Owner's Manual

Reference 5 SE

Stereo Preamplifier

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HIGH DEFINITION®

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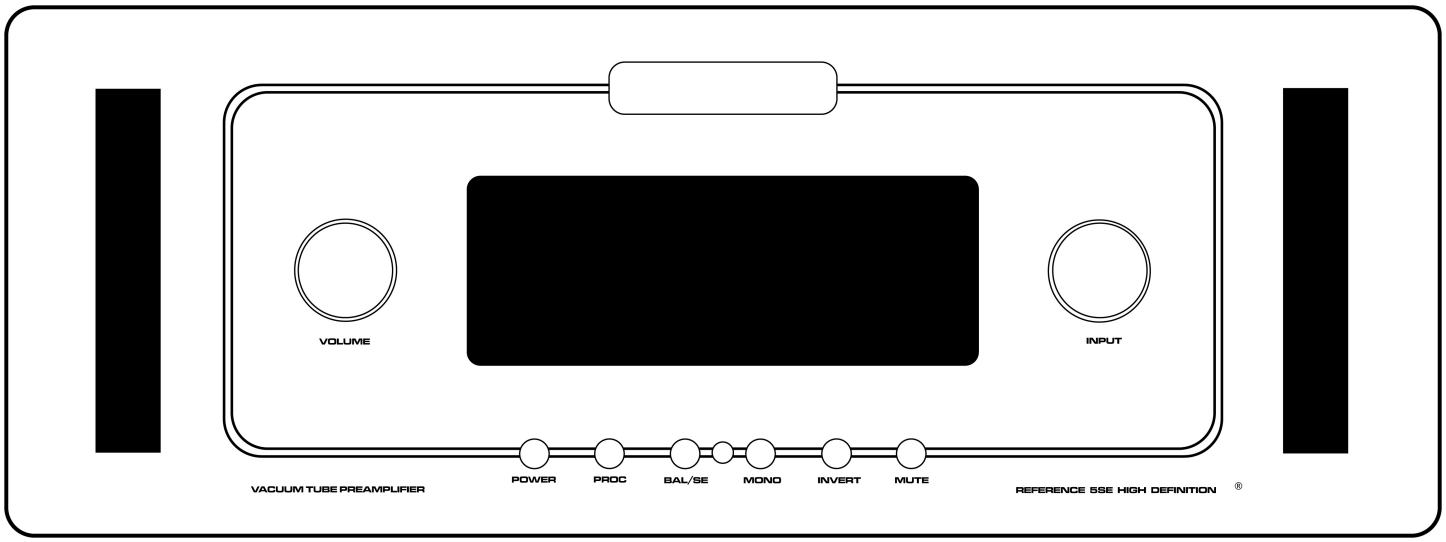
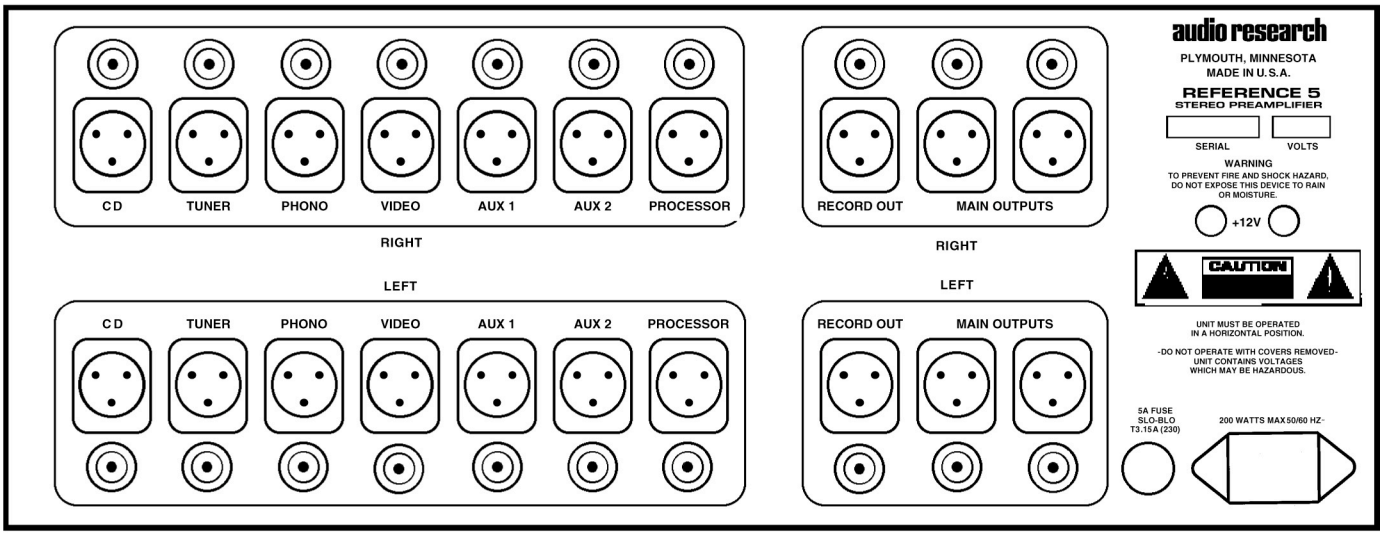
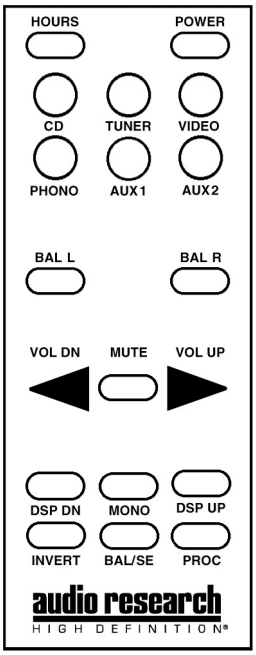

VOLUME
INPUT
POWER
PROC
BAL/SE
MONO
INVERT
MUTE
VACUUM TUBE PREAMPLIFIER
REFERENCE 5SE HIGH DEFINITION ®


CD
TUNER
PHONO
VIDEO
AUX 1
AUX 2
PROCESSOR
RIGHT
LEFT
RECORD OUT
MAIN OUTPUTS
audio research
PLYMOUTH, MINNESOTA
MADE IN U.S.A.
REFERENCE 5
STEREO PREAMPLIFIER
SERIAL
VOLTS
WARNING
TO PREVENT FIRE AND SHOCK HAZARD, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE.
+12V
CAUTION
UNIT MUST BE OPERATED IN A HORIZONTAL POSITION.
-DO NOT OPERATE WITH COVERS REMOVED-
UNIT CONTAINS VOLTAGES WHICH MAY BE HAZARDOUS.
5A FUSE
SLO-BLO
T3.15A (230)
200 WATTS MAX 50/60 HZ~


HOURS
POWER
CD
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AUX1
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BAL L
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VOL DN
MUTE
VOL UP
DSP DN
MONO
DSP UP
INVERT
BAL/SE
PROC
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Preface

Please take time to carefully read and understand the following instructions before you install or attempt to operate your Audio Research Reference 5 SE preamplifier. 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 electronics technician.
3. The power cord supplied with this unit is safety-tested and is equipped with a proper grounding plug. If used normally, it will provide a safe earth ground connection of the chassis. Defeat of the grounding plug or use of a power cord without a grounding plug, or any unauthorized modification of the active circuitry or controls of this unit, automatically voids warranty coverage, and could cause injury or death.
4. For safe operation and protection against fire hazard, replace fuses only with those of the same type and rating as those supplied with this unit.

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.

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

Installation of Vacuum Tubes

This unit has been shipped with the vacuum tubes installed in a protective foam block under the top cover. Using a phillips-head screwdriver to loosen the fastening screws, remove the top cover and set aside. Remove the tubes carefully from the protective foam block and store the foam block with the carton.

After removing the top cover and the vacuum tubes packed in protective foam, see the accompanying illustrated sheet for instructions on installing the tubes for your Reference 5 SE in their proper locations in the power supply and audio section. Note that the numbers written on each tube correspond to a 'V' number printed on the circuit board next to each tube socket. Insert each tube firmly, carefully aligning the tube pins with the corresponding socket holes.

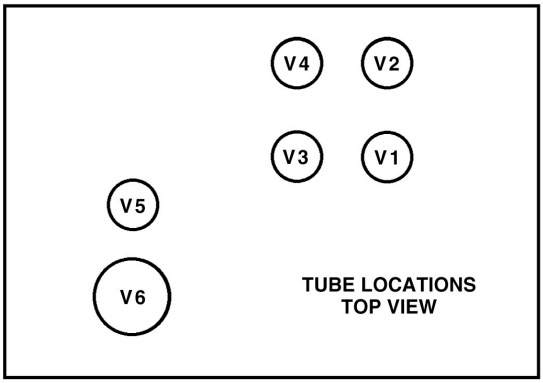
WARNING!

Do not attempt to install or remove any vacuum tubes unless this unit is turned off and disconnected from the A.C. power outlet. Unit should be connected to the A.C. outlet and turned on only after all vacuum tubes have been installed and appropriate panels have been replaced and fastened. See owner's manual for installation instructions.

Before replacing vacuum tubes, turn off unit, disconnect from A.C. outlet and allow installed tubes to cool before attempting to remove them. Hot tubes may cause burns or other injury if not allowed to cool before removal.

When removing or installing tubes, do not touch tube socket contacts or other components as the circuit may retain sufficient levels of voltage and current to cause injury or death.

Contact your dealer or Audio Research Customer Service (763-577-9700) if you have any questions about installing or replacing vacuum tubes in this unit.



Description of Controls

Front Panel Rotary Controls

The Reference 5 has two microprocessor-driven rotary controls.

The rotary control on the left adjusts Volume (output level) up or down for both L and R channels. Volume control is also selectable via Vol UP and Vol DN buttons on the remote control. Volume adjustment is indicated in the display window by both a bar graph with marker and by numeric digits on 0–103 scale.

Do not turn volume up beyond normal listening levels when 'mute' is engaged to avoid unexpected or possibly damaging sound levels. Reduce volume level whenever changing input sources, even when muted.

The rotary control (on the right) selects any of six input sources connected to the preamp: CD, Tuner, Phono, Video,Aux 1 and Aux 2. Each of these sources may also be selected via direct access buttons on the remote control. The selected source is indicated in the display window.

Front Panel and Remote Control Buttons

POWER ON/OFF: Supplies power from A.C. wall outlet to preamp; indicated by active display window. Function also on remote control.

For approximately 40 seconds after start up, 'Mute' appears in the display window and flashes until the automatic muting cycle is completed. This also occurs in the event of power interruption. Upon completing the cycle, 'Mute' will cease flashing. The preamp will remain muted until normal operation is selected by pressing the 'Mute' button.

MUTE: When activated, electrically mutes all output of the preamplifier; indicated by 'Mute' in display window. This control should be activated before switching inputs, changing connections or shutting down your audio system to help protect your amplifier and speakers from unexpected signal pulses. When deactivated, 'Mute' disappears from the display window allowing normal operation. Function also on remote control.

The Reference 5 also has automatic muting to help protects system components during A.C. power interruptions or low line voltage. When sensing these conditions, the preamp automatically goes into 'Mute' and disables all outputs. The 40-second warm-up timer will restart and 'Mute' will flash in the display window when normal power conditions have been restored.

Note that automatic muting is only designed to protect against power line interruptions or severe voltage drop. It will not mute in the event of subsonic transmissions from a faulty input source, amplifier failure or speaker malfunction.

PROCESSOR (PROC): May be selected by button on front panel or on remote control. Selects external A-V (home theater) processor as input source and controller of volume level for R and L channels. Reference 5 SE provides Unity Gain when this input is selected.

When engaged, 'PROC' will appear in the display, and the numerical volume setting will read 'NA' (for 'Not Applicable') because gain is fixed and not adjustable. The preamp will also mute the input after 'PROC' is engaged.

WARNING:

Before unmuting the 'PROC' input, be sure to turn the volume down on the home theater processor. Never connect a source with a fixed level output (DVD player, tuner, CD, etc.) to the 'PROC' input or the amplifier(s) and speaker system could be damaged when the Reference 5 SE is unmuted.

VOLUME UP/DOWN : Using rotary control on front pane lor VOL UP/VOL DN buttons on remote, increases/decreases overall volume level of both channels equally for whichever input has been selected. Caution: do not turn up volume beyond normal listening levels when "Mute" is engaged to avoid unexpected or possibly damaging sound levels. It is a good idea to reduce volume whenever changing program sources, even when muted.

BAL/SE: Select as appropriate for each input. For source components having balanced (XLR) connections to the Reference 5, select BAL. For single-ended (RCA) sources, select SE. Once selected for an input source, the setting is memorized.

INVERT: Inverts absolute phase of the output signal.

MONO: Sums L and R input for mono output from any source selected.

Remote Control only Functions

DISPLAY DOWN/DISPLAY UP (DSP DN/DSP UP): Decreases/increases display intensity, offering 6 levels of bright-ness and display 'off'. If display "off" is selected, a small egment of pixels remains illuminated in the center of the display window as a reminder the unit is turned on. In display 'off' mode the display will illuminate for 10 seconds when any button (except Power on/off) is selected, allowing for control function navigation.

BALANCE (BAL L/BAL R): Adjusts balance left or right adjustment appears in display window as movable marker on bar graph. Useful for compensating for

uneven speaker placement or imbalanced output from a phono cartridge.

HOURS: When pressed, displays number of operating hours vacuum tubes have been in service. **WARNING:** after replacing tubes, this function should be reset to '0' only by a qualified technician. Hours display can be reset to '0' by pressing black button labeled 'Reset Hours' located on upper right corner of circuit board directly behind display window. The preamp must be "On" to reset function – the service technician must be careful to avoid any contact with other circuit components during reset operation. Contact Audio Research customer service (763-577-9700) for information regarding this procedure.

Connections

INPUT CONNECTORS: The Reference 5 provides seven pairs of BAL/SE input connectors: CD, Tuner, Phono, Video, Aux1, Aux2 and Processor. The BAL/SE selector button (front panel and on remote) should be selected to match the type of connection used (BAL or SE) on each input.

Connect either the BAL or SE connectors for each input. Never connect the BAL and SE connectors simultaneously for each input.

OUTPUT CONNECTORS: Two pairs of BAL/SE main outputs are provided.

RECORD OUTPUT: The BAL/SE tape outputs should be connected to your recorder's 'Record' or 'Line' inputs. These outputs provide a fixed-level two-channel signal (L, R) to your recorder from whichever input is selected. The non-variable output level will be the same as the output of the selected source.

It is possible to dub or copy from one recorder to another by connecting the output of the source recorder to an unused set of stereo inputs (Aux 1, Aux 2). The signal will then be routed to the Record Out connectors when that input source is selected.

12V IN/OUT REMOTE START JACKS: The +12V DC input/output jacks provide the ability to remotely turn on and off the preamp and other linked components such as power amplifiers having similar capabilities.

Installation Instructions

While the Reference 5 does not dissipate an unusual amount of heat, it is important that it be provided with reasonable airflow to assure long, trouble-free operation. In addition, the following installation guidelines will help insure maximum sonic performance as well as reliable service:

1. Operate unit in upright and horizontal position, prefer-ably on solid, non-metal shelving.
2. Do not stack the preamp on top of a power amplifier: not only could this cause overheating, but hum may be introduced into the preamp from the proximity of the amplifier's power transformer. Do not stack components or other objects directly on top of the Reference 5 SE.
3. Do not place or operate your preamp on a soft or irregular surface such as a rug. This will prevent proper ventilation.
4. Do not operate your preamp without the top and bottom covers installed. These are required both for safety as well as shielding from interference (except in service operations by qualified personnel).

Operating Procedure

Start Up:

1. Secure all rear-panel connections between Reference 5 SE, power amplifier(s) and input sources.
2. Plug three-prong power cord from rear of chassis into grounded A.C. wall outlet. The Power switch defaults to 'off' when the unit is plugged into a power receptacle.
3. Press power switch (either remote or front panel). 'Mute' will flash in the display window for approximately 40 seconds, then cease flashing and remain in the display. Press 'Mute' to initiate operation.
4. Select input source, then BAL or SE as necessary.

Shut Down:

1. Activate 'Mute' function.
2. Set Volume level to 0.
3. Turn off power amplifier(s).
4. Press Power switch to 'off'.
5. Turn off input sources.

Troubleshooting

It is possible for a static discharge to temporarily disable the microprocessor that allows the controls to function. If this should occur, depress the 'Mute' button, then turn off the preamp and unplug the preamp from the A.C. receptacle for 60 seconds. Reconnect the A.C. plug and turn the preamp back on, along with other components. The controls should resume normal operation. If the problem persists, contact your dealer or Audio Research Customer Service at 763-577-9700.

Servicing

Because of its careful design and exacting standards of manufacture, your Reference 5 SE should require no routine maintenance. The remote control's batteries (AAA) should be replaced once a year.

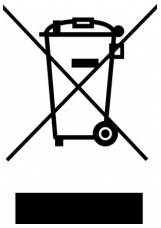
CAUTION: Your Reference 5 SE contains sufficient levels of voltage and current to be lethal. Do not tamper with a component or part inside the unit. Refer any needed service to your authorized Audio Research dealer or other qualified technician.

The vacuum tubes inside your Reference 5 SE are quality tubes and with normal use should not need to be changed for approximately 4,000 hours of use. Replacement tubes should be of equivalent quality and are available from Audio Research. Note that tube numbers (V1, V2 etc.) match printed numbers next to tube sockets on circuit board.

Should service be necessary, please contact your Audio Research dealer, or Audio Research Customer Service at 763 577-9700.

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 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 paintbrush 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.

Please contact your dealer or importing distributor for instructions on proper disposal of this product in your country. Or, contact Audio Research Corporation (763-577-9700) for the name of your importing distributor and how to contact them.

Packing and shipping materials may be disposed of in a normal manner.

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

FREQUENCY RESPONSE: +0-3dB, 0.5Hz to 200kHz at rated output (Balanced, 200k ohms load).

DISTORTION: Less than .01% at 2V RMS BAL output.

GAIN: Main output: 12dB Balanced output, 6dB SE output. Tape output: 0dB (Processor input: 0dB SE output).

INPUT IMPEDANCE: 120K ohms Balanced, 60K ohms SE. Inputs (7): CD, TUNER, VIDEO, PHONO, AUX 1, AUX 2, PROCESSOR. (XLR and RCA connectors)

OUTPUT IMPEDANCE: 600 ohms Balanced, 300 ohms SE Main (2). 20K ohms minimum load and 2000pF maximum capacitance. Outputs (3): 2 main, 1 tape (XLR and RCA connectors).

OUTPUT POLARITY: Non-inverting.

MAXIMUM INPUT: 20V RMS BAL, 10V RMS SE.

RATED OUTPUTS: 2V RMS (1V RMS SE) into 200K ohm balanced load (maximum balanced output capability is 30V RMS at less than 0.5% THD at 1kHz).

CROSSTALK: -80dB or better at 1kHz and 10 kHz.

CONTROLS: Volume (104 steps), Select Input. Push Buttons: Power, Proc, BAL/SE, Mono, Invert, Mute.

POWER SUPPLIES: Electronically regulated low and high voltage supplies. Automatic 40 sec. warm-up/brown-out mute. Line regulation better than .01%.

NOISE: 1.7uV RMS residual IHF weighted balanced equivalent input noise with volume at 1 (109dB below 2V RMS output.)

TUBE COMPLEMENT: (4)-6H30P dual triodes, plus (1 each) 6550C and 6H30P in power supply.

POWER REQUIREMENTS: 100-135VAC 60Hz (200-270VAC 50/60Hz) 130 watts. Standby: 2 watts.

DIMENSIONS: 19" (48 cm) W x 7" (17.8 cm) H (standard panel) x 15.5" (39.4 cm) D. Handles extend 1.5" (3.8 cm) forward of the front panel.

WEIGHT: 30.4 lbs. (13.9 kg) Net; 41.6 lbs. (19 kg) Shipping.

Specifications subject to change without notice.

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