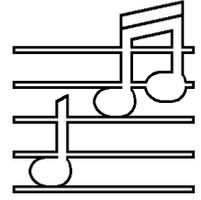


AUDIO BASICS



A MONTHLY NEWSLETTER OF AUDIO INFORMATION

VOLUME NINE NUMBER TWO FEBRUARY, 1990

The following is reprinted with permission from Tom Krehbiel who wrote it for his Sound Ideas column in the February 9, 1990 issue of the *Buffalo News* newspaper. We won't comment except to mention that we sometimes need a day brightener or two.

SOUND IDEAS Rugged amplifier withstands hookup goof.

by Tom Krehbiel, News Stereo Columnist

I came perilously close to silencing my stereo a few days ago. While rearranging the components, I reversed the plugs on my amplifier's output terminals to simplify routing the thick speaker wires.

This is normally innocuous. In my system, however, the amplifier does not feed the speakers directly. The output lines go to the preamplifier's speaker switch. Reversing the cables connected the "hot" side of the amplifier to the preamp's chassis. And that was already linked to the amplifier's chassis by the signal cables.

In essence, I had short-circuited my amplifier. Many amplifiers will either shut down or blow up when presented with such abuse. Mine didn't do either. It played music, but with an astonishing amount of distortion.

At first I blamed the disc I was playing. (It was a reissue from a company that was notorious for poor sound quality.) Then I noticed that only one channel was producing sound. I took the cover off the amplifier and saw that one of the internal fuses had blown.

I called Audio by Van Alstine. They built the amplifier on an old Dynaco Stereo 120 chassis some years ago and had done an upgrade and check only a few months before. They were surprised that one of the fuses should blow and suggested that I move the good fuse to the channel where the other had blown and see if it popped again. It didn't, so I bought some replacement fuses and figured I was home free.

I installed a new fuse, closed the case and put on some music. After a few minutes, I noticed that the amplifier itself was singing along with the speakers. The circuit boards were actually vibrating with the music. When I reached down to take off the cover to check further, I found that it was too hot to touch comfortably.

I unhooked the speakers to hear the amplifier talk more clearly, but when I did, the noise stopped. After a bit of experimenting (and two more blown fuses), I realized that the preamp speaker switching feature had something to do with the problem. I took a closer look and recognized my error. Another call to AVA confirmed it.

"You're lucky," said the technician at the other end of the line. He added, "But that's a pretty robust design." I'm sure I heard a note of justifiable pride in that last comment.

Here is an excerpt from another letter I don't mind publishing. Although it doesn't quite "make my day" and it doesn't make up for the lost sales due to the outrageously unethical review in *Glass Audio* it does let you know that Mottram was trying to sneak one past everybody. But, he got caught. Note that I did edit out the tail end of the letter from Mr. Mottram, in which he tried to tell everybody that his review was unbiased and justifiable anyway. I don't need any more of that kind of BS from someone who miswired the Super Seventy and then tried to hide the fact that he was a manufacturer in order to sell his own product to *Glass Audio* readers at the expense of his competitors. FVA

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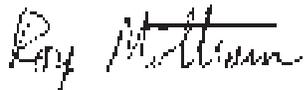
FROM: ROY MOTTRAM, AUTHOR OF ST70 MODS COMPARISON TEST

TO: ALL READERS OF GLASS AUDIO

"I would like to express my deepest apologies to all readers of GLASS AUDIO and especially to Mr. Edward Dell, publisher. Although my motive in writing the article was to ferret out the pros and cons on each modification tested, unfortunately I was stupid enough to include a mod of my own (Vacuum Tube Audio), causing a few of those "in the know" to inform GLASS AUDIO of that fact after the article was published. I was naive enough to think that it wouldn't matter.

At this point I must also apologize to Joe Curcio, Andy Fuchs (GSI). Frank VanAlstine, and Sutherland Engineering..."

Sincerely,



An Update on the "Wire Challenge"

As you readers should remember, I issued a challenge last month to the high fidelity cable and wire industry to prove to me that their premium speaker wires and interconnect cables can be a musically useful asset in my (and your) audio system.

We sent the letter to 19 different hi-fi wire and cable companies. The names and addresses were taken from the most recent *Audio* equipment directory and from *Stereophile's* display advertising and want-ads.

To be honest, I did not expect to get any response at all, but I was mistaken. So far I have had two things happen. One letter, to Clarity Audio Systems of San Francisco

bounced back from the post office marked "Moved, Not Forwardable." If you are still out there Clarity, let me know where you are.

But, however, I did get one very nice telephone response from the president of a wire company. He says he is sending me samples of a couple grades of his speaker wires and of his interconnect cables. He informed me that he thinks that his company does have good engineering documentations as to why his cables and wires are musically useful, but also admitted that sometimes it is hard to explain just why things sound the way they do. (I don't disagree with this honest comment).

He wants me to thoroughly test the wire using our own standards before he will

explain his own test methodology to me, to keep me open minded, he says. That is certainly fair and I am looking forward to the experience.

We have not yet received the samples as of this letter. As I promised in my challenge letter, I am not going to mention the name of the company unless and until I find that their products are of positive musical value or are of significantly detrimental mechanical value. The purpose is not to write "bad reviews" of any cable but to see if I can find any real value in extra cost cable that is worthwhile recommending to you.

The manufacturer did note that, "Sometimes they found amplifiers that just plowed right through the amplifier - cable - speaker interface such that the kind of cable used made nearly no difference." So he asked me to try the cables on mundane equipment as well as on our own amplifiers (which are designed to drive difficult loads as page one of this issue points out). We shall honor his request. We also can see where varying the load can change the sound.

We just evaluated a sample of a new preamplifier from one of our suppliers.

The unit exhibited very strange bench behavior. Internally, the line and tone control circuits use both op-amp and discrete device stages. With the tone controls turned on, the electronic behavior is not too bad, but with the tone controls in the bypass position the circuit first generated a large high frequency peak, and then a later stage generated a large dip. The output looked pretty flat, but that is kind of like hitting a giant bump followed by an enormous hole in the road with your car, and then noting that on the average the road is flat so it must be OK.

Actually, however, the output only looked kind of good as long as the preamp was connected to a standard IHF load (10,000

ohms in parallel with 1000 pF). As soon as the load was removed (with a 10KHz square wave input) the output oscillated at very high frequency.

The circuit needed the damping of the external load to maintain stability.

So, if this preamp was used with two different interconnect cables, one low capacitance and the other high capacitance, it could very well sound much different, as in one case it would oscillate, and in the other it may not.

We want to see another sample of this preamp design (it was a factory rep's very early production sample) before condemning it. Perhaps they just "lost the formula" between design and the first run and the problems will be promptly fixed. We will find out before reporting further.

We can tell when you have been using the wrong kind of interconnect cables!

Once in a while we do get a unit back on our satisfaction guarantee. We can tell which inputs you have been using when you are connecting interconnects with out of spec too large RCA plugs to the system.

When the inner pin of the out of spec RCA plug is too large, it permanently deforms the internal contacts in a built to spec RCA jack. Even the Tiffany gold jacks we standardize on in most of our equipment now won't tolerate this kind of abuse. The contacts are bent, and the jack becomes unreliable. The second time a cable is plugged in, it is likely to not make contact and a channel dropout is the result. Then you can really hear the difference. We may have to start charging for jack replacement.

Also many "premium" interconnect cables have very large metal outside barrels. These may touch together, causing an improper system ground - grounding phono to line, for example. This will cause excess hum and low fidelity, another effect

An Update on the 801 Crossover

In the most recent issue of *Stereophile*, both my first letter and my second letter regarding the 801 crossover crosstalk were published. I appreciate *Stereophile* giving me the opportunity to explain our errors in the first letter without letting us look too silly.

Subsequently I have received a very interesting letter from Tom Lewitt of New Zealand, the gentleman I maligned in my first letter to *Stereophile*. He also sent me a copy of a "now disregarded" letter he had written to *Stereophile* that crossed in the mail with my retraction. That one, you don't need to know about!

I am re-printing Mr. Lewitt's letter to me herein because it is useful in giving you insights as to the process audio designers go through in attempting to bring you better products and to the details and nits we pick to try and get it right. I think you might also like his style.

Dear Franko,
RE:801Crosstalk.

Welcome to the 801 mutilator's club! And glad to know (by your LATEST letter in Sphile) that you've spotted the bizarre layout on the board. As you point out, the layout of L5 and L6 could hardly be worse, especially considering their circuit positions. I must confess that your first letter had me a bit perplexed when read over the phone to me. (I don't subscribe to Sphile.) Hence the enclosed copy of a reply I sent them. Please forgive me if you don't like it! Anyway, the 801 crossover board is riddled with inductive crosstalk throughout, not only between LF and MF, but also between MF and HF, HF and MF, MF and LF. The MF-HF crosstalk can only be analysed after completely tri-wiring the

801. This is no mean task, involving of course cutting PCB tracks, adding jumpers, and running an extra wire up to the mid-treble head in order to give the tweeter a SEPARATE return feed. I connected this extra wire to a solder-tag put on one of the screws that hold the 3-pin XLR male connector. Also soldered to this tag is a 3 inch length of wire with a female banana socket at the end. Correspondingly, on the Female XLR connector coming from the removeable head, a short wire is brought out of it with a male banana plug on it. (Luckily B & W used some 4-wire cable between the XLR and the head transducers, so no need to get inside the head.)

As you note, there is a noticeable tonal balance change after reorientating L6 to get rid of the gross LF-MF xtalk. But also less dryness, signifying more midrange transparency.

However, the best improvement is to be found by ridding MF-HF interactions by:-

1. Tri-wiring
 2. Reorientating L1 and L2
- also:-
3. Eliminating cheap relay contact
 4. Disconnecting protection circuits.

The treble 'life' and sweet clarity are really exceptional.

Interestingly I'm certain that some CD's actually sound worse (eg Telarc 80136). It seems to be that top analog recordings are where the speakers really shine.

Enclosed is a photo of my inductor alterations, involving L1, L2, L5, L6, L7. Even the wires are swapped on L2 to further reduce xtalk. Also L7 is angled upwards slightly. They were set while monitoring via a scope for minimum xtalk.

I'm presently designing a passive network to simulate the woofer crossover electronics to connect between pre and power amps. The woofer will be wired directly to monoblocked, modified Hafler DH500s as an experiment. I hear that you offer mods for these amps, Franko. I'd be interested in details and prices if you could.

I really do feel that it's about time B & W took a bit of flack for their continually pitiful crossover layouts. (let alone wretched voice-coil power handling, finally fixed for the new 801's). For some reason, our beloved pommy brothers take forever to find flaws in their products and get around to getting

them right. Their automotive industry is the prime example of this and millions of hours have gone down the gurgler as innocent customers grapple with shod-ridden design. One classic example is a Triumph gearbox, whose first/second gear hub actually has to mesh with the reverse-idler gear, when first gear is chosen. Unbelievable.

Anyway Franko, hope this is of interest be great to hear from you about your progress, and re Hafler mods. Will you be at CES?

Cheers for now,

TOM W LEWITT

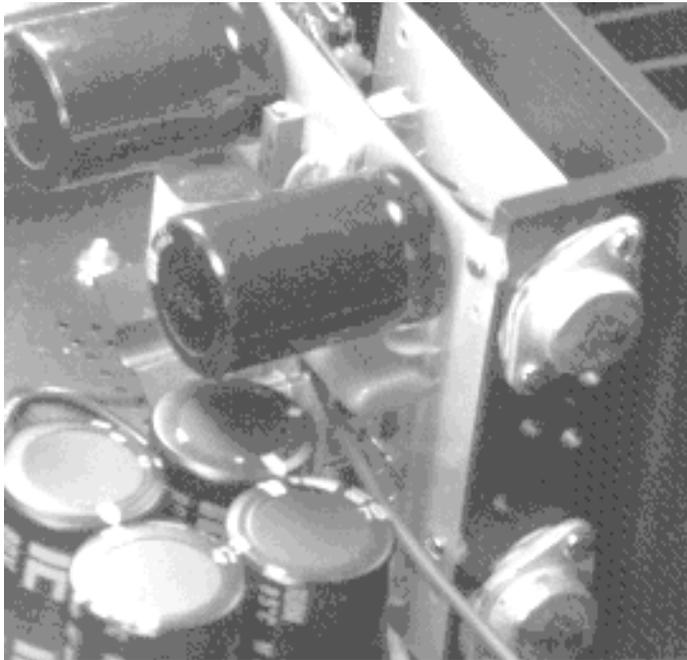


Introducing the AVA "Mos-Fet E" Series Amplifiers

We have been building the Mos-Fet E series amplifiers for over two months now and they have come through their final "shake-down" tests with flying colors – no field failures at all and lots of very positive feedback from the first users so now its time to tell you about them. In short, these are the very best affordable amplifiers we have ever built and we are very proud at how close to our super premium Transcendence Two series we have come.

The secret is power supply, power supply, and more power supply, along with precision parts and careful attention to detail. Doing the layout on a full CAD-CAM circuit card design program on my Mac II and getting each part and foil path exactly where we wanted it, down to the nearest 1/1000th of an inch didn't hurt either.

The concept was a pragmatic answer to a question I was asking myself. I wondered how much power supply feedback interaction there was between the front end circuits and the pre-drive circuits – even when the unwanted feedback was so low with the previous design that we couldn't really measure it. I wanted to find out if it would be possible to hear the difference if that feedback path was completely eliminated. Would the additional expense of separate active power supply sections for the pre-drive and front end sections on each drive card provide audible sonic benefits? We



knew that providing huge decoupled and isolated power supplies for each small signal audio card had provided a surprisingly worthwhile step towards sonic perfection in the D series amplifiers. Would even more isolation – separating each part of each audio card – be cost effective?

The answer is pretty easy to hear! Yes indeed! Even better results than we had expected. The improvements were so obvious that I went

"whole hog" in re-designing the audio boards and even included provisions for precision 15-turn trimpots so that the bias currents and DC centerline can more easily be set exactly right in the final testing process and we can be assured they will stay exactly right, even after severe shipping vibrations.

What do you hear? More of the music is what you hear! Wider

dynamic range, deeper and more robust bass, significantly better treble transient response, but yet overall a more naturally transparent and convincingly clear faithfulness to the music, with no unmusical artifacts at all. The D amps were great, the E amps are better.

The E circuits are available now in the Mos-Fet 240E, 250E, 280E, 400E, 500E and 600E series. The prices remain low. The 120D has not changed and will not for this design cycle. It is the most recent of the D series designs, a completely different circuit concept necessary for its single ended supply. It is a great lower powered tube-like sounding amplifier at a very low price.

Component Retrofit and Upgrade Prices February 1, 1990

The following is the current cost to upgrade older AVA products to the newest series. Should you upgrade? Not necessarily. What you now own in an AVA product is probably not the weak link in your system and you should improve weak links first. Consider also our brokerage service. It is possible that the cost to "trade up" may be less. Call us first before deciding and note that our prices assume that you are sending an AVA wired and working unit not subsequently modified by others. If you do not see your old AVA equipment on this list, call us to find out if there is an upgrade available for it.

CHASSIS	FROM	TO	PRICE	NOTES
Hafler DH-110	Fet Three Plus	Transcendence Two	550.00	with tone controls
Hafler DH-101	Any Super Fet Series	Fet Three	195.00	with tone controls
Hafler DH-101	Any Super Fet Series	Fet Three Plus	350.00	with tone controls
Dyna PAT-4	Any Super Fet Series	Fet Three	195.00	with tone controls
Dyna PAT-4	Any Super Fet Series	Fet Three Plus	295.00	with tone controls
Dyna PAT-4	Fet Three, Plus, Super Fet	Transcendence Two	495.00	with tone controls
Dyna PAT-5	Any Super Fet Series	Fet Three	250.00	with tone controls
Dyna PAT-5	Any Super Fet Series or Fet Three	Fet Three Plus	350.00	with tone controls
Dyna PAT-5	Fet Three, Plus, Super Fet	Transcendence Two	550.00	with tone controls
Dyna PAT-5	Transcendence Series One	Transcendence Two	495.00	with tone controls
Dyna PAT-5	Any AVA circuit	T-3 Fet-Valve	1045.00	with new faceplate
Dyna PAT-5	Any current AVA circuit	New black AVA faceplate	75.00	with black knobs
Dyna PAS-3	Super Pas, Super Pas Kit	Super Pas Three	450.00	with jacks, switch, faceplate
Dyna PAS-3	Super Pas Two	Super Pas Three Supply	175.00	power supply upgrade installed
Dyna PAS-3	Super Pas Three	New black AVA faceplate	50.00	with black knobs
Crown IC-150	Same as Pat-5 upgrade costs			
Dyna SCA-50	Any Mos-Fet Control Amp	CA-50 Control Amp	400.00	new toroid transformer
Dyna SCA-50	Any Mos-Fet Control Amp	CA-150+ Control Amp	600.00	
Dyna SCA-80	Any Mos-Fet Control Amp	CA-80 Control Amp	300.00	
Hafler DH-220, 200	Any Mos-Fet Series	Mos-Fet 250E	295.00	
Hafler DH-220, 200	Any Mos-Fet Series	Transcendence Two	795.00	
Hafler DH-220, 200	Transcendence Series One	Transcendence Two	795.00	
Hafler XL-280	Mos-Fet 280C, Mos-Fet 280D	Mos-Fet 280E	295.00	
Hafler XL-280	Mos-Fet 280C, 280D, 280E	Transcendence Two	795.00	
Hafler DH-500	Mos-Fet 500C, Mos-Fet 500D	Mos-Fet 500E	395.00	
Hafler DH-500	Any Mos-Fet Series	Transcendence Two	895.00	
Dyna ST-400, 416	Mos-Fet 400C, 400D	Mos-Fet 400E	395.00	
Dyna ST-410	Mos-Fet 400C, 400D	Mos-Fet 400E	395.00	
Dyna ST-410	Any Mos-Fet Series	T-3 Fet-Valve 400	1795.00	
Dyna ST-150	Any Mos-Fet Series	Mos-Fet 240E	350.00	
Dyna ST-150	Any Mos-Fet Series	T-3 Fet-Valve 200	1045.00	
Dyna ST-120	Mos-Fet 120, 120B, 120C	Mos-Fet 120D	295.00	

THE USED AVA EQUIPMENT LIST

Remember the rules. These are units we are selling to credit our clients' accounts towards their purchase of even better Audio by Van Alstine equipment.

Each of these units has been bench and system checked by us as if it was new and carries our 30 day satisfaction guarantee subject to a 15% restocking charge. Each unit carries at least a 90 day warranty (check each listing). Each item is a one-off special value. If you see what you have been looking for call us promptly. Note that this is nearly a complete new selection. All units but one from the January, 1990 listing have already sold. Owners of sold equipment, remember that we are waiting for the 30 day satisfaction return to expire before crediting your account.

1. **Fet Three Pat-4 preamplifier.** Brand new AVA Fet Three preamp circuits and precision volume and balance controls and new tone control pots in a very nice used Pat-4 chassis. We got this chassis for free, so we thought we would more than pass along the favor. You pay lower than list for the circuits, and nothing for the chassis. We are even throwing in a new cover to make this great sounding preamp look new too. Only \$199 and a two year warranty on our circuits. Call right now!!

2. **Reconditioned Dyna Pas 3 preamp.** When we got this unit it wasn't working. But it still had a lovely faceplate and knob set so FVA did a complete overhaul on it, including a new heater supply to fix its problems and a new tube set. Now it works better than new. Buy it now and use it stock until you can afford the Super Pas Three rebuild kit. It won't drive a low impedance solid state amp, but it is just fine for most AVA amps (which are 100K or higher input impedance) and of course it matches vacuum tube amps. \$169.00 and a 6 month warranty.

3. **VA Systems Model One preamplifier.** The original "high-end" straight line preamplifier in great physical and electrical condition. Patented "no feedback" RIAA circuits. Still a very good sounding (smooth and tubelike) preamp. Handles phono, tape, tuner, and CD. Attractive low profile custom built chassis. New price \$600.00, sale price \$185.00! No "nibbles" last month, how about \$125.00?? 6 m. warranty.

Call us promptly at 612 890-3517 about these special values. Each will be placed with the right new owner and each will make that person's audio system more rewarding.

One further observation. We would really like you to pay for the used equipment with a money order, so that the wait time for releasing the new equipment to the former owner is shorter because we won't have to factor in check clearing time. When you want to trade up, you will appreciate getting your new equipment sooner too.

Hey People, We Need Your Equipment!

We are getting tired of disappointing people by saying, "its already sold." If you are thinking at all of "moving up" to better Audio by Van Alstine audio electronics, now is the time to call us. We are selling all of the used AVA equipment we can get our hands on, and selling it very quickly at the agreed upon (very fair) prices.

We are really pleased that this plan is helping you get the most out of your used AVA equipment. The demand is there for your equipment when we can test, warrant, and guarantee it. Now is a good time to trade up.

Frank and Darlene Van Alstine