

# TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

## Arpeggiated Chords in the EPS

by Gary Dinsmore

While I was reading the Interface in the March issue of TH Gregg Lentz's question about an arpeggiator kept tingling in the back of my brain. In the middle of the night I worked out this patch that can arpeggiate chords.

The first step is to sample the notes of the chord into separate layers. I picked the guitar, because it was handy, and because it is commonly played with a strum which is a fast arpeggio. I tuned it accurately and then played a full six string E chord. On the guitar this chord is made up of E3-B3-E4-G#4-B4-E5. I recorded the chord one string at a time on my hi-fi video recorder. Then I sampled each note into a separate layer. Layer 1 takes the E3 and I play the E3 key as the root note. Layer 2 takes the B3 but I still select the E3 key as the root note. Similarly E4, G#4, B4 and E5 are sampled and all are assigned E3 as the root note.

With all six layers enabled playing the E3 key plays back a single shot of the chord plucked at the same instant. I spent the next couple of hours carefully volume smoothing and looping each of these tones. To do this you must turn off all layers but one and work on the loop until you are satisfied it is as good as you can do. I worked to use the minimum length loop I could and still preserve the tone of the guitar. Next you move the start and end of the sample in tight to the loop ends and truncate the wave samples. I then moved up the neck of the guitar three frets and sampled a G chord. Then an A# chord and a C# chord. More smoothing, looping and truncating. (Actually I tried the next step out on the E chord first to prove to myself it would work.)

Now to create an amplitude envelope for these tones. This part is tedious because you need to keep turning layers on and off until you get the timing about right, and each wave sample must be tweaked by itself. Here are the final values I came up

with - it may help you get started.

Hard Vel all lyrs 0, 0, 99, 84, 11<R>  
Time lyr 1 0, 1, 6, 56, 45<R>  
2 10, 1, 6, 56, 45<R>  
3 19, 1, 6, 56, 45<R>  
4 23, 1, 6, 56, 45<R>  
5 28, 1, 6, 56, 45<R>  
6 32, 1, 6, 56, 45<R>

2nd rel all lyrs 22 lev -43<R>  
Attack time vel all lyrs 30<R>  
Keyboard time scaling all lyrs 14<R>  
Soft velocity curve off<R>  
Envelope Mode Cycle<R>

(When you get layer 1 set up, select the "ENVELOPE=" page and press "ENTER/YES". You can now select "ENVELOPE=SAVED" with the rest of the layers and just change the time 1 value.)

Amplitude Mod all lyrs Wheel and 60.<R>  
LFO Mod off on all layers.

What we have done here? We are only using the hard velocity curves to sculpture the amplitude of the pitch. The first two amplitude values are zero. The first time value is the time between keydown and the time the second amplitude value will be reached. Since it is also 0, no sound issues forth until time 2 starts. This in turn is a very short interval, and gives a plucked sound rising rapidly to amplitude 99 and decaying to 84 then 11 at times three and four. Two things happen to time one. Between layers time 1 gets longer. The layer 1 tone plays at key down. Layer 2 plays slightly later, layer three later still and so on. Notice also that there is a value in the "Attack velocity scaling" of 30. As we strike the key with more and more velocity this pulls some time out of time 1. This means at full key velocity the other five layers almost sound instantaneously. In practical terms we can vary the strum from an easy arpeggio to a fast strum just by how fast we strike the key.

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These chords are a little boring by themselves, but let's bring the patch keys into play. We have two more layers, so let's copy the layer 6 wave sample into layer 7. Copy the parameters only. Bring up the "pitch root key" page and change the root key to F2+. Now lock in patch select two, and select layers 1-2-3-4-6-7. You will also need to set time 1 in layer 7 to the same value that layer 5 uses, 28 in our example. The patch 2 button now selects a dominant 7th chord.

Copy parameters of layer 4 into layer 8. Change the pitch of the root key from the E2 of layer 4 to F2. This lowers the pitch of the third a minor second, and when we set up patch 3 with layers 1-2-3-5-6-8 we have a minor chord.

For expression I have set the "Amplitude Mod" (Amp pages) to wheel, and given that a value of 60. If you want more expression enter a larger number. You can now vary the volume of the strum with the mod wheel.

If you have the two pedal option to the EPS you can go to the "edit system" pages and set the left and right pedals to call the patch selects and pick major, minor or dominant 7th chords with the two pedals.

These chords only take a couple octaves, so the rest of the keyboard can be used to sample single notes. In fact, you can use the same samples by copying the parameters only to layer one. Set the proper root key and key range for each and you can use the upper two thirds of the keyboard for lead or alternating base notes with the strummed chords.

While this is not a true arpeggiator, it is a good example of how you can play more than one pitch with a single key stroke. Best of all, if you are careful with your sample loop lengths you should be able to keep this instrument to about 200 blocks.

Now if someone else wants to play with some other ideas I have had, here are some things that might work. With an instrument that needs only a single sample to span a couple of octaves, you could put some blank sample before and after sampled tone. Several wave samples could refer to the same data and have different root keys like the example above. The sample start, loop start, sample end and loop end would be changed by some nominal time interval. The envelope mode could be set to "Repeat", and you could get a repeating arpeggio. I played with this a while and could get the repeating arpeggio. I could not keep the speed the same as you moved up the keyboard. I tried setting the loop mod to both keyboard and pitch, and depending on whether I modified the loop or the start position, I got some really strange space sounds with randomly plucked notes from a chord. The other problem with this concept is that the wave sample has to be very long. Even the quiet head and tail of the sample takes up gobs of memory. One note sampled at 27.2KHz cost 666 blocks. Only one wave data set was used the rest were just parameters.

The other idea is to actually sample or combine the data as a series of arpeggio notes. To change the speed of the arpeggio I have tried making a short loop that only looped the first note. I then set the loop mod to envelope 2, and caused that envelope to scroll the loop through the arpeggio.

Although the last two ideas didn't work for me, someone else may be able to build on them. If we chew on this long enough, we may still get Gregg an arpeggiator.

*Bio.: Gary Dinsmore has been an amateur musician all his life, at least all he can remember. Gary spends a lot of time working with computers, so programing the EPS is an easy extension of those skills. He has started doing a little freelance writing and has recently published "The EPS Users Guide."* ■

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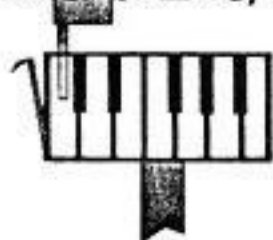
- |                             |                         |                                |
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| E5 - Concert Harp.          | E23- Vocals 2.          | E45- Bass 3.                   |
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| E7 - Strings 1.             | E25- Drums 3.           | E47- DX7II DualSounds.         |
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# Front Panel

## RND (🎵🎵)

Ensoniq announcements:

*The release of EPS operating system 2.4 has been delayed for more extensive testing than originally planned.*

\* \* \*

*Ensoniq would like to remind TH readers that their time-sensitive problems can be more quickly and effectively addressed with a call to the Ensoniq Customer Service Department (215 647-3930). Ensoniq's Customer Service personnel are all excellent communicators and professional musicians with extensive MIDI knowledge.*

*The Interface, however is the only forum in which extremely technical questions are answered by Ensoniq's technical engineering department. If you do write to the Hacker with a usage or application question, please mention the software version of your unit. Ensoniq's technical engineering department is not available via telephone.*

\* \* \*

*It has come to our attention that Maartists has been advertising a memory expander for the EPS with some incorrect information in the ad. The product cannot provide 4x sampling rates - that is technically impossible. It cannot be used with the Ensoniq SCSI option (SP-1) without voiding the user's warranty. Please refer to the May '89 Hacker for more information regarding our policy on third party memory expanders.*

[TH - As we go to press we've been trying to contact Maartists for further information. Hopefully, we'll have more on this in our next issue.]

\* \* \*

Transoniq Hacker is typically on a 4-week, 4-week, 5-week schedule. You should receive the next issue (#51) in approximately 5 weeks.

\* \* \*

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**SEQUENCING** - Larry Church, Danlar Music, 503-692-3663. Call anytime.

**SQ-80 QUESTIONS** - Michael Mortilla, 805-966-7252 weekends and after 5 p.m. Pacific Time.

**EPS QUESTIONS** - Garth Hjelte. Rubber Chicken Software. Pacific Time (WA). Call anytime. If message, 24-hour callback. (206) 242-9220.

**ESQ-1 AND SQ-80 QUESTIONS** - Tom McCaffrey. ESQUPA. 215-830-0241, before 11 p.m. Eastern Time.

**ESQ-1 QUESTIONS** - Jim Johnson, (602) 821-9266. 8 a.m. to 5 p.m. Mountain Time (AZ).

**ESQ-1 QUESTIONS** - International, Brendon Sidebottom, (03) 689-5731 Australia. No calls between 4 a.m. and 10 a.m. Australian ES Time.

**SAMPLING & MOVING SAMPLES** - "Mr. Wavesample" - Jack Loesch, (201) 264-3512. Eastern Time (N.J.). Call after 6:00 P.M.

**MIDI USERS** - Eric Baragar, Canadian MIDI Users Group, (613) 392-6296 during business hours, Eastern Time (Toronto, ONT) or call MIDILINE BBS at (613) 966-6823 24 hours.

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**MIRAGE HARDWARE & FIRMWARE** - Scott D. Willingham. Pacific Time (CA). Weekdays: 6-9 p.m., Weekends: 12-9 p.m. (213) 397-4612.

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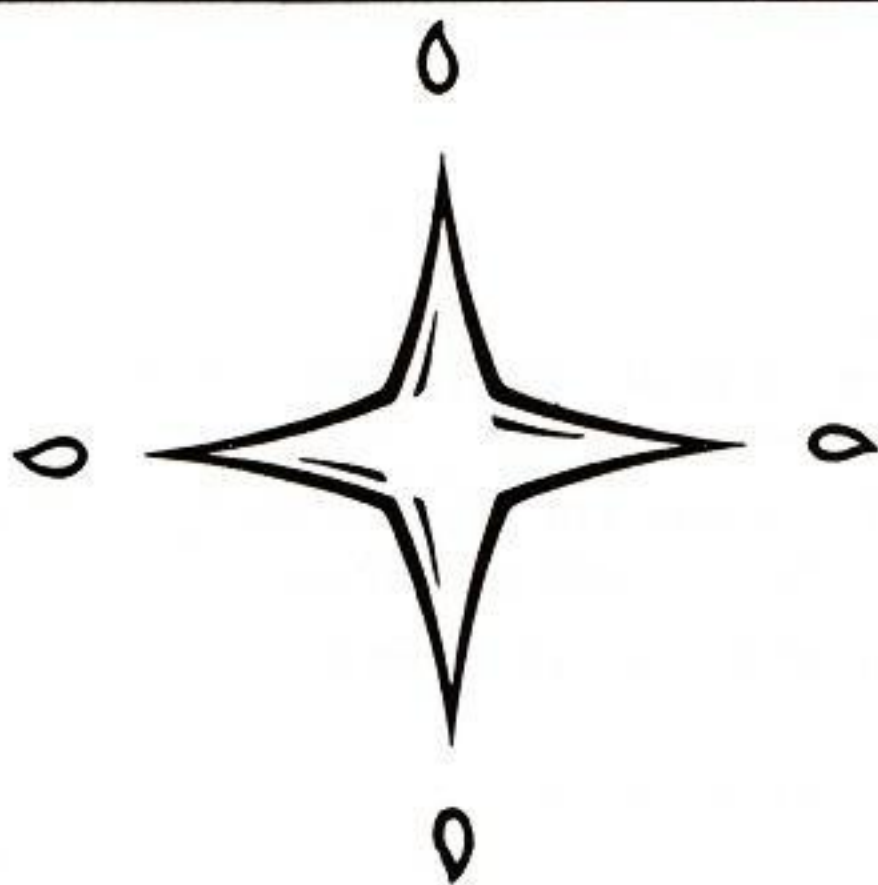
**Maartists Incorporated** presents *MUSIC PACK EPS 4X/8X+* SCSI, a fully approved accessory for the EPS. *MUSIC PACK EPS* expands the EPS internal memory to 2.1 megabytes, dedicating 80,000 notes for the sequencer, while providing ports for the Maartists *MUSIC PACK Interconnect Expander*. *MUSIC PACK EPS* features a fully buffered 4-layer PC card which prevents start-up lock-up and provides consistent operational reliability with ultra low digital noise. *MUSIC PACK EPS* is protected in a custom injection molded plastic case for safe and easy user-installation that will not void your warranty. *MUSIC PACK EPS* is fully approved by Ensoniq and features all gold-plated connectors for long-term reliability. *MUSIC PACK EPS* has a two-year warranty, a suggested retail price of \$599.00 and offers a FREE Sound Source Digital Textures Sample Disk!! Contact Maartists Inc. at 1-800-832-2737 for further info.

**Digidesign** has announced their latest version of their popular sound synthesis program for the Macintosh, *Turbosynth 2.0*. (Samples created are compatible with the EPS.) There are 10 major new features, including three completely new modules - Time Compressor (high-quality time compression without pitch shifting), Noise Oscillator (a new sound source), and Pitch Envelope (offers an unlimited number of breakpoints for use in creating a broad range of effects). The retail price remains at \$349.00. Registered owners can receive the upgrade (including a new manual) for just \$35.00. For more information, contact: Digidesign, Inc., 1360 Willow Rd., Suite 101, Menlo Park, CA 94025. (415) 327-8811.

**Jeffrey Richter & Donna Murray** announce the release of *EPS-Sense*. *EPS-Sense* is an IBM-based sound editing system for the EPS. The program allows the user to see the entire tree structure of the EPS - showing a complete view of all instruments, layers, and wavesamples. Only \$50. For more information, contact: Jeffrey Richter, 3502 Village Bridge Apts., Lindenwold, NJ 08021. 609-346-0943.

## BACK ISSUES

Back issues are \$2.50 each. (Overseas: \$3 each.) Issues 1-9, 11, 13-23, 27, 29, 30, 36, and 38 are no longer available. Subscriptions will be extended an equal number of issues for any issues ordered that are not available at the time we receive your order. ESQ-1 coverage started with Issue Number 13. SQ-80 coverage started with Number 29, (although most ESQ-1 coverage also applies to the SQ-80). EPS coverage started with Number 30. (But didn't really get going till Number 35.) VFX coverage got started in Number 48. Permission has been given to photocopy issues that we no longer have available - check the classifieds for people offering them. Reprints in our "Quick and Dirty Reprint Series" are available: MIRAGE OPERATIONS, for \$5, and MIRAGE SAMPLE REVIEWS for \$4. Each contains material from the first 17 issues.



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Reviewed by James Willing

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For a change, let's get the down side of the story out of the way first. The program is copy-protected. If you have seen any of my previous articles you know how I feel about that. The protection scheme used here does however allow installation onto a fixed disk. Unfortunately, the program does not support all of the features that make a fixed disk most useful. Aside from that, the program has few faults.

A quick note for those of you who may be new to using computers with your synthesizers. A editor program allows you to enter and edit patches more rapidly (usually) and more easily (hopefully) than would be possible from the synth's console. A librarian allows you to store your individual patches and patch banks to your computers disk. Much more economical than purchasing multiple RAM cartridges.

## TECHNICAL NOTES:

The program we tested was version 2.1, the program requires a PC compatible system with 512k of RAM, Hercules (or compatible) video display card, and a Roland MPU-401 (or compatible) MIDI interface. No particular version of PC/MS-DOS was specified. The system used for testing was a Compaq Deskpro 386 normally operating at 16 MHz (more on that later) under Compaq MS-DOS version 3.31. Also handy to have is an ESQ-1 or SQ-80. The documentation does specify that the firmware in the ESQ-1 must be later than version 2.0.

## Now, on to the more important issues...

While this program is fairly straight forward in its operation, it should not be attempted without at least one reading of the manual. In an attempt to present as much information as possible on the display the authors have been forced to leave out much of the on-screen assistance that most of us are used to seeing either in menu bars or function key labels. You will find that the program operates out of a single screen and that the on-screen pop-up help window leaves much to be desired.

The manual is organized into an introduction, where you will cover the required equipment and loading of the program, two chapters which cover operation of the librarian and editor respectively, and finally two appendices which cover the key assignments and a sequence librarian utility that is also provided. (We will hit on that later.) Illustrations are sparse as it is assumed that you have an operational system with which to familiarize your self with the program.

The general tone of the manual is simply instructional, no attempt at a tutorial is made and I don't fault them for this. It is mentioned early on that this is not a tutorial on how to program or operate your computer or synthesizer. People who are very new to computers would be well advised to get together with someone who has some time in on similar system, same to be said if you are new to the ESQ/SQ. And as I have said before, to get the most out of any program, be it a editor, librarian, sample editor, or whatever, you MUST be familiar with your synth! Keep your manuals close at hand and don't be afraid to use them! Some of my instruments I've had 5 and 6 years and

can still find things that I did not know about them.

## CHAPTER ONE: THE LIBRARIAN

While its basic function is to load and save patch banks to the computers disk, it also controls the transfer of the banks to/from the ESQ/SQ and provides a quick way to re-arrange the patches within banks. Up to 3 complete 40-patch banks can be loaded into the computer's memory at one time. It should be noted at this point that having the banks loaded in computer memory does not save them anywhere else, and if you should turn off or re-boot your system, or exit the program these 3 banks will be lost! Remember to save your work frequently, as the program does not warn you if you try to exit the program without saving the changes you have made. Also, if saving a bank to the ESQ/SQ, make sure you have a copy of its banks stored somewhere as the bank you send to it will replace whatever may currently be there.

When you start the program, you will be presented with the librarian screen (see Figure 1). At first all three patch banks will be "empty", but after a short pause the program will attempt to load the current bank from the ESQ/SQ. If successful the patches will be loaded into patch bank 1. Only 20 patch names can be displayed at one time for each bank, the second 20 can be seen by pressing the "Page Down" key on the computer's keyboard.

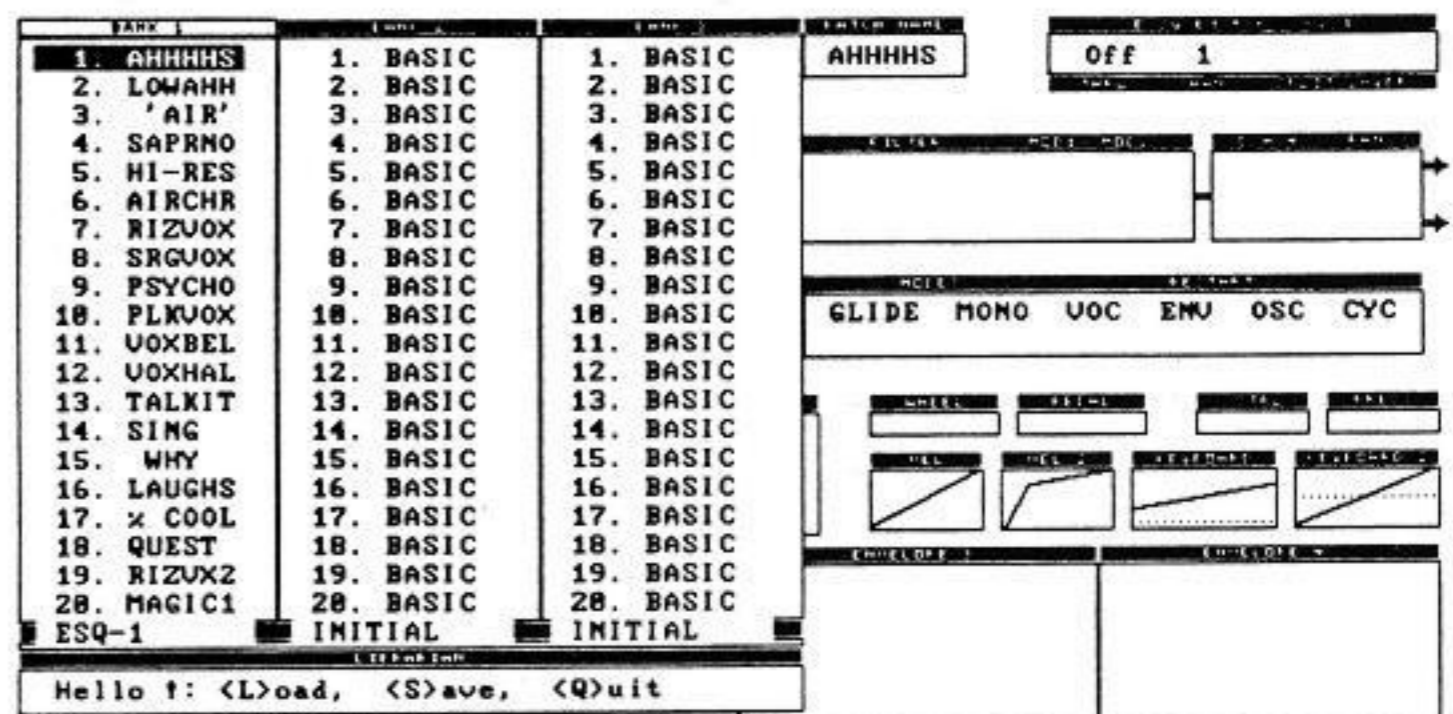


Figure 1.

From this point your choices seem fairly limited, you can 'L'oad a bank from disk or the ESQ/SQ, 'S'ave a bank in the same manner, or 'Q'uit the program. Or at least that is what you would think by looking at the screen. You can also select individual patches to be loaded into the editor or copied by moving the highlight bar over the desired patch name with the cursor keys and pressing the return key. Upon doing this you will be presented with the new options 'E'ditor, <ins>, <return>. Pressing the 'E' key on the computer keyboard will copy the selected patch into the editor. Pressing the 'insert' key on the computer keyboard will make a copy of the selected patch which can then be moved within the current bank or into any of the others. Pressing the 'return' key on the computer keyboard allows you to cancel the operation. The mechanics of copying patches are fairly well covered in the manual so lets go on to...

## CHAPTER TWO: THE EDITOR

(See Figure 2.) From here you have access to all of the parameters that are available on the ESQ/SQ. In addition, you have graphic representations of each of the envelope generators, keyboard tracking and velocity response programs, and the waveforms assigned to the LFOs. Individual

items to be edited can be selected by cycling around the screen with the left/right cursor keys, or directly with the keys described in Appendix 'A' of the manual. Selecting with the cursor keys can be somewhat interesting at first, as at times the cursor seems to bounce from place to place with little reason, but with a little practice you become used to it. You will also notice that the display on the ESQ will change as you make changes on the screen. All changes made on the computer are sent to the ESQ/SQ as they are made. This is very handy since it allows you to hear your changes as you make them. Additionally, you can play notes ('C' in any of 7 octaves) from the computer keyboard if you like. These dynamic updates work both ways. If you make a change on the ESQ the change will be reflected on the computer as well. One note however, if you start doing radical things on the ESQ console it is possible to cause the system &/or the ESQ to become 'hung' and possibly lose all of your changes! (This is also noted in the manual.) Just take it easy and all will be well...

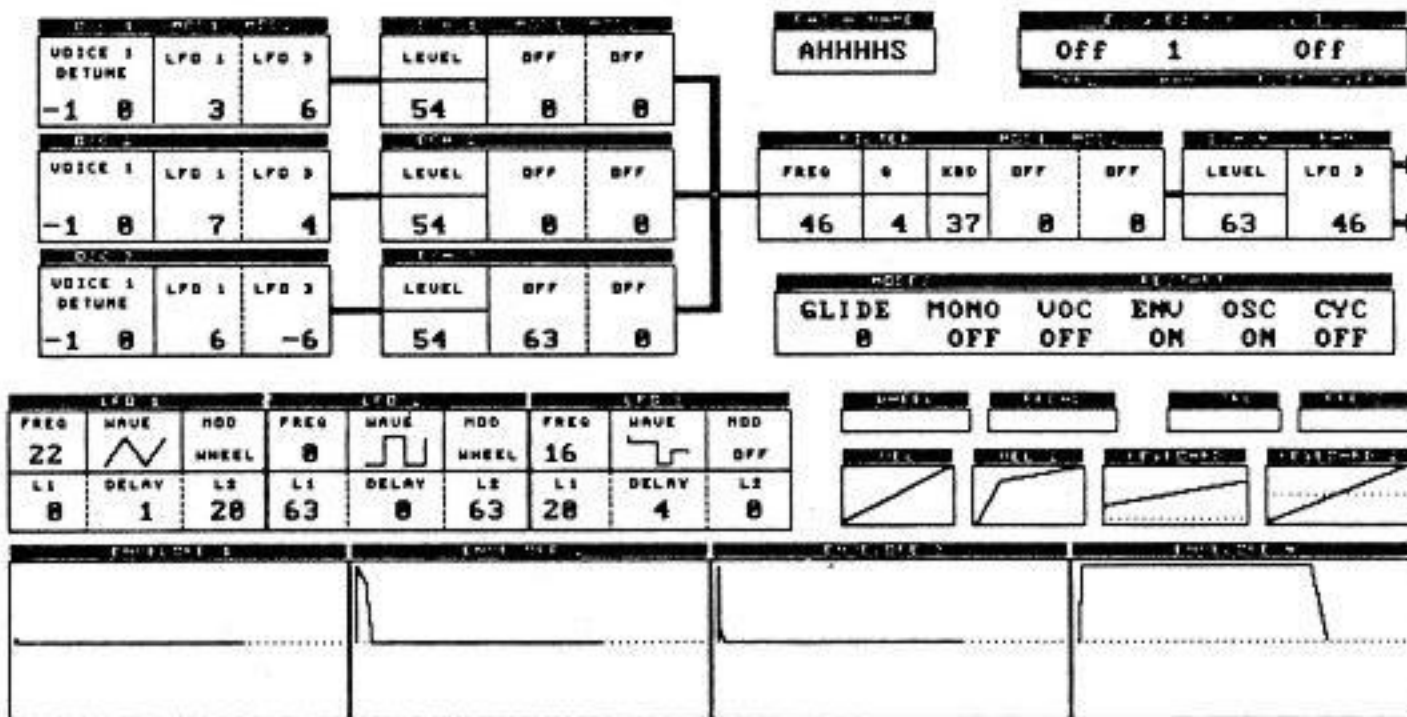


Figure 2.

Once you have selected the item to edit, an edit window (see Figure 3) will pop-up on the screen. This window displays the individual parameters you can edit. You select the parameter to edit with the left/right cursor keys, and change the value with the up/down cursor keys or the page up/down keys. The up/down cursor will move through the possible values one at a time, while the page up/down keys will skip through the values more rapidly. One other handy feature is that the program will highlight all of the other items that affect the current item being edited. A handy visual reference. In the case of the edit windows for the LFOs you are also provided an enlarged graphic representation of the current envelope. This graphic is updated as changes are made. Additionally, you have the option of selecting a "Timebar" or a "Dynamic Envelope Plot" to go with the envelope graphic. The timebar will draw a bar across the bottom of the envelope display as a note is played so you can get a feel for what part of the envelope is affecting the sound as it is played. In the Dynamic Envelope Plot option the envelope graphic is re-drawn as the note is played and adjusted for interactions of velocity-sensitive settings and the velocity with which the note is played. Again, handy for getting the feel of how envelopes really work.

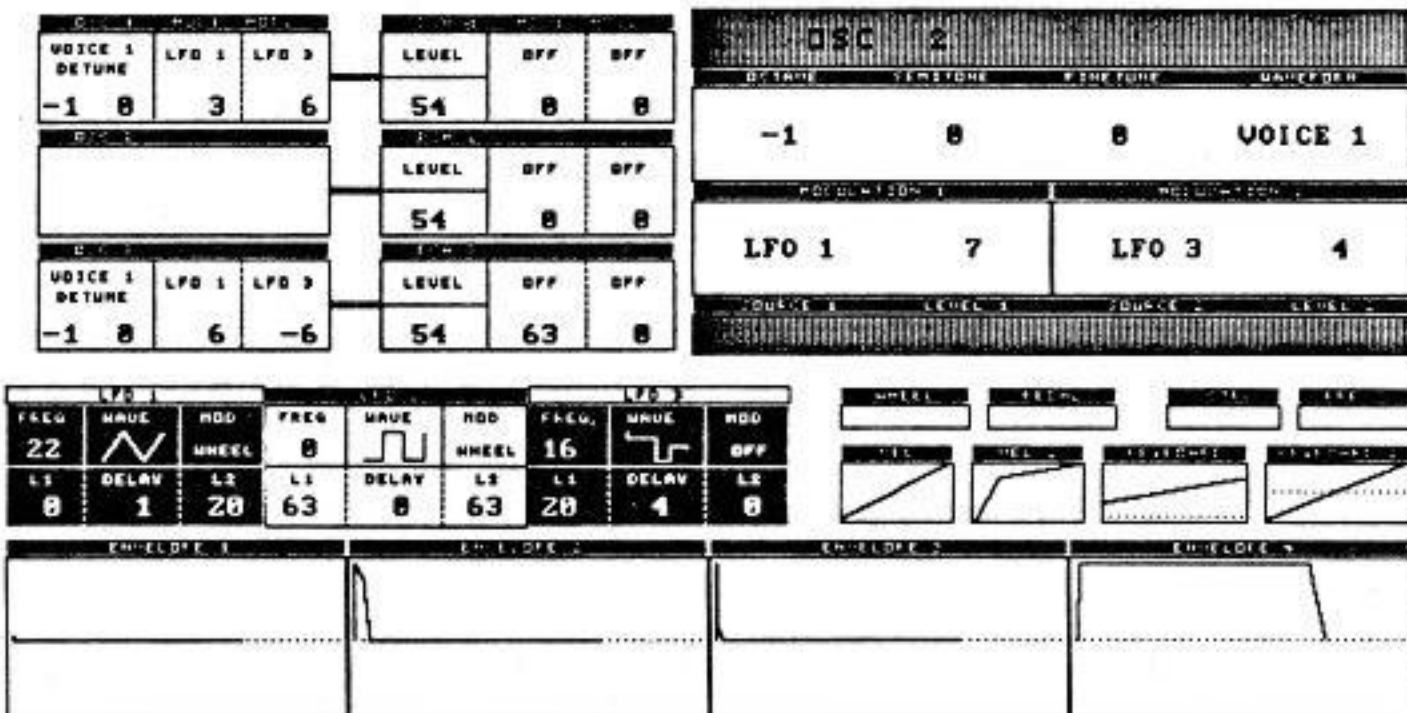


Figure 3.

## NOW A FEW MINOR CRITIQUES...

Moving around the editor screen with the cursor keys can be quite time consuming, so having direct access from the keyboard is a good thing. But the selected keys do not have a direct correspondence to the functions you are selecting so a 'cheat card' or keyboard overlay would be most welcome. The single level 'help' screen just aggravates this point.

The editor display is quite "busy" but quite well laid out. However, some of the labels used are VERY small and could be illegible on some screens. You will also note the "bouncing cursor" syndrome in some of the parameter edit windows. By that I mean that when moving the cursor it does not always follow the sequence that you would expect. This appears to have been a case of function vs. aesthetics. The cursor sequence follows the parameters as laid out on the ESQ/SQ, while the screen display is organized for clarity. You'll get used to it.

The program seems to be somewhat system-speed sensitive. I noted at the start of the article that my system usually runs at 16 MHz, a good thing except the program refused to operate. When started, the program stated "No Response from Target" when ever I tried to load a bank from the ESQ. Slowing the system down to 8 MHz solved the problem, but this could prove a problem for inexpensive PC clones that may not have the capability to change speeds.

The librarian provides the change to designate a disk drive when loading or saving patch banks, but does not allow you to specify a directory path to be used. I find it hard to believe that people are still leaving this option out of programs. If you are using more than 1 or 2 programs on a fixed disk, the capability to access sub-directories can be invaluable in helping to keep your disk organized - more important obviously on hard disk based systems than floppy based systems.

Extra bonus: As I mentioned earlier, MusicSoft also provides a Sequence librarian with this package. This is a very basic package that provides the capability to load/save sequences to/from the ESQ/SQ and the computer's disk. No editing capabilities exist in the package although it will display the contents of the sequence once transferred to the computer. This program has the same problem with system-speed sensitivity as the Editor/Librarian even though it has a 'speed change' function available.

## SUMMARY:

Aside from a few minor grins, this is a very well executed program. It performs as promised, the documentation is clear and reasonably well written (even though in our review copy some of the pages were printed at slightly odd angles), and the program can be setup and operated with very little additional effort if you already have a system set up. They even provide some sample banks on the disk that you can load and play. There are even a couple of very nice piano patches that I had not seen before. I wish more publishers would include at least a couple of sample files with their packages.

Provided on a single 5 1/4 inch copy-protected diskette with a suggested retail price of \$129.95, MusicSoft's E/SQ Editor/ Librarian should save a good deal of time for the person who spends a lot of time creating his own patches, or (like me) spends a lot of time entering them from magazines... (like this one!) I recommend it! ■

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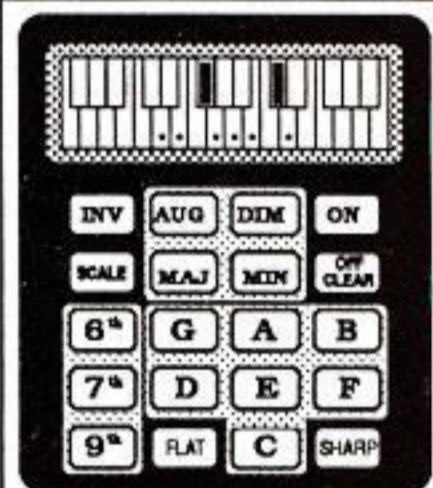
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# Keel EPS Sound Disks

Reviewed by Bill Lewis

**For:** EPS.  
**Product:** Sound Disks.  
**Price:** From \$15 per disk to \$10 in quantity. \$8 trial disk, \$5 demo tape, both \$10.  
**From:** Keel Productions, Box 467, Lakeside Halifax Co., NS, Canada, B0J 1Z0.

Sound, like beauty, is subjective. I'm not particularly fond of Heavy Metal, but my Heavy Metal buddies probably wouldn't be caught dead at the Motown bin. So, whenever I read a review of a sound library, I have to accept it as another musician's opinion, not necessarily valid from my point of view. A few EPS sound disks from the Keel Sound Library showed up in my mailbox recently, and the following are one musician's impressions.

Each of the wavesamples on the 10 disks I received was impeccably recorded. It's obvious that Keel Productions has taken great care to optimize the signal-to-noise ratio. Additionally, loops are seamless; there's little if any evidence of looping in sounds for which one has been defined. And the packaging is tidy. Disks are labelled with each sound name and the number of blocks it resides in. Also included is a printed sheet of information suggesting what the sound designer had in mind, as well as how velocity, patch select, controller etc. will affect performance. I received a cross section of four different instrument groups: Orchestral, Percussion, Synth Sounds and Electric Keyboards.

## Orchestral

The orchestral group included Violin, Viola, Double Bass, Bassoon and Bass Clarinet. The strings are very woody sounding, the Double Bass being my favorite. Patch select buttons alternate between a slow and fast attack and in some cases, limit layering. Bassoon was equally impressive, but the Bass Clarinet lacked body. All these sounds eat up blocks (from 435 for Solo Viola to 789 for Bass Pizzicato), but 948 for Bass Clarinet is overkill. They also eat polyphony, most of them having at least two layers but more often, three. Even with a 4x expander and room for a Keel/EPS string quartet, oscillators are used quickly enough to force a Spartan arrangement.

## Percussion

Percussive sounds, RotoToms, Crotales, Traps I, Bata Drums, Log Drums. Afro Shakers, Talking Drums. Shakuhachi, Koto and Temple Bells are again extremely clean recordings that eat memory. No fancy patch button action here, as a matter of fact, it was occasionally a challenge to determine just what using them did. While none of these sounds made an overly favorable impression, the Talking Drum did emote a decidedly disappointing imprint. I wanted Stevie Wonder's "Bird of Beauty" and got Don Ho's "Hawaiian Cowboy." Shakuhachi too, just didn't have enough of that characteristic attack.

## Synth Sounds

But I love the VS and Oberheim Pads, as well as the Multi-Stacks in the synth group. The VS Pads are excellent "atmospheric" layers and the Oberheim Pad is a combination string/atmospheric stack of Xpander and Matrix 6. Who said

digital instruments aren't fat? These will make you think again. On the Multi-Stack disk, the three EPS instruments are various combinations of FM, VS, Matrix 6, Xpander and DW8000. All instruments in this group include creative use of patch select and velocity as well as aftertouch. Some even have a pseudo dynamic pan in stereo. If you don't have an analog synth in your MIDI rack or a disk of this sound species in your EPS library, buy these!

## Electric Keyboards

The last disk, from the Keyboard group, was a recording of the Yamaha CP-70 and E-7 Clavinet. I didn't like these at all. The piano doesn't have any guts and the clavinet has no bite, not to mention the fact that the CP-70 occupies 1006 blocks! There are much better and smaller pianos available.

## Conclusion

When someone lays a disk of sounds on me, like everyone else, I pop it into the drive and waffle away for a while to get an impression. The best sounds are inspirational. While the Keel Sound Library is an excellent set of digital recordings, outside the analog group, they were not a motivation. Then again, one man's meat is another's potatoes. As I said at the top, sound is subjective. ■

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# The Patch Well Sounds Review

by Chris Barth

**For:** ESQ-1/SQ-80.  
**Product:** The "Goosebump" Series - 80 patches.  
**Price:** Demo free (\$150) postage - \$20 data cassette.  
**From:** The Patch Well, 1826 E Indianola, Phoenix, AZ 85016.

As I look back over what I've accomplished in the past decade, I keep seeing myself leaving work early to drink beer and play the Atari video games (gee, I hope nobody's reading this!). I was great at Space Invaders and Combat, so-so at Olympics, and never quite got the hang of Asteroids. But nowadays, most people only remember Pac-Man, that little moveable mouth which ate everything in sight. Finally, programmer Greg Brettell has brought the arcade home to my studio via his "Goosebump Series" of patches for the ESQ and SQ-80.

It's not hard to find what I'm talking about; with a name like PACMAN, the intent behind this patch should be clear to all concerned. This is the arcade sound exactly as it sounded on all those little quarter-hungry machines. Now I'm not sure what I can do with this, but I love having it in my collection. Greg has also produced VDOGAM and PINBALL, and each of them is right on the mark. There has GOT to be some way to work this in your set - maybe as an intro to The Who's "Pinball Wizard"?

The rest of the Goosebump Series is a varied mix of the useful and the useless. The arcade patches fill a gap, along with TSTONE, a plain sine wave which will simplify the process of calibrating recording levels throughout your system (a super utility patch). I also liked SLEDGE, an ominous-sounding bass.

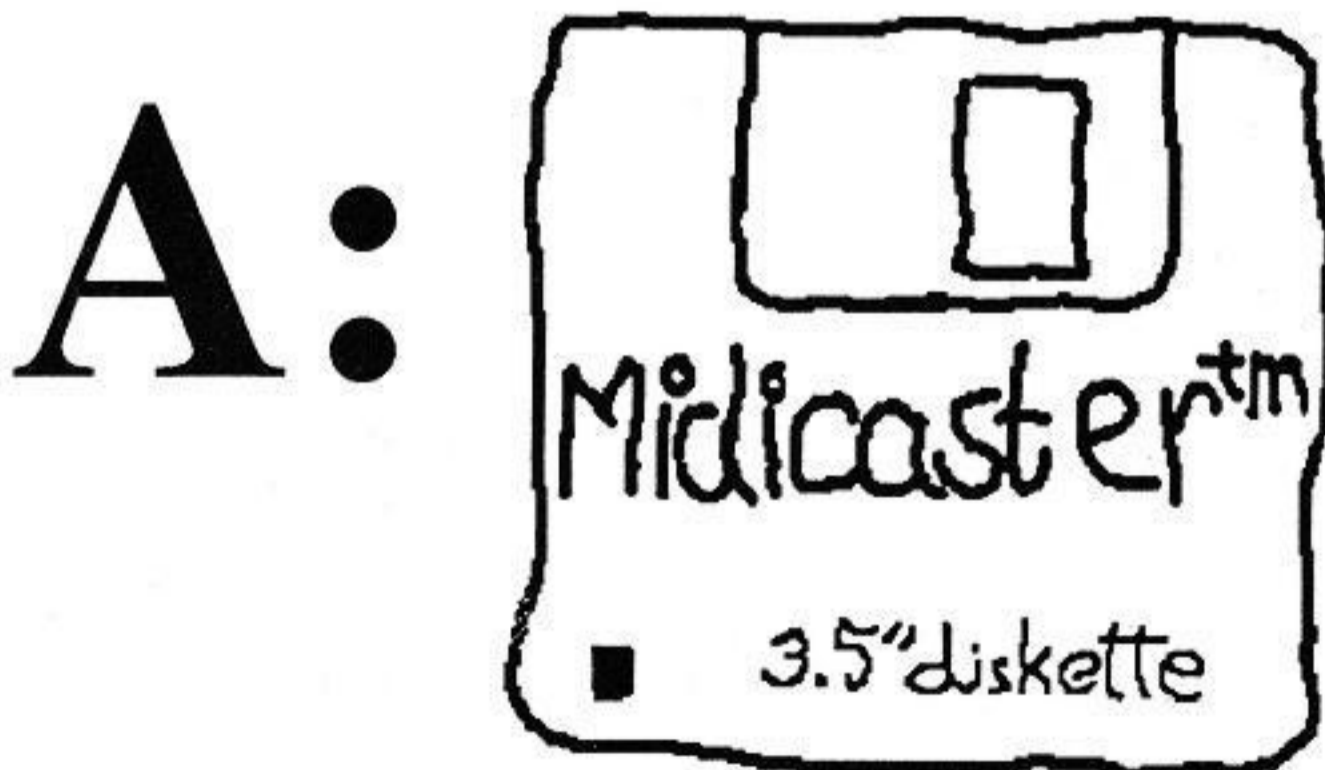
On the whole, though, lots of this stuff features bizarre envelopes which go on and on forever. This might work for very long, slow, dreamy new age pieces, maybe, but it's not very useful at all for most other applications. These are not load-and-play patches; instead, they have odd timing or envelopes that make most of them sound gimmicky more than anything else.

Not to say that some of these sounds aren't okay for what they can do as background for movie soundtracks (either ALIENS or FRIDAY THE 13TH) or for composers who are into stuff like Pat Metheny. RKOSHA, GRIFFN, FAKTRE, FX, and others are as good as anyone else's. However, these special effect type of sounds start to sound familiar after a while, and there's really very little here for performers whose sets are basically rock and roll or country or jazz.

There are three more very good synth basses: TYTBAS, ZBASS, and XANADU. I also like PSIMON, which is a reedy sound from the recent African-influenced music of Graceland. Most likely, though, this collection will appeal only to the non-commercial, more experimentally minded among us. You know who you are. ■

*Bio: Chris Barth writes and produces his own top 40 demos in his MIDI home studio using an ESQ-1, a Kawai R-100 drum machine, various guest musicians and signal processors.*

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Midicaster noticeably speeds up a number of normal Mirage functions, so you'll be saving time as well as money. Formatting diskettes with Midicaster is a breeze, and Midicaster is still one of the finest utilities available for backing up your important sound and operating system disks. As a matter of fact, Midicaster now includes so many new features that we haven't got the space to tell you about all of them here. But we can tell you the price - \$49.95 (by the way, we include a money-back guarantee). And it's easy enough to find out more. Simply ask us. We're the Midi Connection.

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# Leaping Off the Edge: Using the EPS Sequencer Live

by Tom Jordan

Bill Lewis' article on running the EPS Sequencer live in TH #43 is a great place to get started. Now, I want to challenge you to leap off the edge of Ensoniq's normal "live" mode and consider performing from inside the "Edit" pages.

My own music is involved with live decisions that make the performance more spontaneous for me, but I prepare "set-ups" or "open structures" that will help lead me into new music material while I am performing. I want to decide, right on the spot, what will happen next. Will I go to a different, simple sequence of vamping or will I try to find a new ending to make this piece stop?

## THE SET-UPS

Never mind what particular style is my own, I want you to try entering the edit pages while you are playing. For your preparations, make a single, looping track of simple arpeggios or chords. This may be the only thing going on in one sequence. It's used as the flavor or atmosphere for the piece you're going to create. Make a copy of this sequence and give it a new name.

Add a simple rhythm track, and modify the first track. You can easily modify a track by deleting some of the notes or changing their pitches on the "event edit tracks" page. You get to audition your "slashing and maiming" to see if it works, so just go ahead and mess with it to see what you get. Now you have a variation of your first sequence. That was so simple you could go ahead, make another variation and have three sequences.

Make a different sequence that is new, contrasting material-like a bridge. At this point you could do the normal song assembly routine with "edit song steps," but this is where I want you to consider leaving everything incomplete.

## THE LEAP!

Did you know that you can scroll through the sequences while one sequence is playing? Not during a song, but during a sequence you can flip through the list of loaded sequences. When the sequence that is playing reaches the end (now in loop mode), the EPS will immediately begin playing the next sequence you have selected.

From the edit pages you can only play one instrument at a time, but you will be able to add this element of live sequence interaction while playing any one instrument. If you are going to allow each sequence to play for a while, you can go back to the normal LOADED page and combine your instruments. Then jump to EDIT - SEQ.SONG, select another sequence, and LOAD again to get you back.

## HOUSEKEEPING

I do my own little routine to save my sequence work. Hit COMMAND - SEQ.SONG - 4. That takes you to "save song + all seqs." Go ahead and name the piece, even without a song it will save all of your sequences under one filename. When you load this file remember that the song has no parts, if you press the play button nothing will happen until you select a single sequence.

Be sure and delete Sequence 01 if you didn't use it. It comes up already defaulted to 4/4 when you start up your EPS. You will be rewarded with deadly silence during your performance when you decide to find out what you put there.

Once you get the hang of it, you'll want to strategically order your sequences to make it easier to move between them. You'll have to save each sequence separately, Delete each Sequence, and then load them back into your EPS in the order that you want. You can even duplicate sequences if you wish. If you wanted to, you could assemble a complete song (excuse the use of this word) of vamps that you manually advance as the piece of music progresses - LIVE!

*Bio: Tom Jordan is a composer and performer of his own live electronic music in Cincinnati, OH. He performs for artists' series and grand scale, outdoor festivals, and presents hands-on, educational programs in schools throughout the Midwest. He still longs for the knobs of analog. ■*

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# EPS-Sense Sound Editing System for the EPS and EPS-M

Reviewed by Dave Nosek

**For:** EPS or EPS-M and IBM (compatible), MS/PC-DOS.  
**Product:** EPS-Sense software V1.01.  
**Price:** \$50 plus \$5 shipping and handling.  
**From:** Donna Murray and Jeffrey M. Richter, 3502 Village Bridge Apts., Lindenwold, NJ 08021, (609) 346-0943.

## Sound Editing De-Mystified?

The best instrument that I ever purchased for my studio was the EPS. Besides all of the great things this box can do, I liked the fact that I couldn't unpack it and figure it out completely in a couple of days. But hold on, boys and girls! To an average musician like myself with MTV (MIDI techno-virus), things can get a little hairy with all of the various parameters that can be set on the EPS, I'm sure you'll agree. Listen to this.....how would you like a program that puts all of the sound editing EPS and EPS-M parameters right on the screen of your computer for full view and easy editing? Here it is, EPS-Sense!

## What Is It Anyway?

EPS-Sense is a program for the IBM PC/XT/AT or compatible that lets you see, on your computer, the tree structure of the EPS/EPS-M showing a complete overview of all instruments, layers, and wavesamples which can then be edited by your computer keyboard. Requirements are a IBM compatible with MS/PC-DOS version 2.1 or later, 256K of available RAM, a CGA, EGA, VGA, or Hercules compatible graphics adapter, your EPS/EPS-M naturally, and 2 MIDI cables and a Roland MPU-401 or compatible interface.

## How Do You Get It To Work?

After connecting all of the required hardware, (the 24-page manual which is included tells you all of this) you boot your EPS/EPS-M and set the System Exclusive parameter (Edit/MIDI page) to On. Then set the MIDI Controllers parameter (also on Edit/MIDI page) to Off. Load the instruments that you wish to edit and boot the program from either the 5.25 diskette supplied, or copy the disk to your hard drive - it's not copy protected. Then, to your amazement, you will see the opening screen and all of the information that's in the EPS/EPS-M being loaded into your IBM. Pretty fast too, I should say. The first screen that you will see will show all 8 of the instrument banks showing which instruments are loaded into which banks. There are 3 commands for this screen which are, Edit (press E) for editing System and MIDI parameters, (R) for refreshing which reads all instrument, layer and wavesample names from the EPS/EPS-M (if you load another instrument after the original scan you'll use this), and (Q) for quit. All of the various view menus of the program operate in a similar fashion by having a list of commands for the current page on the bottom of the screen. Depending on what level of the tree you're on, inputs are made by character, numeric, string or note.

By using the arrow keys, highlight the instrument you want to work with and press Enter. You now have another menu below the instrument menu that shows the 8 layers used by that instrument. Choices for this menu are, (E) for editing layer parameters, (C) for creating an empty layer, (D) for deleting a selected layer and (O) for copying a selected layer.

Now highlight one of the layers and press Enter and you'll see

yet another menu below the previous two showing the wavesamples used for the layer that you selected. Choices for this menu are (E) for editing all parameters of the wavesample selected, (N) for editing the envelope parameters of the wavesample, (W) which allows editing of the wavesample data parameters and displays the wavesample data, (C) creates a square wave wavesample, (D) to delete the selected wavesample, and (O) copies the selected wavesample to another instrument or layer.

There are various menus in this program that cover everything that you do on the EPS/EPS-M to control their editing and other features. You get the idea of how this program basically operates.

There are 2 graphic displays in the program as well. One of these displays will give you graphic representation of the envelope, the other displays the actual wavesample, and once again as with all the different menus these have editing commands on their screens. If you need a hard copy, do a shift/print screen as well.

## Okay, What Do You Think Of It?

I think this program has a lot of bang for just \$50 bucks. The fact that a user can virtually see and edit the EPS/EPS-M on the screen will enable a lot of non-techno users to really get into these great machines. I like this program but would like to see mouse support in a future revision.

There are three known bugs in the program:

- 1) Copying an instrument doesn't work.
- 2) The MIDI transmit On parameter cannot be changed.
- 3) The wavesample cannot be displayed.

The authors claim in the Readme file on the diskette that they have spoken to Ensoniq about these problems, and have confirmed that these are bugs in the EPS operating system disk. These OS bugs should be fixed in a future OS release. So.... until Ensoniq fixes these bugs you are supplied with 2 versions of the program, EPS-BUG.EXE that lets you use the program until the OS bugs are corrected, and EPSSENSE.EXE to be used with new corrected OS. Actually, the only difference between the two programs are in the way they handle the wavesample display. (Believe me, you can live without the wavesample display for a while and get into the other features!)

*Bio: Dave Nosek is a guitar player who, as mentioned, was stricken by MTV (MIDI Techno-Virus). When Dave's not buying new synths and MIDI equipment he's writing/playing music in his home studio. His company, Marketing Consultants, pays most of the bills. ■*

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# Synthesizing MA BELL

by David Bell

One of the joys of programming the ESQ-1/SQ-80 synthesizers is the ability to use basic digital waveforms to build any imaginable sound from the ground up. Usually, however, the emphasis is on recreating the complexity found in natural sounds to capture the realism we all crave. Witness the recent announcement by our Benevolent Manufacturer of their latest mega-oscillated wundermaschine, intended to hypnotize us with lush, real-time modulated waveforms.

There is one area where simplicity still rules - the phone system. All major tones in use in the U.S. are built by a combination of two sine waves, easily duplicated on our trusty Ensoniqs.

First, the touch-tones 0-9 are arranged in a matrix using seven different frequencies:

	1209 Hz	1336 Hz	1477 Hz
697 Hz	1	2	3
770 Hz	4	5	6
852 Hz	7	8	9
941 Hz		0	

So you can see that to send the digit "6" requires the frequencies of 770 Hz and 1477 Hz. Simple, yes?

Next are the utility tones. The dial tone is arrived at by combining a 350 Hz sine wave with a 440 Hz sine wave (440 Hz = a1 or MIDI note #69 or the third A from the bottom with OCT = +0). The ring-back signal is built by using a 440 Hz and a 480 Hz sine wave, with a pattern of 2 seconds on and 4 seconds off. Finally, the busy signal is generated with a 480 Hz and a 620 Hz wave, half a second on and half a second off.

Now comes the fun part - converting frequencies to OCT, SEMI, and FINE settings. Those who know how, go to it! The rest of the class pay attention. The first thing to do is get yourself a chart of musical tone frequencies. The next step is to interpolate a value using the difference in Hertz between adjacent semi-tones divided by 32 (the number of FINE steps to a SEMI step). Perhaps not exactly scientific, but it will get you in the ballpark.

Still don't have it? Don't worry, I stayed up late one night figuring it all out. Set your synth to a sustaining tone, such as an organ, turn off all MODS, open the filter up, and turn off OSC3.

For touch-tones 1, 2, & 3 - set OSC1 to OCT +1, SEMI 00, FINE 31, WAVE=SINE, MODS=KBD2 -63 and KBD2 -01. Set OSC2 to OCT +1, SEMI 07, FINE 23, WAVE=SINE, MODS=KBD -34, OFF. Play on MIDI notes #77(1), #79(2), and #81(3). For touch-tones 4, 5, & 6 - set OSC1 to OCT +1, SEMI 02, FINE 22, WAVE=SINE, MODS=KBD2 -63 and KBD2 -01. Set OSC2 as above. Play on MIDI notes #77(4), #79(5), and #81(6).

For touch-tones 7, 8, and 9 - set OSC1 to OCT +1, SEMI 04, FINE 13, WAVE & MODS as for OSC1 above, and OSC2 again as above. Play on MIDI notes #77(7), #79(8), and #81(9).

For the 0 touch-tone, set OSC1 to OCT +1, SEMI 06, FINE 04,

WAVE & MODS same as above, and OSC2 again as above. Play on MIDI note #79.

For the dial tone set OSC1 to OCT +0, SEMI 05, FINE 00, WAVE & MODS as OSC1 above. Set OSC2 to OCT +0, SEMI 01, FINE 01, WAVE & MODS the same as OSC1. Play on any key.

For the ring-back tone set OSC1 to OCT +0, SEMI 05, FINE 00, WAVE & MODS the same as the dial tone. Set OSC2 to OCT +0, SEMI 06, FINE 16, and WAVE & MODS the same again. Play on any key with appropriate timing.

Finally, for the busy signal we all love, set OSC1 to OCT +0, SEMI 10, FINE 29, WAVE & MODS the same. Set OSC2 to OCT +0, SEMI 06, FINE 16, WAVE & MODS ditto. Play with a vengeance.

Of course, the true test of our tone set is whether we can fool Mother Bell. Sequence a phone number, stick the mouthpiece into your favorite JBL 15, and sit back and enjoy the true power of digital synthesis.

*Bio: David is an independent CET who is currently engaged in community service for interfering with the phone system. ■*

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# Programming The VFX: An Interview with Mark Wiens (Part 2)

by Sam S. Mims

*[Mark Wiens is the president of Eye & I Productions, manufacturers of the Voice Crystal cartridges. Mark was recently contracted by Ensoniq to program about half of the VFX's "factory patches." Part 1 of this interview appeared last month, in Issue #49.]*

## **Can you tell us some more about the voice architecture of the VFX?**

One thing that I'd like to highlight is that you've got six waveforms per patch, with some of the waveforms being completely multisampled. Like this flute - you couldn't ask for anything more. Now, each of those six selected waveforms is a virtual synth - it has all the envelope, filter, and modulating capabilities. So you've got six complete synthesizers available for each patch, then you can layer three of those patches together on the preset mode, and in the multitimbral mode, you can have up to 12 going at once.

## **What are some of the oscillator waveforms that are available?**

For string sounds, for instance, you get strings, pizzicato strings, grand piano, piano variation, digital piano, clav piano, acoustic guitar, guitar variation, guitar variation 2, guitar harmonics, electric guitar, pluck guitar, chukka guitar, crunch guitar, and crunch loop. And then you go to the next batch, which is brass.

One thing about the sampled waves - the strings, brass, bass, breath, and two percussions - is that they give you the option of where you want to start playing the waveform. Let's say it's a waveform that has a hard attack. You can set the point at which the waveform starts. [He plays a pluck bass sound, then moves the sample start back to eliminate the pluck, leaving a much smoother bass sound.] Or you can set the start halfway through and use the velocity start modulation so that the harder you hit it, the more you get that attack timbre.

You can also play the waves in forward or reverse. And you can also set a delay to when the waveform actually starts - when the envelope actually starts. This is aside from the attack parameters of the envelope. Let's say you've got two sawtooth waves; you can set the delay of one a few milliseconds after the other to get a flanging effect. I created a mandolin patch; there, you're hitting two strings, so you can set one string to hit just a little bit later than the first one. The delay, when set all the way up, goes into the key-up position, so it only plays when you lift up the key, and you can get those guitar fingering sounds. Of course, that goes with the envelope, so the softer you hit it originally, the softer it plays.

## **This is a pretty versatile keyboard; you can program just about anything you dream up, it seems like.**

Yeah. You also have an editable pitch table. You can set any note - [MIDI note numbers] 0 through 127 - to any note you want. You can also extrapolate or interpolate keyboard scaling.

## **So you can do microtonal tunings?**

Right. When you create a custom pitch table, though, you use

up the memory of the last two waveforms. So you actually only have four voices if you use the pitch table.

One thing I experimented with was some percussive sounds. There are cases where you have some percussion, like a wood block, where toward the ends of the keyboard it might get a little unnatural. Wood blocks have their own range, and you're just not going to get past it. So I tuned every octave on the keyboard the same as C4 through B4. By scaling the keyboard like that, where every octave is the same, and is within the range that sounds natural, you can add that sound to a more sustained pad and get a more natural sound. You maintain the notes being correct.

## **So you maintain the tuning, but you still get the correct timbre.**

Yeah, you don't lose the timbre.

## **When you layer sounds, does each layer have its own digital effects, or do the effects work globally?**

Effects are global but there are two separate busses to the processor allowing for different effects depths per voice. The dual effects voice algorithms have separate busses for each effect.

## **So do your "factory" sounds incorporate the effects?**

Yes, you have everything from large hall, small hall, room reverb, dynamic reverb, 8-voice chorus, chorus plus reverb - you can have two effects going at once. And there are different mixing possibilities. You can have certain voices dry, and some voices sent to the effect. There's flanging, and a rotospeaker....

## **A Leslie speaker?**

Right; there's a high rotor speed and a low rotor speed. You can set the slow and fast ranges, and what mod sources you want them to come from. You can set lag, repeats, stereo width - lots of good stuff.

## **Tell us a bit about the modulation capabilities.**

With the pitch modulation, they went back and forth with how far to let you modulate the pitch. Whether +99, which is the highest setting, would give you one octave, or if you wanted to create some wild spacey effect, whether it would let you modulate four octaves. Well, if you do that, then one unit of adjustment is going to be too much for things like chorusing. So what they did is used 0 through 50 for one whole step, and then it goes way up there.

## **They used two different scalings?**

Yeah, so it has a lot of nice little things. You've got glide control - you can have NONE, you can have PEDAL, where you only get glide when you hit the sustain pedal, MONO mode, LEGATO [which glides only on notes played in a legato style], and TRIGGER mode, which doesn't retrigger if a note is held down. [He plays an alternating fifth by holding down the bottom note, and restriking the top note repeatedly; the glide

only goes up, and not down.] There are a lot of real subtleties.

Getting back to modulators, envelope 1 is defaulted, in a sense, to the pitch page, envelope 2 to the filters, and envelope 3 to the output. It's a default because they have an option there for it, so you've actually got an extra modulator. So you've got two modulators on the pitch.

**But can you change that defaulted envelope to something else, or take it out?**

You can set it to zero.

**But, I mean, you can't change it to another envelope if you wanted to?**

No, but you do have the second modulator that can be anything.

**So it's the same as envelope 4 always assigned to DCA 4 on the ESQ-1.**

Right. (That's what envelope 3 does here.) On the output section, you have as your modulators the keyboard scaling, or a low key/high key. You can do that with all six waves, so you can have six different keyboard layer regions. And this has got 60 sounds in internal ROM, 60 more in internal RAM, plus another 60 with the cartridge, all available at once.

**The sounds that use the transwaves sweep smoothly from one version of a waveform to another. Is that controlled in any way you want with the modulators?**

The transwaves are long waves with varying harmonics, and the range of that wave that you can play at once is a certain width. [Think of it, for instance, as a long sample of a sound with complexly changing harmonics; the keyboard loops only one "page" of that sample, playing only a small segment of the overall wave.] That width is scannable through the longer wave. You can start that anywhere you want, and modulate that with any source you want, and you can set the modulation amount.

One of the transwaves, DIGITAL-X, is actually typical of the DX-7 sound, like the DX Rhodes sound. It's the 11th and 13th harmonic. They focused on that specifically to recreate the DX sound.

**So even if you don't modulate a transwave, you can choose any portion of it you want to use?**

Yes, you can use whatever piece you want. It gives you a lot of room for programming different timbres.

**How much of your programming has used transwaves? Have you really found them to be a big asset?**

When you can't find anything on standard waves, that's one area to look in. When you're trying to do an acoustic sound that doesn't already exist totally multisampled, often times - because there are so many options and so much variation possible - you can find something here.

*[Next month, we'll wrap up with the final segment of this interview. Stay tuned - same time, same channel!]* ■

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# Frog-Varks And Critters And Quakes (Oh My!)

By Michael D. Mortilla

Before you get too deep into this article, stop reading for a moment and just listen ...

What did you hear? A clock ticking? A passing car? Your own breath? A butterfly sneeze?

Of course, what you heard depends on where you are and when you "sampled" the environment. But how aware are you of everything that you actually hear? Your answer to that question is paramount to the quality of the sounds you program and the music you create. How well you listen is also of prime importance in the acceptance of the sounds you buy, the equipment you use, how you use it and, ultimately, to your success in the music business. Not surprisingly, the sharpest ears this side of Vulcan belong to conductors, piano tuners and record producers. There is a certain mystique which surrounds the process of critical listening and there is lots of other stuff involved in being a professional listener (like musicianship and technical knowledge). There are, however, techniques of listening which can be helpful in sharpening your ears and which can be applied to your work as a composer, performer, or programmer of sounds and software (should your software be used to create sound).

Let's go back a step and repeat the moment of listening we started with ...

Anything different? It probably was. Ambient sound is usually in a state of flux and is so important to humans that in deprivation therapy experiments, where the subject is cut off from all external stimulation, including sight and sound, people hallucinate sounds! Back to our exercise: Try it again, but this time, try to focus your hearing on one sound (perhaps the refrigerator in the next room). After a while, try to add another sound to your focus, then another, and so on, until you're saturated. With a little practice you may discover a whole other world.

Another technique to improve ear sharpness involves using a microphone and headphones. First, turn off your speakers (lest you blow them away). Plug in the mic., put on the phones, and pump the volume way up. Sound different? You bet it does. Now you can hear the neighbors fighting, that pesky fly, and the dripping faucet you forgot to fix. Now take off the phones. The neighbors are still fighting, the faucets still dripping and the fly is about to pounce on the cat food but the sensitivity of human hearing - or lack thereof - won't allow you to perceive it. Now put the phones on again. The fighting stopped and they're making up, the faucet is still busted and now you can hear the cat chomping on the fly! You can bet that she heard the buzzing! Try to listen for all those subtle noises without the help of the mic. and eventually you may be able to hear "room noise," that is: the sound of a quiet room. You can hear it easily through a mic., but if you can hear it without one, then your ears are ready for anything.

So what does all this have to do with making the old synth ROAR? In most synths and samplers there are several sound sources available (oscillators, waveforms, layers, etc.). A common way of isolating a sound component is to "solo" each source by shutting everything else down. Razor-sharp hearing will greatly enhance your ability to discern where problems exist and will also help you in correcting the problem, thus improving the sound.

Sometimes, the problem is not what you hear, but what you don't hear. As an example, I'm including four SQ-80 sounds

I've programmed (as an added bonus- or booby-prize - depending on your opinion of them). These sounds are offered as a free gift; They are copyrighted and may not be sold under any conditions. First, enter the following data:

SQ-80 PROG: ROAR!!								BY: MICHAEL MORTILLA		
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH		
OSC 1	0	0	0	STEAM	LFO2	2	WHEEL	13		
OSC 2	0	6	2	SAW	LFO2	2	WHEEL	6		
OSC 3	-1	0	22	DIGIT1	LFO1	1	WHEEL	9		
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	63	ON	OFF	-	OFF	-				
DCA 2	63	ON	OFF	-	OFF	-				
DCA 3	63	ON	OFF	-	OFF	-				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH			
FILTER	32	24	0	ENV4	-18	WHEEL	29			
	FINAL VOL	PAN	PAN MOD	DEPTH						
DCA 4	63	8	OFF	-						
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD		
LFO 1	22	OFF	ON	TRI	0	2	26	OFF		
LFO 2	22	OFF	ON	TRI	0	5	23	OFF		
LFO 3	-	-	-	-	-	-	-	-		
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	63	63	00L	40	30	29	35	32R	0
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC		
MODES	OFF	OFF	OFF	0	OFF	OFF	OFF	OFF		
	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY			
	OFF	-	OFF	-	OFF	-	-			

Slide the MOD wheel up and back while holding down the lowest D on the keyboard. No cowardly lion here! Up two octaves and we're closer to an aardvark. Up two more octaves and sheep appear. While the other livestock are admittedly not the best, the lion is fairly convincing. But is it good enough? Maybe so, but I felt there was something missing. Save ROAR!! and enter the next patch: "FROGS" (Next page.)

What is it that Mortilla is after? A lion with a frog in its throat? Lions and tigers and frogs? A frog-vark? (Careful how you say that!) Play FROGS on the second D (from the bottom) and you and a bull (frog, that is). Go up an octave and he's a little bit smaller. In the upper-register it's what you might hear at the Croaker's Comedy Convention. But, go down to the lowest D and our frog becomes a purring lion! Now go to the layer page and layer FROGS with ROAR!!. Try low D again and slide the MOD wheel up and down. Hear any difference from the original ROAR!!? It's subtle, but to my ears it improves the believability of the sound.

Programming requires lots of listening and after a while your ears do get tired. You can also lose your objectivity, and what you think is really cute might be so much sonic garbage to those around you. (If they're still there!) On the other hand, sometimes you really do come up with a great sound and don't realize it because it's not what you were looking for in the first place. Which brings me to the next listening test.



**SQ-80 PROG: FROGS** BY: MICHAEL MORTILLA

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-3	0	0	FORMT4	LFO2	-8	OFF	-
OSC 2	-	-	-	-	-	-	-	-
OSC 3	-	-	-	-	-	-	-	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	ENV4	63	LFO3	63
DCA 2	-	-	-	-	-	-
DCA 3	-	-	-	-	-	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	45	21	11	OFF	-	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO3	-63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	-	-	-	-	-	-	-	-
LFO 2	63	OFF	OFF	SAW	63	0	63	OFF
LFO 3	14	OFF	ON	TRI	63	0	0	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	63	63	0L	0	18	24	29	5R	0

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	0	ON	OFF	OFF	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	OFF	-	OFF	-	-

For this next sound you will need to enlist the help of your pet. If Bob and Stan are sleeping, all the better. If you don't own a pet you may want to enlist the help of a friend's pet. First, enter this program:

**SQ-80 PROG: CATS** BY: MICHAEL MORTILLA

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	REED2	PRESS	14	LFO1	4
OSC 2	0	0	0	REED2	PRESS	14	LFO1	4
OSC 3	0	0	0	REED2	PRESS	14	LFO1	4

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	ENV3	63	OFF	-
DCA 2	63	ON	ENV3	63	OFF	-
DCA 3	63	ON	ENV3	63	ENV1	-30

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	30	18	20	LFO1	63	PRESS	27

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	ENV3	63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	3	OFF	ON	NOI	10	6	20	PRESS
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	0	28	0	63L	0	0	19	16	0	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	63	41	0	00X	0	0	20	2	32	4
ENV 4	63	63	63	00L	0	19	39	41	32R	4

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	0	ON	OFF	OFF	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	OFF	-	OFF	-	-

CATS! is one of those sounds that you'll want to play for your friends to show off just what your SQ-80 can really do. Play the patch in the middle register and just listen to old Tom wail.

In the upper-register it's little kittens and with a little work you can turn the lower register into cows and calves! But the true test of this patch is not to be found in your ears. Play that mid-to-upper range, making liberal use of pressure and in no time at all, your cat may be looking into your speaker cabinets searching for romance, a good fight or just a quick sniff. Your dog will probably start barking his (and your) head off, or simply tilt his head in emulation of the old RCA Victor "His Masters Voice" mascot. Whatever the reaction, I have yet to come across a beast who doesn't react to this sound as if it were something alive. I find this particularly interesting since I personally don't find the sound absolutely convincing (though I'll admit it is damn good.) As a final note on this patch, you could use the WHEEL instead of pressure to modulate this sound, but you'll probably need your other hand to fight off the critters and protect your speakers.

One final sound for you to contemplate:

**SQ-80 PROG: QUAKE!** BY: MICHAEL MORTILLA

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-3	0	0	STEAM	LFO1	5	ENV1	63
OSC 2	-3	5	2	STEAM	LFO1	5	ENV1	50
OSC 3	-3	3	4	STEAM	LFO1	5	ENV1	-10

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	OFF	-	OFF	-
DCA 2	63	ON	OFF	-	OFF	-
DCA 3	63	ON	ENV2	63	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	26	0	0	OFF	-	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	20	ON	OFF	TRI	0	1	0	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-48	21	63	0L	0	33	50	63	47	9
ENV 2	63	50	45	0L	0	0	50	63	20	9
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	63	49	0L	0	37	35	45	40R	9

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	ON	OFF	OFF	0	OFF	OFF	OFF	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	OFF	-	OFF	-	-

Before you play this program I suggest you TURN DOWN THE VOLUME ON YOUR SPEAKERS and if you have a sub-sonic filter: USE IT! Press and hold down a few of the lowest keys and slowly bring up the volume. Once the level has been set not to blow your cone, you can play with this sound. Warning: Living in Southern California, I have had my neighbors convinced that THIS is the BIG ONE. This patch (if your speakers can handle it!) will rattle pictures off walls, shake floors and ceilings, vibrate windows and give you a taste of what it must be like to be a god. Add a little more power in the bass and you actually begin to look like Clark Salisbury!! What is really interesting about this sound, however, is that it is "felt" more than it is "heard."

Well, as the sun slowly sinks into the west, (what does that sound like?) I'll say so long and, like hey, listen ...

Bio: Michael Mortilla is Senior Musician/Resident Composer at U of CA, Santa Barbara, in the Dept. of Dramatic Art and Dance. He is currently scoring a dozen Charlie Chaplin silent films for French TV using an EPS, SQ-80 and Mirage, exclusively. His theatre and dance music is performed world-wide. His favorite color is the color of money. ■

# Drums on the ESQ-1

by Jim Johnson

Most people don't give a moment's thought to doing drum sounds on a synthesizer. After all, that's what drum machines and samplers are for, right? Well, quite honestly, if you've got a sampler, I can't think of many reasons to bother with drum synthesis. After all, any sampler with reasonably good sound processing (such as the EPS or the Mirage) will let you tailor the drum sounds pretty much to your liking. Drum machines, on the other hand, are a different story. Even with the best drum machines, what you hear is what you get. Period. With some machines, you can layer drum sounds, but all you've got in this case is a variation on an existing sound, not a new sound. For that, you need a synthesizer.

The beauty of a synthesized drum sound is that it is malleable - you can play with its components until you come up with just the sound you need. For example, suppose you want to simulate a cymbal roll played with mallets, not sticks. When was the last time you saw a drum machine with a "mallet cymbal" sample? There ain't no such thing. But, on a synthesizer like the ESQ-1...

Figure 1 is a patch for simulating a ride cymbal. I'll admit right off that it doesn't sound exactly like a cymbal, but it's a musical equivalent - and most importantly, by altering some of the parameters, it can simulate many of changes that a drummer creates by varying his playing technique. First, let's take the sound apart, then see how it can be altered.

USC1	USC2	USC3	*****NYDCYM*****			MODES	MENU
octave: +8	-3	+2	LFO1	LFO2	LFO3	sync: on	F 1 vc banks
semi: 8	9	8	freq: 63	63	16	AM: off	F 2 envelopes
fine: 8	8	8	reset: on	off	off	mono: off	F 3 system
wave: nois1	nois3	kick	human: on	on	off	glide: 8	F 4 comp/copy
mod1: KBD2	LFO2	KBD2	wave: noi	noi	noi	restrt: off	F 5 undo
depth: -63	-4	-63	L1: 63	63	8	env: off	F 6 store vc
mod2: ENV1	KBD2	LFO1	L2: 39	63	1	osc: on	F 7 randomize
depth: +13	-63	+4	delay: 6	63	28	cyc: on	F 8 rand mask
DCA1	DCA2	DCA3	mod: *OFF*	LFO1	*OFF*	time: 1.3s	F 9 get voice
level: 51	42	8	ENV1	ENV2	ENV3	ENV4	F10 to kcs
output: on	on	on	L1: +63	+63	+63	+63	
mod1: ENV3	*OFF*	ENV2	L2: +23	+8	+26	+44	
depth: +63	8	+63	L3: +8	+11	+8	+15	
mod2: *OFF*	*OFF*	ENV4	LV: 8	48	44	43	
depth: 8	8	+12	T1: 8	8	8	8	
FILTER	DCA4		T2: 56	27	38	21	
freq: 84	ENV4: 63		T3: 54	29	48	35	
reson: 5			T4: 28	28	28	26	
kybd: 8	pan: 8		TK: 9	9	8	9	
1: ENV3	+15		SPLIT/	S/L: off	Int 1		
2: *OFF*	8		LAYER	LAY: off	Int 1		
	depth: 8		key: C 3	SPL: off	Int 1		

Oscillators 1 and 2 provide the "meat" of the sound - the metallic noise. OSC1 is mostly metal, while OSC2 provides the white noise component. The trickiest part of this portion of the sound is adjusting the envelope on OSC1's pitch, which provides the motion in the sound. If the modulation from ENV1 is too great, a nasty "stair-stepping" effect occurs; or if it's too low, the sound just sits there. OSC3 provides the sound of the stick hitting the cymbal. It's a very subtle effect, perhaps not even audible in most cases, though if you turn DCA3 off, you'll be able to hear the difference. The negative modulation from KBD2 on all three oscillators ensures that the sound remains constant across the keyboard. One other important point is that the CYC (cycle) parameter on the MODES page must be turned on, which makes the envelope times independent of the amount of time you hold down the key.

Adjusting the pitch (OCT, SEMI, and FINE) of each oscillator will have a profound effect on the quality of the noise produced; I've optimized these for my idea of a ride cymbal, but this is certainly a fruitful area for experimentation. (See my article on noise in Issue 21 of the Hacker for more on this subject.) Varying the balance between the first two oscillators is another good way to change the quality of the noise. This lets us change the overall quality of the cymbal--but how about

simulating the mallet roll, which was supposed to be the reason for this article? Simple enough - just increase the attack time (T1) of ENV4 to about 10. This eliminates the hard attack on the sound. It also helps to reduce the filter frequency to about 70, and add velocity modulation to the filter, at a depth of around 10. Finally, the way you play the roll is just as important as how the sound is programmed; I've found that the only way I can get a decent crescendo is to program it on an external sequencer that gives you precise control over note velocities, with a nice smooth velocity curve. If you use two or more adjacent notes to play the roll, the decay portion of the individual cymbal notes will overlap, which contributes to the realism of the effect.

And then, there's the snare drum. It seems that no sound is more important in music today - it happens every two beats in most pop music, sometimes more often. Most people like to collect as many snare sounds as they can - my drum machine has ten of them. Yet even with these, there are times when the cleanliness of a 16 bit sample just won't cut it, which is where the ESQ comes in.

Figure 2 shows my basic snare drum patch. This serves as a classic example of how a sound can be created just by knowing the physical mechanisms that produce the sound of the real thing. (Reference material on this: a column by Roger Powell on synthesizing percussion in the April 1981 issue of *Contemporary Keyboard*, now *Keyboard*, magazine.) The sound of the snare drum is made up of three separate components: the "crack" of the stick hitting the drum, the vibration of the drum skin itself, and the rattle of the snare wires against the bottom of the drum. Coincidentally, the ESQ's architecture seems to be tailor-made for this type of sound, as this patch demonstrates.

USC1	USC2	USC3	*****NRRL1*****			MODES	MENU
octave: -3	-3	-8	LFO1	LFO2	LFO3	sync: off	F 1 vc banks
semi: 1	4	3	freq: 21	63	16	AM: off	F 2 envelopes
fine: 8	8	8	reset: off	off	off	mono: off	F 3 system
wave: nois2	kick	sine	human: on	on	off	glide: 8	F 4 comp/copy
mod1: LFO1	*OFF*	ENV3	wave: noi	noi	noi	restrt: on	F 5 undo
depth: +13	8	+8	L1: 44	63	8	env: on	F 6 store vc
mod2: KBD	*OFF*	*OFF*	delay: 8	63	1	osc: on	F 7 randomize
depth: -26	8	8	L2: 21	63	28	cyc: on	F 8 rand mask
DCA1	DCA2	DCA3	mod: LFO1	*OFF*	*OFF*	time: 1.3s	F 9 get voice
level: 8	8	8	ENV1	ENV2	ENV3	ENV4	F10 to kcs
output: on	on	on	L1: +63	+63	+63	+63	
mod1: ENV1	ENV2	ENV3	L2: +63	+8	+8	+63	
depth: +45	+63	+55	L3: +8	+8	+8	+21	
mod2: *OFF*	ENV2	*OFF*	LV: 8	8	8	41	
depth: 8	+63	8	T1: 8	8	8	8	
FILTER	DCA4		T2: 23	15	27	12	
freq: 127	ENV4: 52		T3: 32	63	8	5	
reson: 8			T4: 28	28	28	6	
kybd: 58	pan: 8		TK: 9	9	8	9	
1: *OFF*	8		SPLIT/	S/L: off	Int 1		
2: *OFF*	8		LAYER	LAY: off	Int 3		
	depth: 8		key: C#1	SPL: lower	Int 33		

Each oscillator in this patch is dedicated to a different component of the sound. OSC1 creates the snare rattle, OSC2, the stick sound, and OSC3, the drum resonance. This last section is the easy part: a simple damped sine wave, tuned to the proper pitch, does the trick. (As this patch is set up, all of the proper tunings occur when notes between the low G and the second C on the ESQ's keyboard are played. Playing adjacent notes results in a slight variation in the snare's tuning, which enhances the realism, though playing widely separated keys sounds a little corny.) Changing the SEMI parameter on OSC2 changes the tuning of the drum skin relative to the other components, just as tightening the skin on a real drum changes its pitch. There is also just a hint of modulation from ENV3 on the pitch of OSC3, to simulate the way the drum skin stretches as it is struck.

The crack isn't much tougher, since the ESQ's KICK waveform is ideally suited for this sort of thing. However, because the KICK waveform is a repeating waveform (unlike the attack transients found in the SQ-80), it must be damped with a very fast, percussive envelope (ENV2) in order to create a single crack. (Increasing T2 on ENV2 adds a bit of a repeat on the crack, which can be nice at times.)

The snare component was the toughest to program, and is the best area for experimenting with the sound. NOISE2 is the ideal waveform for this, and the pitch modulation from LFO1 (which is also generating noise) removes any hint of pitch from the waveform. As always, minor changes in the tuning of OSC1 have a tremendous effect on the quality of the noise. The T3 and T4 parameters on ENV4 control the decay time on the snare rattle. I've programmed a rather abrupt snare here; you might want to increase T3 and T4 to about 15 or 20 for a more natural decay. Of course, you shouldn't be afraid to play with the balance of the three components. The real advantage of synthesizing this kind of sound is that, once you've got the individual components worked out, you can change their relative volumes to emphasize the aspect of the sound that you want to hear.

There's not enough room in this issue of the Hacker to cover all members of the drum family, but if you start with the snare patch and take into account the similarities and differences of other types of drums, you can simulate an awful lot of them fairly well on the ESQ-1.

*Bio: Jim Johnson, an electrical engineer, has played synths in several Phoenix, AZ bands. He's written for Electronic Musician, KCS, and co-wrote Dr. T's Algorithmic Composer package. He is owner of JAMOS Music, a MIDI programming and consulting firm. —*

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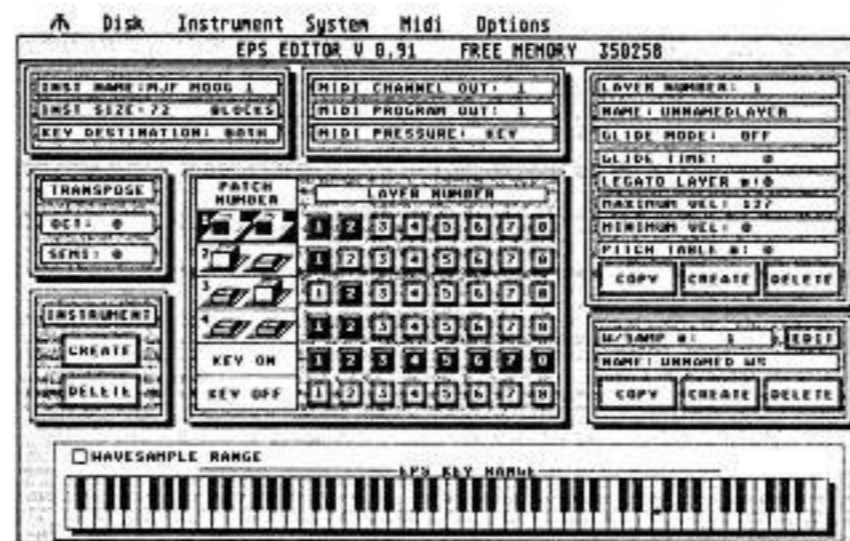
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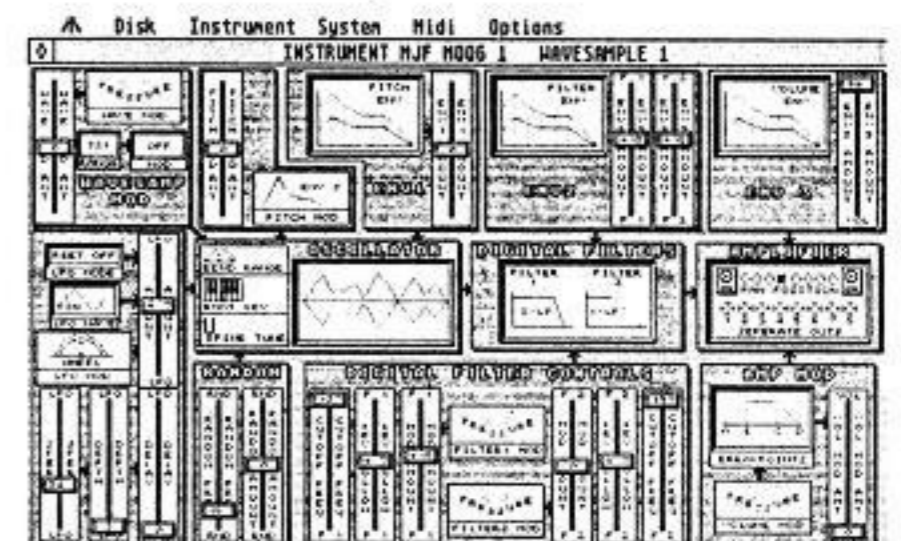
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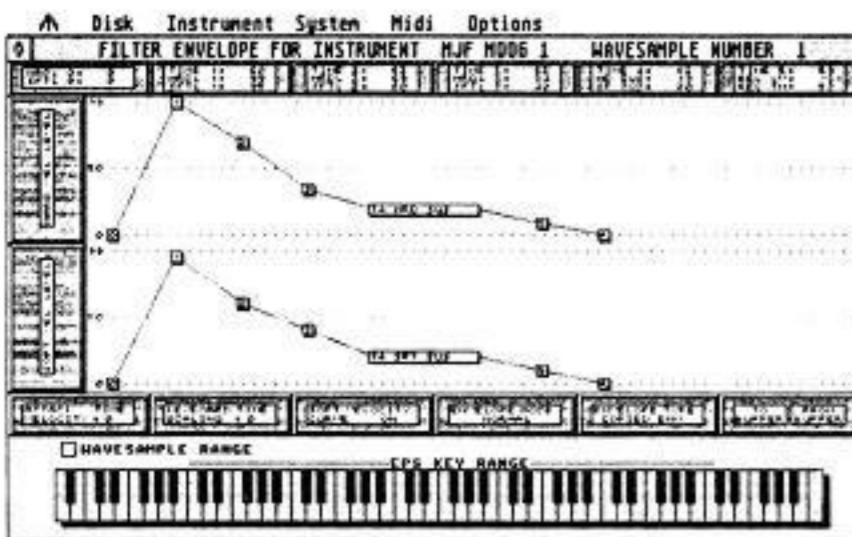
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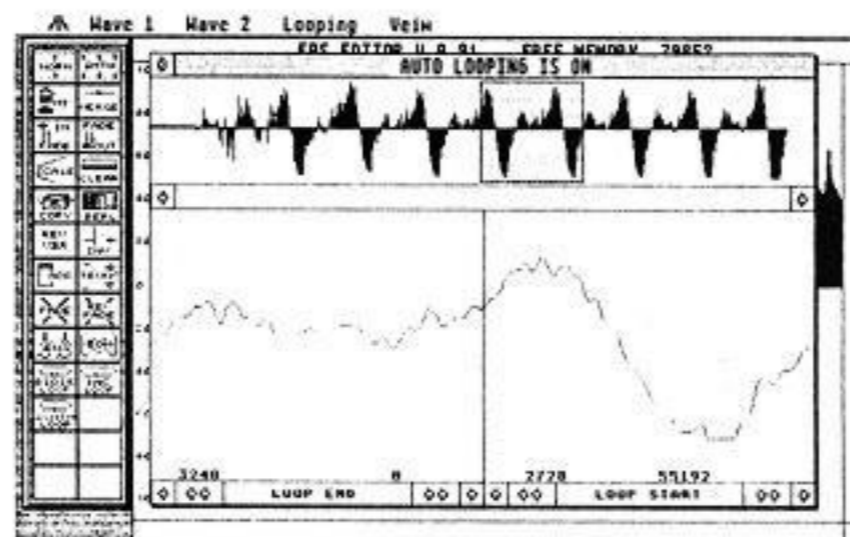
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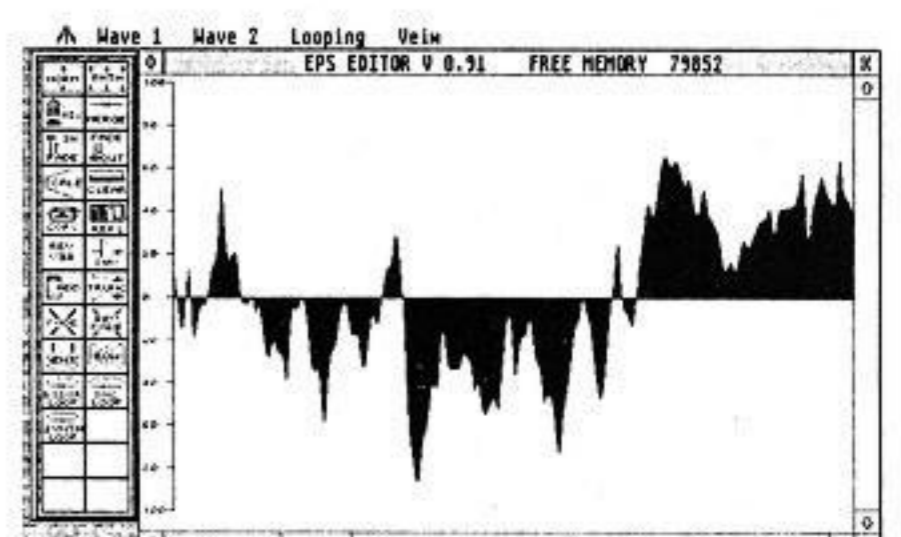
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# Synthware Mirage Disks

Reviewed by Sam S. Mims

**For:** Mirage.  
**Product:** Sound disks.  
**Price:** \$13.95 each.  
**From:** Synthware, 1126 Whitner Road Reading, PA 19605 (215) 921-3111.

I was glad to see a box of Mirage disks come in the mail - it seems like everyone is devoting their sampling energies to the EPS, and the Mirage is falling a bit behind on new sounds. So I grabbed the first disk in the pile - and a good looking disk it was, with a fancy label and everything - and popped it into my hungry Mirage.

For the next several hours, my Mirage emanated sounds that were...frustrating. In other words, some of the samples were of beautiful sounds with many annoying problems. Some of these problems I found I could fix in a jiffy, which was pretty annoying - after all, since this is a commercial product, why didn't the vendor do this? Other problems were inherent in the samples themselves and can only be fixed by resampling.

The eight disks I reviewed (24 are available) contained the standard operating system (ver. 3.2) with parameter 25 (Upper/Lower Program Link) switched on. All sounds covered the entire keyboard - there were no splits of different sounds. In most cases, this was done with two samples, an upper and a lower, and in some cases by stretching a single sample (lower) across the entire keyboard. Nearly without fail, Synthware did a superb job of creating an undetectable seam between the upper and lower halves.

Unfortunately, most of the samples were pretty gritty sounding, even though Synthware claims that "the fidelity...is just astounding." Nearly without fail, noise and aliasing were so bad in the upper register that the top octave of the keyboard was rendered unusable. Some samples masked this better than others, and there are some very nice sounds in the bunch, but I feel that a sample that noisy should be either fixed or not put up for sale.

Another gripe is that not a one of the disks employed any velocity control, not even piano sounds! To me, this is an inexcusable omission. In many cases, these sounds could have been made much more versatile, much cleaner, and much more acceptable by just a little bit of programming, but that wasn't done. Here is how each disk fared....

## **DISK #A2**

Bank One: Exotic Hybrid Tynes

These sounds are based on a rather metallic piano sample that is fairly noisy. When looping starts, a click is quite audible. There are some nice variations, with the mod wheel sometimes adding a nice touch of chorusing. This sound works well for layering.

Bank Two: Bell-Rhodes Piano

This is a noisy sample of a DX-type Rhodes sound. Why no velocity control? All four variations are pretty gritty; two of them are unusable because of this, the other two are just bearable. The mod wheel adds some chorusing on two of the programs.

Bank Three: Psuedo (sic) Twang Clav

This is a clavinet-ish sound that is pretty punchy. The mod wheel adds a chorus on two settings that makes for some pretty fat sounds. But noise, once again, got pretty irritating, especially on the top end. One particular program was very noisy after the clav faded out, and after just a minute of checking parameters, it was obvious why. The filter envelope

was staying wide open long after the amplitude envelope had closed; with just two parameter tweaks, I fixed this in no time. Why didn't the programmer do this?

## **DISK #A4**

Bank One: Click Grand Piano

This sample is a very metallic-sounding piano, almost like a TX816 patch. It's bright, punchy, and noisy in two programs; the other two are darker and more percussive.

Bank Two: Wood-Block Synth

This is a nice sound that lost much of its appeal in the sampling process. Dirty again, and the sustain loop (a short loop) is too different in timbre from the original sound. Some nice variations, with aggravating noise (after the note has died out) that could have been programmed out.

Bank Three: Simple Toy Piano

This is not a toy piano, it's a sample of a synthesized version of an imitation piano. Why not sample a real toy piano? Program variations give organ and vocal-like sounds that are pretty nice. Aliasing on high notes is too apparent, though.

## **DISK #A7**

Bank One: Pulse Width Synth

This sample is a waste of good magnetism. The sound is so biting, it hurts. The loop, once again, is too different from the original sound. The sampled sound contains a closing envelope on the filter, which is sped up or slowed down depending on what note you play. One program corrects this, using the Mirage's filter to beat it to the punch, but why sample it that way in the first place?

Bank Two: Multi-Layered Organ

This is an organ sound that is quite nice on the bottom and quite horrible on the top. Aliasing in the top octave is so bad that it sounds like a police siren accompanying the notes; the top two octaves are pretty unusable. The bottom, though, gets mighty fat when the mod wheel's chorus is used.

Bank Three: Wood Block Rhodes

This is a wood block sound on the attack, layered with a DX Rhodes I suppose (it sounds more like an organ to me). It sounds very nice with some reverb thrown in - like a D-50. Still just a tad noisy, especially on top, but this is a good sound, especially for layering.

## **DISK #11**

Bank One: Thin Hammond B-3

A nice B-3 with heavy fifths in the sound. The mod wheel adds a chorusing somewhat like a Leslie, and there are some nice percussive variations. The brighter programs are pretty noisy, though, and the top octave suffers from bad aliasing.

Bank Two: Bright Tyne Bar Syn

I don't know what a tyne bar syn is, but this is a nice sound anyway. Some programs are organy, some are percussive. The bright ones are noisy, and the top octave is unusable.

Bank Three: Hybrid Breath Organ

This sounds like a vocal sample used to make an organ patch. It sounds a little bit cheesy to me, but the mod wheel chorus helps out. Program 2 is a percussive sound with a vocal chuff - I like it a lot. Program 4 uses more of a vocal-type envelope; the sound is gritty, which is good or bad depending on what

you're after. Forget the entire top octave on this bank; it fell victim to terrible aliasing.

#### DISK #12

Bank One: Chimed Breath Bells

This is a beautiful D-50-ish sound that goes right down the drain on the looping. Program 2 adds a nice layer with the mod wheel. These are very nice sounds that suffer from looping, noise, and aliasing. Forget the top octave, and play them through a big reverb, and they will be quite useful.

Bank Two: Rhodes, B-3, Clav

Program 1 is a gritty DX Rhodes with heavy aliasing on top. This was one of only a few instances where I noticed a seam between the top and bottom samples. Program 2 is a dark percussive organ without much character. It would be more useful an octave higher, but the high notes are pretty shaky. Program 3 is a buzzy synth imitation of a clavinet that also has a noticeable split point. The top octave and a half are too noisy to use. Program 4 is a Rhodes sound with a clavinet envelope - pretty interesting, and it even has a usable top end.

#### DISK #14

Bank One: Metallic Quantum Syn

This is an attempt at combining a synth sound with a breathy chiff attack; I'm not fond of the result. The top octaves (this is one sample across the entire keyboard) suffer from annoying loop clicks. Some programs are smoother, but lose the character of the sound. The mod wheel could have been well used to add vibrato on some of these programs where it instead does nothing.

Bank Two: Exotic Click Pianet

This is a rather dirty pseudo-piano combined with a D-50 airy tone with an attack click. The combinations are interesting, and some good sounds result. But careless programming once again creeps into the picture. On Program 2, a short stab cuts a note off quickly - but a horrible noise keeps going. This was easily cured by setting the filter envelope's release time the same as the amplitude envelope's. A similar situation in Program 3 had indeed been cured in just that way. Program 4, a nice breathy sustain, had the top key (parameter 72) set to 60 for wavesample 2 (the initial wavesample, parameter 27, is set to 2). It should have been set to 61, and the result is a top note that plays some strange tone from out of nowhere. Again, an obvious problem that is easily corrected.

Bank Three: Fat Plucked Byte Wave

I don't know that I've ever encountered a "byte wave," but it does make for a nice sound. It's rather like a punchy bassy clavinet, and is useful all the way up the keyboard (finally!). The four variations are all good.

#### DISK #20

Bank One: Great Oriental Shaku

Yeah! A very nice breathy flute (shakuhachi) that sounds fabulous when run through a big reverb. There is some quite noticeable loop clicking, but the sound is so nice that we can let it slide. The four programs are nice variations, but none use the mod wheel; the sound cries out for a slow vibrato.

Bank Two: Hybrid Breath Chimes

This is another great sound that lost a lot in the sampling process. It's a D-50-ish combination of bells, breath, and synth, but it also combines lots of noise and aliasing. The top octave is completely kaput.

Bank Three: Plucked Harp Voice

These four programs are variations of a sustaining synth harp. Again, the original sound was nice, but the sample has grit and

aliasing on the top octave. The loop is also a problem; it changes abruptly in timbre from the non-looped sound.

#### DISK #23

Bank One: Fairlight Synchronix

My ESQ-1 sounds much better than this Fairlight. This is a buzzy synth sound that is fairly percussive. Yeah, well....

Bank Two: Air Pipe Hybrid

Now we're talking! Back to the D-50; I'm willing to bet this is the "Calliope" sound. Once again, loop clicking is a problem, and the top half-octave is right out, but if you don't own a D-50, you'll want this sample. Some very nice variations that really come alive with some reverb.

Bank Three: Stacked Harpsi-Clav

These are synth versions of a harpsichord and a clavinet, and the sound sustains more than either of those instruments. Not overwhelming, but not bad.

#### Conclusion

In conclusion, I find it hard to recommend much of this collection. Disk #23 is worth buying for the D-50 sound alone, and Disk #20 is certainly a keeper. But there is too much noise all around, and too little attention to programming detail. All of these disks, with the exception of the organ sounds, need velocity control programmed in, and many need much more. If you're adept at programming the Mirage, many of the problems here can be easily corrected, or at least helped out a bit. But I feel that a marketed product should have these flaws worked out already. ■

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# Hackerpatch

By Sam Mims

**HACKERPATCH** is intended to be a place where patch vendors can show their wares and musicians can share their goodies and impress their friends. Patches designated "ESQ-1" will also work on the SQ-80. The reverse is not always true. Once something's published here, it's free for all. Please don't submit patches that you know to be minor tweaks on copyrighted commercial patches unless you have permission from the copyright owner. All submitted patches are subject to consideration for mutilation and comments by Sam Mims - our resident patch analyst. If you send in a patch, *PLEASE* include your phone number.

## The Patch: QUANTA

by Tim Edwards, Durham, NC

*This is a sound I produced using SYNC on a NOISE2 wave. It is very bright and metallic. My LAYER choice is just a suggestion, because I think this patch makes a good addition to VELBAS when layered. Try it with other bass patches. Also, try changing the waveforms or Oscillators 1 and 3 for different sounds. The mod wheel creates a repeated delay because I couldn't think of anything better to do with it.*

## The Hack

In order to hear the basic patch better, turn the LAYER off for a moment. QUANTA, on its own, is bright and punchy, almost clavinetish. For some subtle variations of the sound, try substituting the other NOISE waveforms for OSC 2. For a very biting "digital" sound, try using SQUARE here as well. The CV pedal acts as a backwards volume pedal; instead I used it to control the echo effect (created by LFO 3's sawtooth wave) by changing LFO 3's MODulator to PEDAL, and by turning MOD #2 to OFF on all three DCA pages. This now leaves the mod wheel free for setting up a vibrato or panning with the unused LFO 2.

There's a lot of possibilities for tweaking here. For a sound that will really bite your head off, go to the filter page and turn the RESonance (Q) to 00 - this makes the sound fatter. Then set the FREQUENCY to 33, and the ENV 3 DEPTH to +63. This sound, as well as Tim's original patch, works very well on its own, but can also make for some very big layers.

## The Patch: SOLO22

by A.R.T. Gven, Paris, France

*SOLO22 is a pop electric guitar sound that works well for slow parts.*

## The Hack

While this patch won't drive the electric guitar into extinction, it can lend that particular timbre to your music, and it's a nice sound overall. The filter resonance (Q) seemed a bit high to me; I settled on 27, while bumping the filter FREQUENCY up to 62, but tweak here to suit your own ears and applications. A nice reverb effect was achieved by using ENV2 as a modulator on two of the DCAs; this envelope has no release time, but the DCA levels are set at 50, and ENV4 does hang on for a bit, and this is what generates the reverb.

I got a bit more of a guitarish sound by utilizing the formant waveforms; try changing the WAVE of OSC 1 to FORMT3, and the WAVE of OSC 3 to FORMT2. This has a bit more "twang" (and gives somewhat of a sitar tone to higher octaves). Now, cut loose with "House of the Rising Sun."

## The Patch: CLAVE

by Bryan Bogue, Spokane, WA

*This is a very simple patch that emulates the crucial latin percussion instrument missing from most drum machines. Now you can finally sequence "I'm A Man!"*

## The Hack

This is quite a good imitation of claves, done simply with sine waves. The modulation of the oscillators by KBD2 (= -63) sets the entire keyboard to the same note. By changing the DEPTH of these to 00, you can have tuned claves, with E3 playing the original "pitch." If you want different clave sounds, but not really ones that are exactly on key (and hence somewhat artificial sounding), set the DEPTH to some value between 00 and -63. With the DEPTHS set to 00, though, the bottom octave serves as a passable set of temple blocks. To make an anvil-like sound, simply go to the MODES page and turn SYNC to ON. (If you have changed to MOD DEPTHS of the oscillators from the original patch, play E3 for the anvil; otherwise, any note works.)

## The Patch: PWRBAS

by Charles R. Fischer, Mescal Music

*This is a very aggressive, metallic bass patch that really cuts through the mix. Try different waveforms for OSC 2: the different overtones produced by amplitude modulation with OSC 1 can generate a variety of sounds.*

## The Hack

As opposed to the really "poppy" DX-7 bass sounds, PWRBAS is somewhat more "loose" - you can hear the strings slapping and vibrating. The slap is created by the PICK 1 waveform of OSC 3. The amount of this slap can be controlled, of course, by DCA 3's LEVEL, but there's another way to do this as well. If you want more slap than DCA 3 can dish out, go to the FILTER page and play with the DEPTH of ENV3 (MOD #1); this can give you that added harshness that can't be had with DCA 3.

This patch can also produce an instant upright bass. Simply jump to the FILTER page, and change the FREQUENCY to 28. Due to the CLAV, STRING, and PICK 1 waveforms that are unique to the SQ-80, there's not much chance of getting this one into an ESQ-1.



*Bio: Sam Mims is a studio session player in Los Angeles, and a member of the band THE NEWKS. He is a Contributing Editor for GIG magazine, and owns Syntaur Productions - a company that produces music for television, radio, and film. In addition, Syntaur markets synth patches for the ESQ-1 and SQ-80.*

**ESQ-1 PROG: QUANTA** BY: TIM EDWARDS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	PULSE	ENV2	2	LFO1	-1
OSC 2	2	0	1	NOISE2	KBD2	58	OFF	-
OSC 3	-1	0	5	PULSE2	OFF	-	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	OFF	-	PEDAL	-30
DCA 2	43	ON	ENV1	24	PEDAL	-20
DCA 3	54	ON	OFF	-	PEDAL	-25

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	0	6	42	ENV3	55	LFO3	-63

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	59	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	18	OFF	OFF	TRI	9	9	19	OFF
LFO 2	-	-	-	-	-	-	-	-
LFO 3	16	ON	OFF	SAW	0	1	0	WHEEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	54	17	15	0	0	22	45	18	32
ENV 2	63	0	0	15	0	3	12	0	20	63
ENV 3	63	19	-11	25	0	0	20	41	20	0
ENV 4	63	63	44	30	0	0	24	44	0	51

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	ON	OFF	OFF	0	ON	OFF	OFF	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	ON	VELBAS	OFF	-	-

**ESQ-1 PROG: SOLO 22** BY: A.RT.GVEN

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	11	31	SAW	ENV1	2	OFF	-
OSC 2	0	0	1	SAW	OFF	-	LFO2	3
OSC 3	0	0	3	SAW	OFF	-	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	50	ON	ENV1	63	KBD	-10
DCA 2	50	ON	ENV2	31	OFF	-
DCA 3	50	ON	ENV2	20	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	59	31	6	KBD2	20	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	5	ENV2	51

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	20	OFF	OFF	SQR	10	0	0	OFF
LFO 2	19	OFF	OFF	TRI	1	1	20	WHEEL
LFO 3	-	-	-	-	-	-	-	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	11	0	0	0	0	0	0	0	49	50
ENV 2	40	15	0	0	0	0	40	63	0	0
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	51	35	14	3	1	38	43	37	45

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	0	ON	ON	ON	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	OFF	-	OFF	-	-

**ESQ-1 PROG: CLAVE** BY: BRYAN BOGUE

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	2	6	0	SINE	OFF	-	KBD2	-63
OSC 2	2	6	5	SINE	OFF	-	KBD2	-63
OSC 3	2	5	9	SINE	OFF	-	KBD2	-63

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	ENV1	40	OFF	-
DCA 2	63	ON	ENV2	63	ENV1	63
DCA 3	53	ON	ENV1	40	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	107	10	27	OFF	-	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	-	-	-	-	-	-	-	-
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	0	0	0	0	0	0	0	0	0
ENV 2	63	63	63	0	0	0	10	12	63	0
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	0	0	0	0	0	19	0	14	0

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	0	OFF	OFF	ON	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	OFF	-	OFF	-	-

**SQ-80 PROG: PWRBAS** BY: CHARLES R. FISCHER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	CLAV	LFO1	2	OFF	-
OSC 2	-1	0	2	STRING	LFO1	2	ENV1	28
OSC 3	-1	0	4	PICK1	OFF	-	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	-	OFF	OFF	-	OFF	-
DCA 2	-	OFF	OFF	-	OFF	-
DCA 3	50	ON	VEL	18	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	58	0	10	ENV3	32	VEL	15

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	53	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	22	OFF	ON	TRI	0	0	0	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	0	0	00L	0	0	6	0	0	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	63	0	0	48L	0	0	18	0	16	0
ENV 4	63	63	63	10L	0	0	32	32	21	0

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	ON	OFF	0	ON	OFF	ON	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	OFF	-	OFF	-	-

# Classifieds

## SAMPLES

**Over 300 sounds**, all original samples for EPS and Mirage. My library has exotic and ethnic instruments, **LOTS** of synths, oodles of sound effects and orchestra hits, unusual uses of ordinary instruments. \$9/disk! **And**, don't forget my Soundprocess library - "Lush," "X," "DeMity," and "Addy" for your Mirage/Soundprocess - only \$25 each, or all 4 (500 sounds) for \$80. Give me a holler! Bob Spencer, 703 Weatherby Lane, Greensboro, NC 27406.

EPS - Realistic Drums sampled with natural ambience. Disk 1 - standard kit plus cymbal roll. Disk 2 - jazz kit (primarily brushes). Send \$8 for one or \$12 for both to: Robert Ackerman, 3111-21 Suite #144, Mahon Drive, Tallahassee, FL 32308.

**Rare Acoustic instruments sampled for the Ensoniq Mirage:** Harpsichords, Viols, Clavichord, Vielle, Handbells, Harmonium, Organs, Harp, Rebec, Dulcimers, Flutes, Brass, Violin, Viola, Etc. \$20 each. \$110 for eight. Barry Carson, 52 State St., Canton, NY 13617.

Mirage samples: created with input sampling filter - yielding 50 kHz. Also custom services. 400 sounds. Listings: \$1.00. Demo tape: \$6.00 (includes listings). Mr. Wavesample, 162 Maple Place, Keyport, NJ 07735. 201-264-3512. Make checks payable to Jack C. Loesch.

## EQUIPMENT

EPS 2X expander w/o SCSI: \$150. Call 212-529-1254, ask for John.

RAM Cartridges/Cards: ESQ/SQ80, \$42.95 (80-voice) and \$74.95 (160-voice); M1, \$79.95; D10/D20/D50, \$69.95; K1, \$49.95. 5-year guarantee. FREE shipping. For information or to order: SOUND LOGIC, 1125 Eleventh St., Ramona, CA 92065. (619)-789-6558.

EPS 4X Expander by Maartists. Approved by Ensoniq. User installable. Totally internal four-layer board designed for ultra low EMI noise. 100% tested. Full two-year guarantee. \$499.95. FREE shipping. For information or to order: SOUND LOGIC, 1125 Eleventh St., Ramona, CA 92065. (619)-789-6558.

## SOFTWARE

Explore microtonality on Mirage/EPS/VFX! Just Intonation Calculator shows key changes; reduces fractions; converts between ratios, cents, & Yamaha units; internal sound; MIDI tuning dumps to Yamaha synths. Macintosh Hypercard stack. Only \$10.00. Soundscape Productions, Box 8891, Stanford, CA 94309.

Passport (Master Tracks) 16-track Sequencer Pro, C-64, \$49.95. ELTEKON PRODUCTIONS ESQ-1640 Voice Cassette, regularly \$77.95, only \$20.00. SQ-80/ESQ-1 HEAVEN 80 voice cassette, regularly \$17.95, only \$4.95. P/H \$2.50. ORBITAL ACTION MUSIC, PO Box 55191, Grand Junction, CO 81505.

EPS-Sense: IBM Sound Editing System for the EPS/EPS-M reviewed issue #50 of TH. Program: \$50.00. MSC1: IBM VES for Mirage reviewed issue #38. Program: \$40.00, demo: \$7.00. Add \$5.00 for S/H. Send check to: Jeffrey Richter/Donna Murray, 3502 Village Bridge Apts., Lindenwold, NJ 08021. Phone: 609-346-0943.

## PATCHES

<<<<ESQ-1/SQ-80>>>> S.S. Productions... SS-40.I + SS-40.II. **Two banks: Finest, most useful patches available.** After being disappointed by the rest, I've created my best. Acoustic Simulations, Pianos, Organs, Keyboards, Synths, Exotica, Basses, Bells, Effects, Percussion. Extensive Wheel, CV Pedal, Stereo, Sync/AM implementation. Cassette: one bank - \$16. Both - \$26. Sound list/order, write: Sevan Simonian, 93 Powell Rd., Emerson, NJ 07630. Skeptical? Request free datasheet for a patch from any category above.

5,056+ V80FD/DX711FD/DXTX7 Sounds \$29.95. SQ-80/ESQ-1: 840 Super Sounds \$29.95. 1,030 NEW! V50/DX11/TX81Z/YS200/DX1002127 Sounds \$29.95. P/H \$2.50. MUSIC WORLD, 617 Panorama Dr., Grand Junction, CO 81503.

**SOUND LOGIC ESQ-1/SQ-80 "Modular Voice System".** 120 Stereo Voices - The Fundamental 80 plus the Unicorn Series I module of unique voices. Extensive implementation of CV Pedal and Poly-pressure. 64-page Owner's Manual with program sheets and performance notes. All standard disk formats supported. \$39.95. FREE Shipping & Handling. The Unicorn Series II module is now available for \$18.95. For information or to order: SOUND LOGIC, 1125 Eleventh Street, Ramona, CA 92065. 619-789-6558.

Now \$12 - No shipping charge! Yes! Growling Sax! Tremolo, Distortion, Wah Guitar. Acoustic with "finger slider" (sounds sampled!). Steel guitar - great for country and blues! 70's Electric Piano, Rock Piano (Journey), 96 tears organ, Wailing Blues Harp, "Imagine" (Lennon piano), Digital Delays. One bank of my very best original patches. If you don't like them - send it back! Absolutely Guaranteed! Data cassette. Jim Symonds, 4 Kenwood St., Portland, Maine 04102.

## SEQUENCES

For the ESQ1 with expanded memory: classical music sequences for organ and piano scores, including patches for the proper sounds. 10 volumes available. Supplied on high quality data cassette and individually made at \$14.95 each or audio cassette at \$6.00 each, plus \$2.00 S/H. Send for free list. Newest volume - The Piano Music of Scott Joplin. Don Pribble, 6810 Hwy 55, Minneapolis, MN 55427.

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Transoniq Hacker Originals. Issues #1-49. All for \$50. First caller, 619-483-5385, John.

M.U.G. will provide Out-of-Print issues for cost of materials and postage. M.U.G. Hotline: 914-963-1768 or write: G-4 Productions, 622 Odell Ave., Yonkers, NY 10710.

Photocopies of out-of-print past issues of the Hacker can be obtained by calling Jack Loesch, 201-264-3512 after 6 pm EST.

Folks in the New York City area can get copies of unavailable back issues of the Hacker - call Jordan Scott, 212-995-0989.

## FREE CLASSIFIEDS!

Well, - within limits. We're offering free classified advertising (up to 40 words) to all subscribers for your sampled sounds or patches. Additional words, or ads for other products or services, are 25 cents per word per issue (**BOLD** type: 45 cents per word). Unless renewed, freebie ads are removed after 2 issues. While you're welcome to resell copyrighted sounds and programs that you no longer have any use for, ads for *copies* of copyrighted material will not be accepted.



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# The Interface

Letters for The Interface may be sent to any of the following addresses:  
U.S. Mail - The Interface, Transoniq Hacker, 1402 SW Upland Dr., Portland, OR 97221  
Electronic mail - GEnie Network: TRANSONIQ, CompuServe: 73260,3353, or PAN: TRANSONIQ.  
This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt.

Dear Hacker:

Well, I've heard the **VFX** and it's pretty inspiring. I can hardly wait to get into one myself and get that critter singing and wailing! It looks like a machine with some pretty serious sound creation possibilities, and as usual, the factory sounds don't do it any justice. I'm really tempted to run over to my local dealer and plunk down my money. Unfortunately, I won't be doing that just yet! Once again, Ensoniq is making another awesome synthesizer, in a keyboard model, with no rack version. This issue has been generating a hell of a lot of mail to the Interface, and it's bad enough with the SQ-80 and the EPS (oh yeah, they did do something about that), but Ensoniq will be making a very serious error if they delay introducing a rack-mount VFX.

Both the SQ-80 and EPS have a built-in sequencer that works well enough for most of my needs. The VFX has no sequencer or disk drive. This means that if I wanted VFX timbres with my present setup, I'd need to carry around ANOTHER keyboard axe along with the SQ-80, my other keyboard controller, and my 6-foot high rack cabinet. Sorry, folks, that's just too much damn gear to carry along!

It seems to me that a rack version of the VFX would be much easier to produce than the EPS or SQ-80, due to the lack of a disk drive and added switches for the sequencer. I hope that Ensoniq is listening; while that VFX is tempting, that Korg M1 rack sure sounds good, too...

Sincerely,  
Charles R. Fischer  
Mescal Music

*[Ensoniq's response - There are no plans at this time for a rack version of the VFX. We still question whether the sales volume of rack units justifies their development costs. Hacker readers can help us - write in and express your views and equipment lists. This information will be helpful for future product planning.]*

Dear TH,

It sure would be nice if when you load an **EPS** bank you could just double click the Enter and accept the song at the same moment. The "load song too?" is a real pain. And Yes-No could load the bank without the song. Does this occupy too

much space to modify?

Okay, here's a sticky question for someone like Dick Lord. The EPS filing system - what's going on? I'm a good little camper and I do, indeed back-up my files. After I have made a piece of music and worked with it as a Bank of files, I will go back and make a neat, clean copy on a fresh disk. I try to help the disk drive run more efficiently by saving the Bank file first, the Song file second, and the Instrument files starting with position 8 on down to 1. And then save the Bank again.

That should do it, but I think the OS is actually remembering files by a code instead of by the given character name. If there are copied instruments, you've got problems when the Bank loads because it may copy and/or load the wrong files.

Bryce Inman talked in TH #48 about his solution to the unused Instruments in a Bank. My latest trick was to load those positions with an instrument and just not save that Instrument to disk (no good for hard drives), but the mystery filing system has messed up that whole routine. What gives?

And I guess Ensoniq is unwilling to document the sequence play and simultaneous load that Steven Fox mentioned in TH #47. All I discovered was that the external MIDI program changes were not transmitted.

Thanks to TH and Ensoniq for the priceless Q/A every issue.

Sincerely,  
Tom Jordan  
Cincinnati, Ohio

*[Ensoniq's response - It's not that we are "unwilling to document sequence play and load" from MIDI; this is simply a loophole in the software. Loading in sounds while the sequence is playing can cause unpredictable results since the sequence and sound memory are shared in an EPS unless a 4X expander is installed. You can do this at your own risk but we can't recommend its usage.]*

Transoniq Hacker:

My **EPS-M**, s/n 10199-J, has an annoying mechanical problem which CANNOT be taken with a grain of salt (a couple of aspirins might help, though!). The cursor push-buttons keep pushing ALL THE WAY IN, falling down into the

insides! I took it into the local authorized repair dealer a couple of months ago, but now not only the same button has pushed in again, but another one as well! Unfortunately, you couldn't be more gentle with the EPS-M than I am. I would like to know if others have been having the same problem, and what Ensoniq has to say for themselves on this one. Please?... and thanks.

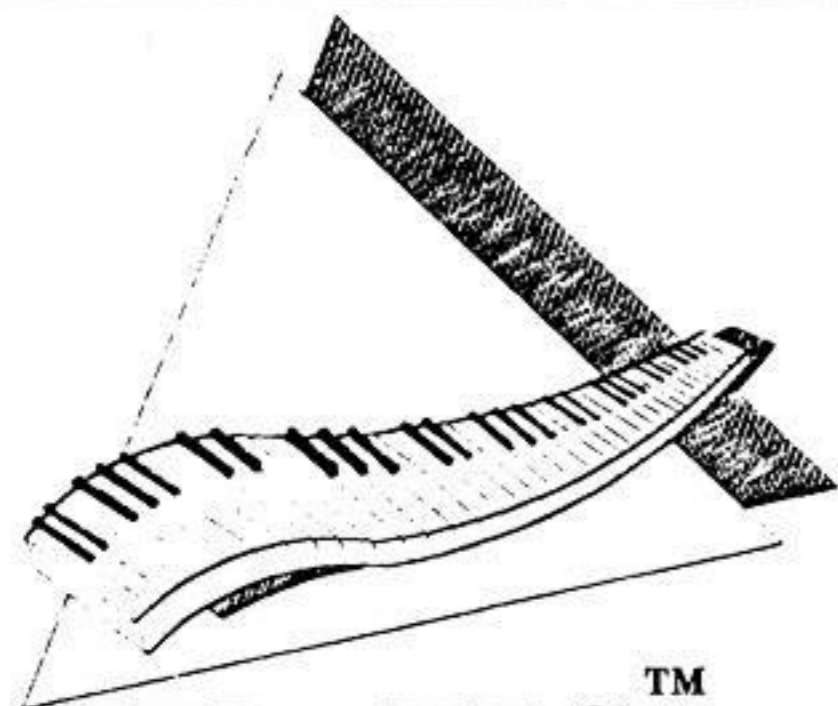
Sincerely,  
Brad Slocum  
Cupertino, CA

*[Ensoniq's response - There was a problem with the EPS-M front panel buttons that has since been corrected. Unfortunately, the plastic material used in the buttons was of inconsistent texture causing some of the buttons to be more brittle than others. We are sorry for any inconvenience this has created for you. As per Ensoniq's warranty, all manufacturer's defects in material and workmanship are covered for a period of twelve months from the date of purchase.]*

Dear TH,

Cathedral Echoes by Tim Edwards was a great article. I like the format of one patch being explained in depth. Keep the patch under discussion of high quality. For this section I would like traditional instruments, as it is hard to imitate a known sound.

After just completing one year of piano lessons, my instructor told me my **ESQ-1** keyboard would start slowing my progress (my lessons are taken on a Yamaha grand). Buying a piano was not practical (weight size and \$) so he suggested a weighted keyboard controller. I now have a Kawai K8000. Its 88 keys and good action are just what was needed. While buying the K8000 I spent a lot of time talking with the salesperson. I mentioned my desire to own an EPS someday. He asked me a lot of questions about why I wanted a sampler. Apparently, most people who own a sampler don't take samples (after the first month or so anyway). Emu System's new Proteus was suggested. It comes with four megabytes of 16 bit samples (200 presets?). Gives you 32-voice polyphony and six polyphonic outputs - Super Hot. And it's just \$995. I went back to see it and the owner told me there was a 30,000 unit backorder at the factory and they could only make 150 a day. I guess the demos are done on UPS delivery day only.



## The EPS<sup>TM</sup> Users Guide

Reviewed in April 1989 issue of Hacker. This manual was evaluated as being "...impressively thorough". This 75 page manual has a six page index and menu diagrams for the edit and command modes. It is written to be a reference manual and companion for Ensoniq's own manuals.

For a copy send a check or MO for \$20 (\$24 US for Canadian shipment) to Gary Dinsmore, 32695 Daisy Lane, Warren OR 97053. Includes free shipping in the US and free update in late 1989. The update includes improved SCSI and hard disk sections.

### DOES YOUR SQ-80 SOUND LIKE AN ESQ-1?

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- Mike Sales in the April, '89  
**TRANSONIQ HACKER**

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**HERCULES, CA 94547**

415-724-0804

Thanks for the great ESQ coverage,  
Brian Walker  
Wheaton, IL

*[Ensoniq's comments - The problem with playback-only sampler modules is that they don't allow you to load new sounds. Even if you don't sample yourself, samplers offer a continuously expanding library of sounds on disk with great variety as opposed to a fixed set of "mainstream" sounds which can't be changed.*

*Third party support is only possible on samplers; playback-only devices are likely to only receive sound support from the manufacturer.]*

Dear Hacker and Readers,

Charles Fischer of Mescal Music has put forward the idea that I think is the solution for those of us who were beat out of our money by Heaven's little scam.

I foolishly, although, like you said, his ads seemed so sincere, sent my money order for \$75 US in December, 88. By the way, I don't think it was any coincidence that his ad took on the flavor it did just in time for the Xmas season. At the same time I also sent money orders to Fred's and Technosis. Their products arrived within three weeks.

As far as copyrights go, I believe I have paid for the legitimate right to own and use those programs regardless of how they come into my possession. If there is anyone out there who would like to, out of their sense of fair play, correct one of Heaven's sins, I would be grateful and more than willing to compensate you for your trouble. I paid for the BBC-5 160 voice ROM. I'll have to eat the cost of the cartridge but I sure would appreciate the programs. Thanks to the HACKER for letting me have my say. I enjoy your work.

John Tiernay  
RR3  
Dresden, Ontario  
Canada N0P 1N0

Dear TH

While I thank whatever gods there may be for causing this Age of Digital Music Creating, and putting me in it, the issue of noise still keeps raising its prickly little head, demanding to be dealt with, providing grist for the mill of angry letter-writers everywhere.

I concur with Mr. Anderton that the challenge of becoming an artist/engineer will often dilute the creative process; that is, you'll find out just how lazy or hyper you're truly capable of being with

this stuff.

In my own situation, I tend to prefer the writing of sequences and songs to figuring out the arcane secrets of the machinery, although I have had some enjoyment and results in that department as well. (Message to PC-Clone freaks: Pick up a copy of Peter Norton's *DOS Guide*, if you haven't already. Good read.)

Oh yes, the noise... Speaking for myself, I don't tend to be on an elitist trip about sound fidelity; that is, if it has some nice aspect to it, who cares if it's cheap? (If I were, I probably would have sprung for an Akai S1000 long ago, and would not be talking here today.) I am reminded occasionally of an irreverent little tune called *"High Fidelity"* by a 1950s British comedy duo, Flanders & Swan, from their album *"At the Drop of A Hat."* I can't remember all the lyrics 'cause I gave the record away to a friend's kid about 10 years ago, but there was a line that went: "The ear can't hear as high as that! (It's enough to amuse any passing bat...)"

However, these new instruments definitely do have personalities about them. When I was looking around for a synth to buy, a salesman told me, "Oh, they're all the same, it's just the way the guy programmed it." Horse-hockey!! There are all kinds of subtle flavorings that the ear not so much "hears" as "feels." Most folks (including myself) would be hard-pressed, I'm sure, to tell the difference between, say, 96 db and 90 db of noise reduction, but it really seems to be the "light-dark-soft-hard" content of the instrument that one should carefully peruse before one buys. It's a terribly subjective thing, not easily pinned down on spectrum analyzer comparison charts. You know, the old "Blind Men and The Elephant" sort of paradigm.

For instance, I did not buy an ESQ-1 despite its wealth of features, because it seemed somehow "tinny" sounding to me; likewise I passed up the DX-7 because of its (now-famous) "thin" sound. I knew nothing about samplers at the time, whereupon I encountered the **Mirage DSK-8**, which seemed like the answer to everything. A tape recorder behind every key! A Mellotron for Everyman!

Actually, it's the electric piano-type sounds that can make or break an instrument in my book. They are so suited to the dissonant chords found in the jazzrock-type stuff which I like to play. In fact, with the Mirage there was a particular e-piano voice (Disk #13, U & L Sound #1, Program #3) that I immediately liked and grew quite attached to, and wrote many sequences with it as the main comping sound. I mean, you can keep your sitars, your yapping chihua-

huas, your alien oboes, etc. Just gimme them sweet, soaring angelic sky-bells for the major sevenths and minor ninths or what have you.

I have to say, though, it was not long after I acquired the Mirage that I began to hear something akin to an electric bee, or a tiny dentist's drill motor, floating in the air just behind my head as I played that sound. I guess this was the much-belabored "aliasing noise" that plagues the age of digital clean. This caused me a bit of consternation, thinking, "Oh God I've bought into a clunker here," until I realized that I was stuck in 8-bit land just as the train was leaving for greener 12- and 16-bit pastures. So, big deal. The Great Just-Run-Faster-So-You-Can-Stay-In-The-Same-Place Race. Like several folks I know whose closets are stuffed with Color Computers, Trash-80's, old Apples, etc. In fact I did eventually get used to it (sort of).

So having recently upgraded to an EPS, I was delighted to find the conversion feature for Mirage sounds. Hey, great! My favorite e-piano is going to sound CLEAN for a change.

Well, you can just hold the phone, 'cause it sounded TERRIBLE!! Something got lost in the mix, I don't know what. So here I was thrashing about among the waves, envelopes and filters, trying to get something to please the ear, and only got part of the way there. I even tried sampling the sound into the EPS from the Mirage, but again, noise was a bitch and all kinds of detuning tricks, etc. were tried. Should I be starting from scratch on the EPS with this sound? It sounds like some sort of organ-type tone, when "undressed." Perhaps the clever gnome(s) who programmed Disk #13 would appear with some advice...

Now don't get me wrong. I really like that EPS; it's a fine instrument with plenty of the essential gonads, and I'm embarking on a Programming Voyage to seek out new voice worlds for jazz chords to play in. But I guess for now I'll just have to welcome the poor funky old Mirage back into the MidiWorks here. Hang it from the ceiling, maybe.

Seriously, though, could the "feel" of that sound be an artifact of 8-bit digital noise? Crooked is the Path of Progress, you know... (Well, sometimes anyway.) And if there is an "Akai Hacker" anywhere out there, I haven't seen one. Have you? 'Nuff said.

J. Gummere  
Tucson, AZ

[Ensoniq's response - It's hard to say. You state it sounded "terrible," but you didn't describe what characteristic

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changed. There are certain distortion characteristics as a result of 8-bit encoding, and the transposition algorithm and analog filters are unique to the Mirage and can't be duplicated on any other system. This may have something to do with it.

Also, the conversion routine tries to approximate all the program parameters associated with the Mirage sound, but often these need some tweaking afterwards. Each case is specific and can't be covered in any general documentation.]

Transoniq Hacker,

Frankly, I think the name sounds like somebody who is about to spit, but it is a great magazine anyway. I especially like Hackerpatch, and I think Sam Mims should get twice the space and twice the money for this valuable column.

When I got my SQ-80, it seemed to me that the waveforms and the factory patches seemed most suited for new age and advertisement music. On the other hand, I am a hard rocker and I have found that this synthesizer suits my needs better than any other synthesizer I have heard of. So I was curious if Ensoniq had any figures, or guesses, about what percentage of their custo-

mers fit into each of the different music categories.

Also, for those of us who do not have a VFX, could you explain the transwave?

Your subscriber,  
Kirk Slinkard  
3175 S Reed Ct  
Lakewood, CO 80227

[Ensoniq's response - We try to get information on customer musical styles through our warranty cards, and we do study and use that information for marketing and product development.

The transwaves in the VFX are waveform groups. Each group is a family of related single-cycle waveforms which can be moved through in real-time using any of the modulators in the VFX. Each waveform in the family has different harmonic content, therefore, moving through the family produces a dynamic, changing spectrum without the need for other oscillators or effects to create movement.]

[TH - Sam Mims is indeed one of our prizes. (Actually, you don't know the half of it. All you see is the final result. He's also reliable, punctual, and very conscientious.) We hope to be expanding his column (and his \$) when we start including VFX patches. He's working on

a new patch form even now.]

Dear TH -

For the past several months, a friend and I have been recording two songs and the EPS has been THE main board we've used. We're both amazed at the versatility of this incredible workstation.

In my view, sequencing on the EPS is far superior to recording one track at a time on tape. This is because of the greater amount of flexibility in editing the parts to each other before laying them to tape. Once a track has been laid to tape (a-la the one-track-at-a-time method) much of this flexibility is lost.

After doing much editing on the EPS, I have a few suggestions which I feel will enhance an already great instrument. First of all, I feel a Velocity Shift function in the OS would be most useful so that you can shift the degree of velocity of all the notes in a track or section of a track (similar to the c lock Shift function). This would be useful in making subtle shifts of velocity in one track against another track quickly (as opposed to editing one note at a time).

Secondly, I feel a Velocity Floor and Velocity Ceiling function in the OS would be most useful. These functions could either raise the lowest velocity levels of all the notes of a section or track to a certain level or, lower the highest notes down to a certain level! These functions could, in effect act like a Velocity Level Filter both up and down. This could allow you to quickly edit the velocity level so that it doesn't go either above or below a certain point.

I think the functions I mentioned would save a considerable amount of time editing, rather than editing one note at a time. Hope you agree!!! Can It Be Done???

Finally, I want to thank Ensoniq for the great keyboards (I hope to get a VFX soon!) and I want to thank the Heckler-ah - Hacker for the great magazine!!!

P.S. Is there any way to edit velocity on the ESQ-1? I currently have the 2.0 version.

P.P.S. I was going to go on the war path about Keyboard Magazine's overall comparison of the EPS to other non-workstation samplers (it would seem to me that they are not in the same league) but, believe it or not, I tried to keep this letter short!

P.P.P.S. Will the VFX play ESQ-1 or SQ-80 patches?

Sincerely,  
Battle Of The Free Ads Part III,

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George Finizio  
Redlands, Ca

[Ensoniq's response - Thanks for your OS suggestion, and keep in mind that we do evaluate all suggestions for current product updates as well as new product development.

You cannot edit the velocity on the ESQ-1.

The ESQ-1 and SQ-80 are comprised of a completely different architecture and waveforms, therefore their patches cannot be played by the VFX. There is no damage however, from placing cartridges from one machine into another, they simply won't work.]

Dear TH,

I would like to add my two cents worth to the uproar concerning *Keyboard Magazine's* rating of various samplers. I have worked as an electronic technician for audio companies such as Eventide, ADA, and Orban Associates over the years, so I feel I have a good understanding of the procedures and precautions KBD used in their tests. Samplers, not being an in/out medium, demand inventive yet empirical methods of testing the various functions and stages of all the samplers. Strangely enough, "there are no accepted standards for how a sampler's audio performance ought to be measured." (Quote taken from the KBD article.) With this in mind, and in reading how they established their test procedure, it is apparent that KBD went out of their way to put together a test procedure that was technically correct.

On a subjective level... I recently worked in post production for a feature film where we used an E-III for creating sound effects. When the sound editing was finished, I started work on an LP with a friend using my EPS. Having been spoiled by the E-III, I noticed that the overall sound quality of my EPS paled by comparison. As a friend put it, "That's the difference between a \$10,000 sampler and a \$2,000 sampler." This did not diminish my satisfaction with my EPS in any way... I just had to realize that I couldn't compare my sampler to an E-III. I shouldn't compare them... they are in different leagues. The EPS was not designed to be an audiophile piece of equipment, it was targeted for the performing musician market where specs aren't as important as 'on-stage conveniences.'

Even though it isn't an E-III (or an S-1000), I am still able to get high quality audio out of my EPS. The ability to do this comes from spending a lot of time working on it and learning about the EPS and how to work around its limita-

tions. As an analogy, I've heard some pro sounding demos produced on a cheapo 4-track cassette deck. The KBD magazine article was a fair and accurate evaluation of the various samplers on the market as well as an invaluable tutorial that should be mandatory reading for anyone serious about sampling. If nothing else comes from this article it might force manufacturers to take a harder look at the specs of a sampler in the prototype stage rather than in a trade magazines performance evaluation after the products release.

OK enough of that... Has anyone noticed some strange problems with the OS 2.357? One problem I'm having is with the number of bars in the Event Editing

Mode. After I've recorded a sequence and am listening to it back I will often go into Event Editing. When going back to the bar I want to work on, the bar number jumps to 800 or 900. A similar thing happens with my loop start pointers when being adjusted with the up/down buttons. They get to a certain number then wrap around and keep cycling when depressing the up/down button. Has anyone else noticed this and will there be a fix for this and other problems in an upcoming OS in the near future?

Has anyone had the modification done to the output stage of their EPS? If so, I'd like to hear whether or not it is worth it (since it isn't free) and if it improves



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the signal-to-noise on the outputs.

Wouldn't it be nice if... you could delay the sample start and the envelope start in milliseconds? I know I could cut and paste silence to the beginning of my sample, but it would be more convenient if it were on adjustable parameter similar to the LFO delay. Is this a possibility, Ensoniq?

Also, if anyone is interested in hearing the collaborative LP I worked on that was composed mostly on an EPS sampler (using only the internal editing capabilities and sequencer), it's called "One Eye From Night" by PGR/AMK. The LP will be released sometime this fall on Banned Productions (PO Box 323, Fremont, CA. 94537). If you write them they will gladly send you a catalog and put you on their mailing list.

Does anyone know if any algorithmic composition programs for the C-64? Or any strange and unusual MIDI programs for the C-64? If you know of one, have written one, or have a C-64 MIDI interface for sale, please contact me.

Someone should put together a compilation cassette of experimental music composed solely on the EPS with the internal sequencer. If anyone else thinks this is a good idea, drop me a line - and a cassette of some music.

Kim Cascone  
c/o Silent Records  
540 Alabama St., Suite 315  
SF, CA 94110

[Ensoniq's response - There were several corrections made in the EVENT EDIT mode in OS version 2.4, but we have never heard of the particular problem with the loop start that you mentioned. If you called the Ensoniq Customer Service Department, they will be able to ask you the appropriate questions to qualify your problem.

The EPS output modification improves the signal-to-noise ratio by 6 dB. All EPS' with serial number 16582 and higher already have this modification.]

Question:

Since Ensoniq is no longer making the **ESQ-1** (which is what I own), the warranty is about shot now, and I'd like to put separate outputs (8) for each voice in my ESQ-1. If you guys catch wind of anybody doing this, let us know! Or let Electronic Musician know - I subscribe to that, too.

Catch you later!  
Mike Rogers  
Cahogon Park, CA

[Ensoniq's response - We don't know of any such modification for the ESQ-1. (Readers should also remember that even though we no longer manufacture the ESQ-1, SQ-80, and the Mirage, we still fully support each model with a variety of accessories and stand behind the warranty period for one year from date of purchase.)]

Dear Hacker,

Thank you for your useful and informative publication. Special thanks to Sam Mims and all contributors to Hackerpatch - you got me to tweak the sounds. Owning an **SQ-80** for over a year now has been one of the best musical investments I've ever made. I still feel it's the best tool for my purposes (Rural Home Recording Hobbist). After a busy day at the office (teaching skiing on Mt Hood), it's great to unwind at home banging out sequences.

I have encountered some bizarre aberrations though:

1. The foot switch doesn't always function properly. For sustaining it doesn't always sustain, for starting and stopping the sequencer it sometimes starts when depressed and stops when released or starts again. My supplier thinks it's the switch itself, but I haven't checked it yet.

2. When adjusting track mix levels, all tracks with recorded data assume the same level after returning from answering 'yes' to the 'save changes' page. This is rare but it's inconvenient to reset the proper values and double check them to assure they're correctly recorded in anyway.

3. When step editing, the sequencer occasionally freezes on a note and won't advance or exit. Turning off the unit is the only way to make it stop. This wastes any edits done during that function.

4. My keyboard makes a metallic popping sound on its own as it cools off after use. Sometimes it does it as it warms up. This sound isn't part of the keyboard action, nor is it heard through the amp system. It seems to be some metal or part inside the box responding to the usual expansion and contraction. Will it affect the electronics eventually? Or is it a ghost? (The sound has come from Yamaha Bass amp as well!)

Thanks for listening.

Sincerely,  
Jon Jacoby  
Welches, OR

[Ensoniq's response - 1. It could be that the footswitch contacts are dirty. If this

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is not the case, a new pedal will probably solve your problem.

2. / 3. We are not aware of any such problems with current SQ-80 software (OS 1.8). We can only suggest that you get the current version. Also, if the data is corrupted, it might be scrambling the SQ-80's memory each time you load the data back in (even after you reinitialize).

4. Metal parts do expand and contract with temperature. If this is the case, it is normal - but we can't rule out the ghost.]

Dear Hacker,

We'd like to answer several reader's questions as to why we're not in the Hacker. Well, actually we thought you might find us in *Keyboard*, and we hoped you would contact us that way. But we're hearing that many people are asking the Hacker what they think about our new *MUSIC PACK EPS*. So we've decided to submit a product for review so that Hacker readers can get the nitty-gritty lowdown, and hear first-hand how *MUSIC PACK EPS* is first in its field.

In the meantime, perhaps this month's Hypersonic press release will answer your questions. If not, call us directly at 1-800-832-2737. In the future, look to *Keyboard* and the Hacker for more info on Maartists' products and to find out how Maartists is committed to bringing excellence to your EPS. Thank you.

Sincerely,  
Patricia Blackwell  
President, Maartists  
Duluth, GA

[TH - True Hacker Cultists don't read ANY other magazines. Don't you know that? (Your full-page color ad in *Keyboard* probably cost you about a zillion times more than reaching the same number of EPS owners in the Hacker. Sheesh.)]

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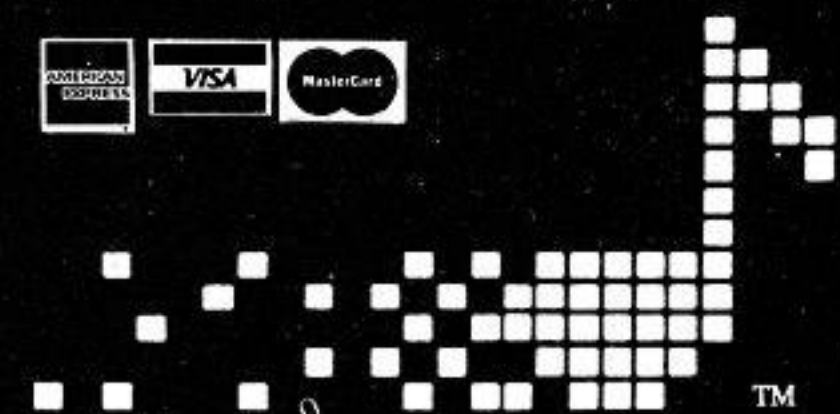
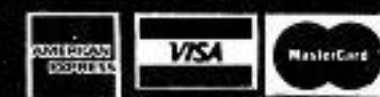
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**Subscriptions:** 12 monthly issues. US: \$23/year, All others: \$30/year. Payable in US funds.

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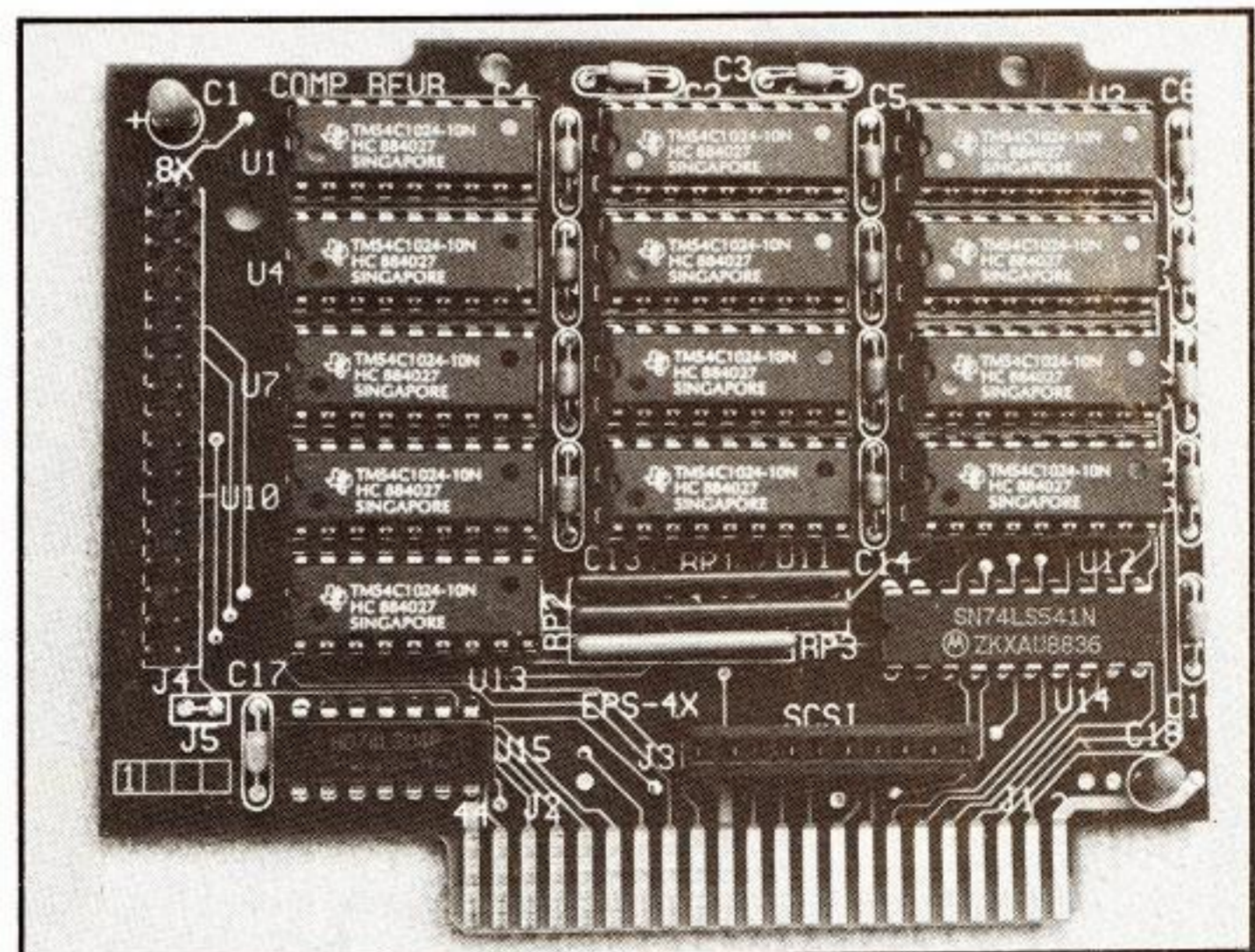
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