Reviews: Passport Encore, Big Noise Software Cadenza, Roland GP-16, Plus 5 More

Electronic Musician

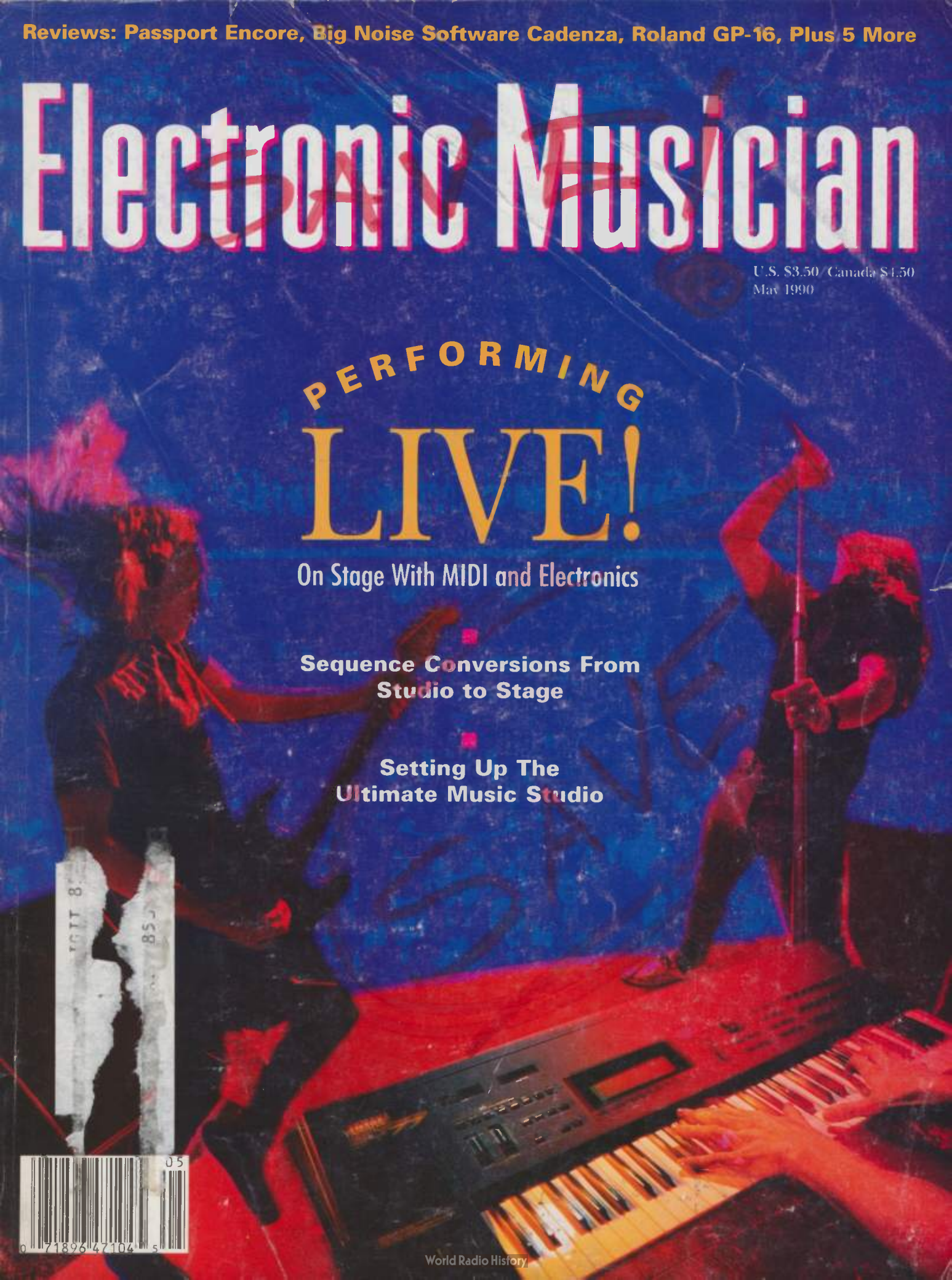
U.S. $3.50 / Canada $4.50
May 1990

PERFORMING LIVE!

On Stage With MIDI and Electronics

Sequence Conversions From Studio to Stage

Setting Up The Ultimate Music Studio



Introducing the music production studio without walls.

The Korg T Series Music Workstation Plus.

The T Series Music Workstations open the door to new frontiers in music-making. With more sounds and features than any instruments of their kind in the world. They bring all the resources of a fully equipped MIDI studio into a single keyboard.

Each of the T Series workstations begins with an inexhaustible 8 megabytes of sounds. All with the same 16 bit quality and the same AI Synthesis technology used in our world-renowned M1. Then we added a new sound bank of acoustic instruments (including drums and percussion), synth waveforms, attack transients and more. Independently programmable stereo multi-effects make previous workstation technology obsolete.

The T Series has 56,000 notes of sequencing power, both PCM and program card slots, and internal disk drives for program, combination, sequence and MIDI data. The T1's 1 megabyte of RAM memory (optional on T2 and T3) allows you to load and play back samples from disk or MIDI. And the new large graphics LCD can serve as your only monitor.

But the T Series are much more than powerful keyboards. They may also be the most sophisticated MIDI master controllers available today. With innovative control functions that will change your expectations about what your main keyboard should do. In fact, the only feature these keyboards don't come with is a room to put them in.

So try one out at your local Korg dealer. And prepare to be floored.

The T1 – 88-keys, weighted action
The T2 – 76-keys, unweighted
The T3 – 61-keys, unweighted

KORG®
T SERIES
MUSIC POWER

For a free catalog of Korg products, send your name and address, plus $1.00 for postage and handling, to: Korg USA, 89 Frost St., Westbury, NY 11590

Enter the Korg M1 "Super Sequence" Competition

Win great prizes with the world's greatest workstation.

Let's face it. The M1 has set the global popularity standard for music workstations. Every day, leading artists use its incredible music-making power to create recordings, soundtracks and commercials heard 'round the world.

We know you're creating great music with your M1 too. And we'd like to hear it. If you think you've come up with a Super Sequence on a Korg M1, M1R or T-Series workstation, send it to us.

How to enter. There's nothing to buy, no entry fee. Just send us a cassette (cassettes will not be returned) with your best sequence. It should be under three minutes and performed entirely on the M1, M1R or a T-Series workstation. All entries must be original and not previously published. Send as many entries as you want, only one entry per coupon.

Five finalists will be chosen. If you're one, we'll notify you and send you a blank MCR03 RAM card or T-Series disk. Load your sequence onto it and return the MCR03 or disk to us with some details about yourself and how you created your sequence. If you used one of the many program cards or PCM and program card sets available for these workstations, please let us know.

Entries will be judged on the basis of several criteria: musicality, composition, creativity, orchestration and synthesis technique. Judging will be by a panel consisting of leading Korg artists and members of Korg's International Voicing Team.

The dates. All entries must be received no later than May 15, 1990. Finalists will be selected on June 1st and the Grand prize winner will be chosen on July 1st. An entry coupon and more details are available at your Korg dealer. Enter today and win with the M1.

Here's all the great stuff you can win!

Grand Prize (approx. retail value $10,000): A Panasonic SV-255 portable digital audio tape recorder, DDA S-Standard 8 x 4 x 2 mixing console and Celestion SR3 keyboard monitors and controller.

Second Prize (approx. retail value $3500): A Korg M3R synthesis module, Korg A3 multi-effects processor, Celestion SR Compact monitors and two beyerdynamic M 69 mics.

Third Prize (approx. retail value $1700): A Korg S3 rhythm workstation, beyerdynamic DT 990 Pro headphones and Celestion Model 3 studio monitors.

And that's not all!

We'll also do our best to let the world hear your masterpiece. A special story and technical report on the final selections will appear in an upcoming issue of Korg *Patches*. The winning sequence will also be reproduced on a sound sheet for *Keyboard* magazine and Korg *Patches*. All finalists will receive Korg M1 tour jackets.

KORG®

MUSIC POWER

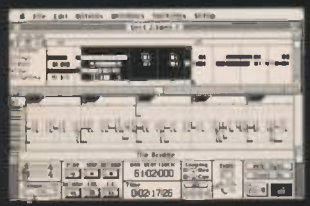
Korg USA, 89 Frost St., Westbury, NY 11590

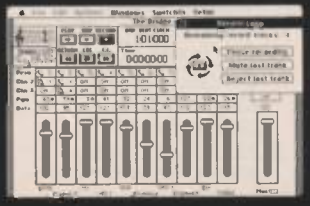
*Contest subject to applicable federal, state and local regulations and restrictions. Void where prohibited by law. Full information available at participating Korg dealers.

BEYOND™

FOR THE APPLE MACINTOSH

We could have used a million cute phrases to describe our powerful new Macintosh sequencer, BEYOND. Instead, we decided to let the specs speak for themselves: complete graphic user interface; scrolling realtime piano-roll note editing; graphic controller and tempo editing; 4 programmable looping cue points with gapless recording; smart instrument setups; layer multiple MIDI channels to each instrument; support for 32 MIDI channels; 480 PPQ resolution; MIDI Time Code support; transpose, reverse, harmonize, and invert based on scales; "human" quantize; supports standard MIDI Files; controller shaping; markers; SMPTE display on edit screens; color; multi-track overview; graphic song display in block-like "Sections" with up to 99 tracks per Section; 32 programmable onscreen graphic sliders; not copy protected; and a manual by EM editor Craig Anderton. And if that's not enough, the list price of BEYOND is not beyond you — it's only $319!





Dr.T's
MUSIC SOFTWARE

220 BOYLSTON ST.
CHESTNUT HILL, MA
(617) 244-6954

BEYOND is a trademark of Dr. T's Music Software and Macintosh is a registered trademark of Apple Computer.

Electronic Musician

AN ACT III P[illegible]ON
MAY 1990 VOL. 6, NO. 5

page 28

performing live

features

page 76

reviews

departments

Cover: Photograph by Michael Llewellyn. Special thanks to Bananas at Large for the Peavey floor monitors and to Relativity recording artists Andy Andersen and Ron Shipes from Attitude.

Electronic Musician® is published at 6400 Hollis St. #12, Emeryville, CA 94608, and is ©1990 by NBB Acquisitions, Inc. This is Volume 6, Number 5, May 1990. **Electronic Musician** (ISSN: 0884-4720) is published monthly. Second Class postage paid at Oakland, CA, and additional mailing offices.

The Changing Stage

New faces and new titles are taking center stage in this month's issue.

C R KING

Taking on a new job is exciting. There's nothing quite like the thrill of walking into a new place, brimming with new ideas, and after meeting the people with whom you'll be working, proceeding to put your ideas into action. In certain ways, it's similar to playing a live gig. Ideally, in both cases, you have a group of people waiting to see (and hear) you perform, and the task of fulfilling their expectations and satisfying your own standards is entirely up to you, your skills, tools, and knowledge of those tools. The better prepared you are, the more likely it is that you'll win the welcome of co-workers or the adulations of the crowd.

This month's issue is dedicated to providing you with the information you need to be well prepared to use electronic gear on gigs of any sort, from stadiums to local clubs to private parties. You'll find tips on using MIDI and signal processing gear live, as well as information on stage monitors and AC power problems you need to be aware of when performing in unfamiliar venues.

This issue also marks some exciting job changes at EM. First of all, I'm very pleased to announce that the associate editor position for which we advertised in the February issue is being filled by industry veteran Gary Hall. Gary comes to us from Auris Corporation, a Chicago area startup company working on 3-D audio imaging processors. Prior to that, he was with Lexicon, where he was instrumental in the development of the LXP-1 and LXP-5 signal processors and the MIDI Remote Controller (MRC). Gary wrote and edited technical documentation and users' manuals at Lexicon and acted as a liaison between the engineering and marketing departments. His background is bound to make him an invaluable addition to the magazine. Welcome aboard, Gary!

In addition, EM guru Craig Anderton's title has become "founding editor." Craig will continue writing and editing for the magazine, as well as offering advice on article ideas and future directions, but he will also be pursuing more outside projects. See this month's Back Page column for more details. Longtime contributor and editor Vanessa Else has become senior contributing editor. Finally, I'm very pleased and excited to be taking on the responsibilities of editor. It's going to be quite a challenge to maintain and improve upon the work already done, but I feel confident that with all components of the editorial team now completely in place, we'll lead EM to new levels of quality.

I have many ideas regarding the types of articles that should be in the magazine—some of which have been appearing since the October 1989 issue—and promise that I'll continue our tradition of injecting new ideas and approaches into our format.

Though many articles are, and will continue to be, daunting to beginners because of the complex nature of the subject matter, we'll be redoubling our efforts to educate novices about the wonders of MIDI and electronic music. The club to which we all tacitly belong as electronic musicians should be as accessible to as many people as possible.

Finally, I don't want to forget we are first and foremost a magazine written for and produced by musicians. Consequently, you can expect to see more articles on musical concepts and ideas in the pages of EM.

Our ultimate goal is to entertain, educate, and inform. We hope that by making use of the skills and tools we now have available and responding to your feedback, we'll be able to produce a magazine that keeps you shouting for more.

Bob O'Donnell

Electronic Musician

Publisher Peter Hirschfeld

Editor Bob O'Donnell
Founding Editor Craig Anderton
Associate Editor Gary Hall
Assistant Editor
Steve Oppenheimer
Editorial Administrator Sattie Clark
Copy Editor Alexandra Behr
Senior Contributing Editor
Vanessa Else
Editorial Assistant Alex Artaud

Art Director Kathy Marty
Assistant Art Director
Barbara Gelfand
Art Assistant Nancy Terzian

Computer Illustrator Chuck Dahmer

Eastern Advertising Manager
Carrie Anderson
Western Advertising Manager
Dennis Gray
Marketing Coordinator
Elise Malmberg
Advertising Assistant Ann Spears
Sales Assistant Tina Spinelli

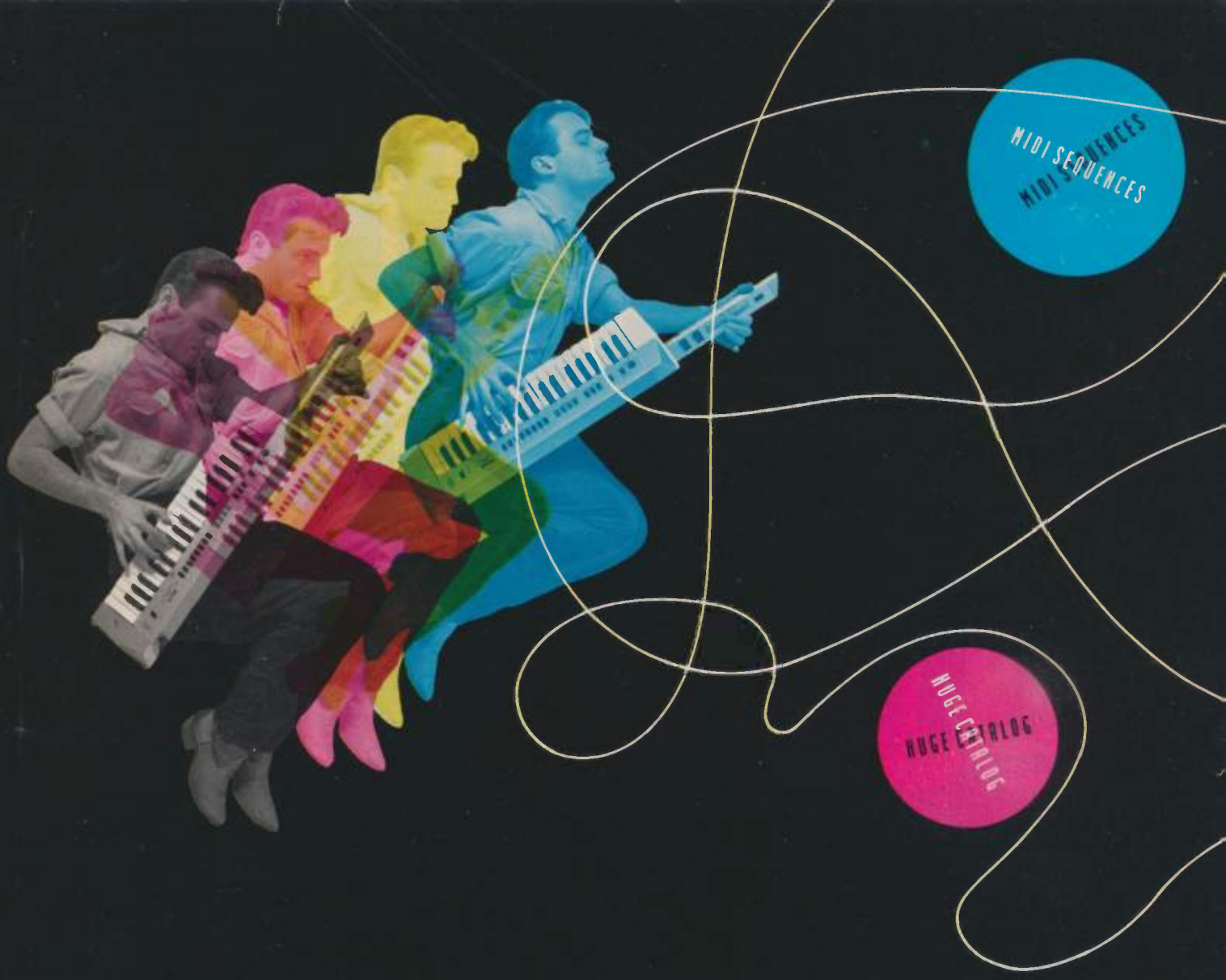
Director of California Operations and Production Anne Letsch
Assistant Production Manager
Teri Bell
Advertising Traffic Coordinator
Donna Burriston
Technical Consultant
George Petersen
Sales Administrator Neil McKamey
Marketing Assistant Jane Byer
Circulation Assistants Cindy Lukk, Hugh Swarts
Business Manager Craig Kennedy
Assistant Controller
Ronald LeRouzic
Accounting Therese Wellington
Classifieds Manager Robin Boyce
Classifieds Assistant Jeffry Forlenza
Office Manager Barbara Kochiovelos
Receptionist Angelique McGruder

ACT III PUBLISHING
President Paul David Schaeffer
Chief Operating Officer
Robert C. Gardner
Sr. Vice President/Group Publisher
Kevin J. Condon
Sr. Vice President, Operations and Planning Martha Lorini
Vice President, Finance and Administration Sam Schecter
Director of Marketing and Communications Jennifer P. Ware
Director of Circulation
Steve Wigginton
Director of Manufacturing
Craig Balick

ELECTRONIC MUSICIAN OFFICES
National Editorial, Advertising, and Business Offices
6400 Hollis Street #12
Emeryville, CA 94608
tel. (415) 653-3307
FAX (415) 653-5142

Southern California Advertising Office
tel. (818) 709-4662
FAX (818) 709-6773

Consumer Audit
BPA



MIDI RECORDS™

1.800.443.3210

MIDI Records make music you can play with. From Mozart to Motown, MIDI Records let you arrange and orchestrate music just like a producer, for play back on your own MIDI equipment. Custom mix the music, track by track, clearly and logically.

Recorded by studio musicians, MIDI Records are complete professional arrangements of the world's most popular music. Choose from big band, rock, jazz, oldies, top 40, R+B, classical and more. The songs come on computer diskettes that you play on your sequencer or MIDI software. Play MIDI Records with any MIDI gear. Conduct the band, arrange the parts, customize the sound, provide backup for rehearsal or performance, learn and interact with the music. Each song contains the original instrument parts on individual tracks. Most songs include vocal parts.

INTERACTIVE MUSIC

Demo disks and cassettes available.

With the right equipment you can play MIDI Records right out of the box. Songs can easily be customized for your MIDI setup and come with complete instructions to get you up and running quickly. Whether you're a professional musician or just learning to play, you can enjoy MIDI Records right away.

Music Data Company has the most complete catalog of MIDI Records available anywhere. Title listings, formats, helpful advice, product tips and ordering information are included. Access to some of the world's best sequenced music is now at your fingertips.

MIDI Records are available in Macintosh, IBM, and Atari ST formats, and for selected hardware sequencers.

To order a free catalog or MIDI Records call 1-800-443-3210 (in 415 area call 726-0280)

MUSIC DATA™

Music Data Company
625 Miramontes Street
Half Moon Bay, CA 94019

It won't hurt your feelings.

This, in a nutshell, is the problem: As rhythm machines have become increasingly more consistent, they've also become increasingly less "human." What you put in has feelings. What it puts out doesn't.

Which is why we're taking this opportunity to tell you about our remarkable new R-8 Human Rhythm Composer, so named because it makes the drumming as natural as you had intended.

The R-8 doesn't simply move beats around or "sloppy up" the groove. To the contrary, it gives you such incredible control that you can shift the timing in increments as small as 1/384 notes.

Even the drumsticks are more human.

You can also program pitch, velocity, decay and nuance to such an extent that you'll actually be able to hear the drumstick move from the edge of the ride cymbal over to the cup.

And you can do all of this in either a predetermined way, in which case you use the "Groove" mode. Or in an unexpected way, in which you use the "Random" mode. (Just because we call it "random" doesn't mean you take what it gives. Once again, you can control everything.)

Nor does the "human" touch end here. We've also made the 16 pads velocity- and pressure-sensitive, so that the sounds end up feeling vibrant instead of clinical.

The Roland R-8 has eight patches where these "Human Feel" settings can be stored, and each of these patches functions as an "overlay" for any of the patterns in the R-8.

Of course, all of this wizardry would be lost if the sound quality wasn't what it should be. It is. The R-8 features 16-bit drum and percussion sounds sampled at a CD-quality 44.1 kHz. And even better, both the eight individual outputs as well as the stereo outputs are available for routing those CD-quality sounds to a mixer for individual processing.

Approximately 2,600 notes, or 10 songs, can be stored in the R-8's internal memory. And up to 100 patterns with up to 99 measures each, can be programmed in the unit. The R-8 has 68 internal sounds. And when you combine these with the two ROM/RAM cards, each of which contains 26 sounds, you have a total of 120 different drum and percussion sounds.

One more thing. If you record a particular pattern on an R-8, you can always go in after it's been recorded and assign panning, tuning, nuance and volume for each instrument for every single event in the pattern. The result can be something totally different than you'd expect from a drum machine.

As you've gathered, our Human Rhythm Composer is a truly remarkable and essential piece of equipment. Or as *Keyboard Magazine* put it, "If you're serious about making electronic music with the depth and expressiveness that used to require real live musicians, you owe it to yourself to get a demo of the R-8."

Our sentiments exactly.

Roland®

RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040-3647
213 685-5141

The MIDI LAN* has Arrived...

MidiTap... Create the Virtual Studio...

LONE WOLF

1505 Aviation Boulevard Redondo Beach CA 90278 (213) 379-2036 Fax: (213) 374-2496

* MIDI LAN – MIDI Local Area Network

Important corrections are made, a manufacturer responds to a reader's criticism, and we put the closing chapter on the "cheeseheads" debate.

PARTIALLY TO BLAME

It is extremely desirable that electronic musicians understand basic acoustics. Regrettably, your article on harmonics in the February 1990 issue of EM was incorrect on some significant points.

The first concerns the definition and numbering of harmonics and partials. The harmonic series is defined as the series of all integer multiples of some frequency, *f*, (i.e., f, 2f, 3f, 4f, etc.). The harmonics are *always* numbered according to their positions in the series. Thus, contrary to your statement on page 77, the fundamental is the *first* harmonic, the octave is the *second* harmonic, the perfect twelfth is the *third* harmonic, and so on to infinity. Even when some of the harmonics are absent, or intermixed with inharmonic partials, their numbering does not change.

Partials, on the other hand, are *any* components of a complex tone, whether harmonic or inharmonic. Partials are normally numbered in order of ascending frequency. Since partials don't necessarily correspond to any mathematical series, they are numbered as we find them. So, in a square wave, the third harmonic would be the second partial.

The second problem is the claim that because a vibrating string is fixed at both ends, it can only produce harmonic partials (page 78). This is manifestly untrue. The only kind of string that produces perfectly harmonic partials is one that is of infinitesimal thickness and perfect, uniform elasticity, i.e., a construct of a physicist's imagination. Most real-world musical strings have partials that are reasonably close approximations to the harmonic series, but strings that are relatively thick in comparison to their lengths, such as the bass strings of a piano, have partials that are noticeably inharmonic. The string is still fixed at both ends, and it still vibrates in segments that are integer subdivisions of the full length. The problem is stiffness.

As the string divides into smaller and smaller segments, the ratio of thickness to length, and therefore, the relative stiffness of the segments increases. The stiffer segments vibrate faster relative to the full string than would the perfectly elastic segments of the physicist's imaginary string. The higher the partial, the stiffer the corresponding string segment and the sharper the partial in comparison to its expected harmonic frequency. This is why the bass tones of a small piano sound more like beaten garbage can lids than struck strings.

A minor quibble is that on page 77 you identify the process of breaking a complex wave into its sine-wave components as "harmonic analysis." Harmonic analysis is the stuff they make you do in music school where you examine a composition and decide that it starts with two bars of the I chord, followed by one bar of IV(7), and so on. The process of breaking a complex wave into its components is, as you correctly state on page 78, called *Fourier* analysis.

Come on guys, do your homework.

David B. Doty
California

On page 78 of the February 1990 EM is a chart showing the harmonic partials of the fundamental frequency at 220 Hz.

There are three errors in this chart. The first is the note name of the fundamental. This is actually an A3 as defined by the United States Standards Association (and Roland products) or, if we are agreeing with Yamaha's definition of middle C (261.63 Hz) as being C3, the fundamental would be A2, with middle C being C3. Either way it is not A1.

The second error refers to the name of the harmonics (*see letter above*).

The third mistake is what is labeled the 4th harmonic (which is actually the 5th harmonic). This should be a C-sharp, not a C-natural!

An occasional error or typo is understandable, but to have three in one small chart is irritating and misleading to those trying to understand this information for the first time.

Jerry Gerber
California

David and Jerry—Thanks for the corrections. As hard as we try and as diligent as we think we're being, it seems errors still somehow manage to creep into the magazine on occasion (I swear, it's gremlins at the printers). Nevertheless, it's good to know that there are people out there keeping us honest (and humble). I promise we'll be more careful in the future.—Bob O'D

"EASY" COMPOSITION AND CREATIVITY

I agree with Barton McLean (January 1990 EM) that we need to get non-musicians more involved in music. He suggests that the "interactive CD" will do this by allowing everyone to create his or her own music as intuitively as playing a video game. But I am deeply

DAVID POVILAITIS

disturbed by the picture he paints.

We can see the results of "easy composition" in home studio recordings. The immediacy of getting an idea and putting it on tape right away is almost irresistible. But in the rush to record, many electronic composers rely on traditional accompaniment schemes (pads and drums). Hearing this music, I ask, "Why do it at all if you're not going to do it your own way?"

Listen to any of the great orchestral masters—Berlioz, Strauss, Debussy, Stravinsky—and you will hear brilliant, detailed orchestral colors. Do you suppose their works would be as great as they are if they had improvised the orchestration (or worse, let a computer do it)? Synthesizers allow an extraordinary variety of color. Yet the vast majority of electronic music is bland and lifeless. We need composers who are *masters* of electronic instruments, just as Ravel and Rimsky-Korsakov were masters of the orchestra.

As I see it, McLean's concept is analogous to a computer program that would allow one to write a novel by specifying a few broad parameters. But the "writer" would have no real contact with the material. What room does this leave for individual style, for true inspiration? Great works of art, music, and literature come from *personal* touch. Interactive CDs will be an amusing toy, but they must not replace the inspired genius that can only come from a thorough technical background and hard work.

H. James Harkins
Indiana

RANE RESPECTFULLY RESPONDS

I would like to respond to a letter in the February 1990 issue of EM from Teresa Rivera, which you titled "Women, Be Wise." Ms. Rivera makes reference to our ad on the SM 82 Mixer as one of the three in that issue that "fail to represent women as important consumers of electronic equipment" since she is portrayed as a "magical being playing three keyboards," and that this ad "certainly gives the impression that only a woman who's a sorceress, no less, can use computerized hardware."

May I point out a few important facts? This ad portrays a woman musician physically playing a set of keyboards; there is no "magic" visually implied here (auras, "zaps" of power, etc.). All verbal references to magic and sorcery are made solely to Rane products and personnel ("mini-mixer sorcery from Rane," "From the wizards at Rane," etc.). The visual representation of this woman playing keyboards is entirely appropriate to a concert production: lights, fog, stage attire, high energy.

It is important to us at Rane that your readers understand our dismay at this particular misinterpretation of our ad. I can assure you that we believe in the rights and value of *every* individual, regardless of sex, race, creed or the like. And besides, even if I were to temporarily lose my mental faculties and somehow orchestrate an ad with a sexist slant, my partners—especially Linda Arink—would never let me get away with it!

I can only suppose that Ms. Rivera's misinterpretation was fueled by a natural tendency to become caught up in the momentum of a movement to the degree that we become somewhat overly sensitive to the issue. I would like to confirm here our awareness and support of women, not only as "a potential consumer force," but as an actual and critical force in both the art and business of music. It could be said that, of the many careers to consider in today's arena, the music business ranks high on the list of equal opportunity: it can be just as frustrating, cut-throat, demanding and merciless for a man as it is for a woman! I would like to extend our deepest respect and gratitude to Ms. Rivera and all of the talented, inspired men and women that keep making the music that gets us all through another day of this madness.

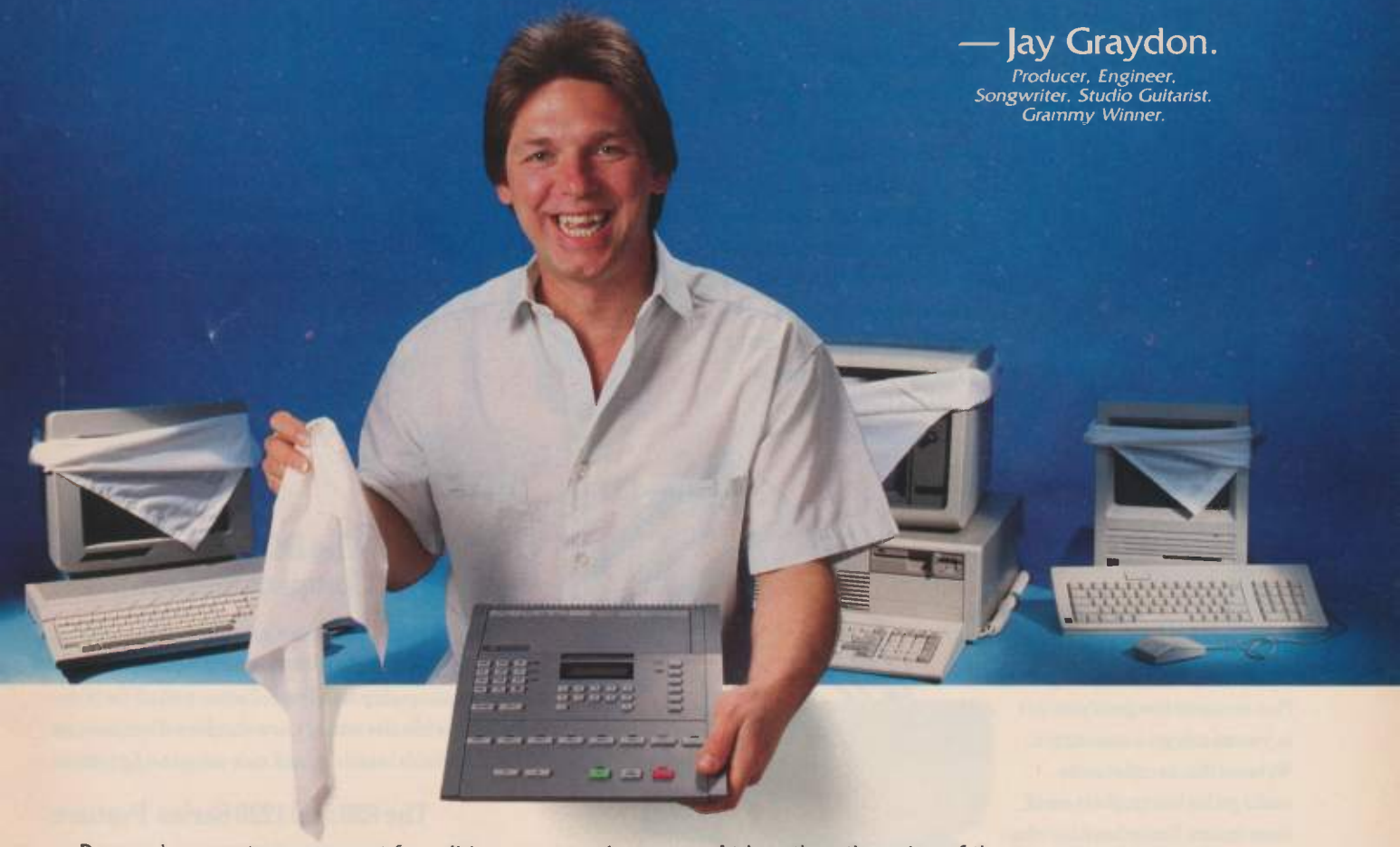
Larry Winter
Vice President, Marketing
Rane Corporation
Washington

CHEESEHEADS REVISITED

(Robert Carlberg's experiment of having amateur reviewers review amateur tapes was criticized by many readers, mainly because of a feeling that the reviewers were overly critical. The editorial staff was also taken to task for allowing the article to be printed. Robert offers the following response:)

I give the editors a lot of credit for having the fortitude to follow through on my experiment (and it was mine alone), even though they realized that hurt feelings could result. I'm given a lot of freedom with this column, and if the 'experiment' went awry, I insist on being the one to take the blame.

"In blindfold listening tests with the best software sequencers, the Alesis MMT-8 won hands down for the best feel."



— Jay Graydon.

Producer, Engineer, Songwriter, Studio Guitarist. Grammy Winner.

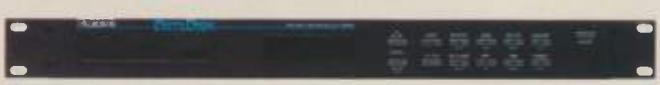
Personal computers are great for editing notes and sorting out the MIDI spaghetti in a complex composition. But when it's time to play your latest song they often miss the beat.

There's a reason. Personal computers have to deal with many tasks simultaneously. The notes in your composition have to fight for time on a computer that's busy updating a screen, checking a mouse, and doing other non-musical tasks. Even if you quantize your music, this results in random timing errors during playback, which is readily perceived as a loss of feel. We call it *MIDI slop*. You wouldn't accept sloppy playing from a triple-scale studio band, so why accept it from your computer?

The MMT-8, on the other hand, is the best sequencer you can own because it was designed to perform only one task: making music. It plays back notes exactly as you played them in, or exactly how you want them quantized. All with pin-point accuracy, so your songs will have the exact rhythmic feel you intended. The same *meaning*.

At less than the price of the average sequencer software, you can't afford not to add the MMT-8 to your MIDI studio. Plus, its logical 8-track layout and tape recorder style controls will keep you gravitating to the MMT-8 for all your songwriting. And some astonishingly comprehensive editing too.

And now your work can be stored and retrieved instantly on 3.5 inch floppies with the Alesis Data Disk. It's a direct MIDI to disk, 800K capacity, universal data storage medium for the MMT-8 and virtually any other MIDI hardware — like Alesis drum machines and progammable effects processors.



The Alesis Data Disk

The Alesis MMT-8 MIDI Sequencer won't do your taxes or spreadsheets, but it *will* play your music in the pocket. And that's the *musical* bottom line.

ALESIS
STUDIO ELECTRONICS

See your Alesis dealer for a demonstration.

LOS ANGELES: Alesis Corporation, 3630 Holdrege Avenue Los Angeles, California 90016 LONDON: 6, Letchworth Business Center Avenue One, Letchworth, Hertfordshire SG6 2HR

Great Mixers In History

Cement Mixer

This mixer's output is known to be somewhat gravelly. What's worse is once you get the settings the way you want, they harden in that position permanently. Well, what did you expect from a mixer whose output can only be improved by dumping water and sand into it? As far as we know, no one has made a flight case for this mixer.

Cocktail Mixer

One of the most sophisticated mixers invented. You can create any mix you want. And the more of these mixers you give the audience, the better you'll sound. However, most musicians and engineers don't like the feel of olives in place of knobs, and after four or five of these you get a whole new definition to the word fader.

Food Mixer

This mixer takes output blending to the extreme. And talk about bleed over. Plus, no matter how great your mix is, you can only get a mono output. We heard that an unfortunate roadie got his hair caught in one of these mixers. Rumor has it his voice can still be heard whenever the unit is powered up.

The DOD 820 And 1220 Compact Stereo Mixers

Made for today's musician, sound technician and home studio engineer, the DOD 820 and 1220 stereo mixer series provides studio quality sound reproduction with all the important features, while also setting a new standard of compactness. Available in tabletop and rack-mount configurations.

The 820 and 1220 Series Feature:

EACH CHANNEL

- Line-unbalanced 1/4" inputs
- Mic-balanced XLR inputs (XL and RM models)
- 15 dB cut/boost high and low EQing
- Monitor send
- Effects send
- Panning
- Input gain control
- 60 mm dust shielded fader
- LED overload indicator for mic, line, and EQ stages monitoring

MASTER

- Auxiliary input level—mono/stereo
- Monitor send level
- Effects send level
- Effects return level—mono/stereo
- Phantom power switch (XL and RM models)
- Stereo headphone level
- 60 mm dust shielded left and right faders
- 4-segment left and right LED meters
- Left and right mix buss clip LED indicators
- Main and phantom power LED indicators

DOD

5639 South Riley Lane, Salt Lake City, Utah 84107 801-268-8400 Fax: 801-262-4966

"In at least one respect the experiment did go awry in that the 'cheeseheads' got much tougher than I would have. All of the tapes were ones I had already declined to review, either because I couldn't think of anything nice to say, or because they just didn't make much of an impression. My hope was that fresh perspectives of some unjaded 'amateur electronic musicians' would find gems where I had only seen coal dust. This was in response to criticism of me, quoted in the initial July column, that my viewpoints were set and predictable. I wanted to know if I was missing the boat.

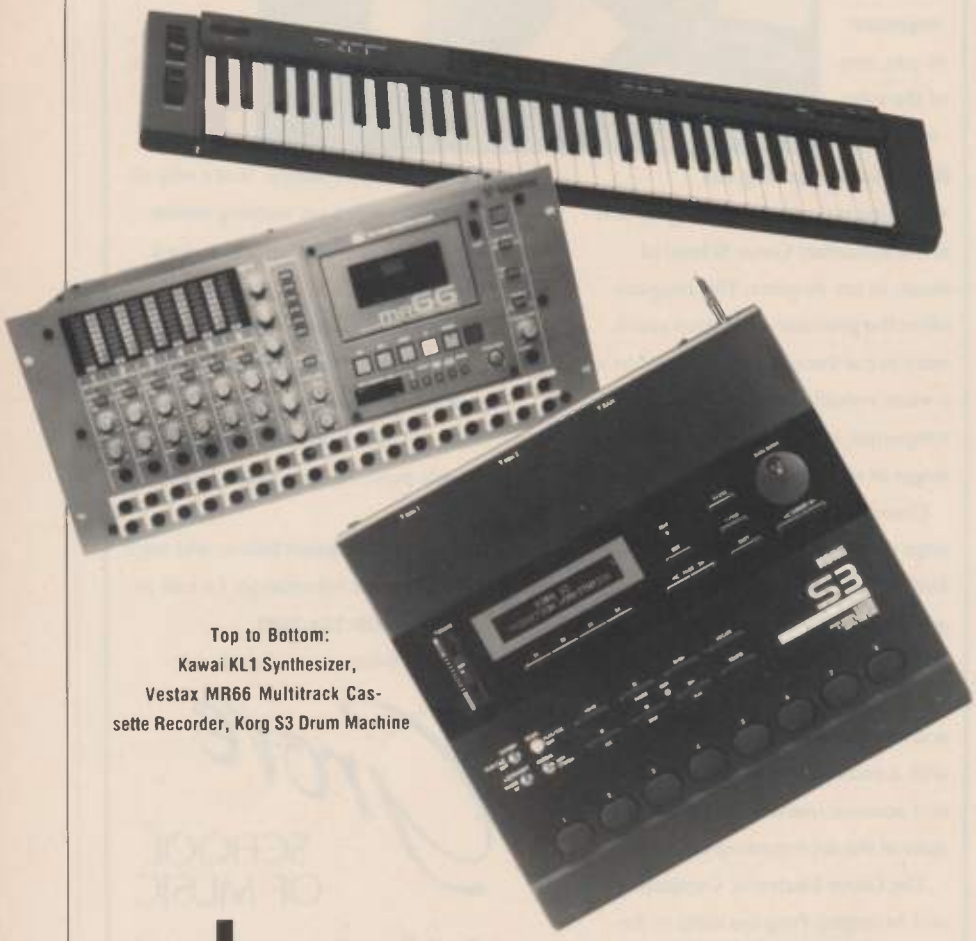
"When the reviews started coming in, they were scathing (the ones that were printed were not the worst!), even though I had sent a cover letter with the tapes that said, 'Remember, the tapes you're reviewing are by real people with real feelings. If you don't like a tape, talk about the music, not the person.' Unfortunately, some of the negative ramifications of having peers review peers probably outweighs the good of exposing music that might otherwise be ignored (due to either magazine space limitations or a reviewer who doesn't particularly like the music). The experiment, I would have to conclude, was not a success and will not be repeated. But would everyone please lighten up a bit? This is *not* brain surgery."

Several people also seemed to misunderstand a crucial point in Craig Anderton's "Back Page" concerning these reviews. Craig offers the following:

"The phrase 'maybe a lot of music being released to the public should stay private' was misinterpreted by some readers as meaning that only some kind of 'elite' should make music. Nothing could be further from the truth; it's obvious through my writings and seminars over the past two decades that I *encourage* people to express themselves musically. However, as mentioned in the editorial, if you're going to express yourself *in public*, you have to be prepared to be criticized, and I don't think some people are ready to handle that. I speak from experience: I have about four albums' worth of material that has never been released because I didn't feel it would meet people's expectations. I keep a lot of my music private, and since that works for me, I merely recommended that others do the same." ■

NAMM Show Report, Part 2

Beyond the award-winners, a broad range of products and corporate alliances were displayed at—and in the wake of—the Anaheim show.



Top to Bottom: Kawai KL1 Synthesizer, Vestax MR66 Multitrack Cassette Recorder, Korg S3 Drum Machine

Last issue, the staff touched on the highlights of the 1990 Winter NAMM Expo: ten products we had to see, "What's Hot/Not," and our amazing **EM**-mie awards. But cruising among the products beyond those we "had to see" is one of the delights of the big Anaheim shows, so this month we'll focus on some of the other interesting products on display in the musical equipment fantasyland called "NAMM."

Speaking of fantasy, remember that at the semi-annual NAMM and similar trade shows, manufacturers sometimes show unfinished products. Some may never be finished or may be heavily modified before they're released, and the prices could change, too. Only death and obsolescence are certain in the electronic musical equipment business. So although "What's New" usually focuses on shipping products (with occasional exceptions), this report could include small icebergs of vaporware.

SYNTHS AND PERCUSSION

The Yamaha **TG55** ($995; tel. [714] 522-9011) uses AWM2, a new form of Yamaha's PCM sample-based Advanced Wave Memory technology. The rack-mount unit provides 2 MB of 16-bit wave data (74 waveforms), sampled at 32 or 48 kHz. Internal, 24-bit signal processing and 22-bit digital-to-analog converters yield signal-to-noise ratios at the output in excess of 130 dB. The voice architecture includes one to four Elements (individual sounds), each with a 5-segment amplitude envelope generator, a lowpass filter, and a selectable lowpass/highpass filter. Each filter has 12 dB/octave slope, resonance, and a 6-segment EG. The two filters can be combined into a bandpass or 24 dB/octave lowpass filter. The **SY55** ($1,595) is a keyboard version of the TG55 that includes an 8-track sequencer and a five-octave, unweighted keyboard that supports velocity and aftertouch.

The Korg **S3** drum machine ($1,199; tel. [800] 645-3188) provides 16-bit PCM samples, an 8-track sequencer (four pattern and four linear tracks), six outputs (stereo L-R and four discrete outs), SMPTE generator/reader, and two stereo multi-effects processors. New samples can be added using ROM cards. Sounds can be split into attack and decay components that can be recombined to form hybrids. The sequencer has variable "soft" quantizing and 192 ppqn resolution.

Kawai (tel. [213] 631-1771) showed the **KL1** ($695), a 16-bit PCM sample-based digital synth with 14-voice polyphony, 128 single patches, 32 multis, and a separate drum section. Also designed for use as a 61-note, velocity-sensitive keyboard, the KL1 operates on DC current and has shoulder strap pegs. A half-rack version, the **KL1M** ($395), can be combined with the KL1 for 28-voice polyphony. Kawai also showed the **EQ-8** ($299), a 1U rack-mount parametric

HOW TO BE A BETTER MUSICIAN BY MAY 31.

Nothing reads your mind like the Amiga 2000. You can compose quickly. And intuitively. You can edit, score, transcribe, and sequence quickly. You can test ideas effortlessly. You can create music nobody has ever heard before. Including you.

BUY THE EXTREMELY CREATIVE AMIGA 2000HD AND 1084 COLOR MONITOR BY MAY 31 AND WE'LL THROW IN SOMETHING YOU'VE ALWAYS WANTED.

We'll throw in the popular Dr. T.'s Keyboard-Controlled Sequencer™ (KCS) V3.0 with AutoMix,™ Copyist Apprentice™ and your choice of any one of the Caged Artist™ Patched Librarian programs appropriate to your keyboard.

We'll also throw in a MIDI interface from ECE™ R&D to link your instrument to the computer. Because the Amiga multitasks, you can run a music sequencer program, for example, simultaneously with a scoring program, as well as create animated sequences and titles in sync with music. (Once completed, videographic sequences can be saved on disc and transferred to videotape using an optional Amiga genlock encoding device.)

More than a thousand software programs are available for the Amiga. And more than a hundred specific *music* software titles.

Exactly how good a musician will all these things help you to be? Very good. Think how good Beethoven was *without* any of the kind of help you're about to get. (Provided you do the right thing by May 31.)

Take this coupon to the nearest authorized Commodore Amiga dealer. But hurry, after May 31, the deal's off. (Call 800-627-9595, extension 200, for the name and address and warn them you're on the way.)

BUT REMEMBER, AFTER MAY 31, THE DEAL'S OFF.

AMIGA®. THE COMPUTER FOR THE CREATIVE MIND™

Commodore®

Show this coupon to your local authorized Commodore Amiga Dealer to receive Dr. T.'s music software and a MIDI interface with your purchase of the Amiga 2000HD personal computer and a 1084 color monitor.

Offer good between February 5, 1990 and May 31, 1990.

This offer cannot be used in conjunction with any other special promotion or purchasing program.

Purchaser's Name _____

Address _____

City _____ State _____ Zip _____

Phone Number _____ (Work) _____

Commodore Dealer Name _____

Not valid for prior purchases. Valid at participating authorized dealers only.

K4 POWER PLAYERS

Pro musicians, synth programmers, music publications, music dealers–these are the trend setters, the power players of the music industry. Listen to what they're saying about the Kawai K4.

Steve Oppenheimer, Electronic Musician "For musicians who want a keyboard synth with lots of features, a drum section, a fat sound, and an onboard signal processor for a little money, the K4 is an excellent choice. If you don't need everything in one package, the K4r is even better. Kawai should sell 'em by the truckload."

Lorenz Rychner, Music Technology "I like the K4 a lot. It looks and feels right, it sounds great, programming is no mystery, it'll play a lot of music at once from a sequencer, and the price is certainly right. Bravo!"

Lorenz Rychner

Alan diPerna, Musician "The voice architecture is smart and thorough. I was really impressed with the way the PCM Waveforms can be combined and processed. The K4 sound has real personality."

Alan DiPerna

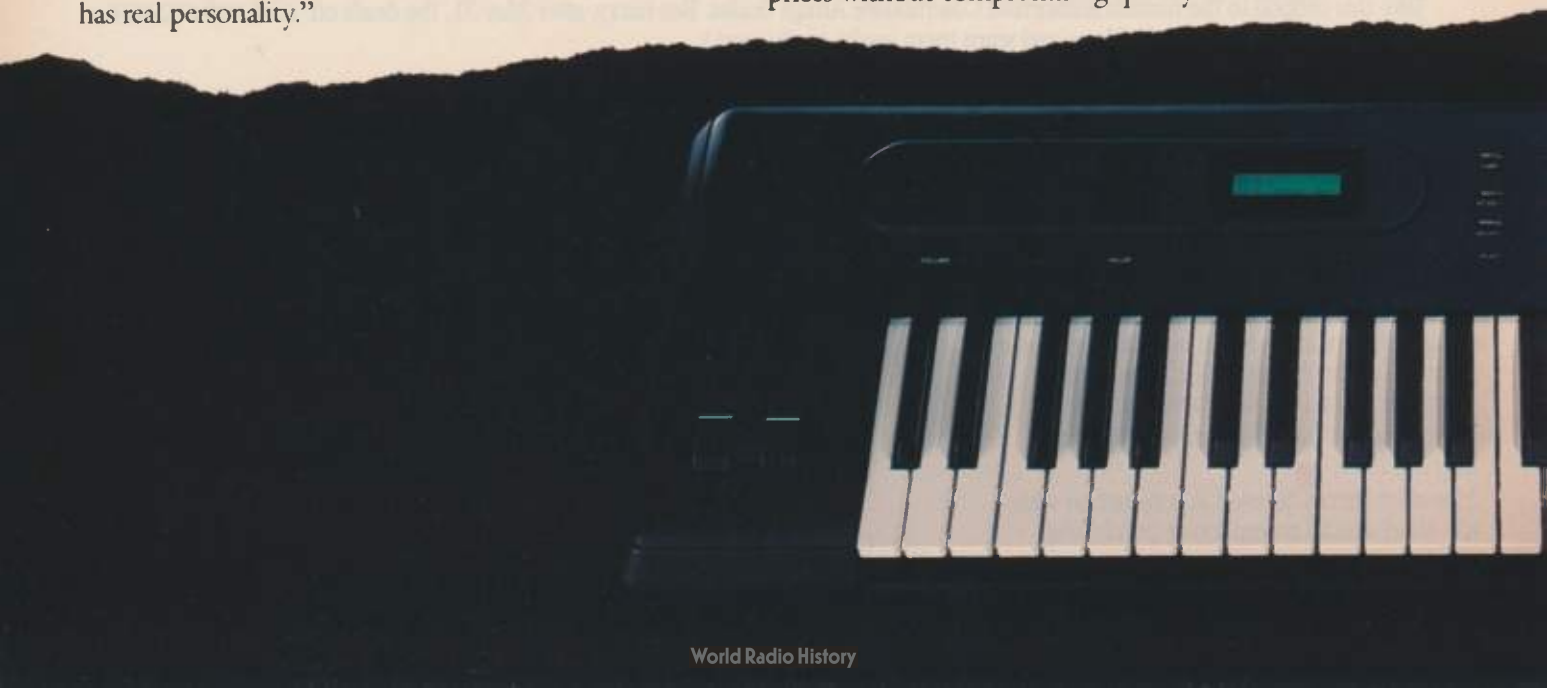
Jim Aikin, Keyboard "As Kawai's demo sequences (for the Q80 Sequencer) make clear, the K4 packs a *lot* of music power. Kawai has struck a careful balance between power and affordability and in most areas, we think they've made the right design choices. The modulation section is definitely one of the nicest parts of the instrument, and puts more expensive but less programmable instruments like the Roland U-20 to shame."

Jim Aikin

Bo Tomlyn, Studio Synthesist and Programmer "Dollar for dollar, the K4 actually has more on it than its competition–for half the price. More parameters, twice the polyphony, two resonant filters, 256 PCM samples, and the ability to copy parts of one sound into another or copy filters. I especially appreciated the edit recall feature which allows you to look at the parameters and compare the edited and unedited sounds, effects, and even the drums."

Bo Tomlyn

Richard Ash, Sam Ash Music, New York "Clean, quiet, usable digital sounds, at a price my customers love. Kawai continues to offer great products at super-affordable prices without compromising quality or features."



Mark Wiens, Eye and I Productions "We were really happy to see that the K4 incorporates an analog-type Resonant Filter. This gives programmers a vastly increased amount of sound possibilities over digital filters–this helped us create a Piano/String combination sound that is right on the money. The Drum Section is really well thought-out with lots of contemporary percussion sounds and effects. The programming is also quite intuitive."

Mark Wiens

Michael Lardie, Great White "There are some great sounds on this thing. It's really fat. The Voice sounds are incredibly realistic and the strings are really lush. I am very impressed with the K4."

Michael Lardie

Jonathan Cain, Bad English "The K4 has a killer bottom end, and sounds great integrated with my other keyboards. The horns really punch. The multi-timbral capability is great for composing–even in my hotel room. Plus, it's also a good lookin' thing."

Jonathan Cain

Joe Goodman, Goodman Music, Los Angeles "Kawai has really tuned in to the feature-conscious price-conscious customer of the nineties. The K4 is a real winner."

Joe Goodman

George Bolos, Guitar Plus, Chicago "The true harmony of digital and analog technology is realized in the Kawai K4. The musical colors it paints are simply amazing."

George Bolos

See the K4 or K4r Rack-Mount Synthesizer at a dealer near you. For more information write or call: Kawai Professional Products Group, 2055 E. University Drive, Compton, CA 90224 (213) 631-1771. Kawai Canada Music Ltd. 6400 Shawson Dr., Unit #1, Mississauga, Ontario, Canada L5T 1L8.

Roland and U-20 are trademarks of Roland Corp US.

KAWAI
DIGITAL

Ingenious!

Some day, they'll make a digital rack processor small enough to wear on your strap.

They did. Those incredible engineers at Zoom have created an amazingly powerful, compact digital multi-effects processor and personal headphone studio that makes everything else obsolete.

The tiny but powerful ZOOM 9002 is crammed with an arsenal of guitar effects: Compression, Tube-Type Analog Distortion, EQ, Pitch Shift, Phaser, Flanger, Chorus, two Digital Delays and two Digital Reverbs. And each one has the 16 bit CD-quality sound you'd only expect from a digital rack processor at least three times bigger and more expensive.

Unlike other Walkman-type devices, the 9002 is built with total mechanical integrity. Its oversized memory holds 40 preset programs and 24 customized user programs. You can play up to six effects at once. And the 9002's guitar remote controller lets you step through programs on stage without stepping on anything.

The 9002 easily fastens to belt, strap and other body parts. You can play along with a cassette or use it as a tuner/metronome.

Yes, they really thought of everything. The only question is whether the rest of the world is ready to Zoom forward with the 9002.

Catch us if you can.

ZOOM 9002

100 Marine Parkway, Suite 435, Redwood City, CA 94065.

EQ that can be configured as eight independent channels of 1-band or four channels of 2-band EQ, which leads us to...

SIGNAL AND MIDI PROCESSORS

DOD's **DigiTech GSP-21** ($799.95; tel. [801] 268-8400) rack-mount, multi-effects processor offers more than 21 guitar effects (ten simultaneously), and 128 memory slots, half of which are user-programmable. A foot controller allows access to all programs and provides on/off control of parameters on the fly. DOD also showed the **IPS-33B Super Harmony Machine** ($899.95), which can, from a single note, create user-defined, 2- and 3-note harmonies in 59 different scales, using 128 factory presets or 128 user-definable programs. Up to seven effects can be used simultaneously, including Harmony, Pitch Detune, Pitch Correction, Stereo Chorus, and up to 1,500 ms of delay. Other features include MIDI continuous control of all programs and parameters, 24-bit processing, 90 dB S/N ratio, less than 0.03% THD at 1 kHz, and 20 Hz to 20 kHz bandwidth.

The Acme Digital **MIDIBuddy Multi MIDI Processor** ($1,495; distributed by Eltekon; tel. [313] 462-3155) combines two units, a disk-based sequencer/sysex data filer and a programmable MIDI processor/router, in a 2U rack-mount box. The two units are also available separately. The processor/router includes 10 x 10 MIDI routing, and the sequencer/sysex filer receives and transmits all sixteen channels on each of ten independent MIDI I/O ports. With the MIDIBuddy, you can trigger MIDI events, including complex system configuration changes and nested sequences, on receipt of any MIDI message.

SOFTWARE AND COMPUTER PERIPHERALS

Sound Quest's ***MIDI Quest*** ($250; tel. [416] 256-0466), is a universal editor/librarian for Mac, IBM PC-compatible, Atari ST, and Amiga. It features graphic editing and a database with multi-instrument filing, as well as a MIDI file player, monitor, and controller. The program comes with templates for over 70 different products and driver/editor creators that allow configuration of the program to work with any MIDI device. Patch files are compatible across computer formats and can be read from other librarian files (such as Dr. T's and Opcode).

Toucan Software's ***Live Control*** ($299;

Kawai EQ-8 Parametric Equalizer

tel. [714] 434-9978) provides dynamic control over every MIDI device in a setup, including real-time remapping of continuous controllers, harmonization and transposition of note data, dynamic system configuration changes, velocity remapping, multiple event triggering from one program change, sysex dumps, MIDI data filtering and viewing, and mouse-controlled software sliders. The program runs on the Yamaha C1 or IBM-compatibles with *Microsoft Windows 2.0* or later and an MPU-401-compatible or KEE MIDI interface.

Dr. T's showed **Beyond** ($319; tel. [617] 244-6954), a Mac sequencing program with scrolling, real-time, piano-roll note editing; graphic controller and tempo editing; graphic overview of patterns, sections, and songs; assigning of multiple MIDI channels to each instrument; adjustable timing resolution up to 480 ppqn; sysex recording; "humanize"; and lots more. *Beyond* supports 32 MIDI channels, MIDI time code, and standard MIDI files, and displays SMPTE time in the note-editor and controller windows.

Articulate Systems (tel. [617] 876-5236) created a lot of excitement with the **Voice Navigator** ($1,295), a SCSI device that allows control of a Macintosh via spoken commands, regardless of language or accent. You "train" the system to respond to your voice, in up to eight variations—soft, loud, stressed, etc.—to control macros and basic commands. A companion software package, **VoiceWaves/MIDI** ($39), customizes the Voice Navigator to control a variety of MIDI programs, including *Vision, Finale, Performer, Master Tracks Pro, Q-Sheet/AV,* and *Jam Factory.* It also allows users to create their own commands.

Electro-Voice S-1503ER Keyboard Speaker System

Articulate Systems Voice Navigator

TRANSDUCERS/RECORDERS

Electro-Voice showed two 3-way, 300-watt keyboard speaker systems, **S-1503ER** ($1,150; with a 15-inch woofer) and **S-1803ER** ($1,470; with an 18-inch woofer). Both systems use a 6-inch, vented, midrange cone driver and a DH2010A compression driver coupled to a 90° × 40° constant-directivity horn. They may be biamped, or run full-range with the internal, passive crossover. The cabinets are carpeted, with heavy-duty metal corners.

The Panasonic/Ramsa 500 Series speaker system starts with the **WS-A500** ($1,300; tel. [714] 373-7277), a 2-way module that covers the 100 Hz to 20 kHz range with a 12-inch, ported, direct-radiating, cone-diaphragm transducer, a 44mm compression transducer, and a passive, time-corrected crossover. The low end (down to 30 Hz) is covered by the **WS-A550** ($680), with its 12-inch, ported, direct-radiating transducer. The cabinets are made of an acoustically inert, lightweight, high-pressure resin.

Vestax displayed the **MR66** ($1,399; tel. [217] 342-9211), a rack-mount, 6-track cassette recorder with 6 x 2 mixer, 34-input patch bay, 2-speed tape transport, and dbx noise reduction.

Eltekon Technologies teamed up with Micro Technology Unlimited to produce the rack-mount **Microsound** hard disk-based, digital recording system ($4,529 for full system, without PC; tel. [313] 462-3155 in the Eastern U.S., or [818] 792-4377 in the West). Based around an IBM AT front end, the Microsound system can be configured as two or four channels and includes AES/

Go with the Pro

Master Tracks Pro™, the industry standard MIDI sequencer, is now available for all popular personal computers. Now you too can have the very best MIDI production tool that money can buy.

Regardless of your choice of computer: IBM, Amiga, Atari ST, Macintosh, Apple IIgs, or Yamaha C-1, Master Tracks Pro provides the same award winning power, innovation and ease of use that have made it a standard in the music industry.

Master Tracks Pro features 64 tracks of real-time or step-time recording, our exclusive Song Editor™, complete graphic editing of all MIDI data, full SMPTE sync via MIDI Time Code, controller chasing, remote control from your MIDI keyboard and a built-in Sysex librarian*.

MASTER TRACKS PRO™

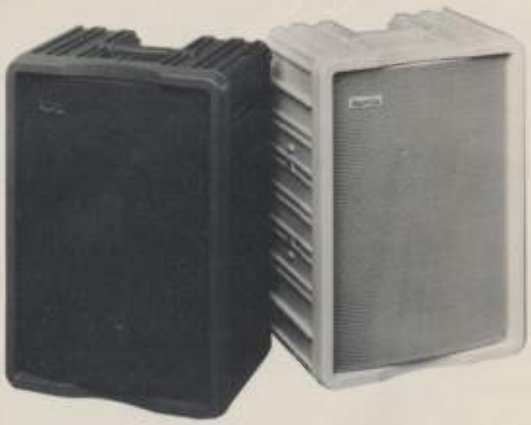
Master Tracks Pro creates industry standard MIDI Files and is completely compatible with Encore for Macintosh and SCORE/ESCORT for IBM pc for printing your sequences in standard music notation.

For more information see a Passport dealer near you or call (415) 726-0280 for details on the Next Generation of Music Software™

*Feature not available in IIgs version

PASSPORT®

625 Miramontes St.
Half Moon Bay, California 94019
(415)726-0280



Ramsa 500 Series Speaker System

EBU in and out. Other features include real-time digital signal processing, external sync for expansion to twelve or more channels, simultaneous 18-bit output and 16-bit input resolutions, 64-times A/D oversampling, and SCSI-based archiving to tape or optical disk. Eltekon also showed various rack-mount disk drive and tape-backup systems (including erasable optical drives) designed to withstand the rigors of road life.

POWER

Anatek (tel. [604] 980-6850) introduced a new product line that includes the **UPS** ($389.99), a 120V, 1A uninterruptible power supply and line conditioner with two AC outs and power failure and low-battery alarms. Also from Anatek's new line: the **Studio Merge** ($399.99), a high-speed, 8 x 1 MIDI merger that has an individual MIDI thru for each input and handles sysex; and the **PC Computer Interface**, which provides four merging MIDI ins, one out, and four thrus, two assignable pedal inputs, a continuous controller input, a momentary switch input, and intelligent FSK tape sync.

Juice Goose's **Micropower** ($165; tel. [713] 772-1404), a 1/3-rackspace power source, contains five 9 VAC outputs, each fully isolated (tested to 1,500V), including magnetic, electrical, and thermal isolation from the chassis. Four outputs handle up to 1 amp each, and the other handles up to 2 amps. Optional cables are available to connect with products using 3.5mm miniplugs, 2.5mm and 2.1mm barrel plugs, and 4-pin DIN plugs.

HOT POST-NAMM FLASH

Ensoniq announced the **SQ-1** ($1,595; tel. [215] 647-3930), a wavetable synth with a 61-key, velocity-sensitive keyboard, stereo outputs, and a voice architecture similar to the VFX. Although the keyboard does not implement aftertouch, the synth responds to both channel and poly aftertouch messages. Waveforms include 121 sampled acoustic and synthetic waves and Ensoniq's dynamic Transwaves. The effects processor provides 24-bit reverb, chorus, flanging, delay, distortion, and rotating speaker effects, with dynamic control over many parameters. The 16-track sequencer features real- and step-time entry, auto- locate, and a variety of non-destructive editing features. Sound and sequence data can be stored on memory cards. The optional **SQX-70** kit ($349.95) expands the sequencer's memory capacity from 9,000 to 58,000 notes and can also be used with the VFX^{SD}.

NEW

PC MAGAZINE EDITOR'S CHOICE

Cakewalk 2.0
Nov. '88

Creative freedom for the next decade.

Professionals need the most powerful sequencing software available. Software that can sync to SMPTE, break the 16 MIDI channel limit, and tackle complex editing jobs with ease. Software like new *Cakewalk Professional 3.0* from Twelve Tone Systems.

But power isn't enough. You need power that's easy to use. And a program that works the way you want it to.

Cakewalk Professional 3.0 is the only IBM sequencer with both a keyboard macro feature and a complete language for writing custom editing commands. Which means you can tailor it to your style of working.

Don't like the keys we picked for commands? Use the macro facility to reassign them!

Want to transform your music in ways that are uniquely your own? Use CAL to create your own commands!

But perhaps the best thing about our line of *Cakewalk* sequencers is that they're made by Twelve Tone Systems. Which means you don't pay through the nose, and you deal with real people who provide quality service and support.

So as you pick a sequencer for the next decade, don't buy someone else's software. Buy a sequencer you can call your own.

New in Release 3.0
of both editions.

- Enhanced track looping
- "Fit Improvisation" command
- Track patch parameter
- Standard MIDI Files
- Expanded User's Guide
- Multi-take record mode
- Enhanced step recording

Cakewalk is still only $150.
Cakewalk Pro/MQX is just $249.

Cakewalk Songs

The *Romeo Music Cakewalk Series* features three disks of Cakewalk song files and a comprehensive manual. Classical, jazz, pop, and much more. All for just $25.95 + s/h.

Twelve Tone Systems, Inc.
P. O. Box 226
Watertown, MA 02272
(617)273-4437 or
(800)234-1171, 10-6 EST.

Twelve Tone SYSTEMS

REV UP

E-mu (tel. [408] 438-1921) announced a stereo sampling upgrade that implements 64-times oversampling and promises true phase coherency for the **Emax II** sampler. Stereo sampling will be standard on "Turbo" models at no extra cost, and customers who purchased an Emax II Turbo on or after January 1, 1990, will receive a free upgrade. The upgrade is available to owners of pre-1990 units for $95 plus installation. E-mu also unveiled the ***E-III Remote Controller/Librarian*** ($295) for the Emulator III and Macintosh and announced a continuing series of E-III upgrades. The initial software upgrade, expected this summer, allows multiple E-IIIs to share SCSI storage devices. The first hardware upgrade, expected late this year, expands the machine to sixteen stereo voices and 32 MB RAM and adds digital inputs and fully polyphonic outputs...Blue Ribbon Bakery (tel. [404] 377-2277) released two packages of software add-ons ($59.95 each) for its expandable, Amiga-based sequencer, *Bars & Pipes*. ***MusicBox A*** contains 17 tools (including MIDI processors and Trill and Arpeggio tools) plus a color palette editor. ***The Internal Sounds Kit*** includes over 85 IFF sounds, an input tool, and the AmigoPhone, an output tool that lets you edit the Amiga's internal sounds for fine-tuning, attack and release times, pitch bend, vibrato, and other parameters. *Bars & Pipes* has been upgraded to version 1.0e, in which the Chord parameter allows you to audition the chord, the sequence display scrolls, program-change editing has been revised (among other improvements, you can audition patches), and more...Dr. T's released the Amiga version of ***Tiger Cub*** ($99; the Atari version was reviewed in the April 1990 **EM**) and announced ***KCS and Level II Version 3.0*** for the Amiga. Version 3.0 adds SMPTE support for Dr. T's Phantom, the multitasking *Multi Program Environment*, a MIDI mixing program, controller chasing, and a lot more. Dr. T's also will drop copy protection on all IBM PC-compatible software...A **Music RoundTable** (RT) has been added to the Leisure menu of the GEnie online information service (tel. [800] 638-9636)...Eltekon Technologies, a manufacturer of rack-mount computer peripherals and the Microsound digital recording system (see "Transducers/Recorders"), will market Acme Digital's MIDIBuddy (see "Signal and MIDI Processors"), and the companies have reached a technology licensing agreement. Several joint engineering projects are planned. ■

Ensoniq SQ-1 Personal Music Studio

A keyboard that actually changes the way you think.

The first preconception you can kiss good-bye is that a keyboard this affordable can't sound this good. With samples that are remarkably rich and true to life, thanks to our Advanced Wave Memory technology.

Next, you'll discover the SY55's editing capabilities. Multiple effects processing. An 8-track sequencer. And digital filters that let you edit in real time.

All this (minus the sequencer) is also available on our 4-output TG55 Tone Generator.

So stop by your nearest Yamaha® dealer for a demo. Because if a keyboard can change the way you think—imagine how it can change the way you play.

Yamaha Corporation of America, SGD, P.O. Box 6600, Buena Park, CA 90622

PERFORMING Live!

Shakespeare wrote that all the world's a stage. Yet for many musicians, night after night, the reverse is true: The stage becomes their whole world. For those minutes or hours, time stands still, as you pour out your heart to a (hopefully) appreciative audience.

However, getting ready for live performance involves a lot more than just practicing your licks. Performing live is significantly different from studio work, so when the time comes to take your carefully crafted studio music to the stage, you must learn to "think stage." Subtleties are often lost, while dramatic touches may need to be emphasized (especially for the people sitting in the back). A big part of any successful live performance is its theatrical aspect. Amplification, transportation, cabling, mixing, customized programming, and much more are just as vital to your act as the music you're playing. And don't forget that Murphy's Law takes on new dimensions when playing live. Not only will anything that can go wrong, go wrong, but usually several things that *can't* go wrong will fail, too.

Your emotional approach to the art of playing live can make all the difference in the world to its outcome. Performing is demanding, tough stuff; there are no second takes. But it likewise provides wonderful rewards. The feedback is instantaneous, and there's nothing like the energy of an enthusiastic audience to validate your efforts.

The secret to successful live gigs is preparation and experience—which brings us to this group of articles. As you go through the various tips and ideas, "think stage" and see how many of them can help you clean up your act. Be prepared, take nothing for granted, juice yourself up, and go for it with all you've got. —EM *Staff*

In an age of disk and digital, why buy analog?

We know there are some applications where our 32-channel digital machine, the DTR-900, is the only answer. But if your business is such that you can do anything you want to do in the analog domain, and at the same time do less damage to your budget, then our brand new analog 24-channel MTR-100A may be the perfect machine for you.

When you consider that the MTR-100 will literally *change forever* the way engineers interface with audio machines, and

The MTR-100's auto-alignment saves you hours of time by eliminating constant tweaking and re-tweaking between sessions.

that this new way will save you hours spent in non-productive time, the analog choice begins to make even more sense. You see, the MTR-100 features full Auto-Alignment that allows total re-calibration of the record and reproduce electronics. This means you can compensate for different tapes in a *fraction* of the time that it previously took, and your studio is not bogged down with constant tweaking and re-tweaking between sessions.

And if you think digital machines have a corner on high performance transports, think again! The MTR-100's new transport incorporates reel motors that approach one horsepower—you'll get fast wind speeds of up to 474 inches per second! Of course, the transport is pinchrollerless to give you the legendary tape handling ballistics of our MTR-90.

What's more, with its optional EC-103 chase sychronizer, the MTR-100 maintains frame-lock in forward and reverse from 0.2X to 2.5X play speed, and will typically park with zero frame error.

Reel motors that approach one horsepower are driven by pulse width modulation amplifiers to tape speeds up to 474 ips.

Then, there's the sound. New cylindrical-contour heads built by Otari especially for the MTR-100 result in remarkably low crosstalk and outstanding low-frequency performance. Pre-amps are located directly beneath the heads to further improve frequency response, and HX-Pro* is built-in for enhanced high frequency headroom. (An optional internal noise reduction package houses Dolby* SR/A.) Add all these features to gapless, seamless, punch-in, punch-out, which is also built-in, and your MTR-100's sonic performance will rival, or beat any digital machine in the world.

So there you have it. With these powerful benefits available in analog, does it make sense to go digital? Sure, for some applications. But analyze your needs carefully before you buy. For many applications, a hot analog tape machine like the MTR-100 is the right choice.

And because we can see both sides of the question, put us to work. We have information that can help you make the right decision. Call Otari at (415) 341-5900 for the *"Technology You Can Trust"*.

OTARI

* Trademark Dolby Laboratories Licensing Corporation

In the anarchic world of live performance, control over your act is worth its weight in gold records. MIDI can provide that control—but you'd better know what you're doing.

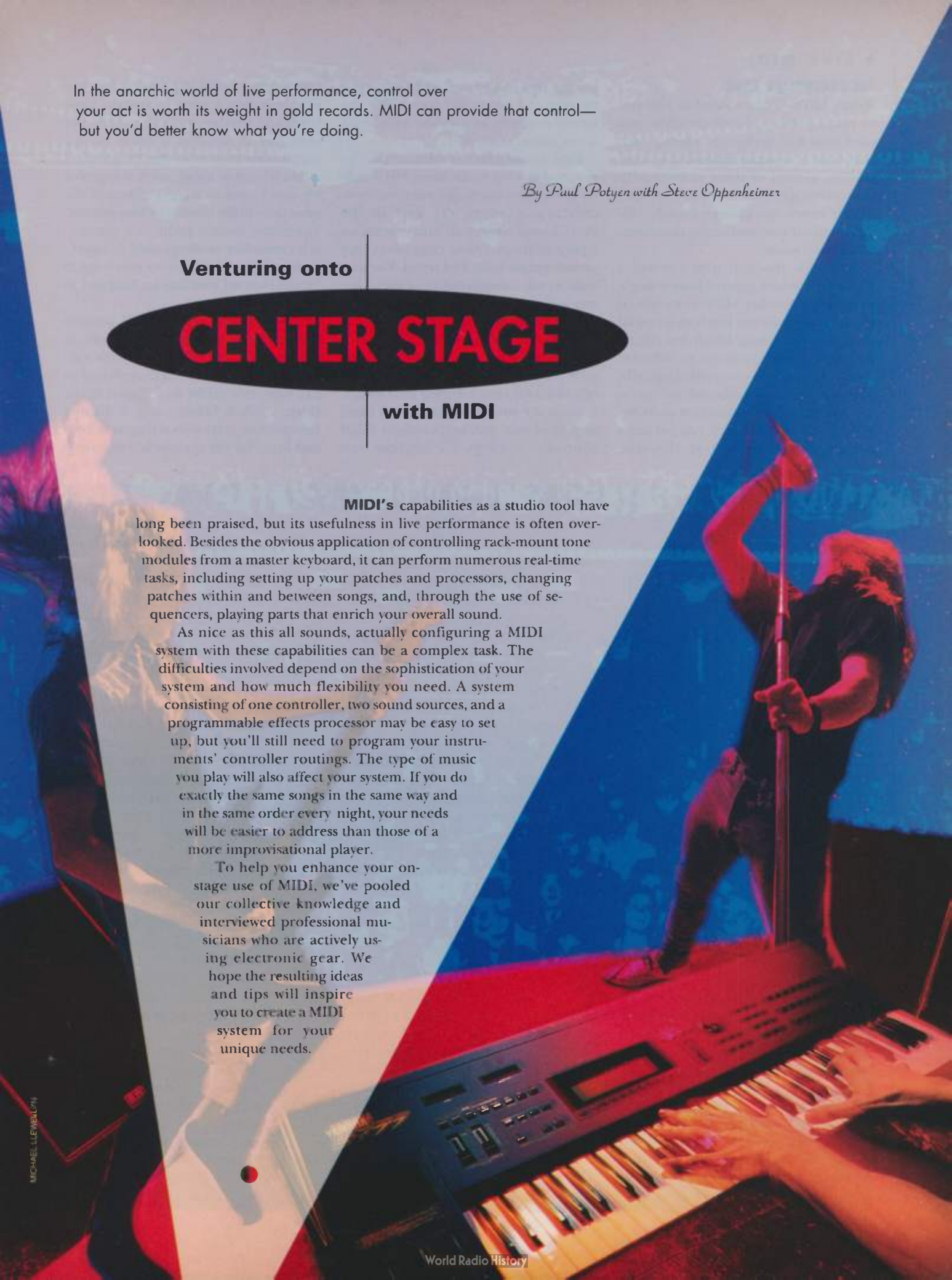
By Paul Potyen with Steve Oppenheimer

Venturing onto CENTER STAGE with MIDI

MIDI's capabilities as a studio tool have long been praised, but its usefulness in live performance is often overlooked. Besides the obvious application of controlling rack-mount tone modules from a master keyboard, it can perform numerous real-time tasks, including setting up your patches and processors, changing patches within and between songs, and, through the use of sequencers, playing parts that enrich your overall sound.

As nice as this all sounds, actually configuring a MIDI system with these capabilities can be a complex task. The difficulties involved depend on the sophistication of your system and how much flexibility you need. A system consisting of one controller, two sound sources, and a programmable effects processor may be easy to set up, but you'll still need to program your instruments' controller routings. The type of music you play will also affect your system. If you do exactly the same songs in the same way and in the same order every night, your needs will be easier to address than those of a more improvisational player.

To help you enhance your onstage use of MIDI, we've pooled our collective knowledge and interviewed professional musicians who are actively using electronic gear. We hope the resulting ideas and tips will inspire you to create a MIDI system for your unique needs.



MICHAEL LEWELLYN

THE CONTROLLER ZONE

Before MIDI, if you wanted to play two or more patches simultaneously, you used a stack of keyboards, playing each part from a separate keyboard or controlling several of them at once with control voltages (you could only remote-trigger notes, not change sounds). Either method was unreliable, expensive, and a royal hassle.

Although you can now control a plethora of sound sources from a single keyboard (or other MIDI controller), you still have only two hands to access all these sounds. *Zoning*, which lets you assign different instruments to different section (zones) of a controller (typically, note ranges on the keyboard, strings on a MIDI guitar, or individual pads for MIDI percussion systems), can put more sounds under your control. However, zoning requires you to address special routing and controller issues. For the sake of example, let's assume a keyboard is our master controller.

First, decide which instruments will be assigned to what notes. Some MIDI master controllers can assign instruments to overlapping zones; the keys in the shared zone trigger all instruments assigned to them. Other controllers only permit simple splits and layers. You may want to use a combination of splits, layers, and overlaps, and these may differ for various songs, so plan out exactly what kind of setup you'll need for each tune. Don't get carried away; you have only ten fingers for playing parts and one brain for remembering your setups.

Once the zone assignments are saved as part of your patches, consider MIDI controller routings. For instance, sustain can be critical in phrasing, but you probably don't want to sustain bass, lead, and rhythm parts in exactly the same way. In addition, if you're using a continuous controller for modulation or pitch bend in a lead patch, you probably don't want to trigger effects at the same time in the rhythm or bass patches. Therefore, sustain pedal and continuous controller routings used in instruments assigned to one zone may need to be disabled on instruments assigned to other zones.

Unfortunately, not all MIDI controllers permit this option, but you can often work around any limitations with MIDI processors such as those found in J.L. Cooper's MSB+ and Digital Music Corp.'s MX-8. When using dedicated bass patches, rely on your fingers to hold bass notes for the appropriate durations

David Torn, Master of Continuous Control

"There are no synthesizers in my live setup." It's a remarkable revelation coming from a guitarist who has been on the forefront of MIDI technology for many years (see the July 1987 EM). But Torn does use MIDI in his rig; MIDI generation comes from either the Yamaha MCS2 MIDI Control Station or the Lexicon MRC MIDI Remote Controller. "Basically, I use this stuff to perform real-time continuous control of effects parameters and program changes." This includes parameters like overall volume level of each individual effect in real time and wet-to-dry balance. "If I decide that a reverb needs to come in for a second, I can take it from -98 dB to +12 dB and back smoothly in one second." Usually, he uses between ten and fifteen pedals onstage, but only two or three pedals are used in any given piece.

"For example, in my infinite reverb program for the Lexicon PCM 70, as pedal A travels further, the reverb time will lengthen, and the chorusing will increase at the same time as the high-frequency response and the cutoff frequency decrease. The function of that pedal might change when I send a program change from the MCS2. While I do tie the programs together on all the effects units, I can also back out and change things manually because I tend to improvise as much with the effects as I do with the notes. I just hit the program change on one unit instead of on the master control."

The Lexicon PCM42 digital delay functions as a delay-looping device with as much as twenty seconds of delay time and helps make the system ideally suited to Torn's style of using very long textures. "I've looked at a lot of other guitar players' racks that are way more dense than mine, but I'm able to get so much out of one unit using continuous controllers via MIDI that I don't really need a whole lot of equipment.

"Live performance is a full-body thing with me. There are times when I have both feet and both hands in motion. If I want to change the harmonization while I'm playing, things are set up so that I can do it with either my right foot or my right hand."

Torn feels that effects control using real time MIDI controllers has not been fully covered yet. "I think there's an educational problem; so far people don't understand that they can really get a lot out of a given unit. It's very cool to be playing a guitar solo through a chorus effect and have a volume pedal controlling the speed and depth of the chorusing. I think it's the region of the future; it's not all that complex. The style of control we've seen so far—pedals, mod wheels, etc.—is what keeps people from realizing the full potential of this kind of control. But new things like [Buchla and Associates' new alternate MIDI controller] Thunder make the notion of MIDI continuous control more interesting as a performance possibility.

"There is a serious future for this stuff when guitar amps start getting some real continuous controls, and when some alternative controllers start to appear that take into account performance factors *a la* Laurie Anderson in her body suit. It's not that complicated, it's not a gimmick, and it's a lot of fun." —*PP*

Professional Reverb $200... Unbelievable

MICROVERB® II is a master quality digital reverb that will dramatically improve the sound of your music for the unbelievable price of only $200. And we can prove it.

Call 1-800-5-ALESIS and we'll send you a free MICROVERB II demo tape so you can hear the reverb professionals use. It'll make you a believer.

CALL 1-800-5-ALESIS

ALESIS
STUDIO ELECTRONICS

LOS ANGELES:
Alesis Corporation • 3630 Holdrege Avenue • Los Angeles, Ca. 90016

LONDON:
Alesis Corporation •
15, Letchworth Point • Letchworth, Hertfordshire SG6 IND.

The U-20 can store 8 chord "sets," each consisting of a different chord assigned to each pitch in the octave.

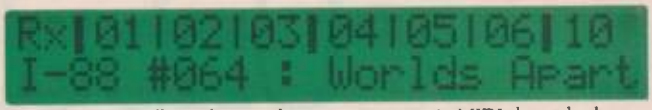
If you're considering composing, consider this: The U-20 can store four different drum and percussion arrangements, each with its own key assignment, level, panning and tuning.

Each of the 64 sound patches can have its own reverb and chorus parameters, with each part being assignable to just reverb, just chorus, or both.

While any of the 128 preset tones can be assigned to any of the 128 timbre locations, more exotic instruments can be accessed via U-Series ROM cards.

Each of the six parts can have its own effects on/off, level, and pan setting.

Any internal timbre can be assigned to one of six parts. This keyboard, by the way, is multi-timbral with a 30-voice polyphony, making it ideal for live performances.



Since the U-20 will simultaneously receive on up to six MIDI channels plus a rhythm channel, you can create entire arrangements with an external sequencer, and split or layer up to six sounds on the keyboard.

Each of the 128 user-definable timbres has its own flat and sharp bender range, making things like "whammy bar" solos as easy as the proverbial flick of a wrist.

One size fits all.

If we were to tell you that our new U-20 RS-PCM Multi-Timbral keyboard was perfect for any kind of performing, you'd probably mutter something about truth in advertising and go on about your business. So instead of telling you this, we'll let you come to that conclusion all by yourself.

And the reason we expect you to is this: The U-20 possesses an extraordinary diversity of sounds—to the tune of 128 multi-sampled tones, including both acoustic instruments and popular synth sounds, as well as a staggering array of drum and percussion sounds.

And since these sounds are the product of a Re-Synthesized Pulse Code Modulation technology, their quality is remarkable. (Basically, RS-PCM allows sampled sounds, which normally require massive amounts of data, to be re-synthesized so that they deliver great sound quality without taking up a great deal of memory.)

And because of a new, high quality signal processing, you can be as expressive with the sounds as you wish. The Roland U-20, unlike most sample playback machines, offers attack and spectra sounds that enable you to actually "synthesize" your own sounds.

All of which led one magazine to suggest, "...the only problem you'll probably have with the U-20 is finding enough time to explore everything it has to offer!"

Fortunately, it's so affordable you can start right away.

Roland®

RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040-3647 213 685-5141

instead of using the sustain pedal. If your controller has polyphonic aftertouch, you can use it to introduce modulation or pitch bend on one instrument without interfering with other instruments.

If your master MIDI controller lacks sufficient modulation wheels and pedals or a breath controller input, try a MIDI pedal like Lake Butler Sound's CFC-4, a control-voltage (CV) pedal with a CV-to-MIDI converter such as Anatek's Pocket Pedal, or a MIDI remote controller such as Yamaha's MCS2, which accepts breath-controller and CV input. (For more information on the now-discontinued MCS2, see p. 30 in the January 1987 **EM**. Also, see the sidebar "David Torn, Master of Continuous Control.")

If your controller lacks aftertouch, or aftertouch is being used for other purposes, you can spring-load a CV or MIDI pedal (so that the pedal returns to zero when you take your foot off) for hands-free modulation control. This is useful, among other applications, for bringing in vibrato on a lead part while playing a different patch (with the modulation pedal disabled) for rhythm or bass parts. Pedals are rarely precision controllers so they are of limited use for pitch bending, but you can use them for some mind-bending panning effects.

Complex systems tend to foster routing and program-change headaches. You won't have time to repatch MIDI cables, but a programmable MIDI patch bay can automate complex routing schemes for each song in your set. With Stevie Wonder's system, designed by programmer/synthesist Rob Arbittier (see sidebar), when one of the four keyboard players calls up a song from his onstage controller, it sets the MIDI patch bay to a certain configuration. The patch bay calls up the right sounds on all of the keyboard modules and the proper mixes on the automated mixers.

If you don't have a programmable MIDI patch bay, yet still want to change how patches are layered or split, you may need to duplicate some programs in other memory locations. Unless you are going to use the entire memory of the synth for separate patches (perhaps 128 or more programs), you can afford this luxury. You also may need to duplicate patches with different zoning and controller routings for use in various lead, rhythm, and bass combinations.

AVOIDING TECHNO-MELTDOWN

As any touring musician knows, playing live can feel a lot like doing high-wire acrobatics without a net. The more you incorporate technology, the greater the risk, and strange things can happen. Percussionist David Beal has been subject to enough stage headaches that he

Rob Arbittier: Cleaning up the Stage

Rob Arbittier is a programmer/synthesist and sound designer for Stevie Wonder and has responsibility for designing the keyboard setups and running them during the show. It's an elaborate setup that's the result of an evolutionary process that began with his 1986 tour.

There are three keyboard players on a revolving stage, and Arbittier sits at a fourth keyboard at the side of the stage, playing Stevie's parts when he moves away from his keyboard. One noteworthy feature of the current setup is that there are no synthesizers on stage—just controllers.

All of the keyboard splitting and mapping is programmed into the controllers for each song. "Rather than running MIDI cables from the stage, we use boxes that convert MIDI into a high-frequency audio signal that can be run down mic lines for distances of up to 3,000 feet," says Arbittier. "We can use the sound company's mic lines to send MIDI anywhere we want."

Says Arbittier, "Our shows are extremely spontaneous. We do songs in a different order every night, and every night we'll do songs we've never done before and stop doing songs that we've done for years. It's all built on how the audience is responding. Stevie has even written songs on stage.

"For as many songs as I was able to plan for, I put the song names into the musicians' controllers," says Arbittier, referring to the difficulties in planning for the unplannable. "Aside from that, we have 30 or 40 combinations programmed in, such as 'piano with string sound,' or 'flute,' so if they're doing a song they've never done before, but they know what kind of sound they want, they can call it up."

There is a sequenced aspect to the shows as well. "Because we have four sequencers, one can be ready to go when another one finishes. By using MIDI merging and routing in the patch bay we can have another song kick in almost immediately. And by using long samples, we've been able to have sequences play background vocals as well as the other music."

It's as MIDIfied a setup as you could imagine, with the guitarist and the bass player using a MIDI controller part of the time and the drums using MIDI setups mixed in with the regular kit. "It's a MIDI nightmare or MIDI heaven, depending on how you want to look at it," says Arbittier.

Arbittier concludes, "In the past you needed to have synths on stage in order to come up with your sounds. It's great that sound sources can now respond to program changes and continuous controller information as well as they do. We've had a lot more success since we've taken all of the synths off stage. It minimizes the tendency for cables to get kicked loose and equipment to get moved and jostled. And you can see the performers a lot better. By having the equipment off stage in a central area where technicians can watch it, it's made life easier for the musicians and it's made the show go a lot smoother." —*PP*

now tries to prepare for all eventualities, starting with a pedal dedicated to sending an "all notes off" message. "You never know when a pedal is not going to work or when something weird is going to happen," he notes. "Here's another precaution I take. Let's say fifteen kits are stored in my DrumKat MIDI percussion controller [which can store a total of 30 kits]; I copy kits 1-15 to 16-30 so if I get all screwed up in the middle of a show, I know that if I start stomping on that [kit change] pedal without hitting any pads, I'll eventually come back around to the desired kit again."

Along similar lines, being able to step backward through your patches can save a show if you accidentally hit an increment footswitch one too many times. Backups are also crucial; Chris Camozzi of the San Francisco Bay Area band U/Man Touch says, "You can never back up your info too many times. For all of the *Performer* files residing on the hard drive that we use for our performances, we keep a set of safeties in a guitar case on the gig and a second set of safeties at home." If it's feasible, carry spares of all your critical gear as well (see "Steve O's Tool Kit" on p. 60).

EM founding editor Craig Anderton offers additional tips:

"Although the disk drive is one of the most failure-prone parts of a synth, it's not hard to replace: pop the case, unplug a few connectors, remove the disk drive, replace it with a spare, and reconnect. If an authorized service center for the particular piece of gear can't sell you a disk drive, don't worry; synths generally use off-the-shelf drives available as standard computer replacement parts. Check the drive's case for the manufacturer, make, and model number, then buy the *exact* same kind. If there are dipswitches or jumpers, set them *exactly* the same way on the replacement drive. Also remember that your disk may be the problem, not the drive, since disks are sensitive to environmental extremes. Protect them well, and don't leave them in the van overnight when it's freezing; bring your data back to the room."

Another recipe for disaster is having your instrument lose its memory—all the spike and surge protectors in the world won't save you from a backup battery going bad. Craig recommends that you "put an adhesive label on the outside of any piece of gear that uses a backup battery, indicating the battery type and the date of last replacement. If the batteries start getting old, replace them before you go out on the road."

The most important thing is to "bulletproof" your system *before* the gig. Know your equipment intimately; just as a niche has developed in the live performance arena for sound reinforcement engineers, there is a growing need for technical people to help set up and troubleshoot complex MIDI systems in case of emergency. If it's not possible to have a tech on your gig, at least know who to call in case of emergency.

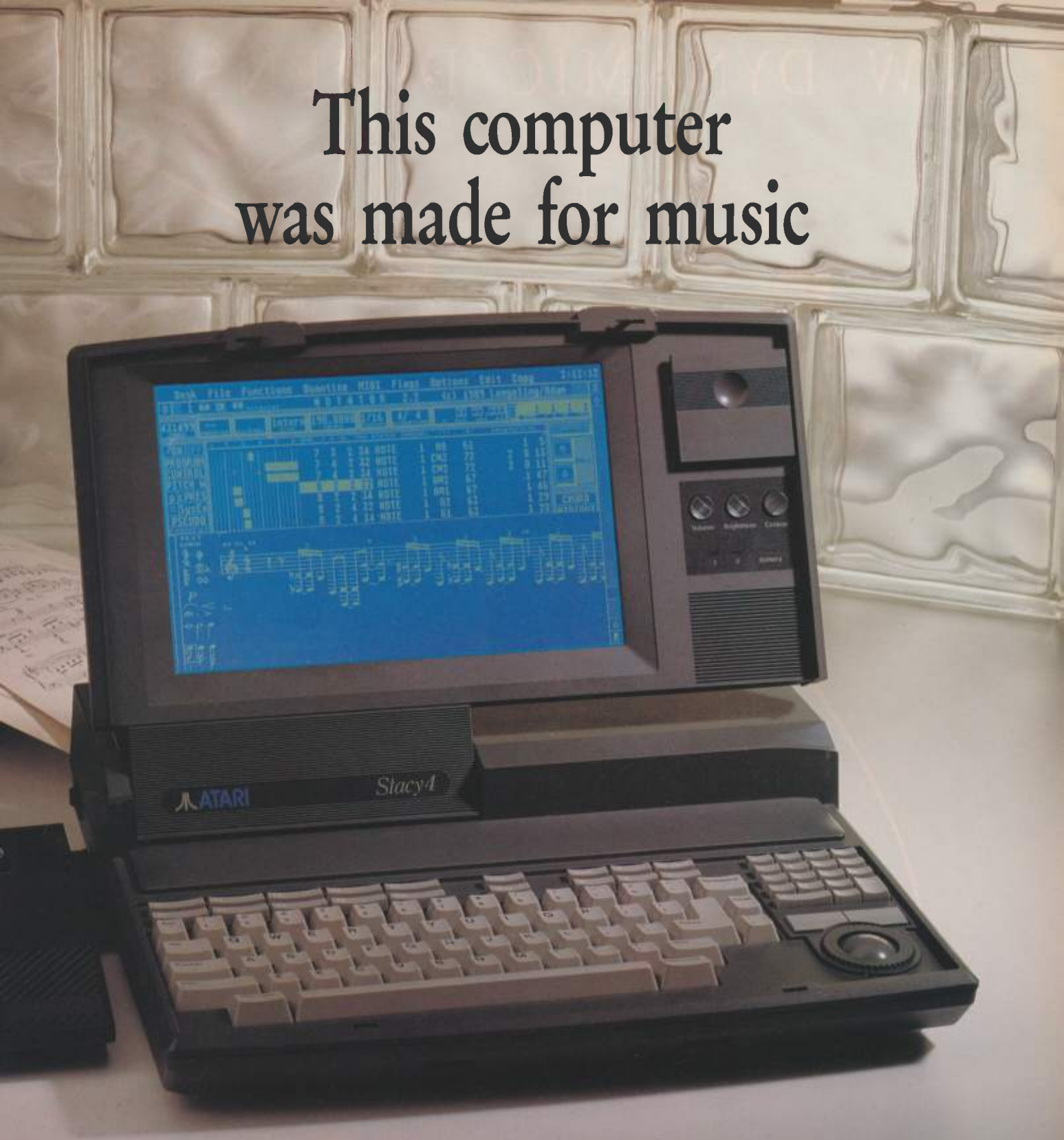
SEQUENCERS IN LIVE PERFORMANCE

Sequencers can be extraordinarily handy in live performance. In fact, solos and duos often owe their existence to them, and even large ensembles can put them to good use. However, if you use the sequencer to fill in on some instruments, don't condemn it to making robotic-sounding music. Thanks to the timing resolution and sophisticated editing features of today's sequencers, with a little work you can program sequences that really groove.

Sequencers can also perform some very handy organizational chores without playing a note. If the sequencer can record and play back system exclusive Sysex information and send patch information, it can instantly reconfigure your entire setup for each song. Sysex messages can take a long time to send, so you may be better off loading all the necessary patches before a gig and just using program changes during the gig (or simply send the sysex for one program at a time, which should take much less time). As the song plays, the sequencer sends the prerecorded program changes to MIDI sound sources and effects processors, MIDI-controlled patch bays receive routing instructions, and MIDI-controlled mixers respond to panning and level instructions. This technique is common in the studio environment, but is equally useful in live performance (see "Sequencing for Live Performance" in the March 1988 **EM**).

If you're using a sequencer in conjunction with a drum machine, determine which will serve as the master timing device for synchronization purposes, and make sure the two communicate when it comes to selecting songs. In many bands, drum machines sit near the drummer (that is, if they still have one), while sequencers are near the keyboard player. Determine who is better suited to

This computer was made for music



... Introducing the Atari Stacy™ Portable Computer

ATARI COMPUTER

For more information please call or write:

Atari Corporation, Music Division, P.O. Box 61657, Sunnyvale, CA 94088

408-745-2367

NEW DYNAMIC DIMENSION.

The DC 24 Multi-Function Dynamic Controller.

ther designs give you "either/or." The DC 24 gives you "AND": Two limiters AND two compressors AND two gates AND a built-in crossover, all in one compact unit.

A NEW SERVO-LOCK LIMITER DESIGN means more transparent limiting no matter how drastically the program material changes from moment to moment. Our servo-locking circuit is smart enough to continuously maintain just the right ratio necessary to guarantee flawless control.

SEPARATE COMPRESSION CONTROLS allow you to dial in the perfect amount of dynamics you want, independently of the limiter. Extremely low-noise, low distortion VCAs guarantee a level of performance that will satisfy the most demanding recording or broadcast requirements.

THE INDEPENDENT EXPANDER/NOISE GATES can be adjusted to tighten percussion or turn off background hum and noise, without effecting any of the other dynamic control operations.

A BUILT-IN 4TH ORDER CROSSOVER transforms the DC 24 into a bi-amp crossover/processor all-in-one. You can minimize feedback, maximize speaker protection and save considerably on equipment costs. Or use the DC 24 as a band-split mono controller to obtain more consistent broadcast or recording signal strength with less "pumping" and "breathing."

Why put up with the expense and bulk of handling 3 or 4 conventional units? Get greater precision and more versatility with fewer side effects, all packed into a single compact unit. Experience a whole new dimension in dynamic control from Rane.

RANE

Rane Corporation
10802-47th Ave. W. Everett, WA 98204
(206)355-6000

load up the songs and start them, bearing in mind that the different boxes may have different timing resolutions and timing stability.

You can avoid sync problems by programming drum patterns within the sequence and using the drum box as just another MIDI sound module. If you do, though, make sure that the slave does not respond to MIDI clocks and start/stop commands, or you may end up having the drum machine start a jazz waltz sequence while the sequencer tells the synths to play "Johnny B. Goode."

Since many MIDI controllers let you send MIDI start, stop, and continue messages to connected sequencers or drum machines, the sequencers don't necessarily have to be within reaching distance. Many software-based sequencers also permit you to remotely control their transports (and many other functions) via MIDI messages, so if you have a program that offers these features, use them. Finally, incorporate some kind of countoff in the sequence itself; if your sequencer supports tap tempo, you can use that instead.

Regardless of how you decide to arrange your sequences, you'll want to load in new songs as rapidly as possible to minimize "dead air." If you're using a computer-based system, you can take advantage of live performance routines or companion programs that assemble "playlists" of sequences. These programs load one song while the other is playing or load tunes in RAM for instant access. If your sequencer doesn't include these capabilities, consider an off-the-shelf macro program to automate and speed up the process. Chris Camozzi of U/Man Touch notes, "[Guitarist Gary Cirimelli] has set up macros on the Mac using a program called *Tempo* so that he touches only two buttons to get to the next tune. When the song ends, he hits one key that closes one song and opens the menu box for selecting the next song. A second keystroke opens the tune we want and starts playing it. Each tune has a count-off. It takes about fifteen seconds from the end of one tune to the beginning of the next."

As nice as computer-based systems might be, however, computers are seldom built to rock 'n' roll specifications. This is why many musicians have opted for a hardware-based system such as Roland's MC-500, or the sequencers built into the latest generation "workstation" instruments, for live sequencing. (It's possible to combine the best of both types of systems by generating your sequences on a computer-based system at home, and then transferring them

David Beal: Let Them See What They're Hearing

One of percussionist David Beal's recent projects was a duo recording with drummer Michael Shrieve, *The Big Picture*, that made extensive use of MIDI technology. The two were also featured in a concert at the January National Association of Music Merchants (NAMM) show in Anaheim.

The main controller he used at NAMM is a DrumKat with eight Dauz pads (made by Dan Dauz) plugged into it. Another eight pads plug into an Aphex Impulse, a trigger-to-MIDI converter. Those two outputs are merged into the Emulator III input. He uses one foot switch to switch kits on the DrumKat. Another foot switch, triggered by a Boss footpedal, controls the hi-hat pad on the Kat, which allows him to trigger one note when he depresses it and another note when he lets go. "The Boss pedals feel good," says Beal, "and you can latch a bunch of them together so they won't take off on you onstage.

"I stand, rather than sit, when I'm playing for several reasons: first, people don't get it when you're sitting and playing pads. The first time I did one of those shows, I sat, and I used double-bass drum pedals for bass notes. I had these alternating patches so every time I hit the pedal it would alternate to a different bass note. They couldn't figure out where the sound was coming from or who was playing it. Then on a stadium gig I did, I stood behind several Octapads hooked to a whole bunch of MIDI gear. Afterwards, I didn't get questions about where the keyboard player was because people saw me move to hit something. They have to see it. So now, if I'm going to do a really big sound like a huge explosion, I put it on one of my top rows of pads, three feet up in the air, so I have to really reach for it. When I go for it, they understand."

Beal is very excited about the possibilities of MIDI processing and the use of continuous controllers. "One thing I've done is used the Axxess MIDI Mapper [a hardware MIDI processor] to do some neat things, like using a set of hi-hat samples starting from the hardest, most aggressive hits all the way to the most open, smooth hits, across the range of a keyboard. If I map a footpedal to send out increasing MIDI note numbers as I push down on the pedal, I can access the whole range of hi-hat samples by using one drum pad and the pedal. It's real-time and interactive. There are so many things you can do, like panning on cymbal crashes, or mapping fifteen different congas across the keyboards, triggered by two pads. Or you can use the Lexicon PCM70 [a digital effects processor] to link effect parameters such as room size to velocity.

"I think it's just at the point now where you can start to take advantage of real-time controllers to do expressive improvisational playing. If you bring a snare drum sample on a pad it will never be as expressive as a snare drum. But if you start using filters and velocity switches to go from low field drums to piccolo snares and then link them to your effects, it can be a *more* expressive instrument. That's what interests me." —*PP*

into a hardware system for a gig. See "Sequence Transfer: From Studio to Stage " on page 66 for more.) Also consider rack-mounting your computer; several companies, including Mac 'n Rack, are dedicated to performing just such a service, and there are several PC-based rack-mount systems. Yet another option is a device like Acme Digital's new MIDI Buddy, which, among other features, can read and playback standard MIDI files from disk. Devices like this offer no editing whatsoever; they're based on the logical presumption that you'll do all that *before* the gig. You just load in the sequence and hit play.

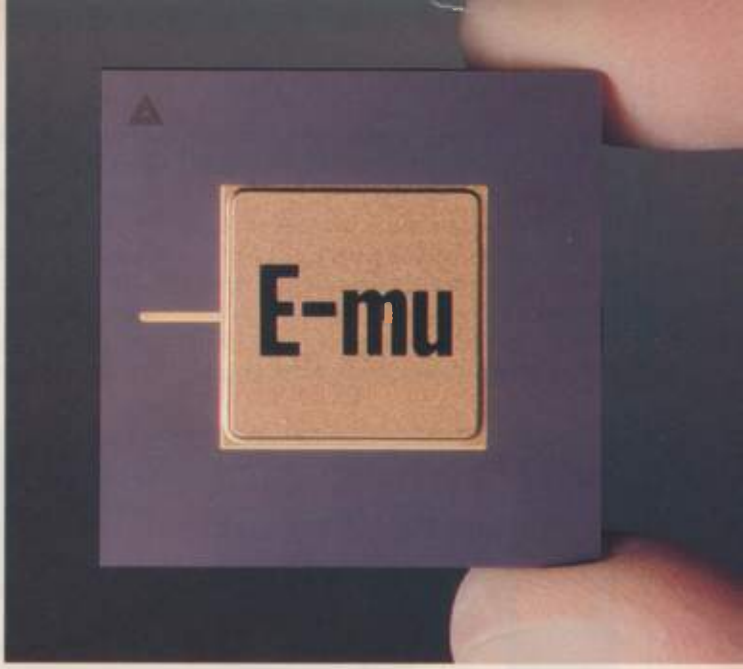
If you do use a hardware-based sequencing or sequence playback system, the oft-ignored MIDI song select message can come in handy. Keep a list of song names and assign them all numbers; when it's time to load a new song, send the appropriate song select message, and the song will be called into memory, ready for playback. If you're not sure how to remotely send a song select message, check out Peavey's MIDI Director, a hand-held box that can send song selects and program changes, as well as start, stop and continue commands.

DRUM MACHINES: THE RHYTHM METHOD

The most common type of sequencer used in live performance is the ubiquitous and much-maligned drum machine (which actually combines a sequencer and sound module). Although many musicians abhor the mechanical precision of traditional "bang boxes," the economic realities of low-paying club gigs, the desire to re-create recorded music, the need for more sophisticated percussion than the band could otherwise supply, and the emergence of the electronic one-person band brought the drum machine wide acceptance. You can reduce some of the mechanical feel (if you want to) by using the "humanizing" features found in recent-vintage sequencing software and hardware sequencers, the Roland R-8 or R-5 drum machines, or the Aphex Feel Factory.

As with stand-alone sequencers, the set list must be figured out before going onstage. If you follow a strict set list and use a drum machine, you'll probably have no problem. You may be able to program the order of songs in the machine or step through the programs with a footpedal; if not, check to see if your drum machine responds to either

THIS WILL CHANGE THE TUNE OF THE MUSIC INDUSTRY.



They're already singing the praises.

"The cleanest, clearest, quietest electronic instrument I've ever heard," reports *Electronic Musician*. A top contender for "Technological Innovation of the Year," says *Keyboard*.

What's elicited this chorus of raves is Proteus™—

How can we deliver the uncompromised sound quality of the EIII for under $1000? That's the $10,000 question.

E-mu's new 16-bit digital multi-timbral sound module.

And what makes Proteus such a noteworthy achievement is our G chip. A sliver of silicon that combines the legendary sound quality of the Emulator™ III with total, unfettered creative freedom.

For under $1000.

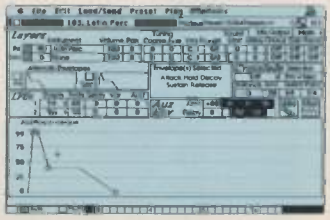
An undeniably modest price to pay for 4 Megabytes (internally expandable to 8 MB) of multi-sampled acoustic and electronic instruments selected from the EIII library. Plus a rich palette of digital waveforms. All stored in ROM and available simply at the touch of a button.

With 192 different presets, you can toot your own horn and then some. Our Proteus XR version has an additional 192 user presets.

With Proteus' extensive programmability, you can reshape and reassemble sound endlessly. Our unique MidiPatch™ modulation system provides real-time access to over 40 performance parameters. So you'll never have trouble expressing yourself again.

To handle your most complex compositions, Proteus' 32-voice polyphony responds multi-timbrally to all 16 MIDI channels simultaneously. There are also six programmable stereo polyphonic outputs with integral effect send/returns for on-board mix-down.

Designed and supported in the U.S. by the people who pioneered sampling, Proteus is incredibly easy to use. Yet will satisfy even the most power-hungry programmer.



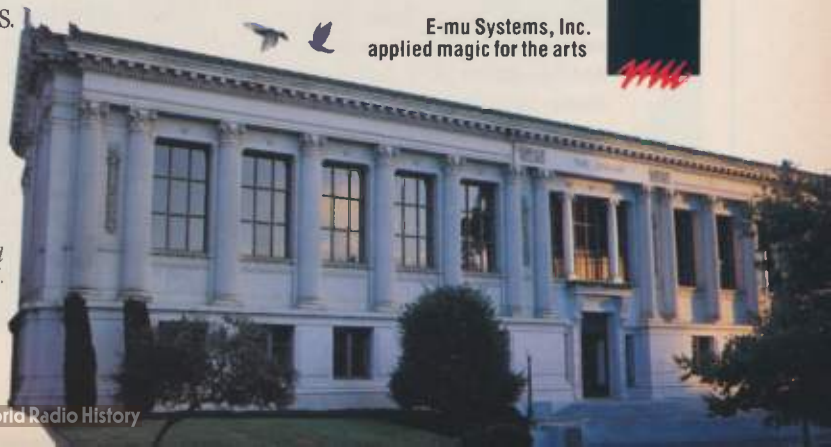
For the serious programmer, Opcode Systems has created a graphic Editor/Librarian for Macintosh™ and Atari™ computers.

To hear the new sound of music, simply visit your local E-mu dealer.

Where Proteus is available for a song.

E-mu Systems, Inc.
applied magic for the arts

Proteus is your library card to the world's most revered sound library: the Emulator III.



program change or song select messages and get access to a MIDI controller that can send these messages.

For those who want to use sequencers live but dislike robotic tempo control, products like the Aphex Studio Clock (reviewed in the January 1990 issue) can drive sequencers by triggers from a hi-hat or other real-time instrument, giving you the best of both worlds. The Studio Clock follows a live musician, and the sequencer follows the Studio Clock. For now, this is as close to truly "humanized" sequences as you can get.

The more sequencing you do, the closer you get to a studio situation. This issue leads logically to the larger question, "Is there any conceptual difference between a recorded performance stored in MIDI code and a recorded performance stored on analog tape or a compact disc?" The answer is not simple or obvious, but there's no question that live sequencing and sampling can provide a useful supplement to live music.

Mark Isham, who is equally at home on stage as in the studio, offers this view: "I certainly have no problem with the issue of whether my music is considered 'live' as opposed to 'tapeless recorded' as long as it's mine. I've made it my own; I'm still a performer getting expression out of my instruments. It's very popular these days to have background vocals on samplers. For me, the question of whether or not that's okay depends on what else is going on. Certainly, a taped background vocal is not going to be as great as a live background vocal section.

"On my album *Castalia*, I had my brother play bagpipes on one tune. It was difficult to record that track in tune. When I went out on tour I couldn't ask my brother to modify his bagpipes and go out on the road with me to just play one tune. So I sampled the entire bagpipe performance off the master into four 5-second phrases, and I flew them in by assigning them to the bottom four keys on my controller, triggering them at the right moments in live performance. It contributed greatly to the performance, and it was much more effective than trying to play a bagpipe using one sampled bagpipe note. If the sounds are musical, they can be made into music; the key is who is the creative force behind it."

AND NOW, THE NEXT STAGE

No matter which instrument you prefer or what kind of music you play, chances are you can find ways of taking advantage of this burgeoning technology in live performance. Every month we see additional tools that allow for unprecedented, imaginative, musical expression. However, like any other musical instrument, these new tools require practice and care in use. Just remember to always let the technology know who's boss; the way to do that is to know your equipment inside out, and use it creatively to enhance your performance—not substitute for it.

Paul Potyen *is associate editor of* Mix *magazine and a veteran keyboardist, composer, and arranger. He is also founder of the Twelve-Step program for recovering musicians.*

Mark Isham: Preparation is the Key

Mark Isham was one of the first in line when the ARP 2600 was unveiled, and his interest in the use of synthesizers and effects has remained unquenchable. He makes use of the technology in the studio as well as in live performance, both on trumpet and keyboards.

"I have a pretty simple rack for the trumpet," Isham says, "but it's pretty effective. I use the TC Electronic TC-2290 digital delay line and the Eventide H3000 harmonizer. The TC has a series of footswitches that allow you to step through different MIDI programs. Off to the side, there's a set of soft switches. When you push them down, they scroll, and when you let go, they remain at whatever value you scrolled to. I have them set to delay time, volume level, and feedback level. Another switch is a stomp-on/stomp-off switch that I use for setting delay times for live performance by simply stomping in time to the tempo.

"I have a MIDI Patch Map hooked up between the H3000 and the TC-2290 so the H3000 just follows the program changes from the delay line. As a result, I don't have any real-time control of the 3000 other than patch changes. So, for example, with a typical short delay I program into the TC-2290, I'll have four or five different transpositions set up on the H3000. Each of those is stored as a separate program and is accessible from the footpedal. If there's a series of fast changes, I'll put them in a row. It's similar to the arrangement on the old Prophet-5s. Ultimately, I want something that will allow me the flexibility of getting any sound or effect up quickly."

Does he think the technology is to the point where it can be used in an improvisatory way?

"I think it is. Like any other instrument, it's a matter of just knowing where things are, being familiar with it. Going wireless for me was a tremendous help. Without it, as a trumpet player I'm just glued into position at the microphone, and I can't take quick looks at my pedals or my effects settings.

Isham cautions, "Without a doubt, preparation is the key. You just can't throw it together. For instance, when we were out on this last tour we rehearsed as a band for eleven days, but I spent three weeks before that with MIDI percussionist Kurt [Wortman] and the other keyboard player in pre-production. If we had gone into rehearsal with none of that stuff figured out, we would have never been able to have a musical rehearsal. Kurt was doing a percussion keyboard role, and that just takes a tremendous amount of preparation. Basically, you are designing a new instrument for every tune. It has to be comfortable; you want to walk out on stage and feel totally in control." —*PP*

DPM™ 3

"Even under the microscope, the Peavey (DPM 3) sounds are uniformly excellent." — Craig Anderton, *Electronic Musician* Magazine

"...a powerful contemporary sound."
— *Keyboard* Magazine

"...Most Innovative Keyboard" 1990
— *Music & Sound*

- *Totally DIGITAL PHASE MODULATION SYNTHESIS (DPM)*
- *Software-based voice/program generation*
- *Dual Multi-Effects Processors*
- *16-voice Polyphonic/16-voice Multi-Timbral Dual Oscillator Program Architecture*
- *4 Megabytes of 16-Bit PCM Wavesample ROM*
- *27 MegaHertz DSP sound generation eliminates dedicated hardware approach*

- *720K byte/3.5" PC-compatible floppy disk drive*
- *Software upgradable — Only a software update away from next year's model*
- *MIDI or Disk loadable PCM Wavesample RAM expandable to 512K*
- *"Tape Deck" — Like 9-track 20,000 note MIDI Sequencer*
- *"Up-Front" studio quality 16-bit PCM Wavesamples*
- *61-key dynamic keybed with "aftertouch" and velocity sensitivity*
- *5 totally programmable 32-piece Drum Kits*
- *100 Internal Programs (Expandable to 200 with Peavey Cache™ Card)*
- *Capable of operation as a MIDI Master Controller via Global Data Storage and Multiple Channel control*
- *Diagnostic Disk runs complete system check on internal functions*

For further information, call the DPM™ 3 Hotline 1-601-483-5370

PEAVEY®

Puts The Music Back In Your Hands.

Peavey Electronics Corp.
Meridian, MS 39302-2898
(601) 483-5365 Telex: 504115

The P.A. work doesn't end with getting a good sound to the audience—the people onstage have to hear what they're playing, too, or the rest is for nothing.

By Mark Herman

The Essential

STAGE MONITOR

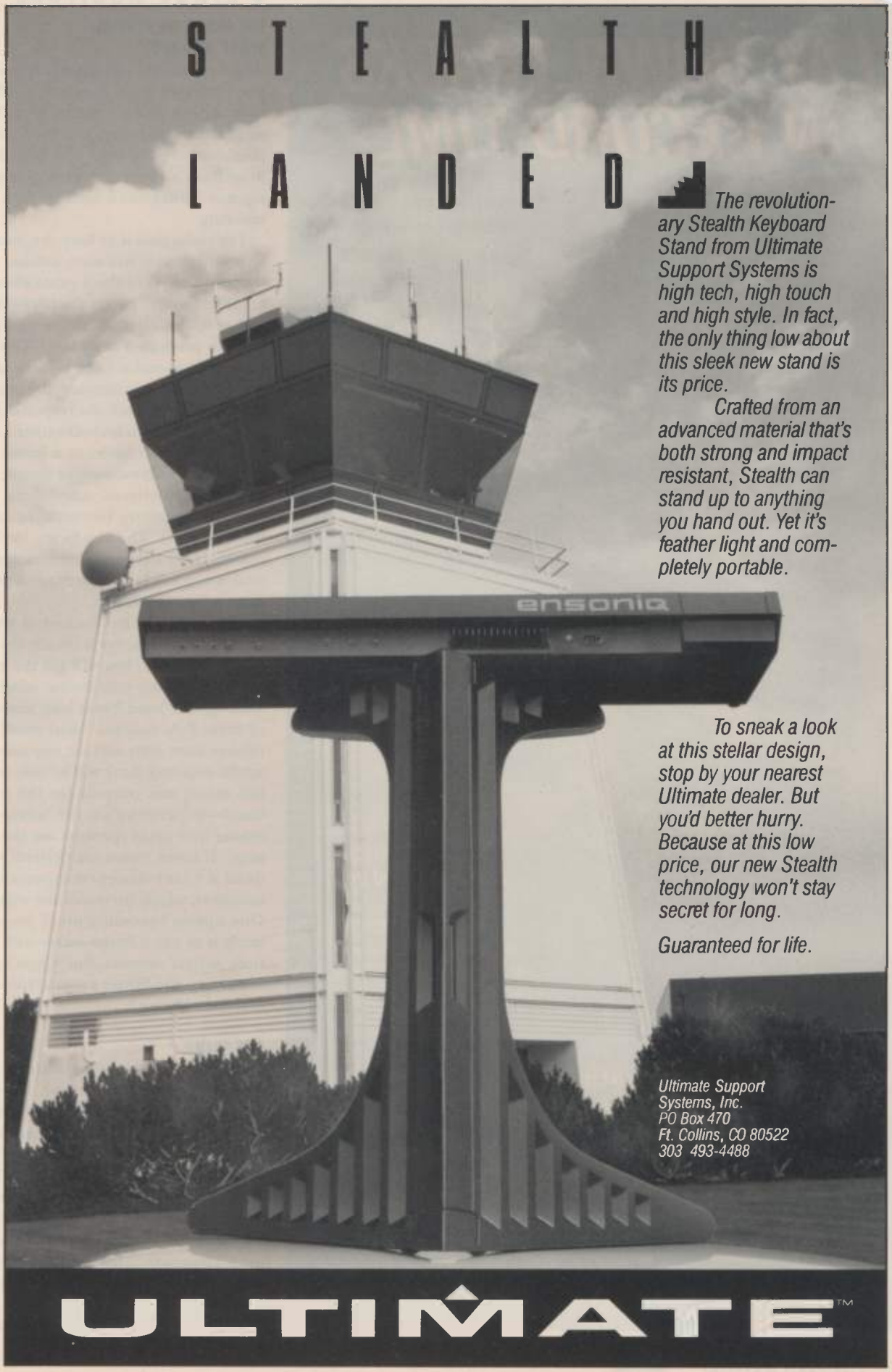
HAVE you ever plodded off a stage, muttering, "I hate this gig; I can't hear myself"? Your dream of performing live, with a killer P.A. system blasting away, can become a nightmare if you don't think about the stage monitor system. All concert tours and many clubs have some sort of system for performing bands. But when playing small clubs, outdoor shows, parties, and rehearsals, the band typically has to provide its own house and stage monitors.

There are three main alternatives for those who need a small and efficent monitor system:

- ▼ Skip the monitors and hate the entire experience.
- ▼ Do it yourself with your own sound system.
- ▼ Rent a monitor system (and possibly personnel) from a local sound company.

Although it's great to step onstage with a professional monitor setup and your own monitor engineer, be prepared to pay at least $150 to $400 (or more) for that experience. After a few gigs empty your wallet, you will probably decide to get your own monitor system.

There are many options available, ranging from a single mix with tiny, stand-mounted, powered speakers to elaborate multimix systems with a separate mixer, rack of power amps, 1/3-octave EQs, and speaker cabinets powerful enough to serve as a small "main" system. Before you decide what equipment to buy, recognize your monitors' purpose and what the trade-offs are with each sound system.



THE MONITOR SYSTEM: WHAT AND WHY

When musicians can't hear themselves play or sing onstage, they have a difficult time staying in tune and in time (especially if using a sequencer). Even though musicians are the ones who benefit the most from a monitor system, many still do not understand its function and makeup.

The main goal is to have the music as loud and clear as you want, without causing feedback. (Feedback exists when the amplified sound enters the microphone and is re-amplified. With enough gain, this can produce a nasty howl. The only remedy is to reduce the volume or reduce, through equalization, the peaks in the sound to smooth the response.)

Monitor systems include either a dedicated monitor console, or a house mixing console with monitor or matrix send outputs, equalizers, amplifiers, and monitor speakers (sometimes called floor wedges). The key factor in determining how extensive and expensive your setup will be is how many separate stage mixes you desire.

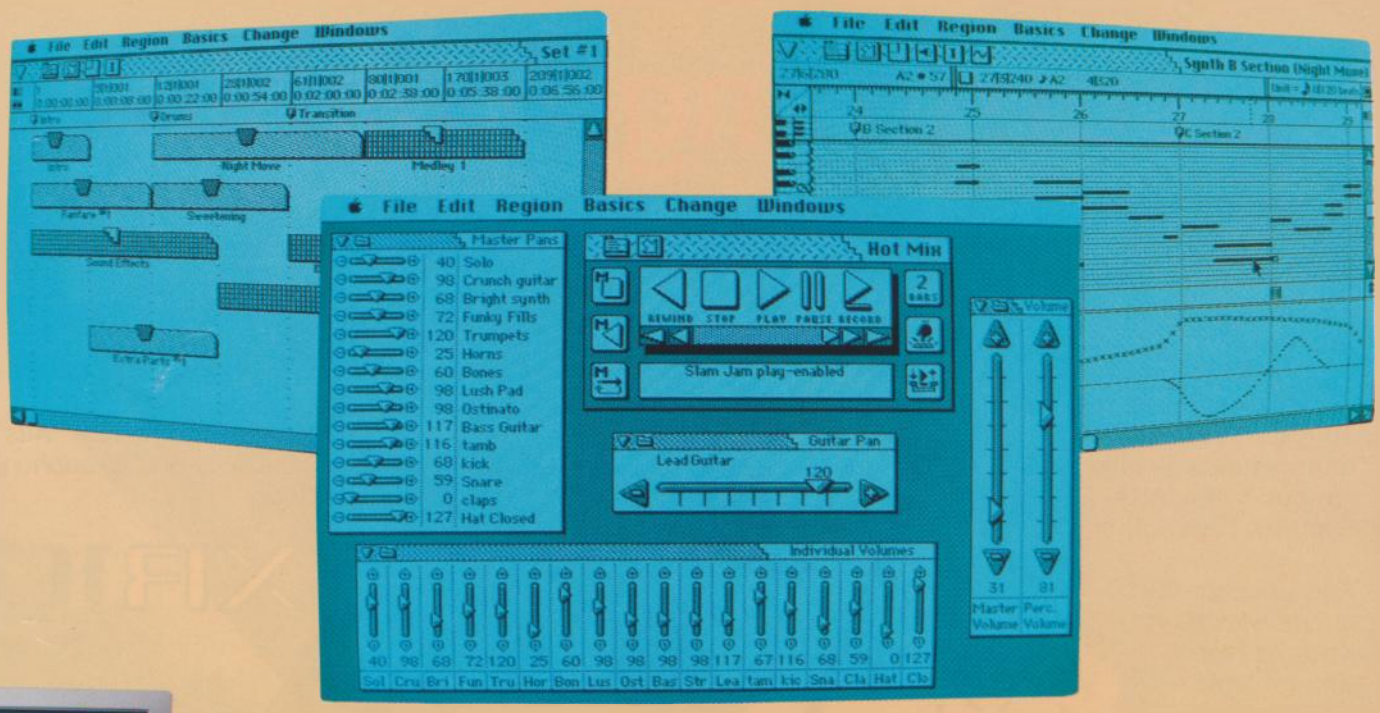
If your funds are limited, a simple one- or two-mix setup is usually the only choice available. You will get the monitor feed(s) from your house mixer (assuming your band has at least some sort of main P.A. system). Most small P.A. mixers have only one or two monitor sends, meaning there will be only one or two mono mix outputs for the entire band—depending on the mixer—no matter how many speakers are used onstage. If more mixes are desired, you'll need a mixer designed especially for monitors, which increases the expense. One option becoming more prevalent lately is to use a house mixer with multiple matrix outputs, but if you're not supplying the house system, you can't count on having it.

THE SETUP

Ideally, in any monitor system, each monitor output should feed an equalizer (graphic or parametric) whose output feeds one amplifier channel that drives the monitor loudspeaker (two monitor wedges can be run off the single amp channel). If your monitors are bi-amped, the EQ would first feed into a crossover that would drive two amp channels. This type of monitor setup holds true in the largest of concert and the smallest of club systems.

In the simplest setup needed to pro-

Consummate Performer



Fulfill your musical inspirations with Performer's powerful graphic sequencing environment.

Performer's *animated* Sliders give you unlimited faders to control volume, pan and other MIDI data with a familiar mixing board interface. Sliders can re-assign incoming MIDI data in real time, letting you route any controller on your MIDI hardware to a variety of functions. Performer's Master Sliders can control an entire bank of sliders. And you can customize your consoles with vertical and horizontal sliders in your choice of long or short throw.

Chunking™, Performer's revolutionary graphic arrangement feature, lets you chain and stack multiple Chunks™ of music for sequential and simultaneous playback. And Performer's Remote Controls let you cue and play any sequence on-the-fly, directly from your MIDI keyboard. Performer will even load your sequences automatically from disk as you need them!

Of course, Perfomer still has the most complete event editing features: they let you work with *all* MIDI data in simultaneous graphic and list editing modes, without constantly switching views.

With its comprehensive controls and intuitive design, Peformer lets you realize the consummate performer in you.

TEC
TECHNICAL EXCELLENCE & CREATIVITY
THE 1989 TEC AWARDS
WINNER

Mark of the Unicorn, Inc., 222 Third Street, Cambridge, MA 02142 (617) 576-2760

The Ultimate Drumming Machine

To designate any product as the Ultimate in its class denotes a confidence over and beyond any perceived competition. The AKAI XR10 is exactly that type of product.

Brought to you by the recognized leader in digital sampling technology, the XR 10 features the same 16-bit digital drum sounds already made famous by the AKAI S1000 Sampler. Powerful!

And since the XR10 arrives with 50 rhythms (each with multiple variations), 65 different 16-bit sounds (plus 32 edited personalized sounds), and has MIDI implementation for external velocity pad or keyboard control, it doesn't take a rocket scientist to immediately make music. Flexible!

If powerful 16-bit sounds and flexible ease of use answers your definition of Ultimate, we went one step further. Price. Only $699.

- *65 Internal 16-bit Digital Sampled Sounds*
- *32 User Programmable Sound Variations*
- *Flexible Sound Editing Controls*
- *50 Preset Rhythms / 99 Programmable Patterns*
- *20 Complete Songs / 99 Patterns Per Song*
- *10 Different Performance "Kits"*
- *Stereo, Effect, and Headphone Outputs*

XR10

AKAI *professional*

P.O. BOX 2344
FORT WORTH, TEXAS
76113-2344
(817) 336-5114

vide, for example, at least one mix and four monitors, you can get by with a house mixer with one output, one equalizer, two amp channels (use a Y cable from the EQ), and four speakers, using two speaker cabinets per amp channel. I've fudged the one EQ/one amp channel/one monitor-per-mix ideal, but it will work, and it is the cheapest way to have some form of monitors. The main drawback is that only one equalizer has to handle the entire monitor system, and the results can be disappointing. If your house mixer has more than one output feed available, use one EQ per amp channel per monitor mix.

Sometimes the simplest, most effective solution for those on a tight budget, with no floor wedges and only one output mix, is to use sidefills—loudspeakers placed on the side of the stage, facing the performers—instead of individual wedges. Additional main P.A. cabinets can disperse the sound over the entire stage. The main problem with sidefills is that feedback problems can occur easily since they are not in the maximum rejection area of the various microphones' polar patterns. (For more on polar patterns, see "A Microphone Primer" in the March 1990 EM.)

If you perform regularly, one of the best things you can do is build up a professional, multimix monitor system that allows every person in the group to have a separate mix and individual monitor. New and used, rack-mount and standalone, dedicated monitor mixers can be purchased for around $1,200 and up. These units will come equipped with 3- or 4-band equalizers on each input channel, usually eight outputs, and some degree of metering. You will still need one EQ per amp channel per monitor for every output, but the result will be much more control in any environment. With this setup, you will be assured that the stage mix will be nearly the same each show. At this point, it could be advantageous to have someone engineering during performances in order to bring out the system's full capabilities.

Separate mixes are necessary because everybody has different preferences and needs when hearing and performing in a high-volume, amplified environment; musicians perform better when they hear what they want. Most guitar players and lead vocalists love to hear just themselves, bass players want the drummer's snare, backup vocalists cue off the lead

singer, drummers like more drums, bass, and a little of everything, etc. You also might find that just a vocal mix is needed for the frontline players (they can hear the instruments from the on-stage amps) but the drummer requires a separate mix containing a little of everything. Drummers often complain that they can't hear the band's stage amplifiers because of the stage layout and the masking effect (tendency of one sound to obscure, or "mask" another) of their drum kit, especially the cymbals. In this case two separate mixes are needed.

Remember that the monitor system quality also affects the quality of sound in the house sound system. Some of the monitor sound gets into the microphones and makes a difference in the what the audience hears. If the monitor sound is distorted, the overall sound in the house deteriorates considerably.

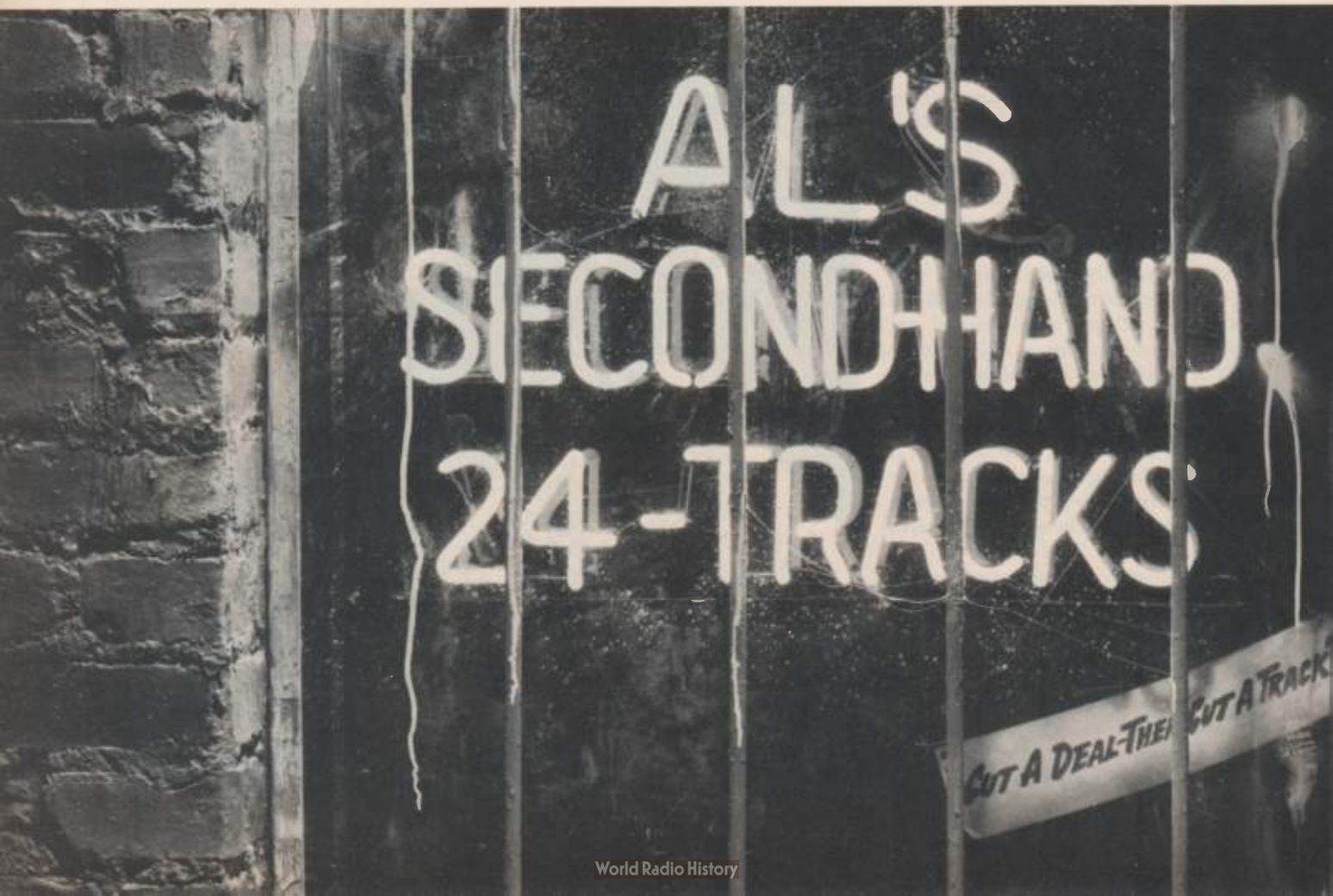
Equalizers are the musician/engineer's tool for shaping the sound on-stage. A monitor equalizer's primary function is to increase the available gain before feedback occurs and to control resonances and peaks. Graphic EQs are commonly used because they are less expensive and require less expertise than parametric EQs. It is more desirable to use a 1/3-octave EQ (one that has three bands per octave) than a one-octave EQ. If you are interested in high-level performance and have the money, parametric equalizers offer far more control and signal-shaping than standard graphic equalizers, albeit over fewer bands for a comparably priced unit. Parametrics can boost or cut response and selectively adjust the bandwidth and frequency.

When placing monitor cabinets, keep the sound out of the microphones as much as possible. Speakers should be placed in the maximum rejection area of the microphone's polar pattern; if you use cardioid mics, which are generally preferred for stage use, the maximum rejection area is usually to the rear of the microphone. Different models of monitor cabinets vary in their dispersion characteristics, so consult the manufacturer's data sheet to aim the monitor in such a way that the performer is located in the main part of the speaker's dispersion pattern. The entire system is useless if the cabinet is set facing the performer's stomach, facing the ceiling, etc., or in the case of sidefills, aimed slightly behind the back.

RINGING OUT

Before any show, take the time and "ring out" the monitor system. Ringing out means adjusting the EQ of each monitor output so that nasty feedback problems are eliminated, or at least considerably reduced, by suppressing peaks caused by the microphone's response, the speaker's response, and acoustical reflections onstage. It is best to ring out the system with all the performers and equipment located exactly as they will be for the show. *Caution: Performing this process will likely create high feedback levels.* Be careful with your ears; it can be quite painful to experience the full brunt of loud feedback.

To start the ringing out process, go through each output one at a time and gradually increase the volume until there's a slight ringing sound. Turn the volume up carefully until feedback be-



gins, then locate the offending frequency on the equalizer by pulling down (just a little—only 3 dB) the frequency band that responds to your adjustment and stops the howling. After finding the right frequency band, increase the volume again, and if it starts to howl at the same frequency, pull it down just a little. If it rings at a different frequency, try another band and repeat this procedure until you reach a point where most of the frequencies start to howl all at once. At this point, pull the gain back below the threshold of feedback; you have achieved the maximum level.

If you have more than one output, proceed to the next monitor mix. When you are finished with the monitor sound check, pull the monitor level down a bit to allow extra headroom for later in the show (during the live performance, most musicians tend to turn the volume and intensity up as the show progresses).

Keep in mind that even after the sound check, small changes in the room's temperature, stage layout, microphone movement, and relative humidity can change the stage acoustics considerably. This is why a perfect sound check does not mean a perfect show, and why monitor engineers are employed for demanding situations.

USING YOUR SYSTEM

Correct system design and equipment setup is not the only part of having a successful monitor system. The musicians must cooperate in the entire process. One of the biggest problems in mixing monitors is performers' tendency to increase their volume during the performance. Every sound engineer will tell you that as soon as one person turns up, everyone else does also. Strive to maintain a relatively constant, low to medium volume onstage. Do not make unreasonable demands on the system. If your system is simple, do not expect it to put out the massive sound pressure levels one would expect on a Motley Crüe tour.

In a small, one- or two-mix system with emphasis on vocals, do not plan to run all the instruments through the mix. Speakers are designed to handle certain power and frequency ranges, and smaller monitor wedges can seldom handle low frequencies that emanate from the bass, kick drum, and keyboards. If low end is desired, obtain speakers designed for this use. Bi-amplified floor wedges are popular when high output is demanded; of course, that requires twice as many amplifier channels.

One key to a hassle-free monitor system is having the equalizers, amplifiers, and crossovers (if needed) rack-mounted and prewired. This will save on sound check setup time, reduce cabling disasters, and make transporting the equipment easier.

The monitor system is just as important as the main P.A. system. Further educating yourself and other band members on its use will only add to the stature and quality of your live performances. Best of all, when the music sounds good onstage, it makes performing a lot more enjoyable.

Mark Herman *is the sound reinforcement editor of* Mix *magazine and operates a company specializing in console rentals for live sound and touring applications.*

ROM MEMORY CARDS for KORG & ROLAND SYNTHESIZERS

PLAY A FEW NOTES USING OUR ROMS AND HEAR THE BEST VOICES IN THE WORLD!

T1, T2 & T3 Disks
$40.00 per vol.
(Each disk contains 200 programs and 100 combinations)
4 volumes: TD1 / TD2 / TD3 / TD4
4 vol. set on one diskette **$130.00**

M1 & M3R
M-101 thru M-104 for M1
M-301 thru M-304 for M3R
$45.00 each ROM
VALHALA's M1 / M1R / M3R ROMS

M-101 & M-301: A 'Top 40' style card with a great mixture of brass, strings, basses, rhodes, B3's, grand pianos & more.

M-102 & M-302: A 'classic' card, with the mainstay being acoustical type sounds.

M-103 & M-303: Leaning toward 'New Age' type sounds with string & vocal pads and unique solo sounds.

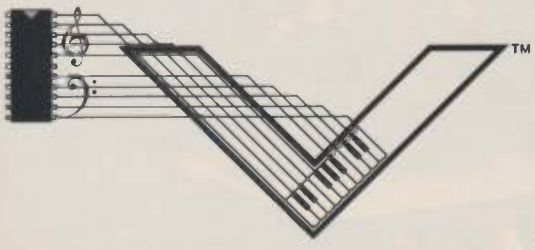
M-104 & M-304: 'Rockers' will enjoy this card with its distortion guitar and overdriven organs, along with thick brass sounds and solo patches.

D50, D550, D5
D10, D20, D110
STUDIO SERIES™
$40.00 each ROM
PCM
TOP 40
DIGITAL
ANALOG
EFFECTS
NEW AGE
ORCHESTRAL
Specify for which synthesizer when ordering.

D-50 / D-550 MULTI-TIMBRAL EXPANDER

Call: 1-313-548-9360 for current *low* pricing!

With the simple installation of the **M•EX** board, your D-50 becomes **MULTI-TIMBRAL** with the power to create up to ***EIGHT TONES AT ONE TIME!*** Plus the D-50's memory will now store 128 sounds {expandable to 192 with optional IC}. All voices are dynamically allocated. Create and save separate Multi-Mode settings for every patch! KEY MODE: In addition to the 9 regular Key Modes, are 2 new modes, Multi-Mode & Multi-Dual-Mode. MULTI-MIDI: Each of the 8 'instruments' can be assigned to any MIDI channel or turned off. Vol & Pan can be controlled ind. thru MIDI. MULTI-TONE: Each of the 8 'instruments' can be assigned between Lower Tone 11 and Upper Tone 88. Now your D-50 can transmit on two separate MIDI channels. For a complete specifications sheet, send a Self-Addressed Stamped Legal-Size Envelope requesting information on the **'M•EX'** D-50/D-550 Multi-Timbral expander!



For information, voice listings, assistance or to check on the status of an order call:

1-313-548-9360

The number below is for placing Visa or MasterCard ORDERS ONLY!
When calling, have your card number ready along with the expiration date.
Minimum ChargeCard order: $15.00. Business Hours 9am-5:30pm M-F (EST)
ORDERS ONLY call: 1-800-648-6434 ext. 502

VALHALA Box 20157-EM Ferndale, Michigan 48220

 Prices/specs subject to change without notice. Studio Series, Sound Patch Library and ESQ1 Bible are trademarks of Valhala Music, Inc. Special thanks to Steven & Dwight!

NEW

SAVE

LOWER PRICES

DISCOUNT RAM PRICES

Just because you purchased your equipment from your local store does not mean you have to buy your RAMS from them. VALHALA provides the exact same RAMS at extremely low prices!

KORG

MCR-03 $65.00 each

For use with the following equipment:
M1 • M1R • M3R • A3 • T1 • T2 • T3 and any others that use MCR-03 RAMS.

For an additional $15.00 per card, at the time of purchase, we will load any of our ROM card voices for the following keyboards:
M1 • M1R • M3R

M101 thru M104 on T-Series Disk $125.00
(Disk contains all 400 programs and 400 combinations from our M1 series)

ROLAND

M-256D $55.00 each

For use with the following equipment:
D50 • D550 • D10 • D20 • D110 • D5 • E10 E20 • A80 • A50 • GR50 • R8 • PAD80 PRO-E • RA-50 • U20 • U220 • TR626 and any others that use M-256D or M-256E RAMS.

For an additional $15.00 per card, at the time of purchase, we will load any of our Studio Series™ ROM card voices for the following keyboards:
D50 • D550 • D10 • D20 • D110 • D5

Send a Self-Addressed Stamped Legal-Size Envelope for complete voice listings (specify synthesizer owned).

ORDER FORM Mail to: **VALHALA Box 20157-EM Ferndale, Michigan 48220**

QTY	PRODUCT DESCRIPTION	PRICE	EXTENDED

All orders are shipped UPS. a street address is required! ** Print or Type Information **

SUBTOTAL	$
Mich 4% Tax	$
SHIPPING	$
EXTRA SHIPPING	$
GRAND TOTAL	$

Name _____

Street _____

City _____

State _____ Zip _____

Area Code/Daytime Phone _____

Phone (313) 548-9360
FAX (313) 547-5949

Shipping/Handling Information

Continental USA $4.50 Shipping/Handling, 2nd Day UPS $8.00 S/H {2nd day air means you will receive your product 2 working days after your order is processed - provided it is in stock}. Mich res. add 4% tax. Alaska, Hawaii & Canada add $12.00 S/H . All other Countries add $25.00 S/H plus $3.50 for each additional item ordered.
All payments must be in USA FUNDS drawn on a USA bank!
Business hours 9am - 5:30pm Monday - Friday (EST)

Card # _____

Exp. Date _____

Signature _____

VISA

Minimum Charge Card order: $15.00.

MasterCard

The Onstage Sound Tip Sheet

Don't gamble when it's time to go on stage. These tips will help stack the odds in your favor.

By Steve Oppenheimer & Gary Hall

Your demo is great, but the record company wants a band with stage experience and a fanatic following. Maybe you've played the casual "weekend warrior" scene, but now you want to take a more serious approach to live performance, the ultimate testing ground. It's necessary to try your ideas, observe their immediate impact, and make adjustments.

The band is well-rehearsed, and based on your demo, you're able to book a gig at a good club. But for some reason, the dance numbers aren't keeping people on the dance floor, your heartfelt ballads jerk no tears, and the audience is walking out on your high-flying improvisations. People aren't humming the tunes during breaks, they're screaming for mercy. What are you doing wrong? Are the band and the material poorly matched to the club's clientele, or is it just an off night?

Maybe the band and the material are fine, but your synth is screaming with ear-torturing highs, the reverb and flanging that sounded great on the demo are turning the mix into a mudbath, and the system is humming instead of the audience—and the only problems you can detect from the stage are the feedback (the sound system's and the audience's) and the club owner's scowl. Perhaps the problem is that, despite endless rehearsals, you weren't fully prepared.

There's nothing quite like the voice of experience. The following ideas were gleaned from the lessons of half a lifetime "on the road." Some of them may be just what you need to turn your next gig into a showcase.

SIGNAL PROCESSING TIPS

▪ **Effects that work well in the studio** (such as reverb) don't always translate to the stage. To reduce the mushy sound that comes from combining the natural ambience of a live environment with onstage processing, decrease delay and reverb effect levels (especially those that add ambience). Also, decrease the decay times of reverb effects and the regeneration of delay effects.

▪ **Tailor your reverb settings to complement the room ambience.** For example, many larger spaces have excessively long bass decay times, so use a digital reverb with very short decay on the bass and long decay on the high end to balance out the overall reverb contour.

▪ **For effects that serve as punctuations or rhythmic accents** (e.g., rhythmic echo effects), increase the effects' level a bit to help them stand out from the room ambience and noise.

▪ **Muddiness can result from using several time-altering effects** (chorusing, flanging, echo, etc.) simultaneously. Remember that processors are often more effective when they're highlighted.

▪ **Watch for distortion:** Flangers and phase shifters often include a control (usually called "emphasis" or "regen") that feeds the effect output back to the input, creating a more resonant sound. Turn this up too far, and you'll overload subsequent stages.

▪ **"Flipping over the volume pedal can be a major problem"** according to one performer consulted for this article. Duct (gaffer's) tape is the cheapest way to hold effects in place.

▪ **Pedal boards can help organize your effects.** Many good, packaged systems are available today, or you can build your own. If nothing else, a pedal board will provide DC power so you don't have to depend on batteries live (which is definitely not recommended).

▪ **Avoid spring reverbs.** Minor stage vibrations or an accidental jostle will result in aural mayhem. If your guitar amp comes with a spring reverb, it's not difficult for a technician with the proper schematics to add connections for an outboard digital reverb.

MIXING IT UP

▪ **The onstage mixer is mainly a submix** feeding the house board, so you won't need lots of inputs unless you're using a multitimbral instrument's individual outputs. To economize on sends to the mixer, mix the various timbres inside the multitimbral synth and route them to the synth's stereo or mono outs instead of the individual outs.

▪ **When sending to the house mixer,** if you don't know (or you distrust) the main engineer, you can submix all your instruments, complete with effects, and send a premixed, stereo feed. However, since the sound engineer will have no control over your individual instruments, your balance must be perfect, which implies very accurate monitoring. Mixing onstage is illusory—the mix in the house doesn't sound like what you think it sounds like—so a sound person may be invaluable.

▪ **If you work with a trustworthy engineer,** it's best to do as much of the EQ, level balancing, and effects as possible at the main board. Special effects (such as long delays) can be trig-

MAX SEABAUGH

OF COURSE YOU RECOGNIZE THIS STAR OF STAGE AND STUDIO— IT'S THE QL-699 FROM QUIK-LOK!

Serious musicians like Daryl Hall and John Oates are finding that the broad range of Quik-Lok® products offers a stand ideally suited to their needs. Here, the new Transformer Series' heavy duty QL-699 easily supports an 88-note keyboard. It provides plenty of room underneath for all your foot pedals, and affords you the rare luxury of sitting while you play. The intelligent modular design allows convenient stacking of keyboards and accessories, and makes the whole stand a snap to tear down! Also available is the QL-690, ideal for the musician that plays standing.

Available at your local Quik-Lok dealer. For a full-color catalog, send $1.00 to: Music Industries Corporation, 99 Tulip Avenue, Floral Park, NY 11001. (516) 352-4110

QUIK LOK®

THE MUSICIAN'S SILENT PARTNER

gered at a pre-arranged cue, and you won't have to worry about how the balance and timbres sound in the house. (For more ideas, see "Digital Signal Processors in Live Performance" in the January 1987 EM.)

▪ **Onstage mixers should be very clean** since the house board will add its own noise. Line mixers, which don't include mic-level ins, are commonly used as onstage submixers. However, many models lack EQ as well as insert points for patching in external EQ (see sidebar "Recording Versus Sound Reinforcement Mixers"), making it difficult to compensate for problems such as whining synths or screeching guitars. Look for line mixers with at least some EQ and lots of effects sends.

For quick-and-dirty club or casual gigs, lowered mixers are hard to beat.

▪ **Powered mixers are cost-effective and convenient;** for quick-and-dirty club or casual gigs, they're hard to beat. Listen carefully before you buy, though; unless the amp is well-designed, mounting the high-current power amp supply next to low-level audio lines can create noise and hum problems.

▪ **Most live performance-oriented electronic musical instruments use unbalanced, ¼-inch outputs,** but if you have long signal runs, consider using balanced lines for instruments and effects. These allow for long cable runs (such as snakes to the house board) with minimal induced noise and signal loss. While expensive, this approach can work magic for hum problems. Driver boxes and adapters are available to match unbalanced instrument outputs to balanced lines.

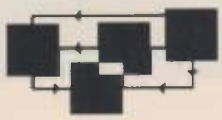
▪ **If you're submixing onstage and have a house mix,** ground loops are likely because you and the house sound engineer are plugging in at different places. A mixer or a direct box with balanced outs, where you can lift ground, will give you ways to control the loops.

▪ **A close to foolproof (but expensive) ground loop solution** is the one-to-one isolation transformer. This physically isolates two lines; disconnect each return until you find the source of the loop (the ground loop-associated problem will go away) and insert the transformer. Unfortunately, high-quality transformers (such as those made by Jensen Transformers, Inc., of North Hollywood, CA) are $60 to $80 each.

▪ **If you have to mix from the stage** or have a less than professionally competent sound person, you'll usually want to mix the mains in mono; a stereo mix invites phase cancellation and balance problems, and most people in the room won't be in the "sweet" spot (the location where all instruments are properly balanced). However, if you want to use stereo, pan most vocals and instruments dead center (equal parts right and left), and sweep just those parts that are crucial to a particular effect. You'll get some of the impact of stereo without the hassles.

ORGANIZING THE SIGNAL CHAIN

▪ **Consider potential interface problems** when you design your stage rig, especially if you mix studio gadgets with products designed for guitar use. It's usually best to place low-level devices early in the signal chain and high-level devices closer to the output. It will probably be necessary to amplify guitar-level signals before feeding them to line-level devices and attenuate line-level outputs before going into guitar-level boxes. Observe the level indicators on your rack gear to make sure each is getting the maximum possible signal short of overload.



▪ **After getting your levels set,** mark the pertinent knob levels and switch positions for all system elements, including submixer controls (writing on adhesive tape is one way to record these settings). If the knobs are jostled, you'll be able to return to the previous settings.

▪ **Older guitar processors sometimes have fairly low input impedances** that can load down guitars or effects with high-impedance outputs. Should plugging into a unit cause a loss of level or high frequencies, insert a unity-gain buffer board before the low impedance input. Buffers are generally not available

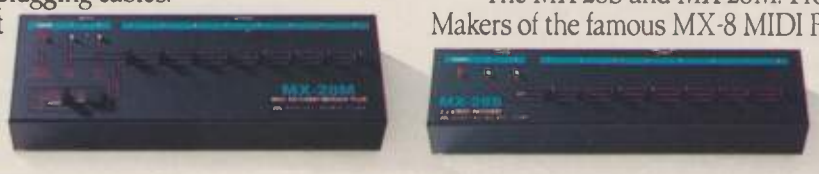
One musician. A trunk full of instruments. It was a tricky problem back then. It's a tricky problem now. Fortunately, today's solution is a whole lot simpler. The MX-28 Series MIDI Patchbays. From Digital Music Corp.

An MX-28 lets you switch the flow of MIDI data from two control devices—including keyboards, sequencers and MIDI guitars—to any of eight slave units. Synthesizers. Samplers. Tone modules. Drum machines. You name it. All without plugging and unplugging cables.

It's easy. Each output port has its own switch that lets you select either of the inputs as the controller. So whether you're between songs or right in the middle of one, you can instantly re-configure your entire set-up to produce exactly the sounds and effects you want.

Choose the model MX-28S. Or the MX-28M with added features like merging, instant transposition, and mapping to create splits and layers with up to four overlapping zones. Either way, your MIDI routing problems are solved. Easily. Efficiently. And for a lot less money than you probably expect.

The MX-28S and MX-28M. From Digital Music Corp. Makers of the famous MX-8 MIDI Patchbay/Processor. All available at better music stores everywhere.



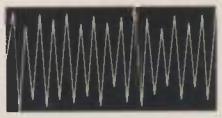
DIGITAL MUSIC CORP.

5312-J Derry Avenue • Agoura Hills, CA 91301 • TEL. (818) 991-3881 • FAX (818) 991-4185

commercially, but building your own is a one-evening project (see *Electronic Projects for Musicians* by Craig Anderton, available from Mix Bookshelf and at many libraries, for a suitable schematic diagram).

NOISE AND OTHER SOUND IDEAS

▪ **To reduce hiss from your setup, add a noise gate** (or other suitable dynamic range expander) between the noisy source and the mixer. Signals reach the mixer only when they exceed a preset threshold. If this is set just above the hiss level, hiss will not be strong enough to open the gate, but any music louder than the hiss will pass through to the mixer. Gates can exhibit a bit of choppiness in their operation, but properly setting the attack and decay times (if available) can smooth out most problems. Noise gates can also be useful to turn off mics when no one is singing into them.



▪ **Open mics onstage can cause problems** such as feedback, wind noise, crosstalk, etc. One solution (used by the Grateful Dead and others several years ago) is to put two mics on the same stand, over-and-under, just far enough apart that you can sing into one mic but not the other. Altering the polarity of one mic by 180 degrees, then summing its output with that of the other mic, produces differential cancellation of the ambient noise since it feeds both mics more or less equally. However, the vocal, which appears predominantly in one mic, is not subject to the same degree of cancellation.

▪ **On current tours, the Dead use dbx 904 gates,** but the system is modified so that the gate's keying input (which provides external control for the gate rather than having it follow the internal threshold) responds to a trigger pad placed in front of the vocal mics. When the three guitarists step up to their mics to sing, as long as they step on the pads, the gates are open and the mics are live; otherwise, the mics are off. Sound engineer Dan Healy has two footswitches that allow him to control keyboard player Brent Mydland's mic and override lead guitarist Jerry Garcia's gate pad, since the latter tends to rock back and forth when he plays (see "The Dylan/Petty/Grateful Dead Tour" in the November 1986 *Mix* magazine).

▪ **Even a superbly tuned system is incomplete** without protection for your speakers (and ears) from accidental

RECORDING VERSUS SOUND REINFORCEMENT MIXERS

When it's time to mix signals together, you want the right mixer for the right job, and a recording console may not be the right choice for road use. Although this is a rough generalization, recording consoles usually offer more options than sound reinforcement boards but are less roadworthy due to the extra electronics. A good live-performance board will not only be rugged, but use no more electronics than is needed to do the job.

Multitrack recording often requires a board with as many independent master outputs as you have tape tracks, so most consoles include a channel matrix for assigning channels to output buses. Recording consoles also have buses with either pre- or post-fader (often selectable) sends. Most sound reinforcement applications involve a stereo or mono mix, requiring only two independent master outputs. Live situations may also require multiple monitor buses (see "The Essential Stage Monitor" on p. 44), but the sends will be hard-wired in the pre-fader position so you can adjust the main outputs without changing the monitor levels.

Equalization can be extremely important for live use if not overdone. Most low- to mid-priced sound reinforcement boards include no more than three to four bands of EQ; look for at least one sweepable midrange control along with, if possible, variable bandwidth. For pop music, you can generally get away with fixed bands for highs and lows. Feedback and "honking" of instruments and speakers usually occur in the mids, so many quality sound reinforcement boards provide 4-band EQ with two sweepable midrange bands. Better boards may include low-frequency rolloff filters to reduce wind noise or rumble.

Also useful are insert points to add outboard EQ or limiting (many amplified acoustic instruments need a dedicated outboard EQ). Sophisticated sound reinforcement mixers and recording boards often have switchable insert points. A less expensive approach uses a 3-conductor jack in which the tip is the return (in case you want to inject a signal), the ring is send, and the sleeve is ground; the ring and tip are usually normalled to each other when no plug is inserted.

Because you need to keep track of instrument levels under the sometimes chaotic conditions of live performance, metering must be highly visible, and there is a trend toward LED peak meters instead of VU meters. In outdoor applications, particularly in bright sunlight, LED displays are sometimes difficult to read, and in such cases, VU meters are preferable. Recently, some companies (notably Clair Brothers) have introduced boards with simultaneous peak and RMS (average) meters next to each fader.

Snapshot animation is not usually found on sound reinforcement boards, possibly because things change so much night to night (there are also cost and reliability factors). Hardware products (like Yamaha's DMP7 or Akai's MPX-820) and hardware/software computer add-ons (such as the Megamix, Twister, Mimix, *et al*) can provide snapshot mixing of audio levels; if you're concerned only with levels of MIDI instruments, you can usually control MIDI volume in a number of ways (see "Venturing onto Center Stage with MIDI" on p. 31). Still, few systems have live use in mind; possibly this unfortunate situation will be corrected soon (manufacturers, take note).

Although recording mixers usually have everything sound reinforcement mixers have and more, the high-end "live" boards have an amazing variety of features. Sometimes, as with Ramsa's top-of-the-line gear, they have superb grounding schemes that equal all but the best studio consoles.

(Thanks to Larry "the O" Oppenheimer for his considerable contributions.)

—SO

bursts of sound. Limiters (which prevent signals from exceeding a particular threshold level) are usually the gadget of choice. The threshold level is critical; setting it too low creates a muffled and unnatural sound, but setting it too high reduces the amount of protection. Most limiters include visual indicators of how much limiting is taking place.

▪ **Wireless headphone monitors with mics** reduce feedback and allow you to roam around without leaving your monitor. If you try this, be sure you have a limiter on the monitors; by the time you can pull headphones off to escape a blast of sound, it may be too late.

EQUALIZATION

▪ **Graphic equalizers are useful for "tuning" a room** to compensate for acoustical problems. You may want to check out some of the newer units that store individual EQ programs; after finding the right curve for a particular venue, store it and recall it next time you play there. Although every night is different, at least you'll have a point of departure.

▪ **While 1/3-octave equalizers (typically having 27 to 31 bands) offer more flexible control** than designs featuring ten or fifteen bands, it is nearly impossible to properly "tune" a room using a 1/3-octave EQ without the use of a spectrum analyzer. Unless you or your sound engineer is so equipped, the simpler 10- and 15-band EQs may give better results.

▪ **Most active EQ circuits can boost signals by 12 dB or more** at specific frequency ranges. Boost too much, and you'll send your power amp into clipping, creating distortion, or even blowing a speaker. Often the best way to avoid distortion is to cut out unwanted frequencies rather than boost wanted ones. (For more on EQ, see Craig Anderton's "Cutting Through the Equalization Jungle" in the January 1987 EM and his article on mixers in the February 1990 issue.)

▪ **Sonic enhancers, or "exciters," can help instruments** stand out, but don't go overboard—that trademark sizzling sound can promote listener fatigue. These devices are usually most effective when contrasted with other, less punchy elements. This suggestion also applies to effects in general; like a good hook, effects work best when they are set up by what comes before and what follows.

▪ **In rooms where the bass tends to "mush out,"** use EQ to bring out more of the pick sound and midrange. This gives

FOR THE BEGINNER
Spectrum Analyzers

A spectrum analyzer (sometimes referred to as a real-time analyzer or RTA) is a device that can simultaneously display the amount of sound energy present at a number of frequencies in the audio spectrum. Available in rack-mount, handheld, and computer-based versions (displaying five to 31 frequency "bands"), RTAs provide a quick and fairly simple method of adjusting a sound system to match the acoustical character of a room. In practice, pink noise (a test signal containing equal amounts of energy at all frequencies and tailored to match the human hearing response) is played through the sound system during a sound check, while an omnidirectional, calibrated microphone (with a "flat" frequency response) "listens" to the reproduction in the room and sends this information to the spectrum analyzer. Depending on the type of analyzer used, the results can be monitored visually on an LED display, viewed on a computer screen or printed out as a hard copy representation. At this point, corrective steps—re-aiming speaker stacks or adjusting equalization—can be taken to improve the system's response.

While spectrum analyzers are an invaluable aid to "tuning" a room *before* a performance, the acoustical nature of most venues can change dramatically once filled with an audience, and some adjustments may be necessary during the performance. Many sound engineers leave an RTA set up near the mix position during a gig—if feedback occurs, the analyzer's display reveals the offending frequency and the problem can be corrected with a quick touch of the equalizer.

—George Petersen

the bass more definition.

▪ **Be extremely careful when boosting high,** bright frequencies. Your ears are sensitive to damage in this region, and boosting treble boosts hiss as well.

CABLES

▪ **As in the studio, avoid induced hum** and other noise by not intermingling audio cables with AC power lines.

▪ **For many reasons**—for example, to keep your rack gear away from heat and prevent induced hum—it's wise to put your power amps and line conditioners in a separate rack from your synth modules and effects.

▪ **Mounting all necessary power strips** in each rack results in only one power cable per rack.

▪ **Get in the habit of running power from the right-hand side of a rack** (where most power cables attach to rack-mount gear) and running audio out the left.

▪ **When using a dedicated effects rack,** make a multiconductor snake (and a spare!) to connect the rack to the mixer, thus obviating coils of wire for effects sends and returns. This approach costs some money but drastically speeds setup and tear-down times for your rig. (Remember, club employees and managers love a band who can set up and load out quickly and professionally.)

▪ **Formulate a set of wiring practices** that work for you, and apply them consistently throughout your stage work. Group cables and create "snakes" (multiwire cables) with velcro or plastic cable ties and secure them to the stage with duct tape. Unsecured cables not only look highly unprofessional, they're extremely hazardous to intentionally attached equipment and accidentally attached personnel. Use wrap-on labels to identify cables and their destinations. Color- and number-coding can reduce setup time and help avoid needless errors; label

STEVE O'S TOOL KIT FOR THE ROAD

Always carry extras of as many items as practical. I keep a medium-sized metal case onstage (which doubles as a small table) that holds extra cables and adapters of all types, including ones with high-impedance/low-impedance transformers.

Since I can seldom run to the parts store between late-night sets, stashed in my van is a padlocked trunk filled with parts and tools. The trunk holds every type of connector I use; extra wire of assorted types and gauges; the incredible Swiss Army knife; lots of assorted nuts, bolts, and screws; medium-sized tools such as hammers, C-clamps, pliers, wrenches, and a hacksaw; special parts (when I used a Rhodes 88, I stocked up on tines and damper pads); and a variety of small electrical tools, including needlenose pliers, wire cutter and stripper, assorted screwdrivers, soldering gear, etc. —SO

each cable end, with a matching label on the corresponding jack. This is especially important if you have roadies.

▪ **A rechargeable soldering iron can help** when splicing cables stuck in out-of-the-way places. In emergencies, wrap the connection with low-melting-temperature solder tape, and heat it with a match until the solder melts.

AVOIDING THE HUMPTY DUMPTY EFFECT

▪ **A little forethought and a few dollars** in gig bags and cases can often save you from lost or damaged gear. If you're doing serious roadwork—especially by air, but even driving the highways—invest in top-quality cases approved by the Airline Transport Association (ATA); ATA-approved cases are required to flight-insure your gear. Don't even think about saving money here; you'll lose a lot more if underprotected gear falls off a ramp or stage. Put your name (or the band or production company's name) on cases and racks.

▪ **If you have to stack gear, be especially careful.** Tumbling stacks of speakers and electronics are no joke, so secure stacks against vibration, instability, and, in outdoor venues, wind. If you "fly" (suspend) speakers and lights, you may have to meet local legal safety standards. Aside from the legal requirements, it is essential that you understand how to do the job properly. You can get solid information from JBL Technical Notes Vol. 1, Number 14, "Basic Principles for Suspending Loudspeaker Systems" (JBL Professional, 8500 Balboa Blvd., PO Box 2200, Northridge, CA 91329); much of this information will be published in the April, May, and June 1990 issues of *Mix* magazine. In many large venues, you must hire union stage hands and gaffers from the International Alliance of Theatrical Stage Employees (IATSE).

(Thanks to Charles R. Fischer for contributing tips.)

Before finding a home at **EM**, *assistant editor* **Steve O** *spent half his life on the road. He claims that with an act like his, he had to keep moving. Associate editor* **Gary Hall** *is the former product manager of Lexicon Corp. With a class act like Gary's, he'll stay right here.*

FRONTAL LOBE™

AMPLE SAMPLES

Cannon Research Corporation now has available 16-bit sample disks compiled from the collections of sound developers you know and trust. With a Frontal Lobe computer and the new PCM Channel you can have these sounds on your M1. Each disk holds *twice* as much as Korg's PCM card sets at only $49.

NEW

New Waveforms for Korg's M and T series.

From PROSONUS:
- Orchestral Percussion
- Pianos — Steinway and Bosendorfer.
- Sound Effects — Sexy to Star Wars.
- Strings.

From NEWMAN STUDIOS:
- Vox Vault — Synthesized vocal samples.
- Synthstacular — Analog and digital synth sounds.

From TECHNOSIS:
- Classic Drum Machines — Oberheim, Roland, Linn, Yamaha.
- Aggressive Analogs — Oberheim, Pro 1, D50, Proteus, Prophet.

From GREENHOUSE SOUND:
- Strings and Things.
- DX7 Bass and Brass.
- Fender Bass.
- Growl and Soft Sax.

. . .More sample disks available. Call for information.

The PCM Channel allows you to play your own or pre-recorded samples in your M1, M1R, M3R, T1, T2 or T3 instrument. Dump your own 12 or 16 bit waveforms from most MIDI SDS (Sample Dump Standard) samplers or computer programs. Create your own multi-sampled multisounds, single cycle waveforms, and drum kits. Holds up to 8 seconds (256 K sample words) per load. Software compatibility for non-SDS samplers coming soon.

The Frontal Lobe computer's latest software has many new features, including **Disk Copying** and **Automatic File Loading.** Program your sets into the Frontal Lobe and it will automatically load your next song and patches as soon as the current song is finished.

Not just for the M1.

We are the Mercedes of MIDI Filers. Don't be misled by low prices — compare the Frontal Lobe features before you buy.

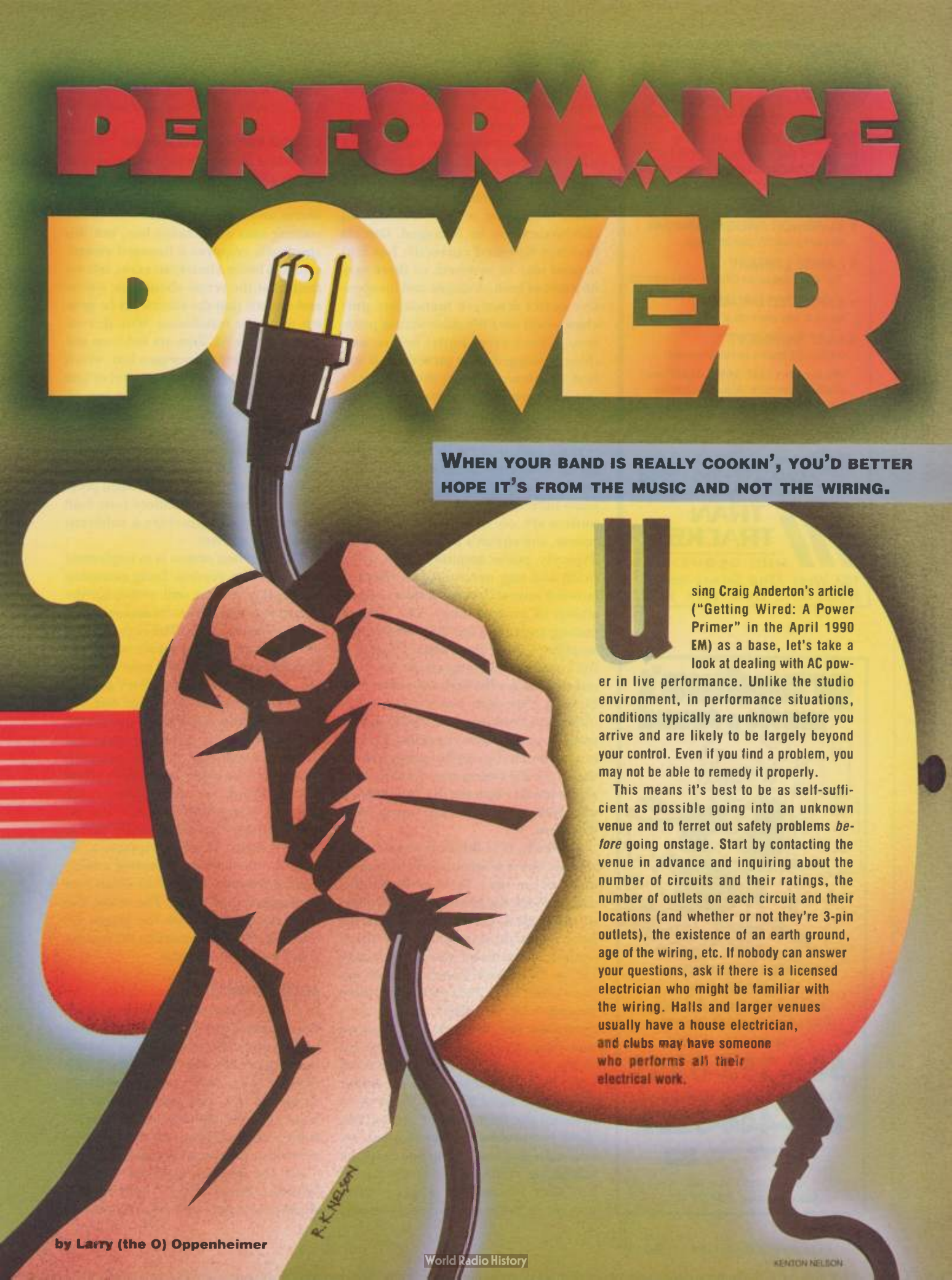
- Hi-Density — 1.4 Megabyte Disk Drive. Most filers are 800K.
- Dynamic MIDI Capture — Dump direct to disk with no buffering. Unlimited dump size. Most filers have a 64 KB limit.
- Auto Fileload — Program entire sets to load automatically.
- Multiple Dumps — Unlimited number of dumps per file. Include songs, patches, and setups for several instruments in a single file.
- Multiple Files — Load a chain of files in one command.
- Named Files — Up to 127 files per disk with 10 character names.

- Three Ports — Two MIDI and one RS-232 port. Complete control of multiple sources and destinations in each file.
- Programmable Pauses — Place pauses between dumps in a file if instruments require.
- Dump Requests — Request dumps from instruments with no internal dump command.
- Fast Load — 5000 note song load in 5 seconds. Twice as fast as most filers.
- MIDI File — Coming soon: Dump 16 track songs from your computer for portable playback with the Frontal Lobe.

CANNON RESEARCH CORPORATION • Grass Valley, California • 916-272-8692 Fax 916-272-8693

PERFORMANCE POWER

WHEN YOUR BAND IS REALLY COOKIN', YOU'D BETTER HOPE IT'S FROM THE MUSIC AND NOT THE WIRING.



Using Craig Anderton's article ("Getting Wired: A Power Primer" in the April 1990 EM) as a base, let's take a look at dealing with AC power in live performance. Unlike the studio environment, in performance situations, conditions typically are unknown before you arrive and are likely to be largely beyond your control. Even if you find a problem, you may not be able to remedy it properly.

This means it's best to be as self-sufficient as possible going into an unknown venue and to ferret out safety problems *before* going onstage. Start by contacting the venue in advance and inquiring about the number of circuits and their ratings, the number of outlets on each circuit and their locations (and whether or not they're 3-pin outlets), the existence of an earth ground, age of the wiring, etc. If nobody can answer your questions, ask if there is a licensed electrician who might be familiar with the wiring. Halls and larger venues usually have a house electrician, and clubs may have someone who performs all their electrical work.

by Larry (the O) Oppenheimer

KENTON NELSON

There are two primary safety concerns: wiring and grounding. You cannot assume that a venue (especially a club) has properly wired outlets with sufficient current-handling capacity. Electrical wiring is not a top priority in most clubs, so cables are often old and worn, insulation may be frayed, and conductors may be damaged. Outlets may not be wired correctly; hot and neutral may be reversed, or there may be a mix of both. A simple and inexpensive outlet tester—a mandatory purchase—will identify most wiring problems. Check every outlet before anything is plugged in or turned on; if you find problems, contact the manager/owner. *Do not attempt to rewire anything* or risk your life performing with incorrectly wired AC power outlets!

If all outlets seem to be wired correctly, determine if the wiring is sufficient to carry the load. Find out how many different circuits there are, which outlets are on which circuit and, of course, the circuit's amperage ratings. Typically, power amplifiers are the big drain and may need to be distributed between several circuits, despite the possibility of ground loops. The risks of putting more than one 200-watt-per-side amplifier (which draws about 10 amps at full bore) on a 15-amp circuit are obvious—starting a fire is much worse than blowing a speaker. Unfortunately, it's difficult to determine the wiring quality without getting into the walls. There's not too much you can do except feel the wall to see if it's warm and, perhaps, look at the breaker box (in the basement or wherever) to see what the wiring looks like there.

Similarly, it is difficult to know for certain how well-grounded the outlets are. You can use a VOM (volt-ohm meter) to check the ground between some of the outlets. Check first for voltage between the third (ground) pins of two outlets; if the meter shows no voltage (AC or DC—there's no reasonable way there could be DC, but then again, there shouldn't be AC either), you can try a continuity test, which should show no more than a few ohms. (Again, use extreme caution when sticking anything other than a power cord into an outlet.) If you find more than 10 ohms or so between the third pins of two outlets, there is a problem. However, this test only tells you that the grounds of the outlets are connected, not whether or not they connect to a good earth ground. In fact, you may even encounter outlets without a third (ground) pin. Here, too, you're somewhat stuck.

CUSTOM POWER DISTRIBUTION

The ideal solution is to carry your own power distribution system, designed and built by a qualified electrician. The best system would tap directly into the power coming into the breaker box, but this absolutely requires a licensed electrician. If a house electrician exists, tell the contact at the venue about your system and request that the electrician be present to do the installation. With this system, multiple AC lines are fed from several wall outlets to your own box, which contains breakers, whatever level of line filtering and conditioning you can afford, and a central ground point for the system; then, power goes to several AC "snakes" that have multiple outlet boxes along them. All your equipment plugs into your own system, which, when properly implemented, balances your load on the line and provides a coherent grounding scheme.

The next-best option is to implement a scaled-down version. Long extension cords plug into the wall outlets for the different available circuits and return to your distribution box. The circuits must, of course, be kept separate inside the box. For grounding, run your own single, heavy ground to a known ground point (if one exists) or choose one outlet and use its ground for all the circuits (which is not as good, because the ground itself may not be properly grounded). In either case, lift the third pin of all but one of the power cords going from your distribution box to the wall to ensure that only a single path to ground exists. This is acceptable to do only because you are providing a safety ground for every outlet into which your equipment is plugged. The snake legs work essentially as with the bigger system, with the difference that the legs are actually different circuits.

AC LINE QUALITY

In live performance, cash registers, refrigerators, lighting systems, the business located next door (almost always a body shop with large arc welders), generators, etc., can contribute noise, spikes, surges, and sags to the power lines. (For the ultimate in unreliability, there's always playing an outdoor concert with a gas-powered generator.)

All the prescriptions in "Getting Wired: A Power Primer" hold true for these problems, but I also recommend

an AC line-voltage monitor. It's an inexpensive tool and will let you see at a glance how the voltage is doing. Keep in mind that drawing too much current from a circuit can lower the available voltage (assuming a fire doesn't start first), which will manifest itself as power compression; in other words, the amplifiers sound "squashed" and won't get louder no matter how high you turn the volume.

One common problem is that the house sound system must often plug into outlets and circuits that are far from the stage gear, which can lead to ground hum (or ground loop) problems. The single-ended shield approach in the above-mentioned article works in most instances, but ultimately, the only certain way to eliminate ground hums is with transformers, which break any physical connection between a signal source and its destination. This is one advantage that passive (transformer-based) direct boxes can offer over active ones (although I have rarely encountered a ground problem that required replacing an active direct box with a passive one). Isolation transformers (1:1 ratio) are useful (if expensive) for ground hums resulting from interfacing with unbalanced inputs or outputs.

When you get all the hums and noise ironed out, you're ready to hit the stage, aren't you? Not so fast. This is your life (or that of your band) we're talking about; a little healthy paranoia is not out of line. Before anybody hits the stage, take a voltmeter and check for any voltage between microphones and instruments with metal parts the player will touch; for example, touch one probe to the guitar strings and the other to the guitarist's mic. If there's any appreciable amount of voltage (more than a volt or so), it's not safe, and no one should take the stage until the problem is resolved. Also, check for voltage between the guitars; we don't want the guitarist and bass player getting shocked when they perform their dance steps together.

Overall, do what you can to put yourself at the mercy of the venue's power as little as possible, and detect (then fix) any serious problems before they affect you. After all, shock, noise, and surges are all phenomena that should be confined to audience reaction.

Larry the O *currently performs with the Celtic fusion band Phoenyx, as well as the GraveRobbers. He is a contributing editor for* Mix *magazine.*

S-E-Q-U-E-N-C-E T-R-A-N-S-F-E-R-S

from studio to stage

Porting your studio-crafted computer sequences into a more roadworthy sequencer is not always easy, but knowing a few tricks can really help.

By Craig Anderton and Jim Pierson-Perry

Using sequencers onstage—whether to flesh out a part or to serve as a preprogrammed rhythm section—has become a fact of life in the 1990s. Perhaps not coincidentally, the sequencers built into today's "workstation" keyboards have become more sophisticated, obviating the need to bring a separate hardware sequencer or computer out on the road. Still, many musicians arrange and write their tunes on computer-based sequencers because they offer features not found in a keyboard's onboard sequencer, and at some point, it may be necessary to transfer these sequences over to the keyboard's sequencer for live use.

(*Note:* "Computer sequencer" refers to the device containing the source sequence, and "keyboard sequencer" the destination device to which the sequence will be transferred. Of course, you may be transferring from one keyboard sequencer to another, but we'll use the above definitions to avoid confusion.)

Because it is not yet possible to communicate standard MIDI file data over MIDI, people often transfer sequences in real time from the computer's MIDI out to the keyboard's MIDI in. Although simple in theory, in practice a host of conflicts crop up, from timing resolution to the destination device not recognizing certain types of data.

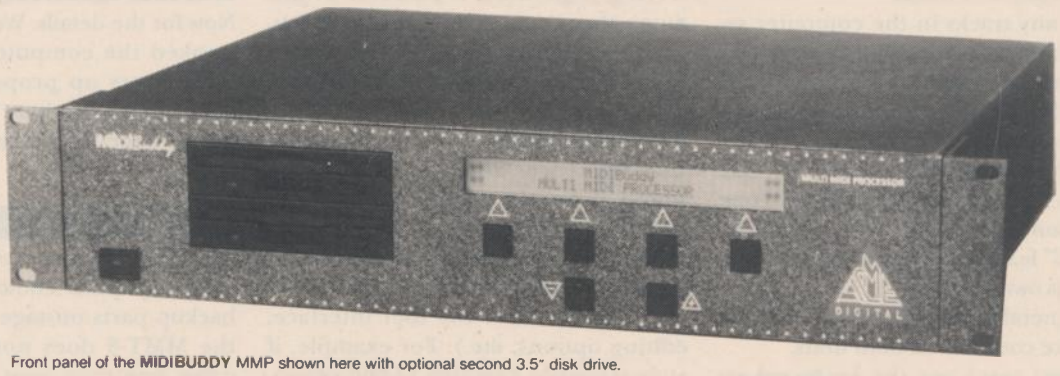
Before getting into specifics about how to transfer MIDI sequence data into several popular keyboards, as well as transferring to two stand-alone sequencers that are often used onstage, let's look at some general considerations.

SEQUENCE TRANSFER BASICS

- Connect the computer's MIDI out to the keyboard's MIDI in, but in most cases, do not connect the keyboard's MIDI out to the computer's MIDI in since this can set up MIDI "loops." However, some devices may require both connections.
- To improve timing accuracy, slow down the master's tempo as you transfer, particularly if a sequence contains lots of data.
- Unless you've been rigorous about using your computer sequencer's record filter, undetected aftertouch and mod wheel data may have been recorded. If so, strip them out, along with any MIDI events that the hardware sequencer doesn't recognize, to conserve memory. Many computer sequencers include controller thinning to discard unneeded pitch bend, aftertouch, controllers, etc. Thin data as much as possible before transferring over to your keyboard.
- Because of differing resolutions between sequencers (if the computer and keyboard sequencer have the

MIDIBuddy

Multi MIDI Processor



Front panel of the MIDIBUDDY MMP shown here with optional second 3.5" disk drive.

The Ultimate Live Performance and Studio MIDI Super Controller

The MIDIBuddy Multi MIDI Processor (MMP) is designed to be used in conjunction with other MIDI sequencing systems. The MIDIBuddy MMP allows the performing musician to utilize all the power of their software based sequencer on stage while leaving their computer at home. Just play your sequences into the MIDIBuddy MMP and go!

MIDIBuddy MMP Highlights:

- ▲ Instantaneous direct from disk sequence playback. ▲ Powerful MIDI data processor.
- ▲ Flexible 10 x 10 MIDI signal router. ▲ Multiple independent merging subgroups.
- ▲ Universal sys. ex. data filer. ▲ Sends and receives on 160 MIDI channels at once!

With the MIDIBuddy MMP you can control complex MIDI setups easily, automate on stage sequencing, system configuration, lighting and mixing. All from your MIDI instrument — just by playing your songs as you normally would.

The rear panel of the MIDIBUDDY MMP shown here with optional SCSI port.

- ▲ Event Sensitive Triggering (EST) for programmable "Hands off" MMP operation.
- ▲ "Set play" function for non-stop performances including all processor/router setups.
- ▲ Unlimited storage capacity with the optional SCSI port and Eltekon hard disk drive.
- ▲ Ergonomic, user friendly "soft" button layout. ▲ Rugged rack mountable design.
- ▲ Large, easy to read 40 character x 2 line backlit display. ▲ Universal power supply.

Phone: (313) 462-3155
West Coast: (818) 792-4377

ELTEKON

37491 Schoolcraft Road
Livonia, Michigan 48150

The ACME Digital Inc. MIDIBuddy MIDI Processor (MMP) is manufactured and distributed by Eltekon Technologies, Inc.

same resolution, so much the better), quantize sequences prior to transfer. If you want to add small timing differences to "humanize" a sequence, edit the keyboard sequencer tracks.

- Mute any tracks in the computer sequencer that are not being transferred.
- For easiest transfers, assign one MIDI channel per track at your computer sequencer, as this is a common configuration for keyboard sequencers. (In case several channels were recorded into one track, some programs offer a "split by channel" feature that assigns each channel to its own track.)
- It's generally wise to turn off any pre-sequence countoff on both units.
- In most cases, set the keyboard sequencer to respond to external clocks and use the computer sequencer as the master. However, if you encounter timing or sync problems, try using the keyboard sequencer as the master.
- If you're using your keyboard sequencer in conjunction with other rhythmically oriented MIDI gear (e.g., drum machines), the ability to send and receive song select and song position MIDI messages can be useful.
- Sequencers often string several patterns together into a song. When transferring sequences, it's easiest to just dump the sequence into one long pattern. You can then use the song function to put together a "playlist" of sequences.

ABOUT THE CHART

The Sequencer Statistics chart below simply indicates whether a particular device will work with a particular sequence; it doesn't show whether one sequencer is "better" than another (we'd also need to cover the user interface, editing options, etc.). For example, if your sequence contains 15,000 events, don't try sending it to a Korg M1, which holds up to 7,700 events.

"Stores MIDI Channel with Event?" indicates whether events recorded into the sequencer retain their MIDI channel identity. All sequencers can record note, velocity, and pitch bend, so these are not shown. Even if a sequencer cannot record all controllers, you may nonetheless be able to map the source controller to a controller that the sequencer does recognize.

SEQUENCE TRANSFERS, STEP-BY-STEP

Now for the details. We'll assume you've hooked the computer and keyboard sequencers up properly so they can "talk" to each other. The instruments are arranged alphabetically by manufacturer.

Alesis MMT-8

The MMT-8 is not a keyboard sequencer but is a popular choice for sequencing backup parts onstage. However, since the MMT-8 does not include a disk drive, new data must be loaded in via cassette interface or MIDI system exclusive messages.

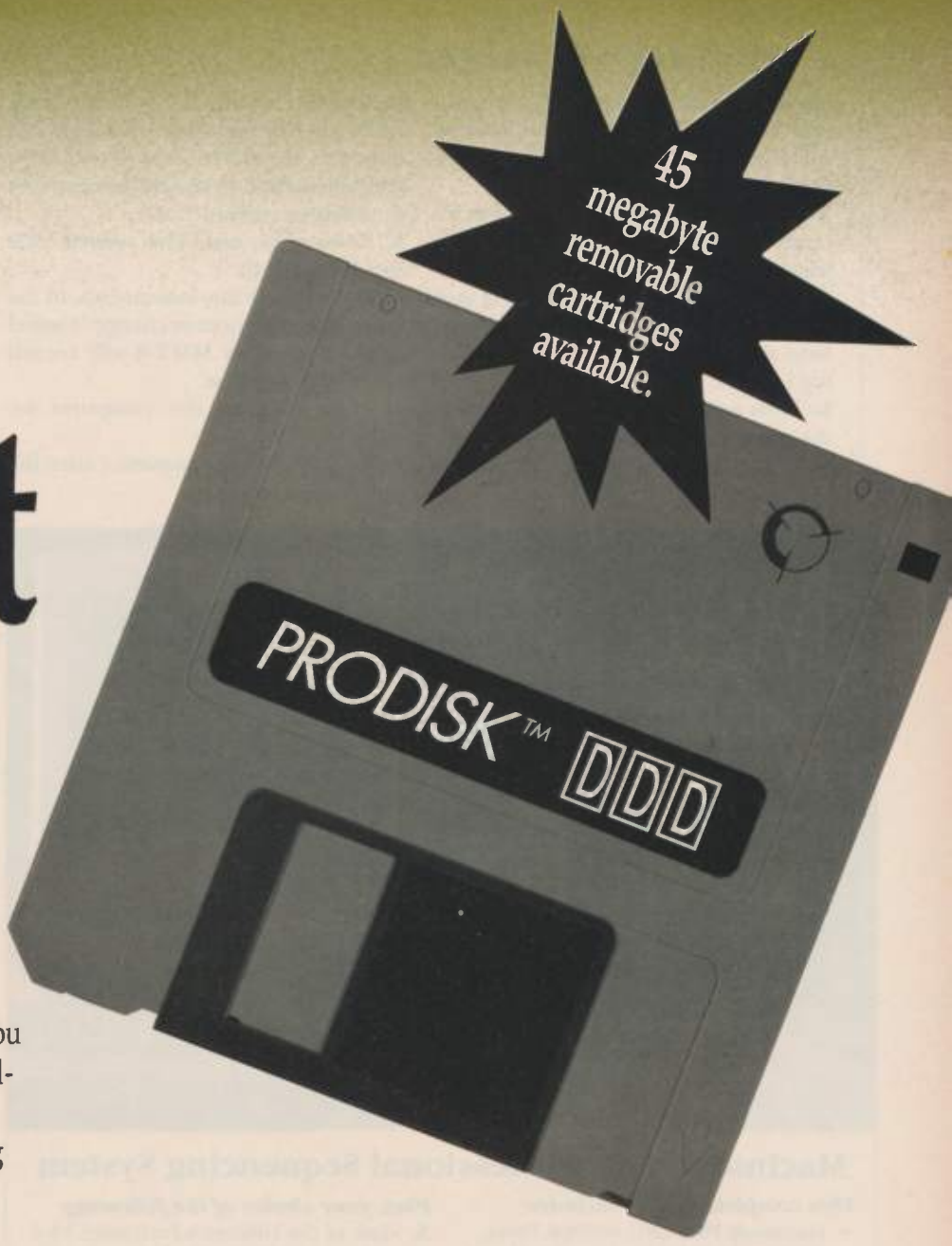
1. Connect the computer sequencer MIDI out to the MMT-8 MIDI in, and the MMT-8 MIDI out to the MIDI inputs of the devices to be sequenced.
2. Set Loop off and MIDI Echo on (so you can monitor what's being recorded into the MMT-8). Set MIDI filter to re-

	Sequencer	Tracks	Multitrack Record?	Multichannel in 1 Track?	Event Capacity	Stores MIDI Ch w/Event?	Aftertouch	Poly Aftertouch	Program Change	Release Velocity	Controllers	Record Sysex?	Resolution (PPQN)	Tempo Range	Storage Medium
Alesis	MMT-8	8	N	Y	10k	Y	Y	N	Y	N	All	Y	96	20-255	CS,M
E-mu	Emax II	16	Y	N	333k[2]	N	Y	N	N	N	0-31,64	N	24	40-240	D
Ensoniq	EPS	8[1]	N	N	80k[3]	N	Y	Y	Y[6]	N	1,4,7,64,66,70,71,72,X	N	48	20-250	D
Ensoniq	VFX[SD]	12[1]	N	N	25k[4]	N	Y	Y	Y[6]	N	1,4,7,64,66,70,71,72,X	N	96	20-250	D,M
Korg	M1	8	Y	N	7.7k[5]	N	Y	N	Y	N	1-120	N	48	40-208	C
Peavey	DPM-3	9	N	N	20k	N	Y	N	Y	N	1,4,64	N	96	40-250	D,M
Roland	D-20	8	Y	N	17k	N	N	N	Y	N	1,6,7,10,11,64,100,101	N	96	40-250	D
Roland	MC-500 MkII	8	N	Y	100k	Y	Y	Y	Y	Y	All	Y	96	10-250	D
Roland	W-30	16	N	Y	15k	Y	Y	Y	Y	Y	All	Y	96	10-250	D
Yamaha	SY77	16	N	N	20k	N	Y	N	Y	N	1-120	Y	96	30-250	D
Yamaha	V50	8	N	N	12k	N	Y	N	Y	N	1-120	Y	48	30-240	D

Footnotes

[1]When patterns are combined into songs, there are any equal number of song-length tracks; [2]Per meg of RAM; competes with samples for memory; [3]On unexpanded EPS; 320,000 on EPS-M. Competes with samples for memory; [4]Expandable to 75,000; [5]or 4,400, depending on memory allotment for sequences vs. patches/combinations; [6]Cannot accept as MIDI In; must be overdubbed manually; X=MIDI continuous controller of your choice; D=Disk; C=Cartridge; M=MIDI dump; CS=Cassette

It's About Time.



For your music, that is. And when the time comes to show your stuff, you can't spend that time truncating, finding loop points, normalizing, and doing all the time-consuming editing it takes to turn a great sound into a useful sampler patch.

That's why PROSONUS™ has sampled a selection of sounds from its enormous library, edited them for maximum usability and transferred the samples to floppy disks, formatted for nearly all the popular samplers. All the sampling, editing, and formatting has been done in the digital domain, and to PROSONUS's demanding quality standards.

Visit your favorite music store or call Prosonus at **1-800-999-6191**.

PROSONUS™

1616 Vista del Mar · Hollywood, CA 90028 · 213 463-6191 · FAX 213 462-7036

Because better sounds make better music!!

move any unwanted data, but make sure that Record on MIDI Channel is set to All. Set Clock to MIDI & Internal; set Click for a countdown of 00 beats.

3. Press the Part button if it is not already lit. Enter the part number into which data will be recorded.
4. Set the part length by pressing and holding Length, entering the length in bars, then pressing Record and releasing Length.
5. Press and hold Record, then select the track on which you want to record. Its LED should be lit solidly; the others should be flashing. If any of the track LEDs are off, then that track contains data and should be erased (unless it contains data that should coexist with the transferred sequence).
6. Release Record. The record LED should still be lit.
7. Do not mute any instruments on the computer sequencer or change channel assignments; the MMT-8 will record them all in one pass.
8. Press Play on the computer sequencer.
9. To play back the sequence after the MMT-8 has finished recording, press Play on the MMT-8.

Note that the MMT-8 does not record or echo polyphonic aftertouch.

E-mu Emax II

This requires an understanding of Emax's Super Mode feature.

1. If you don't already have a Super Mode Map, make up a "template" with the desired track and preset assignments. Then call up Sequencer Manage 5 to copy this to a "working" sequence location that will store the sequence data.
2. Select Setup 3 and turn on Auto Extend so that Emax will record for the duration of the sequence.
3. Select Preset Definition 7 and turn on MIDI Start/Stop for the current preset.
4. Call up Sequencer Manage 2 and make MIDI the clock source. Next, select the sequence into which data will be downloaded.
5. Call up Sequencer Setup 6 and turn Super Mode on.
6. Select Sequencer Setup 1 and put the tracks that should receive data into record mode. Up to sixteen channels can be recorded simultaneously.
7. Press Record then Play on Emax, then select Play on the computer sequencer.
8. To stop downloading, either stop Emax or stop the computer sequencer.
9. If you want to drive internal sounds, assign the tracks to Presets using Sequencer Setup 2. Preset MIDI channel information will be ignored.
10. Call up Sequencer Setup 6 and turn off Super Mode before proceeding.

Note that the original Emax and Emax HD work identically. Also, remember to turn Auto Extend off after recording.

Ensoniq EPS

After creating a sequence as described in the manual:

1. Press Edit/MIDI and set the EPS to Poly mode (Omni and Mono A modes will also work, but not Mono B or Multi). Also, set the MIDI base channel to 1.
2. Double-click on the Seq/Song button. Scroll through the various options. Most are not applicable to sequence transfers except the following:

- Turn Loop off.
- Set Clock Source to MIDI.
- Set Seq Countoff=Off.
- Set Record Mode=Replace.

3. The EPS can record only one track (hence MIDI channel) at a time. At the computer, mute all tracks except the one to be transferred. Set its MIDI channel to 1 since it must match the EPS MIDI base channel assignment (or leave the computer MIDI channel assignments and change the EPS base channel setting for each track you transfer).
4. Press the instrument button corresponding to the track into which you want to record data. If this track is assigned to a particular EPS sound, the sequencer will play it back. The track can also be set up as a MIDI Instrument so that only MIDI data will be sent out over the MIDI out channel parameter specified in the Edit/Instrument menu.
5. On the EPS, hold down Record, then press Play. The Rec flag will flash.
6. Press Play on the computer sequencer.
7. The EPS will start recording. After recording is complete, press Yes to keep track, No to start over.
8. Repeat steps 3 through 7 to record the next track. After recording the track, either select New (press Yes) to keep the new track, or Old (No) to reject the new track.

Notes:

- During recording, track numbers do not necessarily correlate to the MIDI channel; whatever is being sent will be recorded into the chosen track.
- The EPS will not record program changes coming from the sequencer. However, you can manually overdub program changes in a given track (refer to the manual for how to overdub). As the EPS records, while holding down the associated Instrument/Track button, enter the desired program change number using the keypad. Release the Instrument/Track button at the exact moment you want the program change recorded into the sequence; it will also be sent over MIDI.

Ensoniq VFX[SD]

After creating a sequence as described in the manual:

1. Press System/MIDI Control and set Mode to Poly. Also set the MIDI base channel to 1.
2. In Seq Control, page 1:
- ☛ Set Clock Source to MIDI.
- ☛ Set Record Mode=Replace.
- ☛ Turn Autopunch and Loop off.
3. In Seq Control, page 2:
- ☛ Set Rec-Source to MIDI. This "locks

out" keyboard data so the VFX^{SD} responds to MIDI in only.
4. Press Tracks 1 to 6 or 7 to 12, depending on which track you want to record into. Press the corresponding soft button for the desired track.
5. On Performance/MIDI page 1, set status of the selected track to MIDI. On page 2, set the channel to match that of the destination instrument. On page 3, set the program number to be sent on playback, if relevant. (If you are recording data for use with VFX^{SD} internal sounds, set page 1 to Local and page 2 to the source instrument channel on your computer sequencer; page 3 is irrelevant).
6. Press Locate to monitor the sequencer's progress.
7. The VFX^{SD} can record only one track (hence MIDI channel) at a time. At the computer, mute all tracks except the one to be transferred over and set it to the same channel as the VFX^{SD} base channel.
8. Press Record. The display will flash MREC to show that it awaits MIDI data.
9. Press Play on the computer sequencer.
10. The VFX^{SD} will start recording. Incoming data will not be echoed to a destination instrument; if you need to hear what data is being recorded by the VFX^{SD}, connect the destination instrument MIDI into the VFX^{SD} MIDI thru. After recording is complete, press Keep New Track.
11. Repeat steps 4 through 10 to record the next track.

Although transferring sequences is simple in theory, in practice a host of conflicts can crop up.

Notes:
- Read the manual sections "Multi Mode" and "Using the VFX^{SD} with an External MIDI Sequencer" in Chapter 13 for more information on sequencing.
- The VFX^{SD} will not record program changes coming from the sequencer. However, you can manually overdub program changes in a given track (refer to the manual for how to overdub). As the VFX^{SD} records, hold down the soft button next to the track where the program change should be recorded. Type in the number on the Bank buttons, then release the soft button the instant you want to record the program change in the track. The program change will also be sent over MIDI.
- When driving an external module, set the track status to *Ext* after it has been recorded.
- If you want to add twelve more tracks, record a Song that consists of only one step (i.e., the transferred sequence) and record twelve more "song" tracks.

Korg M1

1. Go to the MIDI Global Page (button 5 on the M1 keypad).
2. Set the clock to External.
3. Press the Seq button to enter Sequencer mode.
4. From the first page of the Sequencer display, chose Trk. If you want to receive into a single track, advance the Trk counter to the desired track number (e.g., Trk 3). To activate multitrack recording, advance the Trk counter past Trk 8 until it reads "Mlt."
5. Advance up two display pages to the Multichannel Record Page. Toggle the button for each track under the window so its display reads "Rec" (default is Play).
6. Go to the MIDI Channel Page (press button 1, then Page+ from the M1 keypad) and set the receiving channel assignment for each track. Be sure these assignments match what your software sequencer will be sending; the M1 will not capture any data from unassigned MIDI channels. Channel assignments do not have to be sequential on the M1 (e.g., tracks 1 to 3 could be assigned as channels 10, 2, and 5).
7. Press the 0 button on the M1 keypad to return to the Sequencer Main Page. Press the Record button. A red light comes on to show the M1 is waiting for MIDI data at its input.
8. Start your software sequencer (make sure it's configured to send MIDI clock information). The M1 detects when the song is finished, exits Record mode and resets its counter to measure 1.

Notes:
- The M1 does not record release velocity, polyphonic aftertouch, sysex, or controllers 121-127. Instead of ignoring them, however, they may be interpreted as other commands. To be safe, strip any such events from your sequence before sending it to the M1.
- The M1 can get confused if your incoming sequence has several controller-intensive tracks (e.g., lots of aftertouch or pitch bend). Just transfer a couple of tracks at a time, instead of all eight, for more consistent results.

Peavey DPM-3

1. Set the MIDI page mode to Omni (this is the easiest mode for transferring sequences), then create a DPM-3 sequence in the standard manner.
2. Press Control and make sure Loop=Off, XSysR=On, and Clock=Ext.
3. Set up the Track menu parameters as follows:
- Track: Select the track to record data.
- Config: Tracks can receive MIDI only if set to something other than Int (Ext records and transmits MIDI data but does not trigger internal voices on record or playback; Xmidi is like Ext but triggers internal voices on record; and All records and plays MIDI data and triggers internal voices at all times).
- MIDI: Set the track's output channel if driving other MIDI gear.
- Volume: Set as desired.
- Program: Assigns sound to internal track; this doesn't matter when driving MIDI instruments.

4. Hit Playback to monitor the record/playback status.
5. The DPM-3 can record only one track (hence MIDI channel) at a time. At the computer, mute all tracks except the one to be transferred. Its MIDI channel assignment is not important if you set the MIDI page mode to Omni.
6. Press Record. If you are asked to enter the length (default will be the length of the first track), enter the desired length then press Continue.
7. Press Play. The display will say "Rcrdy*Pause" (if it says "Rcrdy*Play," the clock is set to Int instead of Ext).
8. Press Play on the computer. The DPM-3 will start recording.
9. To record more tracks, repeat steps 3 through 8.

Notes:
- When playing back DPM-3 sounds, re-

member to set Config to Int and Program to the desired sound.

Roland D-20

1. On the D-20 press the Multitimbral toggle button, then the Seq button.
2. Hold the Tempo button and press the Display Up Arrow. Select MIDI, with the data slider as the external clock source.
3. Press the Edit button, then press the Display Up Arrow four times. The display will show "Ext Record Sure?"
4. Press the Enter button; the meter display flashes. Set this as desired (range is 1/4 to 8/4 and applies to the entire sequence).
5. Press Enter again and select Track 8 to be a normal synth recording track (called "Part 8").
6. All eight track lights will flash red and the screen displays "Record External, Measure 1." Start your software sequencer, sending up to eight tracks at once, with one MIDI channel per track.

Notes:

- When recording from an external sequencer, the D-20 always records all eight tracks simultaneously. You cannot send one track at a time. MIDI channel assignments are fixed as channel 1 to track 1, channel 2 to track 2, etc., for all eight tracks under external recording (you can set them as desired for subsequent playback).
- Every time you record into the D-20 from an external sequencer, it overwrites the D-20 sequence memory. If you want to overdub parts from the D-20 onto a transferred sequence, record the external sequence first, then add to it.

Roland MC-500 MkII

Although not a keyboard sequencer, the MC-500 MkII is the latest in a long line of MC-series sequencers and is often used instead of a keyboard sequencer for onstage sequence storage.

1. Press Function, then the Enter key.
2. Set the MC-500 MkII for external sync by rotating the alpha dial until "MIDI" shows in the display.
3. Press Enter, then the Stop button.
4. Press the Record button, then a track number button (selects the track on which to record).
5. Start your software sequencer, sending the entire song at once. The MC-500 MkII will record all MIDI data in the single track.

● SEQUENCE TRANSFERS

Roland W-30

1. Press the Seq button on the W-30 to enter Sequencer mode.
2. Press the F1 (parameter) button. Cursor down to the Sync Clock setting and change it to Ext.
3. Press Seq again, then the F2 (record) button.
4. Press the W-30's Rec button. The display reads "Track 1." Start your software sequencer, sending the entire song at once. The W-30 will record all MIDI data in the single track.

Notes:

- Unlike the D-20, you can do multiple passes from your external sequencer into the W-30 without overwriting its memory. Just make sure to set a different recording track number for each pass.
- The W-30 can read disks in MC-300/500 MkII format and write in MC-500 MkII format.

Yamaha V50

1. Press the Seq button on the V50 to enter Sequencer mode, then press the Job button.
2. Look at the display screen and press the button underneath the Setup label.
3. Set the Sync to MIDI (external).
4. Set the Receive Channel to match the incoming MIDI data channel. The V50 can receive only one channel at a time into a single track. Data from any other channels will be ignored.
5. Press the Record button and press a keypad number (1 to 8) for the track you will be recording into. The light will change from green to red.
6. Look at your software sequencer setup. Make sure you will be sending data only on the specified V50 Receive Channel (mute other tracks as necessary on your computer).
7. Start your software sequencer. When it finishes, the V50 resets itself. Repeat this procedure to send over any additional tracks, one at a time.

Yamaha SY77

1. Press the Song Mode, then the SY77's Record button.
2. Press a track button (1 to 16, with lights above them) on the SY77 to select the track for recording.
3. The display window shows "Record Keyboard." Change the Keyboard default to the desired incoming MIDI channel. This number must match the software sequencer setting; the SY77 will ignore data from other MIDI channels.
4. Leave the SY77 set to internal sync so it will act as the master clock. Configure your software sequencer to accept external MIDI sync.
5. Press the SY77's Play button. There is a two-bar count-in before it triggers the external (computer) sequencer. Manually stop recording when the song is done by pressing the SY77's Stop button.
6. Reset your software sequencer (if not done automatically when the SY77 sent the MIDI Stop command) and repeat the above steps to transfer additional tracks, one at a time.

Notes:

- Although the SY77 can act as either master or slave (relative to your computer sequencer), the Yamaha product specialist consulted for this article recommended using it as the master.
- The Yamaha V50, SY77, DX7IIFD, and QX3 all use a 3.5-inch disk drive and MS-DOS-compatible file formatting. You can, therefore, use these disks in a PC running MS-DOS (version 3.1 seems the best behaved) for archiving, creating custom disks, directory listings, etc. The only requirement is that sequence file names be eight or less uppercase alphabetic characters. As Atari ST/Mega computers can read PC-formatted disks, this trick should work with them as well.

(Thanks to Alesis, E-mu, Ensoniq, Korg, Peavey, Roland, and Yamaha for their help.)

Craig Anderton *is a musician and author. His latest book is* Power Sequencing With Master Tracks Pro/Pro 4; *his latest album is* Forward Motion *(on Sona Gaia, distributed by MCA).* **Jim Pierson-Perry** *is the collective pseudonym for a group of malcontent munchkins with questionable ancestry, fond of cheap beer, mirrored shades, and gross jokes. They are often found wiring MIDI ports to whoopie cushions and accosting smurfs.*

TRANSFERRING MIDI FILES BETWEEN COMPUTERS

The flip side of transporting song files from computer to keyboard sequencer is going from one computer sequencer to another. This is becoming more popular with the advent of MIDI-oriented bulletin board systems (BBS), which maintain libraries of song files for free downloading. Often, this makes it necessary to cross not only between software but between different computers (e.g., from Hybrid Arts' SMPTE Track on an Atari to Passport's Master Tracks Pro on a Macintosh).

Use of standard MIDI files provides a major step toward such software independence. Virtually all MIDI files are in format 0 or 1 (single and multitrack linear sequences, respectively) and are directly supported through import/export operations within most sequencer programs (see "Introducing Standard MIDI Files" in the April 1989 EM). After some initial problems, there are now few incompatibilities between programs for major song elements.

MIDI files created on an Atari, Amiga, or IBM are compatible across computers; files uploaded to a BBS by one computer can be directly downloaded and used by another. Atari and IBM are even more closely tied, as both use common disk formatting. MIDI files written to a 360 or 720 KB IBM-formatted floppy disk can be read by both computers.

Going to and from the Mac is only slightly more work. If you download a Mac MIDI file for an Atari, IBM, or Amiga computer, you must strip the first 128 bytes from the file to remove the MacBinary header used in Mac files. Any common file editor program will handle this minor surgery. Going in the opposite direction, Mac telecommunication programs typically ask if the file you download should be saved as a text or MacBinary file. Select MacBinary, with File type "Midi" and a blank for Creator type. Be careful entering the File type; "M" must be uppercase and the "idi" in lowercase. If you make a mistake, use the ResEdit utility program to correct the File and Creator types. —*J.P-P.*

Good Sound Advice. Huge Savings!

Here's an easy way to figure out which software will help you get the most out of your MIDI setup: call the MIDI software experts at Soundware. Simply dial (800) 333-4554. Orders gladly taken at the same number.

Macintosh

Sequencers

Dr. T's
KCS Level II with PVG

Mark of the Unicorn
Performer

Passport Designs
Master Tracks Pro
Master Tracks Jr.
Passport Pro 4

Opcode Systems
Sequencer 2.6
Vision
CUE-The Film Music System

Electronic Arts
Deluxe Recorder

Integrated Sequencing and Printing

Coda
Finale

Passport Designs
Encore

Coda
Music Prose

Scoring and Printing

Mark of the Unicorn
Professional Composer

Passport Designs
NoteWriter II

Music Software Plus
Music Publisher 2.0

Electronic Arts
Deluxe Music Constr. Set

Interactive Composition

Intelligent Music
Jam Factory
M
Ovaltune
UpBeat

Coda
MacDrums

Editor/Libs-Samplers

digidesign
Sound Designer
Turbosynth
Softsynth

Blank Software
Alchemy 2.0

Education

Ars Nova
Practica Musica

Coda
Perceive

MIDI Interfaces

Opcode Systems
Professional Plus
Studio Plus Two
Timecode Machine
Studio 3 (SMPTE)

Passport Designs
Standard MIDI Interface
MIDI Transport (SMPTE)

IBM PC

Sequencers

Passport Designs
Master Tracks Pro
Master Tracks Jr.

Voyetra
Sequencer Plus Mark I, II, III

Twelve Tone Systems
Cakewalk
Cakewalk Professional

Magnetic Music
Texture
Prism

Integrated Sequencing and Printing

Personal Composer
Personal Composer System/2

Dynaware
DynaDuet

Temporal Acuity
MusicPrinter Plus

Musicator
Musicator

Scoring and Printing

Dr. T's
The Copyist (all levels)

Passport Designs
SCORE

Interactive Composition

Twelve Tone Systems
Sound Globs

Voyetra
M/pc

Editor/Libs-Samplers

Turtle Beach Software
SampleVision

MIDI Interfaces

Roland
MPU-IPC, MPU-IMC, LA PC-1

Voyetra
V-4001

Music Quest
PC MIDI Card
MQX-16, MQX-16S
MQX-32, MQX-32M

Atari ST

Sequencers

Dr. T's
MIDI Recording Studio
KCS with MPE
KCS Level II with PVG

Midisoft
Midisoft Studio

Passport Designs
Master Tracks Pro
Master Tracks Jr.

C-Lab
Creator

Steinberg/Jones
Cubit
Pro-24 III
Twelve

Integrated Sequencing and Printing

C-Lab
Notator

Scoring and Printing

Dr. T's
The Copyist Level I, II or III

Hybrid Arts
EZ-Score Plus

Steinberg/Jones
Masterscore

Interactive Composition

Intelligent Music
M

Editor/Libs-Samplers

digidesign
Softsynth
Sound Designer

Dr. T's
Samplemaker

Education

Take Note Software
Take Note

Amiga

Sequencers

Dr. T's
MIDI Recording Studio
KCS with MPE

Scoring and Printing

Dr. T's
The Copyist I, II

Interactive Compostition

Intelligent Music
M

Apple II
Commodore

We carry many of the same fine products for these great systems, too. Please call.

Editor/Libs-Synths

We carry all the most popular packages for all systems: Sound Quest, Opcode Systems, MIDImouse Music, Digital Music Service, Sonus, Dr.T's, Big Noise, and Voyetra. Please call.

Best Sellers

Cakewalk - IBM
Vision - MAC
Copyist Pro - IBM
Encore - MAC
Music Printer Plus - IBM
Master Tracks Pro - MAC
Performer - MAC
Voyetra Seq. Mk. II&III- IBM
Opcode Editors - MAC
PC MIDI Card - IBM
MQX-16 - IBM
Studio 3 - MAC

Our Policy

FREE "MIDI by Mail" catalog available. Just call or write and we'll be happy to send you a copy.

No question too dumb. MIDI systems are great. But the software can be a little confusing when you're first starting out. We understand. That's why we try our best to answer any questions you have before you order. Just call us at (800) 333-4554.

Institutionalize us. Attention buyers in professional studio facilities, schools and universities: Soundware is the perfect place to buy your MIDI software. We not only have the products, but also the knowledge to help make sure you get the right ones. And we'll happily accept your PO.

We accept VISA, Mastercard, and American Express with no added service charge. Your credit card will not be charged until we ship your order. Personal and company checks accepted. Please allow one week to clear. California residents please add local sales tax to your order.

Shipping

For foreign orders and Next-Day-Air, please call. For all others, add $4 per item to cover UPS 2nd-Day-Air.

Call to order

(800) 333-4554
Good anywhere in the U.S. and Canada

Monday thru Friday 9 to 5 and Saturday 10 to 4 PST.

Soundware

Your MIDI Source

All items subject to availability. Defective software and hardware replaced immediately.

 200 Menlo Oaks Drive Menlo Park, CA 94025 (415) 328-5773 **FAX (415) 328-0611**

Basic Studio Series, Part 7

Studio Ergonomics

With a little planning, you can create a productive and pleasurable studio environment.

Did you ever notice that some kitchens simply invite you to cook, while others, no matter how clean and shiny, immediately turn your thoughts to sending out for pizza? The difference probably involves a lot of factors, but the two that are most important are whether the appliances actually work, and how things are organized (how far it is from the sink to the stove, whether there's room for dirty dishes, and so forth).

In a way, electronic music studios are kitchens for creativity (we've all heard about bands that were really cookin'), and the same concepts apply. One studio can be comfortable, efficient, and creatively inspiring, while another, with the same equipment, can be frustrating and tiring to use—nothing seems to be in the right place, or the connections are always wrong. Often, the problems with an unworkable studio, as with an unworkable kitchen, can be traced to poor design or a lack of planning.

Good studio design takes into account both human and technical requirements. Equipment that is properly mounted, located, and connected is reliable and easy to use. With a step-by-step approach, you can design a studio that is easy to work in and will keep working for you.

By Peter Elsea

MARCIA STEIGER

53 EDITOR/LIBRARIANS $299

YOU'LL NEVER NEED TO BUY ANOTHER PATCH EDITOR.

X-oR

Atari ST
IBM PC

Caged Artist

"This program is phenomenol! It's finally the answer to controlling multiple synthesizers and a MIDI studio setup... it has completely changed my own use of synthesizers and MIDI instruments — definitely check it out!"

Eric Persing
Roland User Magazine

"I am very excited by X-oR and the power it delivers for managing MIDI systems... it stands ready to take over all the patch editing/ management needs anyone could ask for."

Jim Pierson-Perry
Music Technology

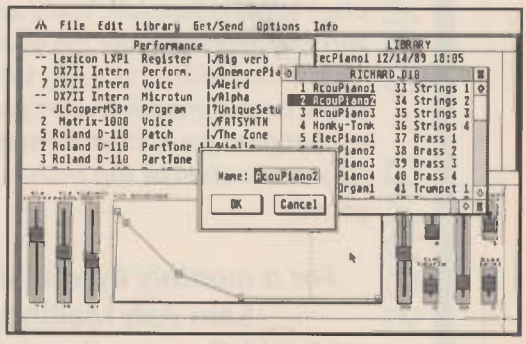
X-oRcise Your System!

X-oR can handle anything that speaks Sys-Ex with a quality rivaling the best stand-alone editor/librarians. However, X-oR doesn't stop there! X-oR is the first and only program to treat your entire MIDI setup as if it were one big multi-timbral instrument.

With X-oR in control, your synthesizers will work together in a way you may not have imagined was possible. Any patch in any instrument in your MIDI setup is only a mouse click away. X-oR Performances can provide a snapshot of your system, including all the current patches and banks, for Total Recall. X-oR even knows how to operate your MIDI switcher to make the whole process hands-off.

New Profiles are available free to all registered X-oR users, either on disk or via modem, through our BBS. And if you'd like to create or customize a profile, E-oR (X-oR's Profile Development System) is included.

- **Graphically edit** ALL instrument parameters.
- **Copy** groups of parameters between patches.
- **Create** banks of intelligently randomized patches.
- **Generate** banks of variations by blending two patches.
- **Store** up to 32,767 patches in a Library, with comments and keywords.
- **Search** the Library for specific text and/or keywords.
- **Save** the patch files individually, in banks, or in the Library.
- **Re-arrange** banks of patches quickly and painlessly.
- **Access** on-line Help file for specific Profile information.



X-oR supports these MIDI instruments: ALESIS: HR16; ART: MULTIVERB, QUARDAVERB; ROLAND: D50, D110, GM70, MT32, GP8, SUPER JX, R-8, JUNO 106; CASIO: CZ1/101/1000/5000; DIGITECH: DSP-128; DMC: MX-8; EMu: **Proteus**, **Proteus XR**; ENSONIQ: ESQ-1/M, SQ-80, **VFX**; COOPER: MSB+; KAWAI: K1, K5*; KMX: 15X16 PATCH BAY; KORG: M1, M1R, **M3R**, DW6000/8000, DVP1; LEXICON: PCM-70, LXP-1, LXP-5; OBERHEIM: MATRIX 6/6R/12/1000, X-PANDER*; SEQUENTIAL CIRCUITS: DRUMTRACKS, 6 TRACK, MAX, PROPHET 5/600; YAMAHA: V50, DX100, DX21, DX27, DX27s, FB01, DX7, DX7-II, TX7, TF1, SPX90, SPX90-II, TX-81Z, DX11, TX802, DMP7*; 360 SYSTEMS: 8X8 PATCHER.
* Librarian only Profile

Dr.T's
MUSIC SOFTWARE, Inc.
220 Boylston Street, Suite 206
Chestnut Hill, MA 02167
(617) 244-6954

• ERGONOMICS

MEASUREMENTS

Ergonomics is the applied science of designing tools and workplaces to fit people. An ergonomic design starts with the *individual convenience profile*—an area where controls and labels are comfortably accessible to the hand and eye (see Fig. 1). Measurements determine your profile; some of the most important measurements are listed here.

Working surface height: Sit upright with your shoulder relaxed and your arm bent at the elbow. The distance from the point of your elbow to the floor is approximately the best working surface height. This is not the height of the table tops but the height of the working surfaces of the equipment you are going to put on the tables: the tops of keys of a computer or instrument, the faders of a mixer, etc. You may prefer some deviation from this height in some cases; for instance, I like instrument keyboards positioned lower than normal.

Focal radius: Sit in the chair and hold a magazine with your wrists on the edge of the table. Have a friend measure the distance from the bridge of your nose to the bottom of the page you are reading. This is where your eyes focus most comfortably.

Clearance: Measure the highest part of your lap as you sit in the chair. Awareness of this distance will help prevent bruised kneecaps.

Fig. 1 shows how to use these measurements to position the most commonly used equipment. The idea is to keep everything within easy reach and where it can be seen without eyestrain or sore necks. The ideal positions fall on, or close to, an arc that starts where your fingers naturally fall on the table top and runs to a point level with your eyes at a comfortable focal distance. You will

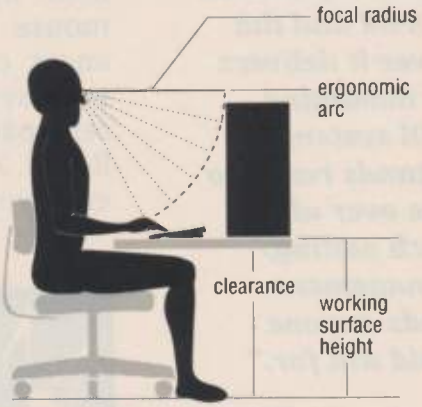


FIG. 1: The measurements that make up an individual convenience profile.

be amazed at how much difference a couple of inches makes when you spend several hours at a job.

When you install your equipment, use this curve as a guideline and try to locate readouts and important controls on the curve whenever practical. Seldom-used controls can be located toward the back of a flat surface or above eye level, but repeated reference to such places will be tiring.

TASK ANALYSIS

Composing and performing electronic music are complex processes that every musician approaches differently. *Task analysis* means scrutinizing this process to find out how you prefer to work and what you need to get the job done. The procedure is simple; for each activity you perform, make a list of the equipment you use. Then, identify how often you touch, or look at, each item: intensively, occasionally, or "set and forget." Finally, estimate how much time you spend on each activity. This results in an outline of how the studio will be used.

Here is a description of a common activity, entering musical notes into a computer:

Items Needed	Use
computer	intensive
disks	intensive
MIDI keyboard	intensive
tone generator	occasional
mixer	set-and-forget
monitor	set-and-forget

I sit at the computer with the MIDI keyboard close at hand. My software and data disks must be where I can easily reach and sort through them. The tone generator should be where I can see the display but needn't be right in front. The locations of the other items have no effect on this job.

Once you have done this for each studio activity, you will begin to get an idea of how your equipment should be arranged. You will probably identify three or four pieces of equipment that are the center of major tasks and find that some gear is common to a lot of jobs. In some cases, you can improve your efficiency by duplicating a gadget or providing a remote control.

Now, make some sketches of the associations shown by these task descriptions (see Fig. 2). Don't worry about sizes just yet, and don't be afraid to fantasize about what you would do if you had a few more pieces of equipment. A few of these sketches should clarify the organization of the studio.

FITTING INTO THE ROOM

Next, measure the room you are going to use and make a scale drawing of the floor plan. Be sure to include features like windows and closet doors and any

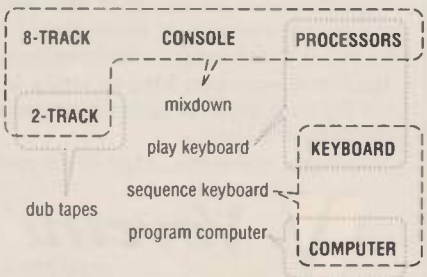


FIG. 2: How to associate tasks, then come up with a rough sketch of a suitable layout.

• ERGONOMICS

furniture that has to coexist with the studio. This is easy if you have an object-oriented drawing program for your computer (such as *MacDraw* or *SuperPaint* for the Mac), but graph paper will work. If this drawing turns out to be complex, make some copies of it, as you should try several versions of a layout before you start moving furniture.

A studio's general plan is determined by the shape of the room, the amount of equipment to be installed, and the number of people using the gear at once. The most efficient floor plan is a circle, with the composer surrounded by equipment. Manufacturers insist on building things with straight lines, so you'll have to settle for a square and try to do something creative with the corners.

The minimum distance between opposing tables should be about four feet. This is a comfortable reach for most adults and leaves room for two to sit side by side, although if two people routinely work together, the spacing should be more like six feet. As more equipment is added, the layout becomes rectangular, growing away from the speakers.

The maximum size of the layout is a good deal less than the dimensions of the room. There should be about two feet from the tables to the wall to allow access to the back of the equipment, although you'll usually wind up fudging this on at least one side.

Next, measure your equipment and make a chart showing the "footprint" (i.e., the amount of surface area required) of each item. If you already have tables and stands, include their dimensions, too. With the chart handy, you can sketch in possible layouts on the room plan. Locate the speakers first. Then mark out a line perpendicular to the wall and halfway between the speakers; this will be the setup's center line. Find the spot on the center line that is as far away from the front of the speakers as the speakers are apart, and put the mixing console there. The patch bay should be to one side of the console, and the location of everything else will follow your task sketches. Be sure to include empty spaces here and there to set manuals or borrowed equipment.

Fig. 3 shows a possible layout for a composer who mostly works from a keyboard directly to an 8-track tape deck, adding processing both on the original tracks and during mixdown.

Each task has its own location, and everything that's needed is within arm's

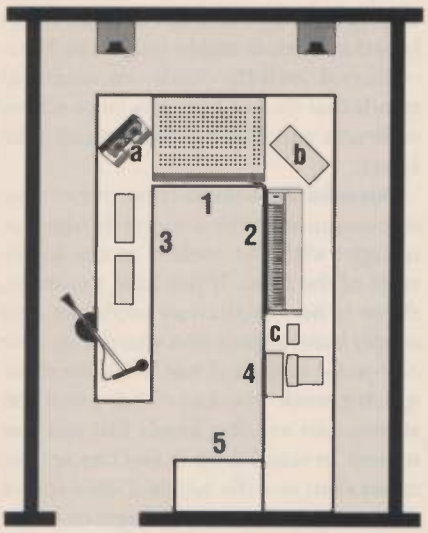


FIG. 3: A typical small studio layout. Tasks are centered at: (1) the mixer, (2) a synth, (3) tape decks, (4) a computer, and (5) a work table. Shared equipment includes (a) an 8-track deck, (b) signal processors and a patch bay, and (c) a remote control for 8-track.

reach. Items adjusted occasionally, such as processors, are placed between task centers; the remote for the multitrack tape deck makes it accessible in two places.

At this point we have the perfect studio on paper—now it is time to turn that design into reality.

FURNITURE

After going through the planning process, you may see a need for some odd-sized tables; studio furniture tends to be low, narrow, and long. Depending on the state of your checkbook, you can either buy your tables, have them made, or make them yourself.

There are a few companies making modular systems specifically designed for electronic music studios. These go beyond simple keyboard stands, featuring shelves and racks for processors, sequencers, and even computers. Such setups are expensive, but if one suits your needs exactly, it may be the best solution to the problem. Most of these systems are expandable and can be purchased in stages, but you should buy everything you need in one shot. Design changes or business failures may make it impossible to find matching parts later.

Before you buy a stand, look closely at its design and workmanship, paying particular attention to the clamps and fittings that hold the pieces together. Are they well finished and made of durable material? Do they tighten well enough to prevent twisting and slipping? Does the assembled rack tip or wobble? Is it strong enough for your gear? (Do you know how much your gear weighs?)

If you decide to pass up the special-purpose systems, look around a business furniture store that sells a variety of tables of many sizes and heights as well as table/shelf combinations made for computer systems. If the prices shock you, check out the used furniture stores and the yard sales. Look for pieces that are sturdy without being too heavy, and watch out for braces and decorations that can catch unwary knees. Avoid built-in drawers and metal tops; you are going to make holes in these tables and attach some things to the tops. You also may have to shorten the legs.

MOUNTING EQUIPMENT

Much of your equipment will simply sit on a table, but some items require special treatment for most effective installation. Here is how to handle those difficult pieces:

● ERGONOMICS

Keyboards: It is hard to find a table low enough and thin enough to place a keyboard at a comfortable height, so I recommend solidly built commercial stands that do not have any large screws or braces extending down around your knees.

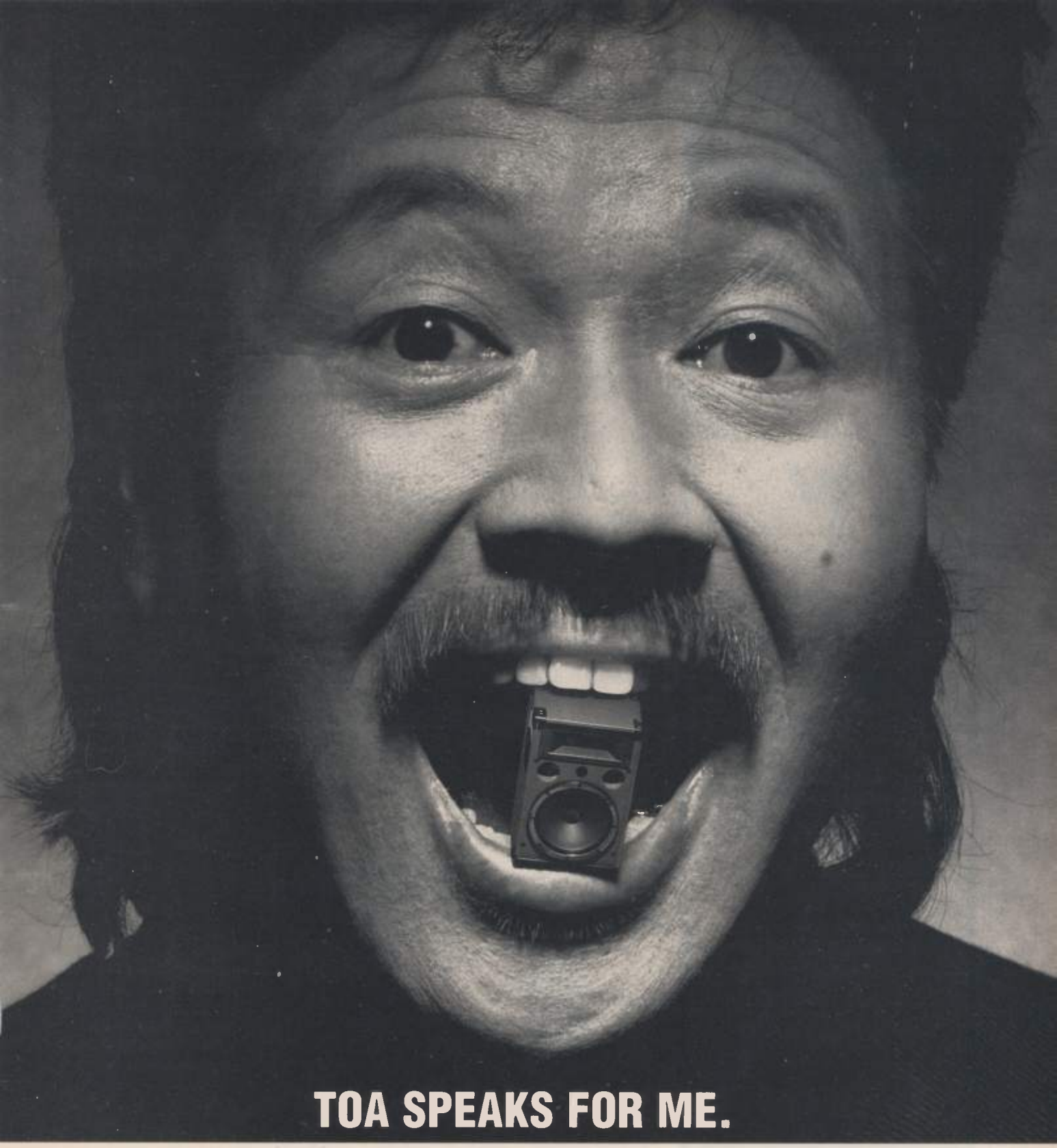
Tape decks: Tape decks come either console-mounted with a meter bridge, or upright with the meters at the lower edge of the front. If you have a console, there is no installation problem; you simply leave a space and wheel it in. The one-piece design is not well-suited for splicing work. You can either put it flat so you can see the heads but not the meters, or stand it up so you can see the meters but not the heads. I have found that a slant of 30 to 45 degrees is the most satisfactory, achieved by setting the deck on a brace or frame (however, check with the manufacturer to make sure the tape recorder can be operated at this angle). This either puts the deck very high, or the table too low to get knees under, but you can solve this by cutting a hole in the table top and mounting the deck at an angle.

However you place your decks, be sure to leave some bare desk space nearby to set reels, boxes, and, if you'll be doing tape editing, a splicing block. There should also be a handy shelf or cabinet for adapters, extra reels, and splicing supplies.

Rack-mount gear: It might seem obvious that rack gear should go into a rack, but that is not always the case. A large rack (floor-to-ceiling and about three feet deep) is awkward to deal with. If you only have one or two items, stacking them on a shelf is adequate. You can apply stick-on rubber feet or velcro tape to keep them in place. Some studios have rack equipment mounted face up in desktops or roll-out consoles. My favorite place to put rack gear is in a cabinet-like loft over tape decks or keyboards.

If you will be taking your rack processors on the road, most music stores carry portable rack boxes. These can sit on a table, so you can move the whole works without having to unbolt anything. Be sure to look for a box that supports the backs as well as the flanges of the equipment; the rear of the box should be completely open for proper ventilation. It is better to have several small boxes than one huge one.

Mixers: There is nothing special about installing mixers if the meters are in a proper bridge. If the meters are flush



TOA SPEAKS FOR ME.

DAN KURAMOTO OF HIROSHIMA: Exploring the roots of American music in theater and film; and with Hiroshima, forging a cultural common ground.

THEIR TOA EQUIPMENT FOR STAGE AND STUDIO:

SE, SL & SD Series Speakers
ME-AV & SM Monitors
MR-8T 8-Track Recorder
MX Powered Mixers
KD Keyboard Amps

TOA

TOA Electronics, Inc. 601 Gateway Boulevard, South San Francisco, CA 94080 415/588-2538 800/733-4750
TOA Canada: Ontario 416/624-2317 • TOA UK: Essex (0277) 233882

with the top panel, you may want to mount the mixer at an angle, as with the tape decks. In any case, the mixer back should be as accessible as the front.

Speakers: Speakers can be hung from walls if you know what you're doing, but placement is limited by the location of the wall studs. It is best to put them on commercial stands or free-standing shelf units (wood, not metal—metal rattles).

LIGHTING AND WIRING

The quality of light in the studio is a very important factor in your comfort and ability to work. There should be two kinds of light available: a general illumination that evenly fills the entire room and moderate, shadow-producing light on the equipment controls (your eyes need shadows to discern the depth of things). An assortment of flexible desk lamps, some pointed at the ceiling, some at the gear, works well. Make sure there is no glare on computer screens or instrument panels. Use 40- or 60-watt bulbs in desk lamps and 100-watt bulbs in ceiling fixtures; it is a mistake to make the room too bright. Windows should have heavy curtains.

There is no single interconnection scheme that can serve all the procedures used in electronic music, so all audio inputs and outputs of every piece of equipment in the studio should be wired to a patch bay. (Well, almost all of them. Some connections are not very useful, but exceptions must be carefully thought out.) The patch bay must be reliable; the best are made with ¼-inch phone jacks. The MIDI lines also need a patch bay, and with large setups, sometimes a simple panel of MIDI jacks can be more useful than several electronic switchers.

In an electronic music studio, you are likely to find four or five different kinds of cables: AC power, audio, MIDI, computer data, and video. The audio and MIDI cables usually can run together but all other types must be separated from each other. (See the discussion regarding MIDI and audio cables in the February 1990 "Service Clinic."—SO) All cables must be protected from pulling and kicking and must be out of the way of equipment operation, maintenance, and cleaning.

There are some excellent commercial products for organizing wires—you can get plastic trays with snap-on lids, spiral wrap or split flexible tubing to tidy up draped bundles, even fancy velcro cable ties. Plastic cable ties come in a thousand different varieties and sizes, including styles with screw holes to attach to tables or flags to place labels. Cheap, but usable, plastic ties come with some brands of garbage bags. Duct tape is invaluable for temporary setups, but leaves a sticky mess after it has been on for about six months.

Try to route all cables behind the equipment, keeping the various types separate at different heights. I like to run the audio cables in trays made from PVC gutter or downspout. Wherever they leave the tray, bundle the wires with plastic ties. Other cables can hang from hooks about halfway down the legs (I hate to see cables on the floor). For AC power, fit each table with one or two multi-outlet boxes screwed to the legs or inside the back (see Fig. 4).

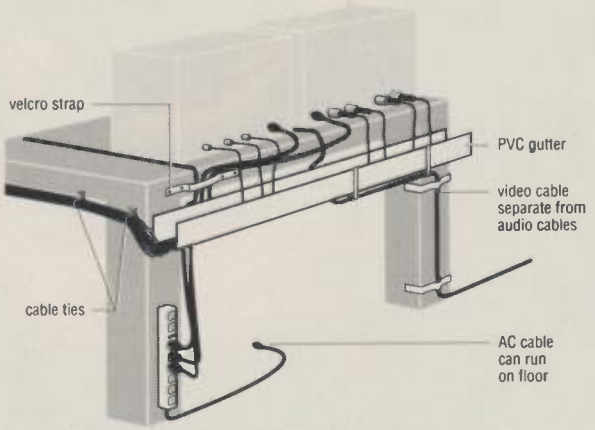


FIG. 4: Ways to manage your wires in the studio.

You should seldom have to run cables under an aisle, but if you must, protect the wires with something solid, like a piece of doorsill molding, not just a rug.

The reliability of the wiring can make or break a studio. Use high-quality, foil-shielded, 2-conductor cable (with the extra wire connected to ground in unbalanced installations), soldered directly to the patch bay jacks at one end and with the appropriate connector (no adapters allowed) at the other end. Every cable has a label at both ends telling what it connects to, and each label is wrapped with clear tape to keep it from falling off. Once the

wires are in place, leave them alone. If you need to take a piece of equipment on stage, use different cables.

THE FINAL TOUCHES

You are going to sit in a chair for almost everything you do in the studio, so you need a good one.

For an operator's chair, get what used to be called a "secretary's chair" and is now advertised as a "posture chair." It should roll around, swivel, and have adjustments for seat height, back height, and back tension. It should not have arm rests. Before you buy, check to make sure it can be adjusted to fit you. The seat height is right when you can easily swing your foot in an arc but not straight back and forth. That distributes your weight evenly across the cushion. The seatback should fit into the curve of your back just below your rib cage. The tension on the seatback should encourage you to sit upright, (with your shoulders directly over your hips) but allow some motion in all directions.

I like to have a second chair in the studio that allows me to move away from the speakers, lean back, and put my feet up. Listening to music from another position helps me judge the overall effect rather than the details I tend to focus on in the "hot seat."

Break in the studio with some simple, no-deadline projects that use all possible combinations of equipment. After a few sessions, ask yourself these questions: Are you happy with the work done? (If not, is that the fault of the studio?) Are you comfortable? Can you see and reach everything? Do you experience any aches, pains, or eyestrain? Numb hands or a stiff neck mean something is not right. Is everything where you expect it to be? Do you have to move your chair a lot? Do you have to get out of the chair?

If this analysis shows problems, make some changes and try a few more sessions. No setup is perfect, but you should be able to find an arrangement that works well for you, at least until you get some new equipment, change your manner of working, or just get bored with the view. Then you can do the whole process over again.

Peter Elsea *is director of the electronic music studio at the University of California, Santa Cruz, campus, where he shepherds about 30 students a year through the traumas of tape splicing and MIDI time code.*

The Ultimate Digital Sampling CD'S from Germany!

"FIRST GENERATION DIGITAL RECORDINGS OF INSTRUMENT SOUNDS AND EFFECTS!"

MASTER BITS

Sampling Collection 500 $59.00

(528 Synth and Drum Samples Recorded in Stereo)
M-1 • D-50 • K-1 • K-5 • DX-7II • K-1000 • ESQ1 • PPG 2.3
FZ-1 • MOOG • TR-808 • HR-16 • LINN 9000 & etc.

Sampling Collection 800 $59.00

(830 High-Quality Digital Studio Samples in Stereo)
VFX • EMU-II • M1 • PX-1000Plus & HX-1000
MATRIX-1000 • R-8 & MKS-70 • CASIO VZ-1

Sampling Collection 600 $59.00

(600+ High-Quality Digital Studio Samples in Stereo)
MICRO-WAVE • K4 • VFX-SD • Proteus-XR
M1EX • T1 • S1000 • X-pander • Prophet-VS

SONIC IMAGES

Vol 1: DRUMS, PERCUSSION, MUSICAL EFFECTS
288 Sounds organized in 24 Drumsets and 9 instrument categories, includes 24 short demos. *(Recorded into the SYNCLAVIER SAMPLING SYSTEM)*

$59.00 (per volume)

Vol 2: PERCUSSION SPECIAL 290 Samples of Asian, African, Latin and Other Percussion Instruments *(Including: Waterdrum, Surdo, Bougarabou, Dondo, Rain Stick, Marimbula, Tibetan Crotales, Sourouba, Chinese Opera Gong, Djun and more)*

Vol 3: STACK SOUNDS A 25 Stereo Stack Sounds Consisting of 4 to 8 Layers of Acoustic, Electronic and assorted instruments. (Total STEREO SAMPLES : 216)

Vol 4: STACK SOUNDS B Choirs, Historical Instruments & more!

Vol 5: MUSICAL EFFECTS Aprox. 200 samples. Interesting for musicians, post production and etc.

Vol 6: GRAND PIANO Includes the incredible Klavins 12 foot upright piano & etc!

MASTERBITS & SONIC IMAGES: Mix & Match - Any two for $110.00, any three for $160.00

INTERNATIONAL GOLD™ SERIES from GREAT BRITAIN!

All new voices created exclusively for **VALHALA** by HIT MUSIC PRODUCTIONS

KORG ROMS $50.00 ea.

M1/M1R	(1) B-101
	(2) B-102
M3R	(1) B-301
	(2) B-302

T1 / T2 / T3 Program/Combination Disk
Two Sound Banks on diskette only **$75.00**

ROLAND ROMS $45.00 ea.

D50 / D550	(1) D-501
	(2) D-502
D10, D20 &D5	(1) D-121
	(2) D-122
D110	(1) D-131
	(2) D-132

COMING SOON: VFX Voices!

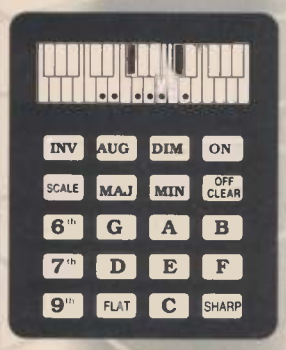
VALHALA Box 20157-EM Ferndale, Michigan 48220

80 Voice ROMS **$25.00** ea.
160 Voice ROMS **$52.00** ea.
320 Voice ROMS **$99.00** ea.
80 Voice Percussion ROM **$30.00**

Orchestral • Bass Guitars • Acoustic Pianos • Brass Percussion • Electric Pianos • WoodWinds • New Age Synth Sounds • Strings • Ensembles • and many more!

Please write or call the information line for complete voice listings.

ESQ1
SQ80 ESQ M



KEYBOARD CHORD COMPUTER

only **$49.00**

GUITAR CHORD COMPUTER

only **$49.00**

{Same specifications as described below except the display is of a guitar fretboard.}

Pocket-sized calculator displays keyboard on which you can instantly show all common chords and inversions, notes of all major scales, melodic ascending and descending minor scales, harmonic minor scales and all augmented and diminished triads as well as diminished 7th chords - and it transposes all chords and scales up and down by half steps.

An indispensable aid. Size: 3 3/8" x 4 7/8" {*Batteries included.*}

MACINTOSH SOFTWARE

MT-32 Editor/Librarian
$69.00

TX81Z Editor/Librarian
$69.00

D-50/D-550 Editor/Librarian
$129.00

D-10, D-20 & D-110 Editor/Librarian
$99.00

A demo disk containing Valhala's D-50, TX81Z, MT-32 and D-10/20 and D-110 Editor/Librarians $6.00 p/p in USA, $8.00 all others. Refundable towards Macintosh software purchase.

TX81Z • DX11 • V50 • DX100 • DX27 • DX21

$56.00

757 Voices

for your DX21, DX27, DX100, TX81Z, DX11 or V50.

Available on Data Cassette, Mac™ 3.5" disk for Valhala's TX81Z program or Opcode's Mac program or V50 3.5" disk.

$56.00 per format

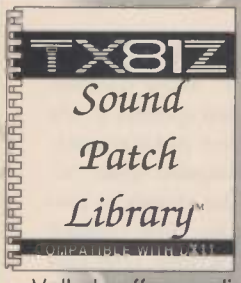
757 DX7 Voices

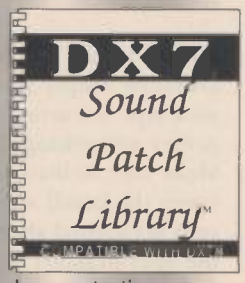
$56.00 per format

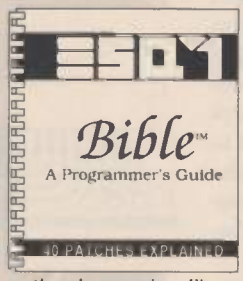
DX7IIFD
TX7 Tape or Opcode Mac

10 disks for $35.00

Quick Disks 2.8" Quick Disks



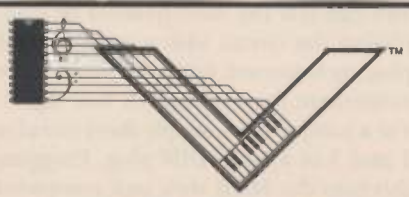




TX81Z/DX11 SPL™	$25.00
DX7 SPL™	$29.00
ESQ1 SPL™	$25.00
ESQ1 Bible™	$19.00

Each Sound Patch Library™ has 757 new & very useful patches. Voices range from traditional acoustic instruments to New Age sounds. The only comprehensive library of sounds in printed form. The ESQ1 Bible™ will help novices to enhance their voice programming skills, and it even includes 40 patches explained.

Valhala offers audio demonstrations on cassette of their different synthesizer voice libraries for the following instruments: DX7, TX81Z, ESQ1, D-50, D-10/20/110/D5 and M1. The cost of each demo is $3.00 post paid in the USA & $8.00 for all other countries.



Ordering information & order form located on our other two-page advertisement in this issue. To order by phone: **1-313-548-9360.** Business Hours 9am-5:30pm M-F (EST)

VALHALA

Box 20157-EM Ferndale, MI 48220

WORLD-WIDE AUTHORIZED DISTRIBUTORS

AMG: United Kingdom
MidiMusic: Norway
MEQTRADE: Netherlands
KORG, Inc: Japan
MASTERBITS: Germany
MUSICIANS TECH: Sweden

(Not all of Valhala's products are carried by the above listed Distributors)

The MIDIverb II "Echo Unit" Mod

Here's that feedback control you always wanted for your MIDIverb II—and with it comes a world of longer echoes and sharper flanges.

By Leo L. Bidne

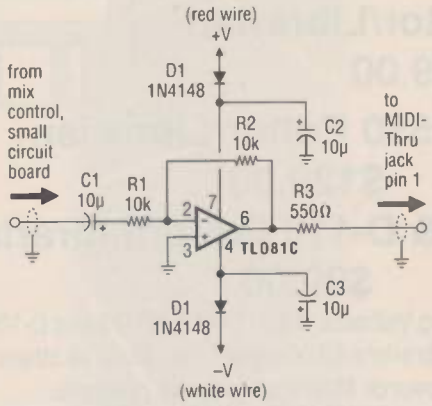


FIG. 1: MIDIverb II Echo Unit circuit.

The MIDIverb II is a great signal processor for budget studio setups, with its super-clean digital effects and MIDI switching capability. But those single-slapback echo programs—ugh! Here's a simple circuit that gives up to ten seconds of regenerated "space echo" delays, just like the tape delay units of old. The modification requires no extra jacks or chassis drilling, does not affect normal operation, and uses the two uncommitted pins on the MIDI thru jack for switching so you don't even need to add a footswitch jack. As a bonus, the mod also creates deeper, more penetrating flanging effects and extends the usefulness of some other presets.

Warning! Installing this modification will void your warranty. There are sensitive chips inside that are easy to zap, so don't do this yourself unless you are experienced.

INSTALLING THE CIRCUIT

Build the circuit in Fig. 1. Parts layout is not critical. I used an etched circuit board, but perf board or wire wrap is adequate. Be sure to use shielded cable for the input, output, and jumper wires.

To install it, lay the MIDIverb right side up with the front panel toward you. Remove the top plate and screws, exposing the MIDIverb circuit board. Locate the small circuit board with the input, mix, and output controls attached (Fig. 2). Solder the shielded input wire to the point shown in the diagram. Do not connect the shield wire anywhere here! Use heat-shrink to isolate the lead from any accidental contact with other parts of the circuit.

Turn the unit around so the input and output jacks face you. Locate the tiny pads of solder next to the right channel input jack (Fig. 3). Very carefully solder the red (+V) and white (-V) wires as shown. Do not mix these up; they supply power to the circuit.

Now replace the top panel and screws, flip the unit upside down, and remove the bottom panel. Locate the two unused solder pads on the MIDI thru jack (Fig. 4). Attach the output wire, the shield, and the small jumper wire as shown. Mount the circuit board in the available empty space, using double-stick tape (or screws and spacers if you prefer something more permanent). Make sure to leave adequate space between the board and the chassis to prevent accidental shorting. Now replace the bottom panel and screws. That's all there is to it!

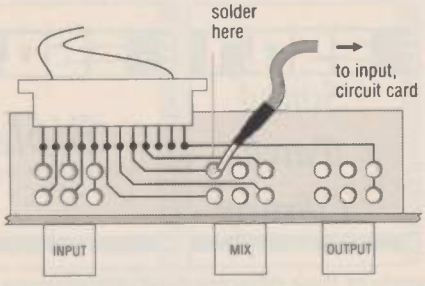


FIG. 2: Solder circuit input here.

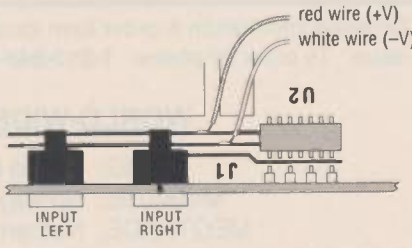


FIG. 3: Tap power at these points.

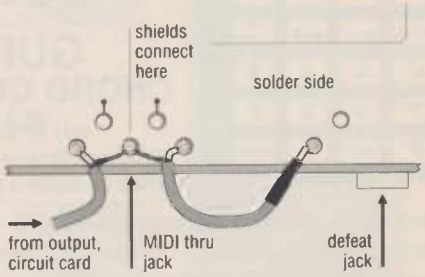


FIG. 4: Route the signal back into the MIDIverb.

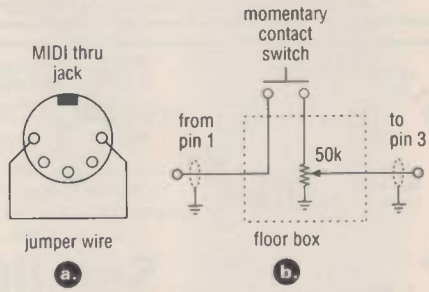


FIG. 5: (a) Jumper plug; (b) Floor box.

TESTING

You can test the modification by completing the circuit with a small jumper plug, or better yet, build the much more convenient floor footswitch box (Fig. 5). For a jumper plug, simply short out pins 1 and 3 of a 5-pin DIN plug. Plugging this into the MIDI thru jack completes the feedback circuit and allows the mod to operate.

If you build the footswitch, the wires

marked "to pin 1" and "to pin 3" should be shielded, with the hot leads going to the appropriate pins on a MIDI (5-pin DIN) plug and the shields connecting to pin 2 on the plug. (You could also mount a 5-pin DIN jack in the floor box and run a detachable MIDI cable between the floor box and MIDIverb II MIDI thru jack.) Keep the footswitch cable as short as possible since it is carrying an audio signal. The switch is a momentary-contact type, and the potentiometer adjusts the number of delays you want.

Now for the smoke test. Turn on your unit and get a test signal ready. Punch up one of the delay programs (70 to 89) before trying out the jumper or floor box. Note that some of the programs (especially the reverbs) are not suited to this modification and will give a very annoying, recycling whine that can only be stopped by changing programs. You can use the mod safely with programs 50 to 89.

Start with the knob on the floor box turned all the way to the left (i.e., the wiper to ground) and push on the momentary switch. You should hear a single-slapback delay. Make sure the mix control on your front panel is at mid-position and the yellow (or green) light is flashing. Turn up the floor-box knob until you start hearing multiple echoes. (Using the jumper plug only gives you full regeneration, but this still means ten seconds of digital-pure delays—about three seconds more than programs 97 to 99—and a wider choice of delay times.)

FLANGER BONUS

This mod is also great for those sharp, "hard flange" effects; select one of the flange programs (50 to 59), and turn the floor box control toward the right for a sharper sound.

I hope you enjoy the MIDIverb II Echo Unit. It's a great way to squeeze more useful sounds out of a budget setup. You know, you *can* teach a new dog old tricks!

Leo Bidne *is the lead singer and keyboardist for the Port Angeles, Washington, band Nervous Rex.*

PARTS LISTS

All resistors 1/4-watt, 5%

MIDIVERB MOD

R1, R2	10 kΩ
R3	550 Ω
C1, C2, C3	10 µF tantalum
D1, D2	1N4148 or equivalent silicon diode
IC1	TL081C or equivalent low-noise op amp
Misc.	circuit board, IC socket, hookup wire, etc.

FLOOR BOX

50 kΩ audio taper potentiometer
Momentary contact switch (normally open)
2-conductor, shielded cable
5-pin, 180-degree DIN plug (Radio Shack #274-003)
Box, knob, etc.

First Takes & Quick Picks

This month, we check out ear-training software, a powerful multi-effects processor, a CD sample library, new sounds, the latest in professional scoring software, and more.

Roland GP-16 Guitar Multi-effects Processor ($1,195)

By Bob O'Donnell

Guitarists interested in exploring new timbres generally have two choices: MIDI guitar controller-based synthesis systems and signal processors. Technical limitations and other problems have prevented guitar synths from making a major impact, but sophisticated signal processing tools specifically designed for guitarists have come on strong lately. In fact, the most recent addition, Roland's GP-16, presents a strong argument that, at least for now, signal processors still are guitarists' best opportunity in their quest for a sonic Oz.

the EM rating system

EM reviews include 11-step "LED meters" showing a product's performance in specific categories chosen by the reviewer (such as ease of use, construction, etc.) and a "VU meter" indicating an overall rating. The latter is *not* a mathematical average, since some categories are more important than others. For example, if a guitar synth has great documentation and is easy to use, but tracks poorly, it could have several high LED meters and a low overall rating.

The rating system is based on the following values, where "0" means a feature is nonfunctional or doesn't exist, while a value of "11" surpasses the point of mere excellence (a rating of 10) and is indicative of a feature or product that is truly groundbreaking and has never before been executed so well.

Please remember that these are opinions, and, as always, EM welcomes opposing viewpoints. We urge you to contact manufacturers for more information, and, of course, tell them you saw it in EM.

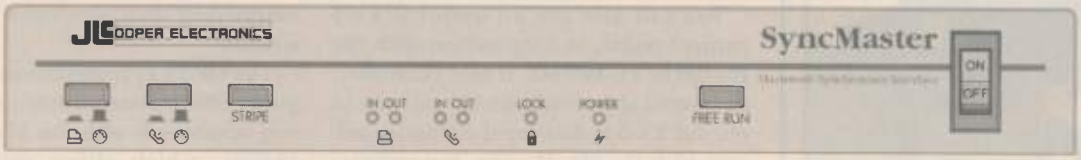
The GP-16 offers sixteen digital effects in one rack space, up to twelve of which can be used at once. Included in the list are a compressor, distortion, overdrive, "picking" filter, step phaser, parametric EQ, noise suppressor, short delay, chorus, flanger, pitch shifter, "Space-D," auto panpot, tap delay, reverb, and a lineout filter. Although most are fairly standard and operate as expected, a few deserve extra mention.

The "picking" filter is, in synthesizer terms, a dynamic, resonant filter (without an envelope), whose cutoff point can move up or down depending on picking strength. In guitar terms, that means you can use it for wah-wah effects or more subtle timbral changes. The step phaser, on the other hand, is a standard phase shifter with the added capability of (essentially) quantizing the changes in the rate and depth control so that the sound "steps" through more drastic, nonlinear changes. The sonic effect is somewhat akin to a percussive sample-and-hold circuit, where lots of very short, sudden timbral changes occur. Finally, Space-D permits you to choose from one Roland's four preset Dimension effects for a lush, chorus-like sound.

As has become common with most multi-effects boxes, the GP-16 only offers the most basic programming parameters (an average of four for each effect), but it has good resolution within those parameters. In addition, the unit offers a programmable LFO that can be routed to any one parameter for each patch, which is powerful stuff. Most chorus and phase shifter effects use LFOs for modulation, but the ability to use the LFO to adjust flanger resonance, pitch shifter feedback, filter cutoff frequency, or any other parameter allows the GP-16

POWERFUL NEW SOLUTIONS

SYNCMASTER • Macintosh Synchronizer/Interace

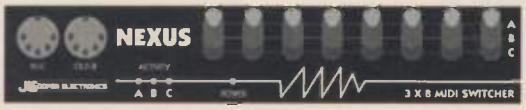


SyncMaster is a dual port MIDI Interface/SMPTE Synchronizer for the Macintosh. And at $349.00 Suggested Retail, it's the most affordable too! SyncMaster gives you 2 MIDI ins, 6 MIDI outs, port selector switches, Jam Sync, and activity LEDs. Our Free Run mode allows you to simulate incoming SMPTE without running your tape machine. You can read/write all formats of SMPTE and convert it to MTC and DTL. It also generates "Smart FSK" and converts it to MIDI Clock with Song Position Pointer. SyncMaster comes with a D/A and works with Vision, Performer, Master Tracks Pro, Sound Tools, and all other popular Macintosh sequencing programs.

SYNAPSE • The Ultimate MIDI Patch Bay and MIDI Processor

Synapse is our feature packed, fully programmable 16 in/20 out MIDI patch bay/processor for the musician or studio with a growing MIDI setup. Synapse utilizes 3 programmable MIDI processors, each with channel/data filtering,and velocity scaling. Four definable zones, each with independent transpose and channel bump, give you superior flexibility. You can merge any 3 inputs to any outputs, and patch map allows 16 program changes to be sent out on any combination of outputs and channels. Panic Button™ eliminates stuck notes.Multiple Synapse units can interface thru our expansion bus, to form a larger MIDI network.

NEXUS
3 x 8 MIDI Patch Bay



Route 3 MIDI Inputs to any of 8 MIDI outputs with the flick of a switch. Nexus is a half rack MIDI patch bay for the musician who wants to eliminate the problems of re-patching MIDI cables. Nexus also features MIDI Input activity LEDs and convenient front panel input and output connectors. Suggested Retail is just $99.50!

NEXUS PLUS
2 x 8 MIDI Patch Bay with Processing

We have designed the Nexus Plus for users who need MIDI processing. Nexus Plus is a 2 MIDI input by 8 MIDI output patch bay that features merging, transposition, four overlapping zones, filter, data thinning and our "Panic Button™" to remove unwanted stuck notes. All of this and more for only $159.95 retail!

MacNEXUS • 1 x 3 Macintosh MIDI Interface

At $69.95, MacNexus is the most affordable Macintosh MIDI interface available. MacNexus has one MIDI In, three MIDI outs, and a serial port connector. Mac cable is also included. All Nexus units can be used stand alone or rack mounted with our optional adaptor kit.

For more information and complete catalog of our professional products, call 213-306-4131 today.

JLCOOPER ELECTRONICS
13478 Beach Avenue, Marina del Rey, CA 90292

to create effects unlike *any* other currently available unit. Check out presets like "Incredible!" and "Barber Pole" to see what I mean.

You can also use an optional EV-5 control pedal, in conjunction with the FC-100 or FC-100 Mk. II foot controller, to control any parameter in real time (a second EV-5 is dedicated to master volume with the Mk. II only), but unfortunately, you must choose either the LFO or the pedal for each specific patch. I wish you could use both at once.

The GP-16 can respond to and transmit MIDI continuous controllers and offers incoming and outgoing program change maps and full sysex support.

Initial reports suggested that one of the GP-16's breakthroughs was going to be its ability to be configured with effects placed in any order; unfortunately, it isn't so. Two sequentially ordered groups of six effects can be rearranged (with the noise suppressor and line-out filter locked into the final position of each group), but the first six are mono and the second six stereo, so you can't mix and match between them. Also, certain effects are mutually exclusive; for instance, you can't use the flanger and pitch shifter at the same time.

One of the GP-16's many strengths is its flexible output structure. In addition to balanced stereo outputs, it provides two sets of stereo line outputs so that you can, for example, route lead sounds to one set of amps and rhythm sounds to another set. Best of all, the choice is programmable per patch. If you opt for a stereo recording or mixing situation, where you run the outputs straight to the board, the GP-16's line-out filter will let you emulate the sound coloration of a guitar amp.

Speaking of which, the bottom line for any effect is, of course, sound, and here the GP-16 shines for the most part. The machine's well-programmed and varied factory presets offer choices for amp and direct applications, with effects ranging from pedal-controlled, pitch-shifted Hawaiian guitar through some amazingly crunchy distortions. On closer inspection, certain effects show weaknesses—the pitch shifter "warbles" a bit, and the reverb isn't as smooth as many dedicated devices—but the composite sound is impressive. A more serious fault is that the overdrive and distortion effects produce an ugly aliasing noise when you play high notes, similar to what you occasionally hear on digital samplers. On a more positive note, the GP-16 sounds surprisingly good (and quiet) through a traditional guitar amp; my old Music Man was practically reborn amplifying the processor's modern sounds.

The GP-16's capabilities as a complete guitar effects system come to light when you combine it with the FC-100 Mk. II ($350)—which allows you to select patches and mute the sound with your feet—two EV-5 pedals ($79 each), and a tuner. It's expensive, but the level of integration and performance flexibility is well worth it.

If you're a guitarist interested in new timbres and find that guitar synthesis systems don't meet your needs, the GP-16 will give you plenty of sonic territory to explore. Check it out.

Bob O'Donnell, EM *editor, is a guitarist intrigued by the wonders of synthesized sound.*

RolandCorp US
7200 Dominion Circle
Los Angeles, CA 90040
tel. (213) 685-5141

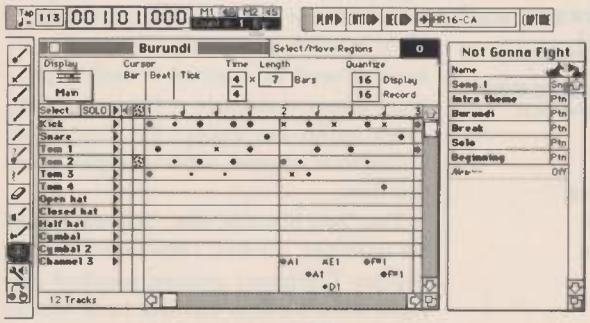
Intelligent Music's UpBeat 2.0 Rhythm Sequencer for the Macintosh ($249)

By Craig Anderton

UpBeat is billed as a "real-time rhythm sequencer" and is optimized for creating rhythm patterns. As I'm not a fan of drum machine-style programming, nor of stringing little melodic fragments together to create a completed composition, I didn't have high hopes for *UpBeat*. But after working with it for just one evening, I became thoroughly enamored of the program to the point where it is now a permanent part of my setup. It's fun, it's clever, but most importantly, it streamlines and enhances the creative process.

Most action occurs in a Pattern window, where individual patterns are created. You can play notes from a MIDI keyboard, enter notes in step time, or "paint" in notes (using five different velocities). Another tool lets you paint in

strings of notes with randomly varying velocities (perfect for hi-hat parts). Since all editing operations can be done in real time, and the pattern repeats, it's easy to tweak away until you get a part that's music to your ears. Real-time editing is something you have to experience to appreciate; it improves productivity to an astonishing degree.



The Pattern window of UpBeat 2.0

A Library window stores each pattern under its own name. You can drag these names into slots in a Song window; upon playing the song, each pattern plays in the order specified, with a specified number of repeats before moving to the next pattern.

UpBeat avoids having each pattern play the exact way every time (the scourge of drum machine-style programming) in several ways. A fill option, available for each drum, looks for spaces in a part and adds beats in those spaces according to various user-defined parameters (such as probability of occurrence). Also, velocity, time-shifting, and other parameters can be varied randomly within user-defined constraints. So, not only can a pattern play a little differently each time it appears in the song, but each playing of a song will be a unique performance (which can be captured in memory and exported as a MIDI file to a more conventional sequencer). This is one of the best uses of algorithmic technique I've encountered—it spices up the piece yet takes no control away from the composer.

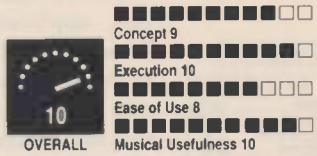
UpBeat solves the problem of different drum sound note mappings by allowing the definition of several devices, each of which maps sounds to notes for a particular instrument. For example, if you start writing for the drum sounds in a D-110 synth module then switch to HR-16 drum sounds, no problem—just change the device. Also, once a device is defined, you don't have to assign tracks, or record-enable them, or any of that normal sequencer stuff. Just start recording; *UpBeat* sorts out which sounds are on which channels and records them accordingly.

Rather than ramble on about the numerous features, let's talk applications. My favorite use of *UpBeat* is to create a tune's rhythmic core, then export that to a conventional sequencer when it's time to add leads, do complex graphic tweaking, and so on. You could probably record an entire tune in *UpBeat*, but just as the forte of a conventional sequencer tends to be precise editing rather than composing, *UpBeat* specializes in the compositional process. *UpBeat* is great for grabbing those creative moments and turning them into MIDI data (and frankly, it's such an ingratiating program that just using it tends to foster creative moments anyway).

Limitations? For one, the program can't address 32 output channels simultaneously. Second, the learning curve is a bit steep because *UpBeat* represents a new way of doing things. The program is copy-protected, and it did take me a while to sort out how to use it with MIDI Manager (supplied free with *UpBeat*). Overall, the software seemed relatively stable, with only a few "lockups." Finally, some people will want more resolution than 192 PPQN, but frankly, for this application I think the point is moot. (By the way, the manual is quite good, but don't concentrate too much on the tutorial—the main section contains the "meat" of the information, and if you want to learn about the program in the most efficient way possible, treat this section as an extended tutorial rather than as a reference.)

Intelligent Music has always produced original, innovative software rather than a bunch of "me-too" programs. Even so, Version 2.0 represents quite an improvement over the original *UpBeat* (specifically, the ability to sequence notes and chords, MIDI file compatibility, some new toolbox tools, and a cleaner graphic layout). The program's authors, John Offenhartz and David Zicarelli (with Eric Ameres and Antony Widoff), de-

serve recognition for taking the concept of drum machine-style programming to the next quantum level. If you record rhythm tracks—even if you already love your sequencer—look into *UpBeat*. My only regret about the program is that it took me this long to discover it.



Intelligent Music
116 North Lake Ave.
Albany, NY 12206
tel. (518) 434-4110

McGill University Master Samples, Volumes 4 to 11 ($69 ea., 3/$199, 11/$699)

The 11-volume McGill University Master Samples (MUMS) collection is one of the most extensive libraries of high-quality instrumental sounds you can buy. The first three compact discs concentrate on orchestral strings, brass, woodwinds, percussion, and piano. Eight new discs have been added, with sounds ranging from modern timbres such as slapped electric bass and electronically processed drums to historical instruments such as Renaissance quart recorder and alto shawm. All MUMS sounds are digitally recorded in stereo, and most discs are just over an hour long.

For almost every instrument, each note in the entire range is recorded. A few discs also have short, rhythmic patterns. In many tracks, however, individual sounds are too long for most of today's samplers.

Volume 4, "Rock Percussion and Tympani," features dry, processed, and "power" drums and cymbals, along with single strokes and rolls played chromatically on tympani, using various mallets.

Volume 5, "Rock Strings," contains a variety of electric guitars and electric bass and, for some reason, just one octave of bass from an unidentified analog synthesizer, which the manual refers to as "Moog-style."

In Volume 6, "Latin Grooves I: Solo," not all sounds are Latin, and not all tracks are grooves. Oddly enough, this disc contains the accordion. Hits, rolls, and rhythmic patterns are played on Latin and Egyptian percussion instruments. Most patterns consist of a series of subpatterns and are too long to sample as a whole; the manufacturer intends that the subpatterns be sampled individually.

Volume 7, "Latin Grooves II: Ensemble," consists mostly of Latin and Egyptian percussion ensembles playing various dance rhythms that last between eight seconds and over a minute. These are followed by a series of well-improvised patterns on solo acoustic bass, in every major key except Eb. For some mysterious reason, a Bb trumpet is on this disc.

The "Jazz Sounds" disc, Volume 8, has Bb trumpet, cornet, Gibson E335 and Fender Telecaster guitars; plucked upright bass; fretless electric bass; vibraphone; and tenor and alto saxophone growls, screams, subtones, and multiphonics. Even if you don't play jazz, no sampler library is complete without some of these sounds.

Volume 9 is devoted to variations of sounds on Volumes 1 through 4, as well as harp, celeste, and classical guitar. Unlike the first two volumes, strings and flutes are played without vibrato. Eight minutes of tympani are duplicated on Volume 4, so orchestral musicians don't have to buy the rock percussion disc and rock musicians don't have to buy a disc of orchestral sounds just to get tympani.

Volume 10 contains pipe organ sounds, with thirteen stops and combinations of stops, including pedals, played on a German baroque church organ. Most tracks are whole-tone intervals rather than chromatic. All 415 tones are lovely and suitably impressive. With

McGill University's CD Sample Libraries

sounds like these, every church should have a sampler.

The "Historical Instruments" disc, Volume 11, may not be for everybody. However, if you need instruments such as viols, lutes, krummhorns, recorders, treble cornet, alto shawm, and antique oboes, where else can you find them? You may want this disk just for the French harpsichord.

When sampling from various recorded sound libraries, it's difficult to record a range of notes with attack characteristics so consistent that split points blend smoothly across their range. Minute differences in tone are more perceptible when they're played from a sampler. I'm impressed with the obvious care taken in recording the majority of McGill's sounds. Most of the sounds in almost any track work well together. There are occasional bloopers, but the skill acquired from producing the first three volumes is apparent in the new offerings.

In future volumes, I'd like to see more popular ethnic and folk instruments; bagpipe, harmonica, mandolin, and dulcimer would be useful, to name only a few. My wish list also includes human voices, orchestra hits, organs other than pipe organ, electric piano, and clavinet. A large library should also include more ensemble sounds.

As it is, MUMS is still a pretty impressive collection. Of course, getting them all into your sampler will require lots of time, concentration, and disk space. A fairly complete, ready-to-sample library like MUMS assures that when you need an instrumental sound, it will probably be available.

Geary Yelton *is director of the MIDI Crisis Center in Atlanta and author of a new book,* Music and the Macintosh, *published by MIDI America.*

McGill University
555 Sherbrooke Street West
Montreal, Quebec, H3A 1E3,
Canada
tel. (514) 398-4548

Coda Finale 2.0 Macintosh Notation Software ($749)

By Joseph Accurso

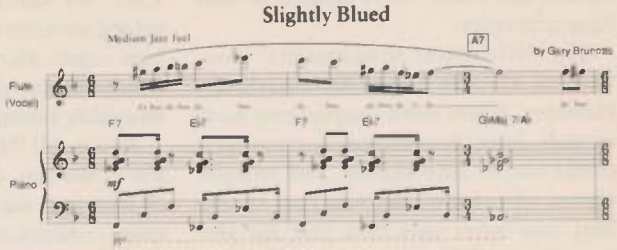
When it first appeared (and for quite a few months before it appeared), *Finale* was touted as the ultimate music notation software. Soon after its arrival, however, it was discovered that *Finale* was bug-ridden, complex, and frustrating (see the review in the July 1989 EM).

Coda Music Software recently shipped an upgrade, *Finale V. 2.0,* that seeks to rectify the myriad of ills in its earlier releases. Version 2.0 is a great improvement, capable of printing out wonderful, engraver-quality scores of any format. Even better, the preparation of those scores is done in a more intelligible manner than in previous versions of the program. Be warned, though, the new version still requires a major investment in time and money, and its tremendous power implies that it's *not* for the casual user.

On the other hand, many new features and a number of improvements

have been added to Version 2.0, making it faster and easier to use. These features number in the dozens, so I'll just touch on the most significant.

The main architecture consists of a series of "tools" used to perform specific operations. Virtually all operations (adding staves, determining clefs and time signatures, etc.) are performed in this way. In earlier versions, one would often become entangled in a series of complex and confusing dialog boxes in which various parameters had to be selected and criteria fulfilled in order to accomplish an operation. Now, many of *Finale*'s operations and commands have been moved out of dialog boxes and into menus that accompany each tool. Tool-specific menus only appear when that particular tool is accessed, greatly reducing the program's complexity.



A printout done with Finale 2.0

Version 2.0 also includes a new tool, the MIDI tool, that allows visual editing of MIDI data (note velocities, pedaling, note durations, etc.) in much the same way as do sequencer programs. *Finale* can play back its scores through MIDI, and since its inception has allowed you to do things like have all notes that are assigned "fortissimo" markings on the score to play back with a MIDI velocity of 127. With the MIDI tool, however, you can individually tweak the velocity value, aftertouch levels, etc., for every note. (Beware, however, that *Finale*'s operation as a sequencer is slow and cumbersome; its strength is notation.) The program supports the standard MIDI file format and accurately converts sequencer files into notation from both Mac and IBM formats.

One of the most annoying aspects of earlier versions was the innumerable amount of screen redraws that occurred after nearly every executable operation. These redraws could take anywhere from a few seconds to 20 or 30 seconds, depending on the complexity of the score. Version 2.0 has alleviated this problem by eliminating all but the most essential redraws.

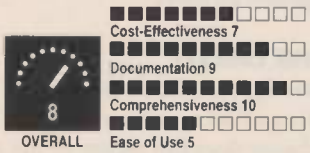
If you have a Mac SE, it would be wise to invest in an accelerator board. Without it, you're going to find yourself sitting around, waiting for things to happen. Certain operations could take more than 30 minutes; a MIDI file transcription of a 300-measure piece with twelve instruments took over an hour without the accelerator board.

A high-quality laser printer, such as a LaserWriter, also is essential. Everything about *Finale* is geared to the serious musician/copyist, and dot matrix printers won't produce professional-looking scores. If you're not able to purchase a laser printer, you can proof on a dot matrix and rent time on a laser printer. Coda is working on upgrading its proprietary music fonts (Petrucci, Seville, etc.) to be Type 1 Postscript fonts so they'll work with Adobe's *Type Manager*.

Finale's documentation has been vastly improved—all 900 pages of it. Answers to most problems can almost always be found in one of the three books. Telephone support is good, but sporadic, and Coda has discontinued its toll-free number.

I have a love/hate relationship with this program. In the time it took me to learn and become comfortable with *Finale*, I probably could have hand-copied all of Wagner's *Tristan und Isold* twice over; on the other hand, my scores never looked this good.

Joseph Accurso *is a professor of music and director of the electronic music facility at Brookdale Community College, Lincroft, New Jersey.*



Coda Music Software
1401 East 79 St.
Bloomington, MN 55425-1126
tel. (612) 854-1288

Ars Nova Practica Musica Macintosh Ear-Training Software ($125)

By Geary Yelton

In the expanding world of music education software for the Macintosh, one of the best programs is an old standby, *Practica Musica* from Ars Nova. This interactive ear-training and music-theory coach works with or without a MIDI instrument. Its MIDI input or the onscreen musical keyboard and grand staff let you respond to drills in point-and-click fashion, with a choice of MIDI playback or four sampled sounds played by the Mac.

Practica Musica offers nine exercises for pitch, scales, intervals, chords, and music dictation. In playing exercises, the program names an interval or chord, then you have to play it correctly. In spelling exercises, you have to specify notes with the proper accidentals; enharmonic equivalents don't count. Unlike ear-training programs that rely on computer-generated melodies, *Practica Musica* dictation exercises use selections from the entire history of music. If you so desire, you can also write original melodies for ear training or the program can generate melodies according to the user-selected key signature, meter, and scale.

Each activity has four levels of difficulty, which you can attempt in any order. When you accumulate enough points to complete a level, the Mac cheers your efforts with digitized applause. Some activities let you summon help screens that explain the music theory behind the exercises. *Practica Musica* comes with a theory textbook titled *Windows on Music.*

The program improves with each revision. I heartily recommend it to those who want to sharpen their harmony, rhythm, and pitch recognition skills or enhance their grasp of musical rudiments.

Overall rating: 9. *Ars Nova Software, PO Box 637, Kirkland, WA 98083; tel. (800) 445-4866, or (206) 889-0927.* ■

Passport Designs Encore 1.2 Composing/Notation Software

By Wheat Williams

Will this influential music software company's latest notation package for the Macintosh leave 'em calling for an encore—or no mas?

Ever since the introduction of the mighty Synclavier, the search for an affordable microcomputer-based scoring and sequencing system has become the music software industry's equivalent to the search for the Holy Grail. Companies have gone after it more seriously than Indiana Jones being chased by a pack of Nazis but often more awkwardly than Monty Python trying to subdue the killer rabbit. The goal is a truly user-friendly system that permits an individual to compose and arrange music, then automatically and painlessly transcribes the music and produces printed output good enough to be published.

Passport's *Encore* is intended to be such a composing and scoring program. It attempts to function as both a PostScript music-typesetting system and a live-performance/sequence-transcription environment. In its first release, it introduced some interesting concepts but was effectively paralyzed by lethal bugs. Since then, Passport has provided free updates almost monthly. With each release (I have worked with four), they tried to fix existing bugs while extending the program with new features suggested by users.

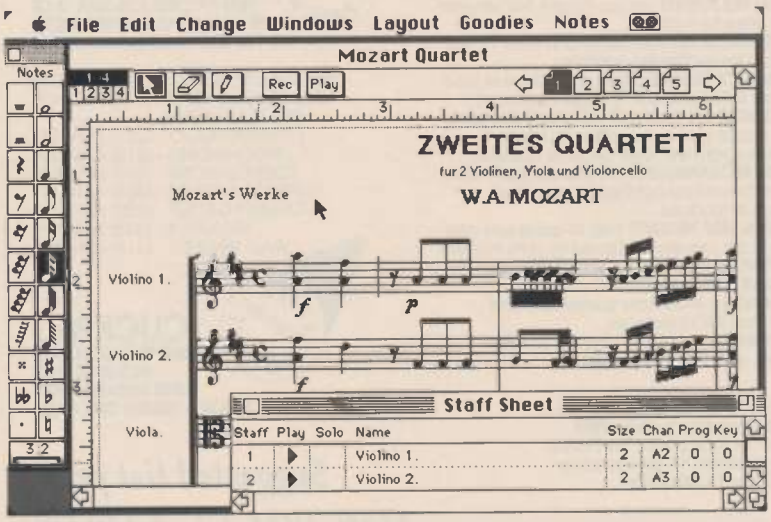


FIG. 1: Encore's main screen, showing the Edit Window and the Staff Sheet. Note the spacing problems in the second measure.

THE CONCEPT

Designed by Dave Kusek and Don Williams (the creators of *Master Tracks Pro*), *Encore* does not aspire to the staggering notational gymnastics one can accomplish with Passport's typesetting/engraving programs, *NoteWriter II* (for the Macintosh) and *Score* (for the IBM), nor is it a powerful MIDI sequencer like *Pro 4*. It combines elements of both types of products but is not intended to replace either. Passport's ad campaign might lead one to believe that *Encore* is designed for the classical composer, but I feel it's much better suited to the MIDI musician looking for an easy way to get decent notation for band charts and lead sheets.

You can play live while *Encore* converts your MIDI performance into standard notation, or step-enter notes and play them back via MIDI. But although *Encore* will faithfully record and play back any and all MIDI data in multitrack sequencer fashion, there is no way to edit, notate, or create (in step time) MIDI data other than note data. If you want to edit MIDI data, you need to use *Encore* in conjunction with a full-fledged sequencer. Accordingly, *Encore* reads and writes Passport's *Master Tracks Pro* and *Pro 4* sequencer files and Type 1 standard MIDI files. (References to compatibility with particular *Master Track Pro* features also apply to *Pro 4*.)

Encore works differently from other programs on the market. Its manual states: "Music scoring is based on an extensive set of rules, which, in practice, are broken as often as they're observed.

And since computers aren't very smart, teaching your Macintosh all the subtleties of turning MIDI data into an accurate and useful score would be impractical."

The assumption is that notation programs format music in a way that may not meet everyone's needs. The Passport people told me they "don't want *Encore* to automatically do anything a user might want to undo." As a result, the program assumes nothing; the user must constantly make all the decisions. This is not much fun, as I will explain later.

On the other hand, by foregoing the complexity and heuristic decision-making capabilities of other programs and, apparently, by some effective code optimization, *Encore* achieves speed. I am happy to report that this 330 kilobyte program runs fine on a stock Mac Plus with a hard drive. Sequencer files are imported in seconds. Window-scrolling and screen redraws are downright breezy. Operations are usually rapid, and most are "undo-able." The program is laudably fast, but at a price: lots of work on the part of the user.

Encore is intuitive; you can learn to use it in a couple of days, not months as with some programs. In addition, it is not copy-protected, part of Passport's courageous attempt to do away with that unpopular and problematic security measure.

ENCORE'S ORGANIZATION

Encore uses two main windows. The smaller Staff Sheet looks like the Track Sheet in *Master Tracks Pro* and is used to enter the instrument names, MIDI channels, and other information for each staff of music. (Each staff is, in effect, a sequencer track.) In the Edit window (see **Fig. 1**) four scores can be open at once, memory permitting. There's also a Preview window that shows a reduced view of one page.

The program displays music using screen bitmaps of the Adobe Systems PostScript font, Sonata. The screen fonts are included with the program and can be used for ImageWriter and draft-quality, laser printer output. However, producing publication-quality printouts using a PostScript device requires the Sonata printer font, which adds $95 to *Encore*'s already hefty price tag. *Encore* also works well with Sonata under the *Adobe Type Manager*, which provides PostScript-like output on non-PostScript printers such as HP's DeskWriter.

Encore always displays music on a single page, formatted to one of the dimensions available in the standard ImageWriter and LaserWriter Page Setup dialog boxes. A row of icons at the top lets you switch between the pages of a score. Editing is accomplished by selecting musical symbols and editing tools from six floating tool palettes, which can be displayed one at a time (**Fig. 2**).

Each staff can be displayed and printed in any of four different Sonata point sizes, but the smallest two are more useful for printing than for editing because the notes and symbols are so tiny that precise placement and editing become difficult. In the LaserWriter Page Setup dialog, *Encore* lets you specify a percent reduction and scales up the page dimensions to enable you to work in a larger Sonata font that will print reduced. *Encore* will also vertically "tile" large orchestral systems across pages on printout so you can paste them together.

Score layout is the program's greatest strength. You can set up music by creat-

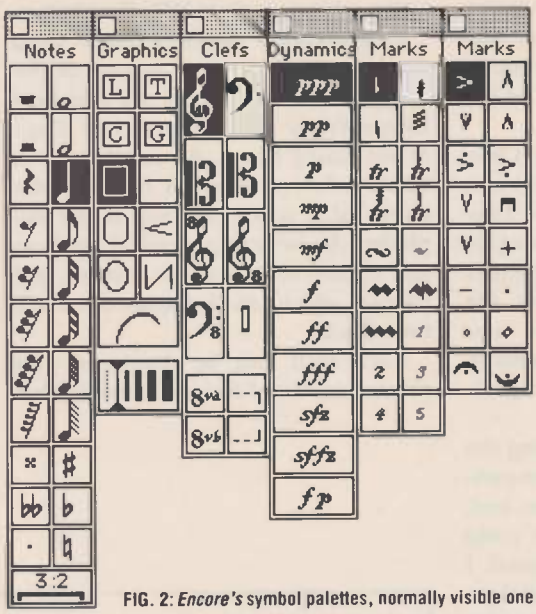


FIG. 2: *Encore's* symbol palettes, normally visible one at a time, show the range of objects that can be placed or drawn with the mouse.

ing systems of up to 64 staves. You can create any combination of bracketing, bracing, and barline connection imaginable. The number of measures per system, the size of each measure, the spacing between individual staves, the number of systems on the page, and other parameters can be varied for each system individually or for the whole document. Any staff can be hidden in any given system (in case, for instance, an instrument's part doesn't come in for a few pages). You can even have staves of different sizes within the same system and can number measures according to several different schemes. You can realign any of these elements at any time while creating a score, and the program won't complain. Finally, you can add a title, header, footer, and copyright notice that is placed on each page of the score.

NOTE ENTRY

There are four ways of entering notes into *Encore:* recording MIDI in real time, importing a sequence, step-time input using MIDI and the Mac keyboard, and placing notes onscreen with the mouse.

Recording works just like with a sequencer; the MIDI setup, record filter, and quantization options are virtually identical to *Master Tracks Pro.* You can set up a template of different time signatures and tempo changes and record into it. *Encore* also transcribes time signature and tempo changes from *Master Tracks Pro* or MIDI files but can't follow rubato playing.

The reason *Encore* can import and transcribe files so quickly is that initially it does very little with the data. When the import operation, or your playing, is finished, the program displays only a paged score with systems containing a staff for each sequencer track and measures that correctly notate the sequence's time signatures. The actual music, however, shows up as a series of bare note heads, tentatively spaced within each measure—no stems, flags, or beams.

Next, you must select sections of music, anything from the whole piece (only advisable with a strictly quantized sequencer file) to a single measure. Then you go through your arrangement, changing *Encore*'s quantization values for each chunk as you listen to your tracks played back over MIDI. A moving pointer scrolls through the score in time with playback. As you listen, you must visualize what your notes ought to look like. At the end of each juncture, you select the Guess command, and out pops notation with stems and flags that may or may not resemble what you thought you played. If it doesn't, select the Undo command, quantize to a different value, and tell *Encore* to reguess the selected chunk of music.

At this point, you can voice a score. This helpful and powerful feature allows you to select independent musical lines and assign them to different "voices," each on a different MIDI channel. A single musical staff can have four independent voices. Once voiced, you can select each part with one command in order to set a uniform stem direction or to transpose. You can orchestrate from a piano part and copy out the voices to individual staves, or copy out individual musical lines from separate staves and merge them together on a new staff to form a piano reduction.

Notes can be entered in step time with a MIDI keyboard or by pointing and clicking with the mouse (durations may be selected with keystroke equivalents). Then you can fine-tune note spacing by

clicking and dragging the notes. Of course, step-time entry eliminates the need for "guessing."

SYMBOLS

Notes are not beamed as they are entered; they must be selected by the mouse in a separate operation afterwards. In all versions I reviewed, beaming was one of *Encore's* buggiest operations.

Once you have transcribed all your notes' rhythms, you can place any diatonic key signature on the score, and the program will assign accidentals. *Encore* will transpose any selection, but only by fixed intervals, not modally or with regard to scale degree. Changing to any instrumental clef is just a matter of clicking. *Encore* impressed me by transposing the notes perfectly when the clefs were changed and by permitting clef changes anywhere within a measure. *Encore* handles key changes in the "classical" manner, by inserting a thin, double barline and cancelling out the previous key's accidentals using natural signs before it places the new key signature.

Accidentals, trills, articulation markings, and fingering numbers can be attached to the notes and will move with them. With the exception of accidentals, none of these symbols affects MIDI data generation or playback. (Repeat barlines in measures don't affect MIDI either.) The rest of *Encore's* symbols are also purely graphic and should be entered last. Dynamics, slurs, pedal markings, lyrics, etc., are simply drawn onto a position on the page. Most can be dragged to new locations individually, but if you move bar lines, systems, or notes, the graphics won't move with them. (*According to the manufacturer, this last problem has been fixed in an update.—SO*)

Encore's newest feature enables you to select chord symbols (such as Cmaj7/E) from a dialog and insert them in the score. This is a manual process; *Encore* doesn't name chords by analyzing the notes as does Coda's *Finale*.

THE ALIGNMENT ENIGMA

Several operations within *Encore* interact to determine what the manual calls "alignment." Any score is likely to contain visual symbols and MIDI data created by a combination of real- and step-time recording and using the mouse. "Alignment" deals with how *Encore* reconciles all of these elements into a single piece of music.

As *Encore* has evolved, its ability to interpret the normal inaccuracies of unquantized note data has improved. But the discrepancies between the recorded data and the necessary repositioning of notes on the page to make them properly readable still cause problems. For instance, playing a note slightly behind the beat could cause *Encore* to place the note too far to the right in a measure.

Encore expects the user to manually reconcile discrepancies between what is seen and what is heard by invoking two commands. The first, Change Timing to Match Placement, tries to rewrite the MIDI data of the selection to match what is onscreen. This is needed when the user uses the mouse to insert new notes into a measure that already contains other music data.

The second command, Change Placement to Match Timing, does not alter

Product Summary

PRODUCT:
Encore V. 1.2

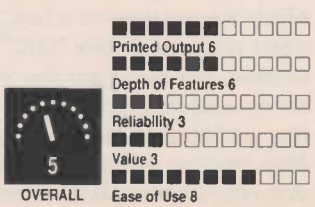
TYPE:
Music notation and composing software

SYSTEM REQUIREMENTS:
Macintosh Plus or better with System 6.0.2, hard disk recommended; MIDI interface; printer; Adobe System's Sonata printer font required for PostScript printing

FEATURES:
PostScript output; imports and exports *Pro 4, Master Tracks Pro, Master Tracks Jr.*, and Type I standard MIDI files; real-time MIDI input; MIDI playback; supports 32 MIDI channels and 64 musical staves

PRICE:
$595

MANUFACTURER:
Passport Designs, Inc.
625 Miramontes St.
Half Moon Bay, CA 94019
tel. (415) 726-0280



MIDI data; it takes manually respaced notes and realigns them to a strict 1:1 proportional allotment (where, for instance, four sixteenth notes would take up the same amount of horizontal space as a quarter note). Strict 1:1 spacing is not always useful, because one often has to reposition notes to make more room for dense passages of shorter notes that would otherwise overlap (see Fig. 1). Unfortunately, 1:1 is the only type of alignment that *Encore* can accomplish automatically.

ENTOMOLOGY (BUGS) AND OTHER PROBLEMS

Despite several updates, the reviewed version still has many problems. In my experience it is problematic to try to create notation by importing or recording real-time MIDI data into *Encore* because its quantization and alignment methods are not reliable (I've also noted severe timing inconsistencies when *Encore* plays a click track over MIDI). *Encore* can glitch unpredictably, which seems to be related to the "alignment" concept. The only solution is to erase the recorded music (and all its MIDI data) and enter the notes in step time. If you record your music in an external sequencer and quantize everything before you import it into *Encore*, it transcribes properly. But that rather defeats the purpose of *Encore*'s similar functions.

Encore's problems with odd time signatures included putting seven quarter notes to a measure in 7/8 time.

The transcription process itself seems to encourage the user to create alignment problems that *Encore* can't handle. Taking a musical passage from raw data to aligned and beamed notes can involve using several commands and dialog boxes in different menus and repeating the process for each chunk. With each decision, things may not work right and may have to be "undone," but if you select the next command (as often happens), you lose the ability to go back and undo an unnoticed error. Therefore, frequent use of the Save and Revert to Saved commands is mandatory.

When you change the placement of entered notes, *Encore* does not maintain visual alignment with other staves that contain the selected measures. Worse, using the standard Macintosh cut, copy, and paste commands with notes is unreliable if the MIDI data was imported or recorded in real time. Pasting, says the manual, will only work if the notes are aligned in a 1:1 fashion as described above, but even that fails to help. A melodic line from one measure can inexplicably collapse into a single chord cluster when "aligned" or pasted elsewhere. Pasting can also cause too many notes to be crammed into a measure, irrespective of barlines. Notes entered in step time don't exhibit these problems.

Concerning the page-reduction feature for LaserWriters, when I tried to print out the reduced score of a 17-stave symphonic work, *Encore* inserted extra space in the first measure. It crowded the notes to the right, throwing my score markings out of alignment, and clipped off the last half of the last measure of each system. None of this was displayed on the Mac screen.

Encore sometimes incorrectly guesses rhythmic durations in odd time signatures. Within one system in 7/8 time, it put seven quarter notes to a measure.

Changing an accidental on a note requires shift-clicking the mouse in exactly the right place. It can take several tries to hit a note right, but going up one font size in the screen display helps quite a bit. Nevertheless, if you notate a closed-position chord with multiple accidentals, the accidentals will always overlap, by default. Each one must be individually offset by shift-clicking the note, which selects a menu item that opens a dialog in which you must select a box, type in an offset value, and click "OK." Repeat as needed, but don't get too worked up; *Encore* sometimes ignores you and prints the accidentals overlapping anyway. Also, erasing a slur to redraw it often strips the accidentals from nearby notes.

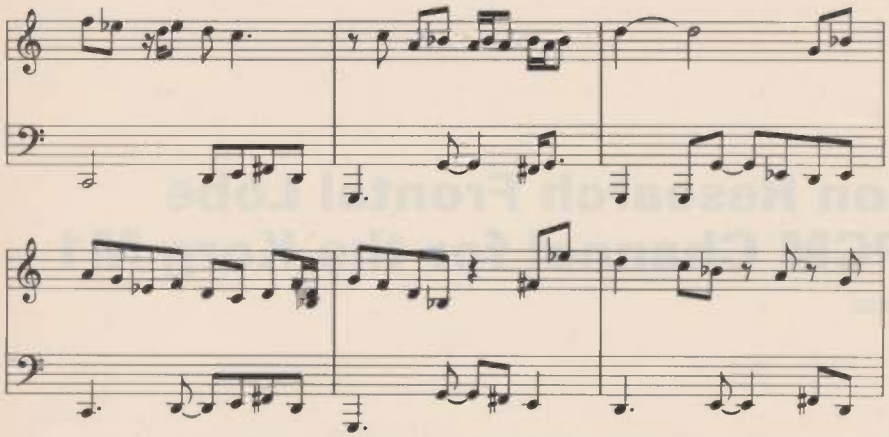


FIG. 3: If you run Encore under the Finder and are extremely patient, it is possible to obtain good printed output.

(*The manufacturer says this has been fixed in an update.—SO*)

The manual says you can use any combination of fonts, sizes, and styles for lyrics, measure numbers, instrument names, and all other text. The version reviewed contains several font-related glitches. Selecting multiple ImageWriter fonts causes the text to be converted to Monaco or Geneva, though PostScript fonts seem to work. However, sometimes Encore's font-selection menu goes permanently grey (becomes unusable; the fonts cannot be changed) in the middle of entering text. Often, Encore refuses to permit the cursor to be dragged over text in order to select it; when this occurs, the Cut, Copy, and Paste commands are practically unusable.

Part extraction? *Encore* will automatically extract single staves only, will not copy text, and will severely distort symbols like slurs.

Besides describing features that don't work, *Encore*'s informally written, 165-page manual lacks depth on the technical end. I would have appreciated a manual that explained more about how *Encore* deals with the many different conventions for music notation.

Passport acknowledges that *Encore* has trouble working under MultiFinder. In my experience the program would, on rare occasion, hang up or quit without warning, even when there was plenty of overhead memory available in Passport's recommended 1.2 megabyte partition. Of more critical importance, Encore absolutely refuses to print under MultiFinder, and even under the Finder, it is unstable and crashes easily.

CONCLUSION

On the surface, *Encore* offers a comprehensive array of features capable of producing sophisticated notation. Closer inspection reveals that a large number of those features are awkwardly implemented or so full of glitches as to be infuriating. On the other hand, *Encore's* user interface—simply point, click, and drag for most operations—is friendly and easy to use, and the page layout features are very professional.

My biggest gripe? Given its "simpler-is-better" assumptions, *Encore* is very expensive ($595, which doesn't include the Sonata printer font), even if they were to fix every glitch. *Encore* is not supposed to be the do-all notation package, but I think users expect much more sophistication and power for this amount of money.

I've been waiting for a program like this, and I tried hard all along to like its concept, but I found the program more frustrating than enlightening. Early versions were full of flaws, and it is only being improved incrementally with each upgrade. On the plus side, Passport is admirably responsive to user feedback. The company has a solid reputation, and *Encore* and *Pro 4* could become an efficient, tightly integrated system before long. Meanwhile, the quest for the ultimate notation package continues.

(Special thanks to keyboardist/bassist Jeff Blanks for contributing a live MIDI jam for transcription.)

Wheat Williams *spent his entire Christmas vacation hibernating with* Encore *at his parents' house in Atlanta. He thanks them for the food and lodging.*

Cannon Research Frontal Lobe and PCM Channel for the Korg M1

By David Snow

Though a bit expensive, nothing can help your M1 live up to its potential as well as these clever pieces of hardware.

The Korg M1 has earned its rightful share of acclaim, but the instrument does have a few conspicuous shortcomings: lack of onboard mass storage, limited sequencer capacity, and no option to load user samples. Korg addressed these features in their new T-series instruments, but Cannon Research has neatly tackled all three problems for M1 owners with the Frontal Lobe and PCM Channel.

The Frontal Lobe is a compact, black box housing a 1.44 megabyte, 3.5-inch floppy drive, 64K to 256K of RAM, an LCD display, MIDI and RS-232 ports, and front panel controls. As its name implies, the Lobe is a second brain for the M1, providing sequence-memory expansion, real-time control of sequence playback, and disk storage of program, combination, sequence, and global data. The unit stores its operating system (OS) in battery-backed memory, allowing it to be upgraded from disk when necessary (no messy chip swaps). In addition to supporting the PCM Channel, Version II operating system software has an improved user interface, enhanced sequencer control, and disk copying. The most important addition to the OS is Auto File Load, which allows you to create a list of up to 100 songs that will be loaded automatically from disk and played—a great convenience for the live performer.

C.R. KING

The Frontal Lobe hooks up to the M1 by means of a cabled, piggyback connector that plugs into the synth's MIDI in and out jacks. MIDI in and out cables are plugged into this connector, and the Lobe automatically merges MIDI data entering the M1 from the Frontal Lobe sequencer and an external controller. The Lobe is transparent to the normal operation of the M1.

The PCM Channel works with the Frontal Lobe to allow external samples to be dumped to the M1. The unit plugs into the M1's PCM card slot and is connected to the Frontal Lobe's RS-232 port with a short, telephone-style modular cable. Both Frontal Lobe models 15KD and 64KD work equally well with the PCM Channel. As far as the M1 is concerned, the Channel is an ordinary PCM card; use of the M1's internal ROM samples is not affected. The unit contains 512K of dynamic RAM, enough for about eight seconds worth of 16-bit or 12-bit sample data (four bits of empty data are added to the 12-bit stuff) at a 31.25 kHz sampling rate. Using the Channel does not limit the functionality of the Frontal Lobe; once sample data has been uploaded to the Channel, the Lobe is free for sequencing and data storage. Unlike the Frontal Lobe, the PCM Channel does not retain its memory when power is removed.

For those of you who don't enjoy programming, commercial disks in Frontal Lobe format are becoming available. The Special Effects and Orchestral Percussion disks provided for this review were compiled from Prosonus CDs, and although their overall quality is good, I'm perplexed at the priority given to bringing out a sound effects disk that

PA ELECTRONICS

N.I.H. Labs Model PA-700 Amplifier
with built-in Electronic Crossover.

400 watts per channel into 4 ohms; 250 watts per channel into 8 ohms; superb specs. Built-in 2-way electronic crossover with 18 dB/octave slopes will save you both money and wiring hassles. XLR + 4 balanced line inputs *and* unbalanced phone jack inputs. Mono bridging, 5-way binding posts for your speaker connections. Rugged, reliable, with a proven fan cooled design — plus every unit goes through a 48 hour burn-in period at our warehouse — in addition to the manufacturer's testing!

$1400 RETAIL ▸ JUST $699 DIRECT

N.I.H. Labs Model PE-30
4 band Parametric Equalizer.

Now you can solve all those difficult equalization problems just like they do in world class studios and sound reinforcement companies. With "Q" or bandwidth controls, you can dial in the exact EQ sound and range you need without affecting tones that are octaves away from your center frequency. With the PE-30, you control the "notch" so you can really pin-point the EQ cut or boost.

$495 RETAIL ▸ JUST $199 DIRECT

N.I.H. Labs Model CN-40 Electronic
Crossover with Digital Readout.

One of the hardest things about using an electronic crossover is getting the exact crossover point correct. Not only does the digital readout make this task much easier for you, but it also makes it possible for you to repeat the same settings. Balanced XLR connectors, high quality sound and bonzo-proof adjustments. 2/3-way stereo or 4/5-way mono.

$850 RETAIL ▸ JUST $349 DIRECT

PA MIXERS

N.I.H. Labs Model PM-80

Perfect for small to medium size halls. You get 8 inputs with trim, High, Mid and Low EQ, effects send control, monitor send control, pan, straight line fader and overload LED 180 Watt/4 Ohm stereo power amp, dual graphic equalizers, plus digital delay, 4-bar 12-point LED meter display and master faders.

$2200 RETAIL ▸ JUST $995 DIRECT

N.I.H. Labs Model PM-160

Everything you need in a sophisticated PA mixer is already built into one high performance package. 16 INPUTS, 2 STEREO POWER AMPS, DIGITAL EFFECTS PROCESSOR, TWO GRAPHIC EQUALIZERS AND A 2-WAY ELECTRONIC CROSSOVER— IT'S ALL TOGETHER NOW!

Unlike other PA mixers, this has not one, but two stereo power amps which give you four channels of built-in amplification you can use any way you wish. **The built-in effects processor** has 99 programs including digital reverb and digital delay. There's a 5 bar 12-point LED meter display for the mains, effects buses and monitor, a built-in talkback mike, a stereo 9-band graphic equalizer for the mains, another 9-band graphic for the monitor buss and a whole lot of patching flexibility.

$4950 RETAIL ▸ JUST $2195 DIRECT

OTHER 'I.S.I. BUYS' SAVE YOU $$$!

SIDEMAN—the perfect practice machine for guitar players. $120 RETAIL ▸ ONLY $59.95 DIRECT

SIDEMAN Headphones with Boom Mic. $69.95 RETAIL ▸ ONLY $30.00* DIRECT

Wendel jr.—the ultimate percussion replacement device. $1000 RETAIL ▸ ONLY $600 DIRECT

R-16—the 'best under a thou' Digital Effects Processor. $2300 RETAIL ▸ ONLY $999 DIRECT

ORDER TOLL FREE:

1-800-537-5199

In CA: 213-921-2341

Hours: 8 am - 5 pm Pacific Coast Time

CREDIT CARD ORDERS ACCEPTED.

INDUSTRIAL STRENGTH INDUSTRIES™

• FRONTAL LOBE

includes such desiderata as jet noise, gunshots, and the obligatory female orgasm. On the other hand, the Orchestral Percussion disk does include a genuinely useful selection of timbres, in particular a nice variety of tympani hits and rolls using hard and soft mallets. Cannon Research recently released a piano disk and a string disk and plans on having twenty by the end of the year.

It's not difficult to create your own PCM files if you've got computer software or a sampler that supports the MIDI sample dump standard. PCM Channel accepts sample dumps up to 512K (256K words of 16-bit samples) in length. If necessary, the Frontal Lobe can request sample dumps from samplers that cannot initiate the procedure from their front panel. There is a potential hitch to the process however: after every 20K words, the Frontal Lobe issues a Wait command and pauses to write to disk. Although this is within the spec, some samplers and sample-editing programs do not adhere to the MIDI dump spec and either ignore the Wait, or time-out and abort the dump. In that case, you will have to limit the size of your samples to 20K words or less. I had this problem with both Steinberg's

Product Summary

PRODUCT:
Frontal Lobe PCM Channel
TYPE:
Multisound sample adapter for the Korg M- and T-series workstations
PRICE:
$399 for PCM Channel only; Frontal Lobe 15KD ($799) or 64KD ($1,199) also required
FEATURES:
512K RAM for holding samples; compatibility with MIDI sample dump standard; samples can be stored on Frontal Lobe disk drive
MANUFACTURER:
Cannon Research Corp.
13338 Loma Rica Dr.
Grass Valley, CA 95945
tel. [916] 272-8692

Electronic Musician

is your complete guide to the technology that links electronics and computers with the world of music.

Start my subscription to Electronic Musician for:

❒ Two years (24 issues) for $29.95. SAVE OVER $54!
❒ One year (12 issues) for $17.95. SAVE OVER $24!

Savings based on annual /single copy price of $42.

MR.
MS.
MRS. _____
Please print full name

ADDRESS _____

CITY _____ STATE _____

ZIP _____ PHONE _____

❒ Payment enclosed ❒ Bill me BS051-3

Add $15 per year for Canada & foreign. Annual basic subscription rate–$24.
Please allow 4-6 weeks delivery of first issue.

Start my subscription to Electronic Musician for:

❒ Two years (24 issues) for $29.95. SAVE OVER $54!
❒ One year (12 issues) for $17.95. SAVE OVER $24!

Savings based on annual /single copy price of $42.

MR.
MS.
MRS. _____
Please print full name

ADDRESS _____

CITY _____ STATE _____

ZIP _____ PHONE _____

❒ Payment enclosed ❒ Bill me BS051-3

Add $15 per year for Canada & foreign. Annual basic subscription rate–$24. Please allow 4-6 weeks delivery of first issue.

SUBSCRIBE

TO ELECTRONIC MUSICIAN

TODAY

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1173 OAKLAND, CA

POSTAGE WILL BE PAID BY ADDRESSEE

Electronic Musician
Box 3747
Escondido, CA 92025-9860

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1173 OAKLAND, CA

POSTAGE WILL BE PAID BY ADDRESSEE

Electronic Musician
Box 3747
Escondido, CA 92025-9860

Avalon for the Atari ST and the Yamaha TX16W sampler. (*Cannon is currently working on support software for six popular non-SDS samplers, including the 16-bit FZ-10. These software drivers will avoid this problem.—BO'D*)

Once the dump is complete, the Frontal Lobe requests various parameters relating to the sample, including loop status (on/off), pitch status (transposed/fixed), and key assignment, plus tuning, level, filter, and decay adjustments. Sounds that have been sampled at rates other than 31,250 Hz will automatically be transposed to the correct pitch (via sample-rate conversion software in the Frontal Lobe) if the rate matches one of 23 predefined frequencies. Multisamples can be created by allocating several samples to one card sound and assigning them to different keyboard zones. Up to 100 card sounds and 100 drum sounds can be included in a single PCM file, assuming that the total amount of data doesn't exceed the capacity of the PCM Channel.

In most cases, samples played on the M1 sounded better than on the original sampler.

Generally, I was impressed by the degree to which samples played on the M1 sounded better than on the original sampler, apparently due to the M1's digital processing. This was particularly noticeable when transposing a sample far down; there was no grit or garbage. If you own both a sampler and an M1, you still might wish to port your samples to the PCM Channel just to take advantage of the Korg's wonderful sound (particularly those stereo effects) and other goodies such as alternate scale tunings.

The process of creating PCM files is straightforward but not very forgiving of error. If you screw up a parameter entry and save the file to disk, you can't go back and edit it, so you're forced to do the sample dumps over again. It's essential to have your samples organized and their parameters documented before starting the process. Fortunately, PCM file-editing software for the Macintosh is being developed by Cannon Research and may be available by May 1990. Hopefully we'll see support for other computers as well.

Although the PCM Channel is designed for the M1, its relatives (M1R, M3R, T1, T2, and T3), and the new Korg Wavestation, Cannon's Frontal Lobe has a "soft" operating system in RAM and uses industry-standard MIDI and RS-232 interfaces; with appropriate system software, the unit can be used with a wide variety of instruments. Cannon Research has announced that it plans to develop Frontal Lobe system software and PCM Channel hardware for other sample-player/workstations such as Yamaha's SY77 and SY55 and the Roland U series.

My only reservation about the system is its price: in addition to the cost of the PCM Channel, a Frontal Lobe 15KD lists for $799 (and the 64KD costs $1,199...yowee!). Of course, the actual retail price will probably be somewhat less, and if you compare that price tag to the cost of dozens of RAM and PCM cards and figure in the convenience and flexibility of disk storage and sequencer control, I'd have to say it's well worth it. It's a godsend to be able to define your own palette of samples, especially when you consider the dearth of PCM cards available for the M1 (I've always wondered why Korg saw fit to burn "Pop," "Drop," and "Hammer" samples into ROM but not include a decent horn or clarinet; that's no longer a problem). In addition, having PCM, program, combination, sequence, and global data accessible on a single storage device greatly increases the efficiency of working with the M1. The M1 may not be a world-class "workstation" by Synclavier standards, but the Frontal Lobe and PCM Channel certainly make it a tool for serious play.

David Snow's *piece* Dance Movements *will be featured on the American Brass Quintet's upcoming compact disc, scheduled for release in the spring of 1990 on the Summit label.*

Big Noise Cadenza Sequencing Software

By Dennis Miller

You don't need Windows *to enjoy this affordable, powerful, graphics-based sequencer for the IBM PC.*

If you've been out shopping for IBM software lately, you've probably noticed that things are looking a lot different than what you're used to. Drop-down menus, icons, dialog boxes, and mouse support seem to be the norm these days. If you didn't know any better, you might think you'd stumbled into the Macintosh or Amiga aisles. One of the most recent entries into the graphic user interface categories is *Cadenza,* a 64-track sequencer for the IBM and compatibles from Big Noise software. In terms of features, *Cadenza* falls comfortably between Magnetic Music's *Prism* and Passport's high-end *Master Tracks Pro* (two other recent, graphics-based IBM sequencers). The program offers a large collection of tools for both the hobbyist and professional musician, and its ease-of-use and intuitive layout make it a strong competitor in the burgeoning sequencer field.

Cadenza requires 512 KB of RAM, an MPU-401-compatible MIDI interface, and a graphics adapter. Unlike other IBM-based graphic programs, it has its own user interface and does not use Microsoft *Windows.* The program retails for a reasonable $199 and is not copy-protected. A mouse is nearly indispensable, but keyboard commands can be used for many functions, including record, stop, and playback.

The program provides all the standard modes for entering and working with music. Both the ever-popular piano-roll display and MIDI event-list editing are available, as well as a pattern/link mode. It reads and writes standard MIDI files and syncs to FSK. It also has a straightforward step-recorder, which is not the fanciest I've seen but it's useful and easy to use. A Track Sheet, complete with fast-forward, reverse, and other tape-transport buttons, also can be used for recording, playback, and track setup. The main attractions, though, are the sophisticated graphic-editing tools, which allow you to draw graphic representations of data for tempo, velocity, and any MIDI controllers. Using these tools, you can enter data in broad strokes or in great detail.

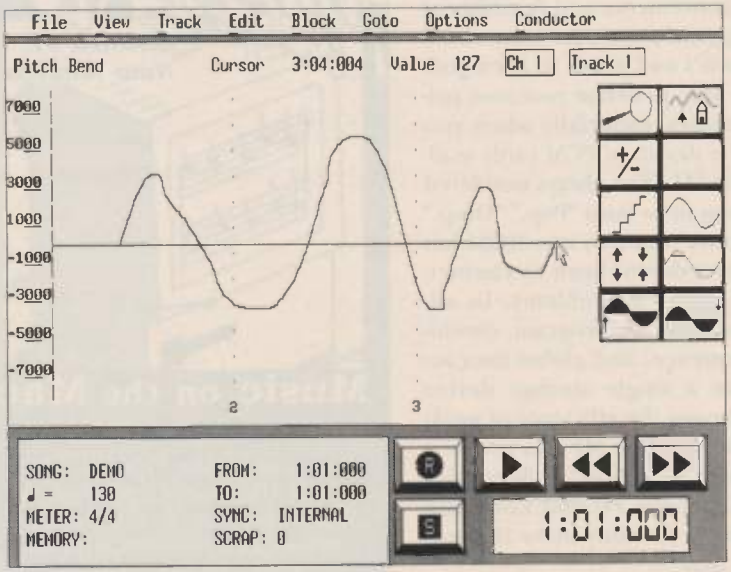


FIG. 1: *Cadenza*'s Pitch Bend View window shows values on the vertical axis and measure numbers along the horizontal axis. As you move your cursor around, two indicators at the top of the graph give a continuous readout of the positions to which you are pointing.

THE WARM-UP

Cadenza easily installs on your hard disk and prompts you for the various hardware defaults you want to use. The program is easy to learn, with drop-down menus at the top of every screen, giving access to Files, View, Track, Edit, Block, Goto, and Conductor functions from anywhere in the program. Online help is also available for most features. You can't move windows around on the screen, or resize them, but the overall look is lean and clean, and things rarely get cluttered.

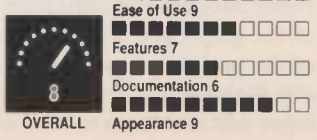
Once the program is loaded, you're brought to the Track Sheet screen, which is where you'll do much of your recording and playback. This screen is divided into three parts; the largest is used to define track names, patch and channel assignments, transpositions, track-mute status, and mode (linear, loop, or link). The large, clear display simultaneously shows sixteen of the 64 available tracks. The bottom third of the screen is broken into two parts. The left panel shows you available memory and block boundaries, as well as current tempo, meter, and sync information. The right panel has the transport buttons: record, stop, and normal and double-speed play. A measure, beat, and tick counter always provides a running indication of your position during record or playback. Both bottom panels are displayed in every screen, allowing you to record or play back anywhere in the program.

RECORDING

Recording from a MIDI controller is simple. Once you've set your tempo and

Product Summary

PRODUCT:
Cadenza
TYPE:
MIDI sequencing software
HARDWARE REQUIREMENTS:
IBM PC XT, AT or compatible, 512 KB RAM, graphics adapter, mouse (optional but highly recommended), MPU-401 or compatible interface
PRICE:
$199
FEATURES:
Graphic user interface, piano-roll and event-list display, step recorder, 64 multichannel tracks, track overdubbing, standard MIDI file support
MANUFACTURER:
Big Noise Software
PO Box 23740
Jacksonville, FL 32241
tel. (904) 730-0754



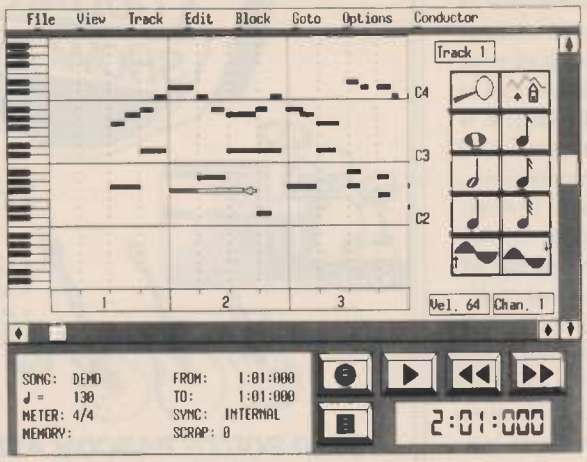


FIG. 2: The Note Editor displays pitch and time in the familiar piano-roll style and uses vertical and horizontal scroll bars to help you change your view. A 4-octave piano keyboard appears along the left of the screen.

lead-in, click on the Record Start button, and you're off. One minor but nice touch is the ability to "preview" a tempo before starting to record; as soon as the Tempo Setting window is pulled down, you get a few clicks at whatever speed you've indicated. One small pain is that you can't stop or abort Record until the entire lead-in (which can be set) has passed. You can record on only one track at a time, but an overdub option lets you create "sound on sound" effects of any complexity. Using the Record Filter option, you can keep the program from recording patch changes, aftertouch, pitch bend, or other controller information while you are playing in. There's an automatic punch-in mode, and here, as in all record modes, you have the option to keep or throw out the most recent take.

Playback in the Track Sheet screen is just as easy, and for double-speed play, a Fast Forward button is available. There isn't much you can do during playback—no dynamic tempo or program changes—but there are a few options that are useful for setting up tracks prior to playback. Using the mouse, for example, you can click and drag on a whole range of consecutive tracks that you want to output to the same channel or patch. You can also "shift-click" with the mouse to choose non-adjacent tracks for muting, transposing, or mode selection.

Cadenza provides a very helpful "tape shuttle" for repeated playback of a set range of bars. This shuttle can be set to autorewind, autostop, or autoplay. If you need to rehearse a section a few times before your final take, you'll find this feature very convenient. You'll also find a "meter map," in the Conductor menu, that lets you change time signatures at any point. These settings don't change data in any way, but they affect the way notes are displayed in certain windows and define the placement of accents by the metronome.

Link mode is another function that should appeal to musicians who typically work with patterns. Suppose you have small chunks of music in a number of tracks that you want to play back in a certain sequence. You designate one track as the "linker" by changing its status in the Track Sheet to "link," call up the Links Screen, then enter the order you want the tracks to be played, using up to 64 links. When you next hit Play, you'll hear the tracks played back in whatever arrangement you selected.

GRAPHIC EDITING

The ability to edit data graphically is one of the most impressive features of *Cadenza;* it raises the program to the level of a sophisticated powerhouse. Pulling down the View menu gives you access to individual screens for control of velocity, pitch bend, tempo, aftertouch, and other continuous controller data. These screens are identical in appearance, with a few exceptions; each contains the values, and a few options, that are specific to the type of data being edited. All screens use continuous, contoured envelopes to represent data, except Tempo, which uses fixed breakpoints.

For example, looking at the Pitch Bend View (Fig. 1), you'll see a display of values (8,192) running up the vertical axis, and measure numbers shown along the horizontal axis. As you move your cursor around, two indicators at the top of the graph give a continuous readout of the positions to which you are pointing. When you playback from this or the other edit screens, a vertical I-beam cur-

sor scrolls across the screen, indicating your exact location in the music. If you zoom out, you can display a maximum of 80 measures on one screen, making it easy to specify long, gradual changes. You can also zoom in to display a single measure for extremely fine tuning.

Clicking and dragging the mouse allows you to create any shape your heart desires. Once you're done, you can edit all, or part, of your graph by accessing a toolkit that is displayed on the far right corner of the screen. These tools allow you to increase or decrease all values by a set amount (you might raise or lower all pitch bend data a half-step or two), expand or compress values by some percentage, invert all values around a zero point, clip values at some high or low peak points, thin out data to prevent MIDI clogging (the program deletes one of every four events), or "smooth" a graph by adding events back in—quite a handful of options. Similar options are available in all the graphic editing screens.

The only things I'd like to see added are an Undo command allowing you to recall the previous version of your graph and some sort of interpolation function where the program would automatically calculate values between two specified points. Still, if you keep your hand steady and your mouse sharpened, you'll have no trouble getting the precise effect you're after.

NOTE FOR NOTE

Note-editing capabilities are at the heart of any sequencer, and *Cadenza* rates slightly above average for its offerings. Because *Cadenza* is primarily graphics-oriented, it's hardly fair to compare it with feature-packed but list-oriented programs such as Voyetra's *Sequencer Plus* or Twelve Tone Systems' *Cakewalk*. Nonetheless, any sequencer should offer certain "benchmark" features, a few of which are missing here. You can easily transpose all notes in a track or a block of data, but you can't invert or reverse note data. Quantizing is quick and easy for any range of beats or measures—you can even quantize "half-way" to a specified value and choose between note durations or just start-time—but you can only work with note values (from a whole note to a 32nd-note triplet), not with clock ticks. It's also a breeze to change durations of all events in a block or offset a track or tracks, but you won't

continued on page 115

Music: Pearls of the Soul

By Robert Carlberg

Could a kazoo controller ever create anything more interesting than what somebody sings in the shower?

The other day I overheard the following conversation:

1st Person: "Is there any kind of device available where a person can just hum or sing into it and have it stored as MIDI data?"

2nd Person: "Well, there's the Fairlight VoiceTracker, the IVL Pitchrider, and a couple of cheaper, less successful units. The trouble with all of them is that the unit has to sample one complete wavecycle in order to determine the pitch, and at, say, 40 Hertz that puts an audible delay in the response. They just aren't very musically useful."

1st Person: "I was just thinking it would be neat if there was something on the market for people who haven't got basic keyboard skills. Lots of people would like to make music, but maybe they never learned to play keyboards, or guitar, or woodwinds; you know, the normal controllers. There ought to be some kind of synthesizer controller for people who don't play anything."

Of course, what these gentlemen were discussing already exists. Using current technology, people without keyboard skills can enter notes, one at a time, into almost any computer sequencer program. When they hit "Playback" the music will play back, just as if a musician was playing in real time. The user has control over dynamics, timing, pitch, timbre, and all the other elements that a "real" musician would, albeit in a more tedious, time-consuming, hunt-and-peck manner.

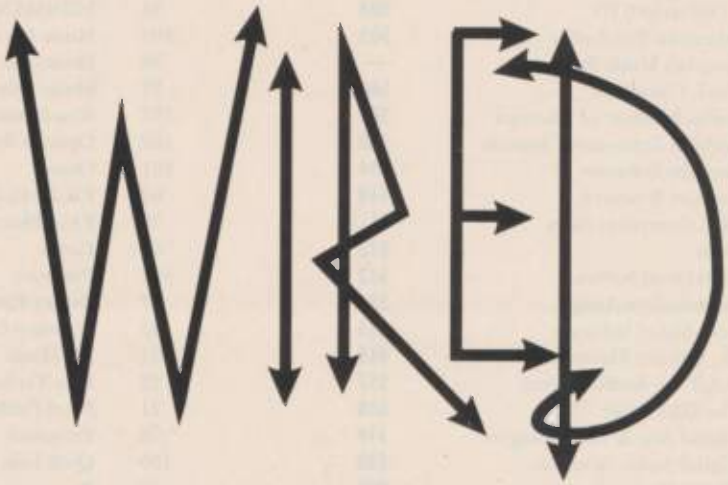
But there is a larger issue here. What would a person be able to do with this "skill-less controller" besides hum a simple little melody over and over? In order to create big-time serious music like "real musicians," wouldn't a person at least have to be able to write multipart music with bass lines, melody, harmony, and percussion? Wouldn't someone have to be able to write percussion parts like a percussionist would play them, sax parts like a saxophonist, and bass parts like a bassist? Then, to be taken seriously by other musicians, it would probably help to know about voice-leading, tension and resolution, tonic movement, time signatures, passing tones, suspended fifths, and all sorts of other junk. So what good is a "skill-less controller" then?

"Lots of Top 40 music," you're probably saying to yourself right now, "doesn't need tonic resolutions or passing suspenders to get along. Heck, even Paul McCartney didn't know he was writing in Aeolian modes until somebody told him." In fact, over-schooled musicians can get hung up on such technical details and forget the "music" altogether. Top 40 songs don't have to be "taken seriously by other musicians" to make zillions of bucks—just ask any of the big-name progressive musicians who starved in the 1970s trying to be arty. The big money lies in appealing to the largest cross section of the record-buying public—and *they're* certainly not musicians.

Yet, is it fair to assume that a person without any musical training—an "armchair musician"—could create music that other non-musicians would find interesting? Even Top 40, for all its apparent artlessness, is a very big business run by professionals, and there are standards. Put another way, how much of "musical talent" is inherent and how much is absorbed through practice and exposure to sophisticated musicians? Not that amateur musicians can't make worthwhile music—any more than symphony musicians make the best improvisers—but the amateur/professional dichotomy is just one measure of music. Naive/sophisticated is quite another. I don't find naive music, either professional or amateur, ever holds my interest for very long.

continued on page 116

The **New Music Seminar** is where music business professionals share new creativity and bright ideas from every corner of the globe. Record labels, hardware manufacturers, studios, artists, producers and engineers come to the premier music industry convention and experience five exciting days of panels, performance, parties, parties and more parties.



Delegates visit the **NMS exhibit floor** and sample products and services from the world's most progressive music merchants while making valuable business contacts.

NEW MUSIC SEMINAR

They explore the **NMS Sample Sack™**, a shopping bag loaded with over $200 worth of cassettes, CDs, vinyl, publications, and fun promotional gadgets of every kind. The fabulous Marriott Marquis **schmoozatorium bar** is an exclusive meeting place for NMS delegates to unwind in between high energy events during the day, while gearing up for **New York Nights: The International Music Festival**, where 200 of the world's most exciting new acts perform at 25 of New York's hottest clubs. Register before May 18th and you'll be listed in the **NMS Directory Guide**, one of the most widely read reference books used year-round by the music industry!

New Music Seminar 11
July 14-18 1990
Marriott Marquis Hotel,
New York City

Register early and save $100
Pay only $230 thru May 18th!
CREDIT CARD REGISTRATION ONLY
CALL 1-800-888-8596

Call Lora Ballato for information on high exposure marketing opportunities at NMS 11

Journeycraft, the official NMS travel agent, guarantees to beat the lowest promotional airfare prices in the U.S. Call 1-800-433-1406

REGISTER EARLY FOR NMS 11 at a special discount rate of only $230.00!

Name _____

Company _____

Address _____

City _____ State ___ Zip ___

Tel: _____ Fax: _____

Mail check & coupon to: New Music Seminar, 632 Broadway, New York, NY 10012 This offer good thru May 18, 1990

EMU

For more information call: 212/473-4343
Fax: 212/353-3162 BBS: 212/473-6125

Be a part of *the* music business event of the year.

Advertiser Index

ADVERTISER	READER SERVICE #	PAGE
John Abbott Music Productions	501	22
Akai Professional	502	48
Alesis Studio Electronics (MMT-8)	503	13
Alesis Studio Electronics (Microverb II)	504	33
American Pro Audio	505	102
Sam Ash Music Stores	—	78
Atari Computer	506	37
Audio Institute of America	507	107
Barbera Transducer Systems	508	102
Bartleby Software	509	101
Cannon Research	510	62
CDA Computer Sales	511	70
Coda	512	60
CodeHead Software	513	111
Commodore-Amiga	514	17
Cool Shoes Software	515	82
J.L. Cooper Electronics	516	91
D.A.T. — Audio Gallery	517	22
The DAT Store	518	21
Digital Arts & Technologies	519	78
Digital Audio Systems	520	109
Digital Music Corp.	521	57
DOD	522	14
Dr. T's Music Software (Beyond)	523	4
Dr. T's Music Software (X-oR)	524	77
Eltekon	525	67
E-mu Systems	526	41
Essential Hardware	527	85
Falco Audio Systems	528	92
First Light Video Publishing	529	115
Four Designs Company	530	111
Grandma's Music & Sound	531	64
Green Oak Software	532	115
Grove School of Music	533	15
Guitar Showcase	534	109
Hughes & Kettner	535	46
Hybrid Arts	536	26
Industrial Strength Industries (ISI)	537	105
Invisible Products	538	40
JBL Professional	539	124
Kawai	540	18-19
KEF Communications	541	103
Key Electronics	542	59
KMX	543	73
Korg USA	544	2-3
Lake Butler Sound Co.	545	111
Leigh's Computers	546	82
Lone Wolf	547	10
MacBeat	548	107
Magnetic Music	549	84
Mark of the Unicorn (Performer)	550	47
Mark of the Unicorn (MIDI Time Piece)	551	24
McGill Master Samples	552	96
Micro Music	553	61
MIDIMAN (Formerly MusicSoft)	554	79
Music Data Company	555	7
Musicode	556	85
Music Quest	557	40, 65, 106
New Music Seminar	—	113
Opcode Systems	558	123
Otari	559	30
Pacific Coast Technologies	560	80
PAiA Electronics	—	111
Passac	561	95
Passport	562	23
Peavey Electronics	563	43
Personal Composer	564	89
PG Music	565	21
Pika Technologies	566	100
Pixel Publishing	567	97
Prosonus	568	69
Quik Lok (Music Industries)	569	55
Rane	570	38
Rhythm City	571	106
RolandCorp US (R-8)	572	8-9
RolandCorp US (U-20)	573	34
Scholz Research & Development (SR&D)	574	103
Sony Professional Audio	—	99
Sound Quest	575	71
Soundware	576	75
Standtastic	577	36
Steinberg/Jones	578	94
Stick Enterprises	579	56
Sweetwater Sound	580	110
TASCAM	581	50-51
Teach Services	582	93
Temporal Acuity Products (TAP)	583	73
Thoroughbred Music	584	49
TOA Electronics	585	83
Tran Tracks	586	64
Tripp Lite	587	65
Twelve Tone Systems (Cakewalk)	588	25
Twelve Tone Systems (Cakewalk & PC MIDI Card)	589	12
Ultimate Support	590	45
Universal Entertainment Group	591	81
Valhala	592	52-53, 86-87
Voyetra	593	49, 80, 92
Wild Rose Technology	594	110
Yamaha	595	27
Zoom	596	20

VOTE FOR YOUR FAVORITE ARTICLE!

We want to give you more of the topics and types of articles you find most useful and enjoyable. Now you can use **EM**'s reader service cards to indicate which ONE article in this issue was your favorite. Please check the ONE box under question #5 on the attached reader service card that corresponds with the title of the article you like the most:

a. "Venturing onto Center Stage with MIDI," p. 31
b. "The Essential Stage Monitor," p. 44
c. "The Onstage Sound Tip Sheet," p. 54
d. "Performance Power," p. 63
e. "Sequence Transfers: From Studio to Stage," p. 66
f. "Basic Studio Series: Studio Ergonomics," p. 76
g. DIY: "The MIDIverb II 'Echo Unit' Mod," p. 88
h. Review: "Passport Designs Encore 1.2," p. 98

SEE QUESTION #5 ON THE READER SERVICE CARD!

Free Information for Readers of Electronic Musician

For free information about products advertised in this issue, use these reader service cards.

1. Print your name, address, and zip code on one of the attached cards.
2. Circle the appropriate number(s) as listed in the advertising index on the opposite page.
3. Please help us serve you better by answering the questions.
4. Affix a stamp and drop this card in the mail. Please allow six weeks to receive your information.

Free Information

IMPORTANT NOTICE TO READERS: Reader service inquiries are mailed directly to the advertiser, who is solely responsible for sending product information. *Electronic Musician* cannot guarantee response from all advertisers.

Electronic Musician

6400 Hollis St., #12, Emeryville, CA 94608
Issue date: May 1990
This card not valid after August 1, 1990

1 *Are you currently a subscriber to Electronic Musician?*
a. ☐ Yes b. ☐ No

2 *Please check the ONE best description of your involvement with music.*
a. ☐ Full or part-time pro musician
b. ☐ Aspiring professional musician
c. ☐ Recreational musician
d. ☐ Music/recording student
e. ☐ Other

3 *Please check the ONE best description of your recording involvement.*
a. ☐ Full-time professional recording engineer or producer
b. ☐ Part-time professional engineer or producer
c. ☐ Sometimes or always record in a professional studio
d. ☐ Record in my home studio only
e. ☐ Have not recorded yet

4 *Which ONE of the following is your main computer used for music?*
a. ☐ Apple Macintosh
b. ☐ Apple IIe
c. ☐ Atari ST
d. ☐ Commodore Amiga
e. ☐ Commodore 64/128
f. ☐ IBM PC/XT/AT or compatible
g. ☐ Other brand
h. ☐ Don't own

5 *Which was your ONE favorite article in this issue? (please see opposite page for list of articles.)*
a. ☐ b. ☐ c. ☐
d. ☐ e. ☐ f. ☐
g. ☐ h. ☐

501	502	503	504	505	506	507	508
509	510	511	512	513	514	515	516
517	518	519	520	521	522	523	524
525	526	527	528	529	530	531	532
533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548
549	550	551	552	553	554	555	556
557	558	559	560	561	562	563	564
565	566	567	568	569	570	571	572
573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588
589	590	591	592	593	594	595	596
597	598	599	600	601	602	603	604
605	606	607	608	609	610	611	612
613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628
629	630	631	632	633	634	635	636

Name _____
Address _____
City/State/Zip _____
Phone # ( ) _____

Electronic Musician

6400 Hollis St., #12, Emeryville, CA 94608
Issue date: May 1990
This card not valid after August 1, 1990

1 *Are you currently a subscriber to Electronic Musician?*
a. ☐ Yes b. ☐ No

2 *Please check the ONE best description of your involvement with music.*
a. ☐ Full or part-time pro musician
b. ☐ Aspiring professional musician
c. ☐ Recreational musician
d. ☐ Music/recording student
e. ☐ Other

3 *Please check the ONE best description of your recording involvement.*
a. ☐ Full-time professional recording engineer or producer
b. ☐ Part-time professional engineer or producer
c. ☐ Sometimes or always record in a professional studio
d. ☐ Record in my home studio only
e. ☐ Have not recorded yet

4 *Which ONE of the following is your main computer used for music?*
a. ☐ Apple Macintosh
b. ☐ Apple IIe
c. ☐ Atari ST
d. ☐ Commodore Amiga
e. ☐ Commodore 64/128
f. ☐ IBM PC/XT/AT or compatible
g. ☐ Other brand
h. ☐ Don't own

5 *Which was your ONE favorite article in this issue? (please see opposite page for list of articles.)*
a. ☐ b. ☐ c. ☐
d. ☐ e. ☐ f. ☐
g. ☐ h. ☐

501	502	503	504	505	506	507	508
509	510	511	512	513	514	515	516
517	518	519	520	521	522	523	524
525	526	527	528	529	530	531	532
533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548
549	550	551	552	553	554	555	556
557	558	559	560	561	562	563	564
565	566	567	568	569	570	571	572
573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588
589	590	591	592	593	594	595	596
597	598	599	600	601	602	603	604
605	606	607	608	609	610	611	612
613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628
629	630	631	632	633	634	635	636

Name _____
Address _____
City/State/Zip _____
Phone # ( ) _____

Information for Electronic Musician Readers

Use the reader service cards on the previous page for free information on products advertised in this issue of *Electronic Musician*.

Place 15¢ stamp here

Electronic Musician
Reader Service Management Department
PO Box 5323
Pittsfield, MA 01203–5323

Place 15¢ stamp here

Electronic Musician
Reader Service Management Department
PO Box 5323
Pittsfield, MA 01203–5323

find any of the randomizing features that are becoming commonplace today.

The two main areas for editing notes are the Note Editor and the Event List, available under the View menu. Both screens give you access to a popup window that allows you to change the pitch, velocity, start and end times, and channel for any individual note. The Note Editor (**Fig. 2**) displays pitch and time in the familiar piano-roll style and uses vertical and horizontal scroll bars to help you change your view. A 4-octave piano keyboard appears along the left of the screen, but if you're working on the far right, it's a little hard to see the exact vertical location of your note. Nine measures of any meter are the total time you can display.

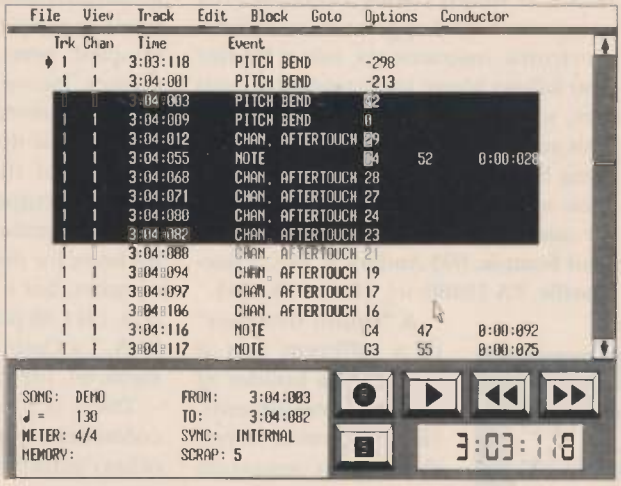


FIG. 3: The Event List is straightforward, displaying the track, channel, time, and type of all events along with the pitch, velocity, and duration of note events.

If you want to move a single note around, just click-and-drag it to any new horizontal or vertical position. You can also lengthen a note just by tugging on its end with the mouse. If you want to insert a note, select one of the default durations from a panel on the right of the screen, and the cursor jumps directly back into the note area, conveniently saving "travel" time. As in all of the edit screens, you can define a block and perform functions only on the data you've selected. When playing back from the Note Editor, all notes get highlighted. This is a useful function if you are trying to catch a wrong note, but it would be even nicer if you could trigger a note-on command by clicking on a note with the mouse.

THE MAIN EVENT

The Event List is very straightforward, displaying the track, channel, time, and type of all events, along with the pitch, velocity, and duration of note events (see **Fig. 3**). A vertical cursor scrolls down the screen, keeping track of your position as the music plays. You can advance playback one event at a time by using the up or down arrow keys that appear with a scroll bar along the edge of the screen, but here again, it would be handy to have some way to trigger an event just by pointing to it. While it's not difficult to select a new track, I'd be happier if I could just enter a new track number right from this screen.

Large-scale editing is done primarily in the Song Editor, a screen that is laid out somewhat like the Track Sheet but uses small rectangular bars to represent measures. Clicking and dragging with the mouse will define a block of up to twenty measures by fourteen tracks (larger blocks can be set in the Block Menu), and moving to a new location and clicking again will copy the entire block to that spot. Once a block is defined, you can delete it by hitting the Delete key; the whole process couldn't be easier.

THE FINAL COUNT

Cadenza provides so many ways to work with your data that you'll certainly find something that fits your style. Perhaps because of this, though, some of its functions aren't as "high end" as those of programs that offer fewer working methods but more features. This is especially true of the non-graphic editing functions. Still, with powerful graphic editing, an ease-of-use rating at the top of its class, a crystal-clear user interface, and a reasonable selling price, you may find *Cadenza* is playing your song. It's certainly worth a listen.

Dennis Miller *is professor of music at Northeastern University in Boston. He is on an endless quest for the perfect computer music system.*

All this is by way of introduction to this month's reviewees, who are amateur musicians, but by no means unsophisticated. The title "Pearls of the Soul" refers to the personal nature of their music, but it also not-so-coincidentally happens to be the title of the second album by **Stephen Van Handel**. Van Handel made an elaborate package of a beautifully packaged cassette, lengthy notes, and original artwork (he's a graphic designer by trade) to send around to a number of labels late in 1988. After what he calls "almost a year of hype from record people," he ended up funding the project himself anyway "in order," he writes, "to remain true to myself and to keep the music honest." *Pearls of the Soul* is perhaps the paragon of what an independent release can be—voluminous notes (a little story to go with each of the eleven tracks), immaculate attention paid to the smallest details, and music that comes straight from the artist's heart without concessions to commercialism. This kind of presentation just isn't possible under most corporate thinking.

Van Handel's music was all written on a Macintosh with *Total Music* software and played back on Yamaha synthesizers (with occasional Mirage or Akai S900 sampling). He uses percussion on only one track, lending a dreamy, ethereal quality to his pieces, which are less tunes than musical atmospheres. Some startlingly original digital sounds make their debut, and overall the project has a sort of wide-eyed innocence that should not be taken for naiveté. No, this is deliberately uncommercial music, totally anomalous in the greedy 1990s. Available on 70-minute cassette ($8.98 postpaid) or CD ($13.50) from Point of View/ Stephen Van Handel, PO Box 21487, Long Beach, CA 90801.

Like Van Handel, Ensoniq sound designer John Greenland's music is not easily categorized in that it's too complicated to be new age and too uncommercial to be pop. It does, however, include percussion, tension and resolution, multipart writing, and all the rest. Perhaps it falls most easily into a "contemporary classical" designation: sophisticated, fully developed electronic music capable of being mentioned in the same breath as Wendy Carlos. Greenland is a composer who happens to work with electronic instruments, not a fiddler who follows where knob twiddling leads him, which puts him in rare company. This may be especially surprising considering his occupation, and the wealth of great sounds he presents. $8.75 postpaid for cassette, $11.75 for CD from Greenland Sounds, 603 Anderson Ave., Phoenixville, PA 19460; tel. (215) 935-2184.

A "sound designer" of a different sort is **Paul Adams**, a builder of stringed instruments. He constructs everything from mountain dulcimers and Swedish hummels to rockin' electric guitars and basses, and from the looks of his brochure, they're all beautiful. Wouldn't you know, he plays a bit, too? His tape, (soon to be a CD) *Various Waves,* features him on all the above plus a PVC didjeridu, trumpet, digital and analog percussion, synthesizers, and samplers. He's joined by a trumpeter and drummer on one Ishamesque track, and a young guitarist/vocalist on another, but the other ten are all him. The music is surprisingly varied—he doesn't dote on the stringed instruments as one might expect—and like Van Handel and Greenland, the composing is very sophisticated (but then, what better showcase for his instruments?). His mostly instrumental, new age-by-default pieces are just as meticulously crafted as his instruments—and as gorgeous. Lakefront Productions, 2720 N. Knoxville, Peoria, IL 61604; tel. (309) 688-0267.

Las Artes del Fénix is another astounding production, made all the more so by the fact that it was recorded direct to analog 2-track. Primarily recorded from a Roland MT-32 sound module, controlled by a Commodore 64 with Dr. T's KCS and Algorithmic Composer and a CZ101 as the master keyboard, The *Arts of the Fenix* is a serious musical production. The composer, **Jacky Schreiber**, was born in 1961 in Venezuela, studied at the Conservatorio Nacional de Musica in Caracas (making good use of their Synclavier II), and has appeared in festivals in Holland, France, England, USA, Argentina, and Venezuela. *Las Artes* is a collection of multi-part, extremely sophisticated instrumental music, neoclassical in scope but accessible, using sampled percussion and recognizable themes. Two or three times through just begins to reveal the depth here. The title track is the soundtrack to a documentary of the same name about a painter/sculptor/white magician of Jacky's acquaintance. He apologizes in his letter for the "very low budget" presentation, but it sure doesn't sound like one. ($11.50 postpaid from Av. "A" Qta. EVA, La Carlota, Caracas 1071, Venezuela; tel. [02] 340146).

There is a danger in making kazoo controllers, gestural controllers, or any other "intuitive interface" too easy to use. At one extreme, controllers triggered by random natural events (such as rain, solar flares, or passing traffic) have totally random outputs—they aren't considered musical at all because there is no "human element." At the other extreme, difficult instruments like the violin or piano take years to master, and along the way the musician is sure to learn much about how music goes together and what makes a composition interesting. The difficulty weeds out the uncommitted. If controllers become too easy to use—and with a little artificial intelligence in a program—creating passable music will be no more difficult than waving a wand or pushing buttons. The "human element" will again be minimal. At that point we can expect to be overrun with weekend composers who know nothing about music (which may already be happening).

Of course, there's no inherent advantage to a controller being difficult to master, and easier controllers are not necessarily a bad thing. It's not even evil for "people who don't play an instrument" to consider sharing their personal musical visions with the world. Obviously some of them will have something to say and will take the time to do it right. It simply means that there will be a lot of merely passable music on the market, and productions such as the above—passionately felt, carefully wrought, fully committed *Pearls of the Soul*—will become all the more valuable.

Robert Carlberg *has been writing a review column for* Electronic Musician *for so long that nobody remembers why anymore—and you're not the first to ask. Music for review should be sent to PO Box 16211, Seattle, WA 98116.*

Electronic Musician CLASSIFIED ADS

Electronic Musician Classified Ads are the easiest and most economical means to reach a buyer for your product or service. See page 120 for complete information on price and deadlines.

EMPLOYMENT OFFERED

Musicians National Referral. Professional musicians seeking groups, groups seeking musicians. **1-(800) FON-GIGS/**1-(800) 366-4447. Groups register free. We're the only entirely toll-free referral; **money-back guarantee**.

EQUIPMENT FOR SALE

We want your MIDI equipment and well-maintained recording gear. We'll give you **cash** or take it in on trade. Come in or do it all through the mail. Call or write for prices and details. **Caruso Music,** 20 Bank St., New London, CT 06320; (203) 442-9600. FAX (203) 442-0463.

New/used demo sale. Trident consoles; Akai A-DAM; Tac Scorpion II, MIDI Timepiece, Tascam MSR-24, DigiDesign Sound Tools, Sony/Panasonic DATs, Opcode Studio 3-Audio Vision, Tascam DA-30 DAT, Studer-Dyaxis, CAD consoles, Adams Smith Zeta3, Roland/Akai samplers. Equipment leasing specialists, experienced staff/unequaled service. **EAR Professional Audio/Video**, (602) 267-0600.

Photon MIDI converter systems. Guitars; bass; nylon strings applications; infared optical pickup; fast, accurate tracking; open architecture; unparalleled MIDI implementation; sequencer; arpeggiator; footcontroller. Used by top artists. For more information, call 1-(800) 346-3744.

Mistakes cost money! Make purchases that are right for you. Competitive prices with expert advice and support. All major brands of samplers, synthesizers, MIDI interfaces, music software, plus Apple and Atari computers. **Computer and digital audio specialists.** Kurzweil 250 keyboard, fully loaded with all four sound blocks $5,450. Roland U-110 (demo units) rack-mount, sample playback module, call for price. **TekCom Corporation,** 1020 N. Delaware Ave., Philadelphia, PA 19125; **(215) 426-6700.**

Kurzweil 250 & RMX sales, service, support, upgrade advice. 300 disks of sounds $5 each. 3rd-party resident soundblocks and new visual editor/librarian programs for K250. **K1000 series sales**. Free users newsletter. Sweetwater Sound, Inc., 4821 Bass Rd., Ft. Wayne, IN 46808; (219) 432-8176.

Road cases, unbelievable introductory prices. Keyboard $72, racks $65, DJ coffin $129, many more. Write for brochure and nearest dealer. Island Cases, 1121-I Lincoln Ave., Holbrook, NY 11741; (516) 563-0633, (800) 343-1433.

Before you buy **Akai, Ross, Studiomaster, all software.** Call **MIDI Music**, the NW's largest **Akai** dealer; **(503) 236-2270**, for orders only **1-(800) 729-6167.**

StarrSwitch Company.Active 4-button on/off **mixer** mounts **on-board** electric guitars,switches pickups, preamps, synth-pickups...Drops directly into strat. Also great panel mounted in custom rack gear. **$49.95**. Starr Switch Co., 1717 Fifth Ave., San Diego, CA 92101. (619) 233-6715.

AVR, 106 Main St., Watertown, MA 02172. (617) 924-0660. **The widest selection of used gear. The best prices on new equipment.** In stock: AKG 466/CK22; $400, Ampex AG440; call! Ampex ATR-102 in stock, many available; $5.5k-$7.5k, Aries 2416 (mint); $5,400, Crown PZM 31 w/ X18; $200, Fairlight 2x w/ MIDI, SMPTE, Voicetracker, cases; $5k, Fostex 4030/4035 synchronizers, call! Fostex 80; $1,375, Fostex E16 (30 IPS); $5,000, Fostex E22; $2,500, Lang PEQ-2; $750, Lexicon 200 (mint); $1,750, MCI-JH 24; $18k, McIntosh MC-40 tube amp, call! Mitsubishi X850 (mint), call. Neotek Series I 16 x 16; $8k, Neumann U-87; $1,250, Orban 516C de-esser; $325, Otari MKII - 8; $3.5k, Otari MTR-90II, many available, call. Otari MX-80 24, call. Pultec EQP-1A, EQH2, call. Ramsa T820; $2,900, Tascam MS-16, loaded; $8k, TC Electronic 2290-S1; $2.4k. **We buy and trade**! We list your items for free. All used equip. warrantied and calib. to factory spec. or your $ back. **(617) 924-0660, AVR.**

Complete MIDI drum kits. Consumer direct. $250. Velocity-sensitive pads, modular v-wing stand, KickTrigger© pedal. All hard ware, cable routing system. Indestructable. Free catalog. **Synapse Musical Instruments**, 114 Frederick St. #18, San Francisco, CA 94117. (415) 621-2743.

Looking for used MIDI equipment? We've got tons of super-clean Yamaha, Roland, Korg, Ensoniq, Kawai, and E-mu products in stock. **Come in or do it all through the mail.** Call or write for prices & details. **Caruso Music,** 20 Bank St., New London, CT 06320, USA; (203) 442-9600. FAX (203) 442-0463.

Hammond B-3, Leslie 122, PR-40, mint condition; $3,950. Delmar, NY. (518) 439-3544.

Synclavier II: 76 key velocity sensitive keyboard, 16 sampling voices, 19 megabytes RAM, 80 megabyte hard disk, 10 megabyte hard disk, Kennedy tape drive, SMPTE, MIDI, Pericom terminal, Floppy drive, large sound library, release "O" software. This system has been used to create scores and sound FX for many major motion pictures. It is the perfect platform from which to upgrade to Direct To Disk, optical or any of the recent upgrades. **$48,995. The Studio. (818) 883-1920.**

INSTRUCTION

Fast Fingers Music Software® — MIDI Keyboard Lessons now available for **IBM-PC** and **Commodore 64/128.** Volume One: major scales ascending and descending, major arpeggios, major triads. Animated screen shows music notation, where notes are on keyboard, and which fingers to use. Practice in 15 key signatures, treble and bass clef. Play and learn faster with adjustable tempo. Uses **MIDI** interface, which allows visual feedback of your playing; tests and grades your performance of exercises; plays your **MIDI** keyboard. IBM uses MPU-401 and CGA or compatibles. C-64/128 works with Passport, Sequential, or compatibles. Prices: IBM $39.95, C-64/128 $29.95. Add $3 for s/h. Send U.S. funds in check or money order payable to Fast Fingers Music Software, Dept. EM5, PO Box 741, Rockville Centre, NY 11571. Many satisfied customers. Write for more information.

Learn jazz improvisation with your MIDI sequencer! Authentic Bebop, Blues, Latin, Modal and fusion riffs all recorded into your sequencer with rhythm accompaniment. Exciting new method! Available for ESQ-1, SQ-80, MC-500/300, Alesis MMT8, Kawai Q80, Yamaha V-50. For more information write: New Sound Music Box, 37363-E1, Oak Park, MI 48237.

Learn to play any keyboard & read music overnite with this new 84 min. video production, "**Beginning Keyboard**". Great for students at all levels. Study booklet included $29.95 + $3.50 s/h. ATP, 611 Lacey Way, No. Salt Lake, UT 84054. MC/Visa. (801) 292-6331.

MIDI for Beginners: A step-by-step tutorial on videotape, equipment, set-up, computer graphics, definitions. A textbook on videotape. $34.95, $5 s/h. KVLP 4808 Old York Rd., Balto., MD 21212. (301) 323-6181. Chk/MO/CC. (EM1).

Video piano lessons for the serious, beginning pianist. Learn at your own rate (equiv. 4-5 mos. instr.). Music inc. $39.95 (6.75% CA). Cel-Tutor, PO Bx 7095, Citrus Heights, CA 95621. Not copy prot'd; no retrns. VHS.

PARTS & ACCESSORIES

Memory Expanders: VFXSD; $279, EPS; $449, Akai; $189/349. **Ram cards**: K1; $39.95, L ESQ; $39.95, Korg, Yamaha. **Sound Logic** (619) 789-6558, (800) 753-6558 (orders). Free shipping.

Complete music studio for less than $200. Why pay more for less? IBM interface card plus sequencing software plus notation software. Visa/MC/CODs. Lowest prices available. Optronics Technology, PO Box 3239, Ashland, OR 97520. (503) 488-5040.

Custom covers! All electronics: keys, amps, drums, spkrs, mixing consoles. Prices begin at $14.95. Call for info. **1-800-228-DUST** or Le Cover, 1 N. 353 Bloomingdale Rd., Wheaton, IL 60188-2817.

MIDI retrofit kits available for pipe organs, pedalboards, accordions, synthesizers and keyboards. New analog input board for UMB-4 series! Write for free details to **Technical Magic**, Dept. EMA-01, Box 3939, Station C, Ottawa, Ontario, Canada. (613) 596-9114. FAX (613) 596-3304.

EM Classifieds work! (800) 747-3703.

Build your own P.A., guitar, bass systems. Product designer for major electronic companies. **Consumer direct! P.A.s** 8-24 channels, 4-16 outputs, 32 channels, 16-24 outputs. Stereo rack-mount amps 300W-600W. Parts, additional kits or assembled. **Strada**, PO Box 612, Alpha, IL 61413. (309) 667-2553. Catalog $2 s/h.

EM CLASSIFIEDS

PARTS & ACCESSORIES

Factory-direct flight cases for keyboards, guitars, lights, amp racks, utility trunks, etc. Best quality; low, factory-direct prices. Custom orders shipped in 5 days or less. Call Sound Engineering,**(800) 837-CASE.**

No, not **Buffalo Chips! Dinosaur analog delay chips**. The almost extinct **sad 1024A** Analog Delay Chip; $10 covers p/h & ins. (212) 768-8072. **Mr. Chips**, 110 W. 40th St., Rm #1005, NYC 10018.

OneStep sequencer manual. Complete coverage of this mini powerhouse. Upgrades & tech support. Freq Sound, 430 Uniontown, Westminster, MD 21157. (301) 876-2678. **JamBox4+** parts & service. Coming: JamBoxManager. Program to work w/ Apple's MIDI-Manager.

PUBLICATIONS & BOOKS

Sequences-217 modern patterns in all keys; $20, $3 p/h. **Improv**-3 bks, covers all styles up to Fusion & free; $10 ea bk, $1 p/h. Rich Corpolongo, 3135 N. 76th Ct., Elmwood Pk, IL 60635. (708) 456-1382.

The new 1990 Mix Bookshelf Catalog is now available! We've added over 150 new products to the world's most complete collection of books, tape courses, videos, sounds and software for audio professionals. Write or call now for your free copy. **Mix Bookshelf, 6400 Hollis Street #12, Emeryville, CA 94608. Call toll free: (800) 233-9604 or (415) 653-3307.**

RECORDING SERVICES

****Cassettes duplicated ****
The highest quality cassette duplication, lowest prices. Call or write: Cup of Water Productions, 13780 12th Road, Plymouth, IN 46563; (219) 936-2015.

Real-time cassettes—chrome tapes, Nakamichi decks-the best! Album length $1.50/100. Label & insert deals avail. Grenadier,10 Parkwood Ave., Rochester, NY 14620; (716) 442-6209 eves. May—ask for 100 free labels w/order.

The deadline to place your ad in **EM Classifieds** is eight weeks prior to the cover date. To place your ad in the next issue of **EM**, call **(800) 747-3703**.

RECORDS, TAPES, & CD SERVICES AND SUPPLIES

4,000 high bias/high qulty blank castte tapes—12.5 mins ea. side; 300 per case, $45/case. F.O.B. Ft. Lauderdale, FL (305) 979-3188, David.

CDs by Bill Rhodes, "Jazzical" and "Music For Escher." Great jazz/classical/new age/electronic music. **$8.95** each (ppd)! Bill Rhodes, PO Box 12116, Lake Park, FL 33403.

The Music Society, creating intelligent music for intelligent people. **Free information** on our premiere release. 15 Goldberry Square, Room 37, Scarborough ON, M1C-3H6, Canada.

Sell fast through **EM Classifieds**. Call **(800) 747-3703** today.

Remove lead vocals from standard stereo records, CD's, tapes, & FM broadcasts so **you** can be the lead singer of your favorite band. Theory/scheatic: $6.95. PC board and parts also available. **Weeder Technologies**, Dept. D, 14773 Lindsey Rd., Mt. Orab, OH 45154.

SOFTWARE & PATCHES

Korg T series support. 100 programs and combinations, $25. PCM samples for T1; $35. **DSM-1** program disks, volume 1 K250 and synth samples, volume 2 T1 samples; $25 each. 100 programs and combinations for **M1** $20 on disk. C-64 M1 librarian; $20, with sounds; $40. **DSS-1** volumes I-6 $50. Volume 7 & 8 sax and strings $20. **New** T1 samples for DSS-1 $15. **New** TR808, HR16, T1 drum samples. $20 for 2 disk DSS-1 set; $20 for DSM-1 disk, $15 for T1 PCM disk. **M3R** sounds, call. GreenHouse Sound, 601 E. Walnut St., Nappanees, IN 46550. (219) 773-2678.

E-mu Proteus Editor/Librarian for **IBM PC** and MPU-401. Edits all parameters. Context-sensitive help screens. Only $89.95. **TX81Z** Editor/Librarian $49.95. **DX 21/27/100** Editor/Librarian $39.95. Add $3 s/h. Free demo disks. Visa/MC. Bartleby Software, PO Box 671112, Dallas, TX 75367. (214) 363-2967.

Free **Yamaha DX7** demo! Get a demo tape of our 4000-sound DX7 disk free (send $3 cash for postage). Livewire, Box 561, Oceanport, NJ 07757. USA.

Sequenced Top 40 songs. Large libraries of the most current and popular dance, pop, and rock songs. Join our many clients who say Tran Tracks sequences are the best they've used. We support most IBM, Macintosh, Atari, Amiga, Roland, Yamaha, Kawai, and Alesis formats. Free demo tape and catalog. See our display ad in this issue. **Tran Tracks**, 133 West 72nd St., Suite #601, New York, NY 10023; (212) 595-5956.

Public domain MIDI software for Atari ST, Commodore 64/128, IBM, from $4/disk. Utility, patches, editors, thousands of programs! Write today. **Free catalog disk!** Specify computer. MIDI Software, PO Box 533334, Orlando, FL 32853-3334. Or call (407) 856-1244.

Our sounds get rave reviews! **Korg M1**: (200 sound volumes) Dreams1, Dreams2 (for Orch1, Synth PCM), or Dreams3: $30 each (disk); $50 (ROMcard). **T1/T2/T3**: 3 300-sound disks; $40 ea. T1 PCM disks: call! *M1/M3R/T1 disk libraries*, 1,000 M1 sounds; $99 (T1 disk; $139), 600 **M3R** comb; $69. 192 **DW8000** patches; $30. 64 Poly-800 sounds; $25. 400 **DS8/707** sounds; $40 (disk), ROM; $70. **Kawai K4**, 128 patch disk; $30, RAM; $79. **K1** 96-sound disk; $30, RAM; $69. **Roland**: 64 **D-50** patches; $30. **Jupiter6**: 144 patches; $50. **Juno 1/2**: 128 patches; $40. **Juno106**: 64-patch tape; $30. **Juno-60**: 56-patch tape; $30. **MT32/D-110**: 128 patches; $30. 64 **Super Jupiter** sounds; $35. **Yamaha**: DX-7 4000-patch disk; $75! **DX-11, TX81Z, FB01**: 96 patches; $25, 400 patches; $50 (disk). 71 Casio **FZ** & **EPS** disks for $499. **Mirage**, 26 disks; $249. Order sounds on tape or DX7, Atari, C-64, IBM, Mac, Alesis disks. Send addressed envelope for info. Livewire, Box 5612, Oceanport, NJ 07757. * (201) 389-2197.

MIDI products for any computer and musician. Free 5'/10' MIDI cables with IBM Cakewalk 3.0+ interface, Pro 4+ Encore, Dr. T., Beyond, Cubase, Master Tracks, Creator, Notator, Personal Composer, Vision 1.1. Get organized! Invisible keybrd stand; $99, two-tier $109, three-tier; $119, workstation MS3000 w/ desktop/shelf; $179. Thru box; $69, Peavey studio speakers from $199. Any Apple, Mac, IBM, Atari, Amiga, C-64/128 interface/SMPTE, sequencer ed/librarian for Roland, Korg, Yamaha. Sound Management, PO Box 3053, Peabody, MA 01960. Catalog & orders: (800) 548-4907 U.S.A.; (508) 531-6192 foreign.

The Definitive M1 libraries: 2,306 voices in two 1,100+ voice groups—rhythm, orchestra — $100 each. **1,000 K1 voices** ,$100. **1,001 MT-32** $100. **1,199 D-10/110/20**, $100. **2,194 D-50,** in two 1,000+ groups—rhythm, orchestra—$100 each. **2,250 TX81Z/DX11/V50;** $100. **4,009 DX7/TX802** $100. **2,095 ESQ-1** $100. **Proteus, VFX, K4, M3R, T1**: free info! All libraries highly organized by categories and alphabetized. **No duplicates.** Available on diskettes for all computers (**MC-500, DX7IIFD also**!). **Money-back guarantee.** ManyMIDI Products, PO Box 2519-EM5, Beverly Hills, CA 90213. (213) 650-6602.

Oberheim Xpander/Matrix-12. Solid Sounds Volume 4 now out! 100 all-new single patches. Volumes 1-3, world's best-selling and best reviewed Xpander patch sets, still available. Cassette or ST disk (Xor) $30/volume; $25/volume for two or more. **Matrix 6/6R/1000.** Xpander quality sounds for your Matrix! 100 singles/50 splits on cassette, ST disk (Dr. T), or Mac disk (Opcode). $30. Solid Sounds, 7207 45th St., Chevy Chase, MD 20815.

Top 40 sequences! Available for Amiga, Atari, IBM, Mac, Roland, Yamaha, and other systems. Current dance songs for soloists, duos, trios, etc. All **tested** with audiences. Over 800 songs—we're the oldest and still the best! **Retail inquiries welcome. Trycho Tunes**, 2166 W. Broadway #330, Anaheim, CA, 92804. (714) 826-2271.

S900/EPS/S-1000/MPC-60/P-3000/DSS-1 disks. Strings, brass, pianos, percussion, sound FX, Fairlights & other keyboards. Call for free catalog. **Visa/MC**. Demo disks available. **Greytsounds**, 9045 Corbin Ave., Suite 304, Northridge, CA 91324; (818) 993-4546. FAX (818) 885-6678.

Canadian MC-500/D-110/Proteus users group. Sequences (over 800), MIDIfiles, tutorials, patches, consulting, BBS. Contact **Martunes,** 2426 W. 6th Ave.,Vancouver, BC V6K 1W2 Canada. Marty:**(604) 738-4012.**

Chrominance Productions **Alesis HR-16** drum patterns are now also available for the **Roland R-8**! Two volumes of hot, **usable** rock, jazz & latin rhythms! Atari ST, Mac, IBM disk or data cassette, $25 ea. Audio demo, $5. Chrominance Productions PO Box 51-E, Madison, WI 53701-0051.

EM Classifieds. Call **(800) 747-3703**.

EM CLASSIFIEDS

Kurzweil K1000 and PX programs! All models: Volume I— 32 expressive, dynamic pianos, organs, clavs, horns, synths. Units **with** KXA or PXA: Volume II—32 E Pianos, E Basses, flutes, clavs, synths, harpsichords. Formats: Mac, Atari, and IBM Object Movers; Kurutil; data sheets. Each: $29 (CA tax $2.10). Both $49 (CA tax $3.55). **Guided Tour**: complete cassette tutorial; $49 ($6 s/h, $3.55 CA tax). See Keyboard article, Feb. 1990! **Key Connection**, 3735-E Maple Ave., Oakland, CA 94602. (415) 530-8064.

Play music into Passport's **SCORE**, fast, accurately, on your MIDI or PC keyboard! Intelligent accidentals, divisi stems, minimal editing! **ScoreInput**; $199. Demo; $8. Free details. Modular Music-E, 6800 Red Top Rd. #1, Takoma Park, MD 20912. (703) 284-4194.

Best performance samples for Emax, Emax II. Choose from **Atmosphere, Synths, Top 40, Stacked Sounds, Funk-Rap, Megasynths , and Sound Effects.** Four disk set only $29.95; any 16 disks just $99.95. $4 shipping. CODs accepted. PA residents 6% tax. 1,000 sounds, **multisampled cassette:** $19.95. Dolby or dbx. Stoklosa Productions, PO Box 13086, Pittsburgh, PA 15243; (412) 279-8197.

New, exciting voices! Roland **D-50** or **D10/20/110/5** four ROMs: **$35** each, all four $125. Specifiy synthesizer. Korg **M1** four ROMs: **$40** each, all four $145. Ensoniq **ESQ**, two 320 voice ROMs, **$75** each, both $130. Roland **M256-D** RAMs **$60**. Korg MCR-03 RAMs **$70**. Include $3.50 s/h. Maryland add 5% tax. Alaska, Hawaii, Canada $12 s/h. All others include $18 s/h per item ordered! Voice listings: send legal sized SASE. Patch Pro, PO Box 417-E, Conowingo, MD 21918.

Elite K5/K5M owners! Sample converted patches! Disks on Atari, Mac, C-64/128. IBM, Q-80, or send insured RAM card. $64.95 check/MO. Turnkey Group, 3560 Old Mill Rd., Suite 301, Highland Park, IL 60035; (708) 433-5760.

Ensoniq ESQ-1/SQ-80/ESQm—1,600 patches $32! Cassette, SQ-80 disk, computer disk. **Yamaha** 4 op1,280 patches, $25! **TX81Z/DX11 DX21/DX27/DX100** tape. **Oberheim Matrix 6/6R, 1000**—900 patches $18 on cassette or disk. Each includes a book listing the best PD patches! Software Exchange, PO Box 533334, Orlando, FL 32853-3334; (407) 856-1244.

Sequences! Sequences! Sequences! Available for all types of music. Send for **free catalog**, song list, and demo tape. Specify sequencing software and hardware. **The MIDI Inn**, PO Box 2362, Dept. ESQ5, Westmont, IL 60559; (708) 789-2001.

Hit sequences! From the '40s to the '80s. Call or write for catalog & price list, or send $5 and we'll also include our demo tape. Our sequences are created by some of New York, L.A., and Nashville's top session musicians. Sequences are available on most formats. **John Abbott Music,** Dept. EM, 319 Clawson St., S.I., NYC, NY 10306; (718) 979-8770.

Kawai K5 Editor/Librarian for IBM PC. Overtone is **the** software for the K5 & PC. Mouse-driven graphic interface. Draw the spectrum you want, use standard spectra, or extract spectra from sample files! Multi patches automatically adjusted when rearranging card layout. Complete Kawai patch library (9 cards) included, $99.95, from **Syntonyx,** 7 Loudoun Street SE, Leesburg, VA 22075; (703) 777-1933.

Kurzweil 1000 Editor/Librarian. IBM and MPU 401, or **Yamaha C1**. Edit, save/load programs, master parameters, etc. Librarian $45. Editor $95. Demo $7. Check or money order. Order or info from: D. Spanogle, At Work Software, PO Box 672, Tijeras, NM 87059.

Mirage owners: now get **MIDI volume**, sostenuto, and transpose for only $39.95 + $2.50 s/h with **SM-1** super MIDI disk. Other Mirage operating systems with microtonal scales, system exclusive storage, and format-copy capabilities. Upward Concepts, 85 Bennett Rd., Durham, NH 03824; (603) 659-2721.

Software! Software! Software! Complete music line available. Voices also available for Yamaha, Casio, Korg synthesizers, and more. 7,000+ DX7IIFD quality voices, $45. **Free catalog**. Please specify equipment. **The MIDI Inn,** PO Box 2362, Dept. ESF5, Westmont, IL 60559; (708) 789-2001.

Leigh's Computers has the best selection of MIDI software. We have in all the programs for your computer, synth, and samplers! We ship worldwide! Call (800) 321-6434 now! Leigh's Computers, 1475 3rd Ave., New York, NY 10028. FAX: (212) 772-1689.

MIDI Juke Box. The top 40 jukebox hits of all time are now available in our new **Insta-Play** format for the **Proteus, U-20, D-110** and **MT-32**. Fully orchestrated. Ready to play with new custom sounds in each songfile. **Demo disk** for Atari, IBM, Mac and MC-500 available for $7.95 (please specify sequencer/computer/module). Songlist with information $2. **MIDI Juke Box**, 12335 Santa Monica Blvd., Suite #124, Los Angeles, CA 90025. 1-(800) 777-8010.

8000+ DX7 voices: DX-711FD disk, Opcode Mac, C-64 or Atari download disk, TX-7 tape: $39. **2000+ DX-711** performances: DX7-11FD disk, Opcode Mac or Atari download disk; $39. **3,300+ D-50** voices: Opcode, Valhala Mac or Atari download disk; $75. **1,100+ D10/20/110/5** tones: Opcode, Valhala Mac or Atari download disk; $39. **950+ MT32** tones: Opcode, Valhala Mac; $39. **3,500+ ESQ1, SQ80** voices: Opcode or P/D Mac pgm, C-64 or Atari download disk;$45. **4,500+ TX-81Z/DX11** voices: Opcode, Valhala Mac or tape; $39. **4,500+ V50** voices on disk; $39. **800+ Juno1/2, MKS50** tones: tape, Opcode Mac or C-64 download disk; $39. **1,800+ DW/EX8000 voices**: tape, Opcode Mac; $39. **2,000+ CZ-101** voices: Opcode or P/D Mac pgm, C-64 or Atari download disk; $39. Unlike some, all voice collections **completely organized, no duplicates**! U.S.A. $3.50 s/h. Michigan add tax. AK, HI & Canada; $12 s/h (Canadian orders only by Canadian postal money order in U.S.A. funds). All others, $25 per item s/h, U.S.A. funds, U.S.A. bank only! Send stamped legal-sized SASE for information; specify synthesizer. PatchMasters, Box 746-B, Hazel Park, MI 48030-0746.

Sequences: large library from the past to the present with excellent documentation now supporting most formats. We have been programming to the industry for 15 years: movies, commercials, etc. Send for free catalog to: **Mus-Art** Productions, PO Box 680664, Orlando, FL 32868-0664. (407) 290-MIDI.

Attention songwriters: sequenced background rhythm patterns for your original songs. Large library of popular rhythm patterns for all styles of music. Guaranteed to make your songs come alive! Available for ESQ-1, SQ-80, Alesis MMT8, Kawai Q-80, Yamaha V-50. New Sound Music, Box 37363-E1, Oak Park, MI 48237.

We have all kinds of **ROM cards** made by **Korg** for the **M-1/M-1R, M-3R**, and **A3**. Also **ROM cards** by **Roland** for the **R-8** are in **stock**. Please call or write for free information. **Dr. Sound**, 142 Wooster St., New York, NY 10012; (212) 353-0518.

IBM PC Music Feature! Option card with 8-voice, multitimbral, MIDI synthesizer on board. Card includes 240 preprogrammed Yamaha sounds, 96 programmable patches, and a MIDI in/out/thru interface. Use two cards to double capacities. An all-in-one MIDI studio for IBM and compatibles for only $495. Software available for recording, arranging, and educational needs. Packages recommended. Dealers, catalogers, & VARs call for discount schedule. **Distributed by Mix Bookshelf**, 6400 Hollis St. #12, Emeryville, CA 94608; (415) 653-3307, 1-(800) 233-9604.

Free Kurzweil 1000 sounds when you order ObjectMover+ for PC compatibles. More than just a librarian for Kurzweil owners — examine programs, print data sheets, and use a remote panel for each module you own. Order directly from Sound Logiq for $95. **(508) 435-1993**; 23 Alprilla Farm Road, Hopkinton, MA 01748.

New! **Kawai K4** editor/librarian for IBM. **Only $39.95! Kawai K1/K1II** editor/librarian for IBM, includes Kawai's 960 patch library. **Only $29.95!** ($3 shipping on all orders). **MIDI Master Software**, PO Box 83083, San Diego, CA 92138.

Wanted—sounds for Roland Super Jupiter. Musicians, share your Super Jupiter patches with others in a public domain listing. Contribute sounds and receive list free in return. Sean McCrohon, 2101 Connecticut Ave. NW, #45, Washington D.C. 20008.

Emulator III; "The Synthesizer Collection." Synth samples like you've always wanted to hear; clean, full, and original. 4- meg bank $49.95. Write or call for information. Breeze, PO Box 2495, Redmond, WA 98073; (206) 885-9663.

MIDI programmer's toolkit for MPU-401 compatible IBM interfaces. Includes 76 pg. tech manual & software tools on diskette. Supports Turbo C, Turbo Pascal, Microsoft C, Quick Basic. **$39.95 + $3 s/h. Visa/MC**. From the interface experts. **Music Quest, Inc.**, Box 260963, Plano, TX 75026. **(800) 876-1376**.

PUT EM CLASSIFIEDS TO WORK FOR YOU!

SEND THIS COUPON TODAY FOR YOUR EM CLASSIFIED AD!

Pricing: $7.50 per line (approximately 25-32 character spaces per line); six-line minimum. Add $0.50 per bold word. Each space and punctuation mark counts as a character. $45 MINIMUM CHARGE for each ad placed.

Special Saver rate: $25 for up to four lines, including first word in bold. **Only available to individuals not engaged in commercial enterprises.** No additional copy allowable for this rate.

Payment must be included with copy; check, Visa, MasterCard or American Express accepted. Sorry, no billing or credit available. No agency, frequency, or other discounts apply.

Closing: First of the month, two months preceding the cover date (for example, the April issue closing is February 1). Ads received after closing will be held for the next month unless otherwise stated. **Cancellations will not be accepted after the closing date.** Copy changes and cancellations must be submitted in writing.

Other requirements: Full street address (PO boxes aren't sufficient) and phone number must accompany all requests, whether included in ad or not. All words to be **bold** should be underlined. Copy must be typed or printed legibly in standard upper/lower case. Copy in all capitals is not permitted. Publishers are not responsible for errors due to poor copy. Arrangement of characters may be altered in typesetting process due to space. The publishers are not liable for the contents of advertisements.

The small print: Only ads dealing with music, computers, or electronics will be accepted. No stated or implied discounts allowed on new equipment sales. Publishers reserve the right to refuse or discontinue any ad deemed inappropriate.

Electronic Musician Classifieds: Attn: Robin Boyce, 6400 Hollis St. #12, Emeryville, CA 94608, **(800) 747-3703** or (415) 653-3307, Fax (415) 653-5142.

Insert this ad in the _____issue of EM.

Categories available
(Check one):

- ❍ Employment
- ❍ Equipment for Sale
- ❍ Instruction & School
- ❍ Parts & Accessories
- ❍ Publications & Books
- ❍ Recording Services
- ❍ Records, Tapes, & CDs
- ❍ Wanted to Buy
- ❍ Software & Patches
- ❍ Miscellaneous

Attach your classified ad copy on a separate sheet, typed double-spaced or printed clearly in capital and lower-case letters.

Cost: _____ Lines @ $7.50 = _____

_____ Bold @ $0.50 additional _____

_____ Special Saver rate = $25

Total payment included _____

❍ Visa ❍ MC ❍ AmEx ❍ Check/Money Order # _____

Card# _____ Exp. ____

Company Name _____

Name _____

Address (No PO Boxes) _____

City _____ State _____ Zip _____

Phone ( ) _____

Signature _____

SOFTWARE & PATCHES

Oberheim Xpander/Matrix 12. 100 single avant-garde spcial fx sounds on data casstt. Great 4 Cyber-punks! $25. check/mo. Arthur Springer, PO Box 61300, Pasadena, CA 91116. (818) 793-3937.

Our sounds are all original and copyrighted! That means they are top professional quality, so don't waste time and money sorting through amateur "pubic domain" garbage. New, **memory efficient EPS samples**, D-50, VFX, M1, DX7II, drum machines, etc., 52 disks $349, call for flyer. Maartists 4x expander, call for lowest price! **Phenomenal VFX**, Volume 1, fantastic B3s, tine pianos, basses, saxes, etc.; Volume 2, synths, pads, sweeps, hits, percussion; Volume 3, orchestral and atmospheric; ROM cartridges $55 each, two for $100, 3 for $130; RAM $110. PatchPro™ Librarian with all three volumes, $125 for Atari ST, Mac, or IBM. Patchloader™ disks (no librarian needed) for Atari ST, Mac, or IBM, $45 each, 3 for $110. VFXSD, SQ-80 or EPS disk, $40 each, 3 for $90. **Unbelievable D-50 sounds**, Top 40, Analog, New Age-Space, Orchestral; ROM cards $50, two for $90, four for $160. All four volumes on disk, $80, Opcode, Dr. T's ST, Dr. T's IBM, ST Super Librarian DA (no librarian needed), Patchmaster+, Prolib, MC-500 disk. **Ultimate ESQ-1 library**, 960 original sounds in categories, $96 on cassette, Mirage disk, Opcode, ESQ apade, ST Super Librarian DA (no librarian needed), Patchmaster+, ESQ-manager, C-64 librarian, MC-500 or EPS disk. ROMs, RAMs, call or write for brochure. **New SQ-80 sounds**, 640 on disk, $80. All ESQ-1 and SQ-80 sounds $128 on disk. **Outstanding TX81Z, DX11 sounds**, 256 on cassette $40. Demo cassettes $5 each. All orders $3 shipping, CA residents add sales tax. **Cesium Sound™**, 1442A Walnut St. #300, Berkeley, CA 94709. (415) 548-6193. **Visa/Mastercard.**

Akai S1000 owners: free sample disk! Send formatted DS/HD diskette and hear why Stratus Sounds (formerly Miller/Blake Digital Samples) has been called the best third party sound developer in the world! Now over 60 incredible disks from $19.95 each. Free catalog—demo tape $5. Stratus Sounds, 7505 Steamer Way, Sacramento, CA 95823. (916) 395-3365.

Fax your classified! (415)653-5142.

EM CLASSIFIEDS

Analog power for your **EMAX**! Oberheim, Prophet, Moog, JP and other classics. All computer edited. **Free** cassette based catalog, hear it before you buy it. Very reasonable prices. Money back guaranteed. Many sampler formats available. **Atlanta Synthworks**: (404) 929-0499. 1259 Iris Dr., Suite A-6, Conyers, GA 30208. Member IMA, Better Business of GA.

GFmusic IBM sequencing for **$29! Keyboard magazine says** GFmusic is "unique", "performs solidly" and "the functionality is there to reward us" (12/89 review). For **MPU401, KEE, and Optronics** interfaces. With a unique and superior product at **$29** and a **30-day MBG**, we intend to capture the sequencer market. GFmusic, Box #272136, Tampa, FL 33688-2136. (813) 961-9207.

New functions for **MIDIverb, MIDIfex.** Stereo **echo,** effects & superior reverbs. $39.95 U.S. + $3 s/h, money order. Device Squad, 40 Beechwood Dr., Peterborough, Ontario, K9J 1M4 Canada.

Memory expansion kit for **M1/1R**, D-50, 550 **DX7/II. MIDI retrofit kit** for **Prophet5, Jupiter8, Poly6, LinnDrum, Memory Moog, Pf 10/15, GR700 MIDI in, 8 out mod.** for **S50 & turbo distortion mod.** for **JC120**. We'll **install & repair** new or old equipment, with tons of experience as a **factory authorized service center. Send it in**, we'll send it out **worldwide. Dr. Sound, 142 Wooster St., New York, NY 10012; (212) 353-0748, FAX (212) 353-0635.**

QX3 owner into hvy MIDI seeks same to share songs & form users grp. Dave, 10 Cook Ln, Marloboro, MA 01752. (508) 481-9536.

Patch/Works Spectrum performance collections! **M1, M3R, D-50, D-110, ESQ, CZ, Poly-800!** Unleash unharnessed power inside your synth you didn't know it even had. No one else even comes close to matching our unrivaled professional sounds. SASE=**free** sample + info! **Patch/Works**, Box 450, EM5, New York, NY 10024. (212) 873-2390. Visa MC/COD.

Roland MT-32 mixer and utilities for **Amiga**. Turn your screen into a mixer. Control reverb, channel setup. Mixes can be recorded to **SoundScape**. Includes utilities to read & restore entire MT-32 memory, split/vel. layer, 64 new sounds! $40 ppd. Check/MO. Coming soon: SoundScape to MIDI file conv. full patch ed. HW mod support. Low cost upgrades! Borotec, Inc., 20901 Franklin, Maple Hts., OH 44137.

SoundBlox! New editor/librarian for **IBM-MPU-401** and **Kawai K1** series, works as a TSR (pop-up) program w/ sequencers (like Cakewalk). Edit patches easily using mouse or keyboard without leaving your sequencer! Screens are simple & well organized & feature online help. Complete w/ manual & 900+ new patches! Order SoundBlox. Send check or MO for $49.95: **Harmonic Systems**, 10606-8 Camino Ruiz #192, San Diego, CA 92126. Use Visa/AX by calling our friends at Ja-Am: (619) 673-8275. **Coming soon for K4 & DX series**!

New! SY77, T1, K4, D-50, VFX and more! Samples for Roland S50/550/330/W30; Akai S900/1000; Yamaha TX16W; Casio FZ-1. Free "Thousand Disk" catalog: i.s.m., Box 179, Sapporo Chuo 060, Japan.

MISCELLANEOUS

20 second delay loops! Expand the memory of your **Lexicon PCM 42** to 20 seconds. Typically 1 week turnaround. Call or write for current prices. **S-Tech Electronics**, 42 Andover Rd., Billerica, MA 01821. **1-(508) 670-6098.**

Female musicians! Male bass player seeking serious musicians to form band by 1991. Send a video or audio cassette of yourself & music. Mike Bowers, PSC Box 1753, Grissom AFB, IN 46971.

EM Classifieds are the easiest and fastest means of reaching a buyer for your product. One phone call is all its takes. **(800) 747-3703**.

FOR YOUR INFORMATION

ABOUT EM (*Electronic Musician*):

Since its inception in 1975 under the name *Polyphony*, EM has been a communications medium for sharing ideas, circuits, tips, and other information and is dedicated to improving the state of the musical art.

SUBSCRIPTION SERVICES:

All subscriber services are handled by a different office from the main EM business offices. For subscription inquiries, address changes, renewals, and new subscriptions contact: Electronic Musician, PO Box 3747, Escondido, CA 92025; tel. (800) 334-8152 (outside CA) or (800) 255-3302 (CA). Do not send any other requests or items to this address. One year (12 issues) is $24; outside the U.S. and Canada, $37—all amounts in U.S. dollars. Visa and MasterCard accepted (only Visa, MasterCard, or international money orders on foreign payments). Allow 6 to 8 weeks for new subscriptions to begin or to renew current subscriptions. Postmaster: Send address changes to Electronic Musician, PO Box 3747, Escondido, CA 92025-3747.

NATIONAL BUSINESS OFFICES:

Direct all editorial, advertising, and other inquiries (except subscriptions—see above) to the main EM business offices: Electronic Musician, 6400 Hollis St. #12, Emeryville, CA 94608; tel. (415) 653-3307.

BACK ISSUES:

Single back issue price is $3.50. For a listing of published articles, send a SASE (self-addressed, stamped envelope) to our Emeryville, CA, address and request a "Back Issue Listing."

ERROR LOG:

Occasional errors are unavoidable. We list known errors in "Letters." We compile published corrections annually for those who order back issues; to receive a copy, send a SASE to "Error Log Listing" at our Emeryville, CA, address.

MIX BOOKSHELF:

This mail-order service offers products (books, instructional tapes, software, etc.) oriented toward our readership. For a free catalog, contact: Mix Bookshelf, 6400 Hollis St. #12, Emeryville, CA 94608; tel. (415) 653-3307 or (800) 233-9604.

EM REVIEW POLICY:

Manufacturers constantly update products, and prices and specifications stated in EM are subject to change. EM does not make product recommendations. Reviews represent only the opinion of the author.

LETTERS:

We welcome opposing viewpoints, compliments, and constructive criticism and will consider these for publication unless requested otherwise (we reserve the right to edit them for space or clarity). All letters become the property of EM. Neither the staff nor authors have the time to respond to *all* letters, but all are read. If you are having problems with your gear, please call the manufacturer, *not us.*

PROBLEMS WITH ADVERTISED PRODUCTS:

Information in ads is the responsibility of the advertiser; EM cannot check the integrity of every advertiser. If you encounter problems with an advertiser, write to our Emeryville address. Tell us the problem and what steps you have taken to resolve it.

MAIL ORDER:

Mail-order operations operate under very strict federal guidelines; if you have any problems, contact the U.S. Postal Service. Order COD or with a credit card if possible. Always allow 6-8 weeks for delivery; if there seems to be a problem, contact the company you ordered from, not EM.

WRITING FOR EM:

Send a SASE (25¢ postage) for our author's guidelines. We welcome unsolicited manuscripts but cannot be responsible for their return.

DO-IT-YOURSELF (DIY) PROJECTS:

Beginners should get a good book on the subject from your local electronics supply store (or try *Electronic Projects for Musicians*, available from Mix Bookshelf). EM specifies parts values following international protocol, thus minimizing the use of decimal points and zeroes. A nanofarad (nF) = 1,000 pF or 0.001 µF. Suffixes replace decimal points. Examples: 2.2kΩ (U.S. nomenclature) = 2k2 (Intl. nomenclature). 4.7 µF (U.S.) = 4µ7 (Intl.) 0.0056 µF (U.S.) = 5n6 (Intl).

If you detect an error in a schematic or listing, *let us know.* If a project doesn't work for you, contact us to see if anyone has reported any errors (wait at least a month for EM to be in circulation).

HELP US HELP YOU:

Please reference EM when asking manufacturers for product information, returning warranty cards, etc. Advertising provides our financial base, and ad purchases are based on your feedback to manufacturers about which magazines you like.

To the best of our knowledge, the information contained herein is correct. However, Electronic Musician, *its owners, editors, and authors cannot be held responsible for the use of the information in this magazine or any damages that may result.*

SELL A RECORD, GO TO JAIL

Across the country, laws are being introduced that restrict the freedom to listen to what we want. The time to stand up and be counted is now.

By Craig Anderton

Every now and then, I run across a recording that I find offensive for one reason or another. I don't buy it, which seems to me like a perfectly appropriate reaction.

Some people, though, run across a record they find offensive and decide it's their mission to prevent others from listening to it. These "concerned citizens" run the gamut from the Parents' Music Resource Committee (PMRC), which insists records carry warning labels (a logistical nightmare, by the way), to those who burn records with the same glee with which storm troopers burned books. These attempts to interfere with the free flow of information threaten two basic tenets of this society: equality and freedom of speech.

Censorship or distortion of information automatically implies setting up a group of people in a "superior" position to make decisions for those it considers "inferior" or, at least, incapable of deciding the merits of something for themselves. Sure, the goals of music censorship seem admirable on paper: prevent the spread of music that glorifies drugs, violence, or promiscuity. But if government gets into restricting particular types of music, based on history, we can assume that those restrictions eventually will apply to other forms of art and selected political issues as well.

The free flow of information is one of the things that has made the United States a leading world power, but freedom of speech has its negative aspects too—people are allowed to preach hate just as readily as love. However, the inherent strength of the system is that when opposing viewpoints are presented, people can make up their own minds. For those too young to make informed decisions, it's the role of the parents, not the government, to give them guidance.

Besides, people decide all the time what they deem to be offensive by their support or lack thereof. People not only vote with their dollars, but with their opinions; every day, the media get letters from people who are upset with some aspect of a TV show, magazine article, newspaper editorial, or whatever. This usually results in modifying the situation to minimize future complaints; after all, no one likes turning off potential customers. When it comes to music, the easiest way to complain is to not buy a recording. That sends a very loud and effective message that doesn't involve the government.

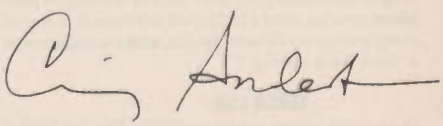
Those who are uncomfortable with the Stalinist overtones of censoring art to fit the guidelines of the state are starting to take action. Bill Flanagan (editor) and Gordon Baird (publisher) of *Musician* magazine wrote an editorial in *Billboard* calling on record companies not to ship records to states that pass anti-music censorship laws; the newsletter *Rock & Roll Confidential* offers a pamphlet, *You've Got a Right to Rock*, that summarizes the censorship situation and recommends courses of action ($3 from RRC, Box 15052, Long Beach, CA 90815). Even some newspapers, possibly realizing they might be next in line for government control, are editorializing against music censorship.

If you believe censoring music is wrong, make your voice heard now. Contact your representatives, talk to your friends and relatives, get them to write to their legislators, write your local papers, call up radio talk shows, and, basically, tell 'em what you think.

▼▼▼

In other news...When Mix Publications bought EM back in 1985, I agreed to stay only on a part-time basis since I also wanted to pursue other aspects of my career (music, seminars, and industry consulting). I should have known that part-time would quickly turn into full-time and then overtime, but finally, thanks to an expanded staff and the ongoing success of the magazine, I've made the move from editor-in-chief to founding editor. In that role, I'll continue to hang out with the staff and discuss future directions, write the "Back Page" and other articles, as well as do some editing.

What allows me this freedom is that the magazine is in very good hands these days, and the ongoing contributions of a great staff will continue to take EM beyond what was originally envisioned for it. It may be time for a bit of a breather after ten years of editing EM and its various predecessors, but I've had an amazing adventure that I wouldn't trade for anything. Thanks to all of you for making it possible.



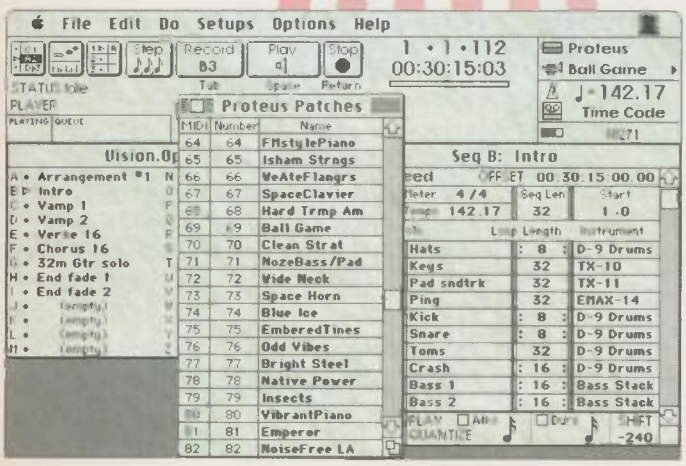
Two New Views

Introducing Two New Macintosh Music Software Achievements: Galaxy, Opcode's Universal Librarian, and Update 1.1 of Vision.

We've created a landmark connection between Vision and our Librarians. Here's how it works. Patch names from our new librarians are automatically transferred to Vision's instrument set-up. Then you can choose patches by name—not number. Choose the name, hear the sound. And when you change a patch name in the bank, the name changes in Vision too.

"The undisputed leader in Editor/Librarian technologies." ***Keyboard Magazine***

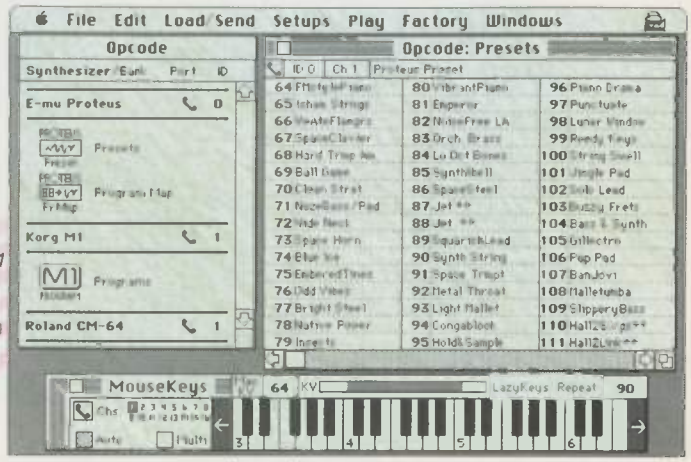
Galaxy™ stores data from any MIDI equipment with System Exclusive capabilities. We support over 70 MIDI devices. But you can easily create your own file type with our simple language called PatchTalk.™ And Galaxy is a full featured Opcode Librarian, with Patch Factory™ for random patch generation, and you can get and send single patches, banks, or Bundles. As always, we don't compromise.



New update 1.1 of Vision

"Vision is loaded." ***Keyboard*** ***"the best sequencer I've had a chance to use..."*** ***Mix***

And the reviewers haven't even seen the 1.1 update. Editing windows scroll on playback. You can import note names from Opcode Editors or type them in; perfect for drum sounds or samples. Select or move a note in graphic or list editing—you hear the note. Edit MIDI parameters with the new pencil and exponential curve tools. Create MIDI mixes with automated, moving faders. Tap Tempo on record or playback, or sync Vision to live music with our updated Studio 3 SMPTE/MIDI interface!



New universal librarian Galaxy

"Expect to be amazed." ***Craig Anderton, Electronic Musician***

To see Vision and Galaxy, visit your Opcode dealer today. Vision is the winner of Keyboard Magazine's 1989 Readers' Poll for "Software Innovation of the Year."

Call us at (415) 369-8131 for a free brochure. Demo disks of Vision are $10.

Opcode systems, inc.

Opcode Systems, Inc.
3641 Haven Drive, Suite A
Menlo Park, CA 94025-1010

Vision™

It's Time To Rack Up Another Hit.

It's hard to follow a great act. Expectations run high. The performance must be flawless. When we decided to carry the legacies of our LA-2A, LA-4 and 1176LN into the next generation, we knew exactly what we were getting into.

The 7110 combines the smooth predictable RMS style performance of the LA-4 with the precise automatic peak control of the 1176LN.

Our new 7110 Limiter/Compressor incorporates the characteristics of its predecessors, is the natural addition to a legendary line and has all the potential to become a major hit in its own right. The 7110 combines both peak and average limiting action, producing smooth, predictable RMS style performance like the LA-2A and LA-4 with the precise automatic peak control of the 1176LN.

The 7110, with our exclusive program dependent Smart-Slope,™ gives you adjustable compression curves from 1.5:1 through infinity:1. You set threshold, attack, release time and output level – the 7110 automatically rides the gain with split second response.

To make set-up as simple as possible, we've included an Automatic Preset function. Punch the button on the front panel – the 7110 automatically defaults to program dependent attack and release times, and presets the peak threshold and ratio to consistently used settings. Perhaps the best news of all, the 7110 produces crystal clean sound and is virtually transparent.

Just another limiter/compressor? We don't believe so. After you've heard it for yourself, we think you'll agree. Stop by your local JBL/UREI dealer and give it a listen. And, get ready to rack up another hit.

JBL UREI ELECTRONIC PRODUCTS

TEC 1989 NOMINEE

JBL Professional
8500 Balboa Boulevard, Northridge, CA 91329