Owner's Manual

Model 300.2

STEREO POWER AMPLIFIER

audio research
HIGH DEFINITION®

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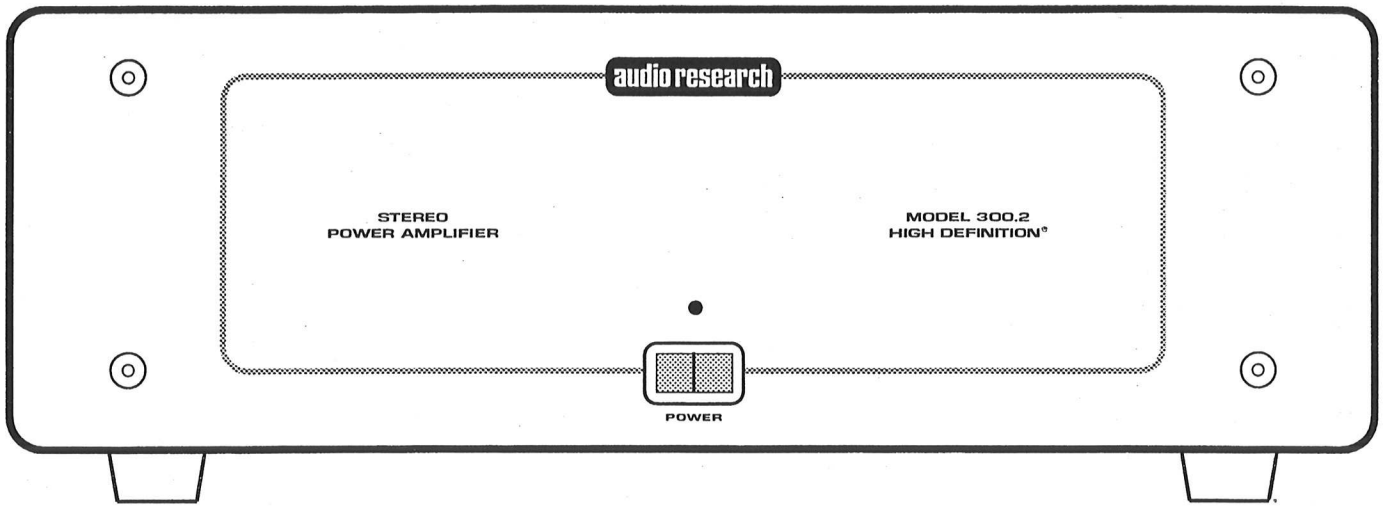
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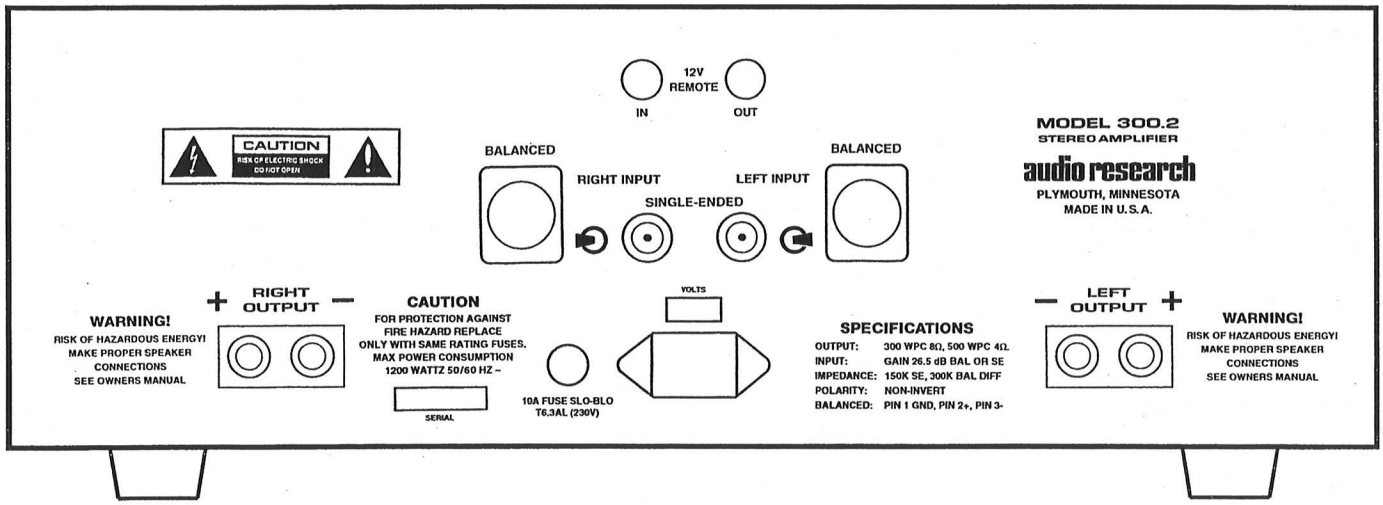
POWER


12V
REMOTE
IN
OUT
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
BALANCED
RIGHT INPUT
LEFT INPUT
SINGLE-ENDED
BALANCED
MODEL 300.2
STEREO AMPLIFIER
audio research
PLYMOUTH, MINNESOTA
MADE IN U.S.A.
WARNING!
RISK OF HAZARDOUS ENERGY!
MAKE PROPER SPEAKER
CONNECTIONS
SEE OWNERS MANUAL
+ RIGHT OUTPUT −
CAUTION
FOR PROTECTION AGAINST
FIRE HAZARD REPLACE
ONLY WITH SAME RATING FUSES.
MAX POWER CONSUMPTION
1200 WATTZ 50/60 HZ ~
SERIAL
VOLTS
10A FUSE SLO-BLO
T6.3AL (230V)
SPECIFICATIONS
OUTPUT: 300 WPC 8Ω, 500 WPC 4Ω.
INPUT: GAIN 26.5 dB BAL OR SE
IMPEDANCE: 150K SE, 300K BAL DIFF
POLARITY: NON-INVERT
BALANCED: PIN 1 GND, PIN 2+, PIN 3-
− LEFT OUTPUT +
WARNING!
RISK OF HAZARDOUS ENERGY!
MAKE PROPER SPEAKER
CONNECTIONS
SEE OWNERS MANUAL

Model 300.2

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.

Warnings

1. To prevent fire or shock hazard, do not expose this product to rain or moisture.
2. This unit operates on voltages which can cause serious injury or death. Do not operate with covers removed. Any necessary servicing should be carried out by your authorized Audio Research dealer or other qualified personnel.
3. The 14 gauge, 3-conductor power cord on this unit 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 section on "AC Power Connections" for detailed information.
4. For safe operation and protection against fire hazard, replace fuses only with those of the same type and rating of fuses as specified.

Packaging

Save all packaging accompanying this product. You have purchased a precision electronic instrument, and it should be properly cartoned any time shipment becomes necessary. It is very possible that this unit could be damaged during shipment if repackaged in cartoning other than that designed for it. The original packaging materials help protect your investment from unnecessary damage, delay and added expense whenever shipment of this unit is required.

Unpacking

The 300.2 is packed within two cartons (inner and outer) which have foam supports in between. 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.

It is best to have a large, open work area with available help. Set the carton upright in the center of the work area and with a small knife carefully slit the taped edges of the outer carton's top flaps. Fold the flaps to the sides and while holding the inner carton in place, roll the unit upside down. You can now lift the outer carton off and set it and the filler panels aside. Now slit the inner carton's taped seams on the bottom (now facing upward). Again, fold the flaps over and while holding the unit in, roll it over as before. You can now lift the inner carton off to find your 300.2 sitting upright, undamaged and uncartoned. Carefully remove the plastic wrap. Now, while it is fresh in your mind, reassemble the carton system for future use.

Accessories

Fuses: (One in unit, two spare):
3 – 10 Amp MDA slo-blo (100 & 120v)
3 – T6A.3AL Amp slo-blo (220-240V)

Description of Controls

The front panel has:

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

POWER ON-OFF SWITCH: Press the black rocker switch to initiate or terminate AC line power to the amplifier. When the LED is illuminated the amp is "on" and ready to play.

Connections

The rear panel has:

2 – RCA input connectors, for single-ended connections, L & R
2 – XLR input connectors, for balanced connection, L & R
4 – Output binding posts, (+) and (-), L & R
1 – Power line fuseholder
1 – Power line cord IEC connector for removable power cord (supplied)
2 – 12V remote start in and out jacks
2 – Switches for XLR or RCA input operation, L & R

IMPORTANT: Use the best available speaker wires and interconnects. As your system improves in resolution from the addition of quality components, it becomes increasingly important to avoid the limitations of inferior system interconnections. We recommend Audio Research LitzLink 2® interconnects and LitzLine 2® speaker cables.

It is important sonically that your entire system be connected so that the audio signal arriving at the speakers has correct absolute polarity or phase (i.e. is ***not*** inverted). Connect the black or (-) speaker terminal to the wire that connects to the appropriate-channel (-) gold binding post on the amplifier. Connect the red or (+) speaker terminal to the wire that connects to the appropriate-channel (+) binding post on the 300.2. Tighten the binding posts firmly to assure good contact for best sonic results.

For "bi-wired" loudspeaker systems (i.e. running separate wires to bass and treble speaker terminals), simply repeat the above instructions, taking care that all connections have the same (+) or (-) polarity.

AC POWER CONNECTIONS: It is essential that the 300.2 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 amplifier and the preamplifier will be compromised. The AC power source for the amplifier should be capable of supplying 15 amperes for 100 or 120 volt units, or 8 amperes for 220 or 240 volt units.

For the very best performance on domestic 100 or 120 volt circuits, the 300.2 should be connected to its own AC power circuit branch protected by a 15 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 14-gauge or heavier cords.

The 300.2 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 300.2 has a standard three-prong grounding plug to provide maximum safety when it is connected to a grounded wall receptacle. If there is any question regarding the safety of grounding procedures, be certain to seek competent help with the installation. Do not substitute a lighter gauge power cord for the one supplied with this unit.

If electronic crossovers or other AC powered equipment is used with the amplifier 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 front of the 300.2 in the "Off" (left) 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, set two rear-panel toggles to SE position. Disconnect any balanced cables.

Balanced Operation

Balanced inputs can be used with a preamplifier (or electronic crossover, etc.) having balanced outputs. When using the balanced inputs, set two rear-panel toggles to BAL position. Disconnect any single-ended cables.

Installation

The amplifier may be installed in a ventilated cabinet; observe the following guidelines to maximize the performance and service of your amplifier.

With proper installation, the 300.2 may be left on continuously for maximum performance on demand; it will draw approximately 50 watts of AC power at idle. However, the 300.2 has been designed and engineered to minimize any "warm up" necessary for best sonics; generally, a half-hour or 45 minutes of actual playing time will bring the amplifier around to more than acceptable performance levels, with some additional improvement noticeable over the next hour or two. Warm-up characteristics will depend upon ambient room temperature at start-up, the nature of the installation and the resolving power of the associated equipment.

Operate the 300.2 only in a horizontal (upright) position. Adequate airflow and proper cooling can be maintained only if there is no restriction around the unit.

The four (4) non-marring feet provide adequate spacing and mechanical damping only from a smooth, hard surface. ***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. Improper installation will cause premature component failure and will affect your warranty, as well as the service life of the unit.

It is normal for the 300.2 power amplifier to run moderately warm to the touch. All components within are operated at safe, conservative levels and will not be improperly affected, providing the requirements outlined above are adhered to.

Remote Turn-on Connections

The 300.2 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

300.2. Two identical paralleled jacks are provided to allow chaining connections to control two or more 300.2s 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 20mA per 300.2 for the duration of amplifier on-time. Do not use a momentary or data pulse control signal.

The front power rocker switch on the 300.2 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 300.2 off if the front power rocker switch is left on. The front power rocker switch will not turn the 300.2 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 300.2 has click suppression to protect circuits in the master control system.

Operating Procedure

1. Make sure you have read and followed the INSTALLATION and CONNECTION instructions prior to attempting operation.
2. Make sure the amplifier is properly connected to a high-current AC power receptacle via the supplied power cord (see CONNECTIONS).
3. Your preamplifier should be "On" and muted and/or set at minimum gain.
4. Turn Power switch from "Off" to "On". Unit is ready to play when LED is on. 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 AC power are included with the unit. (On turn off, the green LED will stay on for a few seconds before extinguishing.)
5. Your amplifier should now operate satisfactorily. It may be played immediately, although best sonic performance will in most cases not be achieved for an hour or so (see INSTALLATION for further details.)

Start-Up Following "Protect" Shutdown:

The 300.2 amplifier uses a sophisticated, non-fused sensing circuit to protect the amplifier from DC at the input, from thermal overload, and from shorting conditions at the output (e.g. defective speaker leads, etc.). This circuit also helps prevent damage to your loudspeakers.

When the amplifier senses a fault condition in either channel from excessive DC or excessive current output, it will automatically shut off left and right outputs from the amplifier, and indicate this condition by extinguishing the green power LED. To resume normal operation, turn off power to the amplifier for at least 30 seconds to reset the protection circuits. Check for faulty signals from the preamplifier, or processor and turn the amplifier power on.

If the amplifier fails to resume normal operation after attempting resetting due to a fault condition, contact your authorized dealer for further assistance. Normal operation can be verified by illumination of the green LED on the front panel.

Servicing

Because of its careful design and exacting standards of manufacture, your 300.2 amplifier should normally require only minimal service to maintain its high level of performance.

CAUTION: The 300.2 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.

Additional questions regarding the operation, maintenance or servicing of your amplifier may be referred to the Customer Service Department of Audio Research Corporation at 763-577-9700 (CST). When ordering a service manual from Audio Research or an authorized dealer, be sure to identify the serial number on your amplifier.

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, 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: 300 watts per channel into 8 ohms, (500 watts per channel into 4 ohms,) both channels driven, 1% THD. (600 watts into 4 ohms, one channel driven)

POWER BANDWIDTH: (-3dB Points) 5Hz to 30 kHz into 8 ohms, or 4 ohms.

FREQUENCY RESPONSE: (-3dB points at 1W) 5Hz to 120 kHz

INPUT SENSITIVITY: 2V RMS for rated output (28dB Gain) single-ended or balanced.

INPUT IMPEDANCE: 150K ohms single-ended, 300K ohms balanced differential.

OUPUT POLARITY: Non-inverting from single-ended inputs. Balanced pin 2+ (IEC-268).

OUTPUT REGULATION: 0.05dB 8 ohm load to open circuit (Damping factor 200).

OUTPUT CURRENT: 25 amps peak at protective shutdown.

SLEW RATE: 20 volts/microsecond. (20% maximum duty cycle).

RISE TIME: 2.0 microseconds.

HUM & NOISE: 600 microvolts RMS (98dB below rated output IHF A-weighted).

POWER SUPPLY CAPACITANCE: 136,000 uF total.

POWER REQUIREMENTS: 100-125VAC 60Hz (200-250VAC 50Hz) 800 watts at rated output (300WPC 8 ohms), 1200 watts at 500WPC 4 ohms, 1200 watts maximum, 50 watts idle.

DIMENSIONS: 19" (48 cm) W (standard rack panel) x 7" (17.8 cm) H x 14 1/4" (36.2 cm) D (front panel back). Optional handles extend 1 1/2" (3.8 cm) forward of the 1/4" thick front panel. Output connectors extend 0.9" behind rear panel.

WEIGHT: 39.2 lbs. (17.8 kg) Net; 51.2 lbs. (23.3 kg) Shipping.

Specifications subject to change without notice.

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