

# Transoniq

# Hacker

The Independent News Magazine for Ensoniq Users

## Attaining MIDI Guitar Nirvana with the EPS-16 Plus RC030821

Craig Anderton



I've been playing guitar synthesizer for about a decade (starting with the Roland GR-300) and MIDI guitar for around five years. While satisfying, it hasn't been a particularly easy ride. Any MIDI guitarist knows the prob-

lems inherent in trying to trigger a synthesizer with strings: the need for clean picking, the critical tweakings of pickup and MIDI converter and, of course, trying to find a synthesizer/sampler with the right features.

Although I've used MIDI guitar a lot in the studio, live performance always seemed out of the question due to glitching and other problems. And even in the studio, it would often take much sequence editing to clean up the extraneous pitch bend messages, double triggers, hyperspace jumps, and other oddities associated with a technology that seems destined to forever fight the laws of physics.

Nonetheless, life just got a little easier: the EPS-16 Plus is one of the best synths/samplers for MIDI guitar on the market (other contenders: the Oberheim Xpander, Yamaha TX802, and Yamaha TX81Z — but curiously, not the original EPS).

**A few words about the guitar...** There are two "flavors" of MIDI guitar: dedicated controllers that produce only MIDI data and pitch-to-MIDI based systems that let you add a MIDI driver to a standard electric guitar. The latter approach is ideal for layering electronic and electric guitar sounds.

Although Roland has done a remarkable job in making pitch-to-MIDI viable, I generally prefer dedicated controllers for the speed and tracking advantages they provide. My current favorite is the Quantar, an ultrasonic-scanning based controller that is the best I've used to date — fast, accurate and logical. Initially hobbled by reliability problems as well as legal wranglings with Yamaha over who had the right to use ultrasonic scanning, Quantar has bounced back and is turning out their guitars at a slow but steady rate (for more information on the Quantar, see my review in Warren Sirota's *MIDI Guitarist* newsletter.)

**The Achilles Heel of MIDI guitar.** Surprisingly, it's often the synth, rather than the guitar, that makes life difficult for the MIDI guitarist. The kind of synth (or sampler) you use and the patches you program, are crucial. You can take the best-tracking MIDI guitar in the world and it will, unfortunately, sound like garbage through most synths. A quick rule of thumb: If a patch sounds good when you play it from a keyboard, it is probably not optimized for MIDI guitar.

I was pretty excited when Ensoniq introduced Mono Modes A and B specifically for MIDI guitar in the original EPS, but that elation rapidly turned to disappointment — plugging in either the Quantar or Yamaha G10 produced stuck notes and mean-spirited glitches. (I've been told these modes work with Casio MIDI guitars, but have not been able to verify that for myself.)

Thankfully, the EPS-16 Plus is a totally different story; here's how to set it up.

**MIDI mode.** Set the MIDI guitar so that each string transmits over its own channel. At the EPS, select either Mono Mode A or

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B. With Mode A selected, any Instrument you enable will respond in true mono mode (i.e., one note per channel) to information coming in on all six guitar channels (one for each string). Single-note-per-channel response is important for the most guitar-like feel, because you can't play more than one note at a time on a guitar string. With Mono Mode B, each Instrument responds to one channel, which works well when you want each string to make its own sound; otherwise Mode B is very similar to Mono Mode A.

**Layers.** The secret to truly responsive MIDI guitar is to set each Layer for the new Minimode option. This lets notes change pitch without retriggering. In other words, if you trill between two notes (or slide from one note to another, or do a hammer-on) without re-plucking, there will be a pitch change but the note will not retrigger. This is absolutely vital to getting a good guitar "feel" out of any MIDI guitar/synth combination. The Legato Layer option, which I figured would work well because that's the name of the note assignment mode that makes the TX802 and TX81Z work so well with MIDI guitar, does not work as well as Minimode.

**Patches.** Tweaking patches is important. Try setting the amplitude envelope sustain to zero and select a very short release time (if any). Of course, you may not always want to have your synth respond like a guitar; for pads and other sounds, lengthen the release and sustain.

**Pitch bend.** Some MIDI guitars, like the Quantar, work best if the pitch bend range extends to plus and minus 12 semitones. Fortunately, the EPS-16 Plus can handle this. In addition to the per-patch pitch bend setting, it's also possible to set a Global pitch bend range. The main idea here is to set a pitch bend range that's compatible with what your MIDI guitar wants (although you can do

mismatches for special effects, such as having small physical string bends produce unusually large pitch variations).

In terms of tracking and responsiveness, the difference between a sound tweaked for MIDI guitar and a stock disk is night and day. Even if you don't adjust the envelope parameters, at least make sure you set the MIDI Mode and Layer options as specified above. I'd also advise creating a boot disk where you save the Global parameters for your MIDI guitar needs.

The only real drawback is that once the EPS goes into Mono Mode A, you can't do cool multi-timbral stuff with a sequencer — all MIDI channels are routed to the selected Instrument (although Mono Mode B leaves two instruments unused, their single-note response limits their usefulness with sequencers). The upshot is that with MIDI guitar, the EPS-16 Plus becomes like the synths of old, dedicated to a single function.

Well, considering the results, I can live with that. I'm glad I didn't get discouraged with MIDI guitar somewhere along the way; the payoff has been worth it. The price of admission remains relatively high and there's always a lot of effort involved in getting a system together from a programming standpoint. Still, I enjoy playing synths from a controller that's "guitarist friendly." If you're a MIDI guitar player with an EPS-16 Plus, try these tips and get ready to play MIDI guitar instead of *work* on it. ■ RC030821

*Bio: Craig Anderton is Editor at Large for Guitar Player magazine, West Coast Editor for EQ magazine, and a regular contributor to Keyboard and Sound on Sound. His latest CD, Forward Motion, is distributed by MCA.*

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*Titus Levi, Keyboard magazine, 10/90*

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### News from Ensoniq

Upcoming sound releases include the following libraries for the EPS-16 PLUS/EPS :

**ESS-15** Joey DeFrancesco Signature Series, with artwork by renowned artist Peter Max. The next volume in our acclaimed Signature Series includes various B-3 organs from this young jazz star (known for his work with Miles Davis and his own solo recordings). Joey even sequenced the demos for these disks himself, directly on his EPS-16 PLUS! This is a three disk collection, retailing for \$39.95.

**SL-3** Rock Male Vocals Multi-tracked background male vocals to give your music the polished sound of a 48 track studio production. This is a five disk collection, retailing for \$39.95.

**SL-4** Pianos (Vol.1) This collection includes a large and small version of a different Bosendorfer piano from the Essential disk, as well as a Steinway piano. Both of these instruments were recorded at Chick Corea's Mad Hatter Studio in Los Angeles. This is a five disk collection, retailing for \$39.95. RC030821

### News from Third-Parties

Frontera Electronics reports that they've had their hard drives evaluated by Ensoniq and are now included on the "Approved Drive List" for EPSs.

Livewire Audio has installed a new toll-free number: 1-800-253-7629.

### News from The Hacker

Joe Slater (author of the 8-part series on ESQ internals) has added his name to our list of volunteer helpers. You'll find him on Transoniq-Net answering questions on the ESQ-1, MIDI and computers.

Hey! We're still looking for more guinea pigs for both our *Hacker Basement Tapes* and *Hacker Glitz* columns. If you've produced your own tape please send it on in and get instant fame. If you've made the big time, give us a call and we'll set up an interview to pry out all your secrets.

Kirk Slinkard called us to report an error in last month's VFX Hack-erpatch. The KBD Track parameter for Envelope 2 was listed as having a value of 247 for Voices 1, 2, 4, 5, & 6. Sam Mims tells us these should all be "-9." His patch program (Oview) shows them correctly on the screen but prints them out as 247s. (!?) Sam was just rushing out the door to go on tour when this was discovered and hopes to have more info on this later. Meanwhile, you might double-check your Oview printouts.

## TRANSONIQ-NET HELP WITH QUESTIONS

All of the *individuals* listed in the Net are *volunteers!* Please take that into consideration when calling. If you get a recording and leave a message, let 'em know if it's okay to call back collect (this will greatly increase your chances of getting a return call).

**ALL ENSONIQ GEAR** — Ensoniq Customer Service. 9:30 am to noon, 1:15 pm to 6:30 pm EST Monday to Friday. 215-647-3930.

**HARD DRIVES & DRIVE SYSTEM** — Rob Feiner, Cinetunes. 914-963-5818. 11 am — 3 pm EST.

**EPS QUESTIONS** — Erech Swanston, Maestro Sounds. 718-465-4058. Call anytime. (NY) If message, 24-hr callback.

**VFX QUESTIONS** — Sam Mims, Syntaur Productions. 818-769-4395. (CA). 10 am to 11 pm PST.

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

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

**EPS & EPS-16 PLUS 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 pm Eastern Time.

**ESQ-1 QUESTIONS** — Jim Johnson, (503) 684-0942. 8 am to 5 pm Pacific Time (OR).

**EPS/MIRAGE/ESQ/SQ-80 M.U.G. 24-HOUR HOTLINE** — 212-465-3430. Leave name, number, address. 24-hr Callback.

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

**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.

**MIRAGE SAMPLING** — Mark Wyar, (216) 323-1205. Eastern time zone (OH). Calls between 6 pm and 11 pm.

**SQ-1 QUESTIONS** — Pat Finnigan, 317-357-3225. 8:00 am to 10:00 pm EST.

**ESQ-1, MIDI & COMPUTERS** — Joe Slater, (404) 925-7929. Eastern time zone.

## BACK ISSUES

Back issues are \$2.50 each. (Overseas: \$3 each.) Issues 1-9, 11, 13-23, 27, 29, 30, 35, 36, 37, 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.

## SUBSCRIPTION INFORMATION 12 MONTHLY ISSUES

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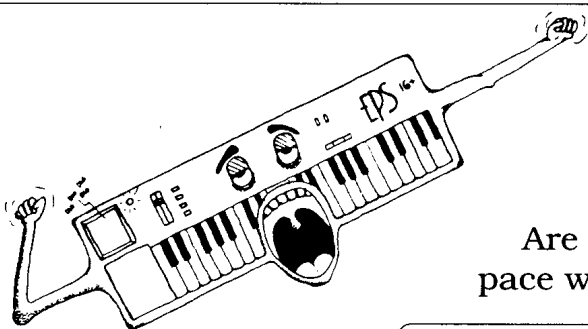
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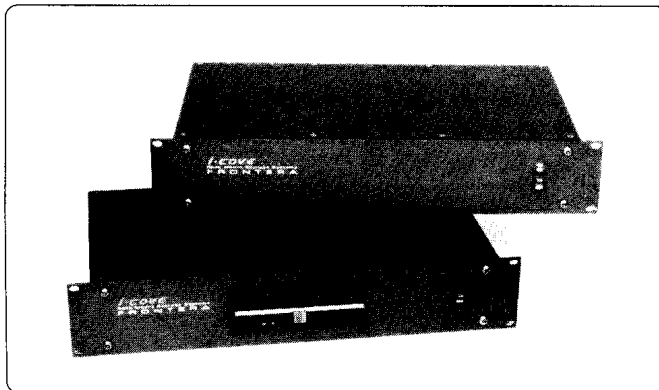
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## HACKER BASEMENT TAPES

### Bob Pavao, Monterey, California

*Daniel Mandel*

Thanks, Bob Pavao, for being the first brave soul to send in a cassette to be scrutinized and commented upon.

Bob's main instrument is rock guitar and he has sent in a few sequences from his EPS. Bob also uses a Roland MKS-50 module, an Alesis HR-16, a Yamaha SPX-90II, and he recorded this on a Tascam MSR-16 1/2" 16-Track mixing down with a Seck 1882. He said he sampled the kick drum and snare sounds with his EPS from a CD of drum sounds and, you can tell. The drums sounded excellent. The recording was very well done, all of the instruments coming through clearly. And the mixes worked.

In the first piece the horn arrangements were very realistic and moving. All three pieces were instrumental, the first one intended for vocal track, and offer a quality showcase for his guitar work while showing off his talent as a songwriter and arranger. Bob recorded his guitar parts with an SM58 playing through a Mesa Boogie amp. They are very moving pieces with much rhythmic momentum. Unfortunately, the second piece simply stops with a guitar chord, but no real ending. Well, Bob did say that these were unfinished pieces. The final work has a sorta New Age flavor, while the other two were more rock (for those of us who use those categories). Got me to thinking of good detective movie material. Bob should definitely develop these musical ideas and take them places!

Technically there was one problem. Somehow in making this dub, there were some magnetic field problems and the tape popped — not unlike a fire. Who knows how they got on the tape, but it's worth mentioning. Listen to your tapes before you send them out and don't place them near or on anything with a transformer that might alter them. (Actually, I talked to Bob and he said he did listen to his dub before he mailed it, so this may have actually been affected in the mail.)

In conclusion, all three were very good musical ideas worth following through. Bob's been fortunate in his endeavors so far. He contacted one of his inspirations, Dan Reed (of the Dan Reed Network, a very hot rock/funk band) and was able to send a tape to him. The last word is that Dan has expressed an interest in using a couple of Bob's tunes!

Good luck to you, Bob, and thanks again for being my first guinea pig. If anyone would like to contact Bob for a dub of his tape or further information, drop me a line through the *Hacker* and I'll forward it to him. Now, who's next? ■

*Bio: Daniel Mandel is a songwriter, sound designer, and has sold pro audio and keyboard equipment and produced demo tapes for local bands.*

# The SQ Filters

Clark Salisbury

Hi there. Back so soon? Guess it must be time to do a little more SQ programming, eh?

So far, we've only been using the envelope generators to control amplitude. But envelopes are a source of modulation that can be applied in many other ways in the SQ-1.

One of the more common uses of the envelope is to control timbral quality of the sound. This is generally accomplished using envelope 2, which is "hard wired" to the filter (although any of the other envelopes can be routed in, if you so desire). This allows you to control how a sound might get brighter or darker over time.

Select the ROM program "L.A. Brass." Hit "Edit," then "Wave" then the "0" buttons to move to the "Select VOICE:" page. You'll find that this program uses two voices, voice one and voice two. To keep things simple, let's turn off voice two for now — select it and hit the "Down/No" button. Now select voice one for editing (scroll once to the left — the word "ON" in the display should begin flashing).

Now hit the "1" button — you'll find that the wave being used is the "Brass Ensemble" wave. Let's change this to something a bit more generic — say, the "Sawtooth" wave located in the "Waveform" waveclass. Using this more "generic" wave will help to make any changes to the filter sound more obvious.

Now let's head on over to the filter page, then press the "0" button to get to the filter mode page. The display should be showing:

```
FILTER1=3LoPass  
FILTER2=1HiPass
```

A synthesizer filter does pretty much what its name implies — it filters stuff out. The "stuff," in this case, is the harmonics contained in the basic wave being used.

There are two basic filter types available in the SQ — "high pass" and "low pass" filters. High pass filters filter out lower harmonics, letting the higher harmonics "pass through." Low pass filters do just the opposite. The exact range of filtering that will occur is controlled by the "filter cutoff frequency" — this is the frequency at which filtering begins to occur. For example, a low pass filter with its cutoff frequency set to 1760 Hz will begin to attenuate (reduce the amplitude of) frequencies above 1760 Hz, leaving those below 1760 Hz unaffected. A high pass filter with its cutoff point set to 1760 Hz will attenuate frequencies below 1760 Hz, leaving those above unaffected.

The question arises, then, of how much of these filtered

frequencies is actually attenuated by the filter? And the answer is, as with many things in life, "that depends." It depends on the particular mode that the particular filter is set to. Let's take the low pass filter, for example.

The lowpass filter can be set to any of the modes: 1 pole, 2 pole, or 3 pole. The term "pole" comes to us from the analog world, each "pole" representing 6 decibels of attenuation per octave. In other words, in a 1 pole lowpass filter, frequencies at one octave above the cutoff point will be attenuated by 6 db; frequencies at two octaves up will be attenuated by 12 db and so on. RC030821

In a two pole lowpass filter, frequencies are attenuated at the rate of 12 db per octave (6 db X 2), and in a three pole lowpass filter frequencies are attenuated at the rate of 18 db per octave. Highpass filters work the same way, except that it's the lower frequencies that are attenuated, rather than the upper.

In the SQ, a number of filter configurations are available. That's the beauty of a multi-mode filter — lots of options as to how it will work. Lowpass filters can be configured for 1, 2, or 3 pole operation; a highpass filter can be configured for 1 or 2 pole operation. There are always two filters available, which can be configured as either 2 lowpass filters, or as one lowpass and one highpass filter.

Why would you want to have two lowpass filters? Well, the effect of two lowpass filters is cumulative. Therefore, if you want to filter upper harmonics at the rate of 24 db per octave, (which happens to be the type of filtering found in most "classic" analog synthesizers), you can do so by simply stringing together two lowpass filters, with each set to "2 pole" mode — this gives you, in effect, a 4 pole lowpass filter, yielding a 24 db per octave slope.

But what if you don't want any filtering at all? No problem. Simply set the cutoff point of any lowpass filter you may using to a value of 127. This leaves the filter "wide open" — it will not filter out any frequencies. If you are using a highpass filter, set its cutoff point to 0 — this also has the effect of leaving it wide open — no filtering will occur. That is, as long as you aren't using any sort of modulator to change the cutoff point of the filter dynamically. But we're getting ahead of ourselves here.

At any rate, you should still be looking at the filter mode display — it's showing that the SQ multi-mode filter is currently configured as a 3 pole low pass filter and a 1 pole high pass filter. Let's check out what the filter can actually do.

Scroll one click to the right — you should be at the [FC1 Cutoff] page. This page is showing the initial cutoff point for

filter 1 and the amount of envelope 2 modulation that's being applied to filter one. First, let's set the envelope 2 amount to 0 — this will allow us to play with the filter cutoff point without having to worry about any influence envelope 2 might have over the filter's cutoff point.

Set the envelope 2 amount to "+00." Notice that the sound has immediately become quite a bit darker. This is because envelope 2 is no longer pushing FC1 (filter 1 cutoff point) above its preset level of 042. Now select FC1 and change it to 127. Notice that the sound is quite bright again. This is because we've opened filter 1 up all the way — it's no longer filtering any of the upper harmonics.

Now hold down a note and use the data slider to change the filter cutoff up and down. The resulting sound is called a "filter sweep" and is the result of changing the filter cutoff while a note is playing — a familiar sound indeed. Filter sweeps are usually not controlled manually, as we are doing here, but are more often controlled by an LFO or envelope, or even pressure. We'll set one up in a minute, so that you can see precisely how it's done.

For now, set FC1 to a value of 036 and play some notes going up from the low end of the keyboard to the high end. Notice how the notes get quieter and quieter as you play higher, finally disappearing once you reach the upper end? This is because the filter is removing the frequencies above its cutoff point, and as you play higher and higher on the keyboard, the lowest frequencies contained in the sound eventually go above the filter's cutoff point, the result of which being that all sound is filtered out. If you think about it for a minute, though, you'll realize that you could get around this problem if you could use the keyboard itself as a modulator for the filter. You could set it up so that playing higher notes on the keyboard would cause the filter cutoff point to move correspondingly higher — in this way, the filter could "track" the keyboard, as it were.

Well, surprise surprise! A parameter exists whose sole function is to do just this — control filter cutoff from key position. It's called "FC1 (or FC2, as the case may be) Keyboard," and you can find it by pressing the "2" button.

You'll find that this parameter is currently set to "00." Select it and try setting it to a value of +50 — this will cause FC1 to precisely track the keyboard and the filter cutoff point is raised approximately one octave for every octave higher that you play on the keyboard. This control will most commonly be used to balance the brightness of a sound up and down the keyboard — giving you a way to even out the timbre of a sound in terms of its position on the keyboard.

Notice that this parameter can also be set to values above and below that which yields precise tracking. For example, if you want to have notes played higher on the keyboard brighter than those played lower, you could set this parameter to a value above +50. The "keyboard tracking" parameter, as it's commonly referred to, can be quite useful for balancing voices

across the keyboard — particularly when you are doing multi-voice programming.

Set the keyboard tracking parameter back to a value of +50 ("FC1 Keyboard =+50"), hit button "1," and set FC1 cutoff to a value of 96. Now let's go take a look at filter 2, currently configured as a 1 pole highpass filter.

Press button "3" and you'll be at the FC2 page. Once again, set the envelope 2 amount to "+00" — the display should look something like this: RC030821

FC2 Cutoff = 000  
Envelope2 = +00

Once again, select "FC2 Cutoff=" and try holding a note or chord, and varying FC2 cutoff using the data slider. Notice that the sound gets thinner as you move the slider up — this is the characteristic effect of a highpass filter. To accentuate this effect, you may want to try switching FC2 from a 1 pole to a 2 pole highpass filter. Hit the "0" button, and press the Down/No button once. Now the filters are configured as a single 2 pole lowpass filter and a single 2 pole highpass filter. If you're curious about the other combinations available, try scrolling up and down through the listing. You'll find that there are four configurations: 3LoPass/1LoPass; 2LoPass/2LoPass; 3LoPass/1HiPass; and 2LoPass/2HiPass.

At any rate, with the filter configured as 2LoPass/2HiPass, the effect of the highpass filter sweep becomes more pronounced — you might want to check it out. Also, as with the lowpass filter, there is a keyboard tracking parameter available. The difference is that it allows you to control the amplitude of low, rather than high, frequencies from keyboard position. Also, it should be mentioned that using a combination of high- and low-pass filters results in a third filter category, called "bandpass." A band pass filter is one which filters out both highs and lows, while letting a center band of frequencies pass through.

Next month we'll start applying all this stuff about filters and envelopes in some practical ways, so stay tuned. See ya then. ■



*Bio: Clark Salisbury is a freelance writer, consultant, sound developer, recording engineer/producer, educator, and guitarist. His latest project is as script developer and technical consultant for*

*a series of instructional videos, many of which will feature Ensoniq products.*



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|          | 6. Pitched Percussion          |
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|          | 8. Synth Pads                  |
| <b>E</b> | 9. Analog                      |
|          | 10. Modern Rock                |
| <b>F</b> | 11. Techno                     |
|          | 12. Metallic                   |
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|          | 14. Gongs, Jars, and Glass     |
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RC030821

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# EPS Samples from the Great White North

Bryce Inman

---

For: EPS family.  
Product: EPS Sound Disks.  
Price: Sounds sold individually from \$3-\$25.  
From: Keith B. Thomas, P.O. Box 174, Stratford, ONT, N5A 6T1 Canada.

---

What do Ted Koppel, Lorne Green and Keith Thomas have in common? No — not bad hairpieces — as far as I know. The correct answer? They're all Canadians. Despite the awful hairpiece, Ted has captured the attention of this nation with his insightful interviews, Lorne's legacy speaks for itself, and now Keith has proven to be one of the true masters of the art of sampling. I don't know what they're doing up there, but our neighbors up north must be doing something right.

If you missed my first review of Keith's sounds (TH, Issue #65), let me give you a little background. When developing sounds for the EPS, Keith's objective is to imitate acoustic instruments with as much realism as possible. To accomplish this he does some major multi-sampling — each sample covers only about 3 to 6 notes. The drawback to this method is that all of these samples require a lot of memory. If you're performing live, this may not be acceptable. If, however, you're working in a multi-track studio, filling your EPS's memory with only one or two sounds at a time is no problem.

Let me preface this review with a bit of an explanation. One of the most crucial (and difficult) tasks of multi-sampling is getting the various samples to match. The ultimate goal is to get the samples to match so closely that you can't hear the difference between them as you play across the keyboard. Unfortunately, this is nearly impossible; if I've ever heard samples that are matched perfectly, I certainly don't remember when. In the following review I'm going to point out some cases where samples don't match as closely as they might, but keep in mind that this is a *very* minor point... these are still the best imitations of acoustic instruments I've heard.

At 3887 blocks (requiring 3 disks), String Quartet (which is actually a combination of Keith's violin, viola and cello sounds) is the largest sound I've ever loaded into my EPS. Now I have a 4X expander and, with this sound loaded, I'm left with only 204 free blocks. This instrument is multi-sampled to the max — I counted 30 samples in all. To my ears, some of the lower samples aren't matched as closely as they could be. This sound has been programmed so that pressure controls volume, which comes in handy when you want to bring out various melody lines in your quartet.

String Orchestra (2803 blocks) is probably the best bowed string sample I have ever heard — rich and full of character. All of the string samples I have for the EPS tend to lose their authenticity when I start playing those sixteenth note runs and glissandos — excuse me — glissandi with the violins. Not so here...this sound behaves like real strings. The attack makes it less than ideal for passages which call for that lush, slow string feel, but envelopes can help adjust the attack if that's what you need.

Violin Staccato Pizzicato is not your usual quiet Wile-E.-Coyote Sneaking-Up-on-the-RoadRunner-type pizzicato — this is a very

sharp, percussive plucked sound. The patch variations provide some interesting effects.

When I first played the Cello (2231 blocks) I was a bit disappointed — some of the samples didn't seem to match very well and the vibrato was too fast for my taste (in fact I found it rather annoying). However, on listening to Keith's demo tape, I changed my mind. In context it sounds just as authentic as his other instruments.

String Hell and Rising Strings are for special effects-type situations. String Hell is a sort of descending string sound that gives one the impression of absolute mayhem. Rising Strings is, of course, an ascending string sound. Unlike Keith's other sounds, these two seem to have been sampled with a little bit of reverb. Make sure there are no little kids in the room when you listen to the demo sequence that accompanies the String Hell sounds — it'll give them nightmares. RC030821

English Horn weighs in at 1736 blocks. This sound was recorded with a more subdued vibrato. Not much to say except that it sounds like the real thing.

Several of these instruments have patches that provide subtle variations — slightly varying bowing techniques, richer or brighter tonal qualities, etc. These provide you with the tools needed for adding those little nuances for even more realism.

These sounds deserve to be, and are, more expensive than other sounds on the market (the Cello alone is \$25). As I stated in my first review, I suggest you start by purchasing Keith's demo package (demo tape and disk) for \$12. The tape will help you select the sounds you want and it should also help convince you that his sounds are the real thing.

And now, for something extra. When I owned a Mirage I liked the fact that just about every disk I purchased had a demo sequence. It saddens me that this seems to be a dying art with the EPS. As I stated earlier, I wasn't especially thrilled with Keith's Cello until I heard him play the sound on his demo tape. In addition, the demo sequence that accompanies Violin Staccato Pizzicato gave me an entirely new perspective on the uses of the patch variations for that sound.

Those of you who sell third-party sounds really ought to consider taking a little extra time to put together sequences for your sounds. This extra touch really can show off the sounds and can also help the customer get a better idea of what the developer has in mind for that sound.

And finally, the sequences are just plain fun. I really liked loading the Nylon String Guitar into my Mirage, playing the sequence and hearing that guitarist tune up before starting the song. ■

*Bio: Bryce Inman is a free-lance music editor and arranger for Word, Inc. in Irving, TX. Although he has decided to make Texas his permanent home, he refuses to say "y'all" or "fixin'."*

# I've got a THING for the EPS!

(and you can have one, too)

Tim Martin

Or — How to Make Changes to an EPS OS Disk That Will Allow You to View and Change Any Byte in the EPS Operating System RAM!

These changes will only work with EPS OS v2.20 since the location of data and routines varies with each version. Don't use your only OS 2.20 disk because we will be performing "micro" surgery here. Make a copy!

While you don't need to be a brain surgeon you do need access to a computer. Although I used an ATARI ST, you should be able to perform these modifications with other computers that use "720k" or "800k" double sided, double density, 3.5 inch floppy disks and a "disk editor" (Like an IBM PC and Norton Utilities).

## But first - a few things about EPS disks

EPS disks are formatted on 2 sides (\$00 and \$01) for 80 tracks (\$00 thru \$4f) with 10 sectors per track (\$00 thru \$09). Each sector is 512 bytes long (\$0000 thru \$01ff). EPS's DOS (Disk Operating System) uses the first 15 sectors - starting on side \$00, track \$00, sector \$00 - for File Allocation Tables and Directories. These continue up to side \$01, track \$00, sector \$04.

If EPSOS is on the disk, it occupies the following areas:

BLOCK name	EPSOS side	DISK track	DISK sector	EPS ADDRESS start	EPS ADDRESS end
Var0	\$01	\$00	\$05	\$000000	\$0001ff
LoRam	\$01	\$00	\$06	\$002200	.....
	\$00	\$03	\$02	.....	\$007fff
HiRam	\$00	\$03	\$03	\$ff8000	.....
	\$01	\$05	\$00	.....	\$ffdfff
Olay0	\$01	\$05	\$01	\$ffe000	.....
	\$00	\$06	\$06	.....	\$fffff
Olay1	\$00	\$06	\$07	\$ffe000	.....
	\$00	\$07	\$02	.....	\$fffff
Olay2	\$00	\$07	\$03	\$ffe000	.....
	\$01	\$07	\$08	.....	\$fffff
Olay3	\$01	\$07	\$09	\$ffe000	.....
	\$01	\$08	\$04	.....	\$fffff
Var1	\$01	\$08	\$05	\$001600	.....
	\$00	\$09	\$00	.....	\$0021ff
Var2	\$00	\$09	\$01	\$000200	\$0003ff

The EPS has 64k of OS RAM. The addressing scheme puts the first 32k of RAM at \$00000000 thru \$00007fff and the second 32k at \$ffff8000 thru \$ffffff. Although it may seem confusing,

the discontinuity allows the M68000 microprocessor to use word length addressing with sign extension making for smaller code.

The 4 areas called Olay0 thru Olay3 are overlays. They are 8k blocks that are loaded in OS RAM at \$ffe000 thru \$ffffff. The overlays contain code and variables for various commands.

We're going to make some changes to Olay2 that replace the "LOAD MIRAGE-DSK SOUND" command with...the THING!

## Do the wild THING

First we need to fire up the computer. The program I use for disk editing is called MONST. It's actually a machine language Monitor/Debugger but it has a nice little sector editor as well. Most sector editors allow you to specify an absolute disk address to edit. This address will consist of side, track and sector along with an offset into the sector for a particular byte. RC030821

We need to make changes in a block of data that is associated with the "LOAD MIRAGE-DSK SOUND" command. This block starts at \$ffc15e in EPSOS v2.20 and the sector that contains the block loads at \$ffc000, so we'll need an offset of \$015e. Using a COPY of EPSOS v2.20, read side \$01, track \$04, sector \$05 into the disk editor sector buffer. Make the following changes at the offsets indicated and then write the changes back to the disk.

offset	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
\$0150	..	.	.	.	.	.	.	.	.	.	.	.	.	.	.	ED B2
\$0160	ED	B6	ED	B2	00	00	ED	AC	0B	60	A2	00	.	.	.	.

Next, read side \$00, track \$07, sector \$09 into the disk buffer. The actual EPS load address for this sector is \$ffec00. The changes we want to make start at \$ffedac so we need an offset of \$01ac. Make the following changes at the offsets indicated and then write this sector back to disk.

offset	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
\$01a0	..	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4E F9 FF FF
\$01b0	ED	D6	ED	B8	ED	C0	ED	C8	A0	00	00	FF	ED	CC	ED	D0
\$01c0	E0	00	00	FF	ED	CD	ED	D2	C0	00	00	FF	FF	FF	ED	D4
\$01d0	20	00	20	00	00	00	95	CA	B0	40	4E	75	.	.	.	.

These changes install a replacement data block for the parameter editor. The changes also replace the code for doing Mirage sound conversion with a routine that doesn't do anything.

The changes look like this in M68000 assembly language:

```

;*****
;THING220.ASM - Tim Martin 10/16/90
;provides byte monitor in EPSOS v2.20
;*****

```

```

;equates
CmdBlk equ    $ffc15e
HackTop equ   $ffedac

;changes to command block in HiRam
org    CmdBlk
dc.w   PEdblk0 ;first editor control block
dc.w   PEdblk2 ;last editor control block
dc.w   PEdblk0 ;next editor control block
dc.w   $0000   ;no initialization routine
dc.w   VecThin ;entry to body of command
dc.w   $0b60   ;points to text string "THING" in ROM
dc.w   $a200   ;overlay info

;changes to Olay2
org    HackTop
VecThin jmp    Thing
;replacement editor control block ptrs
PEdblk0 dc.w   EdBlk0
PEdblk1 dc.w   EdBlk1
PEdblk2 dc.w   EdBlk2
;replacement editor control blocks
EdBlk0 dc.w   $A000 ;attributes and type
dc.w   $00ff ;lo/hi limits for edit
dc.w   MonByH1 ;byte to edit
dc.w   String0 ;text string that precedes edit field
EdBlk1 dc.w   $E000 ;attributes and type
dc.w   $00ff ;lo/hi limits for edit
dc.w   MonByLo ;byte to edit
dc.w   String1 ;text string that precedes edit field
EdBlk2 dc.w   $C000 ;attributes and type
dc.w   $00ff ;lo/hi limits for edit
MonByH1 dc.b   $ff ;byte to edit
MonByLo dc.b   $ff
dc.w   String2 ;text string that precedes edit field
;text strings
String0 dc.b   $20 ;space
dc.b   $00 ;text string terminator
String1 dc.b   $20 ;space
dc.b   $00 ;text string terminator
String2 dc.b   $00 ;null entry
;command routine
Thing suba.l a2,a2
cmp.w d0,d0
rts
end

```

That's it. Now take your edited disk over to the unsuspecting EPS and BOOT UP!

## It's your THING!

When you press <COMMAND> and then <SYSTEM> you should see the new prompt "THING". Pressing <ENTER\*YES> at this prompt will take you to the byte monitor. It should look like this:

```

255 255=0
| | |
| | | +-- data value ($00) at address
| | | +----- address lo byte ($ff)
+----- address hi byte ($ff)

```

The cursor should be under the first field on the left.

The display is showing that the last byte of OS RAM (\$fff) has a value of \$00. This location isn't used by the overlay, so you can safely edit it without boogering up the system. Press <RIGHT ARROW> twice to position the cursor under the data value field. Now use <UP ARROW>, <DOWN ARROW> or the

"data slider" to increment or decrement the selected field. To change the address that is viewed in the data value field just cursor over to the "address lo byte" field using the <LEFT ARROW> button and increment or decrement the address. Anytime you cursor left or right, the data value field will be updated and will display the current value at the current address.

If you press <ENTER\*YES> again, the command THING will be executed. In this particular example, nothing occurs except an error free return to the OS. With a little imagination you can see that using the THING, you can write your own programs and jump to them. Tedious perhaps, but possible!

## THINGS to THINGk about

- Since the THING exists in overlay space, it can get clobbered by selecting any command that needs to use the overlay area.
- It's pretty easy to crash the OS! To insure that nothing will happen to your precious disks, remove them from the drive when messing with the THING.
- The changes made in RAM can't be written back to disk.
- There is no access to the ROM, Sound RAM, or system hardware. RC030821
- If you boot up with the modified THING disk, don't substitute a normal OS v2.20 disk when you see "LOAD OS DISK-HIT ENTER".

The power of being able to view and change any byte in OS RAM should make up for any shortcomings or inconvenience. Get a hexadecimal to decimal conversion table!

Here are some selected points of interest in v2.20:

ADDRESS	DESCRIPTION
0	0
128	0
129	120
133	206
224	0
225	94
237	172
237	220
243	218

If you would like a copy of the THING but don't have a computer, send me a COPY of EPSOS (not the original distribution disk), a stamped self-addressed return mailer and \$15.00 to: SoftHeadWare, 1510 S 5th W, Missoula, MT 59801. ■

*Bio: Tim Martin wrote MIDIcaster for the Mirage and Midterm for the C-64. He's been poking around in the EPS for a while and would enjoy communicating with other EPS hackers.*

# Using Wind Controllers with Ensoniq Keyboards

Brian Rost

Although the keyboard is clearly the most common controller used with synthesizers today, this was not always the case. In fact, the first synthesizers had no keyboards at all. With the development of MIDI, musicians have gained a wide range of controller options, including percussion controller, guitar controllers and wind controllers.

The expressiveness of wind instruments makes the concept of wind controllers alluring, yet many musicians are disappointed when they try one out. The problem lies not in the controller itself, but in the sound in the synth or sampler that's being used. These sounds have been optimized for playing from a keyboard, so they seldom take advantage of the performance control possible from a wind controller. In this article, we will see how you can modify your patches to get the most out of your wind controller. The techniques in this article can be applied to all Ensoniq instruments except the Mirage. However, the patch examples given will be for the ESQ-1 and SQ-80.

The market for wind controllers ranges from the Akai/Steiner units, selling for well over a thousand dollars, through the Yamaha WX series in the high hundreds, down to the Casio DH-100 and DH-200, which can be found for as little as fifty dollars. Obviously over such a wide price range, the features of the different models on the market vary widely. However, they do have a number of things in common.

First, all detect breath pressure and use this in conjunction with depressing keys to trigger note on and note off messages. Breath pressure also is used to send out continuous control data during the duration of the note. The Casio units send this as channel pressure (aftertouch) only, while the Akai and Yamaha units give you the option of selecting controller #2 (breath) or #7 (MIDI volume) as an alternative. Luckily, all Ensoniq instruments except the Mirage respond to all three of these controllers, giving you flexibility in how you choose to control your sounds. In addition, with the exception of the earliest Steiner units, wind controllers transmit note-on velocity (based on breath pressure again). Program changes can be sent, allowing the player to change patches in live situations, even in mid-song, and portamento on/off (controller #65) is also supported. Finally, wind controllers are essentially capable of generating only one note at a time (although both Yamaha and Steiner have programmable "chord hold" features that let you generate predefined intervals from a single played note).

OK, let's look into modifying some patches. First, we'll modify a wind instrument patch. I've chosen 3TRUMS, which is one of the factory patches shipped with the ESQ-1. I have converted the patch to WTRUMS, a patch which retains the overall timbre of the original but adds control of the amplitude and brightness of the sound by breath pressure. Notice that the three DCAs in the original patch are not modulated by an envelope. The overall envelope of the original patch comes from DCA4 and ENV4,

which I left untouched. The level of the other DCAs is set to zero, then PRESS is used as a modulator. On the filter, ENV1 and LFO1 are used to provide the classic brass timbre. We dispense with the LFO in order to add PRESS as a modulator. The mod depth of ENV1 is lowered, so that at high levels of pressure, the sound doesn't become overly bright. RC030821

ESQ-1 PROG: WTRUMS										BY: Brian Rost		
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH				
OSC 1	0	0	0	PULSE	ENV2	-2	LFO3	+1				
OSC 2	0	0	1	PULSE	ENV2	-1	LFO3	+1				
OSC 3	0	0	2	PULSE	LFO1	+4	LFO3	+1				
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH						
DCA 1	24	ON	PRESS	+63	OFF	-						
DCA 2	24	ON	PRESS	+63	OFF	-						
DCA 3	24	ON	PRESS	+63	OFF	-						
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH					
FILTER	26	2	31	PRESS	+9	ENV1	+42					
	FINAL VOL	PAN	PAN MOD	DEPTH								
DCA 4	63	8	OFF	-								
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD				
LFO 1	63	ON	OFF	TRI	0	63	0	ENV3				
LFO 2	0	ON	OFF	SQR	51	44	0	OFF				
LFO 3	22	OFF	ON	TRI	0	5	25	PEDAL				
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK		
ENV 1	63	63	54	63	0	15	0	26	9	0		
ENV 2	27	0	0	0	0	0	17	0	63	15		
ENV 3	63	0	0	0	0	0	15	0	27	0		
ENV 4	63	63	63	40	30	17	0	0	11	0		
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC				
MODES	OFF	OFF	OFF	0	OFF	ON	OFF	OFF				
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY					
	OFF	-	OFF	-	OFF	-	-					

When played from the keyboard, WTRUMS sounds pretty strange and not much like 3TRUMS at all. Hook up a wind controller, though, and now you have an electronic trumpet sound that faithfully tracks your breath pressure; it gets louder and brighter as you blow harder, and responds to tonguing as well. In general then, to make a patch respond like a wind instrument, replace the DCA envelopes as a modulator with PRESS.

Now let's look at some other applications of breath pressure that go beyond using it to provide envelopes. For instance, take LEGEND, a flute-like patch for the SQ-80 that Kirk Slinkard submitted in the May, 1990 Hackerpatch column. This patch uses the pedal to mix a chiff sound in over the base of the patch. Simply setting the modulator for DCA3 from PEDAL to PRESS makes the chiff now respond to how hard you blow your wind controller. ZTRING is another of Kirk's SQ-80 patches, appearing in the July, 1990 Hackerpatch. This patch uses the pedal to control a filter sweep, so substitute PRESS for PEDAL as the second filter modulator, and now the filter will track your blow-

ing. In general, anytime either PEDAL or WHEEL is being used as a modulator, PRESS may be substituted. Since both hands will be on the wind controller, if you need a second real time modulator, choose PEDAL, since it'll be almost impossible to manipulate the mod wheel.

Finally, let's take a look at portamento (or slurs). On Ensoniq machines, this is called glide. Portamento allows for smooth legato phrasing of notes, something which is commonly used in playing wind instruments. It is certainly desirable to be able to have portamento control in a wind controller. Unfortunately, the ESQ-1 and SQ-80 do not support any way of turning glide on and off while playing (it is fixed based on the setting of GLIDE in the MODES page of each patch). The EPS, VFX and SQ-1 do allow turning glide on and off by using the sustain pedal (this is covered in their manuals). None of the Ensoniq machines can map portamento on/off (controller #65) directly to the glide feature. I would suggest that EPS, VFX and SQ-1 owners simply use the sustain pedal as a portamento switch. It's as convenient as using a switch on the wind controller, and produces the desired effect. For ESQ-1 and SQ-80 owners, a more roundabout scheme must be employed.

I've started with the factory ESQ-1 patch MINI M, and modified it as shown into MINI2M, which is then layered with a patch called MINI3M. MINI3M is the same as MINI2M, except that LEVEL is 0 for all DCAs, ENV2 depth for DCA3 is 0 (or set the modulator to OFF), the depth of XCTRL for all DCAs is set to +63 instead of -63 and GLIDE is set to 6. While layering can be expensive in terms of using up voices, notice that both patches have MONO=ON, so at any given time, only two voices will be used. To make the patch work, go to the MIDI page and set

XCTRL to 65.

In the original patch, DCA1 and DCA2 had LEVEL set to 63, while DCA3 had LEVEL set to 0. DCA1 and DCA2 had no modulators, while DCA3 was modulated solely by ENV2, with a depth of 63. XCTRL is used as a modulator for all three DCAs at a depth of -63 for MINI2M and at a depth of 63 for MINI3M. What happens when you play is this: Normally, the portamento key is off, the value of CC #65 is 0, and MINI3M is essentially muted. When the portamento key is on, CC #65 has a value of 127, so MINI2M is muted and MINI3M sounds. We are effectively switching between the two patches in the layer based on the value of CC #65. If you try this and listen closely, you will notice that depressing or releasing the portamento key while sustaining a note causes a slight glitch. To use this effectively, you need to develop the technique of switching portamento on and off between notes in order to get a seamless sound. Once you get used to this, you can smoothly go from staccato to legato phrasing as easily as you would on an actual wind instrument.

A wind controller can be a valuable addition to your synthesist's bag of tricks, adding a new range of creative expression. I've found it useful for everything from playing smoothly swelling pads to loading drum licks into a sequencer (I can "toot" drum fills easier than playing them on a keyboard). The Ensoniq keyboards with their flexible modulation routings are naturals for use with wind controllers and by using the techniques I've described above, you can easily modify your favorite patches to maximize the potential of playing them from a wind controller. Whether using the wind controller for live performance or just for entering sequences, it can be a highly expressive tool to help put new life into your music. Now let's blow! ■ RC030821

ESQ-1 PROG: MINI2M										BY: Brian Rost	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	0	SAW	LFO1	+5	LFO1	0			
OSC 2	0	0	3	SAW	LFO1	+5	LFO1	0			
OSC 3	0	0	5	SAW	LFO1	+5	LFO1	0			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	63	ON	ENV2	0	XCTRL	-63					
DCA 2	63	ON	ENV2	0	XCTRL	-63					
DCA 3	0	ON	ENV2	+63	XCTRL	-63					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	15	3	30	ENV3	48	PRESS	63				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	LFO2	63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	26	ON	OFF	TRI	0	1	0	PEDAL			
LFO 2	11	ON	OFF	TRI	0	0	0	PRESS			
LFO 3	16	OFF	OFF	NOI	0	1	20	OFF			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	63	8	20	0	0	0	50	63	20	9	
ENV 2	63	50	45	0	0	0	50	63	20	9	
ENV 3	63	34	22	8	0	0	25	63	20	9	
ENV 4	63	63	63	0	0	1	63	63	6	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	ON	0	ON	OFF	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT	KEY			
	OFF	-	ON	MINI3M	OFF	-	-				

ESQ-1 PROG: MINI3M										BY: Brian Rost	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	0	SAW	LFO1	+5	LFO1	0			
OSC 2	0	0	3	SAW	LFO1	+5	LFO1	0			
OSC 3	0	0	5	SAW	LFO1	+5	LFO1	0			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	0	ON	ENV2	0	XCTRL	+63					
DCA 2	0	ON	ENV2	0	XCTRL	+63					
DCA 3	0	ON	ENV2	0	XCTRL	+63					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	15	3	30	ENV3	48	PRESS	63				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	LFO2	63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	26	ON	OFF	TRI	0	1	0	PEDAL			
LFO 2	11	ON	OFF	TRI	0	0	0	PRESS			
LFO 3	16	OFF	OFF	NOI	0	1	20	OFF			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	63	8	20	0	0	0	50	63	20	9	
ENV 2	63	50	45	0	0	0	50	63	20	9	
ENV 3	63	34	22	8	0	0	25	63	20	9	
ENV 4	63	63	63	0	0	1	63	63	6	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	ON	6	ON	OFF	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT	KEY			
	OFF	-	OFF	-	OFF	-	-				

# Shareware and Public Domain Stuff from Florida

Brett McCarron

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For: ESQ-1, ESQ-M, SQ-80 (Disks PATE, 01-04), ESQBANK (versions 1 and 2).

Product: Sound patch collection.

From: Music Software Exchange, P.O. Box 533334, Orlando, FL 32853.

Price: Single disk for \$6 to 20 or more disks, \$3 each.

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A small classified ad caught my eye as I was scanning a copy of one of those keyboard-related magazines. The ad mentioned "public domain" software priced "from \$4 per disk." Since \$4.00 for a disk full of software is better than running up a large phone bill to download stuff from a faraway BBS, I decided to order a catalog. I was pleasantly surprised to receive it via priority mail only two days after I placed the call.

The Music Software Exchange (MSE) is a shareware and public domain copying service that searches for, tests and sells software for the IBM, Atari ST and Commodore-64/128. Their ads have appeared in TH, Keyboard, Electronic Musician, and other magazines. MSE's catalog-on-a-disk listed several supported synths and manufacturers, including Ensoniq (Mirage, ESQ, VFX); Yamaha (most); Roland (most); Casio (CZ/FZ series); Kawai; Korg; and the classic MiniMoog. Pricing for the diskettes are very reasonable, from \$6 for one to \$3 for 20 or more disks ordered at one time. Since these prices include shipping and handling, I found it easy to highlight 21 possibilities and ordered one of each. The disks arrived via priority mail in less than a week.

Then the fun started. Of the 21 disks received, four are covered in this review. The patches I wanted to hear through my ESQ-1 used version 1.0 of the shareware program ESQBANK written by Babul Mukherjee (C and M Research Group, 302 Ridgehaven, San Antonio, TX 78209. BBS # 512-826-0659) to load the patch data. MSE provided a copy of ESQBANK on the disks. Unfortunately for me, the program required a plain vanilla MPU-401 or compatible interface looking at IRQ2 and I/O ADDRESS 330h. Since my Tandy 4000's SCSI host adapter used that I/O address (and the T4000 BIOS ROM is hardcoded to look only at 330h for a SCSI adapter card), my PC hung whenever I tried to invoke the program.

Luckily, I had also ordered the Ensoniq ESQ/SQ80 utilities diskette (ENSU,01), which contained version 2.00 of ESQBANK. This update allows the user to specify the IRQ and I/O address, which in my case was IRQ5, I/O 300h. The program loaded fine and looked professional. Only problem was, the patches I received on the four separate ESQ disks were in the old (version 1) ESQBANK format and weren't accepted by the new program.

There's a lesson here for SCSI owners and others who set the jumpers on their MIDI cards to other than the MPU-401 defaults: beware! I had the same problem when shopping for a

sequencer. Prism, Texture, and The Music Studio 3.0 all assumed IRQ2, I/O 330h. After numerous calls (and a healthy long distance bill to boot), MusicQuest recommended Cake-walk as one of the only software titles around that allowed nonstandard IRQ and I/O settings. Twelve Tone Systems confirmed this, so I bought it and have no complaints. Software developers, are you listening?

So I replaced the two 40MB SCSI drives and host adapter card with a pair of 52MB IDE drives and paddle board (hard drive controller) for my T4000. Next, I changed the jumpers on the MusicQuest MIDI card back to the MPU-401 default settings, and fired up the original (version 1) ESQBANK program again. It worked ... and worked GREAT!

ESQBANK allows you to send/retrieve patch or sequence data to/from the ESQ-1 and your MIDI device. In order for these to work, however, set the ESQ MIDI mode to enable KEYS+CT+PC+SS+SX. From there, you're home free. The patch exchanges are almost instantaneous (at least on my 386 machine) and take up very little disk space. RC030821

One slight bone of contention: Neither version of ESQBANK offers a "point and shoot" type of interface, where you are shown the available files, then given the opportunity to highlight or double-click with a mouse to load a particular file or patch. I found a quick 'n dirty way to overcome this shortcoming. Obtain a copy of the shareware utility FileTag, available on your friendly neighborhood BBS (FTAG10.ZIP or FTAG30.ZIP). Write a batch file to load FileTag as a TSR, invoke the DOS DIRectory command, "point and shoot" the patch library files you'll want to use later, then load ESQBANK. When ESQBANK asks for a file name, press the FileTag hot key combination and viola! The file name is instantly sent to ESQBANK.

All in all, I loaded and tried out 56 banks of 40 patches each, for a total of 2,240 sounds! Of that number, at least a dozen were saved onto my trusty Voice Crystal E2PROM cartridge for instant recall. A few dozen other prime candidates were noted for later retrieval or special purposes. Here's a look at a few of the sounds that caught my ear (arranged in order by MSE disk title, ESQBANK patch file (DOS file name) and individual patch:

## DISK PATE,01

### ESQ-001.MDX

ANAPIZ - TV theme type brass pad

EPPAD1 - Rhodes-y. Nice on bass. Distorts when hit hard

ORGBEL - Organ like VanHalen remake of "California Girls" with

bell high end

70\*PAD - Horn w/plucked string layer

### ESQ-003.MDX

SYNBAS - Funky, deep analog synth bass like my JX-3P

SNSTR2 - Nice strings

**ESQ-004.MDX**  
TRMSTR – Lush strings (whashat you shaid, oshifer?)  
RLBRS2 – Very nice horns, no swell

**ESQ-006.MDX**  
PIANO3 – Acoustic type piano, cuts through  
FULSTR – Another lush strings patch

**ESQ-010.MDX**  
– All organ, all good. Lots of usable stuff here.

**ESQ-013.MDX**  
ORGSYN – Velocity-sensitive organ

**DISK PATE,02**

**ESQ-015.MDX**  
JPWLK – Nice synth bass with percussion  
PIANO7 – Nice

**ESQ-016.MDX**  
PIAN10 – Ditto

**ESQ-017.MDX**  
– Many pianos – all good

**ESQ-020.MDX**  
GLAZER – Styx-like lead synth

**ESQ-021.MDX**  
– Many analog synth sounds

**DISK PATE,03**

**ESQ-029.MDX**  
DGIBEL – Very bright bells. Suggest lowering DCA's  
TOMMY – Reminiscent of my old Arp Pro Soloist  
EASY – Piano-like strings  
PEWS – Church organ or CA Girls

**ESQ-031.MDX**  
PNOSMP – Cool piano with a medium fast decay  
KEITH – Reverby Moog sound, poly, with portamento

**ESQ-032.MDX**  
ENSIGN – Phasey bass, like Peter Schilling's "Major Tom"  
JOVI – Like Bon Jovi's "Living On A Prayer" talkbox  
BELLPD – Well, well. A crispy xylo-Rhodes. D50-ish

**ESQ-035.MDX**  
ELP3 – D50-type lead strings with portamento  
HALLS – Lead flute

**ESQ-038.MDX**  
FEELNG – Movie soundtrack style strings

**ESQ-039.MDX**  
DX-7 – Almost a DX-7 bell piano with strings  
SLAPBS – Standup bass so fresh you'll want to slap it!  
DXBASS – Very close to a stock DX-7. Nice bass  
PRKBAS – Name infers perc bass, actually a bell piano  
GIBSON – Not like my 3PU LP Custom, but a close lead guitar  
STEVIE – Wonder of wonders, it's Stevie's mouth harp  
EMUDRM – Not a drum patch, really nice phase-less strings

**ESQ-040.MDX**  
MINI.M – MiniMoog like Winwood's "If You See A Chance"  
BL PNO – Rhodes meets DX meets B3. Incredible sound  
PRO.TH – Prophet type lead analog. Nice chords, too.  
DX-ANA – Like Toto's "Joanna"  
RESPRO – Touch sensitive envelope piano/organ. Sounds kinda like SuperTramp's "Bloody Well Right"

**ESQ-042.MDX**  
KRNSEX – Sexy horn section  
SAPRNO – Breathly D50 lead sound

**DISK PATE,04**

**ESQ-043.MDX**  
BRTPNO – Nice dry, low volume acoustic piano  
HONKY+ – Fairly dry, low vol saloon-type upright piano  
ANALOG – Exact replica of JX-3P analog brass  
BEAUTY – Rhodes like Doors' "Riders On The Storm"  
SINES – Ethereal, fluty. Like CZ-101 "FAIRY" patch

**ESQ-044.MDX**  
MELSAX – Mellow sax, makes great bass lines, too  
RUFSAK – Throaty, raspy. This honks! Very nice low end. Mono  
ROB – Sax w/hint of snare & bass  
RORGAN – Like my old Hammond A series lower manual.  
RORGNP – Velo-sensitive B3 with hint of perc drawbars  
ORGN8V – B3 w/even drawbars like Skynyrd's "Free Bird"

**ESQ-045.MDX**  
MIAMIW – Strings for backgrounds like on "Miami Vice"

ABACAB – You guessed it. Bassy w/5th like Genesis song  
MADONA – Nice medium bright strings w/natural phasing

**ESQ-046.MDX**  
– Pianos, incl. acoustic grands and FM types

**ESQ-048.MDX**  
BASS6 – Electric bass, more of a Precision than Jazz  
S.TREK – Passable Star Trek intro patch  
ENSBL3 – Usable string ensemble

**BOB.MDX**  
MCROAD – Good middle of the

Rhodes  
DXSLAP – Metal slap bass w/hint of tine & reverb. More D50 than DX.

**CARTB.MDX**  
OCTSLD – Mono analog like "Lucky Man" or old Davolisynt  
TONY M – Dark, laid-back, slight swell. Moody  
TRUMPS – Unlike "The Donald," these sound rich. Louder than most 3 trumpet patches  
PIAPED – Great piano. Not too bright. Phasey. Low volume  
BASS10 – Plucked electric bass

There you have it. The results of listening and experimenting with over 2,000 patches. I'm very satisfied with the selection, service and quality of the disks I received from MSE and can't recommend them highly enough. The total price for the four ESQ patch diskettes would come to \$20 including postage, if that was all a person wanted to order (specify disk format when ordering). Certainly a reasonable price considering the vast selection of sounds to choose from. RC030821

For those ESQ owners who don't have MIDI, MSE also offers their Ensoniq compilation of 1600 patches (see review in TH, Issue 55) which includes spiral-bound book and your choice of tape cassettes or computer disks. Call or write for a copy of their catalog and see how easy it is to expand your musical horizons.

Don't forget that many of the files on these and other disk collections are shareware. The author of the program or patch derives no payment or royalty benefit from MSE, as the burden is upon the user to register the program directly with the author and copyright owner. As the author of several shareware (non-musical) utilities, I can state from experience that your registration and support is greatly appreciated. Since I plan to continue using ESQBANK, I plan to register the program with the author after this article is published. ■

*Bio: Brett McCarron is a former pro lead guitarist/keyboardist, magician, and author of books and magazine articles on magic, gambling, computers, and music. He's now a full-time computer consultant, husband and father. While in no way associated with Rubber Chicken Software, Brett's publicity stunts for his magic act have featured his famous (rubber) chicken since the mid 1980s.*

**CURRENT ENSONIQ O.S.**

EPS	2.49	VFX	2.1
EPS-M	2.49	VFX-SD	2.1
EPS-16 PLUS	1.1	SQ-1	1.01
MASOS	2.0	SQ-R	1.02
MIRAGE	3.2	SQ-1 PLUS	1.1
ESQ	3.5	SQ-2	1.2
ESQ-M	1.2	SD-1	3.00
SQ-80	1.8		

# Review: VFX Patches from Yaroslav Kotkowski

Sam S. Mims

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Product: 60-voice program banks.  
For: VFX, VFX-sd, SD-1.  
Price: \$25 per bank, \$90 for four banks. RC030821  
From: Yaroslav Kotkowski, 1014 45th Street, Suite 3-C, Brooklyn, NY 11219, (718) 436-1299.

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## Bank #1 - Synthesizers

This bank is a collection of various synthesizer sounds, many of which are reminiscent of older analog synths. In addition, there are some Casio-type cheesy sounds and some newer digital-type sounds. Many of the analog patches are based on sawtooth waves, and Kotkowski does a good job of capturing some of the timbres and flavors of these older keyboards.

But not all the sounds are from generations gone by. There are several unique patches here; ELECTRDISCO was one of my favorites and it shows off how large a sound the VFX can have.

In general, though, I felt like this bank of sounds was a good start, but was never quite finished up as far as program tweaking goes. SYNTH-HORNS, for instance, is a nice punchy sawtooth patch, but both voices are panned to the right of center, rather than being spread evenly across the stereo field. The main component of PRESS PAD is tuned slightly more than a half step below pitch; that doesn't blend very well with the other voice! On numerous patches, the mod wheel does nothing, the aftertouch has no effect, and sometimes velocity is not even used to alter any aspect of the sound. And I never found the CV pedal used for anything. Now, a Minimoog does not respond to velocity or aftertouch, so should a VFX Minimoog patch use these? I think so. That's the advantage of today's technology — the sound of the classic synth can be combined with the expressive capabilities of the VFX. If nothing else, use the non-velocity, non-aftertouch version as a patch select.

This brings up another complaint about this bank and about the entire Kotkowski collection: the patch selects sometimes do nothing, or they frequently bring in a sound that is completely out of character. For example, on the SQU-SYNTH patch, a square wave and sawtooth wave analog sound, one of the patch selects is a chuffy flute. Why not have another variation of the basic analog sound? The same flute patch select turned up in the SQUARE sound as well; this was only one of many instances of recurring patch selects.

There are some good sounds here, as well as some that I didn't care for. Others are much too similar to factory presets; GHOST-VOICE and the factory SPACE-VOICE are too close for comfort, and Kotkowski's SPACE-VOICE is not far behind. In general, if I were to purchase this set, it would be keeping in mind that I had a fair bit of program tweaking ahead of me. There are some good basics here, but I feel like Kotkowski should have worked a bit longer to finish these up.

## Bank #2 — Drums/Bells/Bass

My criticisms with Bank #1 were magnified with this bank. When there are a number of excellent factory drum kits stored in a VFX-sd's permanent ROM memory, why market patches that map a single kick drum across the entire keyboard (only about an octave is usable as a kick drum sound) without velocity sensitivity, where patch selects only call up remnants of some synthesizer patch? This is done numerous times in this bank with cymbals, kicks, snares, toms, different percussion instruments — each taking up an entire patch instead of being grouped together as a complete kit.

Despite the bank title, there's not too much in the way of bells here. There are a few bell-ish sounds, but if I were shopping for bell patches, I'd be disappointed with this selection.

There are a couple of interesting bass patches, but what I found most interesting was the patch ELECTRBASS. It is a very minor tweak of the factory ELEC-BASS; all the patch selects are exactly the same. I not only consider this to be hardly worth paying for, but I question the ethics of it. With the bass sounds in general, instead of giving us a good sound with some variations as patch selects, we get minor variations used as other patches, with meaningless patch selects. Two of these sounds that were nearly identical even had the same name (MOOG BASS). The sixty programs in this bank should be combined into 10 or 15 patches.

## Bank #3 — Piano/Guitar/Brass/Organs

I can't give a very hearty endorsement to the pianos here; it's the same story as before. GRAND PNO is not particularly grand and every patch select, for some reason, gives an electric piano layered with a monophonic resonant synth sound. EL PIANO is disturbingly close to the factory DIGIPIANO-1; why risk your credibility selling a minor modification of a factory preset?

The guitars fared somewhat better. I liked GUITAR 2 quite a bit, which explains why I liked the nearly identical GUITAR 4. And a few of the brass patches were nice. In the organ department, there were some interesting sounds, but it seemed a bit odd that out of some 30 organ patches, only one took advantage of the ROTO-SPEAKER effect.

Some of the patches in this bank are worth buying; most are not.

## Bank #4 — Soundtracks/Effects[sic]/Orchestras

There are some interesting sounds here, though many are effects rather than musical timbres. We are given two copies of



UFO 2 — in case one breaks, I suppose. Even if we lost both copies, \*UFO- substitutes nicely, with identical patch selects. ATMOS, ORGAN ANGEL, and ST PAD are nice pads, and HAMMER ORCH is a great orchestra hit. BELLTRUMPET is neither bell nor trumpet, nor the bell of a trumpet, and CRE-SCENDO never changes in volume — unless you use the volume slider, of course.

This bank has its winners and its losers, but most will never make it into heavy rotation.

In general, I feel that some of Kotkowski's sounds are good starts, but rarely did I find one that I considered to be finished.

I can't help but feel that these patches were done lazily. Besides everything I've already mentioned with the programming, I just don't feel that a set of sounds should be marketed when patch names are misspelled (STELL DRUM instead of STEEL DRUM, V+OLINLINE rather than VIOLINLINE) or misleading (ECHO SAW had no hint of echo anywhere), where file names are needlessly cryptic (the Drums/Bells/Bass bank is given the disk file name B/B/D, even though the VFX allows 11-character names), and so on. If the sounds were good overall, it would be easy to overlook this sort of thing. As it is, however, it merely serves to illustrate that these sound banks aren't yet ready to be on the market. ■ RC030821

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## Setting Up Your EPS Hard Drive

*Rob Feiner*

Most of you know your EPS very well or at least you should. If you already own a hard disk-drive system, congratulations and try to bear with me while I tell our less fortunate hackers the benefits.

Speed is the primary benefit that you get by adding a hard disk system to the EPS. Organization is the other. Gone, for the most part, are dozens of floppies and the difficulty trying to find the right sound for your composition. Gained is the instant access to your own library of sounds and instruments and the ability to call-up and audition sounds at lightning speed. Sounds will load into the EPS in only a few seconds.

By all means, get yourself a rackmounted hard disk system. They are less likely to fall and get bumped during operation. While a hard disk drive is spinning, the read/write heads float microns above a disk platter spinning around 3500 RPM. If the drive is bumped, or worse, falls, the risk of permanent and irreparable damage to the delicate disk platters is a great possibility. Before you buy, do your homework. Ask questions. If the person on the other end of a phone order center is difficult to deal with or obviously uninformed, give up. Chances are you won't want to hassle with them down the road if a problem does occur.

Once you get your new drive, you'll need to format it just like the floppies you use. After the format procedure, copy the O.S. to the drive and continue with Ensoniq's directory structure. This will lay down the fundamental structure that you'll use to customize a directory for your own purposes. Directories are very important to the overall organization of your drive. The ROOT directory is the main and uppermost directory in the structure of a drive. Think of a hard disk system as a huge bank of filing cabinets welded together. As you then create new directories, think of them as drawers in this filing cabinet and, in each drawer, files are placed.

In this case the files aren't made up of financial or bookkeeping data, they are musical instrument files. Each file (tenor sax or

power drums, whatever) represents one complete file as seen by the EPS. And you need to make sub-directories or sections within particular drawers. For example, one drawer we'll call PERCUSSION. When this directory or drawer is entered, there'll be three sub-directories or sections — ROCK KITS, LATIN KITS and ORCHESTRAL KITS. These sub-directories allow for further classification of instruments and hence, we can get to a particular percussive voice faster and easier. Each sub-directory then, will contain within it only those files of its logical group. I'm gonna put ambient and power drums in ROCK KITS, not in LATIN KITS, right? The next directory we may call BASSES where all of those appropriate files will be placed. But wait!! Don't do it just yet!! Wait till AFTER you have your directory structure complete.

As your classifications become narrower, your filing cabinet or directory tree will get larger. This is a good thing as you can only have a maximum of 38 files in any sub-directory, anyway. After 38 files, you will get a "NO MORE FILES" message from the EPS indicating that you are at your limit.

If you are a piano type person, create a directory called PIANOS. Now, enter that directory and create several more sub-directories within PIANOS. You might have "GRANDS," "ELECTRIC," "RHODES," "SYNTHETIC," etc.

It should be obvious that before you do any saving of sounds, plan your directory structure!! (Fig. 1). The other important thing to remember is: Create your directory structure first in total, THEN begin saving sounds. These simple steps will save you mucho heartache later. And if you follow these simple rules, you will also minimize the fragmenting of your hard disk. (A fragmented hard disk means that files are not stored contiguously. The blocks may be spread out across different areas of the disk making access time very long. There is also an increased possibility of getting a "FILE OPERATION ERROR" message from the EPS. This is a message you never want to see! It means that a portion of the file is corrupt or a portion of the file was not saved properly or the EPS can't find some or all of

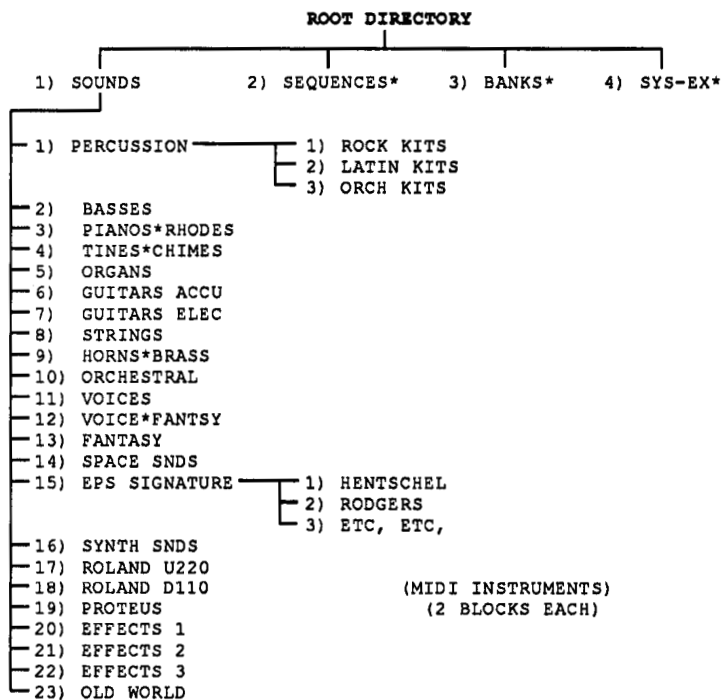
the file. In any event, you're up the creek. This message can also occur if the drive is incorrectly cabled or not terminated properly. Then it will most likely show up during the formatting process. To this date, unlike Norton or Mace Utilities for PCs, Ensoniq has not made an unfragmenting utility that can be used with the EPS. Currently, the only way I know to defrag a disk is to re-format it (erasing all your files). So it's up to you to avoid these problems.

It really can't be over-emphasized how important it is to **SAVE ONLY FINISHED WORK** to the hard disk. If you are in the process of creating a new instrument, keep the saving and resaving on floppies until you're totally satisfied with it. This is primarily the case when doubling data, merging, truncating, and adding layers. Anything that can change the total block size of an instrument carries the potential of creating a noncontiguous file when it is resaved from a previous version. If you want to tweak a sound that is already on the hard disk, maybe work with the panning or filtering or pitch bends, you'll most likely be okay because these operations will not change the block size. The major problem occurs over a period of time with constant resaving of changed instruments as described above. Avoid this.

Remember, you can always add new sounds/instruments to your drive until you reach its total capacity. I use a removable 44-Meg which allows me to continue to archive sounds. I use that in conjunction with a very, very large fixed drive which is my main library. I always recommend buying the biggest drive you can afford, even if you have to sell the cat to do it.

I set up my tracks and load my instruments in the EPS from the library drive and then create my sequences and songs. When I save the work in progress, I change Storage Device to Floppy, and Save Song and all sequences. Then I save the Bank File on the same floppy disk. These files are very small and I can fit 25-30 completed Songs and their associated Banks on to one floppy. I usually title the Song and Bank the same to avoid confusion. The magic comes when you reload the stuff. Since the Bank File is nothing more than a reference file for the EPS, the Bank File (on the floppy) asks, "LOAD SONG?"... you respond "YES." Then, the Bank File tells the EPS to go to the hard disk and load all of the different instruments into the correct track. Lights begin flashing all over the place and within seconds, the entire bank is loaded, solo positions recreated (if they were assigned) and the song has loaded (from the floppy). Just pickup where you left off in the composing process. When you save your changes, just make sure the EPS is "looking" at the floppy drive. It's the same as a standard resaving procedure. The EPS will delete the old version and save the current one.

As you can see, there are some tricks to working with a hard disk system and I find out new things every so often. Creating a Directory Structure with the EPS can be a bit tricky. Remember, before you create sub-directories make absolutely sure you are in the right directory. Check and re-check your finished structure before you start saving instruments. You can add sub-directories later and place instrument files within them if it is necessary, but it is better not to have to delete them down the road. If you think **CONTIGUOUS**, you'll do just fine! ■



Sample Directory Structure of a library disk drive, includes sub-directories for MIDI sound mods, effects, and covers most all categories.

\* These are *optional* and not recommended for a library drive. Use your floppies.

FIG. 1

RC030821

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# Stereo Movement in the EPS

Erech Swanston

Probably one of the best things about a Spielberg movie is that you can enjoy it even with your eyes closed. 10-ton boulders rolling over your head, Aztec tribes chanting circles around you, jet planes roaring by... it's a veritable audio delight. Not only because of the quality of the sound, but the way in which it is used: in stereo. You not only hear the sound, you exist in an environment created by the sound. It is to your left, to your right, above you, below you, and moving around you.

One of my favorite things about the EPS is its awesome stereo capabilities. Some of the amazing things that it can do have been effectively explored in the Ensoniq Holographic Sound Libraries. The techniques discussed in this article will help bring some of the possibilities of stereo movement to the amateur programmer. With just a little data manipulation, you'll be able to effectively create the illusion of movement, bringing your sounds to life.

You'll need your speakers set up in stereo or you won't be able to hear the effect in any of these exercises. If you can't do that, a good pair of headphones will do the trick.

We'll start simple. This effect works well with any sound that has a pronounced or percussive attack that gradually fades out. A snare drum, a crash cymbal, or an orchestra hit will do. The sound KAAAHS from the Ensoniq Signature Series (Claude Gaudette) is an excellent example. Start with one layer, forward, no loop. Copy it, then hard pan one layer left and one right. Now, hit the edit/wave page, and change the direction of the second layer to backwards, no loop. Play a note. If you are in the middle, you should now hear the sound "move" from one speaker to the other. Cute, huh?

Now let's try something a little different. This effect works great with vocal patches or sound effects like birds, sirens, or airplanes, etc. Start with one layer. Copy it and split the pan. Now go to the edit/amp page. Change the envelope of the first layer to ramp down and the envelope of the second layer to ramp up. On both layers, set the attack velocity between 12 and 15. Now, play a note or a chord. You should hear the note "travel" from one speaker to the other. With the attack velocity set you should be able to control how fast the sound travels with key velocity. If you listen closely, you'll hear the pitch dip slightly somewhere in the middle. Although unintentional, this effect duplicates the Doppler Effect where the pitch of a sound seems to change as it passes you.

Now let's try something a little more complex. This time, instead of just having a sound that moves from one side to the other, we'll create an effect where the sound is constantly moving back and forth, swirling around in the stereo field. This effect works with any sustained sound, but especially well with vocal patches or any sound with a natural flange or filter

sweep. Using one layer to start, hit the edit/filter page. Select the F1=2/LP F2=2/HP mode for maximum effect. On the next page, set the F2 cutoff for zero. Skip over the Envelope 2 amount page, and go to the filter modulator page. Set the F1 and F2 modulator for LFO, amount 99. Now go to the edit/amp page and set the modulator for LFO, amount 99. Next, go to the edit/LFO page. Pick a nice smooth waveform, like sinewave, and set the speed for around 15-18. Now set the LFO depth for around 50 (this can go deeper, depending on the sound) and the delay for around 25. What we have created is a sound where the LFO is constantly, albeit slowly, opening and closing the filter. The appearance is that the sound is fading out, then fading back in. Now copy this layer and split the pan. On the second layer, set the LFO speed for 3% less than the first layer, around 12-15. Now play a note or a chord. What you will hear is the LFO opening and closing the filter of both layers, but at slightly different speeds. Instead of a sound that fades in and out, now you have a sound where as one layer is fading in, the other is fading out and vice versa. With the stereo field split, the illusion will be that the sound is actually "moving" back and forth in space. For variances on this effect, try setting the pitch of one layer in fifths, or change the depths and speeds of the wave.

There are lots of unexplored possibilities with this type of effect and there's no doubt you hackers will experiment with (and improve on) these simple formulas. The time I've spent designing sounds has convinced me that, with a little time and imagination, there's almost no effect you can't duplicate with the EPS. ■ RC030821

*Bio: Errech Swanston is both the creative director of Maestro Sounds, a third market EPS sound developer and an up-and-coming songwriter/producer in the NYC area.*

## Tested and Approved Hard Drives for the EPSs

Note: The drives listed below are known to be compatible with the EPS and EPS-16 PLUS at the time of testing. Changes in firmware or hardware by drive manufacturers may make later versions incompatible (with the exception of PS Systems, Eltekon, and Frontera whose drives are configured to work specifically with Ensoniq products). Drives not included on this list may also work just fine. For up-to-date information about specific drives call Ensoniq Customer Service: 215-647-3930.

MANUFACTURER	MODEL
Frontera	All Models
PS Systems	All Models
Eltekon	All Models
Rodime	45plus, 60plus, 100plus, 140plus
Microtech	R45, N20, N40, N80, N100, N150
PL1	45 Meg Removable
Mass Micro	Datapack 45

# SQ-1 Sequencer Tip

Raymond J. Burt

Perhaps some of you have come across a minor bug in the SQ-1 operating system that defaults the clock to 02 when using the GOTO function in step entry mode. This fault causes the SQ-1 to erase the note following any note that is changed unless the following procedure is followed.

To illustrate the problem and to clearly show the solution, let us make a simple four bar sequence using the step entry function of the SQ-1.

First select a sound and create a new sequence.

To create a sequence: Press select sequences/presets. Press Bank (##). Press Screen (##). The display screen will say: Seq.##, Location=## Empty \*Seq/Pset\*. Press enter. Screen will say: New sequence Location=##, giving you an opportunity to change the location. Let's leave the location as is and press enter. Screen will say Time Signature=#/#. Set the time signature to 4/4 time. Press enter a couple of times till screen says New Name= Sequence ##. You will see the cursor flashing on the letter "S." At this time you may rename the sequence. For our purposes, let's leave it where it is. Press enter and the display will briefly say Command Successful, and then change automatically to Preset ##. Loc=##. Sequence-## or the name of the sequence, if you renamed the sequence.

Now to use Step Entry — press Edit Copy Sound. Press Bank 1. Press Screen 1. The display will say Step Entry=Off/on. Set Step Entry to ON. On the same screen set Record to Replace. While holding down the record button press the play button. The display will say Step Recording! Auto Step=Off/On. Set Auto Step to Off. Press the right arrow and the display says Gate= Manual. Location should read Bar 001 Beat 01 Clock 01. Pressing the Right Arrow repeatedly will move the flashing Cursor to the Bar, the Beat, the Clock and to the next screen where you will see Step [?] B001 b01 C01. Make sure the Note Symbol is flashing, and using the Up Down Arrows, set the Note Symbol to a 1/4 note.

For our little sequence we'll make the first note a Middle C. While holding down the C key, press Enter. Notice that the Beat in the display will change to b02. Hold down the C key again and press Enter. The display now says b03. Repeat this same procedure and play four C's in the first bar, four E's in the second bar, four G's in the third bar, and four C's above Middle C in the fourth bar. The display should read B005 b01 C01. Press the Stop button. Display will read Track ## Keep first 004 Bars? Press Enter. Press the play button to hear the sequence.

Now to illustrate the problem in the SQ-1, we will change the first note in bar 2 and the first note in bar 3.

Press Edit Copy Sound, Bank 0, Screen 0, Enter. Screen will read Press Enter, GOTO Bar=001 Beat=01. Using the up arrow, change the Bar=002. Press Enter. Screen will read Seq ## Stop Bar=002 Beat=01. While holding down the Record Button press Stop. Screen must read Step Recording! Auto Step=OFF. Press the Right Arrow button. Screen must read Gate= Manual Bar002 b01 C02. Press the Right Arrow button four times until the screen reads Step Bar002 b01 C02. Make sure the Note Symbol is flashing and is a 1/4 note. While holding down the E key an octave higher, press Enter. Press the Stop Button and press Enter to keep the track. Now the Location Screen will read Seq ## Stop Bar=001 Beat=01. Press Enter and on the GOTO Screen, change the Bar to Bar=003 Beat=01. Press Enter. While holding Record, press Stop. Press Right Arrow till the Step [?] Screen appears. This time change the note value to a 1/16 note, Step [?]. While holding down the G key an octave higher than the G that is being replaced in memory, press the Enter button 3 times. Press Stop then Enter to save the track. Press Play. RC030821

Notice in the second bar, the second note is missing. The reason the second note is missing is because we gave the new note of the second bar its full value of a 1/4 note or 96 Clocks. Because the Clock Parameter defaulted to 02, the clocks of the first note in the bar carried over into the second note of the bar thereby erasing the second note.

Notice in the third bar of the sequence, there are no missing notes. To prevent the clocks carrying over from one note to the next note, never give a corrected note its full value.

If there are notes in tandem to be changed: After the first note has been changed, using the above procedure, press the Left Arrow Button to see the Gate Screen. Make sure the clock parameter is flashing. Move the Slider in the up direction to change the clock to 96. Press the Up Arrow Button once to change the clock to C01. Press the Right Arrow to return to the Step Screen. Change Step to whatever note value is needed, and proceed pressing the keys and the Enter Button in the normal manner. ■

*Bio: Raymond Burt is a 67 year old retired electrician who plays with music in a strictly amateur fashion. He is also a member of a harmonica club and sings bass in a choral group.*

## CHANGE OF ADDRESS

Please let us know at least four weeks in advance to avoid missing any issues. The Post Office really will NOT reliably forward this type of mail. (Believe us, not them!) We need to know both your old and your new address. (Issues missed due to late or no change notification are your own dumb fault—we mailed them!)

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Eltekon EX-80 rackmount 80M (Quantum) HDD, low miles, only driven on Sundays, w/cables & original carton, \$600 obo. Yamaha V-50 workstation, disks, DSP, drums, 24-voice polyphonic, docs, access., under warranty, \$1000 obo. Mac plus, 4M, mouse, kbd, Fanny Mac, Targa Case, docs, 6.05, docs, blank warranty card, software, \$900 obo. Call Pat at 317-357-3225 FMI.

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Love my new VFX-SDII, but I miss some of those gritty ESQ-1 sound effects (Landing, F-111, Seagulls, Growl, Noistring, Cats, Laughs, Copters, etc.) Send suggestions/offers for patches/disks to Reesa, R.D. 1, Box 89AA, Glassboro, NJ 08028.

Wanted: ESQ-1 acoustic patches for WX7 wind controller. Ken Beesley, 22650 Silver Oak Ln., Cupertino, CA 95014. (408) 252-2339.

## SOFTWARE

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# ESQ & SQ-80 Hackerpatch

Guest Hacker Charles R. Fischer

*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. Requests for particular patches are also very welcome.

## SQ-80 Patch: CELLOS

by Charles R. Fischer, Hercules, CA

*This patch is intended to imitate a bowed cello. Aftersound adds vibrato and opens the filter slightly. Another trick is to use a volume pedal to vary the phrasing of various notes — both of these methods are useful for maximum expression.*

### The Hack

Two of the most important parameters for string sounds are the attack time and the filter frequency (brightness). These can be changed by varying T1 on the ENV 4 page and FILT FREQ on the FILTER page. You can also try other waveforms for DCO 1, including PULSE, KICK, BASS 2, and, of course, STRING. ESQ-1 owners are out of luck on this one since their axe lacks the BOWING waveform that is so crucial to this sound.

SQ-80 PROG: GHANA										BY: Charles R. Fischer	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	+0	00	00	SINE	-	-	-	-			
OSC 2	+1	10	18	GLINT3	VEL-X	+01	ENV1	+03			
OSC 3	+2	00	00	PICK2	KBD2	-63	-	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	55	ON	-	-	-	-					
DCA 2	00	ON	ENV2	+63	-	-					
DCA 3	44	ON	VEL-X	+12	-	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	042	00	08	ENV2	+63	VEL	+13				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	53	08	KBD2	+14							
	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	+10	+00	+00	00L	00	00	06	63	02	12	
ENV 2	+63	+50	+00	32L	00	00	03	28	18	19	
ENV 3	-	-	-	-	-	-	-	-	-	-	
ENV 4	+63	+58	+00	16L	00	00	04	38	26	28	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	00	OFF	OFF	ON	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

## SQ-80 Patch: GHANA

by Charles R. Fischer, Hercules, CA

*I modeled this sound somewhat loosely after the balafon, which is an African instrument similar to the marimba. This is a percussive sound that really cuts through the mix. I've used it many times.*

*In this patch, DCO 1 contributes the fundamental pitch of the sound, while DCO 2 licks in the metallic overtones (thanks to the GLINT 3 waveform). DCO 3 adds the initial transient, which adds punch.*

### The Hack

To change the timbre from metallic to wooden, try changing DCO 2 to TRI or SQR2, and also experiment with different octaves and tunings. For a harsher sound, use CHIME, ALIEN, or BELL2. Also try different waves for DCO 1 and 3 — you can get many useful variations here. Finally, try switching on the AM function (found on the MODES page) for an instant Gamelan effect. Sorry — once again, this patch cannot be translated over to the ESQ-1. RC030821

*Bio: Charles R. Fischer is a pretty busy guy these days. He has worked as a studio musician, arranger, and synth programmer, is the MIDI editor for Keyboards Today magazine, and designs custom electronic gear for a small clientele. He doesn't have a favorite color — he just tries to find the right one for the job.*

SQ-80 PROG: CELLOS										BY: Charles R. Fischer	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	-1	00	00	PULSE2	LFO1	+01	-	-			
OSC 2	-1	00	03	BRASS	LFO3	+01	-	-			
OSC 3	-1	00	02	BOWING	-	-	-	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	00	ON	ENV2	+57	-	-					
DCA 2	00	ON	ENV2	+54	LFO2	+08					
DCA 3	56	ON	VEL	+08	-	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	064	00	12	ENV3	+18	PRESS	+11				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	53	08	OFF	-							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	21	OFF	ON	TRI	00	00	-	PRESS			
LFO 2	03	ON	ON	NOI	27	00	-	PRESS			
LFO 3	23	OFF	ON	TRI	00	00	-	PRESS			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	-	-	-	-	-	-	-	-	-	-	
ENV 2	+63	+63	+63	00	05	15	24	63	32	23	
ENV 3	+63	+00	+00	29L	00	18	34	00	20	00	
ENV 4	+63	+63	+63	20L	08	14	32	32	31	00	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	00	ON	OFF	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

# SD & VFX Hackerpatch

## SD & VFX Prog: Legion by: Kirk Slinkard

**NOTES:** I did this one because I needed a tubular bell sound (patch select \*\*). Since there were three patch selects left over, I did three more sounds.

**THE HACK:** LEGION is a nice collection of four unrelated sounds. The 00 patch select is a rich plucked synth sound, almost guitar-like; 0\* is a nice vocal pad; \*0 is a bright synth brass; and \*\* is, as Kirk mentioned, the tubular bell sound.

The effect of the pitch wheel on the vocal pad is very nice — it modulates the filters

WAVES	1	2	3	4	5	6
Wave	TubularLp	Sawtooth	VocalPad	VoxOohs	OmegaX	Sawtooth
Wave Class	Inharm	Waveform	BrthSound	BrthSound	Transwave	Waveform
Delay	0	0	0	0	0	0
Direction	-	-	Forward	Forward	-	-
Start	-	-	0	0	17	-
Vel Start Mod	-	-	0	0	-	-
Mod Source	-	-	-	-	Pitch	-
Mod Amount	-	-	-	-	+99	-

MOD MIXER	1	2	3	4	5	6
SRC-1	Press	*Off*				
SRC-2	Env1	Pitch				
SRC-2 Scale	2.0	1.0				
Shape	LateRise	Quant16				

PITCH	1	2	3	4	5	6
Octave	0	0	+1	0	0	0
Semitone	0	-8	0	0	0	0
Fine	0	+5	+5	-5	0	-5
Pitch Table	System	System	System	System	System	System

PITCH MODS	1	2	3	4	5	6
MODSRC	*Off*	Mixer	Noise	Noise	Press	*Off*
MODAMT	-	+66	+9	+9	-40	-
Glide	None	None	None	None	None	None
ENV1	0	+99	0	0	0	-99
LFO1	0	+17	+2	-2	0	+17

FILTER 1	1	2	3	4	5	6
Mode	2LP	2LP	2LP	2LP	2LP	2LP
Cutoff	0	127	0	0	0	127
KBD	0	0	0	0	+16	0
MODSCR	*Off*	Timbr	Pitch	Pitch	Timbr	Timbr
MODAMT	-	-99	+99	+99	-14	-99
ENV2	+99	0	0	0	+91	0

FILTER 2	1	2	3	4	5	6
Mode	2LP	2LP	2HP	2HP	2LP	2LP
Cutoff	0	127	0	0	0	127
KBD	0	+14	0	0	+16	+14
MODSCR	*Off*	Timbr	Pitch	Pitch	Timbr	Timbr
MODAMT	-	-99	+99	+99	-14	-99
ENV2	+99	0	0	0	+91	0

OUTPUT	1	2	3	4	5	6
VOL	99	77	99	99	99	77
MODSRC	*Off*	*Off*	*Off*	*Off*	*Off*	*Off*
MODAMT	-	-	-	-	-	-
KBD Scale	0	-7	0	0	0	-7
LO/Hi Key	A0/A0	C2/C7	A0/A0	A0/A0	A0/A0	C2/C7
Dest Bus	FX2	FX1	FX1	FX1	FX2	FX1
Pan	45	0	0	99	50	99
MODSRC	Keybd	*Off*	*Off*	*Off*	LFO	*Off*
MODAMT	+99	-	-	-	+99	-
Pre-Gain	Off	Off	Off	Off	Off	Off
Voice Prior	Medium	Medium	Medium	Medium	Medium	Medium
Vel Thresh	0	0	0	0	0	0

LFO	1	2	3	4	5	6
Rate		49	33	33	28	49
MODSRC		Press	Timbr	Timbr	*Off*	Press
MODAMT		-39	-40	-40	-	-39
Level		0	0	0	0	0
MODSRC		Wheel	Wheel	Wheel	Wheel	Wheel
Delay		0	0	0	0	0
Waveshape		Triangle	Sine/Tri	Sine/Tri	Triangle	Triangle
Restart		Off	On	On	Off	Off
Noise SRC RT		-	94	93	-	-

to thin out the sound and make it very airy. I found that this pad had a more natural attack if the initial level of ENV 3 was set to a value higher than zero, so I changed INITIAL to 50 on Voices 3 and 4.

The attack of the brass sound was a bit harsh for me as well, due to the pitch "blip" created with ENV 1, used as a modulator on the Pitch Mod page. So, for Voices 2 and 6, I set the ENV 1 values on the Pitch Mod pages to +12 and -12 respectively. The pitch wheel effect is interesting on this patch select, affecting one oscillator but not the other. And on the normal patch select (00), the pitch wheel is used to sweep the transwave through its various timbres. Downright nice!

— Sam Mims

### SELECT VOICE

	1	2	3	4	5	6
00	1	2	3	4	5	6
0*	1	2	3	4	5	6
*0	1	2	3	4	5	6
**	1	2	3	4	5	6

### ENV1

	1	2	3	4	5	6
Initial		50				50
Peak		0				0
Break 1		0				0
Break 2		0				0
Sustain		0				0
Attack		6				7
Decay 1		0				0
Decay 2		0				0
Decay 3		0				0
Release		0				0
KBD Track		0				0
Vel Curve			Linear			Linear
Mode			Normal			Normal
Vel-Level			99			99
Vel-Attack		0				0

### ENV2

	1	2	3	4	5	6
Initial	99					99
Peak	83					85
Break 1	61					50
Break 2	0					0
Sustain	0					0
Attack	1					2
Decay 1	41					50
Decay 2	74					53
Decay 3	0					0
Release	0					87
KBD Track	4					2
Vel Curve		QuikRise				Linear
Mode		Finish				Normal
Vel-Level	12					16
Vel-Attack	0					0

### ENV3

	1	2	3	4	5	6
Initial	99	99	0	0	99	99
Peak	0	99	99	99	0	99
Break 1	0	99	99	99	0	99
Break 2	0	99	99	99	0	99
Sustain	0	99	99	99	0	99
Attack	85	0	26	26	79	0
Decay 1	0	0	0	0	0	0
Decay 2	0	0	0	0	0	0
Decay 3	0	0	0	0	0	0
Release	0	0	62	62	45	0
KBD Track	0	0	0	0	10	0
Vel Curve		QuikRs	Linear	Linear	Linear	Linear
Mode		Finish	Normal	Normal	Normal	Normal
Vel-Level	15	0	12	12	17	0
Vel-Attack	0	0	99	99	0	0

### PGM CONTROL

Pitch Table	Off
Bend Range	0
Delay	x1
Restrike	0
Glide Time	0

### EFFECTS (1)

Effect	8-Voice Chorus 1
FX1 Mix	66
FX2 Mix	30

### EFFECTS (2)

Rate	25
Depth	25
Delay	25
Feedback	-40

### EFFECTS (3)

FX2 Mode	Nrml Stereo Send
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### PERFORMANCE

Timbre	0
Release	0

Pressure Key

## Prog: ACOUSTIC GUIT

By: Mark Clifton

Notes: This is a patch for those brave souls who want to imitate acoustic guitar with your SQ-1 or 2. It's a clean, folksy guitar that turns into a twelve string as you move up the

modwheel. This one is guaranteed to fool your listeners and infuriate your guitarist friends.

WAVE	1	2	3
Select Voice	On	On	Off
Wave Class	String	String	
Wave	AcoustGtr	AcoustGtr	
Delay Time	000	000	
Wave Direction	Forward	Forward	
Start Index	00	56	
MODSRC	Off	Off	
MODAMT	-	-	
Restrk Decay	36	36	

LFO	1	2	3
LFO Speed	35		
Noise Rate	00		
Level	00		
Delay	00		
MODSRC	Wheel		
Wave	Pos/Sine		
Restart	On		

AMP	1	2	3
Initial	94	94	
Peak	94	94	
Break	79	77	
Sustain	00	00	
Attack	00	00	
Decay 1	40	40	
Decay 2	61	61	
Release	51	39	
Vel-Level	19	46	
Vel-Attack	00	00	
Vel Curve	Quick	Quick	
Mode	Norm	Norm	
KBD Track	+28	00	

PITCH	1	2	3
Octave	+0	+1	
Semitone	+00	+00	
Fine	-01	-03	
ENV1	+33	00	
LFO	00	00	
MODSRC	ENV1	ENV1	
MODAMT	+15	+15	
KBD Pch Track	On	On	
Glide	Off	Off	
Glide Time	-	-	

FILTER	1	2	3
Filter 1	3Lo	2Lo	
Filter 2	1Lo	2Lo	
FC1 Cutoff	115	073	
ENV 2	00	00	
FC1 KBD	+60	00	
MODSRC	Vel	Vel	
MODAMT	+30	+05	
FC2 Cutoff	062	086	
ENV2	00	00	
FC2 KBD	+49	00	
FC1MOD-FC2	On	On	

OUTPUT	1	2	3
VOL	99	99	
Boost	Off	Off	
MODSRC	Wheel	Wheel	
MODAMT	-12	+99	
KBD Scale	00	00	
Key Range	A0-C8	A0-C8	
Output Bus	FX1	FX1	
Priority	Med	Med	
Pan	00	-14	
Vel window	000	000	

ENV1	1	2	3
Initial	58	58	
Peak	00	00	
Break	00	00	
Sustain	00	00	
Attack	01	01	
Decay 1	00	00	
Decay 2	00	00	
Release	00	00	
Vel-Level	00	00	
Vel-Attack	00	00	
Vel Curve	Convx	Convx	
Mode	Norm	Norm	
KBD Track	00	00	

ENV2	1	2	3
Initial			
Peak			
Break			
Sustain			
Attack			
Decay 1			
Decay 2			
Release			
Vel-Level			
Vel-Attack			
Vel Curve			
Mode			
KBD Track			

**Standard  
Sound  
Programming**

## Effects Programming

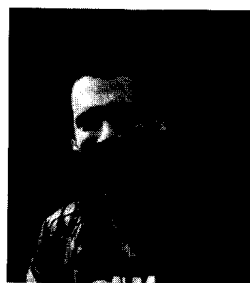
(To save space, only those effects utilized are listed. A complete blank form was published in Issue #68.)

### CHORUS AND REVERB

FX-1	09
FX-2	00
Decay time	34
HF Damping	40
Chorus Rate	20
Chorus Depth	00
Chorus Center	50
Feedback	+04
Chorus Level	66
MOD (Dest)	FX1-Mix
BY (MODSRC)	Modwheel
MODAMT	+41

**The Hack:** This acoustic guitar does offer up another 6 strings as you push the modwheel up. The really interesting thing is that it sounds good without them. If the added 6 strings are turned off (by disabling voice 2) you can still take advantage of a nice open Chorus + Reverb. Add more "bent string attack" by changing INITIAL to about 60 and ATTACK to 2 or 3 in the Pitch Envelope (ENV 1). Some "after ring" can be obtained by bringing ENVELOPE 2 in the FILTER SECTION down to -9. Also in the FILTER SECTION, try changing FC1 CUT-OFF to around 95. This will eliminate some of the edge.

Jeffrey Rhoads



*Bio: Jeffrey Rhoads has been a keyboardist/composer on the Philadelphia Jazz and R + B scene for a period of time resembling forever. He has an interest in cinema and has developed some film courses. Jeff still believes in magic and longs for city lights.*

SQ-1 & 2 Hackerpatches are published with the same constraints and understandings as the ESQ, SQ-80, and VFX patches. The hacking and mutilating part is being handled by Jeffrey Rhoads.



# 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. Resident answer-man is Clark Salisbury (CS). Letter publication is subject to space considerations.

Dear Transoniq Hacker:

I recently bought an EPS-16 PLUS, which is truly a wonderful hardware. There is, though, an important (negative) point which Mr. Hjelte and Mr. Rensel didn't mention in the January issue. Why isn't the disk drive the 1.44 MBytes kind? While I can understand that a synth (as in the VFX-sd I also own) uses little disk space (only program parameters and sequences..) and so the 720 kByte drive is sufficient (not enormous.. just think how many REAL LIFE sequences you can push on a disk in the VFX-sd...!!), I can't understand why a 16 bit sampler still uses the same drive. Is it because of the extra \$30 cost to buy the drive (street prices, not Ensoniq's)?

To Ensoniq: Isn't it possible for you to provide in the next revision (1.20?) a software switch so that users can swap their drive with the 1.44 one and use it? I'm a software programmer and I know how easy is this to do. If you won't support 1.44 drives, I see this move (again) as a political one which actually damages your users and in the last yourself. Believe me: The 1.44 drive is not an alternative to a good hard disk but is a good thing just the same, so... think again, think well.

Many thanks to all people who let this open forum exist.

Andrea Gozzi  
>INTERNET:  
work@forum.sublink.org

[CS - According to Ensoniq, a 1.44MB floppy drive was considered for the EPS-16 PLUS during the initial development stages for the product. It was one of the features (stereo sampling was another) that didn't make it into the final version because of the cost factor.]

[Ensoniq - The floppy disk controller hardware in the EPS and EPS-16 PLUS isn't compatible with high density drives, which also require more expensive support circuitry as well. Also, the tighter tolerances on alignment accuracy makes it more difficult to transfer disks between different units without getting disk errors. This led us to decide to wait on using high density drives for a product that has such an extensive library already available on dual density disks. We will certainly consider them for future products.]

Dear Hacker,

Thanks for your responses to my last questions. A bit more trial and error and some more understanding has allowed me to work around some of my initial road (or mental) blocks. However, I would still like to explore the issue a bit further.

What I would like to be able to do is use the EPS sequencer to play MIDI instruments as well as EPS instruments...with the added limitation of not having to plug and unplug MIDI cables when I want to shift between sequencer playing and live playing. Allow me to explain.

For starters, I am using a Roland A80 keyboard controller to control my 16M and a Kurzweil PX1000. After submitting one of my previous questions I discovered that I could control both with all of the versatility the A80 allows by chaining the Kurz to the EPS via the MIDI thru and differentiating between the two modules by using different sets of channels for each. A simple and obvious solution...unless I want to use the EPS sequencer to drive the Kurz.

For the EPS sequencer to drive the Kurz I have to chain the Kurz to the EPS by its MIDI out...unplugging and plugging cables (and I'm trying to avoid getting a patch bay!) If I leave my Kurz chained in this fashion, the limitation of the re-transmit in MONO B mode severely truncates the versatility of the A80. My trial and error with MONO A tells me so far that OMNI mode prevails and I lose whatever control I might have had by differentiating instruments on different channels.

I don't know why I have this feeling, but somehow I seem to hear you saying "get a patch bay." I can't tell if that is a premonition or an anticipated variant of Murphy's law. But hope springs eternal!

Thanks,  
Richard Rawson  
[73607,3354]  
Sacramento, CA

[CS - There is one other possibility, apart from purchasing a MIDI patchbay. The Roland A-80 has the capability (according to Roland specs) to merge MIDI data from either of its two MIDI inputs with the data generated by its own keyboard, controllers, and so on, and then send that data to one or more of its MIDI outs. Try plugging one of

the A-80's MIDI outs into your Kurzweil, and another into your EPS-16M. This will allow you to control both the EPS and the Kurzweil from the A-80. Next, plug the MIDI out from the EPS-16M to one of the A-80's MIDI ins. According to Roland, you should be able to program the A-80 to merge this MIDI data with the A-80's data and send it to the output that you've got the Kurzweil plugged into. This will allow you to control the Kurzweil from the A-80 and the EPS-16M simultaneously.]

RC030821

Dear TH,

I have a problem with my ESQ-1...

It seems that my ESQ-1 does not take back sequence sysex data properly. I use an external sequencer (Notator from C-LAB) to record sysex data for the voices (patches) and sequence sysex data to send it back to ESQ-1 so I can configure the ESQ-1 to the right patches to use in multitimbral mode automatically before playing back a piece. In fact to make it simple, I don't use the ESQ-1 sequencer, I use the Notator sequencer. Also I set the ESQ-1 to be the slave of Notator. The ESQ-1 is able to play in multitimbral mode if you set a sequence (from ESQ-1 sequencer) to the patches that are going to play in the multitimbral mode. The ESQ-1 plays the patches according to the active sequence (from the ESQ-1) in multitimbral mode. Also when you load a sequence into the ESQ-1 (via MIDI) that sequence becomes the active ESQ-1 sequence. Then to automate that setting you have to load in the ESQ-1 the patches and the sequence sysex data accordingly.

I first send the sysex data from ESQ-1 to Notator to record it. Then I send it back to the ESQ-1 when I play back the Notator. Everything seems to have been well recorded when I check Notator. On playback, the sysex data for the voices are set in the ESQ-1 properly but the sequence's sysex data is not regularly received by the ESQ-1 and it seems that the ESQ-1 seldom responds properly to the sequence's sysex data transfer back in.

I checked everything that was mentioned about sysex data transfer in the manual (Notator and ESQ-1) and my connections are reliable. I really don't know what's happening here! My ESQ-1 O.S. is 3.5. HELP!!! If you can't tell me how to work it out, please refer me to someone who can.

Thanks in advance!

A. Gervais  
8, DeLaPoudriere,#103  
Verdun, P.Q.

[CS – The best guess from this end is that you are experiencing a timing problem. ESQ sequencer sysex actually consists of two sysex messages. The first message alerts the ESQ as to the data transfer that's about to take place and also lets the ESQ know what size the file is. This is so that the ESQ can choose to reject the sysex file if it's too large, as might be the case if you were to try to send sequences developed on an ESQ with a memory expander to one without expanded memory – which could result in getting a bunch of garbled data dumped into your ESQ. Not a pretty picture.

The second part of the sysex file contains the actual sequencer data. Normally, the first part of the data is transmitted and the host machine waits for the ESQ to respond before sending the rest of the file. What may be happening is that Notator is sending the second set of data before the ESQ has had time to properly respond and get ready – which might explain why you're having problems.

Ideally, there should be about a 100 millisecond (1/10th of a second) pause between transmission of the first sysex chunk and the second. If Notator allows you to edit the timing of the playback of the sysex data, you may be able to resolve your problem by spacing the two sysex chunks a bit farther apart. It's even possible that decreasing the playback tempo of your Notator sequence will take care of the problem.]

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For Ensoniq,

Question #1 on the EPS: How do you add mod wheel, pitch bend or patch select after you've already recorded a track? I know you put sequence mode to ADD. Then what? I was successful adding a volume change but not adding a mod wheel. What am I doing wrong?

Question #2: I have an old EML-101 analog system and one of my favorite effects was to put an LFO on the filter. I would cut the resonance to a narrow bandwidth so you could hear the LFO. On the EPS how do you assign an LFO to the filter and tweak the filter so you can really hear the LFO sweeping the filter?

Thanks,  
Louis Dosch  
Lake Elsinore, CA

[CS – 1) You're on the right track, Louis. The EPS will need to be in "add" mode to add controller information to a track that's already been recorded. Unfortunately, you won't be able to hear the effect of the con-

troller while you're recording – you'll have to wait for playback before the effect of the controller can be heard – at least not on the original EPS (the 16+ allows you to hear controllers while you're overdubbing them). It's kind of a pain in the neck, I know, but you should be able to get controllers into a track this way – although it may take a few tries. If you still have problems, make sure that the instrument you're using actually uses the mod wheel and patch selects, or whatever controllers you're trying to record. It's possible that the sequencer is recording the controller information okay, but that the instrument itself isn't set up to utilize the data.

2) Applying LFO to control filter cutoff is a fairly straightforward procedure.

As with any editing that can be applied in the EPS, it is important to be clear about which voice or voices and/or layer or layers you're editing. First, press the "EDIT" button and select the wavesample or layer you wish to edit. If you want to globally edit all wavesamples of all the current layers, simply select the entire instrument for editing.

Next, assign the LFO to control filter 1 cutoff by hitting the "FILTER" button and scrolling to "F1 MOD = XX \* YY." Set "XX" to LFO, and "YY" to control the depth of the effect. If you are starting with the filter cutoff at a fairly high level, you may want to use negative values for this parameter, so that the LFO will force the filter cutoff point lower. To route the LFO to filter 2, scroll to "F2 MOD = XX \* YY" and repeat the process. I should point out that the filter mode will have some bearing on the effect you can achieve. If the filter mode is F1 3/LP F2 1/LP, for example, the effect of applying the LFO to filter 2 will not be as pronounced as it will for filter 1.

Finally, head over to the LFO page (press "LFO") and set the LFO parameters for the effect you're after. For smooth filter sweeps, I prefer using either the "POS/SINE" or "POS/TRI" LFO waves. You will need to set LFO depth to some positive value if you want the LFO to kick in automatically (as opposed to controlling it from the modwheel or pressure, for example) and you may or may not want to specify a delay time for the LFO. Also, many EPS programs route the LFO to control pitch, for vibrato effects. If you want filter sweeps without vibrato, you may need to set LFO amount (hit "PITCH" and scroll to "+0.0.")

[Ensoniq – You may want to try using a bandpass filter setting (F1=LP, F2=HP) to create a more noticeable and interesting effect.]

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Hi Hacker,

Another letter from Belgium. First of all I want to thank TH for the Interface. It's wonderful to have your ideas heard by Ensoniq. A few months ago I bought an EPS-16 PLUS. Boy, I don't know how Ensoniq does it but it's three times in a row. Again you bring the best sampler there is for this amount of money. The 16 bit and the effects make this machine a Ferrari in Sampleland. But still there are some minor problems (version 1.00).

1. I have made some new effects and saved them on disk, but I would like to change the name of one of the 4 variations you can select.

2. I mostly use my own envelope. It would be nice if it could be saved with the global parameters.

3. I use CUBASE and I can't find a way to select a ROM-effect or to load one from disk. Is it possible via sysex commands? A solution would be to load a BANK (instruments and effect), but this isn't possible either.

4. Also in CUBASE I noticed that the EPS-16 PLUS only recognized a program change command if there was already an instrument on that MIDI-channel. This didn't happen on my old EPS. RC030821

5. Last question on CUBASE. Why don't you use controller 10 for panning like the other manufacturers?

I would also give some reaction on Bryce Inman's pitch tables and percussion in TH, Issue #67. You could do this also with the command edit layer no pitch.

Also a reaction to the letter of Jim Hansen in TH, Issue #67. I agree that his dynamic tuning system has great advantages. It would be very nice if we could have that also on the EPS-16 PLUS and other Ensoniq products. However when he says "there has never in history been a sound like this out of a machine," I have to react by saying that WALDORF MICROWAVE (v. 2.0) already uses his idea of dynamic tuning system.

That's all folks,  
Patrick Voes  
Belgium

[CS – Before we talk about the specific questions you have, I'd like to note that the current OS version for the EPS-16 PLUS is 1.10 – your dealer should be able to provide you with a copy. Now, on to your questions.

1) Currently, the names of the effect variations cannot be changed. Ensoniq agrees that it would be nice if the names were user-programmable, though, and are looking into the possibility of making this feature available in a future OS release.

2) There's a work-around for saving envelopes to disk. If you have an envelope you'd like to be able to store, copy the envelope to one of the three envelopes available in a very small instrument – perhaps one you've created by creating an instrument, creating a layer within that instrument, and creating a wavesample within that layer. To copy an envelope, select the envelope you wish to copy, scroll to the page that shows "ENVELOPE=CURRENT VALUE" and press enter. The display will show "ENVELOPE PARAMS SAVED." This copied envelope can then be applied to any other envelope simply by selecting the destination envelope, scrolling to the page that normally shows envelope type ("ENVELOPE=CURRENT VALUE," for example) and moving the data slider all the way up (the display should be showing "ENVELOPE=SAVED").

Using this technique, you can copy up to three custom envelopes to a single layer of a small, quick-loading instrument – one to envelope 1, another to envelope 2, and another to envelope 3. If you need more envelopes, just create more layers – eight layers would give you locations to store up to 24 custom envelopes. If you need even more envelopes, copy the wavesample to various locations, and copy your custom envelopes to each of the three locations available for each copied wavesample. Then when you need to use one of your custom envelopes, simply load the small instrument containing your custom envelopes, select the envelope you want and copy it to the destination of your choice.

3) It may be possible to select ROM effects using "virtual button presses," a method for remotely pressing EPS buttons via sysex commands. If you feel comfortable dealing with creating and editing sysex data, you can get the information you need to implement "virtual button presses" by writing to the MIDI Specification Desk, Ensoniq, Inc., 155 Great Valley Parkway, Malvern, PA. 19355.

However, another method might be to save any effects, ROM or otherwise, to disk. The EPS-16 PLUS will load effect files from disk when it receives a program change numbered 1 plus the effect file number. In other words, if you wish to load an effect that is saved to disk as file number 8, sending the EPS-16 PLUS a program change number 9 will cause the effect to be loaded into the bank location. Note that the EPS-16 PLUS must be in MULTI or MONO-B mode, that program change must be enabled (from the "EDIT/SYSTEMMIDI" menu), and that the EPS must be in LOAD mode (the "LOAD" light should be flashing).

5) Ensoniq agrees that it might be nice to be able to control track panning via controller 10 and are looking into the possibility of including this in a future OS release. In the meantime, you can set up individual wave-

samples, layers, or instruments to respond to controller 10 by setting the MIDI XCTRL (MIDI external controller – located within the depths of the Edit System menu) to 10 and then assigning pan mod (found in the Edit Amp menu) to "XCTRL," and adjusting the depth of the effect.]

[Ensoniq – 4] We'll have to look into this – you are correct. In the original EPS, instruments received on consecutive MIDI channels starting with the base channel. The EPS-16 PLUS, however, derives the MIDI channel from information contained in the Instrument itself. This way, consecutive Instruments don't have to receive on consecutive MIDI channels – a feature that was often requested! But this also means that we cannot know which instrument is receiving MIDI on a particular track until the Instrument is loaded (or defined.)

Dear Hacker,

As a proud and happy owner of two Ensoniq keyboards, I'm curious about a minor but aggravating glitch in my VFX-sd (O.S. 2.0). The problem centers around those fabulous TRANSWAVES. While "VOCAL X" and "SPECTRAL X" seem to work quite well in all registers, the other waves (especially "ESQBELL X") become annoyingly dissonant in the upper registers (MIDI note numbers C#6 and up). This is extremely frustrating as I tend to use these waveforms for (that's right! you guessed it!) HIGH FREQUENCY BELL-LIKE OVERTONES! And what's even more odd is that there is no consistent pattern to the dissonance. For example, here's what happens with "ESQBELL X":

C#6	No problem
D6	additional sub-tone A5
D#6	additional low sub-tone E1 (!?)
E6	additional sub-tone A#5
F6	additional sub-tone C 6 (out of tune)
F#6	F#6 plus dissonance with G6
G#6	additional sub-tone B5
A6	A6 plus dissonance with G#6
A#6	additional low sub-tone A#2
B6	B6 plus dissonance with A#6
C7	no problem (!?)

The patterns of dissonance vary among the other Transwaves, but are equally random. Since there is no consistent pattern I wonder if there is a problem with my particular unit's working ROM or another part of the hardware. Since my VFX-sd is working well in all other respects, this next question comes to mind: Is this a software bug that's been fixed by a recent O.S. update? What gives and how does one rectify it?

Barry Cahill  
San Diego, Ca.

[CS – The problem you describe is an inherent problem in digital systems called "aliasing" – it manifests itself as "alias" frequencies (which you describe as subtones) appearing when a sample is played back which contains frequencies above the Nyquist point (the Nyquist frequency represents half the sampling rate). Many of the sounds in the VFX are multi-sampled and therefore are not required to play back too far above or below their original sample rate. The Transwaves, however, are not multi-sampled – they are pretty large waves, and multi-sampling would have required are rather high cost in terms of memory. The result is that the Transwaves may be required to play back a great deal higher in pitch than they were originally sampled, resulting in aliasing in some cases.

The only known cure is to never use the Transwaves above the point at which they begin aliasing. I've found, though, that at the higher pitches the Transwaves can often be subtly cross-faded into another wave (one that presents less problems in terms of aliasing) without having the overall sound suffer too much.] RC030821

Dear Hacker,

Yesterday I was working in Performer through my Mac SE into the EPS. After a lunch break, I couldn't get the EPS to play in Multitimbral mode anymore, just Omni. I hadn't changed any settings, so I couldn't figure out what the problem was.

I called Ensoniq and the fellow told me he couldn't figure it out either, then just as we were about to hang up he said, "... unless it might possibly be a MIDI loop." I disconnected the MIDI out cable from the back of the EPS and bingo! – everything was healed.

So what is a MIDI loop and why did it happen to a nice person like me? What could have caused it to happen in the afternoon and not the morning? For lunch I had a turkey sub. You don't think that had anything to do with it do you? I was in a big hurry and didn't have time to deal with a MIDI loop. You think that was what did it?

Sincerely,  
Bill Stevens  
Winston-Salem, NC

[CS – A MIDI loop occurs when the MIDI out of a device is routed back to its own MIDI in. This seems to occur most often in sequencing systems that are used in conjunction with an integrated keyboard-sound producing device, such as the EPS, particular when used by a "nice person." My advice is to set up a MIDI instrument on the EPS to use as a "controller" when recording into your sequencer. Set the MIDI instrument's status to "MIDI" (rather than "Local," "Ext" or "Both"), and



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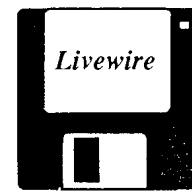
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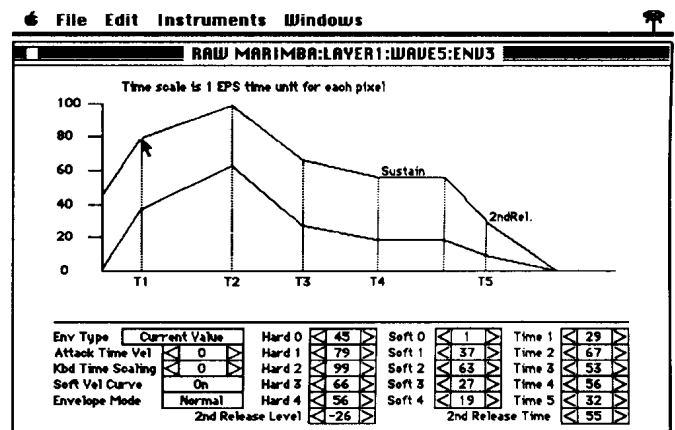
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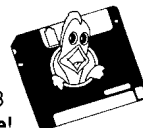
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control channelization from Performer. Record sequences only in the morning and stick to tuna fish. Next month we'll discuss MIDI scenic loops and MIDI business routes.]

[Ensoniq – And please be sure that the tuna is not from a company that kills dolphins in their fishing practice.]

Dear TH,

I am faced with a problem that I can't solve at the moment and I'm turning to you and your readership for help. I am a guitarist and I'm interested in buying a Yamaha G-10 MIDI controller and an EPS-16 PLUS.

The Yamaha has the features and tracking that I like and we all know how wonderful the 16 PLUS is. What I don't know is how they behave together. My local music store carries Ensoniq but not Yamaha. The Yamaha dealer does not deal Ensoniq of course, so how can I give the whole setup a test run without committing myself to buying one or the other first?

If any of your readers have this gear I would really appreciate hearing from them and any other suggestions anyone might have.

Thank you,  
Bill Powers  
Kapaa, Hawaii

[CS – You might see if one or the other of the dealers in question would rent you the gear you're interested in for a day so that you could take it to the other dealer for a test run. It stands to reason that if you can't try the system out, you're not likely to buy either product from either dealer, so I would think one or the other of them might be willing to help out.

I've had no experience with the configuration you describe, but if one of our readers has and wouldn't mind taking the time to share his or her experience, we'd be happy to get the info into print. Might even pay good money for a regular article-type of thing.]

TH,

I want to play my ESQ-1 using a Yamaha WX7 Wind Controller, but I am relatively new to both units.

1. After wading through 4 years of TH back issues (those I could get), I found an excellent article by Philip Rosine in Issue #40 on the WX7 and the Mirage. There are also some Mirage/WX7 tips in Issue #33 in response to a question from Pete Profflet. Issue 59 answers some EPS/WX7 questions from Ben Ash, Jr. Where can I find similar

information about programming the ESQ-1 to respond well to wind controllers? Are there any published tips for adapting ESQ-1 keyboard patches, especially acoustic wind-instrument-sounding ones, for wind controllers?

2. From another question in Issue 33, I gather that Brian D. Knutson uses a WX7 with an ESQ-1. Brett Clark (Issue #44) apparently uses a Casio DH-100 with his ESQ-1. An anonymous Casio DH-100/ESQ-1 user had a question answered by Jim Johnson in Issue 42. Do you know of a user group for WX7 players? Do you know of anyone who sells or trades ESQ-1 patches for wind controllers?

The Hacker is a great service. Thanks for your help.

Kenneth R. Beesley  
22650 Silver Oak Lane  
Cupertino, CA, 95014

[TH – Oddly enough, there's an article in this very issue dealing with wind controllers – it even contains some sample patches! We don't know of anyone selling patches specifically for this. Hopefully your letter will scare up any who are out there. If it doesn't, you may want to consider running a classified ad.]

Hi --

Great publication! I have a VFX-sd and a bunch of questions

1. Do I ever have to clean the disk drive?
2. If I save single programs to disk, will it eat up more disk space than if I saved it as a single "60 program" file? – or "6 prog." files?
3. Suggestions on the best way to organize the sound programs for easy access? Good books on the subject?
4. I'll soon have an IBM compatible computer. Can you suggest a sound library system? Will I be able to "click up" sound programs from my computer hard disk? How big a hard disk should I get? How much RAM? I have most of Ensoniq's factory sounds. Any suggestions will be appreciated.
5. Any ideas on a good, responsive MIDI-guitar?

6. Can I get Ensoniq's VPC 105, IPC-1, or IPC-2 on a disk?

I really appreciate your help – and I really think Ensoniq is a great company!

Thanks,  
Jay Anderson  
Elburn, Illinois

[CS – I thought this question sounded a bit familiar, and sure enough, come to find that most of your questions, along with my usual erudite response, appeared in last month's TH, which I'm sure you've already seen.

So on to the questions we didn't answer last month:

1) There is no evidence that disk drive cleaning kits will benefit your disk drive in any way. Ensoniq does not recommend using them.

2) A single program takes 2 blocks of memory. A 6 program file takes 7 blocks of memory and a 60 program file takes 63 blocks of memory. A little math shows that the most efficient use of disk space would have you save 60 program files to disk. RC030821

This may not be the most efficient use of your time, though. As was discussed in last month's Interface, disks are cheap enough that it probably makes more sense to organize your files according to your needs, rather than according to efficient use of disk space. Being able to load 6- or 30-program groups of similar sounds (such as pianos) gives you a very easy way to hunt for the sound you need without having to wade through dozens of irrelevant programs. This VFX-sd disk operating system was designed (in part) for just this type of application.

3) Refer to last month's Interface.

4) Ditto.

5) The choice of any kind of controller has so many subjective decisions that it's not really possible to make recommendations. Be aware, though, that very few manufacturers still make MIDI guitars. I believe that the Roland system is still available and I've heard rumors of a new system from Gibson (!). Yamaha, however, no longer produces a MIDI guitar, and neither do IVL or Ibanez.

Too bad. I kinda liked MIDI guitars. Oh well.

6) None of the cartridges you mention is currently available for purchase on disk. You may be interested, however, in VSD-1000 – a disk of over 1000 sounds (counting patch select variations) on a single VFX-sd disk. And stay tuned – Ensoniq has more disks slated for this series.

And if you're wondering how you might acquire your own VSD-1000 and your dealer doesn't have it in stock, Ensoniq has instituted a new toll-free number, but it's meant strictly for product information requests and orders. So if I give you the number, you have to promise to use it only for aforementioned purposes. Promise? Good. The number is 800-553-5151.]

Dear Transoniq Hacker,

I just purchased the EPS-16 PLUS. It's got to be the most happening keyboard my privileged fingers have ever graced. It came with a pretty happening monthly magazine, too.

One of the things that impressed me the most about the board was the quality of the effects processor. But hey, what about a pitch detuning effect? Could Ensoniq create a pitch detuning effect that could be loaded in by disk? If this were possible, a samplist could change the pitch of a rhythmic sample without speeding up or slowing down the rhythm. Actually, I have a theory that the next generation of sampler will have a pitch detuner for each voice of the keyboard, and will change the pitch in this way rather than playing the sample faster or slower.

Also, if Ensoniq is going to soon implement the "Load instrument while sequencer is playing" command, then how about making that command insertable as a song step. If this were possible, then if one had a hard drive the sequence or song would have a virtually infinite RAM. It would be like having a digital sound studio right inside the keyboard!!! You could sample vocal or guitar tracks and have the sequencer play the first verse while it's loading in the chorus. Then play the chorus while loading in the next verse and so on, and so on. Can you grasp my wave length?

Well, if Ensoniq and TH would comment on these possibilities, I would greatly appreciate it. Thanks and thanks for a great magazine!

Sincerely,  
Joe Farbrook  
Seattle, Wash.

*[CS - Ensoniq is working on new effects algorithms at this very moment. There's no word as yet on what effects may be available, but if anybody asks, I think a pitch-shifting effect would be way happenin'!]*

*The legendary "load instrument while sequence is playing" command will work just like a program change command, and as such will be insertable into any sequence at any point. That should lengthen your wave considerably.]*

*[Ensoniq - Thanks for the input, you never know what our amazing DSP guys might develop, especially with good user-feedback. Stay tuned...]*

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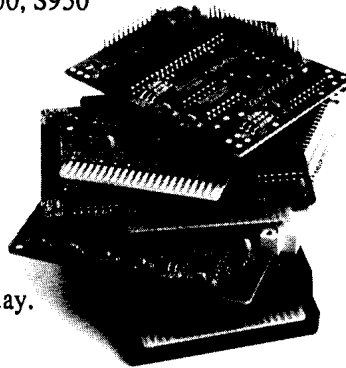
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