



# NS-P300

**HOME CINEMA SPEAKER PACKAGE**  
**SYSTEME D'ENCEINTES HOME CINEMA**



## OWNER'S MANUAL

*Thank you for selecting this YAMAHA.*

## MODE D'EMPLOI



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

### CONTENTS

SAFETY INSTRUCTIONS .....	2
PROFILE OF THIS SYSTEM .....	3
CAUTION .....	4
SUPPLIED ACCESSORIES .....	4
SETTING UP THE SPEAKERS .....	5
CONNECTIONS .....	8
USING THE SUBWOOFER (SW-P30) .....	12
CONTROLS AND THEIR FUNCTIONS .....	12
ADJUSTMENT BEFORE USING THE SUBWOOFER .....	13
ACTIVE SERVO TECHNOLOGY (for SW-P30) .....	14
TROUBLESHOOTING (for SW-P30) .....	15
SPECIFICATIONS .....	16

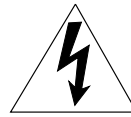
### TABLES DES MATIERES

PRESENTATION DE CE SYSTEME .....	17
ACCESSOIRES FOURNIS .....	17
PRECAUTIONS D'USAGE .....	18
DISPOSITION DES ENCEINTES .....	19
CONNEXIONS .....	22
UTILISATION DU SUBWOOFER (SW-P30).....	26
LES COMMANDES ET LEURS FONCTIONS .....	26
REGLAGE AVANT D'UTILISER LE SUBWOOFER .....	27
ACTIVE SERVO TECHNOLOGY (pour SW-P30).....	28
EN CAS DE DIFFICULTE (pour SW-P30) .....	29
CARACTERISTIQUES TECHNIQUES .....	30

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

**IMPORTANT**  
Please record the serial number of your unit in the space below.  
Model:  
Serial No.:

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




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.

# 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.



## PROFILE OF THIS SYSTEM

"NS-P300" is the package number which includes the YAMAHA speaker system NS-M103, NS-C103, NS-E103 and SW-P30.

This speaker package system is designed for use in a multi-channel audio system, for example a home theater system, so the package includes a pair of main speakers (NS-M103), a center speaker (NS-C103), a pair of effect speakers (NS-E103) and a subwoofer system (SW-P30).

### <Main speakers (NS-M103)>

2-way acoustic-suspension speaker system

### <Center speaker (NS-C103)>

2-way 3-speaker bass-reflex speaker system

### <Effect speakers (NS-E103)>

Full-range bass-reflex speaker system

### <Subwoofer (SW-P30)>

Active Servo Processing Subwoofer System with a built-in power amplifier

- This subwoofer system employs YAMAHA Active Servo Technology which YAMAHA have developed for reproducing higher quality super-bass sound. (Refer to page 14 for details on Active Servo Technology.)
- This unit can be added easily 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.

# CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

- To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
- Install the speakers 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 speakers to rain or water.
- To prevent the enclosure from warping or discoloring, do not place the speakers where it will be exposed to direct sunlight or excessive humidity.
- Do not place the speakers where it is liable to be knocked over or struck by falling objects. Stable placement will also ensure better sound performance.
- Placing the speakers on the same shelf or rack as the turntable can result in feedback.
- Any time you note distortion, reduce the volume control on your amplifier to a lower setting. Never allow your amplifier to be driven into “clipping”. Otherwise the speakers may be damaged.
- When using an amplifier with a rated output power higher than the nominal input power of the speakers, care should be taken never to exceed the speakers’ maximum input.
- As these speakers contain strong magnets (though all of them are magnetically shielded types), avoid placing watches, magnetic tapes, etc. near them. Also, placing the speakers near a TV set may impair picture color. If this happens, move the speakers away from TV set.
- Do not attempt to clean the speakers with chemical solvents; this might damage the finish. Use a clean, dry cloth.
- **Secure placement or installation is the owner’s responsibility.**  
**YAMAHA shall not be liable for any accident caused by improper placement or installation of the 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.

## <For SW-P30 only>

- Never open the cabinet. If something drops into the set, contact your dealer.
  - Do not use force on switches, controls or connection cords. When moving the unit, first disconnect the power plug and the cords connected to other equipment. Never pull the cords itself.
  - Be sure to read the “TROUBLESHOOTING” section regarding common operating errors before concluding that the unit is faulty.
  - When not planning to use this unit for long periods of time (i.e., vacation, etc.), disconnect the AC power plug from the wall outlet.
  - To prevent lightning damage, disconnect the AC power plug when there is an electrical storm.
  - Since this unit has a built-in power amplifier, heat will radiate from the rear panel. Therefore, place the unit apart from the walls, allowing enough space above, behind and on the both sides of the unit to prevent fire and damage. Also, do not position with the rear panel facing down on the floor or other surface.
- <For Europe and Singapore models only>**  
Be sure to allow a space of at least 20 cm above, behind and on the both sides of the unit.
- 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.
  - If you hear distortion (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.

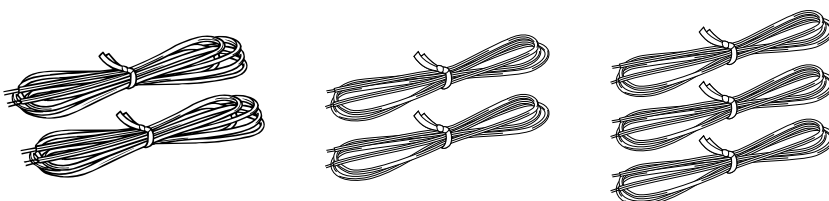
This unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if this unit itself is turned off. This state is called the standby mode. In this state, this unit is designed to consume a very small quantity of power.

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

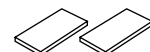
# SUPPLIED ACCESSORIES

After unpacking, check that the following parts are contained.

Speaker cords



Velcro strips (for NS-C103)



# SETTING UP THE SPEAKERS

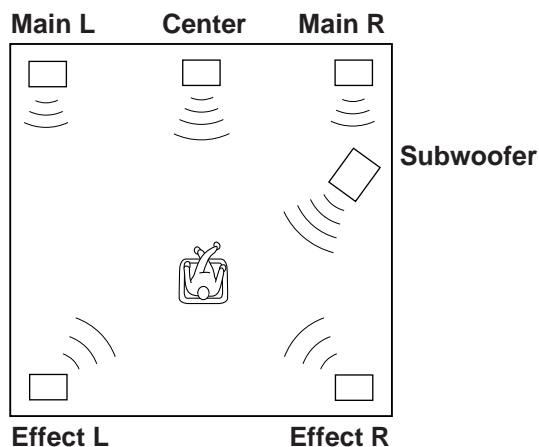
Before you make connections, place all speakers in their proper positions respectively. The positioning of speakers is important, because it controls the whole sound quality of this system.

Position the speakers based on your listening position by following instructions in this section.

## Speaker configuration

This system employs a 6 speaker configuration: 2 main speakers, 2 effect speakers, a center speaker and a subwoofer.

The main speakers are used for main source sound. The effect speakers are used for effect and surround sounds, and the center speaker is for center sounds (dialog etc.). The subwoofer is for reinforcing low frequencies on your audio system.



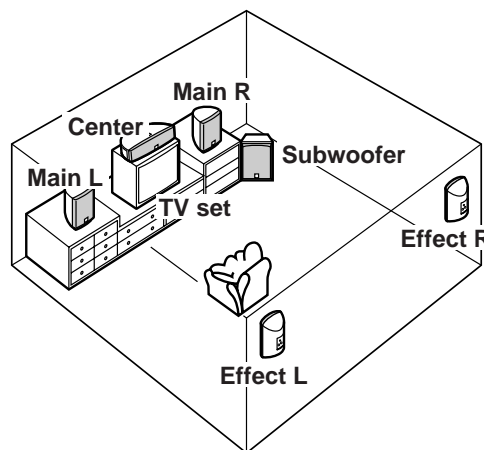
## Placing speakers

**Main speakers:** On both sides of the TV and almost the same height as the TV.

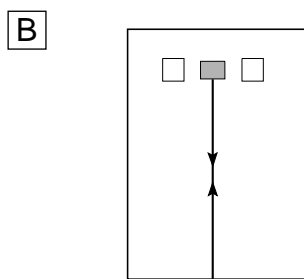
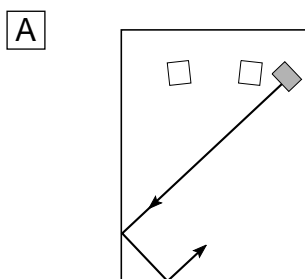
**Effect speakers:** Behind your listening position, facing slightly inward. Nearly 1.8 m (approx. 6 feet) up from the floor.

**Center speaker:** Precisely between the main speakers.

**Subwoofer:** The position of the subwoofer is not so critical because low bass tones are not highly directional. Refer to "Placing the subwoofer" shown below for a recommended positioning of the subwoofer.



## ■ Placing the subwoofer



( ■ : subwoofer, □ : main speaker)

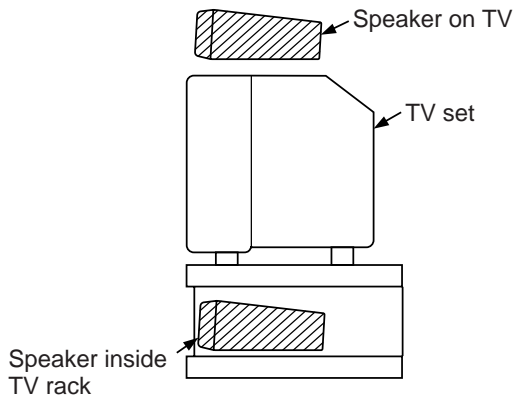
It is recommended to place the subwoofer on the outside of either the right or the left main speaker. (See fig. [A].) The placement shown in fig. [B] is also possible, however, if the subwoofer system is placed directly facing the wall, the bass effect may die because the sound from it and the sound reflected by the wall may cancel. To prevent this, face the subwoofer system obliquely to the wall as shown in fig. [A].

### Note

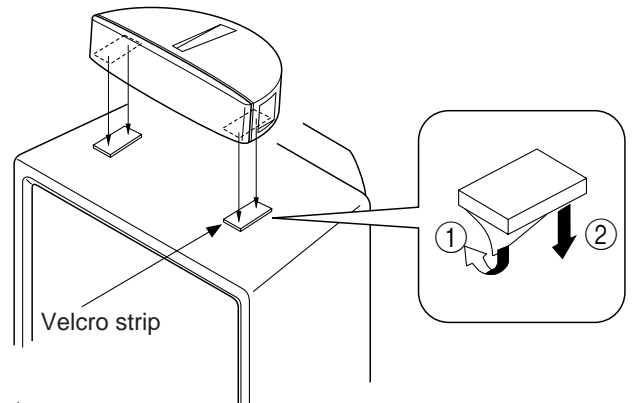
There may be a case that you cannot obtain enough super-bass sounds from this unit when listening at the middle of the room. This is because "standing waves" have been developed between two parallel walls and they cancel the bass sounds. In such a case, face the subwoofer obliquely to the wall. It also may be necessary to break up the parallel surfaces by placing bookshelves etc. along the walls.

## ■ Mounting the center speaker

Place the center speaker on the TV, on the floor under the TV or in the TV rack so that it is stabilized.



When placing the speaker on top of the TV, to prevent the speaker from falling down, put the provided velcro strips at two points on both bottom of the speaker and top of the TV.



### Notes

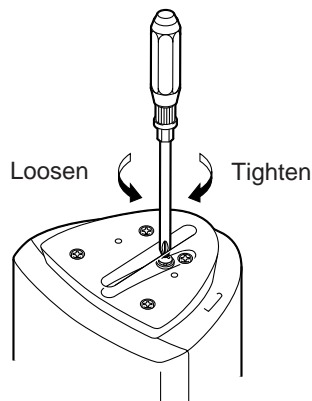
- Do not place the speaker on top of the TV whose area is smaller than the bottom area of the speaker. If placed, the speaker may drop down and that injures you.
- Though this speaker is a magnetically shielded type, there may be some influence on a TV picture depending on the type of TV or the placement of the speaker. In such a case, place the speaker apart from the TV so that there is no influence on TV picture.

## ■ Adjusting the main speakers

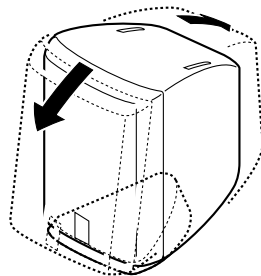
### Adjusting the angle of the main speakers

The angle of the main speakers can be adjusted according to the placement of them.

1. Loosen the screw at the bottom of the speaker stand as figured below.

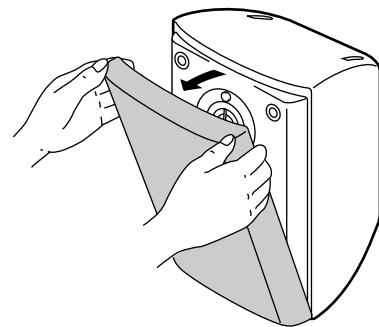


2. Slide the speaker on the stand until the desired angle is obtained, and then tighten the screw.



### Removing the front cover

The front cover is fastened to the enclosure at four points, and can be removed if desired. To remove the cover, hold both sides and slowly pull straight away from the speaker. To reattach, line up the four pegs on the inside surface of the cover with the four corresponding holes on the speaker and push gently.



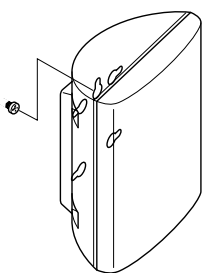
## ■ Mounting the effect speakers

Mount the effect speakers on a shelf, rack or floor, or hang them on the wall.

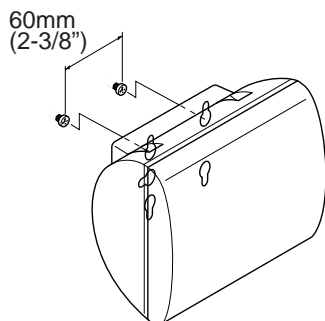
### To mount the effect speakers on a wall

Mount the speakers in either of the two configurations shown in the following figures by using the holes provided on the speakers' rear panels.

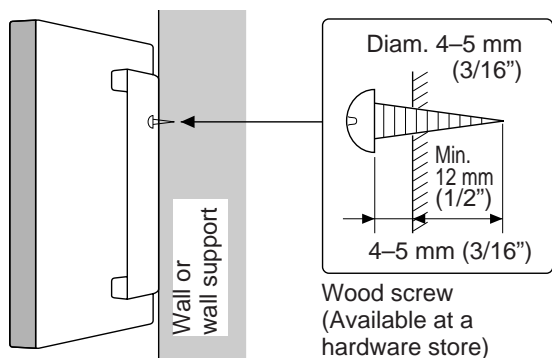
Upright mounting



Side-long mounting



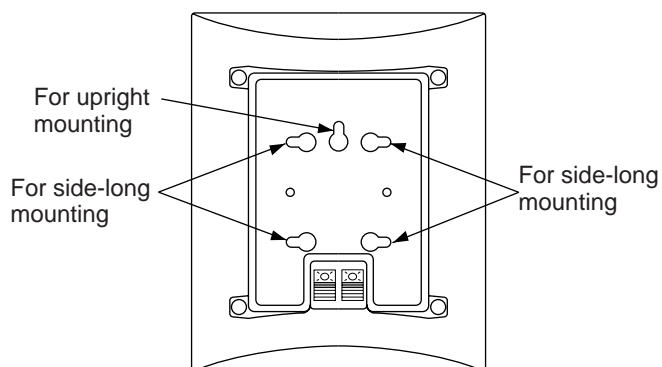
Fasten wood screws onto a firm wall or wall support as shown in the following figure, and set the mounting holes on the protruding screws.



- \* Make sure that the screw is caught securely at a narrow part of the hole.



For the upright mounting, only one hole is provided. As for the side-long mounting, two holes are provided. Be sure to use these two holes as a set.



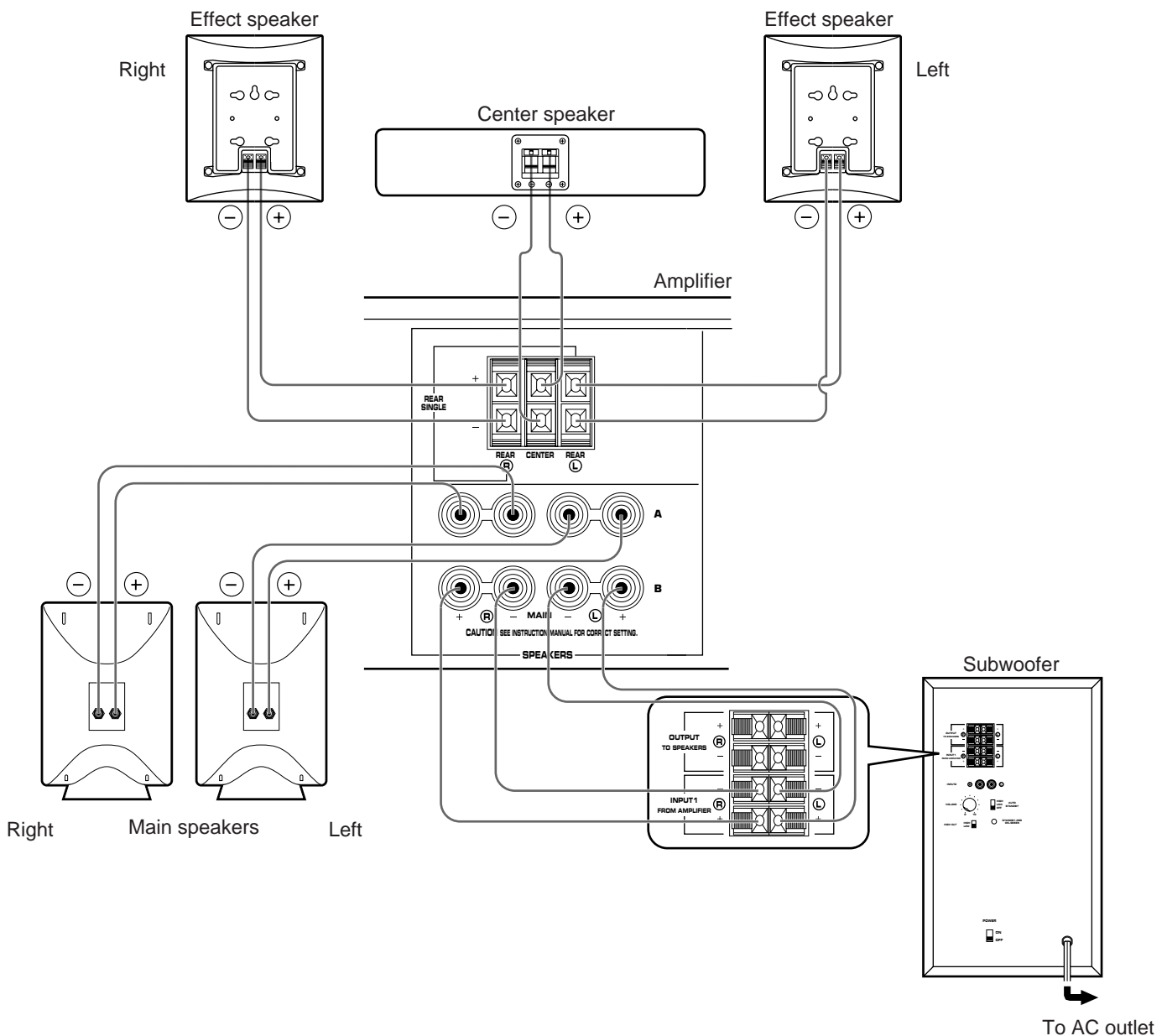
### **WARNING:**

- Each speaker weighs 1.4 kg (3 lbs. 1 oz.). Do not mount them on thin plywood or soft wall surface material. If mounted, the screws may come out of the flimsy surface and the speakers may fall down. That damages the speakers or causes personal injury.
- Do not install the speakers to wall with nails, adhesives, or other unsound hardware. Long-term use and vibrations may cause them to fall down.
- To avoid accidents resulting from tripping over loose speaker cords, fix them to the wall.

# CONNECTIONS

**Never plug in the subwoofer and other audio/video components until all connections are completed.**

- Connect the speakers to the speaker output terminals of your amplifier with the provided speaker cords.
- Connect the speakers making sure not to reverse the polarity (+, -). Connect the (+) terminals on both the amplifier and the speakers using one side of the cord. Connect the (-) terminals on both components using the other side of the cord. If one speaker is connected with reversed polarity, the sound will be unnatural and lack bass.
- For the main and effect speakers only, connect one speaker to the left (marked L) terminals of your amplifier, and another speaker to the right (marked R) terminals.
- 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 which is suitable for your audio system. Also, refer to the owner's manual for your component to be connected to this unit.



**Note**  
 This diagram shows an example of connecting speakers to an amplifier which has two sets of main speaker output terminals. If you select this connecting way, you must operate the amplifier so that both sets of main speaker output terminals output signals. This speaker system can also be connected to the amplifier in other ways depending on the type of amplifier. Refer to pages 10 to 11 for details.

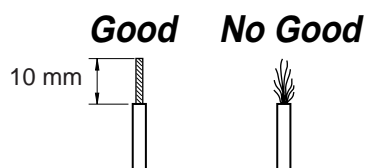


## How to connect speaker cords to the input and output terminals of the speakers

For connections, keep the speaker cords as short as possible. Do not bundle or roll up an excess of the cords. If the connections are faulty, no sound will be heard from the speakers.

### How to Connect:

- 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.]



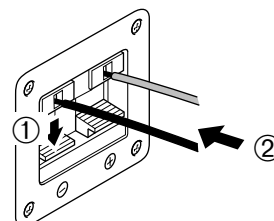
- ③ Remove your finger from the tab to allow it to lock snugly on the cord's wire end.
- ④ Test the security of the connection by pulling lightly on the cord at the terminal.

### Note

Do not let the bare speaker wires touch each other as this could damage the speaker or the amplifier, or both of them.

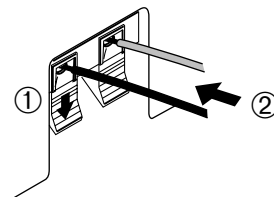
### Center speaker

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



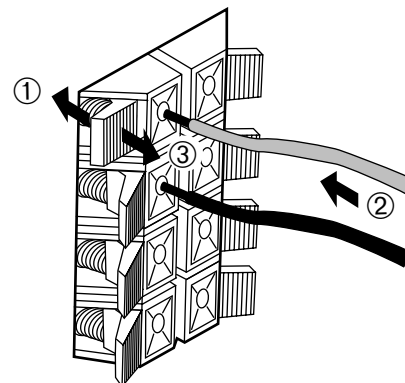
### Effect speakers

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



### Subwoofer (INPUT1/OUTPUT terminals)

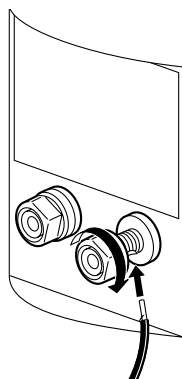
Red: positive (+)  
Black: negative (-)



## Main speakers

### How to Connect:

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

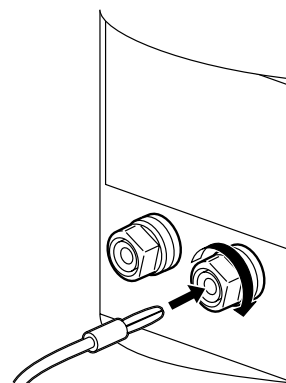


- ① Loosen the knob.
- ② Insert the bare wire. [Remove approx. 10 mm (3/8") insulation from the speaker cord.]
- ③ Tighten the knob and secure the wire.

### Note

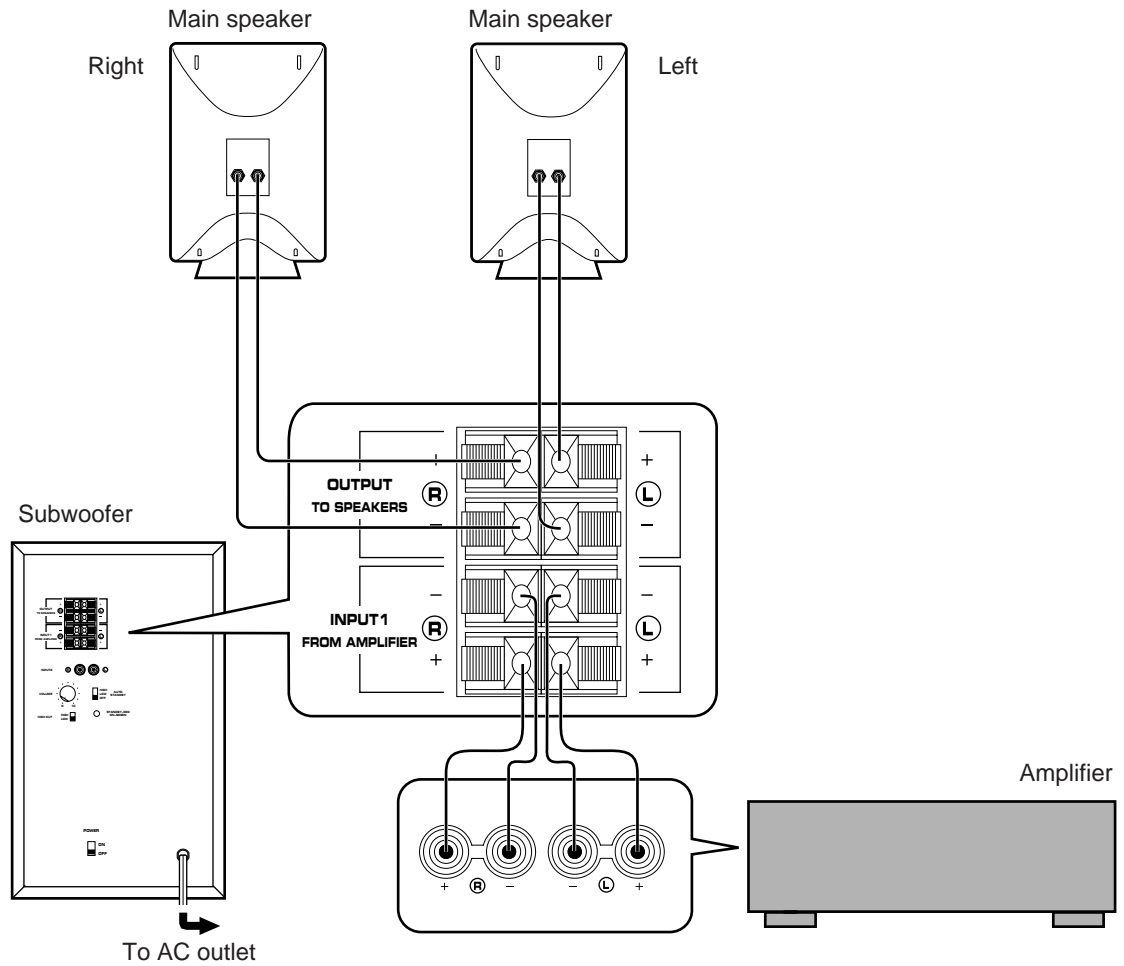
Do not let the bare speaker wires touch each other as this could damage the speaker or the amplifier, or both of them.

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



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

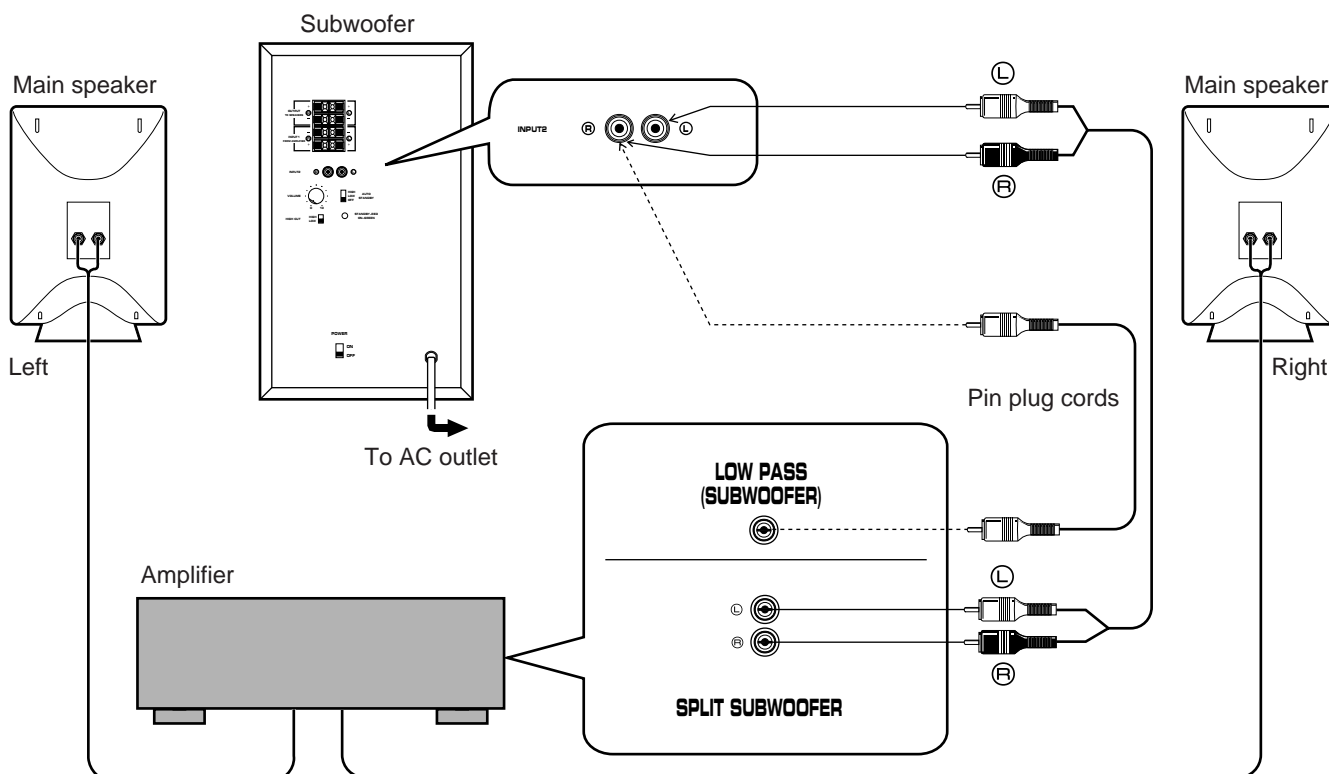
Connect the speaker output terminals of the amplifier to the INPUT1 terminals of the subwoofer, and connect the OUTPUT terminals of the subwoofer to the main speakers.



## To connect the subwoofer 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 LOW PASS (or SUBWOOFER 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 of the left (L) and right (R) INPUT2 terminals of the subwoofer.

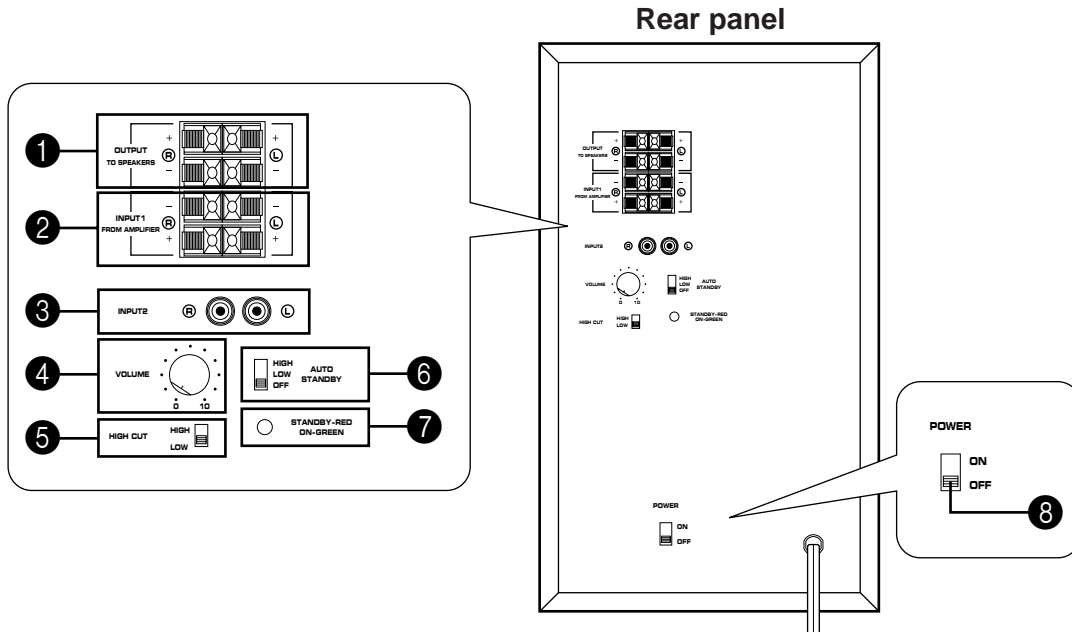


### Notes

- 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. Connect the subwoofer to the speaker output terminals of the amplifier. (Refer to pages 8 and 10.)
- When connecting to a monaural line output terminal of the amplifier, connect to either the left or right INPUT2 terminal.
- When connected 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.

# USING THE SUBWOOFER (SW-P30)

## CONTROLS AND THEIR FUNCTIONS



- 1 OUTPUT (TO SPEAKERS) terminals**  
Can be used for connections with the main speakers. These terminals output signals sent from the amplifier to the main speakers directly.
- 2 INPUT1 (FROM AMPLIFIER) terminals**  
Used to connect this unit with the speaker terminals of the amplifier.
- 3 INPUT2 terminals**  
Used to input line level signals from the amplifier.
- 4 VOLUME control**  
Adjusts the volume level.
- 5 HIGH CUT (HIGH/LOW) switch**  
Selects the high frequency cut off point. Normally, set to LOW, however, you may set to HIGH if necessary. Refer to “Note about setting the HIGH CUT switch” on page 13.
- 6 AUTO STANDBY (HIGH/LOW/OFF) switch**  
By setting this switch to the HIGH or LOW position, this unit's automatic power-switching function operates as described right. If you do not need this function, set to the OFF position.  
\* Make sure to change the setting of this switch only when this unit is in the standby mode.
- 7 Power indicator**  
Lights in green when the **POWER** switch 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 in red when no signal is input to this unit.

- 8 POWER switch**  
Set this switch to the ON position to turn on the power of this unit. When the power of this unit is on, the power indicator above the **POWER** switch lights in green. Set this switch to the OFF position to turn off the power of this unit.

### Automatic power-switching function

When you play a source, the power of this unit turns on automatically by sensing audio signals input to this unit. This unit turns into the standby mode automatically if the source being played is stopped or the input signal is cut off for several 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 whichever position you like. In the HIGH position, the power will turn on even with a low level of input signal, but on the other hand this unit may not turn into the standby mode when there is an input signal even if its level is extremely low.

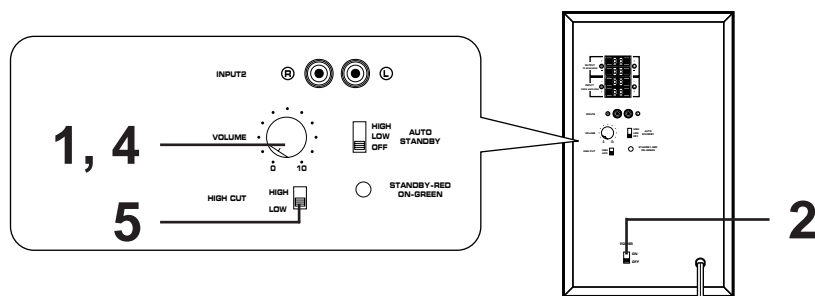
\* There may be a case that the power turns on unexpectedly by sensing noise from other appliances. If it occurs, set the **AUTO STANDBY** switch to the OFF or LOW position.

\* The level of low frequency input signal differs with each source, and each different part on the same source. So, this function may not operate properly depending on some sources.

**This function is available only when the power of this unit is on (by setting the POWER switch (8) to “ON”).**

## ADJUSTMENT BEFORE USING THE SUBWOOFER

Before using the subwoofer, make an adjustment on the subwoofer to obtain the optimum volume and tone balance between the subwoofer and the main speakers by following the procedures shown below.



- 1** Set the **VOLUME** control to minimum.
- 2** Turn on the power supply to all the components.
- 3** Play any source and adjust the amplifier's volume control to the desired listening level.
- 4** Increase the volume gradually to adjust the volume balance between this unit 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 only the amplifier's volume control. However, if you change the main speakers NS-M103 to others, you must make this adjustment again.
- For adjusting the **VOLUME** control and the **HIGH CUT** switch, refer to "FREQUENCY CHARACTERISTICS" shown below.

### Note about setting the HIGH CUT switch

This system 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. However, the tone balance may change depending on the room size, the distance from the subwoofer to the main speakers, and so on. So, 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.

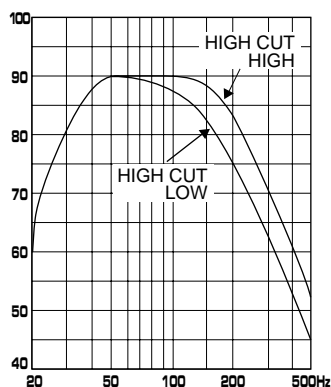


Fig. 1

Fig. 2 shows the optimum volume level with the **HIGH CUT** switch at the LOW position and its frequency characteristics when this subwoofer is combined with NS-M103 (main speakers).

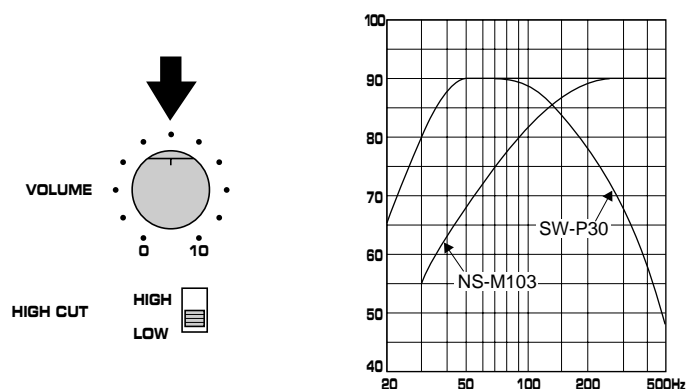


Fig. 2

## ACTIVE SERVO TECHNOLOGY (for SW-P30)

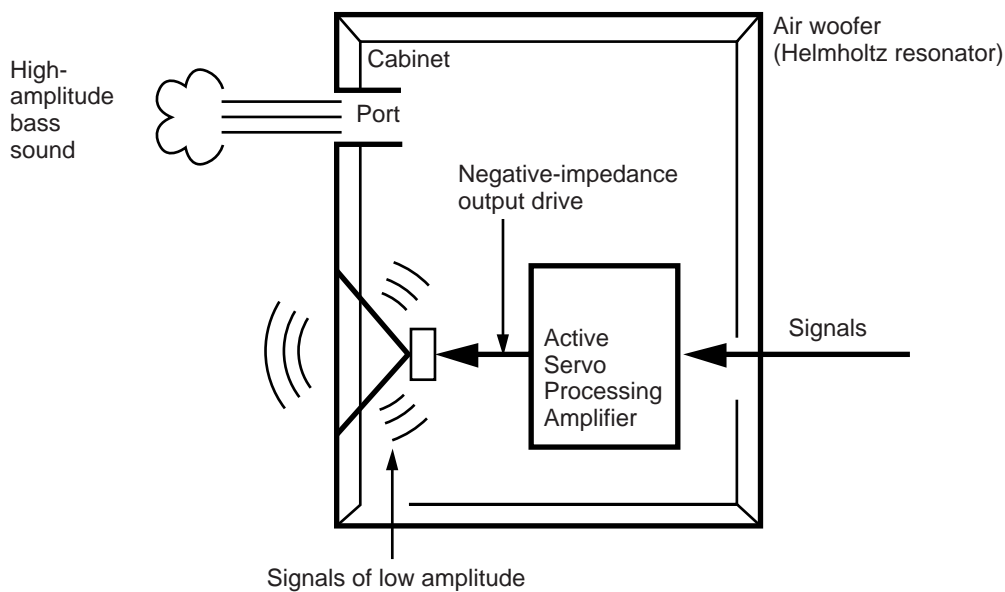
The theory of Active Servo Technology is based upon two major factors, the Helmholtz resonator and negative-impedance drive. Active Servo Processing speakers reproduce the bass frequencies through an "air woofer", which is a port or opening in the speaker's cabinet. This opening is used instead of, and 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 output from this opening as waves of great amplitude if the design is such that 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 design in which the amplifier functions to supply 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, and, 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, and 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 Active Servo Technology.



# TROUBLESHOOTING (for SW-P30)

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
<b>Power is not supplied even though the POWER switch is set to the ON position.</b>	The power plug is not securely connected.	Connect it securely.
<b>No sound.</b>	The VOLUME control is set to 0.	Turn the VOLUME control to right.
	Speaker cords are not connected securely.	Connect them securely.
<b>Sound level is too low.</b>	Speaker cords are connected incorrectly.	Connect them correctly, that is to say L (left) to L, R (right) to R, "+" to "+" and "-" to "-".
	A source sound with few bass frequencies is played.	Play a source sound with bass frequencies. Set the HIGH CUT switch to the "HIGH" position.
	It is influenced by standing waves.	Re-position the subwoofer or break up the parallel surface by placing bookshelves etc. along the walls.
<b>This unit will not turn on automatically.</b>	The POWER switch is set to the OFF position.	Set the POWER switch to the ON position.
	The AUTO STANDBY switch is set to the OFF position.	Set the AUTO STANDBY switch to the "HIGH" or "LOW" position.
	The level of input signal is too low.	Set the AUTO STANDBY switch to the "HIGH" position.
<b>This unit turns into the standby mode unexpectedly.</b>	The level of input signal is too low.	Set the AUTO STANDBY switch to the "HIGH" position.
<b>This unit turns on unexpectedly.</b>	An influence of noise generated from external equipment etc.	Move this unit farther away from such equipment and/or change the position of connected speaker cables.  Otherwise, set the AUTO STANDBY switch to the "OFF" position.

# SPECIFICATIONS

## <NS-M103, NS-C103, NS-E103>

### Type

<NS-M103>	.....2-way acoustic-suspension speaker system Magnetic shielding type
<NS-C103>	.....2-way 3-speaker bass-reflex speaker system Magnetic shielding type
<NS-E103>	.....Full-range bass-reflex speaker system Magnetic shielding type

### Speaker Unit

<NS-M103>	.....12 cm (4-3/4") cone woofer 2.2 cm (7/8") semidome tweeter
<NS-C103>	.....8 cm (3-1/8") cone speaker x 2 2.2 cm (7/8") tweeter
<NS-E103>	.....10 cm (3-15/16") cone speaker

### Nominal Input Power

<NS-M103>	.....40W
<NS-C103>	.....40W
<NS-E103>	.....25W

### Maximum Input Power

<NS-M103>	.....120W
<NS-C103>	.....120W
<NS-E103>	.....80W

Impedance.....6 ohms

### Frequency Response

<NS-M103>	.....65 Hz–20 kHz
<NS-C103>	.....65 Hz–20 kHz
<NS-E103>	.....70 Hz–20 kHz

### Sensitivity

<NS-M103>	.....90 dB/W•m
<NS-C103>	.....89 dB/W•m
<NS-E103>	.....90 dB/W•m

### Dimensions (W x H x D)

<NS-M103>	.....170 mm x 255 mm x 187 mm (6-11/16" x 10-1/16" x 7-3/8")
<NS-C103>	.....435 mm x 100 mm x 230 mm (17-1/8" x 4" x 9-1/16")
<NS-E103>	.....180 mm x 220 mm x 101 mm (7-1/16" x 8-11/16" x 4")

### Weight

<NS-M103>	.....2.1 kg (4 lbs. 10 oz.) x 2
<NS-C103>	.....2.0 kg (4 lbs. 6 oz.)
<NS-E103>	.....1.4 kg (3 lbs. 1 oz.) x 2

## <SW-P30>

Type.....Active Servo Processing Subwoofer System  
Magnetic shielding type

Speaker Unit.....16 cm (6-5/16") cone woofer

Amplifier Output.....40W/4 ohms

### High-Cut Filter

.....Alternatives: 100 Hz, 200 Hz (–24 dB/oct.)

### Impedance

INPUT1	.....4.7 k-ohms
INPUT2	.....10 k-ohms

Frequency Response.....32 Hz–240 Hz (–10 dB)

### Power Supply

U.S.A. and Canada models	.....AC 120V, 60 Hz
Europe model	.....AC 230V, 50 Hz
Australia model	.....AC 240V, 50 Hz
General model	.....AC 110-120/220-240V, 50/60 Hz

Power Consumption.....40W

Dimensions (W x H x D).....210 mm x 350 mm x 312 mm  
(8-1/4" x 13-3/4" x 12-5/16")

Weight.....7.4 kg (16 lbs. 4 oz.)

\* Please note that all specifications are subject to change without notice.





---

YAMAHA ELECTRONICS CORPORATION, USA 6660 ORANGETHORPE AVE., BUENA PARK, CALIF. 90620, U.S.A.  
YAMAHA CANADA MUSIC LTD. 135 MILNER AVE., SCARBOROUGH, ONTARIO M1S 3R1, CANADA  
YAMAHA ELECTRONIK EUROPA G.m.b.H. SIEMENSSTR. 22-34, 25462 RELLINGEN BEI HAMBURG, F.R. OF GERMANY  
YAMAHA ELECTRONIQUE FRANCE S.A. RUE AMBROISE CROIZAT BP70 CROISSY-BEAUBOURG 77312 MARNE-LA-VALLEE CEDEX02, FRANCE  
YAMAHA ELECTRONICS (UK) LTD. YAMAHA HOUSE, 200 RICKMANSWORTH ROAD WATFORD, HERTS WD1 7JS, ENGLAND  
YAMAHA SCANDINAVIA A.B. J A WETTERGRENS GATA 1, BOX 30053, 400 43 VÄSTRA FRÖLUNDA, SWEDEN  
YAMAHA MUSIC AUSTRALIA PTY, LTD. 17-33 MARKET ST., SOUTH MELBOURNE, 3205 VIC., AUSTRALIA

YAMAHA CORPORATION  
Printed in China  V260720