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CAUTION		
	WARNING	
CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE, REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		
	THIS SYMBOL IS TO ALERT YOU OF THE PRESENCE OF UNINSULATED DANGEROUS VOLTAGE WITHIN THE UNIT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.	
	THIS SYMBOL IS INTENDED TO ALERT YOU OF THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE UNIT.	

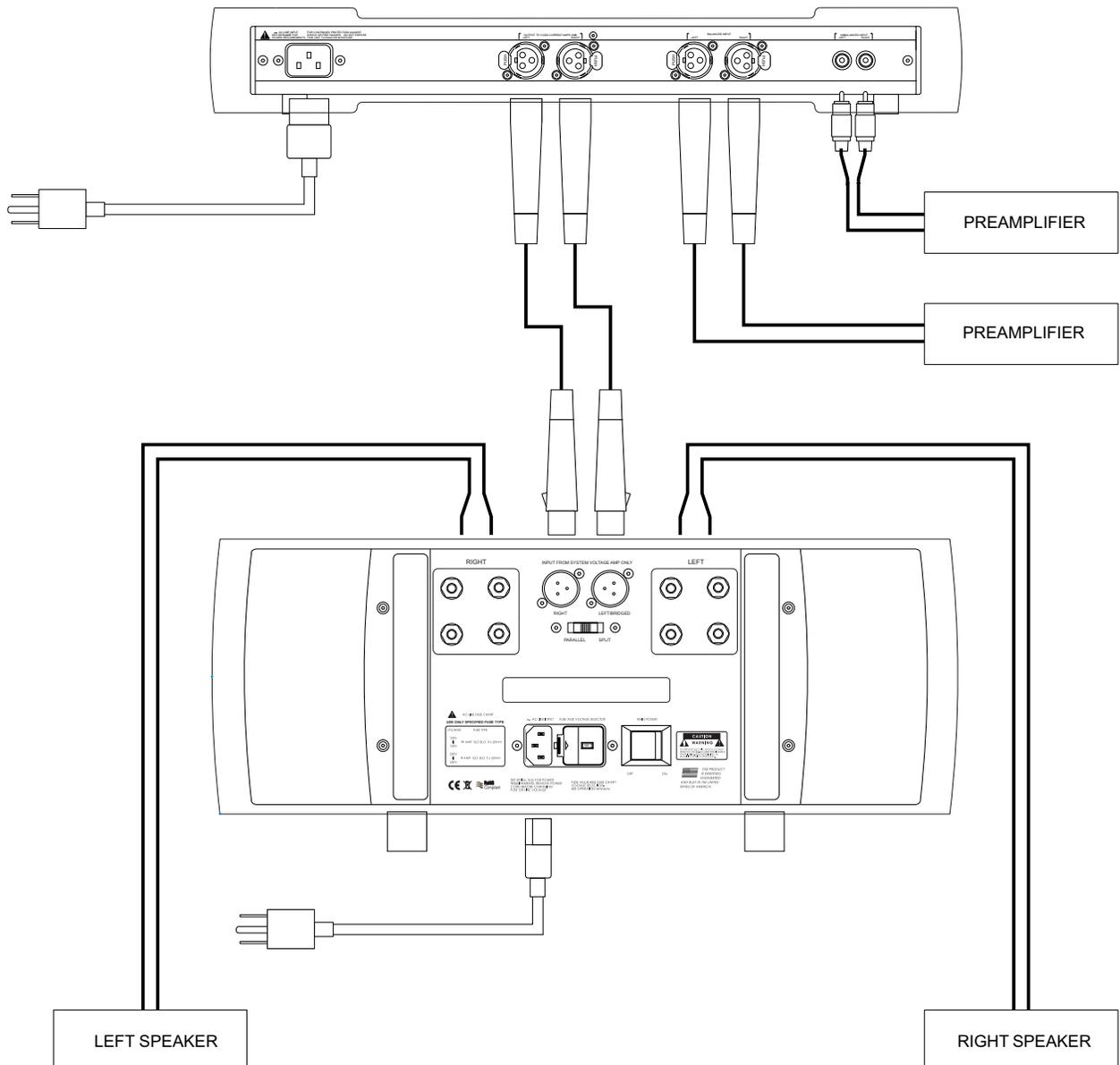
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. TO AVOID ELECTRICAL SHOCK, DO NOT OPEN THE UNIT. REFER SERVICING TO QUALIFIED PERSONNEL.

- CAUTION**
- Never install or remove the power cord from the chassis unless it has been disconnected from the AC power source first.
 - Never pull on the power cord when removing it from an AC power source. Grasp it by the plug.
 - Do not leave the power cord connected to an AC power source unless it is connected to the unit.
 - It is recommend that during extended periods of non-use that the units power cord be unplugged from its AC power source.
 - Route the AC power cord so that it will not be damaged or walked on.

This amplifier is a precision device, designed in an effort to provide the listener with unmatched sound quality, design, and construction. In order to operate your amplifier properly and to realize all of the capabilities of the AMPLIFIER SYSTEMS, we commend that you read this entire manual carefully.

The first section of the installation instructions for the AMPLIFIER SYSTEM is a diagram of the default configuration required to bring the amplifier into an operating mode. These brief steps will allow you to begin operating your system. Make sure during installation that the main AC power switch on the back of the CURRENT AMPLIFIER S150/250 is turned off, and AC power connection to the VOLTAGE AMPLIFIER SV is interrupted. While the diagram may be self explanatory, we strongly recommend that you read the detailed instructions following this introductory section.

- Note:
1. You may attach both XLR and RCA inputs to the SV at the same time.
 2. Use only the supplied interconnect cables between the SV and the S150/250.



II. Source-Output, Power Connections and Controls

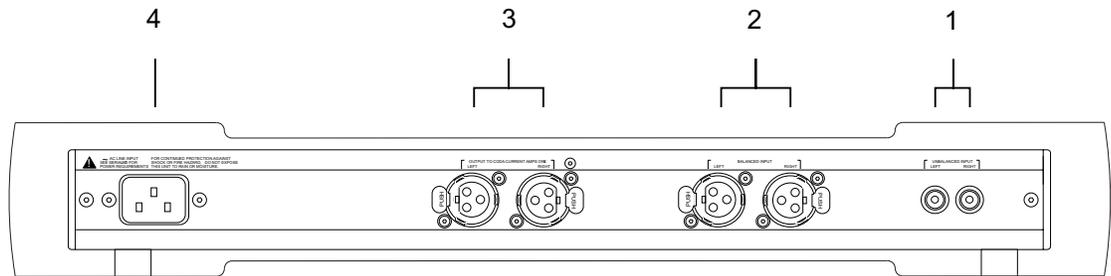
The input and output connectors and controls are clearly marked on the rear lip of the top cover for the VOLTAGE AMPLIFIER SV, and on the back panel of the CURRENT AMPLIFIER S150/250. It is important to remember the correct left or right channel orientation. The function and channel markings on the rear panel correspond to the front panel control and their signal paths.

VOLTAGE AMPLIFIER SV

1. The UNBALANCED inputs should be attached to the unbalanced outputs of a preamplifier either directly or through a crossover or processor, as appropriate to the application.
2. The BALANCED inputs should be attached to the balanced outputs of a preamplifier either directly or through a crossover or processor, as appropriate to the application.
3. The OUTPUTS should be attached to the input of each CURRENT AMPLIFIER S150/250 only.

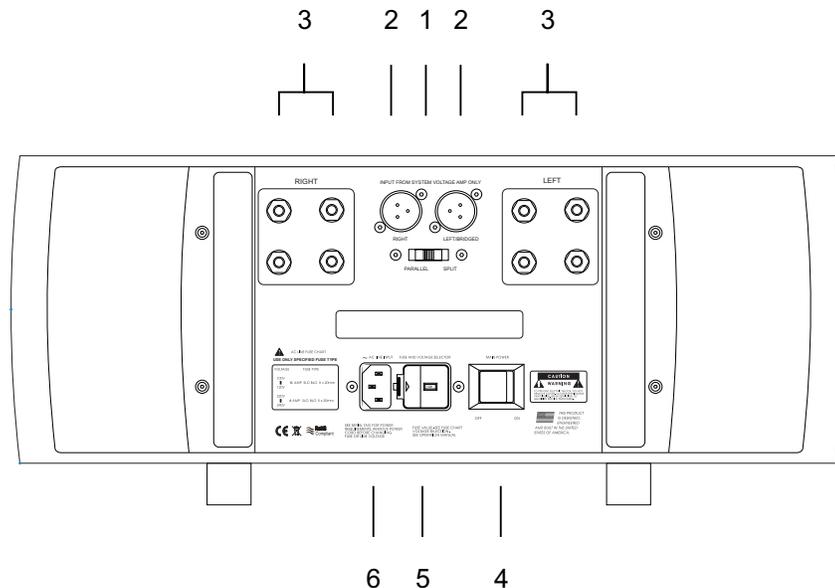
WARNING: Set the SYSTEM SELECTOR to STANDBY before attaching or detaching the interconnect cables between the VOLTAGE AMPLIFIER SV and the CURRENT AMPLIFIER S150/250.

4. The AC LINE INPUT should be attached to the power cable provided with the voltage amplifier. After making the appropriate connections and rotating the SYSTEM SELECTOR control to the STANDBY position, insert the three prong safety plug into an appropriate AC power source. Once the VOLTAGE AMPLIFIER SV is properly connected, the led on the front panel will light indicating a ready state.



CURRENT AMPLIFIER S150/250

1. The OPERATION SELECTOR sets the operational mode between PARALLELED, or SPLIT CHANNEL. The default position is SPLIT for the S150 and PARALLELED, for the S250, for the alternate positions, see the SERVICING section of this manual.
2. The INPUTS should be attached to the VOLTAGE AMPLIFIER SV only.
3. The LEFT/CH A OUTPUT, RIGHT/CH B OUTPUT should be attached to the left and right speakers.
NOTE: THERE ARE NO OUTPUT FUSES SO AS TO ENSURE A LOW OUTPUT IMPEDANCE. SPEAKER PROTECTION IS LEFT TO THE SPEAKER MANUFACTURER AS THEY WOULD BEST KNOW HOW TO PROTECT THEIR SPEAKER.
4. The MAIN POWER switch may be left on once all appropriate connections are made, as the CURRENT AMPLIFIER S150/250 draws a negligible amount of current when the SYSTEM SELECTOR control on the VOLTAGE AMPLIFIER SV is in the BIAS OFF position. CAUTION- DURING EXTENDED PERIODS OF NON-USE TURN OFF THE MAIN POWER SWITCH.
5. The FUSE AND VOLTAGE SELECTOR houses a 5 x 20 mm slow blow fuse and voltage selector cartridge. Should the fuse blow contact Coda directly. When changing the fuse altering the voltage selection be sure this unit is disconnected from its AC power source.
6. The AC LINE INPUT should be attached to the power cable provided. After making the appropriate connections and setting the BIAS SELECTOR control on the VOLTAGE AMPLIFIER SV to the BIAS OFF position, insert the three prong safety plug into an appropriate AC power source. Once the CURRENT AMPLIFIER SV is properly connected, the power switch may be turned on and the LED on the front panel will light indicating that the bias is on.



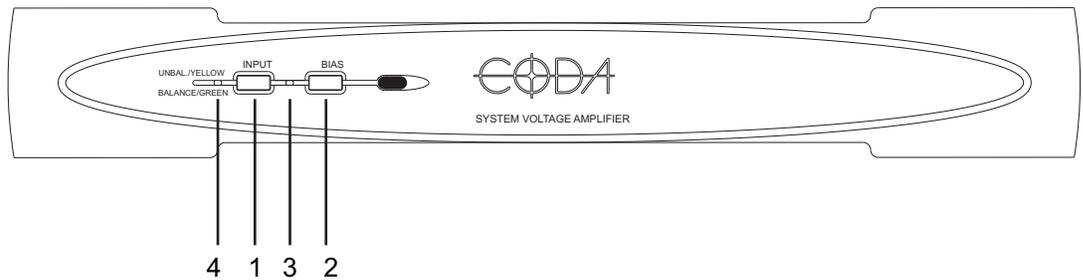
III. Front Panel Control Functions and Indicators

VOLTAGE AMPLIFIER SV

The INPUT SELECTOR control [1] selects the desired input to the Voltage Amplifier SV the bicolor LED [4] indicates the selected input. GREEN indicates the balanced input has been selected and YELLOW indicates the unbalanced input has been selected.

The BIAS control [2] enables the on the bias current and opens shunting relays that mute the input for the CURRENT AMPLIFIER S150/250. This BIAS ON state is indicated by the BLUE LED [3].

Input selection and Bias On/Off functions are remote-controllable. Please refer to the Remote Control manual addendum provided with the optional Coda remote control, which is available from Coda.

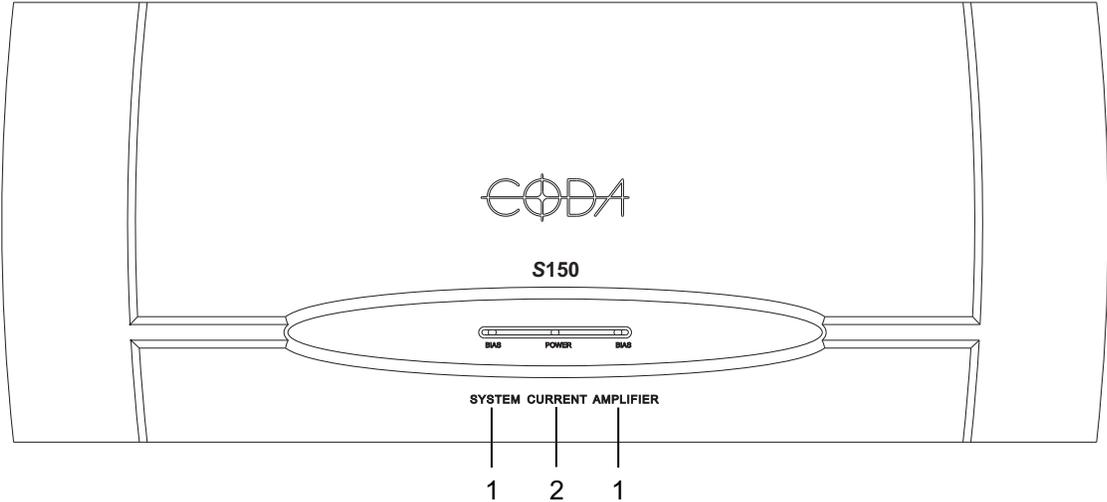


Note: If a power interruption occurs to the system, immediately turn the BIAS power OFF on the front of the SV. The resumption of power will cause no noise pulses in the Amplifier System S150/250. However, some sources may produce high output voltages on turn on, which may cause damage to the amplifier or speakers.

CURRENT AMPLIFIER S150/250

The BIAS LEDs [1], when lit, indicate that the bias is activated, and shunting relays that mute the input from the VOLTAGE AMPLIFIER SV are open.

The POWER LED [2], when lit, indicates that the CURRENT AMPLIFIER S150/250 is in an operational state.



The subtlety of the design process at this level of performance makes it impossible to easily explain all of the advantages inherent in the Amplifier System. However, we present here an overview to give you an understanding of some of its unique features and an idea of the listening experience you can expect. Often a particular technique has numerous unrelated advantages and possibilities. We make every effort to exploit these advantages with the final result being an amplifier that is greater than the sum of its individual features.

The most obvious departure from convention is our design of the front end, or voltage gain section, and output stage, or current gain section, as separate components. We chose this path as the ideal solution to a very common source of distortion. Present in virtually all standard amplifiers to varying degrees is a type of crosstalk between output stages and front ends. The use of mono amplifiers, and amplifiers using separate power supplies makes the effect less audible but is only a partial cure, as the sensitive high gain front end remains in close proximity and thus vulnerable to the radiant effects of the large currents present in the output stage. By isolating the voltage amplifier from the high current amplifier a superior signal integrity is maintained.

The Voltage Amplifier SV is designed with the same level of thoroughness usually reserved for the finest preamplifier voltage gain stages. The topology and component selection is built on the foundation established by our FET Preamplifiers. Balanced interconnections are provided to take advantage of their greater noise rejection as in the FET Preamplifiers. Similarly, all voltage gain is accomplished by FET devices. Differential voltage gain throughout provides exceptional rejection of external noise and contributes to the inherent DC stability of the circuit. This allows direct coupling without servo circuitry. The unit also uses output followers operating without feedback.

The Voltage Amplifier SV is designed to provide a slew rate of 50 V/us without entering Class B operation as is common in many other designs. This combined with excellent high frequency design insures linear operation at high speed, and translates into a sonic reproduction which is extremely transparent in character. The supplies take a very direct approach to high performance. First, a top quality toroid transformers and about 10,000 uf of capacitance with very low ESR and inductance is used. Then a clean reference voltage is heavily filtered and delivered to each stage through independent class A followers which completely decouples the stages. The resulting non-reactive low impedance over an extremely wide bandwidth yields a perfect power source. For optimum performance and reliability all circuitry remains continuously powered. The Current Amplifier S150/250 provides all of the current gain for the Amplifier System. The specifications are consistent with what would be expected in a high current Class A amplifier design. In this design, however, an unusual degree of attention has been paid to sonically meaningful parameters.

For example, the current stage is capable of producing peak currents in excess of 100 Amperes with a degree of linearity and speed which is not matched by other designs when producing only a fraction of this current. This is achieved by the implementation of several distinct circuit features.

In the Current Amplifier S150/250 a large number of extremely wide bandwidth output transistors are used instead of the usual cost effective MOSFET devices which are used in other transistor designs. A channel of the Current Amplifier S150/250 uses 28/56 individual transistors with a combined power rating of 3,000 Watts and 240 Amperes with a bandwidth of 30 MHz.

The manner in which the Current Amplifier S150/250 accomplishes Class A operation is also different than that employed in conventional designs. All Class A designs leave Class A operation when they are operated into loads of sufficiently low impedance. Generally, the transition will produce a large and abrupt distortion increase which often exceeds the distortion levels found in amplifiers which are designed specifically as AB amplifiers.

The Current Amplifier S150/250 uses bias voltages and component values which have been specifically selected to produce a precision transition with no abrupt changes in distortion or output impedance. This "Precision Bias" technique yields seamless performance regardless of the complexity of the load impedance and is particularly effective at eliminating a form of IM distortion which often occurs in these instances.

To maintain "Precision Bias" requires an advanced bias circuit that must have a very high degree of stability under a wide range of temperatures and load conditions. The usual bias network is of such high impedance and poor thermal regulation that at the extremes of operation, bias currents are ineffectively controlled. Advanced tracking techniques, very high currents, and a dedicated bias circuit supply results in absolute control of bias currents under all conditions in the Current Amplifier S150/250.

The main power supply of the Current Amplifier S150/250 consists of 3.0 kVA toroidal power transformer with independent rectifiers to isolate the channels from one another. Two hundred thousand microfarads of total capacitance provide effective filtering.

The above attributes result in a output stage of such extreme linearity and bandwidth that no feedback correction is required or used. One advantage of this is a high degree of immunity from interactions with loads or cables and a superior transient response. An extremely low non-reactive output impedance is maintained well beyond 20,000 Hz. The resulting uniform damping factor is not usually found in other designs.

The Voltage Amplifier SV has all structural parts made of machined extruded aluminum which are milled to very close tolerances yielding the seamless appearance characteristic of previous products from Coda. The Current Amplifier S150/250 uses many of the same machining and finish techniques. As with all Class A amplifiers, heat dissipation is of primary importance. The Current Amplifier S150/250 uses six massive heat sinks for efficient, noiseless, and clean thermal relief. The thermal coefficient of the heat sinks is one of the lowest and most effective in the audio industry.

II. Parts' Quality

1. Finishes - All exterior metal parts are anodized or powder coated. Anodizing for its multiple finishing and powder coating for durability.
2. Circuit Boards - Circuit boards are fiberglass epoxy with gold plating over a tin/nickel barrier. This gold layer will not corrode, while the barrier plate prevents the gold from migrating to the lower copper layer and detracting from its appearance.
3. Resistors - All are high reliability metal film 1% resistors for 1/4 watt and 5% for 1 watt.
4. Capacitors - All capacitors have been eliminated where possible on the basis that "no cap is better than the best cap." The only electrolytics used are in the power supply where large numbers provide enormous filtering capacitance for the supply.
5. Semiconductors - There are no integrated circuits (IC) to be found in the signal path. Very high quality dual FETs are the only source of voltage gain and were selected for their superb noise performance and precision matching. The remaining semiconductors are also of very high quality, each possessing parameters ideally suited for the specific application.
6. Connectors - Coda employs a standard RCA configuration with a gold plated case. The XLR input and output connectors are Neutriks from Switzerland. These are finished in black chrome with gold contacts. Speaker connectors are also gold plated.
7. Wire - All signal wire has been eliminated whenever possible. Where wire is used, Coda employs silver plated copper, 141 strand, 18 gauge wire with a silicone insulation.

AMPLIFIER SYSTEM S150/250**PARALLELED (S250)**

Rated Power: 250 Watts @ 8 Ohms (200 Watts Class A) driven from 20Hz to 20kHz
Frequency Response: DC to -3dB @ 100kHz
Distortion: < .1 percent from 10Hz to 20kHz @ 100 Watts driven into .5 Ohms through 8 Ohms
Gain: 26dB
Maximum Current: >200 Amperes peak per channel
Slew Rate: 50 Volts per microsecond
Noise: 100dB referenced to rated output
Input Impedance: 100k Ohms unbalanced/2k Ohms balanced
Output Impedance: .015 Ohms from 20Hz to 20kHz

SPLIT CHANNEL (S150)

Rated Power: 150 Watts @ 8 Ohms (100 Watts Class A) driven from 20Hz to 20kHz
Frequency Response: DC to -3dB @ 100kHz
Distortion: < .1 percent from 10Hz to 20kHz @ 100 Watts driven into 2 Ohms through 8 Ohms
Gain: 26dB
Maximum Current: >100 Amperes peak per channel
Slew Rate: 50 Volts per microsecond
Noise: 100dB referenced to rated output
Input Impedance: 100k Ohms unbalanced/2k Ohms balanced
Output Impedance: .03 Ohms from 20Hz to 20kHz

SUPPLY

SV: independently regulated with toroidal transformer and 10,000 uF of capacitance
S150/250: 3.0 kVA toroidal power transformer and 200,000 uF of capacitance

SV

Height: 2.5" Faceplate, 2.85" Overall
Width: 18" Faceplate, 17.0" Chassis
Depth: 9.75" Overall
Weight: 10 lbs., 14 lbs. Shipping
Power Requirement: 10 Watts

S150/250

Height: 7.0" Faceplate, 8.0" Overall
Width: 18" Faceplate, 17.0" Chassis
Depth: 19.0" Overall
Weight: 100 lbs., 105 lbs. Shipping
Power Requirement: 450 Watts maximum at rated power

The interior of the unit requires no special care. If it becomes necessary to clean the exterior, a simple dusting may be all that is required. If a cleaner is necessary, any dilute commercial ammonia based product will be appropriate. NEVER use any abrasive rags, cleaners or chemical solvents on Coda products.

When handling the unit, take care not to mar the aluminum. Aluminum is a medium hardness metal and can be scratched by the harder tool steels.

Avoid exposing the unit to direct sunlight, and keep it away from sources of intense heat.

Do not throw away the carton or associated packing material. They are ideal if you need to pack the unit for moving and in the unlikely event that servicing is needed, they will be necessary for safe shipment.

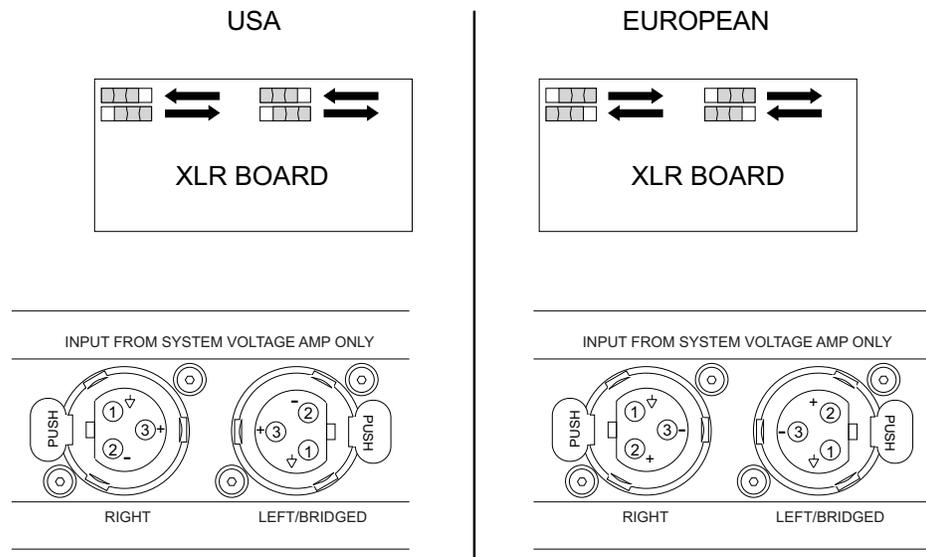
Be sure to provide adequate insurance when shipping.

VOLTAGE AMPLIFIER SV

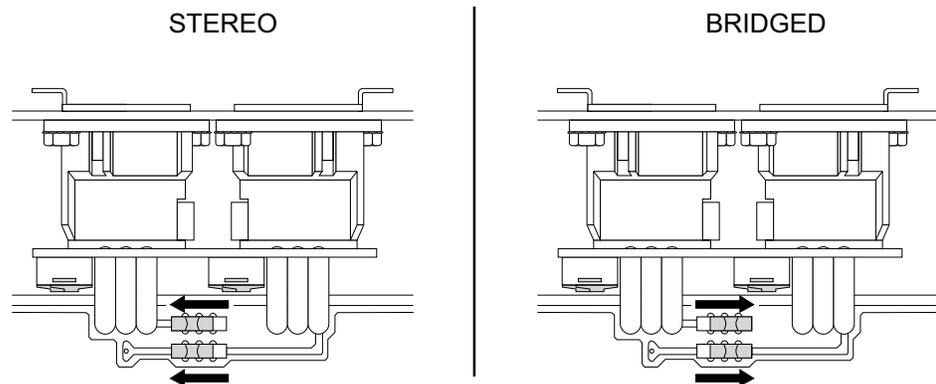
WARNING: NEVER OPERATE THIS UNIT WITH THE TOP COVER REMOVED. NEVER MAKE ANY INTERNAL ADJUSTMENTS WHILE THIS UNIT IS CONNECTED TO AN AC POWER SOURCE.

1. To change the SV from it's default settings, unplug the AC line source and remove the top cover using a 1/16 inch hex driver. The balanced inputs are equipped with switchable phasing due to differences in the USA/EUROPEAN standards. The default setting is EUROPEAN but may be switched to USA according to the following diagram.

Note: These switches may also be used for selecting absolute phase.



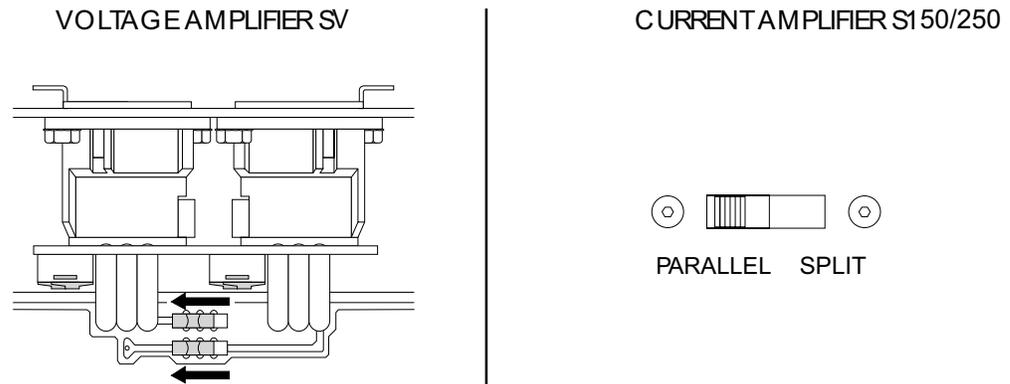
2. The bridging switches are located on the SV main board near the balanced inputs. The default position is STEREO but may be switched to BRIDGED operation according to the following diagram.



PARALLELED

WARNING: NEVER OPERATE THIS UNIT WITH THE TOP COVER REMOVED. NEVER MAKE ANY INTERNAL ADJUSTMENTS WHILE THIS UNIT IS CONNECTED TO AN AC POWER SOURCE.

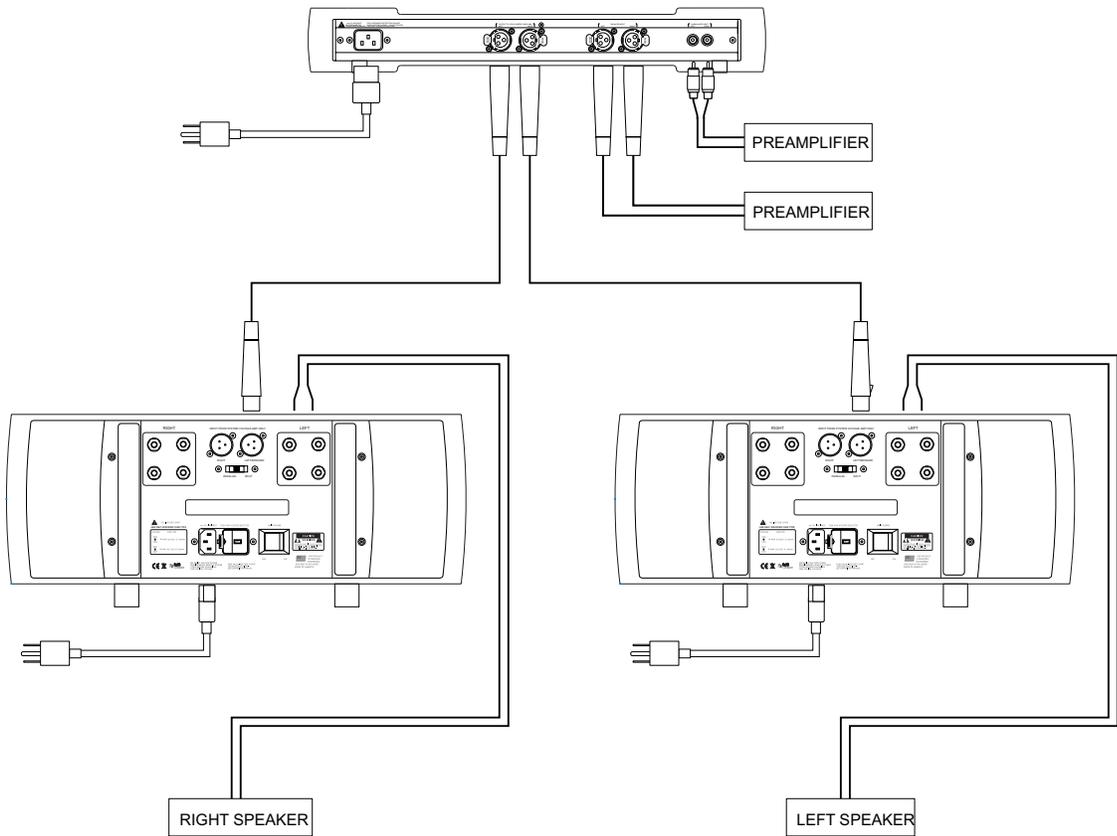
PARALLELED operation consists of one front end and two output stages per channel. To operate, set the SV internal bridging switches for STEREO and each S150/250 OPERATION SELECTOR switch, located on the back panel for PARALLELED.



The OPERATION SELECTOR is now commoning both channels of the inputs and both channels of the outputs of the S150/250. The cable from the SV may plug into either LEFT/CH A or RIGHT/CH B input and the speaker leads may be attached to either LEFT/CH A OUTPUT or RIGHT/CH B OUTPUT. The amount of power from each channel is 100 Watts class A (S150), however, since there are two output stages in parallel, current capability is doubled insuring pure class A power into 4 Ohms of 200 Watts .

The set up diagram for PARALLELED operation is on the following page.

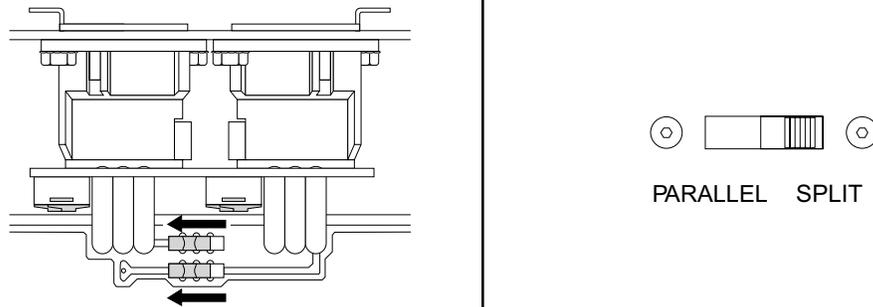
Note: Use only the supplied interconnect cables between the SV and the S150/250.



SPLIT CHANNEL

WARNING: NEVER OPERATE THIS UNIT WITH THE TOP COVER REMOVED. NEVER MAKE ANY INTERNAL ADJUSTMENTS WHILE THIS UNIT IS CONNECTED TO AN AC POWER SOURCE.

SPLIT CHANNEL operation consists of one front end and two separate output stages per channel. To operate, set the SV internal bridging switches for STEREO and each S150/250 OPERATION SELECTOR switch, located on the back panel for SPLIT CHANNEL.



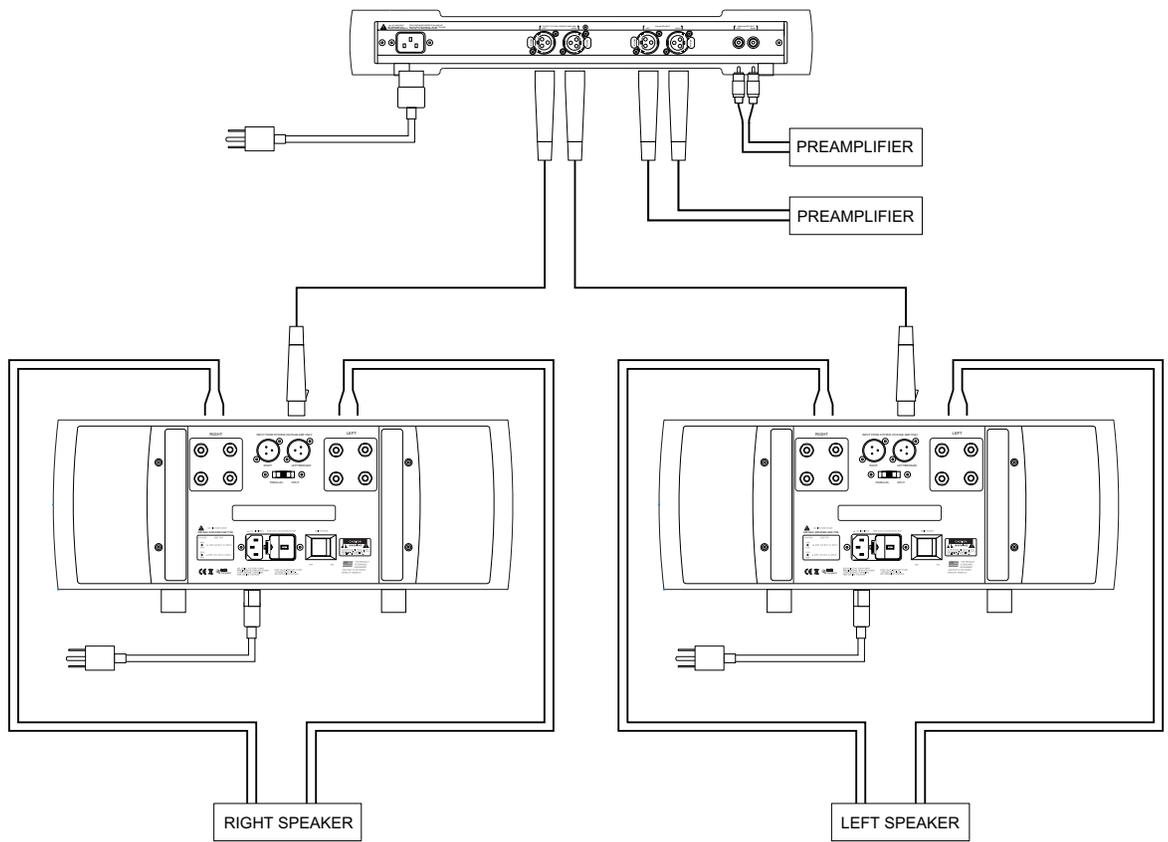
The OPERATION SELECTOR is now commoning the inputs of the S150/250, so the cable from the SV may plug into either LEFT/CH A or RIGHT/CH B. This configuration is used for bi-wiring or driving two sets of speakers, where total isolation of speaker components is required. The amount of power from each of the four output channels is 100 Watts class A (S150).

The set up diagram for SPLIT CHANNEL operation is on the following page.

Note: Use only the supplied interconnect cables between the SV and the S150/250's.

SPLIT CHANNEL set up diagram

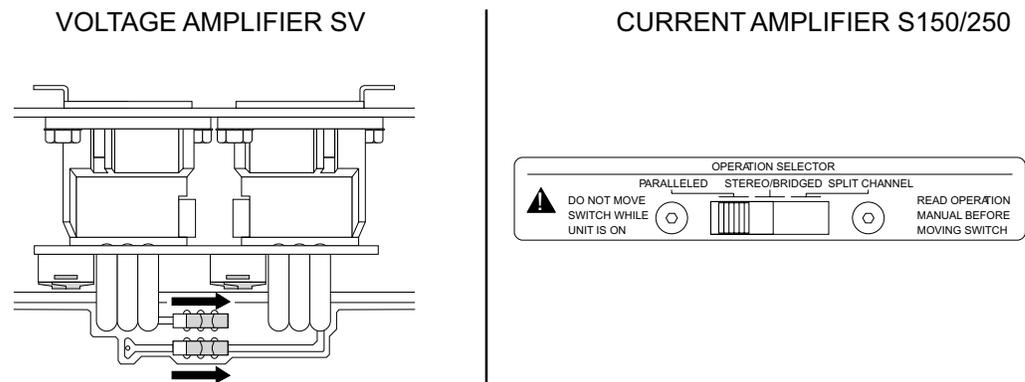
Before setting up the SPLIT CHANNEL SYSTEM S250, read page's 13, 16 and the DETAILED INSTALLATION section of this manual.



BRIDGED

WARNING: NEVER OPERATE THIS UNIT WITH THE TOP COVER REMOVED. NEVER MAKE ANY INTERNAL ADJUSTMENTS WHILE THIS UNIT IS CONNECTED TO AN AC POWER SOURCE.

BRIDGED operation consists of two front ends and one output stage per channel. To bridge with an additional AMPLIFIER SYSTEM, set the Sv's internal bridging switches for BRIDGED and each S150/250 OPERATION SELECTOR switch, located on the back panel for SPLIT.



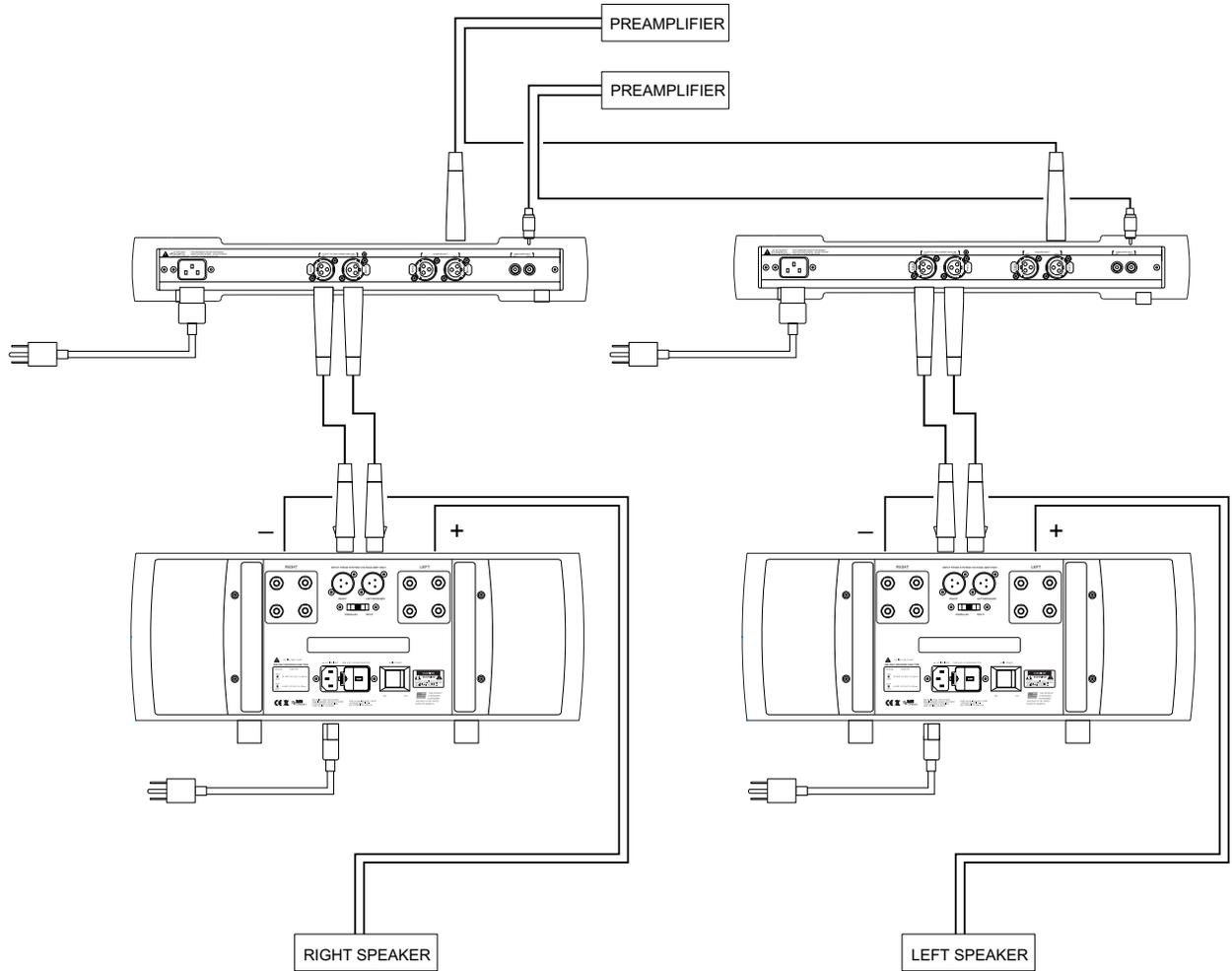
The internal bridging switches are commoning the inputs of the SV were pin 2 of the left XLR commons with pin 3 of the right XLR, and pin 2 of the right XLR commons with pin 3 of the left XLR. Whichever input is used on the SV, the output of the S150/250 that is attached to that channel will be the positive signal and the channel which has no input, that S150/250 will be the negative signal. The OPERATION SELECTOR is now commoning the inputs of the S150/250, so the cable from the SV may plug into either LEFT/CH A or RIGHT/CH B.

The set up diagram for BRIDGED operation is on the following page.

Note: Use only the supplied interconnect cables between the SV and S150/250s.

BRIDGED set up diagram

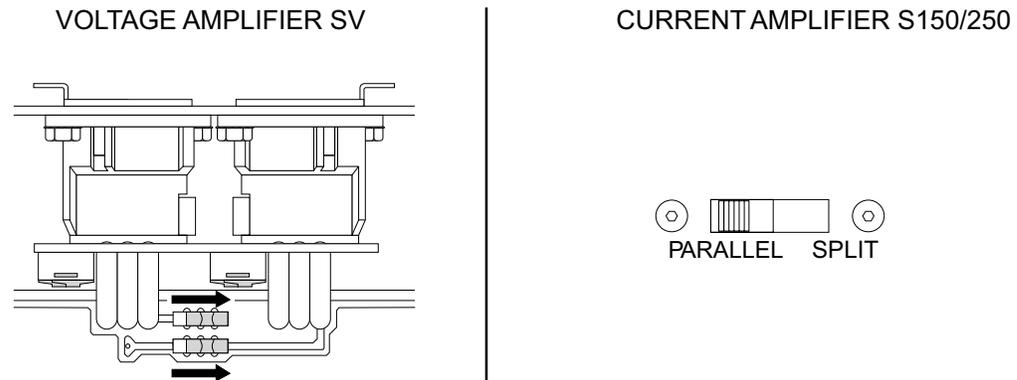
Before setting up the BRIDGED SYSTEM, read page's 13, 18 and the DETAILED INSTALLATION section of this manual.



DUAL BRIDGED

WARNING: NEVER OPERATE THIS UNIT WITH THE TOP COVER REMOVED. NEVER MAKE ANY INTERNAL ADJUSTMENTS WHILE THIS UNIT IS CONNECTED TO AN AC POWER SOURCE.

DUAL BRIDGED operation consists of two front ends and two output stages per channel. To bridge with an additional AMPLIFIER SYSTEM and two additional S150/250s, set the SV's internal bridging switches for BRIDGED and each S150/250 OPERATION SELECTOR switch, located on the back panel for PARALLELED.



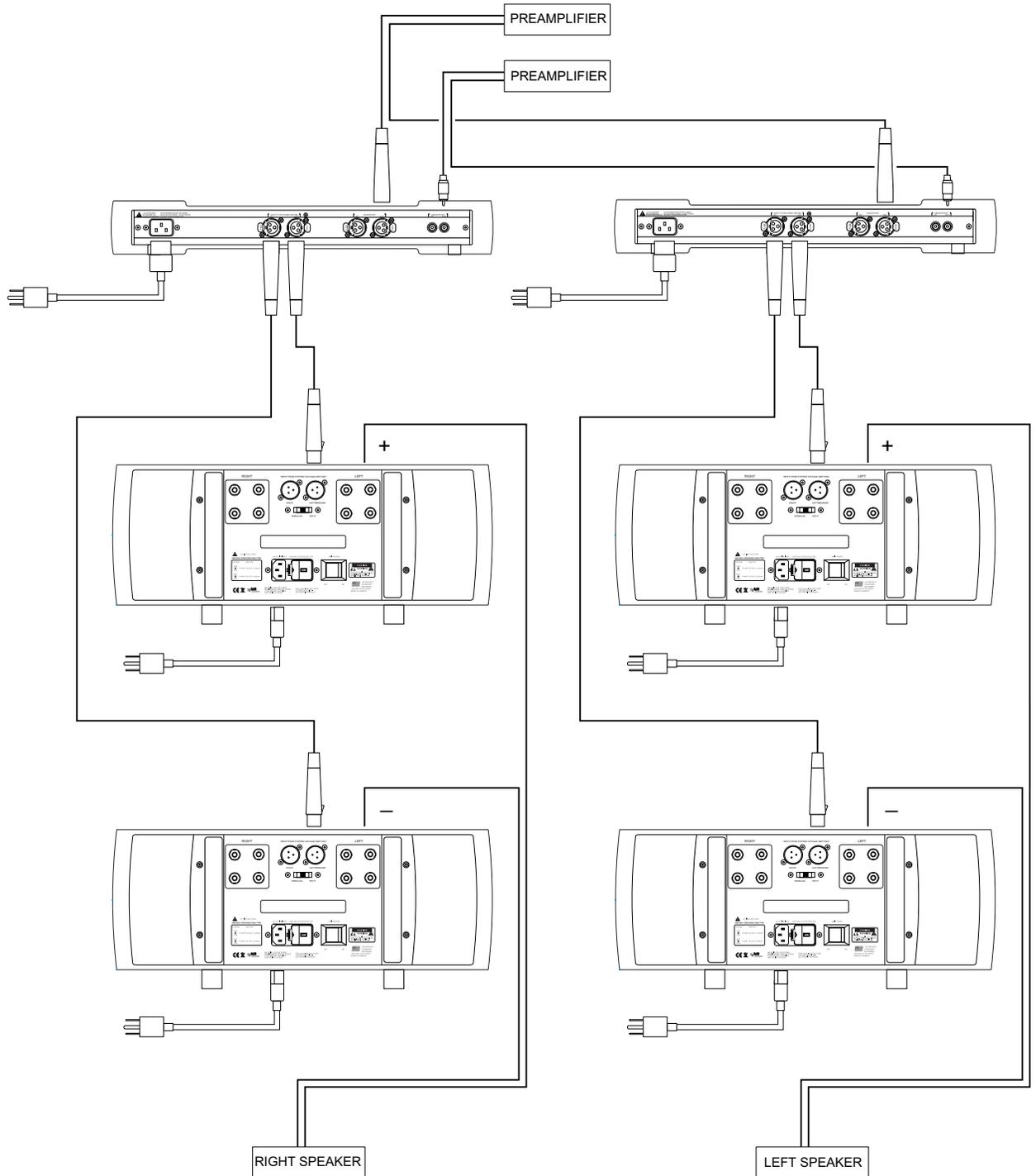
The internal bridging switches are commoning the inputs of the SV where pin 2 of the left XLR commons with pin 3 of the right XLR, and pin 2 of the right XLR commons with pin 3 of the left XLR. Whichever input is used on the SV, the output of the S150/250 that is attached to that channel will be the positive signal and the channel which has no input, that S150/250 will be the negative signal. The OPERATION SELECTOR is now commoning the inputs of the S150/250, so the cable from the SV may plug into either LEFT/CH A or RIGHT/CH B. Also the outputs of the S150/250 is commoned, so the speaker lead may be attached to either LEFT/CH A OUTPUT or RIGHT/CH B OUTPUT. The amount of power from each channel is 400 Watts with 100 Watts of that being class A. However, since there are two output stages in parallel, current capability is doubled insuring pure class A power into 4 Ohms of 200 Watts.

The set up diagram for DUAL BRIDGED operation is on the following page.

Note: Use only the supplied interconnect cables between the SV and S150/250s.

DUAL BRIDGED set up diagram

Before setting up the DUAL BRIDGED SYSTEM, read page's 13, 20 and the DETAILED INSTALLATION section of this manual.



I. Warranty- Any failure of the Amplifier System to operate or to meet specifications, applicable at time of manufacture, due to a manufacturing defect or component failure, will be corrected by Coda Technologies, Inc. without charge for parts, or labor for a period of ten years from date of original purchase. Coda Technologies, Inc. will provide for surface transportation to and from the factory from an authorized Coda Technologies, Inc. dealer within the U.S. for a period of one year from date of purchase.

II. Procedure- If the Amplifier System should require service under warranty ship it, with proof of purchase date, with its carton and packing material, to Coda Technologies. Coda Technologies, Inc. products purchased outside of the U.S. will be covered by those warranty conditions extended by the importing distributor which may differ in some respects from those given above.

Warranty service, if required, is the responsibility of the importing distributor. If a Coda Technologies, Inc. product is removed from the country of original purchase, Coda Technologies, Inc. distributors are not obligated by the conditions of this warranty and repairs will be affected at their discretion.

II. Exclusion of Coverage- At the sole opinion of Coda Technologies, Inc. the following situations are specifically excluded from coverage:

1. Any Amplifier System not operated in accordance with the instructions contained in this manual, or otherwise subjected to abuse, tampering, modification, accidental damage, or serial number defacement.
2. Damage to other property caused by any defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss, or any other damage whether incidental, consequential, or otherwise.
3. It is Coda Technologies, Inc. policy to extend coverage when reasonable doubt exist; however, freight charges will be billed for any units returned under warranty and found by the company to be operating according to specification.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Coda Technologies, Inc. continually researches new techniques, designs, and construction methods and so reserves the right to introduce refinements into current product lines without notice or obligation. The company may offer product modifications to make these refinements available to earlier production units.

Fill in and retain this copy of the warranty registration sheet for your records.

MODEL DESIGNATION: _____

SERIAL NUMBER: _____

DATE OF PURCHASE: _____

PLACE OF PURCHASE

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

OWNER INFORMATION

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

NOTES:

Please fill in and send this copy of the warranty registration sheet to Coda Technologies Inc. Include copy of proof of purchase.

MODEL DESIGNATION: _____

SERIAL NUMBER: _____

DATE OF PURCHASE: _____

PLACE OF PURCHASE

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

OWNER INFORMATION

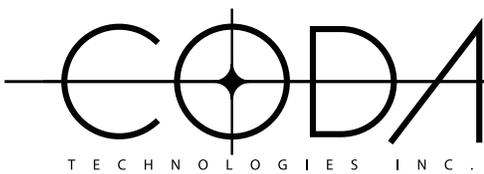
Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

NOTES:



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