

TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

Resonant Filters for the EPS

by Brian Willoughby

One of the few features missing from the Ensoniq Performance Sampler is the resonant type of filter found on many analog synths. But, after more than a year of research into the sampler market, I decided that the EPS had the most features in a single package. Recently, a few samplers have appeared which can do resonant digital filtering, although I'm not sure about their level of quality, but it seems that the EPS is limited to the standard low-pass and high-pass digital filters. Or is it?

This article gives an example of how to achieve the effect of filter resonance with the EPS. This method is independent of the sample used, and the patch that is outlined is ready to audition on any EPS.

For those of you who'd like an introduction to resonant filters, I've included a short description. If you are familiar with analog synthesis, then you might want to skip the next section.

Resonant Filters Explained

To understand resonant filters, you need to have an idea about what a normal filter does. A low-pass filter is so named because it allows lower pitched tones to 'pass', or remain audible, while higher tones are 'attenuated' so that you can't hear them as prominently. A high-pass filter has the opposite function of removing low pitches from a sound. There are many possible variations in a general filter as to how much the volume of each pitch is lowered and at what pitch the change starts occurring. The typical analog synth has a low-pass filter which allows input sound to stay at about the same volume until the filter frequency is reached, and then the volume starts to drop off at a particular number of decibels per octave. The

filter frequency can usually be set by various parameters which often include modulation. High-pass filters are less common, but they work similarly.

A resonant filter gives a boost in volume for pitches very close to the filter frequency, just before the volume starts to drop off with a normal filter. The term 'resonant' refers to the way the circuit reacts to that frequency. Just like a large room might resonate at a particular pitch, the filter circuit gives more output at the filter frequency as you turn up the amount of resonance. The big difference is that it is easier to change the filter's resonant frequency than to make a big change in the size of a large room.

Some resonance filters have so much emphasis at the filter frequency that they will oscillate on their own, even without any input. Users of the monophonic, multi-oscillator Moog often used this feature as an extra 'free' oscillator, which allowed a crude pitch envelope effect if the ADSR output were patched to the filter frequency.

The EPS filters

You might want to brush up on the section of your EPS manual which mentions the digital filters to better understand how they can be 'abused'. Ensoniq has devised a fairly flexible system by allowing the four digital filters to have two frequency settings which can be independently modulated. The four filter algorithms allow the choice between two low-pass or one each of low-pass and high-pass. 2 or 3 filters can be assigned to the first frequency, with the remaining filters tracking the second frequency setting.

Since resonant filtering is basically the ability to control how much emphasis is

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placed on pitches around the filter frequency, the effect can be simulated with the combination of a low-pass filter and a band-pass filter. I chose low-pass since the classic Moog filters are multi-pole low-pass filters with resonance. The band-pass filter can be achieved with a low-pass and high-pass filter set to the same frequency, thus eliminating everything above and below the filter frequency and passing the band of pitches which are left in the middle.

The First EPS Patch

I'll bet you didn't think that you would ever see a 'patch' for a sampler, but with the EPS's synthesis capabilities it is possible to create a sound without sampling. Of course, the resonant filter technique is applicable to samples, but I wanted to make sure you heard just what you can do with pure synthesis. Have your quick reference programming sheet handy - any parameter I don't mention should default to the correct value.

First, you will need an empty instrument. Select Command*Instrument and execute CREATE NEW INSTRUMENT, press Layer, execute CREATE NEW LAYER, press Wave and then execute CREATE NEW WAVESAMPLE. You should now hear a very basic, unfiltered square wave.

The EPS allows every layer and wavesample to be named. This is a highly useful, but seldom used, feature. I wish more of the public domain instruments had names for all the wavesamples. If you ever get a computer-based graphic editing system, this could tell a great deal about the instrument. In that light, select Edit*Layer and name the new layer L NAME=LOWPASS LYR.

Now, to cut down on programming time, I'll tell you how to set up the first layer so that all of its parameters can be copied to the next layer. Don't skip ahead to the next layer or else you'll have to set all of these parameters twice!

Select Env2 (filter) and set ENVELOPE=PERCUSSION.

Select Filter and set FILTER=2/LP 2/LP, CUTOFF F1=32 F2=32, ENV2 AMT=+60, F1 MOD=WL+PR * +99, F2 MOD=WL+PR * +99.

Select Env3 (amp) and set HARDVEL(1)=0, TIMES(1)=1, where (1) refers to the first of the five parameters shown. This softens the slightly annoying click that starts each note.

Select Pitch and set BEND RANGE=12 since we are going for a synth type of sound, and most synths have an octave of bend range (many samplers can't do more than 4 half steps, so let's show off a little!). Set LFO AMOUNT=0.0 to allow the mod wheel to change the filter frequency without adding vibrato. Set ROOT KEY=G6 which will enhance the effects of the filter by lowering the pitch of the square wave.

That's it for the first layer. Not much, but hang on.

The second layer is much easier. Select Command*Layer and execute COPY LAYER. Choose PARAMS ONLY, since we want to use the identical wavesample (this goes for any adaptation of resonant filtering to samples, too). Then select Edit*Layer and name the new layer L NAME=BANDPASS LYR

All you need to do to make this layer into a band-pass filter is press Filter and set FILTER=2/LP 2/HP.

You now have resonant filtering on your EPS! PolyKey pressure and/or the modulation wheel raise the filter frequency, which it

set to a slow downward sweep by the PERCUSSION envelope template.

Press Edit and underline INST=UNNAMED LYR=1 WS=1, then press Amp and change WS VOLUME=50 for a more pronounced effect (see the "How this technique works" section).

There's still one more layer left. Select Command*Layer and execute COPY LAYER, PARAMS ONLY. Press Edit*Layer and name this layer L NAME=FEEDBACK OSC.

Before proceeding, verify that you are editing layer 3 by pressing Edit and underlining INST=UNNAMED LYR=3 WS=3.

Select Layer and set PITCH TBL=NO PITCH.

Select Filter and set F1=80, F2=80, ENV2 AMT=+0, F1 MOD=_____ * +0, F2 MOD=_____ * +0.

Select Env3 (amp) and set SOFTVEL CURVE=ON

Select Amp and set WS VOLUME=75

Select Env1 (pitch) and set ENVELOPE=PERCUSSION.

Select Pitch and set ROOT KEY=G1, ENV1 AMOUNT=15.7, BEND RANGE=0, PITCH MOD=WL+PR * +99

The next layer adds a simulated resonant oscillation (again, see "How this technique works" section).

Finally, set up the patch select buttons so you can hear this layer. The Edit*Instrument page should allow you to select which layers are active for the four patch combinations.

00=12 Resonant filter 0*=2 High-pass filter *0=123 Resonant oscillator **=1 Normal Low-pass filter LBF

L, B and F refer to the first letter of the layer name.

How this technique works

Most useful EPS instruments are multi-layered. This sound combines "LowPass Lyr" and "BandPass Lyr" for a boost in volume at the filter frequency. But that is only 50% resonance if the wavesamples are at equal volumes. Changing the "LowPass Lyr" to a WaveSample volume of 50 yields about 75% resonance, since the "BandPass Lyr" is more prominent.

The "Feedback Osc" is a little more complicated, and less impressive. Optimally, the oscillation of a resonant filter should be a pure sine wave. Since I couldn't find an easy way to input a sine wave into the EPS, I just used the digital filters in layer 3 to smooth the square wave out to an approximate sine wave. Then the filter frequency parameters from the first layers are copied to the pitch parameters of layer 3. The keyboard position should have no affect on the resonant frequency, so the Pitch Table is set to No Pitch. The pitch of layer 3 should perfectly track the filter frequency of the other layers, but I had a little difficulty getting the exact settings to make it work. You might be able to tweak the values to get a more convincing effect.

Coming up next time: "Pulse Width Modulation for the EPS" aka "The next best thing to VFX TransWaves." ■

Bio: Brian Willoughby is a Software Design Engineer for Microsoft Corp. in Redmond WA, but has plans to start a company to design digital music hardware with three other fellow NCSU EEs.

Front Panel

RND (♪♪♪)

Not a whole lot of news tidbits this month. VFX coverage is continuing to ramp up. SQ-1 is still in its early stages—but, we may have additional info on it in next month's issue. We have started the patch request section. You'll find it incorporated in Sam's *Hackerpatch* page. We're still doing some tweaking on the *Interface*...

Another new little item that we'd like to present in these pages is a list of active user groups for Ensoniq equipment. If you're involved in one or know of one please send us their name, address, a contact, a phone number, equipment covered, and any special comments, and we'll include it in the list.

TRANSONIQ-NET HELP WITH QUESTIONS

ALL ENSONIQ GEAR - Ensoniq Customer Service. 9:30AM to 6:30PM EST Monday to Friday. 215-647-3930.

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

VFX QUESTIONS - Sam Mims, Syntaur Productions. 818-769-4395. (CA). 10 AM to 11 PM PST.

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

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

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

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

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

MIRAGE 24-HOUR HOTLINE - M.U.G. 212-465-3430.

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

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

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

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

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

MASOS - Pete Wacker. Whenever. (602) 938-0906.

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BACK ISSUES

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



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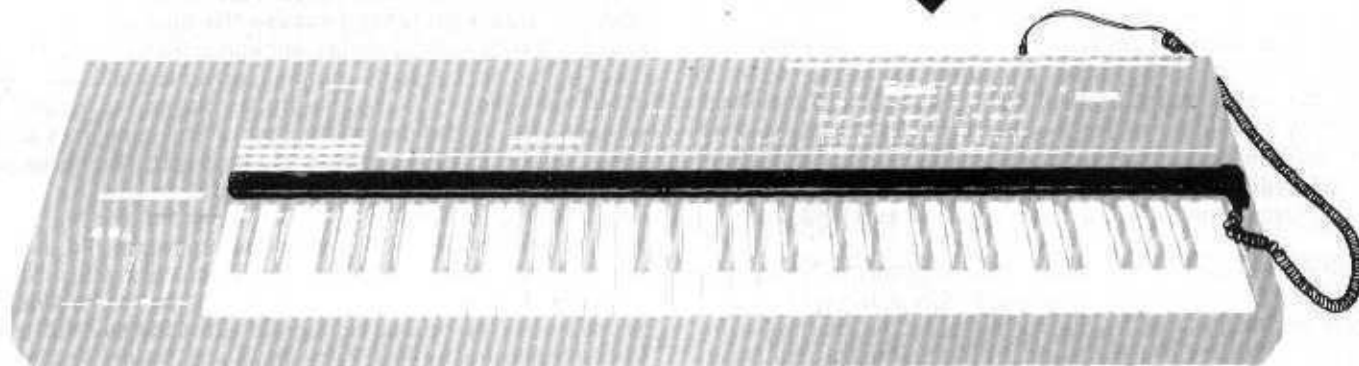
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Back to Bass-ics with the Mirage

by Sam S. Mims

With nearly every piece of contemporary music I do, it seems that I always end up using one of my trusty Mirages to do bass duty. Depending on the piece, I may layer the bass sound with an ESQ patch or something, but many times it's just the Mirage alone. Though it's just an 8-bit machine, the Mirage can really shine when it's time to lay some bass tracks.

For an album of dance music I'm doing with singer Joy Novie, a particular song required a very poppy percussive bass, yet I wanted to get a sound that had its own unique character. So I decided to create a bass sound on the Mirage from something entirely different. It occurred to me that just about any tonal (i.e., non-noise) sound could probably be made into some sort of poppy bass, just by tuning it to the right octave and tweaking the filter envelope. I pulled out a disk, pretty much at random, and tested my theory. In ten minutes, I had the bass for Joy's song. It was poppy, it was percussive, and it was unique.

A bit more testing with factory Ensoniq disks confirmed that there are basses hiding everywhere—you just have to tweak them into shape. And it's a surprisingly simple process, even for one who has never altered a single Mirage parameter. Here's the recipe.

First, load your sound, presumably (but not necessarily) on the lower keyboard half, and make sure (by pressing "0") that the Mirage is set to alter the lower sound—it should flash "L" and either 1 through 4, and if so, press "Cancel." Now, press "67" on the keypad, which allows you to set the octave the sound is playing. Simply press the on/up or off/down buttons until you're in the correct range. (With multisampled sounds, forget about doing this for each sample. Just use the lowest one, and set the top key, parameter 72, to 25 or so.)

Next, set the filter envelope. Enter parameter 40 on the keypad, and set it to 00. Then set parameter 41=31, para 42=08, para 43=00, and para 44=10. You should be getting into the ballpark by this time. What we've done is set up a spike-shaped envelope to control the filter.

For more consistency in the sound, remove any velocity sensitivity from the filter envelope by setting parameters 45 through 49 to 00. Now, adjust the filter itself. Parameter 36 controls the overall cutoff frequency—in other words, the brightness of the sound—and this setting will depend on the sound itself and on your taste. So set it wherever the karma feels right. Then, you might play with the filter resonance, parameter 37. Set to 00, this will give the fattest sound. But with the resonance turned up a bit, you can add that "synthy" flavor that was popular back in the Dark Ages (ca. 1970s).

The amplitude envelope is not nearly as important, but you do want to make sure the attack time, parameter 50, is 00. And while you're at it, set the release time (parameter 54) to 10.

That's pretty much the bass-ics (sorry) of the sound, but there are a couple of other tweaks that you might try. Setting parameters 31 to 15 and 32 to 00 will set the mod wheel up for

a vibrato (31 controls the speed). You can also play with mixing and detuning the oscillators by turning parameter 28 (mix mode) ON, para 35 (Oscillator 2 detune) to 05 or so, and para 34 (oscillator mix) to around 31.

So there you have the recipe, but keep in mind that a couple of other tweaks may be necessary, depending on what sound you start with. It works pretty much as-is on the Acoustic Piano sound of Disk 1, but when I tried it on the Cellos sample on Disk 3, it was a bit funny because the bow scrapes in the sound's attack didn't provide enough punch for a powerful bass. No problem, though—punch in parameter 60, which tells the Mirage where in the sample to start playing the sound, and set this to 20. This chops off the bow scrape, and gives a nice poppy attack. (It also destroys the loop, but who cares. We want a percussive, non-sustaining sound anyway.)

Now be reasonable—this technique isn't going to make a vibraslap sample into a killer bass (I don't think...). You've got to start out with a sound that's got some harmonic content. Bright synth-type sounds work great. But don't be afraid to try something bizarre as well. Terry Lewis and Jimmy Jan turned a car horn into Janet Jackson's "Control" bass (on a Mirage, I might add), so there's no reason you can't be hot on their heels! ■

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Sound Source Unlimited VFX Sounds

Reviewed by Clark Salisbury

For: VFX, VFX-SD.
Product: Performance Voicing Library.
Price: \$69.95 disks; \$129.95 cartridges.
From: Sound Source Unlimited, 20825 1/2 Roscoe Blvd., Canoga Park, Ca. 91306, (818) 882-2574, (800) 877-4778.

This library is a set of 120 sounds and 40 presets (effectively, two entire banks) for the Ensoniq VFX synthesizer. Sounds are also compatible with the VFX-SD, although none of the patches make use of the SD's additional drum waves.

In addition to cartridge or VFX-SD disk, they're available in Mac, IBM, Atari ST, or Yamaha C1 computer disk format. Instructions for loading sounds are clear and concise, although the cautionary note about saving your own data before loading new data may have been more well-placed at the beginning of the instructions rather than at the end.

The sounds themselves seem to be fairly meticulously programmed, including patch selects for all sounds. The timbre control is also put to use on most sounds—more often than not it is used as a filter control, giving you a quick way to make adjustments to the overall brightness of a sound. Oddly, some sounds are programmed without the mod wheel or aftertouch, and sometimes the effect of the mod wheel or timbre control is so subtle as to be almost unnoticeable.

An idiosyncrasy or two crops up in the presets as well. A couple of the presets are layered with cartridge sounds—if you don't have a cartridge inserted there's no point in having the layer, and if you do have a cartridge inserted (other than the SSU) the resulting layer may be something less than musical. I would assume that this is simply an oversight. The other idiosyncrasy is intentional. Each of the presets in bank 'B' are set up as a "live performance patch"—in other words, the three sounds in each of these presets are neither split nor layered with each other. The idea, I assume, is to give you three patches that are related in some way, and then allow you to split or layer them however you'd like. My hunch, though, is that most people would prefer patches that were already set up.

The sounds themselves run the gamut from traditional acoustic instruments through synthesized textures and on into sound effects. The basic programming of the sounds is good, although occasional problems show up in terms of distortion generally as a result of a sound being programmed a bit too loud. Also, one or two of the sounds seem to have been inadvertently programmed with the wrong layers activated—the "GUILD D-50" for example, is almost inaudible, although pressing the patch select buttons brings up a version that sounds fine.

The sounds that I particularly liked tended to be the big analog synth pad-type sounds—synth brass and so on. The acoustic textures (pianos, strings, orchestras, etc.) I did not find as exciting, (although I did like the "RD300 PIANO"—a good, full-sounding piano). While the acoustic sounds are fairly competent recreations, I didn't find much that I hadn't already heard in the Ensoniq library. And some of the sounds are out and out disappointing—the "A. SEGOVIA" patch, for example. This is a sort of ho-hum acoustic steel string guitar sound run through one of the 'chorus + reverb' effects; the last time I checked, Segovia was still using a nylon-string guitar and achieved his tone without the benefit of a chorus pedal.

Which brings me to a nit I'd like to pick for just a moment. A lot of programmers (not just SSU) have taken to naming their synth patches after well-known instruments or musicians. You know, naming a trumpet sound "Miles Davis" and so on. How many "Jaco" bass sounds have you run across? How many actually sounded like Jaco Pastorius' bass? Not that many, I'd guess. To my way of thinking, taking a square wave and adding portamento doesn't warrant naming a patch "ARP 2600"—I know the ARP 2600, I'm friends with the ARP 2600, and believe me—that ain't no ARP 2600. Naming patches in this way seems somehow misleading. Even if it were possible to re-create the precise sound of the legendary Moog filters and oscillators in the VFX (and I don't believe that it is), which of the hundreds of bass patches that that venerable machine could produce is the definitive "Moog Bass" sound? Until you come up with a consensus on that point, I'd be just as happy having my patches called things like "Synth Bass" and "Muted Trumpet." Now will somebody please help me down off this soap box, por favor?

Anyway, the most original sounds I found in the SSU library were the sound effects, which tend to be the outer-space kind of stuff. These are not recognizable sounds, (with the exception of a patch called "OCEAN," which turns out to be not much more than flanged noise), nor are they meant to be. There are at least a dozen of these types of effects with names like "INDUSTRIAL," "POLTERGEIST" and "WORMHOLE." I am not particularly interested in effects, myself, but I know some of you are, and I thought some of these sounds were interesting.

I am well aware that my personal taste in patches may or may not be similar to yours, so in an effort to find something objective to say about these sounds I analyzed a few to see how they were put together. For the most part, the sounds are created in a fairly standard way—select the appropriate wave, do a bit of filtering and enveloping, find an appropriate effect, and there you go. I didn't find any examples of what I would consider advanced programming—novel uses for the modulation mixer, unique effect applications, unusual envelope configurations—nor did any of the choices made in terms of creating the sounds seem to indicate an esoteric approach to programming. Don't get me wrong—for the most part, the SSU sounds are just fine (although the distortion problem bothered me some)—there just wasn't much here that made me sit up and take notice. Still, one man's Mozart may be another man's New Kids On The Block. SSU apparently has a number of dealers around the country, so if you want to give 'em a call on their toll free line, I'm sure they'd be happy to direct you to the nearest dealer. You just might want to head on down and check these sounds out for yourself. ■

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HEY, BUDDY! (Wanna change a battery?)

by the Masked Hacker

Now that the ESQ has celebrated its 4th birthday, it has officially passed into middle age in synth years. This means there may be a few waning RAM batteries and anxious owners out there although my SQ-80's manual does list battery life at six years. My machine is only two years old, but I'm gonna change the battery anyway, just for fun. I can only assume that procedure for the two synths, the ESQ-1 and SQ-80, is similar, if not identical, so come along as I delve into the verboten world of Synthesizer Anatomy.

First off, READ THIS ARTICLE THOROUGHLY. Then, if you have any doubts about your ability to perform this procedure, DON'T! Also, do not misconstrue this as a tutorial article or as encouragement to perform the procedure. I am merely going to document my own experience in changing the RAM battery in an SQ-80 and give some tips to others who may want to do the same. I am a certified technician, and would not endorse any unqualified tinkering with an FCC regulated Class B computing device. I also suspect that if your synth's innards get mangled, Ensoniq may refuse to perform in- or out-of-warranty repairs. One other consideration is cost. I spent \$11.53 on the battery, and saved a 300-mile round trip to the dealer. Get a price on replacement from your dealer, and weigh your own costs against the possible risk of damage if you do decide to try this yourself.

The first order of business was to find an exact replacement battery. An initial examination of the motherboard revealed a yellow 3 volt lithium battery with PCB pins. This was easy. A call to Digi-Key Corporation at 1-800-DIGI-KEY for their part no. P162, a Panasonic BR-2/3AP3P @ \$7.68 ea. (plus shipping and handling) did the trick. (NOTE: A quick check of their current catalog shows a part no. P226. One should call for a catalog, then double check the part number using Panasonic's own number.)

The next caution concerns the battery itself. Lithium batteries are hazardous in several ways. On the cylinder of this particular battery, it says "WARNING: Fire, explosion, leakage, and severe burn hazard. Do not recharge, disassemble, heat above 212 F, incinerate, or expose contents to water." There are three stages where these hazards must be considered—in the removal of the old battery, the insertion of the new one, and the disposal of the removed cell.

It would be easy during the process of desoldering and soldering to inadvertently raise the temperature of the battery above 212 F since a 25W iron can reach 400 F. I would recommend the use of either a low wattage (15W) iron or, if possible, a temperature-controlled iron. A grounded iron is also a good idea when working with delicate circuitry. The use of a heat sink can avoid some of the danger of heat transference during solder/desolder operations. Still, the best insurance is an ability to perform solders quickly which only comes from years of practice. As for the possibility of explosion, wear safety glasses. I have a pitted cornea from a tangle with a vengeful air-conditioner and therefore am not averse to looking goofy anymore.

Regarding the disposal of the used battery, hmmm... I am sure that the designers and manufacturers that implement lithium in their products are giving consideration to the consequences of a couple of tons of hazardous materials floating around in their products. If a factory-authorized service center changes a battery, no doubt the discharged cell is returned to the factory for proper and documented disposal. If everyone were to toss their used lithium batteries in the trash, it would certainly add measurably to this planet's already considerable toxic waste woes. In light of this, give your actions regarding disposal careful consideration.

Have I taken all the fun out of it yet? No? Okay, on to the machine itself.

Save banks and sequences—check! Remove disks and unplug all cords—check! Grab your Torx screwdriver—what?! Surely, you don't mean to say you have never looked inside your synth? If not, it takes the removal of four Torx screws on the front panel to open the synth. I had some difficulty getting the hinged cover to pop open, which turned out to be because of the way the four threaded-insert carrier tabs fit into their respective slots on the lid. Gimme the file!

All the good stuff is tucked under the zinc-plated RFI shield on the right. Touch it. Frequent grounding is a good habit (or use other ESD precautions). Study the plugs on the wiring harness that engage through the shield, and slip a small flat-bladed screwdriver down the side of the plugs to disengage the locking lip. I unplugged one large white 9-wire plug and two small brown 4-wire plugs. Next, unscrew the ribbon cable from the cartridge port on the lid. Upon examination of the shield, I found four silver self-tapping screws and two short black screws holding it in place (there seemed to be one empty hole for a screw). Upon their removal, the shield slipped out easily. The cable stays can be squeezed with a pair of needlenose pliers from the underside of the shield, and pushed out to free the wiring harness from the shield.

Therein lies the battery! Note the polarization of the cell. On my synth, the negative end of the battery (-) was to the left, adjacent to the "B1" marking on the printed circuit board. The easiest way to avoid multiple (and possibly incrementally damaging) solder operations is simply to snip the leads off the battery, starting with the negative terminal. Use of wirecutters that slice through a cut instead of diagonal cutters that cut by compression is wise. I left enough of the component leads showing to grab hold of when desoldering.

I still had to desolder the cut pins from the board, but I breathed a little easier with the battery gone. A simple rubber-bulb-suction-desoldering-thingamajig and a hat pin cleaned out the PCB holes, readying them for insertion of the new battery. The less heating of the solder pads on the circuit board that takes place, the better. Excessive heating can cause the copper pads to pull away from both the board and the hole plate-through. If this were to happen, you would be

facing major electronic surgery.

The new battery should be prepped for insertion by cutting the leads to a length of no less than 1/4" measuring out from the edge of the battery cylinder. Take some care not to short the leads together, either with a tool or by touching both leads simultaneously. The leads should be pulled out slightly along the axis of the cylinder to match up with the spread of the holes on the circuit board. Set the battery in place, observing proper orientation and polarization (that means to put it in facing the right way, Gomer!) At this point, there is no way to avoid soldering. I used a pair of surgical hemostats clamped on the battery's pins between the solder joint and the battery itself as a heat sink, donned safety glasses, and, heart racing, applied heat. A split second of heat and a wisp of vapor should be all that's necessary. If it takes several seconds and voluminous clouds of sulphurous smoke for you to solder a joint, better forget it. After each pin is soldered, the joint should feel cool to the touch almost immediately.

That's it! Simply reverse all steps to reassemble the machine, and fire it up. I held my breath as I flipped the power switch, but encountered no problems upon initialization. I even fooled around with the factory presets, which it automatically loaded, for the first time since I purchased the unit. They still stink!

Hi, ho, Ensoniq—awaaaay! ■

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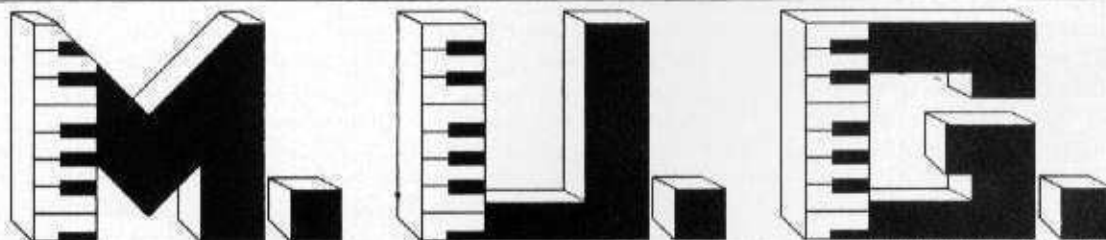
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The Sampling Sessions – Part I

Bowed Strings

Barry Carson

Not long after getting my new EPS (about 8 minutes), I decided it was about time to sample some of my favorite instrumental sounds into it. I listened real closely to the digital recordings I had made a number of years ago of various odd and unusual acoustic instruments that were popular between six and three hundred years ago. I had used these recordings to make samples for the Ensoniq Mirage as well as the Prophet and Roland samplers. I realized that, with the improved technology of the newer sampling instruments, the improved equipment around my studio (better microphones, better mixer etc.), and the improvement of my own sampling skills, I would be better off just bringing these ancient instruments back into the studio to make all new samples. Since I have had people ask me about sampling acoustic instruments, and I figured this would be the sort of thing the Hacker would eat up with a big spoon, I took notes throughout the process to keep track of any sampling tricks and procedures that Mirage or EPS users could make use of. In this first installment, I'll explore bowed stringed instruments—how they work and how I went about sampling them. I am going to try to address techniques used on both the Mirage and the EPS. I will try to make it clear which instrument's parameters I am talking about at any given time. A good rule of thumb would be that if you use an EPS and you have no idea what on earth I'm talking about, I'm probably discussing Mirage parameters and the same would hold true the other way around. If none of it makes any sense, you're probably a DX-9 user who has mistaken this copy of the *Transoniq Hacker* for the latest issue of *Aftertouch*. [Ed.—Not too likely.]

The bowed instruments I spent most of my time with were old, rare things like Viols or Rebecs that most sampling type people wouldn't have access to (and probably wouldn't want access to). These instruments, however, work on the same principles that make a violin or viola or 'cello work.

If you take a close look at an acoustic stringed instrument, you'll see it only has a few main ingredients. Wood is one of them. The strings on old bowed instruments are made from gut and are set in motion by a bow. A bow is a stick. They used to be convex, now they are concave (that's one reason violins are louder than they used to be). This stick is strung with horse hair that comes, I assume, from a horse. Since this horse hair isn't sticky enough by itself to grab on the strings, rosin is rubbed on the bow. Rosin, as near as I can tell, is some kind of resin made from distilling crude turpentine. That's about it except for the air. That's right, a bowed instrument is filled with air (that's one of the differences between one of Stradivari's violins and one of Leo Fender's Telecasters). No one is really sure how important the quality of the air that carries the sound waves is. We want to take our digital, computerized, flawless, logical, silicon powered sampling instrument and make it sound like something made of wood? and turpentine resin? horse hair? pig and/or sheep guts? air? Right! The catch is, of course, that the sound of a bowed instrument is full of (what a computer would call) flaws, glitches and imperfections. That is because, if you really look at it, a violin or 'cello or viol or whatever is made

of some pretty odd, quirky stuff. To a human being, though, that point is moot because, to our ears, a viola, or whatever, sounds great. And now we want to capture that great sound on a 3.5" disk, but we have to be careful because those wonderful sounding flaws and imperfections aren't going to sit well with our EPS or Mirage.

Since we will be multi-sampling notes across the keyboard to create a realistic facsimile of a viol (or whatever) that we can play from our sampler, let's just listen to one note and see what we can hear. At the beginning of the sound you should notice a scratchy noise as the rosin bites into the string. That's good because this can help make a convincing sample. Be aware, however, that this noise will be transposed up and down with the note that follows it. Something that sounds astoundingly real at the root key may sound utterly ridiculous three or four keys higher. One helpful hint is to let velocity control the amp envelope so that it is possible to really bring this attack noise in with harder playing and make it less noticeable with softer playing—just what would happen if you were using a bow on a string! A Mirage user would go to parameter 55, the 'amplitude attack velocity sensitivity' and adjust it so the rosined bow attack can be brought in at a comfortable key velocity. On the EPS, one would go to the edit mode then to the page for envelope three; shift over to the 'attack time velocity' and do the same thing.

Listen to the sustained note after the attack. Don't use vibrato and listen for that flawlessly in tune pure tone. Hear it? Probably not. Although this is more of a problem with the more loosely strung viols, it still shows up to plague samplers of any bowed instrument. The pitch and volume of the note can vary because of all kinds of things—bow pressure or speed or velocity, the length and tension of the string (remember, the rosin on the bow actually pulls the string as far as it can, the string then pulls loose and starts vibrating). 'So what?' you ask. 'This has been happening for hundreds of years and no one has walked out of a string quartet concert because of it yet', you point out. Right you are, but you have to do something with this sound that none of them even thought of. You have to take this tiny little snip of sound and loop it so it lasts as long as you hold down the key of your sampler. In the real world, these notes would settle down to a nice stable pitch eventually or the player would move on to something else, but we aren't in the real world. We are in Q-chip city (or whatever they call the thing in the EPS). We are in a place where a one second chunk of sound is considered pretty long. The best advice I can give for this one is to practice listening to the first second or so of a bowed instrument note and deciding whether or not it is loopable. The best way to find out if you are right or not is, of course, to try looping the thing. After a little practice, you will be amazed at how sensitive your ears will become; you will be able to pick out the slightest change in pitch or volume that will make a sampled note difficult to sample.

I would suggest two routes here depending on the instrument of your choice. Unless you have a visual editing system

for the Mirage, I would stick to a short loop. The Mirage gives you no help at all in creating long loops, and, when given a note of the proper pitch, the Mirage short loops sound pretty great. I've gone into depth on creating perfect short loops on the Mirage in other Hacker articles. The key is to get the sampled note perfectly in tune with what the Mirage expects the note to be. My favorite technique is to do this with another sampling instrument; playing the sampled note back this way gives you complete fine tuning control over its pitch. This would have to be better than the recommended technique of using a variable speed tape recorder that would add all kinds of tape noise and drive you nuts by making you rewind and play a two second violin note twenty times in a row. Using the EPS, on the other hand, I would definitely go with a long loop. You have more memory to play with for one thing, and the shorter your samples, the harder it will be to get any kind of usable long loop. An EPS user intent on cramming as many instruments as is possible into his machine may well want to forgo the realism of long loops and make them as short as he can in order to save every valuable block of memory. The Mirage or EPS user who opts for the short loop may chuckle to himself and figure that if he is using a short loop, keeping the original sample perfectly in tune is something that he doesn't have to worry about. Not necessarily so. If you have a 'cello note that wobbles all over the place (the pitch or volume wobbles at least) and then this freezes into a perfect short loop with no pitch or volume variation, the end effect will be undoubtedly odd. Not only will a note like this be almost impossible to tune to anything else, a chord played using this sample spread over a part of the keyboard will include the wobbling at all different speeds. The effect will be undoubtedly un-'cello like.

At the mention of notes that are difficult to loop, on the other hand, the EPS user only grins and reached for the button to create a synthesized-crossfade-bowtie-bidirectional masterpiece, right? Wrong. On a sampling instrument with a million and one kinds of loops, for a sound like a single bowed instrument, a simple forward loop sounds best. With the automatic zero crossing search that is built in, finding a forward loop on a well played sample is easy. The key is that the sample must be well played. To depend on the technological abilities of your sampler to clean up a poorly played note is to simply cheat yourself out of a better sounding sample. While it is true that all the fancy looping parameters in the EPS can eliminate most of the bumps and bings and boings from any sample that wanders from one pitch to another, the price you pay is an unnatural sounding sample with, at least, a chorused sound or, at worst, a buzzing electronic sound.

The trick is to train your ear to detect the slightest variation in pitch and volume in that one second, sustained note. If you've actually gone through the effort of getting a string player to work with you on your sampling project, you might as well get the thing right. It might take a dozen or two tries before that clear, perfectly in tune note comes floating out at the same volume from beginning to end, but the second you start loop searching and natural sounding loops all over the place, it will be worth it. This is the point at which the EPS user can become a memory miser with clear conscience. A good, clean long forward loop can usually be shortened somewhat with little or no audible effect. You can try sliding the loop end back closer to the loop start or use the 'loop position' parameter to move the whole loop closer to the beginning of the sample. The only thing to watch out for with

this parameter is getting the loop start too close to the attack portion of the sample. If this happens, part of the scratchy rosin attack will become the beginning of the loop and it will make a very noticeable glitch every time it cycles around.

Don't forget that moving the loop end up does not automatically move up the sample end to the end of the loop and moving the sample end up does not return the unused memory for further use in the EPS; you must use the 'truncate wavesample' command to do this. In the good old days with other samplers it really didn't matter if some unused memory was floating around, but with the EPS's multi-timbral capabilities and sequencer memory dependent on what's left over after you load in your voice data, it's a shame to find memory wasted on sample data that is never heard.

What else should you listen for? Anything odd. I've come across things like these: a bow with a tiny imperfection a few inches in from the end of the horse hair. The note would start; after the attack it would slip into a nice sounding, sustained tone and then a little glitch would pop out. You'd never notice it in the course of a song played with that bow, but when you would loop the bloody thing you would hear that little glitch every half second or so. I remember a gut viol string that would start with a nice but thin sound, after about a half of a second it seemed to 'warm up' and the tone would get much louder and fuller. Nothing wrong with that unless you tried to loop the thing, then you would get the build up from thin to full, then it would jump right to thin, or, if you used a bidirectional loop, it would just slide back and forth between the two all day. Of course, you could crossfade the daylights out of the thing and make it sound usable, but to get a more musical end result, I think it would be worth changing a string or even getting another bow or instrument if possible. It's well worth noting that, the more you manipulate the sound data, the less realistic the sample will sound. Looping a sample of a huge vocal and string section singing and playing a fifth apart may well require some heavy handed digital manipulation, and when looping a sample of your favorite synthesizer stack, realism may not be your primary concern. When you are dealing with single notes from an acoustic instrument however, I would say the best bet would be to keep recording the same note over again until it is loopable using a simple, forward loop.

To finish this installment, here comes two cents concerning the tape recorder controversy. Should the sounds to be sampled first be recorded on a tape recorder? My answer to this is no. I realize that this opinion goes contrary to what most sampling people say, but here are my reasons. First of all, a sampled sound is not an exact reproduction of anything. It is a binary approximation of the sound that was recorded. Likewise, an analog tape recording of a sound is not an exact reproduction; it also is a facsimile. To tape a sound and then sample it is to make an approximation of a facsimile. You have already placed your sound two steps away from reality. Second, even the best tape recorder adds its own noise to whatever sound you have recorded on it and on top of that the magnetic tape itself adds noise. Third, it isn't much more difficult to record directly into your sampling instrument than a tape recorder. The first two problems I mentioned may not make a big difference in your final sample, but why go through the extra step? Even if I were going off to a church, for example, to sample its organ, my best tape recorder weighs close to as much as my EPS or Mirage. If someone were coming in to play the violin, it would

make just as much sense to have him or her play twenty notes into the sampling instrument as to play the same notes into a tape recorder. The only drawback would be that you would have to decide on the spot whether or not to use each individual sample, but a quick listen and loop search should let you know if you want to keep it or dump it. This is, of course, just my opinion and, who knows? with the advent of readily accessible, affordable digital tape recorders, it may well change!

In the next installment we will get into bells and whistles, and the sampling thereof. ■

Bio: Barry Carson got his introduction to electronic keyboards by playing Temptations and Sam and Dave songs on a Nomad 49B combo organ. He now teaches English Literature, writes fiction, and composes experimental music. His goal is to join the Fantastic Four.

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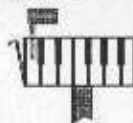
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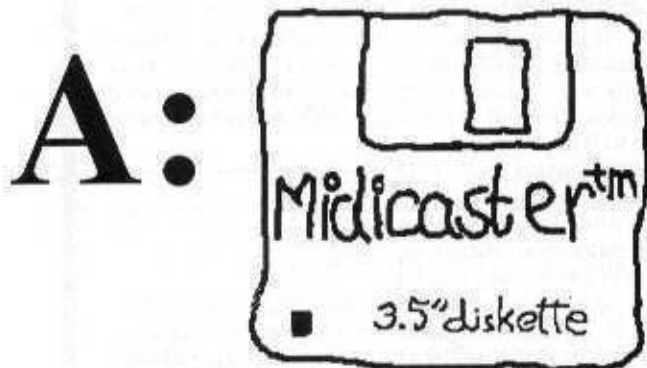
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The Riddle of the Phoenix

Reviewed by Michael D. Mortilla

For: EPS.
Product: SQ-80 Sounds for the EPS.
Price: ?
From: Phoenix Audio (somewhere in South Africa).

For the reader who said my preview of EZE was lame, try this on your piano! You're sent a disk to review from the other side of the world. No price, no address, no contact info. It would be easy to ignore except for one fact: the disk is great! Imagine! 20 SQ-80 sounds on one EPS disk! We are talking memory efficient here. The biggest sound uses 220 blocks, the smallest, just 17. Most of them load in a flash, and these "resynthesized" sounds not only sound better than the original SQ-80 sounds, but you have all the great features of the EPS as well (patch selects, 20 voices and the rest). All your favorite factory sounds: FLOON, CALIOPE, HAUNT, HUSH, LIPS, TRIBEL, etc. Not only that, but several demo sequences to demonstrate them as well ("DEMO" sequences by ENSONIQ" according to the disk).

Well, if you want an EPSQ-80 (sounds more like a printer to me) you have to go order one right now. That's what you think. Well friends, we can't tell you where to get one! We've been told that a well known sound vendor in the US will handle this disk but calls from this reviewer and from the Hacker office have gone unanswered. It's enough to make you crazy.

I won't pretend to offer a price for this disk because I don't know the actual work that went into it (it is very well done), but I will tell you that if it is reasonably priced, and if you need standard SQ-80 sounds, then this disk is for you. Frankly, I don't know what trade constraints and other pressures come into play regarding the import of this type of product from South Africa, but when it does become available, it will have been well worth the wait. I can't wait for more.

[Ed.—The creator of these sounds (W. R. Pont) can be reached directly at P.O. Box 68950, Bryanston 2021, South Africa.

If you'd like to see a U.S.-based vendor carry these sounds, you might call up someone like, oh say, Livewire or Cesium, and express your interest.] ■

Bio: Michael Mortilla composes for film, theatre and dance and owns MIDI-Life Crisis Publishing (BMI). His music is performed worldwide. He is currently the Senior Musician/Resident Composer for U of CA, Santa Barbara in the Department of Dramatic Art, where he is also a Lecturer. He plays piano, guitar, percussion and is largely self-taught.

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Achieving Arpeggiator-like Effects with an SQ-80 and an HR-16

by John Bolles

A very popular synth effect is the pulsating repetition of single notes, as heard on Van Halen's *Why Can't This Be Love?*. This effect was achieved through the use of an arpeggiator. As far as I know, there is no way to automatically achieve this effect with an SQ-80 alone. If you want to get this machine-like repetitious effect, it is necessary to enter each note and probably quantize as a final touch. Using this method, there are bound to be some differences from note to note in velocity and duration, unless you eliminate all such possibilities by altering the patch itself.

Another way to achieve the arpeggiator-like repetition effect is by incorporating a drum machine which has a "FILL" feature such as the Alesis HR-16. This article will show you how to achieve this effect and how to then store the "arpeggiator" data in the SQ-80 sequencer memory.

The overall scheme goes like this: First the arpeggiator part is written into the HR-16 as a pattern, with the HR-16 triggering specified notes on the SQ-80. Then the data is transferred onto an SQ-80 sequence track.

To record the arpeggiator part, do the following:

1. Connect the SQ-80 lines out to an operational amplifier; don't connect the HR-16.
2. Connect MIDI OUT of the HR-16 to MIDI IN of the SQ-80.
3. Go to the MIDI/UTIL page of the HR-16 and set Parameter 1, SET MIDI CHANNEL, to any number or OMNI.
4. Go to the MIDI page of the SQ-80 and set MODE to OMNI. Leave base channel on 01.
5. Go back to MIDI/UTIL of the HR-16 and make sure Parameter 3, TRANSMIT MIDI DRUM NOTES, is ON.
6. The HR-16 pads should now be capable of triggering notes on the SQ-80. Hit a few pads to check it out. If the sound you hear is low and indistinct, try another patch.
7. If everything is working, now is the time to make your note assignments. Go back to MIDI/UTIL on the HR-16, Parameter 4, SET MIDI NOTE. Hit each pad individually and use the increment and decrement buttons to set the MIDI note numbers.

Naturally, what note assignments you make will depend on what you are going to be playing and the range of the patch you will be using. You can hear the notes as you hit the pads, so you will know basically how the end result will sound. There are enough pads on the HR-16 to get a full chromatic scale with a few notes left over. So far, I have used a C scale going from C2 to C3, and thrown in a C1, F1, and G1 for accents. It is advisable to use a patch with a lot of punch. Sawtooth-based synth patches are commonly used, although I have also used harp patches with nice results. A patch with pan modulation also produces interesting effects.

8. Writing the arpeggiator part is easy, provided you know what you intend to play! Naturally, you have to consider

tempo. You will also want to set the length of the pattern; however, if it will be a repeated pattern you need only do it once (more about that later). Most importantly, you must establish the note value of the repeated notes, since you will be using the HR-16's FILL feature, which gets its cues from the quantize value. Let's stick with the default values of Tempo at 120, Pattern Length at 008 beats, and Quantize Value at 1/16 note.

Press RECORD and PLAY on the HR-16. The metronome will start and the pattern will loop. Whenever you're ready, press FILL, then hit and hold the appropriate note pad for the desired duration. 1/16 notes will sound repeatedly as long as the pad is held down. Volume of all notes is determined by the velocity of the first strike. If you want a totally machine-like sound with no velocity variations between parts, you can set HR-16 MIDI/UTIL Parameter 13, PAD DYNAMICS, to one of the eight fixed-volume levels. I go for LOUD RESPONSE and just hit the pads as hard as I can.

To write arpeggiator parts with multiple notes and note values just change the quantize value and hit different pads. Note quantity, at this point, must be limited to eight notes at a time, given the SQ-80's limitation.

With the arpeggiator part written to your satisfaction, this data can now be transferred from the HR-16 to a track of an SQ-80 sequence. Moving the data over in this way will free up your drum machine to be a drum machine again, and will permit a lot more tinkering with the data, such as MIDI channel and program assignment changes, transposing, editing, etc. Having the SQ-80 as the central data source will also facilitate the addition of complementary parts.

To transfer the data, do the following:

1. Connect the MIDI OUT of the SQ-80 to the MIDI IN of the HR-16. The MIDI OUT of the HR-16 remains connected to the MIDI IN of the SQ-80, forming a loop.
2. On the SQ-80's CONTROL page, make sure SYNC is set to INTERNAL and COUNTOFF = NONE.
3. Create a new SQ-80 sequence with the appropriate time signature. Go to the TRACKS SELECT page and select any sequence track. Tempo should match that of the HR-16, although it does not have to. All MIX-MIDI subpages will go the default settings, and program number will be that of the selected patch.
4. Here's what's going to happen: you will start recording the sequence from the SQ-80. Just press RECORD and PLAY as usual. The SQ-80's clock will start the HR-16 playing, and the HR-16 data will be sent to the SQ-80 and recorded onto the selected sequence track.

Remember the part about the repeated pattern only needing to be done once? Here's why: when recording the first track of an SQ-80 sequence, the length of the sequence is determined by how long you play. Therefore, if your arpeggiator part is

two bars long, but you want the total sequence length to be eight bars long, you just let the thing play four times. When you're done, hit STOP on the SQ-80, and you're there. Press the soft button to KEEP FIRST TRACK (no need to quantize this one!).

Completely disconnect MIDI lines to and from the HR-16 and go back into the SQ-80. On the MIDI page, set MODE to MULTI. Press PLAY and you will hear the arpeggiator part, now originating from the SQ-80 sequence track, played by the selected patch.

For more variations, try using the arpeggiator track to trigger an outboard module or multiple modules. To do a nice 12-bar

blues riff ala "Boy From New York City" (Manhattan Transfer's version), copy a two-bar arpeggiator pattern in triplets to two other locations (for a total of three), then transpose one copy up a fourth and the other copy up a fifth. This will give you a nice 1-4-5 arpeggiator line. ■

Bio: John Bolles was the original lead guitarist with the contemporary Christian rock group Glad. After that, he did session work in Nashville for a year and a half. Now, nine years and three kids later, he works as a Regulatory Affairs Manager with a medical device company and performs music part-time in private and public venues with his wife, electric guitar, and aforementioned MIDI gear.

Cesium VFX Sounds

Reviewed by Erick Hailstone

For: VFX, VFX-SD
Product: VFX Voice Library, Volume 1.
Price: Quantity discount on multiple volumes. EPROM, \$55; VFX-SD Disk, \$40; Patchloader disk Atari, MAC, or IBM comp., \$45.
From: Cesium Sound, 1442A Walnut St. #300, Berkeley, CA 94709.
(415) 548-6193

These Cesium VFX sounds come with three pages of notes giving a brief description of each sound and its patch selects. The descriptions are brief but accurate and, by indicating the number of voices in use, you know how many keys can be played at any one time.

Cesium's sounds are well done without glitches or anything obviously overlooked. Mod wheels and aftertouch are programmed in useful ways and are only left out when appropriate. On most sounds the timbre slider is programmed to control the hi-pass filter allowing you to remove lower frequencies.

About half of the sixty sounds fall into the synthesized category including breathy sounds, synth pads, and some familiar (and not so familiar) synth sounds. The rest of the collection falls into the following categories: strings (7), pianos (5), percussion/synth (8), voices (1), guitar/strings (7), basses (2), orchestral (4), special (1).

The following are my favorites from the each of the categories.

Synth Sounds

CRYSTA: Beautiful synth pad. Uses the vocal transwave and eight voice chorus to create lots of motion and depth.

WYSTERIA: mellow synth pad with swirling metallic harmonics.

TEMP: The initial attack is metallic and breathy at the same time with an underlying analog sound followed by a repeating pattern.

Strings

MARTELATO: A string ensemble with bowed tremolo. This

sound is very dramatic with a lot of impact. The third patch select adds a pizzicato attack which sounds great.

Pianos

WOODPIANO: This is a VERY mellow piano with a light vibrato and some pretty upper harmonics in the initial attack.

Percussion/Synth

CHARMING: The bell attack is created with the Doorbell waveform - lovely harmonics with a second voice used as a soft synth pad underneath.

Guitar/Strings

DESERTGUITAR. One of my overall favorites. A Strat sound that sustains with a light vibrato. Sounds much better than my description.

Bass

RIGHT: Electric bass with a funk/pop attack. This sound is mellow than most and the patch selects are all good.

Orchestral

FRENCH: A truly GREAT sounding French horn with very useful patch selects.

I have no major complaints with this collection of sounds. I would like to have heard a few more traditional instruments and a few more transwave sounds (sounds that change radically over a period of time) but I'm sure hard work is occurring even as we speak on their next volume(s) of sounds. ■

Bio: Erick Hailstone is a partner in The MIDI Connection - a Portland based consulting company. He studied composition at Berklee College of Music in Boston.

Classifieds

USER GROUPS

The Hacker is compiling a list of Ensoniq user groups. If your group would like to be included, please send us your group name, address, contact, phone number, instruments covered, and any additional info you feel is pertinent.

SAMPLES

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Is there anybody out there who would like to trade an IBM, MAC or Atari computer for access to a MONSTER EPS PD sample collection? Contact George, 714-792-5801. Leave message.

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VFX Hackerpatch

VFX Prog: FESTIVAL

FESTIVAL began as a flute sound with a metallic attack; I needed a flute that would really cut through a rock band, and this one seems to do it. Because the usable range left a lot of space on the bottom end of the keyboard, I threw in a tambourine and a handbell sound, with some festival from the Middle Ages in mind. I took a string patch as well, and used that as a patch select. Other patch selects

By: Sam S. Mims, Syntaur Productions

remove the flute attack, and layer the flute and strings. The strings are routed to the FX2 bus for reverb only, while the woodflute is routed to FX1 for reverb and chorus.

WAVES	1	2	3	4	5	6
Wave	Tamornine	Innarm-X	Anvll-LP	Woodflute	Strings	Chiffiute
Wave Class	Drum-snd	Trans	Inharm	Breath	String	Breath
Delay	006	000	000	000	001	010
Start	00	00		00	44	00
Vel Start	+00	LFO		+00	-58	+00
Direction	Forward	+00		Forward	Forward	Forward

MOD MIXER	1	2	3	4	5	6
SRC-1		Press		Press		Press
SRC-2		Veloc		Veloc		Veloc
SRC-2 Scale		0.8		0.8		0.8
Shape		Laterise		Laterise		Laterise

PITCH	1	2	3	4	5	6
Octave	+0	+1	+0	-1	+0	+0
Semitone	+10	+08	+07	+00	+00	+00
Fine	-02	+06	+00	+00	+00	+09
Pitch Table	System	System	System	System	System	System

PITCH MODS	1	2	3	4	5	6
MODSRC	Keybd	Off	Off	Wheel	Off	Wheel
MODAMT	-99	-	-	-08	-	+08
Glide	None	None	None	None	None	None
ENV1	+00	+00	+00	+00	+00	+00
LFO1+00	+00	+00	+00	+02	+00	+01

FILTER 1	1	2	3	4	5	6
Mode	LP2	LP3	LP3	LP2	LP3	LP3
Cutoff	127	043	003	057	071	084
KBD	+00	+21	+00	+22	+04	+22
MODSRC	OFF	OFF	OFF	LFO	VEL	LFO
MODAMT	-	-	-	+16	+63	+15
ENV2	+99	+99	+99	+99	+75	+99

FILTER 2	1	2	3	4	5	6
Mode	HP2	HP1	HP1	HP2	HP1	HP1
Cutoff	127	060	000	000	003	043
KBD	+00	+14	+06	+00	+99	+00
MODSRC	TIM	TIM	TIM	TIM	TIM	TIM
MODAMT	+21	+40	+86	+86	+64	+86
ENV2	+44	+62	+42	+00	+00	+49

OUTPUT	1	2	3	4	5	6
VOL	95	86	80	95	95	91
MODSRC	OFF	OFF	OFF	LFO	OFF	LFO
MODAMT	-	-	-	+07	-	+07
KBD Scale	ZON	ZON	ZON	ZON	+00	ZON
LO/Hi Key	A0/B2	C3/B3	C4/C8	C4/C8	-	C4/C8
Dest Bus	FX2	FX1	FX2	FX1	FX2	FX2
Pan	50	50	50	50	50	50
MODSRC	OFF	LFO	OFF	LFO	KEYBD	LFO
MODAMT	-	+40	-	+14	+40	-40
Pre-Gain	OFF	OFF	OFF	OFF	OFF	OFF
Voices Prior	MED	MED	MED	MED	MED	MED
Vel Thresh	+000	+000	+000	+000	+000	+000

LFO	1	2	3	4	5	6
Rate		18		29		30
MODSRC		Mixer		Mixer		Mixer
MODAMT		+18		+18		+18
Level		99		10		08
MODSRC		Mixer		Mixer		Mixer
Delay		44		32		52
Waveshape		Sine		Sine		Sine
Restart		ON		ON		ON
Noise SRC RT		00		00		00

SELECT VOICE

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

ENV1

	1	2	3	4	5	6
Initial						
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	2	3	4	5	6
Initial	00	99	99	36	99	99
Peak	99	99	99	62	99	99
Break 1	86	56	77	29	59	29
Break 2	58	17	47	12	50	11
Sustain	58	01	47	09	33	16
Attack	10	00	00	00	00	00
Decay 1	30	00	28	37	66	41
Decay 2	41	34	34	46	58	49
Decay 3	33	65	52	00	72	00
Release	22*	19	27*	20*	52	20*
KBD Track	+00	+29	+10	+00	+00	+00
Vel Curve	CC2	CC2	CV2	CV2	CV1	CV2
Mode	NOR	NOR	NOR	NOR	NOR	NOR
Vel-Level	69	31	31	99	35	99
Vel-Attack	57	99	99	00	00	00

ENV3

	1	2	3	4	5	6
Initial	45	99	99	90	70	90
Peak	99	99	99	99	93	99
Break 1	73	99	81	86	99	83
Break 2	76	86	84	79	94	73
Sustain	78	00	76	83	99	79
Attack	03	00	00	00	29	00
Decay 1	50	13	04	44	42	44
Decay 2	32	44	26	47	48	47
Decay 3	36	74	27	50	57	50
Release	41*	28*	27*	14*	39*	14*
KBD Track	+00	+00	+10	+18	+00	+18
Vel Curve	CV1	QR	CV1	QR	QR	QR
Mode	NOR	NOR	NOR	NOR	NOR	NOR
Vel-Level	00	22	28	23	12	23
Vel-Attack	05	10	99	99	28	99

PGM CONTROL

Pitch Table	OFF
Bend Range	**
Delay	X1
Restrike	12
Glide Time	07

EFFECTS (1)

Effect	CHR+REV1
Decay	65
FX1	62
FX2	43

EFFECTS (2)

Chr Rate	18
Depth	24
Delay	020
Mod	+00
Mod	+08
Mix	50

EFFECTS (3)

Waveshape	Sine
Modscr	Velocity
HF Cut	Off

PERFORMANCE

Timbre	00
Release	00

Hackerpatch

By Sam Mims

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

ESQ Patch: DSTORT

by Tim Edwards, Durham, NC

This is an imitation electric guitar with a distortion box on. The distortion is produced by LFO 1 acting on OSC 3. The guitar sound itself is produced by syncing the NOISE 2 wave with OSC 1. This is a method which produces a great variety of sharp, metallic sounds. Changing the tuning of OSC 2 will change the timbre of the sound completely. Unfortunately, this same syncing effect also prevents the pitch bend from sounding very good. The pedal is optional, but gives the sound a brighter tone. If you don't have an operating system that will allow you to raise OSC 2 to OCT=+4, then look for a timbre that you like in a lower range.

The Hack. Tim's DSTORT is probably the closest ESQ imitation of a distorted electric guitar that I've heard. Unfortunately, as he points out, the patch does not lend itself to pitch bending—an important ingredient in guitar emulation. The reason is that since OSC 2 is synced to OSC 1, changing the frequency of OSC 1 (via bending) changes the waveform of OSC 2 in a multitude of discrete steps, creating noticeable "blips" between each of these steps. The only way around this is to turn off the sound of OSC 2 (on the DCA 2 page, set OUTPUT=OFF), thus sacrificing much of the sound's timbre.

I had great success piping this patch through my DSP128, adding a chorus, delay, and medium room reverb to it. Even with DCA 2 switched off, it gave a great metal guitar sound—bends and all; with DCA 2 on, the sound was even bigger, and would make even Jan Hammer proud.

ESQ Patch: DSTORT

by Bill Seath, Minneapolis, MN

Here, I tried to distort the machine's output, which I now consider impossible for all practical purposes of synth abuse. In the process, I explored the BASS waveform, and fell in love with this patch. LFOs 1 and 3 are used to scale down the PEDAL parameter.

The Hack. Bill's patch is similar to the above in name only; it has more of a clavinet-ish or bass quality to it. His assessment is true—despite the ESQ manual's warning, it's darned near impossible to hear any distortion in this machine by running the DCAs too hot. To illustrate, go into this patch and turn the DEPTH of every DCA modulator to 00—I couldn't hear a bit of difference in the sound.

Regardless, this is a nice patch, and it is somewhat guitar-like, if effected as mentioned above and played in the correct manner; you'll get more of a clean rhythm sound, rather than a crunchy metal pounder.

To fatten things up a bit, Bill programmed the pedal to add a nice detuning (pseudo-chorusing) via the non-oscillating Low

Frequency Oscillators 1 and 3. Very nice touch. If you ain't got no CV pedal, turn MOD 2 of the FILTER to OFF, and change the PEDAL settings to WHEEL.

ESQ Patch: STEEL3

by Charles R. Fischer, Mescal Music

This patch uses techniques described in my article "Imitating Digital Synthesizers" in the February '88 Transoniq Hacker. Oscillator 1 creates the sine wave fundamental, while OSCs 2 and 3 generate the unusual overtones that make the steel drum so lively. A little bit of KBD2 "stretches" the tuning of the overtones so that they get sharper as notes are played up the keyboard. For the most realistic results, play no more than two notes at a time, and be sure to roll those long notes!

The Hack. While this isn't the most convincing steel drum sound I've come across, it is an interesting patch that strikes me as a steel drum-marimba crossbreed. To get closer to the real thing, I played with the waveform of OSC 2, deciding BELL was too bright. SINE, OCTAVE, OCT+5, 4 OCTS, and PRIME all worked very nicely. Turn on AM to hear what a steel drum would sound like if it were made of plastic. Then turn it back off—quickly.

SQ-80 Patch: LEGEND

by Kirk Slinkard, Lakewood, CO

This is my imitation of Tangerine Dream's wind instrument sound at the beginning of the movie "Legend."

The Hack. LEGEND is sort of a hybrid flute sound, half breathy yet half electronic. It sounds great pumped through a big reverb.

I like using the mellower SINE as the waveform of oscillator 1, and detuning it slightly (FINE=03). And it's easy to change this into a blown-bottle sound by setting the WAVE of OSC 1 to BREATH. For another variation, try setting the filter resonance (Q) to 31.

Hackerpatch Requests

Has anyone worked out a Cajun squeezebox patch?—Galen Breen.

I am looking for an ESQ-1 patch which emulates Steve Winwood's keyboard solo sound found in such songs as *Valerie* or *When you see a Chance*. It sounds so easy—like a single oscillator with a mod wheel filter control—but it's really difficult to even come close.—Jay Ehrlich.



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

ESQ-1 PROG: DSTORT (Tim)

BY: TIM EDWARDS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	2	19	PULSE	LFO3	-1	ENV2	-33
OSC 2	+4	9	9	NOISE	OFF	-	ENV2	+63
OSC 3	-1	0	0	PULSE	LFO1	-2	ENV3	+1

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	59	ON	PEDAL	-19	OFF	-
DCA 2	63	ON	OFF	-	OFF	-
DCA 3	63	ON	PEDAL	-7	XYBD2	+19

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	1	3	42	PEDAL	+6	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	51	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	63	ON	OFF	NOISE	0	0	0	VEL2
LFO 2	-	-	-	-	-	-	-	-
LFO 3	19	ON	OFF	TRI	0	27	8	WHEEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+57	+27	0	0	0	8	42	52	0	0
ENV 2	+63	+10	+10	0	0	7	3	20	25	0
ENV 3	0	+28	-7	0	0	0	37	49	63	25
ENV 4	+63	+59	+39	0	0	8	16	33	20	0

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	ON	OFF	OFF	10	OFF	OFF	ON	OFF

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

ESQ-1 PROG: DSTORT (Bill)

BY: BILL SEATH

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	BASS	OFF	-	OFF	-
OSC 2	-1	0	0	BASS	LFO3	+1	LFO2	-1
OSC 3	-1	0	0	BASS	LFO3	-1	LFO2	+1

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

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	0	10	63	ENV3	+11	WHEEL	+24

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	9	PEDAL	-16

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	0	ON	OFF	SQR	0	0	0	PEDAL
LFO 2	21	OFF	OFF	TRI	0	3	13	OFF
LFO 3	0	ON	OFF	SQR	0	0	0	LFO1

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	+63	+63	-45	0	0	2	50	63	20	9
ENV 3	+63	+25	0	0	0	1	10	32	20	63
ENV 4	+63	+55	+18	40	0	0	29	52	0	9

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

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

ESQ-1 PROG: STEEL3

BY: CHARLES R. FISCHER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	SINE	LFO3	-2	OFF	-
OSC 2	0	0	9	BELL	LFO3	+2	XYBD2	+3
OSC 3	-1	0	9	OCTAVE	LFO3	+2	XYBD2	+2

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	59	ON	OFF	-	OFF	-
DCA 2	0	ON	ENV2	+58	OFF	-
DCA 3	0	ON	ENV5	+62	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	100	3	0	OFF	-	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	XYBD2	-30

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	-	-	-	-	-	-	-	-
LFO 2	-	-	-	-	-	-	-	-
LFO 3	63	ON	OFF	SQR	0	0	0	ENV3

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	+63	0	0	26	0	0	16	0	20	0
ENV 3	+63	+54	0	29	0	14	10	17	20	29
ENV 4	+63	+53	0	30	3	4	8	38	20	16

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

	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY
	OFF	-	OFF	0	OFF	-	-

SQ-80 PROG: LEGEND

BY: KIRK SLINKARD

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	TRIANG	LFO1	+1	OFF	-
OSC 2	0	0	0	BREATH	LFO1	+1	OFF	-
OSC 3	-1	0	0	CHIFF	LFO1	+1	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	57	ON	OFF	-	OFF	-
DCA 2	0	ON	ENV1	+57	OFF	-
DCA 3	0	ON	PEDAL	+63	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	46	0	0	ENV2	+63	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	0	LFO2	+63

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

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+63	+52	+38	0	0	0	8	21	0	0
ENV 2	+63	+63	+54	10	12	7	7	15	10	10
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+63	-63	25	15	15	0	0	10	0

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

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

The Interface

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

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

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

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

Dear Hacksters,

Love your mag; keep up the good work, etc. A quick question. I have an **ESQ-1** and an **ESQ-M**. I want to use the sequencer in the **ESQ-1** to run another synth/sample player, probably the **Proteus Emu**. That machine has 150 or so samples and I only know how to send 120 program numbers over **MIDI**, right? That is, I can select a new patch on the **ESQ-1**, and tell the **Proteus** to accept patch changes, but I can only select one of 120. Does this mean I can never send an instruction to any other synth saying "change to sample 121"? Or am I missing something obvious? Am I restricted to selecting those samples from the **Proteus** directly?

Thanking you in advance for your help,
Sam Buttrey
(CompuServe 71231,306)

[CS - The **ESQ-1** does have a limitation in that you can only send the first 120 program change numbers of the possible 128 made available in the **MIDI** spec. Most devices that sport more than 128 programs (and the **Proteus** is no exception) provide you with some way to remotely access programs numbered higher than 128. In the case of the **Proteus**, you can remap its internal program change numbers so that sending it program change number 27, for example, could call up program number 142 in the **Proteus**.]

[Ensoniq - Note: In O.S. version 3 and higher you can go up to Program number 128.]

Dear Hackers,

I recently bought a brand new **VFX-SD** from my closest Ensoniq dealer (who is over 250 miles away) for the typically inflated Canadian price of \$3,300. I was desperate to possess my dream - a do-it-all workstation.

Since day 1 I've had problems:

- Sequencer kept dumping out
- Lock up on notes
- Sequencer edit functions work only on occasion
- Sustain pedal l9 locks on notes

I love the machine's sound and capabilities but my frustration is building.

I've installed a \$400 line conditioner, moved my amp way back and prayed over the **VFX-SD** regularly. Short of taking the damned thing back you're my last hope.

Orion Engar
Sardis, BC Canada

[Ensoniq - To better help you out we need

to know more information, such as what O.S. are you using? Please contact our Customer Service (215-647-3930) so we can help you - writing a letter to the Interface is a very slow way of solving your problem. We want to help you solve your problems.]

Dear Hackman,

Or should I say Hack "person"? I wouldn't want to annoy any music women out there. Of which there seem to be few, by the way. But that's not why I wrote. Well, not really.

I am a wonderfully delighted proud owner of an **EPS**. It could only have been the omnipotent god who led me to Dan at Music City in Cherry Hill, NJ and who spoke through that man to me until I was finally convinced to buy one. My **EPS** has set me free musically.

There, now everybody's happy. By the way, thanks also to TH. I read it cover to cover the moment it arrives. I would like to see more articles on real practical uses of envelopes and what they do, in layman's terms. But I'm not complaining.

I am a songwriter and I use the **EPS** as my back-up band. I have it **MIDI**ed to a Tascam 688 (8-track) and I love the song-pointer and output expander. I work mostly with writing sequences and songs, and am getting fairly adept at manipulating the **EPS** to do what I would like it to. So I have a comment or two to pass along:

To those of you who hate the manuals - take heart. It's a steep learning curve, but well worth the effort. The more you work with the instrument and educate yourself on sequencing, **MIDI**ing and sampling, the more it makes sense.

I read an article a month or two ago about auto-mix. Your man said that once you keep a mix the **EPS** will not let you re-do it. This is true, and can freak one out. However, never to freak out again, Scroll to Command-Track - erase controller, and choose Volume. Hit YES. Now you can re-mix with no problem, again and again.

I also want to point out that because of the editing features of the sequencer, many times I don't record a song in sequences but instead use one long sequence for the entire song. It is sometimes confusing to figure out where the breaks between sequences go, but it is no trouble to get anywhere you want in the seq/song at any time if you choose this route. In fact, I almost think it's easier than when in Song mode with multiple sequences. If you're recording a song track in the 3rd sequence 15 bars into it, every time you want to re-do that one little nuance until it's perfect you

have to sit through 15 bars. If the entire song only uses one sequence you just have to advance to that bar, hit **CONT**, and record, and you're cruisin'.

Also, for all of you who are as slow as me; when you're recording a track, don't stop when you make a mistake. Keep going until the length of the track is established. Then when over-dubbing play until you screw up. **STOP**, **KEEP**, then advance the bar selector to 1 one or two bars preceding the goof and hit **CONT-REC** and start where you left off. I know, I know, but we can't all be wizards. There must be a few others out there like me.

One other tip - however simple. Several people that've written in have complained that you can't name the track. Yes, Ensoniq, this would have been good. It seems we're all too lazy to write what instrument goes where on the disk we save the song to. My disks labels look like scratch pads, but for anyone who enjoys the uncluttered look, Simon says: create a new instrument, name it the same as the instrument that goes in that track. No **W.S.**, no layers, no memory loss. Save each empty/named instrument to disk along with the song and save the bank, too. Then when you load up you just punch up the instrument track, see what is supposed to be there, find it and load it.

Bones to pick:

1) One of the reasons I bought an **EPS** was because it supposedly was going to be up-dateable. Do not let us down. The market is slowing down, and you need us as much as we need you. I would much rather buy an expansion package from you than an **M-1** from Korg. I need more memory! The 4x expander isn't enough and I'm tired of the "pick instrument to delete" message. Please design an enlargement to **ROM/RAM**.

2) When do we get another **OS** update?

3) When recording sequences or editing tracks it is impossible to turn off that ^%\$#(^&* click when on **KEEP/SAVE**. Please!

4) When on **KEEP/SAVE** the **EPS** does not respond to Song-pointer. Why does **KEEP/SAVE** have to cut everything else off?

5) I have pondered long the **Save Bank** function. You have to save not only the song, but every instrument to the same disk for **SAVE BANK/LOAD BANK** to be effective. I don't know about anyone else, but I would venture to say that most people use more than 1585 blocks worth of instruments. Please, either make it so a bank can be saved and loaded without the instrument, or give me a helpful hint - no, specific instructions, on how to work around this. I **NEED** the bank function.

6) Wouldn't it be easy to fix it so that we can choose specific bars for erase/undefine track? I made a whoops yesterday and it cost me an hour's work.

7) Congratulations of the VFX-SD. Hey, can we EPS owners have some of the new sequencer functions? Just because you've gone on to newer things don't think you can leave us behind. The VFX is only here because all of us bought the EPS, ESQ, Mirage, etc.

8) I also would like to say that system errors are not common for me. I find them easy to avoid if I remain aware of what buttons I'm pushing, and if I go through all the commands slower than the speed of light. The EPS can get confused when told to do 5 things at once. I have lost painfully hard work a couple of times though. Just enough to prompt me to ask you why a system error demands re-booting. I mean, I wouldn't mind re-booting if I could save my work first. Can't we get more selective lock-up? (I know - this is pushing it.)

9) One last thing, folks. If you're working with multitrack you can get around the 20 voice limit. Stripe one track with a MIDI-clock, then you can put one or more instruments on tape and let the EPS play along with all the REALLY important voices (just change clock to MIDI and use a MIDI-to-tape convertor.)

The EPS is my orchestra, my band, my friend and lover, etc. The best thing to happen in my song-writing career (however amateur!). It has opened doors and rooms in me. Doors that say "arranger," "producer." I'm still banging on the "engineer" door but the learning curve is leveling out.

Thanks Ensoniq, Dan, TH, and fellow hackers,

Greg Schumacher
Woodbury, NJ

[CS - 1) Ensoniq maintains that memory expansion of the EPS beyond the 4x is not possible.

2) A new OS is due out this spring.

3) Have you thought about panning the click to one output and your other instruments to the other output? You would then have independent control over the volume of the click regardless of the mode the EPS is in at any particular time. Granted, you'd have to listen to the EPS instruments in mono until the sequence is completed, but you could easily switch back to stereo for final playback. And if you have the OEX-8 this shouldn't present any problems at all.

4) We can only assume that the implementation of the audition (KEEP/SAVE) functions in the EPS is based on a number of design decisions made by erstwhile engineers at good ol' Ensoniq. It has never come up as a problem in these pages before. The workaround is to treat the EPS just like you'd treat any sequencer that has no audition functions (believe me, a lot of 'em don't). Before editing any data, make a

copy of it to a new track. Make the edit to the original track, and KEEP the new version. You can now try the new version in context. If you don't like it, simply delete the new version, and copy the previously copied track back to its original location, and start again.

5) I'm afraid I don't quite understand the question. Is it that you don't have enough disk space to save an entire bank on your 4x machine? If that's the case, perhaps you could split the instruments up into two or more separate banks. I'm just not sure what you mean by saving a bank without the instruments - after all, a bank is basically just a directory of instruments.

6) Although you can't define a measure range when erasing/undefining a track, you can set a measure range when erasing a key range. So if you select "ERASE KEY RANGE", and set it to erase all notes (A0 to C8), you should be able to erase specific measures from within a sequence. You may also need to repeat this procedure using the ERASE CONTROLLERS function if you have pitch bends, volume changes, and so on also recorded onto the track.]

[Ensoniq - First, thanks for your letter and comments. It's nice to hear kind words about our instruments, dealers and the pleasure that the EPS is bringing you.

1) The EPS is updateable and there are a variety of options for you to choose - 2x and 4x memory expansion from us and other

third-party companies, the OEX-8 output expansion, SCSI and hard drive units and Operating System updates. The EPS cannot support more than 4x memory expansion directly, and designing an enlarged ROM/RAM is a MAJOR job and not in our plans.

2) We are testing a new O.S. for release sometime soon. Please give us enough time to be sure it is thoroughly debugged.

4) The Keep/Save function locks onto other functions to prevent accidental loss of your desired data. It forces the desired data to be saved before any opportunity could come up to lose it. Clark's suggestion makes sense as a possible work-around if you wish.

5) It seems that you are saying that you don't have enough disk space. If that's the case you could split the instruments up into two banks or add a SCSI Hard Drive to your setup. This would not only solve your disk space problem but would also greatly enhance the performance of your whole EPS system. It seems to fit in with your desire for an upgrade path.

7) Yes, we realize that each previous purchaser has made it possible for us to keep developing new products and we thank you for your support (sorry Bartles & James!). Unfortunately, the VFX-SD sequencer is a major re-write of the EPS sequencer design and requires a lot more code space to add the functions. We are not in a position to be



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able to do that for the EPS.

8) The System errors which cause a re-boot are fatal errors that the system cannot recover from without being completely reset. If that isn't done there could be some lingering confusion or corrupted data which could continue to affect the performance of the EPS's functions.]

Dear TH,

A doctor gripes; the next month Ensoniq fixes all the bugs in the VFX-SD Operating System. You guys cover the story from problem to happy ending. We loyal EPS users have been griping for backup software promised us two years ago. Ensoniq gives us the mushroom treatment. WHERE'S OUR PRESS?

Pat Finnigan
Indianapolis, IN

[CS - Up until now (see Gary Morrison's letter in this issue), TH has published every interface letter received (all the ones that were comprehensible, anyway). If you haven't seen coverage of a particular issue in this forum, it's simply because no one's written in about it yet.]

[TH - And, actually, we've been getting additional letters from the good doctor. He's still chasing bugs but we felt it would be better and quicker for him to deal directly with Ensoniq Customer Service.]

[Ensoniq - We wish we could claim that all of Dr. Losack's problems were solved, but we are still working with him to satisfy his situation. We have had his unit in for a thorough testing and will stick with it until his problems are worked out.

We are working on the long-awaited back-up software for the EPS and will announce it when it is ready. We have not forgotten about you and appreciate your patience.]

Dear TH,

Would you please have Ensoniq stop calling us "end users"?

Sincerely,
Seymour Krelbom
Mushnik's Flowers
NYC, NY

[Ensoniq - Duly noted. How about it, Hackers? What would you like to be called?]

Dear Transoniq/Sir/Madam,

Five days after the guarantee had run out the EPS started a bizarre pattern of crashing behavior. As I'm not an engineer at all, I find it impossible to estimate a) the seriousness of the fault, b) the money and time involved in getting it back to work. "How long it will be away?" and "How much will it cost?" are questions my shop does not seem to be able to estimate.

What's ERROR 144? My EPS (OS 2.3) frequently gets stuck there and it's impossible to get out of it other than to switch it off and on again. AND, sometimes the loaded instruments miss certain notes on the keyboard - that is, all Ds and As won't play.

What happened with Ensoniq UK? Is there some user's group here in London I can contact? As I'll be moving to Italy next year, I'd like to know if there is established user and/or factory support there?

Thanks for not basking this,
Miss L Ferrari
London, England

[CS - The current EPS OS is 2.4. Check with your dealer to obtain a copy.

Regarding your question about user groups, we're currently trying to get together a listing of all the current user groups that we can track down. Keep watching these pages - we'll publish a comprehensive listing as soon as it's together. And if you are a member of a bonafide user group, you might want to take the time to let us know about it. We'd be more than happy to include info about your group.]

[Ensoniq - Error #144 usually indicates too much MIDI or keyboard data received to be handled by the EPS. Based on your description of other keyboard problems it sounds like your keyboard is at fault. Contact our Customer Service department for more help.

Ensoniq UK is no more. We now do busi-

ness through Ensoniq GB. They can be reached at 44-268-561177. In Italy our support is from MPM-Music. They can be reached at 39-71-789393.]

Dear Ensoniq (via TH):

I've been a staunch supporter of Ensoniq products back since Tom Darling was dragging the first Mirage around in his trunk from tradeshow to tradeshow. Over the past five years I've owned 2 DSK-8s, 2 DMS-8s, 2 DSKs, 3 ESQ-1s, a pair of EPSs, 2 4X expanders, SCSI cards, SQX-10 & 20 ESQ-1 sequence expanders, all Mirage libraries; in short, I've voted with my wallet about 16,846.32 times in support of Ensoniq products and innovation. So before I withdraw my support, perhaps you folks will address the problems I've been encountering with my EPSs.

Here's a partial list of bugs in the EPS that are not acceptable in a performing or recording environment:

1) The OEX-8 pulses at Solo Out 2 every time certain OS commands are invoked. This may be acceptable on keyboards with a high output level. On the EPS, however, with such a low output level, gain must be set at the desk so high that this pulse can damage speakers (tweeters in particular) when these overlays are invoked.

2) How about a more positive connector for the OEX-8 cable? A friend of mine who runs an EPS software company told me he blew the output stage of his EPS when the OEX-8 unplugged itself. I haven't suffered this problem YET, but I see writing on the wall. When my warranty runs out I guess I could drill the case and hardwire the rest-less little SOB internally. Any S/N problems pulling the OEX-8 board out of its case and mounting it internally beside the display board? Would I pick up noise by mounting it unshielded that close to (and over) the motherboard? I know you don't approve, but any ideas?

3) A 4X expander that doesn't stick out of the back of the case! I've cracked the DB-25 plug on both my EPS's. Pot them with epoxy? Why don't you guys make a shorter 4X board or kludge the 4x card over the motherboard to allow a flush mount? That seems to work with the SCSI card.

4) The SCSI connector will only work with certain Seagate "N" suffix drives ONLY if pin 17 (reset) is disabled. I discovered this using an ST-251N drive. A typical 25-to-50 cable wouldn't work, where a 25-to-50 ribbon cable w/o pin 17 WOULD work. Really not your problem, but some embedded SCSI controllers will not operate unless the reset is disabled in this manner. Eltekon tells me you were informed of the matter. On the same topic, is there anyway to update the SCSI code and/or operating system so that keypad events elicit the same response from hard disk to hard disk? I had to memorize two distinct methods of moving through directories just because one of my hard disks is 30 meg larger than the other. And both are from the same manufacturer! Maybe in future OS upgrades. . .



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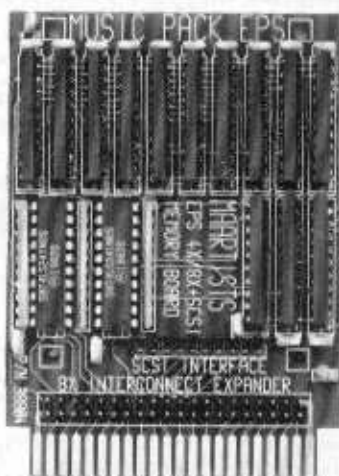
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5) I was promised backup software for my EPS "as soon as it becomes available." That was almost two years ago. And guess what, guys - if you've formatted your HD on an EPS you CANNOT back up on an EPS-M! The EPS-M doesn't even acknowledge the presence of a hard disk if it's been formatted on an EPS!

6) The old ASG for the Mirage had the MIDI sys-ex codes; what happened to the EPS?

7) Do I have some kind of hardware or software problem? My EPS on a Quadraverb with the Version 1.03 software sounds like a raspy or failing HF horn driver; yet it doesn't happen with my DMS-8's or ESQ-1's. A bad or failing reconstruction filter? I thought my own samples were improperly looped and at fault, but factory disks exhibit the same problem. Any ideas?

8) Not to whip a dead horse, but ALL NOTES OFF, please? I know, all notes up, zero velocity, all the incorrect implementation of the other manufacturers. Give it up; you're outnumbered.

9) What in the hell is "sensitive proprietary information"? If it's that powerful, don't you think it's been reverse engineered by every other keyboard manufacturer? Ignorant "end-users" reverse engineered the Mirage 2 years past its life cycle with things like Soundprocess, Midicaster, et.al. We are not asking for EPS theory of operation documents.

10) Why is the heatsink so hot? I warn people about it, but in a performance situation, someone WILL touch it. Isn't a larger sink economically feasible? Or perhaps a fan? It IS possible to burn someone with a sink that runs THAT hot.

11) The EPS's crashability appears to be in direct proportion to the number of key-strokes it can process between waitstates.

12) How about a coprocessor so this thing will play (from the sequencer) and load? DMA is nice, but I thought we could load samples while the sequencer was playing.

13) Why such timing delays in overdub? I notice this problem when "punching in" record (overdub) but only when sequencer memory is getting full. And I can't quantize it away. I've even tried recording at 1/2 tempo; this only magnifies the problem. Is this a sample memory/sequence memory partition that I'm running into? Or does the processor gag on busy passages over 12 notes at once? It's another niggling problem because the EPS wants to "use save song & all", and I wanna pack the sequence memory and "save current sequence" and load 25+ songs written as single sequences into sequence memory at a time. Any suggestions?

14) Maybe I'm not getting something out of the text in the AAG or Musician's manuals, but how can you alter mix levels in a sequence without rerecording the track? All levels default to the Song mix levels saved

as the current song file. As powerful as the EPS is I know I'm not doing something right, but I can't find any solace in either manual. How can you save different mix levels for individual sequences without the Song mode override? I used to have a helluva time with this on my ESQ's; is the situation the same with the EPS? I've tried the "Record Add" page, but track level responds to the up/down arrows only, and then with unpredictable results. Any idea of what I'm doing wrong?

Well, there it is, kids. I'm really in a quandry over the problems I'm having. Because the EPS really is a wonderful piece.

After selling some \$168,000 of your gear to musicians here in Indianapolis, purchasing some \$17,000 of it myself, I feel that I am somewhat responsible for your success and market penetration in this area. So let's KEEP this technology performing!

Any and all efforts to resolve these problems would be gratefully appreciated. Since both of our futures depend upon the performance of your products, any and all efforts to resolve these problems will only serve to reinforce what we knew all along when Tom Darling showed us the first keyboard with a 3 1/2" drive. And knocked the rest of the world on its collective ass.

Sincerely,
Pat Finnigan
Finnigan's Famous A/V
Indianapolis, IN


(CS - 14) Sequences and songs do store their track volumes separately, although any track volume programmed for a sequence will be overridden by the song track volume when that sequence is used within a song. If you are not erasing previously programmed song and/or sequence track volumes before attempting to re-record volume information, you may well be having difficulties. You are correct in assuming that you can overdub volume information by using the RECORD MODE =ADD setup, but you should first erase any volume info recorded into the song or track. Do this by selecting "ERASE CONTROLLER" (COMMAND-TRACK), and selecting "VOLUME" as the controller to be erased. You probably also are aware that volume changes cannot be recorded into a sequence (as they can with a song) - you can only record the initial volume setting.]

[Ensoniq - Note: The Hacker had sent us this letter and Ensoniq's Alan K. Smith has already spoken to Pat. We offer these answers in print for the benefit of the rest of the Hackers' readers.

Mr. Finnigan,

Thank you for your obvious support and deeply-felt concern. We certainly don't want to lose your support and we're not insensitive to your concerns. I know you're not going to like all these responses to your questions - but at least they are honest.

1) When performing certain functions the outputs are shut down which can produce a



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click. We recommend muting the OEX channels when performing these editing functions or muting the channels of your mixer. We have also made available an output boost modification for the EPS. Contact your local Service Center about this mod.

2) We have not been able to locate a better connector which is compatible with our tooling. Although we can't say whether there may be noise pick-up if the OEX-8 were mounted internally, this is essentially the approach we use in the EPS-M.

3) We haven't heard of many instances of this. We certainly recommend a protective carrying case for transporting your EPS or any delicate/valuable equipment.

4) We have modified our SCSI board to take this into account. Regarding your update ideas for the SCSI code, the only way to elicit the same reaction to keypad events from two different drives is if both drives have identical data in the same locations (ie., they are identically formatted and organized).

We must admit to being slightly confused by your question/request so perhaps this is not the appropriate answer. Give us a call.

5) We're not sure what you mean by "Back-up." The Back-up utility in O.S. 2.4 is not implemented yet. Please be patient - we're working on it.

The EPS does not have termination nor does it supply the power for the termination, but the EPS-M does have terminating resistors (but does not supply the power for them). It assumes that the Hard Drive will supply the power. Thus the situation can arise that a drive that works on an EPS will not work with an EPS-M unless power is supplied to the terminating resistors. This can be done by having the drive modified to supply the power to the SCSI connector. This is not necessary for the majority of approved drives, as they have the termination and power supplied in their original state and will work with both the EPS and EPS-M.

6) The complete MIDI SYS. EX. specification for any Ensoniq instrument is available free-of-charge upon request from our Customer Service department.

7) The Quadraverb has inadequate input filtering for many high bandwidth sources. The frequency response was considerably less on the DMS-8 and ESQ-1 as compared with the EPS. We understand that Alesis has a modification available, contact them at 213-467-8000.

8) Thanks for your comment - you obviously don't want to hear the response but here we go anyway - no plans to change at this time.

9) As we've said before, we are not in a position to be able to handle that type of documentation support system. If we make the time to make it available for one individual/developer we feel an obligation to make it available to everyone and we just can't handle that.

10) The heatsink normally runs hot, but it is within U.L. guidelines. In hot locations an external fan would be a good idea.

11) This is possible, a good idea in general is not to try to "outpace" the system.

12) It is possible to load samples while the unit is being played from an external sequencer, but it was never the case from its own sequencer. A coprocessor would not help. The problem is in the memory management. As new (and different sized) samples are loaded in, the memory must be continually "shuffled" which can cause problems during sequencer playback.

13) As the limits of memory usage and polyphony are reached these timing delays can occur. Backing off on either can help correct the problem.]

Dear TH,

With all the letters I read about service problems, I thought I would mention my recent experiences with Ensoniq service. While playing my late model EPS, it slowly developed a harsh metallic distortion in both output channels. I reluctantly mailed it to Ensoniq after phone arrangements were made. Although the wait to get into service was 3 weeks due to a backlog, it was repaired in 1 day and mailed back to me in good working order, not a scratch on it, no charge for service or return shipping. The several times I called Ensoniq to ask about progress were each a pleasant experience. Could I be lucky? Possibly, but the evidence shows they are trying hard anyway.

A note on the EPS, it is a thoroughly impressive instrument, my most valuable piece of gear, and being an engineer who works with this type of electronics daily, I can attest that from the inside out, it is the product of tremendous engineering talent.

I also have a question to ask of your readers. Why is it that the cost of buying a good sampled sound is SO much higher than the cost of buying a good synth patch? It can't be the effort involved, as both are equally complex and require some hard work to generate really useful, expressive sounds. The cost of the disk doesn't nearly account for the difference. When I added an EPS to my setup, I was delighted to have the limitless versatility, but dismayed at the expense of feeding it.

Who would buy a synth today if it were shipped with 20 factory patches and the cost from the manufacturer and third party developers was \$100 per 50 patches thereafter? Sounds a little pricey for synth voices? It's the norm for a sampler. Why the disparity in price? Who decided to charge 4 times more for sampled sounds than patches?

Grant Newland
Boca Raton, Florida

[CS - Grant, I've done both sampling and synth patch development, both for fun and for profit. I'm here to tell you that creating

high quality samples is much more expensive and time consuming than creating synthesizer patches. Let's take the VFX and the EPS as examples. Suppose that I want to create an ensemble string sound for both machines. To create the sound on the VFX, I'd probably select the string wave, do a bit of filtering and enveloping, layer it with another string wave (or perhaps one of the transwaves or synth waves), tweak the tuning, add aftertouch, mod wheel, and timbre controls, process the sound, and save it. Total time for the operation - maybe half an hour. Total cost - one VFX plus one floppy disk (or cartridge: About \$2000. Now let's do the same sound on the EPS.

First, I'd need a source for the sample, so I'd hire 8 or 10 string players (don't laugh - many of the major sample suppliers have done as much). I'd need to book time in a professional recording studio - probably a day would do the trick. Once the recordings had been satisfactorily made, I'd need something to record the masters onto for later transfer to my sampler. The medium of choice, these days, is a DAT (digital audio tape) recorder. I'd then sample the recordings from the DAT into my sampler. From here they would be ported to a computer running appropriate sample editing software - the Macintosh and Alchemy, for example. I could now loop the samples, do sample rate conversion, gain normalizing, volume smoothing, pitch and sample rate conversions, and so on, finally moving the data back into my sampler. From here I'd do keyboard mapping and tuning. Now I'm

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17 - 1.44 MB 5.25" DISK II	18 - 1.44 MB 5.25" DISK II	19 - 1.44 MB 5.25" DISK II	20 - 1.44 MB 5.25" DISK II
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Option: 1.44/1.2/1.44/1.2

Format: 44100 Hz 16-bit 2-Ch 3-1/2" ID

Envelope: 1-200
 Level: 01 02 03 04 05
 06 07 08 09 10
 11 12 13 14 15
 16 17 18 19 20
 21 22 23 24 25
 26 27 28 29 30
 31 32

Level: 01 02 03 04 05
 06 07 08 09 10
 11 12 13 14 15
 16 17 18 19 20
 21 22 23 24 25
 26 27 28 29 30
 31 32

1st release time: 00 2nd release time: 00
 1st velocity: 00 2nd velocity: 00
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ready to do the appropriate enveloping, layering and processing, and save the final product to disk. Total time spent: about a week. Total cost: 8-10 studio musicians, one day at a pro recording studio, tape and engineering costs, one DAT machine, one Macintosh computer, software, an EPS and a blank disk: about \$15,000.]

Dear Hacker,

The time's ripe to spew my own collection of accolades, complaints, suggestions, and questions about the EPS.

First, some accolades: you Ensoniq folks can be plenty proud of assembling many highly desired features into one box. The EPS is an exquisite machine. Fidelity sound, super versatility with the envelopes and modulators, two thumbs up for Polyphonic pressure and pitch tables! A dream come true, for me, anyway. It was just what I was looking for in a rig. Beautiful and expressive.

The "Interface" can be pretty brutal toward Ensoniq at times. One reason for this is that people who are having no trouble with their gear are too busy having the times of their life playing with it to write and say so. On the other hand those of us played with problems have some time to write while the rig's at the shop. (Not to mention, we can get pretty pissed.) In all fairness my tech problems aren't limited to Ensoniq, that's just the most recent chapter in the life of a techno-jinx.

So anyway, here are my problems, some have been worked out, the rest are in the works:

1) Occasionally, when I power up there's a cracking noise at the outputs which is aggravated by any jiggling of the machine, (playing the keys, tapping the back, etc.) It escalates until the display freaks out and EPS crashes. Even with the power switched off it makes this noise. It lasts an entire evening usually.

2) Even after sending my Alesis Quad-raverb back twice (first to adjust input filter) I still have aliasing with the EPS but only on the leslie patches.

3) The volume level on an instrument will occasionally "zero out" even with the data slides full on. I deal with this by pressing the left and right cursor buttons until an irrelevant instrument (one that I'm not using) is displayed.

4) I had some digital noise on the outputs which was completely taken care of by some modified shielding installed by the service department.

Well, that's all the problems so far. Ensoniq and Prosound in Boulder, Colorado have been super cooperative in working with me on these problems.

Here's a tip for EPS and VFX users: one excellent use of the polyphonic aftertouch is to tune chords better than equally tempered

chords. First, go to pitch mod and select "pressure." Then on the pitch mod amount, enter minus 2 or 3. Now play a major triad and apply pressure to the third of the chords. By flattening the pitch of the third it brings it closer to the harmonic series of the root. The third of the major chord is the note farthest from the harmonic relationship expressed in the overtone series. (That's what western music sacrificed when we switched from mean temperament to Equal temp. Now we can have the best of both worlds.) Use this for brass, stings or other pads. Try it!

Here's a couple of questions:

A) I would like to be able to save presets or several sets of presets. Will we ever be able to load presets only, particularly when the instrument in use are too big to fit on a disk? Any suggestions to work around this?

B) In the volume mod section we select FADEN and FADE OUT ranges with values 1-127. I understand how this works for keyboard, velocity, pressure, wheel, pitch and pedal but how will this 1-127 apply to the mod sources LFO or ENV 1 and 2? I've done some experimenting but I'd like to know what's happening there.

That's all for now. Thanks to Ensoniq for a wonderful machine, beautiful sound, and good service all humanely priced. Hopefully, my EPS will be running fine soon.

Respectfully,
Jon Stubbs
Boulder, CO.

[CS - A] I agree completely. As a good deal of my time is spent developing sounds for the EPS, I would be overjoyed to have a way of saving and loading presets independently of the wavesample data used. So far, I haven't been able to come up with any useful work around, and realizing that those of us who actually program or tweak our sounds represent a relatively small number of users, I'm not expecting any good news from Ensoniq in this area.

B) Just as with velocity, aftertouch, and so on, the 1-127 range is a depth of modulation control, allowing you to set how much effect the LFO or envelope might have on volume. Of course, if LFO depth is set to zero, and you're not controlling LFO depth from the mod wheel or some other mod source, the LFO will have no effect on volume mod regardless of the setting for this parameter.]

[Ensoniq - 1] This sounds like a mechanical problem or intermittent connection. Especially if you get the noise with the power switched off. A Service Center should look at it.

2) Sorry, there is nothing we can do about this. (See our response to Mr. Finnigan, part 7, above.) Alesis has a modification available, contact them at 213-467-8000.

3) The data entry slider is designed to be very sensitive to allow mix fading and therefore can respond to physical jarring. Your solution seems very workable.

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Question A) There is a way to do this:

- 1) Set up your Presets as you desire
- 2) Delete all the Instruments from the internal RAM
- 3) Save the Bank

When you load in that Bank it won't replace any instruments in memory but will load in the different Presets you saved with that Bank.]

Dear TH,

I've been using my EPS with Roland GM-70 Guitar Controller. As my library of samples has grown considerably, I am currently in the market for a hard drive, is load files (songs, sequences, instruments, and banks) from the hard drive onto the EPS via program changes. The program changes will be stored as patches on the GM-70, and will be selected remotely by a Roland FC-100 MIDI Foot Controller.

The Musician's Manual states that program changes received by the EPS while it is in MULTI or MONO B mode will load files with the same number as the program change. However, once an instrument is loaded in this fashion, it must still be selected. Selecting an instrument that has been loaded into EPS's memory can only be done while the EPS is in OMNI, POLI, or MONO A mode. My desire is to both load and select a file from the hard drive via one program change sent remotely.

According to the documentation in the Musician's Manual, it seems I would have to send one program change to load the file from the hard drive while the EPS is in one mode, change the MIDI mode, then send a second program change to actually select the instrument. It doesn't appear that the EPS's MIDI receive mode can be changed remotely. Is this true?

Is there any way I can accomplish what I want to do? It would seem that, playing in a live situation, being able to access and select sounds from a hard drive via a program change sent remotely would be far-xxxxing-out!!! Please help me!!!

What about the possibility of setting up an information exchange between users of guitar controllers with Ensoniq keyboards? Anyone interested? If so, contact me at the address below.

By the way, I look forward to each issue of TH almost as much as I look forward to...well, you know!

Sincerely,
Lee D. Gelbert
106 East Concord Drive
Lebanon, OH 45036
(513) 932-2632

[Ensoniq - We're not that familiar with the GM-70 but you can certainly call up and play the instruments you want easily. Send the desired Program change to call up the desired instrument. While in Multi Mode or Mono B you don't have to select an instrument to play it, you just need to be on the appropriate MIDI channel(s).]

Dear Hacker,

I've been using a 4x expander for about 2 years now, and couldn't be happier, having upgraded from a Roland JX-8p. I have just added a Yamaha WX7 wind controller to my collection of toys and would like to hear from others out there who may be using the EPS/WX7 combination. What can I do to sounds to make them more responsible to breath control; how might I find some GOOD.alto and soprano sax sounds; how to best set the WX7 up to best utilize the EPS? Also, have you ever written an article about using the WX7 with Ensoniq equipment?

I've enjoyed your informative magazine and find it the definitive source of info on Ensoniq products and have read the Hacker since I owned a Mirage Rackmount. As trite as this may sound, keep up the good work!

Ben Ash, Jr.
Birmingham, AL

[CS - Issue #40 (Oct, '88) contains an article by Philip Rosine dealing with using the WX7 with the Ensoniq Mirage. Much of the info contained in that article applies rather strictly to the Mirage, but you may find some pertinent info. Also, Yamaha publishes their own user publication, Aftertouch. You may wish to contact them as they are sure to have applications notes concerning the WX7.

In terms of making the EPS more respon-

sive to the WX7, external MIDI controllers (such as breath controller) can easily be assigned to control any of the EPS modulation destinations. For a more-or-less natural response to the breath messages the WX7 sends, you want to try assigning breath controller (MIDI controller #02) to control volume and filter cutoff (brightness). On the "EDIT MIDI" page, make sure that "MIDI XCTRL NUM=2". This sets up the EPS to receive breath controller information. Now you can assign breath control to whatever parameter you desire simply by using "XCTRL" as the modulation source. To control volume, for example, hit EDIT, underline the name of the instrument, hit AMP, scroll to "VOLUME MOD =" and set it to "XCTRL", and adjust the depth of the effect by increasing or decreasing the amount. You can also assign XCTRL to control filter cutoff, pitch, LFO amount, and so on.]

Dear TH,

Is it possible to make your own output expander box for the EPS? If so, which pins are wired to which instruments?

Thank you,
James Werning
Pomona, CA

[CS - No, no, no, no, no. Don't try it. The output of the OEX connector on the back of your EPS is NOT an audio out. It is a multiplexed signal. Monkeying around with that connector can result in damage to your EPS which will not be covered by your warranty.]



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Dear TH,

Help! After months of wishing for a board to replace our ARP OMNI, I bought a second hand **Mirage** in a fit of passion. I truly enjoy it, and have as many back issues as I can get my hands on. But questions remain.

Not being a keyboardist by trade, my keyboard player (SQ-80) and I are starting to MIDI our boards together. So exactly what is a breath controller? And does anyone still stock sequencer expanders for my little edsel? Any help would be greatly appreciated.

Thanks,
Mike Krenz
Grand Rapids, MI

[CS - The breath controller is one of the many controller types available per the MIDI specification (mod wheel, volume controller, and sustain pedal are all controllers that fit within this category). It is available to provide you with a way to control one or more of your synthesizer's functions from a controlling device that's capable of deriving controller information from breath pressure - a device such as Yamaha's WX7 wind controller, which is played like a horn. (Also, see the above letter from Ben Ash.)]

[Ensoniq - We don't have any more in stock. How about any users (oops, players?) out there in Hackerland?]

Dear Sir,

I have an **EPS** synthesizer which recently experienced a total failure of the instrument; everything went off. (Was I pleased - I was in middle of a recording session for a CDI) I checked the main lead, main plug fuse and the mains fuse in the rear of the instrument accessible from the outside world; these were all OK. I telephoned Ensoniq GB immediately and it was suggested that I open the synthesizer and check the power supply fuses, replacing if necessary. Here I found both 3.0 amp fuses had blown. I replaced these and all is now working again.

Jitters and weak knees when playing the EPS now, though! How can I rely on my EPS in live performances?

I have since been advised by a music shop that it is OK to uprate these two fuses to 4.0 amps. I have not done this as I would like some confirmation that this is OK. If not, what can I do to increase my confidence in the instrument for performances? The power supply gets very hot; can it really support 4 amps? Finally, is there an EPS technical manual?

Keep on hackin', hackers!
Yours sincerely,
David M. Howard

[Ensoniq - An expanded EPS can overload the fuses, we have upgraded the fuses to 4.0 amp 250V in our production and there is no problem having this done to your unit. We don't have technical manuals available for any of our products.]

Dear TH,

I'd like to raise an objection to Jim Piekarski's letter in Issue #57 (the March issue). I have nothing but sympathy for Mr. Piekarski's attempts to resolve the problem he wrote of. My difficulties are:

1. That letter took almost an entire page in the Hacker. I, for one, would prefer to see that space used for articles. I've written a half-page letter to Ensoniq in the Interface, but the content seems to be of more value to "hackers."
2. It's hard to see just exactly what benefit the average Ensoniq user derives from hearing how many times his EPS-M has been in the shop.
3. How was the problem solved? Ensoniq contacted Mr. Piekarski separately - so there's no obvious reason why it ever appeared in this forum anyway.

My own personal annoyance comes from the enormous efforts I have to go through in pruning down the articles that I myself submit for publication. Granted, unusual tuning systems are not exactly mainstream stuff, but it is a basic capability of several Ensoniq machines (and personally, I think the Hacker staff underestimates how many people really are interested in the topic).

I therefore would like to admonish Interface writers (and the Hacker staff) to ask themselves whether what they're writing about would really prove useful for all of us to read or whether it might be better addressed straight to Ensoniq.

Thanks,
Gary Morrison
Austin, TX

[CS/TH - The arrival of your letter couldn't have been better timed. Throughout its checkered history, the Hacker has always endeavored to print any and all letters received. With the publication of last month's seriously overweight Interface though, the writing on the wall becomes painfully legible. We can no longer continue to publish every letter we receive - particularly the "writing off the wall." The space is just too valuable.

In particular, we're probably going to do a little pruning on letters that ramble on giving detailed case histories and the like (unless it helps to pin down the problem). Letters with questions that have been recently addressed (usually in between when the letter was written and when it gets into print) may also be trimmed.

We will continue to do our absolute best to assure that the letters printed here reflect the actual concerns of Ensoniq users - good, bad, or ungrammatical. The prime directive for the Interface has always been that it be, above all, informative, timely, and honest.

In defense of our previous policy, the Interface is one of the more popular features of the Hacker. There are certain advantages to knowing that if you send it in - we print it.

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True, there will always be particular instances when we'd rather not. But the idea behind adopting a policy like this is that the overall value of the open forum outweighs the loss incurred in particular cases. We'd also like to point out that a letter having some value to the bulk of our readers is not a requirement. Sometimes it's very important to that particular individual to get some action. The value to the rest of the readers stems from the fact that if their number comes up we're here for them, too.]

[Ensoniq - This is also a good opportunity for us to remind everyone that if you have a problem with any Ensoniq instrument it is MUCH quicker to contact our Customer Service department directly to get some help or repair process started as soon as possible. It disturbs us to read many of the letters we see in the Interface, realizing how long you must end up waiting from the time you write your letter until you see a printed response - only to tell you to get your unit looked at. The Hacker works very closely with us and will send us letters or give us names and phone numbers when they see this type of situation, but still, the Interface is a place to share new ideas, applications, information and services that are beneficial to Ensoniq users worldwide. It is not a repair or Customer Service facility.]

Dear Th:

I had an idea which I thought might add a new dimension to your already fine magazine. What would you think about the idea of publishing music performance articles from fellow Hacker Maniacs on how Ensoniq products and sounds are used (for performance applications)? Being a professional performer, I would find the sharing of such information very useful.

Perhaps after an article has been published, disks and/or cassettes of sequencer information could be offered to the public for a small charge. What do you think?

George Finizio
Redlands, CA

[CS - Great idea, George. We'd be more than happy to take a look at any of the types of articles you suggest. And in case you missed it, check out Craig Anderton's excellent article, "The EPS In Forward Motion" in TH #49 (July, '89). It describes how he used the EPS in the production of his latest album, "Forward Motion."]

Dear TH:

I recently wrote you regarding my difficulties with my new VFX-SD.

Since I installed the line voltage regulator my problems have lessened considerably. I had used my IBM AT compatible without any problems prior to installing the voltage regulator, so I don't understand why the VFX-SD should be more sensitive but it is.

I hope this instrument is not of the permanently over sensitive type. When it works, it's superb...when it doesn't, well hopefully the 1.37 O.S. will also toughen it up.

The smoke is clearing and my wife is less worried.

Yours truly,
Orion Engar
Sardis, B.C.

[Ensoniq - You must keep in mind, the VFX-SD contains over 192k bytes (384k in an expanded machine) of battery backed-up RAM with many critical parameters stored there. Battery backed-up memory is prone to being corrupted by power spikes and static electricity. Short of requiring that all data be saved to disk and re-loaded each time the unit is turned on (like your computer) the most convenient solution is a line voltage conditioner. We recommend them for anyone using an electronic instrument, period.]

To whom it may concern:

I noticed erratic clicking noise when playing in real time or from sequences. Service centre runs diagnostic routine and finds no problem. Clicking noise persists. Bring the EPS back into service centre. Technician suggests I have the 6db audio output boost modification.

Return EPS to service center. Clicking noise is now more pronounced and is accompanied by sporadic buzzing sound. Buzz and clicking is present in audio outputs whenever a key is pressed, even if volume is set to zero. Power supply upgrade performed. Internal multi-connectors

cleaned and checked. Noise and clicks still persist.

Main board is replaced. Significant increase in S/N ratio. Unit is much quieter. Noise and clicks have finally been vanquished.

Soon after main board is replaced I notice irregular performance of data entry slider. Instrument volume, manual sequence adjustments, sample loop end, envelope editing, and instrument layer selection are all affected by malfunction. I am using the most current operating system, 2.4.

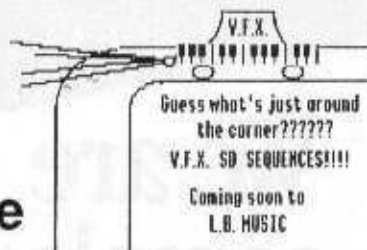
I called Steve Mash of Ensoniq and explained the difficulties I was having. He was of the opinion that the new main board was defective and should be replaced. This conclusion was also reached by my service technician. So here I wait for my new main board.

I believe that I have endured an inordinate amount of duress over this EPS. As it stands now I am not a very satisfied customer. To be fair though, the technicians at Steve's have been very supportive and Steve Mash of Ensoniq was very helpful.

William Basso
Toronto, Ont. Canada

[Ensoniq - Mr. Basso, all we can do is keep working with you to solve your problems. We've made significant headway, let's not give up now. Steve Mash at Ensoniq is awaiting your call (215-647-3930).]

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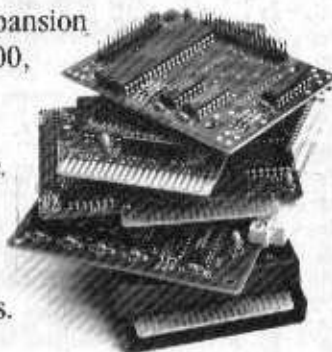


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