

April 1990

Recording

ENGINEER/PRODUCER

The Applications Magazine for Audio Professionals

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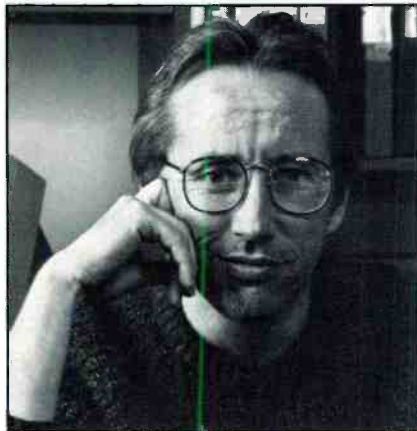
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Whitney Houston's studio, designed by John Storyk.

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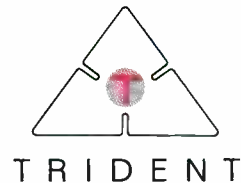
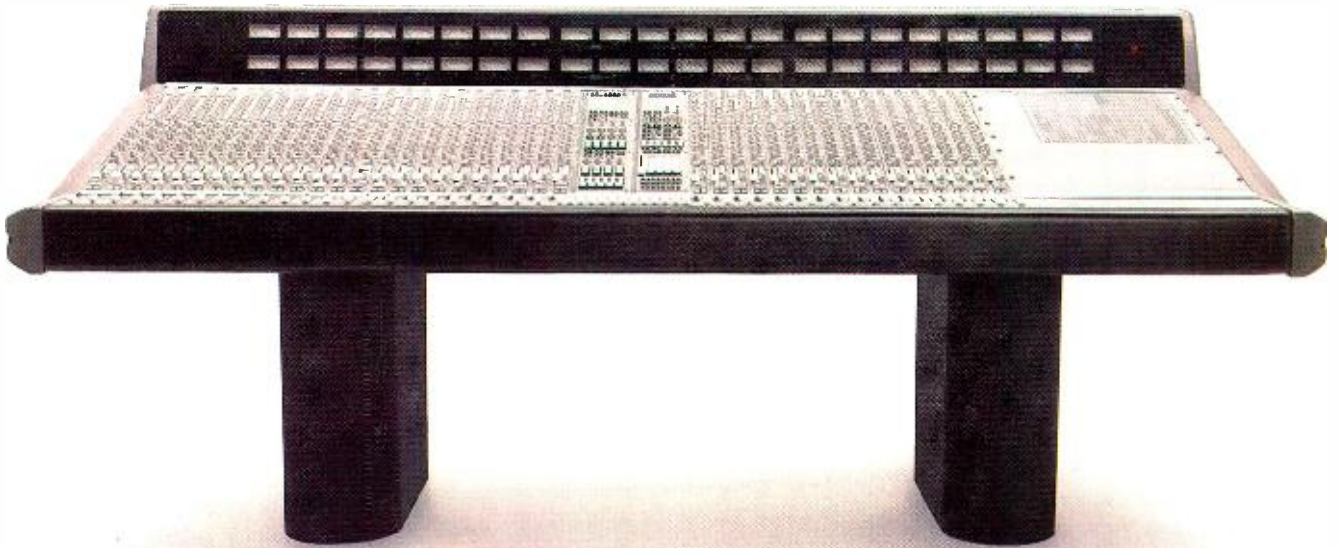
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it's destined to be the best-sounding 24-track around.

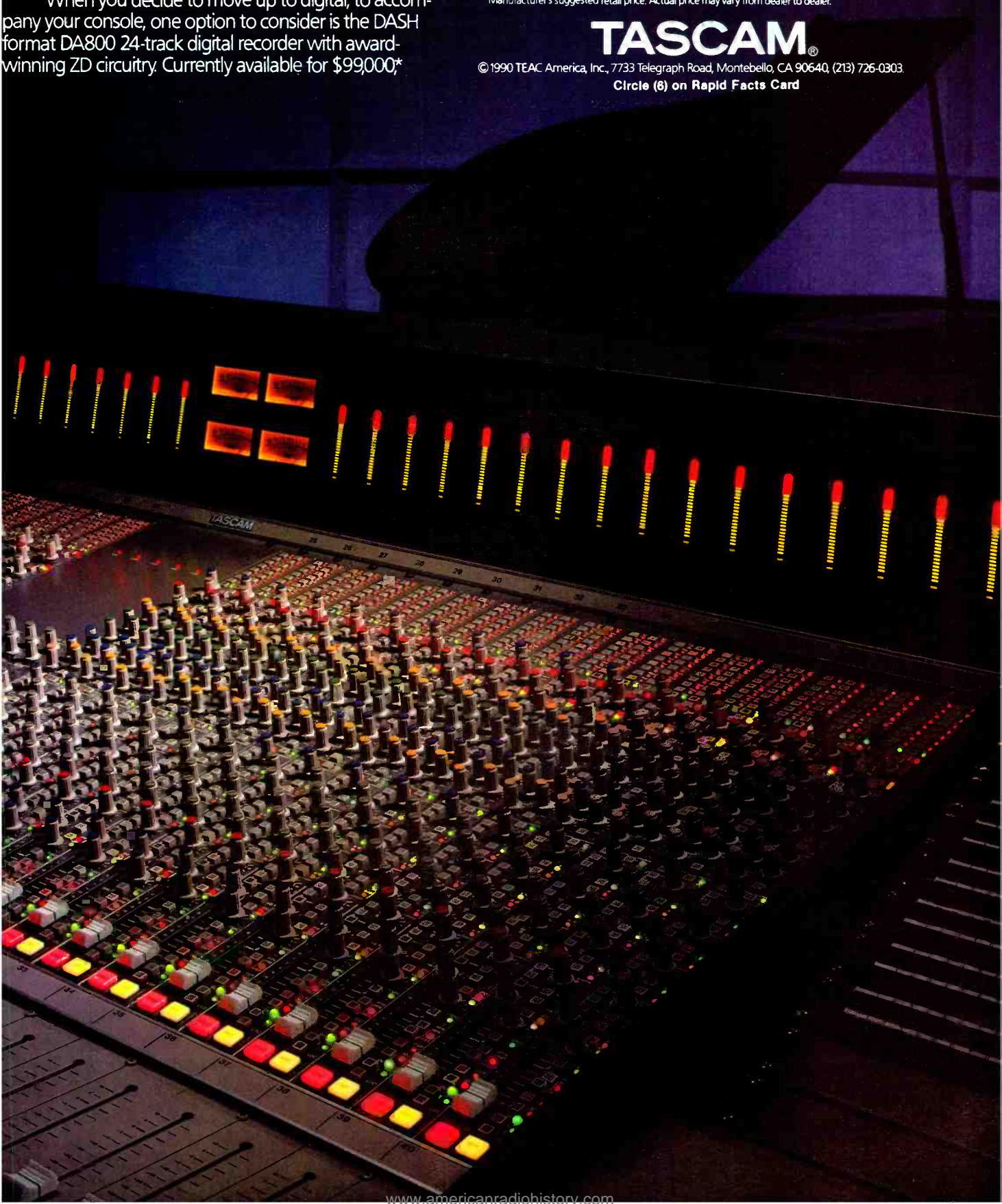
So before you invest in any console, you owe it to yourself to hear the M700. We think you'll agree that the only thing more unbelievable than the sound of the M700 & DA800 combination is its price tag.

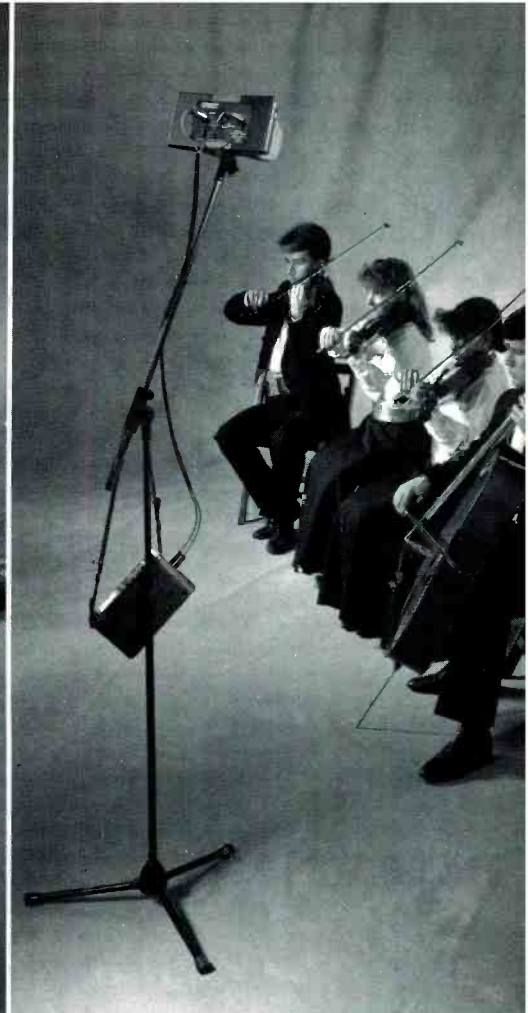
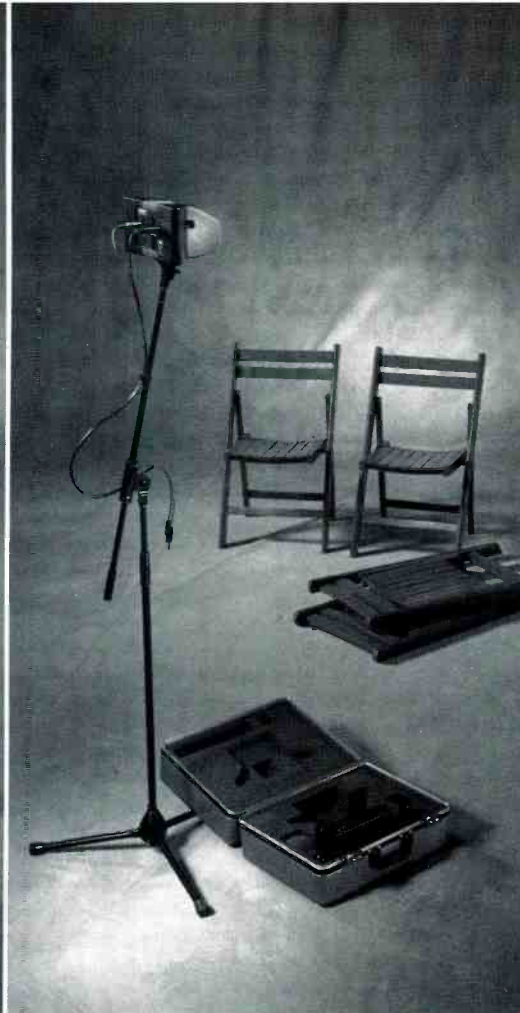
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Getting Back To Business

Project studios, home studios, electronic music studios — whatever you call them, their influence on commercial, for-profit studios has been profound.

If one issue symbolizes the uncertain times this industry is facing, it's this one. Are commercial studios in danger of becoming extinct? Are home/project studios unfairly taking away business from their for-profit counterparts? Are manufacturers selling full-line studios down the river by blurring the distinction between pro, semi-pro and MI gear? There are no easy answers.

Word on the street says the record companies have effectively shut up the commercial studios by threatening to pull business out of their facilities if they continue to make a fuss about project studios. Other words on other streets say the pressure's still on.

We contacted a number of legitimate project studio owners — guys who do only their own work and don't take outside clients — about putting their facility on this month's cover, and they declined. They didn't want the publicity, because it would be inviting trouble from commercial facilities.

It appears that the issue may be dormant for now, but it is far from dead.

At the magazine, this issue affects us most directly. Several of us have some sort of home studio. We're sensitive to the concerns of commercial facilities, but love the freedom and convenience that home/project studios provide. I don't think any of us have illusions about what our equipment can do — when we need top-notch audio, we go to a for-profit studio.

It's the Mothership Scenario, which SPARS has been talking about for years now. It's the only solution that makes any sense, because it accommodates the greatest number of people.

It's time to balance the needs of both sides of this controversy, so all of us can work together to create a stronger industry. Free and fair competition is good; new

people bring in fresh ideas; and the only way to deal with new technology is to make it work for you, rather than ignoring it. There had better be room for people who wish to work at home, because the practice is going to increase.

That said, here are caveats for both sides:

Commercial studios: Don't hide behind the zoning laws because you are unable or unwilling to compete. Form an alliance with a hot jingle writer/producer. Open an electronic music room for rent. Emphasize service, not gear. Find a niche in your market, and go for it. Do anything but blame project studios for your woes.

Project studios: Don't take advantage of the zoning laws, which usually are enforced only if a complaint has been lodged. Make sure your gear is properly installed and all the applicable codes are followed. Use your facility only for your own projects. Don't take outside business, and don't create parking or noise problems for your neighbors. Develop relationships with commercial facilities. Recognize your technical limitations; you may not be able to do everything you want in your studio.

As for the Hollywood Association of Recording Professionals, which more or less stirred up the waters last year, I hope that the organization is indeed ready to move on and tackle other issues. As stated by HARP president Terry Williams in this month's Guest Editorial, HARP is working on a number of ideas, such as group insurance plans and bulk equipment purchasing, that could be of great help to Los Angeles-area studios. These ideas could easily be translated to studio organizations in other cities.

The point about home studios having been made, it's time for everyone to get back to business and start making music. Great ideas and innovations often come from unexpected sources. It's in our interest to make sure that people can freely and easily get started in this industry. If we are going to start applying rigid, and perhaps arbitrary, standards about who can and cannot practice, we're all going to be the worse for it.

Dan Torchia

Dan Torchia
Editor

GUEST EDITORIAL

By Terry Williams

HARP: Beyond Home Studios

It seems remarkable that in a sprawling city awash with entertainment unions, guilds and business groups, there is no professional recording association focused on the business end of studio life.

Now for the first time, an issue so fundamentally important that it threatens our very survival has brought many studio owners and managers together. In the process, it has fostered an organization that is revolutionary from one simple standpoint: Competing studio owners are now sitting across the table from one another and talking face to face as members of the Hollywood Association of Recording Professionals.

We are long overdue for such an association, one that addresses the *local* issues of the professional recording industry. An association that can conduct business far more personally than a national one focusing on the industry in general. And a group that can convene on a biweekly basis and confront pressing challenges in an intelligent and powerful manner.

We have become an association that is now addressing many challenging problems head-on.

As we are all aware, there is a growing number of local home studio owners operating tax-free in residential zones. As a group, they are aggressively undercutting rates for record and film company bookings, while legitimate commercial owners watch helplessly as their fees are forced to tumble into the red in order to compete.

But the home studio issue is only one

of many reasons why we've limited ourselves to a local membership. As a result of getting together to talk about that original issue, we have become an association that is now addressing many other challenging problems head-on.

Take the progression of technology, for instance. It has revolutionized, cluttered and confused our business with a myriad of choices for owners, and demands from clients. HARP now offers a meeting place for local owners to discuss their experience working with a wide range of new equipment, instead of each of us wondering whether we should take another expensive walk down a dark alley.

The home studio issue is only one of many reasons why we've limited ourselves to a local membership.

We're also working on the idea of talking directly to manufacturers to let them know what our needs are for future revisions, and, in doing so, getting the chance to take an active role in functional design.

The whole recording and booking process has changed. We work on albums in our facility that have been recorded in five other studios before reaching us. That never happened until a few years ago. HARP now offers a forum to discuss the path of a recording project and the problems and successes behind it, not to mention the likelihood of getting paid in a reasonable time frame.

Many studio owners are paying outrageous monthly fees as the health and medical industry gouges and inflates its way to impossible levels. HARP is aggressively designing a medical plan that would help to lower those premiums studios are now paying, while increasing the benefits in a much larger group plan.

Likewise for commercial insurance policies. Some owners find it virtually impossible to find *any* insurance company to write them legitimate coverage, based solely on the pervasive business thinking that studios are a bad risk. HARP can now offer a package of policies to any studio that becomes a member, and is actively participating in the design of a policy that will at last offer the option of master tape coverage to those who desire it.

And there's more. Here's an example of a spectacularly simple solution to a long-standing problem, which came out of a meeting of professionals talking openly about it: finding and hiring quality engineering, management and maintenance help. HARP is assembling a database of professionals whose resumes will be accessible to all member studios via modem. And regular meetings have already become a way for an owner to announce the search for talent and get an immediate response from others.

Another area of common interest and group power is equipment purchasing. Synchronizers, tape decks, microphones, signal processing and outboard equipment are items that can be bought in quantity by an organized group at a significantly reduced per-unit cost. The same thinking could be applied to tape buying. As a local association, HARP is checking into the feasibility of purchasing large quantities of raw tape stock, warehousing it and distributing it to our members at lower cost. And yet we're just beginning to discover the kind of potential we have as a group of outstanding industry professionals.

We will continue to take an active part in the shaping of this business's day-to-day history.

People think that those of us who have been successful in this business over the years are knowledgeable and powerful. But in meetings with other HARP members, I've learned more about this industry in the past eight months than in virtually all of my experiences put together. That's something that makes me want to tell my colleagues in Los Angeles that together we can learn more about an industry that is undergoing tumultuous change and can share in changing its fate.

We can and will continue to take an active part in the shaping of this business's day-to-day history. The reason HARP works is because it derives its power and potential directly from our local scene. I can assure you that it is something many of us believe in ardently and that it will continue to grow and flourish.

REP

Terry Williams is vice president of Lion Share Studios, Los Angeles, and president of the Hollywood Association of Recording Professionals.

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LETTERS

Montreux: the AES view

From: Don Plunkett, executive director, Audio Engineering Society.

The world of technical exhibitions and associated audio and video conventions has produced a display case for the innovative developments in the 1980s. The growth and acceptance of the compact disc is an example of the potential for success that a technical exhibition has. (The CD was premiered in March 1983 at the AES 73rd convention in Eindhoven, the Netherlands.)

Whether it is CDs, VCRs or HDTV, the technical exhibitions held by many diverse, but dedicated, technical societies have materially helped the way we learn, listen and see. The AES gladly acknowledges the tireless and successful efforts by other organizations such as the NAB, SMPTE, CES, IEEE and the myriad of other concerned and dedicated worldwide organizations in the field of technical and educational conferences. We are proud to be part of the overall success of all organizations concerned with progress in our mutual fields of technology.

As is often the case, sometimes we forget the power of exhibitions and conventions. There is more concern, understandably, with the tremendous demand they make on the resources of time and money of individuals and companies. In recent months, the AES has been subject to criticism by a British group called the PAEG (Professional Audio Exhibitors Group).

This group is represented in recent publications by Ken Walker of SCIF (Sound and Communications Industries Federation in England), serving as committee secretariat. SCIF is a group whose activities also include organizing a trade show in England and arranging U.K. government-sponsored exhibitors group visits and participation in many audio and related exhibitions around the world.

The group was organized in the spring of 1989 by a group of British audio manufacturers who wanted to voice their concern over too many exhibitions and their need to display products at such exhibitions. According to one member of the group, there are some 33 exhibitions worldwide related to audio in some form or another.

Its original critical campaign was focused on the 88th AES convention scheduled for Montreux, Switzerland, March 13-17, 1990. These dates were announced by

the AES in 1988, in its journal and repeated each month thereafter. This exhibitors group strongly believed that Montreux was the wrong location for several reasons: It claimed that the city was too expensive for daily living and too remote to allow one-day visits to the exhibition.

In a PAEG/AES meeting in early June 1989, in London, the AES listened intently to the points of view. Over the months, AES continued in its efforts to rectify many of the group observations of Montreux. Listed below are some of these criticisms and the ways in which the AES has resolved them.

1. Cost of living is too high. After working with Montreux city officials and hotels, we established attractive room rates. The cost of a room (double occupancy) in a deluxe hotel was the equivalent of approximately 75 U.S. dollars, or 55 British pounds. In addition, an ample supply of lower-priced housing was available.

2. Difficult to reach. Geneva is reached by a network of fine European highways, railways and airlines, both European and international, on convenient schedules. London, for example, has 19 flights daily to Geneva. There is hourly train service from the new airport/rail terminal in Geneva directly to Montreux. The travel time is one hour and 10 minutes, which is about average for travel from most airports to convention sites in Europe and North America. AES and Montreux maintained an AES convention desk at the Geneva airport/rail terminal, where discount rail tickets may be purchased.

3. Travel within the city is difficult. The city of Montreux provided free bus transportation from the Montreux rail station to the various convention hotels during the AES convention. In addition, free transport to the cities of Vevey and Martigny provided by the city of Montreux during the convention, stopping at the convention site.

4. Montreux exhibition costs are too high. The cost of exhibition space this year in Montreux was lower than the 1989 AES Convention in Hamburg.

AES and the city of Montreux produced a convenience package of savings and benefits. The final results indicated the AES's dedication to improving all convention activities and to its responsiveness to suggestions and observations of all exhibitors.

The AES 88th Convention in Montreux contained papers, workshops, technical visits and an international display of ad-

vanced technical products, many never before shown, from the countries of the international audio stage. It is unfortunate that on PAEG's advice, some of its members decided to delay their product introductions until a later date in the 1990s. PAEG's absence denies its members the opportunity to display any prestigious developments they may have to an international audience at the AES Convention.

In addition, the information program at AES conventions receives worldwide publicity and coverage in publications and journals. This means another missed opportunity for the companies not exhibiting.

The PAEG has recently focused on the simultaneous dates of the IBC, primarily a broadcast product exhibition, in Brighton, England, and the AES Convention in Los Angeles. [IBC is Sept. 21-26; AES is Sept. 22-25—Ed.] The dates for the AES Los Angeles convention were changed in October 1989. This was done to avoid a conflict with the SMPTE convention scheduled for Oct. 13-17 in New York. The AES has consistently and diligently tried to serve the West Coast when SMPTE serves the East Coast, and vice versa. In many ways, this keeps a joint technical information program active in North America.

The decision for change was made by an informed AES Board of Governors after an in-depth search for alternative and satisfactory dates and sites. One should bear in mind that there is a window of about 10 weeks in the fall when convention centers and sites can offer attractive space. Fifty percent of the window is occupied by the move-in and dismantling of exhibitions occupying the main convention sites, which limits site and data availability. The change allowed a full view of both audio and video technologies for two large North American memberships in 1990.

In October 1989, during the AES 87th Convention in New York, the AES stated that it would continue to pursue its convention/exhibitor responsibilities in the 1990s as diligently as it has in the 1980s. In the 1980s, for example, the AES responded to the request for only one major AES Convention annually in North America.

It also responded to the request to house the Los Angeles convention under one roof. Now the entire AES Los Angeles convention will be housed completely in the Los Angeles Convention Center (papers,

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LETTERS

workshops and exhibits). This was done at the request of both exhibitors and attendees because it was practical for everyone. The AES has responded and will continue to do so.

The decade of the 1980s has been amply described in the press. It was a decade of unbelievable change in all areas, and particularly in audio. This is an AES legacy in a large part. The society conducted its first convention and exhibition in 1949, which was the spark that ignited the 40 years of professional and consumer interest that now manifests as a tremendous market.

AES provides a valuable venue to many exhibitors in the professional audio arena, as it has proven to those who exhibit time and time again. As we have in the past, we will always welcome input and suggestions on how to serve our diverse membership in the future.

Small vs. large studios

From: Steve Moroniak, owner/engineer, Reel Productions, Rolling Meadows, IL.

The recent controversy over *illegitimate* home studios has snowballed (as usual) into a giant farce. OK, one thing for sure; if anyone decides to operate *any* type of business out of their home, the owner has a responsibility to cover all the legal bases. No exceptions. Case closed.

So what's the rest of the big deal all about, anyway? Could it be that some of the big-time state-of-the-art monster studios are disturbed because these "little guys" are taking some of their business? Are they worried because when the first of the month comes around and they didn't have a great month, those loads on mega-buck consoles and other gear (not to mention their giant leases) are getting tougher to cover? OK, I can handle that. That's the way the progressive business cookie crumbles.

In this day and age we're shooting for technical perfection, and it's costing everyone a fortune. If we didn't have 32-track digital machines, we wouldn't need a quarter-million dollar automated console to mix the mess. Why record rock or heavy metal on digital when a majority of the audience is listening on noisy personal stereos, in a car in noisy traffic, or on a cheap boom box? Some people refer to all of this as progress. Is it?

Speaking of the "kid next door," what about the "studio next door"? Could it be

everyone's trying to keep up with the Joneses? A great new digital whatsit hits the market and every studio has to have one because it's the latest sound and no one will record at your studio if you don't have it. (Digital distortion for guitarists is my favorite. Why not buy a cheap speaker and blow it out? That's how fuzz guitars got started!)

Enter the small studio. Whether it's a big-name producer's 24-track home studio or an 8-track basement studio, the name of the game has become survival. All of a sudden, the small home studio is becoming what the Christians were to the Romans. Seek and destroy? No one's asking the American public to digress here. After all, progress is natural. But is it really progress when everyone is at each others' throats?

I've thought about moving into a bigger place. Turning down two or three bands a month because the room isn't big enough is frustrating. But why should we jump onto the ulcer-oriented, poorhouse-bound bandwagon like everyone else? Music is an art, but it seems that progress has turned it into nothing but dollar-oriented competition. Recording is an art. As for me, I'd rather keep it that way: Make the best music with what we've got, and have fun doing it instead of worrying whether we can pay the bills. Our clients appreciate it, are able to be more creative, and everyone is still happy. Even the people who buy their reasonably priced tapes. No, we're not making a fortune, but we are legal! And we finally figured out how to use that great new \$500 software-based sequencer. Now *that's* progress. (I think.)

Bio-Binaural mic technique

From: Mike Sokol, Sokol Electronics and JMS Productions, Hagerstown, MD.

In reference to the November article "Audio Fidelity: The Grand Illusion" by Dennis Ciapura, I am in agreement on all of his major points except one. I think it may be possible to attain audio perfection as described by Mr. Ciapura, but only by using "fantasy" techniques that he quickly dismissed.

For the last few years, I have been recording binaural soundtracks for video by using a pair of Countryman Associates microphones mounted on my own head, instead of using a binaural dummy. (I've

coined the term bio-binaural to describe a binaural head that uses a live person as the central element.) I have the unique opportunity to evaluate the sound from the microphone's point of view, because in essence, I am the microphone.

This technique does produce some startlingly accurate sound fields when used to record acoustic events outdoors, but it still has a problem when used in a reverberant room. Part of this may be due to the fact that some of our sonic localization ability relies on head movements to provide additional clues as to directionality. We do much the same thing visually to judge distance, and I have often watched my cat bob his head up and down before he jumps.

One of the reasons binaural stereo fails to achieve true realism is that when you move your head with headphones on, the headphones move with you. This may seem obvious at first, but the elimination of the interaction of ourselves with our acoustic environment causes a loss of this important feedback mechanism. When you listen to bio-binaural playback that had head movement during recording, the room spins and a certain amount of vertigo is felt. Without this internal feedback from our own bodies, our brain will never be fooled in believing "you are there."

A more complete recording system based on Mr. Ciapura's fantasy microphone is needed. Imagine a sphere one foot or so in diameter. This sphere records sound pressure on its surface in some massless way. (I've worked out the math for a laser-based recording system, so I know it can be done.) Let's also assume that we can record the direction of every sound that reaches our *microsphere*. Again, a laser-based recording system is probably needed because of the huge amounts of data that must be stored. Holographic techniques should give us a few clues as to how to get started.

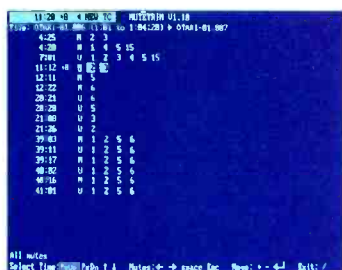
The next step is a *headsphere*, built with a single internal cavity matching our microphone. We place our own head in the center of the sphere, and we are ready for sonic realism. All that is needed is to duplicate every sound's direction, phase, etc., and we are home free. As we turn and move our heads, we are presented with both audio and physical feedback information. This should do something positive in terms of believable stereo.

I know there are some problems with sonic reflections from our faces and standing waves, but a little active feedback

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optimized for the latest Penny & Giles motorized faders to provide full fader travel in less than two SMPTE time-code frames.

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LETTERS

should be able to cancel out the internal environment.

How do we build our headsphere? I've a few ideas but lack the time and resources to try them out. I used to doubt that phased-array speakers could do it, but then again, with the new developments in micro-engineering, a million or so tiny speakers under direct computer control should be worth listening to. A few more organic ideas come to mind, but who knows what will work?

The point is, we are at too low a level of understanding psychoacoustics in general, and brain processing in particular, to be able to definitively say it can't be done. I think we will someday be able to fool ourselves so completely that it will make the phrase "Is it live, or is it Memorex?" associated with the era of Victrola phonographs, compact disc players and other antique novelties.

Dennis Ciapura replies:

At the time Jules Verne wrote "Man to the Moon," it seemed perfectly plausible to be shot there from a cannon.

Audio pretenders

From: Timothy D. Illian, sound engineer, Bogdana Corporation, Los Angeles.

I read David Porter's Guest Editorial ["The Great Pretenders," January] with a great deal of interest. My conclusion is that it is time for more than a growing up of the Great Pretenders; it is also time for a serious reality check for the engineers and producers who work in the big studios. The Great Pretending is everywhere.

The big studios are pretending that the home electronic cottage will shrivel up and die. That is not going to happen. The computerization of the workplace is happening all over the world. In hundreds of industries, people are doing their work at home and phoning it in. MIDI and digital allow the same situation for audio because everything stays as an electronic signal right up to mixdown. The result is that you don't need a big acoustic room. A back bedroom or an empty garage works just fine. One needs only to put up enough sound-proofing to keep the neighbors off the warpath and get somewhat close to a flat frequency response. That is fact, like it or not.

Secondly, I do not think that the Great Pretenders are as stupid as Mr. Porter

seems to think. It seems to me it's the big studios that are caught up in making the payments on the console. At least that's what I've been reading in the trades for the last three years. The small-time guys don't have to keep up technologically to justify their rates. The fact is that a \$5,000 investment will put together a functioning voice-over studio (not awesome but workable); \$10,000 to \$15,000 will make a MIDI jingle studio. Just to keep things in perspective, a new car goes for the same amount of money. These studios are run on a part-time, by-project basis. Many of today's top engineers came from this very environment.

Which brings us up to the last point, which is about how people enter our industry. Just how does Mr. Porter suggest that a person with LED disease get a job? The fact is that there is no standard way. The intern/apprenticeship method is in shambles (read: dead end). The music industry lives on the exploitation of the freebies, whether it's internships, minimum-wage second engineers, pay-to-play clubs, or play for free, or play for \$30 per member, or be a gofer, etc. Making a living is everybody's problem in this industry. Mr. Porter does not enlighten us on this issue. The small-time independent often is doing his thing part-time as a hobby and sometimes as an extra cash provider. He often is not even pretending. He often-times has a better idea of where he belongs in the marketplace than the big studios. He know's Joe's Taco Stand can't afford an \$1,800-a-day studio to do his radio commercial. But he can afford \$300. The small-timer knocks it out in a day, with music, and ta-da...instant commercial. The fact is, I'm amazed not by the mediocrity, but at how good some of this stuff sounds.

But this kind of business is beneath Mr. Porter and the big studios. The fact is, the small-time business is booming. It's the big studios that have the problem. It's the number of big accounts, well-financed bands with record deals, big movies, big commercials that are getting smaller. What I gather from this editorial and others is not the discussing of a problem but the cries of fear. Competition is a rough contact sport, particularly when you don't respect or understand your competition.

So that the readers understand how I'm qualified to observe this situation, I'm a recent (horror) graduate of Trebas Institute of Recording Arts in Los Angeles. I have

been down the dead-end route of internships, resume passing, free recording and live band shows, free roadies, etc. I am presently the chief engineer for a company that sponsors a radio talk show that is done in the back bedroom of the boss's house. I also work part-time for a small sound reinforcement company owned by Gary Raymond. I pay the rent and dream of the future. Mr. Porter would call me one of the Great Pretenders. I accept Mr. Porter's challenge and will see him at the top.

David Porter replies:

When I spoke of Pretenders, I was pointing out a problem not only at the "cottage" end of the market, but also of some larger, "state-of-the-art" studios built by people more interested in rubbing shoulders with the stars than performing quality audio services. The classic case is that of the rich kid who convinces his parents to bankroll a studio and proceeds to give away the time. That is my best example of an audio pretender. My market (San Francisco) has a few of these places and they do nothing but dilute the market and confuse clients as to the real value of what we do.

My theme here is to sell customers on quality services throughout all levels in the market. Professionalism can exist in all segments of the market, from inexpensive radio production to high-end television and record work. Mr. Illian believes that big studios operate from a position of fear, and that alternative technologies will eclipse the need for high-end facilities. My answer is that this will only be true if our clients are willing to settle for the inherent limitations of using those alternative technologies. I might add that many facilities (including my own) have a range of services that incorporate the use of inexpensive alternative technology.

What I am attempting to describe here is the concept of market segmentation in terms of the tools required for a particular job; the one common requirement is the need for *skill*. My comments were aimed more toward those who feel that just buying the equipment, at whatever level, automatically makes them capable of performing quality audio services. Mr. Illian is correct when he says he is amazed at how good "some of this stuff sounds." In the hands of a skilled Mac/MIDI operator, I have to agree: It does sound good. It is not always true, nor is it the appropriate technology in all cases.

As audio people progress through the industry, they come to demand more technical sophistication in the type of tools they use. I know, because I started with a Tascam studio in my garage in 1973. I came to realize that as I progressed, my clients were evolving too. My clients' projects required more than my Tascam studio could provide. But just buying the equipment isn't enough. Knowing how to use it is really what my article was all about. In other words, there are pretenders in all segments of the market, and they are doing our clients a disservice, often making it difficult for skilled operators to remain competitive.

Mr. Illian is also correct when he complains about the current state of audio education and internship. I wish I had an answer for him. There are some prevailing myths about just how big our industry really is, how fast it is growing and how many people can expect to support themselves in it. It appears to me that a number of the schools have chosen to ignore warnings from potential employers that the pipeline is full. There is no substitute for time and experience. Many pretenders believe that going to a recording school is going to automatically make them an audio expert. My experience is quite the opposite. Most of the graduates we interview have only a limited theoretical background and no practical skills whatsoever. When we have hired people from a recording school, we have trained them ourselves and then given them the opportunity to develop their skills. It takes years to become proficient; there is no substitute for time.

Editor's note: The following letter arrived at RE/P signed by "JAspur machine God." Although we presume this to be a fabricated name, we include the letter here in the interests of conducting an open forum of ideas.

Since I've been sampling your rag, I have noticed a definite slant and bias in your Guest Editorials. That is to be expected; and your latest in the January issue was another crockful.

What on earth has buying a big Tonka fire truck got to do with good work??? The truth is that the pretenders are in fact you — the professionals, you who sell your souls for 40 pieces of silver, you who seek to hide behind your spawn.

One hundred years ago, you were the Bush (Quail) wackers who claimed they

had wife and kids when the bad guys rode into town. One of the most illogical and greatest copouts ever, ever perpetuated.

From those that waste their time selling colored water whose container costs more than the contents, to those that create the graven iconic images for the masses to worship — you dare to call me the pretender! Self-delusion never, ever, ever works.

Further, there will never be a button marked "Make me a Star," and if you think people need your skills, you aren't listening to the right signals.

P.S. Got the shit to publish this verbatim?? Huh? Huh?

Cheers for Paul

From: Rob Lewis, president of Musonix Ltd., Burbank, CA.

Three cheers for Paul Lehrman for his January "Managing MIDI" column, in which he notes that MIDI is nowhere near the end of its technological road. If people used half the stuff that's already in the MIDI 1.0 spec, they'd be amazed at how much functionality and power they could enjoy at very low cost. As a member of MMA, I can report that many of the additional capabilities on Paul's "wish list" are already well along in development — as are a good number of other exciting things. Progress in writing standards is slow, but it seems that adoption by equipment manufacturers and users is even slower.

Speaking for my company, I can only say that we're committed to helping realize the tremendous potential of MIDI, and we expect to be busy with it for a long time to come. I know that some other companies feel the same way. But as Lehrman points out, it's important for users to keep the pressure on manufacturers to implement MIDI functions *completely and correctly*. Turn up the heat, users. You have only yourselves to benefit!

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HARP holds membership meeting

The Hollywood Association of Recording Professionals (HARP) held a membership meeting on Feb. 22 in Los Angeles to talk about issues and explain the benefits of membership. About 100 people attended from various segments of the recording community.

Interestingly, home studios — the issue that gained HARP so much attention in the first place — was not the dominate topic of discussion. Terry Williams, HARP president, did clarify the group's position on the subject, saying that a Long Beach, CA, ordinance, which allows home studios to exist as long as they meet certain code requirements and receive an annual letter of certificate, was a fair solution to the issue. HARP would be happy to see a version of this ordinance adopted by the City of Los Angeles.

The problem in Los Angeles is that current ordinance does not approve of any home-based businesses, including home studios, Williams said. The city was scheduled to discuss a home-business ordinance in March or April.

Other issues discussed included the cost of equipment, getting paid from record companies in a timely fashion, and the static level of studio rates for the past 10 years. HARP also unveiled plans to offer group insurance, group purchasing and an on-line database to members.

As of the February meeting, a total of 15 facilities had joined. Any commercial studio in the Los Angeles area is eligible. Annual membership fees are \$250 for a 1-room facility. Facilities with additional rooms are charged \$100 per room, with a \$500 cap. Associate memberships for non-facilities, which excludes voting rights or attendance at board meetings, are also available.

For more information contact HARP at 213-655-2452.

Manufacturer group formed

A North American-based version of the Pro Audio Exhibitors Group has been formed. Like the British-based PAEG, PAEG-US was formed to give manufacturers a voice in working with trade associations and their conventions.

The group was formed at a breakfast meeting at Winter NAMM, sponsored by RE/P and Sound and Video Contractor, RE/P's sister magazine. Representatives from 12 manufacturers agreed to form a

working committee, which will set up the organization and discuss what issues the group should work on.

In particular, manufacturers have expressed frustration at the number of pro audio shows throughout the world and an unwillingness on the part of show and sponsoring association managements to listen to their concerns about scheduling, venues and security.

The next meeting is scheduled for 8:30 a.m. April 21 during the National Sound & Communications Association convention in Las Vegas, in the Boardroom at the Las Vegas Hilton. Representatives from all North American manufactures are welcome. For more information, contact Fred Ampel, S&VC's editor, at Box 12901, Overland Park, KS 66212; 913-541-6611; fax 913-541-6697.

AES announces conference, convention dates

New dates for the 89th AES convention have been chosen to increase exhibit space and to allow the show to be held in one venue. From Friday, Sept. 21, through Tuesday, Sept. 25, all exhibits, papers, workshops, seminars and tours will be held at the Los Angeles Convention Center. The expanded schedule provides more exhibit time without the strain of long days — eight hours is the maximum.

The theme for the 1990 convention is "Creating Illusions in Sound — The Fusion of Art, Technology and Imagination."

The 8th AES International Conference ("The Sound of Audio") will be held at the Capitol Hilton in Washington, DC, May 3 through May 6. Dr. Floyd Toole of the Canadian National Research Council is papers chairman and, according to the AES, has "assembled a virtual who's who of the industry" for the program.

The conference committee includes: Skip Pizzi, chair; Floyd Toole, papers chair; Peter D'Antonio, vice-chair; David Glasser, facilities chair; Neil Shade, treasurer; Laura Tyson, secretary; David Moulton, international liaison; Tom McCarthy, events chair; and Greg Lukens, sponsorship chair.

For more information on either event, contact AES at 212-661-8528; fax 212-682-0477.

News notes

New England Digital has announced that sales of its Synclavier, Direct-to-Disk and PostPro digital audio workstations

have increased more than 60% in 1989. European sales were up by more than 300%, and Asian sales up by 150%.

Rane gave top honors to the following sales rep firms in 1989: Dobbs Stanford, South Central territory; Sound Sales, Mid-Atlantic territory; Pro Tech Marketing, Rocky Mountain territory; and Peter E. Schmitt, metro New York. Rane's highest honor, the B.F. Stone award, was presented to Bernie Darmstedter and Charlie Eaton of Bernard Darmstedter Associates, upstate New York.

Gamma Electronic Systems has reacquired two patents previously developed by John Bedini, a director and major stockholder. Patent #4555795, known as optiphonics, is a monaural to binaural audio converter that uses optical sound processing. This patent is used in conjunction with Gamma's BASE (Bedini Audio Spatial Environment) technology. Patent #4644422, known as "copy not," is an anti-copy system that can be encoded onto almost any CD, record or tape. William Morris Agency (Beverly Hills, CA) has been chosen to represent Gamma and the BASE technology.

The **University of Miami** has selected Paul Griffith as the first recipient of the new Outstanding Senior in Music Engineering scholarship award. The award was established with the proceeds from the 1988 TEC award for outstanding recording school/program.

Digidesign and **Opcode Systems** have announced the integration of Sound Tools and Vision. According to Digidesign, this is the first combination of digital audio with MIDI sequencing. The integration allows the user to add high-fidelity digital audio directly to a MIDI sequence.

Passport has dropped the use of copy protection on several music software titles: Encore, Pro 4, Master Tracks Pro, Score and Escort. Registered Passport owners can now copy the programs onto any medium for their personal use; however, they are still forbidden by U.S. copyright law to sell copies or give them away.

Toa Electronics has introduced its new line of pro audio/engineered sound reinforcement products designed for fixed installations and pro sound applications. The

first product of the line is the SAORI, a 5-rack space 32-bit digital signal processing system that replaces 16 separate components. Several other products are to be introduced later in the year.

Celestion has announced that 1989 was its most successful year ever, as well as the second straight year with a 50% increase in overall sales, with each month setting a new sales record.

More than 280 **Electro-Voice** speakers are used by Zeo Brothers Production (Philadelphia) in concert applications, including: MSE-3 cabinets with two EVX-150 15-inch speakers, two DL12X 12-inch speakers and a 2-inch exit DH1A driver on an HP940 horn. The MSE cabinets are loaded with two EVX-180 1,000W drivers, with XEQ-3 crossovers matched to the cabinet.

Digital Dynamics has named Pyramid Audio (Chicago) and Hy James Inc. (Detroit) dealers for the ProDisk-464 line of digital audio recording and editing systems. Pyramid will cover Illinois, Indiana, Iowa, Wisconsin and metro St. Louis; Hy James will cover Michigan and Ohio.

Reflex Marketing (New York) has received the Rep of the Year award for 1989 from **Biamp Systems**. The firm covers New York City, New Jersey and eastern Pennsylvania.

Gauss has appointed two exclusive manufacturers' representatives for its line of professional speakers. Elrep Sales Company (Atlanta) will cover North Carolina, South Carolina, Georgia, Tennessee, Alabama and Mississippi; New West Audio (Burbank, CA) will cover Southern California, southern Nevada, Arizona and Hawaii.

Motionworks has received the Oxford Trust award for the quality of its business ideas and for Motionworker, its automation and synchronization systems interface.

Joe's Sound & Salami Co. has changed its name to **Modular Sound Technologies**. The company's address remains the same.

SPARS will administer the National Studio Exam on April 28 at the following locations: Soundworks West, Hollywood; Music Annex, San Francisco; the Univer-

sity of Colorado, Denver; SPARS national office, Lake Worth, FL; Doppler Studios, Atlanta; Universal Recording, Chicago; Pro Sound Film & Video, Boston; Clinton Recording, New York; Mason Hall Recording Studios, Fredonia, NY; The Recording Workshop, Chillicothe, OH; Sigma Sound Studios, Philadelphia; Cook Sound and Picture Works, Houston; Steve Lawson Productions, Seattle; and The Trebas Institutes in Vancouver, Montreal and Toronto. The exam consists of 200 multiple choice questions covering equipment maintenance/operation and session planning/setup. The cost is \$50. For more information, contact Shirley Kaye, SPARS, 4300 10th Ave. N., Suite 2, Lake Worth, FL 33461; 407-641-6648.

Interface Audio is the new representative for **AMS Industries** in Tennessee, North Carolina, South Carolina, Georgia, Florida, Mississippi, Alabama, Louisiana and Texas.

Clearwing Audio and Case Co. (Milwaukee) has taken delivery of a **Martin Audio Ltd.** F2 sound system. The system includes eight bass cabinets and 12 mid-high packs. The F2 supplements Clearwing's existing Martin VRS800 and RS1200 1-box systems and LE400 wedge monitors.

Martin Audio Video has been named WaveFrame's exclusive New York representative for the AudioFrame.

Martin Audio has ordered two MEDICI equalizers for sale in the United States. Developed in conjunction with **AMEK Systems & Controls Ltd.**, the equalizer is the first in a new line of modular audio products created by Rupert Neve.

Innovative Electronic Designs recently moved to 9701 Taylorsville Road, Louisville, KY 40299; 502-267-7436; fax 502-267-9070. The new facility includes a seminar training room.

Video Services Corporation (VSC) has purchased Waterfront Communications Corporation (WCC), a Manhattan-based communications services company that provides satellite transmission facilities to the broadcast and cable industries.

Commodore and **Dr. T's Music Software** are offering a joint promotion. The Amiga 2000 HD computer is now pack-

aged with Dr. T's KCS 3.0 sequencer, Copyist Apprentice scoring and transcription software, and a coupon for a synthesizer editor/librarian of the customer's choice.

Douglas Ordon and Company Inc. has been selected to distribute the **Soundmaster** Integrated Audio Editing System. Based in Chicago, the firm will distribute in the North Central region, including Illinois, Indiana, Michigan, Minnesota, Missouri, Ohio and Wisconsin.

People

Woody Moran has been appointed director for Akai Professional and Digital products in the United States.

Brian Coviello has been named national sales manager for Celestion's MI and pro audio divisions.

Full Scale has appointed **Ross Nyberg** sales manager.

Phil Wagner has been appointed Eastern operations manager for Trident.

JVC Professional Products has appointed **Mike Yoshida** vice president.

John Sparrow has joined Harrison Information Technology as southern area sales executive. **Martin Kelly**, sales manager, is now involved in export sales worldwide, as well as U.K. sales.

CTM Development has appointed **Susan Alvaro** vice president of sales and marketing. A new office has been opened in San Mateo, CA.

Matt Ruhlen has joined Electro-Voice as a project engineer for the loudspeaker group.

Trident Audio USA has promoted **Kris Jackson** to technical manager/technical sales. **Olin Williford** has been named technical services engineer.

David G. Meyer has been promoted to audio sales manager for the Audio/Video Systems Division of Peirce-Phelps.

Lance Korthals has joined JBL as vice president of market development.

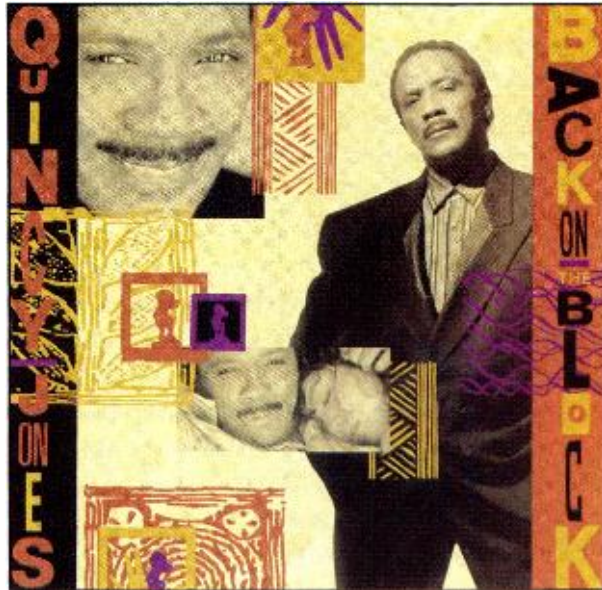
REP

FRESH TRACKS

By the RE/P staff

Quincy Jones: "Back On The Block"

Label: Q West,
Warner Bros.
Producers: Quincy
Jones, Rod Temperton
Recorded by: Bruce
Swedien using the
Acusonic Recording
Process D
Mixed by: Bruce
Swedien
Studios: Oceanway,
Los Angeles; Record
One, Los Angeles
SPARS Code: DDD



Comments: The Dude beedoin't on this one. All the tunes, from the rap of the title track to the soaring melodies of songs like "The Places You Find Love," swing with an intensity and excellence charac-

teristic of the Q. (See "Artist Focus: Quincy Jones" for more information.) Production-wise, this CD goes several places that few CDs have gone before — like the sub-basement bottom end and the in-your-face, up-front vocals. The synths and samples are gorgeous, and the live instruments (including the luminous solos from all the guest stars) shimmer with the Acusonic clarity that Bruce Swedien's recordings are noted for. (See the July 1988 RE/P for more on this technique.)

Of special interest: The low end highlights, drum programming and rap vocal treatments on "Back On The Block"; the clarity and mass chorus imaging on "Places You Find Love" and "Tomorrow"; the Human Bean Band sounds and special F/X (guess the sources!) on "WeeB.Doin't!"; the ambience/reverb/imaging on "Birdland"; and the instrumental accents throughout. Once again, another milestone album for production from the Q. This is a must-own.

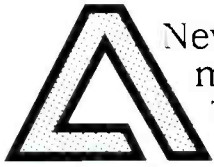
Basia: "London Warsaw New York"



Produced and
arranged by: Basia
Trzetrzelewska &
Danny White
Recorded at: Eden
Studios, London
Recorded by: Mike
Dignam
Mixed by: Phil
Harding
Mastered by: Tim
Young
SPARS Code: ADD

Comments: This catchy follow up to the debut "Time and Tide" will certainly please Basia's eager and hungry audience. Here we have a continuum of a style carved from a unique blend of pop, jazz and Latin grooves complimented by a tight production. The recording, while not adventurous, is brightly crafted and mixed for radio production (in particular the first two cuts: "Cruising For Bruising" and "Best Friends"). Where the engineering and production remain crisp and yet mundane, the musical performances by Peter and Danny White are more than notable. And, of course, Basia's silky and poignant exploitation of her own unique instrument is most refreshing with a sonority certainly welcome in a month which finds Paula Abdul at the top of the charts.

Of special interest: While the mix takes advantage of the latest digital signal processing effects, the dynamic production is kept in check, not left to wander beyond strict compression boundaries. Possibly a limitation of the analog medium.



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FRESH TRACKS



Ofra Haza: "Desert Wind"

Produced by: Arif and Joe Mardin, Ofra Haza, Bezalel Aloni and Thomas Dolby

Engineered by: R. Hui, J. Mardin, M. O'Reilly, Z. Sidi, P. Robins, B. Aloni, B. Malouf

Recorded at: Green Street Sound-Track Clinton Unique Can Am Z Sound

Mastered by: Ted Jensen at Sterling Sound

SPARS Code: AAD

Comments: Here's a riddle: What grooves like Madonna's "Like a Prayer", smacks of Gabriel's international flavor, and is musically rich in both Middle East and New York roots? Desert Wind, the latest offering from Ofra Haza combines the productive talents of Thomas Dolby, Arif and Joe Mardin, and Bezalel Aloni into a cohesive and, above all, challenging musical experience. In Ofra Haza, we have a talent who is superbly matched to production-rich in a variety of musical performance and engineering excitement.

Of special interest: The attention to detail that went into recording unusual ethnic instrument, presumably through unorthodox recording and sampling techniques, manages to expose the listener to "new" sounds in as transparent a fashion as possible. Basically, you're not hit over the head in the manner of the dreaded demonstration tape syndrome. Rather, you'll find yourself enticed to listen rather than straining.

David Byrne: "Rei Momo"

Label: Sire/Warner Bros

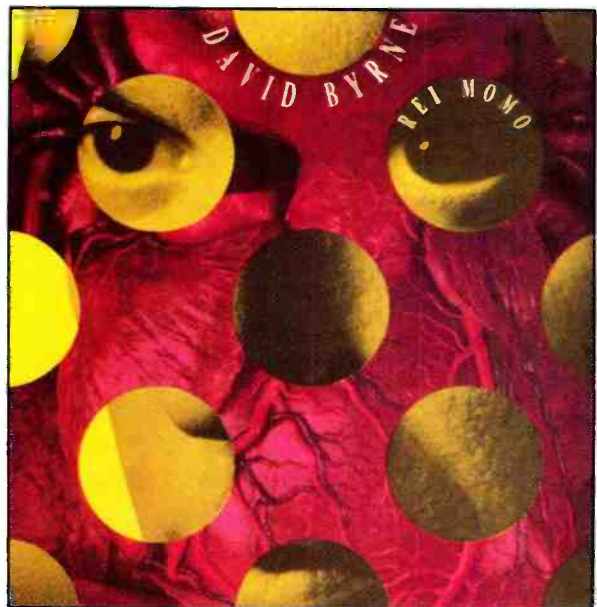
Producer: Steve Lillywhite, David Byrne
Recorded by: Jon Fausty, Mike White, Ellen Fitton

Mixed by: Jon Fausty, Steve Lillywhite
Studios: Atlantic, New York; Right Track Studios, New York
SPARS Code: ADD

Comments: This album might as well be called "David Does Latin." Satirically so. This flawlessly recorded and mixed project by veteran Lillywhite features the usual Byrne bend on life, couched in all the instruments and flavorings of Salsa, Reggae, Merengue, Bomba, Cha Cha Cha, Bolero and other contemporary popular

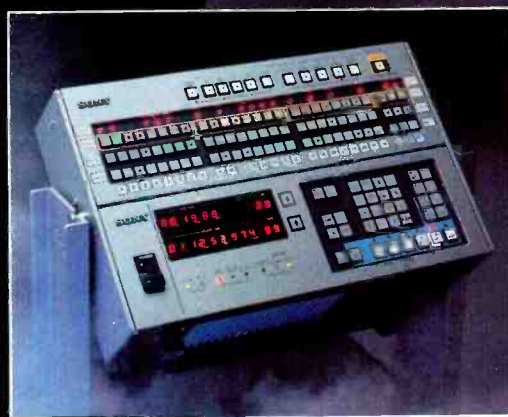
Latin musical styles. All the varieties are here, replete with horns, strings, guitars, Latin percussion, plucked instruments and ethnics accents.

Of special interest: The blend and recorded quality is superb throughout, if not too smooth and well-balanced in places. Although no single tracks really stand out



for production uniqueness, this is an excellent reference to the mixing styles and flavorings of music south of the border. Overall, the percussion, ensemble guitar playing and horns/strings are great. No kidding, an authentically well-recorded and produced album from Anglos like Byrne and Lillywhite.

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PROFESSIONAL AUDIO

MANAGING MIDI

By Paul D. Lehrman

Taking (Alternative) Control

One of the most difficult jobs of instrument designers since the dawn of MIDI has been to make a commercially successful MIDI controller that is not keyboard- or drum-oriented. Alternative controllers have been with us for years, but the number of them that have actually caught on can be counted on the fingers of one hand with enough left over for a guitar "D" chord. There have been MIDI microphones, MIDI saxophones, MIDI trumpets, MIDI maracas, MIDI mandolins, MIDI tap shoes, and probably a few I missed.

Thankfully, the fact that almost nobody has made money on these things hasn't stopped numerous intrepid experimenters from continuing to develop their ideas. Some custom controllers have emerged that are capable of stunning expressivity (Dutch composer Michel Waisvisz's "Hands" come to mind), but for many reasons, not the least of which are cost and degree of difficulty, they have little mass appeal.

A few instruments, such as MIDI violins and marimbas, have been reasonably successful in niche markets, and Don Buchla's new Thunder touch-sensitive surface has great potential, especially among "serious" performance artists. Guitar controllers, of course, still have a few champions in the manufacturing community, large and small, who are continuing to try to get them right. Although no one would argue that they are perfect, they are definitely improving.

Why is this so? Is MIDI really just a keyboard phenomenon, intrinsically unsuited for other types of input? Or, are there ways of dealing with MIDI that can take us into new areas of musical expression, which just haven't been worked out yet? The answer is a resounding "maybe."

Paul D. Lehrman is RE/P's electronic music consulting editor and a Boston-based producer, musician and free-lance writer.

One obvious problem with wind and guitar controllers is that they generate an awful lot of continuous data: Pitchbend, Breath Controller, Volume or whatever commands are assigned to the various performance parameters. Dense globs of continuous data can be death to a MIDI system. They can quickly cause the data stream to choke, forcing notes to bunch up and rhythms to go out of sync.

By default, MIDI has become a keyboard-centered phenomenon.

However, today's MIDI systems have ways around this problem. First of all, there's everyone's (or at least mine) favorite solution, the dedicated MIDI line. Systems that incorporate two, four, and even eight discrete MIDI lines are becoming commonplace, and to put all of the information for a single controller on its own line to keep it from interfering with simpler rhythm tracks and other data is easy.

Secondly, many sequencers and live-performance systems now allow intelligent "thinning" of controller data, either while it is being recorded or after the fact. You'd be surprised how much you can reduce the density of controller and pitchbend events without disrupting their musical effect.

A corollary to this has to do with how to handle "whammy-bar" information on a guitar controller. The ideal way to read data from a MIDI guitar is in Mono mode, with each string addressing its own MIDI channel. This way, you can do pitchbends on one string without affecting any other, just like a real guitar.

But what happens when you slam down that tremolo bar? Does it send pitchbend messages over all six channels at once? This would create an avalanche of data that, even if thinned, would create much grief for any system.

One neat solution is to send the whammy-bar data on its own channel, below the instrument's basic channel. That is, if the guitar is sending on channels n through $n+5$, the whammy bar value goes out channel $n-1$. This has been implemented on some recent instruments, but it can only work if the synthesizer receiving the information is *also* hip to the scheme and responds to this "global pitchbend" data by changing the pitch of the

sounds on the six subsequent channels. Unfortunately, not too many synths can be set up this way.

Which segues nicely into the next problem: getting synthesizers to respond intelligently to non-keyboard controllers. Some synths let you put them in a "unison" mode (which is sometimes, but not always, the same as Mono mode), in which they will play only one note at a time. In this mode, if you press a new key before releasing the last one, the new note will not trigger a new envelope, but will continue the previous envelope at the new pitch, resulting in a legato phrasing. If portamento is engaged, the new pitch will be "glided" or "glissed" to, rather than sound immediately. This is wonderful for wind or string controllers, because it lets them play with true legato feel.

But if you look at the commands that you have to send to different synths to force them into this mode, no two are alike. Some respond to a Mono mode message, while others need system-exclusive. Some instruments, even when they are in unison mode, will still re-trigger the envelope no matter how legato the playing style. An attempt is being made to standardize the idea of "MIDI legato" in future instruments, but it's too late to do anything about those already out there.

For better or worse, the primary command in MIDI, at least the way most designers use it, is the Note-On. This is fine for keyboard players (as one observer says, "When you're trying to control digital data, there's nothing like a switch!"), but it is antithetical to the way most orchestral musicians play. When you play a soft note on a clarinet, for example, you finger the note first, then start blowing. The time difference between the fingering and the sound can be several seconds. If a controller sends out a note-on as soon as your fingers touch the keys, unless there is some other command holding it back, the note will sound immediately.

A Breath Controller command will only work if somehow it has been "pre-set" to zero. In a live situation, this is not always practical. Foot pedals are one possible solution (stomp on a pedal during a pause and it sets the Breath Controller or Volume value to zero), but would require a lot of getting used to. On the other hand, perhaps synths could be designed that would *not* trigger immediately from a Note-On, but instead would need to detect the presence of other data before making

a sound. This could be a much more naturalistic approach. But if it requires *too* much data to get a note started, this would interfere with the ability to play staccato, because the fast rise time necessary to make the attack might be blunted by MIDI's bandwidth.

As you can see, the problems with alternative controllers are legion, and there are no simple solutions. By default, MIDI has become a keyboard-centered phenomenon, if only because keyboard players have to go through the least number of changes in their technique to use it. If you're comfortable with an organ keyboard, great. You want a piano-like keyboard with weights, for a few bucks more you got it. You don't want to bother with channel or polyphonic aftertouch, because your technique is too ingrained to control it, fine: Shut it off and, if you like, come back to it later. But non-keyboard MIDI devices just don't behave the same way as their acoustic counterparts, and so they have to be learned. And in a business where six months old is often considered obsolete, many products just aren't around long enough to be learned well, and the result is a self-defeating cycle.

Which brings us to the question of whether we should be making controllers that emulate other instruments in the first place. One opinion says trained musicians learn how to extract subtle sonic nuances from their instruments based on those instruments' *physical* properties, and that there's simply no way of getting an electronic instrument to respond to those nuances in exactly the same way, so why bother?

On the other hand, learning a whole new instrument takes a lot of time and patience, no matter how advanced the technology, and those are not commodities that working musicians often have in great abundance. Therefore, it makes sense to give them *some* familiar starting point.

This leads to the conclusion that research must continue in a number of different directions for some time to come. And I think that that research will be one of the most exciting aspects of music technology over the next couple of years. Let's get busy.

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Thanks to David Torn and Craig Anderton for a couple of enlightening conversations.

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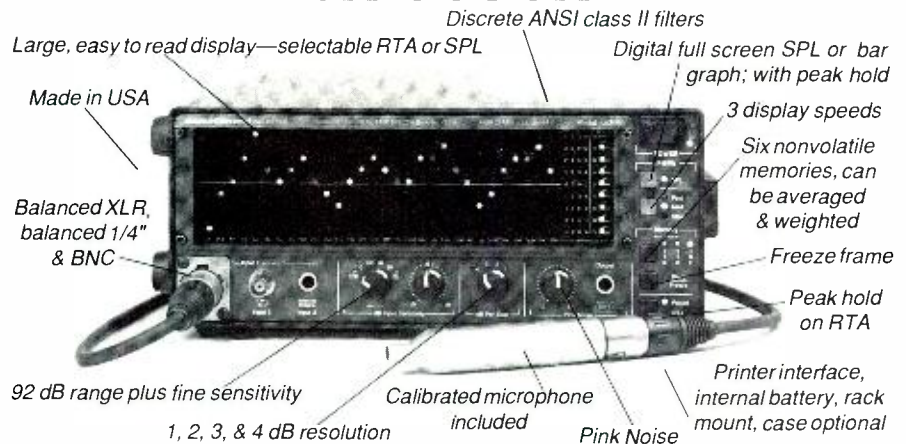
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SPARS ON-LINE

By Chris Stone

Manufacturing a Dialogue

In this professional audio world of ours, one of the biggest problems we face is purchasing the right equipment at the right time. We must justify any purchase by making sure that it pays for itself, either by bringing more revenue to the studio, by keeping the clients that we have or by encouraging new clients to try the studio.

Many of us have found how horrible the consequences can be if we purchase the wrong equipment. We then have to sell it at a loss or put up with its faulty operation because we cannot afford to change it.

What we must concentrate on is the necessity for communication and productive dialogue with the companies that manufacture the products we purchase. We can help them serve us better by asking them to make the products *we* need and want, and not the products they *think* we need and want. The results are better products, often at lower prices.

During the early 1980s, when SPARS first decided that it made good sense to have Manufacturing Advisory Members, both parties agreed that the most important part of the relationship was *communication*. Other than the social get-togethers with our membership and these manufacturers, we wanted a chance to really discuss wish-lists of features we wanted, or particular problems we were having with their products.

Serious meetings between manufacturers and the membership (in this case the board of directors), held at the manufacturers' headquarters, were mandatory to get user input to any new products or features that the manufacturer was planning to introduce.

The purpose was simple: Communicate to the manufacturer what the user wanted, in order to avoid the wrong products with the wrong features at the wrong price. By meeting while the product or concept was still in development, we would help manufacturers make the products we needed and wanted. This would

Chris Stone is the former president of SPARS, and the founder and former owner of Record Plant.

enable them to manufacture the products at the best prices.

The manufacturers loved the idea and immediately responded by scheduling interfaces. One of the earliest was with Otari, which was considering entering the digital tape machine race and wanted help in deciding what format to adopt, as well as what track configurations it should manufacture. We met at the U.S. headquarters in the San Francisco Bay area, where we were given a complete tour of the facilities, became familiar with the current product line and then participated in a 3-to-4-hour discussion about the future of digital recording.

We must concentrate on communication and productive dialogue with manufacturers.

The result was Otari's increased understanding of what our needs were, how much we were willing to pay and how soon we wanted the product. It was one of the first examples I had seen of the manufacturer and user working together to make a better product for the benefit of both parties.

It seemed too simple. How could we make sure that we took the time and the trouble to do this as often as possible? The answer was to promote the interface idea with each manufacturer that was an Advisory member of SPARS. In addition to this being an incentive for companies to be a part of SPARS, it was relatively inexpensive market research with the people who were going to be responsible for their products' success or failure.

The manufacturers realize that they must hear about the good and the bad, what you like and what you don't like, and what you want to see in terms of features in the next version of the product. The manufacturers will appreciate your input, and you just might be responsible for making it easier, simpler or faster to make the music better. It is only with this type of cooperation that our industry can continue to move forward in these difficult and challenging times.

This is a classic cottage industry, and one of the largest problems we have is that we isolate ourselves from other facets of our business. We are so busy just working in our studios that we forget the need to communicate for mutual progress. When the pro audio salesman comes by,

which may be rare, we are more interested in taking a look at all of the new toys than dealing with the ways in which we might be able to improve existing products. It's very important that our suggestions reach the manufacturing powers we are trying to help.

Direct communication is the only answer. If you don't understand the product, go see it in the showroom of your local professional audio dealer. If you want to change the product, find out from your local rep who you can contact to talk about your likes, dislikes or the changes you would like to be made. It is only from this input that the manufacture can update or change the product.

You, the user, are the most important source of information. If you don't take advantage of this opportunity whenever you can, everyone suffers from inferior products and higher prices. If the manufacturers have gone through several versions and interminable testing to make the product right, you can be sure that they will pass that cost on to the end user. If you can help to make that process more efficient and make the product better, the savings might be passed on to you.

A manufacturer bases the price of the product on the cost of development, the unit cost of manufacture plus overhead, and the number of units expected to sell over time. The more units that can be sold, the lower the price. This is the basic economic principle called "price elasticity of demand."

You, the user, are able to help the manufacturers to make better products, and convince them that your colleagues will purchase the products in quantity. In turn, the manufacturers can make more of them and sell them at a lower price because there are more units over which to spread the development cost and overhead, as well as the economy of being able to purchase a greater quantity of parts at lower prices.

Communication is the key to success. Dialogue can lead to better, faster, more-efficient ways to run our businesses because our real needs are known to the manufacturers. By establishing this type of a working relationship, we can concentrate on helping the manufacturer help us.

In this way, everybody wins. What could be better?

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SPARS stands for the Society for Professional Audio Recording Services. For information on membership and activities, contact SPARS at 4300 10th Ave. N., Lake Worth, FL 33461; 407-641-8263; fax 407-642-8263.

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RANE

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Michael Stewart is one of the most eclectic people working in the music industry. A 25-year veteran of the scene, Stewart has worked on every conceivable side of the street, from smoky-cellar folkie to platinum pop producer to major-label A&R man to high-tech inventor.

What has emerged as his specialty is the

Paul D. Lehrman is RE/P's electronic music consulting editor and a Boston-based producer, musician and free-lance writer.

interfacing and synchronization of live performers with sequencers and drum machines. This improves the quality of live and recorded music by giving humans more control over their machines, and at the same time making the machines sound more like humans. He is known in the MIDI world equally well as the author of thoughtful articles on creativity and production techniques, as he is as the designer of highly innovative and useful products.

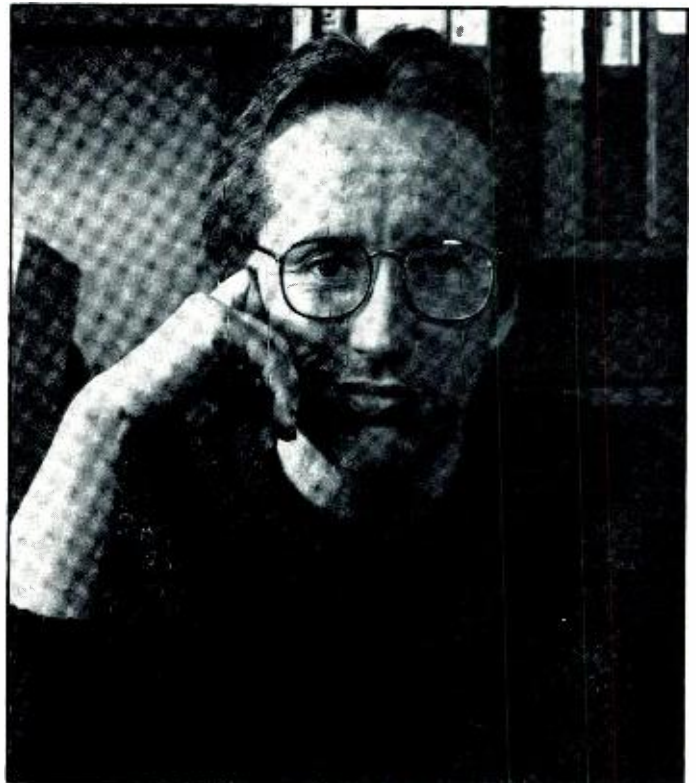
Those products have been marketed through a number of different companies, including his own, but today they can be found bearing the brand name of Aphex, where Stewart has the title of systems design director.

Aphex currently manufactures three unique products that Stewart has designed: the Impulse, a MIDI drum trigger; the Studio Clock, a tempo tracker and SMPTE-to-MIDI converter; and the Feel Factory, a MIDI processor that allows

THE RE/P INTERVIEW: MICHAEL STEWART

By Paul D. Lehrman

This industry vet, who's done just about everything, talks about designing products that "humanize" musical technology.



up wrong were very great. In the Studio Clock they have essentially three choices, from wide to narrow.

It's definitely not perfect, although I have crossed the line into reliability; when it *won't* work is predictable. A drummer can play with it, and in about a half hour, if he follows my instructions on exploring it, he'll know exactly how far he can push the thing, just like a real musical instrument. It will be the same every time, with no surprises.

The problem with the Studio Clock is that it is so powerful, the user interface is not up to the power of the device. It's way too cumbersome to edit a map. It's screaming for desk-accessory-type programs, and that's what I'm working on now. They're going to help me point it toward film scoring.

The future of music technology

I think now it all boils down to the user interface. We have piled technology upon technology, and improved all the pieces

I see the possibility of a universal interface that will allow someone to workstation many discrete MIDI products from one interface.

to the point where there's probably not too much improving left. Maybe all the pieces have essentially arrived. But the area that I think needs the most work is how you integrate the technology into the creative process.

A lot of people feel burned by MIDI, and they're tired of new gear, new learning curves, and new bugs. So we're now seeing a backlash: "I've bought enough gear, thank you, now I'd like to make some music." People say, "I know it has this feature which seems pretty cool, but do I want to spend any more time learning something else again?" More and more the answer is becoming "No."

We need to concentrate more on making all the instruments and software transparent to the way people naturally work. I heard a story about some video editing software that when the video editors saw it, they said, "I don't know what this means, so I'm not going to use this." But then the developer changed the names of things to something they understood, and it started selling. I've seen it happen time and time again that people have developed a way of working and don't want to change that, even if the new technology being offered them is wonderful.

I see the possibility of a universal inter-

face that will allow someone to workstation many discrete MIDI products from one interface. On a lot of levels, how they would operate a new product would not have to be re-learned. The software would generalize a lot of the product, so you could operate one reverb the same way you operate another one.

I feel strongly that thinking about what you're doing and being spontaneously creative are mutually exclusive. The kind of technology we're making still requires

people to think about what they're doing. It is arrogant on our part, the inventor's part, to say, "This is the way to do it, here are the tools, change how you work."

It may be a better way, but that's irrelevant. We are servants to the creators. Without the musicians, we're all out of work. We had better start interfacing with the way people really make music, or we're going to see a whole bunch of MIDI stuff in closets.

REP

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TAX PLANNING FOR AUDIO PROFESSIONALS

By David J. Arrick

Now is the time to plan for tax savings in the coming years.

From capital gains to Social Security to IRAs and more, Congress has taken taxpayers on a roller coaster of proposed changes. As we move through 1990, these changes are still proposals, for the most part.

Yet, businesses and individual taxpay-

ers are wondering how to treat income, deductions, gains and losses in 1990 to minimize their tax burden while safeguarding for the future. With the possibility that this year will bring higher ordinary tax rates and lower capital gain rates, there are few hard-and-fast rules. But there are a good number of suggestions that you should consider.

The main focus of this article is regular income tax issues. Alternative minimum

tax (AMT) complications are not discussed and could seriously affect these considerations. The concepts and suggestions can be effectively used by independent engineers and producers, studio/production company owners and small-business owners alike.

Although you don't need to become an expert in the new tax laws, you owe it to yourself to become familiar with the provisions that affect you the most. It's high-

David J. Arrick is a partner with Boas & Boas, a San Francisco accounting firm.



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ly advisable that you consult with a qualified tax accountant or lawyer, who will define your tax affairs in the most beneficial manner and orchestrate the completion of the tax returns to maximize tax savings while minimizing the audit potential.

But before you move into this decade, don't forget your responsibility to close out 1989. If meeting the April 15 filing deadline is more a dream than reality, you need to send in a completed 4868 form to get an extension on filing your 1040 form. However, the extended due date, to Aug. 15, is for the tax return only. You must estimate your 1989 tax liability and send any

tax due along with the form. Failure to do so will result in an assessment of interest and penalties, and a rejection of the extension request.

Tax strategies vary depending on the business form: closely held C corporations, partnerships, S corporations or sole proprietorships. The business form selected can be significant in reducing the tax burden.

One of the most popular forms today is the S corporation, which does not pay taxes on the income it earns. Rather, the income (or loss) is passed through to the shareholders and reported on their individual 1040s.

Therein lies the advantage. If your business was organized as a C corporation, the income would be taxed at rates up to 34%. Under the flow-through scenario, income would be taxed at the highest individual rate, generally 28%. Taxing income at the shareholder level results in a significantly lower tax burden. In addition, distributions of cash out of an S corporation can often be made on a non-taxable basis, whereas the same distribution from a C corporation would be treated as a dividend and would increase the recipient's tax liability.

A partnership is similar to an S corporation in that the income or loss is passed

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 If a joint return, spouse's first name and initial Last name
 Home address (number and street) (If a P.O. box, see page 7 of Instructions.) Apt. no.
 City, town or post office, state and ZIP code (If a foreign address, see page 7.)

Presidential Election Campaign Do you want \$1 to go to this fund? Yes No
 If joint return, does your spouse want \$1 to go to this fund? Yes No

Filing Status
 1 Single
 2 Married filing joint return (even if only one had income)
 3 Married filing separate return. Enter spouse's social security no. above and full name here.
 4 Head of household (with qualifying person). (See page 7 of Instructions.) If the qualifying person is your child but not your dependent, enter child's name here.
 5 Qualifying widow(er) with dependent child (year spouse died > 19) (See page 7 of Instructions.)

Exemptions
 a Yourself If someone (such as your parent) can claim you as a dependent on his or her tax return, do not check box 6a. But be sure to check the box on line 33b on page 2.
 b Spouse
 c Dependents:
 (1) Name (first, initial, and last name) (2) Check if under age 2 (3) If age 2 or older, dependent's social security number (4) Relationship (5) No. of months lived in your home in 1989
 d If your child didn't live with you but is claimed as your dependent under a pre-1985 agreement, check here
 e Total number of exemptions claimed

Income
 7 Wages, salaries, tips, etc. (attach Form(s) W-2)
 8a Taxable interest income (also attach Schedule B if over \$400)
 b Tax-exempt interest income (see page 10). DON'T include on line 8a.
 9 Dividend income (also attach Schedule B if over \$400)
 10 Taxable refunds of state and local income taxes, if any, from worksheet on page 11 of Instructions
 11 Alimony received
 12 Business income or (loss) (attach Schedule C)
 13 Capital gain or (loss) (attach Schedule D)
 14 Capital gain distributions not reported on line 13 (see page 11)
 15 Other gains or (losses) (attach Form 4797)
 16a Total IRA distributions 16a 16b Taxable amount (see page 11) 16b
 17a Total pensions and annuities 17a 17b Taxable amount (see page 12) 17b
 18 Rents, royalties, partnerships, estates, trusts, etc. (attach Schedule E)
 19 Farm income or (loss) (attach Schedule F)
 20 Unemployment compensation (insurance) (see page 13)
 21a Social security benefits 21a 21b Taxable amount (see page 13) 21b
 22 Other income (list type and amount—see page 13)
 23 Add the amounts shown in the far right column for lines 7 through 22. This is your total income

Adjustments to Income
 24 Your IRA deduction, from applicable worksheet on page 14 or 15 24
 25 Spouse's IRA deduction, from applicable worksheet on page 14 or 15 25
 26 Self-employed health insurance deduction, from worksheet on page 15 26
 27 Keogh retirement plan and self-employed SEP deduction 27
 28 Penalty on early withdrawal of savings 28
 29 Alimony paid: a Recipient's last name and b social security number 29
 30 Add lines 24 through 29. These are your total adjustments

Adjusted Gross Income
 31 Subtract line 30 from line 23. This is your adjusted gross income. If this line is less than \$0, \$40 and a child lived with you, see "Earned Income Credit" (line 5b) on page 20 of the Instructions. If you want IRS to figure your tax, see page 16 of the Instructions.

Figure 1. Form 1040 is the basic form and must be used by wage earners to report net income or loss on line 12. Or, S corporation shareholders report their share of the corporate profits on line 18.



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through to the partners to be reported individually. The S corporation or partnership is often the business form of choice when there is outside financing (frequently from family members) required to start up the business. The tax and legal structure of these business forms not only provide security for capital investment, but a chance to earn a return on invested capital if the business prospers.

Most everyone can incorporate a business venture. However, it is more typical for a self-employed person who may be an engineer or producer to operate as a sole proprietor. The self-employed specialist can use most of the tax-saving techniques available to corporations, yet avoid the tax and legal reporting requirements incumbent upon corporate entities.

Self employed? Beware

Self-employed individuals need to be aware of an issue that can become a trap. The controversy involves the definition of an independent contractor vs. that of an employee. Many sole proprietors — for example, a recording engineer or an editing specialist working on a variety of jobs — would be shocked to learn during an IRS audit that they have no business of their own.

In the eyes of the IRS, these professionals are simply employees of the recording studios to whom they provide services. The "business expenses" taken on their tax returns would be transformed into unreimbursed employee expenses and would be subjected to a variety of limitations, which would serve to increase taxable income. On the other side, the new-found "employers" would be subject to additional payroll taxes and withholding penalties.

Besides the obvious intent to reduce the size of the underground economy and to increase the number of W-2 reporters, the IRS is pushing to implement tax regulations that have been on the books for many years. There are many factors that are considered in determining whether a business relationship is that of an employer/employee or independent contractor.

One example of how subjective the analysis would be relates to one of the factors frequently considered: control. A person who is required to comply with instructions about when, where and how he is to work is ordinarily an employee. Some employees may work without receiving instructions because they are highly proficient and conscientious workers. However, the control factor is present if the employer has the right to require compliance with the instructions.

After sorting through your relationship with respect to the control factor, you will be faced with more than a dozen other factors promulgated by the IRS in its at-

Table 1. The 200% declining-balance method of depreciation, using a \$50,000 console as an example.

Year	Depreciation %	Deduction (\$)
1	14.29	7,145
2	24.49	12,245
3	17.49	8,745
4	12.49	6,245
5	8.93	4,465
6	8.93	4,465
7	8.93	4,465
8	4.45	2,225
	100.00	50,000

tempt to define the boundaries in this critical area of tax compliance.

Minimizing the tax burden

Considerations for minimizing the tax burden often involve how you obtain the equipment necessary to further your production business. Is it better to lease equipment or to purchase it outright? A purchase generally requires more cash up front, even if a bank finances a large portion of the price. The equipment is yours "until obsolescence do you part," limiting your flexibility to upgrade as your needs or technology changes.

On the other hand, it is possible that a secondary market exists for equipment a couple of years removed from the "state-of-the-art," or sufficient trade-in value remains so that you can upgrade when appropriate.

Furthermore, recent tax reform legislation did not reduce the benefits of depreciating equipment on an accelerated basis. Most equipment would be assigned a 5- or 7-year life and is depreciated using the 200% declining-balance method. Property, other than buildings or improvements, placed in service any time during the year, receives one half year's worth of depreciation. The half-year rule does not apply if more than 40% of the new assets are placed in service during the last quarter of the year.

The 200% declining-balance method can be illustrated by the following example. Say you purchased a console for \$50,000. It would be assigned on a 7-year life and would be depreciated over eight years (the half-year rule extends the recovery period). Table 1 shows the depreciation percentage and the deduction.

The instructions to the depreciation form 4562 provide the mathematical formulas to determine the proper percentages for each year. In lieu of depreciating an asset, a business can deduct the cost of new equipment up to \$10,000 annually. This is a valuable option to consider. Not only do you benefit from the rapid write-off, but you are free from the

burden of performing the annual calculation and keeping detailed depreciation records.

Lease payments are currently deductible, but lease financing usually is more expensive, from an interest rate perspective, than purchase financing. When evaluating a lease vs. purchase decision, scheduling the after-tax cash flows over the 5- to 7-year period can provide an objective distinction between the choices.

Other options

A discussion of tax planning strategies frequently includes retirement plans or other tax-favored benefit plans such as cafeteria plans. Many taxpayers can still make deductible IRA contributions. The earnings are allowed to accumulate tax-free inside the IRA until withdrawal. Self-employed taxpayers can open Keogh plans, which allow up to \$30,000 to be contributed annually, with the same tax-free compounding of the earnings until withdrawal.

Cafeteria plans are employer-sponsored benefit packages that offer employees a choice between taking cash or qualified benefits (such as health or life insurance coverage and child care programs). If the employee chooses cash, the individual is taxed on that amount. However, if the qualified benefits are chosen, they are excludable from income to the extent allowed by law.

Tax planning primarily concerns the timing and the method by which your income is reported and your deductions claimed. Some tax strategies serve to eliminate a tax liability, but most succeed primarily in postponing a tax to future years. Tax deferral can result in substantial financial savings in that it essentially results in an interest-free loan from the government for the amount of the postponed tax.

Specific actions should be dictated by your individual circumstances, and exceptions exist in almost all cases. Consult with a tax adviser before embarking on any specific course of action.

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THE CASE FOR RENTAL ROOMS

By Bill Porter

Installing electronic music rooms for rent allows your studio to offer what it has always had: technical and engineering excellence.



Unused space can be converted into electronic music room that your facility can rent to outside clients. (Studio: Boom Boom Room, City Spark, Kansas City, MO. Photo: Vedros & Associates.)

Project studios and their effect on commercial studios have been a major issue in the industry since last summer. The advances in electronic musical instruments have made it possible for anyone to create and play all of the instruments when creating a recording. An electronic musical composition in the hands of an accomplished musician can be created quickly and flawlessly, resulting in major cost savings for all music productions.

Much has been written in the trade press on whether professional studios can survive as MI and semi pro gear become more sophisticated and cost less. It's my opinion that they can. A professional recording studio has the advantage and the experience of working with electronic music instruments and acoustic instruments to create recordings. Most of the time, these are combined in a single composition. This gives studios a strong competitive edge, because they don't have to rely on only one or the other for their livelihood.

Some studios have taken a wait-it-out position on home studios, hoping for a re-

Bill Porter is a recording engineer and president of Allen-Martin Video Productions, Louisville, KY.

turn to the past recording methods. I believe this is an ostrich-like approach. Technology is already changing, and many of the advanced electronic musical instruments create sounds that are versatile and unique. Sometimes the electronic sounds are even mistaken for real acoustic instruments. One frequently heard criticism of electronic music is the lack of "depth," or dimension, to the electronic copy of the acoustic sound, but a cure for this is on the drawing board now. It's just a matter of time.

In the June 1989 issue, I wrote a SPARS On-Line column titled "Home Studio Competition, If You Can't Beat 'Em, Join 'Em." When I wrote that article, I was teaching recording techniques at the University of Colorado-Denver, viewing the recording business from the outside. Now, I am president of Allen-Martin Video Productions, which has a 24-track automated analog studio, a MIDI studio, a Synclavier studio and two video production suites, all staffed with pros. I am viewing the recording business from the inside, and I haven't changed my views. In fact, they are stronger than before.

I did extensive research to see whether electronic music rooms for rent were viable. I believe they are. These rooms can allow smaller studios to get additional income with a minimum investment.

If you are interested in equipping electronic music rooms, there are five steps to undertake, each outlined in the sections below.

1. Convert unused or underutilized space into working rooms.
2. Hire someone proficient in electronic musical instruments to run the rooms.
3. Equip the room to a technical level appropriate to your market.
4. Keep the room technologically current.
5. Charge a rate appropriate to your market and add additional services that can give you additional revenue, such as home project automated mixdown to pro formats.

Converting unused space

If you look around your studio, you are sure to find areas that you aren't using enough or at all. These rooms can be converted to electronic music rooms. It could be a second studio, lounge, disk-cutting area or storage space. If you have duplication equipment but cassette dupes aren't a noteworthy source of income, perhaps this area can be converted.

Because electronic musical instruments are all direct in, mic use will probably be limited to sampling. Consequently, acoustic treatment is not a factor as it would be in your other studios. You may be able to get by with isolating the electronic studio from the rest of the facility, so it won't dis-

turb other activity. This gives you an important advantage: You won't have to spend a lot of money on the room itself, leaving you with money to spend on equipment.

Staffing the room

Whom you hire to run the room is very important. This isn't a typical engineering position. You're hiring someone to make sure the client works most efficiently, but this person isn't necessarily doing the work.

I suggest visiting a college music department and consulting with the electronic music faculty regarding their most promising students. These are usually the ones who are always playing and composing electronic music every spare moment. Inquire about their musical talents, skills, attitudes and work ethics. A good barometer is whether the student is dedicated to a structured practice schedule.

Interview your prospect, request copies of recorded compositions, and observe his playing skills. Use your "studio-owner ears" to ascertain whether his musical talents are commercial and musical.

Some college music departments refuse to recognize that the music world is changing. If your local college is not in the "real world," inquire at a music store well-

stocked in electronic musical instruments, or perhaps a local high school.

Your employee must be technically and personally proficient. First, the individual should have the ability to adjust, interconnect, align and perform minor maintenance duties on the equipment. This will be necessary to keep your costs down and to keep extra responsibilities from your regular maintenance staff.

Equally important is how the employee interacts with clients. This type of rental is different than your regular studio rental. The employee must have patience and the skills to assist if asked, but not to assume control of the project. If the client desires more professional assistance, a booking in your recording studio should be recommended.

Equipping the room

A visit to a music store will expose you to different levels of complexity and costs of electronic musical instruments. You will see simple keyboards and recorders for a few hundred dollars, and more complex sophisticated equipment that cost thousands. Some music stores rent the simple electronic instruments and recorders, and a waiting list for their availability is common.

I don't recommend installing and rent-

Additional Opportunities

It is worth noting two interesting approaches that several professional commercial studios have used to tap into the project/keyboard studio market:

1. Develop a room specifically designed to mixdown final product developed out of house. The key to the success of such a control room-only facility includes offering equipment not typically found in that environment, such as multiple channels of top-of-the-line reverb and processing equipment, superior equalization, improved monitoring, more inputs for a greater number of active F/X during the mix, automation and professional format (including digital) mixdown decks.

The capability to roll in and easily patch up a large number of keyboards or rack devices, MIDI or computer controllers, the original multitrack (if a non-standard or semi-pro machine), various formats of mixdown machines or any oth-

er peripherals is crucial to the effectiveness of the room.

2. Develop an in-house relationship with a growing or developing individual or company that already has success in the keyboard/computer composition market. A commercial studio's ability to provide an acoustically correct control room space, with office, billing, accounting and reception support provides a favorable match to a keyboard or digital workstation production group.

The latter may have the clientele, equipment and creative talent, but not the location or budget. Profits can be shared after overhead, tech support and base costs are removed. This is truly a win-win situation.

With a little original thought and a dose of entrepreneurial development, commercial studios can survive and grow in a progressively home/project studio world.

Table 1. Equipment requirements for an electronic music rental room of moderate technical sophistication.

Equipment	Estimated cost (\$)
4 or 8-trk cassette recorder/mixer	1,000—2,000
Drum machine	300— 700
Digital/analog reverb or delay	250— 500
Four to six mics	50— 125 ea.
Close-field monitors and amps	250— 450
Two to four headphones	50— 125 ea.
Patch cables and accessories	100— 200
Total estimated cost	2,000—4,100

Table 2. Equipment requirements for an electronic music rental room of medium sophistication.

Equipment	Estimated cost (\$)
1/4- or 1/2-inch 8-trk recorder	1,500— 2,500
8- to 16-channel console	1,000— 3,000
Drum machine	300— 700
One or two synthesizers or sound modules	600— 2,000 ea.
One or two digital reverbs	250— 500 ea.
One or two digital delays	250— 500 ea.
Monitors and amps	600— 1,500
Close-field monitors and amps	100— 400
Six to eight mics	200— 300 ea.
Four to six pair headphones	100— 200 ea.
patchbay	100— 200
Patch cables and accessories	500— 800
SMPTe-to-MIDI sync to tape (or some type of MIDI chase & lock system)	200— 2,000
Total estimated cost	8,000—21,000

ing the simple, less expensive systems, because this is not the equipment desired. Your goal is to reach musicians/producers who want or need to use sophisticated equipment that is out of their price range. Also, don't forget about the A/V, industrial and video score markets, all of which require a higher level of technical sophistication.

Electronic music equipment can be divided into three levels or categories of cost, complexity and sophistication. A year from now, some of these equipment standards will be modified as the technology advances. Tables 1 and 2 detail the typical equipment needed for electronic music rooms of moderate and medium technical sophistication.

There is also a third equipment level, which would be equivalent to a professional studio. This would include all of the Table 2 equipment and would additionally have a 2-inch recorder, a multi-input/output console, high-quality mics, limiters, computers, high-quality monitors, noise reduction and additional patchbays.

Keeping technologically current

Some of your electronic equipment will have a short life because of technological

changes. MI and electronic music equipment changes even faster than pro audio equipment. More features and ease of operation will be offered in new equipment, and equipment replacements must be made. Explore a standard trade-in with music dealers; sell the used equipment to your clients and students at the high schools and colleges; and allow your "new" employee to spread the word about equipment sales and pay them a commission.

Be careful about how you pay for this equipment. For items that are replaced with updated models every six months or so, such as keyboards or outboard gear, it is best to pay cash. It doesn't do you any good to be saddled with a loan or lease when the equipment is obsolete.

Rates

Use an adjustable rate per hour for your client. The more hours used, the less per hour. This would apply after a minimum number of hours are booked. This gives your clients a strong incentive to continue their project. It's easier to keep them there working; then find a new account.

However, don't let the client get into your pockets. Insist on cash up front, or

accept credit cards. If a client is really into their production, they will not want to watch the clock. That's your job!

If your choice of a composer/operator/technician has excellent musical arranging skills, you can gain additional income by assisting with the arrangements and playing the electronic instruments on a client's complex projects. This often occurs with the rental of the more sophisticated electronic equipment. Here is where techniques and creative ideas make the difference between an excellent production and a mediocre one.

Pay your employee a percentage of the billing or a flat fee. The pay scale should be compatible with experience, but this could be an "entry level" position. Be cautious: Your composer/operator/technician may bill more hours than necessary in order to make more money. Honesty and credibility are important.

Another extension of the rental concept is using your employee's talent to "fix" electronic music productions that are produced in home studios. We at Allen-Martin "repair" and "add to" many original home recordings with our electronic composers.

Many musicians design and build home studios but do not have the finances to purchase the advanced electronic musical instruments. But, they will "rent" their studios and produce sessions for local bands and friends with the intent to create a marketable product. Frequently, their skills and equipment are inadequate for "state-of-the-art" productions, and professional help is needed to make a commercial recording. That's where you and your staff can offer expert assistance, and bring in additional revenue.

Threat or opportunity?

Like most anything in life, your reaction can be the key to success or failure. I believe that home studios have provided full-line facilities the opportunity to showcase their strengths. One needn't win out over the other. Both can coexist and even thrive.

Explore the rental potential in your market to see whether there is interest. I believe there is a market for this service; all you have to do is find the right combination.

REP

Acknowledgement: Thanks to Tim Brown of Longmont, CO, and Steve Skinner of Nervous Music Production, New York, for their assistance in fact-finding.

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Recording
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The Applications Magazine for Audio Professionals

Today's average recording studio is a lot different from that of five or 10 years ago. And just what is "average," anyway? The term used to apply to studios that had a console, a 24-track (analog) and discrete recording area(s). In many ways, today's trend seems to be toward the project studio — a broad category representing facilities that are dedicated to one particular application or user.

Few know the truth of this statement like Art Kelm. Currently the general manager of The Complex in West Los Angeles,

Kelm has designed or consulted on project studios for dozens of professional songwriters and artists over the past 10 years.

Kelm begins a project by talking with the artist to find out what his or her favorite rooms are. "I don't take the approach of 'this is the ideal studio design,'" he says. "I work backward, finding out where they've gotten their best product and what's most comfortable for them. Once I know what they think, I can begin critiquing their opinions. If they say they like a certain studio, I'll point out the draw-

backs and ask if they can live with them.

"Every room has its pluses and minuses," he continues. "To me, there's no such thing as a perfect studio. What's perfect for some people totally appalls others.

"Record One was a good example for me. I've always liked Val Garay's work as an engineer, yet when I listened to his monitors, I heard midrange distortion and wondered how this guy could make great records on this equipment. Engineers would walk in and say they couldn't work there, but that's where 'Toto IV,' 'Betty Da-

Jeff Burger is a San Francisco-based free-lance writer.

PROJECT STUDIO DESIGN

By Jeff Burger

Project studios present their own unique set of challenges that designers must overcome.

Laura Nyro's request that her studio have glass on three sides posed an "acoustical nightmare," according to Art Kelm. The monitors were positioned to form a 7-foot triangle, which minimized the windows' effect.



vis Eyes' and both Henley records were cut. After that experience, my attitude changed and I began listening to the opinions of the people I was working for — to learn what worked best for them, not me."

Accommodating client preferences

If Kelm disagrees with a client's ideas, he tries to find possible alternatives. "You can only say 'you shouldn't' to a client so many times before they find somebody else," Kelm says. "People do not like to be told they're wrong. Generally, the first time

out, I'll just listen to what they have to say. Then I'll think about it and come back in with an answer. I always give people a choice; it helps them feel comfortable."

To help his clients become comfortable with a design, one of the first things Kelm does is tape up the designated room with the outlines of the walls, console, racks, and everything else — using 4-inch masking tape. He lets the person live with it for four or five days before taking the next step. Kelm recognizes that compromises are often necessary to make the client

happy. Laura Nyro's home studio is a good example.

"She wanted to be able to play the piano and look out the window at the pond, then sit at the console and look straight into the forest, plus have a third picture window to the right of the mix position," Kelm says. "She also wanted the speakers to just disappear! With glass on three sides, it was an acoustical nightmare. I ended up installing Tannoy monitors. They were positioned to form a 7-foot triangle so that the effect of the windows was minimized. It was a compromise that I thought met with only mediocre success, but it really worked for her."

The consultation phase sometimes leads to abrupt turnarounds, as was the case with Christopher Cross' home studio. "The first few times we got together, I just listened to him. The third time we met he started telling me how he envisioned things being laid out. I felt I knew him well enough by that time to tell him to stop right there and start over, because he was entering the *studio* from the house. The first rule of studio design is never, ever walk through a studio to get to the control room.

"You should be able to enter the control room from the back, so that you're not interrupting or distracting the producer or engineer by sticking your head in the door. I tend to design rooms so that no one enters from the front-right or front-left corners.

"We're doing Chris' studio in a 2-car garage. We had to move the posts and reinforce it, but except for optimum ceiling height, garages are a great place to start. They've got concrete floors and you can build a room within a room. Just seal up the garage doors with caulk and put your floating room inside. If the inside room starts to move, it doesn't upset the rest of the house because it's totally isolated.

"The electrical drops for most houses are someplace close to the garage, so installing a subpanel and isolation transformer is easy. Garages typically have vaulted ceilings, with enough space to run the air conditioning through the center of the vault, duct it into the room, and still have enough clearance for a reasonably high ceiling."

Converting other rooms

Although garages are certainly a preference, another common challenge is turning a bedroom into a writing studio. Kelm did just that in a project for Howie Epstein, bassist for Tom Petty and the Heartbreakers.

"He showed me a 12' x 12' bedroom. He wanted to put the speakers on stands, and I told him that larger speakers on



Steve Vai's studio presented a common design challenge — large monitors with only an 8-foot ceiling.



Songwriter Holly Knight's studio.

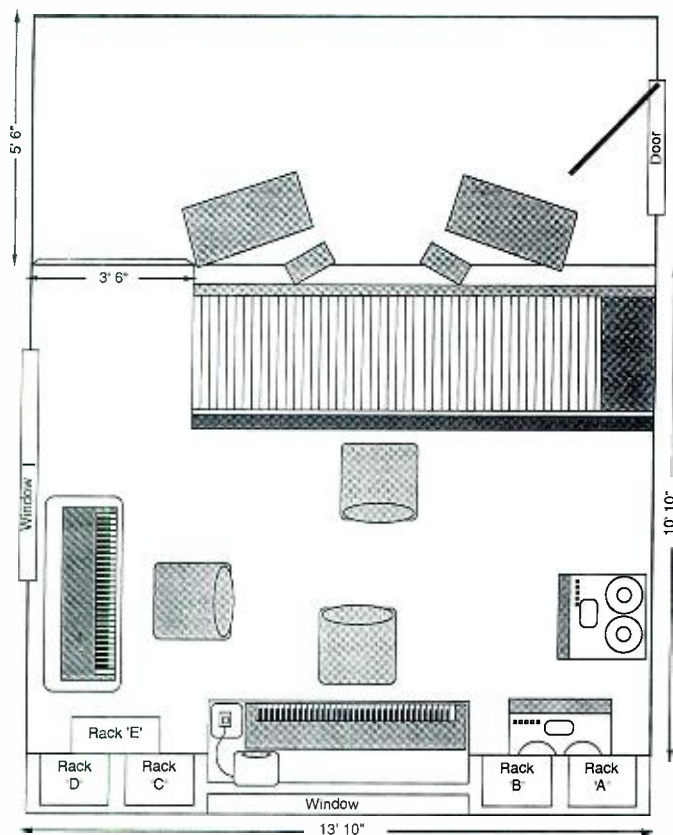


Figure 1. The 1-step theory — if you stand up and turn around, it's one step to anything.

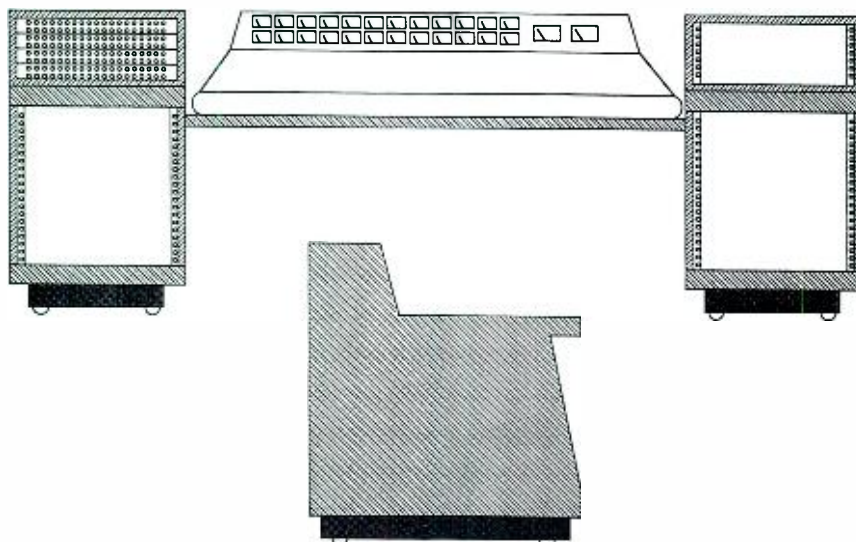


Figure 2. The console sits on a platform supported by a pair of racks. Pedestals under the racks allow cabling to come up through a port in the bottom.

stands meant at least a foot of trapping against the back wall. I felt he was better off with close-fields."

Similar circumstances manifested themselves in the consulting phase of a project for Fleetwood Mac's Christine McVee and her writing partner.

"Christine had a large bedroom they wanted to turn into a music room/studio for song writing and TV projects. They said they might want to put speakers up on the wall, and I had to tell them it wasn't going to work. In a room that size, with soft walls, you'd have to get into a lot of room treatment. Again, close-field monitoring was the way to go.

"I always look at how loud the client wants things to be. If they want 110dB at four feet, that requires a certain amount of air movement. If they want the same results eight feet away, you've got to move a lot more air, and if you move more air, then all of a sudden the room starts coming into play. The walls start interacting with what you're hearing and with what's on the other side of the wall. If you want a certain SPL at your ears, but also have to keep it quiet for the neighbors, you have two choices — move or get a pair of small monitors you can crank. Stay away from coupling the walls, because, in a home or office environment, most walls will move. Well-designed commercial studios are constructed so that the walls are actually used as part of the monitor cabinet, but the walls in most private homes will move under the stress."

One area Kelm steers clear of is recommending monitors. "If the clients don't know what they want, I'll bring over several speakers for them to live with for a week. If they think they might want to make a change in six months, I'll design things so they're easy to change."

Flexibility and change

Kelm thinks that the room has to be versatile, and everything has to be easy to get to. "You should be able to sit at the console, turn and play keyboards, turn again to do an edit. I call it the one-step theory — if you stand up and turn around, it's one step to anything. That usually allows enough room for a couple of people to move around comfortably, without having to go too far." (See Figure 1.)

"Over the last 10 years things have changed," Kelm continues. "Before you had two or three Ultimate Support stands filled up and you had to be able to reach and play every single keyboard. Now that MIDI and the computer have come along, all the work can be done from one primary keyboard and a Mac. I put the primary equipment in close proximity. Things that don't have to be handled a lot go further out in the work space. With Christine's

room, we put most of the slave keyboard modules in a rack in the corner. You can look up and see that they're triggering, but there's no need to touch them."

Kelm has also found design answers for the transient artist. "I like to have a raised platform hiding the wiring, yet many people are only renting a house. In those cases, everything is sectionalized so it can be moved in a day, including the platform floor, which screws together in four sections." Songwriter Holly Knight benefited from this design, moving her studio from a rented apartment to a new home. "We had her up and running in one day," says Kelm.

The movable platform concept is just part of Kelm's belief in designing for the future. "In terms of design, it's crucial that this type of studio be expandable without having to be redone. All the rooms I've designed in the last six years have started out as 16-track and gone to 24-track. It's not a problem because I make the wiring 24-track-ready. Extra room is allocated in the cable troughs along with space for patchbay expansion. Overall, the room is wired for about 80% of what is possible before you have to change something physically.

"I tend to think modular and put everything on multipin snakes. I don't care what's in an auxillary rack. When you reconfigure your equipment, all you change is the interconnect jumper from the multipin to that piece of equipment — if everything goes to an ELCO connector, barrier strip or a power distribution strip.

"The jumpers are all three feet long so you can pull out a piece of gear and disconnect it. If the connections are different, you just put in a different jumper. I also believe in providing a service loop — an extra five feet of cabling on the multipin snake so you can roll a machine out and around.

"I did a room for Will Jennings three years ago, and he had just bought a larger console. He's going from 24 inputs to 36, but all the wiring stays the same. It's just a matter of taking the blocks out of the patchbay, moving them to different positions and adding the blocks for the new inputs."

Kelm has a standard design for configuring consoles and auxiliary racks. He likes to employ custom racks on pedestals with a producer's desk on top. At the rear of the desk is an inclined set of rack spaces for patchbays or cassette decks, complete with lighting. Building the racks on pedestals allows cabling to come up through a port in the bottom. A pair of these racks support a platform that the console sits on. (See Figure 2.)

"If you buy a bigger console, you just

change the middle support piece and slide the racks apart. If you're going to move, two guys can lift the racks and carry them away. That's worked for a lot of clients who have started with Akai 1212s, for example, and moved up to larger consoles."

Acoustic considerations

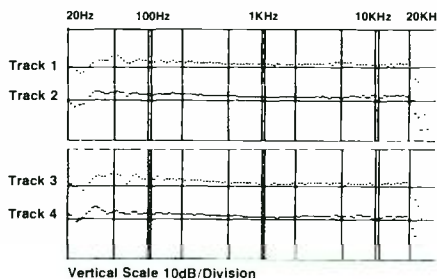
Isolation is another major aspect of Kelm's approach to studio design. "You don't want to disturb your family upstairs, so you start with a floating floor and float-

ing walls with at least three layers of wall material — like Sheetrock/soundboard/Sheetrock or plywood/soundboard/Sheetrock. Once you have an isolated box, then we can deal with treatment.

"In a house, the biggest problem can be the windows," Kelm says. "The first thing I do is crank something to 110dB, walk outside with an SPL meter and see how much isolation there is. If needed, send your carpenter down to the local hardware to get a solid sheet of glass and have it put in

EXCEPTIONAL FREQUENCY RESPONSE

AT 1 7/8 IPS (REAL TIME)



TEST METHOD A 40KHz to 20Hz sweep at -20dB from a Sound Technology 1510-A was recorded at 1 7/8 ips in a KABA slave deck on TDK SA tape. The tape was played back at 1 7/8 ips in the KABA master control deck and the output displayed on the Sound Technology. The curves represent the **SUM** of the record and playback response of the KABA system at 1 7/8 ips.

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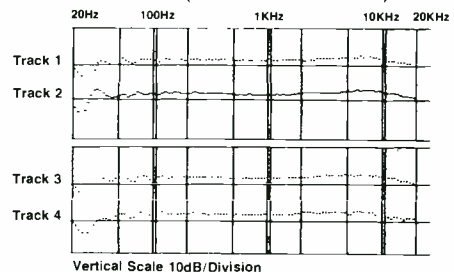


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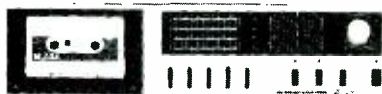
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in CA call (415) 883-5041

EXCEPTIONAL FREQUENCY RESPONSE

AT 3 3/4 IPS (DOUBLE TIME)



TEST METHOD Same as above except the sweep was recorded at 3 3/4 ips on the KABA slave deck and played back at 1 7/8 ips on the master control deck. Highest frequency on playback was 20KHz so there is no response beyond 20KHz.



RTDS-4TM MASTER CONTROL DECK



RTDS-4TS DUAL TRANSPORT DECK

FOUR TRACK REAL TIME AND 2X DUPLICATION SYSTEM

Circle (22) on Rapid Facts Card

a metal frame, to fit outside the existing window. Put a bead of caulking around the window where it's going to sit, put the pane of glass in and measure the transmission levels again. If you need more, put another pane of glass on the inside so you've got three panes of glass between the studio and the outside world. That's about as far as you can go without actually building a room within a room.

"As long as the room isn't perfectly rectangular, we can do anything we want with treatment. Then it gets back to monitors — the size of the monitors dictates how much treatment you have to use on the inside. I always start with a hard or bright room. It's a lot less costly to deaden a bright room than it is to brighten a dry one.

"Low ceilings are one of the banes of

project studio design. Such was the case with Steve Vai's home studio. We started with a 60' x 60' space made from concrete block, with a 10-inch concrete ceiling and floor, and two 1' x 2' concrete pillars.

"We knew we weren't moving the pillars. The biggest drag was that I only had 12 inches of clearance to work with. After that, you're down to about an 8- or

Home Studio Design Considerations

By John Storyk

If designed correctly, the smallest project recording studio and the largest multi-tasking audio production facility will have at least two things in common. There must be a clear and well-defined statement of ergonomic and architectural programming. Once defined, these interior environments must have satisfactory boundary transmission specifications and internal room acoustics.

A project studio, particularly one in a home, is typically smaller than commercial facilities. This does not always make things easier. Ergonomics will "lay the spaces out." Acoustics should then follow! Assume the program calls for a control room (production suite) and studio (recording room with open mic capability).

Control room

Most home studios probably won't have to accommodate large numbers of people in the control room. I have designed home studios for professional recording artists (Whitney Houston, Rick Rubin, Leon Russell, Ace Frehley, Rick Wake). Control room size is not the most important feature: Equipment placement is usually all-important.

Home studios are like airplane cockpits — very ergonomic. Control room internal acoustics tend to be close-field. This is not always a requirement. Unless there is a very good reason, I would shy away from any large glass in the perimeter walls and certainly try to avoid it on the front listening walls (speaker

walls). Try to have the primary monitor system near ear level.

Many home studios seem to end up with low ceilings. This is not necessary and can be a serious liability, especially if a larger monitoring system is required. (The RT₆₀ specifications demand a larger volume — a minimum of 5,000 square feet — which is hard to get with low ceilings.) Many home studio control rooms end up in a basement. In rooms where ceilings are too low (and some budget flexibility existed), excavating the control room was the solution. This is not as difficult as it seems. Usually home basements are slabs on dirt. In light of the total project, an extra \$5,000-\$7,000 to dig out a portion of a basement is not that much. If possible, I would strongly recommend it.

Increased ceiling height in the control room is also typically needed to guarantee a high sound transmission coefficient in the ceiling construction so as not to disturb the upper floors in the residence. If a larger volume can be obtained, there is no reason why a design RT₆₀ 0.3 (1kHz) can be obtained. If, due to existing conditions, the volume is less than 3,000 square feet, there is probably very little chance to have a monitor system other than close-field, or semi-close-field, with a non-reverberant listening environment.

Studio

The recording room (the traditional room for microphone recording) shrinks to a large iso booth in most home studios. Synthesizer and MIDI technology has reinforced this in the past five years. However, digi-

tal recording has made the noise criteria ratings more important than ever. I have heard people demanding NC ratings of 20 in a home studio. This is very quiet, when you consider that not too long ago, ratings of 25 to 30 were quite acceptable in full-blown facilities.

The HVAC system is usually the problem for meeting these requirements. Positive return systems with oversized, lined ducts are a must. Wall transmission (STC) between the control room and the studio will have to be in the 50s, just like a full-service studio. If there is a recording room with open mics, there is no way to get around this. Additionally, there is the added circumstance of really having to keep studio noise out from low ambient spaces, such as bedrooms and living rooms. Commercial studios have the advantage of having corridors and other medium-ambient spaces to be adjacent to the studio itself.

The issue

There's been a lot of talk about "professional home studios" — their legitimacy and legality. I have watched this issue with great fascination. I usually stay away from this sort of material, but in this instance, I feel it is dangerous to stop artists from recording in their homes (or stopping anyone from working in their homes).

If there are unfair business or political realities between home and commercial studios, then let the zoning regulations take care of them. You can't stop creative people from working in their homes, and you certainly can't stop them from "pushing studio design" a little bit further into the future.

John Storyk is the studio designer for Walters-Storyk Design Group, New York.

9-foot ceiling. I had no room for trapping, so I tried to get the console as close to the monitors as possible (even though he had big monitors) and, at the same time, keep a big window in the studio. The room came out good, but we had to do a lot of treatment because it was really bright, and the imaging was all over the place.

"I like to have the ceiling as high as possible. If there are problems, you can always drop it down. One of the newest trends is a soft ceiling and hard floor. I also like to have the back wall as deep as I can get it — preferably four feet. I believe the sound should go by your head, into the back wall and disappear. That's basically how The Complex is designed. All the rooms have hard sides and a soft back with diffusion on the side walls.

"Something else I like to do is walk around a room, talk and have somebody else talk. You can almost learn as much from that as you can from playing music. Obviously you can't tell imaging, but you can tell the basic sound of a room. In a bright room, the conversation will get garbled; in a dead room, the conversation will be breathless."

Grounding

Kelm's biggest problem with project studios concerns grounding. "I'm constantly getting calls from people saying they just plugged something in and now the whole room buzzes. In a really well-grounded system, if you plug something in and it's not properly grounded, you should have a negative reaction. You've got a real problem if everything seems OK when you can plug something in that is grounded with a third pin; lift the ground; and connect a wire from the console to the chassis of that unit — because they should all sound different!

"The typical approach is to tie all shields everywhere and ground-lift each piece of equipment. Ninety percent of the time, a shield that's tied on both ends is a conductor that can conduct ground. This big blanket grounding creates such a massive ground loop that nothing tends to affect the ground plane. It raises the overall noise floor of the whole room, but if you have nothing to compare it to, it's hard to know."

Kelm's grounding approach entails taking one thing at a time. "Start with one amplifier, one speaker and a console. Plug them in and get it as quiet as possible. If you hear anything, there might be a problem with the amplifier or the console. Crank it up and be ridiculous. You may only be able to get it down to a certain level because of the manufacturers' flaws, especially in M.I. gear. Many manufacturers of M.I. stuff don't even address separating audio ground and chassis ground, let alone balanced inputs.

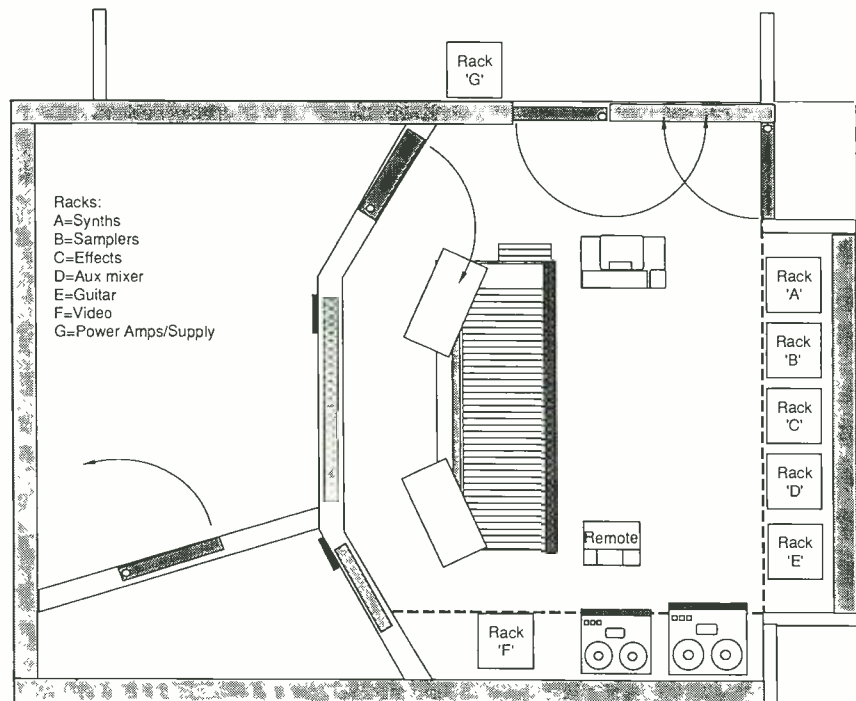


Figure 3. Equipment that doesn't have to be handled a lot is put further out in the work space.

"I use a telescoping approach. The console is ground central and everything telescopes out, with no shields tied at the equipment end. Most people are taught source grounding, where the shields are tied at the source and the shield is open at the destination. For most studios, that tends to be a little complex.

"My system even tends to be a bit complex, too, because people are bringing gear in and out all the time. They don't know about chassis grounding. They plug a cable in, and it either works or it doesn't. If it's rack-mounted, it should be in a grounded rack with a star washer behind the chassis. So, depending on the artist and what they're going to be doing, I tend to compromise. If I think I'm going to be getting a call every two days because somebody plugs in a piece of keyboard gear and forgets the ground wire, I'll tie the shields and be done with it, even though it may raise the noise floor by 5dB or 6dB. It's a compromise.

"Still, the bottom line is to build a studio that's quiet with good signal flow and accurate, even with close-field monitoring. If the user can cut clean enough tracks at home, he can take that same tape into a larger studio and build on it without having to recut everything."

Other recommendations

As might be expected, Kelm has some specific advice for people who are planning to build a project studio. "I recommend that if people buy an inexpensive console, that they go out and buy very

high-quality mic pre-amps and EQ, and cut directly to tape — using the board for monitoring. For writers, I usually recommend allocating the console inputs so that Channels 1 through 16 or 1 through 24 are tape returns that feed the stereo bus. The remaining inputs are dedicated to the instruments that are going to tape. That way, if you really like what you've just done, you just roll tape and make a cassette, because the mix you've been working on all day is right there."

Kelm reiterates the importance of educating and developing a relationship with clients. "I'm trying to help people who might be great musicians, but who don't understand system design and installation. They don't understand how long it takes to do something. They don't understand why they should go with multipin connectors so they can grow later. Naturally, the hardest thing is convincing the client to spend the extra 15% it takes to allow for expansion. That's part of developing a relationship with the client and saying, 'Look, I'm not here to take your money and run. I don't want to leave here next week and never see you again. I value you as a client and in two years I hope you call me back.' That builds longevity into the relationship."

RE/P

Q. *What is the best tracking and mix-down monitor speaker for a smaller control room?*

A. Which is better, a pickup truck or a sports car? It depends on the application, right? The amount of acoustic control, and therefore frequency linearity it is possible to achieve in a small control room, is limited by physics.

The walls and ceilings are much closer to the position you will be listening from than in a larger room. Back against a wall, and you are in the pressure field of that boundary plane. Read: emphasized low end. Sitting in the middle of the room, and the bass may seem to drop out or null.

If the speakers are mounted against the wall, in the corner junction of two walls, or the ceiling/corner of the room, the bass will be progressively emphasized, not always in a predictable manner. Some speakers, of course, are designed specifically for each of these applications, whether it be soffit-mounting or free-standing. A common small room solution (thanks to Ed Long and his work on Near Field monitoring) is the placement of smaller speakers closer to the monitoring position, away from wall and ceiling boundaries. This allows the speaker to operate more predictably, closer to the anechoic environment where it was most likely measured.

Many brands and models exist to satisfy the many applications and tastes of the recording world. Things to consider are: total power handling, efficiency, low-frequency response at power (i.e.: excursion

of the woofer), imaging (often a function of driver placement, such as 2- or 3-way vs. coaxial), size/weight, application (voice-over vs. rock dates) and frequency response linearity.

Remember that a mix often takes on the inverse characteristics of the monitors. A midrange-prominent speaker will tend to create a midrange-shy mix, as the mixer balances to make the speakers sound good, if you will. Ever wonder why those early 1960s records had sizzling top and bottom? Altec 604s. It sure wasn't in the speakers.

Q. *What are some good sources for learning about acoustic design and treatment for small studios?*

A. Many general books on audio have a section on acoustics, but for in-depth information, these should be of most use:

"Acoustic Techniques for Home and Studio," by F. Alton Everest, Tab Books, 1986.

"Building a Recording Studio," by Jeff Cooper, Synergy Group, 1984.

"How to Build a Small Budget Recording Studio," by F. Alton Everest, Tab Books, 1988.

"Master Handbook of Acoustics," by F. Alton Everest, Tab Books, 1988.

These articles from the last five years of RE/P should also be useful:

"Acoustic Design and Monitoring Requirements for Recording and Production Facilities," by Chips Davis, May 1987.

"Acoustic Design: Noise Control," by Vin Gizzy, August 1988.

"Acoustic Room Treatments," by Dr. Peter D'Antonio, July 1989.

"Control Room Design," by Vin Gizzy, July 1989.

"Edward Van Halen's 5150 Studio," by Howard Weiss, April 1985.

"Electrical and Interface Systems for Recording and Production Studios," by Larry Winter and Terry Pennington, May 1987.

"Future Directions of Studio Monitor Designs," by John Eargle, December 1986.

"HVAC for Audio Facilities," by Jeff Blenkinsopp, August 1988.

"Interconnecting Audio Equipment," by Allen Burdick, October 1986.

"Recording and Production Techniques for Digital Synthesizers" (profile of Denny Jaeger's facility), April 1985.

"Studio Design: Ergonomic Considerations," by Andy Munro and Michael Fay, August 1988.

Q. *Is there any way to minimize the low frequencies leaking out and bothering the neighbors?*

A. Unlike high frequencies, which are absorbed readily in wall treatment, low frequencies have much longer wavelengths. They literally go through the wall and "focus," or sum, at a distance. Thin walls and ceilings, or shallow absorptive material on the walls, will not stop these longer waves. Only solid and/or floating construction, such as filled cinder blocks and wallboard, or plywood/soundboard/wallboard sandwiches, really bring the transmission factor down.

FIVE QUESTIONS: PROJECT STUDIOS

By the RE/P staff

Answers to questions on monitors, information sources, low-frequency leakage, the legality of project studios and large vs. small control rooms.

Note that much of what is considered sound transmission is not sound at all, but vibration. Air is a poor conductor compared with solid walls, wooden or concrete floors, and ceiling beams. Take an electric shaver, hold it against a door and see what happens. The vibration, usually poorly coupled to the air, is now efficiently coupled to a larger diaphragm that vibrates (like the bass of a monitor speaker coupled to the wall and "re-broadcasting" the sound on the other side or down the hall). Only mass and breaking the vibration contact will fix this. Try separating the offending source (speaker, kick drum, guitar amp, subwoofer) from the boundary by isolating it on foam, springs, etc. Adding mass to the room or building an isolated room within your existing space is the ultimate, although expensive, fix.

Q. *With all the talk about home project studios, what is the legality of such a facility?*

A. Just as artists can't be stopped from painting at home if they want to, there is no law against working on your own music, on equipment that's yours, in your own home. The industry is moving in this direction for many levels of pre-production or track development by individuals not directly involved in the projects. If you want to call that room a studio, so what?

The more important issue is commercial property and zoning. If your home studio is now used as an income source, the IRS is interested. If you advertise, the local zoning ordinances come into play, as you are conducting a commercial endeavor in an area that may be zoned residential, owing to traffic, utility services, parking, noise and other considerations. It is a moot point that a recording or production studio with visiting clients is different from a machine shop or an auto paint outlet. The law considers them to be the same.

Last year, some prominent commercial studios took difference to home project studios that, unfettered by business tax, commercial real estate rates, phone rates, employee tax payments, etc., competed directly with them by advertising as open-for-business. After the emotion and misunderstandings cleared, those commercial studios had a valid and legal point, no matter how it was presented. Those residentially zoned facilities would have been fine as artist- or producer-owned facilities used on their private project alone.

Q. *Do I really need a large control room to get a good sound?*

A. That depends. What is good? A big drum sound, with lots of air and natural

room reflections, can only be achieved via distance miking. Simpler sounds, such as an electric guitar amp with both rear and distance mics, can be approximated using modern digital wizardry. A small, close, tight room will sound like a closet or a garbage can, no matter what effects you add, short of a totally dead acoustic treatment, which will suck out the highs.

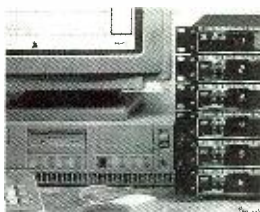
It is possible to make an iso booth-sized space that is large enough, with non-parallel walls and a not-too-reflective

sound, to work for most instrument and vocal recording. A good compromise may be to invest in a good SMPTE/MIDI synchronizer to allow taking your multitrack tape over to a larger roomed facility and laying on the drums and other "big sound" instruments. Even a 4-track tape would allow a cue channel, two channels of drums and a sync stripe. More is better, of course. Or just drag your multi/MIDI/computer/sampler down there. Whatever works.

RE/P

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It has been more than a year now since we first heard of Tascam's MIDiiZER, a multifunction synchronizer. Although you might even have seen a prototype at shows, the MIDiiZER has been in a constant state of upgrading in Japan, which

Rick Shaw is an audio engineer for WATL, Atlanta, a freelance writer/producer and the host of "Recording Series," a set of instructional videos on recording and MIDI techniques.

took a great deal longer than anticipated.

It is to Tascam's credit to not release a product without first de-bugging and improving it, and most will feel that the wait was well worth it. After having produced an instructional video for Tascam on how to use it, I have seen the unit go through several beneficial and necessary changes.

The product really does exist. It's a pretty smart box, with a number of features that used to be available only by purchasing several separate devices, with the re-

sult being a lot more expensive.

The MIDiiZER that I now have is the third one sent to my studio from Tascam. Each one came with software updates and improvements. The first unit was barely functional, but the last one is quite a piece of work. An even more recent development adds a new level of sophistication that lets the MIDiiZER work painlessly with Tascam synchronizable reel-to-reel or cassette decks without special setup considerations. Some of its features are en-

HANDS ON: TASCAM MIDiiZER

By Rick Shaw



hanced if you're using the MIDiiZER with any of Tascam's new recorders with a serial port interface.

Description and physical layout

The MIDiiZER is a 2-machine chase-lock synchronizer with the ability to send MIDI clocks synchronized to SMPTE. The unit is capable of frame-accurate audio editing, autolocating, tempo map creation, full remote control of recorders, and includes a SMPTE code generator/reader.

The front panel measures 17" x 12", and the main chassis is steel construction with a dark gray metallic finish. The main matrix area is screened plexiglass with 40 LEDs that indicate the various functions and modes. It's basically wedge shaped, being thicker in the back than the front, which puts the machine at a nice working angle. Such aesthetic attention makes the machine look appropriate in a serious studio. (One accessory I would like to see is a roll-around stand like the type available for large multitrack deck remotes.)

The rear panel has an abundance of sockets for MIDI, serial, audio and control information. There are three MIDI Outs and one MIDI In. A Pulse Per Quarter Note (PPQ), DIN socket is included so that the MIDiiZER can drive "pre-MIDI" devices. Time code in and out jacks are also included, including loop-out time code from machines. These "loop out" jacks use a code reshaping circuit. There are jacks going to and from the click generator, and a foot-switch input for remoting the "Tap" key on the front panel.

A set of mini DIP switches are available for configuring the MIDiiZER to work with your particular equipment setup. They allow you to set the type of code you want to generate, Servo motor settings, PPQ frequency, and so forth. Three pots are provided for adjusting the volume of the clicks through the built-in speaker, optimizing the contrast of the LCD screen, and setting the click input level.

Controls are laid out over the face of the unit and are grouped into logical sections.

To the left are the controls for generating code and synchronizing MIDI. You can select which machine your sequencer will chase. A Manual Play button allows you to easily take over control of your music sequencer when you want to play around with the tempo without having to go over to your sequencer to start it.

Just below that group of buttons is a large rotary dial with a finger indent. The dial looks like a jog wheel on a video editor. Its actual function varies upon what mode you're in. You can use it for making tempo adjustments or real-time offset changes a frame at a time as the machines are rolling. It's handy when you're improv-

ing a lip-syncing problem or if you're creating an effect by offsetting the audio material on two machines. When naming tunes, the dial also lets you spin alphabetical characters into the LCD display.

When used in tempo-setting modes, the rotary dial is keyed to a row of LEDs that scan with the beat. This tempo indicator is just above the dial. There are eight LEDs, the first one is red and the others are green. Depending upon what time signature you set, the LEDs will flash accordingly along with a built-in beeper that is driven off the MIDiiZER's internal click generator. You can also export these "clicks" to the console or route them to a tape track via the output on the back.

Three large buttons just under the Rotary Dial are used for starting and stopping a sequencer, marking edit locations on the tape, and tapping in tempos. Their use depends upon what mode you're in. To the immediate right is a keypad for typing in numerical time code numbers, or selecting choices once you're into a particular command sequence.

Next to the keypad is a set of remote control buttons. The keys are large, soft-touch, with an LED above each one. A separate button is provided for autolocating. The LEDs indicate what button was just pushed, and they reflect what is actually going on with the transport of the machine you're controlling. If you're in Fast Forward, for example, and you hit Play, the LEDs will flip from Fast Forward to Rewind (to show the machine's braking action), then quickly to Stop, and then Play. This allows the MIDiiZER to be placed in an adjacent room and still give you an idea of what's going on with your machines. In addition to this information, the LCD screen can be flipped to show SMPTE code from either machine when you're in the Chase mode, or at any other time.

Below the remotes is a piece of clear plexiglass that contains the legend for the Utility mode command. This is considerable, because the utility mode is software-based and may be upgraded in the future. After installing a new chip, this card could be replaced with new information. Below the utility messages on the front edge of the unit is a slot for a memory card to store data about tempo maps, cue points, etc.

The upper right of the machine is dedicated to the synchronizer functions. There are three keys for enabling the machine synchronizer. The MIDiiZER is capable of full chase synchronization, and can also be set for Phase mode, which ignores the actual numerical code numbers and locks to the sync word of time code when syncing to non-contiguous code numbers. A special Slow mode is provided if the code has a damaged section and you don't want

the slave machine to try to follow the code too tightly so that you don't hear a pitch change.

The center of the MIDiiZER is where all of the commands are selected. The upper two rows are devoted to record function selects, which will allow any of Tascam's machines that use a serial port to be controlled by the MIDiiZER. The other rows are dedicated to selecting autolocate points, programming edit points, pre- and post-roll time adjust, tempo map creation, MIDI functions, scrolling through the memory, setup and utility functions.

Serial control

Serial control allows a much deeper control of a recorder, and its advantages become more apparent as you understand how the MIDiiZER is able to exploit this feature.

The MIDiiZER is able to take full control of any of Tascam's newer series of recorders. This includes the MSR and TSR series, as well as the MIDI Studio systems and the 238 cassette recorder. All of these machines are equipped with a serial port interface. A standard 15-pin D connector with two attachment screws is used for interconnection.

Once you plug one of these machines into the MIDiiZER, it immediately knows what model that machine is and whether it is reel-to-reel or cassette. This feature is important, because cassette machines use a non-linear tach for referencing tape position. The reel-to-reel decks have a tach wheel that counts pulses in a linear fashion, no matter how full each reel becomes. The tach on a cassette machine counts pulses at the reel motor, so as the diameter of the tape on the reel increases, the reel spindle grows gradually slower. An algorithm for determining accurate tape position in relation to the tape counter is necessary to autolocate with repeatable accuracy.

The MIDiiZER automatically sets itself to the type of machine it senses at each serial port. It is possible to synchronize a 238 8-track cassette recorder successfully with an MSR-16, a 1/2-inch, 16-track reel-to-reel deck. Setup mode lets the MIDiiZER take over control to get the "feel" of the transport ballistics on both machines. It will test the limits of the capstan servo and then will put both machines into a fast wind mode for a few seconds. The entire test takes only a couple of minutes, and the data is stored in a non-volatile memory.

Additionally, the MIDiiZER is capable of "code-only chase," which allows you to send time code from another source, say a VTR, and chase to that incoming code. An optional accessory, the IF-1000 interface, allows the MIDiiZER to genlock to

MIDIiZER video

"Using the MIDIiZER with Rick Shaw," from Media One Productions, is a tutorial on the unit capabilities, including locking machines and MIDI sequencers to SMPTE. The eight segments include connections and adjustments, MIDI sync, machine synchronization, and video and the IF-1000 interface.

The video is being included with the MIDIiZER at no extra charge or can be purchased separately for people who want to learn more about the unit before buying it.

Circle (175) on Rapid Facts Card

The Hypercard Stack

In what is believed to be an industry first, Tascam is developing Macintosh-based interactive demos on its newly released products. The second of these, on the MIDIiZER, is being bundled with multitrack recorders and MIDI Studios. The first demo was written for the 238 8-track cassette recorder.

Written as a Hypercard stack for use on the Macintosh, the manual allows users to learn about the MIDIiZER's functions without flipping through an owner's manual. The stack was written by Rick Shaw. Upon opening the unit, users be-

come acquainted with the material through animated segments and music. The main work area opens to a Zone Map, a scanned image of the MIDIiZER with each of its important sections categorized and numbered. Each of the buttons can be clicked on to learn about any of those functions.

The program is designed to run from a hard disk. Once copied from the floppy, the program automatically decompresses and can be run under Hypercard 1.2 or higher.

Circle (176) on Rapid Facts Card

video sync, as well as to control machines that use a standard parallel port.

Serial control is what allows the MIDIiZER to control the Record function buttons on either machine tied to it. It is limited to a 16-track deck, but the last eight tracks on a 24-track deck could be manually operated. You still have all of the other synchronization, MIDI and editing advantages.

When in an edit mode, serially controlled machines are automatically put into insert mode so you can hear what's on the tape before and after the punch-in. During Search mode, when the machines are autolocating to a cue point, serially controlled reel-to-reel decks are automatically dropped into a spooling mode to slow their transports as they near the parking location. This method improves tape handling, and lock-up, once the Play button is pushed, is very fast.

The MIDIiZER in production

In my production tests using the MIDIiZER, it worked amazingly well in the code-only chase mode. In fact, we produced the entire MIDIiZER video by sweetening the audio using the unit and an MSR-16 locked to a Sony 1-inch video recorder.

During synchronization, there are a row of LEDs that indicate what type of code is being read off the tape. This includes 30 non-drop frame, 30 drop-frame, and 24- and 25-frame rates. An LED labeled "Video" comes on only when the IF-1000 interface is connected and receiving video sync for genlocking. Above these LEDs are arrows that light as the MIDIiZER is chase locking. The arrows show when the slave deck is within a 2-frame lock-up window, either running ahead or behind the master. Normally, the MIDIiZER locks so fast that only one arrow ever has a chance to come on. A Lock indicator comes on when the machines are in sync. A position on the LCD screen lets you see the difference in sub-frames during lock-up while the machines are chase-locking. Typically, the MIDIiZER can lock to an accuracy of $1/100$ th of a frame.

The MIDI functions allow the user the ability to lock a multitrack deck to a video deck, while at the same time having a virtual MIDI sequencing system running in sync with the rest of the system. This gives more control from one point in the studio, as the whole complement of equipment can be controlled from the MIDIiZER. You can independently move any of the machines by switching off the chase modes for the machines or the sequencer. The sequencer can be played by itself as well. In this mode the Start/Run and Stop/Continue keys send those MIDI com-

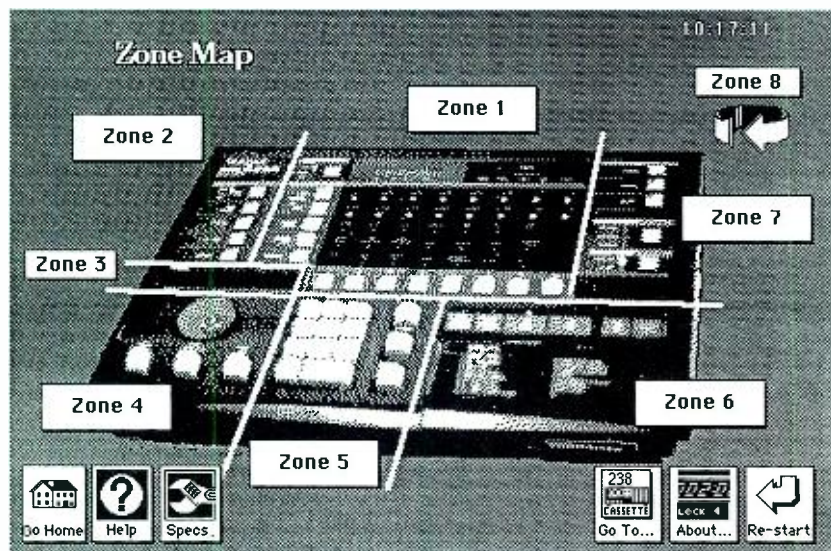


Figure 1. The Zone Map orients the user to the MIDIiZER's front panel. By clicking on the appropriate zone button, an enlarged view zooms into position.

mands to the sequencer. As the sequencer is playing, the tempo indicator scans and beeps accordingly.

The LCD screen is switchable to read either SMPTE code or bars and beats. Most of the time, the screen will show you both types of information at the same time, but if you actually switch it to "Bar/Beat," it will also indicate the time signature. Autolocate points can be stored either in Bar/Beat or SMPTE locations.

One interesting feature, "MIDI Offset," refers to the start time that the MIDI sequencer is assigned. Once assigned, the sequencer will roll at that SMPTE location on the tape. The tempo indicator will start at that location, too, or you can add one measure of "count-in" clicks before the tune plays.

When creating a tempo map of song information, the MIDiiZER can do that a number of ways. You can simply play the tune, along with a SMPTE striped tape, and turn the Rotary dial to increase or decrease the tempo in real time. On playback, these tempo changes will be repeated the way they were stored. You can also do a MIDI dump from a computer sequencer, if you want to store the tempo map in the MIDiiZER along with the oth-

er data about the song. Another way lets you "tap" in the tempo throughout the song, and the MIDiiZER will compute the tempo and store that as a map. This lets you build a new music sequence against an old tune.

MIDI program change commands can also be sent via MIDI. Even though most people would probably do that from their sequencer, this lets the audio editor use this function to switch programmable equalizers or digital effects units to SMPTE code numbers without having to purchase a music sequencer.

A Scroll function allows the user to see what information is stored in the MIDiiZER, including program change commands, edit points, autolocate positions and tempo map information.

Summary

The MIDiiZER is a powerful synchronizer that controls any synchronizable deck with ease and precision. Add a serially controlled deck, and you have quite an amazing system that allows insert rehearsals and automated punch-ins. The MIDI features are handy when you're sweetening and have a lot of equipment to manage at the same time. I liked the con-

venience of being able to control everything in the studio from one place.

Although the MIDiiZER's MIDI features are numerous, they are more accessible from a device like a music sequencer. It's just easier to be working with the sequencer and doing the compositional aspects at the same time. Now that most studios are also using computers for music sequencing, it's hard to go back to an LCD display to make changes to a song.

Those who have hardware-based sequencing systems may find the MIDiiZER a welcome change. But the ability to control program change commands without having a sequencer is still a plus for the edit suite. The convenience of being able to start, stop and re-cue the sequencer from the MIDiiZER is also handy when doing initial music mixes.

The combination of serial machine control and SMPTE features makes this an affordable and elegant synchronization solution for the production studio. **REP**

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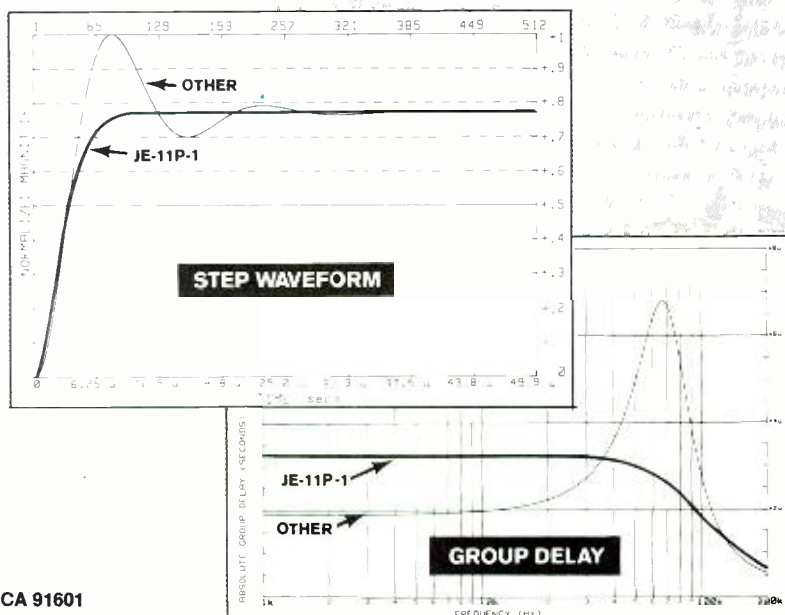
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LIVE & DIRECT

By David Scheirman

What's a Processor?

During January's Concert Sound Workshop in Orange, CA, hosted by Synergetic Audio Concepts, many topics of interest to sound system operators, designers and manufacturers were discussed. One topic that generated a great deal of response had to do with the electronic devices some manufacturers use to offer control and active signal processing of their respective loudspeaker systems.

A variety of opinions were offered as to what these devices should or should not do. When asked what a processor is, attendees gave a host of different opinions. Clearly, there is some confusion on the subject.

The drive unit that powers today's modern loudspeaker systems is being called upon to perform an increasing number of functions. More than just a crossover, many of these system controllers manipulate the input signal to make the controller an essential part of the crossover/speaker interface. Without the specified, matched system controller, the performance of the speaker system may not be optimum.

Electronic crossovers that also offer some degree of active signal processing (like signal delay for bandwidth time compensation, or equalization tailored to specific loudspeaker components) are called a variety of things by equipment manufacturers and sound system operators. Perhaps the most confusing term is processor.

Webster's dictionary defines "process" as a "method or operation." A processor means something different in every industry. In the audio industry, signal processing is a commonly used term with rather vague boundaries regarding specific types and pieces of equipment. It has crept into the audio lingo within the past 20 years or so. The index for the 1969 edition of Howard M. Tremaine's "Audio Cyclopedea" lists optical film processing and soundtrack negative processing solutions, but no signal processing.

A more recent reference manual ("The

David Scheirman is RE/P's live performance consulting editor and president of Concert Sound Consultants, Julian, CA.

Manufacturer	Product	Sales Literature Terminology
Apogee	A-2, -3, -4	Dual Channel Processor
Celestion	SRC-1	Electronic Controller
EAW	MX800 CCEP	Closely Coupled Electronic Processor
Electro-Voice	DMC-1122A	DeltaMax Electronic Speaker System Controller
Meyer	M-1, B2-A	Control Electronics Unit
PAS	MRS-1	System Processor
Renkus-Heinz	X-31, -22	Smart Processor

Table 1. Manufacturer terminology for system control devices.

Audio Dictionary," 1987, by Glenn D. White) defines signal processing as "the modification of an audio signal in a generally desirable way by any device inserted in the audio path...signal processing devices are reverberators, noise reduction units such as Dolby, dbx, etc., and equalizers."

Still another recent reference ("Audio Electronics Reference Book," 1989, edited by Ian Sinclair, in the sound reinforcement section written by Peter Mapp) states, "signal processing elements which are commonly found in sound system installations include de-essers, phase/frequency shifters, *electronic crossovers...with in-built equalization or delay facilities for loudspeaker alignment*, parametric equalizers and effects units such as digital reverberators, time delay/echo effects, and phasing and flanging, etc." [Italics added, —Ed.]

So, the custom-tailored electronic crossover is defined in the latter reference as a "signal processing element." That would appear to be a valid sound engineer term. The confusion in the pro audio industry, however, seems to have resulted from the marketing department application of the term processor to black-box electronic sound system crossover/controllers that perform a variety of functions.

When asked to provide definitions to the question "What is a processor?" Concert Sound Workshop attendees supplied a variety of interesting answers. One person defined it as a "crossover which varies transfer functions dependent on input, excluding those straight (traditional) crossovers with limiters." Another called it a "signal electronics box designed to be used with a specified loudspeaker system, which acts as a crossover, signal delay, EQ circuit and possibly includes loudspeaker component protection circuitry."

Another attendee stated, "I have seen a system drive rack for left/right main outputs in use that included parametric EQ with high- and low-pass filters, 4-way asymmetrical crossovers, peak and RMS band-pass limiters and offset signal delay correction, taking about 20 rack spaces. If I can take all of this gear, reduce it to three rack spaces, reduce the power draw and heat gain, and add the benefits of a common power supply and a star grounding system, there are some obvious packaging benefits, but does that make the thing a processor?"

A deeper definition, offered by Craig O'Donnell of Toa, pointed out that there are obviously two types of processors for pro sound reinforcement. First, devices that *deliberately* introduce dynamic or harmonic non-linearities, such as units from Aphex, BBE, etc. (creative devices under the direct control of the sound mixer).

Secondly, Craig noted the type of processor that "introduces cybernetic non-linearities, that is, responding to one or many inputs from the electroacoustical system environment, with time constraints below the integration time of the human ear...and those devices that would be a theoretical adaptive processor, which corrects system balance based on statistical averaging, or a time-sliced comparison of mixer output and calibrated mic input, or whatever."

This gets us closer to the heart of the issue. Does a speaker system "processor" offer linear control functions as manipulated by the sound system operator? Or does it offer "automatic" (cybernetic?) system control functions based on its own internal "programming," offering audio signal changes not directly and consciously dictated by the human operator? If so, what data input channels does it base its

internal decision on? Upon what type of sensed, real-time information is it basing its audio signal changes?

Some system controllers have "sensor" circuits that bring a line carrying signal from the output of the power amplifier back to special inputs on the control electronics unit. Correct polarity and channel assignment (low, high, etc.) is, of course, important. Control units like this from Meyer Sound Laboratories were often called processors until several years ago. However, company literature after about 1985 does not use the term.

"We don't like the term processor," says Mark Johnson, Meyer's director of technical marketing. "We call them Control Electronics Units. In the company's infancy, the word processor may have been used, but as a company position, we don't think that is the most appropriate use of the word. It conjures up vision or microprocessors or special effects devices."

The use of the term processor by a loudspeaker system manufacturer's marketing department can subliminally influence end-users to look at the system controller as a "mini-computer," an intelligent black box that will make everything turn out all right without human choice or supervision.

This word imagery does have an effect. As the director of a regional sound company that uses a commercially available, electronically controlled loudspeaker system stated, "Calling them processors does give us a sales edge. Our clients like to know that we have an advanced system. But I feel that there needs to be some clarification of this term. Some other units use 'sliding crossover points' or controversial compression and limiting circuits. Damage may be inflicted upon those of us who used processor-based systems due to confused terminology and misunderstanding about processors in the industry."

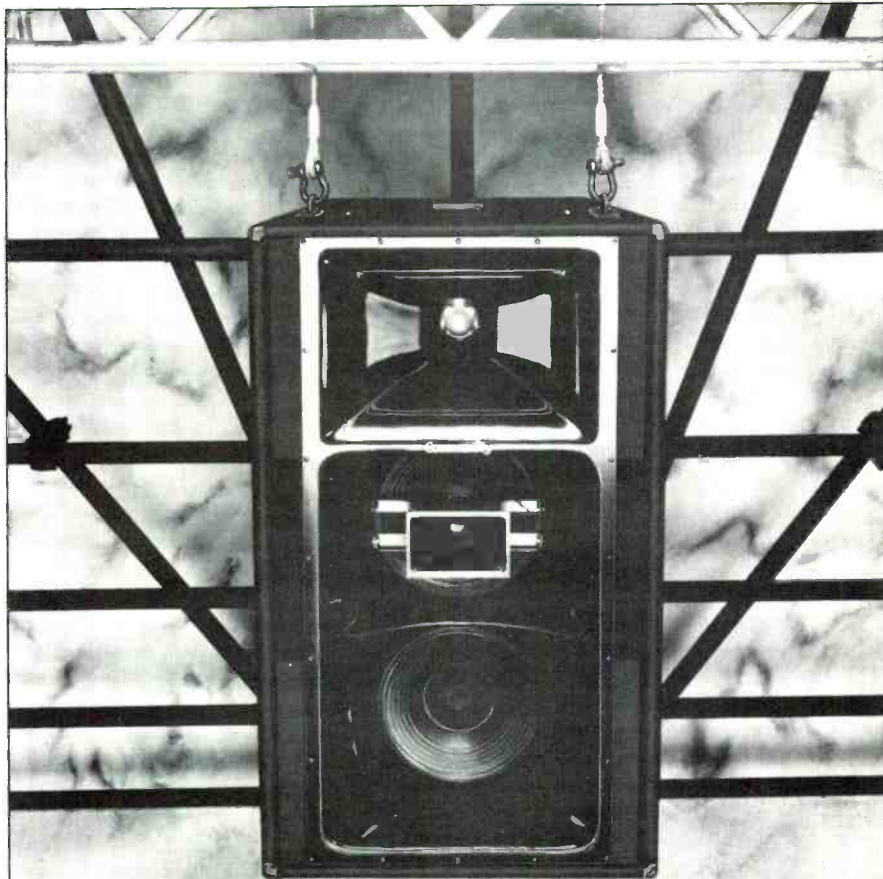
Well, are they processor-based systems? Even this term, borrowed from the computer industry, is a powerful word image. It implies that the sound system itself somehow has "intelligence," over and beyond what is found in more traditional systems that feature a more linear electrical transfer function of the audio signal from mixing console output to crossover input/outputs to the power amplifier inputs.

Table 1 shows what the system controller is called by some of the equipment manufacturers offering such devices. To judge from these examples, there is a nearly equal split between companies us-

ing the term processor for their electronic system controllers and companies that do not. Let's play with words for a moment. Are all system controllers processors? Are all signal processor controllers? You can see why confusion exists among end-users.

What do you think, readers? What's a processor? How many of you use a processor to control your sound reinforcement systems? Your comments are welcome; send them to Live & Direct, RE/P, Box 12901, Overland Park, KS 66212.

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April 1990 Recording Engineer/Producer • 55

SOUND FOR MULTI-VENUE FESTIVALS

By Tom Gartland

New Music America 1989 required systems for a wide range of performers at more than 23 separate venues.

The New Music America festival began in 1979 at the Kitchen, in its old 200-seat location on Broome Street in the Soho district of New York. It was a reaction to the "Uptown" academic music festivals that were dominant, and a confirmation of the "Downtown" community. Among the performers featured in the first festival were Steve Reich, Laurie Anderson, the Phillip Glass Ensemble, Glenn Branca, Rhys Chatham and Scott Johnson.

1989 saw the return of this traveling festival to New York. The host venue and the source of its design and planning was the Brooklyn Academy of Music (BAM). Performances occurred at BAM, the Kitchen, the club CBGB, public school PS122, and others, for a total number of 23 venues involved in the presentation of concerts from November 8-18.

Planning for NMA 1989 was accomplished in a multi-tiered fashion, starting of course, with listening to a multitude of recordings and reading a number of proposals from artists who wished to be part of the 10th Anniversary series. This largely fell upon the shoulders of Yale Evelev, the director of New Music America, and, for a time, Phillip Bither. This all started a good year and a half before the concerts were to take place.

Support staff for this multifaceted event came from both within BAM and outside. Doug Kolmar was administrator of NMA, as well as the coordinator of the radio project. A consortium of public radio stations,

including WNYC New York, WGBH Boston, WBGO Newark, National Public Radio and others, were involved in both live and recorded broadcasts from virtually all of the venue locations. Dave Glasser of Airshow was hired by the radio folks to coordinate the actual broadcast setups from a technical end.

I came in as technical coordinator, having known Yale Evelev from having worked with him as recording engineer for projects such as John Zorn's album of Enio Morricone compositions and Scott Johnson's "John Somebody" album. In June 1989, when I initially met with Evelev and others involved, things were already falling into place. Most artists were confirmed, and some had even sent in stage plots. Yamaha was contracted to be the musical instrument supplier, and at that point, its pro audio division was mulling over whether it could be the audio equipment supplier as well.

By the time I started my position in July, however, things had changed somewhat. Yamaha Pro Audio was out of the picture, as was the local sound reinforcement company that normally worked with BAM. So not only was a free PA unavailable, but a new source for everything had to be found, in addition to figuring out what the technical and staging needs of the more than 500 musicians involved were.

When I was initially interviewed for the Tech Czar (their term, not mine), Yale asked me if I foresaw any problems. My response was, "That's all the job is." The key, as I saw it, was to prevent as many problems from occurring, and dealing

with the ones that came up as quickly as possible. When I started, the problems were waiting. The budget made my jaw drop, it seemed so low.

The first thing was to figure out which sound vendors would realistically be able to do the job with the dollar figure that was being offered. Because the concerts were to take place in November, the heavy summer season would be over with. This gave everyone some assurance that a competent company would have a hole in their schedule to accommodate the time commitment BAM needed. Secondly, other manufacturers had to be contacted to see if any hardware could be donated.

I had met some folks from Amek when Greene Street Recording had its APC-1000 installed, so I decided the company would be my first choice. A series of letters, faxes and phone calls ensued, and AMEK did indeed donate the use of a number of consoles, enough for BAM and some of the other venues.

The Amek/TAC gear included one SR-9000 40x16, one Scorpion 40x8 (both for house mix), and two 40x12 and one 30x12 Scorpion monitor mixers. Additionally, six 10x4x2 and one 30x4x2 Bullets were donated.

Both EAW and Meyer were also contacted to see if the same sort of deal could be worked up, but this proved impossible as the number of speakers and monitors actually needed for the sound systems was huge.

Bid proposals were sent out to a number of sound reinforcement companies. As a matter of good faith, I had to tell them

Tom Gartland is an engineer and free-lance writer based in Elizabeth, NJ.

DATE: 11/8

VENUE: OPERA HOUSE

ARTIST: PHILIP GLASS

MIC INPUT	MIC & INSTRUMENT	MIC INPUT	MIC & INSTRUMENT	MIC INPUT	MIC & INSTRUMENT
1	DI JUNO 106 (DSR)	17		33	
2	DI DX-7 II (DSR)	18		34	
3	DI OB-8 L (CSR)	19		35	
4	DI OB-8 R (CSR)	20		36	
5	DI PROPHET V (DSL)	21	<<<<<PODIUM>>>>>	37	
6	SM-58 WIND 1 (USR)	22	<<<<<PODIUM>>>>>	38	
7	SM-58 WIND 2A (USC)	23		39	
8	SM-58 WIND 2B (USC)	24		40	
9	SM-58 WIND 3 (USL)	25			
10	SM-58 VOCAL	26			
11	SM-58 KEYS 3 VOC	27			
12		28			
13		29			
14		30			
15		31			
16		32			

REVISED

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Figure 1. Console assignments for the Philip Glass Ensemble.

what kind of budget figure we had to deal with. My hope was that these companies would be interested in being involved with a project like NMA, for more than just financial consideration. Sun Sound Audio, Northampton, MA, was chosen for the job.

Not a rock show

With the range of artists running from the World Sax Quartet with Senegalese Drummers to the Butthole Surfers (who appeared on the same bill), quite a lot of ground, both musically and technically, had to be covered. David Lynch, best known as the film director of "Blue Velvet" and "Eraserhead," performed a theatrical music piece entitled "Industrial Symphony No. 1." The same night, Lester Bowie's Brass Fantasy and Kip Hanrahan did compositions that involved theatrics as well, spread out over three different theaters at BAM. On other nights, a synth duet (Ingraham Marshall) shared the stage with a big band (Ed Wilkerson) and four guitarists, four singers and four percussionists (Fred Frith).

Many venues

Festival venues other than BAM varied in seating capacity and in-house equip-

ment. Generally, the smaller spaces that regularly presented music had systems of some sort, which were supplemented; other larger venues used systems specifically for the type of performance being staged.

For example, the Knitting Factory and Roulette have small systems, and stages to match. Both were thought to be a little short in terms of floor wedges, and subwoofers in Roulette's case. This equipment came from Sun Sound as part of the overall BAM package, as did a full system for PS122 (Performance Space, not Public School).

The Kitchen was a venue that normally would order whatever system was needed for an event. Given the amount of gear that could be supplied for the budget NMA had to work with, a full, medium-size system couldn't be provided, although a TAC Bullet was used.

There were various ways that I gauged equipment allocations. First, the amount of gear that Sun could realistically supply was important, both in terms of inventory and cost-effectiveness. Secondly, not all venues staged events for equal time periods, so equipment could move from one venue to another as long as there were no

overlaps. Thirdly, the individual venue's capability to pay for equipment rentals had to be taken into account — Symphony Space, with its 850-plus capacity, could more easily afford a rental than Roulette, with its 75-seat capacity.

Mark Frink of Sun Sound looked at all these factors with me, and we devised a schedule where equipment could be in place when needed and moved to the next space, which alleviated some fears he had expressed regarding the security of the equipment. I then had to work musical instruments into this picture, trying to eliminate as much double-handling as possible, while still ensuring that the timpani, for example, would be where it was supposed to be when someone raised a mallet.

Whenever it was impossible to supply equipment to a venue, Sun would get involved, at least in terms of suggesting a sub-contractor or another vendor, maintaining an affordable price. Impracticality, or the impracticality of doing a job, was never a high priority or reason for not doing something at this particular NMA festival: One load-out from PS122 actually took place at 4 a.m. so that the gear would be in place at the Museum of the Moving

NEW MUSIC AMERICA 1989--MONITOR FLOW

	OH	PH	MT	LPS	ATTIC	STUDIO	TOTAL
28 OCT					4		4
29 OCT					4		4
30 OCT					4		4
31 OCT					4		4
1 NOV					0		0
2 NOV					4		4
3 NOV					4		4
4 NOV							0
5 NOV							0
6 NOV					4	4	8
7 NOV					7	4	11
8 NOV	16	8		6	7	4	41
9 NOV	2	9	13			4	28
10 NOV	2	9	13		4	4	32
11 NOV		8				4	12
12 NOV		8			4	4	16
13 NOV		10				4	14
14 NOV		10		3	4	4	21
15 NOV					4	4	8
16 NOV				2	4	4	10
17 NOV	10	7	9		4	4	34
18 NOV	10	10	9	6			35

Figure 2. Monitor requirements for each day of the festival.

Image in time for rehearsal/sound check that morning. Overall, the priority was that the sound mattered. Whatever could be done to accomplish this was going to be done, sleep be damned.

Artistic and technical differences

In a festival such as New Music America, where the artists involved are usually not those often given the opportunity to play before large audiences, stylistic and technical differences must be overcome. In an artistic sense, these acts might be a little left of center. Such was the situation at the World.

During the first Saturday, three acts ranging from free jazz to obtuse country were to perform. Unfortunately, from the World's point of view, this was a little too weird for its regular Saturday night crowd, resulting in a not-too-subtle "request" that the acts play short sets and be done by midnight. This was not the case in most

of the other situations, where the opportunity to experience the unusual was welcomed and well-attended. At BAM, for example, attendance was more than 17,000 for the series run, more than 75% of capacity.

From an attendance standpoint, one of the high points was the David Byrne concert, where he and his 14-piece band performed the "Rei Momi" album. From a technical standpoint, however, this show was a bit maddening. Initial contact with Byrne's management was made months before the concert was to take place. Sound and staging weren't finalized until the band had already gone out to do the warmup leg of the tour. Rumors came in that it would be a self-contained show, from lights to sound, but this wasn't confirmed until days before the show.

David Lynch's Industrial Symphony No. 1 was being performed the night before Byrne's concert, so all of Lynch's equipment had to be loaded at the same time

Byrne had to be loaded in. Other than the fact that we weren't dealing in 25-hour days, Lynch's set consisted of mock oil derricks, water towers, a car, and baby dolls hanging from the pipes. All of this was complicated to assemble, and no picnic to break down.

Byrne's setup included four Meyer MSL-3s plus subwoofers per side, to mixing consoles and a full light rig. The only BAM equipment used was the flow cluster of UPA-1s, which of course had to be connected into Byrne's system. Even the band risers were used, as lighting and floor monitors were incorporated into them. The monitoring setup was particularly interesting, in that speakers were fitted into the riser from below each musician, rather than being standard floor wedges. This resulted in what appeared to be a heating duct rather than a standard space-consuming wedge. Considering the number of musicians involved, this was an interesting approach to a potential greater problem.

Live MIDI

For this show, it was evident that MIDI has made its way into the concert world in a big way. Numerous performers incorporated computers into their shows for sequencing. Merkin Hall had a computer music night, where the prerequisite for performing was the use of a computer, with musicians improvising what the computer played. Often, the synths onstage were first routed to an on-stage mixer manipulated by one of the musicians, with a stereo or group output fed to the house and monitors. Tape backup was also used, as both performers and technicians had experienced MIDI Hell — the dreaded computer crash. This happened only once during the show, but everyone was more secure knowing that rust and poly-plastic were waiting in the wings if it had to make an emergency appearance.

Conversely, the World Saxophone Quartet planned to play without any reinforcement. This ultimately proved not to be the case, but in terms of being recorded for broadcast, it presented an interesting throwback to the early days of recording. If someone took a solo and wanted to be heard, he played louder than the rest of the band.

Had it not been for the Senegalese drummers who performed with the WSO, ambience mics would have been all we had to work with. With the realization that a 6-foot-tall drum can get extremely loud, the saxophonists acquiesced and allowed themselves to be miked. The ambience mics were more than sufficient to carry the drummers, and still provided enough of the non-close miked feel for both the audience in the BAM Opera House and

NPR radio audience, while allowing for balances to be adjusted.

Opening night

The opening night gala proved to be the largest technical dilemma: In an hour and forty-five minutes, numerous introducers (Laurie Anderson, Bob Weir and Allen Ginsburg among them), and acts as wide-ranging as 1979 alums Phillip Glass Ensemble, Steve Reich and the Kronos Quartet, and rappers Brand Nubians, plus the return to New York of Moondog performing with members of the Brooklyn Philharmonic Orchestra all had to get on and off stage at their prescribed times, as it was all being broadcast live.

The largest act was Bob Telson and Little Village with Jevetta Steele, 12 pieces on a 12' x 32' platform. This was also eventually used by the Glass ensemble. There were two 12' x 12' platforms located stage left and right; all were castered so that they could move downstage center for the performance of whatever act happened to be on that riser. As one act performed, the other platforms were set up so that as the curtain dropped, one would move out and the other would follow in its place. We used a number of

stage sub-boxes and as many common mics for each act as was possible on any given platform.

At the house and monitor boards, we would ping-pong between the left and right sides of the board. Given a 2 1/2-minute changeover, it was the only way to go, especially considering the diversity of the acts. Both input lists for the individual acts and a composite for the entire evening were drawn up on computer with the final revisions happening at 5:40 the night before the gala was to take place.

The other situation that had to be dealt with was that party bands were appearing on the Opera House stage where the gala itself took place, as well as at three other theaters in the BAM building, at the conclusion of the gala performance.

Yamaha International kindly provided 11 bass guitar cabinets, 18 guitar amps, 20 synths and 12 drum kits. Scheduling how and when all of it would get from BAM to one of the other venues was a major project. Sun Sound gear was used to augment any non-BAM venue that needed it and the instruments would often travel together, with the occasional 4:00 a.m. load-out included.

The inventory used for this concert se-

ries would rival that of a stadium's, but broken down into numerous 2,000 seat and smaller venues. At the BAM Majestic Theater, eight EAW KF-850s in a flown center cluster, plus a pair of low-frequency SB-850s, all associated amps, crossovers, snakes, mics and monitors (wedges, sidefills and drum monitors). One entire system of eight more KF-850s, etc., went into the Playhouse. Four KF-850s and a like number of SB-850s, etc., were installed into the Lepercq Space. KF-300s were used with SB-125s at the rehearsal spaces set up at BAM, PS122, Roulette, and the Museum of the Moving Image. This all happened with a minimum of misplaced PSUs, mics and cables.

In all, there really were few mishaps or problems. Stage plots, mic input sheets and any other pertinent information went to as many people as would find the information useful, all sent out before the scheduled rehearsals for any given concert, with the understanding that, as a situation called for changes to be made, the mixers could do whatever they needed to get the show on.

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STUDIO UPDATE

Northeast

BMG Studios (New York), formerly RCA Studios, claims to be the largest, most fully equipped recording complex in the Northeast. Among equipment acquisitions is a Neve VR60 60-channel console with Flying Faders; other features of the studios include nine all-digital tape-mastering rooms, two digital mastering suites, and the only Soundstream digital editing system in the world. Susan Planer has been named general manager; Hank Meyer has been named studio manager. *1133 Avenue of the Americas, New York, NY 10036; 212-930-4051.*

Goin' Mobile (Boston) has updated its audio remote truck to 16 tracks and 32 inputs with a Tascam MS-16 recorder, Hill multimix console, a 16-channel transformer splitter and 200 feet of additional snake. *304 Newbury St., #110, Boston, MA 02115; 617-232-7969.*

The Toy Specialists (New York) recently added the following classic mics and outboard gear to its inventory: two Telefunken 251 tubes; Neumann U-48, U-47 and M-49C mics; Neve 2254A compressors; and Pultec EQP-1A parametric EQs. *333 W. 52nd St., New York, NY 10019; 212-333-2206; 800-445-3330.*

Southeast

On-Line Audio (Charleston, SC) is in full operation despite the effects of last fall's hurricane. According to owner/engineer Robert Graves, nothing irreplaceable was damaged. Also, Brian Gilbert has been named audio engineer/producer. *701 E. Bay St., Suite 436, Charleston, SC 29403; 803-724-3506.*

Midwest

Chicago Rehearsal Studios (Chicago) opened its doors on March 2. It offers three private rehearsal rooms, a 2,200-square-foot showcase/soundstage with video capabilities, and a 16-track recording studio. *2411 S. Prairies Ave., Chicago, IL 60616; 313-326-5554.*

Refrase Studios (Dayton, OH) has purchased a KABA cassette duplicating system. Duping is available from DAT, 1/2-inch, 1/4-inch, Beta HiFi or analog cassette

masters. A capacity of 3,000 tapes per week is expected. *2727 Gaylord Ave., Dayton, OH 45419; 513-298-2727.*

Southern California

Sunset Sound Recorders (Hollywood) has merged the GML Moving Fader automation system with a 56-input custom console in its Studio 1. Also, an extensive assortment of outboard signal processing gear has been rack-mounted in the control room directly behind the mixer position. A similar assortment has been mounted in Studio 2, which features a 64-fader GML automation system integrated with an AMEK APC-1000 console. *6650 Sunset Blvd., Hollywood, CA 90028; 213-469-1186.*

Soundworks West (West Hollywood), purchased by Alan Ramer and Robert Diez d'aux from the Gordy Company last August, has announced that, after extensive renovation, both its studios (A and B) are in full operation. Studio A features a Neve VR-P-72 console with Flying Faders. Studio B, redesigned to be an 1,100-square-foot full-service video dubbing stage, is certified as an official THX sound system. *7317 Romaine St., West Hollywood, CA 90046.*

Northern California

Hyde Street Studios (San Francisco) has added Studio B to its facility. This 64-track computer-aided keyboard/MIDI production room features audio, video and MIDI tie-lines to the main room, Studio D. This enables 28 tracks of audio to be patched directly to a mix or onto 2-inch tape.

Also, Susie Foot has been hired as booking manager. *245 Hyde St., San Francisco, CA 94102; 415-441-8934.*

Green Street Music and Sound (San Francisco) is a new creative music service that offers music composition, jingles, scoring and sound design. *69 Green St., San Francisco, CA 94111; 415-421-0302.*

Hawaii

Lahaina Sound Recording Studio (Maui) has added the following to its facility's inventory: a Lexicon 480-L digital effects system with LARC; a TC Electronics TC 2290 delay sampler; a Yamaha SPX 1000 pro-multi-effects; a Digitech DSP 256

multi-FX; two Lexicon PCM 42 delay lines; two Lang PEQ-2 program EQs; a Yamaha C-300 pro-cassette recorder; and a Sony PCM 2500 pro-DAT recorder. Other additions include two JBL Control 5s; B&W DM 100s; and Yamaha NS 10M studios. *840 Wainee St., H-2, Lahaina, Maui, HI 808-667-2587.*

Canada

Shag Sound Studio (Toronto) has added an AKG 414 mic, an Alesis Quadraverb and cue amp, and a Lexicon LXP-1 and MRC to its inventory. The studio has moved to a new address: *16 Nashville Ave., Toronto, Ontario, CANADA; 416-652-5485.*

United Kingdom

CTS Studios (Wembley, Middlesex) has announced the completion of the acoustic and aesthetic redesign of Studio 2 in London by Recording Architecture. The redesign involved the implementation of Recording Architecture's Black Box acoustic conditioning system; the installation of ATC SCM 200A monitors; the overhaul of the studio's Neve desk; the fitting of all racks with light oak cabinets; and the redecoration of the entire studio. *CTS Studios, Engineers Way, Wembley, Middlesex HA9 0DR, UNITED KINGDOM; 01-903-4611.*

Manufacturer and dealer announcements

Solid State Logic has installed its digital audio-for-video/film production center, ScreenSound, in SoundCastle/Post Modern (Los Angeles) and Soundtrack Recording Studios (New York). These facilities are the first in the United States to install ScreenSound. Also, the SSL Canadian office in Toronto has reported recent sales of SL 4000 consoles to Le Tube (Montreal) and Winfield Sound Studios (Toronto).

The following studios have installed **Sony** equipment: Custom Mastering (Nashville) has purchased the first U.S.-installed SDP-1000 digital audio effector; Soundworks West (Los Angeles) has added two PCM-3348 48-track Dash recorders to complement its existing PCM-3324; and Lorimar Studios (Hollywood) has installed three APR024 analog multitrack recorders as part of its multimillion dollar facility upgrade.

REP

THE CUTTING EDGE

By Laurel Cash Jones

Notes From The Consumer Front

Normally, this column is reserved for what is happening in the professional audio business. This month I am going to discuss consumer products and their effect on the professional audio environment. I attend the Consumer Electronics Show in Las Vegas every January, which gives me an opportunity to look at all of the new toys that will fill our homes in the coming years. At this year's show, however, an interesting observation occurred to me.

Not too many years ago, most of the innovations in audio technology were brought about by either the maintenance and engineering staff of a studio, or by some technical genius who was kept in the back room of some large company. These developments in technology were then passed along, perhaps years later, to the consumer audio world.

This is no longer the case. I was amazed to discover that for the last several years the latest innovations in sound processing technology have happened in the consumer audio business and were then passed along to the professional world.

You don't believe me? Here are two: the compact disc and digital audio tape. Doesn't just about every radio station in the world brag about "all compact disc"? And some even use DAT on the air to play commercials instead of using NAB carts. And haven't you used a consumer DAT deck to mix something with?

Now more than ever, it is possible that the average consumer can actually reproduce sound better in his living room than we in the professional audio business can produce it. Some interesting questions come to mind: How many engineers have any idea what is on the market and available to the average person in his home? Do they have any idea how those products can affect the recording process?

With this in mind, here are a few of the items I came across at this latest show, and

perhaps will get you to thinking about how you may have to approach a recording project in the 1990s.

Compact disc: Of course, the oversampling wars continued, as 8x and 32x appeared from every manufacturer imaginable. However, they were tempered a bit by the introduction of MASH technology, developed by NTT of Japan. It is being marketed by Technics in its new CD players and DAT recorders. MASH stands for Multi-Stage Noise Shaping. (I don't get it either.)

Aside from the usual introductions of the latest-and-greatest, there were two unusual CD-related products. The first, and most unique, is Optical Impedance Matching Fluid from Finyl. The company claims that if you use this product it will "improve dynamics and transient response, bass articulation, low-level detail, timbral accuracy, image specificity and depth, and will decrease harshness and noise." Wow.

Another interesting product was the Custom Computing No Touch 300. It is a 300-disc CD home jukebox. I can't show you the picture that they use to promote this product, but let me assure you it is something to behold. To quote the company's slogan, "if you can afford 300 CDs, you can't afford NOT to have the NT-300."

Home recording and DAT: DAT has arrived. Technics will start shipping its home DAT deck in June, with a projected price of \$1,200 or \$1,300. It will be equipped with the SCMS system. All of the manufacturers showing DAT stated that their DAT decks will also be SCMS-equipped. One item of note is the Aiwa portable DAT deck, which is so small it can be held in the palm of your hand. Could this be the beginning of the DATman?

There is more to the home taping controversy than having a recording studio in your home. Pioneer introduced the CT-M6R cassette deck. Not only is it a 6-cassette changer, but it'll also synchronize with your CD player to dub your discs automatically while you sleep. The latest in cassette tape is the introduction of 100-minute cassettes, said to be just "perfect for taping CDs." In home video, Go-Video will finally bring its dual-deck VHS VCR to market this summer. It is said to make higher-quality copies than two regular VHS decks connected, because of the internal processing of the video signal.

Surround Sound and signal processing: Sony introduced the Digital Signal Processing system, which allows the listener to

change the acoustical environment so that the listener can change the ambience, EQ and amount of reverb that you spent uncountable hours creating. It was very popular with the crowd. Dolby Surround Pro-Logic decoders were everywhere. Count on this product to be at the heart of every new high-end audio/video home system. Yamaha introduced several versions of these decoders with and without amplifiers. Yamaha also included signal processing and room simulation that reminded me very much of an SPX-90.

Laserdisc: Quite simply, this product has arrived. Now that companies have added the capability to the laserdisc for digital audio, and the ability to play CDs and laserdiscs in one combined player, watch for this item to be the centerpiece of most audio/video systems during the 1990s. Start thinking about this device when you mix your next album. Or movie.

Auto sound: This category had some interesting things going on. CD was everywhere. Auto DAT players made an appearance. My personal award for the most impressive car stereo was the Audia 8100 from Clarion. It combines a stereo DAT player, an AM/FM stereo receiver with presets, and a CD 6- or 12-disc changer. There were lots of signal processing devices for the car, too numerous and humorous to mention.

However, it seems that manufacturers think that the consumer wants to adjust the stereo's sounds with equalizers and other items while driving down the freeway. While talking on their car phones.

Architectural audio: This is a strange category, but it is worth mentioning. At this show, there were many speaker manufacturers showing in-the-wall-mounted speakers and stereo systems, along with wireless speakers. According to many people at the various booths I visited, this product category is becoming important to the interior design business. It seems that a lot of the baby boomers want good sound, but don't want to look at an "unpleasant-looking" speaker or stereo system. Unfortunately, it seems that the audio impact of this system does not live up to its visual impact.

I hope that this has started you thinking about the future of audio and the role consumer products have in shaping the product you produce. If you are interested, the CES alternates between Las Vegas in January and Chicago in June. The Chicago dates are June 2-5.

REP

Laurel Cash Jones is RE/P's executive consultant and a Los Angeles-based free-lance writer.

NEW PRODUCTS

JBL Control 1 Plus

This addition to the Control Series loudspeakers measures approximately 9"×6" and offers wider bandwidth, deeper bass and higher sensitivity than its predecessor. Better bass extension is a result of a more powerful 5 1/2-inch woofer; a larger magnet assembly and new cone material produce solid bass output to 60Hz; and a pure titanium diaphragm tweeter adds smooth, accurate high-frequency reproduction. Control 1 Plus systems are designed as matched left/right mirror-imaged pairs, and they accept all the same accessories for wall, ceiling, desktop and mic mounting as the Control 1.

Circle (100) on Rapid Facts Card

Genelec 1019A monitoring system

This compact 2-way monitor system includes drivers, amplifiers and an active crossover. Designed for locations where sound quality and compact size is essential, the 1019A is 12"×8 7/8"×9 5/8" and it provides a frequency range of 60Hz to 20kHz and 100dB SPL.

Circle (101) on Rapid Facts Card

Genelec 1034A control room monitor

The 1034A integrated system, designed for neutral audio reproduction at high SPL in large control rooms, consists of two 10.6-cubic-foot speaker enclosures and a 19-inch rack-mounted electronics system with crossover, three dual-channel power amps and a dual-channel audio processing unit. The system can be flush-mounted or used as a free-standing speaker with built-in radiation space control. Frequency range is 35Hz to 22kHz; maximum SPL is 125dB.

Circle (102) on Rapid Facts Card

Samson Super TD

The Super TD wireless system, which replaces Samson's Concert TD, uses powered FM antennas to increase effective transmission range in crowded RF environments by more than 25%. The Super TD receiver features a cavity-tuned design with twice the sensitivity of the Concert TD receiver. Also included is a dual power supply that provides four times the headroom before clipping as the Concert TD. A glass PC board eliminates inter-circuit leakage caused by paper-based PC boards. All internal stages are decoupled with inductors to reduce RF from entering the audio path and producing

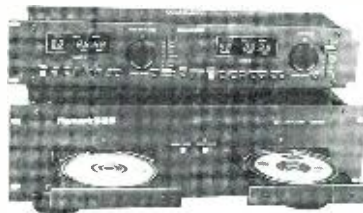
residual noise. A belt-pack transmitter, the TX-3, also is available. The Super TD wireless is available in 14 compatible frequencies.

Circle (106) on Rapid Facts Card

Numark CD6020

The CD6020 dual-drive CD player allows users to load two CDs and mix from one disc to the other — manually or automatically — with the push of a button. The player consists of a transport module and a control unit. Both are rack-mountable. The CD6020 features Beat Sync and Integrate functions, transport control and CD decoding circuitry, and a Memory function.

Circle (116) on Rapid Facts Card



TAC Magnum

The Magnum 24-bus in-line recording console from Total Audio Concepts features 4-band EQ, which can be split for simultaneous operation on channel and monitor signal paths; in-place solo with solo/Pfl operation controlled by Master Status switching; discrete tape monitor input trim; fader reverse; eight discrete aux sends; a new FET muting system; 30 segment and peak hold LED metering above each channel; and optional MIDI muting and fader automation systems.

Circle (107) on Rapid Facts Card

Roland S-770 digital sampler

The S-770 features 16-bit linear data sampling format and 48kHz, 44.1kHz, 24kHz and 22.05kHz sampling rates. Sample data is modified with 24-bit processing and a 20-bit digital-to-analog converter, which provides sound resolution comparable to the highest quality digital multitrack recorders, CD players and DAT machines, according to the company. Standard memory is 2Mbytes of RAM that is expandable to 16Mbytes with the optional RAS-770 memory board and DMS-770 memory modules. Other features are a 40Mbyte hard drive, a 1Mbyte (DD)/2Mbyte (HD) floppy disk drive, a SCSI interface, 24-voice

polyphony and a 64×240 dot LCD with user-friendly operation menus.

Circle (108) on Rapid Facts Card

Denecke Dcode Syncbox

The Dcode Syncbox time code generator works with the TS-1 Time Code Slate to provide freedom from cables. It generates time code from all common formats and can be jam set from an external time code source, or internally set and used as a stand-alone generator. The unit is small, lightweight and battery-operated. Introductory price is \$395.

Circle (110) on Rapid Facts Card

Rane Flex Series signal processors

The FPS 28 program splitter and FLM 82 line mixer are new additions to Rane's Flex Series modular signal processors. The FPS 28 allows two mic or line level inputs to be split to eight mono or four stereo outputs via independent level controls. These outputs can then be assigned pre- or post-master input level control. The FLM 82 provides eight mono or four stereo line inputs, each with separate level control and pre/post assignable aux send control for effects processing or another independent mix. This unit also features master level controls, aux loops and the Flex bus system for single-cable connection to any bus-equipped modules.

Circle (111) on Rapid Facts Card

J.L. Cooper SyncMaster

SyncMaster, a Macintosh-compatible interface and synchronizer, features a dual-port design with two MIDI inputs and six MIDI outputs. The unit includes a full-featured SMPTE reader/generator, printer and modem thru connectors, and a desk accessory that controls frame rate and start time controls. SyncMaster supports flywheeling, jam sync and reshaping of SMPTE code. Free Run and Stripe buttons allow the unit to be used as a synchronizer even without the Macintosh connected. List price is \$349.

Circle (112) on Rapid Facts Card

Tascam M-3500 console

This 24-channel console, also available in a 32-channel configuration, features an in-line distributed monitor section with linear fader, mute and access to four aux sends. A Flip function employed at mix-down allows additional inputs to be routed through the monitor mix. This doubles

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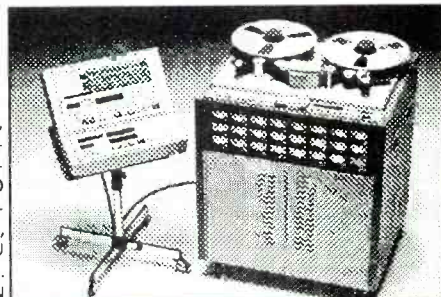
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the total input capacity of the unit. Every input has a linear fader that includes a mute with LED indicator, a pan pot and access to two effect sends. Half of the M-3500 inputs can be routed through the on-board, 4-band EQ section of each channel, which includes midrange sweeps and a high-pass filter. The M-3500 also features six aux sends to accommodate more effects and cue mixes, four effects returns with linear faders and assignment switches, and a Solo function, which acts as a mono pre-fade listen. List price for the 24-channel is \$7,499; for the 32-channel, \$8,499.

Circle (115) on Rapid Facts Card

E-V N/DYM N/D857

Available from Electro-Voice, the N/DYM N/D857 microphone is a combination of the N/D757A and N/D457A with the addition of an acoustical path corrector, which provides increased sensitivity and an extremely uniform polar pattern throughout the vocal frequency range. This gives the mic a tight, supercardioid polar pattern with excellent off-axis rejection and increased gain-before-feedback, allowing high monitor levels. The mic features a double shock-mounted suspension system and switchable bass roll-off.

Circle (118) on Rapid Facts Card

Toa CX-124, CX-164

The Professional Music & Entertainment Division of Toa Electronics has introduced the CX-124 (12x4) and CX-164 (16x4) mixing consoles. Both consoles include nine mix buses, including four group sends, stereo left and right buses; and three independent aux sends, including one pre-fader, one pre-EQ and one switchable. Each channel features 100mm sliders, 3-band EQ, selectable phantom power to XLR inputs, an accessory loop, pan, and an input level pad with trim and pre-peak LED. List prices are \$2,799 for the CX-124, and \$3,299 for the CX-164.

Circle (120) on Rapid Facts Card

Celestion Model 3 speaker

The Model 3 Near Field monitor features a frequency response of 75Hz to 20kHz, -3dB. Each speaker is designed to accept amplifier output that is rated between 10W and 60W per channel, and the monitor's 2-way design features a 2-piece titanium dome, 1-inch tweeter. The tweeter is matched to a 5-inch felted-fiber cone mid/bass driver, which is mounted in a

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Galaxy Audio I/O mixing consoles

I/O mixing consoles include 4- to 24-input channels in 4-channel increments, and 4-channel modules can be added with a factory upgrade. The 4- and 8-channel models are available as rack units; all units are available as tabletop units with oak end panels. Eight balanced outputs make eight separate mixes available for multiple foldback, multiple coverage zones in sound reinforcements, or tape-deck input in recording environments. Effects and signal processing can be added by means of the patch in/out jacks located at every input channel and subgroup.

Circle (125) on Rapid Facts Card

Hill Audio Omnimix

The Omnimix mixing console, in 19-inch rack format, features 12 mono inputs, each with mic, line and tape facilities, 48V

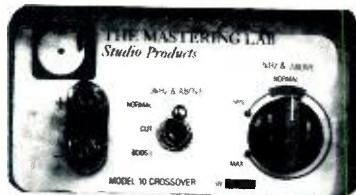
phantom powering, pad, 3-band EQ, 4 aux sends, full routing to eight groups and direct to mix, muting, pan and pfl facilities, peak level indication and 100mm Alps fader. Other features include four stereo inputs, four stereo subgroups, eight aux returns, and a master section with aux master sends, headphone socket and level control, LED metering, control room monitor level control and source selection, 2-track return facilities and stereo master 100mm Alps fader with balance control.

Circle (127) on Rapid Facts Card

The Mastering Lab Model 10

The Model 10 is a retro-fit, high-resolution crossover for the Tannoy SGM-10B speaker. Infinitely variable balance control allows precise matching for monitoring requirements. Ideal for Near Field monitoring, the Model 10 is designed for internal cabinet installation. List price is \$650 a pair; installation is included.

Circle (117) on Rapid Facts Card



JBL power amps

JBL's new SR Series, consisting of the SR6615 (150W), SR6630 (300W) and SR6650 (500W) power amps, applies UREI's low-feedback, low-distortion design philosophy for high-quality sound. Available in a forced air-cooled 2-rack space packages, the series features protective circuit breakers and an ultra-lightweight power supply design.

Circle (137) on Rapid Facts Card

Alesis MIDIVERB III

The MIDIVERB III is a programmable 16-bit stereo 15kHz simultaneous digital effects processor capable of generating four effects at the same time. These effects include 20 reverb algorithms, up to 490ms of delay in 1ms increments, six kinds of chorus and six of flanging. The EQ section consists of two 6dB per octave low-pass filters designed to roll off the high-frequency response of both the input signal and effected signal. The EQ range is

160Hz to 13.8kHz. A user-friendly interface allows easy personalization of the 100 factory presets and the 100 additional memory slots.

Circle (138) on Rapid Facts Card

Shure L2 handheld transmitter

The L2 handheld transmitter, the latest in the L Series line of wireless mic products from Shure Brothers, is available in three versions. Model L2/58 features the Shure SM58 dynamic microphone element. Model L2/96 incorporates the condenser element used in Shure's SM96 vocal condenser mic. Model L2/Beta 58 features the Beta 58 element and is available exclusively from authorized Shure Beta dealers. Transmitter heads are easily interchangeable; any of the three elements can be used with the same L2 transmitter. Also featured is a new, highly efficient, internal loop antenna design. According to Shure, the mic's antenna is virtually unaffected by hand position.

Circle (139) on Rapid Facts Card

Aphex Expressor

The Expressor is a single-channel compressor/limiter with standard features including adjustable input, threshold, attack, release, output, ratio, hard or soft knee compression, link and slave. Special features include adjustable High-Frequency Expansion (patent pending) to counteract the dulling effect of high-compression ratios, and the Spectral Phase Refractor (SPR), first introduced on the Aural Exciter Type III. A high-quality signal path is achieved with servo-balanced input and output and the Aphex VCA 1001. Retail price of the Expressor Model 651 is \$495.

Circle (140) on Rapid Facts Card

E-V N/DYM Series II

The N/DYM Series II line of dynamic microphones features a vibration-isolation system with DynaDamp, a low-Q elastomeric material with extremely high energy absorptive properties, which results in a reduced handling noise, cable-transmission noise, and clicks and thumps. Other features include a soft Warm-Grip handle and protective rubber bumper around the Memraflex grille screen. A specially molded retainer ensures optimum placement of the Acoustifoam pop filter, in relation to the mic element, for maximum rejection of both wind noise and vocal P-pops.

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NEW PRODUCTS

Hardware and software updates

Soundcraft automation update for 6000 console

Soundcraft now offers a dedicated fader and mute automation system for the Series 6000 recording console. Dynamic fader movement and mute flash solo are recorded and played back with 1/4-frame SMPTE resolution. The system offers up to 64 channels of audio control; and the incorporation of real-time noise gates and full VU meter displays on every channel gives unparalleled operational control, according to Soundcraft. Other features include a comprehensive noise gate, gate event recording, 16 software groups, 32 snapshot memories, a multigroup cue list, 16 fader jobs, VCA editing, eight audio triggers, help windows and mix processing.

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JBL Concert Series updated versions

Upgraded versions of the Concert Series line of sound reinforcement loudspeaker systems feature the combination of Vent-ed Gap cooling low-frequency transducers and the 2450J compression driver, which significantly reduces overall system weights. Models 4802A and 4805A incorporate this combination coupled to a new 2396 diffraction horn. The wide 160° horizontal pattern of the 2396 provides freedom of movement on large stages. The 4802A is a high-power, 2-way monitor system that employs two 2206H VGC 12-inch low-frequency transducers. The 4805A, also a 2-way system, contains a single 2226H VGC 15-inch transducer.

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Digital Dynamics ProDisk software

Cue List software for the ProDisk-464 line of digital audio recording and editing systems is now available from Digital Dynam-

ics. The software adds a new dimension when editing sound for picture, enabling cue recording, editing and Edit Decision List (EDL) manipulation. With the Cue List, an editor can take a series of cues and place them into an EDL; later, the EDL can be edited, with cues rearranged, repositioned and re-edited.

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Bryston 20-year warranty

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Neve, Inc.	11	9	203/774-6230
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Polyline Corp.	25	14	708/298-5300
Pro Audio Asia '90	66	28	
QSC Audio Products	21	13	714/645-2540
Rack Attack	70	43	818/998-1024
Radian Audio Engineering, Inc.	31	17	714/961-1213
Rane Corp.	27	16	206/355-6000
Sam Ash Professional	63	29	212/719-2640
Solid Sound, Inc.	71	45	800/365-0669
Sony Pro Audio	23		800/635-SONY
Standard Tape Laboratory Inc.	71	46	415/786-3546
Studer Revox/America	IFC	1	615/254-5651
T.C. Electronics A/S	49	32	
Tannoy North America, Inc.	33	18	519/745-1158
Tascam Division/Teac Corp.	4-5	6	213/726-0303
Trident USA, Inc.	3	5	213/533-8900
Turtle Beach Software	59	20	717/757-2348

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How To Get The Perfect Mix.

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MAGI II memorizes fader, mute and other real time events. These events can be performed in as many passes as you wish, or you can work on the mix one section at a time, or even one track at a time. MAGI II can be used to automate effects sends and sub-groups as well as controlling your outboard effects processors. The MAGI II allows



MAGI II External System

a very complicated mix to be quickly constructed, edited, and refined in real time or off-line with absolute accuracy. In addition, these mixes can be saved to disk for future use.

Fast, Intuitive & Transparent!

Every aspect of MAGI II has been designed for the working engineer. MAGI II features a straight ahead user-interface incorporating clean, uncluttered moving fader graphics that make it extremely easy to learn and use. Even a "guest engineer" can be up and running in 15 minutes!

MAGI II and MAGI Ili Features:

Both the MAGI II and MAGI Ili feature high quality dbx VCA's for audio transparency. The MAGI II Controller reads and generates all SMPTE formats. The powerful software program runs on either a Macintosh or Atari computer.

Mixes may be performed and edited in real time, or off-line with MAGI II's powerful cue list. Cut, Copy, Paste, Merge, Undo, Redo, and other precise numeric edit decisions are fully supported. Our MIDI Event Generator allows the recording and triggering of all types of MIDI events. Film and Video composers can take advantage of our hit list to spot cues in real time. No other automation system gives you this flexibility!

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MAGI is being used in a number of applications from

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J.L. Cooper Electronics and its Authorized Dealers are confident that once you own MAGI II, you'll never go back to manual mixing again. So confident that we're putting our money where our mouth is. For a limited time, our participating dealers are offering a money back guarantee*. If you're not totally satisfied within 30 days, return the system and they'll refund your money.

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