Owner's Manual

Model VS115

STEREO POWER AMPLIFIER

audio research
HIGH DEFINITION®

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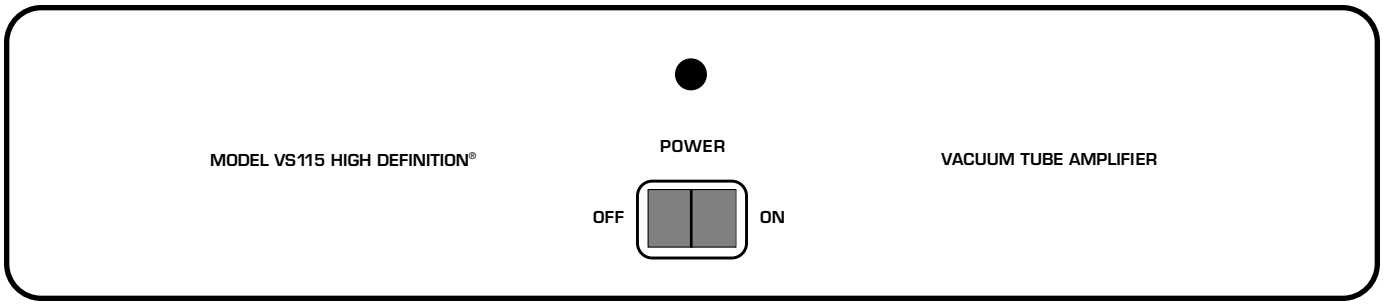
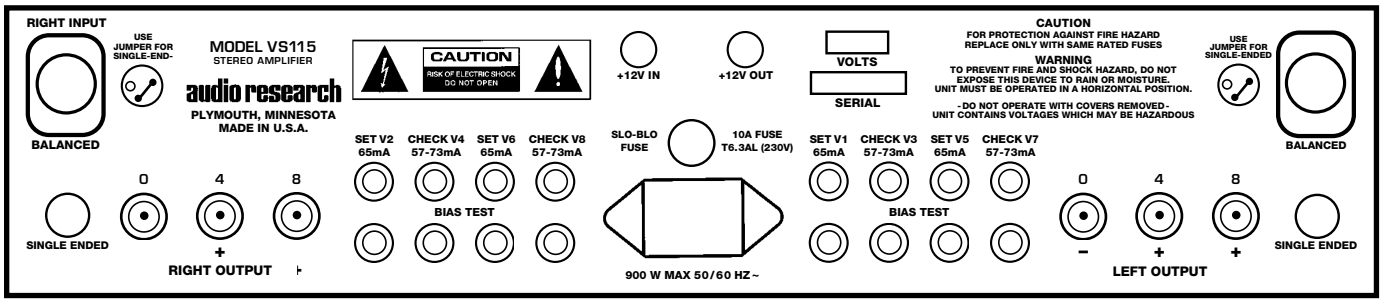

MODEL VS115 HIGH DEFINITION®
POWER
OFF
ON
VACUUM TUBE AMPLIFIER


RIGHT INPUT
USE JUMPER FOR SINGLE-END-
BALANCED
SINGLE ENDED
0
4
8
+
RIGHT OUTPUT
MODEL VS115
STEREO AMPLIFIER
audio research
PLYMOUTH, MINNESOTA
MADE IN U.S.A.
CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
SET V2 65mA
CHECK V4 57-73mA
SET V6 65mA
CHECK V8 57-73mA
BIAS TEST
+12V IN
+12V OUT
SLO-BLO FUSE
10A FUSE T6.3AL (230V)
900 W MAX 50/60 HZ ~
VOLTS
SERIAL
SET V1 65mA
CHECK V3 57-73mA
SET V5 65mA
CHECK V7 57-73mA
BIAS TEST
CAUTION
FOR PROTECTION AGAINST FIRE HAZARD REPLACE ONLY WITH SAME RATED FUSES
WARNING
TO PREVENT FIRE AND SHOCK HAZARD, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE.
UNIT MUST BE OPERATED IN A HORIZONTAL POSITION.
- DO NOT OPERATE WITH COVERS REMOVED -
UNIT CONTAINS VOLTAGES WHICH MAY BE HAZARDOUS
USE JUMPER FOR SINGLE-ENDED
BALANCED
0
4
8
−
+
+
LEFT OUTPUT
SINGLE ENDED

Model VS115

Preface

Please take time to carefully read and understand the following instructions before you install or attempt to operate this equipment. Becoming familiar with the product and its correct operating procedures will help assure you of maximum musical enjoyment and reliable operation. The effort you invest now will be well rewarded in the years ahead

Packaging

Save all the packaging in a dry place. Your Audio Research amplifier is a precision electronic instrument and should be properly cartoned any time shipment is made. Because of its weight, it is highly probable that the unit will be damaged during shipment if repackaged in cartoning other than that designed for the unit.

You may not have occasion to return the unit to the factory for service, but if that should prove necessary, or other occasion to ship it occurs, the original packaging may save your investment from unnecessary damage, delay and expense.

Unpacking

The VS115 is packed in a heavy-duty carton with special foam inserts for maximum protection. Because of the weight of the unit and because it is a precision electronic instrument, it is necessary to take reasonable care during unpacking and preparation for use.

Open the carton with a small knife to carefully slit the taped edges of the top flaps. Fold the flaps to the sides and remove the tubes packed in foam blocks. Roll the unit in the carton upside down on a soft surface and lift the carton off and turn the unit right side up, then remove the foam inserts. Carefully remove the plastic wrap. Keep all foam inserts and store the carton system for future use.

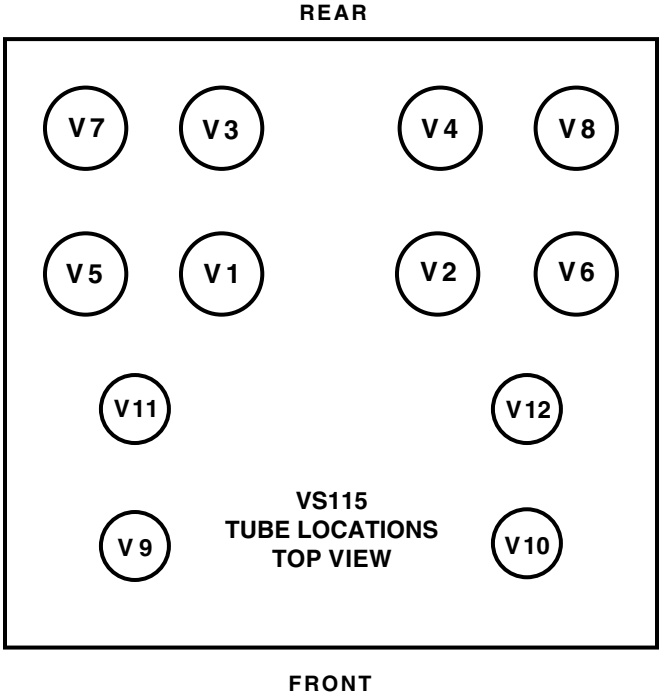
Accessories

2 – Gold jumpers for SE operation
1 – Plastic screwdriver for bias adjustments
1 – 20A IEC detachable power cord

User replaceable spare fuses include:

1 – 10 Amp MDQ slo-blo with 120V units or 100V units
1 – T6.3A 250V slo-blo with 220V/240V units

DO NOT ATTEMPT TO OPERATE THIS VS115 AMPLIFIER BEFORE INSTALLING ALL OF THE VACUUM TUBES IN THEIR PROPER SOCKETS.



Warnings

1. Do not touch hot tubes. Keep away from children.
2. To prevent fire or shock hazard, do not expose your VS115 to rain or moisture.
3. This unit contains voltages which can cause serious injury or death. Do not operate with covers removed. Refer servicing to your authorized Audio Research dealer or other qualified personnel.
4. The 12-gauge, 3-conductor detachable power cord on your VS115 is equipped with a standard 3-prong grounding plug. If used normally, it will provide a safe earth ground connection of the chassis. Refer to the section on "AC Power Connections" for detailed information.
5. For continued protection against fire hazard, replace fuses only with the same type and rating of fuses as specified.

Preparation for Use

Your VS115 amplifier is shipped with the vacuum tubes packed in foam blocks. These must be unpacked and installed before you attempt to operate the amplifier. Included are four matched pair of 6550C output tubes, and four 6H30 dual triodes used in the input stage. Proceed according to the following instructions.

1. Carefully remove each vacuum tube from its protective foam and match its location "V" number (writ-

ten on the base of the tube) to the "V" number printed next to each socket. Firmly seat each tube in its matching socket, taking care to "key" the tube pins to the socket holes. Retain the foam blocks with other packing materials for possible future use.

2. If you are using the optional tube cover, be sure the VS115 is first turned off and then remove the top plate with the phillips screwdriver provided with the tube cover. Install the tube cover in place of the top plate, *using the new screws supplied.*

Panel Controls

The front panel has:

1 – Switch: 1 - Power line On-Off
1 – Indicator: 1 - Power "On" LED (Green)

Use of Controls

POWER-ON SWITCH: Initiates/terminates AC line power to the amplifier. Function indicated by green LED above switch.

Note: Audio Research does ***not*** recommend leaving your VS115 "on" 24 hours a day as is the custom of some audiophiles to achieve maximum sonic performance on demand. While this is often recommended for solid-state equipment, Audio Research does not recommend this procedure for vacuum tube power amplifiers. (2,000 hours of tube life will pass by in 84 days!)

Installation

To insure normal component life and safe operation this unit ***must be operated only in a horizontal (upright) position.*** Adequate air flow and proper cooling thereby can occur only if there is no restriction ***below, behind and above*** the unit.

The five special non-marring elastomer feet provide adequate spacing only from a smooth, hard surface. ***Never operate the unit while it is sitting on a surface such as a rug or carpet.***

If the unit is to be operated in an enclosed equipment cabinet, an exhaust fan is desirable so as not to operate the VS115 in overheated ambient air. The "ambient" operating temperature should never exceed 120°F or 49°C. Improper installation will cause premature tube failure and will affect your warranty, as well as the service life of the unit.

It is normal for a vacuum tube power amplifier to run quite warm, and if used for prolonged periods,hot to the touch. All components within are, however, operated at safe, conservative levels and will not be improperly affected thereby, providing the requirements outlined above are adhered to.

Connections

The rear panel has:

2 – BAL input connectors (for balanced connection, L & R).
2 – RCA input connectors (for single ended connection, L & R) See Single Ended Operation and Balanced Operation paragraphs for instructions on use of jumpers for SE operation.
2 – Jumper sockets for single ended operation, L & R.
6 – Output binding posts (+) and (-), L & R, for 4 or 8 ohm speaker connection.
1 – Power line cord 20A IEC inlet connector for removable power cord (supplied).
1 – Power line fuse holder.
2 – 12V remote start in and out jacks.
8 – Pairs bias test jacks, one pair for each output tube.

IMPORTANT: Use the best available speaker wires and interconnects. Audio Research cannot emphasize this enough. As better components and systems are developed, it becomes increasingly important to avoid the limitations of inferior system interconnections.

It is important sonically that your entire system be connected so that the audio signal arriving at the speakers has correct, or "absolute" polarity (i.e., non-inverted). Connect the black or "-" speaker terminal to the wire that connects to the "0" terminal on the VS115. Connect the red or "+" speaker terminal to the wire that connects to the "4" or "8" terminal on the VS115. and tighten the speaker terminals securely to ensure best sonic results.

MATCHING: It is important to use as close as possible an impedance match between the amplifier and speaker for optimum transfer of power to the speaker with minimum distortion. In the case of speaker systems with significant variations in impedance throughout the frequency spectrum, such as most electrostatic types, determine the best impedance match empirically for best overall sonic results.

Connect the VS115 input to the preamplifier or electronic crossover, using only the highest grade of audio interconnect cables. To avoid sonic degradation use the shortest practical length of cables.

AC POWER CONNECTIONS: It is essential that the VS115 amplifier be connected to a wall AC power receptacle, or a similar heavy-duty source. If it is connected to convenience receptacles on preamplifiers, etc., the full sonic capabilities of both the VS115 and the preamplifier may be compromised.

For the very best sonic performance on domestic 120 volt circuits, the VS115 should be connected to its own AC power circuit branch, protected by a 20 amp breaker. The preamplifier and other audio equipment should be connected to a different power circuit and breaker. Avoid the use of extension cords. If they must be used on a temporary basis, use 12-gauge or heavier cords.

The VS115 utilizes a compatible grounding system that generally does not require a "ground lifter" adapter plug on the AC power cord to minimize hum. The power cord on your VS115 has a standard three-prong grounding plug to provide maximum safety when it is connected to a ground wall receptacle. If there is any question regarding the safety of grounding procedures, be certain to seek competent help with the installation.

If electronic crossovers or other AC powered equipment is used with the VS115 it may be necessary to use "ground lifter" adapters on the power plugs of that equipment to minimize system hum. Generally, the lowest hum is achieved when the only direct connection between audio common "ground" and true earth ground occurs in the preamplifier, through its grounded power cord. Other equipment in the system should have some form of isolation to prevent ground loops and associated hum.

Input Connections Warning:

To avoid stress and possible damage to the output tubes, do not connect or disconnect input cables to the VS115 amplifier while it is turned on. The preamplifier should also be muted before connecting or disconnecting input cables to the VS115.

Single-Ended Operation

Single-ended inputs should be used with a preamplifier (or electronic crossover, etc.) having single-ended outputs which does not invert overall phase or polarity. When using single-ended inputs, make sure the shorting jumper pins supplied for single-ended operation are installed on the rear panel of the amplifier between the bottom and right socket holes of the balanced input jack, on both channels, as shown in the accompanying rear panel diagram.

Balanced Operation

Balanced inputs can be used with a preamplifier (or electronic crossover, etc.) having balanced outputs. When using the balanced inputs, remove the shorting jumper pins before connecting balanced XLR connectors. Disconnenct any single-ended cables.

Always place the power on-off switch on the panel of the VS115 in the "Off" position before connecting the power line cord to AC power.

Remote Turn-on Connections

The VS115 has a built-in 12VDC remote turn-on/off circuit for operation by a master control system in a home theater or large audio system. Use a 3.5mm (.140") diameter mono mini plug to connect to the +12V IN jack on the rear of the VS115. Two identical paralleled jacks are provided to allow chaining connections to control two or more VS115s or other equipment.

The +12V IN jack should be connected to the +12VDC output of the master control system, using a continuous +12VDC signal at 12mA per VS115 for the duration of amplifier on-time. Do not use a momentary or data pulse control signal.

The front power rocker switch on the VS115 must be off to use the remote turn-on. The front power rocker switch may still be used when the remote turn-on is connected, but the remote will not turn the VS115 off if the front power rocker switch is left on. The front power rocker switch will not turn the VS115 off if the remote system is on.

The +12VDC remote jacks have polarity protection, so they will not operate if a -12VDC signal is accidentally connected, or if the control wires are reversed. The 12V remote relay in the VS115 has click suppression to protect circuits in the master control system.

Operating Procedure

1. Make sure you have read and complied with the INSTALLATION AND CONNECTION instructions prior to attempting operation.
2. Make sure your VS115 is properly connected to a high-current power receptacle via the attached power cord (see AC POWER CONNECTIONS).
3. Your preamplifier should be "on" and muted and/or set at minimum gain.
4. Turn the Power switch from "Off" to "On." The green power LED indicator should glow immediately. Note: If the power indicator LED fails to light, turn the Power switch to "Off" and check the appropriate fuse for possible failure.An extra fuse for A.C. power is included with your VS115.
5. Your VS115 should now operate satisfactorily. However, a full stabilization or warm-up time of approximately one hour is recommended for best sonic performance.

Servicing

Because of its careful design and exacting standards of manufacture, your VS115 amplifier should normally require only minimal service to maintain its high level of performance.

CAUTION: The VS115 amplifier contains sufficient levels of voltage and current to be ***lethal***. Do not tamper with a component or part inside the unit. Even with the power turned off, a charge remains in the energy storage capacitors for some time. Refer any needed service to your authorized Audio Research dealer or other qualified technician.

Replacement vacuum tubes may be obtained through your authorized retailer or directly from Audio Research Customer Service. For best performance, the 6550C output tubes should be matched pairs.

Additional questions regarding the operation, maintenance or servicing of your amplifier may be referred to Audio Research Customer Service at (763)-577-9700.

Output Tube Bias Adjustment

As shipped from the factory, the output "bias" adjustments are set for a nominal 65mA per 6550 tube. Under these idle conditions the tubes are each dissipating approximately 27 watts of their 48 watt rating (42 watt plate, 6 watt screen). This point of operation provides "enriched" Class AB_1, and will satisfy the most critical listener.

For best results, operate and adjust the VS115 at 120VAC. Adjustment must be made under zero-signal conditions after at least 15-20 minutes of uninterrupted stabilization time.

A digital voltmeter capable of accurate measurements with 0.lmVDC resolution is preferred for accurate adjustment (must have 3 1/2 digit display). Use the plastic alignment tool provided to make the adjustment. The measurement points are banana test jacks at the rear of the VS115. Adjust the "bias" for an average voltage reading of 65mVDC (.065 Volt DC) between test jacks.

Cleaning

To maintain the new appearance of this unit, occasionally wipe the front panel and top cover with a soft, damp (not wet) cloth to remove dust. A mild, non-alkaline soap solution or dilute isopropyl alcohol may be used to remove fingerprints or similar smudges. Cleaners containing abrasives should ***not*** be used as they will damage the anodized finish of the front panel. A small, soft paint brush is effective in removing dust from bevels, the recessed nameplate and other features of the front panel.

Disposal and Recycling Guidelines

To dispose of this electronic product, do not place in landfill. In accordance with the European Union Waste Electrical and Electronic Equipment (WEEE) directive effective August 2005, this product may contain regulated materials which upon disposal require special reuse and recycling processing.

Limited Warranty

Audio Research Corporation products are covered by a 3-Year Limited Warranty, or a 90-Day Limited Warranty (vacuum tubes). This Limited Warranty initiates from the date of purchase, and is limited to the original purchaser, or in the case of demonstration equipment, limited to the balance of warranty remaining after original shipment to the retailer or importer.

In the United States, the specific terms, conditions and remedies for fulfillment of this Limited Warranty are listed on the warranty card accompanying the product in its shipping carton, or may be obtained from the authorized retailer or from the Audio Research Customer Service Department. Outside the United States, the authorized importing retailer or distributor has accepted the responsibility for warranty of Audio Research products sold by them. The specific terms and remedies for fulfillment of the Limited Warranty may vary from country to country. Warranty service should normally be obtained from the importing retailer or distributor from whom the product was purchased.

In the unlikely event that technical service beyond the ability of the importer is required, Audio Research will fulfill the terms and conditions of the Limited Warranty. Such product must be returned at the purchaser's expense to the Audio Research factory, along with a photocopy of the dated purchase receipt for the product, a written description of the problem(s) encountered, and any information necessary for return shipment. The cost of return shipment is the responsibility of the purchaser.

Model VS115

Specifications

POWER OUTPUT: 120 watts per channel continuous from 20Hz to 20kHz. 1kHz total harmonic distortion typically 0.5% at 120 watts, below .05% at 1 watt.

Approximate actual power available at "clipping" 130 watts (1kHz). (Note that actual power output is dependent upon both line voltage and "condition" i. e.: if power line has high distortion, maximum power will be affected adversely, although from a listening standpoint this is not very critical.)

POWER BANDWIDTH: (-3dB points) 10Hz to 100kHz.

FREQUENCY RESPONSE: (-3dB points at 1 watt) 0.8Hz to 100 kHz.

INPUT SENSITIVITY: 1.6V RMS Single-ended or Balanced for rated output. (26dB gain into 8 ohms.)

INPUT IMPEDANCE: 150K ohms Single-ended, 300K Balanced.

OUTPUT TAPS: 8 ohms, 4 ohms.

OUTPUT REGULATION: Approximately 1.2dB 8 ohm load to open circuit (Damping factor approximately 8).

OUTPUT POLARITY: Non-inverting. SE or BAL PIN 2+ (IEC268)

OVERALL NEGATIVE FEEDBACK: 12.2dB.

SLEW RATE: 10 volts/microsecond.

RISE TIME: 4 microseconds.

HUM & NOISE: Less than 0.2mV RMS – 104dB below rated output (IHF weighted, input shorted).

POWER SUPPLY ENERGY STORAGE: Approximately 332 joules.

POWER REQUIREMENTS: 105-125VAC 60Hz (210-250VAC 50Hz) 690 watts at rated output, 900 watts maximum, 400 watts at "idle".

TUBES REQUIRED: 4 – Matched pair 6550C – Power Output; 4 – 6H30 gain and driver.

DIMENSIONS : 17.5" (44.5 cm) W x 7.9" (20.1 cm) H x 19" (48.3 cm) D. Rear connectors extend .88" beyond chassis.

WEIGHT: 62 lbs. (28.2 kg) Net; 70 lbs. (31.8 kg) Shipping.

Specifications subject to change without notice.

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