

YAMAHA RX-V10

Natural Sound Stereo Receiver

Récepteur stéréo "Son Naturel"

OWNER'S MANUAL

Thank you for selecting this YAMAHA stereo receiver.

MODE D'EMPLOI

Nous vous remercions pour avoir porté votre choix sur ce récepteur stéréo YAMAHA.

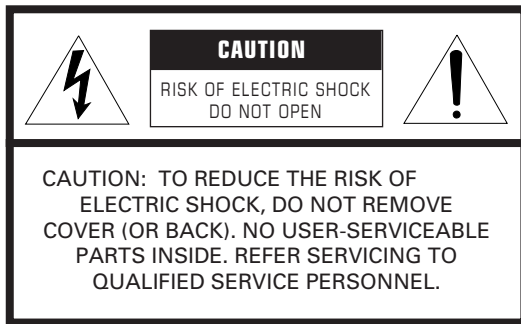
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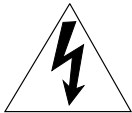
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SAFETY INSTRUCTIONS



• Explanation of Graphical Symbols




The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

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

- 1 Read Instructions – All the safety and operating instructions should be read before the unit is operated.
 - 2 Retain Instructions – The safety and operating instructions should be retained for future reference.
 - 3 Heed Warnings – All warnings on the unit and in the operating instructions should be adhered to.
 - 4 Follow Instructions – All operating and other instructions should be followed.
 - 5 Water and Moisture – The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
 - 6 Carts and Stands – The unit should be used only with a cart or stand that is recommended by the manufacturer.
 - 6A A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.
- 
- 7 Wall or Ceiling Mounting – The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.
 - 8 Ventilation – The unit should be situated so that its location or position does not interfere with its proper ventilation. For example, the unit should not be situated on a bed, sofa, rug, or similar surface, that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
 - 9 Heat – The unit should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
 - 10 Power Sources – The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.
 - 11 Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.
 - 12 Cleaning – The unit should be cleaned only as recommended by the manufacturer.
 - 13 Nonuse Periods – The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.
 - 14 Object and Liquid Entry – Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the unit.
 - 15 Damage Requiring Service – The unit should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the unit; or
 - C. The unit has been exposed to rain; or
 - D. The unit does not appear to operate normally or exhibits a marked change in performance; or
 - E. The unit has been dropped, or the cabinet damaged.
 - 16 Servicing – The user should not attempt to service the unit beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
 - 17 Power Lines – An outdoor antenna should be located away from power lines.
 - 18 Grounding or Polarization – Precautions should be taken so that the grounding or polarization is not defeated.

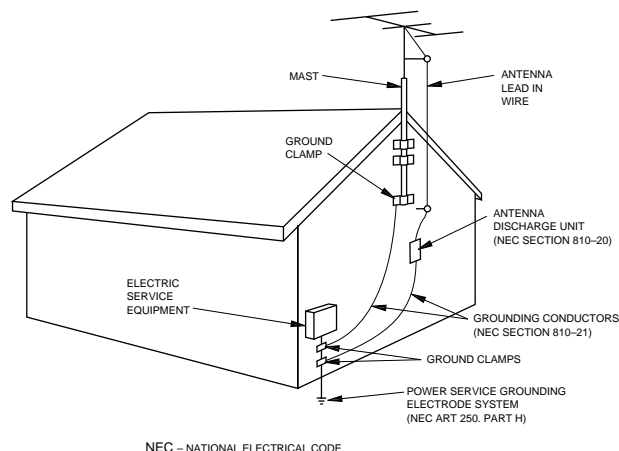
19 For US customers only:

Outdoor Antenna Grounding – If an outside antenna is connected to this unit, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING



SPECIAL NOTES FOR FCC COMPOSITE DEVICE (for US customers only)

This device is a composite system. The digital device component may not cause harmful interference.

FCC INFORMATION (for US customers only)

1. IMPORTANT NOTICE : DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. IMPORTANT : When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. NOTE : This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices.

This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Electronics Corp., U.S.A. 6660 Orangethorpe Ave, Buena Park, CA 90620.

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

We Want You Listening For A Lifetime (for US customers only)

YAMAHA and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion – and, most importantly, without affecting your sensitive hearing.

Since hearing damage from loud sounds is often undetectable until it is too late, YAMAHA and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.



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 unit in a cool, dry, clean place – away from windows, heat sources, sources of excessive vibration, dust, moisture and cold. Avoid sources of humming (transformers, motors). To prevent fire or electrical shock, do not expose the unit to rain or water.
3. Never open the cabinet. If something drops into the set, contact your dealer.
4. Do not use force on switches, controls or connection wires. When moving the unit, first disconnect the power plug and the wires connected to other equipment. Never pull the wires themselves.
5. The openings on the cabinet assure proper ventilation of the unit. If these openings are obstructed, the temperature inside the cabinet will rise rapidly. Therefore, avoid placing objects against these openings, and install the unit in well-ventilated condition. Make sure to allow a space of at least 10 cm behind, on the both sides and above the top panel of the unit. Otherwise it may not only damage the unit, but also cause fire.
6. Always set the VOLUME control to “0” before starting the audio source play. Increase the volume gradually to an appropriate level after playback has been started.
7. Do not attempt to clean the unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
8. Be sure to read the “TROUBLESHOOTING” section regarding common operating errors before concluding that the unit is faulty.
9. When not planning to use this unit for long periods of time (ie., vacation, etc.), disconnect the AC power plug from the wall outlet.
10. To prevent lightning damage, disconnect the AC power plug and disconnect the antenna cable when there is an electrical storm.
11. Grounding or polarization – Precautions should be taken so that the grounding or polarization of an appliance is not defeated.
12. AC outlet
Do not connect audio equipment to the AC outlet on the rear panel if that equipment requires more power than the outlet is rated to provide.

IMPORTANT

Please record the serial number of this unit in the space below.

Serial No.:

The serial number is located on the rear of the unit. Retain this Owner's Manual in a safe place for future reference.

WARNING

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

FOR CANADIAN CUSTOMERS

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT AND FULLY INSERT.

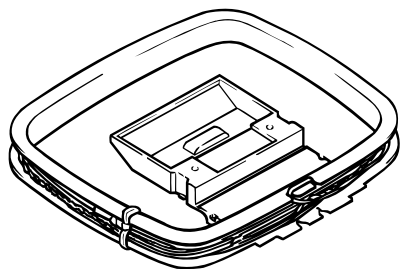
THIS CLASS B DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The apparatus is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the apparatus itself is turned off.

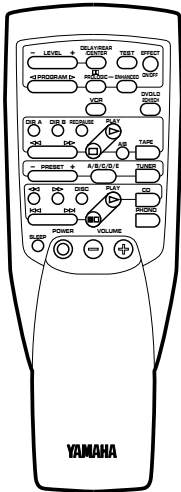
SUPPLIED ACCESSORIES

After unpacking, check that the following parts are included.

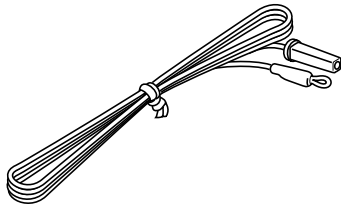
AM Loop Antenna



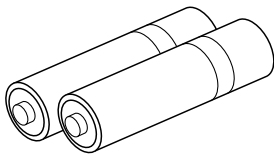
Remote Control Transmitter



Indoor FM Antenna



Batteries (size AA, R6, UM-3)



FEATURES

- **5 Speaker Configuration**
 - Front: 45W + 45W (8Ω) RMS Output Power, 0.04% THD, 20–20,000 Hz
 - Center: 45W (8Ω) RMS Output Power, 0.1% THD, 1 kHz
 - Rear: 15W (8Ω) RMS Output Power, 0.7% THD, 1 kHz
- **Digital Sound Field Processor**
 - 4 Programs for Digital Sound Field Processing
 - 2 Programs for Dolby Surround Decoding (DOLBY PRO LOGIC and DOLBY PRO LOGIC ENHANCED)
- **Automatic Input Balance Control for Dolby Pro Logic Surround**
- **Test Tone Generator for Easier Speaker Balance Adjustment**
- **3 Center Channel Modes (NORMAL/WIDE/PHANTOM)**
- **40-Station Random Access Preset Tuning**
- **Automatic Preset Tuning**
- **Preset Station Shifting Capability (Preset Editing)**
- **IF Count Direct PLL Synthesizer Tuning System**
- **Video Signal Input/Output Capability**
- **5-Channel Discrete Input Terminals for Connecting with a Dolby Digital (AC-3) Decoder**
- **SLEEP Timer**
- **Remote Control Capability**
- **<Europe and U.K. models only>**
- **Multi-Functions for RDS Broadcast Reception**

PROFILE OF THIS UNIT

You are the proud owner of a Yamaha stereo receiver –an extremely sophisticated audio component. The Digital Sound Field Processor (DSP) built into this unit takes advantage of Yamaha's undisputed leadership in the field of digital audio processing to bring you a whole new world of listening experiences. Follow the instructions in this manual carefully when setting up your system, and this unit will sonically transform your room into a wide range of listening environments –movie theater, concert hall, and so on. In addition, you get incredible realism from sources encoded with Dolby Surround using the built-in Dolby Pro Logic Surround Decoder.

Please read this operation manual carefully and store it in a safe place for later reference.

Digital Sound Field Processing

What is it that makes live music so good? Today's advanced sound reproduction technology lets you get extremely close to the sound of a live performance, but chances are you'll still notice something missing: the acoustic environment of the live concert hall. Extensive research into the exact nature of the sonic reflections that create the ambience of a large hall has made it possible for Yamaha engineers to bring you this same sound in your own listening room, so you'll feel all the sound of a live concert.

Furthermore, our technicians, armed with sophisticated measuring equipment, have even made it possible to capture the acoustics of a variety of venues such as an actual concert hall, theater, etc. to allow you to accurately recreate one of several actual live performance environments, all in your own home.

Dolby Pro Logic Surround

This unit employs a Dolby Pro Logic Surround decoder similar to professional Dolby Stereo decoders used in many movie theaters. By using the Dolby Pro Logic Surround decoder, you can experience the dramatic realism and impact of Dolby Surround movie theater sound in your own home. Dolby Pro Logic employs a four channel five speaker system. The Pro Logic Surround system divides the input signal into four levels: the left and right main channels, the center channel (used for dialog), and the rear surround sound channels (used for sound effects, background noise, and other ambient noises). The center channel allows listeners seated in even less-than-ideal positions to hear the dialog originating from the action on the screen while experiencing good stereo imaging. Dolby Surround is encoded on the sound track of pre-recorded video tapes, laser discs, and some TV/cable broadcasts. When you play a source encoded with Dolby Surround on this unit, the Dolby Pro Logic Surround decoder decodes the signal and distributes the surround-sound effects.


This Dolby Pro Logic Surround Decoder employs a digital signal processing system. This system improves the stability of sound at each channel and minimizes crosstalk between channels, so that positioning of sounds around the room is more accurate compared with conventional analog signal processing systems.

In addition, this unit features a built-in automatic input balance control. This always assures you the best performance without manual adjustment.

Manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby", the double-D symbol and "Pro Logic" are trademarks of Dolby Laboratories Licensing Corporation.

Dolby Pro Logic Surround + DSP

Dolby Surround sound system shows its full ability in a large movie theater, because movie sounds are originally designed to be reproduced in a large movie theater using many speakers. It is difficult to create a sound environment similar to that of a movie theater in your listening room, because the room size, materials of inside walls, the number of speakers, etc. of your listening room is much different from those of a movie theater.

Yamaha DSP technology made it possible to present you with nearly the same sound experience as that of a large movie theater in your listening room by compensating for lack of presence and dynamics in your listening room with its original digital sound fields combined with Dolby Surround sound field. The combination of Dolby Pro Logic Surround and DSP is used on the sound field program "  PRO LOGIC ENHANCED".

SPEAKER SETUP

SPEAKERS TO BE USED

This unit is designed to provide the best sound-field quality with a 5 speaker configuration. The most effective speakers to use with this unit are front speakers, rear speakers and a center speaker. You may omit the center speaker. (Refer to the “**4-Speaker Configuration**” shown below.)

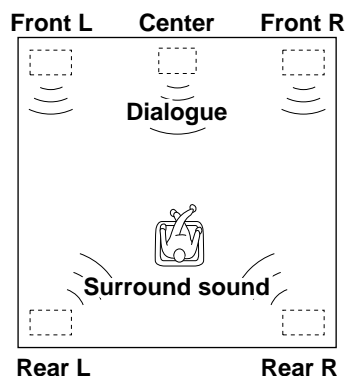
The front speakers are used for the main source sound plus the effect sounds. They will probably be the speakers from your present stereo system. The rear speakers are used for the effect and surround sounds, and the center speaker is for the center sounds (dialogue etc.) within programs encoded with Dolby Surround. The center speaker needs to be equal in power to the front speakers, although the rear speakers should not be equal. However, all the speakers should have high enough power handling to accept the maximum output of this unit.

SPEAKER CONFIGURATION

5-Speaker Configuration

This configuration is the most effective and recommended one. In this configuration, the center speaker is necessary as well as the rear speakers. If the program **DOLBY PRO LOGIC** or **DOLBY PRO LOGIC ENHANCED** is selected, conversations will be output from the center speaker and the ambience will be excellent.

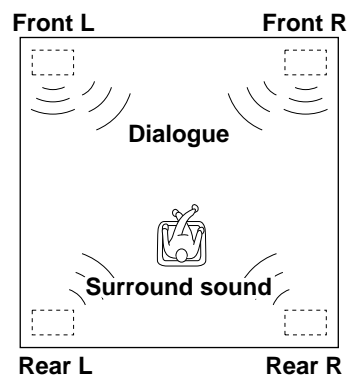
- Set the center channel mode to the “**NORMAL**” or “**WIDE**” position. (For details, refer to page 18.)



4-Speaker Configuration

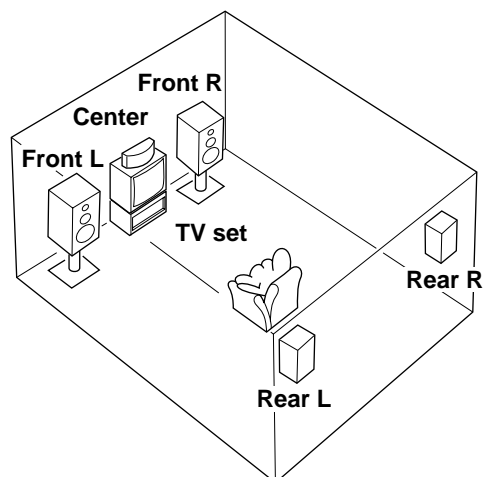
The center speaker is not used in this configuration. If the program **DOLBY PRO LOGIC** or **DOLBY PRO LOGIC ENHANCED** is selected, the center sound is output from the left and the right front speakers. However, the sound effect of other programs can be the same as that of the 5-speaker configuration.

- Be sure to set the center channel mode to the “**PHANTOM**” position. (For details, refer to page 18.)



SPEAKER PLACEMENT

The recommended speaker configuration, the 5-speaker configuration, will require two speaker pairs: **front speakers** (your normal stereo speakers), and **rear speakers**, plus a **center speaker**. When you place these speakers, refer to the following.



- Front:** In normal position. (The position of your present stereo speaker system.)
- Rear:** Behind your listening position, facing slightly inward. Nearly six feet (approx. 1.8 m) up from the floor.
- Center:** Precisely between the front speakers. (To avoid interference with TV sets, use a magnetically shielded speaker.)

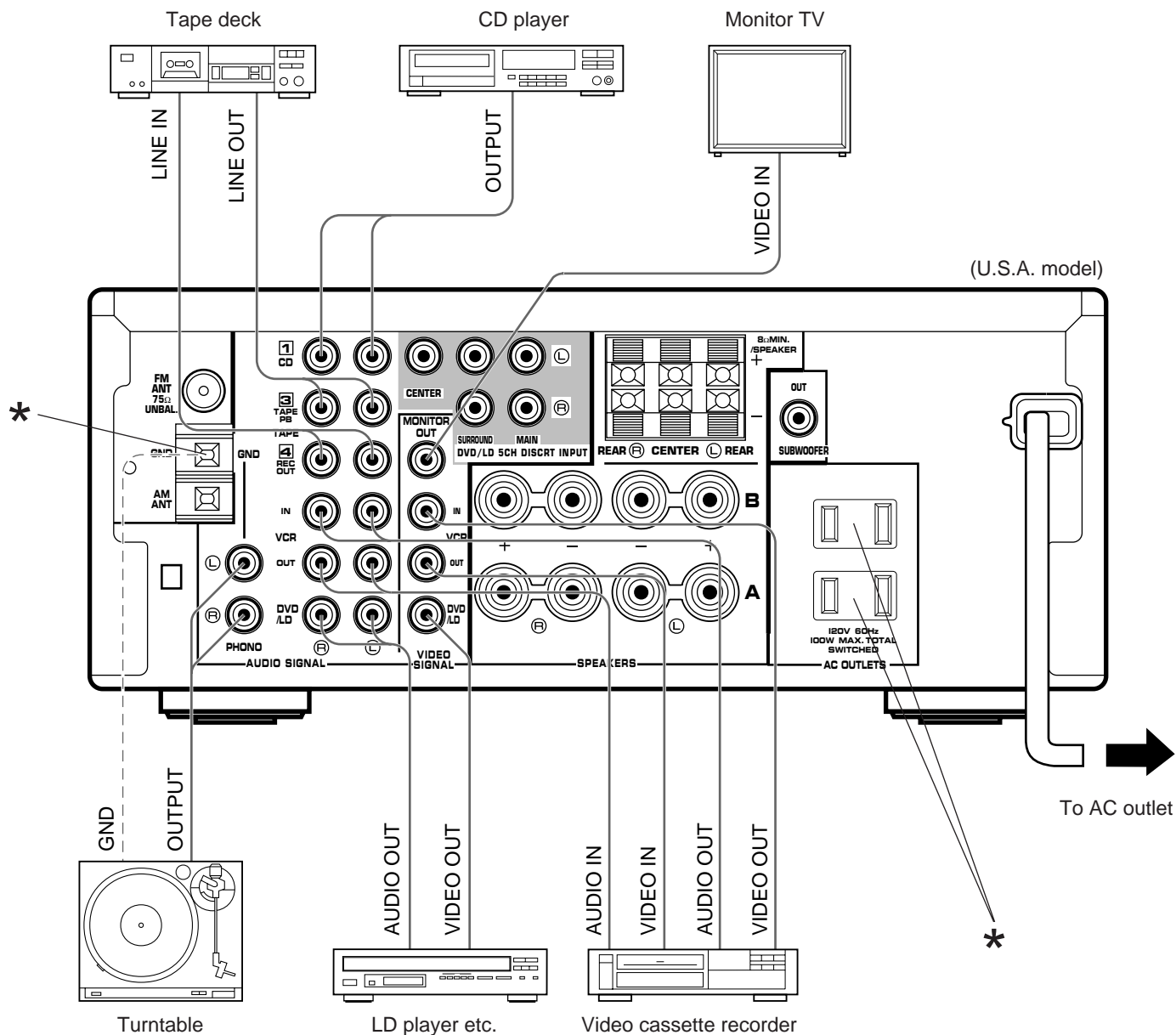
CONNECTIONS

Before attempting to make any connections to or from this unit, be sure to first switch OFF the power to this unit and to any other components to which connections are being made.

CONNECTIONS WITH OTHER COMPONENTS

When making connections between this unit and other components, be sure all connections are made correctly, that is to say L (left) to L, R (right) to R, “+” to “+” and “-” to “-”. Also, refer to the owner's manual for each component to be connected to this unit.

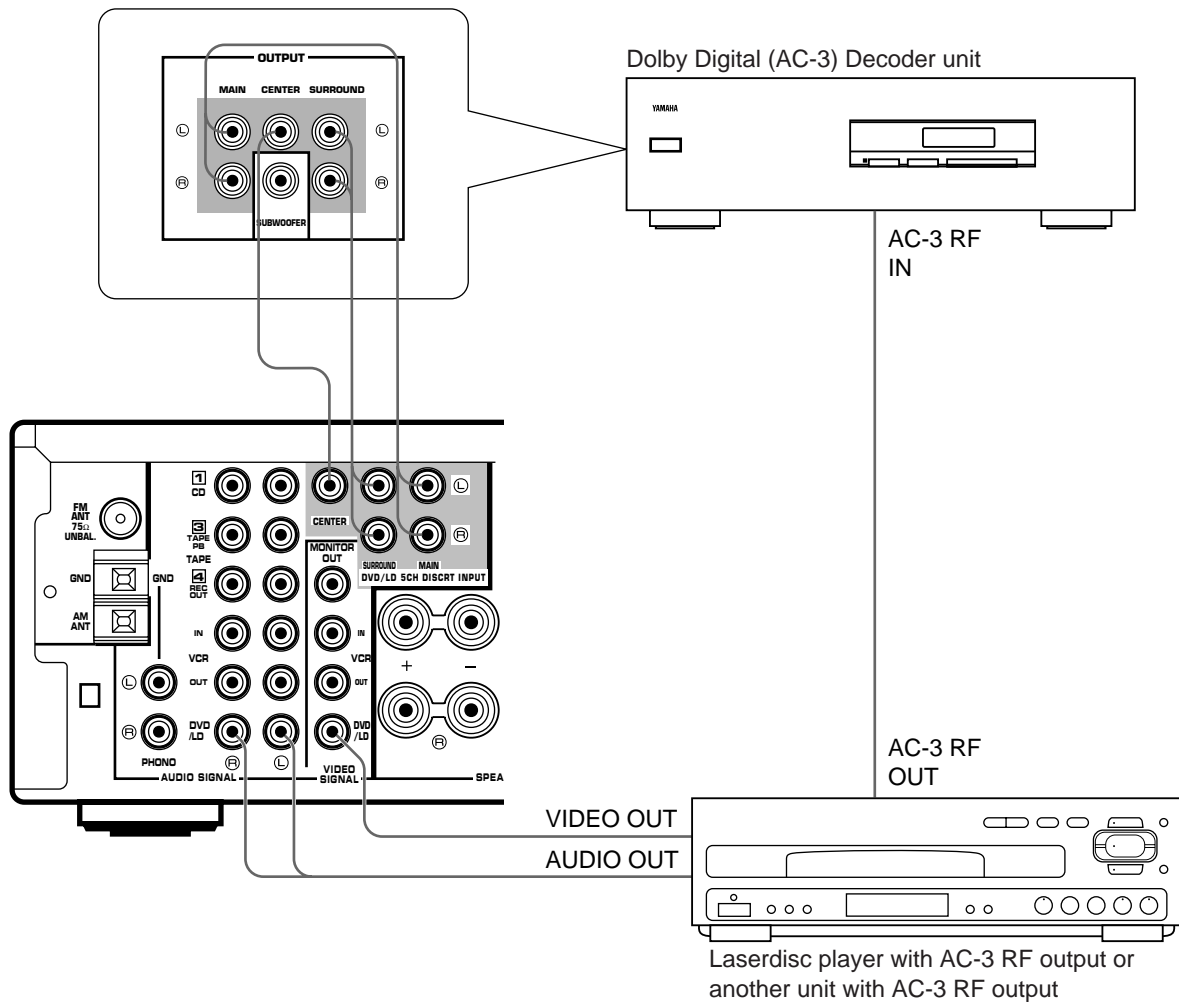
* If you have YAMAHA components numbered as 1, 2, 3, etc. on the rear panel, connections can be made easily by making sure to connect the output (or input) terminals of each component to the same-numbered terminals of this unit.



* : Refer to “ABOUT THE ACCESSORY TERMINALS” on page 10.

Connecting with a Dolby Digital (AC-3) Decoder

If you have a Dolby Digital (AC-3) Decoder unit or an LD player etc. which incorporates a Dolby Digital (AC-3) Decoder, its discrete outputs can be connected to this unit.



Notes

- The laserdisc player with AC-3 RF output (or another unit with AC-3 RF output) must be also connected to the DVD/LD AUDIO SIGNAL input terminals of this unit for playing a source with the Dolby Pro Logic Surround decoded or in normal stereo (or monaural).
- The discrete signals input to this unit cannot be recorded by a tape deck or VCR. To record a source played on the laserdisc player with AC-3 RF output (or another unit with AC-3 RF output), it must be connected to the DVD/LD AUDIO/VIDEO SIGNAL input terminals of this unit.

CONNECTING SPEAKERS

Note

Use speakers with the specified impedance shown on the rear of this unit.

Note on front speaker connections:

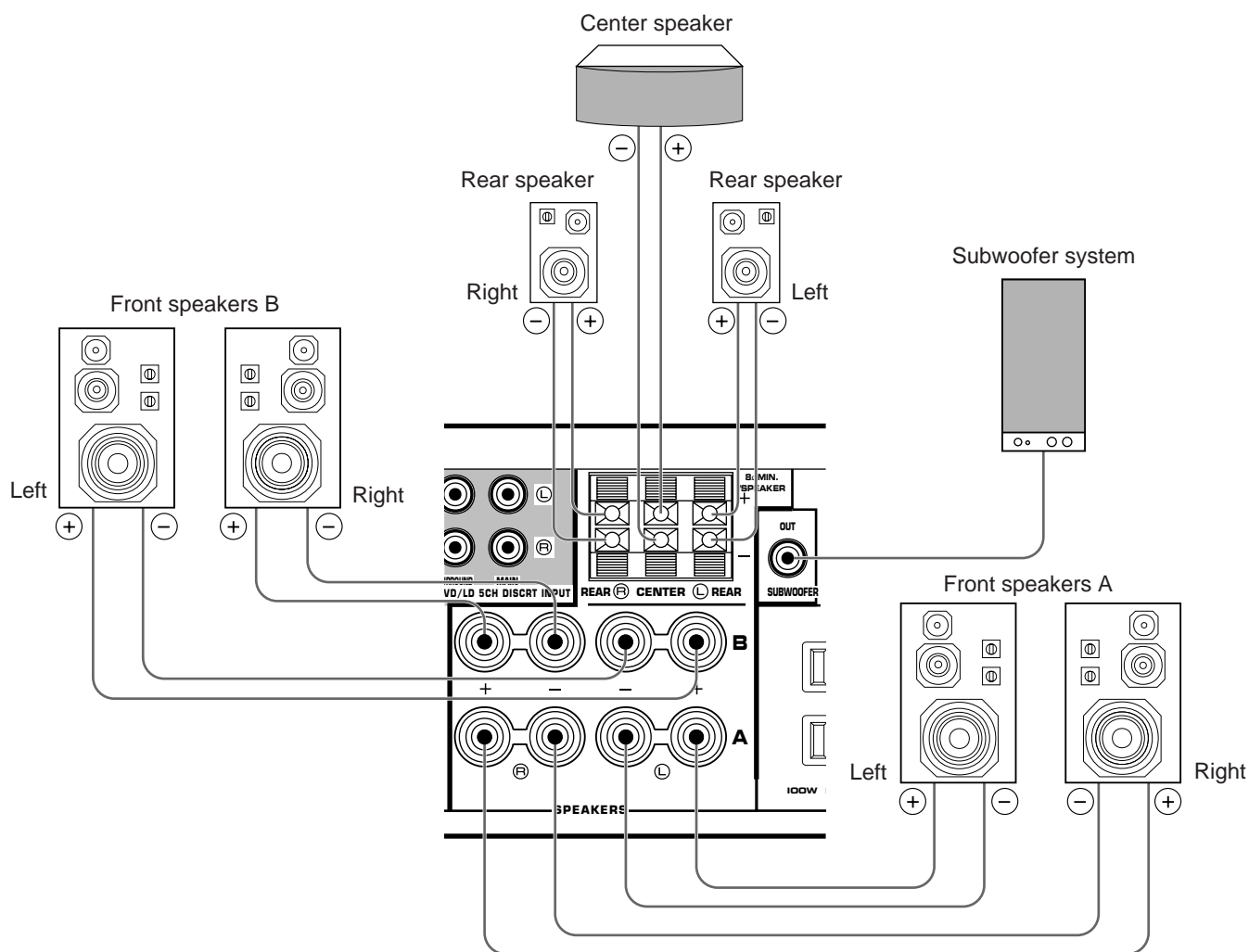
One or two speaker systems can be connected to this unit. If you use only one speaker system, connect it to either the **SPEAKERS A** or **B** terminals.

Note on a subwoofer connection:

You may wish to add a subwoofer to reinforce the bass frequencies.

Connect the **SUBWOOFER OUT** terminal of this unit to the **INPUT** terminal of the subwoofer amplifier, and connect the speaker terminals of the subwoofer amplifier to the subwoofer. With some subwoofers, including the Yamaha Active Servo Processing Subwoofer System, the amplifier and subwoofer are in the same unit.

* The **SUBWOOFER OUT** terminal is for output to a monaural amplifier driving a subwoofer. Only frequencies below 200 Hz from the front and center channels are output.



How to Connect:

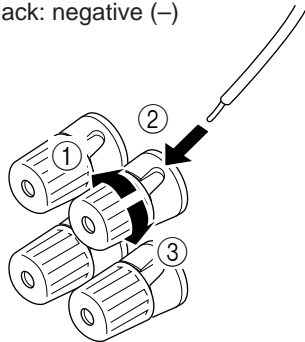
Connect the **SPEAKERS** terminals to your speakers with wire of the proper gauge, cut as short as possible. If the connections are faulty, no sound will be heard from the speakers. Make sure that the polarity of the speaker wires is correct, that is the + and – markings are observed. If these wires are reversed, the sound will be unnatural and lack bass.

Caution

Do not let the bare speaker wires touch each other and do not let them touch any metal part of this unit. This could damage this unit and/or speakers.

For connecting to the FRONT SPEAKERS terminals

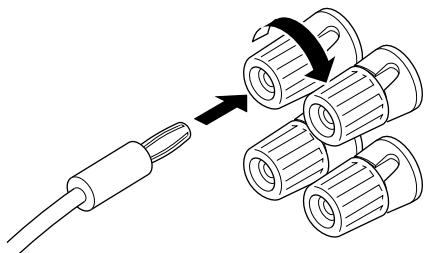
Red: positive (+)
Black: negative (–)



- ① Unscrew the knob.
- ② Insert the bare wire.
[Remove approx. 5mm (1/4") insulation from the speaker wires.]
- ③ Tighten the knob and secure the wire.

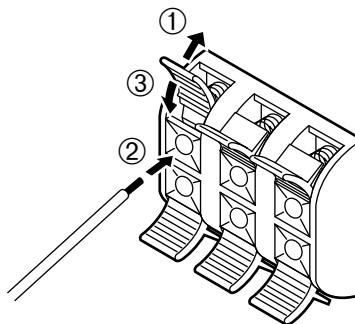
<U.S.A. and General models only>

Banana Plug connections are also possible. Simply insert the Banana Plug connector into the corresponding terminal.



For connecting to the REAR and CENTER SPEAKERS terminals

Red: positive (+)
Black: negative (–)



- ① Press the tab.
- ② Insert the bare wire.
[Remove approx. 5mm (1/4") insulation from the speaker wires.]
- ③ Release the tab and secure the wire.

ABOUT THE ACCESSORY TERMINALS

AC OUTLET(S) (SWITCHED)

(U.S.A., Europe and General models)

..... 2 SWITCHED OUTLETS

(U.K. model) 1 SWITCHED OUTLET

Use these to connect the power cords from your components to this unit.

The power to the **SWITCHED** outlets is controlled by this unit's **POWER** switch or the provided remote control transmitter's **POWER** key. These outlets will supply power to any component whenever this unit is turned on.

The maximum power (total power consumption of components) that can be connected to the **SWITCHED AC OUTLET(S)** is 100 watts.

GND terminal (For turntable use)

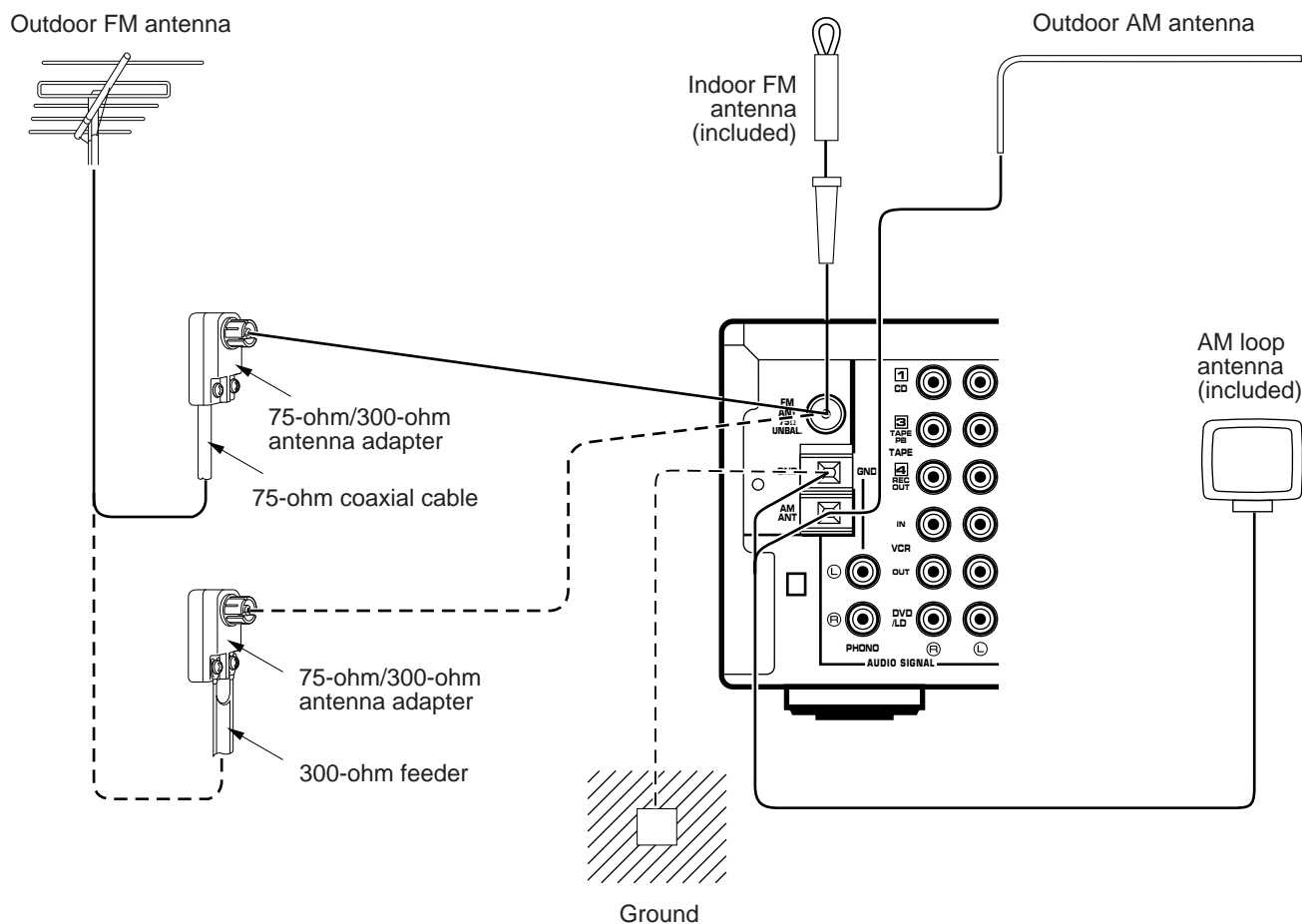
Connecting the ground wire of the turntable to the **GND** terminal will normally minimize hum, but in some cases better results may be obtained with the ground wire disconnected.

Note

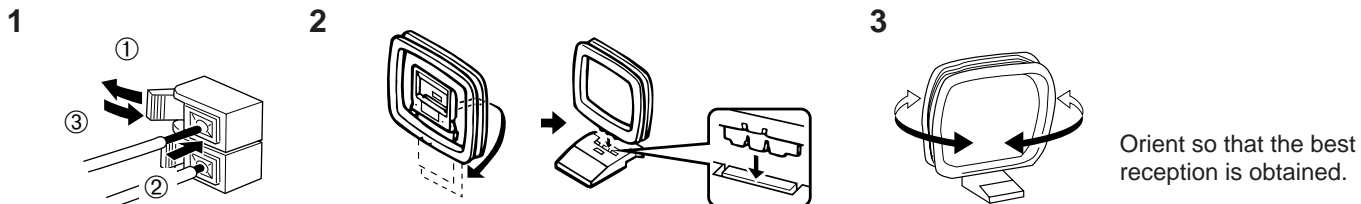
Even if you make this connection, never fail to make other wire connections to this terminal. (See page 11.)

ANTENNA CONNECTIONS

- Each antenna should be connected to the designated terminals correctly, referring to the following diagram.
- Both AM and FM indoor antennas are included with this unit. In general, these antennas will probably provide sufficient signal strength. Nevertheless, a properly installed outdoor antenna will give clearer reception than an indoor one. If you experience poor reception quality, an outdoor antenna may result in improvement.



Connecting the AM loop antenna



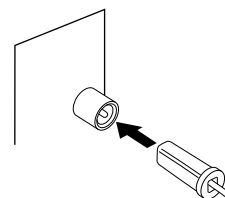
- * The AM loop antenna should be placed apart from the main unit. The antenna may be hung on a wall.
- * The AM loop antenna should be kept connected, even if an outdoor AM antenna is connected to this unit.

GND terminal

For maximum safety and minimum interference, connect the **GND** terminal to a good earth ground. A good earth ground is a metal stake driven into moist earth.

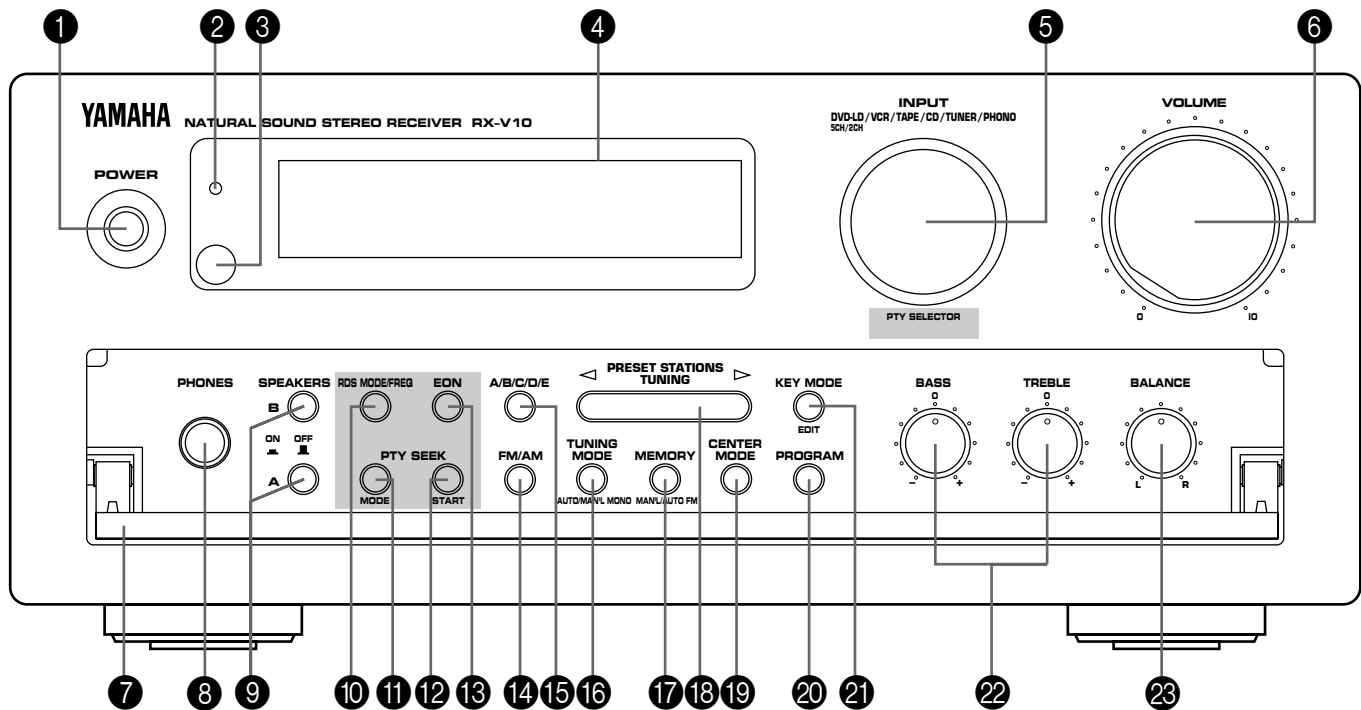
Notes

- When connecting the indoor FM antenna, insert its connector into the **FM ANT** terminal firmly.
- If you need an outdoor FM antenna to improve FM reception quality, either 300-ohm feeder or coaxial cable may be used. In locations troubled by electrical interference, coaxial cable is preferable.



CONTROLS AND THEIR FUNCTIONS

FRONT PANEL



Parts in the shaded areas are provided for Europe and U.K. models only.
The power indicator (2) is provided for Europe, U.K. and General models only.

1 POWER switch

Press this switch to switch the power on. Press it again to switch the power off.

2 Power indicator

<Europe, U.K. and General models only>

Lights up fully while the power is on.

* Standby mode

While the power is on, pressing the **POWER** key on the remote control transmitter switches the unit to the standby mode. In this mode, the power indicator is half illuminated.

3 Remote control sensor

Receives signals from the remote control transmitter.

4 Display panel

Shows station frequencies and various information. (Refer to page 16 for details.)

5 INPUT selector

Selects a program source to listen to and/or watch. When turned, the name of a selected source appears on the display.

PTY SELECTOR

<Europe and U.K. models only>

When this unit is in the PTY SEEK mode, turning this control changes the currently selected program type.

6 VOLUME control

Used to raise or lower the volume level.

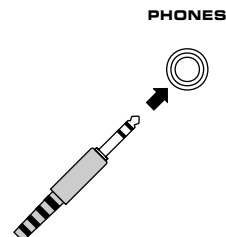
7 Control door

See page 13 for how to open and close the control door.

8 PHONES jack

When you listen with headphones, connect the headphones to the **PHONES** jack. You can listen to the sound to be output from the front speakers through headphones.

When listening with headphones privately, set both the **SPEAKERS A** and **B** switches to the **OFF** position and switch off the digital sound field processor (so that no DSP program name is illuminated on the display) by pressing the **EFFECT** key.



9 SPEAKERS switches

Set the switch **A** or **B** (or both **A** and **B**) for the front speaker system (connected to this unit) you will use to the **ON** position. Set the switch for the front speaker system you will not use to the **OFF** position.

10 RDS MODE/FREQ button
<Europe and U.K. models only>

When an RDS station is received, pressing this button changes the display mode into the PS mode, PTY mode and/or RT mode (if the station employs those RDS data services), and frequency display in turn.

11 PTY SEEK MODE button
<Europe and U.K. models only>

When this button is pressed, the unit turns into the PTY SEEK mode.

12 PTY SEEK START button
<Europe and U.K. models only>

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

13 EON button
<Europe and U.K. models only>

Press this button to select a desired program type (NEWS, INFO, AFFAIRS, SPORT) when you want to call a radio program of that program type automatically.

14 FM/AM buttons

Press this button to switch the reception band to FM or AM.

15 A/B/C/D/E button

Press this button to select a desired group (A–E) of preset stations.

16 TUNING MODE (AUTO/MAN'L MONO) button

Press this button to switch the tuning mode to automatic or manual. To select the automatic tuning mode, press this button so that "AUTO" lights up on the display. To select the manual tuning mode, press this button so that "AUTO" goes off.

17 MEMORY (MAN'L/AUTO FM) button

When this button is pressed, the MEMO indicator flashes for about 5 seconds. During this period, select a desired preset station number by pressing the **PRESET STATIONS** button once or more, and then press the **MEMORY** button once again to enter the displayed station into the memory.

When this button is pressed and held for about 3 seconds, the automatic preset tuning begins. (Refer to page 24 for details.)

18 PRESET STATIONS/TUNING button

Functions as the **PRESET STATIONS** button when "PRESET" is illuminated on the display, and functions as the **TUNING** button when "PRESET" is not illuminated on the display.

PRESET STATIONS:

Selects a preset station number (from 1 to 8) whenever the left or the right side of this button is pressed.

TUNING:

Used for tuning. Press the \triangleright side to tune in to higher frequencies, and press the \triangleleft side to tune in to lower frequencies.

19 CENTER MODE button

Selects a center channel output mode (NORMAL, WIDE or PHANTOM). (For details, refer to page 18.)

20 PROGRAM button

Whenever this button is pressed, the built-in digital sound field processor turns on and the currently selected DSP program changes sequentially and then the digital sound field processor turns off, and those are repeated.

21 KEY MODE/EDIT button

Whenever this button is pressed, "PRESET" appears and disappears on the display alternately. This is for switching the function of the **PRESET STATIONS/TUNING** button.

This button is also used to exchange the places of two preset stations with each other.

22 Tone controls

BASS

Used to increase or decrease the low frequency response. The 0 position produces flat response.

TREBLE

Used to increase or decrease the high frequency response. The 0 position produces flat response.

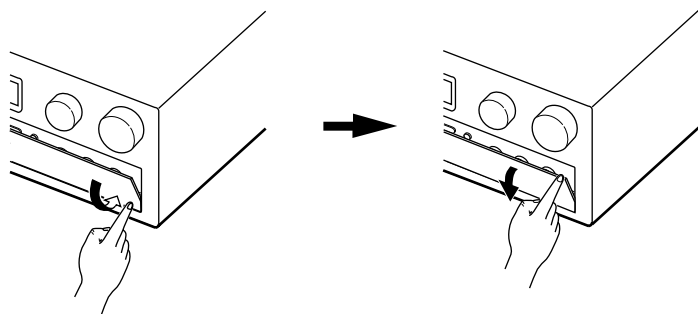
23 BALANCE control

Adjusts the balance of the output volume to the left and right speakers to compensate for sound imbalance caused by speaker location or listening room conditions.

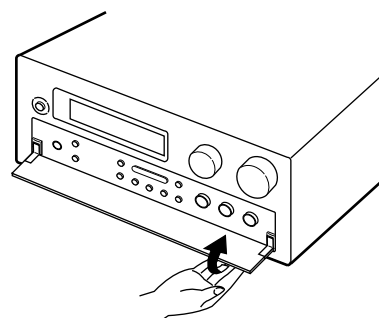
Open/close the control door

When it is not necessary to operate controls inside the control door, close the door.

To open the door

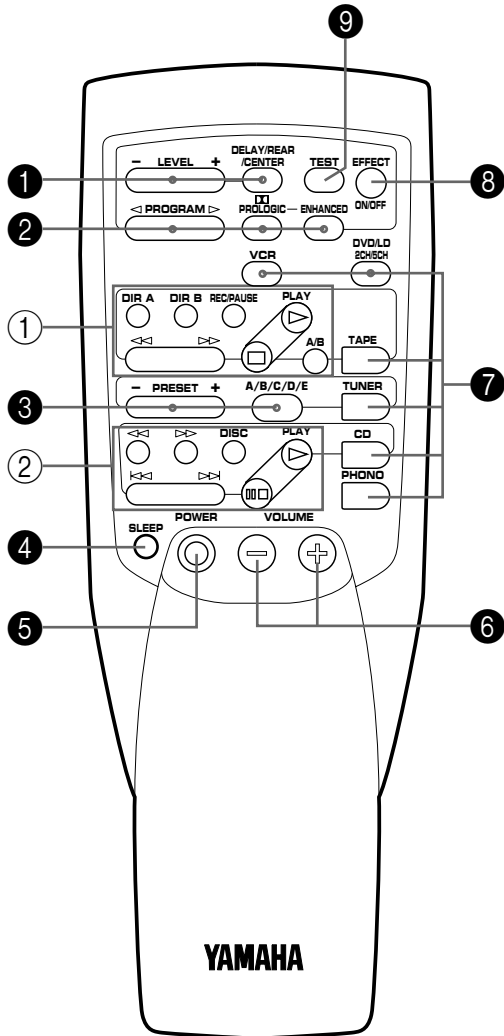


To close the door



REMOTE CONTROL TRANSMITTER

The remote control transmitter provided with this unit is designed to control all the most commonly used functions of this unit. If the CD player and tape deck connected to this unit are YAMAHA components designed for remote control compatibility, then this remote control transmitter will also control various functions of each component.



For Control of This Unit

1 DELAY/REAR/CENTER and LEVEL +/- keys

Adjust the delay time (DELAY), the rear channel output level (REAR) and center channel output level (CENTER). (For details, refer to page 33 and 34.)

2 Program selector keys

PROGRAM:

When the built-in digital sound field processor is on, this key changes the currently selected DSP program whenever the right or left side of this key is pressed.

PROLOGIC:

Directly selects the **PRO LOGIC** program.

ENHANCED:

Directly selects the **PRO LOGIC ENHANCED** program.

3 Tuner keys

Controls tuner.

+: Selects higher preset station number.

-: Selects lower preset station number.

A/B/C/D/E: Selects the group (A – E) of preset station numbers.

4 SLEEP timer key

The power to this unit is automatically turned off one hour after this key is pressed (so that "SLEEP" lights up on the display).

5 POWER key

Turns the power on/off.

* **<Europe, U.K. and General models only>**

While the power is on, pressing the **POWER** key on the remote control transmitter switches the unit from the power-on mode to the standby mode, and vice versa. (In the standby mode, the power indicator on the front panel is half illuminated.)

6 VOLUME +/- keys

Turns the volume level up/down.

7 Input selector keys

Selects input source.

8 EFFECT ON/OFF key

Switches on/off the digital sound field processor (DSP).

9 TEST key

Used for speaker balance adjustment. (For details, refer to page 17, 18 and 19.)

For Other Component Control

Identify the remote control transmitter keys with your component's keys. If these keys are identical, their functions will be the same. On each key function, refer to the corresponding instruction on your component's manual.

① Tape deck keys

Controls tape deck.

- * **DIR A, B** and **A/B** are applicable only to double cassette tape deck.
- * For a single cassette deck with automatic reverse function, pressing **DIR A** will reverse the direction of tape running.

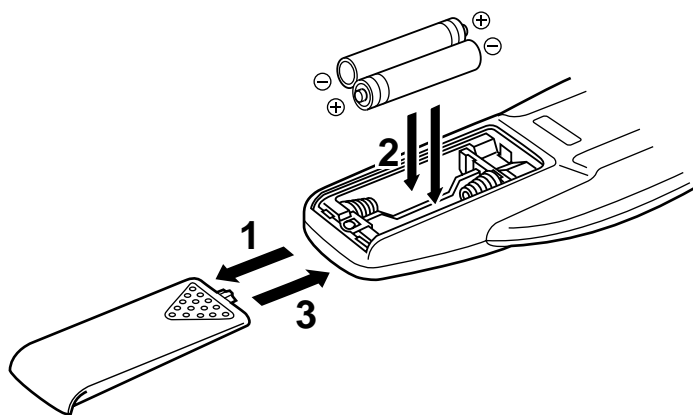
② CD player keys

Controls compact disc player.

- * **DISC** is applicable only to compact disc changer.

NOTES ABOUT THE REMOTE CONTROL TRANSMITTER

Battery installation



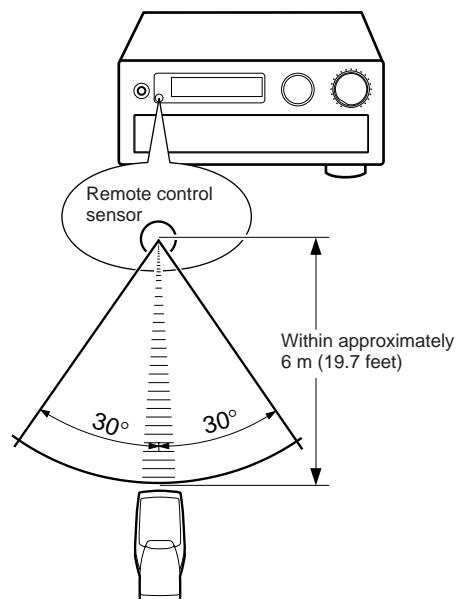
Battery replacement

If you find that the remote control transmitter must be used closer to the main unit, the batteries are weak. Replace both batteries with new ones.

Notes

- Use only AA, R6, UM-3 batteries for replacement.
- Be sure the polarities are correct. (See the illustration inside the battery compartment.)
- Remove the batteries if the remote control transmitter will not be used for an extended period of time.
- If batteries leak, dispose of them immediately. Avoid touching the leaked material or letting it come in contact with clothing, etc. Clean the battery compartment thoroughly before installing new batteries.

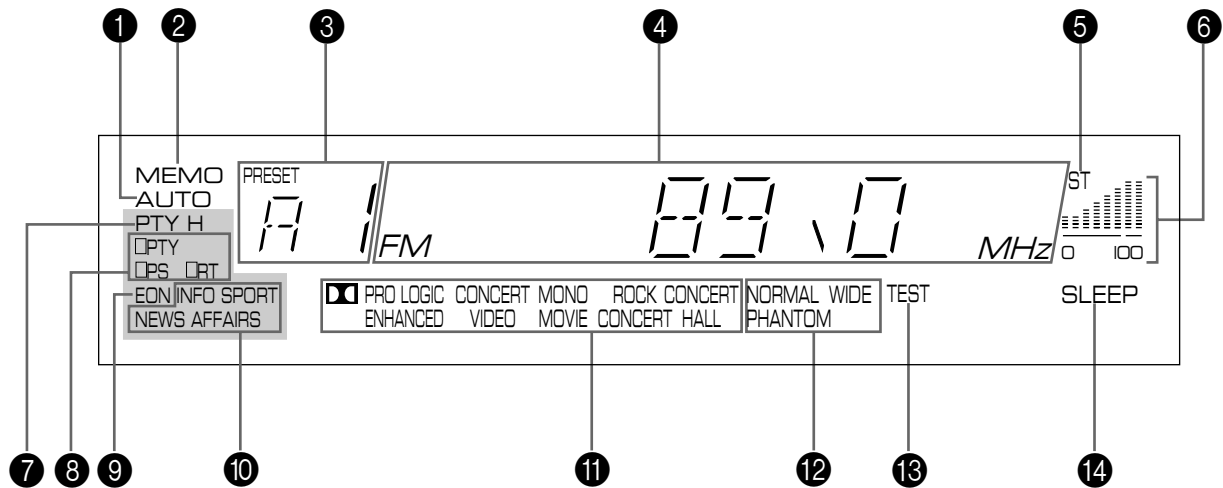
Remote control transmitter operation range



Notes

- There should be no large obstacles between the remote control transmitter and the main unit.
- If the remote control sensor is directly illuminated by strong lighting (especially an inverter type of fluorescent lamp etc.), it might cause the remote control transmitter not to work correctly. In this case, reposition the main unit to avoid direct lighting.

DISPLAY PANEL



Indicators in the shaded area are provided for Europe and U.K. models only.

1 AUTO indicator

Lights up when this unit is in the automatic tuning mode.

2 MEMO indicator

When the **MEMORY** button is pressed, this indicator flashes for about 5 seconds. During this period, the displayed station can be programmed to the memory by using the **A/B/C/D/E** button and the **PRESET STATIONS** button.

3 Preset station number indicator

Shows the selected group (A–E) and preset station number (1–8).

4 Multi-information display

Displays various information, for example station frequency and name of the selected source.

5 STEREO indicator

Lights up when an FM stereo broadcast with sufficient signal strength is received.

6 Signal-level meter

Indicates the signal level of the received station. If multipath interference is detected, the indication decreases.

7 PTY H (HOLD) indicator

<Europe and U.K. models only>

Lights up while the search is performed in the PTY SEEK mode.

8 RDS mode indicators

<Europe and U.K. models only>

The name(s) of RDS mode(s) employed by the currently received RDS station light(s) up. Illumination of the indicator on the head of a name shows that the corresponding RDS mode is now selected.

9 EON indicator

<Europe and U.K. models only>

Lights up when an RDS station that employs the EON data service is received.

10 Program type name indicators

<Europe and U.K. models only>

The name selected in the EON mode lights up.

11 DSP program indicators

The name of a selected DSP program lights up when the built-in digital sound field processor is on.

12 Center channel mode indicators

The name of a selected center channel mode lights up only when the **DOLBY PRO LOGIC** or **DOLBY PRO LOGIC ENHANCED** program is selected.

13 TEST indicator

Flashes when the built-in test-tone generator is functioning (when the test-tone is output from speakers).

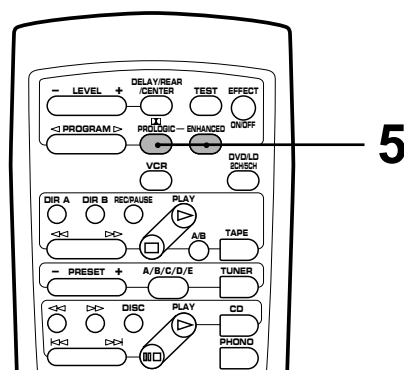
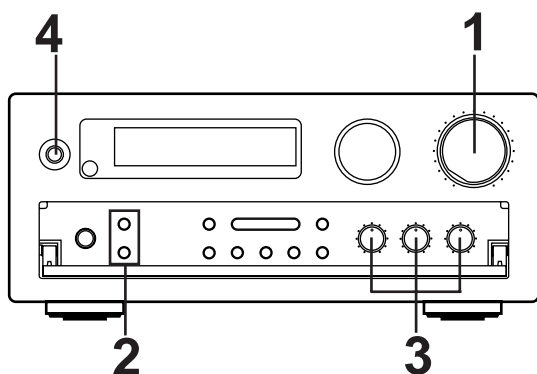
14 SLEEP indicator

Lights up while the built-in SLEEP timer is functioning.

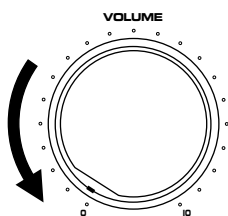
SPEAKER BALANCE ADJUSTMENT

This procedure lets you adjust the sound output level balance between the front, center, and rear speakers using the built-in test tone generator. When this adjustment is performed, the sound output level heard at the listening position will be the same from each speaker. This is important for the best performance of the digital sound field processor.

The adjustment of each speaker output level should be done at your listening position with the remote control transmitter. Otherwise, the result may not be satisfactory.

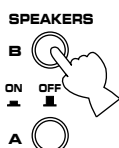


1



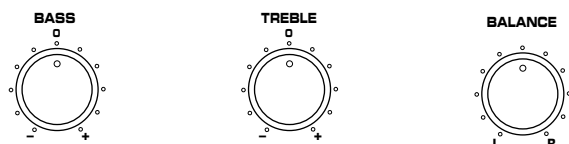
Set to the "0" position.

2 Select the front speakers to be used.



* If you use two front speaker systems, press both the A and B switches.

3

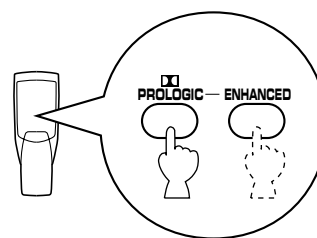


Set to the "0" position.

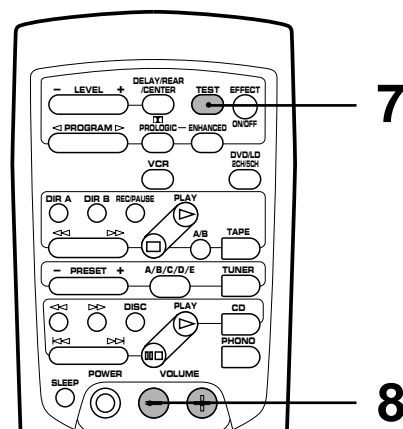
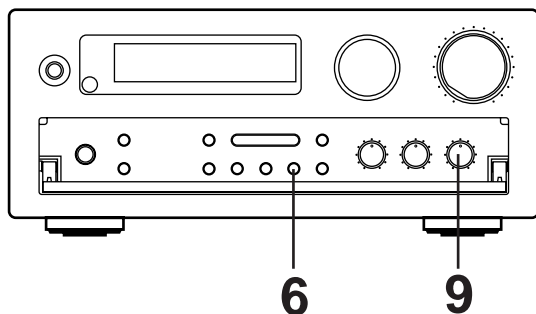
4 Turn the power on.



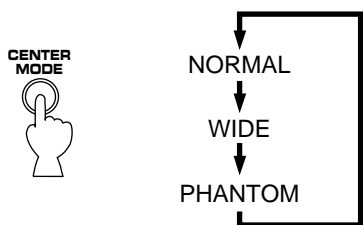
5 Select the ☒ PRO LOGIC or ☒ PRO LOGIC ENHANCED program, so that the corresponding name lights up on the display.



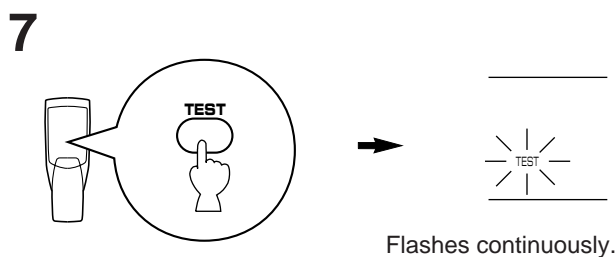
CONTINUED



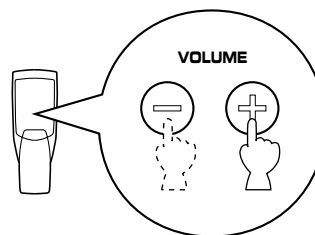
- 6** Select the center channel output mode suitable for your speaker configuration.
(Refer to **"SPEAKER CONFIGURATION"** on page 6.)



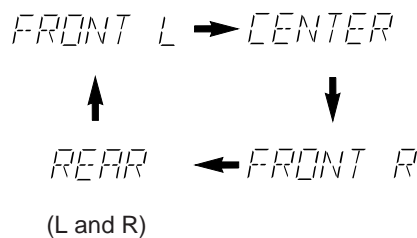
On the feature of each mode, refer to the **"Note"** shown below.



- 8** Turn up the volume.



You will hear a test tone (like pink noise) from the left front speaker, then the center speaker, then the right front speaker, and then the rear speakers, for about two seconds each. The display changes as shown below.



* The test tone from the left rear speaker and the right rear speaker will be heard at the same time.

- 9** Adjust the **BALANCE** control so that the effect sound output level of the left front speaker and the right front speaker are the same.



Note

In step 6, when you select the center channel output mode, note the following.

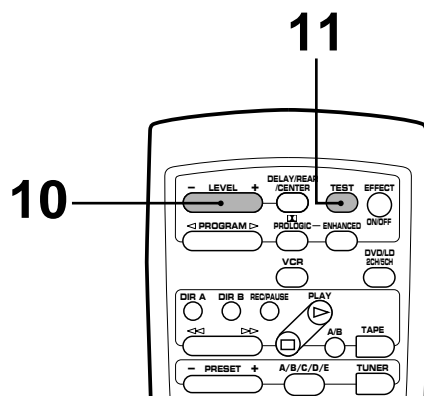
For 5 speaker configuration)

NORMAL: Select this mode when you use a center speaker that is smaller than the front speakers. In this mode, the bass tone will be output from the front speakers.

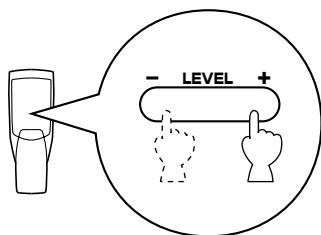
WIDE: Select this mode when you use the center speaker approximately same sized as the front speakers.

For 4 speaker configuration)

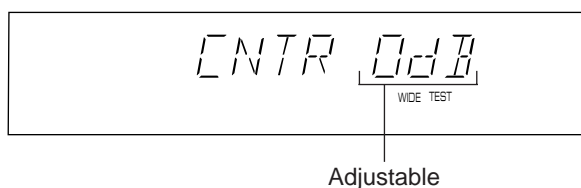
PHANTOM: Select this mode when you do not use the center speaker. The center sound will be output from the left and right front speakers.



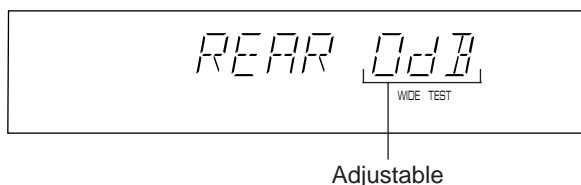
- 10** Adjust the sound output levels of the center speaker and the rear speakers by using the **LEVEL** key so that they become almost as same as that of the front speakers.



- When the test tone is output from the center speaker, pressing the **LEVEL** key changes the output level of the center speaker.

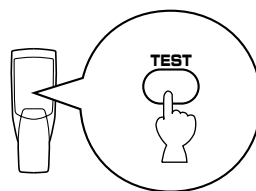


- When the test tone is output from the rear speakers, pressing the **LEVEL** key changes the output level of the rear speakers.



- * Pressing the + side raises and the – side lowers the level.

- 11** Cancel the test tone.



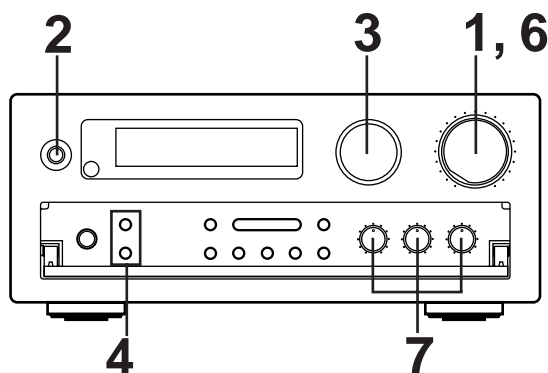
Stops flashing and disappears

Notes

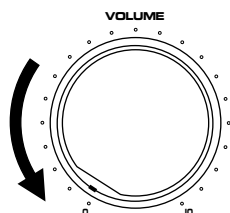
- Once you have completed these adjustments, you can adjust whole sound level on your audio system by using the **VOLUME** control (or the **VOLUME** keys on the remote control transmitter) only.
- If you use external power amplifiers, you may also use their volume controls to achieve proper balance.
- In step 10, if the center channel mode is in the "PHANTOM" position, the sound output level of the center speaker cannot be adjusted. This is because in this mode, the center sound is automatically output from the left and right front speakers.
- If the selected input source mode is "DVD 5cH", the test tone generator will not function.

BASIC OPERATIONS

TO PLAY A SOURCE



1

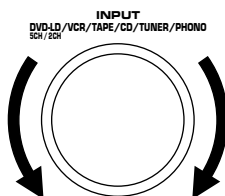


Set to the "0" position.

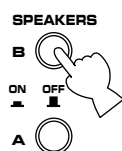
2 Turn the power on.



3 Select the desired input source by turning the **INPUT** selector so that the name of the source appears on the display.
(For video sources, turn the TV/monitor ON.)



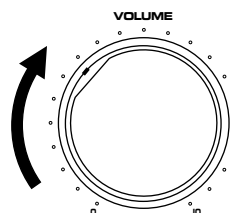
4 Select the front speakers to be used.



* If you use two front speaker systems, press both the A and B switches.

5 Play the source. (For detailed information on the tuning operation, refer to page 22.)

6

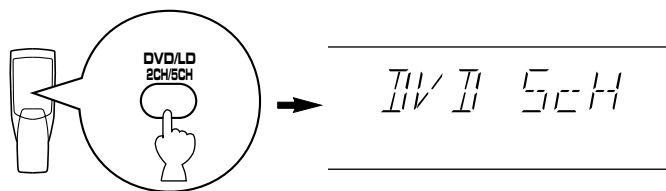


Adjust to the desired output level.

7 If desired, adjust the **BASS, TREBLE, BALANCE** controls, etc. (refer to page 21) and use the digital sound field processor. (Refer to page 32.)

To listen to a decoded source using Dolby Digital (AC-3) by reproducing the signals input to the DVD/LD 5CH DISCRT INPUT terminals of this unit

In step 3, turn the **INPUT** selector on the front panel or press the **DVD/LD (2CH/5CH)** key on the remote control transmitter once or twice so that "DVD 5ch" appears on the display. To cancel it, select another input source mode.



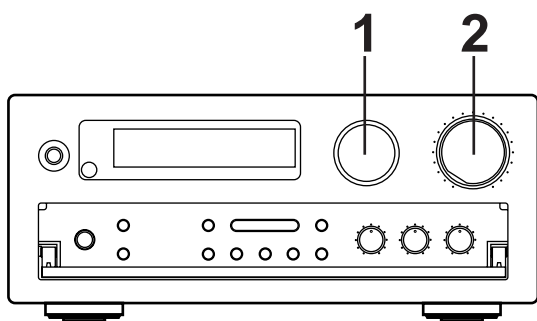
Note

When you switch to this "DVD 5ch" mode, the built-in Digital Sound Field processor will not work and adjustment of delay time cannot be made.

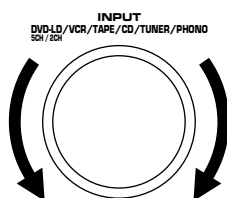
To turn off the power

Press the **POWER** switch again.

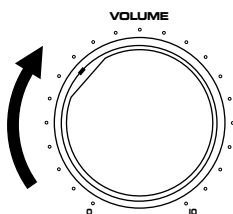
TO RECORD A SOURCE TO TAPE (OR DUB FROM TAPE TO TAPE)



- 1** Select the source to be recorded.



- 2** Play the source and then turn the **VOLUME** control up to confirm the input source. (For detailed information on the tuning operations, refer to the page 22.)



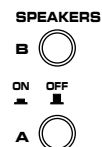
- 3** Begin recording on the tape deck or VCR connected to this unit.

Notes

- The settings of DSP and the **VOLUME**, **BASS**, **TREBLE** and **BALANCE** control settings have no effect on the material being recorded.
- In step 1, do not make an input source selection so that "DVD 5ch" appears on the display. Signals input to this unit's DVD/LD 5CH DISCRT INPUT terminals cannot be recorded by a tape deck or a VCR.

Selecting the **SPEAKER** system

Because one or two speaker systems (as front speakers) can be connected to this unit, the **SPEAKERS** switches allow you to select speaker system **A** or **B**, or both at once.



Adjusting the **BALANCE** control

Adjust the balance of the output volume to the left and right speakers to compensate for sound imbalance caused by speaker location or listening room conditions.



Note

This control is effective only for the sound from the front speakers.

Adjusting the **BASS** and **TREBLE** controls



BASS : Turn this clockwise to increase (or counter-clockwise to decrease) the low frequency response.

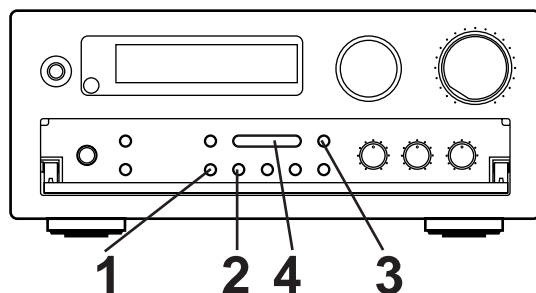
TREBLE : Turn this clockwise to increase (or counter-clockwise to decrease) the high frequency response.

Note

These controls are effective only for the sound from the front speakers.

TUNING OPERATIONS

Normally, if station signals are strong and there is no interference, quick automatic-search tuning (AUTOMATIC TUNING) is possible. However, if signals of the station you want to select are weak, you must tune to it manually (MANUAL TUNING).



AUTOMATIC TUNING

- 1 Select the reception band (FM or AM) confirming it on the display.



- 2 An arrow points to the display showing 'AUTO' with radiating lines.

- 3 If "PRESET" is illuminated on the display, press the **KEY MODE** button to turn it off.



- 4

To tune to a higher frequency, press the right side once.
To tune to a lower frequency, press the left side once.
* If the station where tuning search stops is not the desired one, press again.
* If the tuning search does not stop at the desired station (because the signals of the station are weak), change to the MANUAL TUNING method.

MANUAL TUNING

- 1 Select the reception band (FM or AM) confirming it on the display.

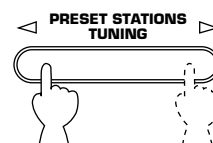


- 2 An arrow points to the text 'Turn "AUTO" off.'

- 3 If "PRESET" is illuminated on the display, press the **KEY MODE** button to turn it off.



- 4 Tune to a desired station manually.



* To continue tuning search, press and hold the button.

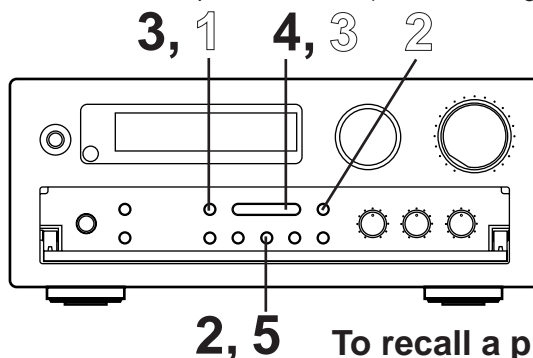
Notes

- If you tune to an FM station manually, it is received in monaural mode automatically to increase the signal quality.
- **<Europe and U.K. models only>**
When tuned in to a station, the frequency of the received station is shown on the display. If an RDS station that employs PS data service is received, the frequency is then replaced by the station name. Refer to page 28 for details.

PRESET TUNING


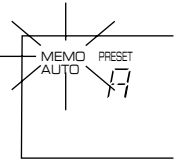
MANUAL PRESET TUNING

This unit can store station frequencies selected by tuning operation. With this function, you can recall any desired station by only selecting the preset station number where it is stored. Up to 40 stations (8 stations x 5 groups) can be stored.

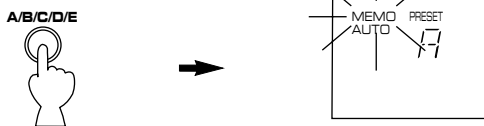


To store stations

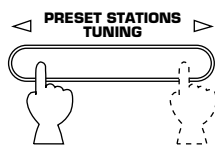
- 1 Tune to a desired station.
(Refer to the previous page for tuning procedure.)

- 2  → 
Flashes on and off for about 5 seconds.

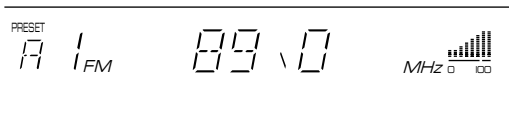
- 3 Select a desired group (A – E) of preset stations confirming it on the display.



- 4 Select a preset station number (1–8) where you want to program the station before “MEMO” goes off from the display.



- 5  →



Shows the displayed station has been programmed to A1.

- * In the same way, program other stations to A2, A3 ... A8.
- * You can program more stations to preset station numbers on other groups in the same way by selecting other groups in step 3.

To recall a preset station

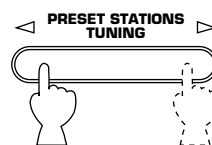
- 1 Select the group of preset stations.



- 2 If “PRESET” is not illuminated on the display, you cannot recall the preset stations. Press the **KEY MODE** button to turn it on.



- 3 Select the preset station number.



Notes

- A new setting can be programmed in place of the former one.
- For presets, the setting of the reception mode (stereo or monaural) is stored along with the station frequency.

Memory back-up

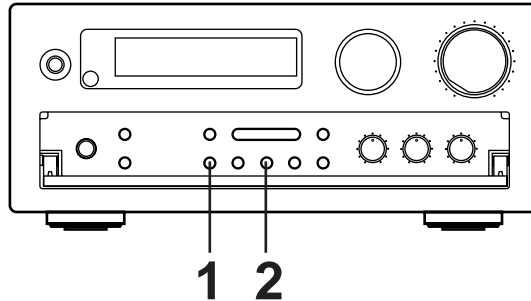
The memory back-up circuit prevents the programmed data from being lost even if the **POWER** switch is set off or the power plug is disconnected from the AC outlet or the power is cut due to temporary power failure. If, however, the power is cut for more than one week, the memory may be erased. If so, it can be re-programmed by simply following the PRESET TUNING steps.

AUTOMATIC PRESET TUNING

You can also make use of an automatic preset tuning function for FM stations only. By this function, this unit performs automatic tuning and stores FM stations with strong signals sequentially. Up to 40 stations are stored automatically in the same way as in the manual preset tuning method on page 23.

*** <Europe and U.K. models only>**

Only RDS stations can be stored by this function.



To store stations

1

→

2

↓

Press and hold for about 3 seconds.

Flashes.

The automatic preset tuning begins from A1. Received stations are programmed to A1, A2 ... A8 sequentially.

* If more than 8 stations are received, they are also programmed to the preset station numbers on other groups (B, C, D and E) in that order.

When the automatic preset tuning is finished

The display shows the frequency of the last preset station. Check the contents and the number of preset stations by following the procedure of the section "To recall a preset station" on page 23.

To recall a preset station

Simply follow the procedure of the section "To recall a preset station" on page 23.

*** <Europe and U.K. models only>**

A recalled station is shown by the frequency or station name on the display.

Notes

- You can replace a preset station by another FM or AM station manually by simply following the procedure of the section "To store stations" on page 23.

<U.S.A. and General models only>

- If the number of received stations is not enough to be stored up to E8, the search will be finished automatically after searching all frequencies.
- With this function, only FM stations with sufficient signal strength are stored automatically. If the station you want to program is weak in signal strength, tune to it in monaural manually and program it by following the procedure of the section "To store stations" on page 23.

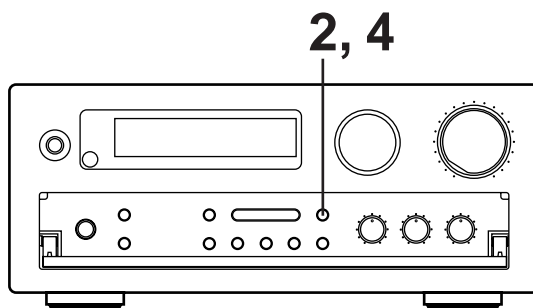
<Europe and U.K. models only>

- The automatic preset tuning search is performed through all RDS network frequencies until stations are stored up to E8. If the number of received stations is not enough to be stored up to E8, the search will be finished automatically after searching all frequencies.
- With this function, only RDS stations with sufficient signal strength are stored automatically. If the station you want to program is weak in signal strength, tune to it in monaural manually and program it by following the procedure of the section "To store stations" on page 23.

* There may be a case that this function cannot receive a station which could be received by the automatic tuning method. This is because this function receives a large volume of PI (Program Identification) data along with the station.

EXCHANGING PRESET STATIONS

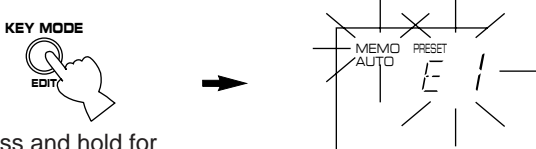
You can exchange the places of two preset stations with each other as shown below.



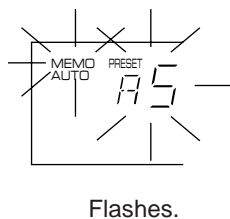
Example)

If you want to shift the preset station on E1 to A5, and vice versa.

- 1** Recall the preset station on E1 (by following the method of "To recall a preset station" on page 23).

- 2**
- 
- Press and hold for about 3 seconds.
- Flashes.

- 3** Next, recall the preset station on A5 by following the same method with step 1.



4



E1 -- A5

Shows the exchange of stations is completed.

In areas where RDS broadcasts cannot be received, the RDS broadcast functions do not operate. (The procedures from page 26 to page 30 are not necessary.)

RECEIVING RDS STATIONS

Europe and U.K. models only

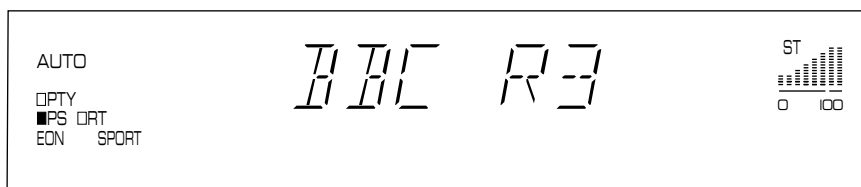
RDS (Radio Data System) is a data transmission system gradually being introduced by FM stations in many countries. Stations using this system transmit an inaudible stream of data in addition to the normal radio signal.

RDS data contains various information, such as PI (Program Identification), PS (Program Service name), PTY (Program Type), RT (Radio Text), EON (Enhanced Other Networks), etc.

RDS function is carried out among the network stations.

* This unit utilizes PI, PS, PTY, RT and EON to receive RDS broadcast stations.

Displaying RDS data



This unit can be turned into the following four modes to display RDS data.

PS (Program Service name) mode:

Displays the name of the RDS station now being received instead of the frequency.

PTY (Program Type) mode:

Displays the type of the program on the RDS station now being received. There are 15 program types to classify RDS stations. Refer to the next page for details.

RT (Radio Text) mode:

Displays information about the program (such as title of the song, name of the singer, etc.) on the RDS station now being received.

EON (Enhanced Other Networks) mode:

Automatically receives a program of the designated program type when its broadcast starts, in place of the program now being received. When the broadcast of the called program ends, the previously received program (or another program on the same station) is recalled.

Program types in the PTY mode

NEWS

News:

Short accounts of facts, events and publicly expressed views, reportage and actuality.

AFFAIRS

Current affairs:

Topical program expanding or enlarging upon the news, generally in different presentation style or concept, including documentary debate, or analysis.

INFO

Information:

Program whose purpose is to impart advice in the widest sense, including meteorological reports and forecasts, consumer affairs, medical help, etc.

SPORT

Sport:

Program concerned with any aspect of sport.

EDUCATE

Education:

Program intended primarily to educate, of which the formal element is fundamental.

DRAMA

Drama:

All radio plays and serials.

CULTURE

Culture:

Programs concerned with any aspect of national or regional culture, including religious affairs, philosophy, social science, language, theatre, etc.

SCIENCE

Science:

Programs about the natural sciences and technology.

VARIED

Varied:

Used for mainly speech-based programs usually of light-entertainment nature, not covered by above categories. Examples are: quizzes, panel games, personality interviews, comedy and satire.

POP M

Pop:

Commercial music, which would generally be considered to be of current popular appeal, often featuring in current or recent record sales charts.

ROCK M

Rock:

Contemporary modern music, usually written and performed by young musicians.

M.O.R. M

M.O.R.:

(Middle of the Road Music). Common term to describe music considered to be "easy-listening", as opposed to Pop, Rock or Classical. Music in this category is often but not always, vocal, and usually of short duration (<5 min.)

LIGHT M

Light classics:

Classical Musical for general, rather than specialist appreciation. Examples of music in this category are instrumental music, and vocal or choral works.

CLASSICS

Serious classics:

Performances of major orchestral works, symphonies, chamber music etc., and including Grand Opera.

OTHER M

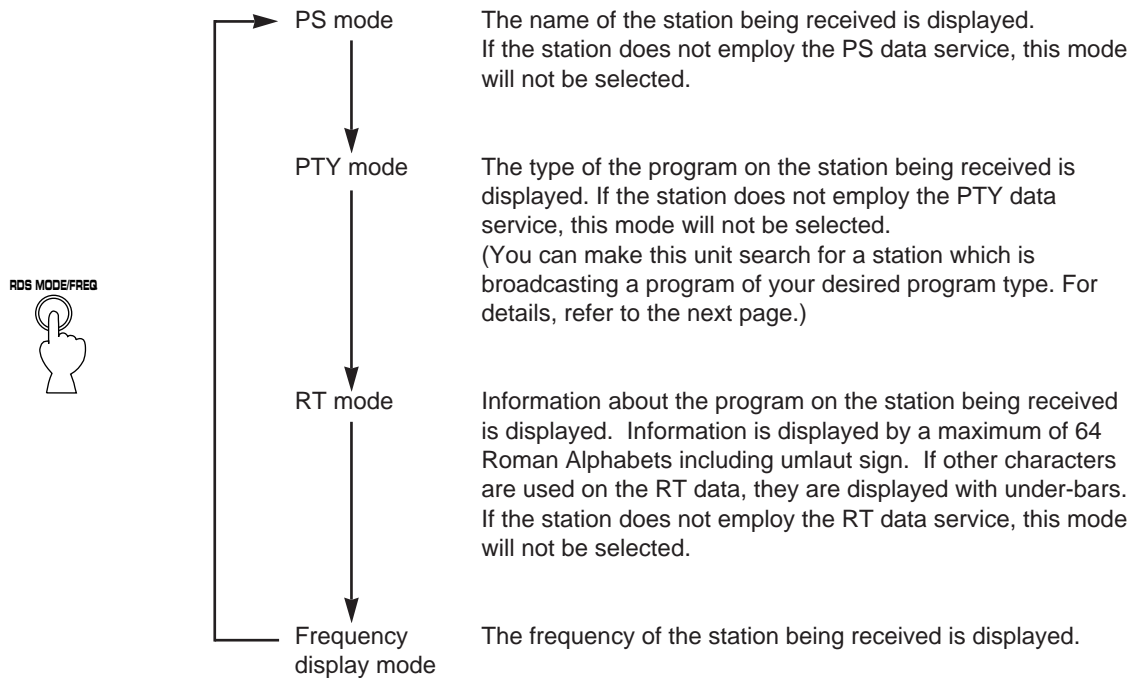
Other music:

Musical styles not fitting into any of the above categories. Particularly used for specialist music, of which Jazz, Rhythm & Blues, Folk, Country, and Reggae are examples.

Changing the RDS modes

When an RDS station is received, "PS", "PTY" and/or "RT" that correspond to the RDS data services employed by the station light up on the display. By pressing the **RDS MODE/FREQ** button once or more, you can change the display mode among the RDS modes employed by the received station in the order shown below. (The RDS mode not employed by the station cannot be selected.) Illumination of the indicator on the head of a name of RDS mode shows that the corresponding RDS mode is now selected.

- * When an RDS station is received, do not press the **RDS MODE/FREQ** button until one or some names of RDS modes light up on the display. If the button is pressed before one or some names light up on the display, the mode cannot be changed. This is because the unit has not received all of the RDS data on the station yet.
- * If no name of RDS mode lights up on the display, the mode cannot be changed.



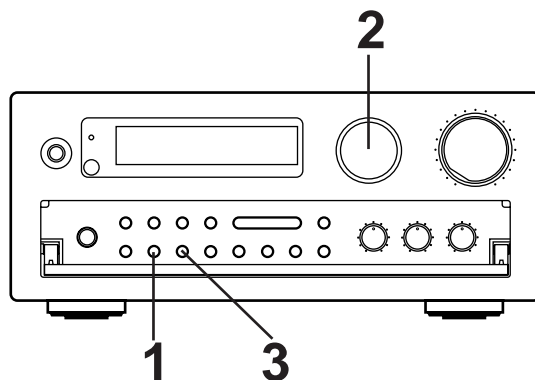
Notes

- RDS data service cannot be utilized by this unit if the received signal is not strong enough. Especially, the RT (Radio Text mode) needs much data to be received, so it may occur that RT mode cannot be displayed even if other RDS modes (PS, PTY, etc.) are displayed.
- There may be a case that RDS data reception is not possible due to poor reception conditions. If so, press the **TUNING MODE** button so that "AUTO" goes off from the display. Though the reception mode is changed to monaural by this operation, when you change the display to an RDS mode, RDS data may be displayed.

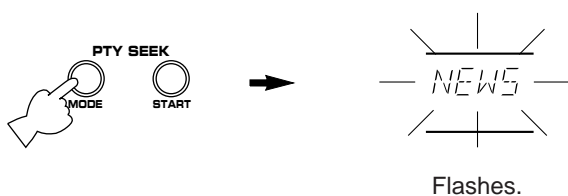
Calling a program of your desired program type from among preset RDS stations (PTY SEEK)

By designating a program type, the unit automatically searches all preset stations for an RDS station which broadcasts a program of that program type.

* There are 15 program types to classify RDS stations. For details, refer to page 27.

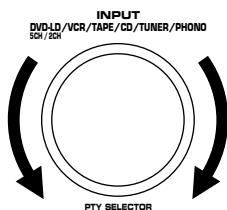


1 Turn the unit into the PTY SEEK mode.

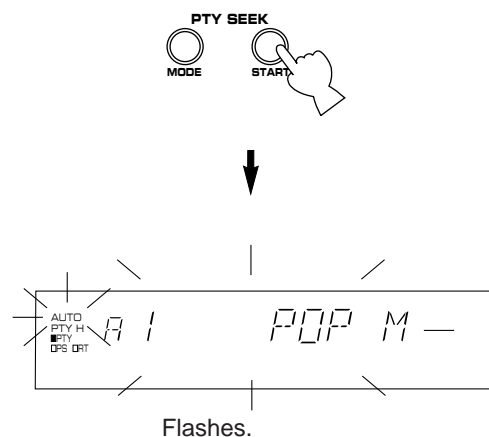


* The program type of the station now being received or "NEWS" flashes on the display.

2 Select the desired program type.



3 Begin searching all preset RDS stations.



* "PTY H" lights up on the display.

- If a station which broadcasts a program of the program type is found, the unit stops at the station and displays the frequency of the station.
- If the called station is not the desired one, press the **PTY SEEK START** button once more. The unit begins searching for another station which broadcasts a program of the same program type.
- To stop the search, press the **PTY SEEK START** button once more.

To cancel this function

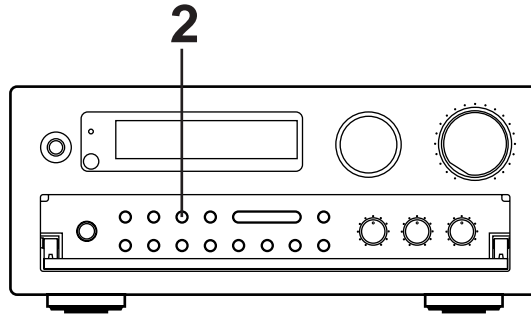
If the **PTY SEEK MODE** button is pressed once more, the PTY SEEK mode is canceled.

Making this unit call a program of your desired program type automatically when its broadcast starts

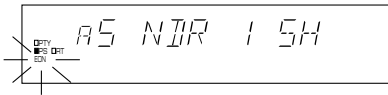
This function uses the EON (Enhanced Other Networks) data service on the RDS station network.

By only selecting a desired program type (NEWS, INFO, AFFAIRS or SPORT), this unit automatically searches all preset RDS stations for a station that broadcasts a program of that program type in the background, and, if found, receives a program when its broadcast starts in place of the program now being received.

* This function can be used only when an RDS station that employs the EON data service is received. (When such a station is received, "EON" lights up on the display.)



- 1 Make sure that "EON" is illuminated on the display.



* If "EON" is not illuminated on the display, receive an (or another) RDS station so that "EON" lights up on the display.

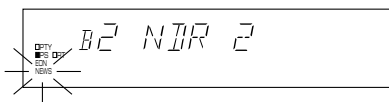
- 2 Select a desired program type, NEWS, INFO, AFFAIRS or SPORT.



Lights up.

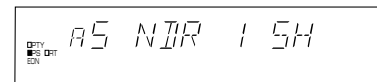
Press once or more.

The search is performed among all preset RDS stations in the background. If a program is found, the program is automatically received when its broadcast starts.



Flashes.

- 3 When the broadcast of the called program ends, the previously received program (or another program on the same station) is recalled.



To cancel this function

Press the **EON** button once or more, so that no program type name lights up on the display.

USING DIGITAL SOUND FIELD PROCESSOR (DSP)

This unit incorporates a sophisticated, multi-program digital sound field processor. The processor allows you to electronically expand and change the shape of the audio sound field from both audio and video sources, creating a theater-like experience in your listening room. This unit has a total of 6 digital sound field processor (DSP) programs. You can create an excellent audio sound field by selecting a suitable sound field (this will, of course, depend on what you will be listening to), and adding desired adjustments.



In addition, this unit incorporates a Dolby Pro Logic Surround decoder for multi-channel sound reproduction of sources encoded with Dolby Surround. The operation of the Dolby Pro Logic Surround decoder can be controlled by selecting a corresponding DSP program including a combined operation of the Yamaha DSP and the Dolby Pro Logic Surround.

Brief Overview of Digital Sound Field Programs

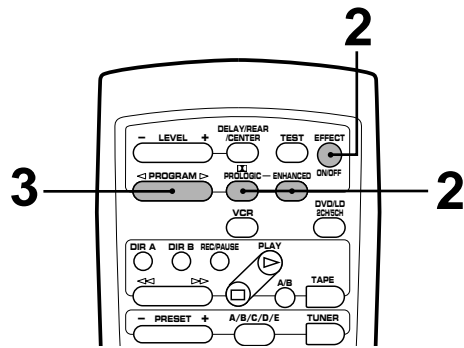
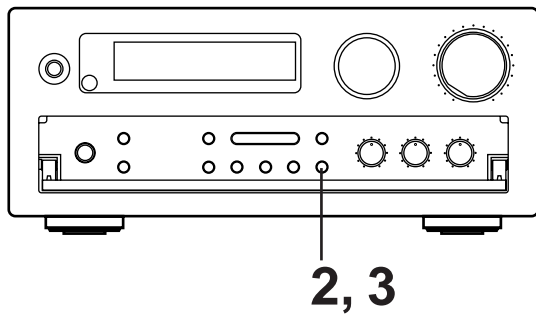
The following list gives you a brief description of the sound fields produced by each of the DSP programs. Keep in mind that most of these are precise digital recreations of actual acoustic environments. The data for these sound fields was recorded at actual locations using sophisticated sound field measurement equipment.

Note

The channel level balance between the left and right rear effect speakers may vary depending on the sound field you are listening to. This is due to the fact that most of these sound field recreations are actual acoustic environments.

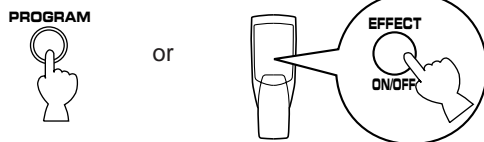
PROGRAM	FEATURE
 PRO LOGIC	This program is used for playback of sources encoded with Dolby Surround. The application of a sophisticated digital signal processing system reduces crosstalk and directs or steers the sound source more smoothly and precisely, as compared to conventional types.
 PRO LOGIC ENHANCED	This program is also used for playback of sources encoded with Dolby Surround. Enhancing the "Normal" Dolby Pro Logic, the DSP technology simulates the multi-surround speaker systems of a 35 mm movie theater. This effect creates a wide surround sound field, and expands the sound stage with an improved presence image. This program is used for musical based movies, as well as drama and comedy based movies.
CONCERT VIDEO	This program is effective for music videos and gives excellent depth and clarity for vocals. For opera, the orchestra and stage are ideally recreated, letting you feel as if you were in an actual concert hall.
MONO MOVIE	This program is designed specifically to enhance mono source programs. Compared to a strictly mono setting, the sound image created in this mode is wider and slightly forward of the speaker pair, lending an immediacy to the overall sound. It is particularly effective when used with old mono movies, news broadcasts and dialog.
ROCK CONCERT	This program is ideally suited for rock music. You will experience a very dynamic or lively sound field.
CONCERT HALL	In this program, the center will appear to be deep behind the front speakers, creating an expansive large hall ambience. Orchestra and opera music are suited for this sound field.

To play a source with the digital sound field processor

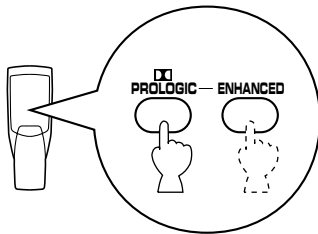


- 1** Follow steps 1 – 6 shown in “**BASIC OPERATIONS**” on page 20.

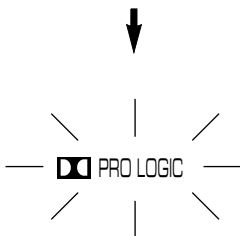
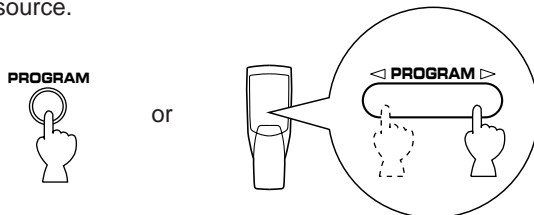
- 2** Turn the DSP on, so that a program name appears on the display.



* Pressing the **PRO LOGIC** or **ENHANCED** key turns the DSP on and selects the corresponding program directly. (If you press either of these buttons, you can skip step 3.)



- 3** Select the desired program that is suitable for the source.



The selected program name is shown on the display.

- 4** If desired, adjust the delay time and the output level of each speaker. (For details, refer to the corresponding descriptions on page 33 and 34.)

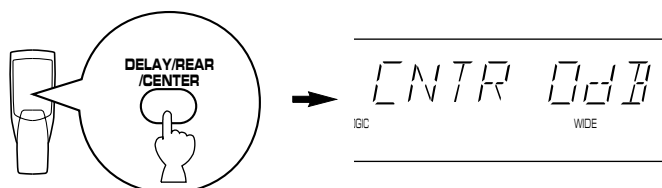
Notes

- If you prefer to cancel the DSP, press the **EFFECT** key. The sound will be the normal 2-channel stereo without surround sound effect.
- When **CONCERT VIDEO**, **MONO MOVIE**, **ROCK CONCERT** or **CONCERT HALL** is selected, no sound is heard from the center speaker.
- When a monaural sound source is played with **DOLBY PRO LOGIC** or **DOLBY PRO LOGIC ENHANCED**, no sound is heard from the front speakers and the rear speakers. Sound is heard only from the center speaker. However, if the center channel mode is in **PHANTOM**, the front speakers output the sound of the center channel.
- When this unit's Dolby Pro Logic Surround system is used, if the main-source sound is considerably altered by overadjustment of the **BASS** or **TREBLE** control, the relationship between the center and rear channels may produce an unnatural effect.

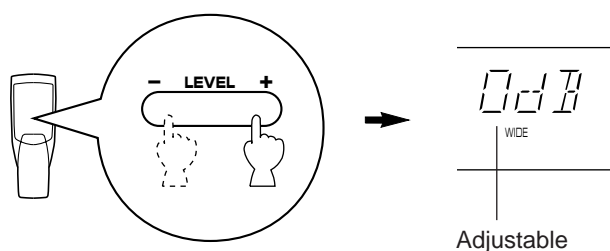
Adjustment of the CENTER LEVEL

If desired, you can adjust the sound output level of the center speaker even if the output level is already set in “**SPEAKER BALANCE ADJUSTMENT**” on page 19.

- 1 Press once or more so that “CNTR” appears on the display.



- 2 By continuously pressing the “+” or “-” side of the **LEVEL** key, the level value changes continuously.



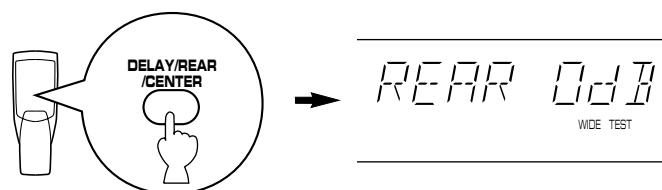
Notes

- This adjustment can be made only when the digital sound field program **DOLBY PRO LOGIC** or **DOLBY PRO LOGIC ENHANCED** is selected, or the “DVD 5cH” input source mode is selected.
- Once the output level is adjusted, the level value will be the same in the **DOLBY PRO LOGIC** and **DOLBY PRO LOGIC ENHANCED** programs.

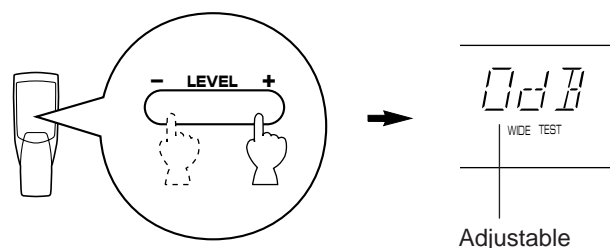
Adjustment of the REAR LEVEL

If desired, you can adjust the sound output level of the rear speakers even if the output level is already set in “**SPEAKER BALANCE ADJUSTMENT**” on page 19.

- 1 Press once or more so that “REAR” appears on the display.



- 2 By continuously pressing the “+” or “-” side of the **LEVEL** key, the level value changes continuously.



Notes

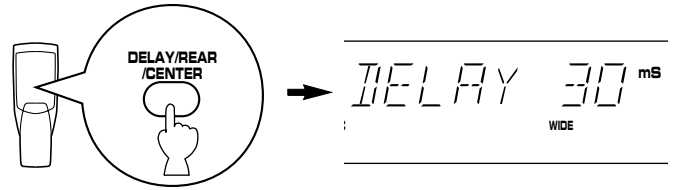
- This adjustment can be made only when the built-in digital sound field processor is on, or the “DVD 5cH” input source mode is selected.
- Once the output level is adjusted, the level value will be the same in all the digital sound field programs.

Adjustment of DELAY TIME

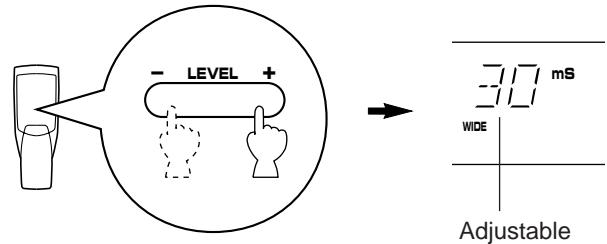
You can adjust the time difference between the beginning of the source sound and the beginning of the effect sound. This adjustment can be made to all programs individually. By applying more or less delay, sound effects, background noise, and ambient noise coming at you from the rear speakers can be enhanced or subdued for extra effect.

1. **PRO LOGIC** : from 15 to 30 milliseconds
(Preset value: 20 milliseconds)
2. **PRO LOGIC ENHANCED** : from 15 to 30 milliseconds
(Preset value: 20 milliseconds)
3. **CONCERT VIDEO** : from 1 to 100 milliseconds
(Preset value: 28 milliseconds)
4. **MONO MOVIE** : from 1 to 100 milliseconds
(Preset value: 20 milliseconds)
5. **ROCK CONCERT** : from 1 to 100 milliseconds
(Preset value: 17 milliseconds)
6. **CONCERT HALL** : from 1 to 100 milliseconds
(Preset value: 30 milliseconds)

- 1 Press once or more so that "DELAY" appears on the display.



- 2 By continuously pressing the "+" or "-" side of the **LEVEL** key, the value changes continuously. The value stops changing momentarily at the preset point.



Notes

- Adding too much delay will cause an unnatural effect with some sources.
- When the **LEVEL** key is pressed, sound is momentarily interrupted.

Note

The values of the delay time, center level and rear level you set the last time will remain memorized even when the power of this unit is off.

However, if the power cord is kept disconnected for more than one week, these values will be automatically changed back to the original factory settings.

TROUBLESHOOTING

If the unit fails to operate normally, check the following points to determine whether the fault can be corrected by the simple measures suggested. If it cannot be corrected, or if the fault is not listed in the SYMPTOM column, disconnect the power cord and contact your authorized YAMAHA dealer or service center for help.

	SYMPTOM	CAUSE	REMEDY
Amplifier	The unit fails to turn on when the POWER switch is pressed.	Power cord is not plugged in or is not completely inserted.	Firmly plug in the power cord.
	No sound or no picture.	Incorrect output cord connections.	Connect the cords properly. If the problem persists, the cords may be defective.
		Appropriate input source is not selected.	Select an appropriate input source with the INPUT selector.
		The SPEAKERS switches are not set properly.	Set the SPEAKERS switch which corresponds to the speakers to be used to the ON position.
		Speaker connections are not secure.	Secure the connections.
	The sound suddenly goes off.	The protection circuit has been activated because of short circuit etc.	Turning the unit off and then on will reset the protection circuit.
		The SLEEP timer has functioned.	Cancel the SLEEP timer function.
	Only one side speaker outputs the sound.	Incorrect setting of the BALANCE control.	Adjust it to the appropriate position.
		Incorrect cord connections.	Connect the cords properly. If the problem persists, the cords may be defective.
	Sound "hums".	Incorrect cord connections.	Firmly connect the audio plugs. If the problem persists, the cords may be defective.
		No connection from the turntable to the GND terminal.	Make the GND connection between the turntable and this unit.
	The volume level is low while playing a record.	The record is being played on a turntable with an MC cartridge.	The player should be connected to the unit through the MC head amplifier.
	The volume level cannot be increased, or sound is distorted.	The power to the component connected to the REC OUT terminals of this unit is off.	Turn the power to the component on.
	No sound from the rear speakers.	The sound output level to the rear speakers is set to 0.	Raise the sound output level to the rear speakers.
		The monaural sound source is played in DOLBY PRO LOGIC or DOLBY PRO LOGIC ENHANCED mode.	Select another program suitable for the monaural sound source.
FM	No sound from the center speaker.	The sound output level to the center speaker is set to 0.	Raise the sound output level to the center speaker.
		The center channel mode is in PHANTOM mode.	Select NORMAL or WIDE.
		Incorrect sound field program selection.	Select the appropriate program.
	FM stereo reception is noisy.	Because of the characteristics of FM stereo broadcasts, this is limited to cases where the transmitter is too far away or the antenna input is poor.	Check the antenna connections. Try using a high quality directional FM antenna. Set the TUNING MODE button to the manual tuning mode.
FM	There is distortion and clear reception cannot be obtained even with a good FM antenna.	There is multipath interference.	Adjust antenna placement to eliminate multipath interference.
	A desired station cannot be tuned in with the automatic tuning method.	The station is too weak.	Use the manual tuning method. Use a high quality directional FM antenna.
	Previously preset stations can no longer be tuned in.	This unit has been unplugged for a long period.	Repeat the presetting procedure.
AM	A desired station cannot be tuned in with the automatic tuning method.	Weak signal or loose antenna connections.	Tighten the AM loop antenna connections and rotate it for best reception. Use the manual tuning method.
	There are continuous crackling and hissing noises.	Noises will result from lightning, fluorescent lamps, motors, thermostats and other electrical equipment.	Use an outdoor antenna and a ground wire. This will help somewhat but it is difficult to eliminate all noise.
	There are buzzing and whining noises (especially in the evening).	A television set is being used nearby.	Relocate this unit away from the TV.
Remote control transmitter	The remote control transmitter does not work.	Direct sunlight or lighting (of an inverter type of fluorescent lamp etc.) is striking the remote control sensor of the main unit.	Change the position of the main unit.
		The batteries of this remote control transmitter are too weak.	Replace the batteries with new ones.
Others	The sound is degraded when listening with the headphones connected to the compact disc player or cassette deck that are connected with this unit.	The power to this unit is off.	Turn the power to this unit on.

SPECIFICATIONS

AUDIO SECTION

Minimum RMS Output Power per Channel	
Front L, R	
8 ohms, 20 Hz to 20 kHz, 0.04% THD	
.....	45W+45W
Center	
8 ohms, 1 kHz, 0.1% THD	45W
Rear	
8 ohms, 1 kHz, 0.7% THD	15W
Dynamic Power per Channel	
(by IHF Dynamic Headroom measuring method)	
[U.S.A. model]	
8/6/4/2 ohms	65/80/95/115W
[Europe, U.K. and General models]	
8/6/4/2 ohms	65/75/95/105W
DIN Standard Output Power per Channel	
4 ohms, 1 kHz, 0.7% THD	
[Europe model only]	60W
IEC Power	
8 ohms, 1 kHz, 0.1% THD	
[Europe model only]	50W
Power Band Width	
8 ohms, 22.5W, 0.1% THD	
.....	10 Hz to 50 kHz
Maximum Power [General model only]	
Front L, R (1 kHz, 10% THD, 8 ohms)	
.....	65W+65W
Center (1 kHz, 10% THD, 8 ohms)	
.....	65W
Input Sensitivity/Impedance	
PHONO MM	2.5 mV/47 k-ohms
CD/TAPE/DVD-LD/VCR	
.....	150 mV/47 k-ohms
Maximum Input Signal (1 kHz, 0.1% THD)	
PHONO MM	100 mV
Output Level/Impedance	
REC OUT	150 mV/0.75 k-ohms
Headphone Jack Rated Output/Impedance	
Output Level (8 ohms, 0.04% THD)	0.5V
Impedance	330 ohms
Frequency Response (20 Hz to 20 kHz)	
CD/TAPE/DVD-LD/VCR	0±0.5 dB
RIAA Equalization Deviation	
PHONO MM	0±0.5 dB
Total Harmonic Distortion	
PHONO MM to REC OUT	
20 Hz to 20 kHz, 1V	0.02%
CD/TAPE/DVD-LD/VCR to SP OUT	
20 Hz to 20 kHz, 22.5W/8 ohms	0.02%
Signal-to-Noise Ratio (IHF-A Network)	
PHONO MM to REC OUT	
(5 mV Input Shorted)	82 dB
CD/TAPE/DVD-LD/VCR to SP OUT (Shorted)	
.....	95 dB
Residual Noise (IHF-A Network)	
FRONT L/R	140 µV

Channel Separation (Vol. MAX, EFFECT OFF)	
PHONO MM	
(Input Shorted, 1 kHz)	60 dB
CD/TAPE/DVD-LD/VCR	
(Input 5.1 k-ohms Terminated, 1 kHz)	
.....	60 dB
Tone Control Characteristics	
BASS: Boost/cut	±10 dB (50 Hz)
Turnover Frequency	(350 Hz)
TREBLE: Boost/cut	±10 dB (20 kHz)
Turnover Frequency	(3.5 kHz)
Gain Tracking Error (0 to -60 dB)	3 dB

VIDEO SECTION

Video Signal Level	1 Vp-p/75 ohms
Maximum Input Level	1.5 Vp-p or more
Signal-to-Noise Ratio	50 dB or more
Monitor Out Frequency Response	5 Hz to 10 MHz, -3 dB

FM SECTION

Tuning Range	
[U.S.A. model]	87.5 to 107.9 MHz
[Europe, U.K. and General models]	
.....	87.5 to 108.0 MHz
50 dB Quieting Sensitivity (IHF, 75 ohms)	
Mono	1.55 µV (15.1 dBf)
Stereo	21 µV (37.7 dBf)
Usable Sensitivity (75 ohms)	
(30 dB S/N Quieting, 1 kHz, 100% mod.)	
[U.S.A. and General models]	
.....	0.8 µV (9.3 dBf)
DIN, Mono (S/N 26 dB)	
[Europe and U.K. models]	0.9 µV
DIN, Stereo (S/N 46 dB)	
[Europe and U.K. models]	24 µV
Image Response Ratio	
[U.S.A. and General models]	45 dB
[Europe and U.K. models]	80 dB
IF Response Ratio	80 dB
Spurious Response Ratio	70 dB
AM Suppression Ratio	55 dB
Capture Ratio	1.5 dB
Alternate Channel Selectivity	
[U.S.A. and General models]	85 dB
Selectivity (two signals, 40 kHz Dev.)	
[Europe and U.K. models]	70 dB
Signal-to-Noise Ratio	
(IHF) Mono/Stereo	
[U.S.A. and General models]	
.....	80 dB/75 dB
(DIN-Weighted, 40 kHz Dev.) Mono/Stereo	
[Europe and U.K. models]	74 dB/69 dB
Harmonic Distortion	
Mono/Stereo (1 kHz)	
[U.S.A. and General models]	0.1/0.2%
Mono/Stereo (40 kHz Dev.)	
[Europe and U.K. models]	0.1/0.2%

Stereo Separation (1 kHz)	
[U.S.A. and General models]	50 dB
[Europe and U.K. models (40 kHz Dev.)]	
.....	50 dB
Frequency Response	
30 Hz to 15 kHz	0 ±0.5 dB

AM SECTION

Tuning Range	
[U.S.A. and General models]	
.....	530 to 1,710 kHz
[Europe and U.K. models]	
.....	531 to 1,611 kHz
Usable Sensitivity	100 µV/m
Selectivity	32 dB
Signal-to-Noise Ratio	50 dB
Image Response Ratio	40 dB
Spurious Response Ratio	50 dB
Harmonic Distortion (1 kHz)	0.3%
AUDIO SECTION	
Output Level/Impedance	
FM (100% mod., 1 kHz)	
[U.S.A. and General models]	
.....	500 mV/2.2 k-ohms
[Europe and U.K. models (40 kHz Dev.)]	
.....	400 mV/2.2 k-ohms
AM (30% mod., 1 kHz)	
.....	150 mV/2.2 k-ohms

GENERAL

Power Supply	
[U.S.A. model]	AC 120V, 60 Hz
[U.K. model]	AC 240V, 50 Hz
[Europe model]	AC 230V, 50 Hz
[General model]	
.....	AC 110/120/220/240V, 50/60 Hz
Power Consumption	160W
AC Outlets	
2 SWITCHED OUTLETS	
[U.S.A., Europe and General models]	
.....	100W max. total
1 SWITCHED OUTLET	
[U.K. model]	100W max. total
Dimensions (W x H x D)	
.....	280 x 119 x 389 mm
.....	(11" x 4-11/16" x 15-5/16")
Weight	7.3 kg (16 lbs. 1 oz.)
Accessories	AM loop antenna
	Indoor FM antenna
	Remote control transmitter
	Batteries

Specifications are subject to change without notice.

YAMAHA

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