Owner's Manual

Model D200

STEREO POWER AMPLIFIER

audio research
HIGH DEFINITION®

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Contents

Model D200

Section	Page No.
Preface	2
Construction and Testing	2
Packing/Unpacking	2
Accessories	2
Warnings	2
Controls	3
Use of Controls	3
Installation	3
Connection Instructions	3, 4
Unbalanced ("Single-Ended") Operation	4, 5
Balanced Operation	4, 5
Bridged Operation	4, 5
Operating Procedure	6
Power-Off Procedure	6
Start-Up Following "Protect" Shutdown	6
Servicing	6
Cleaning	6
Warranty Terms and Conditions	7
Warranty Outside the USA	7
Specifications	8

Model D200

Preface

Please take time to carefully read and understand the following instructions before you install or attempt to operate your D200 stereo power amplifier. Familiarizing yourself with pertinent facts about your amplifier and its correct operating procedures will help assure you of maximum musical satisfaction and reliable operation. The effort you invest now will be well rewarded as time goes by.

Construction and testing

Like every Audio Research product, your D200 power amplifier has been designed and carefully handcrafted in the U.S.A., using precision mechanical parts, electronic components and assembly procedures similar to those used in the manufacture of military electronics, aircraft electronics and scientific instruments. To assure performance standards each D300 is visually inspected at several assembly points, test run, electronically tested and sonically evaluated prior to shipment.

This time-consuming "perfectionist" approach to the design and manufacture of audio equipment is intended to provide you with the best in musical satisfaction and lasting value.

Packaging

Save all the packaging. 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

Your D200 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 of its unpacking and preparation for use.

It is best to have a large, open work area with another person available to help. Set the carton upright in the center of the work area and with a knife or razor blade carefully slit the taped edges of the outer carton's top flaps. Fold the flaps to the sides and lift off the corrugated top support layer inside, exposing the inner carton top surface. Slit open the inner carton's taped edges and fold back the flaps. Remove top packing and enclosed materials, exposing amplifier in plastic wrap. Remove one or both inner side supports and lift amplifier out of inner carton. Carefully remove plastic wrap, then reassemble the carton system for future use.

Accessories

Spare Fuses:
2 – 5 Amp MDQ slo-blo (100 & 120v)
2 – 3 Amp MDQ slo -blo (220 & 240V)

Warnings

1. To prevent fire or shock hazard, do not expose your amplifier 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 16-gauge, 3-conductor power cord on your amplifier is equipped with a standard three-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. 100v & 120v AC line MDQ 5 Amp, 220v & 240v AC line MDQ 3 Amp.

Model D200

Panel Controls

The front panel has:

1 – Switch: 1 - Power line On-Off

2 – Indicators: 1 - Power "Operate" (Green)
1 - "Protect" (Amber)

Use of Controls

POWER-ON SWITCH: Press black rocker switch to initiate or terminate AC line power to the amplifier. Initiation of power to the amplifier momentarily illuminates the amber "Protect" LED, which then extinguishes as the green "Operate" LED comes on. Termination of power to the amplifier extinguishes the green LED, and the amber "Protect" LED comes on for a few seconds.

Installation

Highly efficient heat-sinking located along either side of the D200 help stabilize the amplifier thermally and thereby preserve component life. 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 D200 may be left on continuously for maximum performance on demand; it will draw approximately 100 watts of AC power at idle. However, the D200 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.

It is best to operate the D200 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 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 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) should be used above and below each unit. 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 D200 power amplifier to run "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, providing the requirements outlined above are adhered to.

Connection Instructions

The rear panel has:

2 – RCA input connectors, unbalanced, L & R

2 – XLR input connectors, for differential ("balanced") connection, L & R

4 – Output binding posts, (+) and (-), L & R

1 – AC power line fuseholder

1 – AC power line cord

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® interconnects and LitzLine® 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 D200. Tighten the binding posts firmly to assure good contact and 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 D200 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 D200 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. If the

power receptacle for the D200 is more than 25 feet from the building power entrance and breaker box, it would be preferable to use installed wiring capable of 30 amperes to minimize voltage drop, using a 15 amp breaker. Avoid the use of extension cords. If they must be used on a temporary basis, use 14-gauge or heavier cords.

The D200 utilizes a 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 D200 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 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 make sure the power on-off switch on the front of the D200 is set to the "Off" (left) position before connecting the power line cord to AC power

Unbalanced ("Single-Ended") Operation

"Unbalanced" 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 "unbalanced" inputs, make sure that the rear "select" switches are both pointing toward the "unbalanced" inputs.

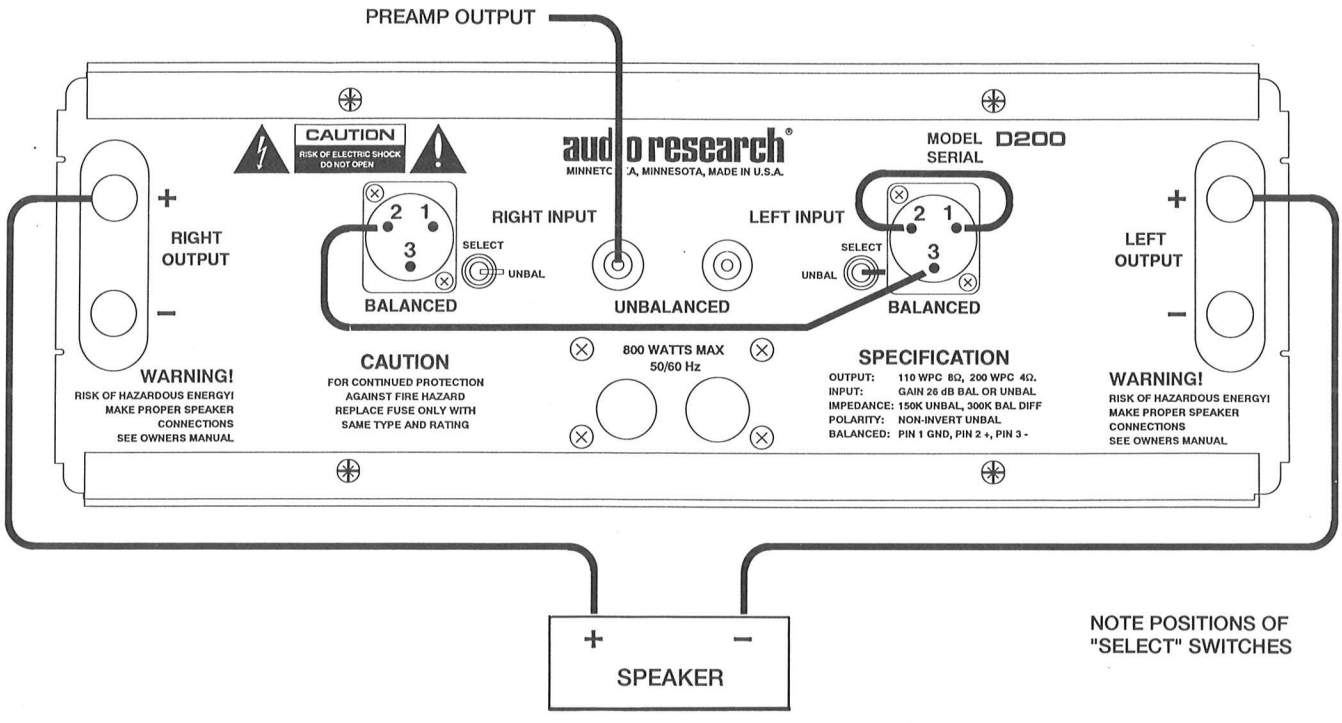
Balanced Operation

"Balanced" inputs can be used with a preamplifier (or electronic crossover, etc.) having "balanced" outputs. When using the "balanced" inputs, make sure the rear "select" switches are both pointing toward the "balanced" inputs.

Bridged Operation

Bridging an amplifier simply means that both channels are combined to make a single "mono" channel, with a large increase in power output. When bridged, the D200 has a power output of 400 watts into 8 ohms.(4 ohm loads are not recommended.) There are two basic methods of bridging the D200; both are described below.

UNBALANCED BRIDGED OPERATION



Model D200

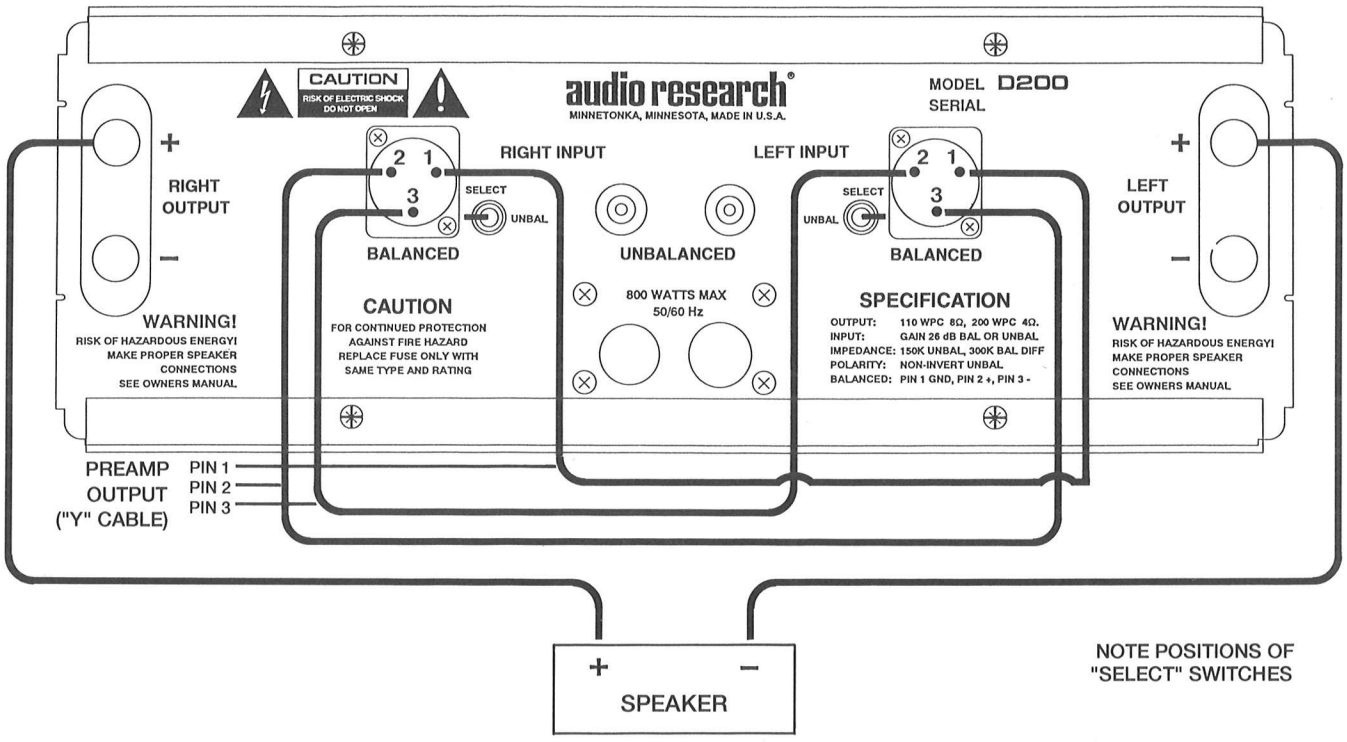
UNBALANCED BRIDGED OPERATION

1. Connect the preamplifier's right-channel output to the right-channel "unbalanced" input of the D200.
2. Connect pin 2 of the right channel "balanced" to pin 3 of the left channel "balanced". Connect pin 2 of the left channel "balanced" to pin 1 of the left channel "balanced". The right channel switches should point towards the right "Unbalanced" input. The left channel switch should point towards the left channel "balanced".
3. Connect the red (+) speaker cable lead to the right-channel positive (+) speaker terminal binding post of the D200.
4. Connect the black (-) speaker cable lead to the left-channel positive (+) speaker terminal binding post of the D200.
5. Repeat 1) through 4) as above, using the preamplifier's left-channel outputs for connection to the second D200 being used for the other channel.

BALANCED BRIDGED OPERATION

1. A "balanced" "Y" cable is needed. The "Y" cable must have one side inverted. Plug the normal side into the right channel "balanced". plug the inverted side into the left channel "balanced".
2. Both of the "select" switches should point towards the "balanced" connectors.
3. Connect the red (+) speaker cable lead to the right-channel positive (+) speaker terminal binding post of the D200.
4. Connect the black (-) speaker cable lead to the left-channel positive (+) speaker terminal binding post of the D200.
5. Repeat 1 through 4 as above, using the preamplifier's second "balanced" output for connection to the second (bridged) D200 being used for the other channel.

BALANCED BRIDGED OPERATION



Operating Procedure

1. Make sure you have read and complied with the INSTALLATION AND CONNECTION instructions prior to attempting operation.
2. Make sure the amplifier is properly connected to a high-current (15 amps) AC power receptacle via the attached power cord (see CONNECTIONS).
3. Your preamplifier should be "On" and muted and/or set at minimum gain.
4. Press the front-panel rocker switch to initiate operation; you will see the amber "Protect" LED momentarily illuminate, then quickly extinguish as the green "Operate" LED comes on. If either LED fails to illuminate, turn off the Power switch and check the power line fuseholder on the rear of the chassis for possible failure. An extra fuse is packed with your D200.
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).

Power-Off Procedure

1. Mute your preamplifier or set gain at minimum.
2. Press the rocker switch to disengage from "Operate". The D200 mutes itself at shut-off, so you should normally hear no "thumps" or "whistles" as you terminate AC power. The green "Operate" LED will extinguish, and the amber "Protect" LED will come on for a few seconds.
3. Turn off your preamp and other "front-end" system components (turntables, FM tuner, CD player or digital processor).

Start-up Following "Protect" Shutdown

The D200 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 an overtemperature fault condition, it will automatically shut off any output from the amplifier, and indicate this condition by illumination of the amber "Protect" LED; the green "Operate" LED will simultaneously extinguish. The amplifier will automatically resume normal operation (and output) after a minute or so. This sequence will also occur in the event of severe power "brown-out" or "black-out" conditions, but the amplifier will return to "Operate" condition as soon as the line voltage is back to normal.

When the amplifier senses a fault condition from excessive DC or subsonic current output, it will automatically shut off any output from the amplifier, and indicate this condition by illumination of the amber "Protect" LED; The green "Operate" LED will simultaneously extinguish. To resume normal operation, turn off power to the amplifier for a few seconds to reset the protection circuits. Check for faulty signals from the preamplifier, and turn the amplifier power on.

If the amplifier fails to resume normal operation after a fault condition, contact your authorized dealer for further assistance.

Servicing

Because of its careful design and exacting standards of manufacture, your D200 amplifier should normally require only minimal service to maintain its high level of performance.

CAUTION: The D200 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: 612-939-0600. 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 visual appearance of your amplifier, occasionally wipe the front panel and top cover surfaces with a soft, damp (not wet) cloth to remove dust. A mild, non-alkaline soap solution may be used to remove fingerprints or similar smudges. Cleaners containing abrasives should ***not*** be used as they will damage the "brushed" grain of the front panel finish. A pure bristle 2 inch paint brush is effective in removing dust.

Limited Warranty

Terms and Conditions

1. LIMITED WARRANTY

Audio Research warrants the product designated herein to be free of manufacturing defects in material and workmanship, subject to the conditions hereinafter set forth, for a period of three (3) years from the date of purchase by the original purchaser or no later than five (5) years from the date of shipment to the authorized Audio Research dealer, whichever comes first, excepting vacuum tubes which are warranted for 90 days only (See 6), and CD players or transports, which are warranted for two (2) years from date of purchase (four (4) years from date of shipment).

2. CONDITIONS

This Warranty is subject to the following conditions and limitations. The Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the owner's manual, abused, or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being repaired or tampered with by anyone other than Audio Research or an authorized Audio Research repair center. The product must be packed and returned to Audio Research or an authorized Audio Research repair center by the customer at his or her sole expense. Audio Research will pay return freight of its choice. A RETURNED PRODUCT MUST BE ACCOMPANIED BY A WRITTEN DESCRIPTION OF THE DEFECT AND A PHOTOCOPY OF THE ORIGINAL PURCHASE RECEIPT. This receipt must clearly list model and serial number, the date of purchase, the name and address of the purchaser and authorized dealer and the price paid by the purchaser. Audio Research reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

3. REMEDY

In the event the above product fails to meet the above Warranty and the above conditions have been met, the purchaser's sole remedy under this Limited Warranty shall be to return the product to Audio Research or an authorized Audio Research repair center where the defect will be rectified without charge for parts or labor, except vacuum tubes (See 6).

4. LIMITED TO ORIGINAL PURCHASER

This Warranty is for the sole benefit of the original purchaser of the covered product and shall not be transferred to a subsequent purchaser of the product.

5. DURATION OF WARRANTY

This Warranty expires on the third anniversary (second for CD players and transports) of the date of purchase or no later than the fifth anniversary (fourth for CD players and transports) of the date of shipment to the authorized Audio Research dealer, whichever comes first.

6. VACUUM TUBES

Vacuum tubes are warranted for the original 90-day period only.

7. DEMONSTRATION EQUIPMENT

Equipment used by an authorized dealer for demonstration purposes is warranted to be free of manufacturing defects in materials and workmanship for a period of three (3) years from the date of shipment to the dealer,or two (2) years in the case of CD players and transports. Vacuum tubes are warranted for 90 days. After the first year, demo equipment needing warranty service must be packed and returned to Audio Research by the dealer at his sole expense. Audio Research will pay return freight of its choice. A returned product must be accompanied by a written description of the defect on an AUDIO RESEARCH RETURNED GOODS AUTHORIZATION form. Dealer-owned demonstration equipment sold at retail within three (3) years of date of shipment to the dealer is warranted to the first retail customer to be free of manufacturing defects in materials and workmanship for the duration of the 3-Year Limited Warranty remaining (as measured from the date of shipment of the equipment to the dealer); this period of warranty is two (2) years in the case of CD players and transports. Vacuum tubes are not warranted for any period under these conditions of sale. In the event warranty service is needed under these conditions, the owner of the equipment must provide a copy of his purchase receipt, fulfilling the requirements described under "2. Conditions" above. The product must be packed and returned to Audio Research or an authorized Audio Research repair center by the customer at his or her sole expense. Audio Research will pay return freight of its choice.

8. MISCELLANEOUS

ANY IMPLIED WARRANTIES RELATING TO THE ABOVE PRODUCT SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. THE WARRANTY DOES NOT EXTEND TO ANY INCIDENTAL OR CONSEQUENTIAL COSTS OR DAMAGES TO THE PURCHASER. Some states do not allow limitations on how long an implied warranty lasts or an exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

9. WARRANTOR

Inquiries regarding the above Limited Warranty may be sent to the following address:

Audio Research
5740 Green Circle Drive, Minnetonka, Minnesota 55343-4424
ATTN: Customer Services.

Warranty Outside the U.S.A.

Audio Research has authorized distribution in many countries of the world. In each country, the authorized importing retailer or distributor has accepted the responsibility for warranty of products sold by that retailer or distributor. Warranty service should normally be obtained from the importing retailer or distributor from whom you purchased your product.

In the unlikely event of service required beyond the capability of the importer, Audio Research will fulfill the conditions of the warranty. Such product must be returned at the owner's expense to the Audio Research factory, together with a photocopy of the bill of sale for that product, a detailed description of the problem, and any information necessary for return shipment.

Specifications

Model D200

POWER OUTPUT: 110 watts per channel into 8 ohms, 200 watts per channel into 4 ohms.

POWER BANDWIDTH: (-3dB Points) DC to 150 kHz into 8 ohms.

INPUT SENSITIVITY: 1.5V RMS for rated output (25.5 dB Gain) unbalanced or balanced.

INPUT IMPEDANCE: 150K ohms unbalanced, 300K ohms balanced differential.

INPUT POLARITY: Non-inverting at unbalanced inputs. Balanced pin 2+ (IEC-268).

OUTPUT REGULATION: 0.07dB 8 ohm load to open circuit (Damping factor 130).

NEGATIVE FEEDBACK: 21dB.

SLEW RATE: 50 volts/microsecond.

RISE TIME: 1.7 microseconds.

HUM & NOISE: Less than 40 microvolts RMS (117dB below rated output IHF A-weighted).

POWER SUPPLY CAPACITANCE: 124,000 uF total.

POWER REQUIREMENTS: 105-125VAC 60Hz (210-250VAC 50Hz) 400 watts at rated output (110WPC 8 ohms), 640 watts at 200WPC 4 ohms, 800 watts maximum, 105 watts idle.

DIMENSIONS: 19" (48 cm) W (standard rack panel) x 5 1/4" (13.3 cm) H x 11 7/8" (30.2 cm) D (front panel back). Handles extend 1 1/2" (3.8 cm) forward of the 3/8" thick front panel. Output connectors extend 1" behind rear panel.

WEIGHT: 32.5 lbs. (14.8 kg) Net; 44 lbs. (20.0 kg) Shipping.

Specifications subject to change without notice.

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