

# Transoniq Hacker

The Independent News  
Magazine for Ensoniq Users

## Waiting With Baited Breath

Ensoniq Sound Libraries SL-6, SL-7, SL-8

Sam S. Mims



Product: Ensoniq Sound Libraries — SL-6, SL-7, SL-8  
For: EPSs, ASR-10  
Price: \$39.95 per set of five or six disks  
From: Ensoniq, 155 Great Valley Parkway, Malvern, PA 19355, (215) 647-3930 or contact your local Ensoniq dealer.

I love getting new sounds for my cherished sampler. I'm addicted to it. The problem is that, out of any new batch of sounds, I usually have to decide what to do with a lot of samples that are of marginal quality — should they take up valuable space on my hard drive or should they be tossed?

With sample collections from Ensoniq, that never seems to be a problem. Their latest sounds have all been dynamite, and the sets I reviewed were no exception. Here's what I thought...

### SL-6

A great collection of brass samples, all of them very bright and punchy.

**TRUMPET SECT** (1348 blocks) is a sizzling clean section and includes fall-offs and "doights" (fall-ups?), as well as a nice double-tonguing effect on the patch selects. This one will see lots of use.

**TROMBONE SEC** (861 blocks) is a fabulous sample of three trombones. It's beefy and energetic — great for the "Dragnet" theme. I'm not overwhelmed with the patch selects, but I'll let that slide. (That was a trombone pun.)

**TRUMPETS 507** (507 blocks) is an economical version of TRUMPET SECT. It gives up the fall-off and doight patch selects, but the main sound is still great.

**CUP MUTES** (785 blocks) is a trumpet section appropriately muted, and another great, musical sample. Patch selects give double-tonguing and subtle attack slides.

**MT TROMBONES** (785 blocks) is a muted trombone section. This is another good sample, but pitch bending unfortunately sounds hokey, due to the mute changing in virtual size as the pitch is shifted.

**HARMON MUTES** (1009 blocks) is the trumpet section using this unique type of mute. Great for jazz gigs.

**BS TROMBONES** (556 blocks) is a sample of bass trombones. Great, as usual.

**BRS ENSEMBLE** (1507 blocks) is a mapping across the keyboard of bass

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trombones, trombones, and trumpets — a handy configuration, indeed. The bass trombone sounds slightly thin, but play all of these ensemble style and it's BIG — and convincing!

## SL-7

Hip drum loops and assorted ear candy for dance grooves. Nicely set up for use with sequencers, either to lock other stuff to the loop, or to lock the loop to other stuff (with micro-pitch shifted versions across the keyboard). The individual instruments of each loop are available on certain keys as well, and they have the characteristic "grudge" of resampled records and such. (That's good, you know.) There are 13 loops in all on the five disks, all of them happenin' and lots of fun. But here's what else you get:

**DANCE DINK** (38 blocks) is a simple pitched percussive sound. It's not the greatest thing on its own, but you'll find a place for it, and at 38 blocks, it's cheap!

**BASS-N-GOOB** (45 blocks) is nearly as cheap, but you get a goober (similar to a dink, you know) and a bass sound. The bass works well with the loops.

**THE GOOBETTE** (54 blocks) is a nice spiky sound for adding background spice to a track, particularly in fast sequenced runs.

**DANCE DRUMS** (972 blocks) is a fabulous kit of TR-808 and TR-909 drums, along with some assorted rap/house scratches and percussive sounds. Very cool!

**SUPER GOOB** (101 blocks) is a percussive electronic sound reminiscent of the TR-808 cowbell, only smoother. Like the 808 cowbell played with a mallet, sort of. Nice.

**SUPER HITS-1** (439 blocks) is four hits: rock band, guitar, orchestra, and rap. The first and last sound cartoonish, in a cool way, I mean. Patch selects turn them into scratches.

**HIPNESS KIT** (176 blocks) is a very happening cheesy synthetic drum kit, just like the TR-808 is happening and cheesy.

**HIPNESS BASS** (50 blocks) is to the bass guitar what HIPNESS KIT is to a drum set. A very percussive bite makes it cut through. And all for 50 blocks!

**SUPER HITS-2** (254 blocks) is a collection of four more fun rap hits. They sizzle!

## SUBSCRIPTION INFORMATION

12 MONTHLY ISSUES

US: \$23/year. All others: \$32/year (please use International Money Order, payable in US funds). Please make payable and mail to:

TRANSONIQ HACKER  
1402 SW UPLAND DR., PORTLAND, OR 97221

**THAT STRING** (1076 blocks) sounds like a wavetable-synth string patch, with a fast attack and cutoff. The patches add some nice chorusing and panning.

## SL-8

Strings aplenty. This is a magnificent set!

**VIB VIOLIN** (1347 blocks) is a very natural sounding solo violin, with a great bite when the keys are played hard. I've been waiting for this one forever! Patch selects just alter reverb amount.

**VIB VIOLA** (1340 blocks) is much like the violin above in quality and programming. Superb.

**VIB CELLO** (1380 blocks) seems a bit darker than the violin and viola, and the vibrato gets much too fast in the upper range. Still very nice, though.

**ARCO CELLO** (623 blocks) is, again, a bit dark. Patch selects add a fifth below, a monophonic patch for doing nice trills, and octaves.

**ARCO VIOLIN** (542 blocks) is the same as above, in the violin department. The aftertouch vibrato works very well.

**ARCO VIOLA** (490 blocks) is again the same, in the viola department.

**CHMBR STRNGS** (623 blocks) represents an ensemble of the above arco strings (cello, viola, violin), over the entire keyboard range. A nice combo of these three files, and cheap on memory.

**PIZZ STRINGS** (998 blocks) gives us plucks of solo violin, viola, and cello. Very smooth.

Ensoniq's devotion to providing a first-class sample library is surely one of the reasons they sell more samplers than all other manufacturers combined. The Mirage library was very well done, and they just keep getting better.

These sets can't be beat. ■

*Bio: Sam Mims is a studio session player and programmer in Houston, and is keyboardist for Richard Elliot. He owns Synthaur Productions, a company that produces music for film and TV and markets sounds for Ensoniq keyboards.*

## CHANGE OF ADDRESS

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



# Front Panel

## RND (🎵🎵)

### Ensoniq News

We are pleased to announce the development of the **TS-10** Performance/Composition synthesizer, the new flagship of our line of synthesizer-based workstations. The 32-note polyphonic (31 when using sampled sounds) TS-10 offers 6 Megabytes of 16-bit waveform memory for a total of 254 different waveforms. These high-quality waves were created from source material that has been gathered for the last five years of our intensive sound development campaign, which has resulted in many top artist Signature Series libraries. The TS-10 has 300 Sound Programs and 300 Performance Presets, which are combinations of up to three sounds with a custom effect. Sounds can be combined by simply double-clicking a selection, and the TS-10 has a wide variety of simple editing controls over these sounds, including mix, pan, attack/release times, brightness, key zone, velocity range, transpose, detune, controller enables, Patch Select status, MIDI information and more.

Unique to the TS-10's voice architecture is the new Hyper-Wave™ mode, which enables the user to select a list of up to 16 different waveforms and cross-fade between the waves with many creative controls. The sounds possible from this architecture range from constant-time drum and rhythm grooves to ethereal and moving washes of sound.

To allow for even greater sound possibilities the TS-10 can be fitted with up to eight Megabytes of optional SIMM memory, enabling it to read and edit sample disks made for the ASR-10/EPS family of sampling instruments. With four Megabytes of SIMM memory the ASR-10 can hold 10 sampled sounds, and with a full eight Megabytes installed the TS-10 can hold 20 sampled sounds. These sampled sounds can be used in custom Performance Presets and sequences, with full editing freedom.

The TS-10 includes 66 effects algorithms, many allowing for multiple effects with individual bussing for greater control in sound combinations and for sequencing. Real-time modulation of any effects parameter is possible for expressive control over the signal processing. Each effect has four variations in ROM, giving you access to 264 effect "templates" for your own sound programming possibilities.

The 24-track sequencer in the TS-10 holds 30,000 notes in memory, which is expandable to 100,000 notes with the optional SQX-70. Timing resolution is 96 PPQ, and all edits are able to be auditioned to hear the results before saving to memory. Up to 60 Sequences/Songs can be held in memory, and these sequences' templates can also be used to hold 12-part combinations for expanded performance needs.

The 61-key TS-10 also features Ensoniq innovations such as Patch Select buttons for instant access to four pre-programmed sound variations and a Poly-Key/Pressure keyboard for polyphonic aftertouch. Its high-density disk drive can store MIDI System Exclusive data from external devices, as well as sound and sequence data. When a user edits a sampled sound the TS-10 will only store the edited parameters, and will not require the user to resave the sample data, freeing up disk space. The TS-10 has four polyphonic outputs, and can accommodate two programmable dual foot pedals and a control voltage pedal.

The TS-10 will be available in April, 1993 and has a suggested retail of \$2495.00 (US).

We are also making available a version of the ASR-10 Advanced Sampling Recorder keyboard with SCSI installed at the factory. The ASR-10 with SCSI has a suggested retail of \$2995 (US), which represents a \$50.00 savings over buying and installing the SP-3 SCSI interface as an option.

We have adjusted the price of our first three volumes of CD-ROM sounds for the ASR-10/EPS-16 PLUS down to \$199.95. This cuts the price of these sound collections in half, and makes the purchase of a CD-ROM drive and libraries an amazing value for you. Take advantage of this great opportunity!

In last month's issue of the *Hacker* we announced the discontinuation of the 32-Voice upgrade for VFX-SD's and SD-1's. This change resulted from a shortage of SD-1 32-Voice main board materials. Steve Coscia, Ensoniq's Service Manager, apologizes to the customers who may have been planning to upgrade for the abrupt cancellation of the program. Any customers wishing to speak to Steve may do so by calling 215-647-3930.

### Hacker News

**Call for writers:** We're still looking for DP/4 material!

**Call for programmers:** We still could really use some more Hacker-patches for the SQ-1/-2 & KS-32.

We'd like to welcome **Power Track Productions** to our Hacker family of advertisers.

## TRANSONIQ-NET HELP WITH QUESTIONS

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

**All Ensoniq Gear** – Ensoniq Customer Service. 9:30 am to noon, 1:15 pm to 6:30 pm EST Monday to Friday. 215-647-3930.

**All Ensoniq Gear** – Electric Factory (Ensoniq's Australia distributor). Business hours – Victoria. (03) 4805988.

**SD-1 Questions** – Philip Magnotta, 401-467-4357, 4 pm – 12:30 EST.

**VFX Sound Programming Questions** – Dara Jones, Compuserve: 71055,1113 or Midi-net and Fido-net. The local BBS is the Nightfly in Dallas: 214-342-2286.

**SD-1 Questions** – John Cox, 609-888-5519, (NJ) 6 – 8 pm EST.

**SQ-80 Questions** – Robert Romano, 607-533-7878. Any ol' time.

**Hard Drives & Drive Systems, Studios, & Computers** – Rob Feiner, Cinetunes. 914-963-5818. 11 am – 3 pm EST. Compuserve: 71024,1255.

**EPS, EPS-16 PLUS, & ASR-10 Questions** – Garth Hjelte. Rubber Chicken Software. Pacific Time (WA). Call anytime. If message, 24-hour callback. (206) 821-5054.

**ESQ-1 AND SQ-80 Questions** – Tom McCaffrey. ESQUPA. 215-830-0241, before 11 pm Eastern Time.



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

**EPS/MIRAGE/ESQ/SQ-80 M.U.G. 24-Hour Hotline** – 212-465-3430. Leave name, number, address. 24-hr Callback.

**Sampling & Moving Samples** – Jack Loesch, (908) 264-3512. Eastern Time (N.J.). Call after 6:00 pm.

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

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

**SD-1, sound programming, sequencing, & MIDI** – Eric Olsen, Pegasus Sounds, (616) 676-0863. Mon, Tues, Thurs, Fri: 4 pm to 9:30 pm Eastern Time. Sat: 12 to 10 pm. (No calls on Wednesday please!)

**SQ-1, KS-32, & SD-1 Questions** – Pat Finnigan, 317-462-8446. 8:00 am to 10:00 pm EST.

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

## HYPERSOINQ NEW PRODUCTS

**Q Up Arts** announces the release of "*All Drums*," 70 minutes of DDD acoustic and electronic drum tracks with various ambience and effects. Produced by Michael Welch, the *All Drums* CD-Audio disk contains grooves from every genre: Jazz, Urban, World Beat, Bossa Nova, Samba, Fusion, Carnival, Burlesque, Techno, Mysterious Moods, Blues, Mickey Hates Jazz, Electro and Rock & Roll. In addition to the standard snares, toms, full drum sets, mallets, brushes, etc., the set also includes unique comedy fills. The purchase price includes lifetime ownership with no additional licensing. Q Up is also releasing "*Trails and Reflections*" – 20 minutes of wet-only samples on audio CD. Every sample was captured using the AES digital in/out on the Lexicon 300 Digital Effects System – the cleanest reverb in the world. Samples include stadium, long and short gates, plates and reverse effects. Designed to be combined (blended, layered, morphed, mixed, merged, etc.) with your current library of dry sounds. No samples were compressed, equalized or re-digitized. Either disk:\$99.00. For more information, contact: Q Up Arts, P.O. Box 1078, Aptos, CA 95001. Phone: 408-688-9524.

## HACKER BASEMENT TAPES

**Daniel Mandel**

Tape: *Seraphim*.

Artist: Bruce Lehrer.

Contact: Ashlay Music, 3908 Georgia Avenue North, Minneapolis, MN 55427.

### Organic Seraphim — The Works of Bruce Lehrer

**Equipment:** EPS and JVC tape deck.

This is an instrumental tape that fits squarely into the round hole of new age music. It is light and airy. It is bells and strings and keyboards. It is sparse percussion. However, more than any of these, it is listenable music that Bruce has breathed life into in a variety of ways.

Here we have moody head music with a light, rather introspective sensibility. When I say Bruce breathed life into this work, I want to give you a sense that almost literally there is a living pulse that ebbs and flows. This is achieved partly with a low cello or bass string voice that bows in and out of several of the pieces.

One sound of particular interest is what I would call Big Ben. It is a huge bell sound that sets off JUGGLER on side two. Even on my Mordaunt-Short speakers (4 out of 5 reviewers prefer this speaker) this huge bell was magnificent.

Bruce relies on a very symphonic palette, with sprinkles of bells and vocal pads. It is amazing that with all of the thousands of sounds available on these instruments most artists really do whittle their choices down to a small group of sounds from which they play. I suspect it is human nature to restrict or manage the number of choices.

I think that one way Bruce might expand in the future would be to explore the uses of more varied sounds within a work such as this. Many of the pieces contained in *Seraphim* seem to overlap. That is what makes the moment of the large bell sound so special — it breaks up what has already been established.

Bruce passes my rule of thumb for analyzing sequences. If I am agonizingly aware of their presence, then something went wrong. Nothing has gone wrong here. I am more drawn to listen to the flow of the music than to zone in on an underlying sequence.

Bruce wrote in, "*I have spent about 1 1/2 years on the EPS coming up with the material for "Seraphim." The equipment is simple but so versatile. So far I have an offer from ACRA records in LA, but since I sent out 30 or so copies, I'm still waiting for all the offers to come rolling in.*"

Finally I will leave you with some words of wisdom from Bruce that explain why you should get in touch with him and listen to his tape: "Sounds can sometimes say what words can not." ■

If you want your tape run through the ringer, err, Hacker, just mail it off to: Basement Tapes, *Transoniq Hacker*, 1402 SW Upland Dr., Portland OR 97221.



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



# UNAUTHORIZED BREAK-IN

New WAVeBOY disk exposes direct audio input to EPS-16 PLUS Effects

Send any signal through the EPS effects processor, with the new **WAVeBOY Audio-In Effects Disk**. Guitar, mic, or line level audio. Works with all 13 factory algorithms. Disk also includes Plate Reverb, Non-linear Reverb, and 3-voice Pitch-shifter that can process external audio and internal sounds. Just \$39.95

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—Craig Anderton, TH review, April, '92

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**W A V E B O Y**  
**INDUSTRIES**

## VFX Quasi-Analog "REZ"

*Dara Jones aka 71055,1113*

I believe it's prudent to have a variety of analog and digital synths in order to achieve your own particular sound. You want a digital sound, you use a digital synth, for an analog sound you *always* use an analog. Right? Well....not always. For you analog purists, I gotta admit there's nothing like a *real* analog box to deliver that *real* analog sound. But the VFX does some mighty fine tricks that *almost* sound real enough to be the real thing. Not to mention the fact that the VFX's a lot more programmable and versatile than a lot of these fine antiques. The VFX, however, is different from an analog in many ways. For instance, there's no "Q" knob to adjust the emphasis on the filter cutoff frequency. You may find that you have had to hunt in different places to find that effect. The transwaves are a good place to look as the waves themselves can be modulated to change their timbres. This, in conjunction with a modulated filter cutoff, can be very effective in giving a resonant type sound.

First, select a patch to write over, press SELECT VOICE and press the button over the first voice twice quickly to solo it. Then press COPY and select default. This will give us a basis on which to start. Press WAVE and select RESONANT-3 from the Transwave waveforms. You should already begin to hear an

analogish sound and you've barely gotten started! Next, select ENV1 as the modsource and +99 as the modulation amount.

I wanted to get a nice smooth sweep from ENV1, which can be tricky as it can tend to sound choppy so I used my trusty Oview program to give me something graphic to look at. However, since not everyone reading this will be using Oview, I've written the parameters as they appear in the VFX:

ENV 1 Page 1:	LEVELS	INITIAL=00	PEAK=99
	BREAK1=94	BREAK2=47	SUSTAIN=21

Page 2:	TIMES	ATTACK=52	DECAY1=41
	DECAY2=70	DECAY3=47	RELEASE=65

Page 3: Change the mode to "Finish"

ENV 3  
Page 2 <only>: Change release to +56

OUTPUT  
page 1 <only>: Change volume to 72



Try it out in the middle register. You should be hearing what sounds like a resonant filter sweep. Remember, we haven't even touched the filter yet. But it does need something more, so press FILTER and set filter 1 up like this:

LO-PASS/2      CUTOFF=077      KBD=+25  
MODSRC=ENV1   MODAMT=+61   ENV2=00

Leave filter 2 alone. It's already set to its default and won't affect the parameters.

I like big fat sounds sooooo...press SELECT WAVE, then press COPY and select MAKE COPY. Press SELECT WAVE again and press the button over voice 2 twice quickly to solo the voice. Press COPY again and select RECALL. This should effectively make a carbon of all voice 1 parameters. Press WAVE and change the wavesample to PULSE.1-X from the transwave waveforms. Try it out and you should notice a very different timbre than the previous RESONANT-3 wave. Envelope 1 is modulating this wave and it sounds as if the pulse wave is actually changing shape. Notice how it seems to "close up" for part of the filter sweep. I wanted to tweak the filter cutoff a bit for this voice, so press FILTERS on page 1:

LO-PASS/2      CUTOFF=069      KBD=+23  
MODSRC=ENV1   MODAMT=+99   ENV2=+00

Now, press EFFECTS and select the 8-VOICE CHORUS.1. For simplicity's sake, I just use the default parameters here, but that doesn't mean that you programming wizards have to be so

limited. The sky, so to speak, is the only limiting factor on this here synth.

On page 2 of OUTPUT, set PAN to 87. Press SELECT VOICE and underline RESONANT3. Make sure both it and PULSE.1-X are not in parentheses and that the other four voices are. Go back to page 2 of OUTPUT and set voice 1's pan to 18. You should notice a nice analogoid sweep and get a nice stereo effect from the differing pan settings.

Press PITCH and set FINE to +5 or so, whatever sounds right to you.

For a little more bite on the attack try this. Press SELECT VOICE and underline voice 3. A second press will remove the parentheses. Press COPY and select default. Press WAVE and select POTLID-HT from the tuned percussion waveforms. On page 1 of OUTPUT set the volume to 90. On page 2, select FX2 for the destination bus.

You might want to try pressing the patch select buttons and setting different combinations of voices 1 through 3 to sound for each patch select. Also, try using other transwaves in place of or in addition to the ones I've suggested.

It's not an Xpander, but it's a decent sound from a more than decent synth. I wonder what else we can make it do? Hmm... ■

*Bio: Dara works as a horticulturalist by day, analog-hog by night. She plans to do film editing in the next year or so.*

## MIDI Mark Samples

Bryce Inman

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For: EPSs and ASR-10s.

Product: Sound Disks.

Price: \$8 per disk or 6 disks for \$35 plus \$3 S/H; Demo disk \$5, catalog is free.

From: MIDI Mark Productions, P.O. Box 217, Whittier, CA 90608.

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In this day and age when we seem to feel it's necessary to put warning labels on everything, I would like to propose that Ensoniq warn consumers about the insatiable appetite of the samplers they sell. Although my EPS-16 Plus already has thousands of samples from which to choose, it still begs for more and leaps joyously whenever I insert a new disk. I just fed my keyboard six new disks from MIDI Mark Productions and got it to take a nap. So, let's try to get through this review before it wakes up again and wants more.

First, let's take a look at disks #82 and #83 — both of which contain a number of absolutely marvelous stereo effects with names like ALIEN CAR ALARM, CRAZY WA and CYBER BUG. Take note that the operative word here is *stereo*. Tricks such as

detuning layers and using differing sample start points have been employed very effectively so that, when heard in a stereo environment, these sounds come alive as they appear to dance across a three dimensional field. These are all synthesized sound effects (as opposed to realistic effects such as door slams, car engines, etc.) You hear sounds like these in science fiction flicks.

Disks #79 and #80 contain a number of synths: Quark D, Acid Pad and Happy Meals to name just a few. Most of these are aggressive, in-your-face sounds that would work as lead synths or would provide rhythm keyboards that cut through walls of sound. Unfortunately, some of the samples on these disks are looped poorly — lots of clicks and wobbly loops.

Disk #81 contains 15 separate bass sounds. All of the basses on this disk are punchy synth basses suited for dance/pop music. These bass sounds have been sampled well, but none are looped. I guess it's assumed that you won't need a sustained bass for this type of music.

A drum set titled "T1/T3 Megadrum" is on disk #91. Most of



these sounds have been sampled with reverb and they're all clean, bright and pack a punch. The patch selects are used to select backwards-type effects.

I was pleased to find that a number of sounds on these disks have been programmed so that velocity controls the filters. We're all familiar with the technique of programming the envelopes so that the velocity with which a key is struck controls how loud or soft the sound is played. The folks at MIDI Mark have gone a step further and programmed a number of these sounds so that velocity also controls the opening of the filters. This little adjustment gives a lot more character to the sounds. Nice touch.

Beside a few bad loops on the synth disks, the only other gripe I had was a lack of variations for the patch select buttons. Other than the drums, there were no variations on any of the sounds.

The final disk I received was MIDI Mark's demo disk. This disk

contains a synth, an organ, a vocal pad, a bass, a drum loop (the drum loop is from the "Dance Construction Set Sampling CD" also available from MIDI Mark) and three effects. And, there's actually a demo sequence on this disk... demo sequences sure are

becoming a dying art. I highly recommend that you order this disk. The information I received indicates that MIDI Mark has approximately 90 disks in their catalog. Obviously, I've only heard a few of their sounds, but the sounds on the demo disk are pretty indicative of MM's general style and quality. ■



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

# MIRAGEFREQ

## A Design for a Mirage Sampling Tool — Part I

Johnny Klonaris

This series of articles discusses how to write a program that will aid in producing tones to help produce good loops on your Mirage. It also tells you how to get your hands on such a program for the C=64/128 for the right price (free).

**Notation Notes:** Some of my notation might be confusing. For hexadecimal numbers, I either explicitly say "hex" or I use the C-language construct of starting with "0x." My use of subscripts in formulae is fairly arbitrary and I seem to like to use C=64 to refer to the Commodore C=64 computer. Deal with it!

### Introduction: Huh?

Those of us still in possession of that now somewhat quaint beast, the Mirage have learned how to deal with restrictions. But constraint is often the source of inspiration, and creativity (which leads to weirdness, but that's another thing...).

Anyway, one of the constraints of the Mirage, and all samplers, is a finite number of sampling rates. This becomes more of an issue with the Mirage because of the way short loops work. Wouldn't it be great to be able to get a synth to produce just the right pitch so that your loops would work out great? Well, read on...!

What I've done is to write a program that generates a pitch on my C=128 SID chip that I can play to, so that my short loops would work out right. I later adapted the program to generate MIDI note and pitch bend commands to make any synthesizer serve the same purpose (this has the added advantage of making it much easier to sample a synth directly).

This series of articles is about how I wrote the program and hopefully how you can write a similar program if you're so inclined.

If you'd like to write such a program, you'll need to know how to read and write bytes to the MIDI interface of your computer (often harder than it sounds). Other than that, the ideas should apply to your computer.

### The Restriction...

For the Mirage output hardware to work well, the length of a short loop has to be a power of two and the start page number should be evenly divisible by the length of the loop. The upshot of all this is essentially that one, two, and four page loops are probably most common for short loops. Much above that and it's difficult avoid subharmonics. The *Advanced Sampler's Guide* has more on this and I highly recommend that you get one of these if you plan on doing much sampling.

The problem with all of this is that for the vast majority of pitched samples, we generally want the pitch of the looped portion to match the pitch of the attack portion. This puts very specific constraints upon the pitch of the sound being sampled. In fact, there are exactly two factors involved:

- Input sample rate (Parameter [73])
- Number of waves per page

Given these two, there is exactly one pitch that meets these criteria. However, of the 80 sample rates available on the Mirage (without the Input Sampling Filter) only three are within 5% of an equal tempered scale (however two of these are within 1%!). This means that you either limit your sampling to A's and Bb's, or you need to produce sounds that are in between the notes on an equal tempered scale.



So, how do you know what this pitch is and how do you go about producing it?

One way to do this is to use some device to play a tone that matches this frequency which you can then tune to. I used the Commodore SID chip and that program is available.

The other way to do it is use MIDI key numbers and pitch bend to produce the tone. The advantage of this is that you can then use it to sample directly from the synth in question (and it can be implemented on a computer that doesn't have a SID chip). We'll take a look at this in a bit more detail later.

## A Better Look at the Problem

So, the problem looks like it can be broken down into the following pieces:

- Getting the current sample rate [73] from the Mirage
- Converting this to a frequency
- Producing this frequency
- Communicating with the user

The first three are actually pretty simple and the last one isn't too bad either since the program has such a well-defined and limited purpose (famous last words).

## Getting the Sample Rate From the Mirage

If you're planning on programming this, you hopefully have done some MIDI programming before. If not, this may be a bit big for your first project. Anyway, getting the sample rate breaks down into three parts:

- Send the Configuration Parameters Dump Request message
- Receive the results from the Mirage (handling errors)
- Convert the data into a sample rate

## Asking for data...

To get the Mirage to send us the parameters we need, we must first ask for them. The MIRAGE running MASOS 2.0 will send the sample rate as part of its Configuration Dump Data message. We have to send a Configuration Parameters Dump Request message. That message consists of four MIDI bytes:

Hex	Decimal	
F0	240	SysEx start
0F	15	Ensoniq code
01	1	Mirage code
00	0	Configuration parameters dump request

The Mirage documentation does not show a SysEx end byte (0xF7) and in fact the Mirage starts sending as soon as the fourth byte is received. Whether or not to send the SysEx end depends on how you are doing your MIDI I/O. If your interface/computer/software can send and receive at the same time, I would say send the byte. However, on simple interfaces, like the Commodore's the choice is to write an interrupt handling routine or to

limit yourself to either reading or writing but not both at the same time. In this case bothering to send the 0xF7 can cause you to miss the first byte sent by the Mirage. In any case, so long as you only have a Mirage connected running MASOS 2.0, there does not appear to be a need to send the 0xF7. (I send it, but making it work was not as simple as it seemed.)

## ...and then receiving it.

This is simply a matter of getting the bytes sent by the Mirage. The message you will receive is the Mirage Configuration Dump Data message. This message consists of a four byte header (just like the one that we sent, except the fourth byte is a 2 instead of a 0), followed by 56 bytes of data. For the purposes of this program, we're only interested in some of these: specifically the Sample Time [73], the Input Filter Frequency [74], and the Cartridge Filter Frequency [93]. The filter values are for some helpful fun we'll get into later. The offsets for these are shown in this table:

Offset	Description
0-3	Header (Hex: FF 0F 01 02)
4-15	First six values (12 bytes) (not used)
16-17	Sample rate value [73]
18-19	Internal filter value [74]
20-55	more of the message — unused
56-57	external filter value [93]
58-62	last few bytes.

Note that the values are stored in two bytes. Since SysEx messages cannot have the high order bit set (otherwise it would be a command) the data are sent as two nybbles, lower then upper, as two MIDI bytes. Calculating the values we need then becomes:

```
parm73 = byte17 * 16 + byte16  
parm74 = ( byte19 * 16 + byte18 ) / 2  
parm93 = byte57 * 16 + byte56
```

or, in C, with the table above in an array named "data," you'd have maybe something like:

```
sample_rate = data[17]*16 + data[16];  
int_filter = (data[19]*16 + data[18])/2;  
ext_filter = data[57]*16 + data[56];
```

Note that the value sent from the Mirage for parameter 74 is twice that displayed, thus the division by 2.

It would be a good idea for the program to check the data to make sure that the message is correct. For example, my program simply throws away all data until it see the SysEx start (0xF0) and stops collecting data when it gets all of the data, or a byte is received that is greater than 127 (0x7F). Actually, this part of the program (and making it work on two computers with two different interfaces!) caused me the most problems. Have fun.

So, now we have the data we need, we can proceed.... ■

*Next installments: using this info to produce a frequency.*



# Understanding Envelopes in the SD and VFX Synths

## Part I — Basic Concepts

*Robby Berman*

A few months ago, a masseuse I know who owns a VFX called me up and asked if I'd explain envelopes to her in exchange for a massage. Having once struggled to understand them myself, I said sure, and before she stopped by for her lesson I thought of how I might best make the whole sordid mess clear for her. All to no avail. After several hours of my labyrinthine analogies, we both had headaches, and I'm not sure I brought her any closer to understanding when to use envelopes, why or how. And my wife ended up with the massage.

When the *Hacker* asked me recently to write an article on this very subject, I shuddered and thought how wise must be other *Hacker* writers to have avoided the subject all these years. Still bothered by my imbroglio with the masseuse, however, the challenge had some appeal and I accepted it.

In preparing to write this, the first thing I needed to figure out was exactly why this subject is so confusing. In the shower today, it came to me in a flash (well, maybe a splash). Here it is, get ready: Envelopes are generally conceived and shown in two-dimensional (height and width) terms, and the musical notes we want to use them on exist only in the fourth — time. Oooh, heavy. No wonder our heads hurt.

So let's try and ignore all this dimensionality and just say this: Envelopes shape sound. In the VFX-sd and SD-1 they can shape the volume of a sound, its pitch, the filtration of its frequencies or its place in the stereo field. In Part I of this mini-series, let's just attempt to tackle this much.

Why don't we start by taking a few minutes to program my RAW WAVES patch into your VFX/SD. I created this so that I could audition the ROM waves in my keyboard without the camouflage of effects, filtering, or enveloping. You might find it interesting to go through the waves yourself by pressing WAVE, underlining the upper left-hand field and scrolling through them all. But do it later.

Anyway, for now, just get RAW WAVES together and play middle C. What you're hearing is a plain STRINGS wave with the filter wide open and no FX or enveloping. Notice that the note will play at one volume from the moment you press the key until the moment you let go, after which it immediately switches off. This is because there is no enveloping being applied to the volume of the wave. An envelope would take that straight volume line I set to 90 (on the Output page) and add

### SD & VFX Prog: RAW WAVES

WAVES 1	
Wave	Strings
Wave Class	StringSound
Delay	000
Start	00
Vel Start Mod	+00
Direction	Forward

SELECT VOICE	
00	1
0*	1
*0	1
**	1

MOD MIXER 1	
SRC-1	-
SRC-2	-
SRC-2 Scale	-
SRC-2 Shape	-

PITCH 1	
Octave	+0
Semitone	+00
Fine	+00
Pitch Table	System

PITCH MODS 1	
MODSRC	Off
MODAMT	-
Glide	None
ENV1	+00
LFO1	+00

FILTER 1 1	
Mode	LP/2
Cutoff	127
KBD	+00
MODSRC	Off
MODAMT	-
ENV2	+00

FILTER 2 1	
Mode	HP/2
Cutoff	000
KBD	+00
MODSRC	Off
MODAMT	-
ENV2	+00

OUTPUT 1	
VOL	90
MODSRC	Off
MODAMT	-
KBD Scale	+00
LO/HI Key	C2-C7
Dest Bus	Dry
Pan	50
MODSRC	Off
MODAMT	-
Pre-Gain	-
Voice Prior	-
Vel Thresh	-

LFO 1	
Rate	35
MODSRC	Off
MODAMT	-
Level	00
MODSRC	Off
Delay	00
Waveshape	Triangle
Restart	Off
Noise SRC RT	00

ENV1 1	
Initial	-
Peak	-
Break 1	-
Break 2	-
Sustain	-
Attack	-
Decay 1	-
Decay 2	-
Decay 3	-
Release	-
KBD Track	-
Vel Curve	-
Mode	-
Vel-Level	-
Vel-Attack	-

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

ENV3 1	
Initial	99
Peak	99
Break 1	99
Break 2	99
Sustain	99
Attack	00
Decay 1	00
Decay 2	00
Decay 3	00
Release	00
KBD Track	+00
Vel Curve	Conv1
Mode	Normal
Vel-Level	00
Vel-Attack	00

PGM CONTROL	
Pitch Table	Off
Bend Range	**
Delay	*1
Restrike	00
Glide Time	00

PERFORMANCE	
Timbre	00
Release	+00



shape to it, making it louder, or softer, at different times of your choosing. It would even affect how quickly the volume of the note dies away after you let go of the key.

The same type of thing is true of the filtering. As RAW WAVES is programmed, the lowpass filter cutoff is at 127, so you're hearing all the treble frequencies contained in the STRINGS wave for as long as you hold the key down. There's no shape to what's being allowed through the filter — it's just wide open all the time. If all your patches were programmed this way, things would start grating pretty quickly. You could set the cutoff lower to reduce the high-end content of what you hear, but suppose you wanted the attack of your note to be nice and bright, and then wanted the rest of your note to settle into something more creamy? What we're describing is — not just filtering — but filtration that needs to be shaped.

The pan position of RAW WAVES is 50, smack dab in the middle of the stereo field. While it's not unpleasant that it just sits there, if you wanted it to, for instance, swing over to the right (or left) after you struck the key, you'd need to add some shaping to that straight line going up and down the middle of your headphoned head.

With the pitch, it's the same thing. What you've got in RAW WAVES is a plain old static pitch, which most times is fine. But some instruments in the real world, like guitars, actually

go momentarily sharp when their strings are plucked. Some instruments appear to flatten slightly as they fade away. To simulate such things, you'd have to have a way to shape pitch, other than just playing a key on the keyboard. Ooh, envelopes.

Anyway, let it be noted that the common thread here is that something that's static, a straight line if you will, can be turned into something more curvy. So much for my attempt at non-dimensionality. That straight line could be the volume level of a wave, which left alone is just a flat line that switches on when you press a key down and abruptly stops when you let go. It could be a filter cutoff setting, a pan position or a pitch — all straight lines until you shape them.

That's what envelopes do.

Next time we'll start actually working with the dang things. ■



*Bio: Robby Berman has escaped the soybean fields of southern Illinois and is back in his beloved Hudson Valley. He's still a musician, though. His latest album is "Rings and Rings."*

## How Sounds Work

### Part III: The Perfect Piano

Mark Clifton

Many of you own (or like me) have upgraded to an SQ-1 Plus, and are wallowing in ecstasy over those spectacular 16-bit piano waves. So as a public service, I present to you lucky SQ-1 Plus (and SD-1) owners this little guide to getting the most out of those sounds.

This month we'll look at the patch "Something Grand" from Volume 1 of Latter Sounds *"Hardwire" Collection* (what else is new?). This is my all-purpose, super-realistic grand piano sound, and it took me literally months of tweaking to perfect. I've noticed in the past that many piano sounds out there lack the life and responsiveness of the real thing, so I loaded this patch down with all kinds of spiffy features, such as super velocity response and simulated keyboard-tracking auto panning. So without further ado, we shall dive in and see what this baby's got.

One of the main features that stands out on this patch is the velocity response. This is an area that I've found lacking in most sounds, so I decided to make the velocity sensitivity on

this patch the same as a real piano. This means you should be able to play the entire dynamic range of the piano without touching the volume slider. The way this was accomplished was by programming a great amount of velocity sensitivity into the filters as well as volume. You'll notice that I've assigned the filter MODSCR to VELOCity as well as increase the Vel-Level of envelope 2 (which I'm using to sculpt the sound of the filter) to 99. This means that the sound will be very soft and mellow at low velocity levels, and will become brighter and punchier as harder playing opens the filters. The Vel-level of the AMP envelope is set to a fairly high level too, matching the sensitivity of the filters so that both volume and brightness change realistically.

Another standout feature is simulated auto-panning. If you listen to the sound in stereo and play a gliss up the keyboard from left to right, you'll notice that the panning of the sound shifts from left to right as well, following your movements. Normally, to achieve this effect on a synthesizer, you would program keyboard position to modulate panning. The



# SQ-1/2 & KS-32 Prog: Something Grand

By: Mark Clifton

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	16BitPno	16BitPno	16BitPno
Wave	16BitPno	16BitPno	16BitPno
Delay Time	000	000	000
Wave Direction	Forward	Forward	Forward
Start Index	00	00	00
MODSCR	Off	Off	Off
MODAMT	-	-	-
Restrk Decay	30	30	30

PITCH	1	2	3
Octave	-1	-1	-1
Semitone	+00	+00	+00
Fine	+00	+00	+00
ENV1	+00	+00	+00
LFO	+00	+00	+00
MODSCR	Off	Off	Wheel
MODAMT	-	-	+13
KBD Pch Track	On	On	On
Glide	Off	Off	Off
Glide Time	00	00	00

ENV1	1	2	3
Initial			
Peak			
Break			
Sustain			
Attack			
Decay 1			
Decay 2			
Release			
Vel-Level			
Vel-Attack			
Vel Curve			
Mode			
KBD Track			

LFO	1	2	3
LFO Speed			
Noise Rate			
Level			
Delay			
MODSRC			
Wave			
Restart			

FILTER	1	2	3
Filter 1	3Lo	3Lo	3Lo
Filter 2	1Hi	1Hi	1Lo
FC1 Cutoff	030	030	026
ENV 2	+34	+41	+55
FC1 KBD	-10	+00	+00
MODSRC	Veloc	Veloc	Veloc
MODAMT	+32	+32	+40
FC2 Cutoff	000	000	032
ENV2	+15	+18	+38
FC2 KBD	+31	+12	+00
FC1MOD-FC2	Off	Off	On

ENV2	1	2	3
Initial	99	99	99
Peak	99	99	95
Break	60	60	53
Sustain	00	00	00
Attack	19	19	19
Decay 1	48	48	45
Decay 2	99	99	99
Release	30	30	30
Vel-Level	99	99	99
Vel-Attack	00	00	00
Vel Curve	Convex	Convex	Convex
Mode	Normal	Normal	Normal
KBD Track	+14	+14	+14

AMP	1	2	3
Initial	99	99	99
Peak	99	99	99
Break	72	72	72
Sustain	00	00	00
Attack	00	00	00
Decay 1	58	58	55
Decay 2	66	70	66
Release	31	31	31
Vel-Level	46	46	33
Vel-Attack	00	00	06
Vel Curve	Convex	Convex	Convex
Mode	Normal	Normal	Normal
KBD Track	+14	+14	+14

OUTPUT	1	2	3
VOL	93	93	70
Boost	On	On	On
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Scale	-31	+31	+00
Key Range	C2 D5	C2 D5	C2 C7
Output Bus	FX1	FX1	FX1
Priority	Med	Med	Med
Pan	-28	+28	+00
Vel window	>000	>000	>000

HALL REVERB	
FX-1	36
FX-2	25
Decay Time	25
Diffusion	58
Detune Rate	40
Detune Depth	12
HF Damping	33
HF Bandwidth	93
LF Decay	+11
MOD (Dest)	FX-1-Mix
BY (MODSRC)	Modped
MODAMT	+43

problem is, the SQ doesn't have a pan modulation parameter, so I had to create a simulation of this effect. So what I did was create two oscillators (1 and 2) panned slightly left and slightly right (in this case, -28 and +28). The two oscillators are nearly identical except that the one panned left is tweaked to play more realistically on the lower part of the keyboard, and the one panned right to play realistically on the upper part. Then oscillator 1 (the one panned left) is programmed through the KBD Scale parameter to fade out gradually toward the upper range of the keyboard, then vice-versa for oscillator 2. Now, as you play across the keyboard from left to right, the sound will slowly fade from oscillator 1 to oscillator 2, simultaneously changing in character and panning position. Oscillator 3, which is panned at dead center, was created to smooth out the transition between oscillators.

Here's a couple more tips. If you want a thinner sound with more pronounced auto-panning, simply mute oscillator 3. You can also control the width of the panning by increasing the pan amounts on oscillators 1 and 2. The modwheel is set for detuning. To control brightness, change the FC1 and FC2 cutoff on all the filters. The sound will get thinner and punchier as you increase it, and mellow and fuller as you decrease it. Also, try feeding the sound through different effects. This patch is fed through a simple Hall reverb effect for maximum realism (the modpedal increases the reverb), but

using stranger effects can really liven up your sound. Most piano patches will benefit from a little chorusing, which adds fullness and sparkle. Just be careful not to overdo it, though. Too much chorusing can turn the sound muddy, or can create an undesirable swirling effect if the Rate and Depth are set too high. For a little funk, feed it through the flanger. For even more funk, turn the Input invert on. For a sound not unlike a pedal steel, feed it through the Phase Shifter with the Input invert on. The key here is experimentation. Don't be afraid to get a little weird and nerdy every once in a while. After all, synth programmers are the coolest types of computer nerds, right? Right.

That's it for now. Next time — lots and lots o' gee-tars! ■

*Bio: Mark Clifton is a player and composer of Jazz, New Age, Orchestral and Rap (yes, Rap!) music and an aspiring Cyberpunk writer who also wouldn't mind going into sound design or film scoring. His favorite color is the infinite, star-speckled blackness of space.*





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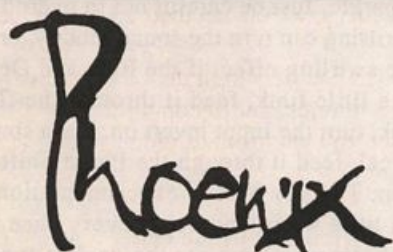
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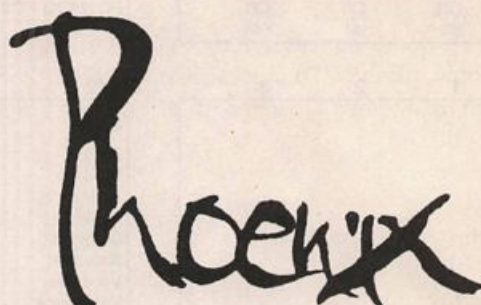
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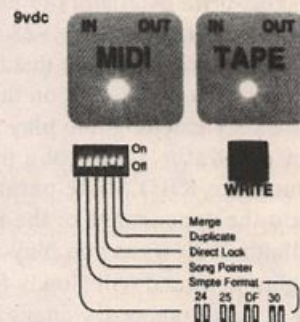
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# Customer Service Capers — From Ensoniq

*Tony Ferrara*

Hello, this is Tony Ferrara once again. As always, the explanations found here are drawn from questions that Dennie Edwards and I (as well as other product specialists at Ensoniq) have found to be asked most frequently by callers to the Customer Service line. Although my column this month was written in response to a number of specific questions asked by SD-1 users, the following information applies as well to other current and recent Ensoniq workstations, including the KS-32 and SQ series, as well as the EPS, EPS-16 PLUS, and ASR-10 samplers. I hope that this installment helps clear up some confusion about a frequently misunderstood topic, using MIDI clocks versus MIDI Time Code when synchronizing your sequencer to a multi-track tape recorder. The following is a typical caller's question:

"How do I get my SD-1 to synchronize with my TASCAM 644/688 multi-track cassette Midistudio?"

Before answering this question, I'll briefly define some of the terms involved, so that we are all in sync, so to speak. I realize that the following explanations only touch upon these ideas, but hopefully they contain enough information so that we can distinguish between them, in order to answer the caller's original question. Since the following topics are deserving of discussion in much greater detail, a series of follow-up articles giving somewhat more specific discussion of each of these MIDI (and other) concepts and their relationship to Ensoniq products is in order. Stay tuned. At least for now, here goes:

MIDI Clocks are part of the MIDI specification, and deal with the parameters of measures, beats, and sixteenth notes; the duration of which is relative to the particular tempo. The SD-1's sequencer transmits MIDI clocks (with Song Position Pointer data) by means of the "MIDI Out" port, enabling the SD-1 to function as the master to another MIDI instrument (such as a drum machine) which will follow along as a slave. In this way, many MIDI instruments can be slaved to the sequencer of the SD-1, which functions as the master clock. The SD-1 can also respond in a passive role to such data, serving as a tone generator.

Song Position Pointer is a form of MIDI Clock information which instructs a passive device as to exactly where in a song to begin. It allows the sequencer to "chase" and locate to any point at which the tape is started. Information is sent such as measure number, beat, and sixteenth note.

FSK stands for frequency shift keying, a technique that al-

lows tempo information to be recorded onto tape, for the purpose of driving an external sequencer. It consists of a high-pitched audio signal, which is recorded onto the last track of a multi-track format. This can then be converted to MIDI clocks. A FSK-to-MIDI converter will read back and convert the sync track, and send MIDI clocks out to the sequencer. "Smart" or intelligent FSK supports MIDI Song Position Pointer information.

MIDI Tape Sync is a technology that allows a multi-track tape deck to lock in with a sequencer. This is done by converting the FSK tone (usually recorded onto the tape's last track) into MIDI clocks that can be used to control a sequencer. This allows analog tape tracks to be played back simultaneously with the sequencer's virtual tracks, with the tape transport functioning as master to the sequencer.

Midi Time Code is a direct translation of SMPTE timecode into the MIDI language and protocol. It serves as a conversion process between the absolute time measurements of SMPTE (hours, minutes, and seconds), and the relative values of MIDI Clocks (measures, beats, and sixteenth notes), the length of which are contingent upon the song's particular tempo. MTC differs from both in that it is not actually recorded to tape; it is generated by an external converter that outputs MIDI Clocks, which can then drive a sequencer.

SMPTE is a timing code which deals with absolute time in terms of hours, minutes, and seconds. It is generally striped to tape and used to synchronize video to audio in a multimedia production.

Now, back to the first part of the caller's original question, which demands more immediate explanation:

The SD-1 syncs to MIDI clocks with Song Position Pointer (SPP), not MIDI Time Code. It's easy to confuse these two terms, as they do sound very similar. By using the SD-1 as a tone-generator with the internal sequencer's virtual tracks following MIDI clocks for synchronization, you can lock in with the analog tracks on the Tascam multi-track tape deck. Unlike the ESQ-1/SQ-80 synthesizers (which generate their own tape-sync tones), more recent Ensoniq workstations require MIDI clocks with Song Position Pointer in order to lock in with live instruments recorded to audio tape. Both the Tascam 644 and 688 models have a built-in MIDI Tape Synchronizer that will convert the MIDI clocks sent to the "MIDI In" port of the MIDISTUDIO into FSK tones, which are recorded to tracks 4 or 8, respectively.



The Tascam decks generate smart FSK with SPP, which allows the SD-1's sequencer to "chase" to the precise location in the song at which the tape is started, down to the exact sixteenth note. An external converter (such as the UNITOR 2 by Emagic, the SYNCMAN III by Midiman, or the Tascam MIDIIZER) is needed in order to have your instrument respond to other synchronization protocols, such as Midi Time Code and/or SMPTE.

Keep in mind that it is far quicker and more accurate to have the sequencer chase and lock to the tape transport of the Tascam 644/688, rather than the other way around. Make sure to place a high-quality tape in the 644; tape quality is not the place to compromise sonic quality for the sake of a few cents. Use one cassette per song and stripe the entire tape with the MIDI TAPE SYNC (FSK) tone, so that if you later decide to add additional sections to your tune, you will be more than covered.

Because of the technical limitations of FSK, however, you will not be able to change the tempo of the song after you have striped the tape. Also, there is no need to use the Tascam's DBX noise reduction feature on the sync track, as it is not an audio track that will be monitored through your system. Additionally, noise reduction has been known to occasionally interfere with FSK, so leaving it off while striping would avoid any possible snag.

## Striping the tape

- Set the Tascam 644/688 to SAVE.
- Set clocks on the SD-1 for INTERNAL on the first SEQ Control page; the clock source should read CONTROL CLOCK=INT.
- Put a MIDI cable into the MIDI Out port of the SD-1, with the other end going to the MIDI In port of the MIDISTUDIO; The SD-1 automatically transmits MIDI clocks, so you don't need to worry about enabling the MIDI Clock, as the Tascam manual alerts you to do.
- Set the SYNC switch on the 644/688 to MIDI.
- Press the SAVE/LOAD switch above the SYNC switch to SAVE.
- Press the RECORD button for track four to ON.
- Press PLAY and RECORD at the same time.
- A few seconds later, press the PLAY button of your SD-1.
- Set Loop = ON on the SD-1's SEQ Control page, if you plan to continue to stripe through to the end of the tape.

- Rewind the tape after striping is completed.

## Driving the SD-1's sequencer from the Tascam

- Set the sequencer to receive MIDI Clocks on the first page of the SEQ Control page; the clock source should read CONTROL CLOCK=MIDI. This puts your SD-1 into passive mode, whereby the sequencer will be driven by the MIDI clocks (with Song Position Pointer) converted from the FSK that you just striped to Track four of the 644, or track eight of the 688.
- Connect a cable from the MIDI Out port of the 644/688 to the MIDI In port of the SD-1.
- Turn the Record button of track four on the Tascam to OFF.
- Press the SAVE/LOAD button to LOAD.
- Press PLAY on the 644/688, and (after a few seconds) the SD-1's sequencer will begin to play; you have now successfully synchronized the tape tracks to the virtual tracks of your sequencer.

Do not press PLAY or STOP-CONTINUE on the SD-1 while receiving external MIDI clocks, as it will not re-start or chase-lock to the current song position pointer; use your tape deck as the "master" for control of your virtual tracks (other than volume), as the sequencer is now slaved to the FSK tones on track four. This will now allow you to continue refining your SD-1 tracks by making changes such as editing effects and busses, switching programs, or even controlling external modules from the MIDI Out port for timbral variety and greater polyphony.

I hope this has helped those of you who have been confused about the SD-1 and MIDI tape sync. I can't really close this article properly without extending thanks to the following people at Ensoniq for their help and suggestions in its writing: Bill Whipple, Bert Neikirk, Steve Coscia, Roy Elkins, and Jerry Kovarsky. As always, more information is only a phone call away! You all know where to reach me, so I'll be talking to you soon. Over and out for this month. ■



*Bio: Anthony dreams of a ten record deal with a major label, a beach front house in Malibu, and a Ferrari Testarossa. He presently settles for a black Ford Probe, and an independent release on his own label, which was reviewed in the July '92 Hacker. Although a long-time resident of Philadelphia, he still refuses to say "youse."*



# Surfin' with TOM:

## The SQ-Series Talking Owner's Manual

Pat Finnigan

For: All SQ keyboard variants.

Product: Talking Owner's Manual.

Price: \$13.95 + \$3 shipping (mail order only).

From: Talking Owners Manuals, 21405 Brookhurst Ave., Huntington Beach, CA 92646. FAX: (714) 631-5695.

As you probably know by now, I'm one of the SQ answerfolk of the Transoniq-net. And it's great to see all the applications and uses people have for Ensoniq gear, especially those people from other countries (New Zealand, Australia, Finland). People from Japan even call for information, primarily for SysEx header codes and stuff (guess what postage on six pounds of MIDIspec info from Malvern to Japan costs?). Here in the states, most questions I answer are actually in the *Musician's Manual*, albeit coded or buried somewhere. Questions like "How do I change the sound on a track to a ROM card sound?" to "What does 'Unexpected Event ID=XXX mean?'" surface occasionally. Even Ed Shaughnessey (Johnny Carson's drummer) called last week to ask how to turn the click track off while recording (he's a polyrhythmic SQ-2 kinda guy). So while I ask you Ensoniq surfers to keep those cards and letters coming, I'd like to suggest an alternative. These are personal and professional observations, no Slinkard is intended.

It has come to my attention that A, B, and C below are often the case.

(A) It's pretty well known Americans aren't the most literate society on this blue ball. Our newspapers are written at the 5th grade level, designed to entertain us for about 15 minutes. The Foy Readability Index, a standard measurement formula, supports the above. Some people's daily reading challenge is their *TV Guide*.

(B) You just paid 1.5 bazillion dollars for your SQ. Who'll admit to reading the manual before they plugged it in and started tinkering? Sure you did (NOT!)! Only when I couldn't figure out how to change the effect on a track did I approach the manual. And it's not the same as (A); we've memorized what's on cable this month.

(C) The SQ-series of Ensoniq keyboards (as well as their other products) are highly technical pieces of hardware masquerading as simple musical instruments. Although the manuals are descriptive, well organized and illustrated, and simpler to use than any other manufacturer's manuals, they still represent a technical document to a highly specific technical piece.

Weighting down that left brain-right brain flux with a large

reference book takes more time than most of us are willing to spend, not only because it's an interruption of the creative process, but by the time you find out what you're looking for you've lost that musical idea that took you to the manual in the first place. Trial and error is, for relative purposes concerning the learning curve of musical hardware, successive approximation; no mistakes, no learning. Coming from this educational perspective, I guess it shows that I was once a high-school biology teacher.

Enter the *Talking Owner's Manuals*.

Dan Hakala and associates have not only spent a great deal of time doing that left brain-right brain dance for you, they've documented it and recorded it, step by step. They've gone through numerous brain spasms absorbing the operations of all Ensoniq equipment, hierarchically organized these operations into a logical and operable flow, and then recorded a narrative of these myriad button-presses in a tutorial fashion so that your brain won't vent. These are so well-produced and documented they carry the official Ensoniq logo.

And did I mention thorough? The introduction consists of identifying not only the buttons, but how they are organized into sections, a fact very often overlooked by the most veteran of users (yeah, me). This introductory tour is performed without turning the unit on or plugging any cables or pedals in...

The operation of your SQ-x is then explained in a step-by-step fashion. You're instructed to set your cassette recorder's tape counter to 000 and note where the sections are located so that you can stop, tinker in one area and explore. If you get stuck, just rewind the cassette to XXX and begin again. By the time you're done with side A you'll have already memorized the "direct-dialing" concept of parameter identification. The sequencer operations are dissected into both sequence, song and effect functions, and kudos are due to the effects routing section, the track transpose and muting operations, and "Edit Song Steps" tutorials. In the "track copy" tutorial, you're not only exposed to copying data from one track to another, but clock shifting and transposing the clone tracks. All of this is presented in a reassuring and friendly manner by confident narrator, Tom Piggott. Explanation of why the "Dirt Guitar" doesn't sound so dirty when inserted into a preset with "Warm Chamber" effects is a "branch and flow" chapter of effects processing, presets and track zones. Some very slick examples of layering sounds with different keyzones, volume, and pan positions are the most powerful sections of the tape: each step is documented and demonstrated, then the next key layer is added, zoned and



panned, also documented and demonstrated, next track added, zoned, layered, panned, well, you get the picture. Clear and concise without being demanding: good stuff here. These guys use Ensoniq gear in their own post-house; they know it firsthand...

This tape is a must for all SQ owners; if the other *TOMs* are as thorough, I can recommend them wholeheartedly. The *TOM* for the SQ would have saved me a ton of work had it been available in 1990; it tutors slick tricks that took me months to get to. All in about 90 minutes (your own personal mileage may vary depending on driving habits). Scott Frankfurt's original SQ1 demo, "*Tuning in to KSQ1*" is included (maybe that's why the Ensoniq logo is present; hmmm?), as is a 3-minute fusion jazz loop in Eb (so, as the manual says, "you can vamp on just the black keys") and jam a la music-minus-one (or your kids can pound sharps and flats). I wish there were more high end on the tape, but after 25 years of wars with Marshalls and HiWatts I wish everything had more 16k. The tapes are mastered on DAT and duped to commercial-grade tape and shells.

So, for \$17 *TOM* will give you individualized instruction for your SQ-1 on call. Available for all Ensoniq products (except the DP/4; ASR-10 coming soon), a real boon to novices and veteran hackers alike. Well conceived, executed and produced, no Ensoniq owner should be without one. How about your

own private SQ teacher, available any time, all the time, for \$17? These *TOMs* are such a necessary element of the Ensoniq foodchain, I wouldn't be surprised if Malvern started including them with their keyboards in the near future; it would certainly ease Customer Service's load. I held off buying an EPS Classic until the infamous "Road Test" came along: the tutorial tape had me up and running in under an hour. *TOMs* are not a substitute for the manual, but an enhancement for SQ, SD, VFX hackers, and an aid you'll use frequently when you're standing on the 0,0 intercept of the learning curve looking east. I personally guarantee (for what that's worth) that you'll discover shortcuts about your SQ operations that you wouldn't have discovered anywhere else, and faster than you could've located it in the owner's manual. ■



*Bio: Pat Finnigan is a service tech turned musician who writes secret messages in sequences on his EPSSs, wondering how much harder he can push this Malvern silicon before it reverts back to sand.*



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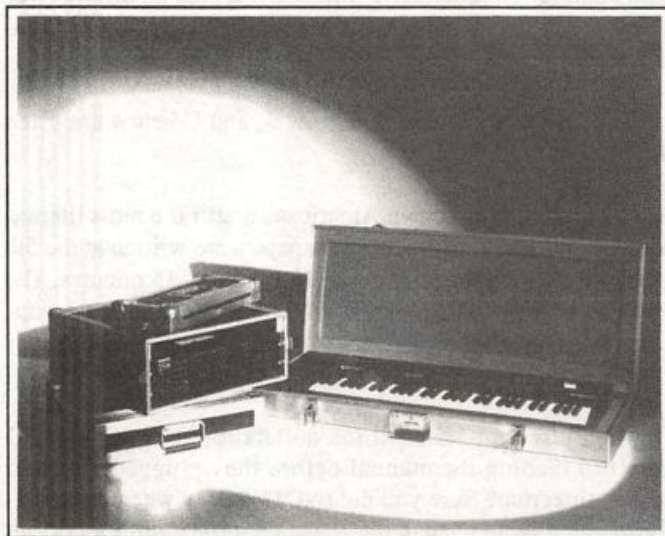
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# The Literary Side of the EPS

Bill Sethares

---

Product: *Wordsynth*.

For: EPSs and ASR-10s.

Price: \$36.95.

From: Ensoniq, 155 Great Valley Parkway, Malvern, PA (215) 647-3930 or contact your local Ensoniq dealer.

---

For all you recession weary musicians who have stood drooling in envy at the latest MACs, IBMs, or ATARIs, unable to purchase a computer, now you don't need to. Ensoniq has come out with the ultimate upgrade — *Wordsynth*. With this innovative software, you can turn your sampler into a word processor. Using the keyboard, you type directly on your EPS! The editing keys allow all the usual cutting, pasting, and formatting operations that you expect from a moderately priced word processor. Using the special connector (included in the purchase price) you can connect almost any printer directly to the MIDI-out port. "Does it work?" you ask. Well, boys and girls, I typed this review with nothing more than my old EPS classic and an Epson dot matrix printer.

## Getting Started

Instead of loading in your EPS operating system, you load the special *Wordsynth* operating system. This disk also contains the program and a few demonstration files. After initializing the keyboard, a special set of characters appears on the EPS display. This is the *Wordsynth* main menu, from which you can load, save, and edit your document files.

All the file access commands work exactly as you might expect. To load a file, hit LOAD, scroll through the files on the disk using the up and down arrows, and then press ENTER/YES. Similarly, saving files is the same as when you are dealing with sample (or sequences) files. In fact, all the operations went so smoothly that I hardly needed to read the manual.

The keyboard becomes your typewriter. In its default configuration, the twenty six letters are stretched alphabetically from C2 to G5. The white keys map to lower case letters, but if you hit any black key along with a white key, then it is capitalized. There are also several alternate layouts for the keyboard. My favorite placed the vowels and all the most common letters in the center, leaving letters like "z" and "q" on the fringes. The manual claims that with a little practice, you can type as fast as on a regular typewriter. Since I'm a slow typist anyway, that's not saying a lot.

## Editing

The biggest test of any word processor is its ability to easily

let you move text around. *Wordsynth* shines in this area, primarily because the EPS has numerous buttons that are assigned to tasks like "highlight," "cut and paste," "search," "find and replace." Each of the ten buttons to the left of the data slider is dedicated to one operation, and the documentation includes a plastic label template that slides over the buttons so you don't really need to remember which button does what. Of course it takes a few minutes to get oriented, but it's fast once you learn your way around. Some of the buttons call up sub-menus which select among various fonts, font sizes, italics, bold, etc. The usual array of word processing features are available.

## Special Features

*Wordsynth* is more than just a word processor. Using the special "play text" feature, you can listen to your document. A special map file assigns letters of the document to specific samples. The pitch and duration of each sound changes with textual context, and the overall feel of the document can be mellow, middle of the road, or rambunctious, depending on the samples you use and the specifics of your document. The results can be saved as a MIDI sequence file for later playback. I had problems getting the sequences to record on the correct channel. When I called Ensoniq, they agreed there was a small bug in the code. This will be fixed in version 1.04, which should be available by the time you read this review.

## Gripes

My biggest gripe with *Wordsynth* is the screen. You can only see a small portion of your text at any given time. Of course, this is not the program's fault as it is limited by the undersized EPS screen. Nonetheless, it makes it hard to get an overview of the document. On the plus side, the data slider was a fast and responsive way of scrolling through the text.

## Is It Right For You?

*Wordsynth* is not for everyone. If you already have a word processor you like, you'll find *Wordsynth's* capabilities redundant. If you don't have a good word processor, then you owe it to yourself to give *Wordsynth* a try. The price is right and the interface is unusual but workable (and might be great with a bigger display). Using the keyboard to type was surprisingly easy, and it only took a few hours to learn the program and type my first letter. The ability to listen to your text files is the most innovative feature I have seen on a word processor in years. It's not often that such a groundbreaking new concept is realized in such a clean and useful form. ■



# Business As Unusual

*Garth Hjelte, Rubber Chicken Software*

## For Starters

With the economy as it is, many more people are turning to the American dream — starting their own business. If you go to any financial seminar, this way to financial prosperity is highly recommended. There are advantages to working for your own profits instead of someone else's, providing a tax shelter for your "hobby," having additional income to finance your musical ambitions, and providing a venue for meeting people and making yourself known. Or maybe you've got this great idea that you know people would need, and you want to profit from your work.

In this two-part series, I want to introduce you to the basics of starting your own business, in particular, starting a third-party or music-related company. This is what I am involved with with Rubber Chicken Software, and I prefer to stay within my field of expertise. This month, I'll focus on the basics of business administration and what it takes to start and maintain a business like this. Next time, I'll get into focusing on the technical particulars, with tips on making your product or service unique.

## My Story

I'm not intending to toot my own horn, but I've been running Rubber Chicken as owner for four years as an EPS third-party sample company — making us the longest running EPS-exclusive sample-maker. It's been a long journey. Boy, I feel like I've seen everything under the sun! (You wouldn't believe the things I've seen...) I have been completely involved with the business, from doing the samples to writing sales receipts to answering the phone. And I've enjoyed it (most of the time).

## Whatcha got?

Well, if you're going to sell something, you gotta sell some *thing*. What's your idea? Is it going to be something people will need? And how many? Will it be worth your time? These are all questions that will make the biggest difference in your enterprise.

Obviously, if you've spent the last six months hacking the EPS's OS, and you've reverse-engineered it to the point of customizing some new functions into it, well, that will sell. There are thousands of EPS owners, and most would be willing to pay a reasonable sum for something different, if for no other reason than to do something different. Look at Wave-Boy's product. It is usable to a large user base, so with a

small ad and a good review, it is doing quite well. Conversely, look at EPS-Sense, a remote EPS parameter programmer for the PC family. How many EPS owners really program their own samples to make this product worthwhile? Not many, as the program's author found out.

Somebody's got to buy your product. Who is it going to be? If you are going to sell sound samples, give it something unique, like make a 10-disk set of Mongolian gongs. As soon as grunge-rock moves out of the mainstream, and Mongolian music moves in, you'll have a big winner on your hands.

For heaven's sakes, don't be in it for just the money. People last a lot longer than things do, and always remember, you are selling to people. Do what you do well. I think there are certain expected standards for every product to qualify it to be on the market. Samples should be optimized, computer programs should be compatible and crashless. Hardware products shouldn't be fragile or unroadworthy.

## Business Basics

Actually, I only want to stress one principle here. Maximize profit and minimize expenses. And for someone just starting up, that means doing most of the work yourself.

There are some things you have to contract out, like copying, camera-ready ad-output (Linotronics are expensive!), and paying the Mongolian Gong player for bringing his antique gong into your studio. But don't pay someone for stuff you could easily do. Having your own computer with the proper software helps a great deal here. Rather than paying for printing (which is an bottomless pit for \$ to fall into), I produce final drafts of all my product catalogs, design my own ads, systemize my mailing list, and even print my own disk labels in-house. The extra time I spend doing this is manifested in profit.

Shop around for materials. Can you believe retail stores sell 3.5 DS/DD disks for \$1.50 — \$2.00 a disk? I buy my disks bulk (minimum order 25) for 35 cents apiece! For bubble-wrap disk mailers, it'll cost you 30 cents apiece at the post office. You can buy them 250 at a time for 15 cents (that's 50% less)! Ask around — people are more than willing to help you find the best wholesale deals. Although I'm not into freeloading (everybody should be compensated for their efforts in some way), borrow what you can from people (ideas, gear loaned for better recording, Alchemy for an occasional sample tweak, etc.), and remember to give back when they ask you for something.



## Setting Up

After you have your product, and feel reasonably sure there's a demand for it, it's time to set up. First, get the product ready. Make it look good. Would you buy it? Would you be happy with it? Give it to a couple of friends, or perhaps be bold and send it to the *Hacker*, and seek advice. Next, advertise somewhere. If the people you're selling to don't know you're selling anything, it doesn't do you any good. Now I'll toot the *Hacker's* horn. I wouldn't be in business at all if I had to pay *Keyboard Magazine's* display ad rates. Since I only sell Ensoniq-related products, the *Hacker* is all I have to advertise in and I'm sure I'm reaching probably 80% of my market. If you are selling for other instruments (or maybe you're selling an instrument), try to get mailing lists from companies who sell to your target-market. It'll cost you, but those companies aren't making anything holding onto their lists, either (unless you're competing with them).

Get a business license from your state. It only costs around \$20, and that allows you to go to your bank and open an account under your company name. Otherwise, you have a bunch of uncashable checks on your hands when you start selling. And think of a proper (that's the main word here) company name. Rubber Chicken has been a blessing and a curse for me. People notice it because it's silly, but I get hung up on frequently, believe it or not. Make it short and sweet and catchy, so it will be remembered.

And consider the following:

- 800 phone number for orders
- Computer invoices
- Separate phone line to keep your business separate
- Separate line for product info only
- Fax/modem download possibilities
- Small business loans from banks
- VISA merchant account with your bank
- Voice mail/pager
- Get familiar with the mail system
- Dealership contacts

Having a Visa/Mastercard account can be a real advantage as it makes it considerably easier for people to order your product. Getting a merchant account when you're mailorder only or first starting can be a bit tough, but it can be done.

## Taxes

A principal benefit of running your own business is being able to write off your expensive gear as a business expense. I have to have my EPS for my business, so now I can subtract the cost of that from the income I make. If you're a sole proprietor, your business income is considered your personal income. If I sell \$30,000 in my business, and say I make \$25,000 in my regular job, there is \$55,000 I have to pay

taxes on — unless I decrease that figure somehow. You do that through keeping track of all (we mean *all*) your expenses, taking advantage your personal deductions, and so on.

The main point I'm getting at is that your personal life and business life blur together, and you can turn what you might have considered as personal into something that is business-related, thus giving you an opportunity to decrease what you report as income. This can be abused, but there are plenty of legal ways to take advantage of what the government will allow. You think this is crazy? I do! The government has a heavy hand in trying to influence what business does, and "blackmail" within the tax code is one of the ways that it does it.

## Here's a couple final thoughts

Start small. My business, for the last couple of years, sells about \$50,000 a year. That's a lot, but I never expected that. The best way to approach a business is to start with one thing, and see what the reaction is. Be encouraged by what you see, and then do it again and do it better.

Give good customer service. Listen to people and give them what they want. Be prompt, and (I can't help the cliches here) show random acts of kindness and selfless giving. Answer questions but don't be a know-it-all. Learn from everybody, and always know you have plenty to learn yourself. Do things for the customer the same way you would want to be treated. The best attitude a business can have is to be a servant for the customer. Those businesses succeed in one way or another every time.



Next installment we'll talk about some of the technical aspects of this way of life. ■

*Bio: Garth Hjelte is owner of Rubber Chicken Software, where they are hard at work developing the first 16-track digital answering machine.*

## BACK ISSUES

Back issues are \$2.00 each. (Overseas: \$3 each.) Issues 1-38, 61, 67-72, and 82-84 are no longer available. Subscriptions will be extended an equal number of issues for any issues paid for that are not available at the time we receive your order. ESQ-1 coverage started with Issue Number 13. SQ-80 coverage started with Number 29, (although most ESQ-1 coverage also applies to the SQ-80). EPS coverage got going with Number 35 (and also applies to the ASR-10). VFX coverage (which also applies to the SDs) got started in Number 48. The SQs got going in Number 63. (SQ articles also apply to the KS-32.) DP/4 coverage started in #88 (much of which also applies to the ASR-10). Permission has been given to photocopy issues that we no longer have available — check the classifieds for people offering them. A free back issue index is available which contains the tables of content for all issues since Number 43.



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## SAMPLES

Wanted: Roland JD800 samples for EPS-16 Plus, especially stock and custom electronic piano, pad, and brass sounds. Bill Groener, 15940 SE Arista Dr, Milwaukie, OR 97267.

EPS, EPS-16+, ASR-10 samples you can really use: Grand Piano, B-3, Rhodes, Flute, Nylon Guitar, Pedal-Steel, etc. Quality not quantity. Tweaked for months. Minimal blocks. For sound list write: "Little Buddy Sounds," P.O. Box 254, Sandy, Utah 84091-0254.

Blow-out sale! This is your last chance to get the complete SoundProcess library for Mirage

with the run-time O.S. on each Disk. I have the "Lush," "X," "DeMity," "Addy," "Turbo," "Keyboard," and now a 1-bank disk of "SQ-1+" sounds, normally a \$160 value, for \$79! Also, used MIDI equipment for sale. Send a SASE for my list. Bob Spencer, 703 Weatherby Ln., Greensboro, NC 27406.

**BIG MIRAGE SAMPLE BLOWOUT!** The famous MINOTAUR 8-disk set of Medieval and Renaissance instruments is available for only \$80.00! Lutes, viols, harps, bells, krum-horns, much more! Get 'em while they last! Minotaur Studios, 52 State St., Canton, NY 13617.

**ASR STEREO SAMPLES IN NEED OF GOOD HOME!** Barry Carson of *Transoniq Hacker* and Minotaur Studios fame is looking for someone interested in buying the rights to a set of Highest Quality, Stereo ASR samples of acoustic instruments. Call (315) 379-9763.

**ECCENTRIC SAMPLES** (Mirage and EPS). Ethnic, Ancient Greek, Medieval instruments; Patch creations; Industrial Percussion & more. Mirage demo tape: \$3. EPS demo tapes (Vol. II or Vol. III): \$6 each. U.S. funds only. Demo tapes include disk list. For lists alone, send SASE to: NIGHTWIND Sound, 170 Mar Monte Ave., La Selva, CA 95076.

Mirage samples: Plus moving wavesamples all over. 7 sounds in one bank, much more. Listings: \$1.00. Demo tape: \$6.00 (includes listings). Mr. Wavesample, 162 Maple Place, Keyport, NJ 07735. 908-264-3512. Make checks payable to Jack C. Loesch.

ASR-10 Hacker desperately seeking sax ...sections, that is. Memphis horns, brass sections that re-create stax sound. Would like to correspond and trade with other Hackers. Brian Reardon, 595 Theodore Dr., Merritt Island, FL 32952, Call collect (407) 452-7201.

**MIRAGE OWNERS:** Solid SoundProcess patches from **DIGITAL DREAMS!** Disks contain runtime version of SP operating system. Four-disk set including - VOLUME I, VOLUME II, THE STUDIO SET, and SOUND STUDIO 2 for \$59.95. Each disk available separately for \$17.95. Make check/M.O. payable to Bruce Wallbillich, 18449 Lakefield Ave., Baton Rouge, LA 70817.

**MIRAGE SAMPLES.** 57 new samples for \$30. Most are unusual. 5 disks, \$6 each (US funds). Demo \$3. SASE for free listing. Treehouse Sound, PO Box 18563, Boulder, CO 80308-8563.

**SUPERB EPS-16 PLUS SAMPLES** of E-mu ProCussion, MiniMoog, K-4, and more, from the *Hacker's* Sam Mims, \$9.95 per disk. Post-production quality sound effects samples for EPS-16 Plus, all from digital source recordings, \$5.95 per disk, \$5.45 each for six or more. Mirage Disk 1, samples from Mini-

moog, DX-7, and VFX, for \$7.95. Send SASE for free listing to: Syntaur Productions, 2315 Mid Lane #44, Houston, TX 77027, or call (713) 965-9041.

## PATCHES/SOUNDS

Wanted: VFX users wanting to trade sounds. Please send Alesis Data Disk format to: Dave Musumeci @ 202 Catalina Drive, Harmony Hills, Newark, DE 19711 or phone (302) 368-7324.

The *Hacker's* Jack Tolin presents CrossWave Sounds: The classic drums of the HR-16 (2-disk set; 49 sounds); SYNTH-BITS! - turn your EPS-16+ or ASR-10 into a synthesizer with these low-memory samples - M1 Series (5-disk set; 50 sounds). All disks are \$5 each (foreign s/h - add \$5.) To: Jack Tolin, 23 E. Elm Ave., Quincy, MA 02170.

60 VFX-sd patches created by Jim Grote. Wide variety of sounds with complete documentation. Call for free Information Packet, or send \$30 for VFX-sd disk to: Jim Grote, 3721 Frances Ave., Cincinnati, OH 45211. Phone: (513) 661-8885.

**NEW SQ-80 SOUNDS** from the *Hacker's* Sam Mims! Soundset 4 takes full advantage of the SQ-80's unique waveforms, and brings "hidden waveforms" to the SQ-80 for the first time. Also available for the ESQ and SQ-80 are Soundsets 1, 2, and 3. Forty patches per set, each with 22-page booklet of programming notes and performance tips, for \$17.95. Send SASE for free literature. Syntaur Productions, 2315 Mid Lane #44, Houston, TX 77027, or call (713) 965-9041.

## SEQUENCES

"Anthony Ferrara, Contemporary Guitarist," audio cassette, reviewed in July '92 *Hacker*. Send \$5.50, check or m.o., payable to: Anthony Ferrara, P.O. Box 14503, Philadelphia, PA 19115. 24-Hour demo line: (215) 742-0738.

**RAGTIME AND NEW ORLEANS R&B SEQUENCES** on SD-1, VFX-sd DISK: Joplin, Eubie Blake, Jelly Roll Morton, Professor Longhair, James Booker, Dr. John. Ten for \$30 + \$2 P&H. Perfect for gig break - or fun. Check or MO to Joel Simpson, 902 Montegut St., New Orleans, LA 70117. Phone: 504-943-7322.

## SOFTWARE

For IBM: Cakewalk 4.0 sequencer, and Dr. T's Copyist Professional music notation program. Complete original programs with manuals. \$75 each or \$135 for both. Steve, (206) 565-4701.



Trade software for SD-1/32; MIDI for PC compatibles, software for Bachmann WS2. Write to: Sansilvestri Claudio, Via Origoni 9, Barasso (Varese) 21020, Italy.

Midicaster is still available. The way-cool operating system that turns your Mirage into a very capable System Exclusive data librarian, a 20,000-note sequence player, a disk copier/formatter, and wave-draw synthesizer is still available for a limited time. For more information, or to order, contact Tim Martin, 1510 S 5th W, Missoula, MT 59801. Phone: 406-542-0280 And thank you for your support.

## OUT-OF-PRINT BACK ISSUES

M.U.G. will provide Out-of-Print issues for cost of materials and postage. M.U.G. Hotline: 212-465-3430 or write: G-4 Productions, PO Box 615TH, Yonkers, NY 10703. Attn: TH Back Issues. Phone: (212) 465-3430.

Photocopies of out-of-print past issues of the *Hacker* can be obtained by calling Jack Loesch, 908-264-3512 after 6 pm EST.

Folks in the New York City area can get copies of unavailable back issues of the *Hacker* - call Jordan Scott, 718-983-2400.

## FREE CLASSIFIEDS!

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## ESQ & SQ-80 Hackerpatch

Guest Hacker: Tom Shear

### SQ-80 PROG: DLYSET

**The Patch:** A drum kit with a delay built in. The mod wheel makes the echoes "ping-pong" in stereo. Playing the hihat with this delay can yield some really propulsive patterns that work great for dance music.

**The Hack:** This patch uses the envelopes to modulate both the pitch and the amp sections of the synth. Try eliminating one or the other to see how both parts are necessary to the patch. It is possible to change the delay times by altering the T2 value on ENV1 and 2. Values of above 50 don't really seem to work, though. There is no real way to alter this patch for use on the ESQ since it uses the DRUMS1 wave, but it can be used somewhat less effectively with synth waveforms. SQ-80 owners should try replacing the DRUMS1

wave on all three oscillators with attack transients... all the same for a delay effect, or different ones on each oscillator for some pretty weird synth sounds. To tweak the level of the delays, alter the LEVEL on the DCA1 and 2 pages. To get rid of the delay entirely, turn DCA2's output OFF and do the same for DCA3.

### SQ-80 PROG: THUNDER

This patch is Robby Berman's answer to a patch request.

**The Patch:** This patch, when mixed into a track, sounds fairly real. Alone, it's somewhat less effective. Experiment with short and longer keystrokes. Note how the thunder travels across the stereo field.

SQ-80 PROG: DLYSET										BY: Tom Shear	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	-1	00	00	DRUMS1	OFF	-	OFF	-			
OSC 2	-1	00	00	DRUMS1	ENV1	+63	ENV1	+63			
OSC 3	-1	00	08	DRUMS1	ENV2	+63	ENV2	+63			
	LEVEL	OUTPUT		MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	63	ON		OFF	-	OFF	-				
DCA 2	50	ON		ENV1	+63	OFF	-				
DCA 3	44	ON		ENV2	+63	OFF	-				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	127	2	31	OFF	-	OFF	-				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	LFO1	+63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	17	ON	OFF	SAW	00	01	63	WHEEL			
LFO 2	-	-	-	-	-	-	-	-			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	-63	-63	00	00	00	00	21	00	00	00	
ENV 2	-63	-63	00	00	00	00	27	00	00	00	
ENV 3	-	-	-	-	-	-	-	-	-	-	
ENV 4	63	00	00	40L	00	00	54	00	40	00	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	00	OFF	ON	OFF	ON			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

SQ-80 PROG: THUNDER										BY: Robby Berman	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	-2	00	00	NOISE2	ENV2	+63	ENV2	+63			
OSC 2	-3	00	02	NOISE1	ENV2	+63	ENV2	+63			
OSC 3	-3	00	04	NOISE1	ENV2	+63	ENV2	+63			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	63	ON	OFF	-	OFF	-					
DCA 2	63	ON	ENV1	+63	ENV1	+63					
DCA 3	63	ON	ENV2	+63	OFF	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	127	00	32	ENV2	+63	OFF	-				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	08	LFO2	+63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	-	-	-	-	-	-	-	-			
LFO 2	07	ON	OFF	TRI	63	00	00	ENV3			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	+63	-63	+20	00L	00	00	00	63	20	09	
ENV 2	-63	-58	-63	00L	00	00	00	31	63	00	
ENV 3	+63	00	-63	08L	00	00	00	13	20	04	
ENV 4	+63	+63	-63	00L	54	34	34	54	42	00	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	ON	OFF	00	OFF	OFF	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				



## Prog:Fog – Surf – Gull

By: Jack Carder

**Notes:** Play a single note in the zone for each voice. Fog (zone C2 – G3): This fog horn sound drops in pitch with key release. Lower velocity brings the sound closer, higher velocity moves it

away. With Gull, the opposite is true — lower velocity moves the sound further away. The pitch changes are a function of the length of “key down.”

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	Breath	Waveform	Inharmonic
Wave	WoodFlute	Clarinet	NoiseLoop
Delay Time	0	0	0
Wave Direction	Forward	-	-
Start Index	0	-	-
MODSCR	LFO	-	-
MODAMT	0	-	-
Restrk Decay	20	41	20

LFO	1	2	3
LFO Speed	0	38	35
Noise Rate	79	0	0
Level	28	26	0
Delay	53	53	0
MODSRC	Wheel	Wheel	Wheel
Wave	Sine	Sine	Triangle
Restart	On	On	On

AMP	1	2	3
Initial	94	82	28
Peak	99	99	99
Break	59	93	76
Sustain	00	93	02
Attack	23	03	51
Decay 1	60	24	49
Decay 2	73	55	60
Release	49	16	72
Vel-Level	00	19	19
Vel-Attack	00	86	00
Vel Curve	Convex	Quikrise	Convex
Mode	Normal	Normal	Normal
KBD Track	0	+98	0

PITCH	1	2	3
Octave	-2	+3	-2
Semitone	0	+07	0
Fine	0	0	0
ENV1	+99	-30	0
LFO	0	+01	0
MODSCR	Off	LFO	Off
MODAMT	-	0	-
KBD Pch Track	Off	Off	On
Glide	Off	Off	Off
Glide Time	0	0	0

FILTER	1	2	3
Filter 1	2Lo	2Lo	2Lo
Filter 2	2Lo	2Hi	2Hi
FC1 Cutoff	055	0	127
ENV 2	-47	+99	0
FC1 KBD	+16	+19	0
MODSCR	Off	LFO	LFO
MODAMT	0	+10	0
FC2 Cutoff	072	0	0
ENV2	+65	0	0
FC2 KBD	0	+28	0
FC1MOD-FC2	Off	On	On

OUTPUT	1	2	3
VOL	75	90	69
Boost	Off	Off	Off
MODSRC	Off	LFO	Pitch
MODAMT	0	+05	0
KBD Scale	Zone	Zone	Zone
Key Range	C2-G3	C6-C7	C4-G5
Output Bus	FX2	FX2	Dry
Priority	Medium	Medium	Medium
Pan	+98	-98	-98
Vel window	0	0	0

ENV1	1	2	3
Initial	00	27	53
Peak	56	00	00
Break	56	43	00
Sustain	38	00	00
Attack	00	00	00
Decay 1	00	03	00
Decay 2	15	47	00
Release	16	17	00
Vel-Level	0	26	0
Vel-Attack	0	06	0
Vel Curve	Convex	Concave	Convex
Mode	Normal	Normal	Normal
KBD Track	0	0	0

ENV2	1	2	3
Initial	94	00	00
Peak	60	74	00
Break	35	82	00
Sustain	00	01	00
Attack	36	14	00
Decay 1	45	10	00
Decay 2	48	99	00
Release	50	22	00
Vel-Level	93	40	66
Vel-Attack	00	06	66
Vel Curve	Linear	Convex	Convex
Mode	Normal	Normal	Normal
KBD Track	0	+70	0

### EFFECTS — CHORUS AND REVERB

(See text)

FX-1	15	FX-2	15
Decay time	10	HF Damping	12
Chorus Rate	15	Chorus Depth	20
Chorus Center	33	Feedback	-40
Chorus Level	40	MOD (Dest)	Level
BY (MODSRC)	Pedal	MODAMT	63

**The Hack:** Obviously a fan of Sun & Surf, Jack's come up with a pretty good Martha's Vineyard sort of sound. He's chosen to zone this patch with just a couple of “dead” keys in-between voices — a nice touch. Here are some ideas that might boost the realism just a bit. While making these changes, remember Jack's high and low velocity uses. For the “Gull” — Voice 2: In the pitch section change ENV1 to -91, then alter ENVELOPE1's shape: INIT 93, PEAK 35, BREAK 50, SUSTAIN 99, ATTACK 55, DECAY1 85, DECAY2 08, and RELEASE 74. Strike each key for about one second — unless you want to play with the envelopes some more! This produces that “screaming” hungry sound these birds are known for. For the “Fog” — Voice 1: Simply go to the output section and turn up VOL to 90 and BOOST to On. (To obtain even more power, you can change FC1 Cutoff to 75.) For “Surf” — Voice 3: In the filter section adjust

FC1 Cutoff to 078 and FC1 Keyboard to -10. And since Jack decided to let us find our own settings for global effect, I've added mine to the chart. These settings are not intended for realism... they just sound good.

Jeffrey Rhoads



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

**Hackerpatch** is intended to be a place where patch vendors can show their wares and musicians can share their goodies and impress their friends. Once something's published here, it's free for all. Please don't submit patches that you know to be minor tweaks of 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 and Jeffrey Rhoads — our resident patch analysts. If you send in a patch, please include your phone number. Requests for particular patches are also very welcome.

**Pending Hacker-Requests:** SQ-1/2 — An “Elton John” Oberheim Bass patch — like in *Rocket Man*.  
SD/VFX — A sitar patch.



## SD &amp; VFX Prog: SAMS\*PIANO

By: Sam S. Mims, Syntaur Productions

NOTES: Here is an acoustic piano patch that will hopefully satisfy the pending Hacker Request for "a piano patch better than the standard Classic Piano." It is a modification of SAMS-PIANO, which was published in Issue #64, but which had several typos that had quite an adverse effect on the sound (corrections in #65 & #66). The patch uses the standard VFX piano waveform, but does some pitch shifting (via ENV 1) in Voices 3 and 4 to slide beyond the normal split points of the multisample. I think you'll like the result. The 0\* patch select gives an acoustic piano an octave lower, the \*0 select gives an electric piano, and the \*\* select combines both grand and electric. The mod wheel turns the grand into an out-of-tune upright.

WAVES	1	2	3	4	5	6
Wave	GrandPno	GrandPno	GtrHarmo	GrandPno	GrandPno	DpnoTine
Wave Class	StringSnd	StringSnd	StringSnd	StringSnd	StringSnd	Waveform
Delay	000	000	000	000	000	000
Start	44	44	44	00	00	-
Vel Start Mod	-46	-46	-46	00	00	-
Direction	Forward	Forward	Forward	Forward	Forward	-

MOD MIXER	1	2	3	4	5	6
SRC-1	-	-	-	-	-	-
SRC-2	-	-	-	-	-	-
SRC-2 Scale	-	-	-	-	-	-
SRC-2 Shape	-	-	-	-	-	-

PITCH	1	2	3	4	5	6
Octave	+0	-1	+0	+0	+0	+0
Semitone	+00	+00	+00	+05	-07	+00
Fine	+00	+00	-06	-28	-28	+06
Pitch Table	System	System	System	System	System	System

PITCH MODS	1	2	3	4	5	6
MODSRC	Off	Off	Off	Wheel	Wheel	Off
MODAMT	-	-	-	+18	+18	-
Glide	None	None	None	None	None	None
ENV1	00	00	00	-29	-29	00
LFO1	00	00	00	00	00	00

FILTER 1	1	2	3	4	5	6
Mode	3LP	3LP	2LP	3LP	3LP	2LP
Cutoff	014	014	002	021	021	002
KBD	+04	+04	+00	+20	+20	00
MODSRC	Velocity	Velocity	Velocity	Off	Off	Velocity
MODAMT	+13	+13	+13	-	-	+13
ENV2	+78	+78	+75	+68	+68	+75

FILTER 2	1	2	3	4	5	6
Mode	1HP	1HP	2HP	1HP	1HP	2HP
Cutoff	059	059	000	63	63	000
KBD	+00	+00	+00	+00	+00	+00
MODSRC	Off	Off	Off	Off	Off	Off
MODAMT	-	-	-	-	-	-
ENV2	+00	+00	+00	+00	+00	+00

OUTPUT	1	2	3	4	5	6
VOL	74	74	74	74	74	74
MODSRC	Off	Off	Off	Off	Off	Off
MODAMT	-	-	-	-	-	-
KBD Scale	00	00	00	00	00	00
LO/HI Key	-	-	-	-	-	-
Dest Bus	FX1	FX1	FX1	FX2	FX2	FX1
Pan	50	50	50	50	50	50
MODSRC	Keybd	Keybd	LFO	Keybd	Keybd	LFO
MODAMT	+20	+20	-99	+20	+20	+99
Pre-Gain	On	On	On	On	On	On
Voice Prior	Med	Med	Med	Lo	Lo	Med
Vel Thresh	000	000	000	000	000	000

LFO	1	2	3	4	5	6
Rate	-	-	19	-	-	19
MODSRC	-	-	Off	-	-	Off
MODAMT	-	-	-	-	-	-
Level	-	-	99	-	-	99
MODSRC	-	-	Off	-	-	Off
Delay	-	-	-	-	-	-
Waveshape	-	-	Tri	-	-	Tri
Restart	-	-	On	-	-	On
Noise SRC RT	-	-	00	-	-	00

THE HACK: I like this piano patch because it has the sustain that the SD-1 pianos seem to lack. I tried substituting the PIANO-16 waves from the SD-1 (or Mega-Piano VFX-sd) and still liked the original better. For the electric piano sound, however, the EPNO-SOFT and EPNO-HARD waves from the SD-1 work nicely replacing the DPNO-TINE of Voice 6. I also had fun replacing this waveform with CHIFFLUTE, OCARINA, VOX-OOOHS, MARIMBA, KALIMBA, SYN-PLUCK, PLINKHORN, and 1+2 HARMS (all from the standard VFX). That should give you a pile of new sounds!

- Sam Mims

## SELECT VOICE

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

ENV1	1	2	3	4	5	6
Initial	-	-	-	99	99	-
Peak	-	-	-	99	99	-
Break 1	-	-	-	99	99	-
Break 2	-	-	-	99	99	-
Sustain	-	-	-	00	00	-
Attack	-	-	-	99	99	-
Decay 1	-	-	-	99	99	-
Decay 2	-	-	-	99	99	-
Decay 3	-	-	-	99	99	-
Release	-	-	-	99	99	-
KBD Track	-	-	-	00	00	-
Vel Curve	-	-	-	Conv2	Conv2	-
Mode	-	-	-	Norm	Norm	-
Vel-Level	-	-	-	00	00	-
Vel-Attack	-	-	-	00	00	-

ENV2	1	2	3	4	5	6
Initial	99	99	99	99	99	99
Peak	99	99	99	79	79	99
Break 1	49	49	49	49	49	49
Break 2	30	30	30	30	30	30
Sustain	00	00	00	00	00	00
Attack	00	00	00	34	34	00
Decay 1	66	66	66	66	66	66
Decay 2	58	58	58	58	58	58
Decay 3	72	72	72	72	72	72
Release	52	52	52	52	52	52
KBD Track	00	00	00	00	00	00
Vel Curve	Conv2	Conv2	Conv2	Conv2	Conv2	Conv2
Mode	Norm	Norm	Norm	Norm	Norm	Norm
Vel-Level	44	44	44	44	44	44
Vel-Attack	00	00	00	00	00	00

ENV3	1	2	3	4	5	6
Initial	99	99	99	99	99	99
Peak	99	99	99	99	99	99
Break 1	69	69	75	64	64	71
Break 2	55	55	56	53	53	50
Sustain	00	00	00	00	00	00
Attack	00	00	00	00	00	00
Decay 1	40	40	45	33	33	29
Decay 2	65	65	60	65	65	63
Decay 3	80	80	80	80	80	80
Release	36	36	36	36	36	36
KBD Track	+28	+28	+28	+28	+28	+28
Vel Curve	Conv1	Conv1	Conv1	Conv1	Conv1	Linear
Mode	Norm	Norm	Norm	Norm	Norm	Norm
Vel-Level	17	17	17	17	17	28
Vel-Attack	00	00	00	00	00	00

## PGM CONTROL

Pitch Table	Off
Bend Range	00
Delay	X4
Restrike	18
Glide Time	00

## EFFECTS (1)

Effect	Chorus+Reverb2
Decay	41
FX1Mix	39
FX2Mix	25

## EFFECTS (2)

Chorus Rate	20
Depth	06
Delay	015
Mod	00
Mod	00
Mix	50

## EFFECTS (3)

Waveshape	Sine
MODSRC	Modpedal
Rev HF-Cut	Off

## PERFORMANCE

Timbre	00
Release	00
Pressure	Chan



# The Interface

Letters for The Interface may be sent to any of the following addresses:

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

Electronic mail - GENie Network: TRANSONIQ, CompuServe: 73260,3353, Internet (via CS): 73260.3353@compuserve.com.

This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt. Resident answer-man is Clark Salisbury (CS). Letter publication is subject to space considerations.

Dear Hacker,

1. Hacker - I would love to see some articles on using the EPS sequencer with tape sync. I am in need of moving to virtual tracking in my home studio and want to know the best method of syncing the EPS Classic to tape. Will any sync do? What kind of sync boxes have other Hackers used with success? Is it true that "I sync, therefore I am"?

2. I really appreciate the reviews of samples for the EPS. Those of us on a budget who can't go out and buy all the sounds we want depend on the opinions of the reviewers for a general idea of the quality of the samples we buy. Since most samples coming out nowadays are done on and for the EPS-16+ and the ASR-10, yet are claimed to be compatible with the EPS Classic, I would appreciate it if reviewers would include a "Classic" review also, meaning auditioning the samples without the effects (as in Pat Finnigan's review of the B3 samples in January, '93 - thanks!) and, if possible, suggest specific tweaks that we EPS Classic owners will have to make to the samples for them to work on our boards - filter and amp changes most notably. This would make your already-valuable reviews even more helpful to us 13-bitters.

3. Ensoniq - A couple of years ago I purchased your SL-2 set for the EPS-16+ and EPS Classic and discovered the now-familiar phenomenon of filter and amplitude incompatibilities with the EPS Classic. After two or three letters to Ensoniq, visits to the store where I had purchased them and even tracking down the artist who did the samples for Ensoniq in the first place, I was still left without some very basic information. What changes, specifically, need to be made to 16+ samples to make them compatible with and sound good on an EPS Classic? Your packaging clearly claims, "All sounds are compatible with the EPS Performance Sampler." I think that the least you could do would be to include a paragraph in the docs explaining how we Classic owners can tweak the filter and amp parameters to make them compatible. Simply alerting us in the *Hacker* that we may need to make some changes in filter and amp settings is not enough as not all of us know enough about hacking the filters to make it sound right on our own. At forty bucks a pop, I don't feel I should have to do too much work just to get the samples to play correctly. I also don't think it would take too much extra work on your part to include demos on your disks for the EPS Classic. If you're going to call your products compatible, then please

make them compatible.

4. Ensoniq - Very simple yes or no question: Are you ever going to release the long, long-awaited OS 2.5 for the EPS? If so, any guesses as to when? And, if so, how can we EPS owners get a copy since none of the music stores have EPS Classics anymore for copying the OS disk?

Whiningly yours,  
Steve Vincent  
Tacoma, WA

[CS - 1] The EPS should sync just fine to anything that sends MIDI clock, although devices that send MIDI song position pointer will offer an advantage in that they will allow you to auto-locate to points within a piece of music (the EPS will respond to song position pointer). There are a number of tape sync devices available from companies such as JL Cooper, Anatek, and others, any of which should do the trick.

2) Point well taken.

3) As you've found, there can be some anomalies when playing back EPS-16 PLUS and ASR-10 sounds on a standard EPS. The first thing to check out is filter cutoff. On the EPS-16 PLUS and ASR-10, filter cutoff goes from 0 to 150, whereas on the EPS it ranges from 0 to 127. Consequently, if filter cutoff is set higher than 127, the EPS may have trouble interpreting the numbers. On the EPS classic, try moving the filter cutoff point all the way to 0, then back up to a setting that sounds good.

The other problem has to do with the fact that the EPS-16 PLUS and ASR-10 have a new gain boost parameter. If a programmer uses this parameter to get a bit more volume out of a sound, you may have trouble getting the sound to play back at the correct volume on the EPS classic. The solution is simply to check and make sure that the volume for any wavesample that seems too quiet is turned up.

I'd also like to mention that Ensoniq will soon be releasing an applications note dealing with this subject in some detail, along with applications notes on a number of other topics. I believe that you can request these notes directly from Ensoniq; you should also be able to get them from your local dealer.]

[Ensoniq - 3] We have been working on a more detailed document on editing EPS-16 PLUS sounds to be played on the original EPS. We have finished that document and are sharing it with the Hacker to publish in an up-

coming issue. It is also available from Ensoniq - give us a call and we'll send it to you.

Not to belabor a point, but there are degrees of compatibility. An Akai sample disk cannot be loaded into an Ensoniq product, nor can SD-1 sequencer data be loaded into an EPS. That is incompatibility. EPS-16 PLUS sounds can be loaded into an EPS, most with complete success. When labeling the packages we wanted to communicate that these sounds could be loaded in, which is true. We did revise packaging to more clearly state "some editing required" and now have a document to help you achieve that goal. We're sorry for any confusion and/or frustration we may have caused you.

4) We are not currently working on the SCSI copy/Backup/Restore functions for the original EPS.

Regarding copying disks in general, because our newer products use an HD drive does not mean that they won't work with DD disks. You can still copy disks from a newer keyboard that will work on your unit. Just be sure to use DD disks and use the "Copy Floppy" command, which simply reads the total disk contents into memory and then rewrites it to a floppy.]

Dear Trans,

In Issue #92 I saw comments about "New Models." After my blood pressure returned from the stratosphere, I thought others might benefit from my thoughts. I put out over \$10,000 between 1984 and 1987, "keeping up." My last straw was a duplicate of the chap in that issue who found the value of his machine down the tube a week after his purchase.

All personal comments aside here's what it took me five years to come to. In 1988 I dumped all the gear and vowed "never again." Well, we all make mistakes and I just completed my studio. But now there's a difference.

I view technology as a rising column. Gear is a form of bubble in that column. It sinks (representing value) as time passes. My purchase objective is to start as high in the column as finances will allow. That means that (normally) I can expect a good bit more life from my bubble than if I bought cheap gear.

I put up what I consider a very sizable bubble this time. I don't really care too much what comes next since there's little I can't do and I feel that this situation should last for years.



Why does this have such a profound effect? Because nearly everyone in this country has been conditioned to accept the Detroit Syndrome, which says that unless your item, car, computer, keyboard, whatever, is the latest, you are not with it. Sorry to say it took me a long time to realize this is rubbish.

The gut-wrenching feeling one has when he perceives a NEW MODEL as something that demeans his gear is a very inhibiting factor in the creative torrent. That idea must be killed. To do so is very hard. Being satisfied with what one has is against human nature. This situation is best described by the story of the man in south Africa who went to college in England to study soils. There he was told of the black clay which contains diamonds. He spent most of his life and a great deal of his father's money traveling the world in search of the clay. At last he returned to his father's sheep ranch and was told by his father that it was time he learned about sheep so that he could care for the ranch when his father passed on. In a downcast mood he went out and sat beneath a tree contemplating what he felt was his failure to attain his goal. He dug his heel into the earth and dislodged a lump of black clay. What followed we know today as Kimberly Diamond mines.

Since I finished the studio I have not experienced this level of happiness in my entire life.



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Another discovery I made was that it is a mistake to use only one company's gear. My system contains products from Kurzweil, Ensoniq, Kawai, Alesis, Sonetic, Mackie, JL Cooper and one piece left over from Yamaha, (in my opinion the worst offender in the New Model racket).

If Ensoniq listens even closer they will recognize that my bubble concept is really very active among the buying public. I will *never* own a brand new car, promise. Those folks in Detroit refuse to listen.

In accord with your other readers I am disappointed not to see gangs of SD-1 info. But hey! it's your magazine and there sure are a lot of other models in the Ensoniq line so I won't be piggish about it.

Finally, I was very pleased with the article on event editing by Robby Berman. It helps greatly to have such a complex subject dealt with in a logical and concise manner. Good stuff!

Cordially,  
John A. Diehl  
Not Yet Recording Studios  
(Called "Not Yet" because I'm not yet in operation.)

Dear TH,

I'd like some information on mixing track volumes with the EPS-16+. I have the darnedest time figuring out how best to deal with this as I sequence and thought maybe one of your readers or advisors can help.

When sequencing a Sequence Track (as opposed to a Song Track) it appears that after I lay down the track I cannot record any volume changes throughout the sequence. The instrument stays at the volume level I used during input unless I go back to the record-add mode as per the manual and set a new starting volume. Even so, in the "add" mode, if I try to make volume changes, they don't take - the volume just stays at the new starting level.

However, at some points in the sequence, if I don't record the new volume level all the way through the sequence, the volume reverts back to the old volume (usually where I've patched in some changes) leading me to believe there must be some way to effect volume changes in the middle of sequences.

In the Song Tracks, I seem to be able to record volume changes during sequences that stick, but is it true that when editing a Song Track, I have no way to go directly to a spot in a sequence other than to move by song steps? This seems very time-consuming if I just want to add a quick change in the middle

of a long sequence. I have to go to the song step and wait through the sequence until I reach the desired spot.

On another matter, is it possible to record program change messages to my sequencer, to load a new instrument during a sequence? I've tried to load an instrument during a sequence while recording in add mode, but the system asks me to stop the sequencer first.

Thank you very much for your help. I apologize if these questions have been addressed in previous issues of your publication, but I am a new reader. I very much appreciate your services and thank you for spending equal time on samplers and synths.

Bob Werntz  
Freeport, Illinois

*[CS - Recording volume changes works differently for sequence tracks than it does for song tracks. Whenever you first record a sequence track, the initial Mix Volume setting (as determined by the Data Slider and Up/Down Arrow buttons) becomes the volume for the track. If you wish to change this setting, you can re-record the track (as you've learned, you'll need to be in ADD mode, or you'll erase previously recorded notes and other data), or you can edit the value for the MV event you'll find at the beginning of the sequence when viewing the track events using the EVENT EDIT TRACK command.*

*You cannot, however, record Data Slider moves into a sequence track to control the track volume dynamically. You can record volume pedal messages or external MIDI controller messages, though, which can be set up to dynamically control track volume. In addition, you can insert volume change messages into a track at any point using the EVENT EDIT TRACK command. Inserting either MV (mix volume) or VL (volume pedal) events will allow you to control volume changes at any point in a track.*

*The Song Tracks are another story. Data Slider moves can be recorded when using Song Tracks. The single caveat here, though, is that if you record track mix data this way, then decide to re-record the mix info, the new mix info will be added to the old mix info. This can create a certain amount of confusion. Therefore, it's recommended that you specifically erase any previous mix info before recording a new mix.*

*Probably the easiest way to make a "quick change" in the middle of a long song is to select the individual sequence in which you want the change to occur, enter EVENT EDIT mode, and insert a VL or MV event at the point in the sequence where you want to affect the volume change.*



As to your other question, you can record program changes into your sequence, but they cannot be used to load EPS-16 PLUS Instruments. They can, of course, be used to control program selection on external MIDI sound sources.]

Dear TH,

I am not going to waste your valuable space telling you how much I appreciate your newsletter and how much helpful information I get out of it. With your hints and ideas I am learning more about the SQ-R than I ever learned about any other synth. But remember, I am not going to tell you any of this.

CS requested to write if we want a 76-note version of Ensoniq's high-end instruments. I am looking for at least a 73-key synth/master-keyboard. The KS-32 would be a good choice if it had a bigger display and sliders and switches. In live performance there is nothing like the four sliders that my old Akai MX73 has to adjust volume or glide time, etc. Ensoniq, in case you plan a new 76-note (master-) keyboard please keep sliders and switches in mind.

Now for something completely different. There is little third party support for the SQ. But Ensoniq offers many ROM cards for only about \$140 (resale price in Germany.) Considering that I like to change the patches, I have to waste valuable INT space to save my new expensive beautiful Ensoniq ROM patches. If I buy two ROM cards because I really like a few sounds I need a \$140 RAM card to store my customized patches. That makes about \$400 for my \$1100 SQ-R. Ensoniq, this is ridiculous. Most MIDI musicians own a disk drive with a computer attached to it. Please offer your patches on the inexpensive disk. What really annoys me is that many sounds for the more expensive VFX/SD are offered on disk for a reasonable price - 2 banks of 60 sound programs for \$19.95 which would probably be \$25 in Germany.

TH, could you publish an article on how to make an SQ sound out of a VFX/sd sound? Then I could transfer your VFX/sd hacker-patches to my SQ-R. And I am looking for a really cool church organ patch. Could you help me with that?

Sincerely,  
Gerald P. Kaendler  
Leichlingen, Germany

[CS - We get a lot of requests for a guide to converting patches from various formats. This is not a trivial undertaking, though. I'm not even convinced that you could do a usable guide to converting patches. But if someone out there wants to give it a shot, the Hacker would be more than happy to look into pub-

lishing any articles that might be forthcoming.]

About the church organs; have you checked out the KS-32 ROM sounds? There are a bunch of church organ patches in the KS ROM - if you found one you really liked, I'm sure you could use the settings as a basis for your own version.]

[Ensoniq - We also believe that using a MIDI disk drive or computer for storing SQ/KS sounds and sequencer data is a very cost-effective idea. To achieve the competitive price points (and make some models that are affordable to customers who can't spend over US\$2000) we have to make tough decisions about features to leave out.

The problem for us in releasing sounds on disk format is that there are too many formats to support (IBM, Mac, Atari, PC, NEC in Japan, Alesis/Peavey/Brother/Roland/Yamaha disk drives etc., not to mention the various software titles for each computer). We simply are not prepared to do that. Since you have a computer you can keep archiving Banks of sounds on floppies and reload them into the INT (RAM) memory as you need. Also please keep in mind that at your conversion value when you buy a card for \$140 you are only paying \$0.87 per sound (140 divided by 160 sounds). You buy the card and then send it as MIDI System Exclusive to your computer (running any number of MIDI programs available) and you have a very cost effective system. In the worst-case scenario you add the cost of \$0.87 per sound for the RAM card storage space and your total cost per sound is \$1.75. Is that really that expensive for new sounds?]

Dear Hacker,

I just purchased an SD-1/32 and have not as yet come across any patches, presets or whatever giving me a sound similar to the heavily layered, thick textures intro keyboards you hear on many pop and R&B songs (usually ballads.) If any of your back issues have information on this or if you can point me in a direction, I'd greatly appreciate it.

Sincerely,  
George Leinenweber  
Atlantic Beach, FL

[CS - I'm afraid you'll need to be a bit more specific about what you're looking for; "heavily layered, thick textures" could describe any of a number of sounds.]

Sirs:

Recently I traded my EPS-16+ in for the new ASR-10. Can the basic Radio Shack

CD-ROM be hooked up to it? I called Ensoniq and they didn't have an answer. I realize hooking it up may void the warranty but compared to spending \$800 for an external ROM I think it might be worth it considering the hundreds of sounds available from CD-ROM. Also is there a way to add more SIMMS memory to increase sample time for hard disk type projects? Wouldn't it be nice to have five minutes stereo 44:1 sample time?

Thanks,  
Joe Van Orden  
Union Beach, NJ

[CS - Most SCSI-based CD-ROM drives will work with the ASR-10; this would include most (but not all) CD-ROM drives marketed for use with the Macintosh computer. CD-ROM drives manufactured for use with IBM-type machines (of which the Radio Shack is one, I believe) will most likely not be SCSI equipped, and will not work with the ASR-10 (or EPS-16 PLUS, for that matter).

You can increase the ASR-10's memory up to 16 meg by populating its four SIMM slots with 4-meg SIMMs.]

[Ensoniq - We support CD-ROM drives that use Sony or Toshiba mechanisms only. The Tandy drive does not, so it will not work. It would take 53 Megabytes of RAM to offer 5

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Dear Hacker,

The last four times I was in Las Vegas, I couldn't help but notice that nearly every keyboard player in town plays an EPS or EPS-16+. Excellent choice, eh?

In my nineteen years as a full-time producer, musician and entertainer I've bought more keyboards than anybody I know. Two of my most recent purchases were an EPS-16+ Turbo and an ASR-10 with 10 meg memory upgrade.

I was just curious if anybody out there knows how many original EPSs there are in the world. And how many EPS-16+s and ASR-10s?

Sincerely,  
Walt Gregory  
Sandy, Utah

[CS - According to my scientific research, conducted under stringent scientific conditions by my Lab Assistant, Max (actually, more of a Lab Retriever than a Lab Assistant), and myself, the answer is "all of them."]

[Ensoniq - While we won't release actual sales figures we will say that in total there are more than 60,000 and less than 100,000 Ensoniq samplers making music today.]

Dear TH,

I'm a VFX owner. As I go back to some older Hacker volumes (mostly from 1990) I see some interesting patches written for the ESQ-1 and the SQ-80 that I'd love to be able to convert to my VFX, but don't know how. Most interesting to me were the programs "PROPHET" from October, 1990, "ARP 1" and "FUNORG" from that issue, "8' LES" (September, 1990) which I believe is a Vox organ, and "VOX 3" from February, 1990. Is there any way to get these converted to VFX programs? Also, has anyone ever written a Rhodes electric piano patch that is published anywhere?



Thanks for your help,  
Dave Musumeci  
Newark, DE

[CS - I'm afraid that I know of no easy way to "convert" ESQ-1 and SQ-80 patches for use on the VFX or SD series of instruments. If you have a pretty good understanding of both these types of instruments, you could probably pull off pretty good approximations of a conversion, but then, if you had that kind of understanding of these products you wouldn't have written in the first place. Do write again, though.]

[Ensoniq - The raw waveform that is used for a sound on a wavetable/PCM-based instrument accounts for much of the sound's timbre. Since the ESQ-1 and SQ-80 have completely different waveforms than the VFX it is highly unlikely that you will achieve the same results. Since the voice architectures are very different there is no kind of "automatic" conversion possible.]

Dear TH,

I enjoy much of the *Hacker* and occasionally find helpful articles. I have owned an SD-1 for about a year now and have found it to be a tremendous instrument. I have two questions.

What exactly is meant by a "pad"? What kind of a sound or characteristics does a pad have?

Is anyone out there interested in trading sequences. Either originals or commercial well-known songs. If so, please write me.

I would like to see more articles on the SD-1 in the *Hacker*.

Thank you,  
Fred Bass  
Worcester, MA

[TH - Watch those copyrights, folks!]

[CS - The term "pad" refers to a sound that's generally used as a textural component, often in the background in a composition. Pads are often characterized by having a soft, slow attack and decay, and a mellow tone; think of a mellow synth-string sound, and you'll have a pretty good idea.]

[Ensoniq - Another characteristic of a pad is that it is a sound that is meant to be sustained to fill space, and to help define harmonic structure.]

Oh Great Hacker,

I've just sold my EPS-16+ Turbo and just purchased an ASR-10 with two 4 meg chips. I have a couple of questions which I know are

answered in the manual but I just can't figure them out.

1. How do you make your own patch select samples and programs and how do you get different samples on up key movements to down key?

2. When changing sound timbres on instruments is there a resonance filter that can be changed like on old analog synths?

3. Say you do your first sequence like so - Drums on track-1, Bass on track-2, guitar on track-3. Now you go to do sequence two, but you want to continue to use the same drums you laid on track-1 of the first sequence. How can you jump just the drum sequence from 1 to sequence 2 without bringing along the bass and the guitar?

4. How do you route instruments so you can use different effects on different instruments while doing a sequence and how many different effects at one time?

5. How can you have the ASR-10 sequencer control another MIDI device on track 5, for instance, while the other instruments are ASR-10 sounds on track 1-4?

6. How do you create your own drum patches by taking bass drum from one disk, snare from another and so forth?

7. What does the "10" stand for in ASR-10?

Thanks,  
Lost in Manuals

[CS - 1) There isn't enough space here to go into detail about creating your own patch select variations, but I will give you a brief guide for creating patch select variations on a sound you've sampled:

Sample a sound into a new layer of a new instrument. This will default to Layer 1.

Select Layer 1 for editing - hit EDIT, and underline LYR=1.

Copy the PARAMS (not PARAMS+DATA) only of layer 1 back into the same Instrument - press COMMAND, then LAYER, then scroll to COPY LAYER. Hit ENTER and follow the prompts.

Assign the new layer to a patch select - hit EDIT and double-click INST to move to the layer assign page.

As you hold one, the other, or both patch select buttons, you will see which layers are active in any given patch. Change these assignments by scrolling to the layer you want to turn on or off for the patch you're working with, and use the UP/DOWN buttons to turn

the layer on or off.

You can now use any of the ASR-10 programming tools to make variations for any of these patch selects; simply program variations for the layer(s) called up by any particular patch select combination.

To change layers from key-up to key-down layers:

Press EDIT, the INST.

Scroll right until you reach the KEYDWN LAYERS= display.

Enable any layers you want to be keydown layers by scrolling to their position in the list, and hitting the Up Arrow button to turn the layer on.

Scroll right until you reach the KEYUP LAYERS= display.

Disable any layers you want to be keydown layers by scrolling to their position in the list, and hitting the Down Arrow button to turn the layer off.

2) The ASR-10 includes a sophisticated multi-mode filter for each wavesample in an Instrument. These filters do not include resonance. They can be controlled in rather more complex ways than might typically be associated with analog synthesis, although they are based on standard analog (subtractive) systems.

3) To copy a track from one sequence to another:

Select the sequence you wish to copy the track to. Press Command, then Track, and scroll to COPY TRACK. Hit ENTER.

Use the Slider or the Up/Down Arrow buttons to locate the sequence you wish to copy the drum track from. When it is showing in the display, hit ENTER.

Press the Instrument-Track button that corresponds to the drum track. Press ENTER, and set the measure range that you wish to copy. Press ENTER; the ASR-10 should be displaying the name of your target sequence.

Press ENTER, then select the track you wish the copy to end up on. Press ENTER, and set the bar at which you want the copy to start. Press ENTER. The copy will take place, and you will be presented with the audition page. If all went well, you can press ENTER one final time to KEEP the NEW version of the sequence.

4) You can use one effect algorithm at a time. Some algorithms have a number of effects that they can do at once; your manual can tell you



which effects are present at which bus when using these multi-effect algorithms. Instruments can be routed from a number of different places. From within a sequence, you might try hitting EDIT, then TRACK, and scrolling until you reach OUT=XXXX. This is the bus routing for whatever Instrument you have selected. Use the Up/Down Arrow buttons to select among the various routings available; use the Instrument-Track buttons to select Instruments for routing.

5) The ASR-10 generally controls other instrument via the use of MIDI Instruments. To create a MIDI Instrument that sends data on MIDI channel 5, and occupies track 5, do the following.

Make sure that Instrument-Track 5 is empty.

Press COMMAND, then INSTRUMENT, and scroll to CREATE NEW INSTRUMENT.

Press ENTER. The display will show SELECT UNUSED INST=X. If it is showing some other Instrument than 5, press the Instrument-Track 5 button. Hit ENTER. The MIDI Instrument is now created.

Hit EDIT, then INSTRUMENT, and scroll to MIDI OUT CHANNEL=X. Use the Up/Down Arrow buttons to set this to channel 5 (or whatever MIDI channel you want to send on).

This new Instrument can now be used just like any other Instrument - it can be saved, loaded, and sequenced. The only difference is that it will play no internal ASR-10 voices - only external MIDI voices on channel 5.

6) I'm just in the process of finishing an applications note on creating custom drum and percussion mappings. I'm afraid it's too much information to reproduce here, but when it's finished we'll see about running it in the Hacker. Also, your dealer or Ensoniq should be able to supply you with a copy once it's available.

7) It stands for "ten." ]

[Ensoniq - 7) Some people have guessed/assumed that it stands for 10th anniversary (1992 was our 10th year in business). Others have said that it stands for 8 Instrument plus the 2 Audio Tracks. We like Clark's answer as well.]

Dear TH,

Got a couple of mostly trivial questions and requests:

1. I've acquired a couple of sound libraries for my SD-1 called SSUPGA and SSUPGB. Any idea where they are from?

2. Most of the programs for Ensoniq's demos "Fusionaire," "Plaything," "Earcandy," etc. are not on the SD/VFX sound library list. Where is this stuff from and why aren't they being offered in the accessories catalog. Are there more of these mysterious programs hiding somewhere?

3. What do the asterisks in names of some of the VSD sound libraries indicate?

4. How can I create a tempo change at some point within a sequence? How about a gradual change at some point over the length of four bars? How about making volume changes, like a fade at the end of a song?

5. When sequencing, I often load sound disk libraries into internal RAM in search of sounds which I copy one by one to cartridge before using. Since none of my sequences end up using internal RAM programs this way, I need a quick and simple trick to get both cartridge programs and their associated tracks to "default" to internal RAM when I've either completed a SEQ file or filled up the cartridge. That way I can save the new configuration to disk as one file, use my cartridge for another project, and later be able to reload the old file without having to also look for the additional program file and waste time transferring it to cartridge. Is there a simple solution to all this? If not, I'd like to see Ensoniq include such a "default" feature on the next OS update.

6. I would like to have a realistic sitar program for the SD-1. I'm not aware of one on any of the available libraries and would like to see one in the Hackerpatch, if possible.

Thanks for the forum,  
Becky Dierksen  
Lancaster, TX

[CS - 1) Um, I kinda hate to bring it up here, but these are programs created by Sound Source Unlimited, and as such are copyrighted material. The programs may have been released in an Ensoniq library, or in a Sound Source library, but in either case you may find yourself liable for copyright infringement if you use them.

2) Often the sounds that are loaded and play with Ensoniq demos are edits of other programs in the library, or are created specifically for the demo and were not intended for release in a sound library. If you like any of the sounds, though, feel free to use them. You may even want to collect your favorites from the various demos together, and save them as a separate file for easy access.

3) The asterisks generally indicate that the sound(s) in question use newer expansion waves, and as such may not be 100% compat-

ible with earlier versions of the VFX.

4) The SD-1 does not support tempo changes within a sequence. The only way to affect tempo changes is to use song mode to chain together several sequences at different tempos. Fades can be handled in song mode as well. Note that the SD-1 does not record mixdown or pan settings for a sequence track unless the corresponding song track has been defined. In other words, if you wish to record mixdown information for track three of a sequence which has been chained into song 1, you must be sure to define track three of song 1 by placing a sound (any sound) into the track. Also, I have found that the process works best if you perform some steps in a specific order, which is to select the "Volume" page, begin recording, and then select the track for which you want to record volume changes. Make sure that "Record Mode=Mixdown" and "Edit Tracks=Seq" on the Seq Control page.

5) Unfortunately, there's no quick way to tell the SD-1 to "default" to looking at the internal RAM locations for track sounds that originally came from a cartridge.

6) We'll pass your request along to Sam Mims, who does the monthly SD/VFX Hackerpatch column.]

[Ensoniq - 1) Those programs are the property of Sound Source Unlimited, and we must assume that by "acquired" you mean copied or traded. We have never released or distributed those sounds. You should contact the dealer or friend who gave them to you and let them know they are breaking the law. Then contact Sound Source Unlimited (800) 877-4778 to arrange some sort of payment. You didn't know better, but now that you do we urge you to "do the right thing!"

2) When we release a demo for a product we also release the right to use the sounds that are created specifically for the demo. We allow our dealers to freely distribute demos (but not sound libraries!). Any demo that comes with an Ensoniq product or is released through our dealers are an added bonus for you. We do not catalog those sounds, nor do we require the developer to make them adhere to our usual standards (using all Patch Select buttons etc.). They are most times tweaks of existing sounds to optimize them for the piece of music that was written. Enjoy them!

5) Since the SD-1 can automatically load an associated group of programs (either 30 or 60) when loading 30 or 60 sequences, we suggest that you use Programs that you store in RAM rather than Cart. By saving programs with the full sequencer data (not the 1 Seq option) you will always bring in the correct programs and sequencer data. When loading one of our demos like "Plaything" you will



see a flashing "P" which shows that there is associated Program data with that file. There's actually more to this question than can be addressed here - we hope to elaborate on this in the next Interface.]

Dear TH:

Any readers who happen to have a DP/4 and Performer may be interested in the following:

Here is the DP/4 Dump Message and proce-

cedure for it to send its entire contents to Performer. Create one track on Performer and insert the sysex message: F0 0F 40 00 00 14 F7 (hexadecimal). (See Appendix A page a-7 Sysex spec.) Create another track in Performer and Record Enable while you play the track with the sysex message you just inserted. Performer will record the sysex dump sent from the DP/4.

To send the dump back to the DP/4 all you have to do is Play Enable the track with the dump on it. Make sure you shut off the track

with the dump message you inserted.

Sincerely,  
Sal Centola  
Lansdowne, PA

[CS - Thanks for sharing the info, Sal.]

[Ensoniq - Of course you must be sure that the DP/4 and the track in Performer are set to the same MIDI channel.]

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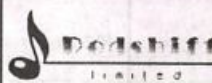
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