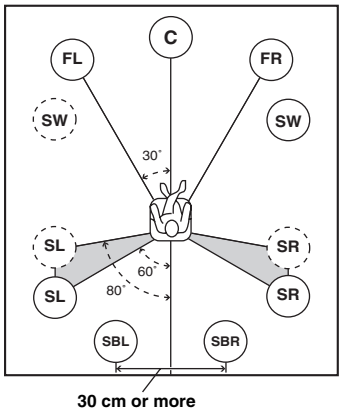
- Do not spill water or other liquids on the remote control.
- Do not drop the remote control.
- Do not leave or store the remote control in the following conditions:
  – places of high humidity, such as near a bath
  – places of high temperatures, such as near a heater or stove
  – places of extremely low temperatures
  – dusty places

- You can operate external components with this remote control by setting the remote control code. See page 55 for details.

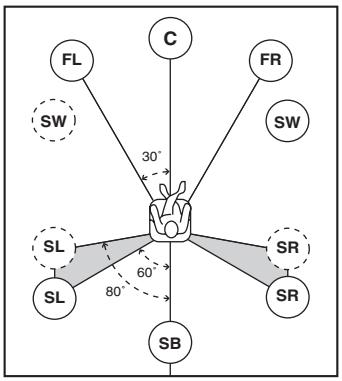
Placing speakers

This unit supports up to 7.1-channel surround playback. We recommend the following speaker layout in order to obtain the optimum surround effect.

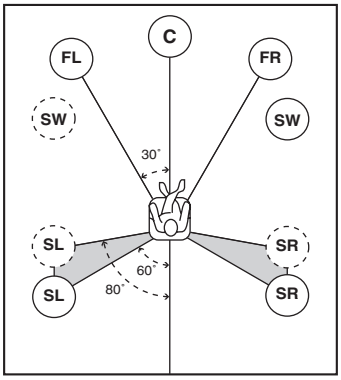
7.1-channel speaker layout



6.1-channel speaker layout



5.1-channel speaker layout



Speaker channels

■ Front left and right speakers (FL and FR)

The front speakers output the front channel sounds (stereo sound) and effect sounds. Place these speakers at an equal distance from the ideal listening position. When using a screen, the appropriate top positions of the speakers are about 1/4 of the screen from the bottom.

■ Center speaker (C)

The center speaker outputs the center channel sounds (dialog, vocals, etc.). Place it halfway between the left and right speakers. When using a TV, place the speaker just above or just under the center of the TV with the front surfaces of the TV and the speaker aligned. When using a screen, place it just under the center of the screen.

■ Surround left and right speakers (SL and SR)

The surround speakers output effect sounds and surround sounds. Place them at the rear left and rear right facing the listening position.
To obtain a natural sound flow in the 5.1-channel speaker layout, place them slightly further back than in the 7.1-channel speaker layout.

■ Surround back left and right speakers (SBL and SBR) / Surround back speaker (SB)

The surround back left and right speakers output rear effect sounds. Place them at the rear of the room facing the listening position at least 30 cm away from each other, ideally at the same distance as that between the front left and right speakers.
In the 6.1-channel speaker layout, surround back left and right channel sound signals are mixed down and output from the single surround back speaker.
In the 5.1-channel speaker layout, surround back left and right channel sound signals are output from the surround left and right speakers.

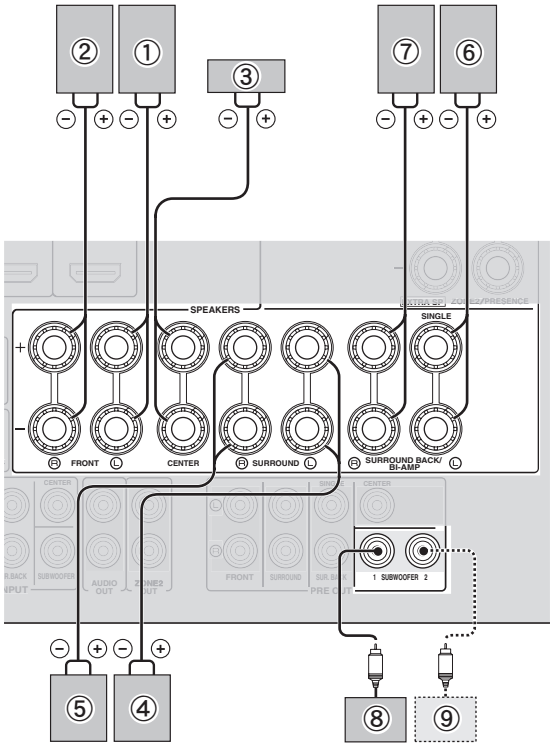
■ Subwoofer (SW)

The subwoofer speaker outputs bass sounds and low-frequency effect (LFE) sounds included in Dolby Digital and DTS signals. Use a subwoofer with a built-in amplifier, such as the Yamaha Active Servo Processing Subwoofer System. Place it exterior to the front left and right speakers facing slightly inward to reduce reflections from a wall.

Connecting speakers

When you connect speakers, connect them to the respective jacks as follows, according to your speaker layout.

- You can connect up to two subwoofers. When two subwoofers are connected, the same sound is output from them.



■ 7.1-channel

Speakers	Jacks on this unit
① Front speaker L	**FRONT (L)**
② Front speaker R	**FRONT (R)**
③ Center speaker	**CENTER**
④ Surround speaker L	**SURROUND (L)**
⑤ Surround speaker R	**SURROUND (R)**
⑥ Surround back speaker L	**SURROUND BACK/BI-AMP (L)**
⑦ Surround back speaker R	**SURROUND BACK/BI-AMP (R)**
⑧ Subwoofer 1	**SUBWOOFER 1**
⑨ Subwoofer 2 (optional)	**SUBWOOFER 2**

■ 6.1-channel

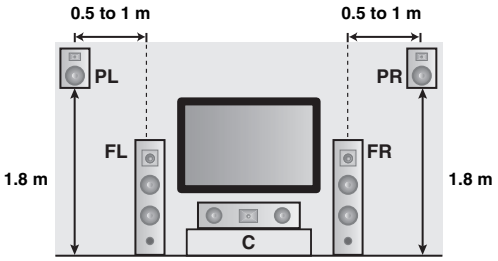
Speakers	Jacks on this unit
① Front speaker L	**FRONT (L)**
② Front speaker R	**FRONT (R)**
③ Center speaker	**CENTER**
④ Surround speaker L	**SURROUND (L)**
⑤ Surround speaker R	**SURROUND (R)**
⑥ Surround back speaker	**SURROUND BACK/BI-AMP (SINGLE)**
⑧ Subwoofer 1	**SUBWOOFER 1**
⑨ Subwoofer 2 (optional)	**SUBWOOFER 2**

■ 5.1-channel

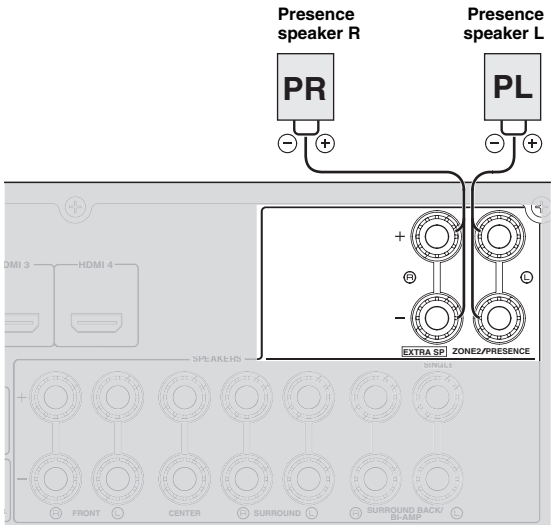
Speakers	Jacks on this unit
① Front speaker L	**FRONT (L)**
② Front speaker R	**FRONT (R)**
③ Center speaker	**CENTER**
④ Surround speaker L	**SURROUND (L)**
⑤ Surround speaker R	**SURROUND (R)**
⑧ Subwoofer 1	**SUBWOOFER 1**
⑨ Subwoofer 2 (optional)	**SUBWOOFER 2**

Presence speakers

You can connect presence speakers (PL/PR) that output front effect sounds to this unit. With CINEMA DSP sound field programs (see page 27) and their CINEMA DSP 3D functions, a sound with a richer and more spacial presence can be created. You can adjust the vertical position of center sound such as a dialog (see page 47).



To use the presence speakers, connect them to the EXTRA SP jacks and set “Extra SP Assign” in “Speaker Setup” in the SETUP menu to “Presence” (see page 47).



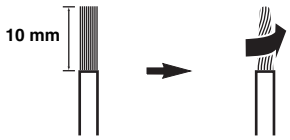
- Although you can connect both surround back speakers and presence speakers to this unit, you cannot output sounds from those speakers at the same time. This unit automatically selects speakers to output sounds according to the selected input source and sound field program.
- You can connect Zone2 speakers with a multi-zone function to the EXTRA SP jacks. For details, see page 53.

Connecting the speaker cable

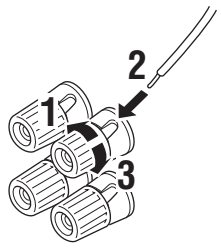
Caution

- A speaker cable is a pair of insulated cables running side by side in general. One of the cables is colored differently or striped to indicate a polarity. Connect one end of the colored/striped cable to the "+" (red) terminal of this unit and the other end to that of your speaker, and connect one end of the other cable to the "–" (black) terminal of this unit and the other end to that of your speaker.
- Before connecting the speakers, be sure to disconnect the power cable.
- Do not let the bare speaker wires touch each other or any metal part of this unit. This could damage this unit and/or speakers. If the circuit shorts out, "CHECK SP WIRES!" appears on the front panel display when this unit is turned on.
- If your video monitor is a CRT, use magnetically shielded speakers. If images on the monitor are still distorted even when you use the magnetically shielded speakers, place the speakers away from the monitor.
- Use speakers with an impedance of 6-ohm or larger. Set speaker impedance in "ADVANCED SETUP" before connecting the speakers. You can also use 4-ohm speakers as the front speakers when you set "SP IMP." to "6ΩMIN" (see page 58).

1 Remove approximately 10 mm of insulation from the end of each speaker cable and then twist bare wires of the cable together so that they will not cause a short circuits.



2 Loosen the knob, insert the twisted bare wires into the hole, and then tighten the knob.



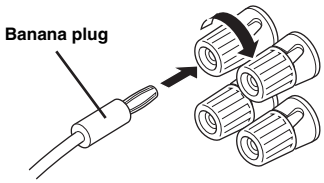
Red: positive (+)

Black: negative (–)

- You can connect the presence speakers (see page 12) or the speakers in the second zone (Zone2) (see page 53) to the EXTRA SP jacks.

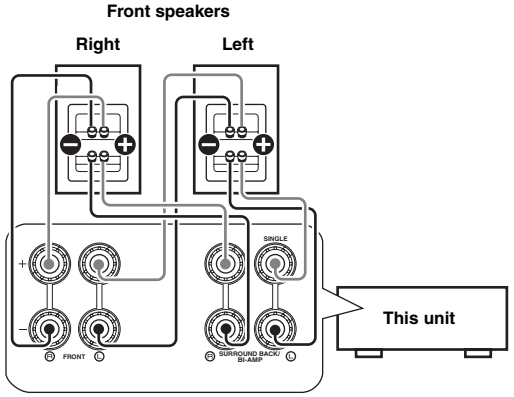
Connecting the banana plug (Except U.K., Europe, Russian, Asia and Korea models)

Tighten the knob, and then insert the banana plug into the end of the terminal.



Using bi-amplification connections

You can connect speakers that support bi-amplification connections to this unit. To connect the speakers via a bi-amp connection, connect them to the FRONT jacks and SURROUND BACK/BI-AMP jacks as illustrated.
To enable the bi-amp connection, connect the power cable to the wall outlet, display the ADVANCED SETUP menu and set "BI AMP" to "ON" (see page 58).



Caution

Before making bi-amplification connections, remove any brackets or cables that connect a woofer with a tweeter. Refer to the instruction manuals of speakers for details.
When not making bi-amplification connections, make sure that the brackets or cables are connected before connecting the speaker cables.

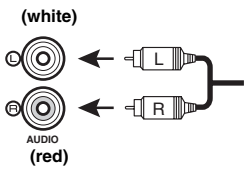
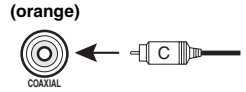
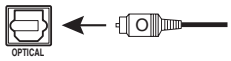
Note

- You cannot use surround back speakers or extra speakers (presence and Zone2 speakers) when bi-amplification connections are made.

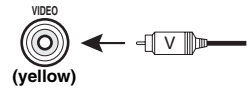
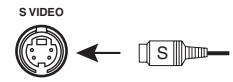
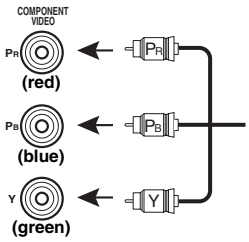
Information on jacks and cable plugs

This unit has the following input and output jacks. Use jacks and cables appropriate for components that you are connecting.

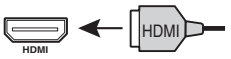
■ Audio jacks

Jack and cables	Description
AUDIO jacks 	To transmit conventional analog (stereo) signals. Use stereo pin cables. Connect red plugs to red jacks (R) and white plugs to white jacks (L).
COAXIAL jacks 	To transmit coaxial digital audio signals. Use pin cables for digital audio signals.
OPTICAL jacks 	To transmit optical digital audio signals. Use optical fiber cables for optical digital audio signals.

■ Video jacks

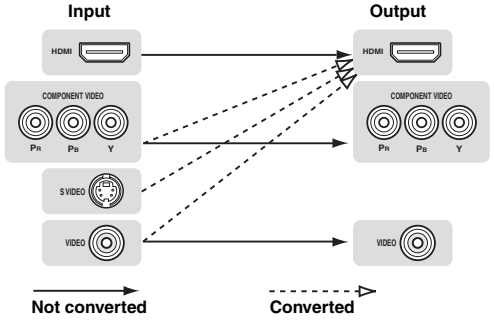
Jack and cables	Description
VIDEO jacks 	To transmit conventional composite video signals. Use video pin cables.
S VIDEO jack 	To transmit S-video signals that include luminance (Y) and Cameroonians (C) components. Use S-video cables.
COMPONENT VIDEO jacks 	To transmit component video signals that include luminance (Y), chrominance blue (PB) and chrominance red (PR) components. Use component video cables.

■ Video/audio jacks

Jack and cables	Description
HDMI jacks 	To transmit digital video and digital audio signals. Use HDMI cables.

- We recommend that you use a commercially available 19-pin HDMI cable no longer than 5 meters (16 feet) with the HDMI logo printed on it.
- If you connect this unit to a component that has a DVI jack, an HDMI/DVI-D cable is required.
- You can check error information on HDMI connections (see page 71).

A video signal input to this unit is output from the jacks in MONITOR OUT for the same kind of signal as the input signal.
For example, if a VCR with a composite output signal and a DVD player with a component video output signal are connected, connect both VIDEO jack and COMPONENT VIDEO jack in MONITOR OUT to the video monitor.
If an HDMI input compatible monitor is connected, this unit automatically converts an analog signal that is input from a video input jack to a digital video signal, and then outputs it from the HDMI OUT jack.

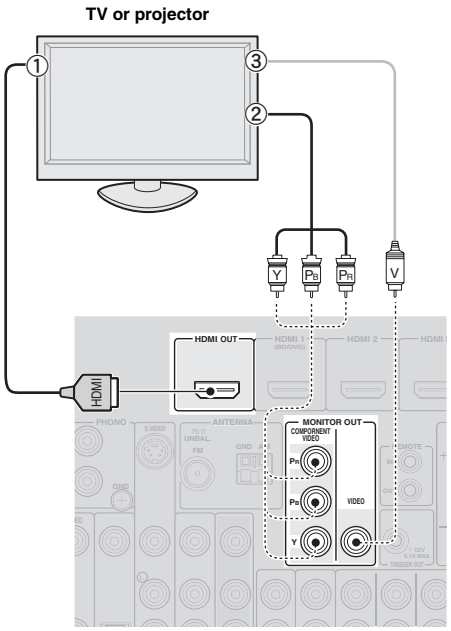


Connecting a video monitor

Connect a video monitor such as a TV or projector to an output jack of this unit. You can select one of the following three types according to the input signal format supported by the video monitor: HDMI OUT, COMPONENT VIDEO and VIDEO (composite video).

Note

- Make sure that this unit and video monitor are unplugged from the AC wall outlets.



■ To connect an HDMI video monitor

Jacks on components	Jacks on this unit
① HDMI input	HDMI OUT

- This unit supports the HDMI control function. By connecting a TV that supports the HDMI control, operations of this unit can be controlled with the remote control of the TV. For details, see page 38.

■ To connect component video monitor

Note

- Only video signals input from this unit via the COMPONENT VIDEO jack are output from the COMPONENT VIDEO jack.

Jacks on components	Jacks on this unit
② Component video output	MONITOR OUT (COMPONENT VIDEO)

■ To connect composite video monitor

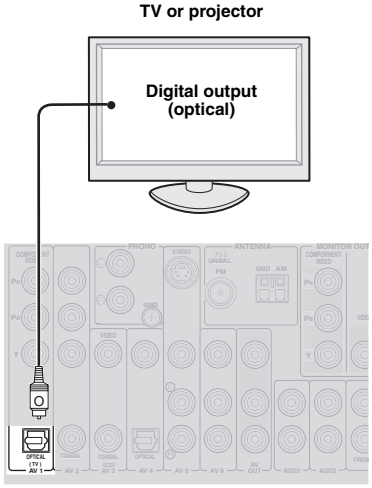
Note

- Only video signals input from this unit via the VIDEO jacks are output from the VIDEO jacks.

Jacks on components	Jacks on this unit
③ Video input (composite)	MONITOR OUT (VIDEO)

Outputting sound of a TV from this unit

To output sound of a TV from this unit, connect an audio output terminal of the TV to any of the AV 1-6 jacks. If the TV supports an optical digital output, we recommend that you use the AV 1. Connecting to the AV 1 allows you to switch an input source to the AV input 1 with a just a single key operation using the SCENE function (see page 24).



Note

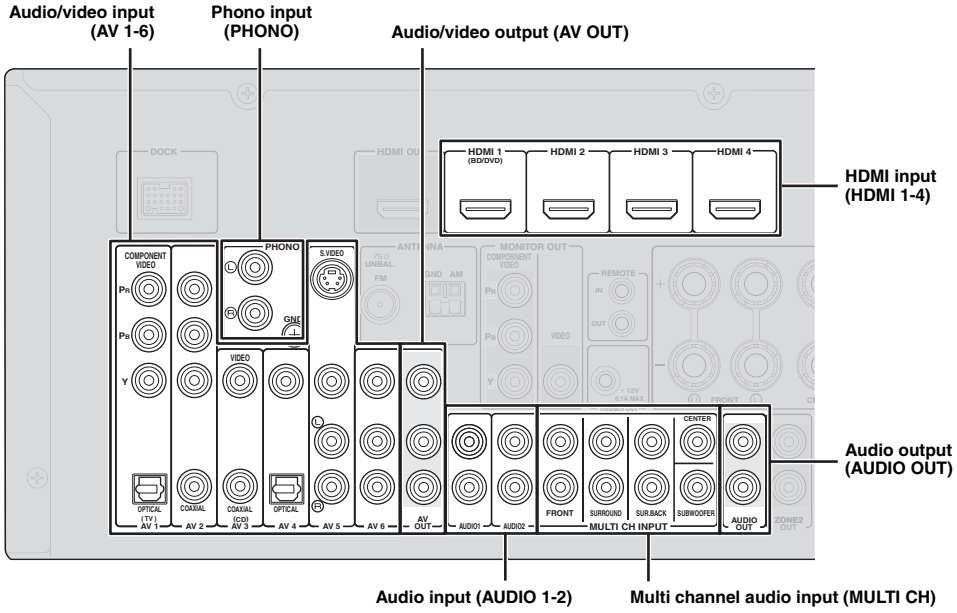
- If the video monitor connected to this unit supports the HDMI control function, we recommend that you connect its audio output jack to the OPTICAL jack of the AV1 jacks of this unit. By doing so, this unit automatically turns on and "TV" of SCENE is automatically selected when you turn on the video monitor. You can obtain the same result even if you connect the audio output jacks to the AV2-6, AUDIO1-2 or V-AUX jacks by assigning those jacks to TV in advance (see page 24).

Connecting other components

This unit has input and output jacks for respective input and output sources. You can reproduce sound and movies from input sources selected with the front panel display or remote control.

Note

- Make sure that this unit and other components are unplugged from the AC wall outlets.



■ Audio and video player/Set-top box

Output jacks on the connected external component			Input sources/jacks of this unit	
External components	**Signals**	**Output jacks**		
External component with HDMI output	Audio/Video	HDMI output	HDMI1 (BD/DVD)	HDMI 1
			HDMI2	HDMI 2
			HDMI3	HDMI 3
			HDMI4	HDMI 4
External component with component video output	Audio	Optical digital output	AV1 (TV)	OPTICAL
	Video	Component video output		COMPONENT VIDEO
	Audio	Coaxial digital output	AV2	COAXIAL
	Video	Component video output		COMPONENT VIDEO
External component with S-video output	Audio	Analog audio output	AV5	AUDIO
	Video	S-video output		S VIDEO
External component with composite video output	Audio	Coaxial digital output	AV3 (CD)	COAXIAL
	Video	Composite video output		VIDEO
	Audio	Optical digital output	AV4	OPTICAL
	Video	Composite video output		VIDEO
	Audio	Analog audio output	AV5	AUDIO
	Video	Composite video output		VIDEO
	Audio	Analog audio output	AV6	AUDIO
	Video	Composite video output		VIDEO

- Input sources in parentheses are recommended to connect to the respective jacks. If a component is compatible with the SCENE function, you can switch the input source to that component with a single key operation using the SCENE function (see page 24).
- You can change the name of the input source displayed on the front panel display or the video monitor as necessary (see page 52).
- See page 53 on how to use ZONE2 OUT jack.

■ Audio player

Output jacks on the connected external component		Input sources/jacks of this unit	
External components	**Output jacks**		
External component with optical digital output	Optical digital output	AV 1 (TV)	OPTICAL
		AV 4	OPTICAL
External component with coaxial digital output	Coaxial digital output	AV 2	COAXIAL
		AV 3 (CD)	COAXIAL
External component with analog audio output	Analog audio output	AV 5	AUDIO
		AV 6	AUDIO
		AUDIO 1	AUDIO
		AUDIO 2	AUDIO
Turntable	Analog audio output	PHONO	PHONO

- When connecting a turntable with a low-output MC cartridge to the PHONO jack, use an in-line boosting transformer or MC-head amplifier.
- Connect your turntable to the GND terminal of this unit to reduce noise in the signal.
- We recommend connecting the coaxial digital output terminal of a CD player to the AV3 jack.

About audio/video output jacks

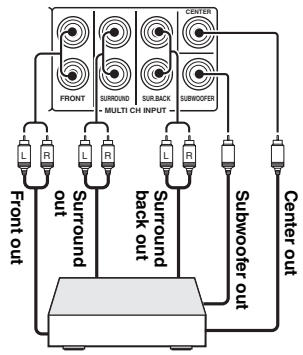
Among the analog audio and analog video signals input to this unit via input terminals, the audio/video signals of the selected input sources are output from the AV OUT jack and AUDIO OUT jack. An HDMI input signal, COMPONENT VIDEO input signal or digital audio input signal cannot be output. When using the AV OUT jacks or AUDIO OUT jacks, connect them as follows:

When using the AV OUT jacks: connect them to composite video and analog audio input jacks of an external component.

When using the AUDIO OUT jacks: connect them to analog audio jacks of an external component.

Connecting a multi-format player or an external decoder

This unit has 8 sets of input jacks (FRONT L/R, CENTER, SURROUND L/R, SUR. BACK and SUBWOOFER) to input multi-channel analog sound signals. If your playback component, such as a DVD player or SACD player, has multi-channel analog output capability, you can enjoy up to 7.1-channel multi-channel sound. To output multi-channel sound, connect the audio output jacks of your playback component to the MULTI CH INPUT jacks of this unit, and set the input source of this unit to "MULTI CH." For details on how to change input sources, see page 24.



Multi-format player/External decoder (7.1-channel output)

Notes

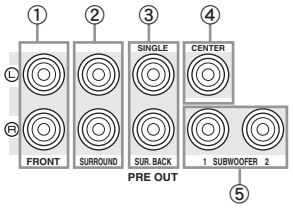
- When you select "MULTI CH" as the input source, the digital sound field processor is automatically disabled.
- Since this unit does not redirect signals input at the MULTI CH INPUT jacks to accommodate for missing speakers, connect at least a 5.1-channel speaker system when using this feature.
- When the input source is switched to "MULTI CH," images input from a component connected to "AV1-6" or "V-AUX" can be displayed on a video monitor (see page 41). If your DVD player does not support multi-channel digital output, connect it to these input jacks.

Connecting an external amplifier

The same channel signals are output from the jacks of the PRE OUT terminals as from their corresponding SPEAKERS terminals. When connecting an external power amplifier (pre-main amplifier) to enhance speaker output, connect the input terminals of the power amplifier to the PRE OUT terminals of this unit.

Note

- When a component is connected to the PRE OUT terminals, do not connect speakers to the SPEAKERS terminals corresponding to those PRE OUT terminals.



① FRONT (PRE OUT) jacks
Front channel output jacks.

② SURROUND (PRE OUT) jacks
Surround channel output jacks.

③ SUR. BACK (PRE OUT) jacks
Surround back output jacks. When you only connect one external amplifier for the surround back channel, connect it to the SUR. BACK (SINGLE) jack.

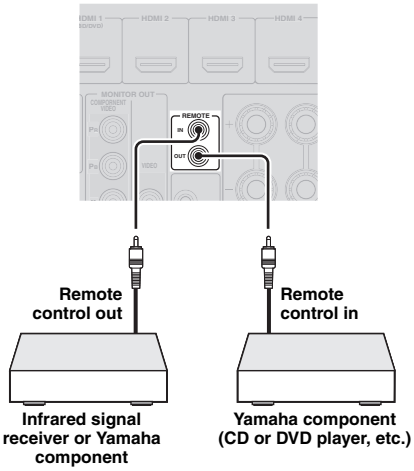
- To output surround back channel signals through these jacks, set "Sur.B L/R SP" to any parameter except for "None" in "Speaker Setup" (see page 48).

④ CENTER (PRE OUT) jack
Center channel output jack.

⑤ SUBWOOFER (PRE OUT) 1/2 jack
Connect a subwoofer with a built-in amplifier. When two subwoofers are connected, the same sound is output from them.

Using REMOTE IN/OUT jacks

When the components are the Yamaha products and have the capability of the transmission of the remote control signals, connect the REMOTE IN and REMOTE OUT jacks to the remote control input and output jack with the monaural analog mini cable as follows.

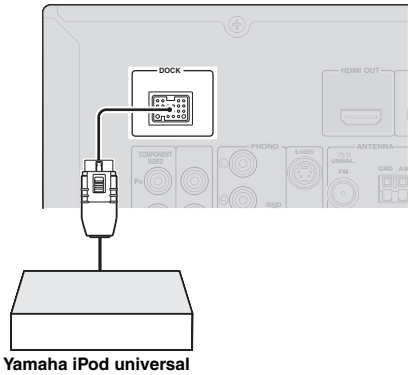


- If your Yamaha component supports the SCENE link playback function, remote connection automatically starts playback when you press Ⓜ**SCENE** (or 9**SCENE**) to select a SCENE.
- If the component connected to the REMOTE OUT jack is not a Yamaha product, set "SCENE IR" in the ADVANCED SETUP menu to "OFF" (see page 58).

Connecting a Yamaha iPod universal dock or Bluetooth™ wireless audio receiver

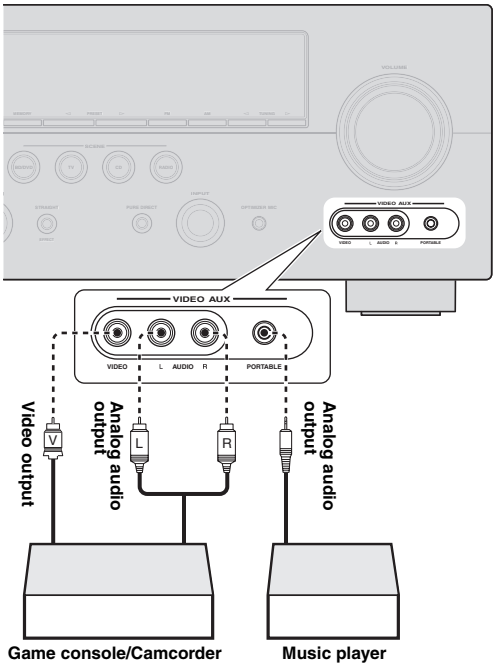
This unit has the DOCK jack, to which you can connect a Yamaha iPod universal dock (YDS-11, sold separately) or a Bluetooth wireless audio receiver (YBA-10, sold separately). You can play an iPod or a Bluetooth component with this unit by connecting it to the DOCK jack.

Use a dedicated cable for connection between the dock/receiver and this unit.



Connecting a camcorder or portable audio player

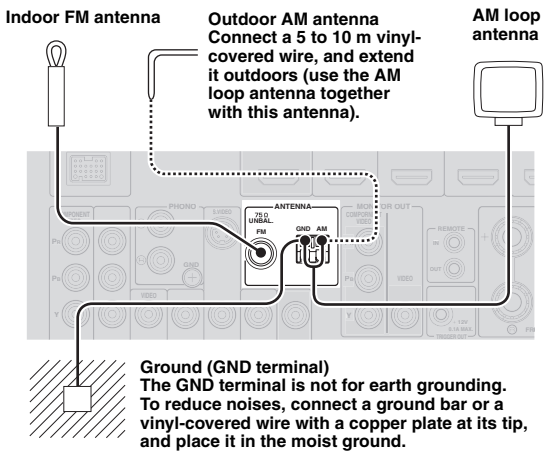
The V-AUX terminals on the front panel are useful for connecting a camcorder, a game console or a portable music player to this unit. Be sure to turn down the volume of this unit and other components before making connections.



- To connect a component to the PORTABLE jack, use a 3.5 mm stereo mini plug cable.
- When external components are connected both the PORTABLE jack and AUDIO jack, sound input from the PORTABLE jack is output.

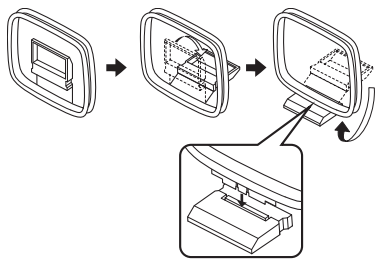
Connecting the FM and AM antennas

An indoor FM antenna and an AM loop antenna are supplied with this unit. Connect these antennas properly to the respective jacks.



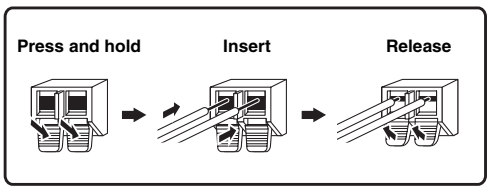
- The supplied antennas are normally sensitive enough to obtain good reception.
- Position the AM loop antenna away from this unit.
- If you cannot get good reception, we recommend that you use an outdoor antenna. For more details, consult the nearest authorized Yamaha dealer or service center.
- Always use the AM loop antenna even when the outdoor antenna is connected.

Assembling the AM loop antenna



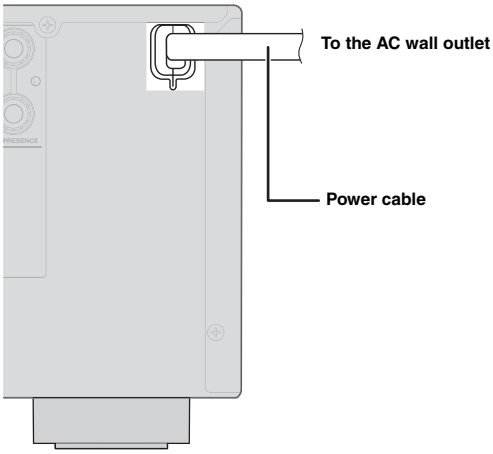
Connecting the AM loop antenna

The wires of the AM loop antenna have no polarity. You can connect either wire to the AM terminal and the other to the GND terminal.



Connecting the power cable

After all connections are complete, plug the AC power cable of this unit into an AC wall outlet.



Turning this unit on and off

1 Press ⒶMAIN ZONE ON/OFF (or 16POWER) to turn on this unit.

2 Press ⒶMAIN ZONE ON/OFF (or 16POWER) again to turn off this unit (standby).

- This unit needs a few seconds until ready to play back.
- You can also turn on this unit by pressing ⓂSCENE (or 9SCENE).
- This unit consumes a small amount of electricity even during standby. We recommend disconnecting the power cable from the AC wall outlet.

Caution

Do not unplug this unit while it is turned on. Doing so may damage this unit or cause the settings of this unit to be saved incorrectly.

Optimizing the speaker setting for your listening room (YPAO)

This unit has a Yamaha Parametric Room Acoustic Optimizer (YPAO). With the YPAO, this unit automatically adjusts the output characteristics of your speakers based on speaker position, speaker performance, and the acoustic characteristics of the room. We recommend that you first adjust the output characteristics with the YPAO when you use this unit.

Notes

- Loud test tones may be output during the automatic setup procedure. Do not allow small children to enter the room during the procedure.
- To achieve the best results, make sure the room is as quiet as possible while the automatic setup procedure is in progress. If there is too much ambient noise, the results may not be satisfactory.

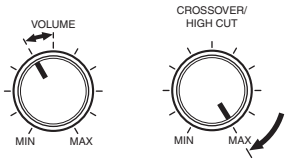
- You can manually adjust the output characteristics of your speakers with "2 Manual Setup" in the SETUP menu. For details, see page 47.

Using Auto Setup

1 Check the following points.

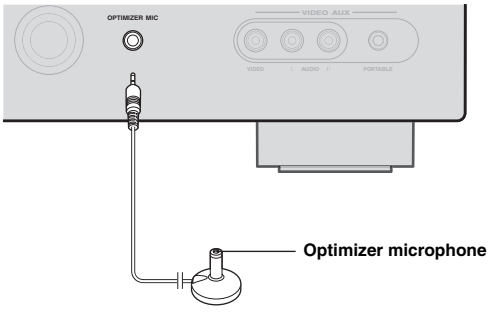
Before starting the automatic setup, check the following.

- All speakers and subwoofer are connected properly.
- Headphones are disconnected from this unit.
- The video monitor is connected properly.
- This unit and the video monitor are turned on.
- This unit is selected as the video input source of the video monitor.
- The connected subwoofer is turned on and the volume level is set to about half way (or slightly less).
- The crossover frequency controls of the connected subwoofer are set to the maximum.



Subwoofer

2 Connect the supplied optimizer microphone to the OPTIMIZER MIC jack on the front panel.



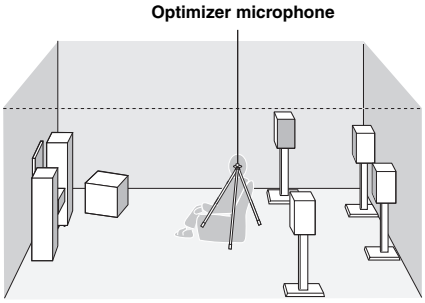
Optimizer microphone

"MIC ON. View OSD MENU" appears on the front panel display. The following menu screen appears on the video monitor.

```
1 Auto Setup

   Extra SP Assign
   >Zone2  Presence
    None

   EQ Type····Natural
 → Start

   [▲]/[▼]:Up/Down
   [ENTER]:Start
```

- You can bring up the above menu screen from the SETUP menu (see page 47).

3 Place the optimizer microphone at your normal listening position on a flat level surface with the omni-directional microphone heading upward.



- It is recommended that you use a tripod or something similar to fix the optimizer microphone at the same height as your ears would be when seated in your listening position. You can fix the optimizer microphone to the tripod with the attaching screw of the tripod.

4 When the speakers are connected to EXTRA SP jacks, press 11**Cursor** △ repeatedly to select "Extra SP Assign," and then press 11**Cursor** ◁ / ▷ to select how to use EXTRA SP jacks from "Zone2," "Presence" or "None."

If this unit does not work when you press 11**Cursor**, press 10**SETUP** once and then operate this unit.

5 To select a sound character for adjustment, press 11Cursor ▽ to select "EQ Type" and then press 11Cursor ◁ / ▷.

If this unit does not work when you press 11**Cursor**, press 10**SETUP** once and then operate this unit.
This unit has a parametric equalizer that adjusts the output levels for each frequency range. The equalizer is adjusted to produce a cohesive sound field based on automatically measured speaker characteristics.
In "EQ Type," you can select the following parametric equalizer characteristics suitable for the desired sound characteristics.

Natural
Adjusts all speakers to achieve natural sound. Select this if sounds in the high frequency range seem too strong when "EQ Type" is set to "Flat."

Flat
Adjusts each speaker to obtain the same characteristics. Select this if your speakers have similar qualities.

Front
Adjusts each speaker to obtain the same characteristics as the front left and right speakers. Select this if your front left and right speakers have significantly better qualities than the other speakers.

6 Press 11Cursor ▽ to select "Start" and then press 11ENTER to start the setup procedure.

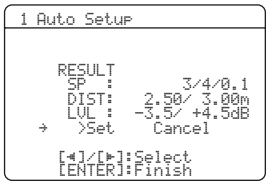
A countdown starts and a measurement starts in 10 seconds. A loud test tone is output during measurement.

Notes

- During the automatic setup procedure, do not perform any operation on this unit.
- To cancel the automatic setup procedure, press 11**Cursor** △.

Measurement takes about 3 minutes. To obtain precise results, stay where you will not disturb the measurement, such as to the side of or behind the speakers or outside the room.

When measurement is successfully completed, "YPAO Complete" appears on the front panel display and the results appear on the video monitor.



SP
Displays the number of speakers connected to this unit in the following order:
Total of Front, Center, and Presence/Total of Surround and Surround Back/Subwoofer

DIST
Displays the speaker distance from the listening position in the following order:
Closest speaker distance/Farthest speaker distance

LVL
Displays the speaker output levels in the following order:
Lowest speaker output level/Highest speaker output level

Notes

- If "ERROR" appears on the video monitor during the automatic setup procedure, measurement is canceled and the type of error is displayed. For details, see "When an error message is displayed during measurement" (see page 23).
- If problems occur during measurement, "WARNING (XX)" (xx indicates the number of warning) appears above "RESULT" (see page 23).

7 Press 11ENTER.

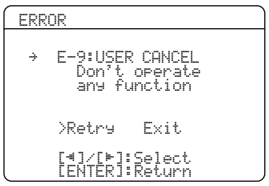
The speaker characteristics are adjusted according to measurement results.
To cancel the operation, press 11**Cursor** ◁ / ▷ to select "Cancel" and press 11**ENTER**.
When the following screen appears, remove the optimizer microphone. The automatic setup procedure is now complete.

The optimizer microphone is sensitive to heat. Store it in a cool place and away from direct sunlight after measurement. Do not leave it in a place where it will be subjected to high temperatures such on an AV component.

- If you do not want to apply the measurement results, select "Cancel."
- Perform the automatic setup procedure again if you change the number or positions of speakers.
- If you press 11**ENTER** before removing the optimizer microphone, "1 Auto Setup" of "Speaker Setup" in the SETUP menu (see page 47) is displayed.

When an error message is displayed during measurement

Press [11]Cursor ▽ once, and select "Retry" or "Exit" using [11]Cursor ◁ / ▷ and then press [11]ENTER.



Retry

Performs the automatic setup procedure again.

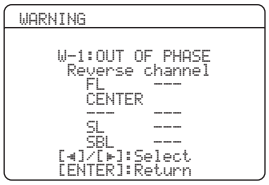
Exit

Terminates the measurement and the automatic setup procedure.

- See page 66 for details on error messages.
- When "E-5:NOISY" appears, you can continue measurement. To continue measurement, select "Proceed." However, we recommend that you solve the problem first and then perform measurement again.

When a warning message is displayed after measurement

If a problem occurs during measurement, "WARNING" is displayed on the result display screen. Check the error and solve the problems.



- See page 67 for details on warning messages.
- Optimization will not be performed while a warning message is displayed. We recommend that you solve the problem and perform the automatic setup procedure again.

1 If "→" is displayed on the left of "WARNING" on the result display screen, press [11]ENTER.

Details of the warning message are displayed. If there are multiple warning messages, you can display the next message using [11]Cursor ▷.

2 To return to the top result display, press [11]ENTER again.

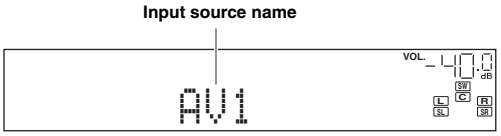
Playback

Basic procedure

1 Turn on external components (TV, DVD player, etc.) connected to this unit.

2 Rotate the ⓇINPUT selector (or press the 5Input selection keys) to select an input source.

The name of the selected input source is displayed for a few seconds.



- You can change the input source name displayed on the front panel display or on the video monitor as necessary (see page 52).

3 Play the external component that you have selected as the source input, or select a radio station on the tuner.

Refer to the instruction manuals provided with the external component for details on playback. For selecting radio stations or playback of an iPod or Bluetooth component using this unit, see the following.

- Using iPod (see page 35)
- Using Bluetooth components (see page 37)

4 Turn the ⓁVOLUME control to adjust the volume (or press 19VOLUME +/–).

Note

When you play back a DTS-CD, noise may be output in some conditions, which may cause a speaker malfunction. Make sure that the volume is set to low before starting playback. If noise is output, do the following.

1) When only noise is output
If a DTS bitstream signal is not properly input to this unit, only noise is output. Connect the playback component to this unit by digital connection and play back the DTS-CD. If the condition is not improved, the problem may results from the playback component. Consult the manufacturer of the playback component.

2) When noise is output during playback or skip operation
Before playing back the DTS-CD, display the OPTION menu after selecting the input source and set "Decoder Mode" to "DTS" (see page 40).

Using the SCENE function

This unit has four SCENE keys that allow you to change input sources and sound field programs with one key. A set of input source and sound program suitable for a certain situation, such as playing back movies or music, is assigned to each key by default.

	Input source	Sound field program
BD/DVD	HDMI1	Straight
TV	AV1	Straight
CD	AV3	Straight
RADIO	TUNER	7ch Enhancer

- This unit turns on when ⓂSCENE (or 9SCENE) is pressed during standby.
- If a Yamaha DVD player that can receive SCENE control signals is connected to the REMOTE OUT jack of this unit, the DVD player automatically turns on and starts playback when ⓂSCENE (or 9SCENE) is pressed (see page 19). For details, refer to the instruction manual of the DVD player.

Selecting a SCENE

Press ⓂSCENE (or 9SCENE).

Registering input source/sound field program

Select the desired input source/sound field program, and press down ⓂSCENE (or 9SCENE) until "SET Complete" appears on the front panel display.

When the OSD is displayed on the video monitor, "SCENE Setting Complete" appears on the video monitor.

- If you are using the remote control for an external component, set that external component too whenever SCENE setting is performed. For more details, see the next section.

Switching remotely controlled external components linked to SCENE selections

You can operate an external component with the remote control of this unit by setting a remote control code for the external component for each input source. Setting remote control codes for desired input sources allows you to switch between external components linked to SCENE selections.
When you change the SCENE key settings, change settings of the external component as well by following the steps below.

1 Register the remote control code of an external component to the desired input source (see page 55).

Note

- Remote control codes cannot be registered to TUNER input sources.

2 Press 5 Input selection keys on the remote control for the input source whose remote control code was registered in step 1 for about 3 seconds while pressing down 9 SCENE key whose assignment you want to change.

The external component can now be controlled remotely just by selecting the 9 **SCENE** key.

Muting audio output temporarily (MUTE)

1 Press 21 MUTE on the remote control to mute the audio output.

The MUTE indicator on the front panel display flashes while audio output is muted.

2 Press 21 MUTE again to resume audio output.

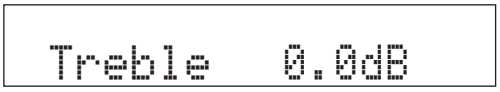
Adjusting high/low frequency sound (tone control)

You can adjust the balance of the high frequency range (Treble) and low frequency range (Bass) of sounds output from the front left and right speakers to obtain desired tone.

- The tone control of the speakers or headphones can be set separately. Set the headphone tone control with the headphones connected.

1 Press N TONE CONTROL on the front panel repeatedly to select "Treble" or "Bass."

The current setting is displayed on the front panel display.



2 Rotate the O PROGRAM selector to adjust the output level in those frequency ranges.

Adjustable range: –10.0 dB to +10.0 dB
The display returns to the previous screen soon after you release the selector.

Notes

- The tone control settings are not effective during playback in Pure Direct mode.
- If you set the balance extremely off, sounds may not match those from other channels well.

Enjoying pure hi-fi sound (Pure Direct mode)

Use Pure Direct mode to enjoy the pure high fidelity sound of the selected source. When Pure Direct mode is activated, this unit plays back the selected source with the least circuitry.

Press Q PURE DIRECT (or 8 PURE DIRECT) to turn the Pure Direct mode on or off.

The following features are disabled in Pure Direct mode.

- sound field program and tone control
- display and operation of the OPTION menu and SETUP menu
- multi-zone function

- The front panel display turns off in Pure Direct mode. It turns on again when Pure Direct mode is turned off.

Using your headphones

Plug your headphones in the ⒷPHONES jack on the front panel.

When you select a sound field program while using the headphones, the mode is automatically set to SILENT CINEMA mode.

Notes

- When you connect headphones, no signals are output from the SPEAKERS terminals.
- When multi-channel signals are processed, sounds in all channels are divided to left and right channels. When the input source is set to "MULTI CH," only front L/R sound is output from the headphones.

Displaying input signal information

When HDMI1-4 or AV1-4 is selected as the input source, you can display audio/video signal information.

- Input signal information is displayed on both a video monitor and the front panel display.

1 Select the desired input source, and press 18OPTION.

The OPTION menu for the selected input source is displayed (see page 39).

2 Press 11Cursor △ / ▽ to select "Signal Info," and press 11ENTER.

Information on input signals is displayed. See page 40 on information displayed on the screen.

- You can change items of information displayed on the front panel display using 11Cursor △ / ▽.
- If an HDMI related error occurs, error information is displayed at the bottom of the screen.

3 To end the information display, press 18OPTION.

Changing information on the front panel display

You can display information on the front panel display such as the names of the currently selected sound field program and surround decoders on the front panel display. To change the display, press ⒻINFO (or 7INFO) repeatedly. The following information can be displayed on the front panel display.

- Currently selected input source name (Input)
- Currently selected sound field program name (DSP Program)
- Currently selected surround decoder (Audio Decoder)
- Currently set FM/AM tuner frequency (Frequency)
- FM Radio Data System information (Program Service, Program Type, Radio Text, Clock Time)
- iPod playback information (Song, Album, Artist, List)

For example, if you select HDMI1 and display "DSP Program," the following screen appears on the front panel display.

The information on each input source that can be displayed is shown in the table below.

Input source	Items
HDMI1-4 AV1-6 AUDIO1-2 V-AUX PHONO	Input DSP Program Audio Decoder
MULTI CH	Input
FM/AM	Frequency DSP Program Audio Decoder Program Service* Program Type* Radio Text* Clock Time*
iPod (Simple remote mode)	Input DSP Program Audio Decoder
iPod (Menu browse mode)	(Play information display) Artist Album Song DSP Program Audio Decoder (Play menu display) List
Bluetooth	Input DSP Program Audio Decoder

*: "Program Service," "Program Type," "Radio Text" and "Clock Type" do not appear when the radio station does not provide the Radio Data System service.

Enjoy the sound field programs

This unit is also equipped with a Yamaha digital sound field processing (DSP) chip. You can enjoy multi-channel sounds for almost all input sources using various sound field programs stored on the chip and a variety of surround decoders.

Selecting sound field programs

■ Selecting a sound field program on the front panel

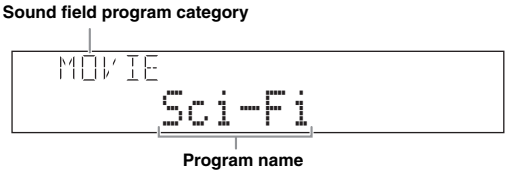
Rotate the ⓞ**PROGRAM selector** to select a desired sound field program.

■ Selecting a sound field program with the remote control

Perform the following operations depending on the category of the sound field programs.

Sound field programs for movies/TV programs..... Press 8**MOVIE** repeatedly.
Sound field programs for music ..... Press 8**MUSIC** repeatedly.
Stereo reproduction ..... Press 8**STEREO** repeatedly.
Multi-channel stereo reproduction ..... Press 8**STEREO** repeatedly.
Compressed Music Enhancer..... Press 8**STEREO** repeatedly.
Surround decoder ..... Press 8**SUR. DECODE** repeatedly.

For example, if you select “Sci-Fi” in “MOVIE,” the following screen appears on the front panel display.



Notes

- Sound field programs are stored for each input source. When you change the input source, the sound field program previously selected for that input source is applied again.
- When you play back the Dolby Digital Plus, Dolby TrueHD, DTS Express, DTS-HD Master Audio, or DTS-HD High Resolution Audio sources, sound is reproduced in straight decode mode.
- If the sampling frequency of an input source is higher than 96 kHz, this unit does not apply any sound field programs.

Sound field program descriptions

This unit provides sound field programs for multiple categories including music, movies and stereo reproduction. Select a sound field program based on your listening preference, not merely on the name of the program, etc.

- You can check what speakers are currently outputting signals with the speaker indicators on the front panel display (see page 6).
- Each program can adjust sound field elements (sound field parameters). For details, see page 42.
- CINEMA DSP in the table indicates the sound field program with CINEMA DSP.

For movie/TV program sources (MOVIE) CINEMA DSP

Program	Descriptions
Standard	Creates a sound field that emphasizes the surrounding feeling without disturbing the original acoustic positioning of multi-channel audio such as Dolby Digital and DTS. The design concept of this sound field is “an ideal movie theater,” in which the audience is surrounded by beautiful reverberations from the left, right and rear.
Spectacle	Creates a spectacular sound field that produces a sense of magnificent scale. This sound field program features a wide dynamic range that reproduces a broad theater sound field matching cinemascope and wider-screen movies, from tiny sound effects to big acoustics.
Sci-Fi	Creates a clear sound field that allows you to enjoy the finely elaborated sound design of the latest science fiction and SFX movies. Different atmospheres can be vividly reproduced while dialog, sound effects and background music are clearly separated.
Adventure	Creates a sound field ideal for action and adventure movies, reproducing a sense of power by reducing reverberations and emphasizing a horizontal soundscape. A clear and powerful atmosphere is reproduced while maintaining separation of audio channels and sound clarity with a shallower depth of feeling.

Program	Descriptions
Drama	Creates a calm sound field suitable for different genres of movies, from serious dramas to musicals and comedies. Sound is produced with discreet reverberation yet with a three-dimensional feeling. Spatial sound effects and background music are reproduced with soft reverberations around the center position, which reduces fatigue from watching movies for a long time.
Mono Movie	Creates a sound field that allows you to enjoy old monaural movies in an atmosphere of a movie theater of those days. A comfortable space with a feeling of depth is reproduced by adding soundscape and reasonable reverberation to the original sound.
Sports	Creates a lively sound field suitable for stereo sports broadcasts and TV studio shows. In sports broadcasts, the voices of sports commentators and analysts are output from the center while the crowd's cheers and other sounds are suitably spread out, creating a realistic stadium atmosphere that makes you feel as if you are really there.
Action Game	Creates a sound field designed for action games such as car racing and FPS games. The presence of various sound effects is enhanced while maintaining a clear feeling of direction by limiting each channel's sound effect range using reflection data, which produces a realistic and powerful playing environment.
Roleplaying Game	Creates a sound field designed for roleplaying games and adventure games. Depth and a three-dimensional feel to the game are produced by combining movie sound field effects and the sound design used in "Action Game." In movie scenes, movie-like surround effects are produced.

For audio music sources (MUSIC) CINEMA DSP

Program	Descriptions
Hall in Munich	Creates a sound field designed by simulating a concert hall with about 2,500 seat in Munich, which is a typical European concert venue with elegant wooden interior walls. A rich, delicate and beautiful sound is produced, creating a relaxing atmosphere. The seat setting is a left center orchestra seat.
Hall in Vienna	Creates a sound field designed by simulating a concert hall with about 1,700 seats in Vienna, which is a traditional middle-size shoebox type concert venue. In this hall, complex omnidirectional reflections bounce off pillars and carvings to produce a characteristically rich sound.
Chamber	Creates a sound field designed by simulating a relatively large room with a high ceiling such as a palace chamber. It produces pleasant reverberations suitable for court music and chamber music.
Cellar Club	Creates a realistic live sound field designed by simulating a live house with a low ceiling and intimate atmosphere. It features a powerful sound that makes you feel as if you are right in front of a small stage.
The Roxy Theatre	Creates a sound field designed by simulating a rock music live house with up to about 460 seats in Los Angeles. The seat setting is a left center seat.
The Bottom Line	Creates a sound field designed by simulating "The Bottom Line," a famous New York jazz club which has a floor occupied by 300 wide seats. It produces clear reverberations. The seat setting is in front of the stage.
Music Video	Creates a sound field designed by simulating a concert venue where live performances of pop, rock and jazz music take place. You can indulge yourself in a hot live atmosphere created by a presence sound field that emphasizes the vividness of vocals and solos and the beat of the drums, and by a surround sound field that reproduces a big live venue atmosphere.

For stereo reproduction (STEREO)

Program	Descriptions
2ch Stereo	Produces front stereo sound. This is standard playback mode.

- When multi-channel signals are input, they are downmixed to 2 channels and output from the front left and right speakers.

For multi-channel stereo reproduction (STEREO) CINEMA DSP

Program	Descriptions
7ch Stereo	Produces front and rear sound for a large area. This playback mode is suitable for BGM at a house party. Sound is output from a maximum of seven speakers.

The Compressed Music Enhancer (ENHNCR)

Program	Descriptions
Straight Enhancer	Dynamically reproduces sound from 2-channel or multi-channel compressed sound data with the same number of channels as its source sound.
7ch Enhancer	Dynamically reproduces sound from compressed sound data in 7 channels regardless of the source sound channels.

Surround decode mode (SUR.DEC)

Reproduces sound from 2-channel sound sources in up to 7 channels using a surround decoder.

Decoder	Descriptions
Pro Logic	Reproduces sound using the Dolby Pro Logic decoder. This is suitable for all kinds of sound sources.
PLIIx Movie / PLII Movie	Reproduces sound using the Dolby Pro Logic IIx (or Dolby Pro Logic II) decoder. This is suitable for movies. You cannot select the Dolby Pro Logic IIx decoder in the following conditions: • When no surround back speakers are connected • When headphones are connected
PLIIx Music / PLII Music	Reproduces sound using the Dolby Pro Logic IIx (or Dolby Pro Logic II) decoder. This is suitable for music. You cannot select the Dolby Pro Logic IIx decoder in the following conditions: • When no surround back speakers are connected • When headphones are connected
PLIIx Game / PLII Game	Reproduces sound using the Dolby Pro Logic IIx (or Dolby Pro Logic II) decoder. This is suitable for games. You cannot select the Dolby Pro Logic IIx decoder in the following conditions: • When no surround back speakers are connected • When headphones are connected
Neo:6 Cinema	Reproduces sound using the DTS Neo:6 decoder. This is suitable for movies.
Neo:6 Music	Reproduces sound using the DTS Neo:6 decoder. This is suitable for music.

• When multi-channel sound is input, sound is reproduced in straight decoding mode (see page 30).

Enjoying unprocessed input sources (Straight decoding mode)

In straight decoding mode, sounds are reproduced without sound field effect. 2-channel stereo sources are output from only the front left and right speakers. Multi-channel input sources are decoded straight into the appropriate channels and multi-channel sounds are reproduced without a sound field effect.

1 To enable straight decoding mode, press ⓅSTRAIGHT (or 8STRAIGHT).

"Straight" appears on the front panel display.

2 To cancel straight decoding mode, press ⓅSTRAIGHT (or 8STRAIGHT) again.

A sound field program name appears on the front panel display, and sound is reproduced with that sound field effect.

Enjoying sound field programs without surround speakers (Virtual CINEMA DSP)

Virtual CINEMA DSP allows you to enjoy DSP sound field surround effects even without any surround speakers by using virtual surround speakers. You can even enjoy Virtual CINEMA DSP using a minimal two-speaker system that does not include a center speaker.
When "Sur. L/R SP" in the SETUP menu is set to "None" (see page 48), this unit operates in Virtual CINEMA DSP mode.

Note

- Virtual CINEMA DSP is not available in the following conditions even if you set "Sur. L/R SP" to "None" (see page 48).
  – headphone plug is connected to the PHONES jack.
  – 7ch Stereo of the field sound program is selected.
  – Pure Direct mode or straight decoding mode is used.

Enjoy sound field programs with headphones (SILENT CINEMA™)

SILENT CINEMA allows you to enjoy multi-channel sources with your headphones. SILENT CINEMA mode is automatically selected when you connect the headphone plug to the PHONES jack.

Note

- SILENT CINEMA mode is not available in the following conditions.
  – 2ch Stereo of the sound field program is selected.
  – Pure Direct mode or straight decoding mode is selected.

Enjoying more spatial sound fields (CINEMA DSP 3D mode)

CINEMA DSP 3D mode creates an intensive and accurate stereoscopic sound field in the listening room.
To use this unit in CINEMA DSP 3D mode, presence speakers are required. Do the following steps and then select a CINEMA DSP sound field program. When a sound field program runs in CINEMA DSP 3D mode, the CINEMA DSP 3D indicator on the front panel lights up.

- Connect the presence speakers to the EXTRA SP jacks (see page 12).
- Set "Extra SP Assign" to "Presence" (see page 47).
- Enable CINEMA DSP 3D in the SETUP menu (see page 42).

Note

- If headphones are connected to this unit, this unit plays back in SILENT CINEMA mode so CINEMA DSP 3D mode cannot be enabled.

FM/AM tuning

The FM/AM tuner of this unit provides the following two modes for tuning.

■ **Frequency tuning mode**

You can tune into a desired FM/AM station by searching or specifying its frequency.

■ **Preset tuning mode**

You can preset the frequencies of FM/AM stations by registering them to specific numbers, and later just select those numbers to tune in.

Note

- Adjust the FM/AM antennas connected to this unit for the best reception.

Tuning into the desired FM/AM station (Frequency tuning mode)

1 Rotate the ⓇINPUT selector (or press 5TUNER) to switch the input source to "TUNER."

2 Press ⒾFM (6FM) or ⒾAM (6AM) to select a band.

"FM" or "AM" appears on the front panel display according to the band that you have selected.

3 Press ⒿTUNING ⊲ / ⊳ (or 6TUNING △ / ▽) to specify the frequency.

To adjust the frequency to a higher range, press ⊳ (or △). To adjust it to the lower range, press ⊲ (or ▽). The TUNED indicator on the front panel display lights up when the tuner is tuned into a station. The STEREO indicator also lights up if the program being broadcasted is in stereo.

The frequency changes in the following manner according to how you press ⒿTUNING ⊲ / ⊳ (or 6TUNING △ / ▽).

When you press the key more than 1 second

The tuner searches the frequency of a station that is detectable around the current frequency. This is effective when the tuner can receive strong signals without any interference. Once the search starts, release the key.

When you press and release the key

The tuner increases or decreases the frequency in steps. Use this method when the tuner cannot receive strong signals and stations are skipped during the search.

- You can switch between stereo and monaural for FM broadcast in the OPTION menu (see page 41).

4 To tune in by direct frequency tuning, enter the frequency of the desired station using 13Numeric keys on the remote control.

Enter only integers. For example, if you want to set the frequency to 88.90 MHz, enter "8890" using 13Numeric keys.

Notes

- When you press 13Numeric keys during preset tuning, a preset number is selected. Set tuning mode to frequency tuning mode using ⒿTUNING ⊲ / ⊳ (or 6TUNING △ / ▽) prior to the operation.
- "Wrong Station!" appears on the front panel display when you enter a frequency that is out of receivable range. Make sure that the entered frequency is correct.
- You do not need enter zero if it comes at the end of a decimal number. For example, enter "925" for "92.50 MHz" or "940" for "94.00 MHz."

Registering FM/AM stations and tuning in (Preset tuning mode)

You can register up to 40 FM/AM stations (Preset) using the automatic station preset feature or manual station preset feature.

Registering stations by automatic station preset

The tuner automatically detects FM stations with strong signals and registers up to 40 stations. AM stations cannot be automatically registered. Use manual station preset.

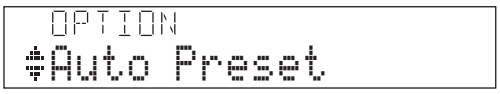
1 Rotate the ⓇINPUT selector (or press 5TUNER) to switch the input source to "TUNER."

2 Press 18OPTION on the remote control.

The OPTION menu screen for setting options of tuner input appears on the front panel display.

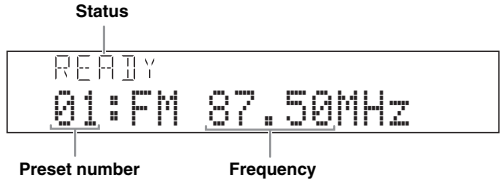
- For details on the OPTION menu, see page 39.
- The OPTION menu is displayed on the video monitor.

3 Select "Auto Preset," using 11Cursor △ / ▽ and press 11ENTER.



Automatic station preset starts about 5 seconds later from the lowest frequency upwards.

- You can select the preset number at which the preset starts by pressing 6**PRESET** △ / ▽ or 11**Cursor** △ / ▽ on the remote control while "READY" is displayed on the front panel display.
- To cancel registration, press 11**RETURN** on the remote control.



During the automatic station preset, the upper area of the screen changes as follows: SEARCH → MEMORY each time a station is registered. When registration is complete, "FINISH" appears and the OPTION menu screen automatically reappears. When you press 18**OPTION** on the remote control, the screen returns to the original state.

Note

- Only Radio Data System broadcasting station are stored automatically by automatic preset tuning.

Registering stations by manual station preset

You can manually register AM stations or FM stations with weak signals.

1 Tune into a station referring to "Tuning into the desired FM/AM station (Frequency tuning mode)" (see page 31).

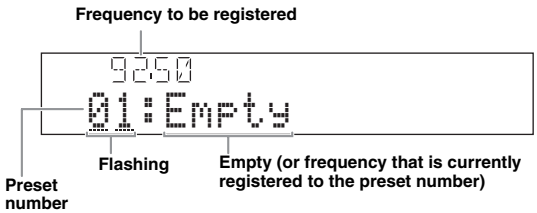
2 Press ⒼMEMORY (or 6MEMORY).

"Manual Preset" appears on the front panel display, followed soon by the preset number to which the station will be registered.

- By pressing down ⒼMEMORY (or 6MEMORY) for more than 2 seconds, you can skip step 3. The station is registered to the lowest empty preset number or a preset number one higher than the last preset number.

3 Press ⒽPRESET ◁ / ▷ (or 6PRESET △ / ▽) to select the preset number to which the station will be registered.

When you select a preset number to which no station is registered, "Empty" appears on the display. When you select a registered preset number, a registered frequency is displayed on the right of the preset number.



- You can select a preset number using the 13**Numeric keys**.

4 Press ⒼMEMORY (or 6MEMORY) again to register.

When registration is complete, the screen returns to the original state.

- To cancel registration, press 11**RETURN** on the remote control or leave the tuner without any operations for about 30 seconds.

Calling a preset station (Preset tuning)

You can call preset stations registered by automatic station preset or manual station preset.

Press ⒽPRESET ◁ / ▷ (or 6PRESET △ / ▽) to select a preset number.

- Preset numbers to which no stations are registered will be skipped.
- If no stations are registered, "No Presets" or "No Presets in Memory" appears on the display. See page 31 and register stations.
- You can directly select a preset number by pressing a 13**Numeric keys** while calling a preset station. "Empty" appears on the display if you enter a preset number to which no station is registered. "Wrong Num." appears if you enter an invalid number.
- When you press 13**Numeric keys** during normal tuning, a preset number is selected. Set tuning mode to preset tuning mode using ⒽPRESET ◁ / ▷ (or 6PRESET △ / ▽) prior to the operation.

Clearing the preset station

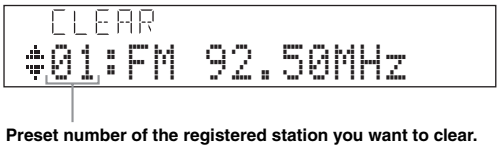
1 Rotate the ⓇINPUT selector (or press 5TUNER) to switch the input source to "TUNER."

2 Press 18OPTION on the remote control.

The OPTION menu screen for setting options of tuner input appears on the front panel display.

3 Display "Clear Preset" using the 11Cursor △ / ▽ and press 11ENTER.

The following screen appears on the display.



- You can cancel the operation and return to the OPTION menu screen by pressing 11**RETURN** on the remote control.

4 Select the preset number of the registered station you want to clear using the 11Cursor △ / ▽ and press 11ENTER.

The preset station registered to the selected preset number is cleared. To clear the registration of multiple preset numbers, repeat the above steps. To end the operation, press 18**OPTION**.

Radio Data System tuning

Radio Data System is a data transmission system used by FM stations in many countries. This unit can receive various Radio Data System data such as “Program Service,” “Program Type,” “Radio Text,” “Clock Time,” and “EON” (enhanced other networks) when receiving Radio Data System broadcasting stations.

Note

- The Radio Data System reception feature is only available in U.K., Europe and Russia models.

Displaying the Radio Data System information

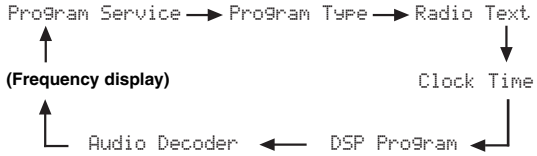
You can display the 4 types of the Radio Data System information: “Program Service,” “Program Type,” “Radio Text,” “Clock Time.”

1 Tune into the desired Radio Data System broadcasting station.

- We recommend that you use the automatic preset tuning to tune into the Radio Data System broadcasting stations (see page 31).
- You can also use PTY Seek mode to tune into the desired Radio Data System broadcasting station from the preset ones.

2 Press ⒻINFO on the front panel (or 7INFO on the remote control) repeatedly until the desired information is displayed.

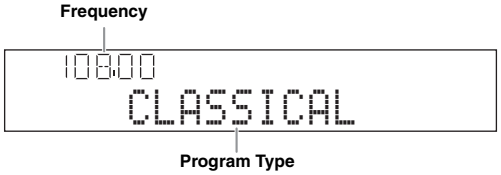
Information on the display changes as you press the key. The kind of information is displayed for a while and then the information is displayed.



Contents of information are as follows.

Type of information	Description
Program Service	Displays the name of the Radio Data System program service currently being received.
Program Type	Displays the type of the Radio Data System program currently being received.
Radio Text	Displays the information on the Radio Data System program currently being received.
Clock Time	Displays the current time.
DSP Program	Displays the currently selected sound field program.
Audio Decoder	Displays the currently selected surround decoder.

Front Panel Display (When “Program Type” selected)



Note

- “Program Service,” “Program Type,” “Radio Text” and “Clock Type” do not appear when the radio station does not provide the Radio Data System service.

Selecting the Radio Data System program type (PTY Seek mode)

You can select the desired radio program by program type from the all preset Radio Data System broadcasting stations.

- You must preset stations prior to using PTY Seek. When “No Presets” or “No Presets in Memory” is displayed, it means that no stations are registered. See page 32 and register stations.
- You can do operation of PTY Seek while looking at the video monitor screen.

1 Press 5TUNER on the remote control to select “TUNER” as the input source.

2 Press 18OPTION on the remote control.

The tuner option menu appears. See page 39 for details of the option menu.

3 Press 11Cursor △ / ▽ on the remote control to select “PTY Seek,” and press 11ENTER.

BASIC OPERATION

English

4 Press [11]Cursor ◁ / ▷ on the remote control to select a program type for search.

You can select a program type from the following.

Program type	Description
NEWS	News
AFFAIRS	Current affairs
INFO	General information
SPORT	Sports
EDUCATE	Education
DRAMA	Drama
CULTURE	Culture
SCIENCE	Science
VARIED	Light entertainment
POP M	Popular music
ROCK M	Rock music
M.O.R. M	Middle-of-the-road music (easylistening)
LIGHT M	Light classics
CLASSICS	Serious classics
OTHER M	Other music

5 To search a station, press [11]Cursor △ / ▽ on the remote control.

If you press [11]**Cursor** ▽, this unit searches downward from the current frequency. If you press [11]**Cursor** △, it searches upward from the current preset station.

When a station is detected, the search stops. If the station is not the desired one, Press the same key to continue the search.

To end the search, press [18]**OPTION**.

Note

- If "Not found" is displayed, no station applicable for the selected program type is detected.

Using the enhanced other networks (EON) data service

You can receive the EON (enhanced other networks) data service of the Radio Data System station network. If you are receiving Radio Data System broadcasting when an affiliate station starts broadcasting a program you have selected, this unit automatically switches station.

To use this feature, select one of the 4 Radio Data System program types (NEWS, AFFAIRS, INFO or SPORT) while receiving Radio Data System broadcasting. When an affiliate station starts broadcasting a selected program, this unit automatically tunes into that station, and returns to the previous station when the selected program ends.

Notes

- To use the EON data service, you must first register the Radio Data System stations and their affiliate stations as preset stations.
- EON data service settings are reset when you turn the power off.

- You can operate EON while looking at the video monitor screen.

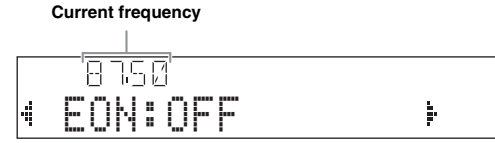
1 Tune into the desired Radio Data System broadcasting station.

2 Press [18]OPTION on the remote control.

The tuner option menu appears. For details on the option menu, see page 39.

3 Press [11]Cursor △ / ▽ on the remote control to select "EON," and press [11]ENTER.

"EON:OFF" appears on the front panel display.



- If no stations are registered, "No Presets" or "No Presets in Memory" appears on the display. See page 32 and register stations.
- If the affiliate station of the selected preset station or the EON data service is not available, "Not Available" appears.

4 Press [11]Cursor ◁ / ▷ to select a program type.

5 After selecting a program type, press [18]OPTION to end the option menu.

When an affiliate station starts broadcasting the selected program, this unit automatically tunes in to that station. When the program ends, it automatically switches back to the previous station.

The EON is turned off in the following cases:

– when the EON is activated once
– when this unit is set to standby before EON is activated
– when another station is selected before EON is activated

- To cancel the EON, do steps 1 through 5 again and select "EON:OFF."

Using iPod™

Once you have stationed your iPod in a Yamaha iPod universal dock (such as the YDS-11, sold separately) connected to the DOCK jack on the rear panel of this unit (see page 19), you can operate your iPod with the remote control of this unit using a menu displayed on the video monitor. You can also use the Compressed Music Enhancer mode of this unit to improve the sound quality of the compression artifacts (such as MP3 format) stored on your iPod (see page 29).

Notes

- iPod touch, iPod (Click and Wheel including iPod classic), iPod nano, and iPod mini are supported.
- Some features may not be compatible depending on the model or the software version of your iPod.
- Some features may not be available depending on the model of Yamaha iPod universal dock. The following sections describe the procedure when using the YDS-11.

- Once the connection between your iPod and this unit is complete, "iPod connected" appears on the front panel display.
- For a complete list of status messages that appear on the front panel display and video monitor, see the "iPod" section on page 65.

Controlling iPod™

You can control your iPod when you set it in the iPod universal dock and switch the input source to DOCK. The operations of your iPod can be done with the aid of the video monitor (menu browse mode) or without it (simple remote mode).
When you connect your iPod to this unit, you can perform the following operations with the remote control.

Key		Function
	ENTER	Subsequent menu
	△	Menu up
11	▽	Menu down
	◁	Previous menu
	▷	Subsequent menu
	◁◁	Search backward (Press and hold)
	▷▷	Search forward (Press and hold)
	▷▷|	Skip forward
	|◁◁	Skip backward
12	□	Stop
	▯▯	Pause (Menu browse mode) Play/Pause (Simple remote mode)
	▷	Play (Menu browse mode) Play/Pause (Simple remote mode)
20	**DISPLAY**	Switch between Menu browse mode and Simple remote mode

Controlling iPod in simple remote mode

You can perform basic iPod operations (play, stop, skip, etc.) using the supplied remote control without displaying the menu on the video monitor. You can also directly control your iPod in this mode.

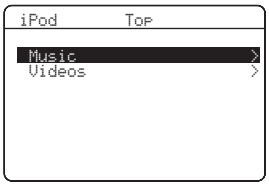
Controlling iPod in menu browse mode

You can perform advanced iPod operations using the remote control while looking at the menu displayed on the video monitor. You can browse the song files or video files stored on your iPod and displayed on the monitor. You cannot directly control your iPod in this mode.

- "_"(underscore) is displayed for characters that this unit cannot display.

1 Rotate the ⓇINPUT selector (or press 5DOCK repeatedly) to select "iPod (DOCK)" as the input source.

2 Press 20DISPLAY on the remote control.
The following screen appears on the video monitor.



3 Press 11Cursor △ / ▽ to select "Music" or "Videos" and press 11Cursor ▷.
- Select "Music" to browse music files.
- Select "Videos" to browse video files.

Note

- "Videos" will not be displayed when your iPod or Yamaha iPod universal dock do not support the browser function for browsing video files.

4 Press 11Cursor △ / ▽ / ◁ / ▷ to select a menu item and then 11ENTER to start playback.

Menu items of "Music"

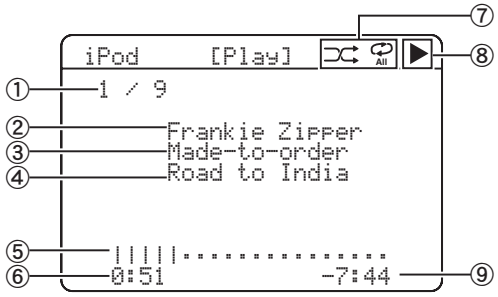
Playlists, Artists, Albums, Songs, Genres, Composers

- Playlists > Songs
- Artists > Albums > Songs
- Albums > Songs
- Songs
- Genres > Artists > Albums > Songs
- Composers > Albums > Songs

Menu items of "Videos"

Menu items vary depending on the files stored on your iPod.

■ Description of the play information display



① Track number/total tracks
② Artist name
③ Album title
④ Song title
⑤ Progress bar
⑥ Elapsed time
⑦ Shuffle and repeat icons
⑧ ▶ (playback), ❚❚ (pause), ▶▶ (search forward) and ◀◀ (search backward)
⑨ Remaining time

- You can change information screens on the front panel display using ⒻINFO (or 7INFO) (see page 26). Items displayed on the front panel display vary depending on mode that is currently selected.

Shuffle/repeat playback

You can use a special playback function such as shuffle playback and repeat playback by setting the OPTION menu.

1 Press 20DISPLAY to switch to menu browse mode while "iPod (DOCK)" is selected as the input source.

To use the shuffle or repeat playback function in simple remote mode, set your iPod from its menu.

2 Press 18OPTION.

The OPTION menu is displayed.

3 Press 11Cursor △ / ▽ to select the desired playback function, "Shuffle" or "Repeat," then press 11ENTER.

The following playback styles are available depending on the playback function selected.

Shuffle: Plays back songs or albums in random order (Choices: Off, Songs, Albums).

- Select "Off" if you do not want to play back in random order.
- Select "Songs" to play back songs in random order.
- Select "Albums" to play back albums in random order.

Repeat: Plays back songs or albums repeatedly (Choices: Off, One, All).

- Select "Off" if you do not want to play back repeatedly.
- Select "One" to repeat each song.
- Select "All" to repeat all songs.

4 Select the desired style using 11Cursor ◁ / ▷.

The style is selected. Playback starts with the function selected in step 3.
To return to the previous screen, press 11RETURN.
To return to the previous playback function, redo the above steps.

- When the shuffle function is on, "⇄" appears on the video monitor.
- When "Repeat" is set to "One" or "All," "↻1" or "↻All" appears on the video monitor.

Using Bluetooth™ components

This unit supports A2DP (Advanced Audio Distribution Profile) of the Bluetooth profile. You can connect a Yamaha Bluetooth wireless audio receiver (such as YBA-10, sold separately) to the DOCK jack of this unit and enjoy the music contents stored in your Bluetooth component (such as a portable music player) without wiring between this unit and the Bluetooth component. You need to perform "Pairing" the connected Bluetooth wireless audio receiver and your Bluetooth component in advance.

Pairing the Bluetooth™ wireless audio receiver and your Bluetooth™ component

"Pairing" refers to the operation of registering a Bluetooth component for Bluetooth communications. Pairing must be performed when using a Bluetooth component with the Bluetooth wireless audio receiver connected to this unit for the first time or if the pairing data has been deleted.

- You only need the pairing operation for the first time that you use the Bluetooth component with the Bluetooth wireless audio receiver.
- Pairing requires operations on this unit and on the other component with which Bluetooth communications are to be established. If necessary, refer to the instruction manuals provided with other component.

■ Pairing the Bluetooth wireless audio receiver and your Bluetooth component

To ensure security, a time limit of 8 minutes is set for the pairing operation. We recommend that you read the instructions so that you fully understand them before starting.

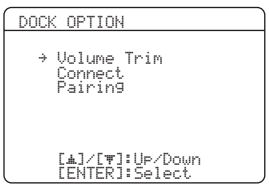
1 Rotate the ⓇINPUT selector (or press 5DOCK repeatedly) to select "Bluetooth (DOCK)" as the input source.

2 Turn on the Bluetooth component you want to pair with and set it to pairing mode.

For details on operation of the Bluetooth component, refer to its instruction manuals.

3 Press 18OPTION.

The OPTION menu for DOCK input appears on the video monitor.



4 Press 11Cursor ▽ to select "Pairing" and press 11ENTER.

"Searching" appears on the front panel display and the pairing operation starts.

- To cancel pairing, press 11**RETURN**.
- You can also start pairing operation by pressing and holding Ⓖ**MEMORY** on the front panel.

5 Make sure the Bluetooth component recognizes the Bluetooth wireless audio receiver.

If the Bluetooth have recognized the Bluetooth wireless audio receiver, "YBA-10 YAMAHA," for instance, is displayed in the Bluetooth device list.

6 Select the Bluetooth wireless audio receiver from the Bluetooth device list, and enter a path key "0000" into the Bluetooth component.

When pairing is complete, "Completed" appears on the front panel display.

- The Yamaha Bluetooth wireless audio receiver can be paired with up to eight Bluetooth components. When pairing is conducted successfully with a ninth component and the pairing data is registered, the pairing data for the least recently used other component is cleared.

Playback of the Bluetooth™ component

1 Rotate the ⓇINPUT selector (or press 5DOCK repeatedly) to select "Bluetooth (DOCK)" as the input source.

2 Press 18OPTION.

3 Press 11Cursor ▽ repeatedly to select "Connect" and press 11ENTER.

After you execute "Connect," communication with the Bluetooth component is established. When the connected Bluetooth wireless audio receiver recognizes the Bluetooth component, "BT Connected" appears on the front panel display.

- When you press 11**ENTER** on the remote control, the connected Bluetooth wireless audio receiver searches and connects to the last connected Bluetooth component. If the Bluetooth wireless audio receiver cannot find the Bluetooth component, "Not found" appears on the front panel display.
- To disconnect the Bluetooth wireless audio receiver from the Bluetooth component, display the OPTION menu again, select "Disconnect," and press 11**ENTER**.

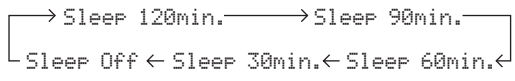
4 Start playback of the Bluetooth component.

Using the sleep timer

You can set this unit to automatically return to standby after a set time has passed.
The sleep timer is useful if you want to go to sleep while this unit is playing or recording a source.

Press 17 SLEEP repeatedly to set the amount of time.

Each time you press the key, the front panel display changes as shown below.



When the sleep timer is set, the SLEEP indicator on the front panel display lights up.
Press 17 **SLEEP** on the remote control repeatedly until "Sleep Off" appears on the front panel display.

Using the HDMI™ control function

This unit supports the HDMI control function.
When a TV that supports the HDMI control function is connected with this unit via the HDMI connection, the following operations of this unit can be controlled with the TV remote control (except for some TVs).

- Switching between on and standby (linked to the TV)
- Volume control (up/down, mute)
- Switching the sound output between a TV and this unit

When you use the HDMI control function, do the following referring to the instruction manuals of the TV.

- Turn on the HDMI control function on the TV.
- Connect the TV to this unit following the instructions for connecting the TV to an AV amplifier.

- The HDMI control-compatible components include Panasonic VIERA Link compatible TV, DVD player/recorder and Blu-ray Disc player.
- When a DVD recorder/Blu-ray recorder/HD DVD recorder that supports the HDMI control function is connected via the HDMI connection, its operations are also linked to those of this unit. For details, refer to its instruction manuals.
- We recommend that you use a TV, DVD recorder, Blu-ray recorder and HD DVD recorder of the same manufacturer.

1 Connect a TV that supports the HDMI control function to this unit via the HDMI connection.

2 Turn on all components connected to this unit via the HDMI connection.

For details on operations of external components, refer to instruction manuals provided with them.

3 Check the settings of those components and enable the HDMI control function.

This unit: Set "Control (SETUP menu → Function Setup → 1 HDMI)" to "On" in the SETUP menu (see page 50).
External components: Refer to their instruction manuals.

4 Turn off the TV.

All external components that support the HDMI control function turn off linked to the TV being turns off. If any component does not turn off, turn it off manually.

5 Turn on the TV.

Make sure that this unit turns on linked to the TV being turned on. If it does not turn on, turn it on manually.

6 Set the input of the TV according to the component connected to this unit such as [HDMI].

7 If a DVD recorder or Blu-ray recorder that supports the HDMI control function is connected to this unit, turn it on.

This unit: Make sure that the input source to which the DVD recorder or Blu-ray recorder is connected is selected. If another input source is selected, select the input source manually.
External component: Make sure that you can see images properly on the video monitor.

- You do not need to do step 1 through 7 from the second time.

8 Perform the following operations with the TV remote control to check the link.

- Turning on and off
- Adjusting volume
- Switching sound output components

Notes

- If this unit does not work linked with the TV, turn the TV off and back on or unplug the AC power plug and plug back in. Doing so may solve the problem.
- If the problem still persists, check the following:
  – This unit: Is the HDMI control function set to "On"? (see page 50)
  – TV: Is the HDMI control function is enabled?

- If the TV connected to this unit supports the HDMI control function, you only need to connect its audio output jacks to the AV1 jacks of this unit, which are optical digital input jacks, and turn on the video monitor. TV of SCENE is automatically selected when you turn on the TV, and you can enjoy TV sound right away. When connecting the audio output jacks to the AV2-6, AUDIO1-2 or V-AUX jacks, assign those jacks to the TV beforehand (see page 24).

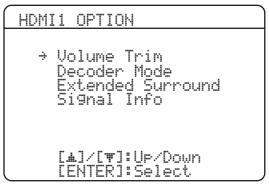
Setting the option menu for each input source (OPTION menu)

This unit has the OPTION menu of frequently used menu items for input sources compatible with this unit. The procedure for setting the OPTION menu items is described below.

1 Select an input source using the ⓇINPUT selector (or 5Input selection keys).

2 Press 18OPTION on the remote control.

The OPTION menu appears. The displayed OPTION menu items differ depending on the input source. For details, see next section.



3 Select the desired menu item using 11Cursor △ / ▽, and press 11ENTER.

Parameters of the selected menu item are displayed.

4 Change the setting of the selected menu item (or enable a function) using 11Cursor △ / ▽ / ◁ / ▷ and 11ENTER.

Details of the selected menu item are displayed. Parameters you can set differ depending on the menu items.

5 To close the OPTION menu, press 18OPTION.

You can also use 11**RETURN** to return to the previous screen or close the OPTION menu.

- If 11**Cursor** or other keys do not work after closing the OPTION menu, select the input source again using the 5**Input selection keys**.

OPTION menu items

The following menu items are provided for each input source.

Input Source	Menu item			
HDMI1-4	Volume Trim	Decoder Mode	Extended Surround	Signal Info
AV1-4	Volume Trim	Decoder Mode	Extended Surround	Signal Info
AV5-6	Volume Trim			
AUDIO1-2	Volume Trim			
V-AUX	Volume Trim			
PHONO	Volume Trim			
iPod (DOCK)	Volume Trim	Shuffle	Repeat	
Bluetooth (DOCK)	Volume Trim	Connect/ Disconnect	Pairing	
TUNER	Volume Trim	FM Mode	Auto Preset	Clear Preset
	PTY Seek	EON		
MULTI CH	Volume Trim	Video Out		

Below is a detailed explanation of the menu items in this table.

- The default settings are marked with "*."

■ Volume Trim

Input source: All
Adjustable range: -6.0 dB to 0.0 dB* to +6.0 dB (in 0.5 dB steps)

Reduces any change in volume when switching input sources by correcting volume differences between input sources.
You can set this parameter for each input source.

■ Decoder Mode

Input source: HDMI1-4, AV1-4
Choices: Auto*/DTS

Selects DTS digital audio signals for reproduction.

Auto	Automatically selects audio input signals.
DTS	Selects DTS signals only. Other input signals are not reproduced.

■ Extended Surround

Input source: HDMI1-4, AV1-4
Choices: Auto*/PLIIx Movie/PLIIx Music/EX/ES/Off

Selects whether to reproduce multi-channel input signals in 6.1- or 7.1-channel when surround back speakers are used.

Auto	Automatically selects the most suitable decoder according to whether a flag for reproducing surround back channel is present, and reproduces the signals in 6.1- or 7.1-channel.
PLIIx Movie	Always reproduces signals in 6.1- or 7.1-channel using the PLIIx Movie decoder whether or not surround back channel signals are contained. You can select this parameter when two surround back speakers are connected.
PLIIx Music	Always reproduces signals in 6.1- or 7.1-channel using the PLIIx Music decoder whether or not surround back channel signals are contained. You can select this parameter when one or two surround back speakers are connected.
EX/ES	Automatically selects the most suitable decoder for input signals whether or not the flag for reproducing surround back channel is present, and always reproduces signals in 6.1-channel.
Off	Always reproduces signals in 5.1-channel when 5.1-channel sound is input, whether or not the flag for reproducing surround back channel is present.

■ Signal Info

Input source: HDMI1-4, AV1-4

Displays information on audio and video signals on the video monitor and front panel display. You can change items to be displayed using 11**Cursor △ / ▽**.

Signal Info parameters

■ Audio information

Information	Description
Format	Format of digital audio signals.
Channel	The number of input signal channels (front/surround/LFE). For example, if input signal channels are 3 front channels, 2 surrounds and LFE, "3/2/0.1" is displayed. If a channel that cannot be expressed as the above, a total number of channels such as "5.1ch" may be displayed.
Sampling	The sampling frequency of digital input signal.
Bitrate	The bit rate of input signal per second.

Notes

- "No Signal" is displayed when no signals are input and "---" is displayed when signals that this unit cannot recognize are input.
- The bit rate may vary during playback.

■ Video information

Information	Description
In	Format and resolution of video input signal.
Out	Format and resolution of video output signal.
Message	Error messages about HDMI signals and HDMI components. See the following for details of the error messages.

HDMI error message (appears only when an error has occurred)

HDCP Error	HDCP authentication failed.
Device Over	The number of HDMI components connected is over the limit.
Out of Res.	The connected monitor is not compatible with the video input signal.

■ FM Mode

Input source: TUNER
Choices: Stereo*/Mono

Sets FM broadcasting receiving mode.

Stereo Receives in stereo mode.
Mono Receives in monaural mode. You can get a better reception in monaural mode.

■ Auto Preset

Input source: TUNER

Automatically detects radio stations in the FM frequency band and registers them as preset stations (see page 31).

■ Clear Preset

Input source: TUNER

Clears the preset stations (see page 32).

■ PTY Seek

Input source: TUNER

Searches a station that is broadcasting a program under the desired category from the preset stations while using the Radio Data System (see page 33).

■ EON

Input source: TUNER

Enables you to receive the EON (enhanced other network) data service of the Radio Data System (see page 33).

■ Shuffle

Input source: iPod (DOCK)
Choices: Off*/Songs/Albums

Changes the shuffle playback style (see page 36).

■ Repeat

Input source: iPod (DOCK)
Choices: Off*/One/All

Changes the repeat playback style (see page 36).

■ Connect / Disconnect

Input source: Bluetooth (DOCK)

Switches communication with a Bluetooth component on and off (see page 37).

■ Pairing

Input source: Bluetooth (DOCK)

Performs pairing of this unit and a Bluetooth component (see page 37).

■ Video Out

Input source: MULTI CH
Choices: AV1 to 6/V-AUX/Off*

When the multi-channel input is selected, outputs a signal input from another terminal to the video monitor. See "Outputting a video signal input from another input source during reproducing a multi-channel audio signal" on this page.

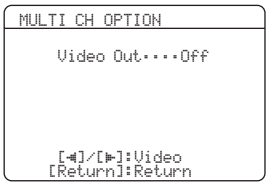
Outputting a video signal input from another input source during reproducing a multi-channel audio signal

When "MULTI CH" is selected as the input source, a video signal input from another terminal can be output to the video monitor. For example, even if an audio and video component such as a DVD player that does not support a multi-channel digital audio output, the video signal can be output to the video monitor while reproducing a multi-channel analog audio signal.

1 Rotate the ⑱ INPUT selector (or press 5 MULTI) to change the input source to "MULTI CH."

2 Press 18 OPTION on the remote control.
The OPTION menu appears.

3 Press 11 Cursor △ / ▽ to display "Video Out," and press 11 ENTER.
The following screen appears.



4 Press 11 Cursor ◁ / ▷ to select a video input jack to which a component to be used as a video input source is connected.
– AV1-2 (COMPONENT VIDEO jacks)
– AV3-6 (VIDEO jack)
– V-AUX (VIDEO jack)
– Off (no video input)

5 To end the setting, press 18 OPTION.

Editing surround decoders/sound field programs

Setting sound field parameters

Although the sound field programs would satisfy you as they are with the default parameters, you can arrange sound effect or decoders suitable for acoustical conditions of sources or rooms by setting the parameters (sound field elements).

- You can protect the sound field against the changes of parameters the sound filed parameters when "Memory Guard" of the SETUP menu is set to "On" (see page 52). To change the parameters, set it to "Off."

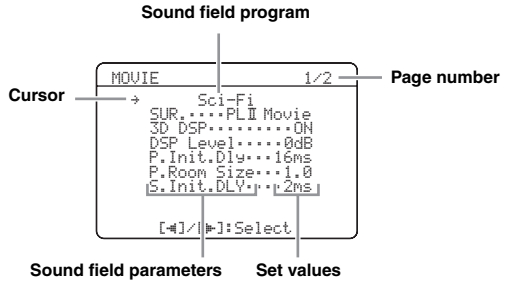
1 Turn on the video monitor connected to this unit.

2 Press [10]SETUP on the remote control.

The SETUP menu appears on the monitor.

3 Press [11]Cursor △ / ▽ to select "DSP Parameter" and press [11]ENTER.

The screen changes as follows.



4 Press [11]Cursor △ / ▽ to move "→" to the sound field program and press [11]Cursor ◁ / ▷ to select the sound field program.

5 Press [11]Cursor △ / ▽ to select the parameter that you want to change, and press [11]Cursor ◁ / ▷ to change the parameter.

An asterisk (*) appears on the left of the sound field parameter name displayed on the monitor when you change the parameter from its default setting. For details on functions and adjustable ranges of the sound field parameters, see "Sound field parameters" on this page.

- Repeat steps 4 and 5 to change other sound field program parameters.
- A complete list of the parameters of some sound field programs may exceed one page. In this case, press [11]Cursor △ / ▽ to scroll through pages.

6 To end the edit, press [10]SETUP.

To initialize the parameters of the selected sound field program, [11]Cursor ▽ repeatedly to select "Initialize" and then press, [11]Cursor ▷. When the confirmation screen appears on the monitor, press [11]Cursor ▷ to confirm the initialization or [11]Cursor ◁ to cancel it.

Sound field parameters

- The default settings are marked with "*."

CINEMA DSP basic parameters

SUR.

Choices: PLIIx Movie*/Neo:6 Cinema

Selects a surround decoder to be used with a sound field program in the MOVIE category.

PLIIx Movie: Selects the Dolby Pro Logic IIx (Movie) decoder.

Neo:6 Cinema: Selects the Neo:6 (Cinema) decoder.

Note

- Surround decoders cannot be changed when used with the following MOVIE sound field programs.
  - Mono Movie
  - Sports
  - Action Game
  - Roleplaying Game

3D DSP

Choices: On*/Off

When CINEMA DSP 3D is enabled, sets whether to use sound field programs in CINEMA DSP 3D mode.

Note

- When the presence speakers are not used, the 3D DSP parameters are not displayed.

DSP Level

Adjustable range: -6 dB to 0 dB* to +3 dB

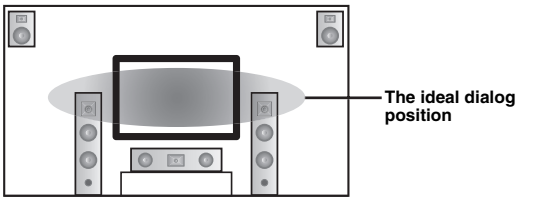
Fine adjusts an effect level (level of the sound field effect to be added). You can adjust the level of the sound field effect while checking sound levels. Adjust "DSP Level" as follows.

- The effect sound is too soft.
- There is no difference in effects between the sound field programs.
  →Increase the effect level.
- The sound is dull.
- The sound field effect is added too much.
  →Reduce the effect level.

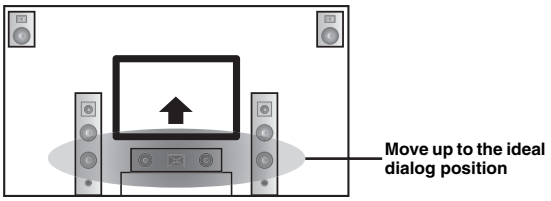
Dialog Lift

Choices: 0* to 5

Adjusts the vertical position of center sound such as dialogues when presence speakers are used. Increasing this parameter raises the position.



If the dialog seems to come out from a lower position than the video monitor screen, increase this parameter.



"0" (default) corresponds to the lowest position and "5" to the highest position.

Notes

- "Dialog Lift" is displayed only when the presence speakers are available.
- You cannot move the dialog position lower than the default setting.

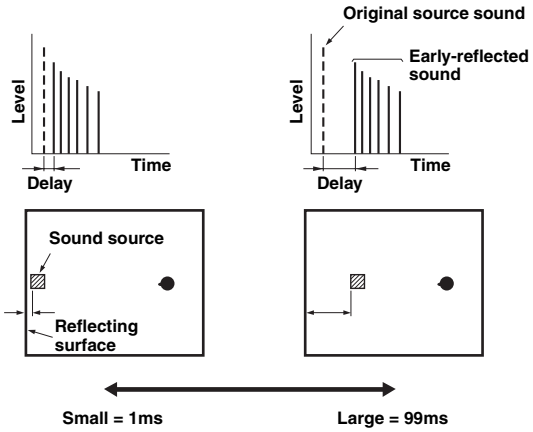
Sound field parameters for the advanced configurations

- Some sound field programs have parameters for adjusting specific sound fields. The following letters are displayed next to the names of those parameters.
  – P (presence sound field)
  – S (surround sound field)
  – SB (surround back sound field)

■ Parameters for adjusting early-reflected sound

Parameter	Adjustable range
Init.Dly	1 to 99ms
P.Init.Dly	1 to 99ms
S.Init.Dly	1 to 49ms
SB Init.Dly	1 to 49ms

Adjust attenuation characteristics of early-reflected sound. You can create a lively sound field (with a high reverberant sound level) as you increase the value, and a dead sound field (with a low reverberant sound level) as you decrease the value. Creating either a lively sound field or a dead sound field in an actual music hall is determined by the acoustic absorption characteristics of reflection surfaces. A dead sound field is created when the attenuation time is short while a lively sound field is created when the attenuation time is long.

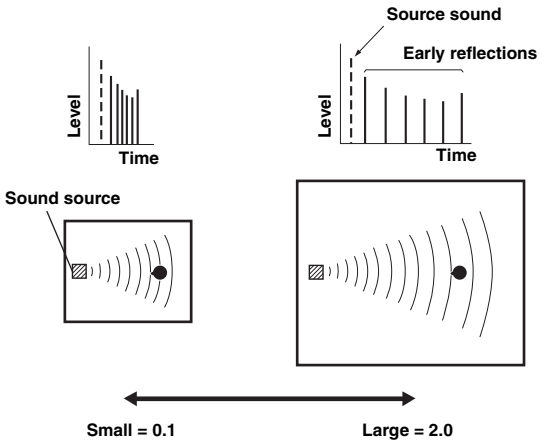


- We recommend that you adjust the size of corresponding sound field when you adjust the delay time.

■ Parameters for specifying room size

Parameter	Adjustable range
Room Size P.Room Size S.Room Size SB Room Size	0.1 to 2.0

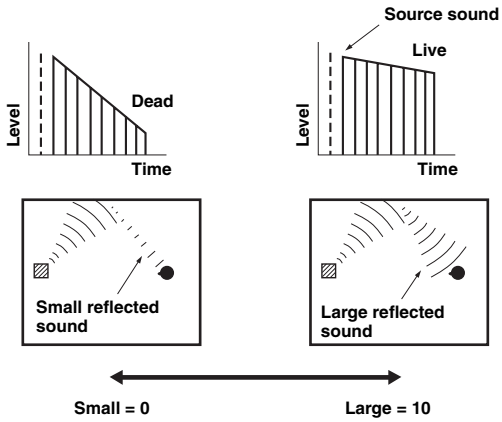
Produce different senses of sound expansion according to room sizes specified. In a large size room such as a music hall, the duration from when reflected sound is heard until when the next reflected sound is heard is long. Thus, different senses of sound expansion can be created by changing the duration. 1.0 is the original room size. When this parameter is set to 2.0, each side of the room is defined as twice larger than the original room size.



■ Parameters for defining attenuation characteristics of early-reflected sound

Parameter	Adjustable range
Liveness	0 to 10
S.Liveness	0 to 10
SB Liveness	0 to 10

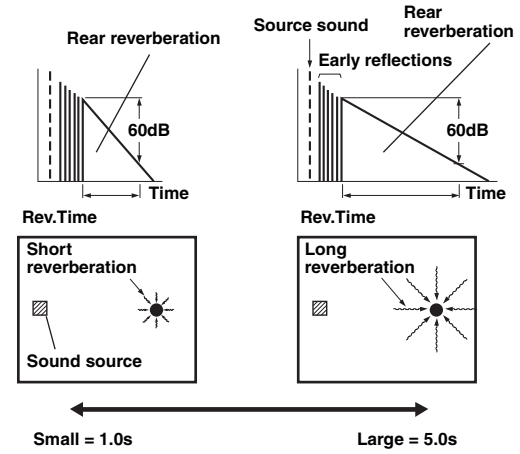
Adjust the attenuation of reflected sound. You can create a lively sound field (with a high reverberant sound level) as you increase the value, and a dead sound field (with a low reverberant sound level) as you decrease the value. Creating either a lively sound field or a dead sound field in an actual music hall is determined by the acoustic absorption characteristics of reflection surfaces. A dead sound field is created when the attenuation time is short while a lively sound field is created when the attenuation time is long.



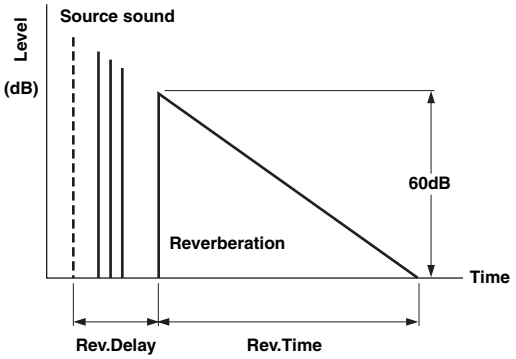
■ Parameters for adjusting reverberant sound

Parameter	Adjustable range
Rev.Time	1.0 to 5.0s
Rev.Delay	0 to 250ms
Rev.Level	0 to 100%

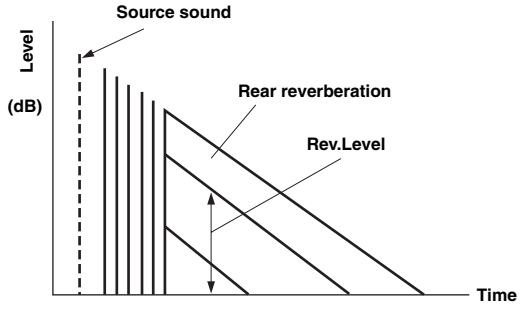
Rev.Time parameter adjusts the attenuation time of the rear reverberant sound based on the time that about 1kHz reverberant sound takes for 60dB of attenuation. Reverberant sound attenuates faster as you decrease the value. Rev.Time adjustment allows you to create a natural reverberant sound, by setting the attenuation time longer for a sound source or room with less echo, or shorter for a sound source or room with more echo.



Rev.Delay parameter adjusts the time difference between the beginning of the direct sound and the beginning of the reverberation sound. The larger the value, the later the reverberation sound begins. Increasing the value of Rev.Delay allows you to create a reverberant sound in a wider area for the same Rev.Time.



Rev.Level parameter adjusts the reverberation sound level. Increasing the value of Rev.Level makes the reverbration sound level higher, which allows you to create more echo.



Parameters only usable in certain sound field programs

2ch Stereo only

Direct

Choices: Auto*/Off

Automatically bypasses the DSP circuit and tone control circuit when an analog sound source is selected as the input source. This creates a higher quality sound.

- Auto Outputs sound by bypassing the DSP circuit and tone control circuit when the "Bass" and "Treble" tone controls are both set to 0 dB.
- Off Does not bypass the circuits.

• See page 49 for equalizers that can be used with this unit.

7ch Stereo only

CT Level/SL Level/SR Level/ SB Level/PL Level/PR Level

Adjustable range: 0 to 100%

Adjusts the volume ofthe center (CT), surround L (SL), surround R (SR), surround back (SB), presence L (PL) and presence R (PR) channels in the 7ch Stereo program. The available parameters differ depending on the setting of the speakers.

Straight Enhancer/7ch Enhancer only

Effect Level

Choices: High*/Low

Adjusts the Compressed Music Enhancer effect level. To reduce the effect, set this parameter to "Low."

Decoder parameters

You can customize decoder effects by setting the following parameters. For kinds of decoders, see page 29.

When PLIIx Music/PLII Music is selected

Panorama

Choices: Off*/On

Adjusts the soundscape of the front sound field. A small value increases the soundscape and a large value narrows it (makes the center more dominant).

Dimension

Adjustable range: -3 to STD* to +3

Adjusts the difference in level between the front sound field and the surround sound field. You can adjust the difference in level created by the software being played back to obtain the preferred sound balance. The surround sound gets stronger as you make the value more negative and the front sound gets stronger as you make the value more positive.

Center Width

Adjustable range: 0 to 3* to 7

Spreads the center sound toward left and right according to your preference. Set this parameter to 0 for outputting the center sound from the center speaker only, or to 7 for outputting it from the front left/right speaker.

When Neo:6 Music is selected

C.Image

Adjustable range: 0.0 to 0.3* to 1.0

Adjusts the front left and right channel output relative to the center channel to make the center channel more or less dominant as necessary.

Changing various settings of this unit (SETUP menu)

You can change various settings of this unit using the SETUP menu. See “Basic operation of the SETUP menu” on the next page, and other respective pages to change the settings.

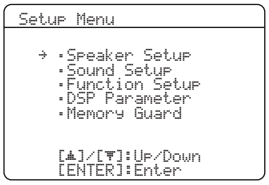
■ List of SETUP menu items

Menu/Submenu	Function	Page
Speaker Setup	Sets items for speakers.	47
1 Auto Setup (YPAO)	Automatically adjusts output characteristics of speakers.	47
2 Manual Setup	Manually adjusts output characteristics of speakers.	47
A)Config	Sets speaker configurations, such as connection status of speaker and a size of the connected speaker (sound reproduction capacity), suitable for the listening environment.	47
B)Level	Separately adjusts volume of each speaker.	49
C)Distance	Adjusts timing at which each speaker outputs sound based on distances between speakers and the listening position.	49
D)Equalizer	Selects an equalizer that adjusts speaker output characteristics.	49
E)Test Tone	Generates test tones.	49
Sound Setup	Sets various items for sound outputs.	49
1 Dynamic Range	Adjusts dynamic ranges of speakers and headphones.	49
2 Lipsync	Adjusts delay in output timing between video signals and audio signals.	50
HDMI Auto	Sets on or off of automatic adjustments for delay between output timing between video signals input from the HDMI jack and audio signals.	50
Auto Delay	Fine adjusts a delay time of HDMI Auto.	50
Manual Delay	Manually fine adjusts the delay of audio and video output.	50
Function Setup	Sets various items for HDMI and display.	50
1 HDMI	Sets various items for input sources.	50
Control	Selects on or off of HDMI control functions.	50
Standby Through	Selects on or off of output of HDMI signals input from the HDMI 1-4 jacks to the HDMI OUT jack when this unit is on standby.	50
Audio Output	Selects this unit or a component connected to this unit via the HDMI OUT jack of this unit for reproducing sound signals input from the HDMI 1-4 jacks.	50
Resolution	Sets resolution of the HDMI output that is converted from analogy video input signals.	50
Aspect	Sets an aspect ratio of images reproduced by HDMI signals converted from analog video input signals.	51
2 Display	Sets items for a monitor or the front panel display.	51
Dimmer	Sets brightness of the front panel display.	51
FL Scroll	Selects the way to display characters on the front panel display.	51
OSD Shift	Adjusts top and bottom positions of the OSD (on-screen display) menus.	51
3 Volume	Sets items for volumes.	51
Adaptive DRC	Adjusts the dynamic range (difference between the maximum volume and the minimum volume) in conjunction with the volume level.	51
Max Volume	Sets the maximum volume level so that the volume will not be accidentally increased.	51
Init. Volume	Sets the volume at the time this unit is turned on.	51
4 Input Rename	Changes input source names to be displayed on a video monitor or the front panel display.	52
5 Zone2	Sets the maximum volume level and initial volume level of Zone2.	52
Max Volume	Sets the maximum volume level so that the volume will not be accidentally increased.	52
Init. Volume	Sets the volume at the time this unit is turned on.	52
DSP Parameter	Sets parameters for the sound field programs.	52
Memory Guard	Protects some settings against accidental alteration.	52

Basic operation of the SETUP menu

The SETUP menu screen appears on both video display (OSD) and front panel display.

Video display (OSD)



Front panel display

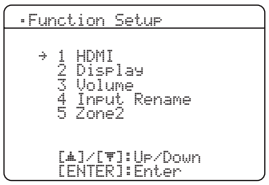
In this section, procedures of setting menus displayed on the video monitor are described.

1 Press [10]SETUP on the remote control.

The SETUP menu screen appears.

2 Select a menu using [11]Cursor △ / ▽, and press [11]ENTER.

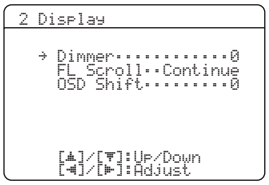
Items of the selected menu are displayed. For example, the following screen appears when you select "Function Setup."



- You can return to the previous screen by pressing [11]**RETURN**.

3 To display submenus, select a menu that you want to set using [11]Cursor △ / ▽, and press [11]ENTER.

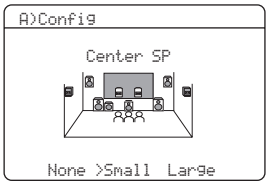
For example, the following screen appears when you select "2 Display."



4 Select an item using [11]Cursor △ / ▽, and change the setting of the item using [11]Cursor ◁ / ▷.

Some items in the Manual Setup menu of Speaker Setup take up a full screen. To display other items in the Manual Setup menu, press [11]**Cursor △ / ▽**.

Example: A)Config



- You can change other items by repeating step 4.

5 To finish setting, press [10]SETUP.

- If [11]**Cursor** or other keys do not work after exiting the SETUP menu, select the input source again using [5]**Input selection keys**.

Speaker Setup

You can set various items for speakers. Two kinds of adjustments are available. One is "1 Auto Setup (YPAO)" for automatic adjustment and another is "2 Manual Setup" for manual adjustment.

- The default settings are marked with "*."

1 Auto Setup

Automatically adjusts output characteristics of speakers to obtain optimum balance for the output sound based on positions and performances of the speakers and acoustic characteristics or the room, which are automatically measured. For details on operations, see page 21.

2 Manual Setup

Adjusts output characteristics of speakers based on manually set parameters.
After Auto Setup (YPAO) is performed, you can check automatically adjusted parameters in the Manual Setup menu. Fine adjust the parameters for your preference if necessary.

■ A)Config

Sets speaker configurations, such as connection status of speaker and a size of the connected speaker (sound reproduction capacity), suitable for the listening environment.

- The speaker configuration includes items for defining a speaker size: Large or Small. Large and Small refer to speakers with woofer diameters 16 cm or larger and smaller than 16 cm, respectively.

Extra SP Assign

Choices: Zone2*/Presence/None

Selects the application for EXTRA SP jacks.

Zone2	Assigns the EXTRA SP jacks for the speakers in the second zone.
Presence	Assigns the EXTRA SP jacks for the Presence speaker.
None	Disables the EXTRA SP jacks.

Note

- When setting "Extra SP Assign" to "Zone2" or "Presence," the surround back channel signals for main output is separately output from other channels.

LFE/Bass Out

Choices: SWFR/Front/Both*

Selects speaker(s) for outputting low-frequency components of the LFE (low-frequency effect sound) channel or other channels. The output status is as follows.

LFE channel signals

Parameter	Subwoofer	Front speakers	Other speakers
Both	Output	Not output	Not output
SWFR	Output	Not output	Not output
Front	Not output	Output	Not output

Low-frequency components of other channel signals

Parameter	Subwoofer	Front speakers	Other speakers
Both	[1]	[2]	[3]
SWFR	[4]	[3]	[3]
Front	Not output	[1]	[3]

[1] Outputs low-frequency components of the front left and right channels and the channel of speaker, the size of which is set to "Small."

[2] Outputs low-frequency components of the front left and right channels.

[3] Outputs low frequency components when the sizes of speakers are set to "Large."

[4] Outputs low-frequency components of the channel of speaker, the size of which is set to "Small."

Front SP

Choices: Small/Large*

Sets the sizes of front left and right speakers.

Small — Select this when small speakers are connected. Low-frequency components of the front left and right channels are output from a subwoofer.

Large — Select this when large speakers are connected.

Note

- When "LFE/Bass Out" is set to "Front," you can only select "Large." If "LFE/Bass Out" is changed to "Front," this parameter automatically switches to "Large" even when it is set to "Small."

Center SP

Choices: None/Small*/Large

Sets the size of center speaker.

None — Select this when no center speaker is connected. Center channel signals are spread to front left and right speakers.

Small — Select this when a small center speaker is connected. Low-frequency components of center channel are output from a subwoofer. If a subwoofer is not connected they are output from front speakers.

Large — Select this when a large center speaker is connected.

Sur. L/R SP

Choices: None/Small*/Large

Sets sizes of left and right surround speakers.

None — Select this when no surround speakers are connected. Surround channel signals are spread to front left and right speakers. "Sur.B L/R SP" automatically switches to "None" when this is selected.

Small — Select this when small surround speakers are connected. Low-frequency components of surround channels are output from a subwoofer. If a subwoofer is not connected they are output from front speakers.

Large — Select this when large surround speakers are connected.

- When "None" is selected, the sound field programs automatically enter the Virtual CINEMA DSP mode.

Sur.B L/R SP

Choices: None/SMLx1/SMLx2*/LRGx1/LRGx2

Sets sizes of left and right surround back speakers.

None — Select this when no surround back speaker are connected. Surround back channel signals are output from the surround L/R speakers and subwoofer. If the subwoofer is disabled, they are output from the surround L/R speakers and front speakers.

SMLx1 — Select this when one small surround back speaker is connected.

SMLx2 — Select this when two small surround back speakers are connected.

LRGx1 — Select this when one large surround back speaker is connected.

LRGx2 — Select this when two large surround back speakers are connected.

Note

- When "None" is selected, "PLIIx Movie," "PLIIx Music," and "PLIIx Game" cannot be selected.

Crossover Freq.

Choices: 40Hz/60Hz/80Hz*/90Hz/100Hz/110Hz/120Hz/160Hz/200Hz

Sets the lower limit of the low frequency component output from a speaker with a size set to "Small (SMLx1/SMLx2)." Sound with a frequency below that limit is output from a subwoofer or front speakers.

- If your subwoofer has a volume control or a crossover frequency control, set the volume to half or the crossover frequency at the maximum.

Subwoofer Phase

Choices: Normal*/Reverse

Sets the phase of your subwoofer if bass sounds are lacking or unclear.

Normal	Select this not to change the phase of your subwoofer.
Reverse	Select this to reverse the phase of your subwoofer.

■ B)Level

Adjustable range: −10.0dB to +10.0dB (0.5 dB steps)
Defaults: "FR.L/FR.R/SWFR/PR.L/PR.R" 0dB
"CNTR/SUR.L/SUR.R/SBL/SBR" −1.0dB

Separately adjusts volume of each speaker so that the sounds from speakers are at the same volume at the listening position. Items to be displayed vary depending on the number of speakers connected.

- When only one surround back speaker is connected, "SB" appears instead of "SBL" and "SBR."
- You can adjust the volume listening to test tones when you set "E)Test Tone" to "On" (see page 49).
- If your subwoofer has a volume control or a crossover frequency control, set the volume to half or the crossover frequency at the maximum.

■ C)Distance

Adjusts timing at which each speaker outputs sound so that sounds from speakers reach the listening position at the same time. Set the unit (Unit) first and then the distance of each speaker.

Unit

Choices: meters (m)*/feet (ft)

meters (m)	Displays the speaker distance in meters.
feet (ft)	Displays the speaker distance in feet.

Front L/Front R/Center/Sur. L/Sur. R/Sur.B L/Sur.B R/SWFR/PRNS L/PRNS R

Adjustable range: 0.30m to 24.00m (1.0ft to 80.0ft)
Defaults: 3.00m (10.0ft) "Front L/Front R/SWFR/PRNS L/PRNS R"
2.60m (8.5ft) "Center"
2.40m (8.0ft) "Sur. L/Sur. R/Sur.B L/Sur.B R/PRNS L/PRNS R"

- Different items are displayed depending on settings of "A)Config" (see page 47).
- When only one surround back speaker is connected, "Sur.B" appears instead of "Sur.B L" and "Sur.B R."

■ D)Equalizer

Adjusts sound quality and tone using a parametric graphic equalizer.

EQ Type Select

Choices: Auto PEQ/GEQ*/Off

Selects an equalizer type.

Auto PEQ	Uses a parametric equalizer selected in "1 Auto Setup." Characteristics of the currently used parametric equalizer (see page 21) are displayed below "Auto PEQ." If Auto Setup is not executed, this parameter is not displayed.
GEQ	Adjusts tone using a graphic equalizer. To display the adjustment menu, press 11**ENTER**.
Off	Not use a graphic equalizer.

GEQ

Choices: 63Hz/160Hz/400Hz/1kHz/2.5kHz/6.3kHz/16kHz
Adjustable range: −6.0dB to 0dB* to +6.0dB (0.5 dB steps)

Adjusts sound quality of each speaker using a graphic equalizer. The graphic equalizer of this unit can adjust signal levels in 7 frequency ranges.
To adjust the signal level within each range, select the desired speaker with 11**Cursor ◁ / ▷** while "→" is displayed next to "Channel," then the desired frequency band with 11**Cursor △ / ▽**, and adjust the signal level with 11**Cursor ◁ / ▷**.

■ E)Test Tone

Choices: Off*/On

Switches test tones on and off. To generate test tones select "On" using 11**Cursor ◁ / ▷**. When "On" is selected, you can adjust the settings of "2 Manual Setup" while listening to a test tone.

Off	Does not generate test tones.
On	Generates test tones.

Sound Setup

You can set various items for sound outputs.

- The default settings are marked with "*."

■ 1 Dynamic Range

Choices: Min/Auto/STD/Max*

Selects the dynamic range adjustment method for reproducing bitstream signals.

Min/Auto	(Min) Sets the dynamic range suitable for low volume or a quiet environment, such as at night, for bitstream signals except for Dolby TrueHD signals. (Auto) Adjusts the dynamic range for Dolby TrueHD signals based on input signal information.
STD	Sets the standard dynamic range recommended for regular home use.
Max	Outputs sound without adjusting the dynamic range of the input signals.

■ 2 Lipsync

Adjusts delay between video output and audio output.

HDMI Auto

Choices: Off*/On

Automatically adjusts output timing of audio and video signals when a monitor that supports an automatic lip-sync function is connected to this unit.

Off	Select this when the connected monitor does not support the automatic lip-sync function or that function is not to be used. Set the correction time in "Manual Delay."
On	Select this when the connected monitor supports the automatic lip-sync function. Fine adjust the correction time in "Auto Delay."

Auto Delay

Adjustable range: 0* to 240ms (1 ms steps)

Fine adjusts the correction time when "HDMI Auto" is set to "On." The actual correction time is displayed under in "Auto Delay" field and an offset time set by the user in "offset" field.

Manual Delay

Adjustable range: 0* to 240ms (1 ms steps)

Manually fine adjusts the correction time. Select this when the connected monitor does not support the automatic lip-sync function or you set "HDMI Auto" to "Off."

Function Setup

You can set various items for HDMI and display.

- The default settings are marked with "*."

1 HDMI

You can set items for HDMI.

■ Control

Choices: On/Off*

Selects on or off of HDMI control functions when a component that supports the HDMI control functions is connected with this unit.

When this is set to "On," signals input from the HDMI 1-4 jacks are output to a monitor component even when this unit is on standby.

On	Enables the HDMI control function.
Off	Disables the HDMI control function.

■ Standby Through

Choices: On/Off*

Selects on or off of output of HDMI signals input from the HDMI 1-4 jacks to the HDMI OUT jack when this unit is on standby. When this parameter is set to "On" signals input from the HDMI 1-4 jacks can be output to a monitor component.

This item is not displayed when "Control" is set to "On."

On	Outputs the HDMI signals to the HDMI OUT jack.
Off	Does not output the HDMI signals to the HDMI OUT jack.

- To enables pass-through output, any one of the input sources connected to the HDMI 1-4 jacks must be selected before switching to standby.
- During pass-through output, the HDMI THROUGH indicator on the front panel display lights up. While the indicator lights up, it consumes 1 to 3W of power depending on a condition of an HDMI signal passing through this unit.

■ Audio Output

Choices: Amp*/TV/Amp+TV

Selects this unit or a component connected to this unit via the HDMI OUT jack of this unit for reproducing sound signals input from the HDMI 1-4 jacks.

This item is not displayed when "Control" is set to "On."

Amp	Outputs HDMI sound signals form the speakers connected to this unit.
TV	Outputs HDMI sound signals from the speakers of a TV connected to this unit. Sound output from the speakers connected to this unit is muted.
Amp+TV	Outputs HDMI sound signals from the speakers connected to this unit and the speakers of a TV connected to this unit.

Note

- When "TV" or "Amp+TV" is selected, signal formats of audio and video signals output from this unit to the monitor vary depending on specifications of the monitor.

■ Resolution

Choices: Through*/576p/720p/1080i/1080p

Upscales the resolution of HDMI output that is converted from analog video input signals and output from the HDMI OUT jack.

Notes

- Resolution of the HDMI output converted from 720p or 1080i video signals cannot be upscaled.
- When a video monitor is connected to this unit via the HDMI jack, this unit automatically detects a resolution that the monitor supports. An asterisk (*) appears on the left of the detected resolution.
- If this unit cannot detect the resolution that the monitor supports, set "MON.CHK" in the ADVANCED SETUP menu to "SKIP" (see page 58) and try it again.

■ Aspect

Choices: Thrgh*/16:9/Smart

Sets a horizontal to vertical ratio (aspect ratio) of images reproduced by HDMI signals output from the HDMI OUT jack when the HDMI signals are converted from analog video input signals by a video conversion function.

Thrgh	Outputs the video signals without changing the aspect ratio.
16:9	Outputs the video signals that displays 4:3 images on a 16:9 monitor with black bands on the right and left sides of the monitor screen.
Smart	Outputs the video signals that displays 4:3 images on a 16:9 monitor by stretching right and left of images to fit on the monitor screen.

Notes

- You cannot change the aspect ratio of the screen when "Resolution" is set to "Through."
- The setting is not effective for inputs with the aspect ratio other than 4:3.
- You cannot obtain an effect of the aspect ratio when video signals are input from the HDMI 1-4 jacks or 720p, 1080i or 1080p signals are input.

2 Display

You can change some parameters for a monitor or the front panel display.

■ Dimmer

Adjustable range: –4 to 0*

Sets brightness of the front panel display. As the value is lowered, the brightness of the front panel display is darkened.

Note

- The brightness of display does not become bright in Pure Direct mode even if the value is increased.

■ FL Scroll

Choices: Continue*/Once

Selects the way to scroll the screen when a total number of characters exceed a display area of the front panel display.

Continue	Repeatedly displays all characters by scrolling.
Once	Displays all characters by scrolling once, halts scrolling, and then displays first 14 characters.

■ OSD Shift

Adjustable range: –5 to 0* to +5

Adjusts top and bottom positions of the OSD (on-screen display) menus. To move up the screen, set this value larger. To move down the screen, set it smaller.

3 Volume

You can change some parameters for volumes.

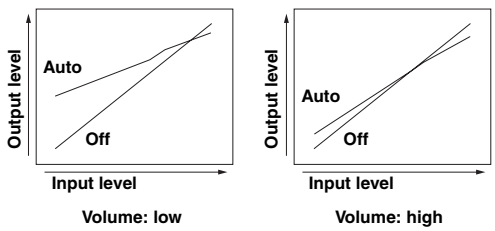
■ Adaptive DRC

Choices: Auto/Off*

Adjusts the dynamic range in conjunction with the volume level. This function is useful when you are listening at lower volumes or at night. When this function is enabled, the dynamic range is adjusted as follows.

If the volume setting is low:
the dynamic range is narrow

If the volume setting is high:
the dynamic range is wide



Auto	Adjusts the dynamic range automatically.
Off	Does not adjust the dynamic range automatically.

- The "Adaptive DRC" setting is effective for headphones.

■ Max Volume

Adjustable range: –30.0dB to +15.0dB/+16.5dB* (5.0 dB steps)

Sets the maximum volume level so that the volume will not be accidentally increased. For example, you can adjust the volume between –80.0 dB and –5.0 dB or mute when you set this parameter to "–5.0dB." The volume increases to the maximum level when this parameter is set to +16.5 dB (default).

■ Init. Volume

Choices: Off*/Mute/–80.0dB to +16.5dB (0.5 dB steps)

Sets the volume at the time this unit is turned on. When this parameter is set to "Off," the volume is set to a level that last time this unit is set to standby.

Note

- If the setting of "Max Volume" is lower than the setting of "Init. Volume," the setting of "Max Volume" becomes effective. For example, when you set "Max Volume" to "–30.0dB" and "Init. Volume" to "0.0dB," the volume is automatically set to "–30.0dB" at the next time this unit is turned on.

4 Input Rename

You can change input source names to be displayed on the front panel display.
You can select an input source that you want to change the name to be displayed using 11**Cursor**.

Selecting a name to be displayed from templates

Select an input source that you want to change the name, and select a name from the following templates using 11**Cursor**.

- Blu-ray
- DVD
- SetTopBox
- Game
- TV
- DVR
- CD
- CD-R
- Satellite
- VCR
- Tape
- MD
- PC
- iPod
- HD DVD
- "blank"

- If you change the display name of an input source to your original one and select the input source, the current input source name and the template name are displayed. This is convenient if you want to cancel name change operation.

Entering an original name

Select an input source that you want to name, and press 11**ENTER**. You can enter up to 9 characters by selecting one character at a time with the following keys according to the following operation.

11**Cursor** ◁ / ▷	For selecting characters that you want to change
11**Cursor** △ / ▽	For selecting characters to be entered
11**ENTER**	For entering the selected characters

The following characters are available for input.
A to Z, 0 to 9, a to z, symbols (#, *, –, +, etc.) and space

5 Zone2

You can set the maximum volume level and initial volume level of Zone2.

- This item is displayed only when "Extra SP Assign" is set to "Zone2."

■ Max Volume

Adjustable range: –30.0dB to +15.0dB / +16.5dB* (5.0 dB steps)

Sets the maximum volume level of Zone2 so that the volume will not be accidentally increased. For example, you can adjust the volume between –80.0 dB and –5.0 dB or mute when you set this parameter to "–5.0dB."

■ Init. Volume

Choices: Off*/Mute/–80.0dB to +16.5dB (0.5 dB steps)

Sets the volume level of Zone2 when the power of Zone2 unit is turned on.

Note

- If the setting of "Max Volume" is lower than the setting of "Init. Volume," the setting of "Max Volume" becomes effective. For example, when you set "Max Volume" to "–30.0dB" and "Init. Volume" to "0.0dB," the volume is automatically set to "–30.0dB" at the next time this unit is turned on.

DSP Parameter

You can change some parameters for the sound field programs. For details, see page 42.

Memory Guard

- The default settings are marked with "*."

Choices: Off*/On

Protects settings of SETUP menu against accidental alteration.

Off	Does not protect settings.
On	Protects the settings of the SETUP menu (except for the Memory Guard setting).

Note

- When this parameter is switched to "On," "G" appears while the SETUP menu is displayed on the video monitor.

Using multi-zone configuration

This unit allows you to configure a multi-zone audio system. The Zone2 feature allows you to set this unit to reproduce separate input sources in the main zone and the second zone (Zone2). You can control this unit from the second zone using the supplied remote control.

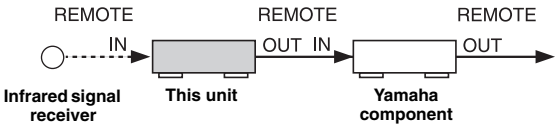
Only analog signal can be sent to Zone2. If you want to output sound from Zone2, connect an external component to AV5-6 or AUDIO1-2 by analog connection. For example, if you want to output sound from an HDMI DVD player in Zone2, you must connect the component to this unit by both HDMI and analog connections.

Connecting Zone2

You need the following additional equipment to use the multi-zone functions of this unit:

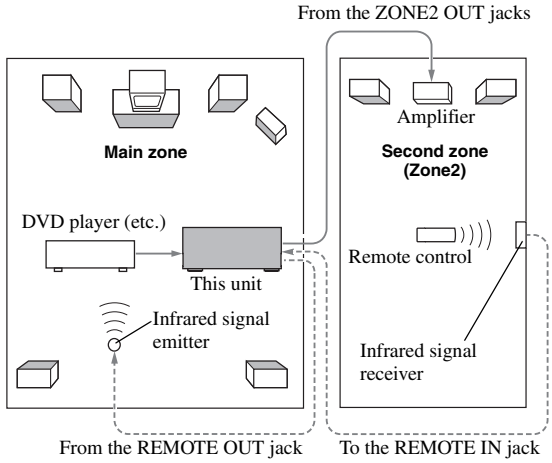
- An infrared signal receiver in the second zone.
- An infrared signal emitter in the main zone. This emitter transmits infrared signals from the remote control to a CD player or a DVD player, etc. in the main zone via the infrared signal receiver in the second zone.
- An amplifier and speakers in the second zone.

- Since there are many possible ways to connect and use this unit in a multi-zone configuration, we recommend that you consult with your nearest authorized Yamaha dealer or service center about the Zone2 connections that best meet your requirements.
- Some Yamaha models can be directly connected to the REMOTE jacks of this unit. These models may not require an infrared signal emitter. Up to 6 Yamaha components can be connected as shown below.



Using the external amplifier

You can connect the amplifier/receiver in the second zone and other components to this unit as follows.



Note

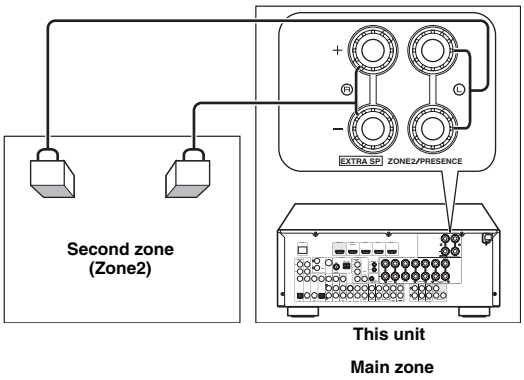
- To avoid unexpected noise, DO NOT USE the Zone2 feature with CDs encoded in DTS.

Using the internal amplifier of this unit

Important safety notice

The EXTRA SP jacks of this unit should not be connected to a Passive Loudspeaker Selector Box or more than one loudspeaker per channel.
Connection to a Passive Loudspeaker Selector Box or multiple speakers per channel could create an abnormally low impedance load resulting in amplifier damage. See this owner's manual for correct usage.
Compliance with minimum speaker impedance information for all channels must be maintained at all times. This information is found on the back panel of this unit.

Connect the speakers in the second zone to the EXTRA SP jacks and then set the "Extra SP Assign" to "Zone2" (see page 47).



- You can use the speakers connected to the EXTRA SP jacks as the front speaker system of another zone. Set "Extra SP Assign" to "Zone2" (see page 47).
- When you use the internal amplifiers for the Zone2 speakers, you can adjust the volume level and set the initial volume and maximum volume of the Zone2 speakers (see page 52).

Controlling Zone2

You can select and control Zone2 by using the control keys on the front panel or on the remote control. The available operations are as follows:

- Selecting the input source (AV5-6, AUDIO1-2, V-AUX) of Zone2.
- Adjusting the volume of Zone2 (when a Zone2 speaker is connected to the EXTRA SP jack).
- Tuning into FM or AM when "TUNER" is selected as the input source of Zone2 (see page 31).
- Playing back music stored on your iPod stationed in a Yamaha iPod universal dock (such as YDS-11 sold separately) connected to the DOCK jack.
- You can play back music stored on a Bluetooth component via a Bluetooth wireless audio receiver (sold separately) connected to the DOCK jack (see page 37).

Note

- You must complete each step while the ZONE2 indicator is flashing on the front panel display. Otherwise, the Zone2 mode is automatically canceled and this unit returns to the normal operation mode. In this case, repeat the Zone2 selection procedure.

Controlling Zone2 with the front panel

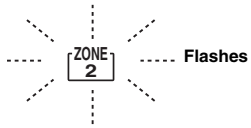
■ Turning on Zone2

Press Ⓒ ZONE2 ON/OFF to turn on Zone2.

■ Activating the Zone2 operation mode

Press Ⓔ ZONE2 CONTROL to control Zone2.

The ZONE2 indicator flashes on the front panel display for approximately 10 seconds.



■ Operating Zone2

Rotate the Ⓡ INPUT selector to select the desired input source while the ZONE2 indicator on the front panel display is flashing.

- When AV5-6, AUDIO1-2 or V-AUX is selected, you can listening to the input source in Zone2.
- Select "TUNER" as the input source to use the TUNER features in Zone2. For details about the TUNER operations, see "FM/AM tuning" on page 31.
- Select "DOCK" as the input source to use iPod features in Zone2. For details about the iPod operations, see "Using iPod" on page 35.
- Select "DOCK" as the input source to use Bluetooth component features in Zone2. For details about the Bluetooth component operations, see "Using Bluetooth components" on page 37.

■ Setting Zone2 to standby

Press Ⓒ ZONE2 ON/OFF to set Zone2 to standby.

Controlling Zone2 with the remote control

■ Turning on Zone2

Set 2 MAIN/ZONE2 to the ZONE2 position, and press 16 POWER.

■ Operating Zone2

Set 2 MAIN/ZONE2 to the ZONE2 position, and press one of the input selection keys to select the desired input source of Zone2.

Note

- 21 MUTE and 19 VOLUME +/– are available to control Zone2 with same procedure as mentioned above.

■ Setting Zone2 to standby

Set 2 MAIN/ZONE2 to the ZONE2 position, and press 16 POWER, then set ZONE2 to standby.

Controlling other components with the remote control

You can control external components for a selected input source with the remote control. The keys available for controlling external components are as follows:

4 SOURCE POWER
Turns on and off an external component.

11 Cursor, ENTER, RETURN
Operates the menus of external components.

20 DISPLAY
Switches between the screens of external components.

12 External component operation keys
Function as a recording or playback key of an external component, or a menu display key.

13 Numeric keys
Function as numeric keys of an external component.

14 TV control keys

INPUT Switches video inputs of TV
MUTE Mute audio of TV
TV VOL +/– Controls the volume of TV
TV CH +/– Switches channels of TV
POWER Turns on and off TV

- You need to set the remote control code first to control external components.
- The remote control keys for controlling external components are available only when the external components have corresponding control keys.

The following remote control codes are assigned to input sources as factory default settings. For a complete list of available remote control codes, refer to "List of remote control codes" at the end of this manual.

■ Default remote control code settings

Input source	Category	Manufacturer	Default code
[HDMI1]	Blu-ray Disc	Yamaha	2018
[HDMI2]	—	—	—
[HDMI3]	—	—	—
[HDMI4]	—	—	—
[AV1]	—	—	—
[AV2]	—	—	—
[AV3]	CD	Yamaha	5013
[AV4]	—	—	—
[AV5]	—	—	—
[AV6]	—	—	—
[AUDIO1]	—	—	—
[AUDIO2]	—	—	—
[V-AUX]	—	—	—
[PHONO]	—	—	—
[A]	—	—	—
[DOCK]	DOCK	Yamaha	5011
[TUNER]	Tuner	Yamaha	5007
[MULTI CH]	—	—	—

"—" indicates no assignment

- An external component that is controlled by the remote control can be automatically selected according to the 9 **SCENE** key selection (see page 25).

Setting remote control codes

You can control other components by setting the appropriate remote control codes. For a complete list of available remote control codes, refer to "List of remote control codes" at the end of this manual.

- Each of the steps described in this section should be performed within one minute. Setting operation is automatically canceled when one minute has passed since the last step. If the operation is cancelled, start again from the beginning.

1 Press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.
3 **TRANSMIT** on the remote control blinks twice.

2 Press 5 Input selection keys corresponding to the input source whose remote control code you want to register.

3 Enter a remote control code using 13 Numeric keys.
Once the remote control code is registered, 3 **TRANSMIT** on the remote control blinks twice. If it fails, 3 **TRANSMIT** blinks six times. Repeat from step 1.

Programming from other remote controls

The remote control of this unit can receive remote control signals from other remote controls and learn the remote control operation. If a key on the remote control does not work after being assigned with an external component's function or if the remote control code for that function is not provided, use this learning feature to make the function operable with the remote control.

- Each of the steps described in this section should be performed within one minute. Setting operation is automatically canceled when one minute has passed since the last step. If the operation is cancelled, start again from the beginning.

Programming the remote control of this unit

You can program the remote control to make functions of an external component operable with the following keys. You can assign functions to these keys for each input source as with remote control codes.

4 SOURCE POWER

12 External component operation keys

13 Numeric keys

- The remote control transmits infrared rays. If the remote control of the external component also uses infrared rays, this remote control can learn most of its functions. The remote control may not recognize special or consecutive signals.
- The keys may not operate the assigned functions depending on operating conditions of this unit.

1 Press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.

3 **TRANSMIT** on the remote control blinks twice.

2 Press 5 Input selection keys to select the input source whose function you want to assign to the remote control.

3 Enter "9990" using 13 Numeric keys.

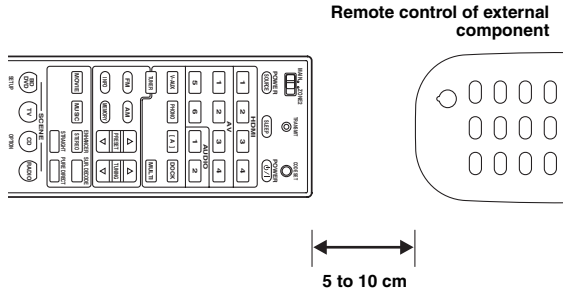
4 Press a key to which you want to assign the function.

3 **TRANSMIT** lights up and this unit enters a wait state to receive remote control signals. Do steps 5 and 6 within 10 seconds.

Note

- If 10 seconds pass after this unit enters the wait state, a timeout error occurs and 3 **TRANSMIT** turns off. If this occurs, repeat from step 4.

5 Place the remote control about 5 to 10 cm apart from the remote control of the external component on a flat surface so that their infrared transmitters are aimed at each other.



Note

- If 10 seconds pass after step 4 is performed, an error occurs and this unit cannot receive remote control signals. If 3 **TRANSMIT** turns off before you do step 6, repeat from step 4.

6 Press the key on the remote control of the external component.

The function assigned to the selected key is also assigned to the key that you have selected in step 4. When the function is assigned to the key successfully, 3 **TRANSMIT** on the remote control blinks twice. If it fails, 3 **TRANSMIT** blinks six times. Repeat from step 4.

- To continue assigning other functions, repeat steps 4 through 6.

7 To end programming, press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.

3 **TRANSMIT** on the remote control blinks once.

Clearing the assignment of each key

You can clear the assignment of each key.

1 **Press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.**
3 **TRANSMIT** on the remote control blinks twice.

2 **Press 5 Input selection keys to select the input source whose assigned function you want to reset.**

3 **Enter "9991" using 13 Numeric keys.**

4 **Press the key that you want to reset.**
The assignment to that key is cleared. When the assignment is cleared successfully, 3 **TRANSMIT** on the remote control blinks twice.
If it fails, 3 **TRANSMIT** blinks six times. Repeat from step 1.

- To continue resetting other keys, repeat step 4.

5 **To end the reset operation, press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.**
3 **TRANSMIT** on the remote control blinks once.

Clearing the assignments of all keys

You can clear the assignments of all the keys in one go.

1 **Press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.**
3 **TRANSMIT** on the remote control blinks twice.

2 **Press 5 Input selection keys to select the input source, the function of which is assigned to the key that you want to reset.**

3 **Enter "9992" using 13 Numeric keys.**
The assignments of all key are cleared. When the assignments are cleared successfully, 3 **TRANSMIT** on the remote control blinks twice.
If it fails, 3 **TRANSMIT** blinks six times. Repeat from step 1.

- When you initialize the remote control code (see the next section), the assignments of all the keys are cleared.

Resetting all remote control codes

You can clear all the remote control codes previously set, and reset all of them to the initial factory settings.

- Each of the steps described in this section should be performed within one minute. Setting operation is automatically canceled when one minute has passed since the last step. If the operation is cancelled, start again from the beginning.

1 **Press 15 CODE SET on the remote control using a pointed object such as a tip of a ballpoint pen.**
3 **TRANSMIT** on the remote control blinks twice.

2 **Press 10 SETUP on the remote control.**

3 **Enter "9981" using 13 Numeric keys.**
Once the initialization is complete, 3 **TRANSMIT** on the remote control blinks twice. If it fails, 3 **TRANSMIT** blinks six times. Repeat from step 1.

Advanced setup

The advanced setup includes more parameters for basic operation of this unit such as turning a bi-amp connection on and off and initializing user settings. This section describes what those parameters are and how to change them.

1 Set this unit to standby.

2 Press ⒶMAIN ZONE ON/OFF while pressing and holding ⓅSTRAIGHT on the front panel.

The ADVANCED SETUP menu appears on the front panel display.

```
ADVANCED SETUP
```

3 Rotate the ⓄPROGRAM selector to select the parameter you want to change.

- Set values are placed in XXX of the following parameters on an actual display screen.
- The default setting are marked with "*."

SP IMP. -XXX

Choices: 6ΩMIN/8ΩMIN*

Selects output impedance of this unit according to connected speakers. When you connect 4-ohm speakers to the FRONT jacks of the SPEAKERS terminals, set "SP IMP." to "6ΩMIN."

REMOTE ID -XXX

Choices: ID1*/ID2

Selects a remote control ID for this unit. When using multiple Yamaha AV receivers, you can operate them with a single remote control by setting them to have the same remote control ID. By setting the receivers to have different remote control IDs, you can operate them with their respective remote controls.

BI AMP - XXX

Choices: ON/OFF*

Switches on and off of bi-amp connection of main speakers. For bi-amp connection, see page 13.

SCENE IR -XXX

Choices: ON*/OFF

Selects whether or not to transmit the SCENE control signals to an external component connected to the REMOTE jacks on this unit when BD/DVD or CD SCENE function is selected. If "ON" is selected and a playback component that supports the SCENE link playback, such as a Yamaha DVD player, is connected to the REMOTE OUT jack of this unit, remote connection automatically starts playback when a different SCENE key is selected.

MON.CHK - XXXX

Choices: YES*/SKIP

Adds upscaling limitation on output signals to a video monitor connected to this unit via the HDMI OUT jack.

INIT-XXXXXXXXX

Choices: DSP PARAM/VIDEO/ALL/CANCEL*

Initializes various settings stored in this unit. You can select an initialization method from the following.

DSP PARAM	Resets all parameters of sound field programs.
VIDEO	Resets video conversion settings (resolution/aspect) in the SETUP menu and the OSD menus display position.
ALL	Resets this unit to initial factory settings.
CANCEL	Initialization.

4 Press ⓅSTRAIGHT a few times to select the value you want to change.

The value selected here becomes effective when this unit is turned on the next time. You can change multiple settings by repeating steps 3 and 4.

5 Press ⒶMAIN ZONE ON/OFF, turns off this system, and press ⒶMAIN ZONE ON/OFF again.

The value set in step 4 becomes effective, and this unit turns on. When you select initialization in step 3, the initialization is performed.

Setting a remote control ID

Two IDs are provided for the remote control of this unit. If another Yamaha amplifier is in the same room, setting a different remote control ID to this unit prevents unwanted operation of the other amplifier.

ID1 is set for both remote control and amplifier by default.
When you change the remote control ID, display "ADVANCED SETUP" (see the previous section) and change the ID for the amplifier too.

- Each of the steps described in this section should be performed within one minute. Setting operation is automatically canceled when one minute has passed since the last step. If the operation is cancelled, start again from the beginning.

1 Press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.

3 **TRANSMIT** blinks twice.

2 Press 10 SETUP on the remote control.

3 Enter the desired remote control ID code.

To switch to ID1:
Enter "5019" using 13 **Numeric keys**.
To switch to ID2:
Enter "5020" using 13 **Numeric keys**.
Once the remote control code is registered, 3 **TRANSMIT** blinks twice.
If it fails, 3 **TRANSMIT** blinks six times. Repeat from step 1.

- Initializing the remote control code (see page 57) returns it to ID1.

APPENDIX

Troubleshooting

Refer to the table 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, turn off this unit, disconnect the power cable, and contact the nearest authorized Yamaha dealer or service center.

General

Problem	Cause	Remedy	See page
This unit turns off soon after being turned on, or does not turn on after Ⓐ MAIN ZONE ON/OFF (or ⑯ POWER) is pressed.	The power cable is not connected or the plug is not completely inserted.	Connect the power cable properly to an AC wall outlet.	—
	The speaker impedance setting is incorrect.	Set the speaker impedance to match your speakers.	58
	(When this unit is turned back on and "CHECK SP WIRES!" is displayed.) The protection circuitry has been activated because this unit was turned on while a speaker cable was shorted.	Make sure that all speaker cables between this unit and speakers are connected properly.	13
This unit cannot be turned off or does not work properly.	The internal microcomputer is frozen due to an external electric shock (such as lightning or excessive static electricity) or by a drop in power supply voltage.	Disconnect the power cable from the AC wall outlet, wait about 30 seconds and then plug it in again.	—
This unit suddenly enters the standby mode.	The internal temperature becomes too high and the overheat protection circuitry has been activated.	Wait about 1 hour for this unit to cool down and then turn it back on.	—
Sound/images suddenly go off.	The protection circuitry has been activated because of a short circuit, etc.	Check that the speaker impedance setting is correct.	58
		Check that the speaker wires are not touching each other and then turn this unit back on.	—
	The sleep timer has turned off this unit.	Turn on this unit, and play the source again.	—
"CHECK SP WIRES!" appears on the front panel display.	Speaker cables are short-circuited.	Make sure all speaker cables are connected correctly.	13
"Memory Guard!" is displayed on the front panel display and the setting cannot be changed.	"Memory Guard" in the SETUP menu is set to "On."	Set "Memory Guard" to "Off."	52
The picture is disturbed.	The video software is copy-protected.		

Problem	Cause	Remedy	See page
No sound.	Incorrect input or output cable connections.	Connect the cables properly. If the problem persists, the cables may be defective.	15-19
	Speaker connections are not secure.	Secure the connections.	11
	The HDMI components connected to this unit do not support the HDCP copy protection standards.	Connect HDMI components that support the HDCP copy protection standards.	71
	The HDMI audio output parameter in the SETUP menu (Function Setup → 1 HDMI → Audio Output) is set to "TV."	Set the parameter to an item other than "TV."	50
	No appropriate input source has been selected.	Select an appropriate input source with the Ⓡ**INPUT selector** (or 5**Input selection keys**).	24
	The volume is turned down or muted.	Turn up the volume.	—
	Signals that this unit cannot reproduce are being input from a source component, such as a CD-ROM.	Use an input source whose signals are reproducible on this unit.	—
	A proper audio decoder is not selected.	Display the OPTION menu and set "Decoder Mode" to "Auto."	40
No picture.	The video signal output from this unit is not supported by a monitor connected to this unit via the HDMI OUT jack.	Displays the ADVANCED SETUP menu and select "VIDEO" in "INIT" to reset the video parameters.	58
		Displays the ADVANCED SETUP menu and set "MON.CHK" to "YES."	58
	The VIDEO jack is used to output a component video signal, or the COMPONENT VIDEO jacks are used to output a composite video signal.	If your video monitor does not support the HDMI connection, connect it to the COMPONENT VIDEO jacks and the VIDEO jack and select an appropriate video input on the monitor.	15
	Non-standard video signals are input.	Connect the monitor to this unit via the COMPONENT VIDEO jacks or the VIDEO jack.	15
	An appropriate video input is not selected on the video monitor.	Select an appropriate video input on the video monitor.	—

Problem	Cause	Remedy	See page
No sound is output from a specific speaker.	The speaker is in malfunction.	Check the Speaker indicators on the front panel display. If the corresponding indicator lights up, connect another speaker and check if sound is output. If sound is not output, this unit may be malfunction.	6, 10
	The playback component or speakers are not connected properly.	Connect the cables properly. If the problem persists, the cables may be defective.	11
	Output from that speaker is disabled.	Check the Speaker indicators on the front panel display. If the corresponding indicator is turned off, try the following. 1) Change the input source to another one. 2) With the selected sound field program, sound is not output from that speaker. Select another sound field program. 3) "None" may have been selected for that speaker on this unit. Display Speaker Setup in the SETUP menu and set respective parameters to enable output from that speaker (Speaker Setup → 2 Manual Setup → A)Config).	6, 24, 27, 48
	The volume of that speaker is set to the minimum in Speaker Setup in the SETUP menu.	Display Speaker Setup in the SETUP menu and adjust the volume (2 Manual Setup → B)Level).	49
	(If hardly any sound comes from one channel) Speaker output balance is not properly set.	Set the volume of each speaker to be balanced from "B)Level" in the SETUP menu (Speaker Setup → 2 Manual Setup → B)Level).	49
	Sound may not be output from certain channels depending on the input source or sound field program.	Try another sound field program.	27
Only the center speaker outputs substantial sound.	When a monaural source sound field program is applied, sound of all channels are output from the center speaker for some surround decoders.	Try another sound field program.	27
No sound is heard from the presence speakers.	This unit is in "STRAIGHT" mode.	Press Ⓟ**STRAIGHT** (or 8**STRAIGHT**) to exit "STRAIGHT" mode.	30
No sound is heard from the surround speakers.	This unit is in "STRAIGHT" mode and a monaural source is being played back.	Press Ⓟ**STRAIGHT** (or 8**STRAIGHT**) to exit "STRAIGHT" mode.	30
	Sound may not be output from certain channels depending on input sources or sound field programs.	Try another sound field program.	27
No sound is heard from the subwoofer.	A Dolby Digital or DTS signal is reproduced while the LFE channel setting (LFE/Bass Out) of the Speaker Setup in the SETUP menu is set to "Front."	Set "LFE/Bass Out" to "SWFR" or "Both."	48
	A 2-channel signal is reproduced while the LFE channel setting (LFE/Bass Out) of the Speaker Setup in the SETUP menu is set to "SWFR" or "Front."	Set "LFE/Bass Out" to "Both."	48
	The source does not contain LFE or low frequency signals.		

Problem	Cause	Remedy	See page
No sound is heard from the surround back speakers.	"Extended Surround" in the OPTION menu is set to "Off," or an input signal does not contain a surround back flag with "Extended Surround" set to "Auto."	Set "Extended Surround" other than "Off" or "Auto."	40
The audio input sources cannot be played in the desired digital audio signal format.	The connected component is not set to output the desired digital audio signals.	Set the playback component properly referring to its instruction manuals.	—
There is noise interference from digital or radio frequency equipment.	This unit is too close to other digital or radio frequency equipment.	Move this unit further away from such equipment.	—
Noise/hum noise is heard.	Incorrect cable connection.	Connect the audio cables properly. If the problem persists, the cables may be defective.	—
	No connection from the turntable to the GND terminal.	Connect the grounding cable of the turntable to the GND terminal of this unit.	17
	A DTS-CD is being played back.	1) When only noise is output If a DTS bitstream signal is not properly input to this unit, only noise is output. Connect the playback component to this unit by digital connection and play back the DTS-CD. If the condition is not improved, the problem may results from the playback component. Consult the manufacturer of the playback component. 2) When noise is output during playback or skip operation Before playing back the DTS-CD, display the OPTION menu after selecting the input source and set "Decoder Mode" to "DTS."	16, 40
The volume level is low while a record is being played.	The record is being played on a turntable with an MC cartridge.	Connect your turntable to this unit through an MC-head amplifier.	17
The volume cannot be increased or the sound is distorted.	The component connected to the output jacks of this unit is not turned on.	When the component connected to the output jacks of this unit is not turned on, the sound may be distorted or the volume may decrease due to the nature of AV receivers. Turn on all components connected to this unit.	—
	"Max Volume" is set to a low value.	Set it to a higher value.	51

HDMI™

Problem	Cause	Remedy	See page
No picture or sound.	The number of the connected HDMI components is over the limit.	Disconnect some of the HDMI components.	—
	The connected HDMI component does not support high-bandwidth digital copyright protection (HDCP).	Connect an HDMI component that supports HDCP.	16

Tuner (FM/AM)

	Problem	Cause	Remedy	See page
FM	**FM stereo reception is noisy.**	You are too far from the station transmitter or the input from the antenna is weak.	Check the antenna connections.	20
			Replace the outdoor antenna with a more sensitive multi-element antenna.	—
			Switch to monaural mode.	41
	There is distortion, and clear reception cannot be obtained even with a good FM antenna.	There is multi-path interference.	Adjust the antenna height or orientation, or place it in a different location.	—
	The desired station cannot be tuned into with the automatic tuning method.	You are in an area far from a station or an input from the antenna is weak.	Replace an outdoor antenna with more sensitive multi element antenna.	—
			Tune in manually or by direct frequency tuning.	31
AM	**The desired station cannot be tuned into with the automatic tuning method.**	The signal is weak or the antenna connections are loose.	Adjust the AM loop antenna orientation.	20
			Use the manual tuning method.	31
	Automatic station preset does not work.	Automatic station preset is not available for AM stations.	Use manual station preset.	32
	There are continuous crackling and hissing noises.	Supplied AM loop antenna is not connected.	Connect the AM loop antenna correctly even if you use an outdoor antenna.	20
		The noises may be caused by lightning, fluorescent lamps, motors, thermostats and other electrical equipment.	It is difficult to completely eliminate noise, but it can be reduced by installing and properly grounding an outdoor AM antenna.	20
	There are buzzing and whining noises.	A TV set is being used nearby.	Move this unit away from the TV set.	—

Remote control

Problem	Cause	Remedy	See page
The remote control does not work or function properly.	Wrong distance or angle.	The remote control will function within a maximum range of 6 m and no more than 30 degrees offaxis from the front panel.	9
	Direct sunlight or lighting (from an inverter type of fluorescent lamp, strobe light, etc.) is striking the remote control sensor of this unit.	Adjust the lighting angle or reposition this unit.	—
	The batteries are weak.	Replace all batteries.	9
	The remote control ID of the remote control and this unit do not match.	Match the remote control ID of this unit and the remote control.	58

Problem	Cause	Remedy	See page
External components cannot be controlled by the remote control.	The remote control code is not correctly set.	Set the remote control code correctly using “List of remote control codes” at the end of this manual.	55
		Try setting another code of the same manufacturer using “List of remote control codes” at the end of this manual.	55
		If this unit does not work when you press 11**Cursor**, do the following. When the key does not work during DVD disc menu operation: press the 5**Input selection keys** on the remote control again. When the key does not work during OPTION menu/ SETUP menu operation: press the key applicable for the current menu operation again.	—
	Even if the remote control code is correctly set, there are some models that do not respond to the remote control.		
The remote control does not learn new functions.	The batteries of this remote control and/or the other remote control are too weak.	Replace the batteries.	9
	The distance between the two remote controls is too long or too short.	Place the remote controls at a proper distance.	56
	The signal coding or modulation of the other remote control is not compatible with this remote control.	Learning is not possible.	—
	Memory capacity is full.	Delete unnecessary functions to free some memory space for the new functions.	57

iPod™

Note

- In case of a transmission error without a status message appearing on the front panel display and on the OSD, check the connection of your iPod (see page 19).

Problem	Cause	Remedy	See page
Loading...	This unit is in the middle of recognizing the connection with your iPod.		
	This unit is in the middle of acquiring song lists from your iPod.		
Connect error	There is a problem with the signal path from your iPod to this unit.	Turn off this unit and reconnect the Yamaha iPod universal dock to the DOCK jack of this unit.	19
		Remove your iPod in the Yamaha iPod universal dock and then place it back in the dock.	19
Unknown iPod	The iPod being used is not supported by this unit.	Connect an iPod supported by this unit.	—
iPod Connected	Your iPod is properly placed in the Yamaha iPod universal dock.		
Disconnected	Your iPod is removed from the Yamaha iPod universal dock.		
Unable to play	This unit cannot play back the songs currently stored on your iPod.	Check that the songs currently stored on your iPod are playable.	—

Bluetooth™

Problem	Cause	Remedy	See page
Searching...	The Bluetooth wireless audio receiver and the Bluetooth component are in the middle of the pairing.		
	The Bluetooth wireless audio receiver and the Bluetooth component are in the middle of establishing the connection.		
Completed	The pairing is completed.		
Canceled	The pairing is canceled.		
BT Connected	The connection between the Yamaha Bluetooth wireless audio receiver and the Bluetooth component is established.		
Disconnected	The Bluetooth component is disconnected from the Yamaha Bluetooth wireless audio receiver.		
Not found	The Bluetooth component is not found.	During pairing: – pairing must be performed on the Bluetooth component and this unit simultaneously. Check if the Bluetooth component is in pairing mode. During connecting: – check if the Bluetooth component is turned on. – check if the Bluetooth component is within 10 m of the Yamaha Bluetooth wireless audio receiver.	—

Auto Setup (YPAO)

Notes

- If an error or warning message is displayed, resolve the problem and run the automatic setup procedure again.
- Warning message "W-2" or "W-3" indicates that the adjusted settings may not be optimal.
- Depending on the speakers, warning message "W-1" may appears even if the speaker connections are correct.
- If error message "E-10" occurs repeatedly, contact a qualified Yamaha service center.

Before Auto Setup

Error message	Cause	Remedy	See page
Connect MIC!	Optimizer microphone is not connected.	Connect the supplied optimizer microphone to the OPTIMIZER MIC jack on the front panel.	21
Unplug HP!	Headphones are connected.	Unplug the headphones.	—
Memory Guard!	The parameters of this unit are protected.	Set "Memory Guard" to "Off."	52

During Auto Setup

Error message	Cause	Remedy	See page
E-1:NO FRONT SP	Front L/R channel signals are not detected.	Check the front L/R speaker connections.	11
E-2:NO SUR. SP	Only one surround channel signal is detected.	Check the surround L/R speaker connections.	11

Error message	Cause	Remedy	See page
E-3:NO PRNS SP	Only one presence channel signal is detected.	Check the presence L/R speaker connections.	11
E-4:SBR->SBL	Only right surround back channel signal is detected.	If you connect only one surround back speaker, connect it to the L-side (SINGLE) jack.	11
E-5:NOISY	Measurement cannot be performed accurately due to loud ambient noise.	Run the automatic setup procedure again during a time when the environment is quiet.	—
		Turn off noisy electric equipment like air conditioners or move them away from the optimizer microphone.	—
E-6:CHECK SUR.	Surround back speakers are connected, though surround L/R speakers are not.	When using surround back speakers, you need to connect surround L/R speakers.	11
E-7:NO MIC	The optimizer microphone was unplugged during the “Auto Setup” procedure.	Do not touch the optimizer microphone during the automatic setup procedure.	21
E-8:NO SIGNAL	The optimizer microphone does not detect test tones.	Check whether the microphone is properly placed.	21
		Check whether the speakers are properly placed and connected.	11
		The optimizer microphone or OPTIMIZER MIC jack may be defective. Contact the nearest Yamaha dealer or service center.	21
		If a monitor such as a TV is connected to this unit via HDMI connection, sound may not be output from this unit due to the HDMI control function. In such a case, change the monitor setting, for example, change the sound output setting to an amplifier so that sound is output from this unit.	—
E-9:USER CANCEL	The automatic setup procedure was cancelled due to an inappropriate user operation.	Run the automatic setup procedure. Do not adjust the volume or do other operations during the procedure.	21
E-10:INTERNAL ERROR	An internal error occurred.	Run the automatic setup procedure again.	21

After Auto Setup

Error message	Cause	Remedy	See page
W-1:OUT OF PHASE	Speaker polarity is not correct. This message may appear depending on the speakers even when the speakers are connected correctly.	Check the polarities (+, –) of the displayed speaker. If they are correct, the speakers work properly even when this message is displayed.	11
W-2:OVER 24m (80ft)	The distance between the speaker and the listening position is over 24 m (80 ft).	Bring the speaker within 24 m (80 ft.) area around the listening position.	—
W-3:LEVEL ERROR	The difference of volume level among speakers is excessive.	Recheck the speaker positions and make sure all speakers are placed in a similar environment.	—
		Check the polarities (+, –) of the speakers.	11
		We recommend that you use speakers with the same or similar specifications.	—
		Adjust the output volume of the subwoofer.	—

Error message	Cause	Remedy	See page
W-4:CHECK PRNS	Presence speakers were not detected during measurement with “Extra SP Assign” set to “Presence.”	Check the presence speaker connections and perform measurement again. If presence speakers are not connected, set the “Extra SP Assign” to other than “Presence.”	47
		If presence speakers are connected, set the “Extra SP Assign” to “Presence,” and retry the automatic setup procedure.	47

Glossary

■ Audio and video synchronization (lip sync)

Lip sync, an abbreviation for lip synchronization, is a technical term that involves both a problem and a capability of maintaining audio and video signals synchronized during post-production and transmission. Whereas the audio and video latency requires complex end-user adjustments, HDMI version 1.3 incorporates an automatic audio and video syncing capability that allows devices to perform this synchronization automatically and accurately without user interaction.

■ Bi-amplification connection

A bi-amplification connection uses two amplifiers for a speaker. One amplifier is connected to the woofer section of a loudspeaker while the other is connected to the combined mid and tweeter section. With this arrangement each amplifier operates over a restricted frequency range. This restricted range presents each amplifier with a much simpler job and each amplifier is less likely to influence the sound in some way.

■ Component video signal

With the component video signal system, the video signal is separated into the Y signal for the luminance and the PB and PR signals for the chrominance. Color can be reproduced more faithfully with this system because each of these signals is independent. The component signal is also called the "color difference signal" because the luminance signal is subtracted from the color signal. A monitor with component input jacks is required in order to output component signals.

■ Composite video signal

With the composite video signal system, the video signal is composed of three basic elements of a video picture: color, brightness and synchronization data. A composite video jack on a video component transmits these three elements combined.

■ Deep Color

Deep Color refers to the use of various color depths in displays, up from the 24-bit depths in previous versions of the HDMI specification. This extra bit depth allows HDTVs and other displays go from millions of colors to billions of colors and eliminate on-screen color banding for smooth tonal transitions and subtle gradations between colors. The increased contrast ratio can represent many times more shades of gray between black and white. Also Deep Color increases the number of available colors within the boundaries defined by the RGB or YCbCr color space.

■ Dolby Digital

Dolby Digital is a digital surround sound system that gives you completely independent multi-channel audio. With 3 front channels (front L/R and center), and 2 surround 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 surround 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 unprecedented 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.

■ Dolby Digital Surround EX

Dolby Digital EX creates 6 full-bandwidth output channels from 5.1-channel sources.
For the best results, Dolby Digital EX should be used with movie sound tracks recorded with Dolby Digital Surround EX. With this additional channel, you can experience more dynamic and realistic moving sound especially with scenes with "fly-over" and "fly-around" effects.

■ Dolby Digital Plus

Dolby Digital Plus is an advanced audio technology developed for high-definition programming and media including HD broadcasts, and Blu-ray Disc. Selected as an optional audio standard for Blu-ray Disc, this technology delivers multichannel sound with discrete channel output. Supporting bitrates up to 6.0 Mbps, Dolby Digital Plus can carry up to 7.1 discreet audio channels simultaneously. Supported by HDMI version 1.3 and designed for the optical disc players and AV receivers/amplifiers of the future, Dolby Digital Plus also remains fully compatible with the existing multichannel audio systems that incorporate Dolby Digital.

■ Dolby Pro Logic II

Dolby Pro Logic II is an improved technique used to decode vast numbers of existing Dolby Surround sources. This new technology enables a discrete 5-channel playback with 2 front left and right channels, 1 center channel, and 2 surround left and right channels instead of only 1 surround channel for conventional Pro Logic technology. There are three modes available: "Music mode" for music sources, "Movie mode" for movie sources and "Game mode" for game sources.

■ Dolby Pro Logic IIx

Dolby Pro Logic IIx is a new technology enabling discrete multichannel playback from 2-channel or multi-channel sources. There are three modes available: "Music mode" for music sources, "Movie mode" for movie sources (for 2-channel sources only) and "Game mode" for game sources.

■ Dolby Surround

Dolby Surround is widely used with nearly all video tapes and laser discs, and in many TV and cable broadcasts as well. Dolby Surround uses a 4-channel analog recording system to reproduce realistic and dynamic sound effects: 2 front left and right channels (stereo), a center channel for dialog (monaural), and a surround channel for special sound effects (monaural). The surround channel reproduces sound within a narrow frequency range. 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 TrueHD

Dolby TrueHD is an advanced lossless audio technology developed for high-definition disc-based media including Blu-ray Disc. Selected as an optional audio standard for Blu-ray Disc, this technology delivers sound that is bit-for-bit identical to the studio master, offering a high-definition home theater experience.
Supporting bitrates up to 18.0 Mbps, Dolby TrueHD can carry up to 8 discrete channels of 24-bit/96 kHz audio simultaneously.
Dolby TrueHD also remains fully compatible with the existing multichannel audio systems and retains the metadata capability of Dolby Digital, allowing dialog normalization and dynamic range control.

■ DSD

Direct Stream Digital (DSD) technology stores audio signals on digital storage media, such as Super Audio CDs. Using DSD, signals are stored as single bit values at a high-frequency sampling rate of 2.8224 MHz, while noise shaping and oversampling are used to reduce distortion, a common occurrence with very high quantization of audio signals. Due to the high sampling rate, better audio quality can be achieved than that offered by the PCM format used for normal audio CDs. The frequency is equal to or higher than 100 kHz and the dynamic range is 120 dB. This unit can transmit or receive DSD signals via the HDMI jack.

■ DTS 96/24

DTS 96/24 offers an unprecedented level of audio quality for multi-channel sound on DVD video, and is fully backward-compatible with all DTS decoders. “96” refers to a 96 kHz sampling rate compared to the typical 48 kHz sampling rate. “24” refers to 24-bit word length. DTS 96/24 offers sound quality transparent to the original 96/24 master, and 96/24 5.1-channel sound with full-quality full-motion video for music programs and motion picture soundtracks on DVD video.

■ DTS Digital Surround

DTS Digital Surround was developed to replace the analog soundtracks of movies with a 5.1-channel digital sound track, and is now rapidly gaining popularity in movie theaters around the world. DTS, 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, front left and right, center, surround left and right, and LFE 0.1 (subwoofer) channels for a total of 5.1 channels). This unit incorporates a DTS-ES decoder that enables 6.1-channel reproduction by adding the surround back channel to the existing 5.1-channel format.

■ DTS Express

This is an audio format for next-generation optical discs such as Blu-ray discs. It uses optimized low bit rate signals for network streaming. In the case of a Blu-ray disc, this format is used with secondary audio, enabling you to enjoy the commentary of the movie producer via the Internet while playing the main program.

■ DTS-HD High Resolution Audio

DTS-HD High Resolution Audio is a high resolution audio technology developed for high-definition disc-based media including Blu-ray Disc. Selected as an optional audio standard for Blu-ray Disc, this technology delivers sound that is virtually indistinguishable from the original, offering a high-definition home theater experience. Supporting bitrates up to 6.0 Mbps for Blu-ray Disc, DTS-HD High Resolution Audio can carry up to 7.1 discrete channels of 24-bit/96 kHz audio simultaneously.
DTS-HD High Resolution Audio also remains fully compatible with the existing multichannel audio systems that incorporate DTS Digital Surround.

■ DTS-HD Master Audio

DTS-HD Master Audio is an advanced lossless audio technology developed for high-definition disc-based media including Blu-ray Disc. Selected as an optional audio standard for Blu-ray Disc, this technology delivers sound that is bit-for-bit identical to the studio master, offering a high-definition home theater experience. Supporting bitrates up to 24.5 Mbps for Blu-ray Disc, DTS-HD Master Audio can carry up to 7.1 discrete channels of 24-bit/96 kHz audio simultaneously. Supported by HDMI version 1.3 and designed for the optical disc players and AV receivers/amplifiers of the future, DTS-HD Master Audio also remains fully compatible with the existing multichannel audio systems that incorporate DTS Digital Surround.

■ HDMI

HDMI (High-Definition Multimedia Interface) is the first industry-supported, uncompressed, all-digital audio/video interface. Providing an interface between any source (such as a set-top box or AV receiver) and an audio/video monitor (such as a digital television), HDMI supports standard, enhanced or high-definition video as well as multi-channel digital audio using a single cable. HDMI transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements.
When used in combination with HDCP (High-bandwidth Digital Content Protection), HDMI provides a secure audio/video interface that meets the security requirements of content providers and system operators. For further information on HDMI, visit the HDMI website at “http://www.hdmi.org/.”

■ LFE 0.1 channel

This channel reproduces low-frequency signals. The frequency range of this channel is from 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 5/6 channels in Dolby Digital or DTS 5.1/6.1-channel systems.

■ Neo:6

Neo:6 decodes the conventional 2-channel sources for 6- channel playback by the specific decoder. It enables playback with the full-range channels with higher separation just like digital discrete signal playback. There are two modes available: “Music mode” for music sources and “Cinema mode” for movie sources.

■ 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.

■ S-video signal

With the S-video signal system, the video signal normally transmitted using a pin cable is separated and transmitted as the Y signal for the luminance and the C signal for the Cameroonians through the S-video cable. Using the S VIDEO jack eliminates video signal transmission loss and allows recording and playback of even more beautiful images.

■ 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.

■ “x.v.Color”

A color space standard supported by HDMI version 1.3. It is a more extensive color space than sRGB, and allows the expression of colors that could not be expressed before. While remaining compatible with the color gamut of sRGB standards, “x.v.Color” expands the color space and can thus produce more vivid, natural images. It is particularly effective for still pictures and computer graphics.

Sound field program information

■ 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 designed for acoustic effects. Since home conditions, such as room size, wall material, number of speakers, and so on, can differ so widely, it is inevitable that there are differences in the sound heard.
Based on a wealth of actually measured data, Yamaha CINEMA DSP provides the audiovisual experience of a movie theater in the listening room of your own home by using the Yamaha original sound field technology combined with various digital audio systems.

■ CINEMA DSP 3D

The actually measured sound field data contain the information of the height of the sound images. CINEMA DSP 3D feature achieves the reproduction of the accurate height of the sound images so that it creates the accurate and intensive stereoscopic sound fields in a listening room.

■ 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 on 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 surround speakers by using virtual surround speakers. It is even possible to enjoy Virtual CINEMA DSP using a minimal two-speaker system that does not include a center speaker.

■ Compressed Music Enhancer

The Compressed Music Enhancer feature of this unit enhances your listening experience by regenerating the missing harmonics in a compression artifact. As a result, flattened complexity due to the loss of high-frequency fidelity as well as lack of bass due to the loss of low-frequency bass is compensated, providing improved performance of the overall sound system.

Information on HDMI™

■ HDMI signal compatibility

Audio signals

Audio signal types	Audio signal formats	Compatible media
2ch Linear PCM	2ch, 32-192 kHz, 16/20/24 bit	CD, DVD-Video, DVD-Audio, etc.
Multi-ch Linear PCM	8ch, 32-192 kHz, 16/20/24 bit	DVD-Audio, Blu-ray Disc, HD DVD, etc.
DSD	2/5.1ch, 2.8224 MHz, 1 bit	SACD, etc.
Bitstream	Dolby Digital, DTS	DVD-Video, etc.
Bitstream (High definition audio)	Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio, DTS-HD High Resolution Audio, DTS Express	Blu-ray Disc, HD DVD, etc.

- If the input source component can decode the bitstream audio signals of audio commentaries, you can play back the audio sources with the audio commentaries mixed down by using the following connections:
  – multi-channel analog audio input (see page 18)
  – DIGITAL INPUT OPTICAL (or COAXIAL)
- Refer to the supplied instruction manuals of the input source component, and set the component appropriately.

Notes

- When CPPM copy-protected DVD-Audio is played back, video and audio signals may not be output depending on the type of the DVD player.
- This unit is not compatible with HDCP-incompatible HDMI or DVI components.
- To decode audio bitstream signals on this unit, set the input source component appropriately so that the component outputs the bitstream audio signals directly (does not decode the bitstream signals on the component). Refer to the supplied instruction manuals for details.
- This unit is not compatible with the audio commentary features (for example, the special audio contents downloaded via Internet) of Blu-ray Disc or HD DVD. This unit does not play back the audio commentaries of the Blu-ray Disc or HD DVD contents.

Video signals

This unit is compatible with the video signals of the following resolutions:

- 480i/60 Hz
- 576i/50 Hz
- 480p/60 Hz
- 576p/50 Hz
- 720p/60 Hz, 50 Hz
- 1080i/60 Hz, 50 Hz
- 1080p/60 Hz, 50 Hz, 24 Hz

Specifications

AUDIO SECTION

- Minimum RMS Output Power for Front, Center, Surround, Surround back
  20 Hz - 20 kHz, 0.08% THD, 8 Ω ..... 95 W
- Dynamic Power (IHF)
  Front Speakers 8/6/4/2 Ω ..... 130/165/195/240 W
- Maximum Useful Output Power (JEITA)
  [China, Korea, General and Asia models]
  1 kHz, 10% THD, 8 Ω ..... 135 W
- Maximum Output Power
  [U.K., Europe, Russia and Asia models]
  1 kHz, 0.7% THD, 4 Ω ..... 145 W
- Dynamic Headroom [U.S.A. and Canada models]
  8 Ω ..... 1.4 dB
- IEC Output Power [U.K., Europe, Russia and Asia models]
  Front Speakers 1 kHz, 0.08% THD, 8 Ω ..... 105 W
- Input Sensitivity/Input Impedance
  PHONO
  [China, Korea, U.K., Europe, Russia, Australia, General and Asia models] ..... 3.5 mV/47 kΩ
  AV5, etc. ..... 200 mV/47 kΩ
  MULTI CH INPUT ..... 200 mV/47 kΩ
- Maximum Input Voltage
  PHONO (1 kHz, 0.1% THD)
  [China, Korea, U.K., Europe, Russia, Australia, General and Asia models] ..... 60 mV or more
  AV5, etc. (1 kHz, 0.5% THD) ..... 2.3 V or more
- Rated Output Voltage/Output Impedance
  AUDIO OUT ..... 200 mV/1.2 kΩ
  PRE OUT ..... 1.0 V/1.2 kΩ
  SUBWOOFER (2ch Stereo & FRONT: Small) ..... 1.0 V/1.2 kΩ
  ZONE2 OUT ..... 200 mV/1.2 kΩ
- Headphone Jack Rated Output/Impedance
  AV5, etc. (1 kHz, 50 mV, 8 Ω) ..... 100 mV/470 Ω
- Frequency Response
  AV5, etc. to FRONT ..... 10 Hz to 100 kHz, +0/–3 dB
- RIAA Equalization Deviation
  [China, Korea, U.K., Europe, Russia, Australia, General and Asia models]
  PHONO ..... 0 ± 0.5 dB
- Total Harmonic Distortion
  PHONO to AUDIO OUT
  [China, Korea, U.K., Europe, Russia, Australia, General and Asia models]
  (20 Hz to 20 kHz, 1 V) ..... 0.02% or less
  AV5, etc. to FRONT, Pure Direct
  (20 Hz to 20 kHz, 50 W, 8 Ω) ..... 0.06% or less
- Signal to Noise Ratio (IHF-A Network)
  PHONO Input Shorted (5.0 mV to AUDIO OUT)
  [China and General models] ..... 86 dB or more
  PHONO Input Shorted (5.0 mV to AUDIO OUT)
  [Korea, U.K., Europe, Russia, Australia and Asia models] ..... 81 dB or more
  AV5, etc. (Pure Direct) Input Shorted (250 mV to Front Speakers) ..... 100 dB or more
- Residual Noise (IHF-A Network)
  Front Speakers ..... 150 µV or less
- Channel Separation (1 kHz/10 kHz)
  PHONO (Input Shorted)
  [China, Korea, U.K., Europe, Russia, Australia, General and Asia models] ..... 60 dB/55 dB or more
  AV5, etc. (5.1 kΩ shortened) ..... 60 dB/45 dB or more
- Volume Control ..... MUTE / –80 dB to +16.5 dB
- Tone Control (Front Speakers)
  BASS Boost/Cut ..... ±10 dB at 50 Hz
  BASS Turnover Frequency ..... 350 Hz
  TREBLE Boost/Cut ..... ±10 dB at 20 kHz
  TREBLE Turnover Frequency ..... 3.5 kHz
- Filter Characteristics (fc=40/60/80/90/100/110/120/160/200 Hz)
  H.P.F. (Front, Center, Surround, Surround back: Small) ..... 12 dB/oct.
  L.P.F. (Subwoofer) ..... 24 dB/oct.

VIDEO SECTION

- Video Signal Type (Gray Back)
  [U.S.A., Canada, Korea and General models] ..... NTSC
  [Other models] ..... PAL
- Signal Level
  Composite ..... 1 Vp-p/75 Ω
  S-video [U.K., Europe and Russia models] ..... 1 Vp-p/75 Ω (Y), 0.286 Vp-p/75 Ω (C)
  Component ..... 1 Vp-p/75 Ω (Y), 0.7 Vp-p/75 Ω (C_B/C_R)
- Maximum Input Level ..... 1.5 Vp-p or more
- Signal to Noise Ratio ..... 50 dB or more
- Frequency Response [MONITOR OUT]
  Component ..... 5 Hz to 60 MHz, –3 dB

FM SECTION

- Tuning Range
  [U.S.A. and Canada models] ..... 87.5 to 107.9 MHz
  [Asia and General models] ..... 87.5/87.50 to 108.0/108.00 MHz
  [Other models] ..... 87.50 to 108.00 MHz
- 50 dB Quieting Sensitivity (IHF)
  Mono ..... 3.0 µV (20.8 dBf)
- Signal to Noise Ratio (IHF)
  Mono/Stereo ..... 74 dB/70 dB
- Harmonic Distortion (1 kHz)
  Mono/Stereo 0.3/0.3%
- Antenna Input (unbalanced) ..... 75 Ω

AM SECTION

- Tuning Range
  [U.S.A. and Canada models] ..... 530 to 1710 kHz
  [Asia and General models] ..... 530/531 to 1710/1611 kHz
  [Other models] ..... 531 to 1611 kHz

GENERAL

- Power Supply
  [U.S.A. and Canada models] ..... AC 120 V, 60 Hz
  [General model] ..... AC 110/120/220/230–240 V, 50/60 Hz
  [China model] ..... AC 220 V, 50 Hz
  [Korea model] ..... AC 220 V, 60 Hz
  [Australia model] ..... AC 240 V, 50 Hz
  [U.K., Europe and Russia models] ..... AC 230 V, 50 Hz
  [Asia model] ..... AC 220/230–240 V, 50/60 Hz
- Power Consumption
  [U.S.A. and Canada models] ..... 400 W/500 VA
  [Other models] ..... 400 W
- Standby Power Consumption
  HDMI control off/Standby through off ..... 0.2 W or less
  HDMI control on/Standby through on/No Repeat ..... 1.2 W or less
  HDMI control on/Standby through on/Repeat ..... 3 W or less
- Maximum Power Consumption
  [Asia and General models] ..... 590 W
- Dimensions (W x H x D) ..... 435 x 171 x 365 mm
- Weight ..... 11.0 kg

* Specifications are subject to change without notice.

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"Ⓐ**MAIN ZONE ON/OFF**" or "⑯**POWER**" (example) indicates the name of the parts on the front panel or the remote control. Refer to "Controls diagram" or "Part names and functions" on page 4.

List of remote control codes

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