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AUDIO VERITY: Audiophiles collect discs;
music-listeners collect recordings.

As We See It

Chasing Rainbows

There was a time, very recently in terms of human history, when high fidelity promised to free the music lover from the constraints of the concert hall and the local repertoire, allowing him to choose at his whim any orchestra in the world playing any work he desired under the baton of any conductor he preferred. "All the pleasure of concert-hall listening, in the comfort of your home," was the way one display advertisement painted this musical utopia which, only 20 years ago, seemed right around the corner.

Three years previously, the stereo disc had broken through what appeared to be the last barrier between the home listener and the concert hall, by allowing the reproduction of spatial and directional information. Instead of listening to Symphony Hall, Boston through a hole in the wall, stereo removed the wall, transforming the space between the loudspeakers into the front of the concert hall. Now, we were, assured, all we had to do was sit back, relax, and en-

joy the music. But somehow it never came to pass.

Ask yourself: When was the last time you sat down to listen to a recording for the sheer enjoyment of the music? Not as a pleasant background for reading, or as atmosphere to facilitate a seduction, or as a test of the imaging or trackability or detail of your latest combination of components, but simply for the kind of enjoyment you experience routinely at a live concert. If you have done this within the past 30 days, or can honestly say you have done it four times within the past year, you are an unusual audiophile indeed! On the other hand, you may be a member of that other group which subscribes to *Stereophile*: the music listeners.

The typical music listener owns a very good stereo system, but he will be the first to tell you that it is by no means State-of-the-Art. He will also be the first to admit that the reason he hasn't bought a Berning TF-10 preamp is because he buys records instead, and thus never accumulates the

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necessary \$1300 for a SOTA preamp or cartridge or power amplifier or what have you. And interestingly, he does listen to his system quite often for musical enjoyment.

It would seem that high fidelity brings listening pleasure only to those whose dedication to perfection is, let us say, alloyed. There are exceptions to this of course, but in general, the more critical of reproduced sound one becomes, the less one is capable of enjoying reproduced music.

To the person whose concern for fidelity borders on the obsessive, the fact that the playback system is not perfect, and that the imperfections are audible, dilutes the pleasure he derives from listening to music through it. But the distress of the audiophile who can hear imperfections is as nothing when compared with the anguish suffered by the compulsive perfectionist who knows that his system has certain shortcomings *but is unable to hear them.**

Another reason for the perfectionist's unhappiness is often the growing realization that, as of April 1982, perfection is not really possible. Of course, we all mouth that platitude from time to time, but it is difficult to accept the wisdom of it on an emotional level while we dump ever-escalating globs of money into one State-

** A subscriber who is also a psychologist has named the resulting anxiety state "the Lumley syndrome," after a young lady named Enid Lumley who writes for The Absolute Sound. Ms. Lumley seems able to hear, with remarkable clarity, subtleties which few other audiophiles can perceive. The Lumley syndrome is described as an anxiety/depression induced by the conviction that there are others out there in audioland who are endowed with finer, more-sensitive auditory perceptions.*

of-the-Art component after another.

The dismay is heightened, in the more-introspective, by the recollection of those halcyon days of ignorant bliss when, unaware of the mediocrity of our system, we were still able to listen to records for enjoyment. Those days, like the naiveté of youth, are gone forever, and the hard fact of the matter is that perfection, like the end of the rainbow where the pot of gold is stashed, is always just a hilltop away. As you advance, it recedes, because every subtle improvement in the fidelity of sound is reciprocated by an enhancement of the perfectionist's ability to hear ever-more-subtle imperfections. The whole high-fidelity game takes on the appearance of a rather nasty sort of marathon race where the finish line advances as the runner advances, to keep his goal forever beyond his grasp. Small wonder that many audiophiles have wearied of the chase and turned to the more-achievable attractions of video or home computing.

But pride being such a potent force, few continuing audiophiles who have dumped \$10000 into a state-of-the-art system which still fails to satisfy, will admit their disappointment, even to themselves. "My system sounds better than it ever has," he will tell you with apparent enthusiasm. Which of course is true. What is also true is that he finds it no more enjoyable to listen to than was his system of 10 years ago.

Yet we look at the music listener with his 2000 records and his gnrr-lined Grommes amplifier and Stephens TruSonic speakers, we shudder with disbelief that anyone could listen to so primitive a system, and we wonder how he is able to enjoy his records so much that he'd rather listen to high fidelity than read about it. The answer is: Expectation.

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How to Replace a Woofer

So you finally popped a woofer, and have elected to replace it yourself rather than pay an exorbitant service charge for the job. How do you go about it?

First, you have to get the proper replacement. You will soon find that this may not be a simple matter of writing to the manufacturer and saying "I have a Model 8A Acousticon speaker and I need a woofer for it." Of course, it *may* be that simple, but chances are that the manufacturer has changed woofer suppliers (or cone construction) since he put your system together, and may in fact have used several different woofers during the course of production of your particular model of speaker system. So, in order to nail things down, he will need the serial number of your speaker as well as its model number.

Ordering a replacement part by mail can be frustrating and time-consuming. First of all, most manufacturers do not care to have charter members of the Common Ierd messing around with the inwards of their equipment, for to botch things is only human. Your first chore will be to persuade the manufacturer to make an exception in your case.

Your first step, then, should be to place a telephone call to the service manager. You can get the phone number from Information in the city where the factory is located. This can be ascertained either from whatever literature for your loudspeaker that you may still be able to lay your hands on, or from the Directory of Manufacturers that appears in every component directory published annually by *Audio and Stereo Review*. Once you have the city, dial your local operator

for its area code, then dial 1-Area Code-555-1212 for Information.

Once you get the service manager on the phone, tell him as briefly as possible that you need a woofer replacement and ask him how you can order one. He will immediately tell you to take the system to an authorized service center or ship it back to the factory. That's the time to tell him you would rather do it yourself, you are perfectly capable of doing it, and you will assume full responsibility for the job. If he still won't co-operate, ask him to transfer your call to the president of the company. This will usually do the trick. If it doesn't, plead your case with the president. If he backs up his service manager, acknowledge that you're licked and either go through the usual repair ritual, or heave the speakers out and buy a better pair.

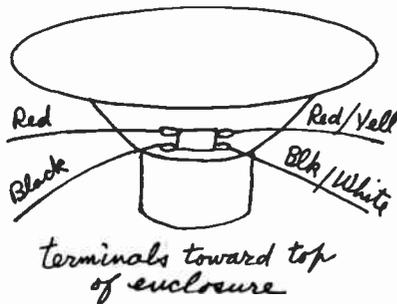
Assuming, though, that the factory is willing to send you your replacement driver, what then? While you have someone on the phone, ask what secret fastener or trigger must be actuated in order to remove the grille cloth. In some cases, small nails must be pried loose, but it nonetheless helps to know where these are in order to avoid destroying the grille frame. Then ascertain how much money the manufacturer will want for the woofer plus shipping, and send off a Money Order for that amount. (A check will take time to clear.) Then resign yourself to watching TV until the package arrives.

Now, to the task at hand. First, if your watch is of the variety that can be magnetized, be assured that the new woofer will magnetize it if you don't

take the thing off your wrist and put it aside. Un-box the woofer carefully, taking pains to handle it only by the magnet or by the perimeter of its basket. It is *very* easy to poke a finger or two through the outer cone surround. Endeavor not to.

First, use 3/4-inch masking tape to mark the position of the speaker enclosure on the floor (assuming you have spent 6 months finding the best location in the room). Now, remove any protruding plugs from the rear of the enclosure and lie it on its back. Remove the grille cloth as instructed. Then remove all the screws around the perimeter of the defective woofer.

Now, place the tip of a largish screwdriver under the edge of the woofer frame and *slowly* pry it away from the enclosure. (There may be caulking material under



it, and this requires slow pressure to detach it.) Once the driver is free, lift it out and set it -- magnet down -- on the enclosure next to its cutout hole.

Before disconnecting its wires, write down a brief description of where *either* of the wires attach, as viewed from above the speaker and in front of the cone. Indicate also whether the speaker terminals are towards the top or the bottom of the enclosure. Both of these identifications are essential to ensure correct phasing of the replacement woofer.

The description might read: Terminals towards top, red wire to left terminal. If one terminal has a red mark on it, you can note which wire attaches to it. Either identification will suffice.

In the rare instance that the driver is found to have four wires attached to it, it may be best to make a sketch of the terminal arrangement, with each marked with the color of its attached wire. If any wires have two colors, such as white with a black stripe, cite both colors -- main color first, stripe color second. Again, don't forget to specify whether the terminals are toward the top or the bottom of the enclosure. (If they are on opposite sides of the driver, mark one pair (either one) with a dab of highly-visible color with a china-marking pencil, nail polish, or a felt-tipped pen, and put a similar mark next to the written description pertaining to the wires which go to *those* terminals.)

Now disconnect the wires from the woofer. Clips may be worked off the terminals by pulling them while slightly jiggling them from side to side. Soldered wires should be clipped off right at the terminals. Set the old woofer aside.

If the original speaker was caulked in place, and the caulking came off nicely in one or two long pieces, roll it back and forth on a smooth surface to make it round and free from lumpy extrusions, then reinstall it around the speaker cutout between the screw holes and the edge of the speaker hole. Make sure it forms a continuous ring; air leaks will make fluttering noises when the system is reproducing bass. (If the caulking came off in little bits, roll them all into a ball and roll that out until it is of uniform thickness and the necessary length, which

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Acoustat Model Four Speaker System

Full-range electrostatic speakers. Rated frequency response: 28 to 20k Hz, ± 2 dB. Minimal power required: 50 watts. Nominal impedance: 4 ohms. Dimensions: 59" by 36 by 4. Weight: 86 lbs. Price: East Coast \$2070, West Coast \$2150. Manufacturer: Acoustat Corp., 3101 Southwest Terrace, Fort Lauderdale, FL 33315.

Our on-again-off-again love affair with electrostatics dates back to the late 1950s, when we first heard a tweeter system made by an obscure Cambridge, Mass. firm called JansZen. Those were the days when the fastest tweeters had a high-end range of about 15 kHz, and the difference between those and the first electrostatic tweeters was so dramatic it was ludicrous. The JansZen tweeters, with their 30-kHz range, revealed highs we had never known were on discs, as well as distortion products that we had been happy not knowing about. Their highly reactive load threw many power amplifiers into spastic fits, and they were not at all difficult to blow out by accidental overload. And then there was the beaminess -- their tendency to radiate highs in a narrow on-axis beam which limited the listening area to a lateral head span of about 6 inches.

Warts and all, we loved what they did well and were inclined to excuse what they did less well. But we always wished someone would come up with improved versions. Shortly thereafter, JansZen unveiled the first commercial full-range electrostatic made in the US. (The Quad was first, worldwide.) We loved it, but it still had problems. It imaged poorly, it

had a sucked-out middle range, and it had to go back to the factory from time to time to have its panels cleaned (they attracted dust) and certain resistors replaced (they crystallized from the high voltages across them).

Then, in the middle '60s, we heard a new full-range electrostatic made by a gentleman named Harned. In many ways it sounded far better than the Janszen, but it was still beamy, it was a very difficult load for most amplifiers, and its designer never really got his business off the ground. We went back to dynamic speakers.

Then there was Infinity's SS-1, with its servo-amp and 18-inch woofer in a cube. Sonically, a giant step forward, but... Its amplifier added roughness to the sound, it still imaged poorly, and -- worst of all, its mid-range panels had a tendency to blow out when the system was hit with a heavy mid-bass impulse (as from a kettledrum). A later version, the SS-1A, was improved in all respects but still suffered from panel failures. We went back to dynamics.

Then, in 1977, we received for testing a Model X full-range electrostatic from a then-new company called Acoustat. And, Lo, it appeared to be a reincarnation of the Harned, which in fact it was. Acoustat bought the rights to the original design from its inventor, refined it into a practical product, and eventually established themselves as the first makers of a truly reliable full-range electrostatic. (Their speakers now have a lifetime warranty!)

The Model X (and subsequent Monitor Four) was unique also in that, instead of an input step-up transformer (required because an electrostatic needs to see a high impedance and high driving voltage

es), it had its own integral amplifier which drove the screens directly from transmitting tubes. Unfortunately, Acoustat did not seem as qualified to design amplifiers as loudspeakers. The so-called Servo-Charge amplifiers used bipolar transistors in all stages up to the outputs, and the result (not surprisingly) was a rather dry and very un-electrostatic sound that was ameliorated but never eliminated through several subsequent circuit modifications.

Then came a genuine design breakthrough. (Most so-called breakthrough aren't.) A way was devised for using two input step-up transformers in parallel, with one embodying all the design characteristics which made it ideal for treble, the other embodying the ideal characteristics for handling bass. (The fact that both cannot be combined in a single transformer is what made earlier electrostatics so difficult to design, and what made the Servo-Charge amplifier look like an attractive alternative. That amplifier was never able to deliver enough voltage to permit full-dynamic-range reproduction, and the cure for that would have been prohibitively expensive, even if practical.) With the two transformers working in parallel, the signal fed to the electrostatic panels "looks" like a full-range signal, with no crossovers and, in theory, absolutely no phase shift.

Today, Acoustat makes five full-range electrostatic models: The Two, Three and Four (the number is the number of radiating panels), and stacked versions of the Three and Four which are called the Six and Eight. And they differ in more ways than cost.

We have observed for a number of years that speakers having a large radiating area do not seem to mesh well with smallish rooms and vice versa. With systems radi-

ating over as large an area as full-range electrostatics, this can become crucial to their performance, as we shall see.

When we first auditioned the Four, in a large room (19 by 9 by 68), we noticed a slight heaviness which seemed related to a mid-bass excess. We had previously read other reviews of the Four which gave the impression that the heaviness they heard was so severe as to be a major weakness of the system. In view of our own observations, we had attributed the vehement negativeness of those reviews to the audiophile tendency to group components in two categories -- fantastic, and crappy -- with no in-between.

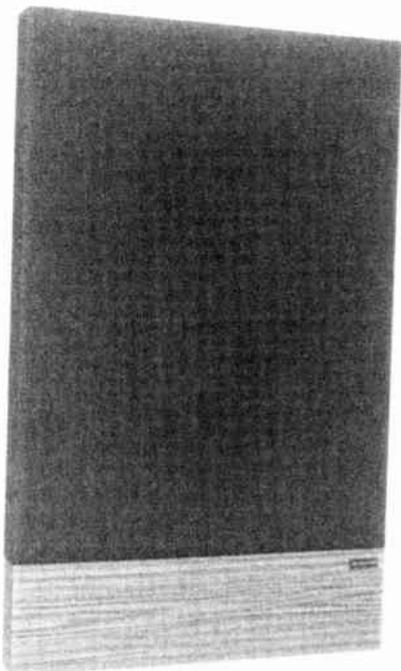
We subsequently found that some of that heaviness was related to the power amplifier driving the system. For example, the Berning EA-230 (strapped) seemed to eliminate the problem, as did the little Sonic Developments D-235. We were inclined to think that that was the last word on the subject.

Several weeks later, we decided to try the Acoustat Fours in a room whose size was more typical of an average living room (8 by 14 by 19 feet). At which point, we were party to a remarkable coincidence. The doorbell rang, and there -- unannounced -- was Acoustat's Bob Reiman, who just happened to be visiting Santa Fe for the weekend (to see a local dealer, actually).

We finished installing the speakers, along one short wall of the room (Mary E's first choice, as the room is our entertaining living-room), and were appalled at how rotten they sounded. They were dark, withdrawn, boomy, and remarkably dead. Bob suggested that we try placing them along the long wall, which necessitated shoving all the furniture around. (Many audio spouses wouldn't have put up with that!) We agreed, with skepticism, and were surprised to find that

the problem was greatly ameliorated. The speakers began to sound the way they did along the short wall of the first, larger listening room.

Bob then went on to elucidate further his observations about this. He had learned that, if the Fours sound right in a given situation, the threes will sound somewhat sparse and the Twos downright thin. And in situations where the larger speakers sound heavy (and dead), one or the other of the smaller ones will probably give the ideal balance.



Where, then, do the Acoustat Models Six and Eight fit into this schema? What they achieve is a doubling of radiating area without an increase in panel width. (It is apparently the width, not the total area, which interreacts so strongly with the dimension of the wall behind the speakers.) In the Six

and Eight, the additional panels are placed above rather than next to the original three or four panels. The doubled area adds an additional 3 dB of conversion (electrical-to-acoustical) efficiency and about a 3rd-octave of low-frequency range. (With a closed-box speaker system, doubled radiating area typically adds an octave to the bottom, but this relationship does not hold when the system's lower limit is mainly established by air-pressure "leakage" around the edges of flat panels.)

As of now, it would appear that there is some sort of mathematical relationship between the width of an electrostatic's radiating surfaces and the length of the wall behind the speakers. No one has yet proposed any such formula, but on the basis of our own observations and what Mr. Reiman recommended for small rooms, we suspect that formula would go something like this:

$$L_w = W_T \times 6.5$$

where L_w is the length of the wall behind the speakers, and W_T is the width of the panel area of one speaker. For example, if the total radiator width of one speaker is 2 feet, as with an Acoustat Two, the formula would be 2×6.5 , or 13 feet. The speakers should be in front of the wall which measures closest to (or slightly more than) 13 feet across.

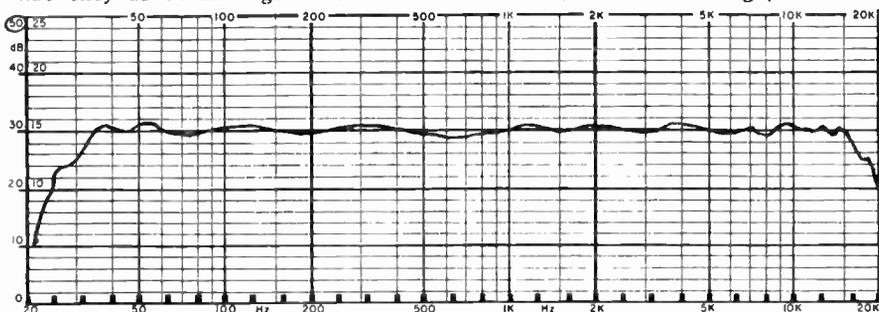
We haven't tested the other Acoustat models to date (although we heard and were impressed with a pair of Eights at a neighbor's home).

As for the Fours, we can report the following: In terms of potential, these are now the best speakers we have heard. Take any list of checkpoints for loudspeakers and these will pass every one with flying colors. There is no need for us to reel them off. For those familiar with earlier Acoustats, we need only say that all of their shortcomings have been virtually

eliminated from the Fours. They will now put out very high sound levels -- limited only by available amplifier power, they image superbly to very well depending on whether they are aimed to cross axes at the central listening location or a foot or so in front of it. And they sound as though there is no upper or lower limit to their frequency coverage. (There are both of course.) Their reproduction of front-to-back depth is dependent on the electronics; with most amps and preamps they sound flat, like a tapestry. With ideal electronics, they reproduce all the depth information that is on the recording.

So much for what they can do. What they *do* do in a given situa-

tion, strapped), and the Shure V-15-IVG cartridge. Acoustat has also been recommending the Bedini 100/100, the Hafler DH-200, the Audio Research D-90, the Threshold Stasis II and the Leach, but we have not as yet tried any on the Fours and are distinctly dubious about some. Now that Acoustat has their own power amplifier we doubt that those other recommendations will stand, and after having heard it briefly on the Fours we can understand why, as it bids fair to be the best driving amplifier now available for these speakers. (It delivers about 350 watts/channel to them, and the price is only slightly more than that of the 35 watt/channel Berning.)



Measured frequency response of the Acoustat Four. (Average of 12 curves, 6 each in two different rooms.) Automatic curves by Neutrik AudioTracer.

tion is another matter. First of all, they are embarrassingly unforgiving of every weakness in every component ahead of them. Mistracking, inaccurate equalization, slight spectral imbalances, tiny amounts of preamp and amplifier distortion are brought under the same analytical scrutiny that they bring to the things that *belong* in the sound. The only saving grace is that, unlike transducers with rough high-end response, they don't *exaggerate* these things.

There are very few amplifiers, preamps and cartridges which will do justice to these. The only ones we had found as of the last issue were the Berning TF-10 preamp, the Berning EA-230 power amps (two of

A final note: As long-time readers will have observed, we are exceedingly critical of the naturalness with which musical timbres are reproduced. When these are exactly right, certain circuits in our auditory system click shut and we register "realism." The Fours have elicited this reaction more often than any other system we have heard in many years. This, in short, is a speaker any critical audiophile or music-listener could be happy with for a long, long time. But don't play roulette with the associated equipment. If you don't use what we recommend, you won't hear what we hear. And that would be a pity. JGH

Nitty-Gritty Record Cleaner

A wet-cleaning vacuum-drying disc-cleaning device. Prices: Noisy model, \$299; "quiet" model, \$399. Manufacturer: Nitty Gritty, P. O. Box 264, LaVerne, CA 91750.

Now, here's a product that really sucks! If you've lusted after a Keith Monks cleaning contraption all these years but couldn't justify its \$1000 price, here's a cheap but effective substitute. It does the same things the Monks cleaner will do, in a little less time but with a little more effort. If you're not familiar with the Monks unit, it consists of a turntable (78-rpm, for efficiency) and two "arms," one mounting a brush, the other attached to a suction pump. The brush is swung over the disc (by hand) and a push-knob dispenses cleaning fluid onto the disc through the brush, which gently scrubs the grooves. Then the brush is swung out of the way and the suction arm is placed at the outer edge of the label. A drive system moves the arm slowly across the disc and the gunky fluid is drawn off and collected in a jar.

The Nitty-Gritty is less automated. Fluid is applied to the disc by a hand-held brush (which looks very similar to that on the Monks), and the platter is rotated by a finger on the disc label until the whole surface is wet and scrubbed. The wet side is then flipped underneath, the suction pump is switched on, and the disc rotated by hand again through a bit more than one revolution. A narrow slot under the disc sucks off all the moisture, leaving not a drop.

There's a catch, though. Unlike the Monks cleaner, which uses a glass jar to collect the dirty solvent sucked off the discs, the Nitty-Gritty uses "an ingenious

method of vaporizing (the) waste fluid." This is probably dandy for disposing of the solvent itself, assuming all its ingredients will vaporize, but the crud removed from discs will not conveniently disappear into thin air, but will in time accumulate on the walls, floor, ceiling, windows, furniture, and ventilating fins on all your electronic components. It will take some time to do that of course, but the time will depend on how dirty your discs are and how many you wash in a given month. (On the other hand, if you're a heavy smoker, you can forget about what comes off your dirty discs. You'll never find it amongst the deposits of tobacco tar.)

We saw the unit demonstrated at the Las Vegas CES, so can vouch for the efficacy of the drying phase. (Fluid removal is the most critical aspect of a wet-cleaning operation, because any dirt-laden fluid which remains will leave a noisy deposit on the disc when it dries.) The only thing we were unable to determine at that time was the potency of N-G's cleaning fluid -- whether, for example, it will dissolve all of the normally-encountered surface pollutants. There is however nothing in anyone's book which says you cannot use a 50% ethyl alcohol and water solution (as Keith Monks recommends), Discwasher D-IV solution cut by 1/3 distilled water, or your favorite dishwashing detergent (1 teaspoonful to a pint of water).

Whether or not any of these will leach the plasticizer from the vinyl is probably moot and almost certainly irrelevant as long as you don't let the detergent sit on the record for an hour, and don't launder your records more than every 6 months or so. (Wet cleaning would probably do damage if used routinely in place of the usual dry-wipe (or Discwasher) cleaning ritual that most audiophiles perform before each play.)

Two Nitty-Gritty models are available, differing mainly in the amount of noise made by the vacuum blower (a vacuum-cleaner motor, in fact). The "quiet" one sounds like an Electrolux tank-type vacuum. The loud one is almost deafening in a small, quiet room, but is not loud enough (or sustained enough) to do any damage

to one's hearing. Prices? \$399 for the Quiet model, or \$299 for the raucous one.

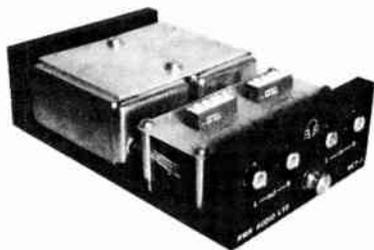
Here then is a device which is almost classic in its simplicity and unsurpassed in its performance. A must for the serious record collector who doesn't want to go the Keith Monks route. JGH

Shootout: The PS Audio MC Amplifier vs the RWR MCT-1 Step-Up Transformer

RWR MCT-1: A step-up transformer for moving-coil cartridges. Price: \$600. Manufacturer: RWR Audio, Box 3080, Station D, 340 Laurier Ave., Ottawa, Canada K1P 6H6.

PS MC Amplifier: Solid-state pre-amplifier for moving-coil cartridges. Price: \$185. Manufacturer: PS Audio, 3130 Skyway Dr. 301, Santa Maria, CA 91352.

Moving-coil step-up devices seem to vary more than other components in quality. Some are terrible, most are mediocre in countless different ways. I therefore consider myself twice-blest to happen, almost simultaneously, upon two very good ones.



The PS Audio unit is an AC-powered design with an outboard power supply, and there are two versions of the power supply: a standard one and a high-current one. Both were tested. The high-current-transformer

mer one is sonically the better (more detailed, transparent) and is worth the extra \$75. That was the one we compared with the RWR transformer.

Both devices allow adjustment of input termination (load), the RWR by an array of dip switches, the PS by substitution of internal resistors at the pre-preamp inputs.

First, let me state that the PS is eminently musical-sounding, with excellent bass response and detail, neutral tonal balance, and very



good transient attack. Having stated that, let me now state that the RWR betters it in every other respect.

It is superbly clean, transparent, detailed, and just effortlessly nice to listen to. Inner details are excellently delineated and, although I realize that a device like this should have no effect on such things, it seems to provide a wider yet more specifically-imaged sound stage than the PS. If I am forced to be hypercritical, I can report that it does seem to have a very slight softening effect at the extreme high end and a tendency (also very slight) to soften bass detail, both being somewhat reminiscent of the best tubed-electronics sound. If asked to make a

choice, though, I have no hesitation in selecting the RWR as my all-time favorite step-up device as of now. DO

JGH Addendum

We had a preliminary Quickie-report on the RWR transformer a couple of issues back in which we asserted that it was the best step-up device we had found. Mr. Olsher agrees, and after several months of listening I've had no inclination to change my mind about it either. If you're seeking detail

above all else, you may not like the RWR as well as we do. If you're seeking the best combination of musicality and accuracy, the MCT-1 is the step-up of choice.

Previously available only directly from Canada (and subject to import duty), the RWR transformer is now being imported into the US by Gene Hale, 1132 East Avenue, Rochester, NY 14607. Incredibly, its price remains the same, at \$600, but you will have to pay shipping.

JGH

Technics EPC-205 Mk3 Cartridge

Type: Moving magnet. Frequency response 5 to 80k Hz. Separation 25 dB at 1 kHz, 20 dB at 10 kHz. Recommended tracking force: 1.5 grams. Recommended load: 47k. Output: 2 mV at 5 cm/sec. Stylus: 0.2 by 0.7 elliptical. Price \$210. MANUFACTURER: Technics, One Panasonics Way, Secaucus, NJ 07094.

I suppose I have a reactionary streak; I'm always searching for moving-magnet cartridges that are competition for the moving coils which seem to be taking the world by storm. It is universally conceded that the need for that extra amplifying device for the moving-coil cartridge is a performance liability (as well as a financial one), so the hint of a high-output cartridge with moving-coil performance always sets me off into further investigation.

In this instance, I became aware of the product in a series of English reviews by Martin Columns. Both objectively and subjectively, it looked like an outstanding cartridge. The EPC205Mk3 (hereafter called the 205) is a conventional MM design in which attention has been paid to small details. The cantilever is a very

small, hollow boron tube with a superb-quality, very tiny elliptical diamond on one end and a tiny samarium-cobalt magnet on the other. (S-C is the most potent permanent-magnet material known, for a given mass of magnetic material.) The result is a stiff cantilever with unusually low effective mass. As a result, the high-frequency resonance of the cartridge is very high for a moving-magnet: above 30 kHz, which is in moving-coil territory. Output is on the low side for a MM: a little over 2 mV, which should still be no problem for any good preamp.

The cantilever suspension/damper is made of a new material which is claimed to exhibit little temperature-related frequency-response variation, a problem with other pickups which has only recently been coming under scrutiny by users and designers. And unlike most other MM designs, this one is almost totally unaffected by the normal range of capacitive loading. Hallelujah!

The 205 was designed to plug into the new Technics straight-line turntables like the SL-7 and SL-10. It comes as part of the SL-15 package. For use in other turntables, two adapters are available. One, which is an extra-cost item,

is a special headshell incorporating adjustable overhang, into which the cartridge plugs. This headshell has the standard SME-type bayonet at its rear. The other adapter, which comes with the 205 cartridge, consists of a screw-on plastic piece which accepts the headshell-mounting hardware, and a plastic plug for the rear of the pickup. Short leadout wires, with small clips on them, come out of the plug.



The second adapter is intended for use with plug-in headshells which have replaceable leads that clip to the cartridge at one end and to short pins at the rear of the shell at the other end. But not all headshells are configured in this way. Some have the rear of the cartridge leads soldered to small pins at the back of the shell. If the pins are long enough, you can unsolder the wires and clip the Technics leads right to them. If they aren't, or if the shell is not a plug-in type (and this includes those in which the plug is at the rear of the arm tube), the easiest solution is to clip off the tone-arm leads about a half inch from where they disappear into the arm, strip them for 1/8 inch, then build them up with solder until they will fit snugly into the cartridge-adapter's lead clips. Take care not to damage

the adapter plug, though; Technics was unable to supply them separately last time I inquired about them.

I am not convinced that the second adapter is the way to go, because it is my belief that a pickup should be mounted to the arm as rigidly as possible. The adaptation is flimsy at best. And I don't care for the idea of mounting bolts going into threaded plastic. There's too much risk of stripping them. But if you drill out the threads so as to use metal nuts and bolts, you'll find that the pickup body is too wide to clear the nuts or screw heads. I solved the problem by filing off one side of each screw head, but this sort of butchery should not be necessary in a consumer product.

The stylus, as in all moving-magnet designs I know of, is user-replaceable, but adds a very useful feature; it is held rigidly in place by a screw. The rigidity of that relationship is one of the major differences between MM and MC cartridges, and is I believe an important one. When a pickup is tracing modulations which may be as small as a millionth of an inch, a stable motor-generator relationship can only be an asset.

The most remarkable thing about the 205 is the linearity of its frequency response. There may be a very small low-bass rise in some arms (due to inadequate damping), but otherwise this pickup is one of the flattest I have ever encountered. Especially refreshing is its lack of suckout in the brightness range, common to virtually all pickups. (The much-maligned V-15-IV is a notable exception.) In other words, this is one of the least-colored pickups as can be found, and definitely less so than today's top-rated pickups like the Koetsu, Dynavector Ruby, Linn Asak, etc. The high end is superb: sweet and effortless like the best MMs, but as open and airy as the

best MCs. It may suffer by comparison with some MCs merely because its is flat in the 20-kHz region while others having a rising response there. Depth is excellent, as is separation, and the latter does not diminish during loud, complex passages. Imaging too is unsurpassed by anything I have heard to date, and although its compliance is not as high as some, I encountered no trackability

problems with any disc. (The tone arm should be a moderately-low-mass design.) Trackability at 1.5 grams will not disappoint any previous owners of V-15-IVs. In short, this is one of the best cartridges on the market, if not THE best.

AE

Obviously, I am not going to try to resist the temptation to audition one of these myself. JGH

Quickies

Acoustat RP-2 Preamplifier

Our sample was an early-production unit, and was not really very good. The sound was somewhat dark and closed-in, with a truly remarkable degree of lifelessness.

The RP-2 has already undergone a couple of modifications since first introduced, and the least we can say about that is we're not surprised. Ours has been returned to Acoustat for replacement with a current model, which we'll report on in an upcoming issue. JGH & DO

putting you back to Square 1 again with egg on your face. (You assured the service manager you were competent to do the job.) Also, keep the screwdriver away from the center of the speaker, for the potent magnetic attraction there could do the same thing. Do not overtighten the screws. Take them up about as much as you can without using both hands on the screwdriver handle. A demonstration here of your macho puissance can strip the threads. Do not use a socket wrench; these have far too much leverage.

Finally, reinstall the grille cloth, stand the speaker up where it was originally, strip away the masking tape from the floor, and you're back in business -- probably. Before congratulating yourself on your cleverness though, it's a good idea to check and make sure everything is indeed working properly. The easiest way to do this is by placing the repaired speaker face to face with the other system, with about an inch of space between them, set the system to Mono mode, and play a recording that has a lot going on at the low end. Then disconnect one system. If the amount of audible bass increases when only one speaker is working, you got the new woofer connected backwards, and will have to reconnect it. If there is but a slight loss of bass when you disconnect that speaker, you're ready to listen in stereo again.

WOOFER (From page 5.)

latter can be calculated by measuring the diameter of the speaker cutout and multiplying that by 3.14.)

Place the new speaker, cone upwards, on the enclosure next to its cutout and rotate it until its terminals are in the location(s) previously noted. Follow your connection notes to attach the wires to the correct terminals. Then set the speaker down into its cutout. Start all the mounting screws in their holes with finger force, then tighten them all, a few turns each at a time, as you would tighten the wheel lugs on a car. Be very careful at this stage; if the screwdriver should slip off a screw, there's a good chance it will poke a hole through the cone,

WILLIAMS: Suites from Star Wars and Close Encounters of the Third Kind

Los Angeles Philharmonic orchestra, Zubin Mehta. Mobile Fidelity MFSL-C.008 (cassette).

Originally released on London records, then re-released with better sound on a Mobile Fidelity disc (now a cutout), these are stunning performances of these popular film scores, rivalling the composer's own performances of them. (Composers aren't always the best conductors of their own music, but Williams is one who is.)

Sonically, this is simply a tour de force: Without a doubt the best commercially-made cassette I've ever heard (and I've heard a lot of them). Last month, I expressed some doubt that the high end on any cassette could rival that of a half-speed disc and, indeed, there is a softening at the top on this cassette, when compared with the M-F disc. But the truth of the matter is that the cassette's high end is substantially more *natural* than that from the disc, which was one of M-F's first and had a slightly steely edge to it. My only cavil about the cassette relates to something that is probably not curable at the present state of the art of cassette recording: Print-through. Sound as clean and effortless as this encourages one to listen at large-as-life volume levels -- levels at which *any* print-through is audible. My tape had about as much as an average disc and quite a bit more than most audiophile-type discs including Mobile Fidelity's own. It was, however, only audible during un-

recorded passages between segments of the music, immediately following and preceding very loud endings and beginnings, and was not obtrusive enough to be even mildly irritating.

Also, I should mention hiss. This is the quietest commercially-made cassette I've ever had the pleasure to hear. There's more of it than from most modern discs, but it is very unobtrusive, being audible only during passages of total silence. Even then, it merely sounds like the kind of noise you get when you shape your lips to say "oo" and then blow air gently through them. It isn't really a hiss at all, but a low rushing sound.

If the other M-F cassettes are as good as this, they are going to bring on a lot of soul-searching among a lot of audiophiles who have carefully chosen their disc players to sound "good" rather than to make discs sound like master tapes, because there will be a marked difference between what they hear from M-F's discs and cassettes. Their problem -- and it will be a nasty one -- will be to determine which is right, their phono system (cartridge, arm, preamp) or the cassette player, or neither. (Cassette decks vary as much as cartridges in frequency response. Just look at the curves accompanying *High Fidelity's* test reports for the past few months.)

Mobile Fidelity may have taken the first step towards making the lowly cassette respectable among perfectionists. I hope other cassette makers follow suit, although I would rate the likelihood of that happening at about 50 to 1. Real-time duplicating -- a major factor in the quality of M-F's cassettes -- would escalate the

cost beyond most manufacturers' estimate of what will move in the marketplace. And most tape duplicating setups won't even run at 1:1 speed. For real-time copying, the whole schmeer would have to be tossed out and replaced. The only hope is for M-F's cassettes to sell well enough to demonstrate to other cassette makers that the public will pay a high price if the quality is there.

Meanwhile, M-F is going to have its corporate hands full maintaining the kind of quality control needed to get their super-cassettes off the ground. Unlike discs, whose sound quality can be monitored by listening to one pressing out of every hundred or so, and whose pressing quality can be ascertained by a quick visual inspection, tapes need constant QC monitoring for intermittent problems like dropouts and fluctuating high end (due to tape skew or particles of dust lodging on the head near the gap). Spot checks while recording will not usually pick these things up, and the only real answer is a computerized monitor which will continuously compare the original master with the playback from each of the duplicators. M-F tells us that's one of their next moves.

JGH

THE BEATLES CONCERTO; SIX BEATLES IMPRESSIONS. *Peter Rostal and Paul Schaefer, duo-pianists, Royal Liverpool Philharmonic Orchestra conducted by Ron Goodwin. MMG 1121.*

This is sheer delight! A piano concerto in the big, romantic style of Grieg, Tchaikovsky and Rachmaninoff, fashioned around some of the best-known Beatles melodies.

It is expertly arranged (by John Rutter), lovingly performed, and recorded at least well enough that the sound never intrudes on the music. It is of course multi-miked, but in a rather tasteful

fashion hewing closer to the typical EMI sound than to typical CBS or RCA. Balance is good, strings are rather dry (but not quite hard), and bass is deep and respectably solid.

The Impresssions, also for two pianos and full orchestra, are in much the same vein but minus the classic piano-concerto form of Side 1. All in all, an immensely enjoyable record, recommended for anyone who doesn't mind listening occasionally to tuneful, lightweight music. JGH

Music For Christmas. *James Welch, organ. Wilson Audio Specialties, 147 San Felipe Way, Novato, CA. 94947.*

This is a so-so. The recording is gorgeous -- rich, suave, and nicely spacious with very wide dynamic range. Unfortunately most of that range is downwards; maximum cutting levels are barely above those of a typical CBS. As a result, surface noise tends to obtrude despite a very quiet pressing.

The performances too are a bit dull and pedantic. Wr. Welsh plays with great precision, but this is a somber, joyless Christmas. JGH

VAUGHAN-WILLIAMS: Job: A Masque for Dancing. *London Symphony, Boult. EMI ASD-2673.*

Even though this recording has been around for 10 years, and has been deservedly popular among audiophiles and music-lovers alike, I'm bringing it to our readers' attention again because, despite its age and a trace of muddiness during climaxes, the recording is a truly awesome one and the performance -- by the conductor generally considered to be the last word on Vaughan-Williams -- is probably definitive.

The omission of this until now

from our list of Top-of-the-Pile recordings was an unforgivable oversight which has now been remedied.

JGH

BEETHOVEN: Symphony No. 9. *Chicago Symphony Orchestra and Chorus, George Solti, cond. Mobile Fidelity MFSL-2-516.*

This one came just short of earning a second Stereophile Definitive-Disc Award, but didn't quite make it. The multi-miking is a little

more obvious than in MFSL's "Falstaff," (which did earn our first award) and the performance, while undoubtedly one of the best that have been recorded since stereo came on the scene, is not quite inspired.

As of now, however, this is without any doubt the best recording of the Ninth currently available, and more than worth the money even if you already own London's aggressively harsh release of the same performance.

JGH

Miscellany

It's PROFESSIONAL!

When in the name of heaven are audio manufacturers going to learn that the term "professional," applied to audio equipment, is not something that perceptive people will take as an endorsement? For the past 30 years, so-called professional audio equipment has lagged so far behind "audiophile" equipment in terms of performance that the comparison has been almost as laughable as odious. Yet some manufacturers of really good components persist in advertising them as being of "professional" quality.

The only thing going for most professional audio equipment is that it borders on being dependable. For the audiophile, the question is: How much sonic quality should one abandon in exchange for reliability? Otherwise phrased: How bad should something sound in exchange for its ability to sound that way longer than anything else?

"Professional" is for professionals. If we're making equipment for audiophiles, let's advertise it in terms of things audiophiles value. We won't list those things here. If you don't know what we're talking about by now, renew your

subscription to *High Fidelity* and just pretend you never subscribed to *Stereophile*. No one will ever know...

Futterman Amplifiers

Readers who've been trying for months (or even years) to obtain a pair of the legendary Futterman output-transformerless tubed amplifiers, but kept running into the short-supply wall, will be interested to know that these are now being made available in reasonable quantities from New York Audio Labs, 33 N. Riverside Ave., Croton-on-Hudson, NY 10520.

NY Audio took over manufacture of the amplifiers after Julius Futterman passed away last year, and appear to be doing a better job of meeting the small but continuing demand for the amplifiers. The price is around \$2,000 per pair, and each mono amp is rated at 125 watts into 16 ohms or 75 into 8.

Wanted: Correspondents

Not correspondence; we get plenty of that as it is. What we're looking for are audiophiles who (1) are active in their local audio scene, and (2) can put words on paper with reasonable facility and literacy, to feed us news items from all over.

We can't afford to pay, but

what we CAN do for you is give you free subscriptions for as long as you're feeding us material, and supply you with an Official Stereo-ophile Correspondent card. This may not get you, free, into concerts, but it will impress other, less-privileged audiophiles, and will get you more courtesy and attention from manufacturers' representatives than you might get without it. You will also be listed on our mast-head, and will get a by-line for every item of yours that we print.

So, if you can write, keep your eyes peeled and your ears clean, and start shooting us some news items. And what are we looking for by way of material? Anything at all of interest to audiophiles and/or sound-conscious record collectors.

Alderman Address

Franklin P. Alderman, this is a private message for you. We're sorry your issue 4-5 arrived with some blank pages in it, and we would be happy to replace it with a complete issue, but we need your address in order to do this. You see, our circulation files are not arranged alphabetically by name, but numerically by zip code. Without at least the latter, we have no way of finding your address.

So please write.

Porno Cassettes

To the few of you who wrote to express surprise and disapproval that we would publish an "Audio Mart" ad for X-rated videotapes (one subscriber thought it was a put-on and felt it was tasteless to run it twice), we should clarify our policy on classified ads.

Our policy statement says that we will accept any ad as long as it is not in poor taste and does not offend a substantial number of

readers. The ad in question was not in poor taste, whether or not one might consider their merchandise to be. And it was our feeling that if some people wish to view porn in the privacy of their home, that's their business, and the existence of such a video market, or software appealing to it, should not offend others who choose not to indulge similarly.

The ad in question has however become snagged on the second point. Evidently a fair number of you were offended by the ad's appearance in a magazine like *Stereo-ophile*, so we will not re-run it, and will not accept any of a similar nature in future. We don't need the ad money all that much.

Address Please

While we hate to think ill of any of you faithfuls out there, we sometimes wonder if some of you have your heads screwed on right.

At least once a week, we get a letter from someone or other, asking a question which needs an answer. We go to reply and... No return address.

Look, we're happy to respond to your letters if time permits (and some questions, like Where the Hell's my magazine, need answering regardless of time), but don't make things impossible for us. Put your return address on the envelope, for the post office's sake, and on your letter for our sake. Thank you.

Letters

Dielectric Absorption

I've been reading a lot in some of the other "undergrounders" about something called dielectric absorption, which makes certain kinds of capacitors sound better in audio circuits than others. However, nowhere have I

read any sort of an explanation of what dielectric absorption is.

I'm writing to you about this because I have found you to be better than most at explaining things like this so I can comprehend them. Michael Dreyfus

To start at the beginning:

A capacitor is basically an electron-storage device, comparable to a rechargeable battery. It consists of two parallel sheets of metal which are separated by a very thin layer of insulating (non-conductive) material called a "dielectric." (Figure 1.)

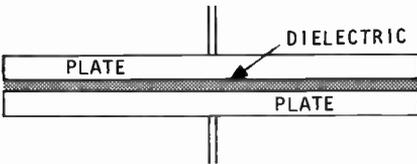


Figure 1.

The capacitor is charged by applying a DC voltage across the plates, which draws electrons from one plate and piles them up on the other. And since each condition is an unstable one, each plate then "tries" to get rid of its unbalance and return to equilibrium. But as long as there is no path for the electrons to move from one plate to the other, the imbalance remains. The capacitor continues to hold its charge like a battery. If a conductive path is provided, electrons flow from one plate to the other until both plates again hold the same number of electrons.

The charge and discharge cycles are not linear, but are roughly logarithmic. That is, the electron transfer between the plates is very rapid at first but slows down increasingly as the capacitor approaches the fully-charged or fully-discharged state. This is diagrammed in Figure 2.

The size of the capacitor plates and the distance between them de-

termines how much of a charge they will accept. The time it takes to charge or discharge them is a function of the voltage across them and the DC resistance in the current path. The higher the capacitance or the higher the voltage, the faster the charge. The higher the resistance in the circuit, the slower the charge or discharge.

The time required by a resistor-capacitor circuit to reach 63% of its ultimate state (complete charge or complete discharge) is called the time-constant of the circuit.

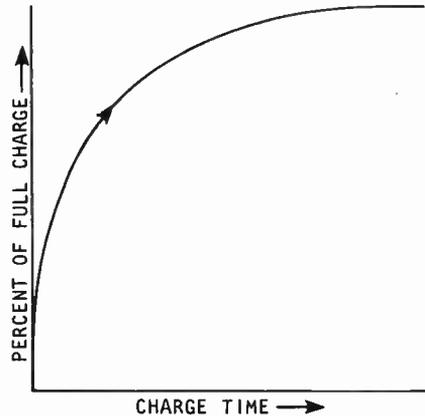


Figure 2.

Once its plates are charged by a DC voltage, a capacitor blocks further electron flow. To DC, it is an insulator. If an AC voltage is applied, continually reversing the polarity applied to the capacitor, electrons will flow back and forth each time the charging voltage reverses. As long as the reversals occur rapidly enough so as not to approach the time-constant of the circuit, the capacitor will act like a conductor for AC, passing it freely. When the duration of each half-cycle approaches the circuit TC, the slowing of the charge/discharge cycles prevents the capacitor from achieving either state before the voltage reverses its polarity. Thus,

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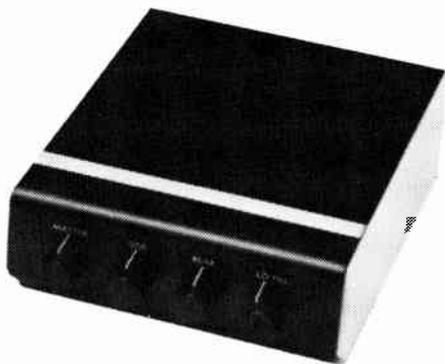


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at lower frequencies, the capacitor exhibits increasing resistance to the passage of AC through it until, at the lowest possible frequency (DC) it becomes a pure insulator.

In theory, the time constant (in microseconds) is equal to the arithmetic product of the capacitance (in microfarads) and the in-circuit resistance (in ohms).

In a real-world capacitor, some of the electrons on the charged plate become absorbed into the insulating dielectric material. Thus, the capacitor takes slightly longer to charge up and then to discharge than it should. It is as though a certain amount of electrical inertia has been added to the circuit containing the capacitor. Since the effect of the "inertia" acts on both the charge and discharge process, its only effect on symmetrical sine waves is to attenuate very high frequencies. Transient impulses however are much more significantly affected because they are asymmetrical. A pulse is not immediately followed by a reverse-polarity pulse which can aid the discharge phase, so both the rise time and the decay time of pulse are substantially lengthened by the storage and dumping of the dielectric. The audible effect of this can range from a dulling of transient information to a distinct roughening of the high end, depending on the susceptibility of the amplifying circuits to TIM. (Those of you with some technical smarts should be able to figure out why this relationship exists.)

DA is highest in so-called non-polarized (back-to-back) electrolytic capacitors which, unfortunately are common in solid-state amplifying devices and almost universal in loudspeaker crossover networks. DA is lowest in tubular capacitors which use polypropylene as the dielectric material.

Non-polarized electrolytics may be bypassed with 0.5-mFd poly-

dielectric capacitors for improved sound, or replaced with non-electrolytic "bathtub" capacitors for better sound. Smaller capacitors (1 mFd or less) in audio-signal paths are best replaced with poly-dielectric caps of the same value, and many listeners have reported further sonic improvement if coupling (inter-stage) capacitors are bypassed with a small (100 pF) poly capacitor. It is important to note the voltage ratings on all capacitors before replacing them, and making sure the replacements have at least the same rated voltage.

Loudspeaker Dispersion

An item in *Sensible Sound* prompted me to get this off to you. Their writer claimed that you could tell all you needed to know about a loudspeaker's dispersion by measuring the diameter of each radiating surface and relating this to its frequency coverage. While it may be comforting to SS's readers to believe that dispersion is such a simple and easily-quantified parameter of speaker performance, the truth is not all that simple.

Mark Davis, writing in *High Fidelity's* June 1978 issue, stated that the essential performance of a loudspeaker system can be specified by its frequency response and dispersion. Indeed, these parameters, plus phase, would seem to meet the criteria for sufficiency, and it may appear that a giant simplification has been achieved which will aid the serious listener in the difficult process of sorting through the advertising claims and often contradictory equipment reviews. But, as with many seemingly simple scientific statements, there is an elegance that betrays the complexity of the underlying issues.

It has long been acknowledged that the conventional interpretations of frequency response curves

do not correlate well with important audible characteristics of loudspeakers. The relevance of frequency response data would be much improved if all of the information implicit in the data could be retrieved. Most loudspeaker test organizations elect to sort out this information through separate measurements of tone burst response, time delays, phase shifts, etc. Unfortunately, some reviewers choose for their own reasons to attach singular importance to one or another of the measurements, misrepresenting the total sonic "picture" by only one or two selected features (the fallacy of composition). Other popular simplifications, which mistake handy design tools (such as system "Q") for fundamental loudspeaker theory are, in essence, one step farther removed from the basic understandings.

Loudspeaker dispersion is at least as complex as frequency response. I recently analyzed loudspeaker dispersion using an optical analogue based upon a modulation transfer function approach which may help to reveal some of the subtleties of dispersion. A simplified concept of dispersion suggests that for wavelengths greater than the diameter of the source (the loudspeaker cone or dome), the sound from that source will be radiated into a solid angle that increases with wavelength. As the frequency is increased until the wavelength becomes less than the diameter of the source, the dispersion angle will become narrower and the loudspeaker will project the higher frequencies in an axial beam. I call this concept wavelength scaling. It only holds true if the phase is constant over the area of the source. As nature would have it, the sound from a cone or dome driver, especially at the higher frequencies where the driver "breaks up" into modes (the key issue here), has anything but

a constant phase.

If one were to properly examine a typical driver (even those which are claimed to be extremely stiff) which is operating at a sufficiently high frequency that the wavelength is small compared to the diameter, one would find that the cone sides are *not* rigid, but actually flex along the radii in a manner depicted in the figure. A complete modal analysis would show that these modes vary with material properties and fabrication of the cone, driver construction, and even with such things as voice-coil alignment. The stronger modes in the cone tend to be audibly conspicuous and give the driver its particular colorations. To digress a moment, I maintain it is not possible to remove driver colorations -- the mid-range colorations in a woofer, for example -- by selecting a cross-over point below the frequencies of the colorations. The bothersome modes are just as surely excited by low frequency sub-harmonics as by higher frequencies. Only by damping the radial modes (materials, coatings, cone design, surround, etc.) can the colorations be minimized.

In my analysis of dispersion, the modal characteristics of the source were modeled on a computer as phase variations across the source diameter, with spatial frequencies varying from the full diameter of the source to about 1/20th of the diameter. (The magnitude of the phase variations was also treated, but is not germane to this discussion.) At spatial frequencies of 1/5 the diameter, the far-field pattern was showing substantial wide-angle dispersion, rather than more-narrow beaming of the energy. (For a 10-inch woofer, 1/5 the diameter would represent a frequency of about 7500 Hz.) These results differ from those predicted by simple wavelength scaling, and

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are a direct consequence of the source being made up of a number of "sub-sources" of differing phase. As the number of sub-sources increases, the angle over which the energy is distributed in the far-field increases. It should be noted that my technique did not treat either cone-shaped sources (curved cone sides and cones with decoupling corrugations are even more complex), or dome-shaped sources. So far, I have simply examined the effects of source dimensions. Because the far-field pattern is the result of the interference of a number of sources of varying phase, the orientation of the plane of the sources is expected to have an effect. My preliminary analysis suggests that a cone and a dome of the same diameter will have different dispersion patterns, in addition to the fact that different modes will be present in a cone and a dome at the same frequency, simply because of the differences in their construction.

In addition to the computer analysis, I have measured the far-field patterns of a number of loudspeaker systems using a technique that is capable of high resolution. Two 1/4-inch microphones were used in an anechoic chamber with a servo amplifier which maintained constant intensity at all frequencies at one of the microphones positioned on-axis to the loudspeaker. As the second microphone was moved about in the sound field, variations in sound field intensity were recorded as a function of position and frequency. As one might imagine from the numerous such plots which have been published, the pattern is very ragged, with significant intensity variations over distances as small as a fraction of an inch. Aside from the audible significance of the fine structure of the pattern, it seems impractical to me to do a rigorous calculation of such a dispersion pattern, even using the sophisticated computer techniques I have tried. Simpler

Reprints and Back Issues

We still have on hand a limited number of the soft-bound reprints of our first and second 12 issues. If you're curious about how, and why, this whole business of perfectionist audio got started (It was all our fault, remember?), these two reprints are a not-too-compact history of the whole sordid affair.

Volume 1 contains 240 pages and covers the years 1962 to 1966, and Volume 2 has 290 pages and covers up to Spring of 1971. Both are 8½ by 11 size (That's the way we were then!), and the price is \$25 each.

Also available in rapidly-dwindling quantities, for \$4 each, are original copies of back issues numbered (Volume and Number) 3-3, 3-3, 3-5, 3-6, 3-7, 3-9, 3-11, 3-12, 4-1, 4-3, 4-5, 4-6, 4-8 and 4-10.

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approaches, such as wavelength scaling, which lead one to conclude that all loudspeaker drivers of the same physical size have the same dispersion characteristics, are just not capable of correlating dispersion to speaker performance. To carry the problem one step further, evaluating the interaction of a three-dimensional dispersion pattern with arbitrary room reflections in a "normal" listening environment may well be impossible.

In conclusion, I suggest that each of the parameters in the Mark Davis model is exceedingly complex, and that it is extremely difficult to treat either of them (and especially their integration) in a simplified manner to obtain a "picture" of how a loudspeaker will sound. Nevertheless, the model is a valid one if non-linear effects are minimal, and I can see that such a model may have utility in the characterization of drivers in the loudspeaker design process, and may eventually define a preferred set of measurements which are indicators of loudspeaker performance. Other popular simplifications of loudspeaker design can be shown to be of much less value, and should probably be ignored by the careful audio buyer. For better, or worse, I am certain there will be no simplistic substitute for the trained ear of the consumer (and the loudspeaker designer) in the foreseeable future.

Darrell E. Spreen

BS from B.S.

I was amazed and disappointed to see Bill Sommerwerck put his foot in his technical mouth in his CES report (Issue 4-10). For someone who seemed to have such a strong technical background, it was unsettling to see him accept without question Acoustat's claim that they could make the diaphragm of their speaker lighter by changing the polarity of the power sup-

ply so as to put all the electrons on the fixed instead of on the moving plates. True, electrons do have mass, but it is so small that it could not conceivably have any effect on such a relatively massive object as a plastic diaphragm. Where is the technical accuracy that *Stereophile* seems to pride itself on? Jim LaCroix

Where's the sense of humor we assume that most of our readers have? That was a put-on, fella, and you were put. (As were about fifty other people who wrote to tell us about Bill's "gaffe," so you had lots of company.)

Bill is the kind of person you have to keep an eye on, as he has a weakness for what is called straightfaced, tongue-in-cheek outrageous humor. We try to make a point of calling attention to some of his borderline believables, but we thought that one was so patently ridiculous that no one would take it seriously. Okay, so our judgment slipped.

AC-Plug Polarity

Concerning your piece about AC-plug polarity, I've been using an AC voltmeter for this purpose for a year now. Does it make a difference? YES, YES, YES.

I wrote to all my audiophile friends telling them how to do it, and they mostly agreed that it caused an audible improvement. The sound is smoother and cleaner -- more "musical," if you will. The only person I heard from who did not get the expected improvement was one whose system contained mostly components with 3-wire AC plugs. I marked all my AC plugs with red nail polish to indicate correct polarity.

One suggestion: The neon lamp that you suggested won't discriminate small voltage differences nearly as well as will a voltmeter.

Over the years, our retail dealers and customers have asked us why we did not produce a step-up device for moving coil cartridges. We explained that with so many such products available, we saw no reason to simply produce another product and would not do so until we could offer a product with significant improvements in a number of critical areas at a reasonable cost.

The Audionics of Oregon model ET-1 offers substantial advances in several problem areas. The ET-1 is compatible with virtually all low-output moving coil phono cartridges. It is as quiet, both measureably and subjectively, as any electronic product yet offered. It features Pure Class A circuit operation, direct-coupled design, with no 'front-end' negative feedback. The ET-1 eliminates interaction with your phono cartridge as well as offering low-distortion and high overload capabilities. In the past it has been difficult, if not impossible, to obtain such performance from a moderately priced unit. The ET-1 retails for a suggested \$250.00.

The ET-1 is supplied with an external power supply. The active circuitry is housed in a cast aluminum enclosure fitted with gold plated input/output jacks. The ET-1 is reliable and offers outstanding sonic performance...in fact we're willing to bet the ET-1 may be the last moving coil step-up device you'll ever need to purchase.

If you want out of the 'headamp or transformer of the month' routine, the ET-1 is an affordable alternative offering state-of-the-art performance for now and the future.

For more information regarding the ET-1 as well as our other new products, send a stamped, self-addressed envelope to AUDIONICS of OREGON for a reply by return mail. Thank you.



SPECIFICATIONS

THD & TIM Distortion: 0.05% or less at
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I feel that the voltmeter is mandatory.
Chuck DiGeorgio

We agree about the voltmeter. And since it is possible to obtain a suitable one for around \$10 (from Radio Shack, for instance), there is really no excuse for having to use the much-less-sensitive neon-bulb tester. Anyone who can't afford a \$10 multi-tester (which can be used for other things too) for checking out a \$10,000 system is suffering from a case of fouled priorities.

Coming Up

This recurring column might better be titled "Didn't Quite Come Up" -- much like Spring crocuses in certain parts of the country. Reading over the just-mailed Vol. V, No. 1, I see promises of a review of the Benchmark Acoustics Ambience Recovery System, Son'y Esprit amplifier, and the return of Margaret Graham's record reviews. Well, in a real

First for *Stereophile*, the issues are being cranked out faster than the copy. So, V-3 will have Sony's electronics and Margaret Graham, but the Benchmark review is being revised and will not see the light of day until V-4. LA

Time Up?

If your mailing label for this issue has a V-2 code on it, that means your subscription ist kaput, done with, expired. It's renewal time, and sooner than you thought, we'll bet. Your check (see page 30) will now bring you 10 MONTHLY issues, believe it or not!

RAINBOWS (From page 3.)

It isn't that your music-listener is oblivious to his system's shortcomings. It's just that he has accepted the fact that perfection is unattainable, he opted for

Why Not?

You could of course continue to borrow your issues from a friend, but ve haff vays of making you regret that you did so. You will find out about them in the due course of time. (Ever hear of da-coits?) Meanwhile, the worst that will happen if you don't support us in a tangible manner is that it will take longer for this magazine to grow as fat as it was before the lean years.

So if you're still stealing what our loyal supporters are paying for, make an honest person of yourself. Subscribe. There's a subscription coupon on the back of this shamelessly commercial pitch. Clip it out, fill it in, and send it our way with your check for the ordained amount. Or, if the owner of this copy doesn't want you to scissor it apart, you can accomplish the same thing by sending merely a check and a mailing address. We'll start you with the current issue unless requested to do otherwise.

a lesser degree of it than you did, and he doesn't *expect* it from his system. Thus, he can ignore its flaws and listen through them to the music. Perfectionists could learn a few things from him.

All of us like to think that we pursue high fidelity as a hobby for the *enjoyment* of it. When it starts to become a driving force in our life, reaping one frustration after another, it is time to think seriously of switching to another avocation. If you haven't yet reached that point and don't care to, a few bouts of creative introspection may be worth the time and effort. Consider at length: If your system *isn't* perfect, who cares? Okay, so *you* do. Why? What hideous misfortune will befall you, your family or your friends if it *isn't*? The human condition -- the whole world, for that matter -- is imperfect. Do you lie awake at night suffering about it? Do what you can to improve matters and accept what you

can't do. Try to dwell more on what your system does superbly than on what it does less well.

You might even buy one of those little wooden plaques they sell in artsy-craftsy shops, and use transfer type (from an art supply dealer) to make a sign reading "I may not be totally perfect, but parts of me are excellent."* Place it in a prominent spot between your speakers, read it often while listening to your TIM, transient smear and vague imaging, and remind yourself that it is an apt description of even the best stereo system. Intellectually, it's cute. When it penetrates your mind to the emotional level, you may find you're starting to enjoy reproduced music again.

It's worth a try.

JGH

**This is the full title of a book that we highly recommend to all members of the human race. The author's name, believe it or not, is Ashley Brilliant.*

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Miscellany

Again we've been treated to an unusually forthright presentation of marketing chutzpah, this time in an almost unbelievable format. It appears that Marantz has decided it's time to attack not only the American public's ears, but its patriotism (and, of course, pocketbooks) as well:

MARANTZ ESTABLISHES WW II DEALER DEVELOPMENT WAR ROOM. . . A mock World War II war room, authentic enough to make Winston Churchill proud, has been set up at Marantz headquarters in Chatsworth, CA. . . The war room, complete with a battery of helmets, canteens, and battle plans, is the nerve center of the company's new dealer development program. . . Next to the dealers' names (lining the walls) is one of three symbols: a champagne bottle which signifies a direct hit in enlisting a dealer, a "men at work" sign which indicates the campaign to draft the targeted dealer is still in pro-

gress, or a skull and crossbones which identifies an A.W.O.L. . . Complementing the war room is a battalion of Marantz corporate Minute-Men who are available at a moment's notice to aid any rep in zeroing in on a dealer. "The War Room has proved very effective", said Bob Fried.

The Marantz attack plan also proceeds on the gold front:

The company's new line of solid gold products feature 24 karat solid gold plated input output jacks and cosmetic gold facings. "We have repositioned our product line from a 'shoot 'em up city, price mentality to a more structured and quality oriented controlled distribution concept", said Bob Fried.

I hope Mr. Saul Marantz, who I was priveleged enough to meet at a recent CES, is able to view with some humor these almost incredible advertising shenanigans. Would that the "targeted" dealers could also respond with a loud guffaw.

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Rates: Private 20¢ a word, commercial 40¢ a word. Multiple insertions must be paid-for in advance. We do not bill. Ads submitted for Audio Mart will appear within 60 days of receipt by us.

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BOB HEENAN buys and sells used audio equipment: dealers' overstock, floor demo models, open-box new, and well-used. He also offers a brokering service to assist audiophiles in recycling their used components. In these tight-money times, here is the first place to look for genuine component bargains, and the best return from your unwanted items. P.O. Box 782, Brookline Village, MA 02147.

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