

ENERGY
LOUDSPEAKERS

EPS-SERIES

**AUDIO/VIDEO
ACTIVE SUBWOOFER SYSTEMS**

OWNER'S MANUAL

ENERGY
LOUDSPEAKERS

STAMP

**ENERGY LOUDSPEAKERS
3641 MCNICOLL AVENUE
SCARBOROUGH, ONTARIO
CANADA M1X 1G5**

**Models: EPS-100
EPS-12
EPS-150**

PRINTED IN CANADA / 7AIE-EPS

IMPORTANT SAFETY INSTRUCTIONS



The lightning flash with the arrowhead symbol, 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 electric shock to persons.



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

CAUTION

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE AMPLIFIER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING

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

- 1. Read Instructions** - All the safety and operating instructions should be read before the product is operated.
- 2. Retain Instructions** - The safety and operating instructions should be retained for future reference.
- 3. Heed Warnings** - All warnings on the product and in the operating instructions should be adhered to.
- 4. Follow Instructions** - All operating and use instructions should be followed.
- 5. 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 product.
- 6. Power Sources** - This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to operating instructions.
- 7. Grounding or Polarization** - This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety

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EPS-SERIES SUBWOOFER SYSTEM LIMITED WARRANTY

Please complete and retain for your files.

Model _____

Serial No. _____

Date _____

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EPS-SERIES SUBWOOFER SYSTEM LIMITED WARRANTY CARD

PLEASE COMPLETE THIS WARRANTY REGISTRATION AND MAIL.

Model _____ Serial No. _____ Date _____

Name _____

Address _____ City _____

Country _____ Postal/Zip Code _____

What speakers in order of preference did you consider buying? 1. _____

2. _____ 3. _____ 4. _____

What other audio/video components do you own?

Comments after initial use:

Energy dealer purchased from: Name: _____

City: _____

THANK YOU FOR RETURNING THIS CARD PROMPTLY. WE HOPE YOU ENJOY YOUR NEW ENERGY LOUDSPEAKERS.

LIMITED WARRANTY POLICY

Warranty in the United States and Canada

Energy warrants this product to the retail purchaser against any failure resulting from original manufacturing defects in workmanship or materials. The warranty is in effect for a period of one (1) year from date of purchase from an authorized Energy dealer and is valid only if the original dated bill of sale is presented when service is required.

The warranty does not cover damage caused during shipment, by accident, misuse, abuse, neglect, unauthorized product modification, failure to follow the instructions outlined in the owner's manual, failure to perform routine maintenance, damage resulting from unauthorized repairs or claims based upon misrepresentations of the warranty by the seller.

Warranty Service:

If you require service for your Energy loudspeaker at any time during the one (1) year warranty period, please contact: 1) the dealer from whom you purchased the product(s), 2) Energy National Service, 203 Eggert Road, Buffalo, N.Y. 14215 or 3) Energy Loudspeakers, 3641 McNicoll Avenue, Scarborough, Ontario Canada, M1X 1G5. You will be responsible for transporting the speakers in adequate packaging to protect them from damage in transit and for the shipping costs to an authorized Energy service center or to Energy Loudspeakers. If the product is returned for repair to Energy Loudspeakers in Scarborough or Buffalo, the costs of the return shipment to you will be paid by Energy, provided the repairs concerned fall within the Limited Warranty. Energy Warranty is limited to repair or replacement of Energy products. It does not cover any incidental or consequential damage of any kind. If the provisions in any advertisement, packing cartons or literature differ from those specified in this warranty, the terms of the Limited Warranty prevail.

WARRANTY OUTSIDE OF THE UNITED STATES AND CANADA:

Product warranties may be legislated differently from one country to another. Ask your local dealer for details of the LIMITED WARRANTY applicable in your country.

purpose of the polarized plug.

8. **Heat** - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

9. **Object and Liquid Entry** - Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

10. **Servicing** - Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

11. **Damage Requiring Service** - Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

b) When the power supply cord or plug is damaged.

c) If liquid has been spilled, or objects have fallen into the product.

d) If the product has been exposed to rain or water.

e) If the product has been dropped or damaged in any way.

f) When the product exhibits a distinct change in performance - this indicates a need for service.

12. **Replacement Parts** - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

13. **Cleaning** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

14. **Safety check** - Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

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INTRODUCTION

We are proud to welcome you as a new owner of an Energy EPS Series Powered subwoofer. EPS Series subwoofers are the result of extensive research into accurate bass reproduction and represent the leading edge in subwoofer design and performance.

The finest components and cabinet materials combined with sophisticated manufacturing and quality control procedures ensure many years of exceptional performance and listening pleasure.

Please take time to read all of the instructions contained in this manual to make certain your system is properly installed and functioning correctly.

Be sure to unpack your subwoofer carefully. Retain the carton and all packing material for future use. You should complete and mail your warranty card and record the serial number for future reference.

FEATURES AND OPERATING CONTROLS

All EPS-Series operating controls are conveniently located on the amplifier panel mounted on the rear of your subwoofer cabinet.

FEATURES

SMART-ON / SMART-OFF CIRCUIT

Your EPS-Series subwoofer is equipped with a special "Smart-on / Smart-off" circuit. This circuit automatically turns your subwoofer on as soon as it senses a program signal. At a predetermined time after the program signal ends, this circuit automatically turns the subwoofer off.

CLIPPING PROTECTION CIRCUIT

Many powered subwoofers on the market today produce distorted sounds as a result of clipping at high input levels. Energy's proprietary Clipping Protection Circuit (CPC) continuously senses the input signal level and automatically adjusts to prevent clipping of the waveform, maintaining undistorted bass reproduction.

FAIL-SAFE THERMAL PROTECTION

If, for any reason your subwoofer exceeds the normal operating temperature, Energy's unique Thermal Protection Circuit will automatically turn off the subwoofer; it will re-start automatically when its temperature returns to normal. Overheating is usually the result of inadequate ventilation. If the thermal protection shuts down the subwoofer during operation, check to make certain there is adequate clearance between the amplifier panel on the rear of the subwoofer cabinet and any room furnishings. Also make sure the subwoofer is not near any heat sources.

ENERGY

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MODELS: AMPLIFIER Type:	EPS-100	EPS-12	EPS-150
Power:	Discrete MOSFET, Class A/B	Discrete MOSFET Class A/B	Discrete MOSFET Class A/B
Power:	100 Watts RMS at 0.08% THD 400 Watts Instantaneous Peak	100 Watts RMS at 0.08% THD 400 Watts Instantaneous Peak	150 Watts RMS at 0.08% THD 600 Watts Instantaneous Peak
Woofers)	2 x 6.5"	1 x 12" Heavy Duty	1 x 12" Heavy Duty
Frequency Response	30Hz - 150Hz +/-3dB	28Hz - 150Hz +/-3dB	25Hz - 150Hz +/-3dB
Audio/Video Low Frequency Equalization	Audio: flat Video: -3dB @ 35Hz Variable to +6dB @ 50Hz	Audio: flat Video: -3dB @ 35Hz Variable to +6dB @ 50Hz	Audio: flat Video: -3dB @ 30Hz Variable +6dB @45Hz
Variable Phase Control	N/A	N/A	0° to 180°
Variable Low Pass Filter	50Hz - 150Hz 18dB/Octave	50Hz - 150Hz 18dB/Octave	50Hz - 150Hz 18dB/Octave
Low Level Output High Pass Filter	N/A	N/A	Fixed @ 80Hz 18dB/Octave
High Level High Pass Filter	Approx. 85Hz	Approx. 85Hz	Approx. 85Hz
Inputs	Low Level High Level	Low Level High Level	Low Level High Level
Outputs (High Pass Filter)	High Level	High Level	Low Level High Level
Special Features:	Auto Turn On Overdrive Protection	Auto Turn On Overdrive Protection	Auto Turn On Overdrive Protection
Dimensions H x W x D (in) (cm)	9" x 19" x 15" 22.9 x 48.3 x 38.1	19" x 14" x 15" 48.3 x 35.6 x 38.1	21 3/8" x 15" x 15" 54.2 x 38.1 x 38.1
Weight	40 lbs. 18.14 kg	48 lbs. 21.77 kg	58 lbs. 26.3 kg

Specifications subject to change without notice.

Since each room and placement is different, the trial and error method described above is the best way of calibrating your subwoofer with the rest of your system.

Cycle through setps 3 to 5 to fine tune the overall sound quality. The best combination is that which produces deep and solid low bass without mid bass boom or a lack of fullness in the mid bass region.

6. When listening to recorded music, the **Audio/Video Low Frequency Equalization Control** should be set at zero, in this position the subwoofer will reproduce the lowest notes present in recorded music. Rotating the control above zero when listening to video soundtracks will provide more bass impact of special effects present in video soundtracks. (More bass impact will result from further clockwise rotation of this control.)

NOTE: The **Subwoofers Level Control** is designed to control the balance between your subwoofer and main/satellite speakers and should not be used as a substitute for the bass or loudness controls on your amplifier or receiver. Adjust the subwoofer's level for smoothest low frequency performance. If more bass is desired, advance the bass and/or loudness controls on your main amplifier or receiver.

LOW-LEVEL RCA INPUT JACKS

These inputs allow you to connect your subwoofer to any of the following:

(a) Pre-amplifier outputs (b) Audio/Video processor outputs (c) The "subwoofer output" from an Audio/Video receiver (d) Any integrated receiver with pre-out facilities. (e) The audio output from your stereo television or computer sound card. See "Subwoofer Connection to your Audio/Video System".

LOW-LEVEL RCA OUTPUT JACKS (EPS-150)

The output signal from these jacks is actively filtered below 80 Hz. (18dB/octave). When these jacks are connected to your systems main amplifier input (or "main-in" for many Audio/Video receivers). The result is increased dynamic range, lower distortion, and improved overall system performance. See "Subwoofer Connection to your Audio/Video System".

SPEAKER-LEVEL INPUT AND OUTPUT TERMINALS

The speaker-level input terminals allow you to connect your subwoofer to the "speaker outputs" of your integrated amplifier or receiver. The signal from the speaker-level output terminals passes through a built-in high pass filter. When these terminals are connected to your main/satellite speakers the result is increased dynamic range and power handling, which improves overall system performance. See "Subwoofer Connection to your Audio/Video System".

OPERATING CONTROLS

SUBWOOFER LEVEL CONTROL

This rotary control adjusts the output level of your Energy EPS-SERIES Subwoofer. and should be used to balance the level of the subwoofer with that of your main/satellite speakers. See "Set-up Calibration".

SUBWOOFER ROLL-OFF FREQUENCY CONTROL

This rotary control adjusts the high frequency roll-off of the subwoofer. Continuously variable from 50Hz to 150Hz, it is used to precisely match the subwoofer bass reproduction with that of your main/satellite speakers. See "Set-up Calibration".

VARIABLE PHASE ALIGNMENT CONTROL (EPS-150)

This rotary control allows matching of the phase of the subwoofer with that of your main/satellite speakers. Continuously variable from 0° to 180°, it compensates for the mid-bass acoustic effects of different speaker locations and listening room acoustic effects. See "Set-up Calibration."

AUDIO/VIDEO LOW FREQUENCY EQUALIZATION CONTROL

This rotary control provides an easy method of optimizing the bass performance of the subwoofer, whether you are listening to audio program material or video soundtracks. Continuously variable between 0dB (maximally flat) and +6dB of boost at 45Hz. Set at 0dB for maximally flat bass response the subwoofer will reproduce the lowest notes present in recorded music. Setting this control above 0dB will maximize the bass impact of special effects present in video soundtracks.

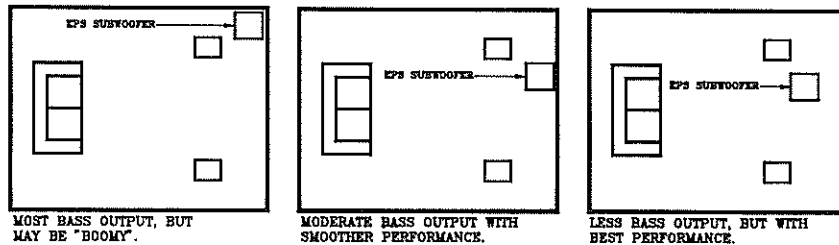
ROOM ACOUSTICS AND SUBWOOFER PLACEMENT

Energy EPS subwoofers can be placed virtually anywhere in your listening room without significantly affecting the stereo image of your main speakers. However, interactions between any subwoofer and room acoustic properties will have some impact on the overall bass performance. Reading this section will help you to find a placement for the subwoofer in your room which will yield the best bass performance.

CAUTION: EPS SUBWOOFERS HAVE A BUILT-IN AMPLIFIER AND MUST HAVE ADEQUATE VENTILATION FOR COOLING PURPOSES. DO NOT PLACE THE SUBWOOFER NEAR HEAT SOURCES, OR ANYTHING WHICH MIGHT OBSTRUCT VENTILATION.

Although a clear path between the subwoofer and listening position is not required, it is important to leave approximately 18 inches of clearance between the subwoofer's front grille and any walls or room furnishings. Generally, shorter runs of hook-up cables are preferable (and easier to hide), therefore locating your subwoofer relatively close to your audio equipment is often desirable.

The interaction between room acoustics and any subwoofer is closely related to the subwoofer's proximity to the walls. Typically, subwoofer placement directly in or close to a corner will produce the most bass output, placement along one wall but away from a corner will produce less bass output, and placement of the subwoofer further into the room will produce the least amount of bass output. It should also be realized that the corner location, although producing the most bass output into the listening room, often yields ill-defined or "boomy" bass. The latter two locations will deliver progressively more accurate bass performance.



We urge you to experiment with various subwoofer placements in your listening room, in order to find the position which produces "deep and smooth" performance. Often, moving the subwoofer a foot or two can make a big sonic improvement. Remember to use familiar musical recordings with an abundance of low frequency information, when you experiment with subwoofer locations.

If you are using two EPS subwoofers in your system, it is desirable to place each one adjacent to the main/satellite speaker of the same channel. Adding a second subwoofer to your system significantly increases overall deep-bass performance, while reducing the negative effects of poor room acoustics.

jack marked right (R) "LOW LEVEL INPUT". Next, connect the amp/receiver's left "MAIN-IN" to the subwoofer jack marked left (L) "LOW LEVEL OUTPUT". Finally, connect the amp/receiver's right "MAIN-IN" to the subwoofer jack marked right (R) "LOW LEVEL OUTPUT".

USING SEPARATE PREAMPLIFIER AND AMPLIFIER

For EPS-150 only. (See Figure 3)

This method uses four standard RCA-to-RCA interconnect cables. First, connect the preamp's left "MAIN OUTPUT" to the jack marked left (L) "LOW LEVEL INPUT" on the subwoofer's rear panel. Second, connect the preamp's right "MAIN OUTPUT" to the jack marked right (R) "LOW LEVEL INPUT". Next, connect the left (L) "LOW LEVEL OUTPUT" from the subwoofer's rear panel to your amplifier's "LEFT INPUT". Finally, connect the right "LOW LEVEL OUTPUT" to your amplifier's "RIGHT INPUT".

USING THE "SUBWOOFER OUTPUT" OF AN A/V RECEIVER OR PROCESSOR

This method uses a single RCA-to-RCA interconnect cable to connect the "SUBWOOFER OUTPUT" jack from your A/V receiver or processor to either the left or right subwoofer "LOW LEVEL INPUT". This method by-passes the subwoofer's built-in high pass crossover, and your speakers will continue to reproduce bass frequencies.

SET UP CALIBRATION

For best results when setting up your system, once all of the connections have been completed using one of the methods described above assume your normal listening position and have another person perform the following adjustments:

1. Set the **Subwoofer Level**, **Audio/Video Low Frequency Equalization**, and **Variable Phase Alignment** to the zero position. Set the **Subwoofer Roll-off Frequency Control** to 50Hz. Set any loudness, bass/treble, and/or equalizer controls on your preamplifier or integrated amp/receiver to their normal or midpoint positions.
2. Play a familiar CD, record or video soundtrack that has substantial bass content.
3. Gradually turn the **Subwoofer Level** control clockwise until you achieve a neutral balance between the subwoofers **deep bass** output and your main/satellite speakers.
4. Slowly turn the **Subwoofer Roll-off Frequency Control** clockwise to reach the best **mid bass** blend with your main/satellite speakers. This will be the point at which the bass retains solid impact and fullness. If the **mid bass** becomes "boomy" or ill defined you have gone too far and you should reverse the control counter-clockwise to the best balance point. If the sound is too thin (i.e. male vocals are not full sounding) then turn the control clockwise to the best balance point.
5. For EPS-150 only: Slowly rotate the **Variable Phase Alignment Control** clockwise until the fullest mid bass output is achieved. If the mid bass becomes "boomy" repeat step 4.

The **Phase Alignment Control** compensates for the relative distances between subwoofer to listener, and main/satellite speakers to listener.

SUBWOOFER CONNECTION TO YOUR AUDIO/VIDEO SYSTEM

There are essentially two methods by which you can connect your EPS subwoofer to your audio/video system. The first one is "THE SPEAKER-LEVEL CONNECTION" and the second is "THE LOW-LEVEL CONNECTION". Your system components will dictate whether you can choose between the two methods. The speaker-level connection method can be used with virtually any integrated receiver or amplifier. In both methods, the left and right channel inputs are combined and the resulting signal is passed through a variable (50Hz to 150Hz @ 18dB/octave) low pass filter for seamless matching of the subwoofer to the main/satellite speakers.

CAUTION: (A) DO NOT USE BOTH LOW-LEVEL AND SPEAKER-LEVEL METHODS SIMULTANEOUSLY.
 (B) TURN OFF ALL POWER IN YOUR STEREO SYSTEM BEFORE PROCEEDING WITH THE INSTALLATION OF THE SUBWOOFER.

THE SPEAKER-LEVEL CONNECTION METHOD (see figure 1)

At the rear of your EPS subwoofer cabinet is a block designated "HIGH LEVEL". This block contains four pairs of speaker terminals; one pair is designated as "input" and should be connected to your amp/receiver, while the other pair is designated "output" for connection to your main speakers. Each pair of terminals are designated left/right and color coded black/red.

NOTE: These terminals will accept up to 16 AWG of bare wire.
REMEMBER: Always connect red-to-red and black-to-black, when making the connections between amp/receiver to subwoofer, and from subwoofer to main/satellite speakers. If you accidentally reverse one of the connections (ie. red-to-black), you will notice a lack of bass from your subwoofer, and/or the acoustic "image" from the main speakers will be poorly defined.

Start by connecting the right speaker output of your amplifier or receiver to the right (R) "input" of the subwoofer. Conversely, connect the left speaker output of your amp/receiver to the left (L) "input" of the subwoofer. Next, connect the right (R) "output" of the subwoofer to your right main speaker. Finally, connect the left (L) "output" of the subwoofer to your left main speaker.

THE LOW-LEVEL CONNECTION METHOD (see figure 2 or 3)

USING AN INTEGRATED AMPLIFIER/RECEIVER EQUIPPED WITH PRE-OUT JACKS ONLY

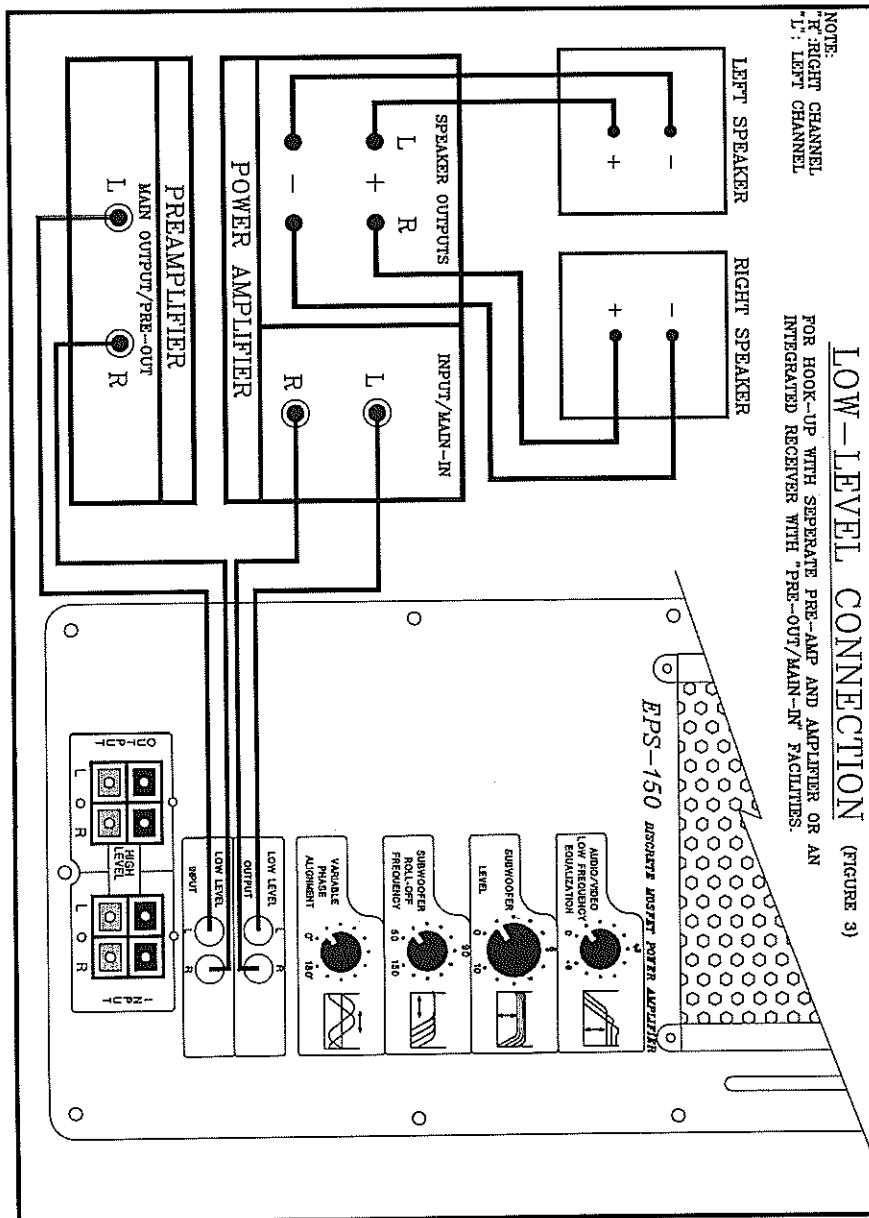
(See Figure 2)

This method uses two standard RCA-to-RCA interconnect cables. First, connect the amp/receiver's left "PRE-OUT" to the subwoofer jack marked left (L) "LOW LEVEL INPUT". Then, connect the amp/receiver's right "PRE-OUT" to the subwoofer jack marked right (R) "LOW LEVEL INPUT". This method by-passes the subwoofer's built-in high pass crossover, and your speakers will continue to reproduce bass frequencies.

USING AN INTEGRATED AMPLIFIER/RECEIVER WITH PRE-OUT/ MAIN-IN JACKS

For EPS-150 only. (See Figure 3)

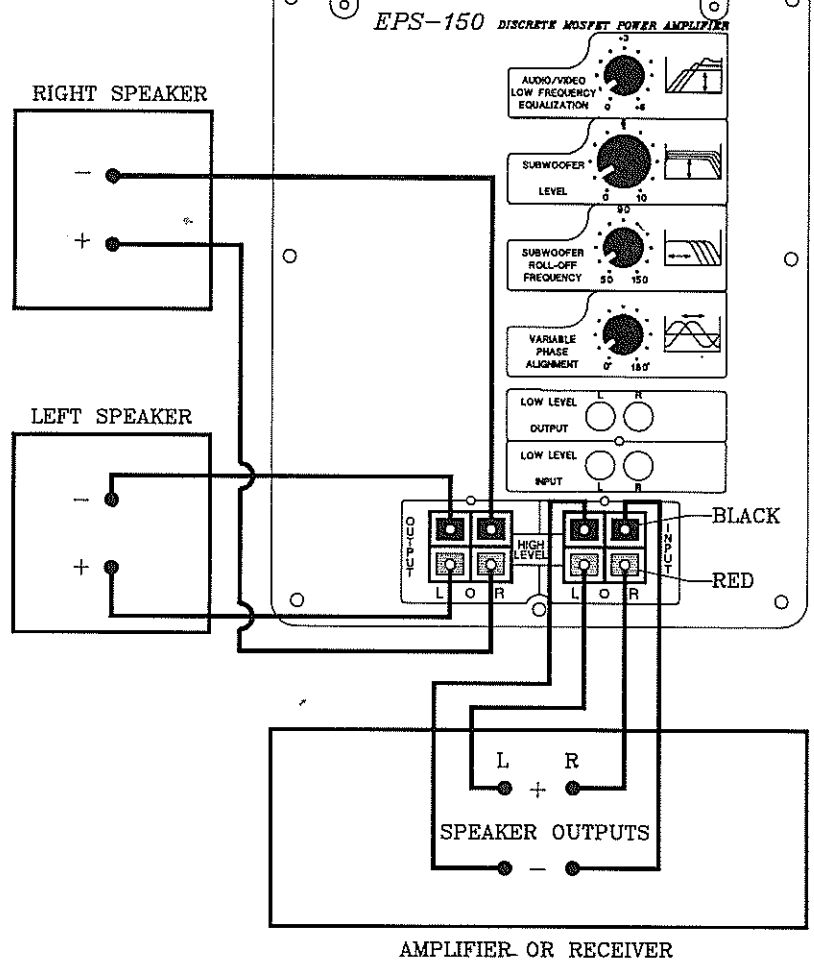
Remove the jumpers between pre-out/main-in jacks on back of the amp/receiver. First, connect the amp/receiver's left "PRE-OUT" jack, to the jack marked left (L) "LOW LEVEL INPUT" on the subwoofer's rear panel. Second, connect the amp/receiver's right "PRE-OUT" jack, to the subwoofer



SPEAKER LEVEL CONNECTION

(FIGURE 1)

NOTE:
 "R": RIGHT CHANNEL
 "L": LEFT CHANNEL
 "+": POSITIVE OR RED TERMINAL
 "-": NEGATIVE OR BLACK TERMINAL



LOW-LEVEL CONNECTION (FIGURE 2)

FOR HOOK-UP WITH RECEIVERS EQUIPPED WITH PRE-OUT RCA JACKS ONLY

NOTE:
 "R": RIGHT CHANNEL
 "L": LEFT CHANNEL

THIS HOOK-UP DIAGRAM SHOWS HOW TO MAKE CONNECTIONS USING YOUR SUBWOOFER'S LOW-LEVEL INPUT ONLY. YOUR MAIN/SATELLITE SPEAKERS WILL CONTINUE TO REPRODUCE BASS INFORMATION BY USING THIS CONNECTION METHOD

