

# TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

## Squeezing More Out of Your ESQ/SQ-80 Sequencer

By Michael Carnes

At the time you bought your ESQ-1 or SQ-80, the built-in 8-track sequencer seemed like a perfect match. Eight voices on the synth, 8 tracks on the sequencer -- who could ask for anything more? But as time passed and you became more experienced on the instrument, you learned that you could make music that effectively used more than eight sounds at a time (by placing one sound in the rests left by another). Then you decided to slave your Mirage. There goes another track. Because of the way that Ensoniq implemented the sequencer, a track can only hold a single MIDI channel or internal program unlike many other sequencers which hold multiple channels on a track. Your checking account is empty and you can't run out and buy the sequencer you really need. Seems like you're in a jam - but maybe not.

Here's a handy set of techniques which help you out of this mess. Most of them take some planning, so they're not suited for recording quick inspirations. But if you know exactly what you want, read on.

The first thing you want to do is to get your backup system in place, whether it's tape, disk or whatever. Many of the things you're going to do can't be undone, so it's a good idea to run off frequent backups.

Most of the techniques here use a scratch track for recording initial performances, so it's a good idea to establish your own "standard". I use track 8. You will use and re-use this track until the other seven tracks are complete. Then your last sequence goes on to this scratch track.

I like to do the non-polytimbral slave instruments (like the Mirage running standard OS 3.2) first. I often use multiple splits on these instruments to get extra voices out of them. For example, imagine that your Mirage splits the lower keyboard into cellos and low violin and splits the upper keyboard into pizzicati contrabass and violins (it can be done). It's a good idea to put everything on the same sequencer track, primarily because you're wasting tracks if you don't. You can also confuse the dickens out of the Mirage with different program changes going out of each sequencer track.

In this first example we'll use track 1 as the final destination track for the Mirage. You can place your first take -- the cellos -- directly on track 1 since there's nothing there yet. The MIDI page for that track should be set to .SEQ. and the MIDI channel should be the same channel the Mirage receives on. You can use the ESQ keyboard. When you finish, you'll have the cellos on track 1 and you're ready for the low violins. Set up your scratch track to the same MIDI setup as track 1, and start recording the violin part. You'll hear the earlier cello part as you lay down the fiddles. When you're satisfied -- really satisfied -- then merge your scratch track into track 1 backing up before you do. Track 1 now contains both parts, and you can re-use the scratch track for the pizz parts. Repeat the above procedure until you can merge in the pizz parts and track 1 is complete.

There are several advantages to this procedure, not the least of which is the ability to individually quantize the parts before merging them into the main track. The disadvantage is that once they are merged, you can't pull them apart very easily.

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Now it's time to use the internal voices on the ESQ. Let's say you would like to place a slap bass and a flute on the same sequencer track. The obvious solution here is a split keyboard. If you can place your split point such that both parts can be played at the keyboard, then assign that split program to the sequencer track -- say track 2. You can either play both parts at the same time (good luck) or you can lay down the bass on track 2, then do the flute part on the scratch track. When you're satisfied with both, merge the scratch track into track 2 (back it up first, of course).

There is a less obvious way to use the split keyboard. The previous example used musical parts in non-overlapping ranges. There is a way that you can use the split for parts that do appear to overlap. For example, let's say you'd like to record an electric piano sound and a B-3 sound. Both of them cover a range of three octaves. You say it's hard to get two sets of three octaves on a five-octave keyboard? Take a look at the MIDI implementation chart in the back of the ESQ manual and you can see that the ESQ can send or receive over seven octaves worth of note values (notes 21 - 108). If you could just get at that somehow, you could certainly squeeze in that six-octave split. You can. You just have to design a special split voice. Here's how.

Copy your chosen sounds to new locations and program them as a split, with the piano on the left and the B-3 on the right (arbitrary choice). Now transpose the piano up. You can do this by shifting the oscillators up an octave and futzing with the filter. Now shift the B-3 down. When you play the split, you should notice the following effect. The piano voice goes high enough (up to the split key), but you run out of keys at the bottom. The B-3 goes low enough (starting at the split key), but you run out of keys at the top. Perfect. Now, assign your original untransposed piano voice to the scratch track and record it until you're satisfied. Transpose the track down an octave and copy it over to track 2 (which has the split voice). It should sound in the correct octave (the upward transposition of the split voice corrects the downward transposition in the scratch track), and it should now magically have those extra bass keys that your keyboard doesn't have.

Now assign the unmodified B-3 voice to the scratch track and get the organ part recorded. Transpose it up an octave and then merge (not copy) it into track 2. It should now sound correctly and have those extra treble keys as well. Play the track. You just got six octaves out of a five octave keyboard and you squeezed two different voices into a single sequencer track. Not bad.

You can continue juggling these puppies around until all your tracks except the scratch track have been used up. You then record on to the scratch track in the normal way. If you were only using an ESQ-1 with no Mirage, you then could have gotten 15 "tracks" out of an 8 track sequencer.

There are disadvantages to this technique, such as the fact that any controller information may affect both voices on a split, or the fact that unmerging tracks is very difficult to do without external editing. But if you're on a budget or if you don't like lugging the old 1040ST to gigs, this works fine.

But wait, there's more. There are two interesting jacks on the back of the ESQ-1 labeled TAPE-IN and TAPE-OUT. In addition to providing support for tape storage, they also allow the synth to lay a sync tone on to tape and then follow that sync tone on subsequent takes. The basic technique is well documented in the manual and works quite well. But there are a few tricks that aren't in the manual. If you play a sequence and listen to the sync tone, you'll notice that it is a simple, low frequency square wave. If you vary the sequencer clock, you'll notice that the sync tone goes down in pitch when the clock slows and that it goes up when the clock speeds up. Hmm...

You've probably noticed that the sequencer doesn't have any programmed way to handle gradual changes of tempo (unless you play by ear, meaning that notes don't necessarily have any connection with the metronome tick). If you record the sync tone while you adjust the tempo in the way you want (using buttons or the slider), then you can sync to the taped tone and ESQ will follow all of the tempo changes. This means that the metronome tick will follow all the accelerandos and ritards and that it will be much easier to edit your sequences. Just follow the tape.

Wait. There's more. If you have another synthesizer that can generate a very low frequency square wave, the ESQ will follow it -- just plug the audio output of the "clock synth" to the tape input of the ESQ-1. You have to make sure the signal is pretty hot, but it works. I even used the Mirage bass-clarinete, but the "squarer" the waveform, the better. While this sounds nuts, it gives you a tremendous amount of control over tempo. You can set the basic pitch of your clock synth to give you the tempo and then vary the tempo with the pitch wheel. Playing different notes on the clock synth gives precise changes in tempo. Playing a note an octave higher doubles the tempo: playing an octave lower halves it. Playing up a fifth speeds the tempo up by 50 percent and so on. Playing nothing stops the clock completely. This is fun.

A few small tips in closing:

- If you are concerned about small differences in timing, then you should set the clock as fast as you can. If you have a passage at 60 beats per minute, then you will get better resolution by setting the tempo at 120 and letting each tick represent a half note. The ESQ divides each beat into 48 little time slices, so if you let a beat represent half a beat, you'll get 96 slices instead.

- If you are only using local voices on your sequencer, be sure to set those tracks to LOCAL on the MIDI page (rather than BOTH, the default). This will keep a lot of non-essential stuff from going out to slave synthesizers and clogging them up.

- You can use program changes in the sequencer to cause the Mirage to load new sounds from disk. It takes around seven seconds for a full load. If you can arrange your music to leave the Mirage a rest of eight or nine seconds, then you can have it busy loading. I sometimes split a long sequence in two pieces with the first sequence playing music on the Mirage and the second sequence issuing a load command while the ESQ does the playing. (By the way, it's not always a good idea to have a Mirage playing on the very first clock tick of a sequence. On most sequences, the program number goes out on the first clock and the Mirage is often too busy changing programs to play anything on that tick. If you slip the first note a clock or two, you'll get the note and only you will know it came in late.)

*Bio: Michael Carnes' most recent strange use of his sequencer came with the premiere of his War Songs, Book II. This featured noted bass/baritone David Ripley along with ESQ-1, Mirage, DX-7 and piano.*

# Front Panel

## RND (♪♪♪)

The current EPS operating system is now 2.1 (up from 1.5).

Changes made in 1.95 and higher:

The EPS will now store track mix information for each track of a sequence. When you record a sequence track, the track mix will be recorded into the track. On play-back, each track will have the correct volume balance. If you record a song track on an Instrument which has sequence tracks defined, the track mix information in the song track overrides the sequence information. Also, when you are recording a song track, any changes made to the track mix during recording will be recorded in the song track. This allows you to create fade-in/fade-out assignments while the sequence is in progress. It is now possible to save Instruments that are larger than the capacity of a single floppy disk. The EPS will save part of the Instrument on one disk, and then instruct you to insert additional disks as needed. The problem of getting "SYSTEM ERROR 129" when using the sequencer in MULTI mode has been corrected.

Additional changes made in 2.1:

Changes were made to the operating system to make the EPS work more efficiently with SCSI. The data entry slider was inconsistent when used with sign numbers (numbers with + or - values). This has been corrected.

\* \* \*

Ensoniq plans on having 78 EPS sound disks (from independent developers and contractors) available by the end of the year.

\* \* \*

Sometimes-Hacker-writer **Craig Anderton** has (another!) book out: "*The Electronic Musician's Dictionary*." If you're interested, write or call: Music Sales, 24 East 22nd St., New York, NY 10010, 212-254-2100. Craig was also recently in the news for collaborating with **Al Hospers** (formerly with *Blood, Sweat, and Tears*, now with Dr. T's) on a "Gibberfunk" novelty rap tune - an odd duck which includes EPS-sampled presidential candidates' voices somehow cleverly arranged so they make even less sense than usual.

\* \* \*

If your keyboard friends are sponging off your Hacker subscription there is still time to get them their own subscription for Christmas. We'll even include a note or card if you want (you supply the card).

\* \* \*

If you'd like to see Hackerpatches for the Mirage running Soundprocess, send 'em on in and we'll figure out some way to publish them.

\* \* \*

We'd (still) sure like to see more third-party sound development for the EPS. If you've been toying with the idea of selling samples, this is probably as good a chance as you're going to get to take the plunge.

## TRANSONIQ-NET HELP WITH QUESTIONS

**ALL ENSONIQ GEAR** - Ensoniq Customer Service. Business hours, East Coast Time. 215-647-3930.

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

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

**ESQ-1 AND SQ-80 QUESTIONS** - Tom McCaffrey. ESQUPA. 215-750-0352, 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.

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Excerpt of review by Steve Quinzi for Music & Sound Output September 1988

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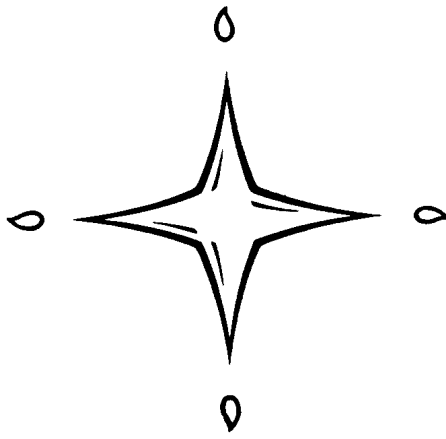
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# Double Feature: A New Choir - The Sequel: Three Octave Handbells

By Mark Clune

The sequel? When my June '88 issue of the Hacker came in, it took me no longer than a half-hour before I was delving into MASOS under the direction of Don Slepian's excellent article, "A New Choir". Just one week prior I had ordered numerous disks of choir samples from different vendors in search of that "Kurzweil - Cathedral Choir" sound. I wanted my Mirage to sound like the Kurzweil K1000 that I had been salivating over down at my local music store. Is that too much ask? Am I in dreamland? Have I passed into the twilight zone? Perhaps so, since it seems that choir sounds are one of the most difficult samples to nail due to their waveform complexities and finding a good loop within. After listening to three more samples of choirs that I received in the mail, I began to wonder if my Mirage was even able to oblige my fantasies. Shame on me.

Well, after working though Don's article and many hours of additional super-tweaking later, my Kurzweil choir lust subsided and I also came out ahead with a three-octave handbell set. Don's choir variation is great, I just wanted to further customize the sound for what I had in mind and needed. Maybe some of you will also like my variation and customize it as well to you own tastes.

This choir, which I call "Cathedral Choir" is a variation of Ensoniq's "Choir 1+2" sample, as I found it to be the most usable. Using only one sample did not pose to be a problem because this particular sample also transposed very well throughout a four octave range (natural choir range). As Don suggested, I moved this sample from being lower-half keyboard sound to an upper-half sound. I shut the filter down quite a bit in order to prevent the vocals from sounding too much like strings and to give it more of an ambient effect. I also incorporated Don's amplitude envelope changes to enable this sound to be dynamically touch responsive and the envelope releases were adjusted to give a natural ambient decay. Additionally, I cleaned up the loop to eliminate the clicking that was audibly present on the Ensoniq sample.

With the choir only taking up four octaves of the keyboard, that left an additional octave to fill on the lower keyboard. So what I did was create a variation of Ensoniq's "Tubular Bell" (found on the synth disk) that sounds a lot like handbells. Being a church musician myself, I felt that handbells and choirs go very well together. Anyway, I placed the handbells as a lower keyboard sample to fill the empty octave. Please note that by changing this sample's Top Key assignment (parameter 72), you can get a three octave set of handbells. (Make sure that you select the correct wavesample before trying to use parameter 72. Parameter 26 is for wavesample selection.) Also, if you don't have Ensoniq's synth disk for the tubular bell sound, you can load in any lower sound that you choose so long as you change its' Top Key Assignment to "12" in order to let the full four octave choir come through.

Well, on to the super-tweaking. What follows is just a list of step-by step instructions involving disk loads, parameter value changes and MASOS wavesample commands. Here goes:

## Tool Kit:

Copy of MASOS  
Blank formatted "work" disk  
Ensoniq Disk #B7 entitled "23 Synth Sounds on Wheels"  
Ensoniq Disk #B4 (Old Library #7)

## Handbells:

- Load upper sample - bank one - program one from disk #B7

- Select lower keyboard half program variation one (display reads L1)

Parameter	Set Value
26	5
61	98
60	90
62	90
63	97
64	FF
65	On

- Select upper keyboard half program variation one (display reads U1)

Parameter	Set Value
26	5

- Select parameter 17, Copy Current Wavesample to Lower. The display will show LC with the C flashing. Press button 5 and then press Enter.

- Select parameter 15, Copy Program to Lower. The display will again show LC with the C flashing. Press button 1 and then press Enter.

Parameter	Set Value
69	40
70	26
71	50
44	26
54	27
72	12
26	7
72	1

- Use parameter 11 to save this lower keyboard sound to you blank formatted "work" diskette.

## Cathedral Choir:

- Load upper and lower samples - bank 3 - program one from Disk #B4

- Select lower keyboard half program variation one (L1)

Parameter	Set Value
26	3

- Select parameter 18, Copy Current Wavesample to Upper. The display will show UC with the C flashing. Press button 1 and then press Enter.

- Select upper keyboard half program variation one (U1)

Parameter	Set Value
26	1
44	24
50	25
51	0
53	0
54	17
56	21
58	21
63	7d
64	0A
71	40

- Use parameter 12 to save this upper keyboard sound to the same work disk. ■■■



# Mirage - The First Multi-Sample

## Part 1: Pre-Sampling

by Barry Carson

In a recent conversation with the editor of this fine periodical, I learned a sad and discouraging fact. Over 90% of Mirage owners never sample. Having a Mirage and never sampling with it is like owning a fine automobile and never driving it. Even if you can afford to hire somebody to chauffeur you around, or make your samples for you, you are missing most of the fun. To carry this automotive analogy further, the player is the traveler; his machine takes him to many far places, he may not care about how the thing works but he loves to explore. The sampler or programmer is the guy who loves to drive, maybe not to go very far, but certainly to play with all those knobs and switches on the dashboard. The real hackers, of course, are the greasemonkeys; they spend so much time with their heads under the hood, they hardly have a chance to drive anywhere at all.

"So what?" you ask. So this, fair reader, I would like to take this opportunity to guide you through a complete multi-sampling session with the Mirage and only the the barest minimum of extra equipment.

"Oh, don't I know it", you reply, "this is the Transoniq Hacker is it not? I'm sure that extra equipment will include powerful computers, expensive digital recording devices, and input sampling filters that will not even fit into my new Mirage, not to mention not fitting into my budget. Maybe I'll just skip ahead and read the classifieds."

Rest, perturbed reader. The only extras needed will be a microphone and an instrument to sample; you don't even need the microphone if you decide to sample something electronic. Prepare to deal with the basics, folks.

The first step in this process is to take a good look at the instrument you plan to sample and ask yourself the following:

1. How does it sound? At its very best, a sample of a cheap sounding \$15 guitar will sound like, well, a cheap sounding \$15 guitar. If this is what you want, or if you plan on altering the sound beyond recognition, great. If you want a better sound, try to get you hands on a better sounding instrument.

2. Who is going to play this instrument? When sampling instruments first started showing up in great numbers (with the original Mirage leading the way), rumors started flying that sampling was just too hard for normal people to do and that samples had to be bought from a handful of special "professional sampling people". My first suspicion was that these "professional sampling people" had started and carefully nourished these rumors.

Later when I began talking to the other Prophet and Mirage owners who had tried sampling and given it up a pattern emerged. Often times these people would get their new sampling instrument home, play the factory disks for an hour or two and all of a sudden be hit with the urge to sample something. They would grab a microphone from the singer in their band, grab their kid sister's 'cello, and honk a few notes into their sampler. They would then spend the rest of the night trying to loop and map these honks in an attempt to create a lush string orchestra sound with which to play the "Court of the Crimson King". Of course they could fail and come away from the experience convinced that sampling was simply something that most normal primates were not capable of doing.

But we digress, back to our question 1: who is going to play the instrument you want to sample? If it is going to be you, make sure you can play the the instrument in question and play it well. If you can't play it, get somebody who can. Tell 'em they can borrow your Mirage, buy 'em a beer, be creative - if your

High School music teacher plays trumpet really well, volunteer to demonstrate the Mirage for the class. Sample the teacher's trumpet, impress your peers and save those samples to disk. If you have the choice of dating someone who plays viola and someone who doesn't, remember how nice bowed strings sound when sampled. Many acoustic instrument players are intrigued by electronic instruments and view the experience of being sampled as kind of an adventure. Those acoustic players who do not feel this way are most likely beer drinkers. Of course, telling a musician, who you are meeting for the first time and who happens to be of the opposite sex, that you would like to sample him or her, can lead to an interesting and fun filled conversation. Even if you are a truly great tuba player, it could be easier to get someone else to play, leaving you free to push buttons, move the mic, etc.

Another lesson to be learned from this example is to be realistic in your expectations concerning your sampled sounds. A beautifully played and recorded 'cello sample is never going to sound like a full string orchestra just as a wonderful classic guitar sample will never really do for playing "Purple Haze".

3. Does this instrument have a sustained sound (like a flute or trumpet) or does the sound die away (like a guitar or harp)? The answer to this question will play a part in deciding how to loop the sound. -See Question 4-

4. Can this instrument be tuned easily? The answer to this question will also affect the ease with which the sample may be looped. -See Question 5-

5. Have you thought much about looping? You really should. Too many people will spend a lot of time sampling a bunch of notes, then, after they've carted their violin playing friend home and cleaned up the empty beer cans, they will try to loop those carefully recorded sounds. By the time they realize that it isn't working, the violinist is snoring in his bed across town and you've wasted a whole night (and God only knows how much beer). You must approach sampling in a holistic way. Holism, by the way, is looking, not at the individual parts, but at the whole creation. This whole creation will be separate from and greater than the sum of its parts. The most beautifully recorded samples in the world are next to useless if they cannot be looped (unless, of course, you are sampling short percussive sounds). The time to see if good loops can be found is while you are sampling, not later when the instruments, players, etc. are no longer around. The same is true of mapping which we will get into next time.

There are two kinds of loops in the Mirage Universe, short loops and long loops. Short (or oscillating) loops are short (hence the name), they are only a page or two long of memory. This is so short that the loop itself cannot be heard; what you hear, after the complex attack sound, is a synthesizer-like oscillation (hence the other name). This is one waveform cycle of the sampled sound frozen in time. The Mirage plays real nice short loops (if you obey the rules about setting them up). While they don't sound as "real" as long loops can, they're pretty neat and help give the Mirage its distinctive sound. Short loops work great on sustained solo instruments like a flute or sax, and only short loops (as far as I know) can be used on a decaying sound like a guitar. Short loops are pretty easy to set up but there is a big catch (of course). The instrument to be sampled must be tuned to one of a number of "correct" pitches for the short loop to work (more about this next time). For now just contemplate the fact that if you cannot easily tune an instrument, you probably will not be able to create good short loops if you sample that instrument. People with extra equipment around will use a variable speed tape recorder or another sampling instrument to change the pitch of a

sampled sound (see my article on using another sampler for just this purpose in the March '88 issue of the Hacker). If you have neither of these tools, try to stick to an instrument that can be tuned quickly and easily.

The other kind of loop is a long loop. People don't talk about long loops so much. The Mirage has an almost insane unwillingness to help you create long loops. If you don't have a computer with some kind of visual editing system, you are on your own. If you are sampling a complex sound (a group of instruments, human voices, a pipe organ with all the stops out, etc.) a long loop is the way to go. Any of the above sounds, when frozen into the single repeating wave cycle of a short loop, lose their characteristic texture. A long loop can also be used with a sustained solo instrument for an effect that is different from a short loop on the same sound. If you want to use a long loop, you must know 3 things before you begin to sample:

- First, the pitch of the note being sampled cannot waver (so much for bribing your players with beer).

- Second, the volume of the note being sampled cannot waver.

- Third, if you don't have a computer, you will need a lot of time, a whole lot of time. Finding long loop points with the Mirage is like looking for needles in a haystack. The needles are in there all right but the haystack is pretty large.

Holy smoke, we've done an awful lot of writing and reading but we have yet to sample a single noise. Next time, we do it: multi-sampling, the mysteries of (oh no) mapping revealed, and the correct way to celebrate a successful multi-sample. See you then. ■

*Bio: Barry Carson and his wife, Deborah Mahoney, have two daughters, Brigid and Abaigeal. Deborah, a special education administrator, accepts Barry's addiction to electrical musical devices with characteristic good humor.*

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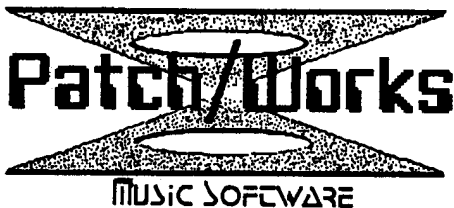


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# Back To The Sax

By Alan Goldberg

Anyone who has spent any time at all programming sounds on the ESQ-1 or SQ-80 knows that some sounds are fairly easy to synthesize (eg., electric pianos), some can be pretty challenging (percussion, drums), and some seem downright impossible to get right. Acoustic instrument sounds can be like this because there is always the real thing we (and everyone else) compare our sound to. Also, the sound of acoustic instruments are greatly influenced by the player's style and heart, in ways that are tough to translate to a synthesizer.

One instrument that seems to defy a realistic synthesis is the saxophone. We all know it. The favorite adjective for unfavorable sax patch reviews seems to be "cheezy", although "thin and wimpy" is also popular. Sounds more like a pizza description than a patch. Why is this so? What makes the sax such a tough patch on ANY synth? In order to answer this, I've gone back to the source, and come up with some sax patches for the SQ-80 (modifiable for the ESQ-1), that, while not the final answer, point out a few programming tips useful in many patches. First, some background.

The saxophone has a single-reed, open tube and conical bore. It is curved to accommodate the longer lengths needed for the lower pitched Tenor and Bass saxes. Air introduced in the mouthpiece causes the reed to vibrate. These vibrations are transmitted from the mouthpiece to the body of the instrument where a column of air inside produces standing waves, and so, sound. The player controls the flow of air and adds technique and style with tonguing techniques. The note range for the alto sax in E-flat is from D-flat 3 to A-flat 5 (MIDI notes 49 through 80). The way the player holds the sax in his mouth, along with jaw movement, controls effects such as tremelo, vibrato, dynamics, and timbre.

Lower pitched saxes have a more hollow, breathy sound, while the higher pitched saxes bite, but all of them are rich in harmonics, particularly the 2nd, 3rd, 5th, and 6th. Harmonics above the 9th are weak. The REED and SQUARE waves, with doses of the FORMANTS, provide a good basis for the timbre of the sax. Envelope-wise, the attack of the sound depends greatly on the playing style, but rapid playing induces initial breathiness, enharmonics, and, depending on style, possibly some upward pitch bending. Decay, sustain and release times are dependent on the breathing technique. In fact, so much is determined by the breathing technique that maybe we should take another long look at breath controllers for our synths.

So what are we going to do with sonic complexity like this? Probably come up with a lot of cheezy sax sounds, for one thing.

Take a look at the three sax patches included here (next page). They may not win the definitive sax patch award, but they do use some methods you might find useful. SAX2 is the base sound, and incorporates the other two. It may be played on the ESQ-1 or the SQ-80, just replace the PRESS modulators with WHEEL or PEDAL (or whatever) on the ESQ-1. This patch is layered with SAX3, and split with SAX4 so be sure to set it up on the SPLIT/LAYER page properly. The filter of SAX2 has WHEEL modulation that is important to the sound. I find that turning the mod wheel up about 1/3 adds an extra bite that works. Be active with the wheel when playing to help simulate some of the mouth work. SQ-80 pressure has been added to the OSCs to pitch bend the sound up two steps. Rapid and gentle pressure helps add some flow to the sound. Using the pitch wheel to bring up the pitch on

attack, and pressure to change it while holding, takes away some of the "key feel" of the sound. Notice that pressure is used negatively on the DCAs, bringing the volume level of the sound down when pressure is applied.

SAX3, on the other hand, gets louder when pressure is applied, so the entire timbre of the sound changes with pressure. This is a common technique you should be using often for your own sounds. The breathy element comes from the CHIFF wave on OSC1. For an ESQ-1, dig into your sounds for a similar breath attack from maybe a flute, and use it in OSC1.

SAX4 is an attempt at expression control. Here's what it does. It is split at MIDI key 41 on SAX2 so that only the lower five notes of the keyboard activate it while playing SAX2. The sound itself is "reed squeak"; that sound that occasionally comes out during your sax player's version of the "Born to Run" solo. Use it sparingly to add the squeak to your playing. The other thing that it does is give you another pressure modulator for the SQ-80. The squeak dies away quickly when played, and you are left with five keys that can activate the pressure mods for the whole keyboard. **IMPORTANT:** Remember to set the MIDI page parameter PRESS=CHAN for this to work. This defeats poly-pressure, and allows control of all notes when pressure is applied from any one key. If you apply pressure and hold it from one of these last five keys, you will notice that the higher notes are now playing polyphonically, that is, they play their original pitch, plus the pressure-bended pitch. Experiment with this technique on your own to create harmonies and dissonances from a pressure held key that is not itself producing any sound.

Well, there it is. I have produced many variations on these saxes in the process of experimentation, and I am sure I will find a combination I will like better. If you come up with something interesting, or would just like to ridicule my patches, drop me a line. The search for the perfect sax patch is be no means over.

One note: Many may ask "Why should I beat my brains out trying to synthesize a sax when my Mirage (or Sampler X) can come a lot closer much easier and faster. Well, maybe so. The answer may be that some people like to paint the bowl of fruit anyway, even though the 35-mm camera is sitting on the table.

For additional information see "A Synthesist's Guide to Acoustic Instruments" by Massey, Noyes, and Shklair, Amsco Publications. ■

*Bio: Alan Goldberg is a musician, computer guy, and owner of Still Voice Audio, a music and sound studio in Minneapolis. He spends a great deal of time with headphones on, and recently had the opportunity to sing along with his dishwasher which was belting out a solid rendition of "Louie, Louie."*

**ESQ-1 PROG: SAX2** BY: ALAN GOLDBERG

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	FORMT1	LFO1	-1	PRESS	2
OSC 2	-1	0	0	SQR2	LFO1	-2	PRESS	2
OSC 3	-1	0	1	REED	LFO1	-1	PRESS	2

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	59	ON	ENV1	58	PRESS	-34
DCA 2	38	ON	ENV2	38	PRESS	-34
DCA 3	59	ON	ENV3	63	PRESS	-36

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	9	4	32	ENV4	28	WHEEL	31

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO2	4

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	18	ON	ON	TRI	1	60	6	LFO1
LFO 2	13	ON	ON	SQR	11	1	11	ENV4
LFO 3	0	OFF	OFF	TRI	0	0	0	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	43	40	-63	0L	0	18	19	39	30	9
ENV 2	53	46	34	0L	0	15	0	0	31	9
ENV 3	63	62	6	0L	0	12	28	37	19	0
ENV 4	63	63	63	8L	23	12	41	41	21	15

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	1	ON	ON	OFF	OFF

	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
	OFF	-	ON	SAX3	LOWER	SAX4	41

**ESQ-1 PROG: SAX3.** BY: ALAN GOLDBERG

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-2	0	0	CHIFF	PRESS	0	KBD2	0
OSC 2	-1	0	0	SQR2	PRESS	2	LFO1	5
OSC 3	-1	0	2	REED2	PRESS	2	WHEEL	0

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	18	ON	ENV1	63	PRESS	36
DCA 2	14	ON	ENV2	38	PRESS	23
DCA 3	20	ON	ENV3	31	PRESS	45

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	20	3	31	ENV4	37	PRESS	5

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	16	ON	ON	TRI	6	3	11	OFF
LFO 2	0	ON	ON	SQR	0	0	0	OFF
LFO 3	0	OFF	ON	TRI	0	0	0	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	42	28	0L	0	0	16	15	30	9
ENV 2	53	46	34	0L	0	9	0	0	31	9
ENV 3	63	62	6	0L	0	12	28	37	19	0
ENV 4	63	63	63	8L	23	0	41	41	29	15

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	1	ON	ON	OFF	OFF

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

**ESQ-1 PROG: SAX4** BY: ALAN GOLDBERG

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	3	0	0	FORMT4	ENV2	14	KBD2	-63
OSC 2	3	2	0	REED3	ENV2	13	LFO1	33
OSC 3	4	0	1	SQUARE	ENV2	4	LFO1	33

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	51	ON	ENV1	58	KBD	0
DCA 2	37	ON	ENV1	54	KBD	0
DCA 3	8	ON	ENV3	60	KBD2	0

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	45	4	25	ENV4	14	WHEEL	31

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	32	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	27	ON	ON	TRI	5	63	4	PRESS
LFO 2	0	OFF	ON	SQR	0	0	0	OFF
LFO 3	0	OFF	OFF	TRI	0	0	0	OFF

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	43	14	-63	0L	0	0	9	9	28	9
ENV 2	53	-16	0	0L	0	0	5	8	31	9
ENV 3	63	16	6	0L	0	0	25	37	19	0
ENV 4	63	13	-17	8L	0	7	15	2	0	15

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	ON	OFF	OFF	4	ON	ON	ON	ON

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

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# ALCHEMY: The Ultimate Sampler's Tool

Reviewed by Mick Seeley

[Note: By now you've probably already seen reviews on the early release of *Alchemy*. This review is on the latest version (1.10) just received from **Blank Software** (1034 Natoma St., San Francisco, CA 94103. 415-863-9224). This version fixes many of the earlier bugs and extends support to additional samplers. Blank plans on additional upgrades to *Alchemy*, the next one to include support for the SCSI interface.]

Software reviewed: Blank Software's "Alchemy" for the Apple Macintosh computer and Ensoniq **EPS & Mirage** sampling keyboards, among others. Tested at Livewire Recording, Long Branch, NJ. Suggested retail price of *Alchemy*: **\$499**

Test equipment: Macintosh Plus computer with standard one megabyte memory (running Finder 5.5, system 4.1), Photon 30 Meg hard drive, Sonus MacFace MIDI interface, Ensoniq EPS with Version 1.3, 1.4, and 1.5 operating system, Casio FZ-1 & FZ10M samplers, and Mirage rack sampler. A Digital MX-8 router was used to route the MIDI wiring between the units.

Blank Software raised more than a few eyebrows with the introduction at the past winter NAMM show of *Alchemy*. This MIDI software for the Mac is not your usual run-of-the-mill sampler editor. It supports the Ensoniq EPS and Mirage, the Emax, Akai S900, and any other samplers that support the MIDI sample dump "standard", as well as the Dyaxis digital recording system for the Mac. When I obtained a copy of *Alchemy* for the purpose of this review, the folks at Blank wanted to make sure I had more than one of the supported samplers (I do), so that I could use the full "network" capabilities of their new software. "What the heck's a network?", you may be asking. In the computer world, networking is one of the latest buzzwords. In a nutshell, networking means interfacing many different computers together to create a single computer system that shares data files. To me, it always conjured up visions of suited businessmen doing exciting things like interconnecting spreadsheets to get you out the latest phone bill (yawn...). In this case, all "network" means is "a bunch of samplers". The idea is to let the computer be the central brains and storage medium in your MIDI studio, and transfer the same sample between various samplers. In concept, you save precious time by creating a great sample only once, with all the looping, EQ, and what-have-you done on the computer. Great idea, huh? But how does it work in reality?

I had a heck of a time even getting this software up and running when I first got it. When I tried to download sounds to my new EPS, it (and sometimes the Mac) would consistently crash. Lucky me, I soon found out that the brand new ROM in my new EPS wouldn't "talk" to *Alchemy* properly. I was forced to put this review back on the shelf until I got a copy of EPS O.S. 1.4 which cured the problem.

## The Tool Window

When you first load *Alchemy*, you come across the wondrous tool window on the left hand side of the Mac screen. Most of the features of *Alchemy* can be found on the tool window, and some of them are also duplicated on the pull-down menus. Some commands can also be given on the keyboard. For example, hitting the space bar would play the currently highlighted sample in memory.

One of the real advantages of *Alchemy* is the ability to open as many windows (each waveform in a window) as you like. You can open samples from disk individually, or as a "group". There is, of course, a memory limitation. Still, I found I could load almost twenty of my Wurliitzer electric piano samples into the Mac before getting an "out of memory" message.

This program definitely likes a lot of memory. I suppose it could run on a Mac 512, but it couldn't be very useful. A Megabyte of Mac memory is barely enough. Two meg's would be nice, if you're rich. If you have a very large sample (say, 300K), you would be hard pressed to do a long crossfade loop, or re-sample without getting the dreaded memory error. Perhaps Mac programmers should go back to using Mac 512's to program on instead of Mac II's so their products would be of greater use out here in the real world, but I won't hold my breath.

Getting back to tools and windows, by using the Mac mouse you can open a sound file, and select any part of it to "audition". You can also select all (the entire sample), or just the loop range. The resolution on-screen is user-variable, meaning you can zoom in (handy for fine-tuning a loop) or zoom out to see what the entire sample looks like. You can also zoom in and have another picture of the entire sample over your window at the same time (called an "overview" by *Alchemy*). This saves the hassle of zooming in and out constantly.

Even niftier is the ability for *Alchemy* to "remember" different ranges you've selected. Simply select a range and save it into any of eight memory slots, and recall it later with a quick click of the mouse. Very hip!

In fact, there are so many tools in the tool window that the first few times you use it you may be slightly confused. Some tools are obvious, such as the speaker icon meaning "play back the sample". Some are not so obvious. One friend, while watching me put *Alchemy* through its paces, asked "what does the two people dancing mean?" (it was the icon for replicating the waveform). Equally confusing are the "invert waveform" icon (looks like a diode from an electrical schematic diagram) and the loop cursor tools (look like cheap Atari joysticks). Oh well, I guess it still beats alt-control-j like some other computers use.

Summing up on *Alchemy*'s tool window, there are also tools for drawing a waveform, reversing it, fading in and out, scaling, selection mode, a "snapshot" to create an overview window of the current view, a "loop splice mode" that enables the user to line up the front and end of a waveform's loop for a perfect zero crossing (works great too), and tools for analyzing the harmonic spectrum of the waveform.

## Alchemy Does Windows

Well, not really, although it should at least clean the studio glass at this price. *Alchemy*'s windowing ability on the Mac is pretty incredible. As I mentioned before you can open up tons of waveform windows at once with *Alchemy*. I'll bet you're thinking that this could really clutter up the screen right? Wrong! To make sampling life easy, *Alchemy* can stack or tile the windows across the screen, or "strip" them in long columns atop each other. Then you simply click on the waveform you want to edit to activate that window. As with most well-behaved Mac programs, clicking on the active window's upper right-hand corner window will expand the waveform window to fill the entire screen (except for the tool window portion on the extreme left of the screen).

If you have a stereo sample in memory, *Alchemy* shows you the left and right waveforms "stripped" atop each other. *Alchemy* will support stereo files (in audio IFF) format, although there aren't too many true stereo samplers in the affordable price range yet. Stereo isn't supported on the Mirage, since its operating system can't handle it. A stereo setup can be done on the EPS, but it takes twice as long to transfer samples over MIDI from the Mac to the sampler. It also eats up the EPS's limited memory. I find it easier to do quasi-stereo stuff right on the EPS.

## Transferring samples over MIDI

When you are ready to send your edited waveform thru the MIDI interface and into your sampler, you select a network (they mean select a sampler), and choose "send sound" from a pull-down menu. Alchemy will "talk" to the sampler to see what is where in its memory, and then show you the "keyboard dialog" window. It's a depiction of a 61-key keyboard (Alchemy doesn't support all MIDI keys, only C2-C7). The grey keys represent the currently selected keyboard range, and a single darker gray key shows the "root" key, which is the pitch the waveform was originally sampled at. You change the root key by clicking on it with the mouse and dragging it to wherever you want it to be. Likewise with the keyboard range of the waveform. It couldn't be any easier! Unfortunately, the Mirage can't do this trick, presumably because of the "top key" nightmare of a mapping system the Mirage uses. Alchemy also supports the multiple instruments and layers of the EPS too, so you can select and grab any sample from anywhere in the EPS memory.

## What about the pull-down menus?

I thought you'd never ask. Every Mac (and Atari ST) user knows the first thing you do with a new program is to toss the manual aside, boot up the disk, and start pulling down the menus. Who am I to mess with a tradition like this? The first menu is the file menu. It lets you create a new sound file, save a file, or open a previously saved file (or group of files). Alchemy can read not only its own file format (the stereo audio IFF 16-bit format), but Digidesign's Sound Designer format too. This is important, since it gives you compatibility with a lot of other programs for the Mac. It made this review a little easier for me too, because (as you EPS owners know) the Ensoniq EPS comes with a wealth of useless sounds. I was able to draw upon thirty megabytes of 16-bit samples from my Casio FZ-1 sampler collection that I had transferred over with the help of friend Dave Bryant's Universal Sound Designer program. They all loaded flawlessly into Alchemy.

You can save a sound file as audio IFF, Sound Designer file, Apple SND resource, and as a Sound Lab 8-bit file (useful for transferring soundfiles to Blank's Sound Lab for the Mirage. However, this apparently deletes the loop point from the file. Yikes!). Something I wanted to try was saving a file as an Apple SND resource. It would be slightly entertaining for the Mac to belch instead of beeping at me, but I just didn't have the time to putz with it. The other Alchemy filing possibilities are delete (which didn't always work, returning cryptic error codes instead of deleting the file), and revert, which re-loads the last waveform you opened if you revert to the pre-mangled waveform. I couldn't get the undo command to work all the time at first, but in the final version I got of Alchemy it worked OK.

## More menus!

All the usual Mac commands can be found under Alchemy's edit menu. The undo, as well as cut, copy, paste, clear, mix, select all, and select loop commands are all self-explanatory in nature, so I won't delve into their operation here. Suffice it to say that they all work well. The auto-zero command here automatically lines up your loop points on zero crossing for cleaner looping, and it works great! I ended up leaving it on all the time, and you'll do the same if you know what's good for you. There is also an "edit options" box for configuring your RAM for program functions.

The process menu duplicates some of the tool window commands, with the exception of the EQ, resample, and crossfade options. The digital EQ works fine, although like most of the processing commands you end up waiting about a minute or so for the Mac to do its thing. You can set up the digital equalizer as a high-cut, low-cut or notch/peak filter, and you choose your own center frequencies, amount (in decibels)

of cut or boost, and the width (Q) of the EQ. Very nice indeed. By introducing radical EQ into a sample I was able to induce some phase-shifting into the waveform. Although this was technically an error it sounded so cool I kept it!

The resampling feature is probably my favorite in Alchemy. Not only can you see what all your samples have been sampled at with this, you can change the sampling rate to match up the pitch better. Or you can shrink the sampling rate down to save memory and transfer time. As an example, my Casio FZ-1 files were all sampled at 36 KHZ. To line up the pitch so the sample would be in tune, I re-sampled each waveform at 36.8 KHZ (the closest sample rate on the EPS).

The only drawback to re-sampling is its destructive nature (save it first), and the amount of time the Mac took to re-sample. For long samples, it took almost 5 minutes. Those with an EPS can do it right in the sampler at a much faster rate, and with the chance to compare the old version to the new before nuking one. That is, provided you have enough memory (sheez, how many times have I said that??). Still, the ability of Alchemy to re-sample is a very powerful tool indeed.

The crossfade looping on Alchemy worked great too. You can select the amount (in percentage) of crossfade you desire, and it was generally a piece of cake to use. Again, if it's a very large waveform plan on waiting around a while. I imagine these processes are somewhat faster on a Mac II or souped-up SE, but Apple didn't lend me one to investigate so I can't say for sure.

## Let's analyze and re-synthesize

The harmonic analysis section of Alchemy is an incredibly powerful tool. By using a "Fast Fourier" method, one can analyze a waveform and see the exact harmonic content. I loved this feature! Here's how it works: first you select a range of the waveform. It has to be 32K or less, which is a small drawback. Click on the "analyze" icon and wait a couple minutes (why do they call this "fast" Fourier?). Eventually a window pops up at the bottom of the screen. The harmonic content of the selected range is displayed as sort of a bar graph, with each bar showing the amplitude of each harmonic from the fundamental frequency up to the highest frequency.

But wait - there's more! You can change the amplitude (loudness) of any of the harmonics by simply grabbing the individual harmonic bar and pulling it up or down. Then select the re-synthesis function and the Mac will compute the changes and re-calculate the waveform. Believe me, it sounds more complicated than it really is.

For example, I tried this out with a sample of low piano note. This a harmonically "rich" sound that has hundreds of different harmonics in it. For the heck of it, I lowered the amplitude of the fundamental frequency, cut back on a few others at 60-80 Hz, and added a few random high harmonics at around 2300 and 4200 Hz. After re-synthesizing the result was a very nifty, buzzy, piano/bell sound.

This is a great addition to Alchemy that could provide endless fun and some very unique sounds for your sample library.

## Even more menus

The windows menu lets you tile, strip, or stack multiple waveform windows. It can also hide the tool window, which is useful when using desk accessories because the tool window insists on being "in front" of everything. Reminds of a guy I used to be in a band with. It also duplicates some more of the tool window commands.

Alchemy's "actions" menu contains the overview, rulers and loop on/off switches. You can also zoom completely in and out



of a waveform from here, which I ended up using a lot. At the bottom of the menu is the "set preferences" option, which allows the user to customize the program options and setup. I liked the default setup just fine.

Finally, the "network" menu (there's that doofy term again) is where you transfer sounds in and out MIDI, and where you set up each instrument in your hallowed network, which is how we begin...

### Using Alchemy

I thought I'd never get to this part. This program has a LOT of features. But hey! How does it work? OK, let's set up a networking session...

First I selected "edit instrument" and pushed the arrow on the edit window until it reached "Mirage". Then I selected MIDI channel 1. With the Mirage I selected the MIDI interface option, since there is no SCSI or RS-422 interface on the Mirage (I envy those EMAX owners for that, if nothing else). There is an option to select a patcher program and channel if you're using a MIDI patcher.

By the way, if you're planning on using Alchemy on a "network", you'd better plan on having a MIDI patcher, or at least a MIDI switcher and merger. Unless your idea of a good time is plugging and unplugging MIDI cables constantly. I repeated the Alchemy setup process with the EPS. After transferring a bass sound from the Mirage to the Mac, I decided from looking at the zoomed-out waveform, that I could loop the bass waveform much earlier and save some memory. I picked up the cursor tool, moved both ends of the loop over, zoomed in, moved the loops onto a better zero-crossing, and finally used the time splice mode to line up the end and the beginning of the loop for a seamless splice. It worked like a charm. I felt like a network president! Being wise to the Mac's dirty tricks, I quickly saved the waveform to disk. I then selected the end portion of the sample after the loop and used "cut" to erase it.

Now, I changed the network to EPS, selected "send sound", and sent it over MIDI into the EPS. The result? Well, it was accurate alright but sounded godawful. I hadn't realized how much filtering was on the bass sample in the Mirage - boy, did it need it! To compare, I loaded the same Mirage sound disk directly into the EPS (a great idea, Ensoniq). Not only was it a lot faster, it loaded up with the same filtering and envelopes as used on the Mirage.

I was now determined to transfer a sound from the EPS to the Mirage. I decided to select a very short sample with a lot of high end and no filtering for a quick and easy A-B comparison. So, I loaded up a snare drum sampled at 39.1 KHZ into the EPS. I opened a new window on Alchemy and selected EPS as the network, and chose "get sound." Alchemy showed me a default keyboard dialog window, I clicked "OK", and the Mac loaded in the EPS snare drum sample.

I transferred the snare to the Mirage. It worked but sounded pretty poor. Why? Because the sample rate was changed to 29410 Hz - apparently the highest rate supported on the Mirage by Alchemy. It's not one of Alchemy's better features. I guess Mirage owners better hang onto those external sampling filters a little while longer.

There was also something else going on with the waveform transferred to the Mirage that I didn't like. To investigate further, I loaded up a Precision bass sample from disk. This waveform was originally sampled on the Casio FZ-1 sampler at 36 KHz and sounded immaculate. I reduced the sample rate to 29142 (since the program was going to do it anyway), and transferred the waveform to the Mirage's lower memory.

Upon playback on the Mirage, there was a horrible noise added

to the sample. I dumped the bass back into the Mac, and took a good look at the waveform. There were numerous lines on the waveform display showing distortion and aliasing introduced by the transfer to Mirage memory. Blank places the blame on the Mirage for this, but I've used Sound Designer to transfer sound between other samplers and the Mirage and I've never heard this kind of digital abuse done before.

Outside of a few bugs that were fixed in the latest update I received, this was the only real problem I had with Alchemy - except for when I forgot to switch the MIDI patcher to transfer a waveform to the EPS (woops). When I selected "send sound", Alchemy promptly crashed, forcing me to re-start the Mac. Sure, it was my fault for not changing the patcher, but a good program shouldn't completely crash due to an error like this.

Anyway, when set up right, all of my samples from the Casio FZ1 transferred into Alchemy and then the EPS memory easily, and the resolution sounded much better than if I had sampled directly from one sampler into the other. And, of course, all the loop points and other processing was intact. Overall, Alchemy was simply amazing.

### The Verdict

When I first got Alchemy I thought it was a decent program. Blank has since cleaned up the bugs and expanded its "network" to include the Casio FZ-1 and FZ10M, Roland S-50 and S-550, and a few other samplers. The new version works flawlessly with all of the samplers I tried, with the exception of the Mirage, which I haven't had a chance to try with the latest version.

There are zillions of great features to Alchemy, and it's obvious that a lot of hard work went into this program. I preferred it over its only real competitor, Universal Sound Designer. It will be interesting to see if Blank comes up with an Atari ST version.

As to whether you Ensoniq EPS and/or Mirage owners should buy this program, consider that the EPS can do a lot of Alchemy's editing right inside its own operating system, and a heck of a lot quicker. The EPS also reads Mirage disks directly, so there's no advantage to using Alchemy for that purpose. Transferring EPS samples to the Mirage doesn't work all that well. However, the ability to increase your sample library by simply loading in Roland S-50, AkaiS900, Emax, Casio FZ, or Prophet 2000 sounds via MIDI makes the price of Alchemy a lot more palatable, and the bonus features (like harmonic synthesis, serious processing, and digital EQ) put it over the top for me. Add to this constant upgrading of the program and excellent phone support and you have the absolute best sampler/editor/librarian program on the market. If you own a Mac, an EPS, and any other sampler, buy this program. I did, and I'll never regret it.

### The Credits

Thanks to Bob Hager at Ensoniq for rushing me the latest version of the EPS O.S. so I could complete this review, and thanks to Dave Bryant of the Flying BonJovi Brothers band for lending me his Universal Sound Designer program for transferring some of the samples used during the course of this review. ■■■

*Bio: Mick Seeley is a professional keyboard/guitar player/producer from the Jersey Shore, whose credits include working with BonJovi, Billy Squier, and Dan Hartman, as well as the upcoming Jody Bongiovi record. Mick owns a 16-track recording studio in Long Branch, and is president of Livewire Audio, a company that specializes in synth and sampler programming.*



# Customizing The EPS

By Joe Paschall

[As background to this article it helps to familiarize yourself with the EPS Musicians Manual and the June, July and August EPS articles in the Transoniq Hacker].

One of the neat things about the EPS is its ability to be "customized" to the needs of the user. I use it to sequence various rhythm instruments (Drums and Bass) on the built-in sequencer, and then play two-handed lead instrument parts (Piano, Acoustic guitar, Flute) on the EPS keyboard along with the sequence.

There are several features of the EPS which facilitate this hobby of mine. With a 2x memory expander, I have been able to fit all five of these instruments in the EPS by deleting some unneeded wave samples, converting some sample rates, etc., with several blocks of memory still available for songs/sequences. Since I use the same selections of instruments for each song, I first saved them individually to the same disk(s), (Command/instrument/scroll to "save instrument"/enter-yes/enter-yes), and then as a bank(s), (command/instrument/scroll to "save bank"/enter-yes/rename if necessary/enter-yes). This enables you to load everything once at the beginning of each session with a minimum of button presses. Since all five instruments' size exceeds the amount of available disk space (1585 blocks), they have to be split up, putting three instruments on one disk and the remaining instruments on another.

First load the three instruments to be saved to disk #1 into the EPS in their proper locations. Now save each one individually and then as a bank (as described above). Now delete these instruments from internal memory (select instrument/hold instrument location button down/press cancel-no) and load the remaining instruments into their proper locations and repeat the save procedures to a second disk.

I usually divide the song I'm sequencing into individual sequences, recording drums, then bass, one track at a time, then stringing the sequences together to form a song (pages 41-42 EPS Musicians Manual). Then I learn the parts which I'll play myself while the sequencer "accompanies" me.

Using the EPS this way, I ran into a couple of problems. Some of my parts were outside the 61 note keyboard range of the EPS. Also, there were times when I'd have to play one sound with my left hand, and a different sound with my right hand, with both instruments having overlapping ranges. To get around this, use performance presets. Each performance preset can remember, among other things, different keyboard ranges for each instrument, mix levels, patch selects, and which instruments are selected, stacked, or deselected. By determining the highest and lowest key used by each instrument for each part of the song, we can set each instrument's keyboard range for different sections of the song, also each instrument's volume, patch select status, etc.

Save all of this information as a performance preset by first setting each instrument's range one at a time. First select an instrument. Now press the "set keyboard range" button, play the lowest note needed then play the highest note needed. Press the "set keyboard range" button again. On this page we can determine the octave for each range. Pressing "set keyboard range" again takes us out of this command putting us back into load mode with keyboard range and octave settings set. Now select each instrument and set its volume using the data slider. Next select, deselect, or stack each instrument which will be used for this particular preset. Now that the values are all set, save them as a performance preset. (Pages

17-18 EPS Musician Manual.) Follow this procedure for each section of the song where a different preset is needed.

Now, this information should be saved to disk. Since we are using the same instruments for each song, we can delete all of the instruments from internal memory at this point (Select instrument/hold instrument location button/press cancel-no). The EPS still retains the preset information we just created and the song with all of its sequences. So we simply save the song (command/sequence/scroll to "save song and all sequences"/enter-yes/rename if necessary/enter-yes) then, the contents of internal memory (now minus the instruments themselves) as a bank.

Doing this enables quick loads of songs and presets in performance without disabling the keyboard while loading. All that's being loaded are sequences and preset information. (The instruments will already be loaded at the beginning of the performance.) Each new song/bank can be stored on the same disk. One disk with all songs and presets minus instruments can hold a lot of songs and can be left in the disk drive for the entire performance. When a new song bank is loaded, it replaces the presets and song currently in memory.

This system of loading songs and preset configurations and playing along with the song works effectively; however, I still have to lift one hand from the keyboard at the precise moments during the song to type in the preset change. Since there can be many such changes in the song, this can be difficult. To get around this, have the sequencer record program changes at any point in the sequence and transmit them upon playback through MIDI. If the EPS receives these program changes it can:

- A) Select preset 1-8
- B) Select instruments within a preset which are not currently selected
- C) Deselect instruments which are currently selected and
- D) Stack instruments.

How can the EPS receive these program changes? By simply hooking a MIDI cable from the EPS's MIDI out back to its MIDI in. This enables the EPS to send program changes to itself.

First, the MIDI loop mentioned above should be disconnected. Then, make sure all instruments are sent to "local" (Edit/instrument/scroll to "send keys to" =/select local). Now that we've made these changes, resave each instrument (select instrument/command/instrument/scroll to "save instrument"/enter-yes/instrument name = use same name/enter-yes/delete old? enter-yes). Next, create a "smart" MIDI instrument, (Pages 30-31 EPS Musicians Manual) whose sole purpose is to record and send program changes. Set it to transmit on instrument channel, send keys to = MIDI, and to keep things simple, set its MIDI out channel to match its location (EG.-Inst #8, set to MIDI out chan #8). Now name the instrument something like "Prog. change", and save it to disk. (Incidentally, don't include this MIDI instrument as part of any preset you create, otherwise program changes won't work correctly.)

Now we'll have to make sure that the EPS's MIDI mode,

- A) Is set to Poly,
- B) Transmits on instrument channel not base channel and,

C) Its base channel is set to the same MIDI channel we chose for our "smart" MIDI program change instrument.

(Edit/MIDI/scroll to "base channel"/set its value using up or down arrow buttons/scroll to "transmit on" and set to INST. channel.) Also, while we're here, let's enable program changes (Edit/MIDI/scroll to prog. change/set to on) and make sure system exclusive is disabled (Edit/MIDI/scroll to system exclusive/ set to off). These MIDI changes can be saved, incidentally, to your operating system disk using the "save global parameters" command (Insert O.S. disk/com./com/system/ scroll to "save global parameters"/ enter-yes).

Now we can record the program/preset changes wherever needed, as part of the sequence. Just select the sequence, select our program change instrument, hold record and press play and, at the right moment, record our program change by pressing and holding down the instrument button for the "smart" MIDI instrument, and type in the proper number. When the instrument button is released, the program change is recorded. Now stop the sequencer and press enter-yes to keep "new". That's all there is to it.

Now to hear the results, reconnect our MIDI loop and press play. If the program change was too early or too late, just re-record it, first disconnecting the MIDI loop then setting record mode to "replace". Once we've successfully recorded the program change, the sequence can be played back, we can play our parts along with it, and have the program change. Just hook up the MIDI loop and press play to start the sequence. The program change should be sent through MIDI where it was recorded. The EPS receives it and changes the preset or selects, deselects, or stacks the instruments accordingly.

When in Poly Mode, program numbers 17-24 will select presets 1-8 respectively. Individual instruments within each preset can also be selected, deselected, or stacked this way. Program numbers 1-8 will select instruments 1-8 respectively if they are not currently selected. If they are already selected, these same program numbers (1-8) will deselect the respective instrument. And program numbers 9-16 will stack instruments 1-8 respectively with whichever instrument(s) are already selected.

Many such preset changes can occur in the same sequence if needed. Just make sure to save all of these changes to disk because they are now part of the song. (Insert song-bank disk/command/seq-song/scroll to "save song and all sequences"/enter-yes/use same name/enter-yes/delete old version?/ enter-yes.) If any new performance presets have been created, save them to the song bank disk (delete all instruments from internal memory/ command/instrument/scroll to "save-bank"/enter-yes).

So now the EPS, with its 2x's memory, is really the only instrument needed to do a solo gig. You could have many song-bank disks, and by just using the same instruments for each song, have an absolute minimum of loading time, with the sounds in memory still available to play while loading the next song-bank. This is one of many ways of customizing the EPS to yours musical needs. ■

*Bio: Joe Paschall, of Ensoniq Customer Service fame, wrote many of the demo sequences for the SQ-80 and the EPS. He finds himself often wondering where was all this stuff when he was in a band?*

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ESQ-1 (TM) ENSONIQ CORP.

# Livewire Disks #14, #15, & #16

Reviewed by Dave Caruso

For: Mirage (& EPS).  
Product: Disks #14, 15, and 16.  
Price: \$14.95 each, full set of 22 disks for \$199.95.  
From: Livewire Audio, P O Box 561, Oceanport, NJ 07757. (201) 229-2309.

This month we've got three more disks from Livewire Audio. Let's jump right in.

## Livewire Audio Disk #14 - The Unusual #1

### 1. Breaking Glass, Fingersnaps, Kickdrum, Claps

L1: "Glassbreak." "It's a high fly ball...it's going...going... gone--right through the neighbor's bedroom window." If you ever played baseball as a kid, you can relive that precious moment with this sample, only this time you won't have to pay for the glass.

L2: "Looped Glassbreak." Same sample, one octave lower and looped from beginning to end. It plays over and over until you release the key, at which point it gradually fades to silence.

L3: "Slow Motion Glassbreak." This variation sounds like a very large trash can being struck with a tympani mallet, heard in slow motion. The glass tinkling which follows if you hold the key down sounds like a toy piano, perhaps being shaken instead of played. There is a short release on this one, so you can get mondo kick and snare sounds out of it a la The Power Station.

L4: "Reversed Glass Unbreak." Like the name says. Strangely reminiscent of the noise audio tape makes when it's rewinding while playing.

All of the lower sounds were made with a single wavesample stretched across keys 1-31.

U1-4: (No programs)

Keys 32-39: "Fingersnaps." This is a virtually noise-free sample, and that's especially important with finger snaps. On the downside, though, the attack transients normally found with real finger snaps aren't here.

Keys 40-50: "Claps." An artificial clap with a quick-but-mellow attack.

Keys 51-54: "Crunch Kickdrum." Mondo at best.

Keys 55-61: Unlabeled. A stick click or metronome click. Very nice. Play the opening rhythm to the Cars' "Since You're Gone."

### 2. Tambo/Organ 5ths, Bird Whistles, Ghouls...(keys 1-31)

L1: "Tambo/Organ 5ths." The principle note is percussive. The "fifth" is technically a perfect fourth below it (I know, fourths and fifths are cousins) and has a slow-attacking, ghostly tone. Velocity controls loudness and filter brightness. Chords can actually be done with this one, with fun results. The whole sound has flanging characteristics when you hold the keys down, although it's probably a filter sweep. Where's the loop? Notes just cut off suddenly at the end of the sample.

L2: "Bird Whistles." Those birds that wake this musician up at the crack of noon have come back to haunt me. Instead of

being outside my window, they're in this sample, and they really are terrific. Choose random notes and time values for the most realism. This was made with one sample.

L3: "Ghouls in the Night." A dual-pitched, oscillating sixties sci-fi soundtrack-thing.

Beer Bottle

U1: "Unlooped Phooty Beer Bottle." What a great word! Phooty! Anyway, this is the infamous (and at times obnoxious) "air blown over the top of a bottle" sound.

U2: "Looped Bottle." Extremely good loop. A cleaner, quieter sample than the first one with less blowing noise. Very nice.

U3: "Chorused Looped Bottle." The chorusing adds fullness, and so does the pseudo-reverb release that was added.

U4: Call this "Caliope Beer Bottle." (You get extra credit if you pronounce it, Kal-ee-O-pee," like on Captain Kangaroo). Play an "oom-pah-pah" line with it. No loop.

### 3. Unusual Indescribable sounds. (No Programs)

Keys 1-17: "Chime on Acid." A quickly upward-arpeggiated Latin drum/chime. (Huh?) Another safe bet for a soundtrack contribution.

Keys 18-26: "Squarewave Amplitude Modulation-Noise." A fast whole-step trill. Fades out in a couple of seconds if you hold the key down, and a bit faster if you don't.

Keys 27-40: "Whistle" is a quick scoop on a high note with a softer, lower harmonic sneaking in. There is an obvious, quick ending on this whether released or sustained.

Keys 41-61: "High Fluff (Synth-Organ-Thing)." Now, how could I possibly word it better than that? I give these guys a lot of credit in the description and imagination departments. Nice sound, too. Get out your Jamaican albums and play along. The loop is poppy, but if you don't hold notes too long, this is a fantastic sample. "Day-O."

## Livewire Audio Disk #15 - Additive Synth #1

Everything on this disk was done on a Macintosh computer, then transferred through MIDI, thereby eliminating sampling (and aliasing) altogether.

### 1. Chime/Synth DX7-ish Type of Sound).

Very pretty. The principle note sounds like it's from the organ family. Soon after a note is played, a beautiful wind chimes sound begins. By the nature of their tone, the chimes don't interfere when you play chords. In fact, it's just more of a good thing. The upper octave isn't as good because of the speed of the arpeggiation that makes the wind chimes effect, and because at that pitch you lose some of the original tonal beauty. Play the intro to Chicago's "Fancy Colours."

2. Lower: Jamaican Steel Drum  
Upper: Vibe Organ

The upper is similar to the lower, only fuller. Tune the lower sound down an octave and play both sounds together. Try the

intro to "Come Dancing" by The Kinks.

### 3. Lower: Clean Clarinet Upper: Breathy Flute

The clarinet has a short sustain and no loop, so you can't play just anything if you want this to sound realistic. The upper sound is a synth/flute hybrid. No loop.

Additive synthesis opens up a whole new world for Mirage owners. Even if you don't have a computer, you can reap the benefits of AS by picking up disks such as this. The "#1" in the name of the disk tells us there's more of these to come from Livewire. That's a good thing, and hopefully the next batch will all have loops when appropriate.

## Livewire Audio Disk #16 - Brass

### 1. Brass Group "A"

L1: "French Horn" (Keys 1-28). The attack isn't perfectly realistic, but the tone is just right. There's nothing bad about the attack, but it doesn't sound like a real french horn being blown into. I like it anyway.

L2: "Slow Horns." The only difference I can discern here is a slightly longer, brighter release.

L3 & 4: No Sounds.

U1: "Fat Trumpets." Sassy, authentic marching band horns with chorusing. Keys 29-41 sound the best. After that it's better to stick to shorter notes to avoid loop noise.

U2: "Trumpet/Strings." MY (presumably faulty) disk has the same sound here with a longer, brighter release.

U3 & 4: No Sounds.

### 2. Brass Group "B"

L1: "Muted Trumpet." Again because of the attack, it isn't a true trumpet, but it's useful and pleasant sounding.

L2: "Chorused Muted Trumpet." That's exactly what it is.

L3: "Up and Lower Trumpet." Lower wavesample three is set to play on only the first key, and all subsequent lower wavesamples are masked by it, so that the trumpet from the upper keyboard memory can stretch down into the lower octaves. What you end up with is a clever idea in which the upper keyboard is a trumpet, and as you go lower the sample starts to pick up trombone and tuba characteristics. Good thinking! If you like, you can also adjust LW3's P72 to a higher number to enjoy another trumpet sound, this one's defining

quality being its hard attack.

L4: "Muted Trumpet 2." A bit fuller tone than on L1.

U1: "Solo Trumpet." Nice synth trumpet. Inaudible loop (fantastic)! Great tone.

U2: "Chorused Trumpet." The amount of detuning makes it thicker and gives it more depth of character.

U3: "Up and Lower Trumpet." This sounds like the trumpet/strings sample that was supposed to be on Bank one, Upper Program two. Interesting hybrid. String attack, string/trumpet color blend, filter sweep release. You can't play very fast on this one unless you change upper P50 to a lower setting.

U4: "Quick Trumpet 2." A useful staccato trumpet sound, very well done. I can think of lots of uses for this one.

### 3. Brass Group "C"

U/L1: "Brass Section" sounds real good. Definitely a synth sound, and purposely so. Very bright tone, indefinite sustain, quick release.

U/L2: "Mod Wheel-Controlled Brass." Not as bright. The mod wheel affects a

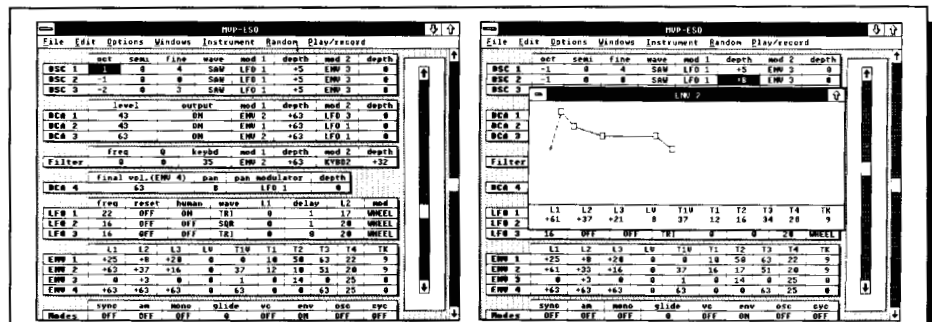
subtle change in volume.

U/L3: "Lower/Higer Brass." Same horns on upper as lower. A quick, soft "wah" attack, a dynamic backbone. A synth trumpet.

U/L4: "Super-Fat Brass Section." "Wah" attack, punchy analog tone, indefinite sustain, chorusing, and a medium release. And it IS super-fat.

## Wrap-up

More impressive impressions from Livewire Audio. Their variety, quality, and imagination should keep them in business and busy for a long time to come. ■



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# The Ensoniq Performance 1 Disk

Reviewed by Michael Mortilla

For: SQ-80.  
Product: PERFORMANCE 1 Voice/Data Disk.  
Price: \$19.95.  
From: Ensoniq - contact your local dealer.

Shopping for synth sounds can be like shopping for groceries. What you end up with depends upon taste, need, and what you can find at the store. If you've been shopping for sounds for your SQ-80, you and your SQ may be getting pretty hungry by now. Sure, you can pick through those ESQ sounds, compromise the capabilities of your SQ, and spend lots of time tweaking patches. You could go the mail order route, wait for UPS to bring you the sounds you didn't get a chance to hear (unless you paid for the demo cassette first). But if it's fresh 3.5" floppies you want to feed to your beloved SQ-80, your local dealer probably doesn't stock a large number of sounds for you to hear and purchase on the spot. One disk which contains a cornucopia of sounds is VSD-3, PERFORMANCE 1 (\$19.95) from Ensoniq.

This recent offering from Ensoniq is comprised of three program banks: PERFORM 1 contains 40 new sounds, LAYERS combines those sounds into 20 layers (sounds, not cakes) and INTERNAL 2 provides, more or less, the same 40 sounds you get when you re-initialize. I rejected about a baker's dozen of the new sounds as being too stale for my taste. The remaining sounds were exceptional and will work in lots of settings. In fact, you won't have to guess just how spicy they are because the disk comes loaded with enough demo sequences to show off what the programmers have concocted. No doubt you'll want to try them under your own phalanges, but letting Ensoniq serve you these sounds through their demos may give you some idea of how they cook.

The impression one gets from listening to the demo sequences is that PERFORM 1 was designed for use in a jazz or fusion environment. This might be due to the style of music that was programmed in, and the patches do lend themselves to those styles rather well. UPRBRS is a wonderfully smooth string bass where you can really hear the sound of a wound string and, with a good pitch wheel technique, you'll have a persuasive fretless patch. MYVIBE is a pleasant cross between a jazz organ and marimba, and JAZORG brings back memories of the great Walter Wanderly recordings from the Sixties. Well, even if you don't remember Walter, the patch stands up on its own and would make for some nice solo work under the right fingers. On the other hand, BOBORG (a B-3 replete with dirty contacts) could use some help. A Leslie vibrato effect is controlled with aftertouch modulating LFO 1, yet the sound doesn't move. Recipe: Go to the DCA 4 page and modulate PAN with LFO 1 at 63, or to taste.

Also in the keyboard aisle, amid PNOBOW and BOWORG (which are good for repeated chord accompaniment a la the Eleanor Rigby string section) there is ELPN05, a nice Rhodes type patch, in which you may want to turn off the MOD on the DCA 1 page and drop the level to about 53 to get rid of unwanted noise. The intentional noise of MTLPNO strives toward a deep-throated harpsichord by crossing pluck and piano waves, and there's a no frills version called PLKHRP that is good, but not great. In ICYROD they have created a responsive bell/organ sound which will keep up with your fastest licks and cut through the deepest instrumentation.

The brass sounds are some of the best I've ever heard from a synth. CORNI 1 is a full-blown soloist that delivers sweetness and depth, while ENGHRN in its upper register sounds just like a solo trumpet. SWLBRZ has a nice edge to it, with aftertouch adding an expressive crescendo. I found DRNSC2 a little thin, PLYSYN a little fat, and neither very appetizing. Layer the two

of them and you have a phenomenal horn section that's just right (called SYNBR5/ in the LAYERS bank). Doubling a line an octave or two apart with SYNBR5/ is not only convincing, it's a lesson in orchestration. I used SYNBR5/ in a live theatre performance, and, even with the four note limitation (remember, it's a layered voice), it felt and sounded like I had a full brass section to play with. Need a big stack on your SQ-80? Recipe: with one finger, sequence a few notes using SYNBR5/. Copy the track two times, then assign the other two tracks to BELTOM and TYMPNY (you'll find them in the INTERNAL 2 bank on the disk). Play it all back and you have a stack to stand up against those 16 voice monsters.

Quasi-Saturday-Night-Live, we find BOWSAX liberated in the DEMO 4 sequence. An interesting aspect of this patch is the digital delay effect during staccato playing. This is accomplished by modulating the filter with an LFO set to a NOISE wave and modulating the LFO with VEL. Intriguingly good programming. MLBRAZ and PLKBRZ are less satisfying in terms of realism and better suited where an electronic brass sound is desired.

Deserving honorable mention are: BLOW, which takes Coke bottles to the Nth degree (in this case, to about 16'); DIGAIR, which is lovely but suffers from a lack of motion (go to the DCA 4 page and try the old "MOD PAN with LFO 1 at 63 trick" and be sure to use the MOD wheel); and PRKBAS, an interesting slap bass wherein the MOD wheel raises OSC 1 for playing in parallel fifths. The upper register of PRKBAS is also quite nice and playing a major triad with a gliss on the MOD wheel slides beautifully and smoothly into a major nine chord.

In the documentation for VSD-3 there is mention of "SQ-80 software version 1.7," which, after calling Ensoniq, I discovered is available through your local dealer. [Ed. - They're now up to 1.8.] The revised software allows you to load a sequencer bank and gives you the option to load the associated program bank at the same time. Sounds convenient, doesn't it? There is a major factor though to consider before you rush out to update your SQ-80, and I think Ensoniq should fix it before they send it out. The program bank is related to the sequencer bank and both are saved at the same time. For example, you create a sequencer bank and save it, the programs are automatically saved in the program bank file of the same number as the sequencer bank you just saved. This is it: if another program bank exists at the intended location, it is written over and the data is lost! Also, once you save an associated sequencer and program bank, you cannot change the association. I suspect you could load the sequencer bank, then load a new program bank, and then execute an "update old file" command, but it seems that Ensoniq, if they really feel this feature is useful, should create a new version which would allow the user to define which program banks are to be associated with which sequencer banks. It should be noted that the 1.7 version software works only in the first 10 sequencer banks. That explains why in VSD-3 the PERFORM 1 and INTERNAL 2 banks are duplicated in file numbers 11 and 13, and why they placed the LAYERS bank into file 12. If those banks are blown away by the new software you could recover. If your own sounds get blown away...

Overall, the twenty bucks for this disk is well spent and the fact that you can just walk right into your local dealer and hear them for yourself is, in my mind, a step in the right direction. ■

*BIO: Michael Mortilla is the Senior Musician/Resident Composer for the U. of CA, Dept. of Dramatic Art and Div. of Dance. He has worked extensively with the Alvin Ailey and Martha Graham centers in New York and has composed many theatre and dance works which have been performed worldwide.*

# Build A Rotating Speaker Simulator For The ESQ-1

By C.R. Fischer

Like any other musical instrument, the ESQ-1 does some things very well, other things passably well, and finally, there are some tasks it does badly. One thing that it cannot pull off is the ability to simulate the rotating speaker (Leslie) used with most organs. Although the ESQ-1's digital oscillators can come up with some wonderful organ sounds, there is no realistic way of imitating the slow swell as the rotation goes from slow to fast and vice versa.

A few programming techniques have been printed in this magazine (see the Hackerpatch LESLIE patch back in Issue #19), but frankly, they just don't cut it to my ears. Instead of panning between two LFOs at two different rates, we need to find a way to get a single LFO that can have its rate changed over time. Unfortunately, the ESQ's internal LFO frequencies are programmed and cannot be varied as the machine stands now.

If there is no easy way of doing things in software, we are forced to use hardware. Already, I can hear hundreds of readers chanting in unison, "Modify my ESQ-1?!? NEVER!!!"

You can relax, folks. Thanks to the farsighted designers at Ensoniq, we can build a simple LFO capable of footswitch controlled acceleration and deceleration, put it in a separate box, and use it with our ESQs with NO MODIFICATIONS at all (Actually, you will have to edit your patches to use the external LFO instead of the internal LFOs, but that's all.)

Due to the fact that TH is primarily slanted towards the musician, and has a limited length, this article will have to omit circuit analysis or a step-by-step builder's tutorial. We have to assume you know how to put together electronic circuitry or you know someone capable of doing the dirty work for you. If you'd like to try your hand at building this circuit, I strongly recommend Craig Anderton's Electronic Projects For Musicians (Mix Bookshelf, 2608 Ninth Street, Berkeley, CA 94710) as an excellent introduction to DIY electronics.

The schematic for our LFO circuitry is illustrated in Figure 1. None of the components used are particularly exotic, expensive, or fragile; while you won't find all of these parts at your local Radio Shack, a number of suppliers found in magazines like Modern Electronics and Hands-On Electronics carry all of the parts required.

This circuit was designed to be used with a regulated power supply of 12 to 15 volts at 50 mA or better. The use of batteries is NOT recommended. As they age, their output voltage tends to drop, which will affect the LFO's stability. The aforementioned Electronic Projects for Musicians features a power supply usable with this circuit. The circuitry itself is remarkably non-critical as to layout; it can use perfboard, wire-wrapping, or a PC board. It is a good idea to use sockets for both ICs, as this makes testing or replacing the chips much easier should the LFO not work right away.

After building the circuitry, mount the device into a plastic or metal box large enough for the footswitch and other components. The OUT terminal should connect to a phone jack, so that the LFO output can plug into the ESQ-1's PEDAL/CV input via an everyday guitar cord. Turn everything on, connect the LFO to the ESQ, and enter the patch in Figure 2 into your ESQ:

1. Set both trimpots to midposition and place the footswitch in the FAST setting (switch open).

2. Press a key on your ESQ. If all is well, you should hear an organ sound with a rapid vibrato. If no modulation can be heard, step on the footswitch and see if the vibrato appears. If no modulation can be heard, turn off the power at once--something is wrong.

3. If the vibrato can be heard, adjust R3 for an appropriate "FAST" speed.

4. Hit the footswitch, and the LFO speed should drop over a period of several seconds. Now adjust the SLOW speed of the LFO with R8. Note that if R8 is set too low, the LFO will stall and refuse to run. Simply increase the setting until the LFO runs reliably. There is some interaction between the two adjustments, so you will probably have to go back and forth several times.

The LFO has now been calibrated and is ready for operation. To use it with your existing patches, change all modulators from the internal LFO to PEDAL. Any parameter that can be modulated by the PEDAL can now be controlled from the external LFO, including vibrato, the filter, and panning (check it out). One thing that must be remembered when editing patches is that the PEDAL/CV input only accepts a positive input voltage, and so the LFO has a positive DC offset added to it. To compensate for this, you must scale the patches back where they originally were. In Figure 2, since DCO 1 is lowered in pitch by this offset, we have to raise the fine tuning to 12 to bring it back to where it was originally. In general, the easiest way to do this is to apply the PEDAL modulator with a negative depth (-01 or less), and to raise the initial parameter in a positive direction (as in Fig. 2).

If you have any questions about this circuit, you may write me c/o Mescal Music P.O. Box 5372, Hercules, CA 94547. I will try to help out with any problems if a SASE is included.

All in all, this little gadget has served to improve my organ patches both on stage and in the studio for a very small investment in time and cash. Give it a try--I'm sure that you will find the difference worthwhile.

## PARTS LIST

### Semiconductors

IC 1) NE 566 function generator  
IC 2) TL 071, TL 081, or LM 351 bi-fet op amp  
Q1) 2N 2907 PNP general-purpose transistor

### Capacitors (all are 25 volts or greater)

C1) 2.2 uF tantalum (preferred) or electrolytic  
C2) .001 uF mica or ceramic disc  
C3) .47 uF polystyrene or tantalum  
C4) 47 uF electrolytic capacitor

### Resistors (all are 1/4 Watt, 10% or better)


R1) 1K  
R2) 2.2K  
R3) 20K trimpot (sets FAST speed)  
R4) 1K  
R5) 10K  
R6) 100K  
R7) 10 Megohm  
R8) 100K trimpot (sets SLOW speed)




Misc.) Solder, perfboard, hookup wire, case, SPST footswitch, phone jack, guitar cord, 12-to-15 Volt power supply (see text).

### IC PINOUTS

#### NE 566 function generator

- |                         |   |                     |
|-------------------------|---|---------------------|
| 1) Ground               |  | 8) V+               |
| 2) NC                   |   | 7) Timing Capacitor |
| 3) Square wave output   |   | 6) Timing Resistor  |
| 4) Triangle wave output |   | 5) Modulation Input |

#### TL 071/81, LM 351

- |                       |   |            |
|-----------------------|---|------------|
| 1) Balance            |  | 8) NC      |
| 2) Inverting Input    |   | 7) V+      |
| 3) Noninverting Input |   | 6) Output  |
| 4) V-                 |   | 5) Balance |

### References:

Lab Notes, *Polyphony*, Nov. 1977.

"Experimenting With Analog Delay," by Marvin Jones, *Polyphony*, Aug. 1978.

National Semiconductor 1982 Linear Data Book.

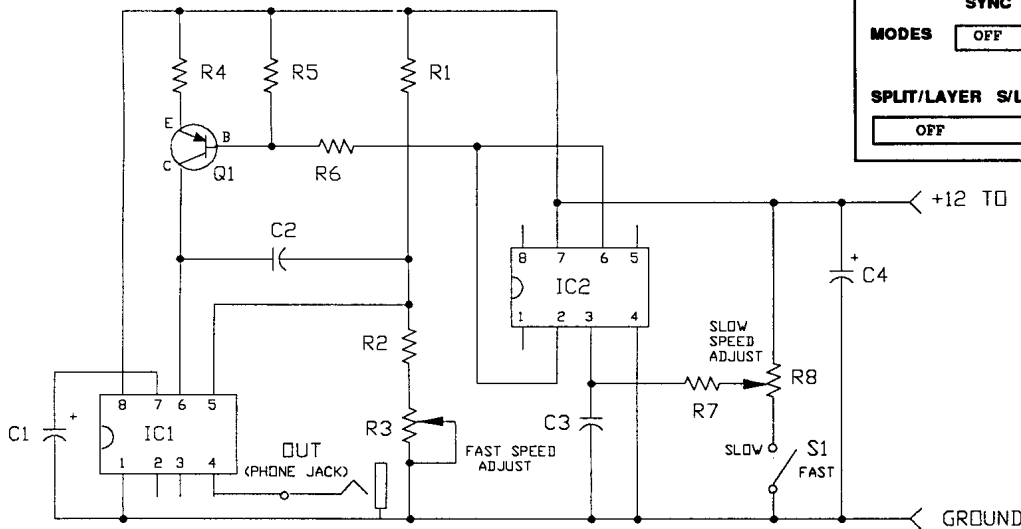


Figure 1. Rotating Speaker Simulator Schematic.

## HYPERSOBIQ

### NEW PRODUCT RELEASES

**SOUND LOGIC** of San Diego now offers "*The Pedal Organizer*" in a 22-inch (as well as the popular 15-inch) model. The 4" x 15" model is \$19.95 and the new 22" model is \$29.95. Both are made of heavy-gauge black anodized aluminum and have a low 3/8" profile. Velcro fastening system allows complete freedom to organize your pedals like you want. Designed for use on carpets or hard floors. Shipping is free in the U.S. One-year warranty and money back guarantee. For product information or to order, please write: SOUND LOGIC, 1125 Eleventh St., Ramona, CA 92065. Or phone: 619-789-6558

**ISLAND MIDI** announces SQ-80 support for its popular *ESQ-O-MATIC!* patch/sequence librarian for the ESQ-1 and the Atari ST. The upgrade will allow SQ-80 sequence data to be saved and loaded from the diskette (*ESQ-O-MATIC!* patch librarian functions already work with the SQ-80). *ESQ-O-MATIC!* patch sheets and screen displays will also show the linear/exponential velocity and second release settings in SQ-80 mode. SQ-80 support will be made available as an inexpensive upgrade for current owners. ISLAND MIDI also announces that *Volume II* of its highly acclaimed patch library is now available. The 40-patch volume is priced at \$16.95. For more info, please write: Island MIDI, P. O. Box 1102, Bayshore, NY 11706.

### ESQ-1 PROG: TEST

BY: FISCHER

	OCT	SEM	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	12	ORGAN	PEDAL	-2	-	-
OSC 2	0	0	0	ORGAN	-	-	-	-
OSC 3	0	0	0	SAW	-	-	-	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	58	ON	-	-	-	-
DCA 2	58	ON	-	-	-	-
DCA 3	0	OFF	-	-	-	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	70	8	0	PEDAL	28	-	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	47	6	PEDAL	63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1 LFO 2 LFO 3	NOT APPLICABLE							

	L1	L2	L3	LV	TV	T1	T2	T3	T4	TK
ENV 1 ENV 2 ENV 3 ENV 4	NOT APPLICABLE (EXCEPT ENV 4)									
	63	63	63	0	0	0	0	0	12	0

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

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

Figure 2.



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# Hackerpatch

This month - Guest Hacker: Jim Johnson

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: SING

by Jim Grote, Cincinnati, OH

Here is a pretty crazy program that lets your ESQ-1 sing to you. It sounds very much like an opera singer or something. The amazing thing is that this sound is created using only one oscillator, ORGAN. This program uses the fantastic capability of synchronizing the second oscillator with the first. With this, complex voice-like and guttural waveforms are generated.

If you have a CV pedal go to the master page and select PED=MOD. Then you can really make your ESQ sing. Now the pedal actually controls how wide this dude's mouth is open. Put your heel all the way down, and his (or her) mouth is all the way open: "aaahh". Now move the pedal up a little and his mouth starts to close: "uughh" to "ooo". Push your toes all the way down, and his mouth is closed, so he's humming "hmmm".

The best playing range for a deep voice is the lowest two octaves. Higher than this sounds like a woman's voice. A good technique is to play a slow, solo melody, varying the pedal a bit and adding some modulation after each note is pressed.

## The Hack

JJ - This sound is a classic example of a moving formant created by modulated sync. You MUST have a pedal to get the full effect as originally programmed; if you don't, change each occurrence of PEDAL to WHEEL, and change the LFO1 settings as follows, to create a delayed vibrato: L1 = 0, DELAY = 1, L2 = 63. The timbre will be a little smoother and more natural if you set OSC2 to a VOICE1 wave, and I'd also recommend increasing T4 on ENV4 to 10 or so. The mod depths for LFO1 on OSC1 and OSC2 are a little extreme; I'd change them to 4 for a more natural sound. The negative modulation of OSC1 by ENV1 creates a pitch offset that will put this sound out of tune with your other sounds, so you should change SEMI on OSC1 and OSC2 to 5 to compensate. Finally, if this sound is to be played as a solo voice, as Jim suggests, I'd turn MONO on in the MODES page, and set GLIDE to 3 or 4.

## The Patch: DUAL

by Michael A. Duhaime, Softworx MIDI Systems

Adjusting LV of ENV1 can give you more dynamic velocity. Adjust this to suit your taste. Velocity controls panning modulation - you may want to adjust this setting to pan to your application.

## The Hack

JJ - This is a very nice sound with a sharp metallic attack and a smooth swell in the sustain portion of the sound. For improved velocity sensitivity, I would change LV on ENV4 to 40. Michael's suggestion does not affect the sensitivity of the

attack, which is very important. Changing the filter FREQ to 38 and filter VEL mod amount to 34 helps the velocity sensitivity. The mod wheel adds a surprising vocal quality to the sustain portion of the sound, but the attack becomes kind of ugly when this is done, so I'd recommend removing the LFO1 modulation from OSC3.

## The Patch: 01STRG

by Mik Adams, Sound Logic

Mellow, symphonic strings. The mod wheel controls a string-type vibrato. Velocity controls string attack producing more swell the softer the keys are played. The CV pedal controls the sweep intensity of a slow pan.

## The Hack

JJ - I don't know about the rest of you, but I can always use another string sound. This one has a little "bow scritch" in the attack portion, created by ENV3 on the FILTER. This portion of the sound seems a little artificial to my ears; changing the waveform on OSC3 to REED helps here. The three level settings on ENV4 do not "peak" at +63, which is necessary to get the most dynamic range out of the envelope, so I would suggest changing these to L1 = 50, L2 = 63, and L3 = 46. The sound is very sensitive to velocity, which I like; you may want to reduce the T1V settings on ENV3 and ENV4. The WHEEL creates a chorusing effect by detuning OSC3, rather than the vibrato mentioned in the notes. If you push the wheel too far forward, the chorusing becomes a little severe, so moderation is the key here.

## The Patch: TAURUS

by Paul "Sonic Demolition" Higgins, Minneapolis, MN

This is a VERY fat analog brass sound that began as an emulation of the old Moog Taurus bass pedals (for an example, listen to any Rush album), but developed a mind of its own. ENV2 provides the essential horn blip, and the mod wheel controls panning.

## The Hack

JJ - This is a truly thick brass sound - not very natural, but useful nonetheless. It reminds me of the solo horn at the end of Don Henley's "Sunset Grill". The setting for L3 on ENV4 is a little puzzling. I would set this to +15 rather than 0, so the sound doesn't fade away entirely. Try setting LV for ENV1 to 43 for a more dynamic sound, and reduce T4 for ENV1 to 10 for a more natural release. This causes the filter to close a little faster than the DCA does, and makes the release portion of the sound a little "duller" than the sustain portion, as it should be.



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.

**ESQ-1 PROG: SING**

BY: JIM GROTE

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	5	0	SAW	LFO1	16	ENV1	63
OSC 2	-1	6	0	ORGAN	PEDAL	-63	KBD2	-8
OSC 3	-	-	-	-	-	-	-	-

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

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	0	8	23	ENV3	63	LFO1	63

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	25	OFF	ON	TRI	0	0	0	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-14	-10	-10	0	27	0	13	60	20	9
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	63	45	0	0	22	14	58	30	37	0
ENV 4	63	63	63	10	1	5	17	63	0	9

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

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

**ESQ-1 PROG: DUAL**

BY: MICHAEL DUHAIME

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	EL PNO	LFO1	1	OFF	0
OSC 2	-1	0	3	EL PNO	LFO1	-2	OFF	0
OSC 3	3	0	0	NOISE1	VEL	32	LFO1	1

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

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	48	5	52	KBD	-63	VEL	19

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	VEL	-23

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	31	OFF	ON	TRI	0	0	16	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	46	57	56	0	0	4	0	0	33	9
ENV 2	63	0	0	0	0	0	37	0	29	9
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	39	63	20	0	0	15	37	55	0

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

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

**ESQ-1 PROG: 01STRG**

BY: MIK ADAMS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	5	SAW	ENV1	-3	LFO2	2
OSC 2	0	0	4	SAW	ENV1	4	LFO2	3
OSC 3	0	0	0	BASS	LFO1	-1	WHEEL	1

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	ENV1	63	LFO2	2
DCA 2	63	ON	ENV2	63	LFO2	6
DCA 3	63	ON	ENV2	56	LFO2	3

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	18	0	50	ENV3	63	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO3	56

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	17	OFF	ON	TRI	0	40	41	LFO3
LFO 2	19	OFF	ON	NOISE	11	1	11	LFO2
LFO 3	4	OFF	OFF	TRI	0	1	15	PEDAL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	1	-1	0	0	0	27	23	28	20	9
ENV 2	63	50	45	0	0	63	50	63	20	9
ENV 3	63	10	41	8	35	8	19	63	23	9
ENV 4	41	46	36	8	34	36	45	45	22	9

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

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

**ESQ-1 PROG: TAURUS**

BY: PAUL "S.D." HIGGINS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	SAW	ENV2	1	OFF	-
OSC 2	-1	0	3	SAW	ENV2	-1	OFF	-
OSC 3	-1	0	6	SAW	OFF	-	OFF	-

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

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	25	0	18	ENV1	63	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	7	OFF	OFF	TRI	0	0	0	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	45	45	22	0	13	34	0	29	0
ENV 2	63	-63	0	0	0	11	3	3	0	0
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	50	50	0	0	10	25	56	19	0

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

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

# Classifieds

## USER GROUPS

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## SOFTWARE

C64 Software: Dr T - KCS \$75, Echoplus \$30, Sonus - FB01 Design \$45, Quiet Lion - Diatonica 7 \$40. Call 201-736-7160.

MSC1 - IBM VES for Mirage and MPU-401. Reviewed in Issue #38 of TH. Program: \$55.00, Demo: \$10.00. Add \$5 S/H. Send check to: Jeffrey Richter/Donna Murray, 3502 Village Bridge Apts, Lindenwold, NJ 08021. Phone: 609-346-0943.

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

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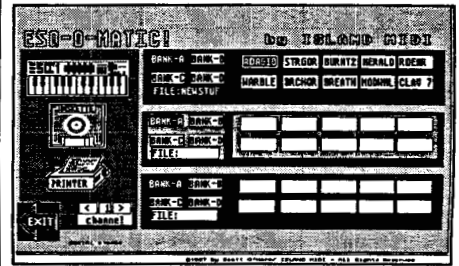
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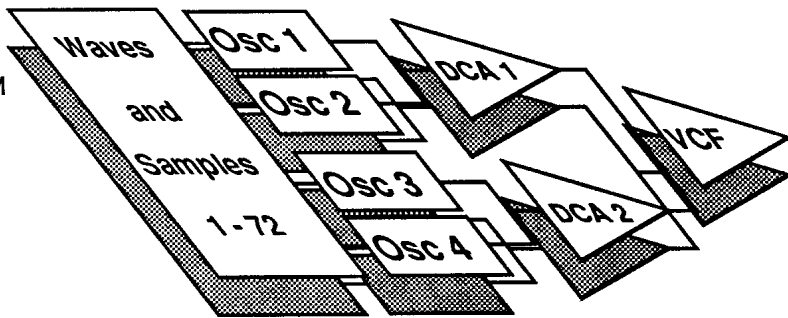
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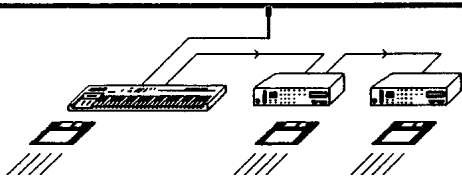


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# The Interface

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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 Hackers,

Though I don't want to continue to beat a dead horse in responding to Steve Munro's August letter regarding patch vendors and their wares (and I hate to do it because of the "methinks he protesteth too much" philosophy), I would like to clear up what I feel to be a certain inaccuracy he made about Patch/Works Q-SPECTRUM collection.

Though Mr. Munro's remark regarding Patch/Works sounds wasn't at all derogatory, it might have been interpreted as such in the context it was given. Actually, to the contrary, I think he paid us a very nice compliment when he said, "The Q-SPECTRUM cart is food for someone who doesn't want to program; you can plug this in and play...". As my entire "raison d'etre" in life is to save musicians from the trouble of having to learn to program these complex thingamajigs (unless of course they want to) and instead let them spend their precious time playing, that's really about as succinct a recommendation as I could imagine. Thanks, Steve!

However, the following statement he made, "... but most of the sounds are keyboards. Don't expect horns, strings, drums, etc..." is simply in total error. All of the sounds he mentions are in fact present in the Q-SPECTRUM collection, as well as many other types: basses, bells, percussion, synth "analogs", leads, pads, effects... and much more, but if I keep on listing them I'm afraid the Hacker will charge me for advertising space. So instead I will be more than glad to send free to any interested readers the actual Q-SPECTRUM voice list and permit them to judge for themselves if his statement was accurate or not.

Mr. Munro was correct in that there are many electric and acoustic pianos, organs, and clavichords of all different types -- almost 3 dozen -- out of the 160 sounds on the Q-SPECTRUM cartridge. The reason for this is because I myself am, first and foremost, a keyboard player (as are, I suspect, 85% of the people who buy keyboards) and what I expect from that costly KEYBOARD I bought are some decent keyboard SOUNDS (seems like a reasonable expectation but sometimes it would seem that the synth manufacturer doesn't quite agree). So all of my SPECTRUM collections for different synths contain, among the myriad other patches as well, lots of different keyboard choices which are useful in many kinds of musical settings. As a result, guys in working bands call me late at night to tell me they're gonna name their firstborn after me. 'Nuff said.

On another topic Steve mentioned in the same letter, I couldn't agree more with him. Specifically, his remarks about patch reviews. All too often I see reviewer's comments to the effect that what constitutes a "good patch" being so subjective and personal, it's impossible to comment on what's "good" and what's "bad" in a collection of sounds for sale from a patch vendor. I too find, as Steve puts it, this attitude on the part of the reviewers

rather "wimpy". Friends, I program synthesizers professionally for a living and work with many New York studio producers and engineers (a pretty demanding bunch as you might imagine if you've ever met a New Yorker) and the difference between a "good" patch, one that is well programmed by someone who really knows their ax and one that is frankly lousy is apparent to these (demanding) little ears in about two seconds.

This is one reason I offer the prospective buyer the option of a demo tape, so you can get some idea if your ears think the sounds are worth spending money on, or even compare them to what different patch vendors are offering. I can easily understand someone expecting decent value after laying out their hard earned bucks for a product -- any product. I am of the same disposition when I buy anything myself. So I'm quite proud of the knowledge that, since I started Patch/Works five years ago, I've had over 2300 customers, tons of complementary letters, and only 3 requests for money back.

Jed Weaver, President  
Patch/Works Music Software  
New York City, NY

Dear Hacker,

I need some help with a problem that I am experiencing with my ESQ-1. It seems that if I am recording a sequence which contains 6 or more tracks while recording the seventh or eighth track, I lose all control of the duration of notes that I am currently playing. When I hit a key the note sounds but is abruptly cut off by other notes from other tracks in the sequence. Has anyone experienced this?

Thanks,  
J.Lapkoff  
Chicago, IL

*[Ensoniq's response - There are only a total of eight voices that can be allocated between all of the tracks. If you exceed eight voices at any given moment, voices will be stolen.]*

To whom it concerns:

The question that I have, concerns buying sounds for my SQ-80. Several companies advertise in your magazine, and I have no way of knowing the difference in quality, or in the kind of sounds provided. I was hoping that someone on the staff could give me some information/advice about purchasing sounds. I will be using the SQ-80, (along with some of my own patches and some purchased one) for use in psychotherapy with adolescents. I am doing my PhD dissertation on developing this tool for therapy. I need creative sounds, with lots of effects that would be fun for nonmusical, as well as musical, adolescents in therapy: such sounds as thunder, spacey sounds, and some instrument sounds as well. I want some good electric guitar patches, too.

Please walk me through a tour of what is available. I would rally appreciate that. I can't afford to spend money unless I am sure I will

like what I am paying for. The ads simply don't give me enough information, and besides, it is hard to trust ads.

Once again, thank you for your help. If you cannot help me with my question about buying patches, please give me the name of someone who can.

Sincerely,  
John Johnson  
Fresno, CA

*[TH - In addition to the ads, we try to cover the major vendors in our reviews. But even there, there is no way to be sure that you're going to like what you hear before you buy it. If you can't get demos in local stores, probably the next best thing is to lay out a little money buying the demo tapes that some vendors offer. Just about all of the vendors will have some sort of mix including effects and more traditional sounds.]*

Dear Th,

I have a couple of questions and comments. First, I have an ESQ-1 and I think I might have a slight problem or default. Whenever I turn on the ESQ-1 the sound that was last played or used is still underlined but a different patch will sound. So then I punch the same soft button that is underlined and the problem goes away. What do you think?

Secondly, on the back of a advertisement sheet it says you can store 8 voices dynamically assigned on 1 track on the sequencer page. How do I go about doing this?

Last of all, I have heard many complaints about the Valhala ESQ-1 bible. Are their cartridges any good?

Keep up the incredible great work.

Thanks,  
Bob Rice  
Berea, OH

*[TH - Generally speaking, we've heard much more positive comments about their cartridges than about their "bible."]*

*[Ensoniq's response - You may be listening to the sound in the edit buffer. Check to see if the "C" prompt is visible in the lower-left corner of the display. If so, you are hearing the last sound you edited. Press the COMPARE button to return the sound to its normal state.*

*The ESQ-1's eight voices are dynamically assigned among the eight sequencer tracks. This means that any of the eight voices can play a different sound depending on which track is playing it. However, a track can only play the one program (or sound) assigned to it. Each of the eight voices will play the sound selected for that track.]*

Dear Transoniq Hacker,

Thanks you for supplying me with a most interesting and dedicated magazine covering



the Ensoniq keyboards. You see, here in my country (or better still - island), one is very unlikely to find information on such instruments.

Yes, I have sold my ESQ-1 keyboard and eagerly waited about five months to get a brand new EPS. Oooops! Sorry for those of you who own an ESQ, but I can tell you that I have missed my ESQ-1 so much that I cursed the thought of trying to sell it in the first place!

Although I bought the EPS for a much higher price, now I think it was worth it. One strange thing I've noted about this sampler is the groan coming out from under the keyboard telling me that it's getting lonely and is in need of a memory expander. So Ensoniq, please try to keep its 4x Memory Expander price as low as possible.

Now, if I may, have some points:

To T.H.: (1) My favorite color is a shade of blue - seems I keep getting these issues in all sorts of shades. Thank you, T.H. (2) Do all Ensoniq employees read the Transoniq Hacker? (3) Now that we've seen what the Ensoniq staff looks like, how about revealing a little of Transoniq Hacker - starting with the editor?

To Ensoniq: (1) My favorite color is blue and I live here. I also eat bananas sometimes - sorry, just filling my warranty card. (2) Why does the rear heatsink of my EPS get quite hot?

Yours sincerely,  
Noel Buhagiar  
B'Kara, MALTA G.C.  
Europe

[TH - The editor showed up in that same set of photos. We haven't been able to corner the publisher yet.]

[Ensoniq's response - Most of ENSONIQ does read the Hacker, and we eagerly await each issue. Since we know about when to receive it each month, when it doesn't come in on time we all break out in hives.

It is true that the heatsink on the EPS is hotter than what you're probably used to. Because of the extensive circuitry in the unit, there is quite a bit of heat that needs to be dissipated.]

Dear Hacker;

I have always done plenteous research before any purchase, whether big or small; computers, cars, keyboards. After digesting much advice and attending many demos and shows, I ended up with a DSK and an ESQ-1. Even though they were both obtained just minutes before the EPS and SQ-80 were announced, I don't regret being a beat behind, as these keyboards suit my style perfectly.

When I purchased the ES1 librarian program by Valhala I was equally pleased, even though I read of several complaints by your readers about the apparent poor quality of their sound patches and the service they were providing. The straw broke when in Issue 38, Jamie Hilboldt suggested that after update 3.5 the program wouldn't work.

Now I don't mind when disappointment is expressed over bad patches. I have pur-

chased many volumes of the "finest and best patches I'll ever need" to find many useless sound effects and the same piano duplicated over 3 octaves. But before writing them off, I would more often than not find some programming trick which made the purchase worthwhile.

To make a long story short, you frightened me into thinking that the program wouldn't work after the update, that Valhala was being uncooperative, and that this would be a classic, on-going problem. Well, hackers, my ES1 works perfectly, even after update 3.5. Does this mean that MY copy is defective, or perhaps that Jamie was in too great a rush to get to a gig to read the Software Update. Some of the MIDI and Storage pages look different; the IESQ-1 must be on a Program Select page to receive programs via Midi, etc.

I was further upset to see the ES1 program missing from recent Valhala ads. Is it shelved with no further support? Is it being updated to function with the new OS? Is mine NOT supposed to work? No, I have not called them to complain. What an I missing here?

Sincerely,  
Howard J. Levitz  
Williamstown, Massachusetts

[TH - Very few people will get upset and complain, "Hey, this works and it's not supposed to!" We'd rather risk that than risk a lot of readers buying something that doesn't work. At the time Issue #38 went out no one, not even Valhala, knew exactly what the problem was and how it would turn out. As soon as they figured it out they called and told us - and we announced it (in Front Panel)

in Issue #39. If you'll reread our (and Ensoniq's) responses to Jamie's letter, you'll see that we said (1) that Valhala was working on it, and that (2) that this sort of incompatibility problem was a classic, industry-wide problem (and it is) - NOT that it was an "on-going" problem because these particular people were involved. We certainly didn't intend to frighten anyone.]

Dear Transoniq Hacker,

I own an ESQ1 (3.5+ 20,000 notes) and recently I bought a Mirage-rack. I'd like to buy back issues of the Hacker but I'd really benefit from knowing the contents of each magazine. Wouldn't it be a good service for new members to include a condensed survey with the titles of all the past articles and a short orientation as to the content of the titles? It's strange that you allow copying the old, out-of-print issues for new subscribers.

Many authors in TH refer to articles in issues of Keyboard and Electronic Musician. I'd like to know the full addresses of the important American journals, magazines and editors of books about digital music, synth-use (ESQ-1) and sampling (Mirage).

I was very surprised when I found I could program ESQ1 patches microtonally (OSC: KBD or KBD and VEL). I can't find the numeric relationship between the KBD modulation on the pitch and the position of the intervals on the keyboard. I bought the very important software MD-1 (microtonal scales) of Upwards Concepts. In Europe there is extremely little information available about the use of microtonality and the people using it with new digital music. In the USA is

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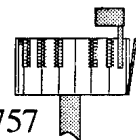
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there a pool of musicians with experience with this type of new music?

The ESQ1 is multitimbral. Is "multisplit" a question of upgrading the operating system or is it a matter of hardware? And how about 8-voice polyphonic limitation? Is there any kind of one to one correspondence between the parameters used in the Mirage and the page changes available in the ESQ? Does Ensoniq have any literature on this?

Is it possible to command the important parameters (certainly 72, 26, 67, 68,) of the Mirage via the ESQ1?

It would be nice to be able to save and load ONE sequence of the ESQ1 to Mirage-disk, without losing the existing sequences on the ESQ1. I don't know if I can't do it because it can't be done or because I don't understand what to do.

Is it possible to split the Mirage keyboard via MIDI from the record-key splitting on the ESQ?

There is at this moment a big lack of an advanced book, an upgraded Guide Two, for Mirage-owners regarding integrated new MASOS advantages, methods of sampling acoustic violin, piano, flute, plucked strings. Attack by brass sounds, electronic sounds, tape sounds, detuning effects, other samplers.

I'm a little disappointed about the fact that Ensoniq hasn't extended the communication between the ESQ1 and the Mirage. See the last Mirage Operating System (3) update-

comment: "Following two tables: the first for the DX7 and the next for most other MIDI controllers". There isn't any particular mention of the ESQ1. I can't understand this.

Finally, I'm looking for an interface for using the Yamaha breath-controller with my ESQ-1 and also if you know of a digitizing tablet for use with the Mirage to change and create wavesamples.

Sincerely,  
Paul Timmermans  
Betekom, Belgium

[TH - Here's the addresses you requested: Keyboard, Subscription Dept., 20085 Stevens Creek, Cupertino, CA 95014. Electronic Musician, PO Box 3747, Escondido, CA 92025. Just Intonation Society, 535 Stevenson St., San Francisco, CA 94103.

Putting out the Hacker takes all we've got - we just don't have the time to put together things like old indices. Sorry. (That's why we let other people sell photocopies.) Most of that's kind of "old news" by now anyway - and it only costs a few bucks to buy 'em and find out. There's always SOMETHING in an issue worth a few bucks.]

[Ensoniq's response - If the term "multi-split" means having many sounds split across the keyboard at one time, it would require a major re-write of the operating system.

The eight-voice polyphony is a hardware limitation. It wouldn't be possible to add more voices as the microprocessor is too busy.

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It isn't possible to command Mirage parameters via the ESQ-1 because it does not transmit the system exclusive codes required for the Mirage. It also wouldn't be possible to split the Mirage keyboard via the ESQ-1. All of the available documentation can be found in the back of the ESQ-1 manual and in the Advanced Samplers' Guide for the Mirage.

The ESQ-1 was not even conceived at the time the OS 3 Update sheets were printed (the ESQ-1 would follow the DX-7 table). There was never any intention to integrate it with the Mirage; the ability to save that data to a Mirage disk was an afterthought. You have to remember that over a year had passed between the introduction of both products. Work on the Mirage was well-finished before the introduction of the ESQ-1.

Short of using a DX-7 to transmit breath control data over MIDI to the ESQ-1, there wouldn't be any way to interface the two.

There are no tablets that hook directly to the Mirage, but both the Apple II and C64 visual editing systems supported the Koala pad digitizing tablet.]

Hello,

I have a question for Ensoniq though I don't suppose there is an easy solution.

I notice the output of my EPS has quite a bit of background hiss compared to my other synths. This is NOT related to envelopes open or any voices playing. Is there any way to shut this noise down short of the obligatory noise gate/1-end reduction unit? Surely, such a great sounding sampler should have better S/N than this? I hate to think I'm too picky.

Thanks for the information service - good luck to you!

Robert Rich  
Stanford, CA

[Ensoniq's response - Some of the earlier units had higher noise levels. Call ENSONIQ Customer Service at (215) 647-3930 for more details.]

Dear Transoniq Hacker,

If I may be so bold as to interrupt your expatiating keyboard forum - I recently acquired the OS 3.5 for my ESQ-1 and have noticed several differences between my manual and the new sequence editing procedure. How about a list of new features in OS 3.5?

I've had more success with the tape sync, recording the sync tone at 6 db. In the past, the tape sync has proven so unreliable, usually working fine until I've recorded several analog tracks to tape and then ... bingo, no sync-o. After watching hours of labor go straight down the porcelain comfort seat, I gave up on the procedure. How about it, did the OS 3.5 fix this maddening problem or did I just get lucky one time?

On brighter fronts, hats off to the people at Patch/Works for their Q-Spectrum cartridge. 160 first-class sounds. Nice work guys.

And to the TH, how about a Quick and Dirty reprint for the ESQ? I especially like the articles on how to USE the sounds more effectively - arrangement, etc. Thanks for the

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inspiring mag. Now, if I could just find a way to afford the EPS I keep reading about.

Sincerely,  
E Fesguron  
Austin, TX

*[TH - Sorry, but we decided that releasing the copyright so others could sell photocopies of our out-of-print back issues was even quicker and dirtier than hassling with reprints. The important thing is that all of the past info should be available in one form or another.]*

*[Ensoniq's response - Tape sync was made more reliable as of OS 2.1. Also, the fact that it tended to work until you had recorded some tracks would indicate that cross-talk between tracks was affecting the sync signal. It's always best to try to leave the track adjacent to the sync track blank.*

*You should have received an eight-page booklet explaining the differences with your upgrade. If not, call Ensoniq Customer Service and they will be happy to mail you one.]*

Dear Hackers,

Finally I must blunder out to the literary world of musical tabloids to convey thoughts and cries for help.

I must first compliment the Transoniq Hacker. It is a great magazine regardless of its color or texture (my, aren't there some picky people out there?). No, I'm not color blind.

For those of you who can't afford a computer and have been looking and wondering about the IVM's MIDI Disk system. It works BETTER than advertised. I own an ESQ-1, TX81Z and a Yamaha Drum machine and can dump or load quickly and no more fatal errors trying to load from tape. Read the instructions carefully though. I was told by Indian Valley that they're being re-written. They were eager to help. (For those of you who have this MIDI Disk System, I'd love to trade, sell, or buy ESQ or TX81Z patches.)

I also bought the Cooper PPS-1 tape sync machine and it works well even if you change your pitch on your tape machine speed to achieve different tonalities on the drum machine.

I need help SOON from one of you patch-designer brains out there. I need an ESQ or TX81Z voice equivalent to a 3- or 6-tone generator used for standardizing VU levels on tape recorders. Also could use a tone for setting O VU. If you come up with one please contact me ASAP. I'm ready to record but can't afford to spend another dime. My kids' bones are showing. I guess I'll have to start feeding them.

To Ensoniq: Keep up the good work - the ESQ is STILL the best available for the money. But I have this to ask of you. Since I have only an 8-track tape recorder I have to record three or four patches from the ESQ's sequencer onto one or two tracks on the tape recorder. It is impossible to set the volume using the pedal while recording. And then trying to adjust the volume levels in the MIDI Mix page while recording onto the tape recorder is very difficult (if not impossible) if you're trying to make several volume level adjustments at the same time. Would it be possible in a future OS to record a track and then be able to go back in and record volume

level adjustments to that track?

Thanks,  
J. O.  
1138 SW 122nd Ave  
Pembroke Pines, FL 33025

*[Ensoniq's response - Unfortunately, it's not possible to record volume changes into an existing ESQ-1 track while retaining notes and controllers. Because there is very little room left in the operating system code, there are no plans to implement this feature.*

*The EPS, on the other hand, implemented this feature beginning with OS 1.95.]*

Dear Hacker,

Is it possible to pitch bend or modulate some notes but not others? Or will I forever have the frustration of putting vibrato on the string sample as well as the bass? I run Master Tracks Pro sequence on a Mac Plus. Would it be possible to address different sounds on different MIDI channels, as I do on my ESQ-1, in such a way as to achieve what I want here? This problem is very frustrating when sequencing although I can get around this sometimes by delegating parts that require the wheels to another keyboard (ah, the benefits of new technology, the frustrations of old...)

Thank you for any assistance you can give me.

Sincerely,  
Phil Bullen  
Cincinnati, OH

*[Ensoniq's response - It sounds like you have a Mirage. You could: 1) Edit the upper or lower Mirage sound to not respond to the MOD wheel. 2) Check into the alternate operating systems available for the Mirage from Third Party Developers like Leaping Lizards or Upward Concepts. Soundprocess from Triton is not a regular Mirage OS, but does do true MULTI mode.*

*Global controllers such as pitch bend are a special case. You shouldn't be using them unless you want all sounds to be affected.]*

Dear TH,

Recently I had the opportunity to work with someone else's EPS and I'm curious about a few things (including where I'm going to get the money to buy one for myself):

1. Ensoniq manuals state that it is best to use double-sided disks in their disk drives. So I do, although on a few occasions I have had to use single-sided disks with no problems whatsoever. The disks from the EPS Essential Sound Library with which I was working were from the factory and clearly marked single-sided. This leads me to the following questions. Why is it better to use double-sided disks and, if it is better, why is Ensoniq using single-sided ones?

2. The EPS I worked with had a 2X expander and was able to hold the contents of more than one disk in internal memory. If I remember correctly, it is possible to make a wavesample that takes up the entire memory. If that's the case then is it possible to create a wavesample that would not fit on a single disk? If so, how would you store such a sample?

3. My gear consists of a Mirage and an ESQ which means that I store all my ESQ data on

Mirage disks. As a result, it takes 25 disks just to store my ESQ sound banks (times 2 for backups). Am I correct that since the EPS stores ESQ via system-exclusive messages, that this would improve the use of disk space? Will the EPS allow me to load and dump sound banks and sequences separately? How many sound banks and/or sequences (using the 20,000 note expander for the ESQ) would I be able to store on one disk?

3. Can anyone guess what I want for Christmas?

Sincerely,  
Bryce Inman  
Flower Mound, TX

*[Ensoniq's response - 1. Normally, double-sided disks are the only disks guaranteed (i.e. tested) to reliably store data on both sides. Sony guarantees us that even their single-sided disks will reliably store data on both sides. We can't vouch for other manufacturers.*

*2. Make sure you're using OS version 1.95 or higher; the ability to save a file across multiple disks has been added. The EPS will save part of the Instrument on one disk and then instruct you to insert additional disks as needed. SCSI with a hard disk would be the other alternative.*

*3. Yes, the EPS is much more efficient for saving programs. The ability to save patches to the Mirage was included as part of the sequence-save facility and Mirage disks could only hold three banks.*

*The EPS will only store what you send it; if it's a small sys-ex file, you can save many on a disk. You can store up to 50 sound banks or 3 full 20,000 note sequence banks on one EPS disk (more if each sequence bank is not full).]*

Dear TH,

Ross A. Roberts, in his letter which appeared in the September issue, asked about the availability of a disk drive for the ESQ-1 and then went on to complain about the difficulty he had using the Mirage for ESQ-1 data storage. One possible solution that would be far less expensive than purchasing a separate MIDI disk drive would be to use Midicaster, the excellent Mirage utility written by Tim Martin and distributed by Erick Hailstone and myself. Since Midicaster is very closely related to OS 3.2 there is no need to use two separate operating systems with the Mirage - one for performance and one for data transfer (MASOS). Midicaster handles both functions equally well. And Midicaster will transmit SysEx (as well as other forms of MIDI data) directly from disk without disturbing the contents of the Mirage's memory. What this means is that you will not need to re-load sounds into the Mirage after a SysEx transfer - the sounds you had previously loaded are still there.

Midicaster is \$49.95 from the Midi Connection - I knew you'd all want to know. And stay tuned for more developments. Is anyone out there interested in a 20,000 note sequence player utility for the Mirage? Or a new way to create sounds on the Mirage? Thank you for your support.

Clark Salisbury  
Midi Connection  
Beaverton, OR

Dear TH,

I think there is a flaw in the ESQ-1's velocity-sensitivity which is that the black keys respond more to velocity than the white keys. That is, they play "louder".

For example, select PIANO 1 factory patch and play "broken" diminished fifths through the chromatic scale (play from C to Gb repeatedly, then C# to G, then D to Ab, etc.).

Every time a blank key is struck, it sounds louder than the white key, and when we arrive at F to B, the two white keys sound equally.

To make it even more audible, try this test-patch:

OSC 1: Wave=SINE  
DCA 1: Level=00, Output=ON, MOD 1=VEL, Depth=63  
FILT: Freq=127  
ENV 4: Levels 1, 2, 3=+63; Times 1, 2, 3=00; Time 4=10  
DCA 4=63  
all other parameters inactive.

It seems to me that what is needed is a way to adjust the velocity-sensitivity between black and white keys, making the keyboard more playable.

Comments from Ensoniq will be appreciated. Thanks also to both TH and Ensoniq for working so well together and making "The Interface" interesting and useful.

Sincerely,  
Peter Kok  
Seattle, WA

*[Ensoniq's response - The distance the black keys travel is somewhat less than the white keys, producing slightly higher velocity response. This is inherent in the keyboard itself. We've never had any complaints before with over 50,000 of these keyboards out in the world. All velocity-sensitive keyboards will be somewhat inconsistent from key to key.]*

Dear Hacker,

The omission of a few phrases from my article, "SOUNDPROCESS- The Secret Life of a Mirage", creates an impression which I would like to correct. The section entitled, "Load Your Own", briefly summarizes the ways in which wavetables are filled. The article as printed contains the sentence: "When the location of the sample is specified, Soundprocess provides an additive synthesis capability." The additive synthesis function rather creates entirely new waveforms.

The following text from the original submission of the article should provide further clarification about how wavetables are assembled and customized.

"Who are the residents of the wavetable? Your Mirage sound disks are one of the best sources for material. When the location of the sample is specified, Soundprocess will read the information from the Ensoniq disk into the new operating system, so that you need not abandon your favorite sounds. And if new waves are desired, Soundprocess provides an additive synthesis capability."

I hope that this will set the record straight as Soundprocess does so many things that there is a tendency to consider that anything is possible.

Yours truly,  
Alan R. Hamer  
Lewiston, NY

*[TH - Oops.]*

Dear Transoniq Hacker/Ensoniq,

I recently bought an SQ-80 and am a little frustrated. Having owned an ESQ-1, I did some programming on my own and came up with about 40 patches I was really pleased with. That was until I bought my SQ-80 and noticed that the patches with SAW or SQUARE waveforms and a high filter freq value sounded awful. I traced the problem to the points on the keyboard where they were multisampled. Here's some patch parameters so you can hear what I am talking about. - Only use 1 OSC.

OSC1: OCT=0 SEMI=0 FINE=0 WAVE=SAW NO MODS  
DCA1: Level=63 Output=ON NO MODS (Turn DCA 2+3=OFF)  
Filter: Freq=127 Res=0 Keybd=0 NO MODS  
ENV4: L1=63 L2=63 L3=63 LV=0 T1V=0 T1=0 T2=63 T3=63 T4=0 TK=0  
DCA4: PAN=08 MOD ENV 4=63 MOD=OFF

Now, play a chromatic scale, noticing the changes between B(0) and C(1) in the first octave of the keyboard, Eb(2) and E(2) in the third octave of the keyboard, G(3) and G#(3) in the fourth octave of the keyboard.

Did you notice how the SAW wave form lost its bright buzzy characteristic? I compared the SQ-80 and ESQ-1 side by side, and the ESQ-1's SAW waveform was perfectly even across the 5 octaves of the keyboard. This same problem occurs with the square wave.

I've been to different music stores across the state and tried other SQ-80's (just to make sure it wasn't a problem with just mine), and they all do it. I pointed this out to each salesman at the different stores and they heard exactly what I was describing. We compared them to ESQ-1's and, of course, the ESQ-1 sounded fine.

I am surprised to find no one else writing TH seems to notice this bug! Now, the big question - CAN IT BE FIXED? I didn't expect the sound quality to suffer for a disk drive and extra waveforms.

Thanks,  
Charles Butler  
Burham, NC

*[Ensoniq's response - The only difference between the sound of older ESQ-1's and the SQ-80 was that the output was brightened somewhat. This can be compensated for by bringing down the filter. We have never had any other complaints about this.]*

Dear Transoniq Hacker,

I currently own an SQ-80. First of all, does "SQ" stand for synthesizer/"Q" chip? And what does "80" represent?

I have been thinking about getting an EPS in the near future, which brings me to the following scenario. I have been taking symphonic scores, and recording, track by track, the different instrument parts in sequences on my SQ-80. If I copied the same sequencer information (recording a track at a time) on the EPS, then I could have the whole composition on the EPS.

On the sequences using the SQ-80, I used SQ-80 synth sounds which sound like tympani, brass section, harp, clarinet, flutes, violins, cellos, and oboes.

Would I have enough memory using a 2X expander to store these sampled acoustic sounds? I should point out that I only need the instruments to play in their natural range. Do acoustic instruments generally need multi-sampling to sound more realistic? If so, there goes the memory.

My last question concerns your feeling in working with the EPS on 8 tracks, then working with the SQ-80 on 8 tracks, and making one a slave to the other. Hence getting 16 tracks, - 16 different instruments, and a total of 28 polyphonic voices (20 EPS and 8 SQ-80).

Sincerely,  
Paul P. Buda  
Philadelphia, PA

*[Ensoniq's response - "SQ-80" is just a name, it doesn't represent anything significant.]*

*Available memory with a 2X expander would really depend on the sound. Woodwinds can be quite memory efficient while string sounds are not. Any accurate re-creation requires long samples and must be multi-sampled. You probably wouldn't have enough memory with a 2X expander to load full, realistic multi-sampled versions of all of those sounds at the same time.*

*Using the EPS and the SQ-80 together would work just fine. Simply sync one sequencer to the other through MIDI.]*

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While you're at it, check out the reviews in *KEYBOARD*, (August 1988), and *MUSIC, COMPUTERS, & SOFTWARE*, (September 1988).

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