

TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

Synthesizing the Harpsichord and Clavinet

by Jim Johnson

People buy synthesizers for two reasons - first, to get access to sounds that they've never heard before, and second, to recreate traditional instruments that they don't have room for in the studio or on stage. This second application may seem a little strange to those of you who went out and bought a Mirage or an EPS for that purpose, but trust me, it can be done. In fact, in my humble opinion, a good synthesizer (like the ESQ-1) can often do a better job of this than a sampler can - because synths give the sound designer more control over the dynamics and subtleties of a sound than a sampler can.

All of which has nothing to do with the subject of the present article. Keyboard instruments are among the few that will always be better sampled than synthesized because their dynamic options are fairly restricted. With a piano, for example, you have only one dimension of dynamic control - loudness. You can strike the keys hard, or soft, or somewhere in between - that's it. You can't do swells like you can with a brass instrument, or use any of the different bowing techniques that a violinist uses, so there's no need to program such effects into the music. (Yes, I know, I'm ignoring the pedals, but those are really secondary; and they are just as easy to handle on a synth as on a sampler.) And when you get to an instrument like the harpsichord, which has no dynamic control whatsoever - well, the only reason you'd want to use a synthesizer instead of a sampler is that you might not have a sampler.

I fall in this category, so I when I want a harpsichord sound, it's up to the ESQ to provide it. As with all acoustic instrument simulations, synthesizing the harpsichord requires knowledge of the basic physical mechanisms used to create the sound. When I did my first harpsichord several

years ago, the only information available was what I was able to cobble together from several acoustics textbooks, but modern synthesists have an advantage here, in the form of the *Synthesist's Guide to Acoustic Instruments*, from Amsco Publications. (This book occupies roughly the same position of importance in my library as the Bible does in a Baptist minister's. If you're serious about synthesis, get it.) RC030825

The harpsichord's sound has several distinguishing features. First of all, it's velocity-insensitive, so striking the key harder does not result in a louder/brighter sound. Most harpsichords use two strings per note, tuned an octave apart, so the second harmonic is especially prominent, but there are also plenty of the other upper harmonics, which die away more quickly than the lower harmonics. The harpsichord is a plucked instrument (unlike the piano, which is hammered), and because the plectrum is located a good distance from one end of the string, the attack portion of the sound is full of jangly inharmonics. None of this is terribly hard to synthesize; if you've got a good ear and a solid grasp of the basics of synthesis, you should be able to get this far without any help.

But one of the harpsichord's most distinctive features is not quite so simple to synthesize. When a key is released, the plectrum for that key brushes against the strings before returning to its original position. This causes a fairly loud second attack to occur at the end of the sound, which is very similar to the initial attack, though not quite as loud. This would have been easy to synthesize on a good modular synthesizer in the mid 70's, since (some of) those instruments would allow you to trigger a new envelope when the key is released; but how do you do it on

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something like the ESQ-1?

The patch in Figure 1, HRPGRD, shows how. In this program, OSC2 provides the sound of the plectrum against the string, using the synced noise technique I discussed way back in the early days of the ESQ. The trick to achieving the "retrigger" effect lies in the release times of envelopes 1, 2, and 4. (Release time is called "T4" in the ESQ's envelopes.) Here's how it works. ENV 4 is set to a fairly long release time, but the volume of the main portion of the sound (OSC1 and OSC3) is also controlled by ENV3, which has a much shorter release time. If you look at the settings for DCA2, you can see that ENV1 "opens" the amplifier (makes it louder), while ENV2 "closes" it. By making the release time of ENV2 much shorter than that of ENV1, we can cause DCA2 to open briefly at the end of the sound, just before ENV4 shuts down DCA4, which controls the overall level of the sound. This lets through a little bit of the gritty attack sound created by OSC2, thereby creating the release pluck.

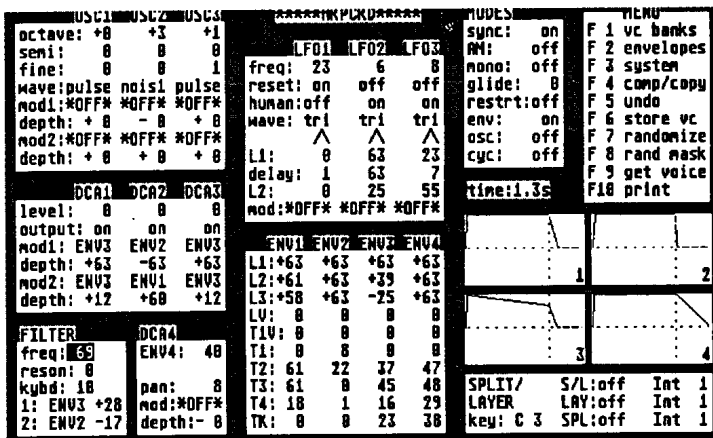


Figure 1.

The rest of the sound should be fairly self explanatory, but since I'm paid by the word, here is a quick rundown. OSC1 and OSC3 are both set to PULSE waves, the perennial favorite for harpsichord simulations. PULSE2 and/or REED waveforms could also be used, depending on the exact sound you're looking for. The oscillators are tuned an octave apart, simulating the two strings in the harpsichord, with a little detuning (FINE=1) to spice things up a bit. The envelopes are set so that the sound decays in about six seconds in the middle part of the keyboard, with a slightly longer decay at the low end, and shorter at the high end, thanks to the TK settings on ENV3 and ENV4. The filter closes down slightly after the initial attack (ENV3 handles this), and no velocity sensitivity is used anywhere in the patch. Because harpsichords don't have vibrato switches, the LFO's and mod wheel are not used in this patch, though you can add them yourself if you really want to. (After all, it is your synthesizer!)

Even though the title of this article claims that it covers the clavinet as well, I'm sorry to say that I've got very little to say about that instrument, at least as far as the specifics of its sound go. None of the books I've consulted mention it at all, though they do discuss its ancestor, the clavichord, briefly. *The Synthesist's Guide* says that it is related to the harpsichord, but this is most definitely NOT the case; the clavichord is a hammered instrument, not plucked, and it is velocity sensitive. Both are associated with Medieval music, however, so perhaps that's where the confusion stems from. In any case, I can offer my clavinet patch (Figure 2), which was created entirely by ear, to those who have been searching for a good clavinet sound. While not the ultimate, it does sound especially good in the upper part of the keyboard. When played in traditional clavinet style (listen to some early Herbie Hancock or Edgar Winter albums if you want to hear how it's done), this patch does allow you to pull it off reasonably well.

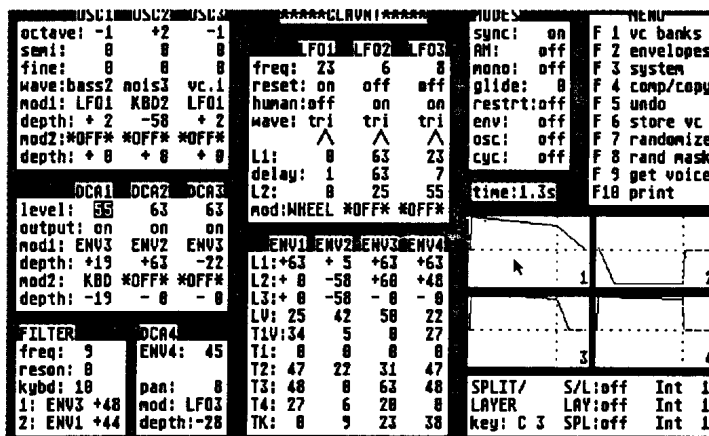


Figure 2.



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

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Front Panel

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TRANSONIQ HACKER SCREWS-UP (ROYALLY)

In response to a letter in last month's Interface we made the comment that "Ensoniq informs us that they have stopped shipping the Mirage and the ESQ-1." Wrong, wrong, wrong. Actually, what they said was that they've stopped *manufacturing* the Mirage and the ESQ-1. There's a BIG difference. (Especially if you're a dealer!) They had intentionally built up a stockpile of instruments to free up their manufacturing lines to make the EPS and EPS-M. Of course these supplies are going to dwindle, so now may be the time to buy! We're certainly going to continue our support for these instruments for a long time to come. We apologize for any panic and confusion caused by our error.

* * *

Ensoniq's Engineering Department asked if this notice could be published:

EPS memory expansion beyond 4X (1 Megaword)

Since this question continues to arise we would like to respond officially to this issue:

1) *The EPS is designed to directly address up to 1 Megaword (1.7 Megabytes) of sound memory using thirteen DRAM chips (either 1M X 1 or 256K X 4 configurations).*

2) *The EPS power supply can handle up to 13 DRAM chips in an expander. If more than 13 RAM chips are used, the additional loading will cause the power supply to overheat and shut down or be permanently damaged. Any memory expander that uses more than thirteen RAM chips, such as an 8X expander or a 4X expander using 256K X 1 RAM chips, would require an external power supply for reliable operation.*

3) *Because the EPS directly addresses a maximum of 1 Megaword of sound memory, any expansion beyond this amount would involve bank switching. This would require modifications to the Operating System software. Ensoniq is not in a position to support third party Operating Systems. Users of such software have no guarantee that they will be able to get software upgrades as new O.S. versions become available from Ensoniq.*

Ensoniq's policy regarding third party expanders has always been the same: the use of any expander not approved by Ensoniq will void the factory warranty. Since it is highly desirable to receive Ensoniq approval and our criteria for approval is simple (the expander must not be capable of damaging or causing unreliable operation of any Ensoniq product), most manufacturers submit evaluation units as soon as they possibly can.

Regardless of what anyone may have heard or have seen advertised, at this point no manufacturer has submitted a shippable 8X expander or even a functional prototype of an 8X expander for approval. In fact, some of the manufacturers who claim to have such a product recently asked for our help in designing a prototype. Due to new product development efforts, we are unable to support them at this time.

Until someone actually designs a functional 8X expander and submits it to Ensoniq for evaluation, we will continue to advise EPS owners not to expect such a product.

The following has been determined regarding the available expanders:

PS Systems 4X expander has been approved. However, it may cause start-up problems. It cannot be used with the Ensoniq SCSI adapter.

PA Decoder 4X expander has been approved. However, it may cause start-up problems, may cause increased RF interference, and may make the system more susceptible to power glitch crashes. It cannot be used with the Ensoniq SCSI adapter.

Digital Concept International 4X expander has been rejected. It could cause permanent damage or lead to erratic operation.

* * *

There should be a lot of news on the VFX in the next couple issues...

* * *

Transoniq Hacker is typically on a 4-week, 4-week, 5-week schedule. You should receive the next issue (#48) in approximately 5 weeks.

* * *

TRANSONIQ-NET

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HELP WITH QUESTIONS

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MIRAGE 24-HOUR HOTLINE: M.U.G. 914-963-1768.

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

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

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

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

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

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

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

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

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

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

MIRAGE OPERATING SYSTEM - Mark Cecys. West-Coast Time. Days. (408) 253-8547.

MASOS - Pete Wacker. Whenever. (602) 937-1177.

CHANGE OF ADDRESS

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BACK ISSUES

Back issues are \$2.50 each. (Overseas: \$3 each.) Issues 1-9, 11, 13-23, 27, 29, 30, 38, 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.) Permission has been given to photocopy issues that we no longer have available - check the classifieds for people offering them. Reprints in our "Quick and Dirty Reprint Series" are available: MIRAGE OPERATIONS, for \$5, and MIRAGE SAMPLE REVIEWS for \$4. Each contains material from the first 17 issues.

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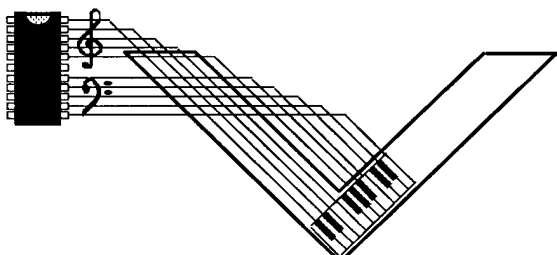
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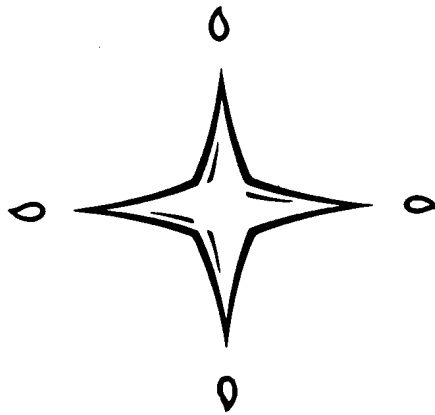
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The Sneaky Instant ESQ-1/SQ-80 Program Change

By C. R. Fischer, Mescal Music

Once in a while the keyboardist must deal with changing particular sounds in the middle of a song. For instance, you might need to bounce between piano and organ in one number. Or between rhythm and lead patches when it's time to rip out a solo.

If you have the time, you could arrange the sounds side by side in a particular memory bank. Or you could put them in a couple of sequencer tracks, if you have a spare sequence sitting around. On the other hand, my sequencer is usually stuffed full of the various projects I'm working on, and sometimes I'm sitting in with a band and I get asked to play specific sounds on certain songs-- just before we start playing!

Well, I found a little trick that you might consider as a alternative. It uses the "compare" button which allows selections between edited and unedited versions of programs. It can also swap the edited patch with any other program that is called up. All that has to be done is to select sound A, edit it in some way to put it in the buffer, and then call up sound B.

Let's try it. Use a piano for sound A, and an organ for sound B:

1) Call up your piano patch.

2) Press any of the sound parameter page buttons on the right-hand side of the synth, and press the increment (^) and decrement (v) buttons once each. It really doesn't matter which parameter you grab--pressing the increment once

modifies the patch, automatically putting it into the buffer, and pressing the decrement button restores the patch to where it was originally, eliminating any nasty changes. (Of course, if the parameter is already at its maximum value, you'll have to push decrement first, and then increment).

3) Call up the organ patch.

Pressing compare gets the piano sound. Pressing it again get the organ, and so on. You can do this in a few seconds. And once set up, you can jump between any two patches instantly with a single button.

It's a neat way to shuffle between two sounds in a hurry, and it doesn't eat up any sequences or cartridge space. Give it a try next time you want to save a little hassle on stage! ■

Current Ensoniq Operating Systems

INST	OS	DISK	EPROMS
EPS	2.35	X	
EPS-M	2.35	X	
MASOS	2.0	X	
MIRAGE	3.2	X	
ESQ	3.5		X
ESQ-M	1.2		X
SQ-80	1.8		X

HYPERSOBIQ NEW PRODUCT RELEASES

Upward Concepts is pleased to announce the acquisition of the Leaping Lizard product line for the Ensoniq Mirage. With the addition of the *Chameleon*, *Iguana* and *Iguana Jr.*, Upward Concepts can now offer a complete set of functions for the Mirage user, including MIDI volume control and sostenuto, micro-tonal scales, sys-ex storage, and disk copying and verification. Upward Concepts will also provide backup and replacement disks for Leaping Lizard's customers at nominal fees. Owners of Leaping Lizard's OS3.d will be able to take advantage of a special upgrade offer until the end of August. Mail your OS3.d disk and \$15.00 to Upward Concepts and receive a SM-1 super MIDI disk which adds MIDI volume, sostenuto, and MIDI overflow expansion to the OS3.d features. Upward Concepts, 85 Bennett Rd., Durham, NH 03824, (603) 659-2721.

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Merging Untuned Wavesamples in The EPS

by Dan Gallagher and Thomas Metcalf

NOTE: Because of the need to dial-in exact sample rates, it is necessary to have *Alchemy* to do the following procedure.

The Problem

Once upon a time in a little town called Malvern, Pa., a group of Wizards invented a wonderful new machine called the EPS. A sampler with seemingly unlimited editing power, a myriad of modern sampling technology.

Mr. Sinewave just had to have one. He had read the spec sheet and he had listened closely while the salesman had given his demo. This was the unit for him.

Things were going along smoothly for Mr. Sinewave. He was impressed with himself. Only three weeks had passed and he had mastered his brand new EPS. He had sampled all his favorite synths and drum machines. In fact, with his new software package *Alchemy*, he had transferred the sample libraries of several other samplers into his own.

One day while sorting through all the great wavesamples he had collected, he decided to MERGE a pair. "This way I'll have more complex wavesamples," he thought, "and conserve voices, too!"

But Mr. Sinewave had a problem. Every time he would merge, his resultant wavesample would be out of tune. He tried everything, but the result was still out of tune. The reason, as he would soon discover, was that the wavedata of the two samples must be in tune before merging. He had to devise a technique for getting two samples that are out of tune in wavedata, in tune. RC030825

The Solution

First, select the two wavesamples to be merged. On the edit/wave page, set both to forward no-loop. One of them will be the "reference" wavesample which we will call Sample #1. The next will be the wavesample we want to tune (or convert) - Sample #2. It is important to label the wavesamples since we must tune them with respect to each other. Note! Only one wavesample must be edited - Sample #2.

Now, select Sample #2 - then go to the Wavesample Information page and set the sample rate to the same sample rate (or value) of Sample #1. (Do not convert the sample rate of Sample #2, just change its value in the Wavesample Information page.)

Now, select the Edit/Pitch page and adjust Sample #2's pitch so that it is in tune with Sample #1.

(You will need a piece of paper and a pencil for the next few steps. Also, a calculator that does exponents - powers.)

The following three steps will give values to be inserted in formula used to get new sample rate for Sample #2.

Step A

Find the *EXACT sample rate of Sample #1. Here's how to do it. Hit Command/Wave. Find sample rate as shown in the EPS. Compare this to its more precise value as shown on the

chart in Figure #1 (next page).

Example: If EPS s/r is 39.1 kHz - chart s/r is 39.062 kHz.

Record this value: Step A = _____.

* If you send the samples over to *Alchemy* and look at the sample rate (shown in the soundfile setup), you will notice that *Alchemy* also rounds off the EPS sample rates. So, DO NOT use the *Alchemy* numbers. Use the rates provided in Figure #1.

Step B

Then, calculate the difference in Root keys (number of 1/2 steps) between Sample #2 and Sample #1. If the Root key of Sample #2 is "above" that of Sample #1, the result will be a positive number. If the Root key of Sample #2 is "below" that of Sample #1, the result will be a negative number.

Example: If Sample #1 = C4 and Sample #2 = G4, then Step B = +7.

Record this value: Step B = _____.

Step C

Then, calculate the difference in the Fine Tune value (number of cents) between Sample #2 and Sample #1. If the Fine Tune value of Sample #2 is "lower" than that of Sample #1, the result will be negative. If the Fine Tune value of Sample #2 is "higher" than that of Sample #1, the result will be positive.

Example: If Sample #1 = +80 and Sample #2 = +20 then Step C = -60.

Record this value: Step C = _____.

Finally, insert values of Step A, B, C into the following formula:

$$A \times 1.059463 \exp B \times 1.00057779 \exp C = \text{NSR}$$

The result of this formula gives you the NSR (New Sampling Rate). This is the sample rate Sample #2 must be converted to. For best results, send the sample to *Alchemy* and do the precise sample rate conversion.

NOTE: You must go into the "soundfile setup" in *Alchemy* and enter the EXACT EPS sample rates instead of the rounded off value. After the conversion, send the sample from *Alchemy* back to the EPS.

Now, to check the converted Sample #2 with Sample #1. Here's a simple way to do it; select Sample #2, go to the Edit/Pitch page. Set the value of Root key and Fine Tune to the same value of Root key and Fine Tune of Sample #1. Go to the Wavesample Information page of the EPS. Make sure the sample rate is the same as Sample #1. If you layer these two samples, they should be in tune.

Now we are free to merge the two wavesamples. The result should be one in-tune wavesample.

Hope this was helpful information. Keep on hacking!!

Figure #1

x	Sample Rate (kHz)	x	Sample Rate (kHz)
12	52.083	38	16.447
13	48.076	40	15.625
14	44.642	42	14.880
15	41.666	44	14.204
16	39.062	46	13.586
17	36.764	48	13.020
18	34.722	50	12.500
19	32.894	52	12.019
20	31.250	56	11.160
21	29.761	60	10.416
22	28.409	64	9.765
23	27.173	68	9.191
24	26.041	72	8.680
25	25.000	76	8.223
26	24.038	80	7.812
28	22.321	84	7.440
30	20.833	88	7.102
32	19.531	92	6.793
34	18.382	96	6.510
36	17.361	100	6.250

Bio: Dan Gallagher is an ex-"starving" musician. Currently he is a Customer Service/MIDI-Specialist/Product Specialist at Ensoniq. In fact, for the record, all of the Customer Service Reps at Ensoniq are MIDI-specialist/product specialist.

Bio: Thomas Metcalf is a Sound Designer and Electrical Engineer at Ensoniq. He is currently releasing his first compact disc of original music. His favorite color is clear.

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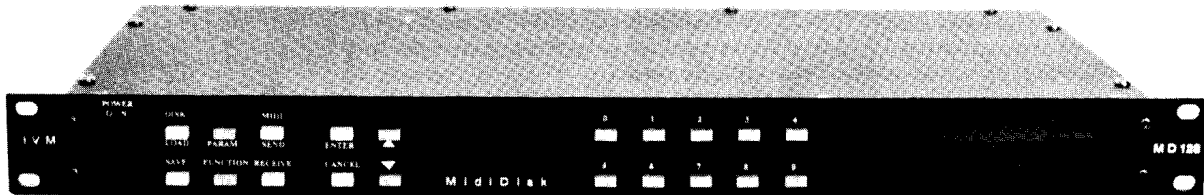
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The Little Golden Book of EPS Loops

by Clark Salisbury

In the world of sampling, one idea can strike fear into the hearts of even the most stalwart of digital cowboys - the idea of looping. Finding a good loop on most samplers can be an extremely tedious, time consuming process, not unlike trying to find a lost contact lens in a swimming pool. Especially if, like most of us, you tend to just jump in and start looking without having a systematic approach.

The EPS, however, provides some extraordinary tools to help you find that perfect loop, and believe it or not, there is a systematic approach one can take when loop-hunting. So let's look at a couple of the types of looping situations you might encounter along the road to looping bliss, and hopefully shed a bit of light on a couple of the EPS's functions along the way.

In the world of looping, there are basically two major categories of loops - short loops and long loops. We'll take a look at some of the tools provided in the EPS for getting perfect loops with minimal effort.

Short loops, or single cycle loops, are a snap to get, but there's a catch. Short loops will only work on single-waveform samples - in other words, samples that are not chorused in any way. A single guitar note, a single electric piano note, a vocal note - all are good candidates for short loops. String sections, vocal choruses and 12 string guitar are all examples of sounds that will not work with short loops. Keep in mind that the idea behind single-cycle looping is to loop exactly one cycle of the waveform. These are the easiest kinds of loops to get, and they have the advantage of being extremely short - it is possible to get dozens of waves into the EPS at one time if they're all using single-cycle loops.

Let's try one. In the EPS, auto-loop finding should be set to "on" - this is the default setting, so if you haven't changed it you don't need to worry. Now take a sample of any single waveform sound - your own voice, or a guitar, for example. When you've taken your sample, and selected its root key, you'll find yourself at the top of the EPS's "WAVE" page with "MODE=FORWARD - NO LOOP" showing in the display. Use the UP/DOWN buttons to set this to "LOOP FORWARD". Now cursor to the LOOP START page (or press "83" on the keypad), and set the loop start to an arbitrary point toward the end of the wavesample, say 80% of the way in. Now cursor to the LOOP END page, coarse adjust. Grab the data slider and move it all the way down - this sets the loop end as close to the loop start as possible. Now select the loop end fine adjust (the number in the left of the display). Play a note on the EPS keyboard, and press the UP arrow button until the loop is in tune with the rest of the sample. You will probably need to press it no more than four or five times, and you'll have a perfect loop. Maybe. You see, with auto-loop finding on, each time you increment the loop end point, the EPS is trying to find the next point in the waveform that contains a zero-crossing, and the waveform at the loop start and

loop end points is in phase (traveling in the same direction). There are a couple of things that can go wrong, however. One is that the loop sounds okay, but it's not in tune with the rest of the sample. The other is that the loop is in tune, but it doesn't sound right - it sounds dirty or "ratty".

If the loop isn't in tune, but otherwise sounds okay, you may be able to fix it easily enough using the "Loop end real fine" adjustment - the number preceded by a decimal point on the loop end page. If the loop is flat, underline this parameter and press and hold the down arrow button - the loop will slowly (probably real slowly) rise in pitch. If you wish to tune the loop flat, hold the up arrow button. Sooner or later, your loop will reach the desired pitch.

If your loop's in tune, but it sounds ratty, then probably what's happened is that you've picked a loop that contains some wavedata that has an odd harmonic sticking out somewhere. This harmonic wouldn't normally cause you any trouble if the waveform weren't looped - it may play by so fast that you wouldn't normally be able to hear it. But when you loop it, it begins repeating at the loop frequency (which in this case is your sample's fundamental frequency) and it can change the entire harmonic character of the sound during the loop. To remedy this, cursor over to the loop position page, underline the fine adjustment parameter, and use the UP/DOWN buttons to move the entire loop back and forth through the wavedata. You'll usually be able to find a good sounding loop in a matter of seconds in this way. RC030825

While you're on the loop position page, you might also want to see how near the beginning of your sample the loop can be placed - simply underline the loop position (percentage) number, and move the data slider down. There are a couple of advantages to having your loop near the sample's start point. The most obvious is that the closer you can get to the sample start point, the more memory you can free up when you truncate the sample after the loop end point. The other advantage is that most samples are brighter near the attack portion of the sound. As you move the loop position nearer to the sample's start point, you'll notice it getting both brighter and louder, particularly if the original sample is of a percussive source, such as guitar, bass, piano, etc. If you can loop the sound near its beginning, you'll be getting a more efficient use of the EPS's dynamic range (the sound is louder), and a bright sound can be filtered if you want it more mellow sounding, whereas there is no way to add brightness to a sound if it isn't there in the first place. If you can get a really bright loop on an electric piano sample, for example, you can apply a velocity controlled envelope to the EPS filters, and set it up so that the sample is at full brightness only on the hardest keystrokes - in much the same way that a real electric piano sound is brighter when played harder.

But what if you're sampling a multi-instrument sound, like a string section, or a synth layer? For these types of sounds, short loops will not work. Using short loops on these kinds of sounds produces a very static sounding wave at the loop point - any chorusing or timbral differences in the sampled waves will be lost. Only long loops will do in this application.

Long loops can last a second or more, allowing the sampled wave to cycle through its natural timbral changes. But long loops can be more difficult to find than short loops, primarily for one of three reasons. One problem is phase mismatches in chorused, or ensemble type sounds. If you sample three violins playing together in unison, the difficulty in finding a place to loop the wave where there is a zero crossing and the phase of the waveform matches can be tremendous. RC030825

The second problem is encountered in samples that contain amplitude changes. If you have a sample of a piano, for example, the sound is continually decaying. If you try to use a long loop on this type of sound, even if you can find an in-phase zero crossing, you'll have an abrupt "bump" in the volume of the sound as the sample jumps from the loop end point (where the sampled wave is at a low amplitude) to the loop start point (where the sampled wave is at a high amplitude).

The third problem has to do with timbral changes. If the sound changes timbre over time, such as going from bright to dark, a long loop that ends during the darker part of the sample, and then jumps back to the bright portion can be pretty obnoxious. Fortunately, the EPS provides a number of tools to deal with these problems.

For dealing with sampled waves that are of a chorused, ensemble nature one of the best tools provided by the EPS are the cross fade looping algorithms. The idea behind cross-fade looping is to try to blend in some of the data from around the loop points to help mask any noise a less than perfect loop might make.

Standard cross fade looping is found on many of the more current sampling instruments, and the EPS is no exception. This algorithm works well on non-chorused, sustained sounds that can't be single-cycle looped. Flute comes to mind as being one of these. To successfully use the cross fade function, you need only to look for a place where the sampled wave is fairly stable in terms of amplitude - in other words, the wave shouldn't be changing volume too much. With some waves, there will be a natural, cyclic change in amplitude, though - an example would be a flute note sampled with tremolo. If you are dealing with this sort of a sound, it is easiest to listen for the natural cycling in the sound, and then to try to match the loop length to the length of one of these "cycles". For example, if you are trying to loop a flute note with a 3 Hz tremolo (the volume is swelling and decaying 3 times per second), try to match the loop length to this same 3 Hz cycle. You should be able to tell how close you are to matching the tremolo frequency by listening to the spacing of the loop clicks while adjusting the loop start and end points. Don't worry about the clicking just yet - just try to capture one "tremolo" of the flute note, and try to get the loop start and end points at the quieter portions of the wave before and after the

tremolo. Once you think you've located the correct loop points in the wave, hit the COMMAND key, the WAVE key, scroll to "Cross Fade", and hit enter. Answer "Yes" to the "Use Default Values?" question, and voila! A perfect long loop nearly every time. Truncate the end of the sample and move on.

The procedure for working with ensemble waves, such as string sections and choir samples, is nearly the same. Almost any ensemble-type sound that you might sample will exhibit some sort of cyclic component - it may be a subtle swelling and decaying, or brightening and darkening of the sample, but it will almost surely be there. Try to match one of these cycles with the loop start and end points, just as you would with a non-ensemble sound. Once you think you are close, hit the COMMAND key, the WAVE key, and cursor over to "Ensemble Cross Fade". Press "Yes" in response to the "Use Default Values" question. You may be asked to increment the loop start, or decrement the loop end - ensemble cross fading uses some of the data from before and after the loop points, so if there isn't enough there to do the fade, you may have to do a bit of hunting to re-align your loop points.

Ensemble cross fading is amazingly reliable for producing click-free loops, but sometimes a loop won't work because of timbral changes. In other words, the loop may be click free, but a noticeable change in the timbre of the sample, from bright to dark, can foil your attempts to create a usable loop.

For these types of sounds, bi-directional looping may be the answer. A bi-directional loop will play from the loop start point to the loop end point, then reverse direction, and play from the loop end point back to the loop start point, then reverse direction, and so on. This helps to eliminate any abrupt change that might occur if the loop were to jump from a relatively dark sound around the loop end, back to a bright sound around the loop start.

Locating a good bi-directional loop can be pretty easy if you know the trick. After selecting "Mode= Loop Bi-direction" from the EDIT/WAVE page, pick an arbitrary loop start and loop end point. While listening to the loop cycle, rough in the approximate location where you think the loop will be effective. You'll notice that you can hear two distinctly different sounding clicks - one is the click at the loop start point, the other is the click at the loop end point. Choose either the loop start or loop end adjustment, and try some different loop points. You'll hear one of the clicks change in character as you adjust the loop point. Continue to try different loop points until the click you are listening to goes away. You now have one of the loop points set, and you can repeat the process to find the other loop point.

If you can't seem to make the loop points disappear, or if you get bored doing this, go to the COMMAND/WAVE section, and select "Bidirectional x-fade". Press enter, accept the default values by pressing enter again, and 90% of the time you'll end up with a perfect bidirectional loop.

Another thing that can give you trouble up when doing long loops is amplitude changes. A good example of

this would be a piano sample. The piano note is continually decaying - trying to use a normal loop will get you a sound that jumps abruptly from quiet to loud when it goes from the loop end point to the loop start point. Using a bidirectional loop isn't much better - the sample will exhibit a tremolo effect as it moves back and forth between the loop points. To help with these kinds of loops, you might want to try a little volume smoothing.

Volume smoothing is accessed from the COMMAND/AMP page - its effect is something like that of a digital compressor. It will increase the amplitude of the quieter portions of your sample, and decrease the amplitude of the loud portions, in an attempt to even out the dynamic range of the sample. Generally, you will want to apply volume smoothing to just the looped portion of a sample - if you can get the loop sufficiently smoothed out, you can apply an envelope to simulate the natural decay of the original instrument. Using the "fine" and "very fine" selections for volume smoothing will produce the most drastic results, with "coarse" and "very coarse" generally being a bit more subtle. Once the appropriate volume smoothing has been achieved, you can apply the appropriate type of loop for the material you're working on - forward, bidirectional, cross fade - whatever gets you through the night. RC030825

For some real fun, though, you'll want to check out the "loop and release" function of the EPS.

In a normal loop, when you strike a key on the EPS, the sample will play to the loop point, and then begin repeating. If you are using an envelope with a long release time, the EPS will continue to play the looped portion of the sample after you've released the key. With loop and release, though, the EPS will continue to play the looped portion of the sound only while you are holding down a note; once you release the note, the EPS will go on and play any of the sampled wave that follows the loop. This type of thing is often used to add a gliss to the end of a horn note, or some similar effect. We had a bunch of fun around here a while back by sampling the word "Dream", and looping the 'eee' vowel in the middle of the word using loop and release. In this way, we could play the word from the keyboard - and as long as we held down the keys, we'd get "dreeeee...", and when we let go, it would finish the word with the "mmm" sound. Instant barbershop quartet!

There's another application for loop and release, though. We were trying to create a clavinet sound, and we wanted to include the minute "click" that seems to be present at the end of a clavinet note. So we had layered two samples together, with the clavinet tone being one, and the tiny "click" the other. We set the click sound to be a "key up" layer - this would cause it to play only when the key was released. Then we ran into the problem - the click would play whenever the keys were released, even if the other notes had died completely away. This didn't sound all that great. Adjusting the envelope was no help, since the envelope would re-trigger each time a key was released. The solution? To loop a bit of silence at the beginning of the click sound, using loop and release. In this way, we could use the click in a key down layer, and by using the same envelope for the click that we used on the rest of the sample we could set it up so that the click would only be

heard if the keys were released while the other layered sample was still sounding. If the keys were held down until the sample had completely faded away, the click would not sound when they were released.

Anyway, I hope that gives you a couple of ideas on looping. It's really not so hard, after all, not on the EPS. Of course, some things will seem unloopable, at least at first. But just keep trying and chances are you'll hit that perfect loop sooner or later. Until then, this is Ol' Ernest Lee reminding y'all to mind yer P's and Q's, remember the a la mode, save it for a rainy day, don't take any wooden dialogue, a kiss is but a kiss, keep your bases loaded and, above all, keep on doing that crazy looping thangthangthang.



Bio: Clark Salisbury is a partner in the MIDI Connection, a Portland-based consulting firm. He has been actively involved in the composition, performance, and recording of electronic music for over 7 years and is now producing his own pop-oriented compositions. His favorite color is chrome.

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ESQ-1/M/SQ-80 Capture! Editor/Librarian

Reviewed by Jerry Tietz

For: ESQ-1, ESQ-M, SQ-80 with Atari ST computer.
Product: Capture! Editor/Librarian.
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ESQ-1/M/SQ-80 Capture!, Version 1.0, is a full-featured, medium-priced, editor/librarian for the Ensoniq ESQ-series synthesizers and Atari ST color or monochrome computer. It provides for all the expected functions like editing individual patches and transferring program banks between disk and synthesizer as well as some welcome goodies such as a simple sequencer and the ability to play specific notes with the mouse. Mouse pointing functions can, in many cases, be accomplished with keyboard key equivalents - a method which is sometimes faster and more convenient. In addition, ESQ sequences can be saved and loaded from disk either singly or as a bank along with the current internal patches.

After booting the program disk you must (annoyingly) go through an extra step of changing from low to medium resolution before clicking on the icon to run the program. Following the loading procedure a standard GEM-style window appears with a drop-down menu bar across the top. One would have hoped for a sexier looking control panel with more vivid custom colors and graphics as the look of the GEM interface is on the austere side. However, an admitted advantage to writing programs this way is that without exiting the program you are able to call up your favorite GEM desk accessories such as a calculator or notepad.

The various functions of the program are accessed by selecting one of four screens or "windows" from the menu bar: the program bank window to transfer banks of sounds between disk and screen or between the screen and synthesizer, the edit window to modify all parameters of a single voice except envelope parameters, the envelope screen used to change envelope parameters, and a MIDI keyboard window used to play notes by clicking the mouse on keys of a one octave keyboard. As an alternative to opening windows from the menu bar, you can have all windows overlapping on the screen simultaneously and mouse-click on the one you want currently open. The windows can be repositioned on the screen in the usual GEM manner.

The program bank window displays four banks of sounds in side-by-side subwindows each showing the names of the first twenty patches in its bank. To see the other twenty you have to click on the window's scrollbar. On the left side of the main window is a column of special purpose icons in the shape of a disk drive, a clipboard labeled "edit", a tiny keyboard symbol for MIDI, and a printer. Manipulating program banks involves mouse-clicking on the bank name and dragging it over to the

appropriate icon or vice versa. For example, to print a bank of patches the bank name is dragged to overlap the printer icon, or to load a bank from a disk the disk icon is dragged to a bank name which in turn calls up a file selector box from which you select the name of the disk file. Individual patches can be rearranged, copied, swapped, or combined with other patches in a similar manner. The unique "combine" option allows the parameter values of two patches to be averaged into an intermediate-sounding third patch but with no control over which parameters are affected. Included on the program disk is a handy desk accessory which, when installed, can transfer banks of patches from disk to ESQ while using any GEM-oriented program. If you are using a GEM sequencer, for example, you can reload the ESQ's internal bank from disk without leaving the sequencer. Its usefulness is limited by the number of commercial MIDI programs which use the GEM interface. RC030825

The edit window is accessed by dragging the patch name that you want to edit over to the edit clipboard icon and then mouse-clicking on the icon. Before the window appears you must first follow commands to press the soft "exit" button which appears in the ESQ display window and then press any one of the buttons in the "voice" section. This tiresome procedure must be done every time the edit window is accessed even when you are already on the edit page and just want to copy envelope parameters or use the randomize feature. Other ESQ editors sometimes require you to press a voice button (but not the exit button) before editing so there is apparently some system exclusive MIDI limitation on ESQs preventing independent control from the computer. In Capture! this "press the exit key" message occurs time and time again in seemingly unnecessary places and represents a considerable stumbling block to editing smoothness.

The edit window displays the values of all ESQ parameters, except the envelope parameters, in logical rows and columns. Parameter values can be changed by clicking with the mouse and then entering the new value from the computer keyboard or incrementing and decrementing either by holding down the right or left mouse button respectively or with the + and - computer keypad keys. Increments and decrements can be mercifully speeded up by simultaneously holding down the Shift key, which changes the value in multiples of five, or the Control key which sends the parameter instantly to the minimum or maximum value. The four envelopes are graphically depicted in miniature windows, one above the other, on the right side of the screen. It is possible to copy envelope parameters by mouse-dragging one picture to overlap another. Nice, but you then have to go through the "press the exit button" procedure to continue editing other parameters.

Also, you must be careful to align the borders of the source and destination windows to match exactly before releasing the mouse button otherwise you'll be forced to try again. Individual envelope parameters are changed by clicking on one of the small envelope graphics. This opens a separate full screen "envelope" window which shows a magnified graphic of the selected envelope and also the numerical values of each parameter in a table below it. Parameters are changed either by raising or lowering the numerical value or by clicking and dragging a point on the envelope curve stretching it into a new shape. With the second method, before the values are changed on the ESQ, you get the "press the exit key" message even though the ESQ display hasn't changed from the envelope parameter page. In that case you apparently just click on "ok" without pressing the button and you're back to editing. It seems to work, but in a commercial program one should never get a message that doesn't make sense.

Pressing the computer's Undo key removes the last edit change but again forces you to "press the edit key." Pressing Ctr/Home will erase all editing done since beginning or since it was pressed last. There is no quick way to alternately compare an edited sound with the original. To hear the changes made to a patch you can either play the ESQ keyboard or, if you are using the ESQ-M rack module, you can open a small MIDI keyboard window showing one octave of keys and then click on a key to play that note. The volume of the note is fixed by a numerical value which can only be changed from the computer keyboard. Other editors which use mouse position to change the volume permit much more rapid evaluation of velocity modulation effects. The window also allows you to change octaves, transpose the keys, and change programs. The manual says notes can also be played from the computer keyboard. It doesn't say which keys work, however, and, trying every key, I just couldn't get one to play a note. A future feature perhaps? A simple sequencer is included with save and load disk functions, but the playback timing is erratic which limits its usefulness.

A randomization feature is included which produces unpredictable (sometimes usable, sometimes not) variations of a patch if you are in need of new timbre ideas. A setup page allows you to specify which parameters will be randomized and to what extent. The setup can then be saved and reloaded from disk. To hear the results of a randomization requires first pressing a voice bank key on the ESQ, responding to the "press the exit key" message not once but three(!) times, and then pressing one of the voice edit keys. Arggg!

To save your edited sound to one of the patch banks you first close the edit window to get to the patch bank window and then drag the edit icon over to where you want it stored. The ESQ, meanwhile, has remained stubbornly in the edit mode, and before editing another patch you must manually get back to the voice bank display on the synth and press a voice key to get out of edit mode.

The operation manual is brief, well-written and to the point but gives no warning about the shortcomings such as making sure you are always within arm's reach of that pesky "exit" button. I should mention, incidentally, that whenever you use the Atari MIDI out port with any program make certain that the cable you are using has the two outside pins disconnected, otherwise you may get note doublings or loss of available voices.

In summary, Capture! gives all the features expected from an editor/librarian at a reasonable price. It works as advertised, but the user interface could almost certainly be made much smoother. ■ RC030825

Bio. Jerry Tietz has a Ph.D. in experimental psychology and works at the University of California, Santa Barbara, as a research associate. He is also an electronic music instrument repair technician, computer programmer, professional keyboard player, and Vietnam vet.

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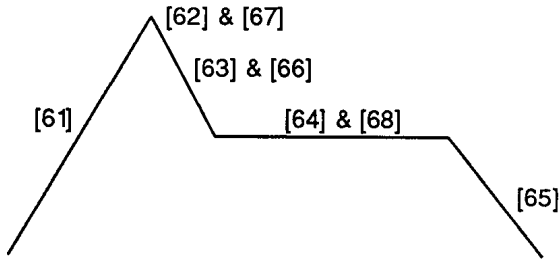
Mirage Soundprocess Envelopes

by Duane L. King

Now that you've had Soundprocess for a while and you've gotten comfortable with the patch parameters, it's time to become more sophisticated. It's time to learn the truth about envelopes! Perhaps, like me, you probably thought that Soundprocess envelopes were basically the same old ADSR (attack-decay-sustain-release) envelopes as the original Mirage software. If you program Soundprocess entirely from the keypad (or front panel on rackmounts), then you're right. If you have a computer MIDI'd to your Mirage and you're willing to write your own software then you can access all the features of Soundprocess envelopes. These envelopes are actually made of eight segments instead of the four segments that you can control from the keypad. RC030825

First we will explore the basic ADSR envelope and then expand that into the eight segment envelopes that are accessible via MIDI. Then we will tour the internal workings of the Soundprocess envelopes, including the two envelope tables that make it all happen. Even though this discussion focuses on the amplitude envelopes, it is just as valid for the filter envelope since they both work the same way.

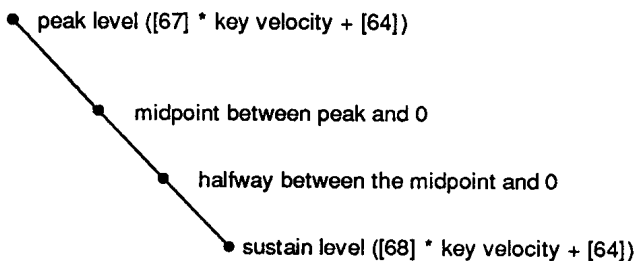
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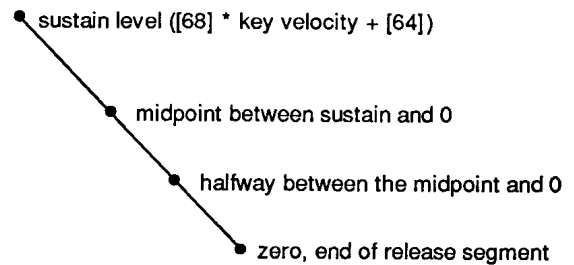
The attack slope always starts from zero and stops at the level determined by parameters [62] and [67]. The formula is $[67] \times \text{key-velocity} + [62]$. The slope or rate of attack is determined entirely by parameter [61]. Once the peak value is reached, the envelope will begin to decay at the rate or slope determined by parameters [63] and [66] (the formula is $[63] - \text{key-value} \times [66]$). When the envelope decays to the level determined by parameters [64] and [68] (the formula is $[68] \times \text{key-velocity} + [64]$), it remains at that level until the key is released. Once the key is released, the envelope will begin to decay to zero at the rate or slope determined by parameter [65]. This is the familiar ADSR envelope structure that many analog synthesizers have used so well. But hey! This is practically the 90's! We're sophisticated...

THE TRUE STORY

The attack rate is a single straight line whose upward slope is determined by parameter [61]. The decay and release segments are more versatile and complex than this. Both the decay and release envelope segments consist of three (3) line segments defined by four points. (The previous depiction of the decay and release segments is accurate - only not complete.)



For the decay segment, its final endpoints are defined by parameters [62] and [67] and by parameters [64] and [68] as before. What wasn't stated was that two additional points, between the endpoints, are computed by Soundprocess. The first of these additional points is halfway between the peak value and zero. It is called the midpoint. The second additional point is halfway between the computed midpoint and zero. This point is called the quarter point. The slope of the first line segments (from the peak to the computed midpoint) is determined by parameters [63] and [66] as before. The slopes of the other two line segments (from midpoint to quarter point and from quarter point to zero) are determined via table lookup by Soundprocess.



The release segment is defined similarly. Its final endpoints are determined by parameters [64] and [68] and by zero. The first of the two additional points of the release segment is computed as the halfway point or midpoint between the sustain level and zero. The second point or quarter point is computed as halfway between the computed midpoint and zero. The slope of the first line segment (from the sustain level to the computed midpoint) is determined by parameter [65]. The slopes of the other two line segments are determined via table lookup.

Once the release segment begins, it always runs to the completion of all three line segments of the release portion of the envelope. This is not the case for the decay envelope. The sustain level could be higher than the calculated midpoint. In this case the second and third segments of the decay are not heard. The second condition that can terminate the decay segment is key release. Then the key is released, the release segment of the envelope begins. It will use the envelope value at the moment that the key was released as the starting point for the first segment of the release. If the sustain level is higher than the peak level, the decay segment is skipped entirely and the envelope becomes an ASR (attack-sustain-release) envelope.

THE NUTS AND BOLTS OF ENVELOPE GENERATION

Internally Soundprocess uses two 32-entry tables during envelope generation. The first table contains numbers that are used to determine how rapidly the envelope moves from one level to the next (attack, decay and release). This table contains one 16-bit rate value for each of the 32 (0-31) possible values of the attack, decay and release parameters. The second table, the offset table, is used to calculate the slopes or rates for the second and third segment of the decay and release envelope segments.

When a key is pressed, Soundprocess uses the value of [61] to select the attack rate from the rate table. When the peak value is reached, parameters [63] and [66] are used to select the decay rate for the first line-segment of the decay. The envelope will decay at that rate until the calculated midpoint is reached, the sustain value is reached or the key is released. If we assume the calculated midpoint is reached before either of the other two conditions can occur, the decay rate value

calculated from parameters [63] and [66] will be used to fetch a pair of 8-bit values from the offset table. The first of these values represents the offset from the current position in the rate table, as indicated by the value calculated from parameters [63] and [66], for the second line-segment of the decay (from the midpoint to the quarter point). The offsets are unsigned, even numbers in the inclusive range zero thru 62. Soundprocess adds this 8-bit number to the current decay value (from parameters [63] and [66]) and uses this value to fetch the slope or decay rate for the second segment of the decay. The envelope will decay at this new rate until the calculated quarter point is reached, the sustain value is reached or until the key is released. If we assume that the sustain level is reached before the key is released then the envelope will remain at this level until the key is released. When the key is released, parameter [65] is used to fetch one of the 32 rates from the rate table. This value will be used as the slope or release rate for the first segment of the release. The release segment behaves in much the same way as the decay segment.

THE TABLES

The standard rate values make the decay and release envelope segments look like exponential curves:



As shipped by Triton, the rate and offset tables contain the following values:

RATE TABLE			↓	OFFSET TABLE		
Hex	Decimal	Time to ramp 0-31		RATE VALUE	2nd slope	3rd slope
FFFF	65535	0.00 sec	0	0	0	
3FFF	16383	0.01	1	2	4	
1FFF	8191	0.02	2	4	6	
1555	5461	0.03	3	8	6	
FFF	4095	0.04	4	8	6	
CCC	3276	0.05	5	8	6	
AAA	2730	0.06	6	8	6	
7FF	2047	0.08	7	8	8	
71C	1820	0.09	8	8	6	
555	1365	0.12	9	8	6	
3FF	1023	0.16	10	A	8	
38E	910	0.18	11	A	6	
2C8	712	0.23	12	A	6	
248	584	0.28	13	8	6	
1FF	511	0.32	14	8	6	
17D	381	0.43	15	8	6	
12F	303	0.54	16	8	6	
FF	255	0.64	17	8	6	
C7	199	0.82	18	8	6	
A0	160	1.02	19	8	6	
82	130	1.26	20	8	6	
69	105	1.56	21	8	6	
54	84	1.95	22	8	6	
44	68	2.41	23	8	6	
37	55	2.98	24	8	4	
2C	44	3.72	25	8	4	
24	36	4.52	26	8	2	
1D	29	5.65	27	8	0	
17	23	6.92	28	6	0	
13	19	8.62	29	4	0	
F	15	10.92	30	2	0	
C	12	13.65	31	0	0	

Enter the table at the arrow with the value of parameter [61],[63] or [65] (or one of the computed values) and retrieve either the rate value or the offset values. The time values listed in the rate table represent the time in seconds for the

attack segment of the envelope to ramp up to the maximum value (31) from zero. The formula for this is:

$$(65536 / \text{rate-value}) * 2.5$$

This formula produces a time value in milliseconds (thousandths of a second).

The rate values may appear mysterious to you. The key to understanding them is to think of them as step values. Every 2.5 milliseconds Soundprocess will accumulate the current rate value. What this means is the value that is fetched from the rate table is added to a running total that represents the current envelope value. When that accumulated sum reaches or exceeds the peak value then Soundprocess will begin the next segment. So if the attack rate (parameter [61]) is set to 1, we can use the above formula and calculate how many steps are in the attack slope and verify the time value in the table. We will assume that parameter [62] (peak level) is set to 31. The rate value for entry 1 is 16383. When we divide 65536 by 16383 we get 4 (truncated to an integer). What this tells us is that Soundprocess will sum 16383 four times before it reaches the peak value. Since Soundprocess only does this addition every 2.5 milliseconds we multiply 4 by 2.5 to get the time (in milliseconds) that it takes for the attack envelope to go from zero to the maximum value when [61] is set to 1. You should get 10 milliseconds as your answer. Here is a formula that will work for any single segment of the decay or release envelope segments: RC030825

$$| \text{start-level} - \text{end-level} | * 2048 / \text{rate-value} * 2.5$$

The vertical bars ("|") mean absolute value. This formula produces a time in milliseconds.

CONCLUSION

Did you skip down to here? Soundprocess envelopes are more complex and versatile than the original ADSR envelopes. Obviously this flexibility comes with a high price tag. If you understand the envelope tables now, you are ready to begin experimenting! You will need to dig into the appendix and the addendum for Soundprocess to learn about the system exclusive messages for updating the envelope tables. Once you've done that you will probably want to begin by altering just the rate values. Begin by picking a level in the range 0 thru 31. Find that rate value in the table and alter it any way you want. If this is for a decay or release segment then look at the same entry in the offset table to see where in the rate table the slopes for the second and third segments will come from. You can alter these rate values also. Now make sure that your patch only accesses the altered rate values during one segment of both amplitude envelopes (this is just for starters). After you update the envelope tables you are ready to play some notes and find out what you did the envelope tables are global to each bank- when you save the bank, the envelope tables are saved with it. This means that any changes you make could potentially ruin or "enhance" one of your other patches.

One final note: a rate value of zero forces a sustain action - the level remains constant. If this occurs in the decay segment, the note will probably stop sounding after you release the key (at the end of the release segment). If the zero rate value occurs in the release segment then the only thing that will stop the note is an all-notes-off command or the STOP button on the keypad. Now get out there and experiment!! ■

Sound Logic Patches

Reviewed by Chris Barth

For: ESQ-1, ESQ-M, SQ-80.
Product: Modular Voice System - 120 patches.
Price: 120-voice disk \$39.95, 80-voice RAM \$59.95, Blank RAM 80-voice \$42.95, Blank RAM 160-voice \$79.95 Money Back Guarantee.
From: Sound Logic, 1125 Eleventh St, Ramona, CA 92065.

I'm not sure what's so special about California, besides the obvious things like beach bunnies, raisins, and earthquakes, but joining the party with VOICE CRYSTAL, CESIUM, TECHNOSIS, the MUSIC BANK, and other West Coast programmers is SOUND LOGIC from scenic Ramona, California. Their MODULAR VOICE SYSTEM is a collection of 120 patches for both Ensoniq synths. As usual, I auditioned them on my ESQ, but they should sound pretty much the same on an SQ-80.

Unlike other collections, most of the voices are not given descriptive names. Instead, we're presented with 01.BASS, 02.BASS, 01.CWYR (get it?), 1ACPNO, and so on. Now normally, this would not be problem, but in this case, it accentuates my beef with this set: it's a nondescript, undistinguished collection. After two months of listening to it, I couldn't find anything I felt like keeping. The entire set strikes me as filler; I just couldn't find any diamonds with all that digging.

A few of the patches are satisfactory, but they are in work-horse categories which you've probably filled by now. There are five good organ patches, with 03ORGN featuring voice waveforms for a relatively new and interesting sound. However, it's crying for a decent bass split, since its range is limited to the upper octaves. The five acoustic pianos are dull and will

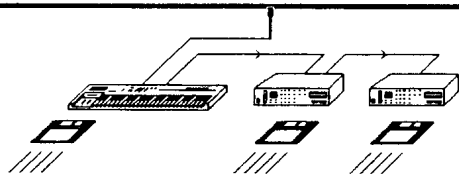
do nothing for your reputation or Ensoniq's. Likewise, the eight bass patches just sit there. They're thin, or they have the wrong sustain, or something, but with the exception of 03.BASS (featured in Hackerpatch in Issue #43), they're not going to do anything for anybody.

Some of the more tolerable patches are just too close to sounds I know you have anyway. You've got the Ensoniq gong, right? How about the seagulls at the seashore? The VOICE CRYSTAL whistle? The CESIUM koto? I'm not suggesting a deliberate rip-off here; I do smell a lack of originality and mediocre programming skills.

If I had to sum up the worst points: 1) the sustain is out of whack on half these sounds; 2) none of the orchestral or brass sounds is remotely convincing, and some are hopeless; 3) almost all of the experimental and special effects sound like they're coming from a \$200 Casio CZ-101. The bottom line is that I don't think anyone used these patches in a musical context before they were offered for sale, and that's why I'm suggesting a pass on this one. If you've never bought a third party collection before, you would do much better with almost any other vendor; if you've already listened to some other collections, you'd probably send this one back. ■ RC030825

Bio: Chris Barth writes and produces his own top 40 demos in his MIDI home studio using an ESQ-1, a Kawai R-100 drum machine, various guest musicians and signal processors. He played bass in nightclubs for 6 years before getting his law degree. Chris knows the words and music to all the songs recorded by Paul Revere and the Raiders.

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The (Unofficial) State Of The Mirage Address

by Bryce Inman

It was late 1984 when, within a two week period, I heard two new and revolutionary synthesizers - the Mirage and the DX7.

Since my needs at the time were focused more on imitating acoustic instruments than synthesized sounds, the choice was obvious for me. Besides, the Mirage could sample anything, so all I had to do was borrow someone else's DX7 and sample it with the greatest of ease (ha, ha).

Now it's 1989 and the market is flooded with budget samplers many of which are better than the Mirage. Why then, would anyone want to keep their old Mirage now - let alone buy one? Well, I can think of a lot of reasons.

For all of its weaknesses, the Mirage still has a lot going for it. For the remainder of this article I want to discuss what the Mirage is and isn't capable of doing, some accessories you can buy to breathe new life into your keyboard and do a lot of highly opinionated editorializing.

For one thing, there's the *Hacker*. The information in this publication (performance and operation tips, reviews, an open forum for questions and discussions, etc.) make it extremely valuable to ESQ-1, SQ-80 and EPS owners and essential for Mirage owners.

The *Mirage Advanced Sampler's Guide*, though better than the owner's manuals by many other companies, leaves a lot to be desired. That's where the *Hacker* comes in. Personally (and I suspect this is true for most TH readers), the information in this magazine has more than doubled the value and usefulness of the Mirage by unlocking many secrets not found in the *Advanced Sampler's Guide*. (As proof of how well the Mirage has been covered, just ask this magazine's editor how difficult it is to get the writers to come up with anything new to say about it.)

I may be wrong about this, but I don't know of any other family of keyboards that is supported by a news magazine of this caliber. Yamaha has their *Aftertouch* but, if you're familiar with it, you know there's no comparison. (When I bought Yamaha's SPX90 signal processor, I mailed in a card for a free subscription to *Aftertouch* - and a free t-shirt. I never received either.)

If you own a Mirage, or are thinking about buying one, and don't have back issues of TH, get them. Many issues are available from the *Hacker* for \$2.50 each. The Classified Ads in this issue list several people who will supply you with out-of-print issue for the cost of making the copies. At the very least, you ought to get ahold of TH's "Quick and Dirty Reprint Series". These are compilations of articles from the first 17 issues.

A Virtual Cornucopia of Samples

We all found out rather quickly that sampling on the Mirage was not quite as easy as we thought it would be. In fact, without a computer and wave editing software, you might as well forget it! At this point I say, "Big, hairy deal!" By now there are so many samples, both from Ensoniq and third-party vendors, that this is almost a non-issue to a lot of people. (I know several people who own an EPS - you know, the sampler that can easily sample just about anything - who, for whatever reason, still don't do their own sampling, relying instead on

samples someone else has made.) Just about every acoustic instrument you can think of is available along with a ton of synth samples. RC030825

NOTE: In the following sections I'll be discussing specific products from third-party vendors. Because of time and space I won't be going into much detail. Rather, I'll try to give general descriptions and, when possible, list the issue of *Transoniq Hacker* which contains a review of each product.

Operating on the Operating System

The Mirage is, at heart, a computer. Since it loads its operating system from disk each time it's powered up, this leaves it wide open for hacking. And folks, let me tell you, it's been hacked to death! Most of these new operating systems disable the Mirage's sampling abilities (you should be sampling with MASOS anyway) to make room for the added feature. Some also disable the sequencer, so, if that's important to you, you may want to investigate this first.

Here's a sampling (ugh) of the alternate operating systems currently on the market:

1. EXPANDED MIDI CAPABILITIES:

When the Mirage made its debut, MIDI was relatively new and, as a result, many MIDI features which are now considered pretty standard weren't incorporated into the Mirage's O.S. The Super-MIDI Disk (TH #33) from Upward Concepts adds many of these features: MIDI volume control, controller mapping, MIDI overflow, transmit and receive on separate MIDI channels, an all-notes-off "panic" button and more.

O.S. 3.d (TH #34) from Leaping Lizards (now marketed by Upward Concepts) does pretty much the same thing with an added transpose feature which allows the Mirage to play over the entire 128 note range (both internally and over MIDI).

2. SYSTEM EXCLUSIVE LIBRARIANS:

Need a patch librarian for your other synths or storage for your sequencer or patterns from a drum machine? MIDlcaster (TH #35 and #44) from the MIDI Connection is the answer. Just as the Mirage can only save 3 sound files per disk, MIDlcaster can only save 3 system exclusive files per disk. However, within each file you can save data from several different files to disk and send them back to the appropriate unit without getting the data mixed up.

All of this (and other utility functions - disk formatting and copying operating systems to disks) can be done without disturbing normal O.S. 3.2 functions (although the Mirage will not play while transferring files).

The Iguana (TH #32) from Leaping Lizards (Upward Concepts - remember?) has much the same system exclusive capabilities except that O.S. 3.2 must be rebooted after transferring files. The only way around this is to also buy the Iguana, Jr.

3. ALTERNATE TUNINGS:

Are you into weird tunings a la Wendy Carlos? No problem. Upward Concepts has a couple of options for you. The Mirage

Multi-Temperament Disk (TH #21) gives you 13 historical temperaments (plus one which inverts each octave - it's fun, but not very useful) at the punch of a button while retaining most 3.2 functions. It can also transpose the Mirage up or down an octave in half-step increments - an extremely useful function.

If you want to construct your own scales, you'll want to get Upward Concepts' Micro-Tonal Scales Disk (TH #26). Setting up your own scales is a good deal of work with this disk but, once you've constructed a scale, you can save it to disk for easy recall.

4. SOUNDPROCESS:

\$245 may seem like a lot for a new operating system, but Soundprocess (TH #33 and #39) virtually transforms your Mirage into a completely new ESQ-like synthesizer. With Soundprocess booted up the Mirage becomes a multi-timbral synthesizer with a whole new set of algorithms, envelopes and improved MIDI (each sound can be assigned to any of the 16 MIDI channels) and split capabilities.

Soundprocess comes with 72 waveforms but it can also do something ESQ-1/SQ-80 owners have been wanting to do for a long time: you can create your own waveforms. These can come from variety of sources including any Mirage wavesample. RC030825

5. DESIGN YOUR OWN OPERATING SYSTEM:

Some people are just never satisfied! If none of these operating systems fits your needs, you can create your own. The OS-1 Monitor Disk from Upward Concepts will allow you to design the operating system of your dreams with any computer that has an RS-232 interface.

The Mirage Monitor V1.0 from Leaping Lizards (Upward Concepts) will allow you to do this with a Commodore.

So You Also Have A Computer...

There is so much software available for the Mirage (and new programs on the market all the time) that I couldn't possibly get into any specifics. Basically, there are two types of software:

1. Visual Wave editors allow you to edit and manipulate samples from the Mirage. If you want to do your own sampling, some type of visual editor is really indispensable. Issue #21 of Transoniq Hacker featured a comparison of all visual editors available at the time (March, 1987). Although that article is a bit dated, it's a good place to start getting an idea of what sort of features to look for.

2. The second type of software allows you to create wave-samples right on the computer. These programs feature things like frequency modulation, amplitude modulation, additive and subtractive synthesis, ring modulation, wavetable synthesis, wave shaping and more. Once you've created a wave on the computer, you simply transfer it via MIDI to the Mirage and save it to disk. The wavesamples developed in this fashion (if done properly) are crystal clear and limited only by the user's imagination.

There is one other program I should mention. Alchemy (TH #41) from Blank Software is a program for the Macintosh which will translate wavesamples from other (Casio FZ-1, Roland S-50 and others) into Mirage format. Once in the Mirage format, Alchemy also has many, many editing capabilities which allow you to get the sample into perfect shape for the Mirage.

In his review of this program, Mick Seeley tested it on the EPS and said it worked flawlessly. At the time the article was written, there were too many bugs in the Mirage program to test it but, once those are worked out, this could be the Mirage user's dream.

The Bottom Line

Perhaps the most important reason to have a Mirage these days is the whole concept of Ensoniq products - money. Or, rather, the lack of it. Other samplers sound better, are easier to use and have lots of bells and whistles, but, again, you have to pay for those things. If you do a lot of professional recording, you probably ought to spend some extra money on a better sampler. However, there are a lot of situations where it's just not worth it to spend the extra money. For example, if you're playing through a mediocre sound system or your gigs are in noisy night clubs or the places you perform have terrible acoustics, the money spent for a sampler with better sound quality will probably go unnoticed by just about everybody. For that matter, even if you are in a situation where increased fidelity is easily heard, you might want to consider how many people can actually tell the difference.

To make an illustration about this point, I must make a confession: I am selling my Mirage so I can afford to pay for my new EPS. I wish I could hold onto my Mirage to expand my available voices, but the only way I can afford the EPS is to sell my Mirage.

After I bought my EPS I spent many hours converting all my Mirage samples to the EPS and then a lot more time adjusting my sequences to take advantage of the EPS' expanded capabilities. When I was done, I was elated with the transformation that had taken place - my old sequences had come alive! I called my wife into the room to share my excitement. Now, my wife is not into synthesizers or recording on a professional level, but she is a musician in her own right. She listened intently to a couple of songs and then shrugged her shoulders and said, "Sounds the same to me."

Fortunately, I work with people who can hear the difference, so I was not completely demoralized by her reaction. This did, however, illustrate to me that, although it's nice to have a better keyboard, one must consider whether or not the extra cost will be justified for the applications of that keyboard.

In Conclusion...

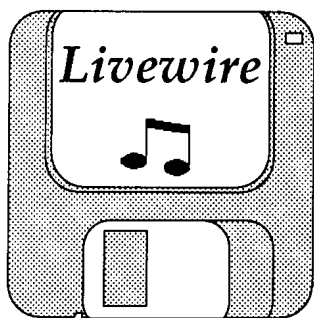
No, the Mirage ain't the hottest thing on the market, but it's still a reliable old workhorse that has a lot of applications in the world of synthesis - and it's relatively inexpensive.

If you have any questions, take a look at the Transoniq-Net section of this magazine and you'll see a whole list of people who are available to answer your questions about the Mirage and related products. Don't be afraid to call Ensoniq, they really DO support their products and are quite friendly and willing to help in any way they can.

Isn't it wonderful to be part of this unique family? Everybody stand up and sing "We Are the World" with me! ■■■

Bio: For eight years Bryce Inman traveled with a gospel music team called Sound Investment and taught music in Indiana (where the winters are too cold). Now he works as a free-lance music editor for Word, Inc. in Irving, TX (where the summers are too hot).

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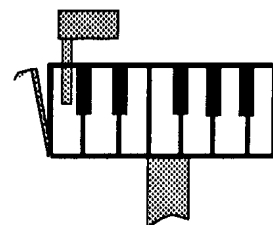
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Wacky Mirage Techniques

by Gordon G. Gebert, MIDI Users Group (MUG)

Remember the old days when you hit a key on a Minimoog and you didn't know what to expect? Especially with sample and hold turned on. A flurry of sporadic notes or timbres spewed out of your amplifier. You young people out there don't know what you missed. A great example is on Emerson Lake and Palmer's Brain Salad Surgery album at the end of Karn Evil 9 1st Impression (part 1) going on part 2. When you hit a keyboard on a sampler these days what you loaded is usually what you hear. Gets a little tedious. Well, here are some techniques to get planned unexpected results on your Ensoniq Mirage Digital Sampler.

Load your favorite hit into your Mirage. You know, those samples off of albums of looped choruses or lines (for example: Knack - *My Sharona*, Led Zeppelin - *Whole Lotta Love*, Yes - *Owner of a Lonely Heart*). Choose a sample that uses all the memory in the lower or upper bank. To check, Parameter 60 Wavesample Start should be set at "00" and Parameter 61 Wavesample End should be at "FF". Parameter 65 Loop Switch should be ON. Always make sure you're working in the same bank. Now the fun begins. Have Parameter 62 Loop Start ready. Strike and hold a key down on your keyboard. As you do that hold down the "UP" button and change your parameter value while listening to the sample. You can change the parameter up or down while holding down your key. Listen

to the loop point change and do crazy things to your sample.

Now to take advantage of a strange quirk in the Mirages' microprocessor design to get that old sample-and-hold effect. To get the most dramatic effect load your hit disks again in both lower and upper banks. Make sure you're working with one bank (lower or upper). Set Parameter 27 Initial Wavesample to "8", Parameter 28 Mix Mode to "ON", and Parameter 34 Oscillator Mix to "31". Hold down a key and let the fun begin. ■ RC030825

Bio: Gordon G.G.Gebert's major album credits include Ace Frehley's "Frehley's Comet" and "Second Sighting" on Atlantic Records utilizing samplers, sequencers and MIDI. Gordon is the president of M.U.G. (International MIDI User's Group). For information phone the 24 hour M.U.G. hotline (914) 963-1768 or write: G-4 Productions/ M.U.G., P.O. Box 615k, Yonkers, NY 10703.

Pulling Out A Sample

by Jack C. Loesch

This article will provide you with the information needed to pull a new sample out of an already existing one. I used this method when I needed to sample the sound effects in Natalie Cole's version of "Pink Cadillac."

In the intro you hear a car starting and as it moves away, the squeal of tires. This we'll call Sample 1. After the first verse there is again the sound of squealing tires. I will refer to this as Sample 2. The problem with Sample 2 is that it is not a clear cut, simple sound. There are background noises that would have to be dealt with in order to get a good sample. Therefore, I decided to utilize a portion of Sample 1 in place of Sample 2.

We'll begin with Upper Sample 1 having the following values: P60=00 and P61=DEF. Hit REC 1. Set P73 to 99. I want Sample 1 to play back on F4 so I need to adjust P67=01, P68=60, and P72=42. Now we are ready to do Sample 1.

After sampling, the next step is to take the squeal from Sample 1 for our Sample 2. A neat way to find out how much memory the squeal uses is by hitting REC 1 - P60. Adjust its value from 00 and gradually increase it as you listen to Sample 1 on F4. Do this until you find the part you want. I came up with the values C0 to DF which is 32 pages long. Now you can return P60 to 00.

Hit REC2 - P60=E0 - P61=FF - P67=00 - P68=60 - P72=50.

Hit PLAY 2 - P60=E0 - P61=FF - Hit PLAY O/PROG 1 - P27 - VALUE - adjust to 02 - P72=31. (We do this so that we can

hear the moved squeal.)

Hit REC - 1 - P85=C0 - P87=DF - P89=E0 - P94=LOWER - Hit LOAD SEQ - 1 - ENTER.

We now have our squeal - P60=E0 and P61=FF (32 pages) on the lower keyboard. Hit F1 to check it. How we will return it to the upper keyboard as Sample 2.

Hit PLAY - 2 - 18 - 2 - ENTER.

Play F5 to listen. You might need to make some adjustments to P69 for relative amplitude (loudness) of each sample and P70 for Sample 2 which can make an individual sample brighter or duller.

How just set up the rest of your envelope generator and you're set. Most of the time I use the plain vanilla envelope generator which is set up when you boot up with the MASOS disk.

All that's left is to place it in the memory of Upper Bank 1 by hitting 12 - (I used) Bank 1 - ENTER.

Along with pulling out a piece of an already existing sample, this procedure could also be used to create great hybrid keyboard sounds. ■

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

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Hackerpatch

By Sam Mims

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

The Patch: BALPRK

by Ted Chmura, III, Chicopee, MA

Try some of your favorite ballpark ditties on this organ patch. Sounds close to mel LFO3 is wide open to use for panning (on DCA4). Decreasing the value of the MOD #1 DEPTHS of the DCAs (in other words, making the negative numbers more negative) adds boom to the bass end.

The Hack

Play ball! Here's a quite accurate imitation of the baseball organ that some of us love and some of us hate. Well, it ain't no D-50, but it does have its charm. The KBD2 modulation on the DCAs increases the volume of the bottom end of the keyboard, and the pedal acts as a volume pedal, a nice touch for an organ sound. But, it doesn't control the full range from off to loud. You can enhance the pedal's effect by subtracting a number, say 15, from all three DCA levels, and adding it to all three DCA MOD #2 DEPTHS.

Turning the resonance (Q) on the FILTER page to 00 gives a slightly fatter sound, but Ted made a good choice here as far as realism goes. Batter up!

The Patch: DRMPNO

by David Libby, Vincennes, IL

This altered piano patch uses ENV1 to sweep OSC1 and 2 on the attack, giving the piano waveforms a sitar-like flavor. The exaggerated THUMP adds to the percussive feel of the patch. Playing around with T2 on ENV1 makes the sitar effect more or less pronounced. Adjust to taste.

The Hack

Just to get a feel for the way this patch works, take a look on ENV1 which modulates oscillators 1 and 2. The envelope sweeps the note down into pitch, where it remains until the key is released. Then it slides back upward. This effect is not perceived because it happens so fast; try slowing it down (just to listen for a moment - not permanently) by setting T2 to 20 or so. The upward release slide is not heard because T4 is set to 63; the note dies out long before any sweep is heard (since T4 of ENV4 is only 27). To hear this slide, set T4 of ENV1 to 23. Since this last sweep is not really part of the sound, it seems like it would have been easier to program the envelope in reverse (L1 = 63, T1 = 00, L2 = 00, T2 = 04, T1V and TK the same, all else 00); in this case, the oscillators would not have to have been retuned (FINE = 08 and 09). But, whether intentional nor not, David's ENV1 modulation drops the piano samples an octave below their normal range, thus bypassing the multisample points and creating a different timbre.

If you want more of a pronounced THUMP, try setting the second modulator of DCA3 identical to the first one (ENV2 = 63). Play around with some other waveforms here for nice variations of this patch. ESQ users will have to do this: try KICK and BASS for starters.

The mod wheel adds a nice detuning, but it must be used subtly; it probably shouldn't be cranked up more than half way.

The Patch: WRAITH

by Tim Edwards, Durham, NC

WRAITH is a good percussive sound useful for arpeggios. The scratchy timbre is produced mainly by ENV2. RC030825

The Hack

This is a nice sound, but mighty hard to pigeonhole. Maybe a pseudo-synth-marimba? The characteristic sound is mainly produced by ENV3 acting on the filter. If you want a smoother timbre, try turning DCA3 to OFF, leaving only OSC1 and 2 with the SYNTH2 waveform. If you're searching for an interesting bass sound, try WRAITH with AM turned on. If you like weird synth sounds, play around with GLIDE (MODES) page and with the filter resonance. GLIDE = 10 works pretty well, to add just a hint of portamento. Just a smidgen of filter resonance (Q) adds more of a synth flavor, while cranking it up full (Q = 31) leads to a robot baby chick from a distant galaxy.

The Patch: 12STRG

by Jarvis Watnemo, Hutchinson, MN

12STRG has a sound somewhat like a 12-string guitar. Try raising OSC1 by one octave.

The Hack

I like this sound, though it doesn't particularly remind me of a guitar. To get somewhat more of a guitar sound, try turning on the amplitude modulation (AM) on the MODES page; this gives a bit more pluck, and de-emphasizes the dreamy ambience of the sound. But I like that dreamy quality, so instead of working towards more of a guitar patch, I left the AM off and cranked the filter FREQUENCY up full (to 127). Then I changed OSC1 to the SYNTH1 waveform for a nice bell effect. As a final modification, I set up KBD2 as a modulator for the panning (DCA4 page) with a value of 41. This adds a stereo dimension to the sound; the lower end of the keyboard is panned to the left, and the upper register is panned to the right.

I usually include some kind of stereo effect in my patches, but here's a warning. Many sound systems in clubs and other venues are not set up in stereo. You could get into trouble if you don't set up your stereo sounds correctly. Just using the left output of the ESQ/SQ-80 sums the left and right "halves" of the sound, and you'll be okay. But if your keyboard rig (mixer, etc.) is set up in stereo, and you use both output jacks of the keyboard, then you'll need to pan both the left and right channels to center to either your mixer or on the house mixer. In other words, avoid sending just half of a sound to the house PA; stereo panning programmed in a sound will then just make it fade in and out - quite a different effect.



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

ESQ-1 PROG: BALPRK

BY: TED CHMURA, III

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	ORGAN	LFO1	1	LFO2	1
OSC 2	-1	0	2	4OCT5	LFO1	1	OFF	-
OSC 3	-1	0	1	OCT+5	LFO1	1	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	56	ON	KBD2	-9	PEDAL	10
DCA 2	47	ON	KBD2	-12	PEDAL	13
DCA 3	46	ON	KBD2	-7	PEDAL	13

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	0	5	47	ENV3	63	KBD2	46

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	28	OFF	ON	TRI	0	3	7	WHEEL
LFO 2	26	ON	OFF	TRI	63	3	21	OFF
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	41	37	32	4	0	1	29	20	19	0
ENV 4	63	55	63	14	0	2	29	63	4	0

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

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

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SQ-80 PROG: DRMPNO

BY: DAVID LIBBY

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	8	PIANO	ENV1	25	OFF	-
OSC 2	0	0	9	PIANO	ENV1	25	WHEEL	1
OSC 3	-2	4	0	THUMP	OFF	-	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	56	ON	ENV4	63	OFF	-
DCA 2	56	ON	ENV4	63	OFF	-
DCA 3	3	ON	ENV2	63	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	24	5	15	ENV3	63	KBD2	-12

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO1	63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	4	OFF	OFF	TRI	63	0	0	OFF
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	0	-63	-63	0	31	0	4	63	63R	9
ENV 2	60	5	0	30L	0	0	16	0	0	0
ENV 3	63	20	31	38X	0	0	55	63	0	39
ENV 4	63	39	22	27X	0	0	30	57	27R	0

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

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

ESQ-1 PROG: WRAITH

BY: TIM EDWARDS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	SYNTH2	OFF	-	OFF	-
OSC 2	-1	0	2	SYNTH2	OFF	-	ENV2	1
OSC 3	-1	11	31	PULSE2	ENV2	-13	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	OFF	-	KBD2	3
DCA 2	54	ON	OFF	-	KBD2	6
DCA 3	54	ON	OFF	-	KBD2	7

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	0	0	22	ENV3	63	LFO3	-63

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

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

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-45	0	0	0	0	0	10	0	10	0
ENV 3	0	63	28	16	0	2	0	17	21	32
ENV 4	63	40	0	0	0	2	35	48	30	25

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

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

ESQ-1 PROG: 12STRG

BY: JARVIS WATNEMO

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	5	BASS	LFO2	-1	OFF	-
OSC 2	0	0	3	BASS	LFO1	2	OFF	0
OSC 3	0	0	0	BASS	LFO2	-1	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	ON	ENV1	63	OFF	-
DCA 2	0	ON	ENV2	63	LFO3	36
DCA 3	0	ON	ENV3	63	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	26	4	15	ENV4	63	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	18	ON	ON	TRI	18	0	0	OFF
LFO 2	19	OFF	ON	TRI	0	1	18	OFF
LFO 3	25	OFF	ON	TRI	0	3	63	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	0	63	0	0	4	11	0	43	32	0
ENV 2	0	63	48	0	4	15	0	43	36	0
ENV 3	63	54	50	0	0	0	28	43	32	0
ENV 4	63	58	0	32	0	0	19	43	47	0

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

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

Classifieds

USER GROUPS

Anyone interested in forming a Puget Sound EPS user's group please contact Terry Tippie, 2123 4th Ave. N., Apt. #3, Seattle, WA 98109 or call (206) 282-7949. Swap sounds and sequences and learn about the EPS from experienced users.

Any EPS owners in the U.K. interested in sample / sequence swaps, etc., please contact David Howard, Wolfson House, 4 Stephenson Way, London NW1 2HE.

SAMPLES

I am a professional accompanist and only use quality ancient and modern acoustic instrument sounds on my EPS. Will buy, sell, or trade sounds, Brad Slocum, 1059 West Hill Ct., Cupertino, CA 95014. 408-446-9067.

Rare acoustic instrument samples for the Ensoniq Mirage: Harpsichords, Rebec, Vielle, Handbells, Harmonium, Organs, Harp, Flutes, Brass, many more. \$20.00 each. \$110.00 for a set of eight. Barry Carson, Minotaur Studios, 52 State St., Canton, NY 13617.

Big Sounds for the EPS! The M1; Drums 1-3, Tuba Flugal, Dist Guitar, Tenor Sax, Analog Bass, Fretless Bass, more. Minimoog Classics; Minimini, Big Mini, Buzzbass, more. All samples made on the EPS, stereo patches, polypressure, etc. \$10 per disk or \$80 for all 10 disks. JMP Design, 1959 Woody Court, San Jose, CA 95132. 408-946-6743.

Used Mirage samples - over 125 disks. All original. 201-736-7160. Evenings EST.

Free Public Domain Samples for the EPS (\$2.75 - disk cost). Over 500 sounds available. Send SASE for list & order form. Also - High Quality Samples For Sale. Perfect for unique applications. Free catalog. \$5 for demo tape. Rubber Chicken Software, Box 428, Renton, WA 98057. 206-242-9220.

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

EQUIPMENT

ROLAND JUPITER-6 keyboard. Classic analog synthesizer with upgraded MIDI, separate outputs, sync-able arpeggiator, split keyboard. Sounds great! \$800. ENSONIQ MIRAGE rackmount sampler with rare Turbo MME 5X memory expansion. Holds 5 disks of stuff simultaneously - great for live performance. Complete with operating system, MASOS, manual, disks. \$800. Call (201) 389-2197.

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EPS with 8-output expander, 2X memory expander, SCSI port, & 60 Meg hard drive. Huge sound library. \$3000. Sean, 312-655-2216.

Mirage. Excellent Condition. Includes La Strada case, 45 disks, sequencer expander, Midicaster, Multi-temperament disk, Advanced Sampler's Guide. All documentation. \$850. Bryce Inman, 5028 Colonial Dr., Flower Mound, TX 75028. 214-539-8689.

SOFTWARE

"Apple 2 + ESQ-1 + Passport": Complete software package. Load, save, print, and rearrange patches and banks. Includes free set of 120 patches. \$20.00. "Apple 2 + ESQ-M": Tape loader - you can now buy tapes of patches and load them to the ESQ-M through an Apple. Full software support. \$20.00. Specify type of computer and DOS 3.3 or ProDos version. Tim Edwards, PO Box 56, Smithfield, VA 23430. (804) 357-3054.

Yamaha CX5M software: system-exclusive librarian program for ESQ-1. Computer requires disk drive. Easy to customize to use with other synthesizers. Can store ALLSEQ files on disk. Get organized! \$10.00 to: Bill Seath, 5324 142nd Lane NW, Ramsey, MN 55303. RC030825

Used SoundProcess. 2 Masters, manuals, and 4 sound disks: \$200. Dr. T VDS: \$50. Echo+: \$30. 201-736-7160, Evenings EST.

Just Intonation Calculator, by Robert Rich. Macintosh Hypercard stack makes JI easy: shows scales to 48 notes/octave; calculates transpositions; reduces fractions; converts between ratios, cents, DX711, TX81Z units; internal sound. Only \$10.00. Soundscape Productions, Box 8891, Stanford, CA 94309.

PASSPORT (Master Tracks) 16-track Sequencer Pro, C-64, \$75.00. MUSIC DESIGN X-Lib for all DX/TX Synths, C-64, \$15.00. ELTEKON PRODUCTIONS ESQ-1 640 Voice Cassette, \$25.00. ORBITAL ACTION MUSIC, PO Box 55191, Grand Junction, CO 81505.

MSCI - IBM VES for Mirage and MPU-401. Reviewed in Issue #38 of TH. Program: \$40.00, Demo: \$7.00. Add \$5 S/H. Send check to: Jeffrey Richter/Donna Murray, 3502 Village Bridge Apts, Lindenwold, NJ 08021. Phone: 609-346-0943.

PATCHES

40 HOT SOUNDS FOR YOUR SQ-80! There's something for every taste on our disc; with free custom edits made to your request (see the review in the April, 1989 Hacker). Special introductory price is only \$12.95. Mescal Music, PO Box 5372, Hercules, CA 94547.

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cassette, Demo=Free (+ \$1.50 p/h). (Money Order = Quick Ship.) From: The Patch Well, 1826 E Indianola, Phoenix, AZ 85016. "Quality Not Quantity."

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SERVICES

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SEQUENCES

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

PUBLICATIONS

"The EPS Users Guide," 75-page reference manual for Ensoniq EPS. Price includes shipping in the continental US and free SCSI drive section update in late 1989. Send \$20.00 check or MO to Gary Dinsmore, 32695 Daisy Lane, Warren, OR 97053.

OUT-OF-PRINT BACK ISSUES

Transoniq Hacker Issues #2-37 (originals). Please call 703-754-2805. Would swap for \$ and/or patches, OS, etc.

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

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

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

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The Interface

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U.S. Mail - The Interface, Transoniq Hacker, 1402 SW Upland Dr., Portland, OR 97221

Electronic mail - GENIE Network: TRANSONIQ, CompuServe: 73260,3353, or PAN: TRANSONIQ.

This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt.

Dear Hacker,

I was going to put off writing this letter because of laziness and hope the Better Business Bureau could help me. After seeing so many other complaints about HEAVEN, though, I must add mine and urge others to file complaints with the B.B.B. (it's free) and hope they can track down this clown and get our money back.

First I tried phone-ordering from Heaven back in early fall of '88. His answering service would give no product information, only take phone messages (four of them all unreturned). I decided there was nothing I could do - they were probably having business troubles and not taking orders.

Then they started placing new ads. I said to myself - they're advertising - they must be in business. Mail them a check and they must send merchandise. Three months went by, with a letter of complaint unanswered, and their phone is out of order (or maybe is pretending to be - sounded like an answering machine to me).

The guy (Glen Javahari) had cashed my check without delay, and how many others? Let's find him and get our money back.

Better Business Bureau of Santa Clara Valley, 1505 Meridian Avenue, San Jose, CA 95125, (408) 978-8700

Glen Gafter
Kent, Ohio

[TH - Not a bad idea. Sorry about the ads. We were given all sorts of reassurances and he seemed to be sincere and serious about filling orders. (Some actually did get filled around that time.) We can't emphasize enough: If you're not sure about someone - use C.O.D. It's a bit of a pain, but it serves a purpose. Our "open forum" policy (and letters like yours) tends to weed out the dishonest, but, sad to say, an ad appearing in these pages is no guarantee that everything's cool.]

Dear Hacker:

I have an early model Mirage and have become interested in creating samples on the machine. I have a few questions about the sampling filter that was originally available:

1) Is it possible to obtain the sampling filter from Ensoniq or any other manufacturer?

2) Is the "Building A Brick Wall Filter" project that was in Electronic Musician the same device as the original sampling filter offered by Ensoniq?

3) Knowing the limitations of the machine I am interested in lower frequency samples and percussion. Does the filter add more dynamic

range to these types of samples or does it only increase sampling rate?

Basically what I need to know is am I wasting time trying to create quality samples without the filter?

Thanks for your quality newsletter and the info.

Allan Satt
Detroit, Michigan

[Ensoniq's response - 1) The input sampling filter has been out of production for some time. You may want to place a classified ad inquiring about a used one.

2) The Electronic Musician project is similar but did not have programmable input frequencies. The ISF also had a higher sample rate (up to 50 kHz) and bypassed the internal preamp, filter, and A/D for better fidelity.

3) The ISF doesn't add more dynamic range. It was primarily for reducing very high frequency components which cause playback aliasing without cutting into high-end frequency response. The MIRAGE DSK had no provisions for the ISF, but many people found it fine for sampling without the ISF.]

Dear Hacker,

Thank you for your life-line magazine for us in the UK - especially now that "Ensoniq UK" has lost the franchise for the sale of Ensoniq products in the UK. The customer services manger (ex now) has indicated his continuing support with products for users. What is Ensoniq's response? I have had various promises such as upgraded OS automatically, trade-in deals on 2X memory when upgrading to 4X etc., and the possibility of copying new samples as they come available. I assume these were supported by Ensoniq as a customer service - are we no longer entitled to any service from the parent company of this superb instrument?

How about a UK user's group - any more of you out there?

Yours sincerely,
David Howard
Wolfson House,
4 Stephenson Way,
London NW12HE, UK

[Ensoniq's response - We are in the process of establishing new distributors and service centers throughout Europe to better serve our customers. Ensoniq distribution in Europe was a completely independent operation from Ensoniq U.S. We were not involved in what level of support was provided.

With our new approach to overseas

distribution, we intend to provide the same level of customer support in Europe as we do in the U.S.] RC030825

Dear T.H.,

I have a small problem with my EPS. When playing back sequences with several instruments (mostly copies), I sometimes lose the decay of the instruments - making everything sound somewhat "choked." Could this be caused by a lack of memory?

I own a 2X, but definitely plan to upgrade.

Also, Ensoniq's response to Paul Draper's letter (T.H. #45, page 30) stated that an "8X expander could never be a reality," but your new product releases column in the same issue mentions the release of DCI's new EMC2 2 meg expander and the E2X 4 meg expander. Now, if my figuring is correct, this E2X would have 4 Meg (8,184 blocks), which would be the equivalent of an 8X. So what gives - is DCI a crock? And if it's for real, let's have a price. I'm sure EPS owners everywhere would love to have internal memory like this. And if Ensoniq believed in the word "never," they never would have been able to make an instrument like this - right?

Keep up the excellent work,
Richie Fox
Salt Lake City, Utah

[Ensoniq's response - Most likely, voices are being stolen before they have chance to decay. Although the EPS has 20 voices, each layer of an instrument uses a voice so using many instruments or a few instruments with many layers will lead to voice stealing.

See 8X response in the Front Panel of this issue.]

Dear Hacker:

I have a question concerning my EPS keyboard (serial number EPS 12420-F).

The problem is that the unit's output level seems quite low and there seems to be a rather high level of inherent noise. I've been running the EPS volume level all the way up but on many samples (such as Ensoniq's grand piano) the output is not much hotter than mic level. The unit also seems to hiss noticeably. Changing the EPS volume slider doesn't affect the hiss. Even with the volume slider all the way down, the hiss is still there. A friend who bought an EPS for his recording studio says his unit is "exceptionally quiet" but mine is noisier than my Korg Poly 800 or Yamaha FB-01, as well as having a substantially lower output level.

I took my EPS back to the shop where I bought it and the technician there agreed the

output level was low. But when we compared my keyboard to one in the store, the volume and the noise level seemed about the same.

Recently, I read in "Electronic Musician" that some early EPSs have been known to have noisy outputs and that the mainboard needs to be replaced. My EPS is dated 06/02/88.

Thanks for your help.

Sincerely,
Bruce Carlson
Seattle, WA

[Ensoniq's response - There will be an output-boost kit available at your local Ensoniq Authorized Repair Facility in the near future. The details of the upgrade kit have yet to be finalized. As soon as they are, the Transoniq Hacker will be notified immediately.]

Dear Hacker,

Now, I am a bit disappointed that Ensoniq has not made it possible for the EPS to store sounds on an IBM computer. I know SCSI and a special stand alone hard disk will do it. But that's another \$1000 to \$1500 and so many of us already have a hard disk. Anyone have the answer?

Thanks,
Jim McDonald
Fayetteville, AR

[Ensoniq's response - The EPS can save and load over SCSI, which is an industry standard across many computer lines and does not require us to develop computer-specific applications software.]

There are SCSI boards available for IBM computers if someone wants to write IBM software to control it. A standard IBM PC has no external access to its internal hard drive, so there is no simple way to transfer sound data without some kind of interface card.

Vision is a sample editor for the IBM from Turtle Beach Software which will allow you to transfer samples to the PC, edit them, and save them.]

Dear Hacker,

Help. I'm confused.

In March's 'Interface,' Ensoniq stated that "The 8X (expander) could never be a reality because the design of the EPS can only address a maximum of a 4X memory expander."

Yet, the Hacker advertised one from PS Systems as expandable to 2 megawords, and even one from DCI (March, Hypersoniq) that adds 4 meg (Gads!).

I would really like to get this question cleared up before spending big bucks on a memory expander.

Also, since we had to wait so long for a 4X expander, wouldn't it be nice if Ensoniq would offer a trade-in rebate to those who bought

2X expanders? (Some companies do that, you know.)

Thanks, love your mag.
Rod Hershon
Rochester, MI

[Ensoniq's response - The DCI expander adds 4 megabytes, not 4 megawords. (See 8X response in this issue's Front Panel.)]

The ME-1A 2X expander has been a very popular product and many users are satisfied with this memory considering the difference in cost between the 2X and the 4X. An EPS with a 2X expander is a very powerful system and is equivalent in storage capability to many competitive and more expensive products.

A trade-in program for the 2X expander is left to the discretion of your local dealer. We feel there will always be some demand for the 2X memory, and a used expander will still function perfectly. RAM does not age or lose its functionality over time. Current EPS owners who wish to upgrade to the 4X expander may even wish to advertise and sell the 2X on their own.]

TH,

After owning an SQ-80 for just over a year and after reading every letter in the Interface, I have only one question:

My SQ-80 has OS 1.0 and I note that the current OS is 1.8. What am I missing with my OS 1.0?

Steven Sorrell
Wichita, KS

[Ensoniq's response - In the current version, the disk system has been modified to associate the first ten Bank files with the ten Sequence files to facilitate loading. Each time a Sequence file is saved, the forty programs in the internal memory are saved in the corresponding number Bank file automatically (saving Sequence file 01 will create Bank file 01, etc.)]

Dear Hacker,

I hope I can bring to the attention of all EPS owners the great service offered by Garth Hjelte (Advent Productions).

Garth is offering high quality public domain samples to the public for a very low price. Do yourselves a favor and check it out!!!

I also want to mention that I bought the Livewire EPS and Mirage libraries and I'm very happy with them. Thanks to Mick Seeley for the great sounds and service.

Sincerely,
George Finizio
Redlands, CA

Dear Hacker,

A recent letter to you by Jack Loesch concerning Mirage disk use in the EPS caught my

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attention. Jack is a good buddy of mine, but I have to take him to task here.

Why the heck would anyone want to use Mirage disks in the EPS? Sure, it's a nifty technical trick, and it came in handy when there was nothing on the market for the EPS, BUT it's a real waste of memory and disk space to use 8-bit samples in a 13-bit machine. No matter how good your Mirage samples are, or what sampling rate you use, they are just NOT going to sound as good as well-executed samples created on the EPS. I mean, sure you COULD put bicycle wheels on a Porsche 944 to save you some money, but they're not going to perform as good as Pirelli p7 tires, are they?

If Jack has some Mirage samples that can compare in clarity to our Livewire EPS samples I'll give him a Porsche! In fact, EPS disks don't cost much more than Mirage disks anyway, and hold twice as much data, so what is really the better bargain?

It seems to me that if we all thought the Mirage was good enough we wouldn't have bought the EPS.

Needless to say, outside of a few delightfully trashy drum sounds, you won't find any Mirage sounds in my EPS, or in our Livewire EPS disk library.

Mick Seeley
Livewire Audio
Oceanport, NJ

[TH - Battle of the Free Ads - Part II.]

Dear Hacker,

First, let me compliment you on a most informative and useful magazine. I particularly love Hackerpatch and can't wait to enter the new sounds when the magazine arrives.

Now, down to business. Since you are such a tremendous source of information, I am hoping that you have or can obtain this information and publish it for all us software hackers. I have an ESQ-1 (purchased just before the SQ-80's were released) with a 64K upgrade. I find that the ESQ when played in multi mode from an external sequencer does not play the same as it does from its internal sequencer when one of the voices is MONO. I use MONO voices and GLIDE when I want to slide from one note to another. From an external sequencer, two notes get played because of the dynamic allocation. Because of this, and a few other rather cumbersome sequence editing problems, I want to program an offline sequence and song editor so that I can upload a sequence into my computer, edit it, and then download it back into the ESQ.

In the ESQ-1 manual, it only states that a sequence and song dump only contains data broken down into low and high bytes. What is the structure of this data? What part is voice pointers, what part is timing data, velocity data, etc.? Is the structure of the SQ-80's data dump the same?

Thank you for your support.
Larry D. Richardson
Roselle, IL

[Ensoniq's response - It's not likely that you will be able to download sequence data directly from an external sequencer to the ESQ-1. You would need to know the internal structure of the external sequencer as well as the internal structure of the ESQ-1. The information on the ESQ-1 sequence structure is proprietary and is not available.

The sequence and song dump function is purely for the purpose of storing and retrieving sequence data. It was not meant for editing purposes.]

To Whom It May Concern,

In December of 1988, I purchased an Ensoniq EPS. A remarkable piece of engineering. I have no complaints about this unit. However, I do have some reservations about Ensoniq's follow up and support of the EPS.

When I purchased the EPS, I placed an order for the 2x memory upgrade. At that time I told the sales representative at Steve's Music in Toronto that I wanted the 4x memory upgrade eventually. I asked if Ensoniq had a trade in policy. I was told the store was waiting to hear from Ensoniq. Well I got the 2x memory upgrade and it worked just fine. And when the 4x memory upgrade came in I went back to Steve's to trade in my 2x memory upgrade and paid the difference for the 4x memory upgrade with SCSI option. I was told then that I would only be given \$250.00 (Can. funds) for the 2x memory upgrade. The bottom line is, Steve's Music is

left holding a used 2x memory upgrade and I have lost over \$150.00. Steve's is going to have a hard time selling the used 2x memory and I'm having a hard time trying to understand why I am out of \$150.00. Is this Ensoniq's idea of customer support? I'm not the only person this has happened to.

Secondly, I'm very disappointed in some of the factory essential sound disks. The Epic Strings has a horrible click on C4 when it loops. I've been working my butt off, trying to correct it. The Electric guitar disk is mislabelled. It's actually the Pipe Organ disk. Also why the up-tight policy on new factory sound disks? Other manufacturers (the enemy) make their disks available to owners of their machines for free. Why do we have to pay a hefty price for them? It seems to me that decent accessible sounds would only serve to encourage people to buy the EPS.

Thirdly, why is there so little documentation available concerning the SCSI option? And where in the blazes is the MODEL SP-IEps Small Computer System Interface? I want the little bugger for my EPS. Are they available? RC030825

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Yours truly,
William Basso
Toronto, Ontario

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[TH - Actually, if the trade in policy were that important, you probably should have waited till the store heard back from Ensoniq before buying the 2x. (Not that you would have been too happy when you got the answer...) But, the \$150 didn't just go into outer space - you did get the use of the 2x. Unfortunately, the biggest chunk of depreciation on just about anything occurs in the first few minutes when it goes from "new" to "used." If the \$150 seems like a lot, then by the same token, it'll probably seem like a good discount to whoever's looking to buy a used 2x. (Plus, of course, whatever your dealer tacks on - but that's determined by them.)

Ensoniq has sent Mr. Basso a personal response. The following is our paraphrase of that response:

(We basically concur.) The 2X certainly isn't worthless just because it's been used. And, (as mentioned in our response to an earlier letter), we leave the trade-in policy to the dealers. The SCSI interface is now available. Regarding the pricing on sounds, a lot of time, talent and effort goes into producing those sounds. We have to try to strike a balance when we price them. We don't want to devalue the work that went into them, and we don't want to unfairly cut the ground out from under third-party developers, but, we also really do want to make them widely available.]

Dear TH,

Well it's been almost too long now since I last

bitched and whined to you about my EPS so I figured I should send this letter off.

First of all, a compliment about the new sets of EPS sound disks. Keep 'em coming, Ensoniq.

Is anyone out there becoming as irritated as I am about that constant high pitched sound which emanates from the EPS? It seems related somehow to the playback rate, as changing between 12, 16 and 20 voices changes the pitch of this sound. The fact that the EPS has a fairly low output level doesn't help this problem either. After discussing this problem with several other local EPS owners I've discovered this is a common problem with all of us. Is there perhaps a hardware update to solve this problem coming in the future?

Here is a list of bugs I have found using O.S. 2.35 and ROM 2.0. Sure, most of them aren't serious but I just thought I should let you know:

1. After editing a LAYERNAME, pressing CANCEL/NO screws up the display and the name and also doesn't exit the display.
2. After editing the wavesample LOOPS, pressing CANCEL/NO resets the LOOP START pointer but not the LOOP END pointer! This often results in some pretty foul language.
3. While a SONG is playing, selecting "S"olo on different tracks works fine until a new

sequence comes up with new INSTRUMENTS which set to "P"lay instead of "M"ute.

4. The "ERASE MEMORY" prompt such as after selecting IMIDI SYSEX RECORDER" or "LOAD MIRAGE-DSK SOUND" clears sample memory but doesn't affect the sequencer memory at all. Is this a bug or is this on purpose?

5. When loading a BANK, any keys still being held down at the time quite often continue to play, even if all the INSTRUMENTS were deleted by the BANK load. If you continue to hold down the keys you can actually hear portions of the new sounds as they load in.

6. Also, you can actually get a song to play while loading sounds if you press PLAY at just the right moments after selecting a BANK load. I'll bet you think I have nothing better to do than find really obscure bugs like this!

7. Loading a new INSTRUMENT in place of a copied instrument results in all copies as well as the original INSTRUMENT being deleted, even if there is plenty of memory BLOCKS free. It sure would be nice if the original INSTRUMENT could remain intact. RC030825

Okay, that's enough bugs for now. I also have a few suggestions...

1. Being able to load more than one song in memory at once would be nice.
2. Add an optional 'ALL NOTES OFF' response (I thought I'd throw this one in again just to irritate everyone at Ensoniq who's sick to death of hearing this one for the umpteenth time). Actually, now that there is a rack EPS, it seems an optional ALL NOTES OFF response is even more necessary since there is no real easy way the turn off stuck notes on the rack unit.
3. I agree with somehow doing away with the "LOAD SONG TOO?" prompt. How often does one actually select NO? If I ever want a BANK without a song I simply save a separate BANK after deleting the song.

4. Crossfade breakpoints A,B,C,D instead of being values 0 to 127 should be selected as notes (A#4, BO etc.), but only if VOLUME MOD=KBD is also selected. This would be so much easier than trying to count notes on the keyboard.

5. How about a realtime adjustment of the tempo during a SONG, similar to how the realtime mixing of the 8 INSTRUMENTS works now?

6. It would be real nice if WAVESAMPLE INFORMATION also gave the sample time, i.e., the number of seconds the sample would play at its root key.

Finally, just out of curiosity, can Ensoniq tell us anything about the MSB ADJUSTMENT and the DC OFFSET ADJUSTMENT found amongst the COMMAND/1 windows?

Happy to be a former third party vendor, Steven Fox CEO, Leaping Lizards

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[TH - Gee Steve, back in the old days you'd consider all these nits as Opportunities! Oh well, maybe Dick Lord will come up with an alternate O.S..]

[Ensoniq's response - Some background noise is inherent in all digital systems.]

The calibration commands in the EPS are meant for use in the factory with sophisticated test and analysis equipment. Trying to use these commands without the proper equipment connected will usually result in the EPS locking up.

We thank you for the information about 2.35 and will investigate your findings. We also appreciate your suggestions. However, there is no room left in the operating system to implement changes at this time. The suggestions will also be considered for any future products. (We have already addressed the issue of why we will not implement an ALL NOTES OFF command - see July '88 Issue #37, and Sept. '88 Issue #39.)

Dear TH,

Is it possible, using the Mirage, to combine wavesamples from different factory disks with the mod wheel?

I'd like to use sounds with only one sample per half such as upper and lower program 4 from Electric Piano #1.

Example: Have upper and lower program #4 from the above mentioned disk in the first oscillator and another sound in the second. Then turn mix mode on and drop the wheel (35) to zero.

It seems fine in theory but I can't seem to get the wavesamples in place for the operation. Tell me how to do it and I'll say you've hung the moon!

I'd also like to know where I can purchase a quality sample of Korg's M1 Electric piano sound.

Thanks,
Bruce Wallbillich
Covington, LA

[Ensoniq's response - Combining wave-samples is possible but complicated. The Mirage must be set for MIX mode and the samples alternated in memory (this requires a lot of moving of wave data and recalculation of sample start/end and loop pointers).]

You can't mix between upper and lower sounds. You have to combine the upper and lower samples you wish to mix between in the same memory bank (upper or lower).]

[TH - Livewire's new ad (elsewhere in this issue) lists an M1 Electric Piano sample. You might also check with Keel Productions.]

Dear TH,

1. What is the maximum amount of expansion memory available for the EPS? In TH #45, Ensoniq stated that the 4X memory expander (4096 blocks) is the maximum, as did Dick

Lord in TH #39. However, in PS Systems ad for their 4x expander (TH #44), they claim future 8X (8192 block) expansion capability. Also, Digital Concept International claimed 8X expansion capability through the addition of their EMC2 and E2X expansion products (TH #45). If these expansion products use the SCSI interface, can other SCSI devices still be added to the system? Is there any way to get 8000+ blocks of memory on an EPS?

2. Has Ensoniq investigated the possibility of a SCSI erasable optical disk drive? These drives are currently rare and expensive, but should become the PC industry standard by 1992, enabling EPS owners to store 200+ megawords per removable disk. RC030825

Keep up the good work, TH!!

B. A.
NY, NY

[Ensoniq's response - 1) See the 8X response in this month's Front Panel.

2) If the drive is SCSI compatible and adheres to the Macintosh standard, it may well be compatible.]

Hello Hacker,

I have really enjoyed the Hacker, but the lack of coverage and articles exploring the Soundprocess system leaves me puzzled and disappointed. My old Mirage has a truly different gameplan about it now (new life for an old machine), one that I actually like a lot better than the original sampler, though I do waveform switching between Mirage OS and Soundprocess. I hope that the Hacker starts to feature the Soundprocess Mirage. This set-up has a lot of potential and certainly deserves a space between these pages on a regular basis, please.

Roman Orest
Wellesley Hills, MA

[TH - Well, we got one in THIS issue. (Got a couple more stacked up here somewhere...)]

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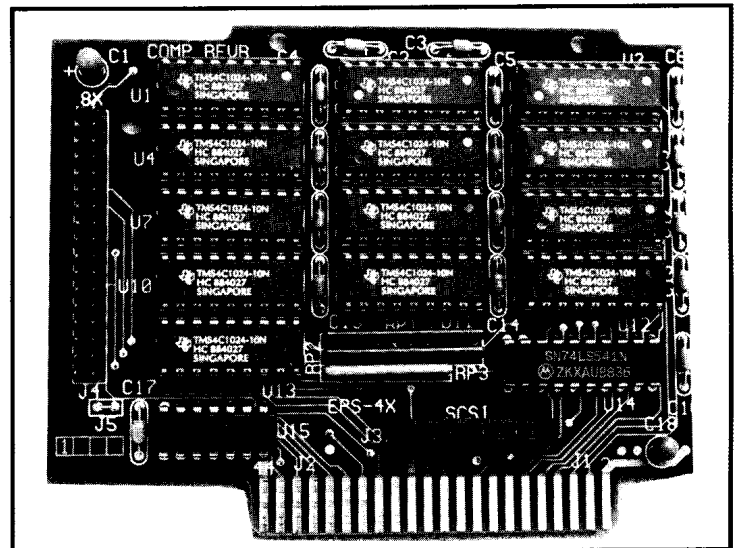
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