



# MODEL 2150 & CLASSIC POWER AMPLIFIERS USER'S MANUAL



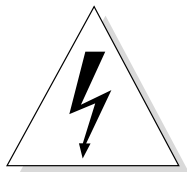
# PACKING INSTRUCTIONS

**UNPACKING** Inspect your 2150/Classic amp for hidden damage that may have occurred in transit. Your amp was inspected and sound-tested before shipment from the factory. All claims for shipping damage must be made by the receiver. Save your box and packing material for evidence of damage if it has occurred.

**PACKING MATERIALS** The original box and packing materials are specifically designed to protect your amp during shipment. **SAVE ALL PACKING MATERIALS.** In the unlikely event that your amp needs to be returned to the factory, the original box and packing materials will be necessary for shipment. These are carrier-approved packing materials, and they will ensure safe transit back to the factory.

## SAFETY CAUTIONS & WARNINGS

**WARNING:** TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. DO NOT OPERATE NEAR WATER. ALWAYS USE THE PROVIDED POWER CORD.



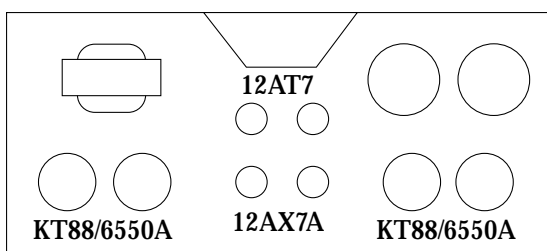
The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



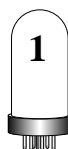
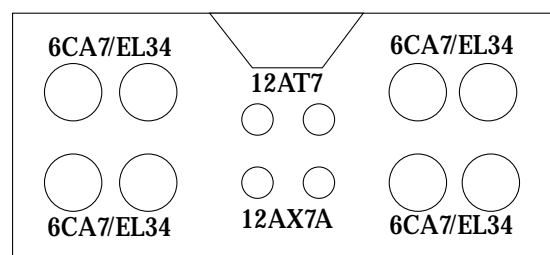
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

## TUBE LOCATION CHARTS

### 2150



### CLASSIC



# 2150/CLASSIC

## OWNER'S MANUAL

**C**ongratulations. You have purchased unquestionably the finest musical instrument power amplifier available.

Your new VHT power amplifier incorporates a unique combination of state-of-the-art electronics and time-honored audio design. Meticulous craftsmanship coupled with only the highest-quality components assures decades of trouble-free performance.

Before power-up, please take a few moments to familiarize yourself with this manual and discover the impressive features and flexibility of the 2150 and Classic power amplifiers. You will also find out how you can achieve maximum performance from your VHT with a minimum of basic maintenance and operational information.

As always, *please* observe normal safety precautions when operating this equipment and pay particular attention to the caution and warning designations in this manual and on the amplifier chassis. These simple precautions are intended to ensure the extended useful life of the equipment and, more important, of the operator.

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

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

Dealer Name: \_\_\_\_\_

Dealer Address: \_\_\_\_\_



1200 Lawrence Drive  
Suite 465  
Newbury Park, California 91320  
(805) 376-9899

# SPECIFICATIONS

## 2150

<b>Power Output:</b>	105 watts RMS per channel 100 watts per channel, both driven simultaneously Four KT88/6550A output tubes, two per channel Two 12AT7 driver tubes, one per channel Two 12AX7 preamp tubes, one per channel
<b>Input Impedance:</b>	100k ohm
<b>Input Sensitivity:</b>	Switchable -10dBV to 0dBV
<b>Output Impedance:</b>	Selectable to 4, 8, and 16 ohms
<b>Power Requirements:</b>	117 Volts AC, 60 Hz, 6 amps max, 700 watts max
<b>Dimensions:</b>	Height, 7" (4 rack spaces), Width, 19", Depth, 12", Weight, 53 lbs
<b>Front-Panel Features:</b>	Power switch, mains fuse, DC fuse for each channel, presence control for each channel, depth (variable damping) control for each channel, standby switch for each channel, fan speed switch
<b>Rear-Panel Features:</b>	AC input, impedance selector for each channel, parallel output jacks for each channel, voicing switch for each channel, input jacks, input sensitivity switch

## CLASSIC

<b>Power Output:</b>	120 watts RMS per channel 105 watts per channel, both driven simultaneously Eight 6CA7/EL34 output tubes, four per channel Two 12AT7 driver tubes, one per channel Two 12AX7 preamp tubes, one per channel
<b>Input Impedance:</b>	100k ohm
<b>Input Sensitivity:</b>	Switchable -10dBV to 0dBV
<b>Output Impedance:</b>	Selectable to 4, 8, and 16 ohms
<b>Power Requirements:</b>	117 Volts AC, 60 Hz, 6 amps max, 700 watts max
<b>Dimensions:</b>	Height, 7" (4 rack spaces), Width, 19", Depth, 12", Weight, 56 lbs
<b>Front-Panel Features:</b>	Power switch, mains fuse, DC fuse for each channel, volume control for each channel, presence control for each channel, depth (variable damping) control for each channel, standby switch for each channel, fan speed switch, combination standby/half-power switch for each channel
<b>Rear-Panel Features:</b>	AC input, impedance selector for each channel, parallel output jacks for each channel, voicing switch for each channel, mode switch for each channel, input jacks, input sensitivity switch

*Because we strive to build the highest quality products, we reserve the right to change specifications of our products without prior notice.*



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# CONTROLS & FUNCTIONS

## FRONT PANEL

- ① **STANDBY:** Disconnects power to individual channels when idling.

**2150:** I = on 0 = standby

**CLASSIC:** I = half power 0 = standby II = full power

After turning the power on, wait a few minutes before turning the standby on. In this way, you can warm up the amplifier before applying full voltage to the tubes. This helps the tubes and other components to last longer. Tube life will also be extended if, during breaks, the standby switch is used to turn the amplifier off instead of the power switch. This keeps the tubes at a stable temperature and maintains the amplifier in a constant state of readiness.

- ② **VOLUME:** Normal setting for best signal-to-noise ratio is between 12 o'clock and 2 o'clock.
- ③ **PRESENCE:** High-frequency boost/cut. The higher the frequency, the more active this control appears to be.
- ④ **DEPTH:** Variable damping control. The lower the frequency, the more active this control appears to be.

**A WORD ABOUT DAMPING.** Damping is a function of audio amplifier design that controls or inhibits speaker-cone excursion at low frequencies. Turning the Depth control clockwise decreases the amp's damping factor and thereby increases the apparent low-frequency response of the amp/speaker system. This effect is more pronounced at higher volume settings. Different speaker systems also cause this function to behave differently. Experiment!

- ⑤ **FAN SPEED:** Adjusts cooling rate. Set to "Hi" for most playing situations. The "S" symbol on the switch is the position indicator.
- ⑥ ⑨ **A FUSE, B FUSE:** These are 1-amp "normal-blo" fuses. They are the individual DC power supply and output protection fuses for channel A and channel B. \*NOTE: The 2150 uses flameproof fuses.



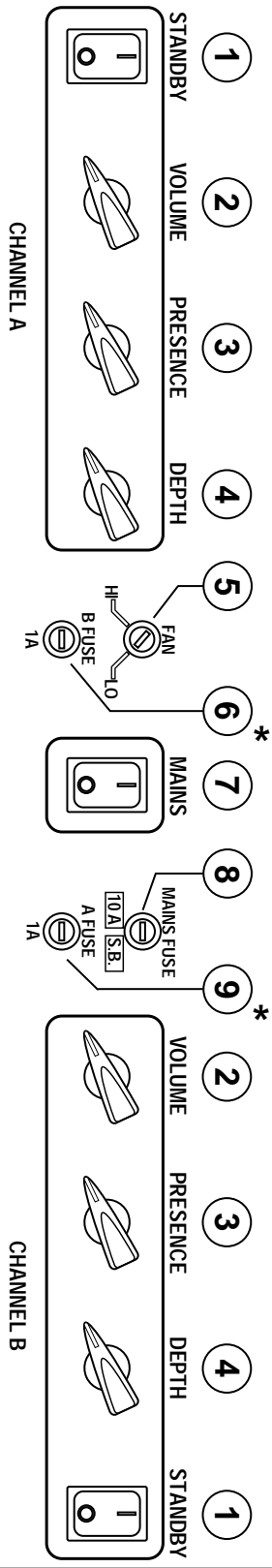
### **CAUTION**

**TO REDUCE RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE FUSE. DISCONNECT POWER BEFORE CHANGING THE FUSE.**

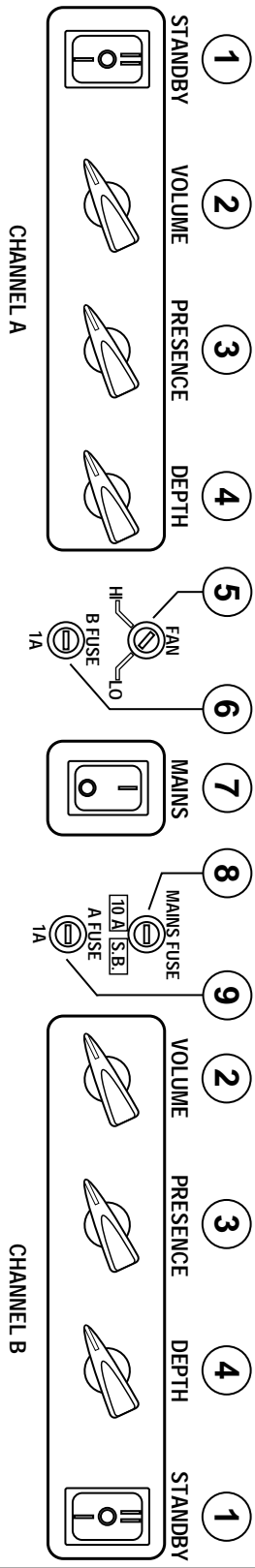
- ⑦ **MAINS:** This is the primary AC power switch for both channels and the fan; "I" = on, "0" = off.
- ⑧ **MAINS FUSE:** This is a 10-amp "slo-blo" type fuse. It is the primary AC protection fuse for both channels and the fan.



**2150**



**CLASSIC**



# CONTROLS & FUNCTIONS

## REAR PANEL

- ① **VOLTAGE RATING:** This plate indicates proper voltage rating of the unit.
- ② **MAINS:** AC input socket. See Installation & Operation.  
This amplifier is equipped with a grounding-type supply cord to reduce the possibility of leakage current. Be sure to connect it to a grounded receptacle. Operation from an ungrounded (two-pronged) AC receptacle requires a 3-to-2-contact grounding-type adapter. Be sure to connect the adapter's grounding lead to a good earth ground. **DO NOT ALTER THE AC PLUG.**



### **WARNING**

**FOR CONTINUED SAFE OPERATION, USE ONLY THE AC CORD PROVIDED.**

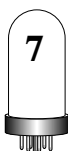
- ③ **MODE** (Classic series only): This switch changes the operation of the EL34 output tubes, which use five components inside each tube. With this switch in the up position, the tubes run in the Pentode mode, and all five components operate for full 100-watt power. The sound is brighter and crisper.
- With the switch in the down position, the tubes run in the Triode mode, and three components operate for 50-watt maximum power. The sound is smoother with a little less edge. Experiment!
- ④ **IMPEDANCE SELECT:** The impedance of a speaker or combination of speakers must equal the value set on the "Impedance Select" switch for each channel. See Installation & Operation.
- ⑤ ⑥ **SPEAKER OUTPUT:** The speaker output jacks are wired in parallel. Channel will not operate unless the jack labeled "Use First" is used first!



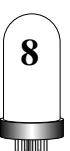
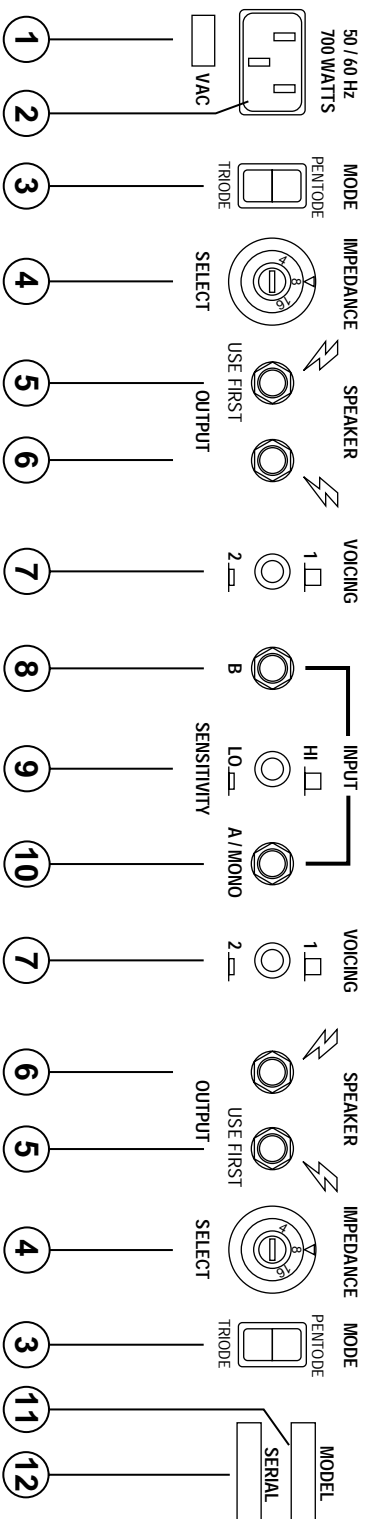
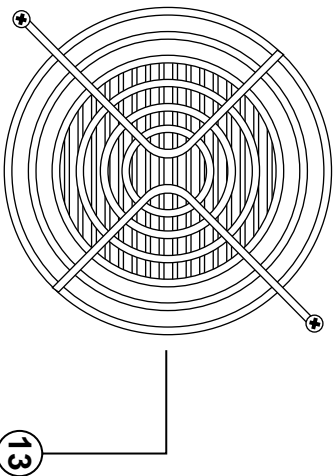
### **CAUTION**

**DO NOT OPERATE UNIT UNLESS THE SPEAKER (OR OTHER CORRECT IMPEDANCE LOAD) IS CONNECTED TO THE SPEAKER OUTPUT JACK(S). FAILURE TO USE THE PROPER SPEAKER LOAD MAY RESULT IN DAMAGE TO THE AMPLIFIER.**

- ⑦ **VOICING:** Position "1" voicing produces smooth, open midrange with soft highs and slightly rolled off low end. Position "2" voicing produces sharper highs, punchier midrange, and beefier low end.
- ⑧ ⑩ **INPUT A/MONO AND B:** Input signal is fed to the input sensitivity switch, then to the volume control. Signal fed to the "A/MONO" input automatically "normals" (connects directly) to the B input when the B input jack is not connected. (Both channels' outputs must still be connected to separate speaker systems.) If only one channel is being used, set the unused channel's standby switch to the off ("0") position.
- ⑨ **INPUT SENSITIVITY:**  
Hi = -10dB This is the most frequently used setting.  
Lo = 0dB Use for high signal levels such as "slaving."
- ⑪ **MODEL NUMBER:** This is important information for reference.
- ⑫ **SERIAL NUMBER:** This is important information for servicing.
- ⑬ **FAN:** The fan's speed is controlled by the front-panel switch. Keep the area around the fan and cooling vents clear at all times.







# INSTALLATION & OPERATION

## BEFORE APPLYING POWER, MAKE SURE:

1. Unit is connected to the correct voltage source with a proper 3-wire grounded outlet. Use only the AC cord provided.
2. Cooling vents are free from obstruction.
3. Speakers are plugged into the correct output jacks using minimum 18-gauge speaker cable.  
**DO NOT USE SHIELDED CABLE.**
4. Impedance selector is at correct setting. See Speaker Connection.
5. Fan speed switch is set at "Hi."
6. Standby switches are set to off ("0") position.



### CAUTION

**DUE TO THE HIGH POWER OUTPUT OF THIS EQUIPMENT, IT IS IMPORTANT TO BE AWARE THAT ELECTRICAL SAFETY AS WELL AS SONIC QUALITY CAN BE SEVERELY COMPROMISED BY THE USE OF SUBSTANDARD OR UNDERRATED AC POWER SOURCES. DO NOT USE UNGROUNDED OUTLETS, MULTIPLE OUTLETS AND/OR EXTENSION CORDS SMALLER THAN 18 GAUGE.**

## SPEAKER CONNECTION

It is extremely important to select the proper impedance setting for the speaker system(s) used. This setting is determined separately for each channel; that is, one 16-ohm speaker in channel A = selector setting "16"; one 8-ohm or two 16-ohm cabinets = selector setting "8"; one 4-ohm or two 8-ohm cabinets = selector setting "4."

Some manufacturers represent impedance mismatching as an optional tone-modifying technique. Due to the extremely high power output and dynamic range of the **2150**, we strongly advise against this practice. The one exception to this rule applies to the operation of the **Classic** series in the low-power setting. In this case, with the Standby switch set at half-power ("I"), the "Impedance Select" settings are divided by two for a correct match; i.e., setting "16" = 8 ohms; "8" = 4 ohms, etc. Observing this correction will ensure proper speaker/amplifier interaction.



### CAUTION

**FAILURE TO OBSERVE PROPER IMPEDANCE SETTING MAY SIGNIFICANTLY SHORTEN TUBE LIFE AND/OR CAUSE SEVERE DAMAGE TO THE AMPLIFIER. DAMAGE RESULTING FROM IMPROPER SPEAKER INTERFACE IS NOT COVERED UNDER WARRANTY.**

## VENTILATION

The cooling system in the 2150/Classic is designed to draw heat out of the enclosure and provide the maximum amount of cooling for the power dissipated in an enclosed space.

Occasionally, when recording or performing in a quiet environment, fan noise may be a problem. Under these circumstances, the "Lo" fan speed may be used. To set the fan to "Lo," *gently* insert the proper-size screwdriver into the switch slot and rotate the switch to the left (counterclockwise) until a click is heard. Turning the switch in the wrong direction or attempting to force the switch past its detent point may cause permanent damage to the switch. Return the fan switch's setting to the "Hi" speed position once normal or high-volume operation has resumed.



### CAUTION

**OPERATION OF THE AMPLIFIER AT HIGH VOLUME SETTINGS WITH THE FAN SET AT "LO" MAY RESULT IN SEVERELY SHORTENED TUBE LIFE.**



# MAINTENANCE & SERVICE

Proper maintenance and routine servicing will assure continued top-notch performance from your VHT Amplification system.

Generally, we prefer that routine service and tube replacement are performed by your VHT dealer or service outlet.



## **WARNING: HOT TUBES! HAZARDOUS VOLTAGES!**



1. Always remove the power cord before attempting tube or fuse replacement.
2. Wait at least 5 minutes before attempting tube or fuse replacement, to allow time for tubes to cool and hazardous voltages to drain off.
3. When replacing tubes, remove only the rear cover.
4. Tubes: The **2150** tube complement consists of four VHT Special Design KT88/6550As, two 12AX7s, and two 12AT7s. The **Classic** tube complement consists of eight VHT Special Design 6CA7/EL34s, two 12AX7s, and two 12AT7s. VHT Special Design electronic tubes provide optimum performance in this amplifier. For best results, only replace with VHT original equipment tubes.



## **CAUTION**

**THE FAN CORD MUST BE DISCONNECTED BEFORE THE COVER CAN BE COMPLETELY REMOVED. THIS IS ACCOMPLISHED BY SIMPLY REMOVING THE FAN PLUG AT THE TOP OF THE FAN. CARE MUST BE TAKEN TO PREVENT STRAIN ON THE FAN CORD WHEN REPLACING THE COVER.**

5. Gently rotate tubes out of their sockets so as to avoid stress on the contacts and possible tube breakage.
6. Note tube pin orientation so as to facilitate correct replacement of the tube in its socket. NEVER FORCE A TUBE INTO ITS SOCKET.
7. When replacing fuses, gently push the fuse post in and turn slightly to the left with the proper-size screwdriver. Then gradually release pressure to avoid stripping or fuse holder breakage.



## **WARNING!**

**TO REDUCE RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE OF FUSE.**

**IMPORTANT:** REFER ALL OTHER SERVICE AND MAINTENANCE OPERATIONS TO QUALIFIED SERVICE PERSONNEL. THERE ARE NO USER-SERVICEABLE PARTS INSIDE. TO AVOID RISK OF SHOCK, DO NOT REMOVE THE BOTTOM OR TOP COVERS.

# TROUBLESHOOTING GUIDE

## WON'T TURN ON

1. Make sure AC cord is securely connected at both ends.
2. Verify the power source with something you know works.
3. Check the mains fuse, and replace if necessary (if it blows again, refer to qualified service personnel).

## NO SOUND

(One or both channels):

1. Check volume controls.
2. Make sure that the input sensitivity switch is in the proper position.
3. Check the standby switch.
4. Check input cables.
5. Make sure that the mode switch is fully engaged in either pentode or triode mode.
6. Check speaker cables to see if they are disconnected or shorted.
7. Make sure that the impedance selector is fully engaged in its detent.
8. Check for blown speakers.
9. If a channel's fuse is blown, replace with a 1A fast-blo (if it blows again, refer to qualified service personnel).

## RUNNING HOT

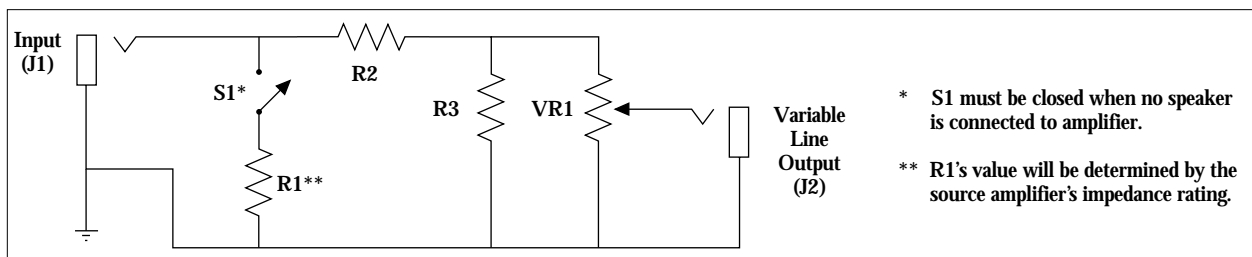
1. Set the fan speed to "Hi."
2. Make sure that the unit has adequate ventilation.
3. Make sure that the fan cord is securely connected.
4. The tubes may be under-biased (refer to qualified service personnel).

## DISTORTION

1. Check the speakers.
2. Check the cables. See Installation & Operation
3. Check the impedance setting.
4. Check the signal level at other devices in the signal path.
5. The tubes may be over-biased (refer to qualified service personnel).

# CONNECTING TO A GUITAR AMPLIFIER

Ever wonder what that treasured old tweed Deluxe would sound like as a 200-watt powerhouse? Here's a simple load box/output pad configuration that will allow you to drag all your favorite antiques out of the closet and really go for a spin. Just connect the speaker output from your source amplifier to the input of this load box, and then connect the variable line output of the load box to the A/Mono input of your 2150 or Classic.

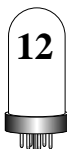
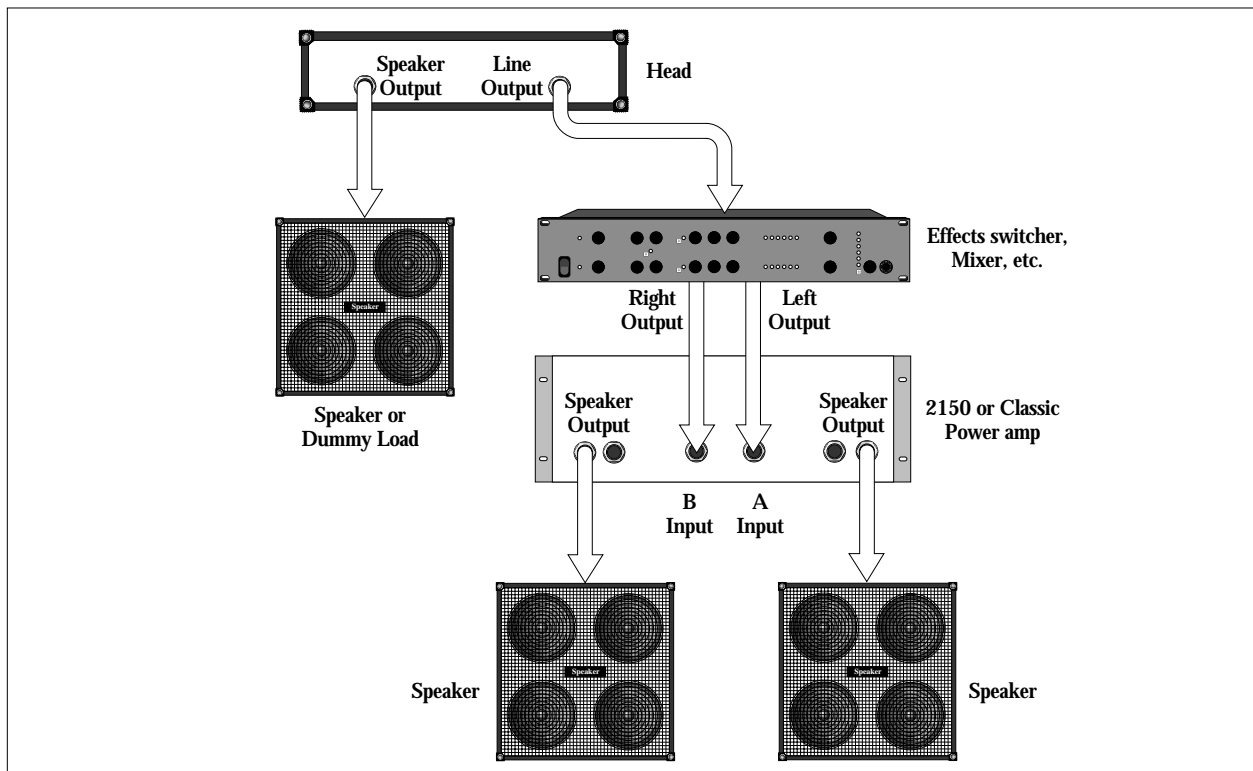
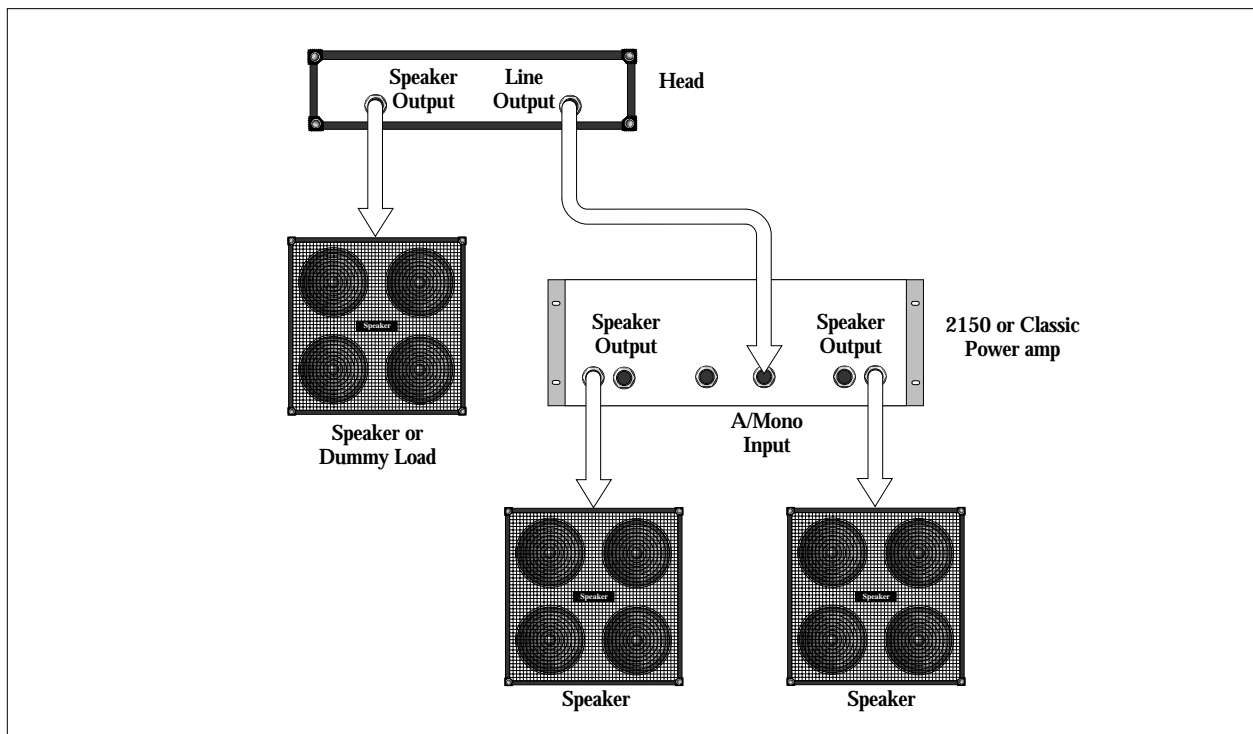


## PARTS LIST

<b>J1, J2</b>	Mono 1/4" phone jack
<b>S1</b>	SPST (single-pole/single-throw) heavy-duty toggle switch
<b>R1</b>	4, 8, or 16 ohm, 100-watt resistor (Dale NH 100 or equivalent)
<b>R2</b>	2,200 ohm, 1/2-watt resistor
<b>R3</b>	470 ohm, 1/2-watt resistor
<b>VR1</b>	10k ohm audio-taper potentiometer

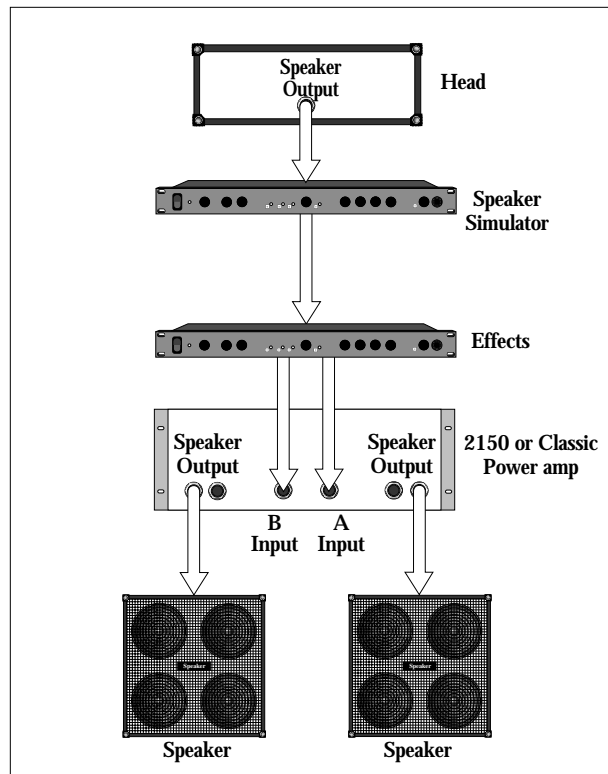
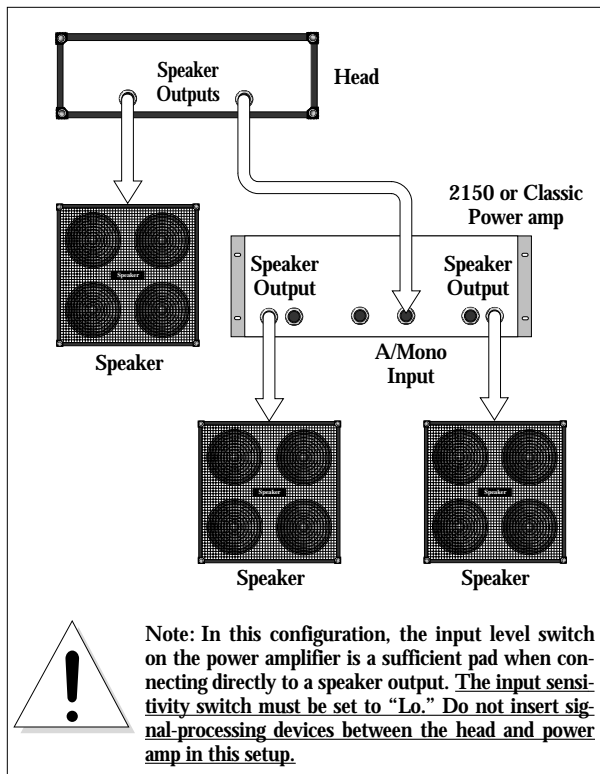
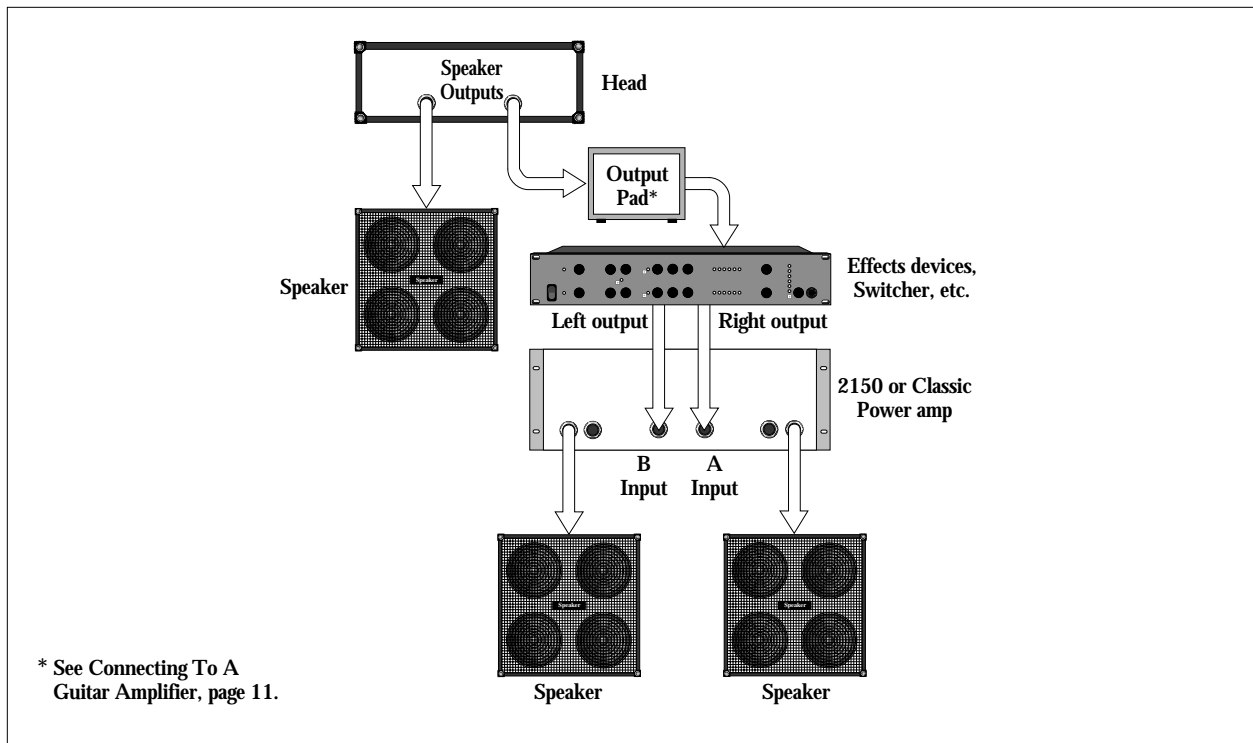
# CONNECTING THE 2150/CLASSIC

## SLAVING HEADS EQUIPPED WITH LINE-LEVEL OUTPUT



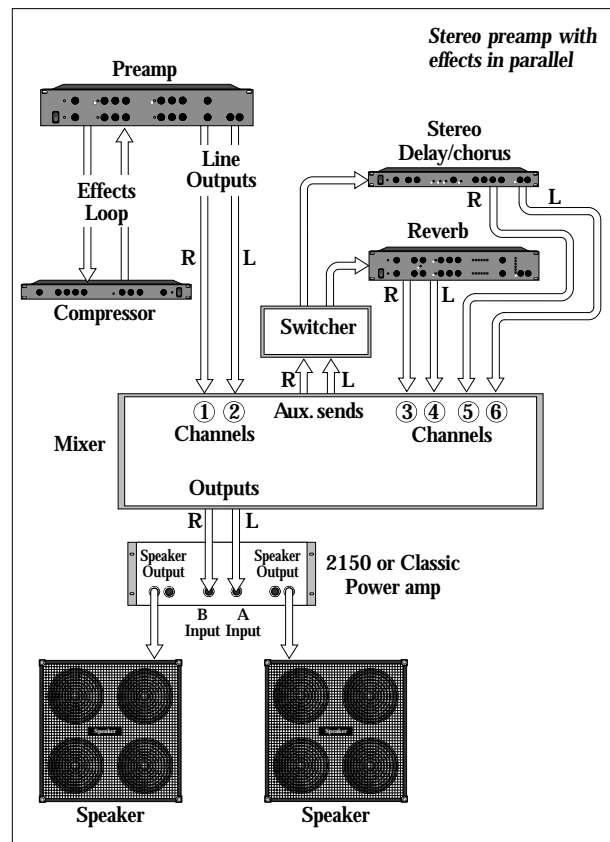
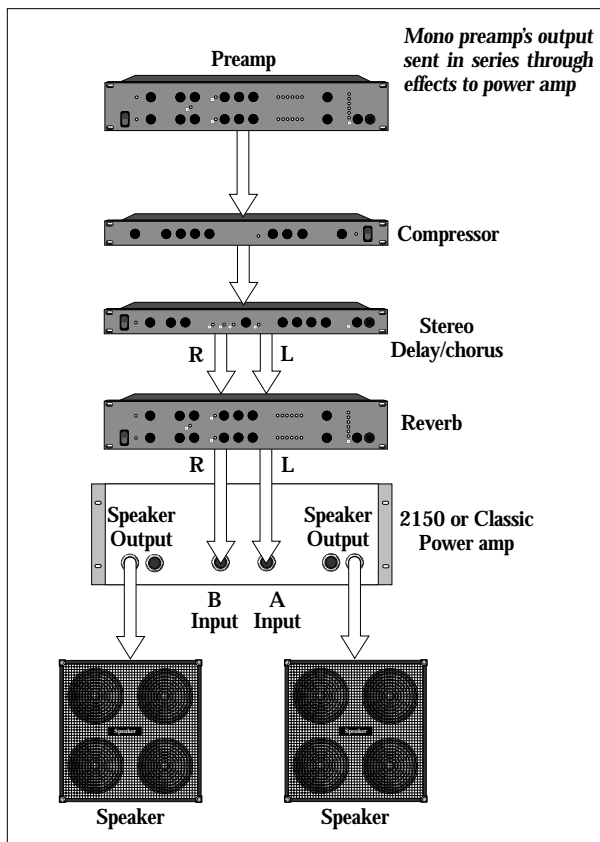
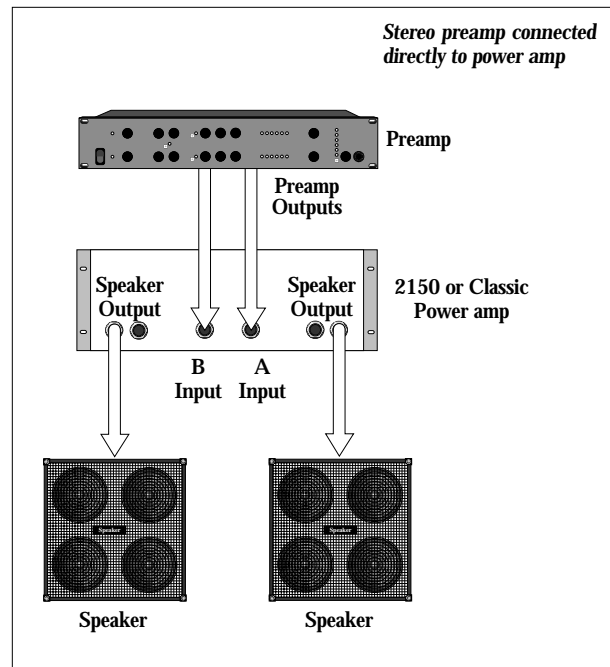
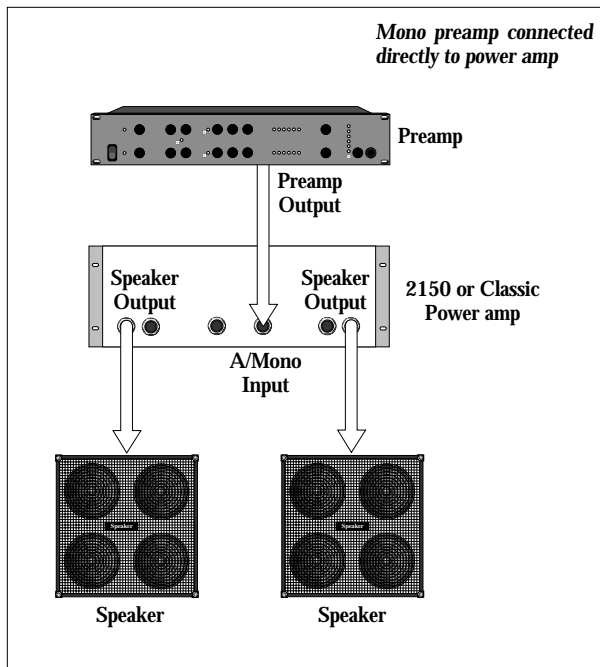
# CONNECTING THE 2150/CLASSIC

## SLAVING HEADS NOT EQUIPPED WITH LINE-LEVEL OUTPUT



# CONNECTING THE 2150/CLASSIC

## PREAMP CONFIGURATIONS



# WARRANTY

Subject to the Obligations and Exclusions found below, this VHT product is warranted against manufacturing defects in materials and workmanship for the period of one (1) year from the date of purchase, with the exception of the tubes and fuses, which carry a 90-day warranty.

The warranty period commences on the date of purchase by the original user. Performance under this warranty must be obtained at one of the following: a VHT Authorized Service Station, by returning the unit to the VHT factory with prior authorization, or (in countries outside of the United States) by a representative VHT distributor. A list of VHT Authorized Service Stations can be obtained from VHT, 1200 Lawrence Drive, Suite 465, Newbury Park, CA 91320, USA, Attn: Warranty Service. Telephone (805) 376-9899; Fax (805) 376-9999.

## **OBLIGATIONS**

1. This warranty will be honored only on the presentation of the original proof of purchase.
2. Transportation of the product to and from an authorized VHT service outlet is the responsibility of the user. Units sent directly to the VHT factory for warranty repairs must be authorized by VHT and shipped prepaid.

## **EXCLUSIONS**

1. This warranty shall not cover adjustment of customer-operated controls as explained in the appropriate model's instruction manual, or products that have been altered or have missing or defaced serial numbers.
2. This warranty shall not apply to the appearance of accessory items including, but not limited to, cabinets, cabinet parts, or knobs.
3. This warranty does not apply to uncrating, setup, installation, or the removal and reinstallation of products for repair.
4. This warranty shall not apply to repairs or replacements necessitated by any cause beyond the control of VHT including, but not limited to, any malfunction, defects, or failure caused by or resulting from unauthorized service or parts, damaged or broken tubes, incorrect line voltage, improper maintenance, modification or repair by the user, abuse, misuse, neglect, accident, fire, flood, or other Acts of God.
5. Responsibility for the repair of any VHT product sold outside of U.S. boundaries is borne by the VHT representative in that particular country or territory. Also, the warranty term and conditions may be different from those stated above. Please contact the VHT distributor or dealer in your country for more information.

The foregoing is in lieu of all other expressed warranties, and VHT does not authorize any party to assume for it any other obligation or liability. In no event shall VHT be liable for special or consequential damages arising from the use of this product, or for any delay in the performance of this warranty due to causes beyond our control. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of consequential damages, so the above limitations on implied warranty and consequential damages may not apply to you. This warranty gives you specific legal rights. You may have other rights that vary from state to state.





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