

# NS-P240 NS-P246

(NS-P240 / NS-P246: NX-S120 + NX-C120 + SW-P240)

HOME CINEMA 5.1CH SPEAKER PACKAGE HOME CINEMA 6.1CH SPEAKER PACKAGE



## **IMPORTANT SAFETY INSTRUCTIONS**



#### CAUTION

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.

• Explanation of graphic 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.

#### **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 unit. Retain this Owner's Manual in a safe place for future reference.

- 1 Read these instructions.
- 2 Retain these instructions.
- 3 Heed all warnings.
- 4 Follow all instructions.
- 5 Do not use this apparatus near water.
- 6 Clean only with a dry cloth.
- 7 Do not block ventilation openings. Install in accordance with the manufacturer's instructions.
- **8** Do not install near heat sources such as radiators, heat registers, stoves, or other heat-producing apparatus (including amplifiers).
- 9 Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades, one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician to replace the obsolete
- 10 Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, or the point at which the power cord exits the apparatus.
- 11 Use only attachments/accessories specified by the manufacturer.
- 12 Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- **13** Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14 Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as if the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15 Be sure to allow a space of at least 20 cm above, behind and on both sides of SW-P240.
- 16 Do not place the following objects on SW-P240: A vessel containing liquid. If the vessel falls due to vibration and the liquid spills, the unit may be damaged, and/or you may receive an electric shock.

#### FCC INFORMATION (for US customers)

## 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 or uses radio frequencies and, if not installed and used in accordance with the instructions in the user's 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 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 circuits (circuit breaker or fuse) or install AC line filter(s).
- In the case of radio or TV interference, relocate or reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to a coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this product. If you cannot 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.

#### 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.

### We Want You Listening for a Lifetime

Yamaha and the Electronic Industries Association's Consumer Electronics Group want you to get the most enjoyment out of your equipment by playing it at a safe level — a level that lets the sound come through loud and clear without annoying blaring or distortion — and, most importantly, without damaging 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 that you avoid prolonged exposure to excessive volume levels.



#### **Precautions**

- 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, sources of heat, sources of excessive vibration, dust, moisture or cold. Avoid sources of electrical humming (e.g., transformers and motors).
   To prevent fire or electric shock, do not expose the speakers to rain or water.
- To prevent the enclosure from warping or discoloring, do not expose the speakers to direct sunlight or excessive humidity.
- Avoid installing the speakers where foreign objects may fall onto them and/or where they may be exposed to liquid dripping or splashing.
- Do not place the following objects on top of the speakers:
  - Other components, as they might damage or discolor the surface of the speakers;
  - Burning objects (e.g., candles), as they might cause fire, damage to the speakers or personal injury;
  - Containers of liquid, as they might spill and cause electric shock to the user or damage to the speakers.
- Do not place the speakers where they are liable to be knocked over or struck by falling objects. Stable placement will also ensure better sound.
- Placing the speakers on the same shelf or rack as the turntable can result in feedback.
- Secure placement or installation is the owner's responsibility. Yamaha is not liable for accidents caused by improper placement or installation of speakers.
- If you note distortion, reduce the volume control on your amplifier. Do not drive your amplifier to the point of "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 not to exceed the speakers' maximum input.
- Do not clean the speakers with chemical solvents as this might damage the finish. Use a clean, dry cloth.
- Do not attempt to modify or fix the speakers. Contact qualified Yamaha service personnel when service is needed. Do not open the cabinet under any circumstances.
- Please read the "Troubleshooting" section regarding common operating errors before concluding that the speakers are faulty.

#### For the SW-P240

- Do not operate this unit upside down. It may overheat, possibly causing damage.
- Do not use excessive force on switches, controls or connection wires. When moving this unit, first disconnect the power plug and the wires connected to other equipment. Never pull the wires themselves.
- Since this unit has a built-in power amplifier, heat radiates from the rear panel. Place the unit away from walls, allowing at least 20 cm of space above, behind and on both sides of the unit to prevent fire or dam-

- age. Furthermore, do not position the unit with the rear panel facing down on the floor or other surfaces.
- When using a humidifier, be sure to avoid condensation inside this unit by allowing enough space around the unit and avoiding excess humidification. Condensation might cause fire, damage to the unit, or electric shock.
- Do not cover the rear panel of this unit with a newspaper, tablecloth, curtain, etc. to avoid obstructing heat radiation. If the temperature inside the unit rises, it may cause fire, damage to the unit, or personal injury.
- Do not plug this unit into a wall outlet until all connections are complete.
- The voltage to be used must match that specified on the rear panel. Using this unit with a voltage higher than specified is dangerous and may cause fire, damage to the unit, or personal injury. Yamaha is not responsible for damage resulting from use of this unit with a voltage other than specified.
- To prevent damage from lightning, disconnect the AC power plug during electric storms.
- Super-bass frequencies reproduced by this unit may cause a turntable to generate audio feedback. In this case, move the unit away from the turntable.
- This unit may be damaged if certain sounds are continuously output at high volume level. For example, if 20Hz-50Hz sine waves from a test disc or bass sounds from an electronic instrument, etc. are continuously output, or if a turntable stylus touches the surface of a disc, reduce the volume level to prevent the unit from being damaged.
- If you hear distorted noise (i.e., unnatural, intermittent "rapping" or "hammering" sounds) from this unit, reduce the volume level. Extremely loud movie soundtrack low frequency, bass-heavy sounds, or similarly loud popular music passages can damage the speaker system.
- Vibration generated by super-bass frequencies may distort images on a TV. In this case, move the unit away from the TV set.
- When disconnecting the power cord from the wall outlet, grasp the plug; do not pull the cord.
- When you plan not to use this unit for a long period of time (i.e., vacation, etc.) disconnect the AC power plug from the wall outlet.
- Do not place much pressure against the subwoofer net. It may break the net or the unit may fall, resulting in injury.
- Do not place anything fragile beside the subwoofer.
   The air pressure produced by the subwoofer may break the objects and cause malfunction or injury.

#### WARNING

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

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## Introduction

Thank you for choosing a Yamaha NS-P240 or NS-P246 Home Cinema 5.1/6.1 Channel Speaker System. Each of these systems include the following speakers:

#### NX-S120

The NX-S120 are full-range acoustic-suspension speakers. Each system includes two (2) front and two (2) surround speakers. In addition, the NS-P246 system includes an additional NX-S120 that serves as a surround back speaker.

#### NX-C120

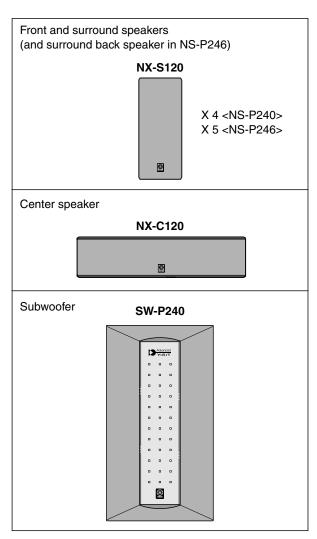
The NX-C120 is a full-range acoustic-suspension center speaker.

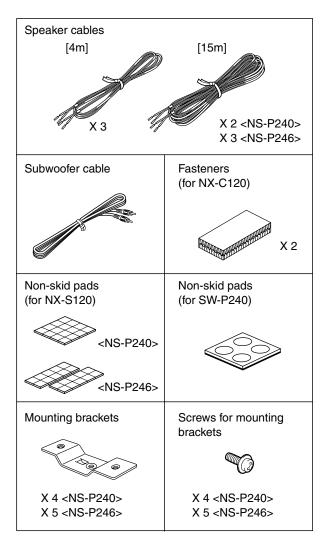
#### • SW-P240

The SW-P240 is a subwoofer that features a built-in power amplifier. It utilizes Advanced Yamaha Active Servo Technology to reproduce extremely high quality super-bass range sounds that add a rich, realistic dimension to your home theater. (Refer to page 9 for detailed information on Advanced Yamaha Active Servo Technology.)

### **Package contents**

Please confirm that the following items are included in the package.



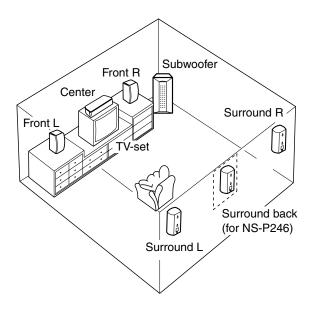


## Setting up the speakers

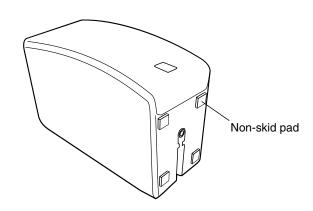
Before you connect the speakers, place each speaker in its respective location. Speaker positioning is very important as it affects the overall sound quality of the system. Place the speakers in locations that will optimize the sound quality at your listening position. Refer to the illustration below.

The position of the subwoofer is not as critical as the position of the other speakers because low bass tones are not highly directional. Refer to "Positioning the subwoofer (SW-P240)" on page 4 for more information.

**Note:** These speakers are magnetically shielded. However, if you place them too close to a TV, they may impair picture color. In this case, move the speakers further away from the TV.



## Positioning the front and surround speakers (NX-S120)



**Front speakers:** Place the two front speakers on the left and right sides of the TV, at approximately the same height as the TV, facing directly forward.

**Surround speakers:** Place the left and right surround speakers behind your listening position, facing slightly inward, about 1.8 m (approx. 6 feet) above the floor.

#### Surround back speaker (for NS-P246 sys-

**tems only):** Position the surround back speaker behind your listening position, precisely between the surround speakers, about 1.8 m (approx. 6 feet) above the floor.

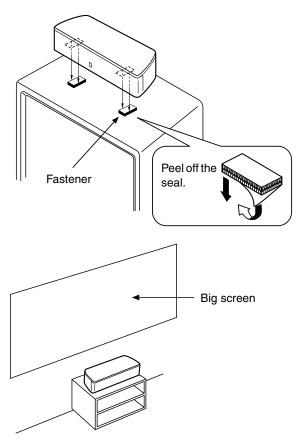
You can set the front, surround, and surround back speakers on tables or other supports, or mount them on a wall or speaker stand. (For more information, see "Mounting the front and surround speakers" on page 5.)

**Non-skid pads:** When placing the speakers on a flat surface, attach the included non-skid pads to the corners of the speaker bottoms, as shown above. The non-skid pads will prevent the speakers from sliding.

## Positioning the center speaker (NX-C120)

Place the center speaker precisely between the front speakers, facing directly forward. You can place the center speaker on top of a TV (if the top of the TV is flat), on the floor beneath the TV, or in an entertainment center. Be sure to place the speaker in a stable location.

When placing the speaker on top of a TV, to prevent the speaker from falling, attach the provided fasteners at two points on the bottom of the speaker and on top of the TV, as illustrated below.



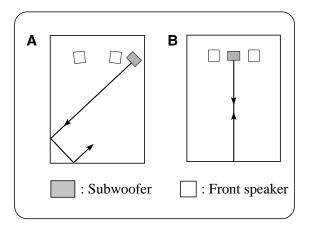
#### **Cautions:**

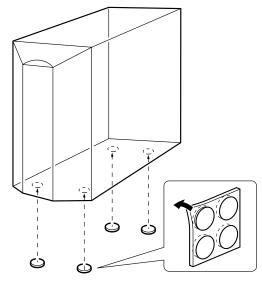
- Do not place the center speaker on a TV that has a top surface area smaller than the speaker bottom. Otherwise, the speaker may fall and cause injury.
- Do not place the center speaker on a TV that has a slanted or inclined top.
- Do not touch the adhesive surface of a fastener after you peel off the seal, as this will weaken the adhesive strength of the fastener.
- Thoroughly wipe to clean the surface where the fastener is to be applied. Note that adhesive strength will be weakened if the surface is dirty, oily or wet. Weakened adhesive may cause the center speaker to fall.

## Positioning the subwoofer (SW-P240)

Although the placement of the subwoofer is not as critical as that of the other speakers, it is best to place the subwoofer outside either the right or left front speaker. (See Figure **A**.)

The placement shown in Figure **B** is also acceptable. However, in some cases, if you listen from the center of the room, the super-bass range from the subwoofer may sound weak. This is due to "standing waves" that can develop between parallel walls that effectively diminish or cancel the bass sound. In this event, face the subwoofer obliquely to the wall. It also may help to break up the parallel surface by placing bookshelves or other large objects along the wall.





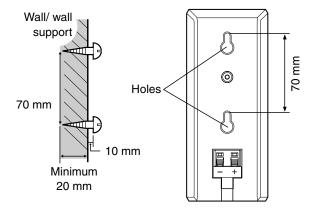
**Non-skid pads:** Place the included non-skid pads at the four corners of the bottom of the subwoofer to prevent the subwoofer from sliding due to vibration or minor impact.

## Mounting the front and surround speakers

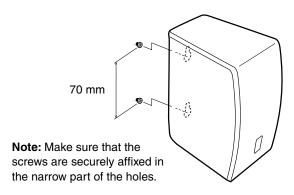
You can place the front and surround speakers (and surround back speaker in an NS-P246 system) on a shelf or rack, set them on the floor, or mount them on a wall or speaker stand.

#### To mount the speakers on a wall:

**1.** Affix screws to a firm wall or wall support as shown below. (Use tapping screws 3.5 to 4mm in diameter.)



**2.** Suspend the speaker by mounting the holes in the speaker's back panels on the protruding screws.

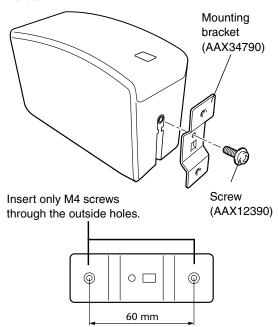


#### **Cautions:**

- Each front or surround speaker weighs 0.9 kg
   (2.0 lbs.). Do not mount the speakers on thin plywood
   or on a wall made of soft surface material. Otherwise,
   the screws may pull out of the surface and the speakers may fall, possibly damaging the speakers or causing personal injury.
- Do not affix the speakers to a wall using nails, adhesives, or unstable hardware. Long term use and vibration may cause the speakers to fall.
- To avoid accidents resulting from tripping over loose speaker cables, affix the cables to the wall.
- Mount the speakers in a wall location that will be unlikely to result in injury to an individual's head.

#### To attach to a bracket:

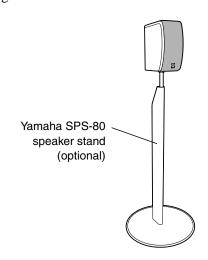
- **1.** Attach a bracket (part number AAX34790) to the bottom of the speaker using a screw (part number AAX12390) such that the convex part of the bracket fits over the groove in the bottom of the speaker, as shown below.
- **2.** Mount the speaker on the speaker stand by affixing a pair of screws through the outside bracket holes.



## To mount the speakers on a speaker stand:

You can mount the front, surround, and surround back speakers on a speaker stand, such as the optional Yamaha SPS-80. (For more information, refer to the instruction manual for the SPS-80.)

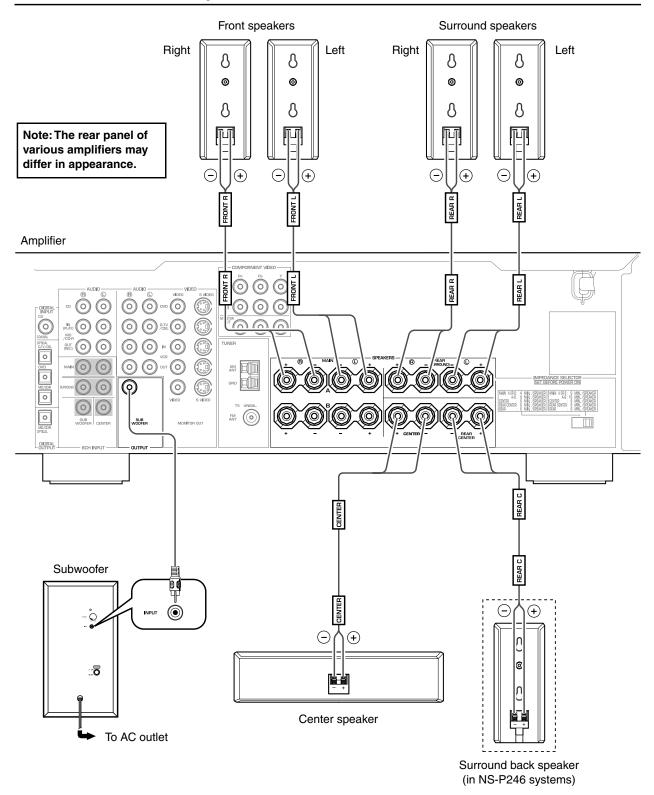
**Note:** The SPS-80 may be unavailable in certain regions.



## **Connections**

Caution: Plug the power cables for the subwoofer and other audio/video components into an AC outlet only after you complete all other connections.

### **Basic connection example**



### **Connecting speaker cables**

Keep the speaker cables as short as possible. Do not bundle or roll up excess cable. If the connections are faulty, you will hear no sound from the speakers.

#### Before connecting the cables:

Remove a small amount (about 10 mm) of insulation coating from the end of each speaker cable.

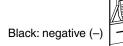




One side of the included speaker cable is marked with a broken white line; the other side is unlined. Connect the (+) terminal on the speaker to the (+) terminal on the amplifier using the cable side marked with the broken white line. Connect the (-) terminals on both components using the unlined side of the speaker cable.

#### Inserting the cables:

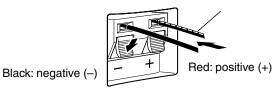
**1.** Press and hold the terminal tab, as shown in the figure below.





**2.** Insert the stripped wire core.





- **3.** Release your finger from the tab to allow it to lock securely on the cable's wire core.
- **4.** Test the security of the connection by pulling gently on the cable at the terminal.

**Note:** Do not let uninsulated speaker wires touch each other as this could damage the speaker or the amplifier.

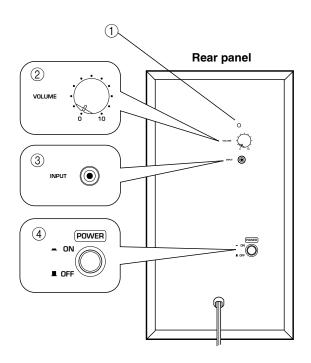
#### **Connections:**

- Connect the front, center and surround speakers (and surround back speaker for the NS-P246) to the speaker output terminals on your amplifier using the included speaker cables.
  - The included speaker cables have labels marked FRONT L, FRONT R, CENTER, REAR L, REAR R (and REAR C for NS-P246). Connect each speaker cable to the corresponding speaker as illustrated in the figure on page 6.
  - Connect each speaker making sure not to reverse the polarity (+, -). If the speaker is connected with reversed polarity, the sound will be unnatural and lack bass.
  - For the front and surround speakers only, connect one speaker to the left (marked L) terminals on your amplifier, and the other speaker to the right (marked R) terminals.
- Connect the subwoofer to the line output (pin jack) terminal(s) on the amplifier.
  - To connect to 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 the INPUT terminal on the subwoofer.

## Connecting components and the subwoofer to AC power

After you complete all speaker and subwoofer connections, plug the amplifier, other audio/video components, and the subwoofer into an AC outlet of appropriate voltage. Make sure the subwoofer's VOLUME control is set to 0 before proceeding to adjust the speaker balance as described on page 8.

## Using the subwoofer (SW-P240)



#### 1) Power indicator

Lights up GREEN when the **POWER** switch (4) is turned ON; turns off when the **POWER** switch is turned OFF.

#### **2 VOLUME control**

Adjusts the volume level. Turn the control clockwise to increase the volume, and counter-clockwise to decrease the volume.

#### ③INPUT terminal

Input terminal for line level signals from the amplifier.

#### (4) POWER switch

Press this switch to the ON position to turn on the power to the subwoofer. When the power of the subwoofer is on, the power indicator (1) on the rear panel lights up green. Press this switch again to set it to the OFF position to turn off the power of the subwoofer.

### Pre-adjusting the subwoofer volume

Before you use the subwoofer, first adjust the volume balance between the subwoofer and the front speakers by following the procedure below.

- **1.** Set the **VOLUME** control to minimum (0).
- **2.** Turn on the power to all other components.
- **3.** Press the **POWER** switch to the ON position. The power indicator on the rear panel lights up green.
- **4.** Play a source that contains low-frequency sounds. Adjust the amplifier's volume control to the desired listening level.
- **5.** Increase the volume gradually to adjust the volume balance between the subwoofer and the front speakers. In most cases, set the control to a level at which you hear slightly more bass than when the subwoofer is not used.
- **6.** Adjust the volume of the entire sound system using the amplifier's volume control.
- If you replace the front speakers (NX-S120) with other speakers, you must again balance the subwoofer and surround speaker volume.
- For more information on adjusting the VOLUME control, refer to "Frequency characteristics" on page 11.

## Advanced Yamaha Active Servo Technology (on the SW-P240)

The theory behind Yamaha Active Servo Technology is based on two 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.

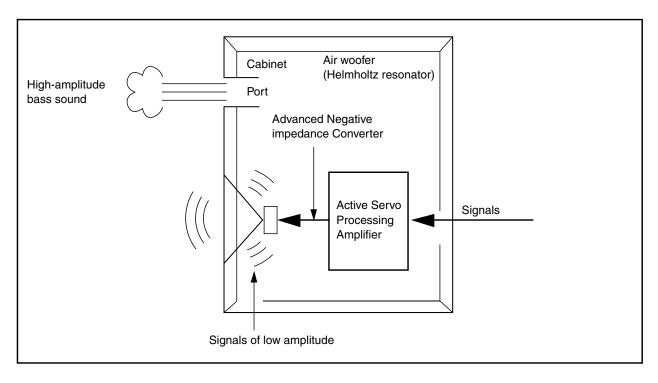
Thus, signals of low amplitude within the cabinet can, according to Helmholtz resonance theory, be output from this opening as waves of great amplitude if the size of the opening and the volume of the cabinet are in proportion to satisfy a certain ratio. In order to accomplish this, moreover, the amplitudes within the cabinet must be both precise and of sufficient power because these amplitudes must overcome the "load" presented by the air in the cabinet.

This problem is resolved by a 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, the system utilizes a special negative-impedance output-drive amplifier that subtracts the output impedance of the amplifier.

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 featuring a Helmholtz resonator, reproduce an extremely wide range of frequencies with outstanding sound quality and low distortion. The features described above combine to create the fundamental structure of conventional Yamaha Active Servo Technology.

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



## **Troubleshooting**

Refer to the chart below if the unit does not function properly. If the problem you are experiencing is not listed, or if the instructions fail to help you resolve the problem, disconnect the power cord and contact your authorized Yamaha dealer or service center.

Problem	Cause	What to Do
No sound.	Speaker cables are not connected securely.	Connect the speaker cables securely.
Sound level is too low.	Speaker cables are not connected correctly.	Connect the speaker cables correctly: L (left) to L, R (right) to R, "+" to "+" and "-" to "-".

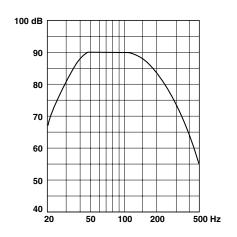
## For the Subwoofer (SW-P240) only

Problem	Cause	What to Do
Power is not supplied even though the POWER switch is set to the ON position.	The power plug is not securely connected.	Turn the power switch OFF, then connect the power plug securely.
No sound.	The VOLUME control is set to 0.	Turn the VOLUME control to the right (clockwise).
	Speaker cables are not connected securely.	Connect the speaker cables securely.
Sound level is too low.	Speaker cables are not connected correctly.	Connect the speaker cables correctly: L (left) to L, R (right) to R, "+" to "+" and "-" to "-".
	You are playing a sound source that includes inadequate bass frequencies.	Play a sound source that includes more bass frequencies.
	The sound level has been diminished by standing waves.	Reposition the subwoofer, or break up the parallel wall surface by placing bookshelves or other large objects along the wall.

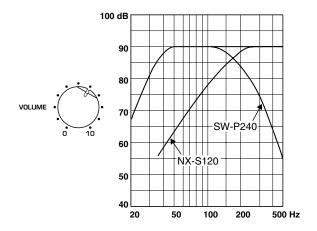
## **Specifications**

### Frequency characteristics

The following graph displays the frequency characteristics of the SW-P240 subwoofer.



The following graph displays the frequency characteristics of the SW-P240 subwoofer combined with NX-S120 speakers.



#### NX-S120/NX-C120

Type ......Full-range acoustic-suspension speaker system

Magnetically shielded type

Driver ......5 cm (2") full-range cone speaker x 2

Nominal Input Power......30 W

Maximum Input Power...... 100 W

Impedance......6  $\Omega$ 

Frequency Response ... 100 Hz – 25 kHz (–10 dB)

Sensitivity ...... 86 dB/2.83 Vm

Dimensions (W x H x D)

<NX-S120> ...... 72 mm x 170 mm x 108 mm (2-15/16" x 6-11/16" x 4-1/4")

<NX-C120>.....300 mm x 72 mm x 105 mm

(11-13/16" x 2-15/16" x 4-1/8")

Weight

<NX-C120>......1.1 kg (2 lbs. 7 oz.)

#### **SW-P240**

Type ...... Advanced Yamaha Active Servo Technology

Magnetically shielded type

**Driver** ...... 16 cm (6.5") cone woofer

**Output Power**....... 50 W (100 Hz, 5  $\Omega$  at THD=10%)

**Dynamic Power**......100 W, 5  $\Omega$ 

Input Impedance ...... INPUT (1P RCA pin jack): 12 k $\Omega$ 

Input Sensitivity..... INPUT (1P RCA pin jack): 30 mV (100 Hz, 5  $\Omega$  at 50 W)

**Power Supply** ...... AC 120 V, 60 Hz

Dimensions (W x H x D)

......200 mm x 365 mm x 390 mm (7-7/8" x 14-3/8" x 15-3/8")

Weight......8.4 kg (18 lbs. 8 oz.)

Specifications are subject to change without notice.



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