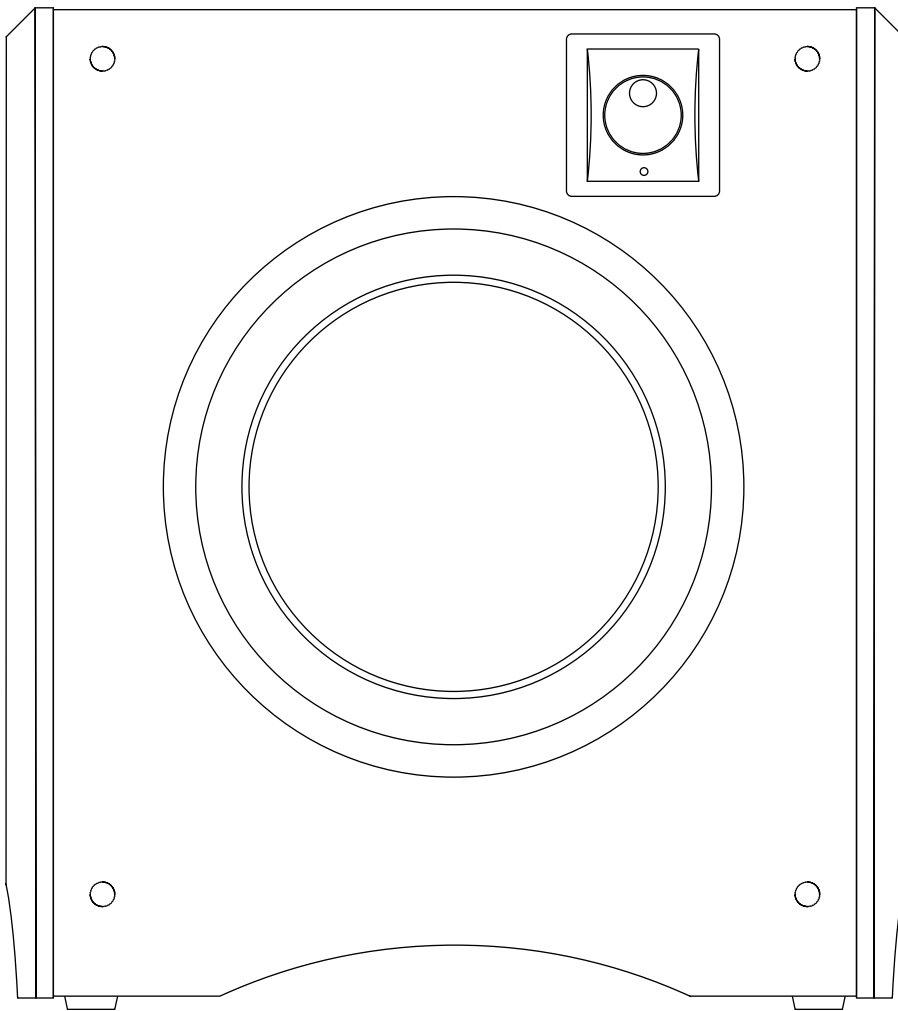


# Model 642 SB

High Performance C.O.R.E. Technology  
THX Select Certified Powered Subwoofer



 Atlantic Technology<sup>®</sup>  
*bringing entertainment home™*

Instruction Manual

## Safety Precautions



**CAUTION:** To reduce the risk of electric shock, do not remove the cover (or back). No user serviceable parts inside. Refer to qualified personnel.

**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. This device generates a fair amount of heat. Make sure nothing blocks the ventilation openings on the top and bottom of the unit.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



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

## For Future Reference

Record your speaker and amplifier serial numbers and date of purchase here:

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Date of Purchase \_\_\_\_\_

The serial number is found on the back panel.

## Table of Contents

<b>3</b>	<b>Model 642 SB</b>
<b>3</b>	<b>What's THX?</b>
<b>4</b>	<b>Subwoofer Rear Panel</b>
<b>5</b>	<b>Features</b>
<b>6</b>	<b>Connecting Your Subwoofer</b>
6	Subwoofer Line Out to Low Level In
6	Using the Low Level Output
6	Power Connection
<b>7</b>	<b>Low Level Connections with One Subout/LFE Output</b>
<b>8</b>	<b>Low Level Connections with Two Subout/LFE Outputs</b>
<b>9</b>	<b>Placement and Operation</b>
<b>9</b>	<b>System Setup</b>
9	Subwoofer Tuning Without an SPL Meter or Test Tones
9	How Much is Enough?
10	Dual Subwoofer Placement
10	Using the Subwoofer LowPass Control
10	The Phase Invert Control
10	A Word About Bass, Center Channel Modes and System Set Up
<b>10</b>	<b>Care of Your Subwoofer</b>
<b>11</b>	<b>Subwoofer Troubleshooting Guide</b>
<b>11</b>	<b>Model 642 SB Specifications</b>

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# Model 642 SB

## High Performance C.O.R.E. Technology

### THX Select Certified Powered Subwoofer

Congratulations on your purchase of an Atlantic Technology 642 SB powered subwoofer. A well designed subwoofer, properly integrated into your system, will enhance your listening pleasure dramatically by providing the bass foundation upon which most music and special effects are built.

The 642 SB is capable of delivering very high output levels and wide dynamic range. When properly placed, it will provide smooth in-room bass response down to approximately 25Hz, with a peak SPL of over 105dB (2000 cubic foot space).

The proprietary high-efficiency amplifier is conservatively rated at 300 watts RMS. This amplifier, coupled with the massive 12" long-throw woofer in a sealed enclosure, generates accurate deep bass with a minimum of distortion.

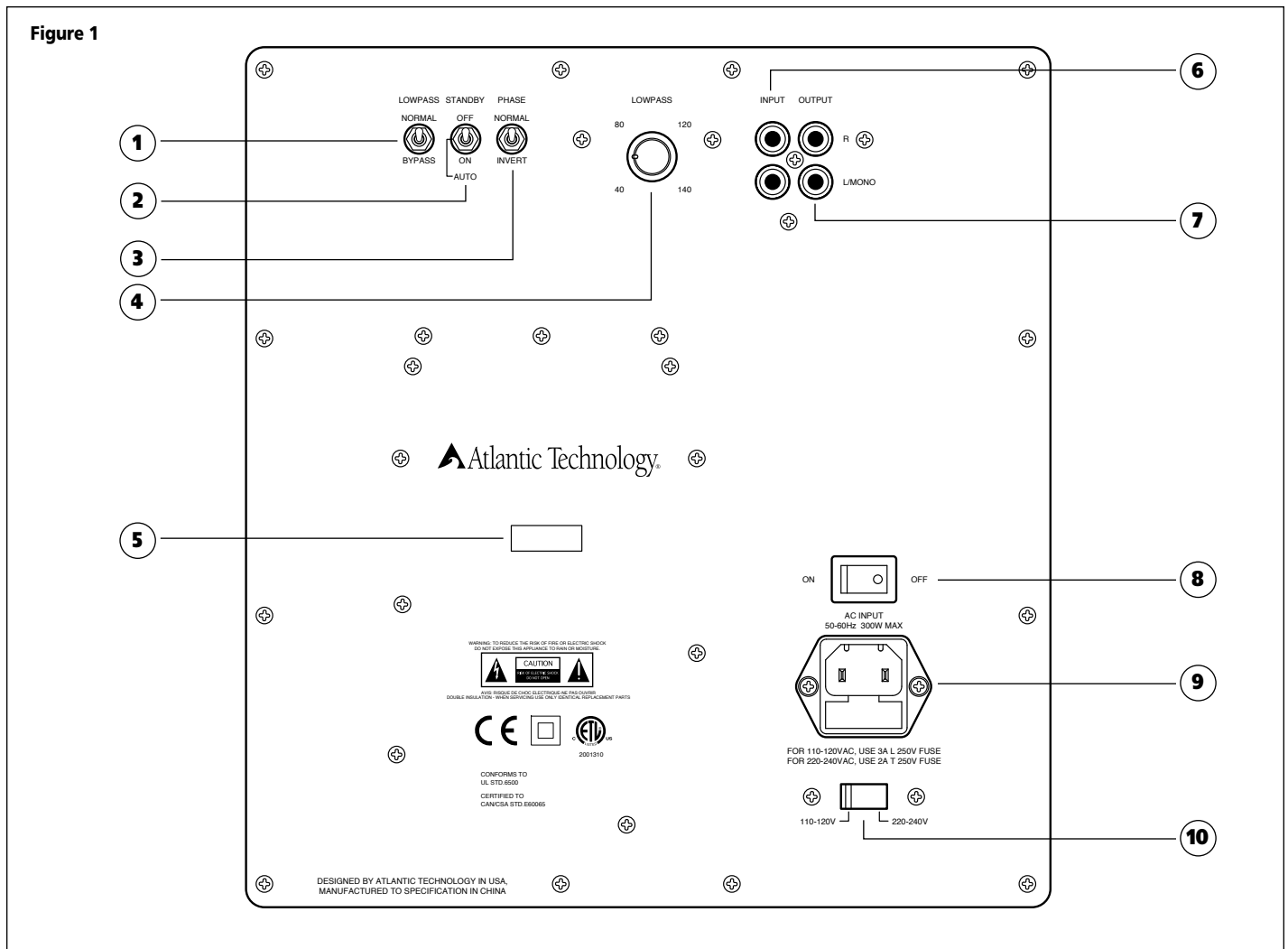
Your Atlantic Technology powered subwoofer will smoothly integrate with virtually all brands of loudspeakers on the market. From the rock-solid amplifier to the easily accessible controls, this is one of the most versatile high performance subwoofers you can buy.

### What's THX?

THX is a series of demanding performance standards and specific technologies developed by Lucasfilm Ltd. (of Star Wars fame). Equipment that meets the rigorous THX standards will deliver performance in your home that matches as closely as possible what the director/artist/engineer heard and saw during the final mixing of the source material. Please note that THX is not a separate surround sound decoding format. THX-certified equipment enhances every viewing and listening experience, regardless of the surround format used.

THX Select standards are based upon a room size of 2000 cubic feet (L x W x H). This does not mean these components must be used in a room this size. The room sizes simply provide a frame of reference, as they indicate that these systems must deliver a minimum level of performance in this specified room size. Your 642 SB is THX Select certified. For more information, visit the THX website at [www.thx.com](http://www.thx.com).

## Subwoofer Rear Panel

**1 LowPass Switch**

When in the NORMAL position, adjustment of the crossover can be made by the LowPass Control. If being fed a pre-filtered or THX signal, place the switch at the BYPASS position. (pages 5 and 9)

**2 Standby Switch**

When in ON position, the amplifier will always be on. When in the OFF position, the amplifier will be off. When in the AUTO position, the amplifier will be in Automatic Standby Mode. (pages 5 and 9)

**3 Phase Switch**

This switch allows precise acoustic matching with satellite speaker systems whose output may be phase reversed. (pages 5 and 10)

**4 LowPass Control**

An adjustable (40Hz to 140Hz) @ 18dB per octave low-pass crossover. (pages 5 and 9)

**5 Product Serial Number**

Write this number in the space provided on page 2 for future reference.

**6 Low Level Input**

Use the input to connect to the subwoofer or LFE line out from your processor/receiver. (pages 5 and 6)

**7 Low Level Output**

The outputs allow daisy chaining of multiple subwoofers, or as a return path back to the processor. (pages 5 and 6)

**8 On/Off Switch**

Use this switch to turn the amplifier completely on or off.

**9 AC Input**

Use the included power cord to connect your amplifier to a wall outlet. (pages 5 and 6)

**10 110/220V Switch**

Voltage switch for use in different countries. This switch will be set when you receive the unit. Change this setting only when you are sure your application requires it. For US, the switch should be set to the 110-120V position.

## Features

Your Atlantic Technology powered subwoofer has been engineered using the latest technology and finest components available. It features:

- **A long-throw 12" composite cone driver with a vented 9-pound motor structure and 2" high temperature, 4-layer voice coil.**

This powerful driver has a very stiff cone that acts like a piston throughout its operating range. Its massive magnetic motor assembly and high temperature component parts deliver exceptional performance and reliability.

- **Sealed enclosure design for low distortion and deep bass output**

Sealed enclosure woofer designs are inherently low in distortion, and deliver deep smooth bass response with a gradual and predictable roll-off below resonance. As with all Atlantic Technology subwoofers, we have paid close attention to providing accurate musical bass reproduction along with terrific special effects.

- **A high-efficiency 300 watt amplifier**

This 642 SB utilizes the latest in amplifier technology. The output stage is capable of very high current delivery with maximum efficiency for exceptional driver control and cool operation. As a custom designed amplifier it has been precision matched and equalized to our 12" driver. Together they deliver powerful, controlled bass with great articulation and authority.

- **A useful in room working frequency range of 20Hz to 150Hz**

Many subwoofers offer specifications that look great on paper, but in real world use deliver less than promised. Atlantic Technology subwoofers are over-designed to ensure that they will deliver their rated performance in your room, when properly placed and adjusted.

- **An adjustable (40Hz to 140Hz) @ 18dB per octave LowPass crossover**

The steep upper end roll-off slope of 18dB per octave allows for much better bass integration with the satellite speakers while making the woofer less localizable.

**NOTE:** *If you are using a surround Processor/Receiver that includes its own filtered subwoofer output (or a THX Certified Processor/Receiver), we strongly recommend that you set the 642 SB crossover control to the Bypass position.*

- **Two low level inputs, two low level outputs**

The outputs allow daisy chaining of multiple subwoofers, or as a return path back to the processor.

- **A Phase Invert switch (Normal/Invert)**

This switch allows precise acoustic matching with satellite speaker systems whose output may be phase reversed. This switch also allows you to compensate for unusual room acoustics that occur when the woofer is physically separated from the main speakers. Be sure to try the Phase switch in both positions when you set up the 642 SB. Even if you've simply changed the built-in crossover settings it's a good idea to try the Phase switch in both positions, since the crossover control and the Phase switch acoustically interact with each other. Pay particular attention to the transition of bass from the woofer to the satellites, listening for smooth and well defined bass throughout the range.

- **A convenient front panel mounted Level Control**

- **Automatic standby operation, LED indicator**

Automatic standby features signal sensing turn-on with 7-10 minute turn-off delay. There's a front panel multi-color LED status indicator that lets you know when the unit is on or in standby. Automatic Standby can be defeated by placing the rear mounted switch in the ON position.

- **An AC cord power input socket.**

Your subwoofer comes supplied with a heavy-duty detachable power cord.

- **Designed and built to meet all current UL/CSA and European safety requirements**

## Connecting Your Subwoofer

Use the low-level (RCA jack) subwoofer line out of your surround sound receiver/processor. Simply connect your subwoofer with a high quality shielded cable as shown in the diagram on page 7. Please consult your processor/receiver manual for further information.

**WARNING:** To prevent risk of electrical shock or damage to your equipment, always unplug all component AC cords before proceeding with speaker and component connections! The last step in wiring your system should be plugging in the AC cords!

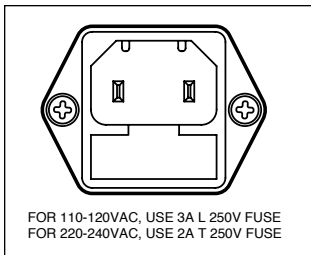
### Subwoofer Line Out to Low Level In

Run an RCA cable from your receiver's Sub Out jack to the L/Mono input jack on the back of the 642 SB (Figure 3). If your receiver/processor has stereo subwoofer outputs, connect these to both the L/Mono and R jacks on the back of the 642 SB (Figure 4).

### Using the Low Level Output

If desired, you can run a low level signal through the 642 SB and out to another unit. This way you can add an additional subwoofer with minimal additional wiring. The signal that comes out of the output jacks is identical to the input signal.

### Power Connection

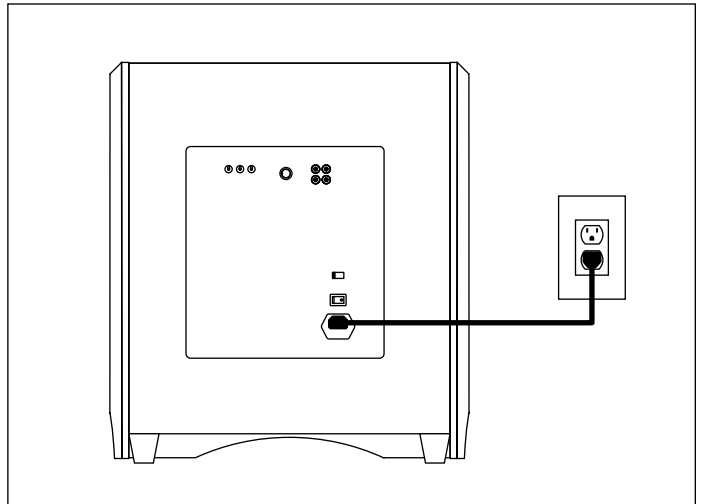


Connect the power cord to an AC outlet only after making all other connections to the subwoofer. This will avoid any chance of accidentally activating the subwoofer while wiring. Atlantic Technology does not recommend plugging the subwoofer into the switched outlet of an amplifier,

preamplifier, or receiver. The power demands of the subwoofer amplifier may exceed the power rating of the switched outlet and may damage the equipment.

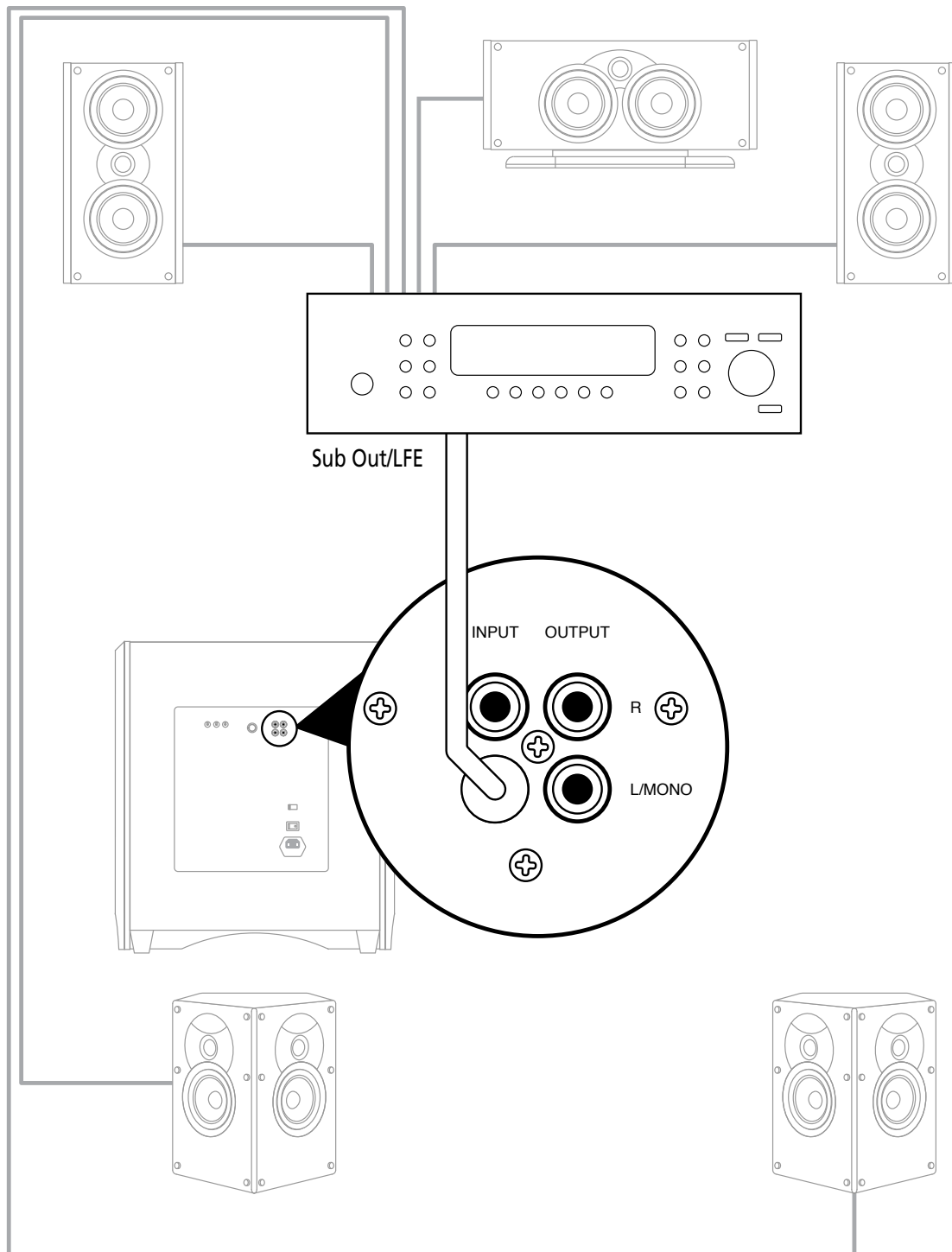
**Figure 2**

AC Connection from rear of 642 SB



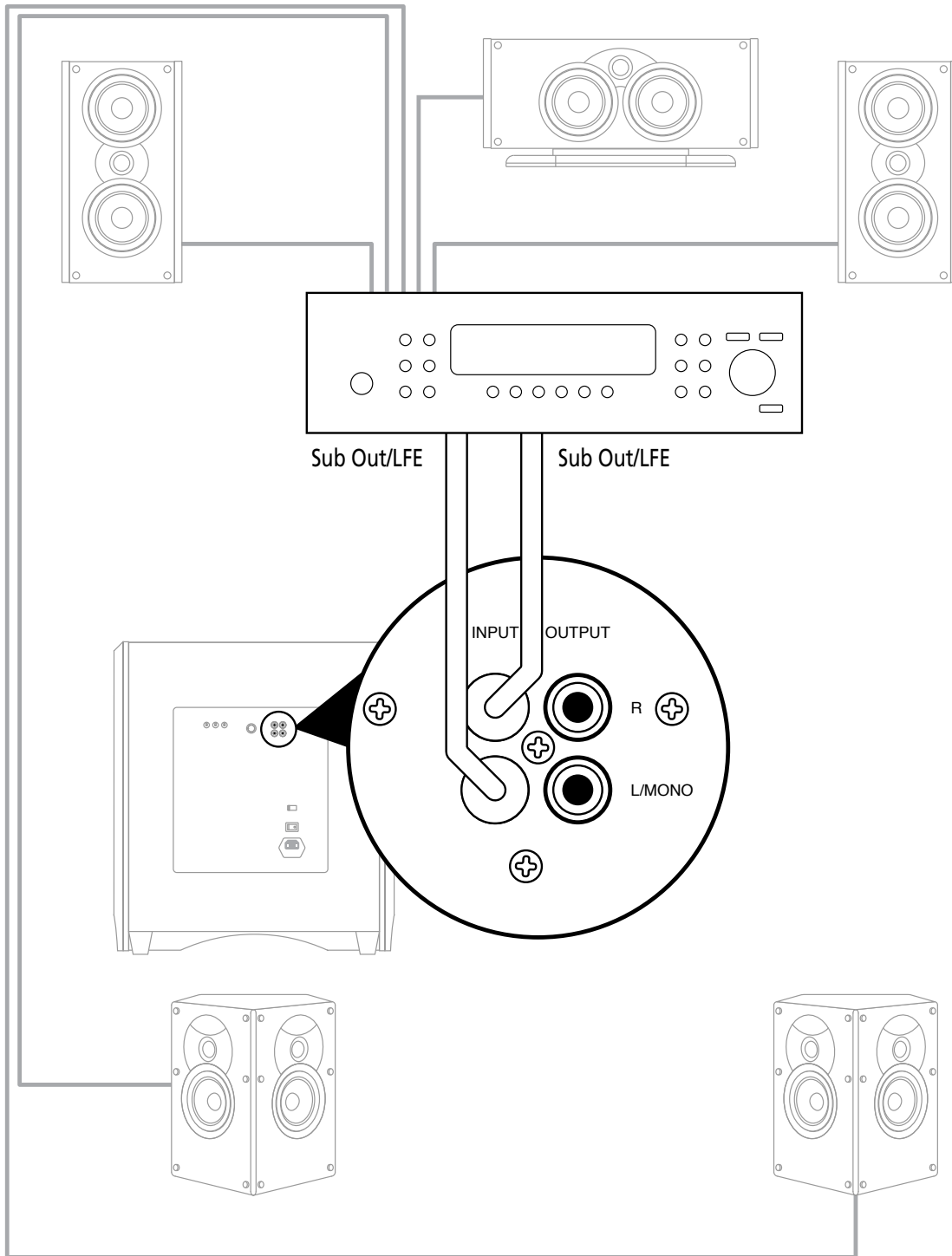
The 642 SB is totally automatic in its operation. The automatic on/off circuitry will only activate the subwoofer in the presence of an audio signal from your system. After 7-10 minutes with no signal detected from the rest of the system, the amplifier will shut itself off and go back into standby mode. When the sub is in operating mode, the power LED located under the front grille will glow green. The LED will glow yellow in the Standby mode and power consumption in this mode is negligible. Standby operation can be completely bypassed by placing the switch on the 642 SB amplifier to the ON position.

## Low Level Connections with One Subout/LFE Output

**Figure 3**

### Low Level Connections with Two Subout/LFE Outputs

Figure 4



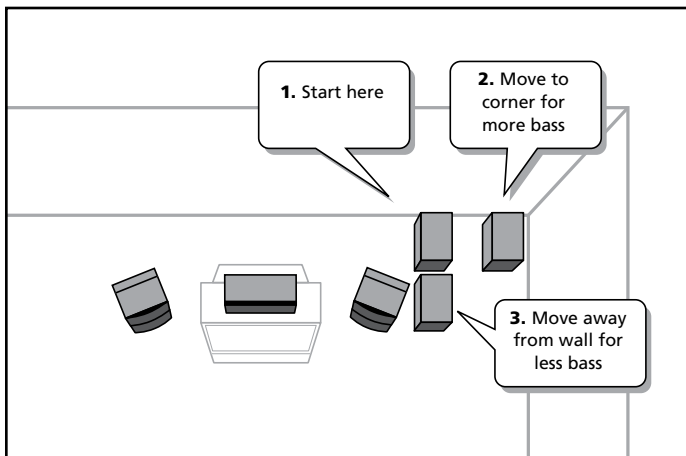
## Placement and Operation

Generally speaking, the best location for your new subwoofer is the front of the room, in or close to a corner (Figure 5). Every room has its own unique sound characteristics, and flexibility in the exact placement of the subwoofer is always desirable. The closer the subwoofer is placed to a wall and especially a corner, the more and deeper the bass response you will hear. However, in some rooms, corner placement can produce a “one note” boomy effect. Under such circumstances the subwoofer may work better away from the corner. Experiment to find the best position in your room.

**HELPFUL HINT:** A particularly useful experiment is to place the subwoofer right at the prime listening position (move your couch or chair out of the way and put the sub in its place). Then play something with good bass content (preferably music), and walk around the room, listening to the subwoofer’s response. When you locate an area that has an ample amount of well defined bass, you’ve found a good potential place to locate the sub.

**Figure 5**

Typical arrangement for a single subwoofer in a home theater.



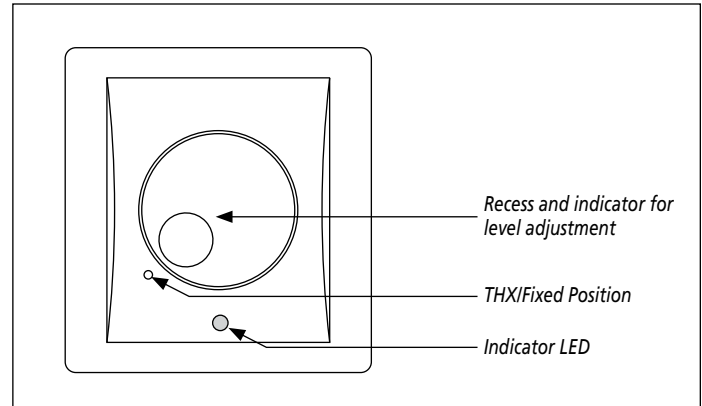
## System Set Up

When setting up a complete home theater we strongly recommend that you use a Sound Pressure Level meter. Radio Shack® has a good one that is very affordably priced (approximately \$40-50). To use this meter, turn on your system, put the Processor/Receiver in the Test Mode and set its main volume control to 0dB. Sit in the prime listening position, set the SPL meter to the 70dB scale, Slow Response, and C Weighting. Now, holding the meter pointed up and in front of you, let the system cycle its test tone from speaker to speaker and set every speaker to 75dB using the individual level settings in the Processor/Receiver. As tempting as it may be to set the subwoofer and/or surround speakers higher than 75dB, listen again after calibration and see if you can acclimate to these levels. Try watching several different movies and keep in mind that the goal is to have a system that sounds like you’re actually “in the movie.” When using the latest discrete digital electronics which include internal level controls for all channels, we recommend setting the subwoofer’s front mounted Level Control to its THX/Fixed position and using the Processor/Receiver’s built-in subwoofer level control. Should you have

difficulty achieving the correct subwoofer volume this way or should your Processor/Receiver not have a subwoofer level control, you can use the 642 SB’s front mounted level control to make this adjustment. If you decide not to use an SPL meter try to set all the speaker levels the same using the Test Tones. Of course, this will be much more difficult without the meter, especially for the subwoofer.

**Figure 6**

Front Panel Variable Level Control located behind the removable grille



## Subwoofer Tuning Without an SPL Meter or Test Tones

Start your listening with the subwoofer Lo-pass control set at 80Hz or in the THX/Bypass position if you’re using a THX Certified processor or unit with a built-in crossover. Set the phase switch to normal, and the front panel variable level control (Figure 6) to the THX/Fixed position. Play some music that you know has good bass content, and turn the level control up until you just start to hear the subwoofer working. Now, from your normal listening position, determine whether the subwoofer is playing loudly enough and filling in the bass frequencies of the music evenly. If adjustment is necessary, start by changing the setting in the processor or on of the front panel level control, if your processor lacks a subwoofer level adjustment.

If the bass seems too ponderous, boomy, or heavy, no matter how you set the level, try moving the subwoofer away from the wall/corner. If the bass seems too thin, try moving the subwoofer closer to the wall/corner. Small differences in positioning can make big differences in bass response. When you find a position that seems to work well, try switching the phase switch between its two settings, listening particularly to the transition from the subwoofer to the satellites.

## How Much is Enough?

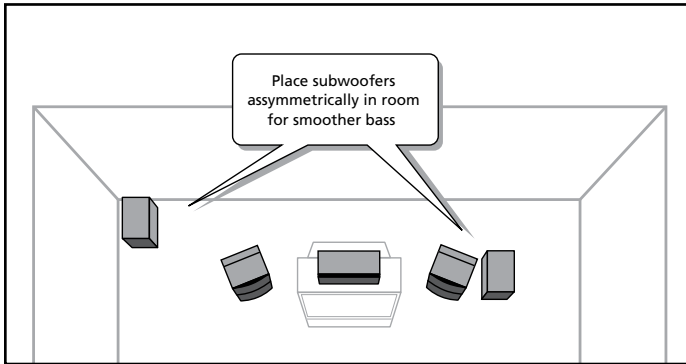
Sometimes people prefer more bass impact for movies. Using the movie setting for music can result in overpowering and unnatural bass reproduction. You may wish to determine both a video level and an audio level if you find yourself falling into this camp. Remember however, the most common error people make when setting up their system is to play the subwoofer (and surrounds) too loudly. Of course, the Home Theater Police will not arrest you for this act. But should you desire the most accurate overall reproduction, a well balanced sound from bass to highest treble is the best way to get it. Have fun. Experiment. Enjoy.

## Dual Subwoofer Placement

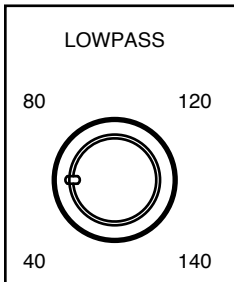
When two subwoofers are used, you may wish to place them asymmetrically; that is, in slightly different positions in the room (Figure 7). This will reduce common mode room resonances that occur with symmetrically positioned subwoofers. You can also try placing the subwoofers in the same corner, if you wish. Experiments have shown this to be a viable means of producing smooth bass response in many rooms.

**Figure 7**

*Asymmetrical arrangement for 2 subwoofers in a home theater, for example, one closer to a corner than the other*



## Using the Subwoofer LowPass Control



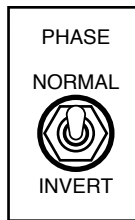
When used with the complete System 4200, the 642 SB Low-pass control should be set at around 80Hz unless you are using a processor with its own built-in crossover. The goal is to optimize the performance of the system by ensuring that the subwoofer and satellites produce a cohesive and well integrated sound "picture." The low-frequency response of the System 4200 satellites has been optimized to

work with approximately an 80Hz crossover point.

Higher crossover frequencies pass more bass but can sound boomy and may be more easily localized to the subwoofer. Higher crossover frequencies may be suitable, however, when using very small satellites that have no real low frequency performance. Settings lower than 80Hz should be employed if you are using larger speakers that have extended bass response. This way, the subwoofer will only reproduce the very lowest bass frequencies that are in the range where the large main speakers begin to roll off.

It's generally undesirable to have the main speakers and the subwoofer overlap too much. Larger speakers means a lower Low-pass crossover frequency, smaller speakers means a higher Low-pass crossover frequency. Consult the manufacturer's specified low frequency response for your main speakers to determine the appropriate Low-pass setting on your subwoofer. In the end, however, a little time spent experimenting will generally result in dramatically better bass response.

## The Phase Invert Control



A subwoofer operating out of phase with the rest of the system won't provide optimum low frequency performance. Also, the correct subwoofer phase can enhance room acoustics. Since there is so much variation in the industry regarding phase, a switch that will reverse the phase of the subwoofer is provided on the amplifier panel. Listen to a monaural musical source with strong

bass content. (For example, you can use the mono switch on an FM tuner or preamp, or use a Y-connector on the outputs of one of your source components to get a mono signal.)

Experiment with the position of the phase switch to get the smoothest bass. It should be obvious which is the correct setting. In particular, there will be a more integrated transition between the satellites and the subwoofer when they are properly phased.

## A Word About Bass, Center Channel Modes and System Set Up

Many surround processors and receivers feature a "Wide" and "Normal" mode for the center channel speaker. Atlantic Technology recommends that the center channel be operated in the "Normal" mode when using a powered subwoofer. The center channel speaker will sound more dynamic and the intelligibility of the system will generally be improved when in the "Normal" mode.

With discrete digital "5.1, 6.1, or 7.1" channel systems (Dolby Digital, DTS, etc.) many controllers provide a Bass Management option, which lets you set the front and rear speakers in a limited bandwidth (Small) or full range (Large) mode. When using a subwoofer with Atlantic Technology speakers we recommend setting such a controller to the Small position for all the speakers in the system.

## Care of Your Subwoofer

The 642 SB is constructed from 3/4" Medium Density Fiberboard. MDF is a non-resonant material ideal for speaker system enclosures. To clean the cabinet you may use a soft cloth either dry or slightly dampened with clean water. Be careful not to wet the cabinet or allow any water to enter the cabinet seams. Avoid placing your speakers in direct sunlight or near a source of heat that may, over time, damage the finish.

**IMPORTANT:** *Save Your Boxes! If you can do so, save the carton, packing pieces and plastic bags that came with your subwoofer. They will be useful in case you move or have to ship your subwoofer for any reason. In any case, save all packing materials until you are certain that the system has suffered no damage in shipment. If you find such damage, either visible or internal, contact your dealer immediately for the proper return procedure.*

## Subwoofer Troubleshooting Guide

Once your subwoofer is set up, you should have many years of maintenance free enjoyment from your system. However, if you should encounter a problem, refer to the following guide to help you find the solution. If a problem persists, you should contact your local authorized Atlantic Technology dealer.

Problem	Possible Cause	Possible Solution
No bass output	AC power cord unplugged or plugged into a non-working outlet.	Plug into a working outlet.
	Input cables not securely connected or defective.	Check all connections, then try another input cable.
Audible buzz or hum	Input cable not securely connected or defective.	Check all connections, then try another input cable.
	Ground loop through antenna or cable TV system input.	Test by disconnecting antenna and/or cable system input leads. If hum goes away, install isolation balun(s) at that point.

## Model 642 SB Specifications

<b>Type/Features</b>	Powered subwoofer, sealed enclosure High efficiency tracking amplifier 2-inch, four layer vented aluminum voice coil, vented motor Continuous 40–140Hz crossover, 18dB/octave low pass output Variable low level stereo inputs and low level outputs Absolute phase invert switch Auto signal sensing on/off/bypass
<b>Bass Driver</b>	12" long-throw composite cone
<b>Output Power</b>	300W RMS
<b>Distortion (amplifier)</b>	<0.5%
<b>Frequency Response</b>	25Hz – 300Hz ±3 dB
<b>Low Level (line)</b>	20kΩ
<b>Peak Output</b>	105dB SPL into 2000 cubic Feet
<b>Dimensions (WxHxD) including side panels</b>	19.00 x 21.00 x 18.50in; 483 x 534 x 470mm
<b>Weight</b>	65lbs/29.5kg
<b>Power Requirements</b>	110V AC 50/60Hz; 240V AC 50/60Hz

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