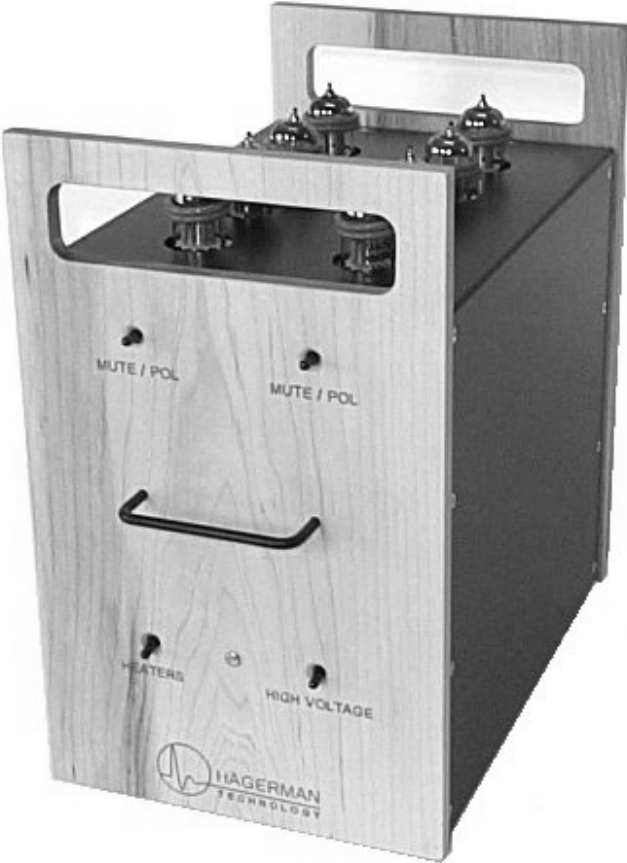
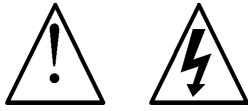




*Trumpet*  
**Vacuum Tube Phono Preamp  
User's Manual**



Date: 04/08/02  
Serial No.:



## **Warning: Potential Shock Hazard!**

This product uses high voltage. There are no operator serviceable parts inside. Refer servicing to qualified personnel. Use only a grounded outlet. Observe all warnings and instructions marked on the product. Do not install or use this product near water or when you are wet. Install the product securely on a stable surface. During operation the vacuum tubes become hot – do not touch.

This product is for use at 120Vac only.

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## **Disclaimer**

The information contained in this document is subject to change without notice. Hagerman Technology LLC shall not be liable for errors contained herein or for consequential damages in connection with the furnishing, performance, or use of this material. See Chapter 6 for warranty information.

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# 1 Before You Begin

## Description

Congratulations! You have just purchased one of the finest sounding and highest quality pieces of audio equipment available. The Trumpet was designed to provide years of outstanding trouble-free service. Its fully balanced circuits offer inherent power line conditioning and remarkable sonic performance. Distortion and noise are exceptionally low for an all-tube signal path. The moderate gain of 44dB (50dB balanced) is suitable for cartridges having an output of 1.0mV or greater. Very low output cartridges will require the use of an external step-up transformer.

## Features

- Fully balanced differential circuitry (XLR input & output options)
- Class A operation, no feedback
- All tube signal path
- Choke regulated power supplies
- DC heaters
- Passive, split RIAA
- Extra-low input capacitance
- Polarity/Mute switches
- Single-box design (no separate power supply)
- Inverse-RIAA burn-in filter included
- Handcrafted in USA

## Package Contents

Please inspect the contents of the package upon arrival. Check for any loose, broken or missing pieces. If there is any problem, contact Hagerman Technology immediately (refer to Chapter 6). Inside, you should find this manual, a power cord, burn-in filter, warning label, spare fuse, and the Trumpet phono preamp.

Apply the warning label to the rear of your Trumpet just above the serial number.

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# 2 Installation

## Setup

The Trumpet connects to your audio system just like any other standalone phono preamp. Attach the ground lead (if there is one) from your turntable to the ground lug on the back of the Trumpet. Connect the turntable signal leads to the input jacks. Either channel can be used as left or right. Use a quality pair of interconnects between the output jacks and the “auxiliary” or other line-level inputs on your linestage. A passive linestage can be used, but the attenuator loading should be 10k ohms or higher.

If the balanced XLR option was chosen for inputs, care must be taken in wiring the cartridge. This option is best suited when using an external step-up transformer that has a center-tapped secondary. Connect the center tap to pin 1, positive tap to pin 2, and inverted tap to pin 3. For direct wiring to a cartridge, connect the coil pairs (blue-white, green-red) to pins to pins 2 and 3 respectively. Connect the tonearm ground to pin 1.

## Applying Power

The power-on sequence is critical. It is not automatic and must be done manually. Please do not fire up the High Voltage until Heaters are sufficiently warmed up. Doing so may cause arcing and cathode-stripping damage.

Once all connections to other equipment have been made, plug in the power cord. Then use the following sequence for power-on:

- Set Mute/Polarity switches to their center positions (muted).
- Turn on Heaters. LED should glow red.
- Wait one minute for the tube heaters to warm up.
- Turn on High Voltage. LED should turn to green.
- Wait ten seconds for the signal coupling caps to settle.
- Set the Mute/Polarity switches to either polarity (left is inverted, right positive).

Similarly, for power-down, follow this procedure to prevent “thumps”:

- Set Mute/Polarity switches to their center positions.
- Turn off both Heaters and High Voltage (sequence does not matter).

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# 3 System Tuning

## Grounding

The trumpet uses a detachable, fully shielded 3-wire power cord. Earth ground (from ac socket) is thus connected directly to the chassis. The signal return and turntable ground are all connected together in a “star” configuration at the rear panel of the Trumpet. This provides an ideal grounding situation for low hum. However, if your linestage or power amplifier also use a 3-wire power cord, a ground loop will be created through the interconnects. Make sure your turntable is plugged into the same outlet. See Chapter 4 for troubleshooting hints if you experience hum or buzz.

## Cartridge Loading

The input impedance of the Trumpet is 47k ohms in parallel with 36pF (that’s very low) of capacitance. Many cartridge manufacturers (especially moving coil types) specify an optimum load resistance, which is often much lower. To accommodate this, you will have to solder in parallel resistors on the circuit board. For example, if you need 100 ohms, just solder in your own choice of 100-ohm resistors. The parallel equivalent resistance is then 99.8 ohms. For more information on cartridge loading, refer to [www.hagtech.com/loading.html](http://www.hagtech.com/loading.html).

Trumpets with XLR inputs have fully balanced front-ends. In this case, each tap (one positive, one negative) has 47k ohms to ground for a differential 94k ohm cartridge loading. To maintain balanced operation, both taps should be loaded with the same resistance value.

## Tube Substitutions

The factory-supplied vacuum tubes are all hand-matched and tested using a VacuTrace™. In addition, all amplifiers are burned-in overnight to weed out infancy failures. A final quality check consists of critical listening for sonics, distortion, noise, and microphony.

Nonetheless, many users will prefer to use legendary NOS tubes. This is perfectly acceptable and is encouraged. The circuits within Trumpet are designed to accommodate like-substitutions. That is, any 12AX7 will work in the 12AX7 locations, likewise with the 12AU7s. In fact, that is partly why these tube types were chosen over the more exotic alternatives. Do not, however, randomly substitute with other tubes that may be “close”.

like-substitutions. That is, any 12AX7 will work in the 12AX7 locations, likewise with the 12AU7s. In fact, that is partly why these tube types were chosen over the more exotic alternatives. Do not, however, randomly substitute with other tubes that may be “close”. Nor should the amplifier be operated with any missing tubes. The circuit loading and heater currents are very specific for proper power supply operation. Maximum performance from the balanced circuits is only obtained if the tubes themselves are matched. Of course, the VacuTrace™ is recommended for this purpose. It is recommended to replace tubes in pairs (same for each channel). The four tubes in the rear are 12AX7, the four in the front are 12AU7.

The procedure for substituting tubes is as follows:

- Turn off the power (Heaters and High Voltage).
- Wait one minute for the voltages on power supply capacitors to bleed down.
- Wait until tubes are cool to the touch.
- Unplug the power cord.
- Remove o-rings from tubes.

The next step is optional, as the tubes can be replaced directly from the top. Nevertheless, the amplifier circuit board is mounted like a suspension bridge to act as an anti-vibration component within the chassis. As such, it is possible to push too hard on a tube socket and over-flex the circuit board to the point of breaking or cracking traces.

- Remove the top black anodized cover.
- While firmly holding the circuit board, remove and replace tubes.
- Replace cover.
- Replace o-rings.
- Plug in power cord.

## **Break-In**

Although fully burned-in and tested, some components within the Trumpet may require an additional “break-in” period. This is typically done through normal use or by playing special break-in records (e.g. Cardas). However, this adds unnecessary wear and tear on your cartridge. To alleviate this, a special inverse-RIAA filter has been included.

The inverse-RIAA filter can be used with any line level source (such as a CD player’s output). Just connect the source to the filter inputs, and the filter outputs to the Trumpet’s inputs. The filter looks like a pre-equalized cartridge/LP to the Trumpet. The CD player can be left on auto-repeat for an unattended break-in.

# 4 Troubleshooting

| Problem                    | Possible Causes/Solutions  |
|----------------------------|--|
| Status LED does not light. | Power cord not plugged in or fuse blown. The status LED should turn red when Heaters are turned on, and then green upon the application of high voltage.   |
| No sound.                  | Check the Mute/Polarity switches. Check interconnects, volume control on linestage.  |
| Hum or buzz.               | Stray magnetic fields from the transformers are being picked up by cartridge. Try moving the location of the Trumpet relative to turntable.<br><br>Ground loop in wiring. Never defeat the ground prong on the Trumpet. Ground turntable only to the Trumpet. Try moving wires and interconnects to minimize loop area. Move wiring away from stray magnetic fields. Make sure Trumpet and turntable are plugged into the same outlet. |

## Fuse Replacement

There is a 1 amp slow-blow fuse located internally on the power supply. An open fuse indicates a malfunction that most likely requires servicing. Contact Hagerman technology immediately.

To replace a fuse, follow the steps for tube substitution. Once the black anodized cover is off, the fuse holder can be found on the power supply board near the ac input connector. Use a screwdriver to unlock the fuse holder.

# 5 Specifications

The following specifications are subject to change without notice.

| Item              | Specification                        |
|-------------------|--------------------------------------|
| Gain              | 44dB (50dB balanced)                 |
| Input Impedance   | 47k ohm plus 36pF                    |
| Output Impedance  | 750 ohms                             |
| RIAA Accuracy     | +/-0.5dB from 20Hz to 20kHz          |
| Bandwidth (-3dB)  | 5Hz to 250kHz                        |
| Distortion        | 0.03% @ 1kHz                         |
| Signal-to-Noise   | 74dB ref 5mV A-weighted              |
| Overload          | 250mV @ 1kHz, 1% distortion          |
| Power Consumption | 70W (120Vac only)                    |
| Size              | 7" wide x 12" high x 12" deep        |
| Weight            | 14 lbs.                              |
| Tube Complement   | 12AX7 (ECC83) x 4, 12AU7 (ECC82) x 4 |

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# 6 Warranty & Service

## Warranty

Hagerman Technology LLC warrants this product free of defects in materials and workmanship for a period of ten years from the original date of purchase (90 days for tubes). If you discover a defect, Hagerman Technology LLC will, at its option, repair or replace the product at no charge to you provided you return it during the warranty period, transportation charges prepaid to Hagerman Technology LLC. This warranty does not apply if the product has been damaged by negligence, accident, abuse or misuse or misapplication, has been damaged because it has been improperly connected to other equipment or has been modified without the express written permission of Hagerman Technology LLC. This warranty is limited to the replacement or repair of this product and not to damage to equipment of other manufacturers.

Any applicable implied warranties, including warranty of merchantability, are limited in duration to a period of the express warranty as provided herein beginning with the original date of purchase and no warranties, whether express or implied shall apply to the product thereafter.

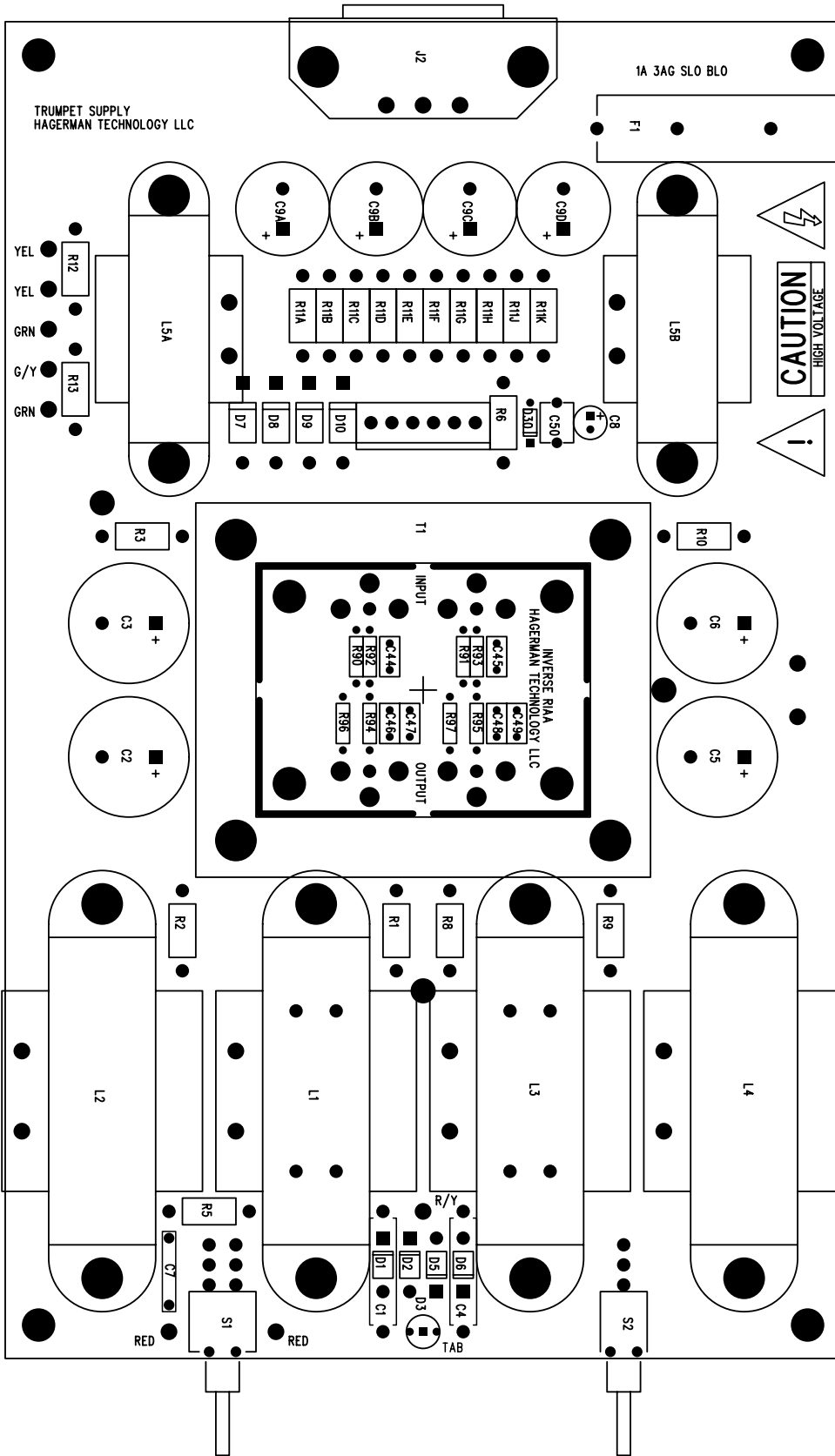
Under no circumstances shall Hagerman Technology LLC be liable for any loss, direct, indirect, incidental, special, or consequential damage arising out of or in connection with the use of this product.

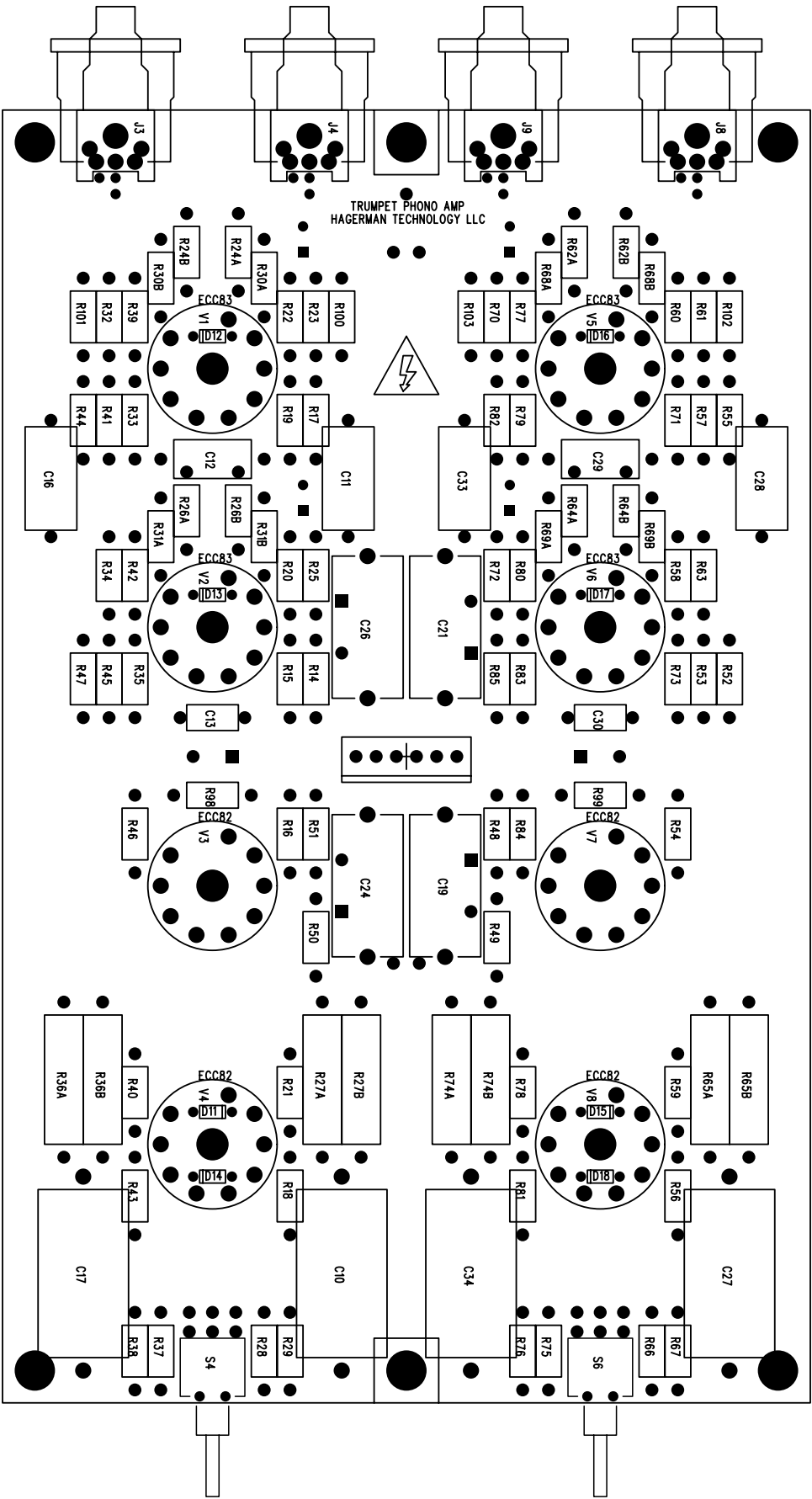
## Service

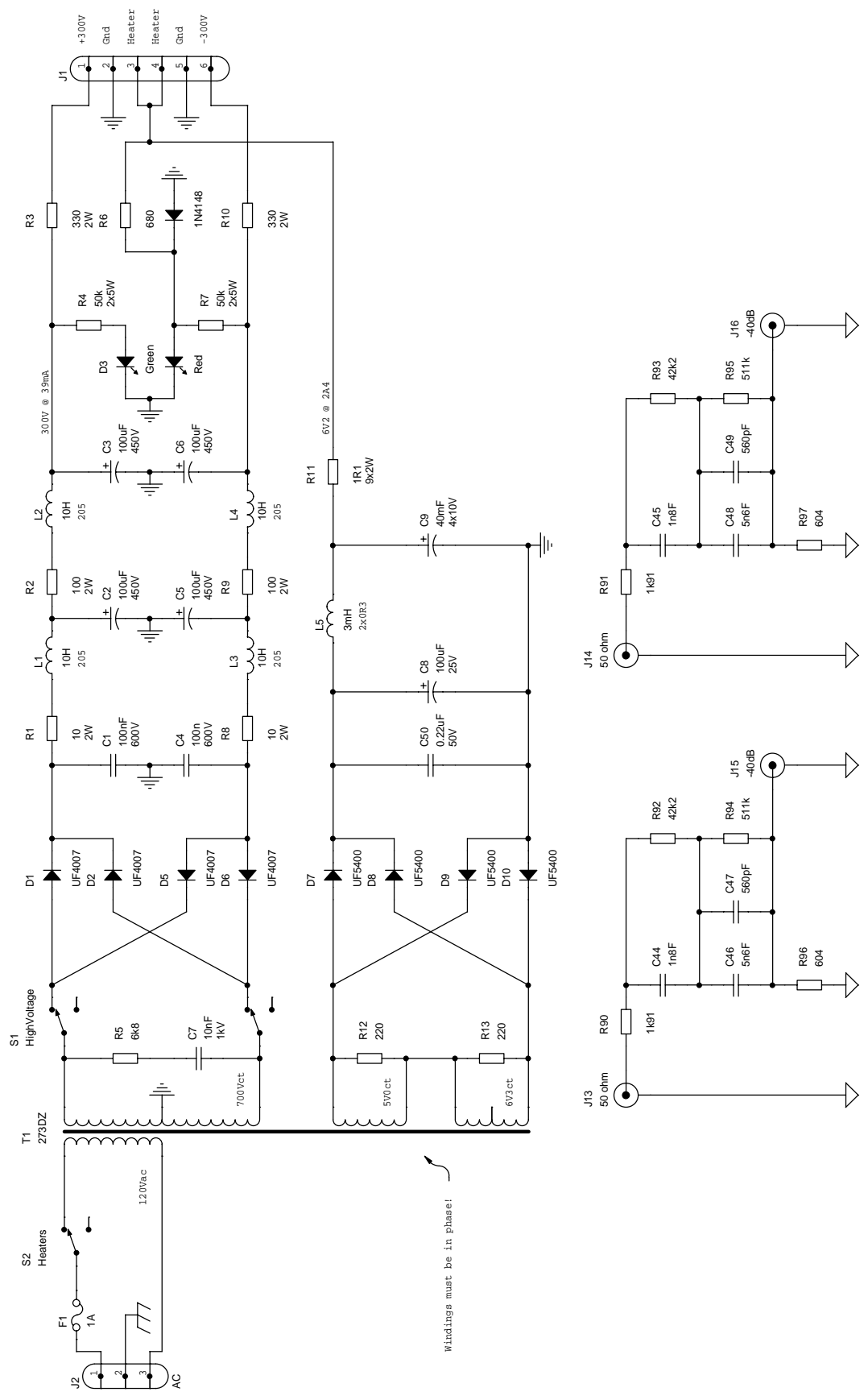
Refer to Chapter 5 for troubleshooting information. If the problem persists, contact Hagerman Technology for service. Units to be returned must accompany an RMA (return merchandise authorization) code for proper handling. You can obtain an RMA code at <http://www.hagtech.com> or by writing or calling:

Hagerman Technology LLC  
PO Box 26437  
Honolulu, HI 96825 USA

808-383-2704 (voice)  
808-394-6076 (fax)







Notes:

All resistors are 1W unless specified.

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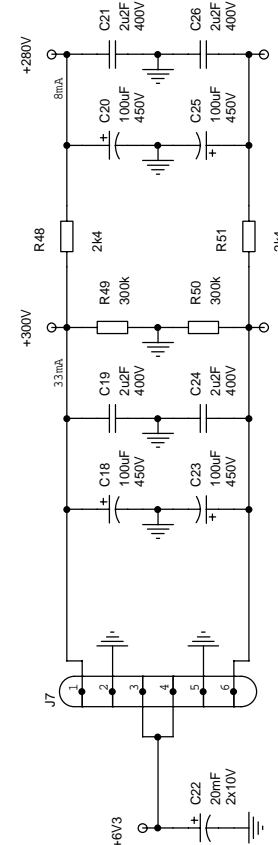
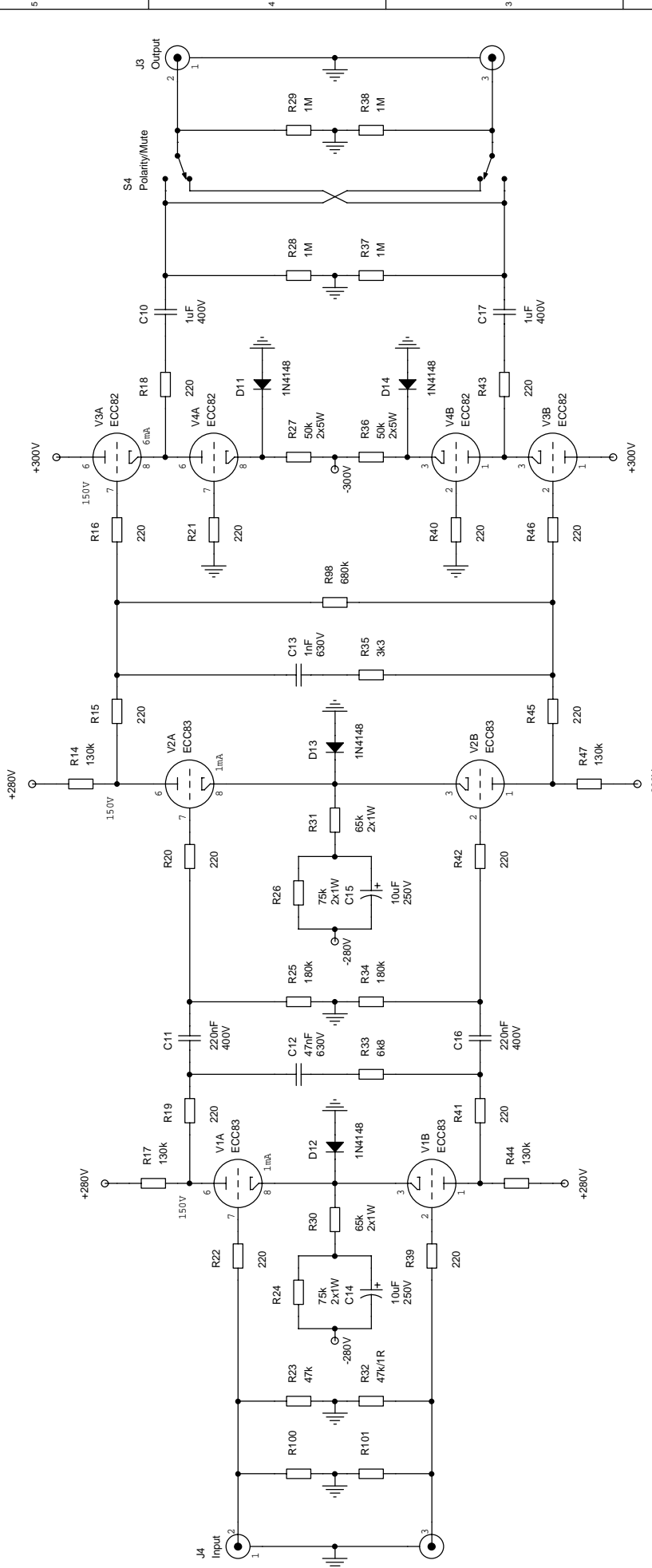
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Date: Tuesday, April 09, 2002

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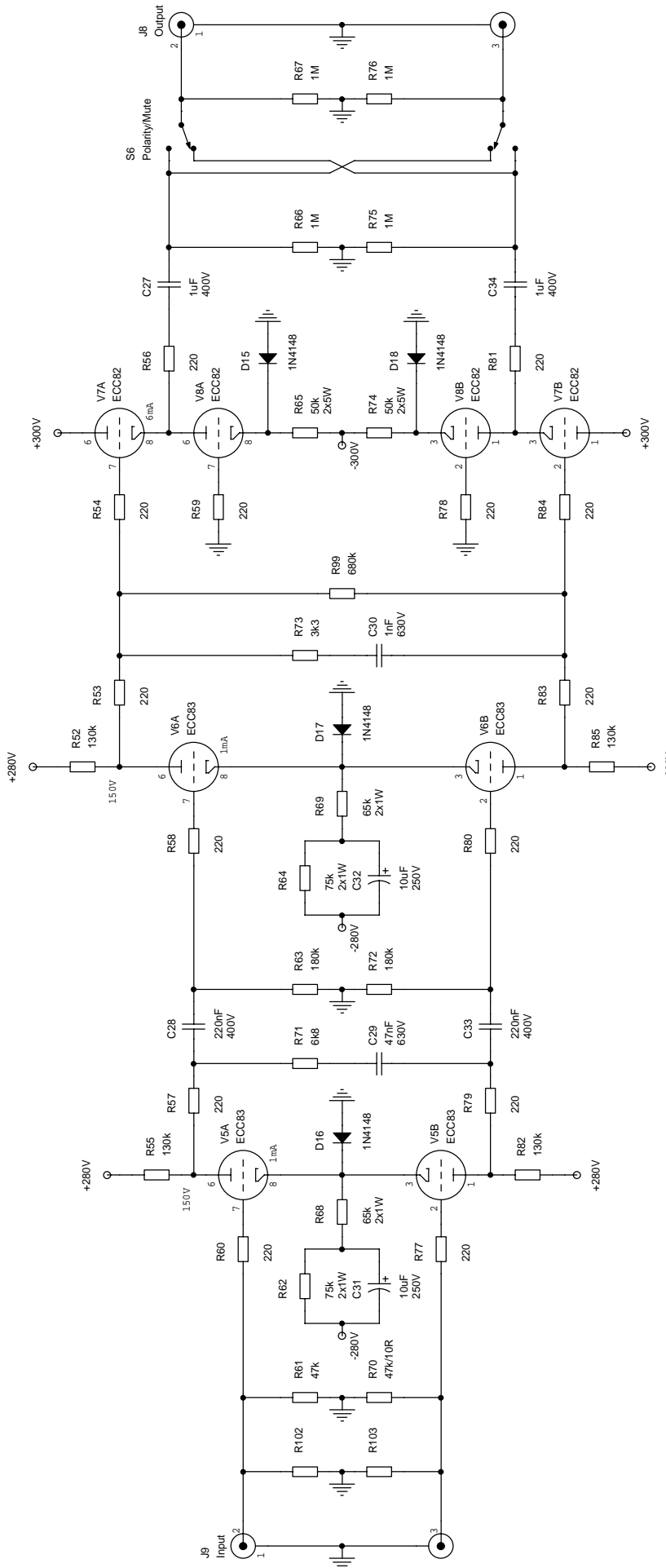
All resistors 1W unless specified.  
 R1A4 is 37.5k & 2W, 25.8k & 3.3k & 94nF.

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