polk audio
The Speaker Specialists®

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RM1006-1

PSW SERIES

PSW650

Instruction Manual

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The Speaker Specialists®

POLK AUDIO—A HISTORY OF EXCELLENCE

Polk Audio was founded in 1972 by Matthew Polk and George Klopfer. Their dream was to make the highest performance speakers, at reasonable prices. They did so by applying scientific principles to speaker design and by concentrating solely on the speaker business. That's why they're "The Speaker Specialists®."

Today, Polk Audio is still headquartered in Baltimore, Maryland, and is now one of the world's largest manufacturers of home and car loudspeakers. Polk's research has yielded over 20 patents for advances in loudspeaker performance and value. Polk speakers have earned the praise of audio experts the world over, as well as dozens of awards for innovative, high-quality design. Polk Audio speakers are sold in over 50 countries and in audio/video specialist retail locations throughout the U.S.

Founders Matthew Polk and George Klopfer still work alongside 300 dedicated Polk team members to bring you the best speakers you can buy.

A WORD FROM MATTHEW POLK

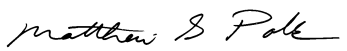
Dear Music Lover,

Thank you for purchasing Polk Audio speakers. Designing and building speakers is more than just a business for the people of Polk Audio–it is our passion. We are all dedicated to your complete satisfaction and delight.

Your new Polk speakers include the latest loudspeaker technology to assure outstanding performance and unmatched quality. Please take a moment to read through this manual for information on getting the greatest enjoyment from these fine instruments.

We make a wide variety of main, center, rear channel, powered subwoofer, and accessory speakers so you can assemble a complete and well matched high-performance surround sound system. If you would like more information on building the Polk system of your dreams, consult your Polk Audio dealer or call our Customer Service Department. In North America call (800) 377-7655, Monday through Friday, 9:00am through 6:00pm Eastern time.

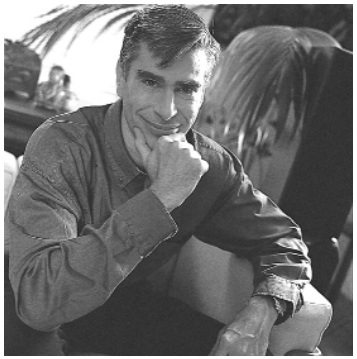
Sincerely,



Matthew S. Polk

Chairman and Co-Founder

P.S.: A wealth of information can also be found on our award-winning web site: www.polkaudio.com.



FEATURES:

- Two 10 inch direct radiating subwoofer drivers for deep bass, smooth response and low distortion.
- Dual Power Port™ bass ports for deep bass and high acoustic efficiency with low distortion.
- High current 250 watt power amplifier.
- Subwoofer volume control, variable crossover control and phase switch allow you to optimize performance to match your audio system, room acoustics, and program material.
- Auto on/off circuit that automatically turns the subwoofer on when it senses a program signal. When no signal is present, the amplifier turns off within 15 minutes.
- +3dB bass boost switch provides increased output when connected to electronics with low output subwoofer output jacks.
- Unfiltered LFE input for use with low pass filtered subwoofer output jacks.
- Speaker and line level inputs.

GETTING STARTED

Please inspect each loudspeaker carefully. Notify your Polk dealer if you notice any damage or missing items. Keep the carton and packing material. They will do the best job of protecting your speakers if they need to be transported.

PLACEMENT

Polk PSW Series subwoofers offer many placement options–in an entertainment center, behind furniture, or next to a sofa or chair. The subwoofer may be placed anywhere in the room, but for the greatest possible bass output place the subwoofer near a corner of the room. Allow at least 6 inches (15cm) of space between any subwoofer driver and a wall or obstruction **(Figure 1)**. The subwoofer should only be placed on its feet. **(Figure 2)**. **NEVER LAY THE SUBWOOFER ON THE AMPLIFIER END—THIS WILL DAMAGE THE AMPLIFIER.**

The PSW650 is not magnetically shielded and should not be placed close to a television set. If you see any color distortion in your TV, move the subwoofer a few inches further away from the set.

CONNECTING THE SUBWOOFER TO THE SYSTEM—GENERAL

If you elect to use the *speaker level inputs*, use two-conductor 16 gauge or thicker speaker wires. If you choose to use the *line level inputs*, use high quality, shielded RCA type interconnect cables. See your Polk dealer for wire recommendations.

Note that one of the speaker input terminals on the rear of the speaker is marked red (+) and the other black (-). Make certain that you connect the wire from the red (+) terminal of your amplifier to the red (+) terminal on your speaker, and the wire from the black (-) terminal of the amplifier to the black (-) terminal on your speaker. Most wire has some indication (such as color coding, ribbing, or writing) on one of the two conductors to help maintain consistency. If your subwoofer doesn't seem to produce much bass, it is most likely that one of the speaker wires is connected backwards. Double check all connections for correct polarity.

FIGURE 1.

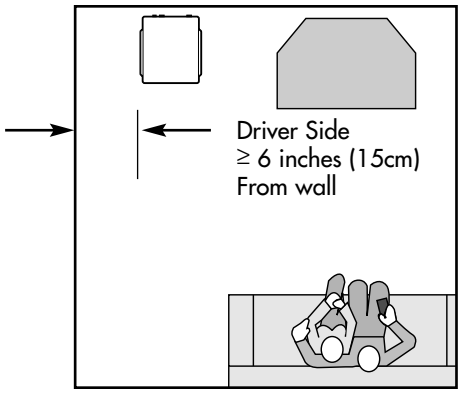
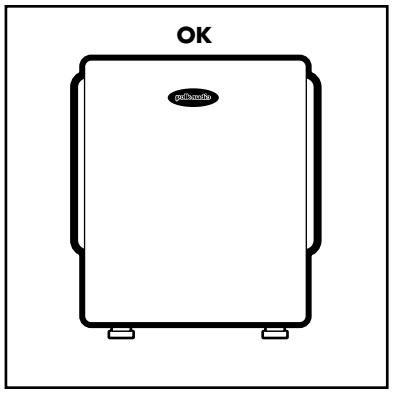


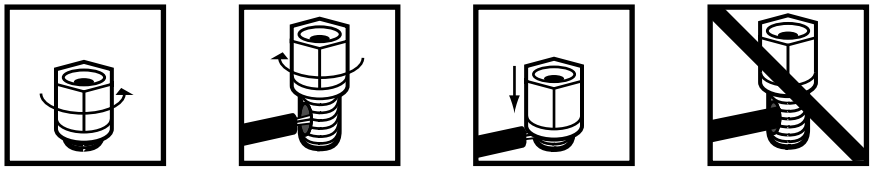
FIGURE 2.



Strip 1/2" of insulation from each of the two conductors on both ends to expose the bare wire. Twist the exposed wire of each conductor to form two un-frayed strands. Connect two conductors to the receiver or amp (refer to the owner's manual supplied with your electronics for assistance with proper hookup). Connect the two conductors on the other end of the wire to the speaker terminals. Repeat for the other channel.

To connect wire to the binding post, unscrew the plastic hex nut on the binding post and insert the bare wire into the hole near the base of the binding post. Do not insert the insulated part of the wire into the hole; this will not give you a good connection. Twist the hex nut back down the binding post until it firmly meets the wire. Do not over-tighten. **(Figure 3.)**

FIGURE 3.



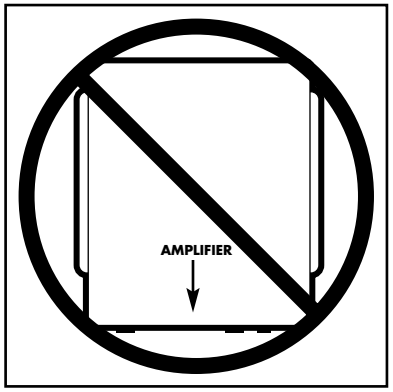
LOOSEN HEX NUT

INSERT SPEAKER WIRE THROUGH HOLE

TIGHTEN HEX NUT

DO NOT INSERT INSULATED SECTION OF SPEAKER WIRE

FIGURE 2A.



HOOK-UP OPTIONS

The PSW650 offers a wide range of hook-up and use options. Each option has advantages and potential downsides. The option that is best for you depends on your electronics, main speakers and your personal taste. Read all the options before selecting.

The hook-up method will have a large impact on the "blending" between your main front speakers and the subwoofer. A poor blend will sound unnatural; you will be more aware that the main and subwoofer speakers are two separate units. In a well-blended system, you will not be able to pinpoint the location of the subwoofer in the mix. Experiment with alternate options to find the method that works best for you.

HOOK-UP OPTIONS (CONTINUED)

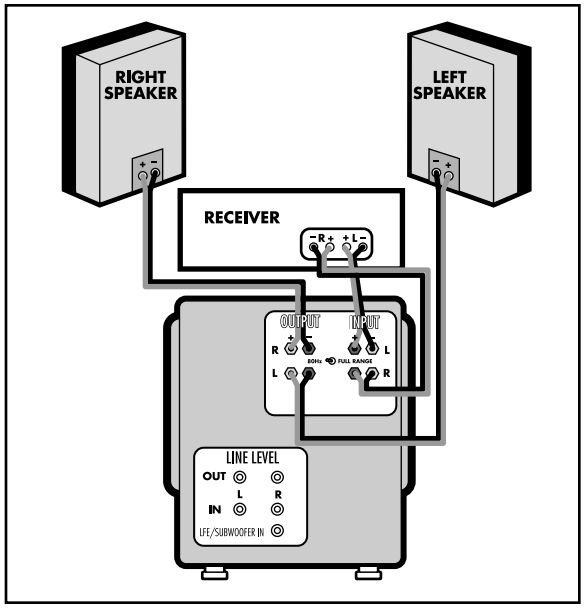
OPTION #1

This is the recommended hook-up option for most stereo and Dolby® Pro Logic® systems, particularly those receivers that do not have pre-amp output jacks. In this method, the subwoofer is fed signal by the speaker level outputs of your amp or receiver. This method is very easy to connect, is less susceptible to hum and noise, and provides high performance sound. *With this method there is absolutely no reason to connect the PSW650 to the subwoofer output jack of Dolby Pro Logic electronics.*

Connect speaker wires from your amp or receiver to the PSW650's speaker input connectors, and connect your main left and right front speakers to the speaker output jacks **(Figure 4)**. Be sure to maintain correct polarity as described in the general hook up instructions.

If you have a Dolby® Digital surround decoder, use the "Large" setting for the front left and right speakers in the "speaker set up" or "bass management" function of your electronics. Select the subwoofer as "Off" or "None." This will direct all bass and LFE (low frequency effects) channel information to the subwoofer via the left and right speaker outputs. Consult the owner's manual of your electronics to learn how to select these settings.

FIGURE 4.



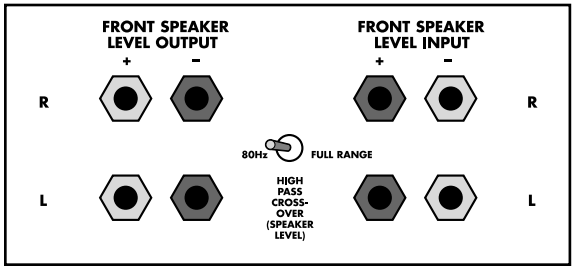
The "high pass crossover" switch **(Figure 5)** on the PSW650 gives you the option of filtering bass from your main front speakers for the purpose of increasing power handling and lowering distortion at high volume levels. If you are using small front main speakers, select "80Hz." For large floor-standing speakers, especially those with built-in powered woofers, select "full range." This function works only when the subwoofer is connected to the amplifier via speaker wire.

OPTION #2

This option is recommended for surround systems with pre-amp output jacks, particularly "high end" separates systems.

Connect your main front speakers to your receiver or amplifier in the normal way. If your pre-amp, processor, amplifier or receiver has a spare set of front left and right pre-outputs, connect them to the Line Level In jacks of the subwoofer **(Figure 6)**. Use well-shielded RCA type cables. If your pre-amp, processor, amplifier or receiver has a single set of pre-outputs and they are being used to deliver signal to an amplifier, use "Y" cables as shown in **Figure 6**.

FIGURE 5.



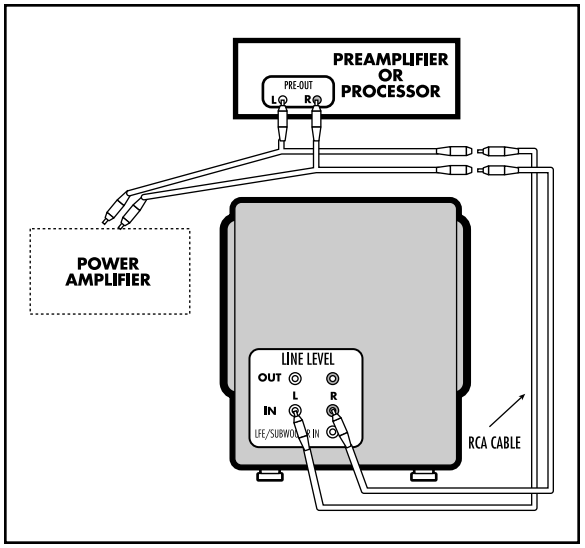


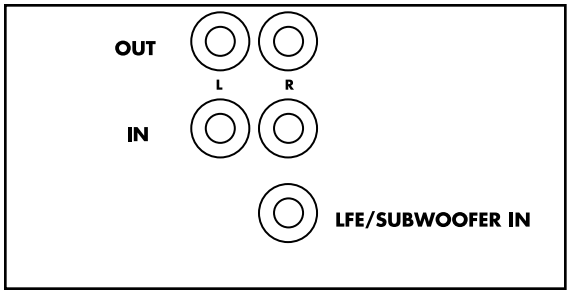
FIGURE 6.

If you have a Dolby® Digital surround processor, use the "Large" setting for the front left and right speakers in the "speaker set up" or "bass management" function of your electronics. Select the subwoofer as "Off" or "None." This will direct all bass and LFE (low frequency effects) channel information to the subwoofer via the left and right pre-amp outputs. Consult the owner's manual of your electronics to learn how to select these settings.

CONNECTING LFE WITH OPTION #1 AND #2

When using either hook-up OPTION #1 or #2 with a Dolby Digital system, you may also connect the subwoofer output to the PSW650. In Dolby Digital systems, select the subwoofer as "On" or "Yes" in the "speaker set up" or "bass management" function of your electronics. Consult the owner's manual of your electronics to learn how to select these settings. Read "**HOW TO TELL IF YOUR SUBWOOFER OUTPUT JACK IS FILTERED OR NOT**" on the next page. If your sub output is *filtered*, connect it to the "LFE/Subwoofer" input of the PSW650. If the subwoofer output is *unfiltered*, connect to either of the "IN" line input jacks **(Figure 7)**.

FIGURE 7.



OPTION #3

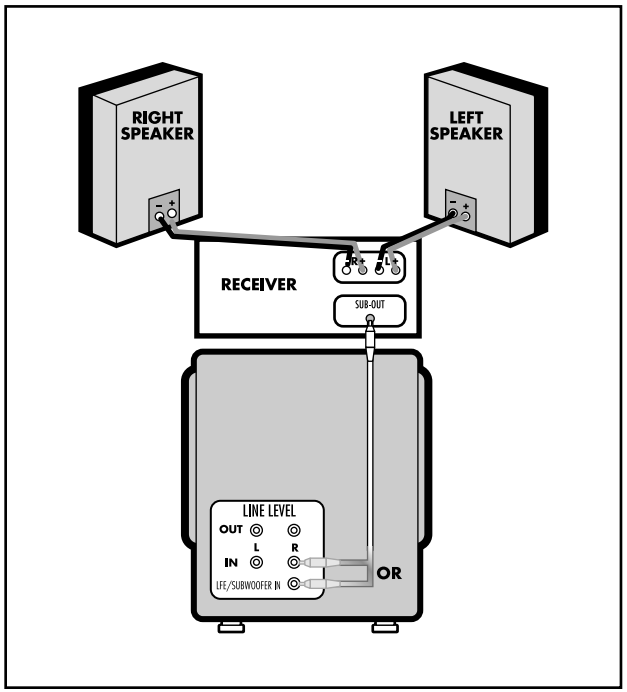
This option uses the subwoofer output jack as the only source of signal to the PSW650. In most cases we do not recommend using only this subwoofer output jack to connect the subwoofer. Why? Because many receivers and pre-amp/processors, the subwoofer output jack is *filtered*; that is, all sounds above a certain frequency (usually 80Hz) have been filtered out. That defeats the sub's variable crossover control, one of your primary tools in adjusting the subwoofer to blend perfectly with your main speakers. Some units have *unfiltered* subwoofer outputs, and fewer still allow you to switch the filter off. Read your receiver or preamp/processor's manual to find out which is the case with your equipment. If you still don't know, try the experiment described on page 9.

If the subwoofer output jack is filtered, we suggest using hook up OPTION #1 or #2. If it is unfiltered, connect the subwoofer output jack to either of the line level "IN" jacks **(Figure 8)**. With Dolby Digital systems, select subwoofer as "on" or "yes" in the "speaker set up" or "bass management" function of your electronics. Read the owner's manual of your electronics to learn how to select this setting.

HOW TO TELL IF YOUR SUBWOOFER OUTPUT JACK IS FILTERED OR NOT

Use the "speaker set-up" or "bass management" function of your Dolby Digital processor to select subwoofer as "on" or "yes." Connect the subwoofer output jack to the "LFE/Subwoofer" input of the PSW650. Disconnect the other speakers in the system so that all you can hear is the subwoofer. Play music or a movie with vocal content. If you can hear and understand the words, your output jack is *not filtered*. If all you can hear is bass, and the vocals are barely or not at all audible, your subwoofer input jack is *filtered*.

FIGURE 8.

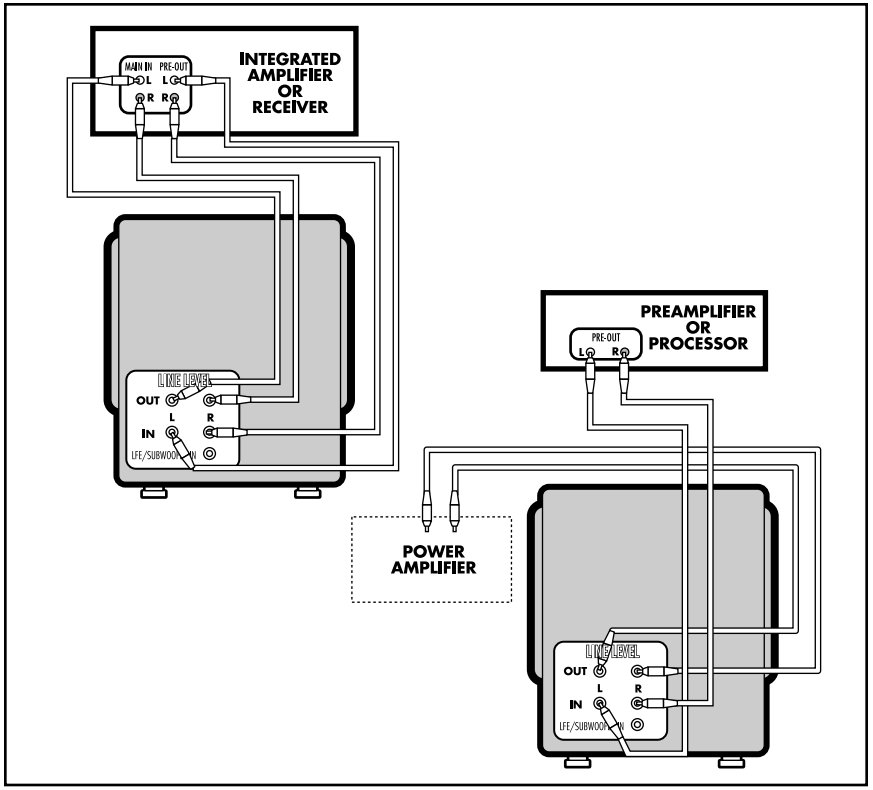


OPTION #4

This is the best option to use in stereo or Dolby® Pro Logic® systems with pre-out/main in jacks and small speakers.

Connect the preamp output jacks to the left and right inputs of the PSW650 with high quality RCA cables. Connect the left and right outputs of the PSW650 to the power amp inputs **(Figure 9)**. The L&R outputs of the PSW650 are high-pass filtered and will prevent bass frequencies below 80Hz from getting into the front amplifier and speakers. This is desirable if you are using small speakers. If you are using large speakers and you want them to play bass, *do not use this option.*

FIGURE 9.



AC POWER

The PSW650 has a built-in power amplifier and must be plugged into a standard household 110-120V AC power source in order to operate.

The power switch has three positions: "On," "Off" and "Auto" **(Figure 10)**. In the "Auto" position, the amplifier will automatically turn on, and the green pilot light on the front of the subwoofer will illuminate, as soon as the speaker senses a signal coming from your electronics. The amplifier and the green pilot light will turn off approximately 15 minutes after input signal ceases. In the "On" position, the power amplifier will operate and the green pilot light will illuminate until the switch is set to "Off" position or the AC cord is disconnected from a power source.

SUBWOOFER ADJUSTMENTS

SUBWOOFER LEVEL CONTROL

Subwoofer level is adjustable via the knob located on the front of the subwoofer under the logo pod. Play a piece of music that has an average amount of bass content. Start with the knob set to "5" and the "bass boost" switch set to 0. Adjust by ear using a wide variety of CD and video sources. Adjust for deep, powerful bass without "boominess."

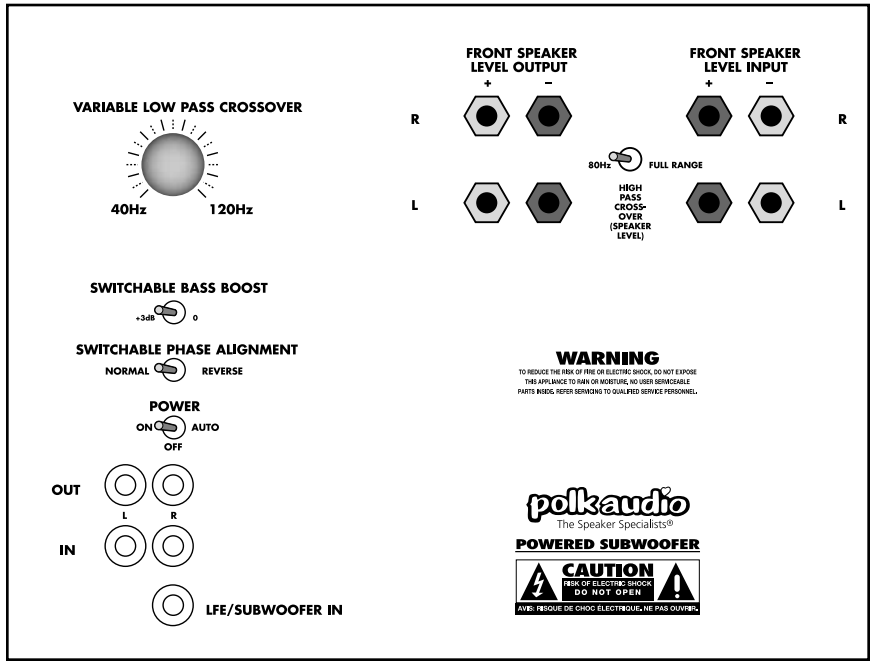
VARIABLE LOW PASS CROSSOVER **(FIGURE 10)**

This control adjusts the frequency range over which the subwoofer operates. This control only affects signals that are sent through the line level "IN" jacks and the speaker level inputs. It has no effect on signals fed into the LFE input. When using smaller main speakers, the upper range of the control will probably yield the best results. With larger speakers, the lower end of the control range will probably sound best, but always let your ear be the final judge. After setting subwoofer levels, you may want to experiment with this crossover frequency setting. Turning the knob up from the recommended setting will add more "warmth" to the bass and lower mid-range, possibly at the sacrifice of bass "tightness" and midrange clarity. Turning the knob down from the recommended setting will make the bass and lower midrange sound "thinner." Experiment and set this control to taste.

SWITCHABLE BASS BOOST **(FIGURE 10)**

In most cases, this switch should be set to "0." If you have hooked up the subwoofer from a subwoofer output or pre-out jacks and cannot get enough bass output even with the subwoofer level control turned all the way up, switch to the +3dB position. In typical

FIGURE 10.



systems where the 3dB boost is not needed, this switch can be useful for providing a quick boost for bass-shy program material. Most people prefer more bass output for movies than music, so you can use this switch as a handy way to adjust bass levels as you switch between movie to music sources.

SWITCHABLE PHASE ALIGNMENT **(FIGURE 10)**

Have someone else switch between these two settings while you sit in your favorite listening position. Use music with good bass and a deep male vocal. When you hear the best balance of deep bass and natural lower octaves of the male voice, you have achieved optimum phase tuning.

MAINTAINING THE APPEARANCE OF YOUR PSW650

Your new speaker cabinet is finished in woodgrain vinyl that can be dusted or cleaned with a moist soft cloth. Avoid harsh detergents and cleaning fluids, they can permanently damage your speaker's finish. Vacuum the grilles to remove dust.

Q. "Why does my system hum?"
A. "It doesn't know the words."

This is what passes for humor in the audio business. Here's the real answer:

If you have any electrical 60Hz hum in your system you are going to hear it clearly once you hook up your subwoofer. Most hum problems are caused by ground loops. That is, the electrical grounds of the components in your system are not at the same electrical potential. A very common ground loop source is cable TV. Disconnect the coaxial cable from your TV or VCR. If the hum goes away, the cable is the ground loop villain. In that case you need a 75 ohm ground loop isolator. This device is about the size of a pen and is attached to your coaxial cable where it plugs into your VCR (or television). You can obtain this device from some audio dealers, Radio Shack stores, Zantech (1-800-843-5465), or Channel Plus (1-800-999-5225).

Ground loops and hum can also be the result of faulty electrical wiring in your home. Consult a licensed electrician to evaluate and, if necessary, repair the AC wiring in your home. Light dimmers also tend to introduce noise into audio systems. Remove them.

If none of our suggestions work for you, call our customer service number shown below.

TECHNICAL ASSISTANCE OR SERVICE

If, after following the hook-up directions, you experience difficulty, please double check all wire connections. If the problem is that you are not getting enough bass, make sure the AC cord is connected to a live AC power source and that the power switch is set to the "on" or "auto" position. Make sure that your electronic equipment is operating correctly by hooking up another speaker to the speaker output. Should you isolate the problem to the speaker, contact the authorized Polk Audio dealer where you made your purchase. Authorized Polk Audio dealers are the best source for advice and assistance.

Our customer service representatives are happy to answer your questions and provide fast, friendly service. In North America call (800) 377-7655, Monday through Friday, 9:00 AM through 6:00 PM Eastern time. Or you can e-mail us at our Internet service address: polkcs@polkaudio.com.

SPECIFICATIONS

PSW650

Driver Complement:
2 - 10"(25cm) woofers

Amplifier Power:
250 watts

Enclosure Type:
direct radiating, vented

Port Type:
dual, rear firing, Power Port™

Overall Frequency Response:
25Hz - 180Hz

-3dB Limits:
28Hz - 125Hz

Crossover Frequency:
adjustable 40Hz - 120Hz

Phase Control:
switch normal and reverse (0º or 180º)

Inputs:
speaker and line level (filtered)
LFE line (unfiltered)

Outputs:
speaker level, pass-through or 80Hz high pass filtered (switchable)
line level, high pass filtered at 80Hz

Available Finish:
black woodgrain

Dimensions:
18 3/4"H x 17 1/2"W x 18 3/4"D
47.6cmH x 44.5cmW x 45.7cmD

Note: Specifications are subject to change without notice.

POLK AUDIO LIMITED WARRANTY

Polk Audio, Inc., warrants to the original purchaser only that the **Amplifier** in this Polk Audio Loudspeaker Product (the "Product") will be free from defects in material and workmanship for a period of three (3) years from the date of original retail purchase from a Polk Audio Authorized Dealer. Polk Audio, Inc., further warrants to the original purchaser only that the **Loudspeaker(s)** in this Polk Audio Product (the "Product") will be free from defects in material and workmanship for a period of five (5) years from the date of original retail purchase from a Polk Audio Authorized Dealer. The original retail purchaser shall hereinafter be referred to as "you." However, this Warranty will automatically terminate prior to the expiration if you sell or otherwise transfer the Product to any other party. To allow Polk Audio to offer the best possible warranty service, please fill out the Product Registration Card(s) and send it to the Factory, at the address provided on the Product Cards(s) within ten (10) days of the date of purchase.

Defective Products must be shipped, together with proof of purchase, prepaid insured to the Polk Audio Authorized Dealer from whom you purchased the Product, or to the Factory at 2550 Britannia Boulevard, Suite D, San Diego, California 92173. Products must be shipped in the original shipping container or its equivalent; in any case the risk of loss or damage in transit is to be borne by you. If upon examination at the Factory or Polk Audio Authorized Dealer it is determined that the unit was defective in materials or workmanship at any time during this Warranty period, Polk Audio or the Polk Audio Authorized Dealer will, at its option, repair or replace this Product at no additional charge, except as set forth below. All replaced parts and Products become the property of Polk Audio. Products replaced or repaired under this warranty will be returned to you, within a reasonable time, freight prepaid.

This warranty does not include service or parts to repair damage caused by accident, disaster, misuse, abuse, negligence, inadequate packing or shipping procedures, commercial use, voltage inputs in excess of the rated maximum of the unit, cosmetic appearance of cabinetry not directly attributable to defect in materials or workmanship, or service, repair, or modification of the Product which has not been authorized or approved by Polk Audio. This warranty shall terminate if the Serial number on the Product has been removed, tampered with or defaced.

This warranty is in lieu of all other expressed Warranties. If this Product is defective in materials or workmanship as warranted above, your sole remedy shall be repair or replacement as provided above. In no event will Polk Audio, Inc. be liable to you for any incidental or consequential damages arising out of the use or inability to use the Product, even if Polk Audio, Inc. or a Polk Audio Authorized Dealer has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the exclusion or limitation of consequential damages, so the above limitation and exclusion may not apply to you.

All implied warranties on this Product are limited to the duration of this expressed Warranty. Some states do not allow limitation on how long an implied Warranty lasts, so the above limitations may not apply to you. This Warranty gives you specific legal rights, and you also may have other rights which vary from state to state.

This Warranty applies only to Products purchased in the United States of America, its possessions, and U.S. and NATO armed forces exchanges and audio clubs. The Warranty terms and conditions applicable to Products purchased in other countries are available from the Polk Audio Authorized Distributors in such countries.

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