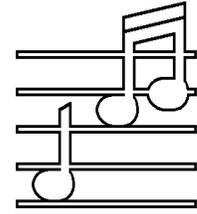


AUDIO BASICS



A MONTHLY NEWSLETTER OF AUDIO INFORMATION

VOLUME ELEVEN NUMBER TEN OCTOBER, 1992

The AVA Versa-Kit Phase Inverter - And More!

Because of your interest, we are continuing with the last version of the new low cost easy do-it-yourself kit (called the Versa-Kit in our new catalog - more about that later). This month we feature the Phase Inverter Kit which allows you to use two stereo amplifiers, one per channel, at about 3 to 4 times single channel power. A further look at our costs tells us the factory wired price must be \$275. Kits will remain at \$195 until further notice.

A New AVA Winter 1993 Catalog and Many Brand New Products!

We have designed a brand new big amplifier chassis.

This is a project we are really proud to have designed and completed. It allows us to provide you with the best value ever in a big power amplifier. The new chassis has a 17" x 7" black anodized faceplate and is 13" deep. Across the entire back is our new serrated black anodized aluminum extruded heat sink assembly (32 fins). The serrations give the heat sink fins twice their normal surface area making the sink much more efficient. In running pre-conditioning tests, we determined that the heat sinks would support full power essentially indefinitely. The four heat sink sections are designed for up to three T0-3 power mos-fet output transistors each, so we can now offer both 8 mos-fet standard current and 12 mos-fet high current "hc" versions of all our big amplifiers in this brand new chassis. The inside of the heat-sink holds our new ground plane output cards for each circuit, and the audio drive cards connect directly to the heat-sink too, for very efficient layout and construction. The bottom and inner front panel and the cover are all high strength steel. The faceplate and back panel are black anodized aluminum with our double anodized silver lettering that can never wear off. Sorry, no photos yet until the finished metal is delivered to us (in about 3 weeks). This new multi-purpose chassis holds several new and upgraded circuits:

- **The Omega II 260 Amplifier.** An 8 mos-fet version of our now famous Omega II 240 (look for the coming review in *The Sensible Sound*) with a higher current toroid power transformer and a higher power rating (130 watts per channel).
- **The Omega II 260hc Amplifier.** The 12 mos-fet high current version of this circuit recommended for driving very low load impedances or for bridged mono applications.
- **The Omega II 440 Amplifier.** An upgraded version of our tried and true Omega II 400 with a higher voltage toroid power transformer, a more efficient layout, and thus more power too.
- **The Omega II 440hc Amplifier.** The 12 mos-fet high current version of our best and biggest solid state amplifier. Your choice when both very high power and very high current drive

is required for difficult, low impedance, low efficiency speakers or for bridged mono applications.

- **The Fet-Valve 300hc Amplifier.** A major redesign and upgrade of our famous vacuum tube hybrid circuits. 12 power mos-fets and an audio circuit with much improved dynamic drive capability. We still rate it at 150 watts per channel, but it really can do over 200! The attacks and musical transparency are now as good as our solid state designs, and it still has that special "something" in the mid-range that only vacuum tubes can deliver. We love it and so will you.
- **The Fet-Valve 500hc Amplifier.** Our most powerful and liquid amplifier. We call it 250 watts per channel, it really makes 300! With twelve big die power mos-fets, a complete new drive board layout and design, and our brand new efficient chassis, the Fet-Valve 500hc is absolutely at the top of the class. It is a long term classic design.

The Omega II 240 continues in production unchanged (why change a winner?) in the smaller 4 power mos fet chassis, but at a \$100 reduction in price! There are also price reductions on the Delta 240 and Delta 400 models.

We have Brand New Preamplifiers Too!

We have expanded the utility of our great new Super Pas Four chassis design to accept a wider range of brand new preamplifier circuits (both wired and kit). Here are the circuits that are available in our all new main preamplifier chassis.

- **The Omega II Solid State Preamplifier** (kit or wired). With this all new AVA solid state design phono circuits are optional. If you don't need them the main audio boards will be built with buffered tape outputs or our phase inverter circuits (your choice) at no extra cost. A built in headphone amplifier is standard too. The black anodized chassis has our ceramic selector switch, precision volume and balance controls, dual tape monitors, 3 AC outlets and 20 gold plated RCA jacks. The complete kit price is just \$395 or \$495 wired.
- **The Super Pas 3i Vacuum Tube Preamplifier** (kit or wired) The upgraded Super Pas Three circuit we told you about last month works so well we wanted to make it available to many more at a reasonable price. So - here is a complete brand new

all vacuum tube preamp with all the functions you would ever need including a built-in headphone amplifier and dual tape monitors. It gets the same superior power supply as our Super Pas 4i Hybrid (actually it is the same mother board in the same new chassis – but executed with the improved vacuum tube time constants and without the buffer circuitry). The complete kit (finished chassis and all) is just \$495, or we can build it for you at \$695. You no longer need an old Dyna chassis or to pay for mechanical options – the Super Pas 3i is brand new and complete with everything.

- **The Super Pas 4i Hybrid Preamplifier** (kit or wired) Of course the vacuum tube upgrades improve the Super Pas Four too, along with faster and cleaner buffer stages. No increase in price, just an increase in value. \$595 kit, \$795 wired.
- **The Fet-Valve Hybrid Straight Line Preamplifier.** The same “best of all” circuits in a brand new package at a much lower price! The same new AVA designed black anodized chassis as the Super Pas 4i and 3i, but with our very best Fet-Valve circuits at a \$200 lower price than the previous Fet-Valve model because our new chassis is so much more efficient to build. If you don’t need phono circuits you can save an additional \$150! The factory wired price is \$995 with phono circuits or \$845 without. Sorry, this design is too complex to offer as a kit.
- **The AVA Versa-Kit.** The budget priced but high end performance simple multi-use preamp as detailed here in the past three issues of *Audio Basics*.

There is much more! Our new catalog will be available by the time you are reading this. Call, write, or fax us (yes, we have joined the 20th century finally with a fax line and phone – its 612-894-3675) if you would like us to send you a free new catalog. It is interesting reading.

Used Equipment

Transcendence Two Pat-5 Preamplifier. This is our great discrete solid state preamplifier we built late this summer for a local customer with all new circuits in an excellent used Dyna Pat-5 chassis. We also installed our new gold jack set. Unfortunately the customer’s desires were greater than his budget and he has finally had to abandon the unit without paying for the rebuild. (When the economy picks up after the election we will try and help him out with another used Pat-5 rebuild). Anyway, for now we have a completed Transcendence Two Preamp with new circuits for a much lower than new price. It is yours for the cost of the lower priced Omega II rebuild and jack set plus \$50 for the chassis – total \$435! It has a nice silver Dyna faceplate and knob set. We can add a silver AVA faceplate for just \$25 more or a black AVA faceplate and knob set for \$50. It has our one year parts and labor warranty. Add \$10 for shipping in the continental USA.

It is Time to Renew *Audio Basics*!

If the four digit number on your mailing label is 9210,9211, or 9212 it is time for you to renew your *Audio Basics* subscription. The price remains \$16/year US, \$20/year Canada, or \$24/year foreign. Remember that *Audio Basics* is a useful Christmas gift. And, at no extra cost Darlene will send the recipient a Christmas card informing them of your thoughtfulness. Give us time to get it all done. Renew and select your gift subscriptions as soon as you can. Thank you!

Frank and Darlene Van Alstine.

The Versa-Kit Phase Inverter

The Audio by Van Alstine Versa-Kit Phase Inverter provides you with all of the parts and instructions necessary for you to assemble your very own complete new state of the art solid state phase inverter bridge.

These instructions are a supplement to the Versa-Kit line preamp instructions published in the August, 1992 issue of *Audio Basics*. You must have the line preamp instructions available as only the non-redundant changes and additions are given here.

Factory Support and Free Bench Checkout.

Same as line preamplifier.

Limited Warranty.

Same as line preamplifier.

Check Out All the Parts First.

Same as line preamplifier.

An Overview of the Rebuild Project.

Essentially the same as line preamplifier except that the only front panel part is the power switch.

Mechanical Assembly of the Back Panel.

Essentially the same as line preamplifier except that the six RCA phono jacks are installed in a slightly different arrangement. Use the phase inverter back panel drill template.

Mechanical Assembly of Front Panel.

Only the lighted power switch is installed. Use the headphone amplifier front panel drill template.

Preparation of main chassis.

Same as line preamplifier.

Assembly of the PC-392 Circuit Board.

Refer to the *Phase Inverter Stuffing Guide* and the PC-392 Circuit Board section of the parts list herein and prepare to assemble this main circuit board.

Refer to the line preamp instructions for general guidelines.

1. Install the 6 diodes in their indicated locations on the board (one set of four 1N4007 power supply diodes near the transformer location and one set of two 1N4744A zener diodes near the supply capacitor locations). Note that each diode has a banded (marked) end. Each diode must be installed with the banded end pointing in the direction indicated on the placement guide.
2. Install the zero ohm jumper (small tan body with centered black strip) in its location as shown on the board.
3. Install ten 0.5 watt resistors (two 560Ω, six 47K, and two 100K) on this board in the locations indicated flush against the board surface. *Place each resistor with the four digit value marking facing up so you can read it when the resistor is on the board.* If you cannot read the values later, it makes finding and correcting mistakes nearly impossible. Make sure each resistor goes in the correct place. Mixing them up will damage the circuit operation. The holes for the leads are all 1/2" apart (the first bend if you have a standard resistor lead bending ladder available). Make sure you do not block the mounting holes for not yet installed parts while soldering. If you do flow solder across and block a pad, careful use of a round wood toothpick and your solder pencil will clear it. Caution, excess heat or force

solder connections on the foil side to tidy up your work and make bad joints and solder bridges easy to spot and correct.

12. Install the two AD845 integrated circuits in their sockets on the board. The marked end of the IC points towards the nearest end of the PC card (aligns with the marking on the pictorial and the socket). Inspect to insure that no leg folded over or missed the socket. If in doubt use a small screwdriver between the IC and the socket to lift it up and out, gently straighten any bent legs, and try again.

Pre-wiring the PC-392 Board.

It is necessary to install nine wires on the circuit board before placing it in the chassis as the foil side is not easily accessible afterwards.

The wires are installed from the component (top side) pointing up and are soldered on the foil side. After soldering trim excess lead on the foil side so it cannot touch the chassis bottom when the board is installed.

We have specified wire lengths. The lengths will be slightly on the long side (only the Red Cross has a wire stretcher) so they can be trimmed to fit neatly as desired.

Be careful not to nick the wire when stripping off about 1/4" of insulation. Nicked wires may break off later.

1. Prepare three white wires (two 4", and one 4.5"). Refer to the Pictorial Diagram and solder one end to the board at the appropriate locations as shown.
2. Prepare three red wires (one 3.5", one 4", and one 7"). Refer to the Pictorial Diagram and solder one end to the board at the appropriate locations as shown.
3. Prepare three green wires (one 4.5" and two 5"). Refer to the Pictorial Diagram and solder one end to the board at the appropriate locations as shown. Note that one 5" green is soldered to the top lead of the 6.8K resistor instead of directly to the board.

Chassis Bottom Panel Sub-Assembly.

Same as line preamplifier.

AC Power Wiring

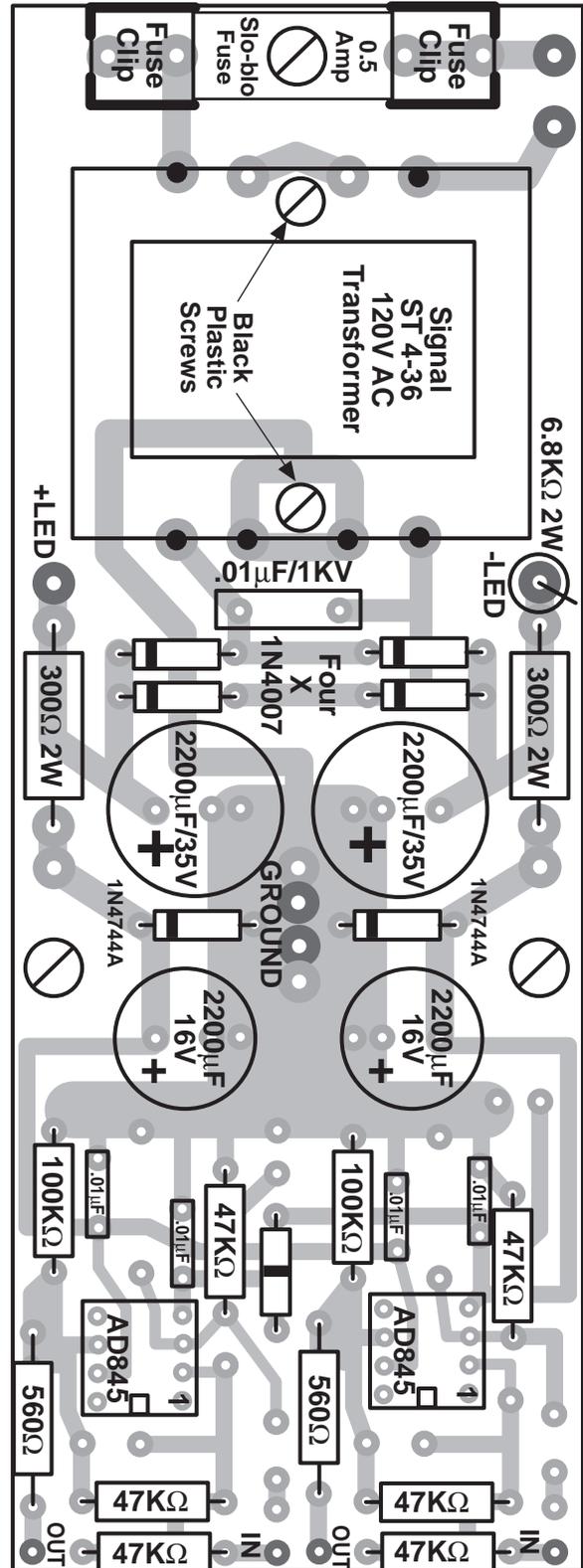
Same as line preamplifier.

Chassis signal wiring.

In making solder connections at the phono jacks do not use excess solder. Make sure the solder cannot run into and block the inner hole so that a cable cannot be installed. If in doubt, use an old interconnect cable inserted into each jack before it is soldered to insure that the jack cannot be blocked with solder.

1. Connect a 560 Ω resistor from the Right Input jack to the Right Output jack. Solder only at the Right Output Jack at this time. Do not allow the resistor leads to touch the chassis.
2. Connect the 4" red wire from R IN on the PC card to the Right Input jack and solder.
3. Connect a 560 Ω resistor from the Left Input jack to the Left Output jack. Solder only at the Left Output jack at this time. Do not allow the resistor leads to touch the chassis.
4. Connect the 5" green wire from L IN on the PC card to the Left Input jack and solder.
5. Connect the remaining 3.5" red wire from R OUT on the PC card to the Right Inverted Output jack and solder.

6. Connect the remaining 4.5" green wire from L OUT on the PC card to the Left Inverted Output jack and solder.
7. Connect the remaining 4.5" white wire from Ground on the PC card to the Main Chassis Ground lug on the back panel and solder.
8. Shake out all the solder blobs, metal filings, and missing tools. Peel the tape from the top and bottom edges of the front panel and dissolve any residue with Ronseal.



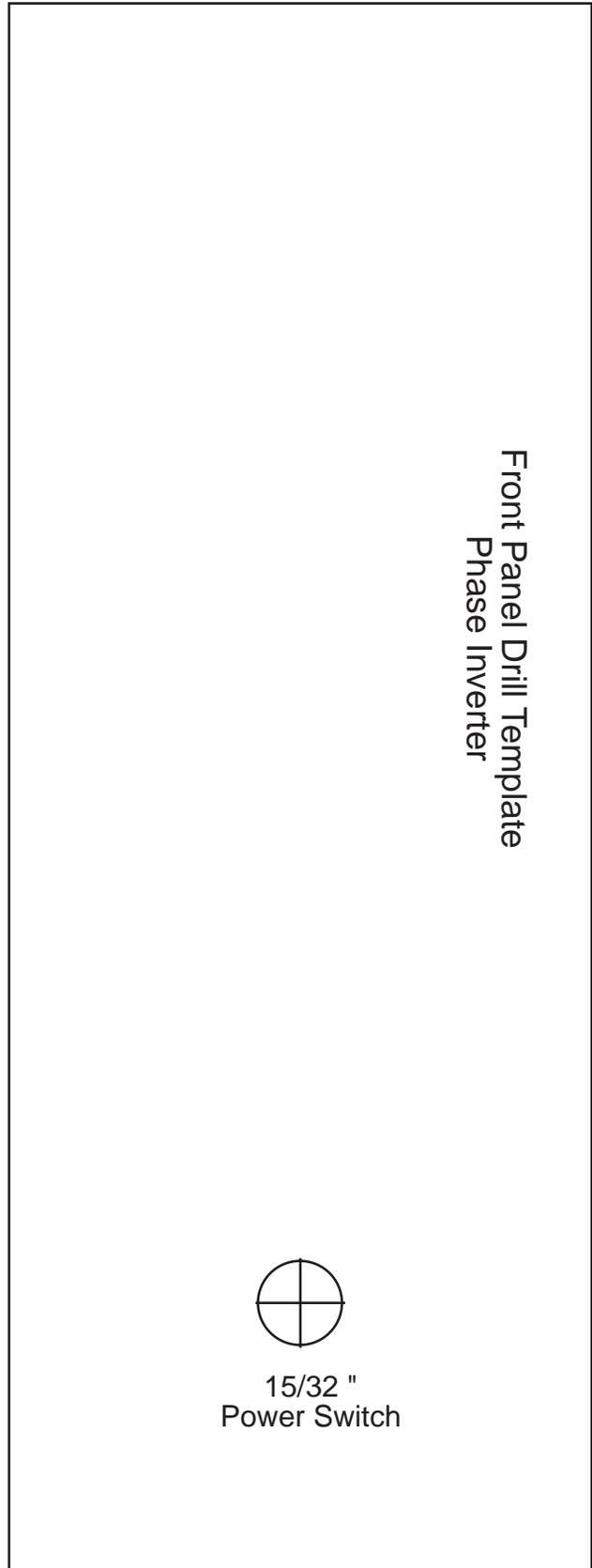
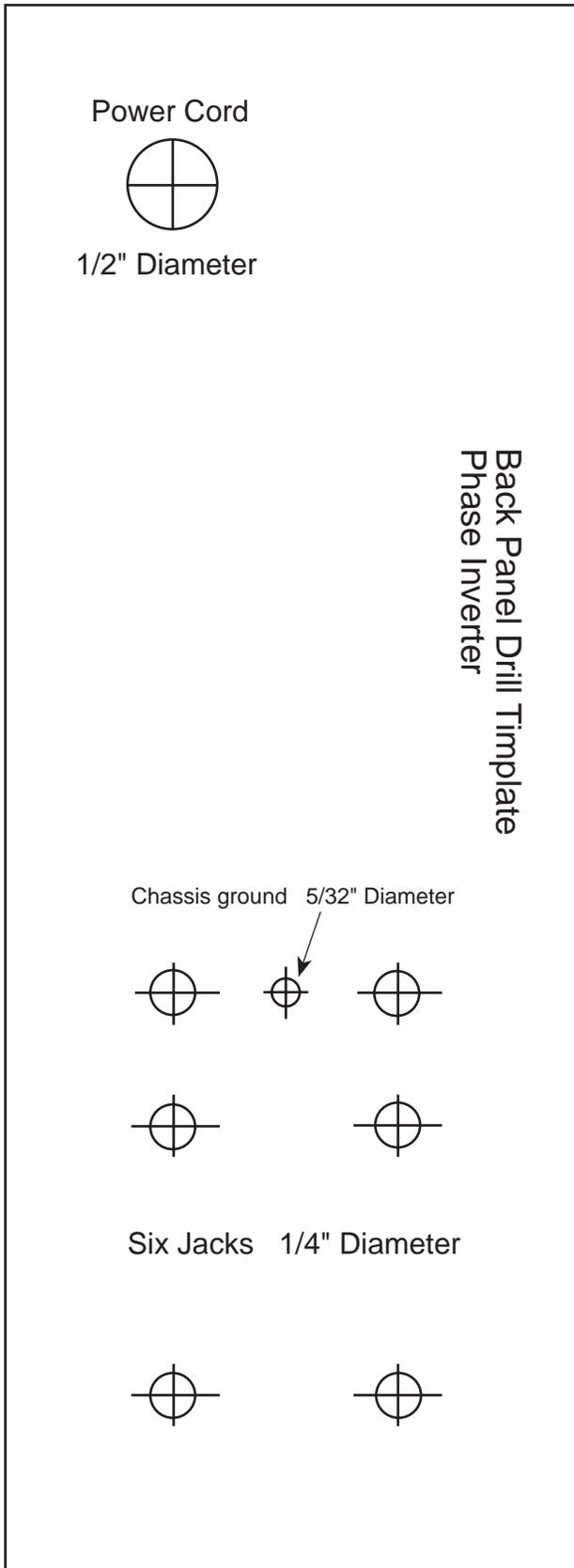
Audio by Van Alstine PC-392 Board Stuffing Guide for Phase Inverter 8/31/92

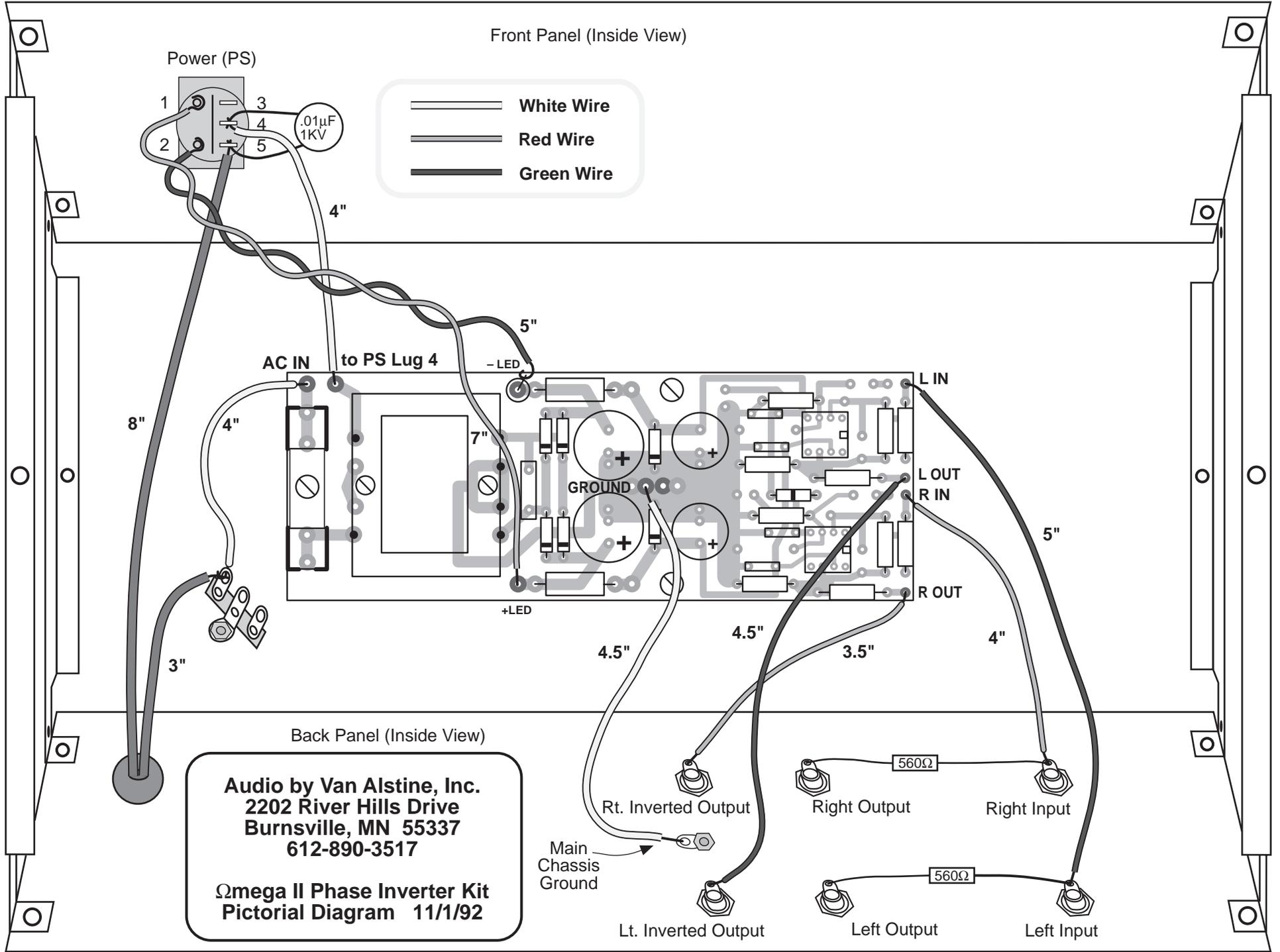
9. Install the two side panels with four 1/4" #6-32 black Phillips flat head screws in each.

Final Inspection and Testing.

Same as line preamplifier. The kit and completed units are supplied with hook-up and use instructions and diagrams to allow the Phase

Inverter to be used with two power amplifiers for three times normal power or with one stereo power amplifier for better separation and imaging. Call, write or Fax us at 612 894-3675 if you would like these hook-up instructions and diagrams (free of charge) now. Thanks for your interest.





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Omega II Phase Inverter Kit
Pictorial Diagram 11/1/92