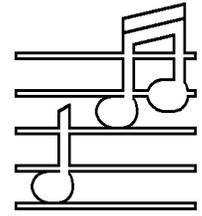


# AUDIO BASICS



A MONTHLY NEWSLETTER OF AUDIO INFORMATION

VOLUME TEN NUMBER THREE MARCH, 1991

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## You Better Listen to the Grado Headphones

One of our clients stopped by recently with a pair of these new \$500.00 headphones from Joe Grado. We didn't get a chance to listen very long but what we heard was more than very impressive. I think they may be the best headphones I have ever auditioned. They were very transparent, they had remarkably deep and high definition bass response, and they played with gobs of space and air. Actually, they didn't sound anything like what I am used to hearing when using headphones (maybe that is why I have never seriously used headphones myself and have never been very enthused about selling them). The Grado headphones might just change my mind. I should also note that they were very comfortable and sealed out external noise well too. The ones we heard were a Grado Signature product. I understand that a less expensive model is coming. If they can keep the quality of an economy model anywhere close to the high priced product it will be a "must have" value. We will let you know when we hear them.

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### Our DM640 Upgrade is Making People Happy

A few issues back we told you how the new B&W DM640 loudspeaker could be improved with minor adjustments to its bass crossover network.

All it needs is a one-half ohm resistor in series with the bass inductor to cut the response off short of DC (so the woofers cannot be driven out of their linear range with sub-sonic non-musical garbage) and a 47 ohm resistor in parallel with the woofers to attenuate their response a small fraction of a dB and to better match them to the cabinet.

Recently we have made the resistor even larger (75 ohms instead of 47 ohms) which provides even more powerful clean deep bass response (use the shortest port) but still keeps all the boom out *if the speakers are*

*used with any of our amplifiers.* With other brands of power amplifiers, the under-damped resonances generated by amplifiers themselves mandate keeping the resistor value at 47 ohms or the speakers will start sounding tubby.

With our crossover improvements though, our clients are reporting that the speakers are much nicer overall than other speakers they have evaluated costing \$1000 to \$1500 per pair more. That comes as no surprise to us. We told you the DM640s, with the crossovers fixed, were \$3000 class speakers. After all, they have all the drivers of the \$4600/pair list price B&W Matrix 802 but in a much less expensive (but actually acoustically better overall) cabinet. You give up a tiny bit of imaging dimension because the tweeter is not free standing, but you gain a lot of impact and dynamic range because the cabinet volume is much greater. They are great speakers, our price is \$1275/pair

now plus shipping. Call us for more information about them, we have data sheets available on all B&W speakers.

### **We Have Dyna St-120 Power Transformers for Sale**

We know some of you have been looking high and low for a Dyna St-120 power transformer with no luck at all because the amplifier is long out of production and Stereo Cost Cutters (Sound Values) has sold all their spares long ago too. Until recently we had no spares either because we needed every good one we could find in our own Mos-Fet series rebuilds for the St-120.

Now we are building our new  $\Omega$ mega 150 amplifier circuits in the Dyna St-120 amplifier. The  $\Omega$ mega 150 uses a brand new transformer – a low profile center tapped one appropriate for the much higher power and DC coupled  $\Omega$ mega amplifier circuits. Because the  $\Omega$ mega 150 is so successful we are accumulating enough spare used stock Dyna St-120 power transformers that we can offer them to you at \$35.00 plus \$10.00 shipping in the continental U.S.A. They are working transformers, taken from tested amplifiers, with leads long enough to reach to the stock wiring locations. They are sold on an “as is” basis, but they do have one advantage – “they are” – nobody else has any.

There are two things you need to know. First, we now have the transformer available to fix up that old transformerless St-120 of yours. Second, if you want our stunning new  $\Omega$ mega circuits installed in your St-120 (75 watts per channel, dead quiet, outrageously fast and dynamic, and unbelievably musical) your St-120 need not have a working transformer at all. We are going to use only the case, two metal heatsinks, the power switch, cord, and fuseholder, and the 5-way binding posts. Inside it will be all new.

Our Mos-Fet E circuit set for the St-120 is all new too, at a lower price than the  $\Omega$ mega circuit. It is quieter and an order of magnitude lower distortion than in the past. For it, we do need the original transformer.

### **Another Useful Do-It-Yourself Project Rewiring the Pas Selector Switch**

**This project is a bonus for all of you that have purchased our Super Pas Two or Three rebuild kits. It is a free enhancement to your original selector switch that allows you to access the unused Special and Tape Head jacks as additional line level inputs.**

The project instructions and wiring sketch assume that your Pas has Audio by Van Alstine audio circuit boards installed and that the middle wafer of the original selector switch is now unused. You can adapt our ideas to an older Super Pas, a Super Pas you upgraded yourself on the original boards, or even a stock Pas if the RIAA phono parts now located on the middle wafer are relocated and hard wired to the phono card. We will give you more advice regarding these alternatives at the end of the main instructions if space allows.

Although the sketch shows the original jack set (and its necessary re-wiring) the instructions apply to the Audio by Van Alstine ground plane jack set too. We will note the differences as we proceed through the instructions.

These instructions assume your selector switch is in good working order. If lugs are loose, broken, or out of alignment then further work on it is useless. We suggest that you purchase our new ceramic selector switch if your original switch is badly worn or is defective. It costs just \$35.00 plus \$4.00 shipping. These instructions do not

apply to our new ceramic selector switch as it is built completely differently.

We are doing this because it is fun. We are discovering some dormant switching capability serendipitously built into the original switch and are making use of it. Its fun to make something work better at no cost other than a little skilled attention. Lets do it now!

1. Carefully review our wiring sketch on the next page to be certain that you can successfully complete the project. You will need a low wattage solder pencil, rosin core solder, some insulated hook-up wire, and a little skill and patience. Remember, the preamp you destroy in the process was your very own. We can fix it for you, but it will cost you.
2. Unplug the preamp and remove it from the system. Remove the cover and bottom, mark the tubes so they can later go back into the same locations, and remove the tubes to a safe location for temporary storage. Discharge all the power supply sections through a 300 ohm 1 watt resistor - its body will get hot during this process.
3. Clean out any remaining wire stubs and solder from lugs 3, 4, 5, 6, 9, 10, 11, and 12 of the middle wafer of the selector switch. A round wood toothpick and a solder sucker is useful for opening the holes in the lugs so new wiring can be attached. Lugs 1, 2, 7, & 8 won't be used. *If you have a stock Pas then the middle wafer of the selector switch is still in use! This project will change the function of the Special and Tape Head inputs from obsoletely equalized phono variations useful for nothing now to flat standard line inputs useful for stereo TV, CD, or a Hi-Fi VCR. You must salvage the two 750 pF capacitors attached to the switch. Remove both*

*with all their lead length intact. These resistors must be relocated to the phono board in parallel with the two 68 pF capacitors now on the board. As an alternative, purchase two new 820 pF 300V mica capacitors and install them where the 68 pF caps are now. Then the old 750 pF capacitors will not be necessary.*

Locate and remove any wiring from PC-6 eyelets 2, 3, 8, & 9 to the middle wafer. That wiring is not used.

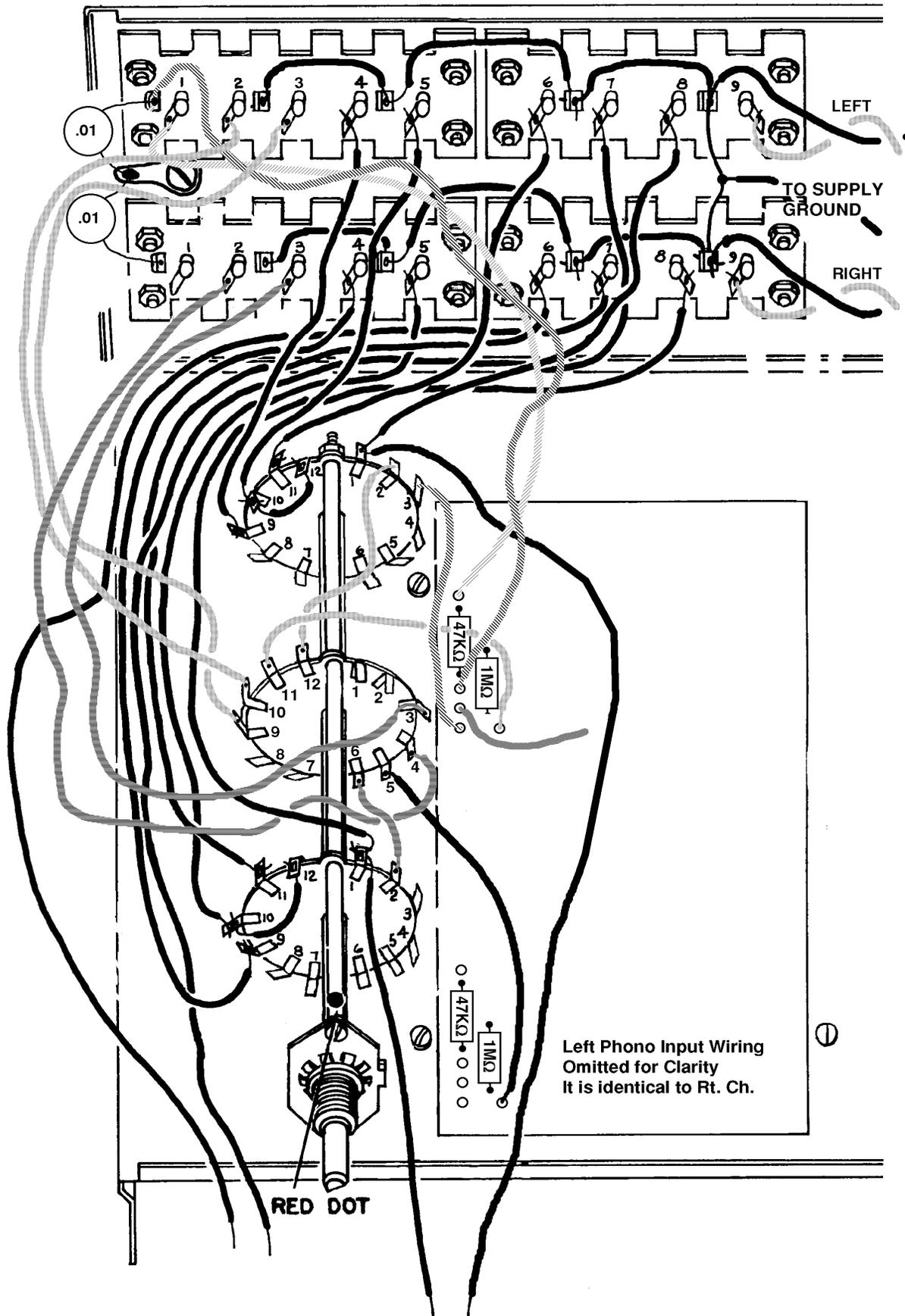
4. The next 6 instructions only apply if you still have the original Dyna jacks (shame on you!). It is necessary to change the back panel ground wiring to isolate phono ground and make the new Special and Tape Head jack grounds common with the other line level grounds.

Or, be much more eloquent, buy our ground plane jack set kit (\$50.00) and skip ahead to instruction 11. Our jack set has 18 new gold plated color coded RCA jacks spaced on 0.5" centers on a FR-4 reflowed fiberglass circuit board. Cables fit without grunging each other, it much reduces crosstalk, and it looks so nice.

5. Remove the wire connecting the ground lug between jacks 2 & 3 to the ground lug at jack 1.

Connect a new wire from the ground lug between jacks 2 & 3 to the ground lug between jacks 4 & 5.

6. Repeat step 5 for the other channel.
7. If there is a 10 ohm resistor connecting the ground lug between jacks 6 & 7 and the ground lugs between jacks 8 & 9, replace it with a wire. On all but very old Super Pas preamps or stock units the resistor should already be replaced by a wire.



8. Repeat step 7 for the other channel.
  9. With stock units note that on both channels a 510 K $\Omega$  resistor is to remain in place at jack 9. It is not shown on our sketch and will not be there with any Super Pas.
  10. With stock units it will be necessary to add the solder lug and two 0.01 $\mu$ F/100V disc capacitors from phono ground to chassis as shown on our drawing. With Super Pas units these parts should already be installed.
  11. Welcome back A.V.A. jack set owners! Your back panel is already set for the rewiring. You simply have two unused jacks per channel (jack 2 & jack 3) to connect to the switch. Anyway, back to the selector switch.
  12. Locate the wire *presently connected* at lug 2 of the front wafer. This is the right channel phono output connection. The other end goes to the phono circuit board. Remove the end connected to lug 2 of the front wafer and move this wire to lug 5 of the middle wafer. If the wire is too short to reach from the PC card to lug 5 of the middle wafer, replace it with a longer wire, keeping track of where the PC card end goes.
  13. In a similar fashion relocate the wire now connected at lug 2 of the rear wafer (the left phono output connection) to lug 11 of the middle switch wafer.
  14. Install a new wire from middle wafer lug 6 to front wafer lug 2.
  15. Install a new wire from middle wafer lug 12 to rear wafer lug 2.
  16. If you have an original Pas, you have a bunch more wires that have to be relocated, skip ahead to instruction 23 and we will tell you what to do. If you have a Super Pas, go directly to the next instruction.
  17. Install a new wire from jack 2 on the right channel (lower row) to lug 4 on the middle wafer (route wire near the edge of the chassis).
  18. Install a new wire from jack 3 on the right channel to lug 3 on the middle wafer.
  19. Install a new wire from jack 2 on the left channel (top row) to lug 10 on the middle wafer.
  20. Install a new wire from jack 3 on the left channel to lug 9 on the middle wafer.
  21. With any luck at all, you should be finished with the wiring. Note that the ground wires still remain from lug 3 on the front and lug 3 on the rear wafers to the PC card. Lugs 4 through 8 on the front and rear wafers are not used. Lugs 1, 2, 7, & 8 of the center wafer are not used.
  22. If your unit does not have a heavy ground wire between the output jack grounds and the power supply your supply wiring needs updating per our May, 1990 *Audio Basics* issue (1990 back issue set available for \$15.00). Do this upgrade if you have not already. All units and kits since then already incorporate this improvement.
- You can now connect a tuner, CD player, Hi-Fi VCR, tape deck, or DAT to the Special or Tape Head inputs. The other inputs continue to function as before. Enjoy the improved functionality with our compliments.

23. Here are some more instructions for stock Pas owners only. You have to relocate some wires from the front and rear switch wafers to the middle wafer and to the phono PC board. Why not break down and buy the Super Pas Three rebuild kit and have a really good preamp while you are at it? It made *Stereophile's* recommended component list again this month. Anyway –
24. Remove the wire now connected from the ground lug at jack 1 of the right channel (bottom row) to lug 3 of the front wafer. This wire is wrapped around three other wires. Unwrap and discard it.
25. Remove the wire now connected from the ground lug at jack 1 of the left channel (top row) to lug 3 of the rear wafer. This wire is wrapped around three other wires. Unwrap and discard it.
26. The wires from lug 3 of the front and rear wafers to eyelets 4 & 11 of the PC card remain attached.
27. Remove the wire from jack 1 of the left channel to lug 8 of the rear wafer.
28. Remove the wire from jack 1 of the right channel to lug 8 of the front wafer.
29. Locate the wire from jack 3 of the right channel to lug 6 of the front wafer. Disconnect the end at lug 6 of the front wafer and relocate it to lug 3 of the middle wafer.
30. Locate the wire from jack 3 of the left channel to lug 6 of the rear wafer. Disconnect the end at lug 6 of the rear wafer and relocate it to lug 9 of the middle wafer.
31. Locate the wire from jack 2 of the right channel to lug 7 of the front wafer. Disconnect the end at lug 7 of the front wafer and relocate it to lug 4 of the middle wafer.
32. Locate the wire from jack 2 of the left channel to lug 7 of the rear wafer. Disconnect the end at lug 7 of the rear wafer and relocate it to lug 10 of the middle wafer.
33. Remove the jumper wires between lugs 4 and lugs 7 of the front and the rear wafers.
34. Remove the wires between lugs 5 of the front and rear wafers to eyelets 6 & 13 of the PC-6 board.
35. Twist together a pair of red and black wires about 8" long. Connect the black wire to the ground lug at jack 1 of the right channel. Connect the red wire to jack 1. At the other end, connect the black wire to eyelet 4 of the PC-6 board (along with the wire from lug 3 of the switch wafer), and connect the red wire to eyelet 6.
36. Twist together a pair of green and black wires about 5" long. Connect the black wire to the ground lug at jack 1 of the left channel. Connect the green wire to jack 1. At the other end, connect the black wire to eyelet 11 of the PC-6 board (along with the wire from lug 3 of the switch wafer), and connect the green wire to eyelet 13.
37. Stock Pas owners, now you are done with the project too. Good listening.

### Used Equipment List

We have some very nice and inexpensive equipment this month. This equipment is being brokered by us as trade-ups on new Audio by Van Alstine equipment. As usual, call us soon, our guaranteed factory checked equipment goes promptly, and remember our 30 day satisfaction guarantee applies here too (with the 15% restocking fee of course).

**Fet 3 Pat-5** with our phono circuits, phase inverter circuits, precision controls, and our ground plane jack set. This full function preamp is in great condition, has a like new gold Dyna faceplate, and is just \$325 with a 6 month warranty.

**Fet 3 Pat-4** with our phono circuits and our ceramic selector switch. We built this great little very clean full function preamp just two years ago. Excellent condition, 6 month warranty, \$195.00.

**Mos-Fet 80D** power amplifier, our new circuits installed in very clean Dyna chassis two years ago and the owner has kept it like new. 6 month warranty, a great match with either preamp above. \$225.00, or \$195.00 if combined with preamp purchase.

**Stock Dyna PAS-3 preamp.** Clean, only one available now, 90 day warranty, \$95.00

*Frank and Darlene Van Alstine*