Modèle VT200

AMPLIFICATEUR DE PUISSANCE STEREO

Modell VT200

STEREO-ENDVERSTÄRKER

Modello VT200

AMPLIFICATORE DI POTENZA STEREO

Modelo VT200

AMPLIFICADOR DE POTENCIA ESTEREOFÓNICO

Model VT200

STEREO POWER AMPLIFIER

audio research
HIGH DEFINITION®

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Model VT200

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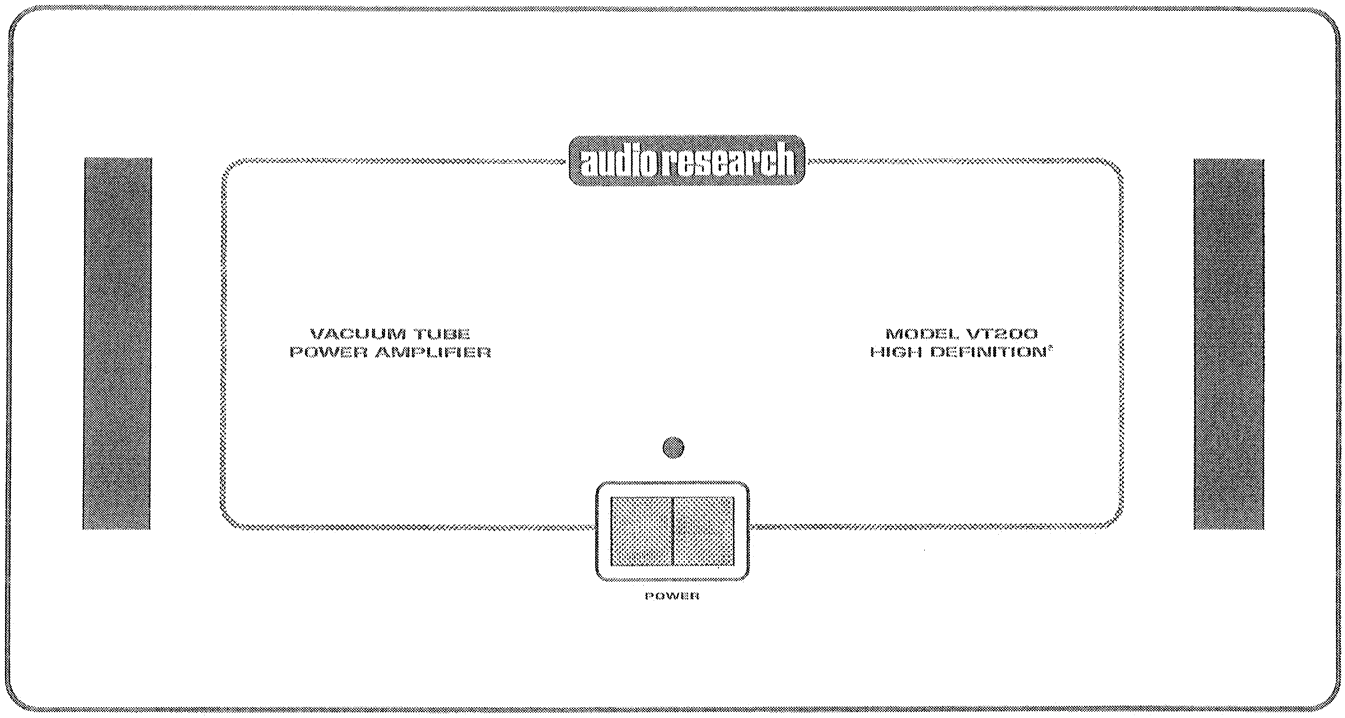
Model VT200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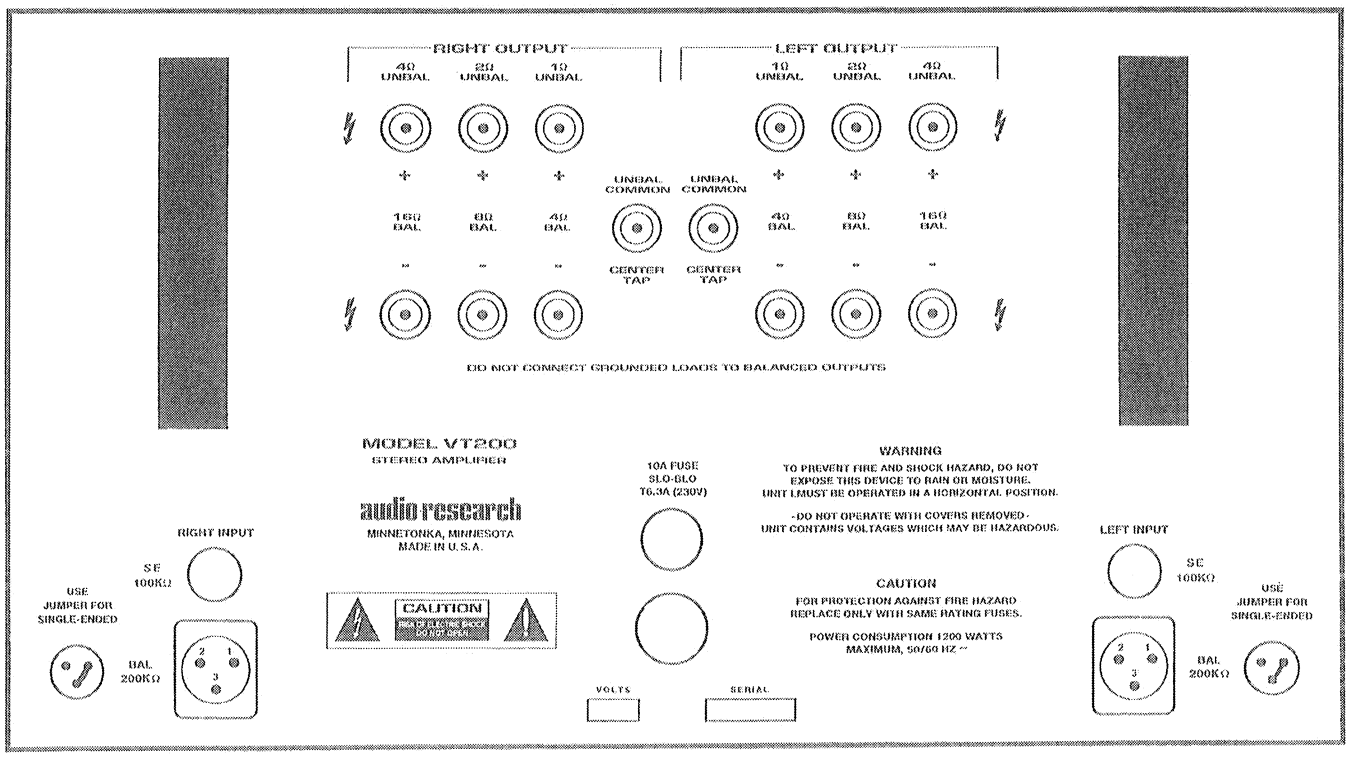
RIGHT OUTPUT
4Ω UNBAL
2Ω UNBAL
1Ω UNBAL
LEFT OUTPUT
1Ω UNBAL
2Ω UNBAL
4Ω UNBAL
UNBAL COMMON
UNBAL COMMON
16Ω BAL
8Ω BAL
4Ω BAL
4Ω BAL
8Ω BAL
16Ω BAL
CENTER TAP
CENTER TAP
DO NOT CONNECT GROUNDED LOADS TO BALANCED OUTPUTS
MODEL VT200
STEREO AMPLIFIER
audio research
MINNETONKA, MINNESOTA
MADE IN U.S.A.
CAUTION
10A FUSE
SLO-BLO
T6.3A (230V)
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.
CAUTION
FOR PROTECTION AGAINST FIRE HAZARD
REPLACE ONLY WITH SAME RATING FUSES.
POWER CONSUMPTION 1200 WATTS
MAXIMUM, 50/60 HZ
VOLTS
SERIAL
RIGHT INPUT
SE 100KΩ
USE JUMPER FOR SINGLE-ENDED
BAL 200KΩ
LEFT INPUT
SE 100KΩ
USE JUMPER FOR SINGLE-ENDED
BAL 200KΩ

Model VT200

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/Repacking

See separate "Unpacking/Repacking Instructions" insert attached to the outer amplifier carton before attempting to unpack or repack this amplifier for shipment. Retain unpacking/repacking instructions for future reference.

Accessories

1 – Phillips-head screwdriver for cover removal
1 – Plastic screwdriver for bias adjustments
2 – Gold plated shorting jumpers for single-ended operation

User replaceable spare fuses include:

External rear chassis-mounted fuse:
2 – 10 Amp MDA slo-blo with 100V and 120V units
2 – T6.3 Amp slo-blo with 220V – 240V units

Internal fuse (mounted in upper right corner of circuit board located directly behind front panel):
2 – 4 Amp MDQ slo-blo with 100V and 120V units
2 – T3.15 Amp slo-blo with 220V – 240V units

Warnings

1. To prevent fire or shock hazard, do not expose your VT200 to rain or moisture.
2. 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.
3. The 12-gauge, 3-conductor power cord on your VT200 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.
4. For continued protection against fire hazard, replace fuses only with the same type and rating of fuses as specified.

Preparation for Use

Your VT200 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 eight matched pairs of 6550C output tubes, and ten 6922 dual triodes used in the input through driver stages. Proceed according to the following instructions.

DO NOT ATTEMPT TO OPERATE THIS EQUIPMENT BEFORE INSTALLING THE VACUUM TUBES IN THEIR PROPER SOCKETS.

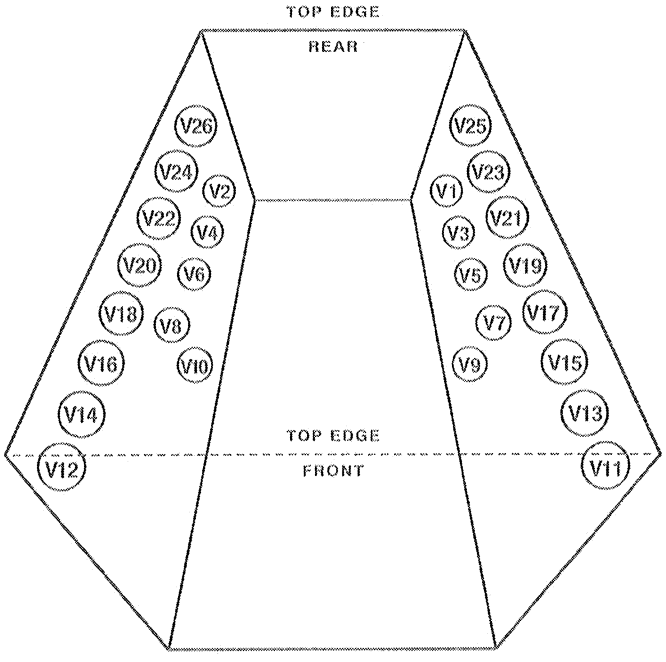

Diagram indicates relative positions of all (26) tubes located on two circuit boards as viewed from the front and looking down from above the amplifier.

1. Using the Phillips-head screwdriver provided, remove the top cover assembly, setting it and the retaining screws aside.
2. Carefully remove each vacuum tube from its protective foam and match its location "V" number (written on the base of the tube) to the "V" number printed next to each socket on the circuit board (see accompanying tube location diagram). ***Firmly seat each tube in its matching socket, taking care to "key" the tube pins to the socket hole.*** Retain the foam blocks with other packing materials for possible future use. ***Do not ship amplifier with tubes in sockets–the tubes may come loose and break.***
3. Once all vacuum tubes have been installed, reposition the top cover assembly over the chassis and, fasten with screws.

Note: In general, contact enhancers are not recommended for use on vacuum tube contact pins. With continual exposure to heat and air, these substances can form gummy, dust-collecting residues which actually reduce contact and degrade sonic performance. Proper external use of these preparations – on interconnect plugs, speaker connections, etc. – is subject to the discretion of the owner. Contact Audio Research for specific recommendations.

Panel Controls

The front panel has:

1 — Power line On-Off switch
1 — Power "On" LED (Green) indicator

Use of Controls

POWER ON-OFF SWITCH: Initiates/terminates AC line power to the amplifier. Power "On" function is indicated by illuminated green LED above switch.

Note: Audio Research does ***not*** recommend leaving your VT200 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 around the unit. ***Allow at least 12 inches of unrestricted ventilation space above the VT200 top cover during operation.***

The eight special non-marring elastomer feet provide adequate ventilation spacing only from a smooth, hard surface. The VT200's proper operation relies on its internal fan drawing air up through the bottom cover, blowing it upward through the top cover. ***Never operate the unit while it is sitting on a soft, irregular surface such as a rug or carpet.***

If the unit is to be operated in an enclosure such as an equipment rack, make certain that adequate air flow above and below the unit is provided. The ambient operating temperature should never exceed 120°F or 49°C. Audio Research Corporation Rack Mount Ventilators (RMV-3) must be used above and below each unit. 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.

Fan Speed Adjustment

The VT200 contains a single fan blowing upward, located in the center of the bottom cover. The fan speed may be adjusted to low, medium or high airflow settings, and is preset to the medium speed at the factory. For maximum cooling and extended tube life use the highest fan speed possible that doesn't sonically intrude on music listening (for most situations the factory pre-set medium fan speed will be adequate). To adjust the fan speed, first shut off the power switch and unplug the VT200 from the power receptacle. Remove the top cover screws with the screwdriver provided and set the top cover aside. Locate two small white vertically sliding dip switches side by side in a red housing. These switches are mounted on the lower right corner of the circuit board located directly behind the front panel (the V12 tube will have to be removed temporarily to access the switches). For the low fan speed setting slide both switches downward. For medium fan speed the left switch should be upward and the right switch downward. For high fan speed slide both switches into the upward position. Reinstall the V12 tube and refasten the top cover before resuming operation. Do not operate the VT200 with the fan disconnected or if the fan should stop running.

Connections

The rear panel has:

2 – RCA Input connectors for single-ended connection, L & R
2 – XLR Input connectors, for balanced connection, L & R
14 – Output binding posts for various output impedance loudspeaker connections, L & R
1 – Power line cord
1 – Power line fuse holder

Connection Instructions

The amplifier should always be turned on and off via its own power on-off switch. Because of the very high energy storage within this amplifier, special warm-up circuitry is provided which gets its sequencing from its own power on-off switch. Further, other discrete components of an audio system should be turned on first. Otherwise, with some equipment, the amplifier will reproduce warm-up thumps, etc., some of which could be harmful to your speaker system. ARC preamplifiers have automatic warm-up muting, and are much less likely to exhibit this problem; however, good operating practice says ***"Turn the amplifier on last, and turn it off first."***

Pairs of ARC's proprietary and non-twisting output connectors are employed for each impedance. Simply observe the legend, connecting your speakers to the appropriate set of binding posts for their rated impedance. Connect the "negative" speaker lead to the "balanced" 4, 8 or 16 ohm (-) post; and the "positive" speaker lead to the (+) post directly above.

IMPORTANT: Use the best available speaker wires and interconnects. As better components and systems are developed, it becomes increasingly important to avoid the limitations of inferior system interconnections. For best results we recommend Audio Research LitzLink 2® interconnects and LitzLine 2® speaker cables.

Some loudspeakers and some speaker switch boxes have "common ground" systems, either by hookup between the speakers or in a special crossover device. Most headphone adaptor boxes also have a common ground. In these instances it is important to connect the "negative" speaker leads (or headphone common leads) to the "unbalanced, common-ground" post to avoid shorting the amplifier or causing monaural performance to occur. Use the unbalanced 4, 2 or 1 ohm post for the "positive" speaker leads. Contact your authorized Audio Research dealer or Audio Research Customer Service Department for help with these special cases.

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).

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 VT200 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 VT200 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 VT200 and the preamplifier may be compromised. Furthermore, the proper control of start-up and shut-down surges may not occur unless the Power switch on the front of the VT200 is actually used for on/off control of the amplifier. The AC power source for the VT200 amplifier should be capable of supplying 10 amperes for 100 or 120 volt units, or 10 amperes for 220 or 240 volt units.

For the very best performance on domestic 100 or 120 volt circuits, the VT200 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 VT200 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 VT200 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 VT200 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.

Always place the Power On-Off switch on the panel of the VT200 in the "Off" position before connecting the power line cord to AC power.

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. Disconnect any single-ended cables.

Operating Procedure

1. Make sure you have read and complied with the INSTALLATION AND CONNECTIONS instructions prior to attempting operation.
2. Make sure your VT200 is properly connected to a high-current power receptacle via the attached power cord (see 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. Extra fuses for A.C. power and an internal circuit fuse are included with your VT200.
5. Your VT200 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 VT200 amplifier should normally require only minimal service to maintain its high level of performance.

CAUTION: The VT200 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 the Customer Service Department of Audio Research Corporation at 612-939-0600 (CST).

Output Tube Bias Adjustment

As shipped from the factory, the output "bias" adjustments are set for a nominal 65mA per 6550C tube. Under these idle conditions the tubes are each dissipating approximately 27 watts of their 41 watt rating (35 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 VT200 at the normal rated line voltage listed on the rear panel. Adjustment must be made under zero-signal conditions after at least 15 minutes of uninterrupted stabilization time.

A digital voltmeter capable of accurate measurements with lmVDC resolution is preferred for accurate adjustment (must have 3 ½ digit display). Use the plastic alignment tool provided to make the adjustment through the side panel holes. The rear side panel hole adjusts the rear set of 4 tubes, the front side panel hole adjusts the front set of 4 tubes. This applies to both channels. The test points are accessible from the top of the circuit boards above the output tubes. Adjust the front and rear "bias" on each channel for an average reading of 130mVDC (0.13 Volt DC) between test points (across 0.5 ohm resistor.) Caution: resistor is 420V above ground.

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.

Limited Warranty

Audio Research Corporation products are covered by a 3-Year Limited Warranty (all products except CD players, transports, and vacuum tubes), a 2-Year Limited Warranty (CD players and transports), 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.

Specifications

POWER OUTPUT: 200 watts per channel continuous from 20Hz to 20kHz. 1kHz total harmonic distortion typically 1% at 200 watts, below .01% at 1 watt.

Approximate actual power available at "clipping" 210 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) 12Hz to 120kHz.

FREQUENCY RESPONSE: (-3dB points at 1 watt) 0.5Hz to 200 kHz.

INPUT SENSITIVITY: 2.5V RMS (Bal or SE) for rated output. (27 dB gain into 16 ohms.)

INPUT IMPEDANCE: 200K ohms Balanced, 100K ohms Single-ended.

OUTPUT TAPS: 1, 2, 4, 8, 16 ohms.

OUTPUT REGULATION: Approximately 0.8dB 16 ohm load to open circuit (Damping factor approximately 11).

OVERALL NEGATIVE FEEDBACK: 10dB.

SLEW RATE: 25 volts/microsecond.

RISE TIME: 1.5 microseconds.

HUM & NOISE: Less than 0.2mV RMS – 109dB below rated output (IHF weighted, input shorted, 16 ohm output).

POWER SUPPLY ENERGY STORAGE: Approximately 674 joules.

POWER REQUIREMENTS: 105-125VAC 60Hz (210-250VAC 50Hz) 990 watts at rated output, 1200 watts maximum, 680 watts at "idle".

TUBES REQUIRED: 8 – Matched pair 6550C – Power Output; 6 – 6922 Driver; 4 – 6922 input.

DIMENSIONS : 19" (48.3 cm) W x 10.5" (26.7 cm) H x 23.6" (60.0 cm) D. Handles extend 1.5" (3.8 cm) forward.

WEIGHT: 118 lbs. (46.5 kg) Net; 148 lbs. (58.3 kg) Shipping.

Specifications subject to change without notice.

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