The Magneplanar

Manufacturer:
Magnepan, Inc.
Distributor: Audio Research Corp.
2843 Twenty-Sixth Ave.
South, Minneapolis, Minn. 55406.
Price: Magneplanar Tympani 1-U(tility fabric), $995. Tympani 1-D(esigner)F(abric), $1,095. Tympani 1-U-Woofer, $585. Tympani 1-DFWoofer, $635.

The Magneplanar is, among audio cognoscenti (for whom, after all, it was intended), already a subject of controversy.

Its fans include some of the audio field's greatest celebrities; its principal detractors are equally celebrated. There appears to be very little middle ground between the two viewpoints.

The difficulty, for us, in reviewing it is that we are of two minds about the sound of the Magneplanars, although our somewhat schizoid attitude has little to do with the debate between the speaker's proponents and opponents.

We suppose it is the very success of the Magneplanar among certain rather prominently placed golden-eared audiophiles that has once again set off the debate about speakers that radiate both front and rear.

There is, however, a school of thought about speaker design (espoused by Irving M. Fried, Jon Dahlquist and others) that we might call the British School. One of the principal orthodoxies of this philosophy is that no dipole radiator can sound very realistic because (1) such speakers are absolutely subject to the acoustic environment in which they are placed and (2) because such speakers cannot project a precise stereo image but, rather, create a bloated sonic image.

Dahlquist likens the changes created by dipole radiators to multipath distortion.

We are not interested, incidentally, in either taking sides or passing judgment on this particular school of thought. We simply mention it in case you've heard it (and hear it you will among certain of the more stratified analysts of audio) in order to warn you to listen to the Magneplanars before you take a stance yourself. We do assume that you have heard the vastly more popular counter-arguments to the British position, as argued by everyone from Amar Bose to Stewart Hegeman.

Exponents of both philosophies have produced undeniably excellent speakers, e.g., Fried the IMF Monitor, or, on the other hand, KLH the distinguished Model Nine.

One point, though, we must concede to the would-be "British" approach, and that is this: The KLH, the Dayton-Wrights and the Magneplanars are unbelievably difficult to place for

optimum results. And, having said that, we must add one of our own: Unless you have an extraordinarily large room (and by that we mean on the order of 5,000 cubic feet or so), you will find it impossible to get really deep bass out of these speakers.

And thereby hangs a tale.

The Magneplanars were loaned to us by the distributor, William Johnson of Audio Research, whose sole condition of lending was that he install the speakers himself. Well and good, said we, since there are virtually no Audio Research dealers in the Long Island-New York City area. (Did you know, by the way, Audio, Stereo Review and High Fidelity test components are borrowed from the manufacturer?) Johnson did not just install a pair of the speakers, however; he also brought along two of his Dual 75 amplifiers, his EC-3 crossover network, the

SP-3 pre-amp, the Dual 51 amp, a Rabco ST-4 turntable/arm combination, two Decca London cartridges (export versions), connecting cables, records, two Magneplanar woofer reinforcement panels and, of course, himself.

We first tried Music Room 1, a somewhat dry and zippy room of plaster walls and bay windows (about 3,500 cubic feet, excluding bay area, of 22 by 18 by 10), which, despite its unpromising dimensions sounds fine with cone-type loudspeakers. The Magneplanars sounded hideous. We ruled out Music Room 2, which was obviously too small for the speakers. We then created Music Room 3 (about 25 by 15 by 11) out of what once was a writing room, and, after taming its reverberation with blankets and rugs, we installed the Magneplanars. Johnson then set the balances. After endless twiddling, he pronounced himself 50 per cent satisfied. (My first experience with the Magneplanars—an event that bowled me over—was in a room that Johnson has since pronounced only 20 per cent "satisfactory.")

Along the way we had to discard one of the Decca London cartridges because of unsatisfactory resonances in the midrange. The second "hand-selected" version was, happily, much smoother in its overall response. (Johnson, for the pruriently curious among you, likes no other cartridge better than the Decca London.)

He also told us the bass panels would be useless in Music Room 3. And so we could hardly wait until he left to start experimenting with them.

At this point, we began our subjective tests, which included, as you might suspect, considerable tinkering with balances and with components other than those manufactured by Audio Research.

Johnson had, as it turned out, installed the speakers incorrectly. The positioning was his fault. The fact that they were out of phase was the fault of one of our staff members. It didn't take long to spot the phasing problem. It took considerably longer to find the right place for the, speakers (about six feet out from the wall). And even longer to find a satisfactory crossover balance. Johnson had set the high-frequency crossover at 2,000 cycles Hertz to

you); we found 1,500 more to our liking. (His literature, by the way recommends 1.5 kHz.) It was many weeks before we adjusted the level on the high-frequency amplifier (the Dual 51) upward to see if we could effect a better high to mid-range balance.

The point of this long-ish discourse ought to be apparent. The Magneplanars are exceedingly tricky speakers to install and we would not imagine, conservatively peaking, your having an easy time of getting the best performance out of them even if you could put a Levitt house in our living room. Obviously, the problems of positioning and balancing the speakers row all that much more difficult if you're trying to install them in anything less than baronial living room. Under no circumstances would we recommend your even considering these speakers if you have less than 3,500 cubic feet in your listening room, and even then, you must have a fairly long listening room.

This will not prevent a fanatic, we suppose, from trying to stuff the Magneplanars into a small room—but be advised hat it is rather like playing a trombone in a telephone booth.

The speakers, by the way, are six feet all, four feet wide, and about an inch hick. They are hinged at 16 inch intervals and look rather like a room divider. (You would be surprised to know the number casual guests who spent some moments "looking for the speakers.") They are available in a veritable rainbow of fabrics—from something called sauterne believe that or not) to an intriguing onyx.

They were not designed by Johnson himself, but rather by a friend, Jim Winey, a former engineer for the 3M Co. who as not a speaker-designer. Not surprisingly, the diaphragms are made of Mylar trips.

The design of the Magneplanar is a somewhat curious thing that we cannot say we totally understand. Johnson, in his explanations of that design was rather vague, perhaps because the patents were then still pending. The basic construction, he says, is on a three-quarter inch composite board material, which is sawed away to leave the supporting frame for the speaker elements. A sheet of 20-degree cold-rolled steel (perforated for 22 per cent openness) is bonded to the front of the frame.

Behind the steel are five-sixteenths-inch aluminum wires (closely spaced) to which are bonded very thin (one-halt mil) strips of Mylar "suspended in sections," Johnson says, "to achieve progressively lower resonance frequencies. It basically works like a drum," he says, ergo the name "tympanic device." The audio-signal current is applied through the aluminum wires. Fine and dandy, you say, as did we. But where are the magnets?

Johnson said there was "a distributed magnetic field," without bothering to elaborate. (The nontechnical among us, which includes the Editor as well, may recall that simple application of current to the wires will not force the Mylar strips into motion.) We thought, at first, that the bonded-steel sheet in front of the aluminum-Mylar strips might act as a permanent magnet. Not so. Apparently, Johnson and Winey have included bar magnets, attached to the steel, and, according to Irving M. Fried's article in the June '73 High Fidelity, "interleaved with the wires." Q.E.D., a voice coil. **1.**

1. An acquaintance of ours has. in fact, examined the patent on the Magneplanars. Our explanation, or rather Mr. Fried's, is not precise. The magnets (pieces of ferrite distributed in plastic strips) are attached to the steel/ plate Not "interleaved," exactly, but perhaps so, practically speaking.

Johnson does acknowledge that the mass of the system is "several times the mass of an electrostatic," although, he says, "the mass of the tweeter isn't much more." (Two of the divided sections of the Magneplanar handle mid and low frequencies. The outer section is the tweeter panel.)

All of this, despite what you may be thinking, is rather relevant to what we are going to say. We need not point out, I suppose, that this arrangement works almost as a purely resistive device. The speakers do not require any of the accoutrement (namely, transformers) that makes electrostatics the beasts that they are. Nor is the Magneplanar, accordingly, plagued with impedance variations (eight ohms, pretty much on the nose, across the frequency range) or some of the other eccentricities that bedevil the electrostatic owner.

Our listening tests, as it turned out, have occupied most of our time over a 1 6-week period. One reason for this we probably hinted at before—but it is well worth saying again—the Magneplanars can be dramatically improved in their overall performance by some very subtle things: the physical layout of the panels; the type of cartridge used—even an inch's difference in placement will often make considerable difference in the subjective effect that one perceives.

Despite Winey's assertions to the contrary, we have found that other Magneplanar owners have troubles that appear to be the result of quality-control problems. It is no secret that the earlier editions of the speaker had little, it any, response in the very high frequencies. One reader's Magneplanars developed a defect that caused one panel to sound (1) more efficient (2) honky in the midrange and (3) steely at the top end. The ones loaned to us by Johnson in late January (serial number: 42151) are, we believe, representative of the current crop.

So what do they sound like?

They sound unlike any other speaker system we have ever heard. There simply is no way to prepare anyone for the sound of the Magneplanars. We are prepared to acknowledge that the Magneplanars are one of the handful of "classic" speakers, that is, a speaker that is and will be a standard by which and with which others will be compared.

We have a good many reservations about that sound, however, reservations that would, under ordinary circumstances, make us dismiss a speaker system from serious consideration. These reservations, let it be said, are often neutralized by the Magneplanar's most astonishing characteristic: From time to time (with prerecorded material) the Magneplanars sound frighteningly life like. Not all the time. And yet, in our experience, we are always aware that we are listening to speakers, or nearly always. The Double Advents, which sound uncannily good, still sound, at their best, like loudspeakers. So do the Dayton-Wrights. But,

every once in a while, the Magneplanars sound like the real thing. And that is why they belong in the handful of speakers worthy of a reference system.

But the flaws are truly maddening. We mentioned our schizoid reaction. One day we like the Magneplanars; the next day we do not.

One problem is their lack of deep bass response, which is forgivable. The other is their lack of "sheen" on the top end, which is, we suspect, not. When we commented on this to Johnson, he was delighted, saying our ears had to grow accustomed to missing "the artificial, electronic sheen"—which he (and others) have likened to the transient enhancement phenomenon mentioned by Mike Wright in his article in this issue.

We were, at first completely confused. Our ears told us that the Magneplanars often could and did sound life like. A tape we had made here in Sea Cliff (in Music Room 1) of singer—guitarist David Levine—when played back on the Magneplanars—reproduced his voice with uncanny accuracy. DL has a difficult voice to reproduce since it (naturally) contains overtones that sound dangerously like speaker-breakup. The Magneplanars caught its peculiar overtone structure and put that voice into focus in a way the Double Advent System simply could not approach. But DL's guitar was another matter; its gleaming overtones simply were not there (the sheen). That certain resinous quality on good stringed instruments, cell), violas, violins, that we had noted and recorded at nearby Oyster Bay similarly disappeared. (Before you say "aha," Coe Hall at Oyster Bay is acoustically neutral—in fact, a gorgeous hall for recordings, unlike Music Room 1, which is on the zippy side.)

We would be the first to acknowledge that many speaker systems (including the Double Advents in a relatively bright room) have too much sheen—and we do assume that the effect known as "transient enhancement" is, indeed, at play. But we do not assume that our ears, and others, are themselves suffering from transient distortion when we hear sheen in live music. Although Johnson tends to get apocalyptic at the mention of such things, we found the Sound craftsmen 2012 could and did restore the sense of sheen on the Magneplanars with minute adjustments (upward) of the 10,00020,000 equalizer band—without affecting the clarity of the system's sound one scintilla. Nevertheless, it is not our position to review a speaker system cum equalizer because, in our view, a speaker system should not—inherently—need an equalizer to achieve a natural musical balance.

The problem of the missing sheen had distressed us all the more since the Magneplanar's had what we considered to be rather magnificent transient response, despite their mass.

The superb transient response struck us as being somewhat mysterious, in fact, and mostly because of the mass of the system. Stewart Hegeman, who was not talking about Johnson's speaker, suggested (while he was discussing his own speaker) a reason this might be so—stored energy. The fact is, Hegeman says, that most speaker materials (plastic included) store large amounts of energy as the audio signal pulsates, energy that interferes with succeeding impulses and tends to smear the sound by inhibiting the speaker's ability to start and stop with each new signal application. It seems perfectly obvious to us that thin Mylar

strips have little or none of this ability to store energy, but, to the contrary, discharge it rather immediately. (To be sure, we are speculating on this point.) It is a well-known fact, Hegeman says, that aluminum does not store very much energy (vice, the Magneplanar's wires).

We also suspect that it is the Magneplanar's mass that accounts for what we have to consider a dulling of the sound at very high frequencies and, for that matter, at the mid frequencies as well. By contrast, the superb detail and transient response of the system tends to compensate for this slight loss in sheen (which is what, we believe, accounts for our mixed feelings about the speaker). It is an important point, though, and one that may not be entirely clear. Most electrostatics, for one reason or the other, have a bit too much sheen and more "snap" than actually exists in live performances. They also have the marvelous transient response and detailing (call it articulation) of the sound that the Magneplanars do.

And so, you might say, the two meet on common ground: Unbelievably good transient response (plucked strings, bells, harp glissandos, voice). Electrostatics, as a rule, give you too much sheen and snap and the Magneplanars not enough (virtually none at all).

With the majority of today's recordings (most of which contain enhanced transients and unnaturally bright high ends), the Magneplanars actually can (and do) come out sounding better on many types of material. They are, believe it or not, second to none as a rock speaker. Especially with those rock recordings (now coming into vogue) with natural acoustic perspectives. Try any one of the four Cat Stevens' albums on A&M and you will see what we mean. Neither the KLH Model Nines nor the Magneplanars sound very good with recordings that are elaborately multi-miked. Both sound at their best on recordings with a constant perspective on the orchestra, such as Mercury's Living Presence classics, which sound overwhelming on the Magneplanars. (The Griffes Poem for Flute and Orchestra, Mercury SR 90379, strikes the Editor as being one of the most beautifully recorded selections he has ever heard.)

There are positive virtues to the Magneplanar that should not be dismissed lightly. We were prepared, on the basis of remarks by Fried and Dahlquist, to find the Magneplanar's stereo imaging vague and imprecise and to find that it exaggerated (bloated) the sound of the instruments to unnatural proportions.

But the Magneplanar does not do this. The stereo imaging is the most precise we have ever heard. Period. We have found, though, that a person has to listen to the speakers, or learn to listen. One member of our listening panel persistently found the stereo imaging vague and the instruments bloated and we were at a considerable loss to explain this, until we observed the obvious: The size of the Magneplanars in Listening Room 3 psychologically distorts what the listener hears. By closing his eyes, this listener was able to perceive the instruments at the point they were, in fact, located. The instruments do not wander and they do not drift. Neither are they "huge" in size, unless they have been recorded that way (vice, some of the Cat Stevens albums. To prove this, find a copy of Peter Maxwell Davies' "Antechrist" and "Missa Super L'Home Arme," L'Oiseau Lyre, DLSO-2 and listen. By the way, if the percussion sections begin to break up, it is your pickup mistracking or amplifier clipping,

not the disc.) This is so, despite the fact that 78 per cent of the Magneplanar's sound is radiated from the rear.

Fortunately, Benjamin Bauer, writing in Audio, confirmed our suspicion that there was nothing inherently in the design of a dipole radiator that would make its imaging imprecise or bloated. We suspect that, to the contrary, the tendency of electrostatics to beam (which is where most people have gotten their ideas about dipole radiators) is what may have given dipole radiators a bad name. Both the imaging and, consequently, the sense of orchestra depth produced by the Magneplanars lay the Dayton-Wright and KLH Model Nine to shame. (Allen Petterssons's Symphony No. 7, Dorati, London CS 6740—on the Magneplanars—contains one of the most realistic reproductions of an orchestra we have ever heard. On other speakers, the record does not sound nearly so realistic.)

On about 90 per cent of the discs being issued today, the Magneplanars will not sound at all bass shy. But they are. Possibly this is the result of a bass rolloff below 50 Hz (the effective lower limit of the speakers) which appears to be standard practice among American disc-cutters. You will, we suspect, sometime find the need for deep bass response from the Magneplanars and this is where you will run into what has been for us an insoluble problem.

We tried Johnson's bass screens, despite his admonitions that they would not work in a small room. These bass panels are, by comparison, horribly expensive and they require all the amplification you can get. If you define this as being Audio Research electronics (which do, for reasons still unrevealed to us, sound better on the speaker), then you have quite a bill for reinforced bass. In our room, we could hear no difference at all with the bass panels hooked up. And, from what we have heard from readers who have tested them, we doubt that the bass panels—in their current form—will produce really satisfying bass. And, anyway, says Johnson, if your room is less than 5,000 cubic feet, then forget it. Now 5,000 cubic feet adds up to a very large room, and it the bass panels are correctly installed behind the main screens (about five feet) and five feet from the back wall, you still have a speaker setup that is going to uncomfortably dominate the room. Figure it out mathematically: It you use the Dual 75 or 75A, it will cost you $975 to amplify the two screens that Johnson recommends for maximum impact. The two screens will cost you about $1,200. In other words, you may spend $2,200 to find that you aren't going to get soul-satistying bass and that you cannot turn the things up very loud without destroying them (see the Cross & Hartley Letter in this issue).

What we did was to use a Dual 75, along with Johnson's electronic crossover (cutting off above 50Hz) on the KLH Model Five, and a new horn-type loudspeaker (which works very well in this setup), and the Advents. The horn-loaded system produced the kind of bass most consistent with the detailed Magneplanar sound—the others sounded noticeably colored in comparison with the Magneplanar lows and mid-range. We do not believe, in a word, that we have solved the bass-end problem.

Nor do we necessarily believe that we have entirely overcome the efficiency problem of the Magneplanars. Johnson, as most of you surely know, is coming out with a 400-watt per-

channel tube-type amplifier. (The literature rather coyly warns that there will be "environmental" heating problems.

The cost of that amplifier (scheduled for release this autumn) will be astronomical (nearly $3,000) and unless like Igor, you have a friendly Frankenstein's monster around the house, we don't see how you will be able to move it. The Phase Linear 700 doesn't sound good on the Magneplanar, and this is, we suspect, at least partly the fault of its Harmonic Distortion Format (see Second Thoughts). It is true—with the Magneplanars—that Johnson's own electronics give one a smoothness, a detail, and a sense of three-dimensionality around the instruments that just is not surpassed by other amplifiers.

We used Johnson's Dual 51 for the tweeter panel and a Dual 75 for the low and mid-range panels. Both would, on occasions, be driven to clipping (especially with the newest DGG recordings made in Boston) at levels that are room-filling though not overwhelming aurally.

Perhaps because the total harmonic distortion of the speaker is so low, or perhaps for another reason, yet we still find ourselves listening to the Magneplanars at higher sound pressure levels than we do conventional speakers. You can comfortably tolerate sound levels in excess of 95 db with these speakers, although the speakers themselves—or is it the amplifiers?—begin to sound uncomfortable at these levels. What we are trying to suggest is this: Because of their extremely low efficiency, below that of an AR-3a, the Magneplaners can, we believe, comfortably accommodate 500 watts—peak, of course—per channel.

At more reasonable levels, 75 to 80 db, the Dual 75 and 51 will, in a medium-sized room, perform quite well. We do have to note that our 51 has developed an on-again off-again sort of distortion in the right channel, one that sounds much like tracking distortion (it does this on tapes too), one that can be solved by simply whacking the amplifier.

We found ourselves happier with the Improved ADC XLM in the new Shure SME low-mass tone arm on this system than we did with the Decca London Mk. V. That is most assuredly not the case for an ADC with any standard arm. In that case, the Decca London sounds far more detailed and open than the ADC.

We did observe one thing about the Magneplanars that may or may not be Important. It tends to obscure differences between many components. Unlike the Advents, which immediately tell you what the effects of a new amplifier or preamplifier are (when inserted into the system), the Magneplanars still tend to sound pretty much like themselves, although, as we said, they really begin to sound exceptional only with Audio Research amplifiers.

We have a few thoughts about positioning and placement: First, the Magneplanars are best placed about five to six feet from the wall, and that wall, for best results, really ought to be acoustically soft rather than hard.

The panels of the Magneplanar sound considerably better when they are positioned in a straight line (i.e., a planar surface). Curving the tweeter panels inward tends to destroy the stereo imaging and often subjectively creates an effect of instrument wander.

In order to correctly set the level controls on the electronic crossover (we assume you are going to bi-amp the Magneplanars) you should experiment with high-frequency balances. Without a correct balance between the amplifiers, the Magneplanars can sound less than smooth and extended, and you can, with the correct balance, add some sparkle to the high end, though you will not restore the sheen.

It is, we think, the absence of the excessive amounts of sheen that gives the Magneplanars the unbelievable focusing power they have, that ability to zero in on an instrument and give it a certain three-dimensionality. Sheen, in excess, we think, causes a smearing of high frequencies that degrades the imaging or focusing ability of a speaker. It happens with both the Advents and the Dayton-Wrights.

When the Magneplanars are at the acoustic focal point of your room and balanced correctly with your amps, they will then tend only then) exhibit a particularly surprising homogeniety of sound. A piano, for example, sounds like the same piano from its bottom register (save those notes below 50Hz where the Magneplanars sound hollow, and, forgive this Bill, "drumlike").

The Magneplanars are not preamplifier - critical. Although most transistorized preamplifiers, on these speakers, do not have sufficient depth (compared with the Audio Research SP-3) to give a good orchestral illusion. Why this should be so is another one of those things we do not yet understand. With the Audio Research, there is a certain depth, a sense of space, around the instruments that we speculatively attribute to what we guess is a rather slow decay time.

Because of the length of this review [which is looking more and more like a novel every minute), we have omitted a good many of the comparisons that we made with equipment. We do intend to bi-amp the speakers with the Crown DC-300a, if only out of curiosity. And we do intend to continue using these as a reference speaker system, even though, knowing Bill Johnson, we expect the Magneplanars to undergo a continuing evolution, which may well culminate in a speaker system that we could call state-of-the-art and absolute. **- HP**

Manufacturer's Comments:
(Audio Research Corp., preparing for the Consumer Electronic Show, discussed the review by telephone with the Editor. A spokesman for the company found the review "ambiguous" and "slippery, " consequently, difficult to answer. The editor, likewise, was dissatisfied and, after considerable retesting, wrote the following postcript.)

Since the original Magneplanar review was written (around the first of May), we have been able to effect significant overall improvements in the sound we heard through the speakers. The first dramatic improvement came when we installed the Panasonic SP-10 turntable, Shure's low-mass SME arm (nondetachable head version), and the latest generation of the ADC XLM. We were then able to achieve substantial bass response below 50 cycles.

Later, we substituted an Audio Research Dual 75 for the Dual 51 we had been using to drive the Magneplanar's tweeter panel, and found we had significantly extended upper mid-range and high-frequency response. In our room, and with these modifications, the Magneplanar is not noticeably bass-shy, although the bottom octave is missing. We have, to some extent, restored the natural sheen of many of the instruments of the orchestra.

We also found an ideal match to reinforce the Magneplanar's bass end in four Hegeman Model Ones. The Hegemans add no coloration on the bottom. They do not, in fact, seem to be there at all except when the occasion (such as low organ notes) calls for it.

The confusing ambiguity in the basic part of this review is, we believe, simply part of our learning to live-with the Magneplanars. As we said, they require the very best associated equipment. They also require that a listener decondition himself from "high fidelity" sound. You quite literally have to learn to listen to music again with this speakers.

The speakers are far from perfect. Perhaps they are, as Johnson suggests, limited by the inherent liabilities of virtually all of today's source material. They are, as we suggested, shy at the very bottom and in the crucial 10,000-to 20,000-cycle range (the area most important to full reproduction of subtle overtones). Certainly this is true: At low listening levels, the Magneplanars sound dullish. Not so at ordinary levels.

But, for the record, the Magneplanars, in the critical 50- to 10,000-Hz range sound the way electrostatics should sound, but never do. They are the cleanest speakers, top to bottom, that we have ever heard. They are also the least colored loudspeaker we have ever encountered. They also have the tightest focus on the instruments and almost invariably sound musically right in a way that no other speaker approaches. They never sound spectacular and they won't raise goosebumps—but they will, on occasion, sound lifelike (which few other speakers do).