



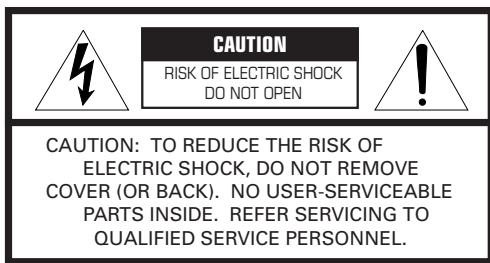
SW-201

Subwoofer System

Enceinte a Caisson de Grave



**OWNER'S MANUAL
MODE D'EMPLOI**



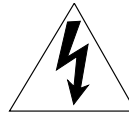
IMPORTANT
Please record the serial number of this system in the space below.

Model:

Serial No.:

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

• 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 APPLIANCE TO RAIN OR MOISTURE.

SAFETY INSTRUCTIONS

- 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.

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

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.



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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 equipments. Never pull the wires themselves.
5. Do not attempt to clean the unit with chemical solvents as this might damage the finish. Use a clean, dry cloth.
6. Be sure to read the “TROUBLESHOOTING” section regarding common operating errors before concluding that the unit is faulty.
7. When not planning to use this unit for a long period (ie., vacation, etc.), disconnect the AC power plug from the wall outlet.
8. To prevent lightning damage, disconnect the AC power plug when there is an electric storm.
9. Since this unit has a built-in power amplifier, heat will radiate from the rear panel. Place the unit apart from the walls, allowing enough space above, behind and on the both sides of the unit to prevent fire or damage. Furthermore, do not position with the rear panel facing down on the floor or other surfaces.
10. Super-bass frequencies reproduced by this unit may cause a turntable to generate a howling sound. In such a case, move this unit away from the turntable.
11. Vibration generated by super-bass frequencies may cause images on a TV to be distorted. In such a case, move this unit away from the TV set.
12. This unit features a magnetically shielded design, but it is still possible for the picture color to be impaired when the subwoofer is placed too close to a TV set. Should this happen, move this unit away from the TV set.
13. If you hear distorted noise (i.e., unnatural, intermittent “rapping” or “hammering” sounds) coming from this unit, reduce the volume level. Extremely loud playing of a movie soundtrack’s low frequency, bass-heavy sounds or similarly loud popular music passages can damage this speaker system.
14. **Secure placement or installation is the owner’s responsibility.
YAMAHA shall not be liable for any accident caused by improper placement or installation of speakers.**

For Canadian Customers

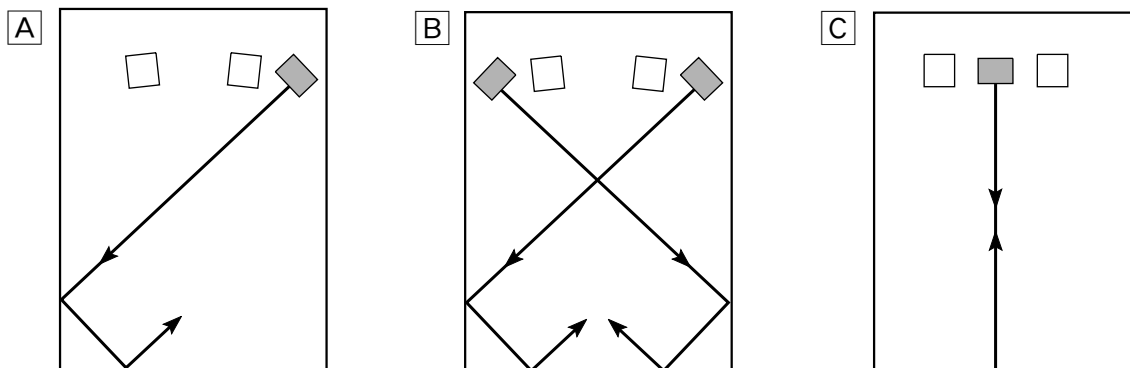
To prevent electric shock, match wide blade of plug to wide slot and fully insert.



This Class B digital apparatus complies with Canadian ICES-003.

FEATURES

- This subwoofer system employs Advanced YAMAHA Active Servo Technology which YAMAHA has developed for reproducing higher quality super-bass sound. (Refer to page 11 for details on Advanced YAMAHA Active Servo Technology.) This super-bass sound adds a more realistic, theater-in-the-home effect to your stereo system.
- This subwoofer can be easily added to your existing audio system by connecting to either the speaker terminals or the line output (pin jack) terminals of the amplifier.
- The **HIGH CUT** switch provides you with two positions (HIGH and LOW) to adjust the tone balance between the subwoofer and the main speakers.
- The **AUTO STANDBY** switch saves you the trouble of setting the **POWER** switch to the ON or OFF position.

PLACEMENT



( : subwoofer,  : main speaker)

One subwoofer will have a good effect on your audio system, however, the use of two subwoofers is recommended to obtain more effect.

If using one subwoofer, it is recommended to place it on the outside of either the right or the left main speaker. (See fig. [A](#).)

If using two subwoofers, it is recommended to place them on the outside of each main speaker. (See fig. [B](#).) The placement shown in fig. [C](#) is also possible, however, if the subwoofer system is placed directly facing the wall, the bass effect may die because the sound from it and the sound reflected by the wall may cancel out each other. To prevent this from happening, face the subwoofer system at an angle as in fig. [A](#) or [B](#).

Note

There may be a case that you cannot obtain enough super-bass sounds from the subwoofer when listening at the middle of the room. This is because “standing waves” have been developed between two parallel walls and they cancel the bass sounds.

In such a case, face the subwoofer obliquely to the wall. It also may be necessary to break up the parallel surfaces by placing bookshelves etc. along the walls.

CONNECTIONS

Caution: Plug in the subwoofer and other components after all connections are completed.

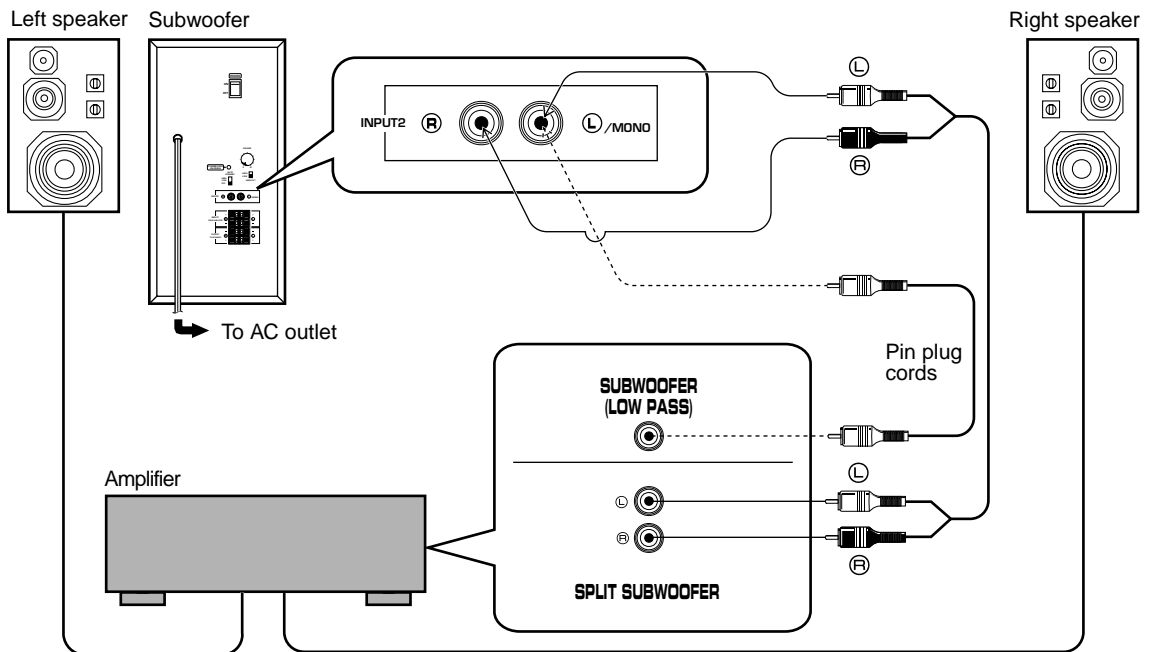
- All connections must be correct, that is to say L (left) to L, R (right) to R, “+” to “+” and “-” to “-”. Also refer to the owner’s manual for each of your components.
- The subwoofer can be connected to either the speaker output terminals or the line output (pin jack) terminals of the amplifier. Choose one of the ways shown in this section that is more suitable for your audio system. Also, refer to the owner’s manual of your component to be connected to the subwoofer.

Connecting to line output (pin jack) terminals of the amplifier

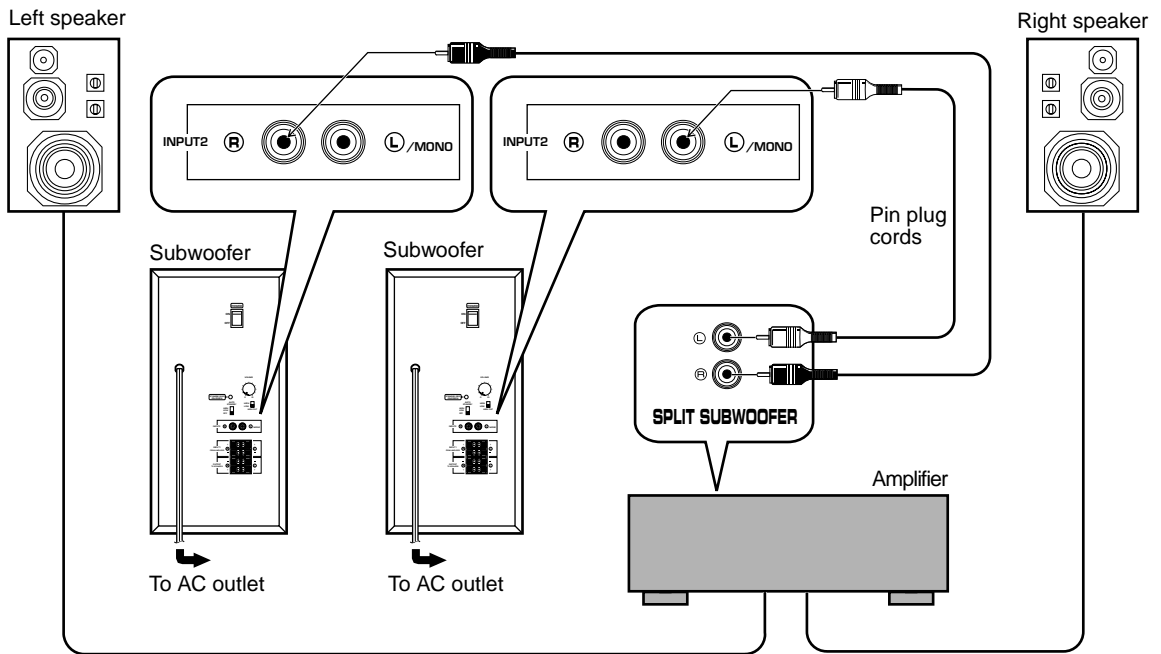
Connect the main speakers to the speaker output terminals of the amplifier.

- To connect with a YAMAHA DSP amplifier (or AV receiver), connect the SUBWOOFER (or LOW PASS etc.) terminal on the rear of the DSP amplifier (or AV receiver) to either the left (L) or right (R) INPUT2 terminal of the subwoofer.
- To connect the subwoofer to the SPLIT SUBWOOFER terminals on the rear of the DSP amplifier, connect them to both the left (L) and right (R) INPUT2 terminals of the subwoofer.

■ Using one subwoofer



■ Using two subwoofers



Notes

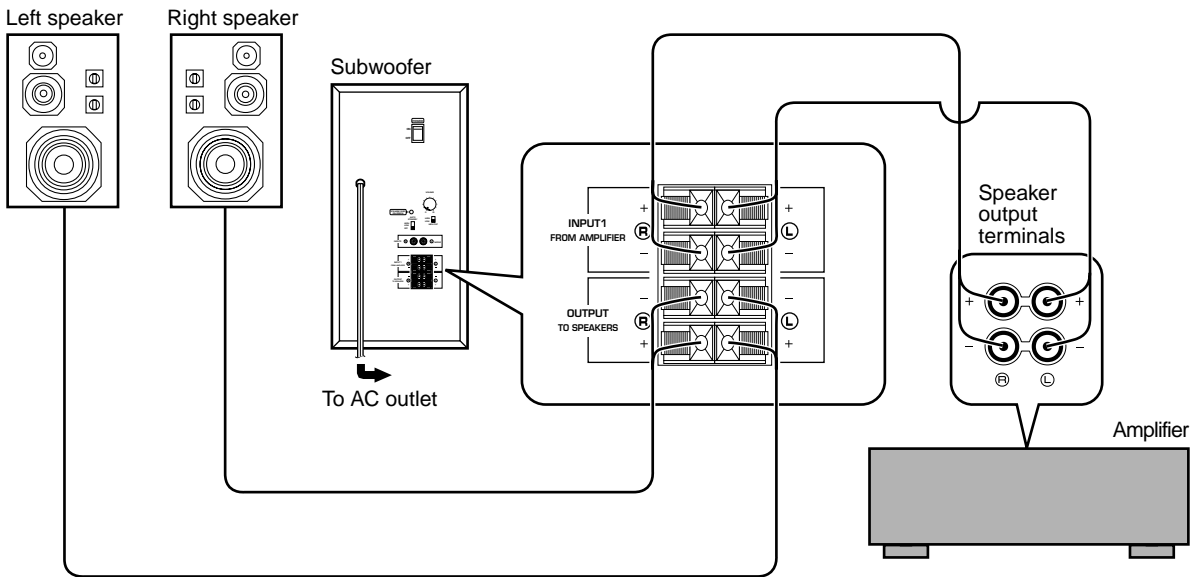
- Some amplifiers have line output terminals labeled PRE OUT. When you connect the subwoofer to the PRE OUT terminals of the amplifier, make sure that the amplifier has at least two sets of PRE OUT terminals. If the amplifier has only one set of PRE OUT terminals, do not connect the subwoofer to the PRE OUT terminals. Instead, connect the subwoofer to the speaker output terminals of the amplifier. (Refer to pages 6 and 7.)
- When connecting to a monaural line output terminal of the amplifier, connect the L/MONO INPUT2 terminal.
- When connecting to line output terminals of the amplifier, other speakers should not be connected to the OUTPUT terminals on the rear panel of the subwoofer. If connected, they will not produce sound.

Connecting to speaker output terminals of the amplifier

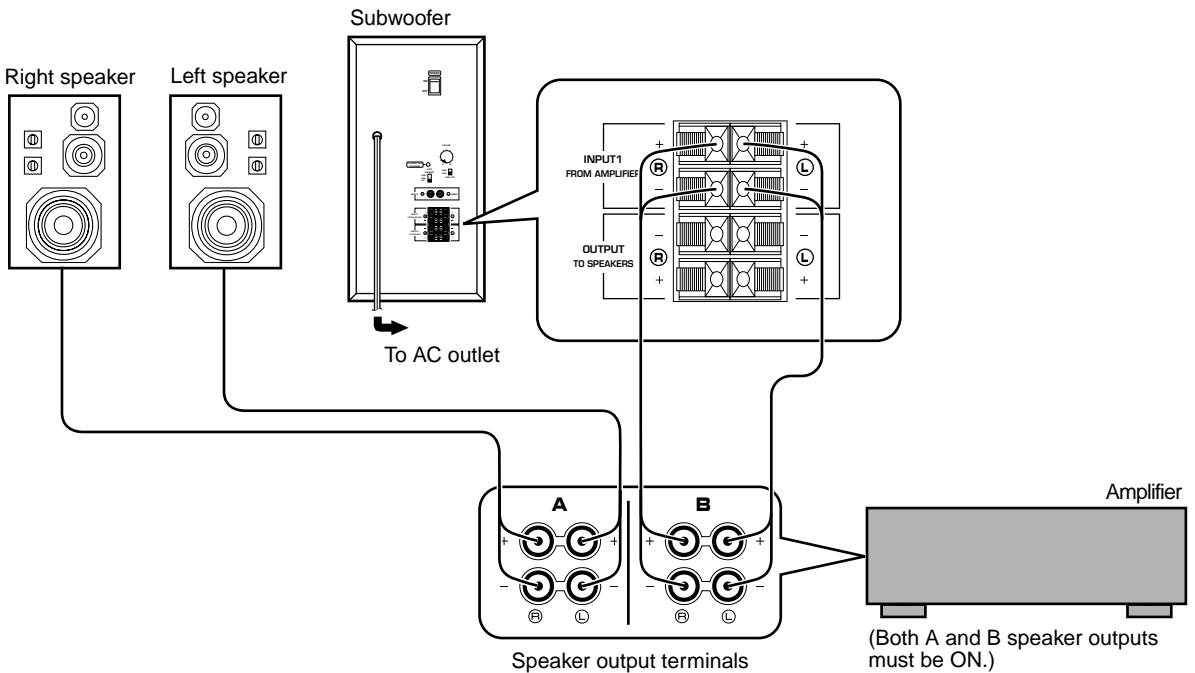
■ Using one subwoofer

If your amplifier has only one set of main speaker output terminals

Connect the speaker output terminals of the amplifier to the INPUT1 terminals of the subwoofer, and connect the OUTPUT terminals of the subwoofer to the main speakers.

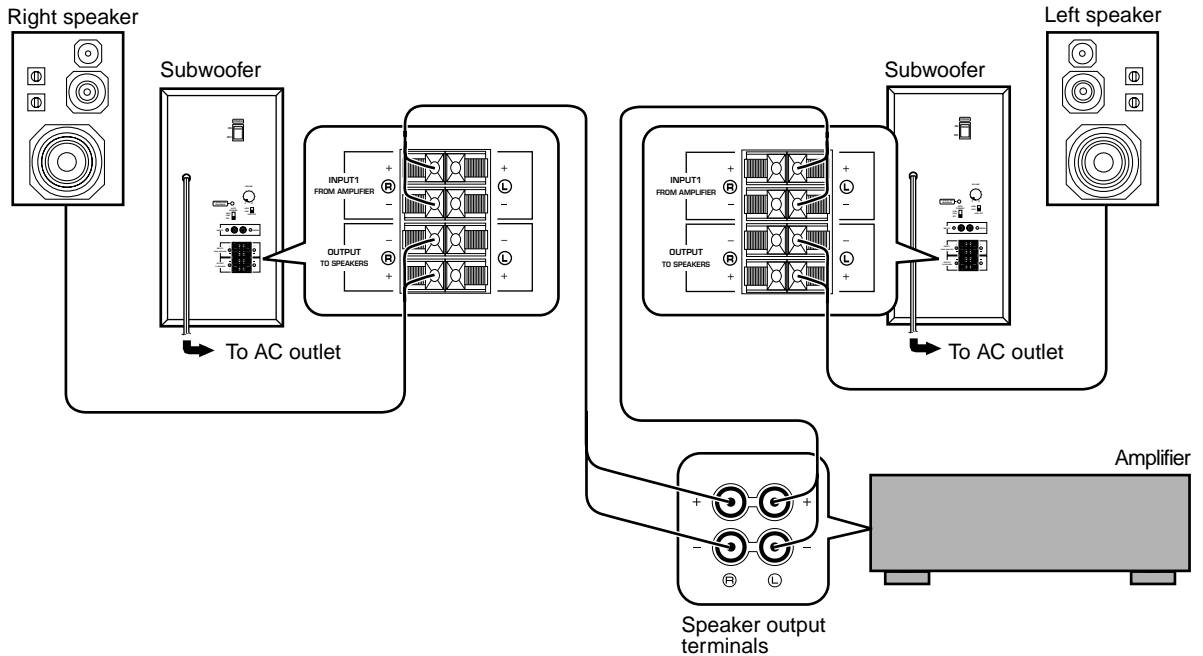


If your amplifier has two sets of speaker output terminals



■ Using two subwoofers

Connect the speaker output terminals of the amplifier to the INPUT1 terminals of the subwoofer, and connect the OUTPUT terminals of the subwoofer to the main speakers.

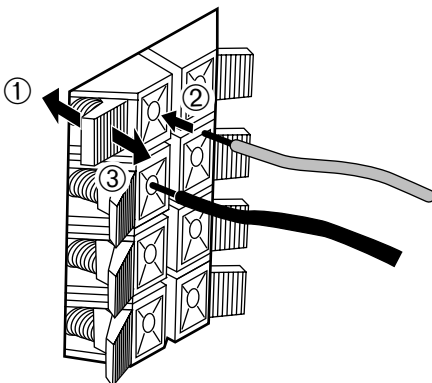


Connecting to the INPUT1/OUTPUT terminals of the subwoofer

For connections, keep the speaker wires as short as possible. (Cut the excessive wire if necessary.) If the connections are faulty, no sound will be heard from the speakers. Make sure that the + and – polarity markings of the speaker wires are observed and set correctly. If these wires are reversed, the sound will be unnatural and lack bass.

How to Connect:

Red: positive (+)
Black: negative (–)

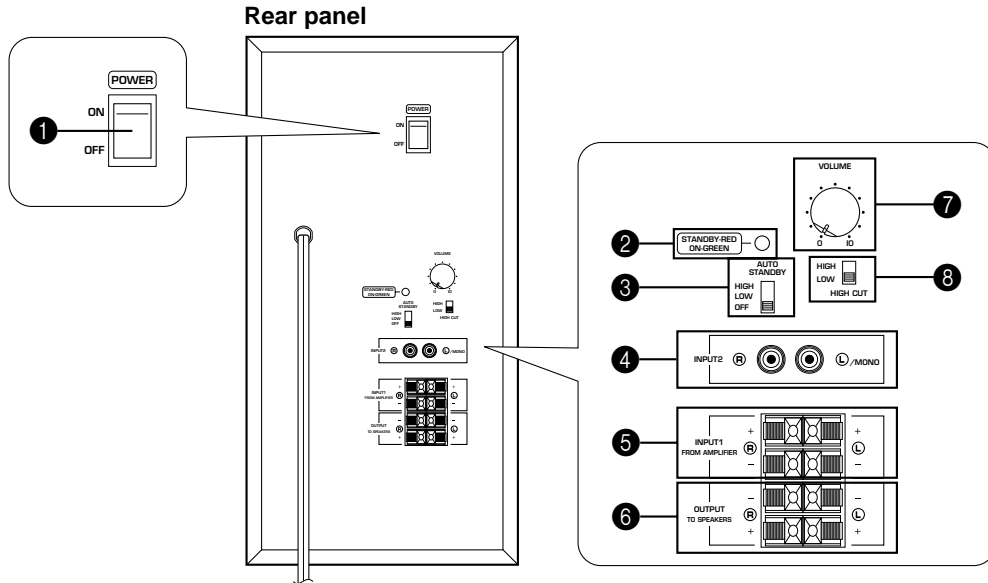


Caution

Do not let the bare speaker wires touch each other or any metal part of the subwoofer. This could damage the subwoofer, the amplifier or the speakers, or all of them.

- ① Press and hold the terminal's tab, as shown in the figure.
- ② Insert the bare wire end properly into the terminal hole. [Remove approx. 10 mm (3/8") insulation from the speaker cord.]
- ③ Release your finger from the tab to allow it to lock securely on the cord's wire end.
- ④ Test the firmness of the connection by pulling lightly on the cord at the terminal.

CONTROLS AND THEIR FUNCTIONS



1 POWER switch

Set this switch to the ON position to turn on the power of the subwoofer. When the power of the subwoofer is on, the power indicator below the **POWER** switch lights up GREEN. Set this switch to the OFF position to turn off the power of the subwoofer.

2 Power indicator

Lights up GREEN when the **POWER** switch is set to the ON position and goes off when set to the OFF position.

* Standby mode

If the **POWER** switch is set to the ON position and the **AUTO STANDBY** switch is set to the HIGH or LOW position, this indicator lights up RED when no signal is inputted to the subwoofer.

3 AUTO STANDBY (HIGH/LOW/OFF) switch

By setting this switch to the HIGH or LOW position, the subwoofer's automatic power-switching function operates as described on the right. If you do not need this function, set to the OFF position.

* Make sure to change the setting of this switch only when the **POWER** switch (1) is in the OFF position.

4 INPUT2 terminals

Used to input line level signals from the amplifier.

5 INPUT1 (FROM AMPLIFIER) terminals

Used to connect the subwoofer with the speaker terminals of the amplifier.

6 OUTPUT (TO SPEAKERS) terminals

Can be used for connecting to the main speakers. Signals are sent directly from the amplifier to the main speakers by way of these terminals.

7 VOLUME control

Adjusts the volume level.

8 HIGH CUT (HIGH/LOW) switch

Selects the high frequency cut off point.

Normally, it is set to LOW, however, you may set to HIGH if necessary. Refer to "Note about setting the HIGH CUT switch" on page 9.

Automatic power-switching function

When you play a source, the power of the subwoofer turns on automatically by sensing audio signals input to the subwoofer. On the other hand, the subwoofer automatically switches to the standby mode if the source being played is stopped or the input signal is cut off for a few minutes.

This function will operate by sensing a certain level of low frequency input signal. Its sensitivity is high in the HIGH position and low in the LOW position of the **AUTO STANDBY** switch. Set this switch to the position you prefer. In the HIGH position, the power will turn on even with a low level of input signal. But please be aware that the subwoofer may not switch to the standby mode when there is an extremely low input signal.

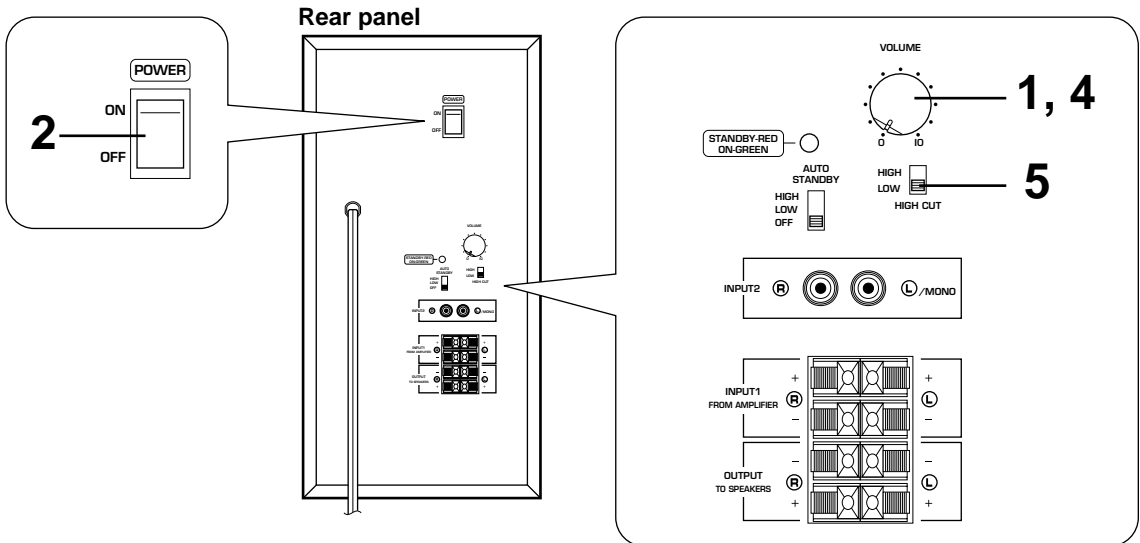
* The power might turn on unexpectedly by sensing noise from other appliances. If that occurs, set the **AUTO STANDBY** switch to the OFF or LOW position.

* The level of low frequency input signal differs with each source and among different parts within the same source. This means that the function may not operate properly on some sources.

This function is available only when the power of the subwoofer is on (by setting the POWER switch (1) to "ON").

ADJUSTMENT BEFORE USING THE SUBWOOFER

Before using the subwoofer, adjust the subwoofer to obtain the optimum volume and tone balance between the subwoofer and the main speakers by following the procedures described below.



- 1 Set the **VOLUME** control to minimum (0).
- 2 Turn on the power supply to all the components.
- 3 Play a source and adjust the amplifier's volume control to the desired listening level.
- 4 Increase the volume gradually to adjust the volume balance between the subwoofer and the main speakers.
- 5 If necessary, you may set the **HIGH CUT** switch to the HIGH position.

Notes

- Once the volume balance between the subwoofer and the main speakers is adjusted, you can adjust the volume of your whole sound system by using the amplifier's volume control.
However, if you change the main speakers to others, you must make this adjustment again.
- For adjusting the **VOLUME** control and the **HIGH CUT** switch, refer to "Frequency characteristics" on page 10.

Note about setting the HIGH CUT switch

This subwoofer is designed so that the optimum tone balance between the subwoofer and the main speakers is obtained when this switch is set to the LOW position. The tone balance may change, however, depending on the room size, the distance from the subwoofer to the main speakers, and so on. If necessary, switch it to the HIGH position.

■ Frequency characteristics

Fig. 1 shows the frequency characteristics of the subwoofer with each position (HIGH/LOW) of the **HIGH CUT** switch.

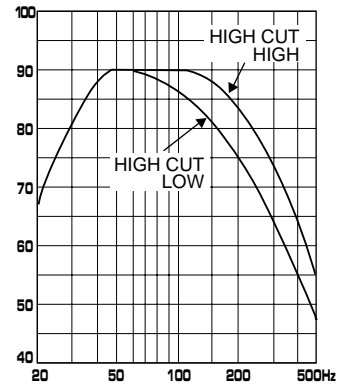


Fig. 1

Fig. 2 shows the optimum volume level with the **HIGH CUT** switch at the HIGH position, and the frequency characteristics when the subwoofer is combined with a typical 3.5" or 4" (8 cm or 10 cm) acoustic suspension, 2 way system main speakers.

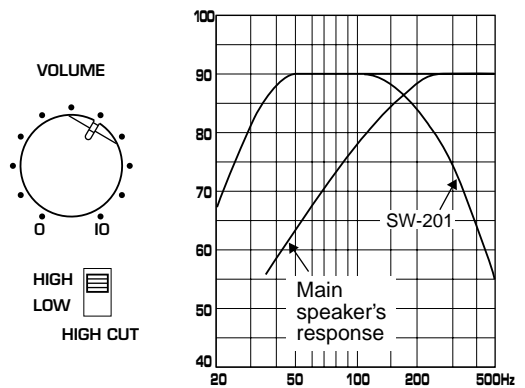


Fig. 2

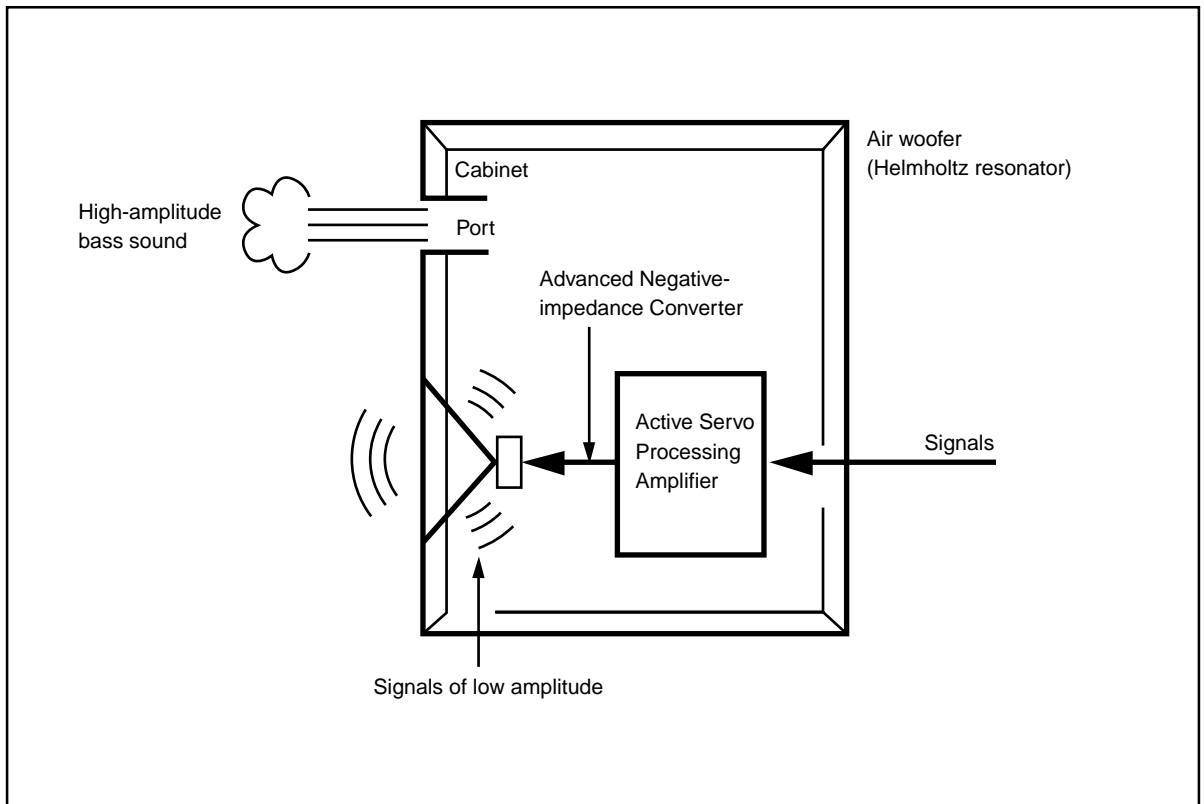
ADVANCED YAMAHA ACTIVE SERVO TECHNOLOGY

The theory of Yamaha Active Servo Technology has been based upon two major factors, the Helmholtz resonator and negative-impedance drive. Active Servo Processing speakers reproduce the bass frequencies through an “air woofer”, which is a port or opening in the speaker’s cabinet. This opening is used instead of, and performs the functions of, a woofer in a conventionally designed speaker system. Thus, signals of low amplitude within the cabinet can, according to the Helmholtz resonance theory, be outputted from this opening as waves of great amplitude if the size of the opening and the volume of the cabinet are in the correct proportion to satisfy a certain ratio. In order to accomplish this, moreover, the amplitudes within the cabinet must be both precise and of sufficient power because these amplitudes must overcome the “load” presented by the air that exists within the cabinet.

Thus it is this problem that is resolved through the employment of a new design in which the amplifier supplies special signals. If the electrical resistance of the voice coil could be reduced to zero, the movement of the speaker unit would become linear with respect to signal voltage. To accomplish this, a special negative-impedance output-drive amplifier for subtracting output impedance of the amplifier is used.

By employing negative-impedance drive circuits, the amplifier is able to generate precise, low-amplitude, low-frequency waves with superior damping characteristics. These waves are then radiated from the cabinet opening as high-amplitude signals. The system can, therefore, by employing the negative-impedance output drive amplifier and a speaker cabinet with the Helmholtz resonator, reproduce an extremely wide range of frequencies with amazing sound quality and less distortion. The features described above, then, are combined to be the fundamental structure of the conventional Yamaha Active Servo Technology.

Our new Active Servo Technology — Advanced Yamaha Active Servo Technology — adopted Advanced Negative Impedance Converter (ANIC) circuits, which allows the conventional negative impedance converter to dynamically vary in order to select an optimum value for speaker impedance variation. With this new ANIC circuits, Advanced Yamaha Active Servo Technology can provide more stable performance and improved sound pressure compared with the conventional Yamaha Active Servo Technology, resulting in more natural and dynamic bass reproduction.





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