TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

EPS Tips and Tricks

by Bill Lewis

Buying a new instrument and reading the manual will, in most cases, give you a foundation for use. But often the more subtle attributes of the board do not become evident until you've lived with it. Occasionally, the obvious is a revelation a year after opening the box. I've lived with an EPS for nearly that long, rereading the manual, exploring and using it regularly. I'd like to share some of my discoveries and suggestions on its effective use.

Guitar Layers

A unique feature of the EPS is its ability to play different layers on down and up strokes of the keyboard. In order to create a more convincing guitar, try sampling a guitar playing chords, *not* the individual strings. Start by recording one sample of a down stroke and a second sample of an up stroke, assigning them to different layers in the same patch. Then make the down stroke a Keydown Layer and the up stroke a Keyup Layer. Now you'll be able to realistically comp by merely playing one note, and you won't have to roll your hands in order to imitate to pick striking each successive string. An added benefit of this method is its use of only one voice, leaving lots of polyphony for other sounds in 20 voice mode.

As an extension of this theory, assign just the down stroke to a patch select button and the up stroke to another. Using these three patches and dominant 9 chords you'll be able to play "guitar" with Sam and Dave. On the fourth "patch," record a sample of a related chord (for example the minor version). With major and minor chord samples in different layers and on alternate patch select buttons, it's possible to play rhythm guitar diatonically from one EPS instrument.

To play a realistic rhythm guitar part with samples of individual strings there are two possibilities. One is using a similar method of assigning the *same* sample to both Keyup and Keydown layers. A guitarist performs one motion to strike a sound. Two strokes equal two sounds. A keyboard player has to strike the keys, pick up his fingers and put them down again to create the same sonic effect. Up and Down layers avoid wasted motion. Just don't forget to roll your hands so all the notes don't sound at the same time.

Another possibility is to create a split with the same sound in the same range on both sides of the split. That way, alternating hands has the same effect as up and down layers, or up and down strumming. (For an excellent book on this and similar techniques, see *Power Play DX* by Steve DeFuria from Hal Leonard Books.)

Piano/Organ Layers

Another effective use of layering is to put related "real" instruments on the same EPS instrument button. This is especially useful when sequencing. For example, I like to keep my rhythmic keyboard sounds together with Electric Piano and B3 Organ in different layers, alternating between them with the patch select buttons. I'd rarely use both at the same time, but if I did, I'd copy the patch to another EPS instrument button and "lock" the copy into the alternate sound, then layer the EPS instruments by double clicking the instrument buttons.

Of course, if you use an alternate patch within a sequence (in other words, a patch other than 00), selecting this instrument will sound patch 00 on the live keyboard. This is an alternative to layering by copying the sound to another instrument button.

You can use this same philosophy with horns; trumpets, trombones and saxophones on the same instrument. However, since these instruments are likely to play together, use one layer to create a split where each tenth of the keyboard has a different sound. "Real" brass

In This Issue...

instruments rarely play more than 2.5 octaves and when they ensemble their range is restricted further in order to avoid sonic mud. Applying this technique is a bit trickier because you'll have to make copies of your wavesamples and assign them to new ranges. Subsequently, what we keyboard players would normally think of as bass clef might play back alto saxophone; definitely a treble clef instrument.

Multiple Drum Kits

All drum machines do not use the same MIDI note numbers. Roland uses C1 for bass drum and Yamaha uses A1. This can be especially frustrating for those of us who've been creating MIDI sequences long enough to have had more than one drum box. EPS layers offer an elegant work-around. Simply sample your drum kit and make copies of the samples in different layers, assigning them (using the Set Keyboard Range button) to different note numbers within each layer. Then, by using the patch select buttons to access these layers, changing drum kits becomes easy. If you're trying to transfer sounds from an outboard sequencer into the EPS sequencer, be sure to use MIDI as the clock and Poly, NOT Multi for the MIDI mode. Unfortunately, it's one track at a time into the EPS and the one doing the recording is the currently selected Instrument on the Base MIDI channel.

Stereo Panning

Even though the EPS has no EG on the Pan position, it is possible to create a dynamic stereo pan. Make a copy of layer one in layer two, and hard pan them left and right respectively. To make the sound move across the stereo field, use the Time parameter of the Amplifier envelope to delay the start of one of the layers and adjust its time parameters to cycle more slowly than layer one. This takes some effort, but it does does work.

The Random Pan parameter, while not quite the same, can be very effective if used tastefully. I've found it most useful on percussion instruments: conga, cowbells, etc. I wouldn't use it on bass and snare drum, but it works on hi-hats and even on those guitars when used sparingly. You should keep in mind that panning is a multi-level parameter in that a pan position exists for the wavesample as defined in the instrument, and there's a separate pan position for sequences which has priority. A little bit of stereo on *some* of your tracks will go a long way toward making sequences sound like a professional recording.

Effective Orchestration

Most importantly, give thought to designing an effective and standardized instrument set, especially if you're going to use the EPS and its sequencer live. Even in the studio, you can eliminate cognitive dissonance by setting up your instruments the same way on a regular basis. I keep my drum kit on Instrument one, bass on two, keyboards on three, horn parts on four, vocal pads and strings on five, and guitars on six. Instruments seven and eight are utility buttons that either get copies of 1 - 6 or MIDI channels to play outboard synthesizers. With 20 voices and the above set of "instruments," I can create some pretty fat sounding orchestrations that rival "Howlin Mac and the Heart Attack."

Now if I could only get a 4x expander with SCSI and a good backup system (pre-planning for the untimely crash we all know will happen eventually), I'd put analog synth sounds on seven, digital synth sounds on eight and there'd be only one instrument in my studio. ▬

Bio: Bill Lewis is the senior editor of Music, Computers and Software magazine as well as the Wizard Sysop on the Compuserve MIDI Forum where you can reach him at 76701,35. He's been playing electronic instruments since 1965 when he first plugged his saxophone into an electric pickup and a Maestro unit.

Front Panel

RND (♪♫♪)

The EPS OS is now version 2.2. (Up from 2.1.) Some of the changes: The EPS responds correctly to song position pointer messages in SONG mode. The sustain pedal is transmitted correctly over all MIDI channels. Selecting MIDI instrument #8 while the sequencer is playing no longer crashes the EPS. If you need additional information, contact your local dealer or Ensoniq Customer Service at (215) 647-3930. (See last month's issue for changes made in earlier upgrades.)

* * *

And Ensoniq has asked us to print the following:

Ensoniq would like to address the issue of the full-fledged *Advanced Applications Guide.* We don't want to mislead anyone by guessing at a delivery date and not be able to come through with the goods.

The fact is (as most of you have already heard), is that the manual is now at the printer. As soon as it is received, it will be distributed to all registered owners. So make sure you've mailed in your warranty cards.

We pride ourselves in giving the most complete and up-to-date information possible. And we won't commit to a delivery date unless it is a promise that we can keep. STAY TUNED.

* * *

Ensoniq recently announced the arrival of their first entry into the home digital piano market, the Ensoniq Acoustic Wave Piano with sound by Bose. The AWP was unveiled at a World Premiere Performance and Press Conference held at CAMI Hall in New York City.

The Acoustic Wave Piano is the first digital piano product that re-creates the complete experience of playing an acoustic piano. Superior sound capture technologies from Ensoniq (the same sampling power that is inside the EPS) are combined with a superior sound delivery system designed exclusively for the AWP by Bose, a world leader in audio technologies.

The AWP has begun shipping and will be available in 250-300 selected Piano & Organ stores starting in early December.

* * *

We're starting to see a lot of third-party sound development for the EPS. Always a good sign. Check out the new ads in this issue.

* * *

Be famous instantly! Yes it's that time again - our *Hackerpatch* file is getting skinny. Good time to send us your best.

TRANSONIQ-NET

HELP WITH QUESTIONS

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

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

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

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

ESQ-1 AND SQ-80 QUESTIONS - Tom McCaffrey. ESQUPA. 215-750-0352, before 11 p.m. Eastern Time.

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

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

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

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

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

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

MIRAGE OPERATING SYSTEM - Mark Cecys. Eastern Time (NY). Days. (716) 773-4085.

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

HYPERSONIQ

NEW PRODUCT RELEASES

Blank Software announces the release of *ALCHEMY 1.2.* *Alchemy 1.2* will allow owners of the EPS immediate access to the SCSI sample dump capability. Depending on the implementation, sample dumps via SCSI can be transmitted 50 to 100 times faster than conventional MIDI sample dump methods. Updates are available to registered owners direct with a nominal $25 materials and handling fee. Blank Software also offers an extensive Alchemy demo program in Hypercard format for $15. Blank Software, P.O. Box 6561, San Francisco, CA 94101. 415-863-9224.

KEEL Productions of Nova Scotia, Canada, announces the availability of a complete library of sampled sounds for the Ensoniq EPS. The *Keel EPS Sound Library* consists of 50 disks, covering the whole range of musical instruments, from standard favorites to the exotic. All of the sounds have been newly sampled specifically for the EPS. Sound designer Kevin Elliott says the KEEL disks are distinguished from other third-party sounds by virtue of superior attention to practical musical detail and thorough use of the EPS's powerful sound shaping features. Instruments are programmed with a full complement of performance "patches" and are arranged in logical groupings of 5 disks each, priced at $69. Quantity discounts are available for multiple sets. The complete set of 50 disks is $495. The sets come with extensive documentation and a money-back guarantee. For more information: KEEL Productions, Box 467, Lakeside, Halifax Co., NS, Canada, B0J 1Z0. 902-852-2931.

Turtle Beach Softworks has announced a software update that adds support for a wide varity of digital samplers to their *Sample Vision* sample editing system. The update allows the IBM-based sytem to interface directly to 22 different samplers - plus many others that support the sample dump standard. (The EPS and the Mirage included.) *Sample Vision* has the most comprehensive frequency analysis section of any micro-based wavefrom editing system. The update is available for a nominal charge. *Sample Vison's* retail price is $349. For more information: Turtle Beach Softworks, P.O. Box 5074, York, PA 17405. 717-757-2348.

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In summary, the ESQ1 program is a well-written and useful program. - ELECTRONIC MUSICIAN -

Valhala's ESQ1 program proves that even a 'dinosaur' like the C64 can be more than adequate for purposes such as this when the software is intelligently written. - TRANSONIQ HACKER -

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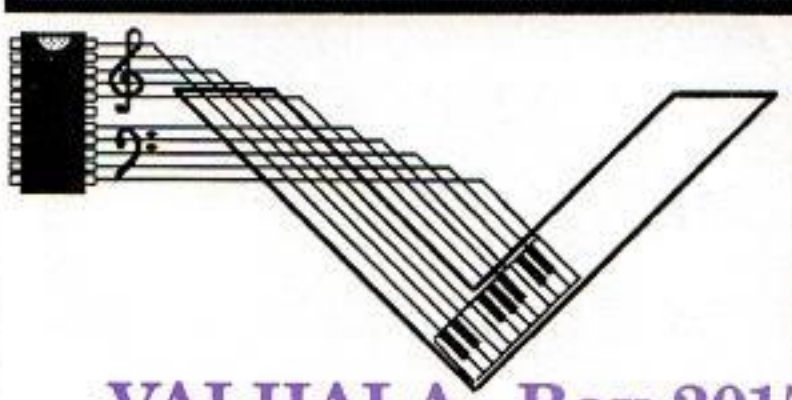

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WIPE OUT
- Starting With A Clean Slate On The EPS

By Tom Jordan

This Ensoniq Performance Sampler is such an exciting instrument to use that I have found myself getting into trouble when I least expected it - in the middle of a performance! The problem has to do with loading a BANK of data. As the EPS is loading a BANK it kills off whatever INSTRUMENTs were residing in the positions needed for the new BANK. If it runs out of memory (because of what you have remaining in the other instrument positions) then it will stop and ask you what you want to delete. DELETE??!!

Wellll... I don't know - I wasn't even watching - This is a performance ya know! I just want my new stuff in the right places at the right time. And I don't care about the old stuff.

There is no way to take a peek before you delete, and if you don't know which positions are the new sounds and which are the old sounds, you're sunk. All you can do is delete each one and start again.

So, Step 1. Press instrument button "1" for the yellow light to come on. Step 2. Press the same button again and hold it while you press the Cancel/No button. Now, repeat for each of the instrument buttons, since you don't know which ones are "good" for that piece the audience is still waiting to hear you start. It takes two hands to handle this Performer! (This is a good time to show the audience your tap dancing skills.) And now you can begin again to load your Bank.

It seems sort of a silly, embarrassing situation to me. I'm a diligent, solo performer, and I practiced all the moves. But when I got into the performance, I was looking at the audience not the machine.

My solution is to make a "WIPE OUT" Bank. First, clear the EPS of all data. Be sure that you clear the Sequencer-Song also. Next CREATE a NEW INSTRUMENT for position "1" and name it "WIPE OUT". There is nothing in this instrument except for a little keyboard and MIDI information (2 blocks). Now copy "WIPE OUT" to positions 2 through 8 by pressing 1 to turn on the yellow light. Then press 2 and Inter/Yes at the same time. Continue for 3 through 8. Now all of the instrument positions are loaded with virtually no memory used.

Before you Save the Instrument, Save the Bank as WIPE OUT on a new disk, then you can Save the Instrument using the same name WIPE OUT. If you will be careful to repeat this little pair of files on every new disk, every time you load a disk your WIPE OUT Bank will be there as file 1, ready for you to press Enter/yes.

The EPS will clear the machine and load the smallest instrument possible with seven copies next to it! Your bank also could load a "nothing" Song if you want to prevent your new data from taking off on a nightmare version of your previous tune.

When you have loaded this back into your EPS, just scroll down to file 3 (save the Bank before saving the Instruments) to catch that new bank for your next piece. Be sure that you include all of the INSTRUMENTs on the same disk with your BANK. Otherwise you will have problems when your EPS can't find your cosmic seagulls that the bank knows it needs. Make two partial BANKs on separate disks if your data exceeds the disk capacity.

Now you are set to perform without having to watch every detail of the loading procedure. Just don't forget to answer that prompt for "do you want to load the song?" Who is performing anyway? Me or it? ▬

Bio: Tom Jordan is a composer and performer of his own live electronic music in Cincinnati, OH. He performs for artists' series and grand scale, outdoor festivals, and presents hands-on, educational programs in schools throughout the Midwest. He still longs for the knobs of analog.

EPS Performance Tips

by Mitchell Marhanka

I was lucky enough to purchase the very first EPS and the very last ESQ-M from my local dealer. While I waited (and waited, and waited), for the keyboard to be shipped from Ensoniq, I read every article I could find on the EPS, ESQ, and MIDI applications. I thought I would be ready to really blow people away. My old Rhodes and Poly-61 were reliable but I wanted to add sampling, sequencing, and programs with more than basic waveforms to my performances.

At long last my new toy arrived and I eagerly hooked everything up. Presto! Information overload. I had read all the answers but I didn't quite have all the questions clear. A couple of late nights were spent trying to get ready for upcoming gigs and soon I began to learn just how incredible these two machines really were. I would like to share a few tips that I have found useful and hopefully will help you off to a faster start than I had.

The first thing I learned was that carrying my whole disk library was both clumsy and risky. Now I usually show up at a first practice with only pen and paper. I make notes on what sounds and how many at a time are required and in what order they appear. Then at home I prepare a specific performance disk or two with the necessary data. This saves a lot of fumbling at a job and reduces the chances of losing part of my library. The first thing that I save on every performance disk is the operating system. It saves a lot of searching when someone kills your power trying to dim the lights. Next, I make any adjustments to the global parameters that might be necessary for that particular performance and save them. I was not accustomed to having to boot-up a keyboard but I am finding it a convenience rather than a hindrance. I can adjust to any performance situation by simply inserting the right performance disk. Total preparation time is still the same. However, I can do more of it at home when it's more convenient. This is especially true when it comes to selecting the sounds for a performance.

Since I bought my EPS before the memory expansion was available I am very careful to select sounds that make efficient use of memory. I delegate many sounds to the module, especially the ones I use only briefly. Sounds that are to be supplied by the sampler are very carefully edited. This is to enhance the sample while conserving as much memory as possible. (Issues 36, 37, 38 of TH have some excellent tips.) My personal preference is to load samples into instrument numbers 1, 2, 3, & 4. These send no MIDI information. I create MIDI instruments in numbers 5, 6, 7, & 8, each assigned to a separate track in the ESQ-M. This allows access to four programs at any given time from the module. I like this arrangement because it allows me to see where the signal is coming from by looking at the Instrument/Track selector lights. This is handy should I need to adjust amplifier levels.

Once the sounds are selected and saved to disk I then look to see how I can create presets to smooth out the performance. Presets are covered in a little over a page in the EPS manual yet the more I play with them, the more powerful I find them to be.

For starters, presets can change any or all of the MIDI programs in the ESQ-M with the push of just one button. For example, I use all four of my ESQ-M patches during the first two songs of a job. Now I simply call up the next group by selecting a preset, without missing a single note. WARNING. Calling up a preset while the module is playing will sometimes lock the old patch into a sustain until all eight voices are expended on the new patch. This is quickly accomplished with an elbow cluster. Effective, but usually less than pretty. Calling a preset while playing a sampled sound seems to be acceptable.

Another thing that presets are good for is stacking instruments together. True, this is a relatively easy thing to accomplish manually, but I have found it to be much more convenient to push one button than several. Once again, this requires less thought in performance because of the time spent preparing the preset.

Now we get to the part I like best, splitting the keyboard. How did I ever get along with that old Poly-61? Presets will store unique ranges for each instrument as well as any transpositions. For example, I can program Instrument/track 5 (5, 6, 7, & 8 are MIDI instruments, each on a separate channel, don't forget) to be a wind/sweep patch. I adjust its range to be only the bottom note of the keyboard and then transpose its pitch to F to keep in the proper key. Instrument/Track 6 is an echo patch used only on the last note of the song. Adjust its range to be a single note and transpose into F also. Inst/track 1 is a sampled digital piano which I stack with a synthesized piano on inst/track 7. This stack covers the keyboard except the bottom two notes and the top octave. Finally, inst/track 8 is a solo patch assigned to the top octave of the keyboard. This patch is transposed down one octave in pitch to avoid shattering all windows. I spent 30 minutes designing this setup and now I can call it up in a split second. Even neater, is that I can call up another configuration with the push of another button.

The last trick I like to do is copy a loaded sample into a second inst/track location. I use this copy for doubling, or if you detune the two sounds a bit, you'll have pseudo-chorusing. Transpose the second sample and play duets or recreate horn/strings sections. Presets will store each of the alterations as well as select a different layer within the sample using the patch select buttons. The last little bit of useful information that can be saved in a preset is inst/track volume. This saves a lot of headaches for my sound engineer (me) during a performance. By doing my homework I know that my output levels will remain constant no matter what combination of sounds I select.

And now a few words of caution. I mentioned earlier that calling a preset while the module is playing will lock the module into a sustain. I am not familiar with other rack mounts, so for these you'll have to see for yourself. I have learned to punch presets at appropriate times so as to avoid sustain and it has not hampered my style. Presets will only be saved as part of a bank. Do not assume that because you have created the preset the EPS is going to remember it. You must save the bank to keep the presets. Finally, the EPS will not call a preset if the load instrument light is flashing. Pay attention to this because it's very annoying to have nothing happen when you hit the button in a hurry. To stop the load light from flashing simply press the Cancel/No button.

The little tricks that the EPS can perform have really hooked me on the board. The ease with which changes can be made is amazing, and loading new data while continuing to play. Lastly, I can do the hard part ahead of time. This means less surprises during gigs. I only have to remember a sequence of preset numbers and not the myriad program numbers and inst/track stacks that are required to do what I intended to do, which is perform. ▬

Bio: During the day Mitchell manages a paper warehouse. At night he's a professional amateur musician. (He plays a lot but rarely gets paid.) He spends all of his free time in his chicken-coop-turned-studio creating sounds to annoy the neighbors.

CHANGE OF ADDRESS

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

BACK ISSUES

Back issues are $2.50 each. (Overseas: $3 each.) Issues 1-9, 11, 13-23, and 27 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. 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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Mirage Sampling Templates

by Jordan Scott

Wouldn't it be great if all of the most important sampling and program parameters were set for you before a sampling session? Unlike sampling with the new EPS (which does all the hard work), advanced sampling on the Mirage using MASOS requires the user to define a lot of data. This is a major chore, especially when using the Mirage's comparatively cumbersome interface. If you're just getting into sampling and still don't have a computer for wavesample editing, using factory disks and your own templates for sampling will save you lots of time and in the end, make sampling a lot more enjoyable.

Simply stated, templates are forms or preset maps. When loaded, these forms provide presets for initial sampling settings. These settings will determine how the samples will be set up across the keyboard, sample memory allocation, initial loop points, and all the parameters that make up a program preset (EGs, Filters, etc.). The MASOS disk comes with three different banks of templates which are set up for one, four and eight samples per upper/lower keyboard, respectively. These templates also provide "blank vanilla" settings for the program parameters. These settings serve the same function as initialization functions on synthesizers (or the "BASIC" patch on the ESQ-1). While the Advanced Sampler's Guide recommends using these blank vanilla settings for sampling, there are a couple of reasons why you might not want to.

First, after doing a lot of sampling I've found that at each session I was constantly changing the sampling values from the MASOS disk templates. After a while you may find the preset values either limiting or not to your taste. In the end I saved my setups creating my own custom templates which make sampling synthesizers a breeze.

Second, if you're sampling drums, pianos or you name it, why go through all the trouble of entering hundreds of numbers when you probably already have similar programs on the factory disks in your library?

Factory drum disks make great templates for your own percussive synth samples and sound FX. If your multisampling a string synth patch from your favorite analog synthesizer, try using one of the factory orchestral string disks as your template. The variety of templates derived from factory disks is almost endless. Listed here are four common varieties from which there are many variations.

TEMPLATE TYPE	EXAMPLES
a) Multisample Percussion	Any drum disk.
b) Multisample Keyboard disks.	Piano, organ, strings, marimba
c) Performance Splits	Bass/keyboards splits (Disk 13).
d) Performance Programs (With different sounds on different program presets.)	Synthesizers (Disk 2) and 23 Synths on wheels (Disk 15).

Here are the steps to follow when using factory disks as sampling templates:

1) CHOOSE YOUR TEMPLATE. After deciding the sound to be sampled, look through your disk library to see if you have a similar sound (one with similar envelopes, keyboard splits and memory space) to use as a sampling template. You'll probably still want to touch up the envelope and filter settings a bit after sampling.

2) BOOT WITH MASOS. Just like you always do when sampling.

3) LOAD YOUR SELECTED TEMPLATE. After loading the template disk, place it back in a safe place. Loading the template will also place its sound into the Mirage's RAM. Don't worry, we're going to record over it. Your new samples should be saved to a separate disk.

4) DUMMY SAMPLE. This step is optional. It's an easy way to find out what area of the keyboard you're working with. If you know the keyboard mapping of samples created by the top key settings, skip to step 5. Otherwise, hit Lower Sample and record no audio into sample location #1. (99% of the time the Mirage will be set to this, but just to be safe, check that lower wavesample select (P26) reads a value of 1). After the dummy sample, search the keyboard for dead zones. The dead area of the keyboard is where you recorded nothing and is set-up to receive your desired sample. This dead area could be just one note or up to the entire keyboard depending on the top key settings (P72) of your selected template.

5) MAKE YOUR SAMPLE. Hit Lower Sample again and this time set the sampling level and record your desired sound. That's it. Your first sample in a multisample is in wavesample location #1, occupying the space where the dead zone was in step 4. Now save the sample to your new disk.

6) MULTISAMPLING. Select Initial Wavesample (P27) and Wavesample Select (P26) and set both to a value of 2. Repeat steps four and five to sample your sound into lower wavesample location #2. Continue this process for wavesample locations three through eight. Then you're ready to sample the eight upper samples!

When using sampling templates you won't have to constantly deal with chores like top key settings and wavesample assignments. As you sample you can adjust these parameters to vary keyboard set-ups and memory allocation if needed. Save these alternate settings to disk. After enough customization of the various sampling and program parameters, you might want to use this disk as your own individualized sampling template.

With the correct template, you can see how simple the sampling process can be. Of course the real challenge will be to make a good sample and then find good loops. In any case, using sampling templates will take care of the work you need not do. Just think of the extra time you will have to do that backwards-forwards, inverted, crossfaded, crosswave sample you've been putting off for years! ▬

Bio: Jordan Scott is an Operations Engineer at IDB Communications, a leading supplier of satellite transmission service for audio, video, and digital data networks. In addition to his articles for TH, lately, he's been doing some writing for MCS. Currently, he records stuff at home like everyone else in North America.

The Evolutionary, Revolutionary Ensoniq ESQ-1

By Steve Mash and Steve Coscia

ESQ-1 software upgrades have been available for about two years now and Ensoniq still gets calls from people with O.S. 1.7. We would be tickled if everyone were to upgrade to the latest version and maybe this article will explain why.

Sometimes in this industry, products are designed with repackaged technology and few enhancements. They may look better, but they function about the same. The ESQ-1, on the other hand, has been out for over two years and although it basically looks the same, it certainly doesn't function the same. If you compare O.S. 1.7 to O.S. 3.5 they are like night and day.

Ensoniq has always believed that what makes an investment (like a synthesizer) valuable is its ability to not become obsolete within a year. Ensoniq products are designed to allow for continual improvement, and as a result, the ESQ-1 has been continually enhanced with software upgrades that have made it more powerful.

We wouldn't be telling the whole story if we didn't indicate that some early releases of the software fixed bugs as well as provided new features. Those of you who bought early versions of the ESQ-1 know what we're talking about.

Why does software have bugs? Before a product is introduced to the marketplace, a small number of units are built in a limited production run. These units are tested extensively by engineers, programmers and production workers. All problems that are found are resolved prior to full production. Sometimes a problem doesn't turn up until the product has been released and is in the customers hands. Why? Because twenty or thirty alpha-testers can't possibly emulate the way two or three thousand end users will potentially use and/or abuse a product.

Based on some of the calls we have received, there are many early ESQ-1 owners with O.S. 1.7 who haven't experienced any bug problems. These same users don't use the sequencer. They won't find bugs unless they go to where the bugs are.

Most computer literate musicians know that software upgrades are not uncommon. The ESQ-1 is a computer with a 64k software program running all the time. The ESQ-1 runs faster and has more processing power than the legendary Apple II. Ensoniq's VLSI technology allows its products to be more software intensive than its competitors. Many, but not all, changes are easy to implement because software can be molded just about any way we want. At the request of all you trivia buffs, we have included a general overview of the main changes in each of the ESQ-1 software upgrades. We hope you find this to be useful.

Oct '86, 2.0: Fixed a bug which caused the ESQ-1 to dump its sequence when memory use approached capacity.

Amended to control the receiving of MIDI song selects.

Ability to receive virtual keypad events from an external device.

Apr '87, 2.2: Changed messages on some screens to make them easier to understand.

Parameter added to allow CV Pedal to be used as a volume pedal as well as a Mod Pedal.

Allowed data dumps to disk drives capable of accepting generic system exclusive messages.

Allowed compatibility with MIDI Guitar Controller.

Ability to output a tape sync clock when syncing to MIDI clocks as well as when syncing to tape.

Jun '87, 2.3: Allowed 40 internal programs to be reloaded after reinitialization.

Fixed a bug which caused erratic operation when locating by more than 16 bars.

Nov '87, 3.0: Added the often requested sequence editing feature which allows addition and deletion of variable bars at any boundary within a sequence.

Songs can be renamed by pressing the soft button above the song name on the SONG EDIT Page.

Startup screen automatically switches to last selected internal page.

VELOCITY Parameter renamed to TOUCH.

Nov '87, 3.1: Allowed ESQ-1 to remain in SONG Mode even after unit was turned off.

Dec '87, 3.4: Corrected a sequencer problem which prevented the ESQ-1 from recording correctly when synchronized (SYNC=MIDI CLOCK) with units which send clocks continuously.

Apr '88, 3.5: Corrected wave form pointer in EPNO2 wave form.

Restored the values of the TOUCH parameters to their original and correct order (HARD, MED, SOFT).

The above is only a partial list of the most important changes/features. Many other improvements were made along the way.

Software can be easily and economically enhanced. ESQ-1 O.S. EPROMs are free of charge but must be installed by an Authorized Ensoniq Repair Station. The end user is only responsible for a suggested installation fee of $19.95. As with any computer device, it's always best to work with the latest software version. ▬

Bios.: Steve Coscia is the manager of Customer Service at Ensoniq. Steve Mash is a Customer Service Rep.

The Patch Bay

Patchman Music

Reviewed by Chris Barth

FOR: ESQ-1, SQ-80.
PRODUCT: Patchman volumes 1 - 4.
PRICE: Cassettes; $10/volume (40 sounds each).
FROM: Patchman Music, 2043 Mars Ave., Lakewood, OH 44107.

This month's patches arrive courtesy of Matthew D. Traum, the programming whiz behind Patchman Music. Matt has four ESQ volumes for sale, each containing 40 patches. For those of you with other synthesizers in your collection, Matt also offers sounds for Casio, Korg, and Yamaha keyboards. We'll put those aside for a moment, though, and listen carefully to his ESQ collection.

Each volume comes with supporting documentation which describes the effect of the mod wheel on the sound. More than any other programmer I've heard, Matt uses the mod wheel in a tastefully musical way to control either volume or brightness for most patches. For example, with the mod wheel at rest the sound might be dark; as the mod wheel is moved, the sound becomes brighter. With most patches that use the mod wheel in this way, the overall range is set just right. In other words, the patch sounds pretty good with the mod wheel at rest, and it sounds pretty good (just brighter, darker, louder or softer) with the mod wheel in motion. I find this use of the mod wheel to be more useful than the usual vibrato which is offered. After you've examined a few of Matt's patches more closely, you can learn how to edit other patches in your collection to produce the same result.

If you use the mod wheel for these effects while you record a track on the sequencer, the mod wheel motion is remembered upon playback. This means that volume or brightness changes can be incorporated into a track, and programmed fade-ins and fade-outs can provide a degree of automated mixing.

Matt suggests recording the mod wheel as an overdub on a second track and then merging the original performance data on one track with the mod wheel overdub on the second track.

The data cassettes each contain one bank loaded three times. I backed up the tape as suggested and then loaded in the first bank, which turned out to be Volume 4, Special Effects.

And SPECIAL EFFECTS they are! The first six patches make up the entire telephone dialing process - the dial tone, the push button tones, the ring, a busy signal, the off-the-hook tone, and for those of you with cheapy portable units, the computer tones which pass for a ring. They are all very well done. It's very easy to use them in the proper order to get a very convincing effect. This is not the sort of thing I can use every day, but if your set calls for it, it's here. Isn't there an old Electric Light Orchestra tune that starts off with a dial tone? Or maybe you've finally learned *"Operator"* by the Manhattan Transfer?

RAIN, THUNDER, and WIND work beautifully. I also got a kick out of the stereo earthquake - just remember to lower the volume when you try this one out. The absolute killer is CARHRN! I can't believe how good this patch is! Every note on the keyboard is a car horn; if you play them right, you've got a tremendous city traffic jam, or the intro to *"Expressway to Your Heart."*

There are also three sirens: European, American, and air raid, along with the Star Trek alarm from the old tv show. From there, the effects branch off into some less successful birds, crickets, and bees, and into some more esoteric stuff like industrial and ambient noises. Really, though, I would have paid $10 just for the car horns.

The other three volumes are free of special effects and concentrate instead on mixes of acoustic and synthesized sounds. Volume 1 features a phenomenal autoharp with mod wheel control of brightness - this sound really stands out, a real winner. SPREAD is described as a big sound, and that it is. If you play single notes in octaves, the patch offers an orchestral resolution similar to the thundering end of *"A Day in the Life"* by the Beatles.

Volume 1 includes around 15 percussion patches, with the Miami Vice tom sound standing out as a keeper. On the whole, the percussion patches are thinner and more synth-sounding than others I've heard. They would be most effective layered over real drum sounds which could provide the credible bottom which is missing on most ESQ drum sounds. By themselves, they're a little thin. One option is to layer the drum sounds with any deep bass sound; this works if you have a fast decay on the bass sound.

The basses in this volume are average, with better ones appearing on Volume 3. Even Matt suggests fattening these sounds by copying tracks and mixing them together; of course, you could layer them too. Having tried this, they improved considerably. Try finding one very low and thick bass sound and use it as the foundation of a bass layer. The different bass patches can then provide a different color to the generic big bottom. It's hard to get a big bass bottom out of the ESQ some times, but this trick works.

The synthesized sounds on all three volumes fare much better than the acoustic simulations. Many of them sound like patches from other synthesizers, something which is not surprising given Matt's experience programming other synthesizers.

Volumes 2 and 3 are in the same mold as Volume 1. Strong entries include a super sitar and a great cowbell on Volume 2 (and they said it couldn't be done) and the ARP LD sound on Volume 3, which will be familiar to anybody with Triumvirate or ELP albums from the early seventies. Weak entries include the entire reed section on Volume 2. Overall, Volume 3 is the best of the three collections, with the strongest basses, best percussion and lead synth sounds, and the least dreck. I particularly liked the imitation of the Casio CZ-101 piano, CASPNO, on this volume. Volume 4 is for special effects fans, but then again, you know who you are. ▬

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

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ESQ Questions and Answers from the Transoniq Net

by Jim Johnson

Q: Occasionally, when I'm performing with the ESQ-1's sequencer, I get a request from someone in the audience to "speed it up" or "slow it down." However, if I adjust the tempo of the song that's playing, the sequencer jumps back to the original tempo when the next sequence starts. Is there a way around this?

A: Sort of. Because the ESQ's sequencer stores the current tempo as part of each sequence, it will always reset the tempo each time a sequence starts, even if that sequence is part of a song. This is intended to allow you to program tempo changes as part of a song - but, as you've discovered, it also prevents you from taking control of the tempo in real time. If you're using a drum machine with the ESQ-1, though, you might be able to solve the problem by using the drum machine as the clock source, and the ESQ as the slave. To do this, connect the drum machine's MIDI out to the ESQ's MIDI in, and set the SYNC source to MIDI CLOCK on the ESQ's Control page. (If your drum machine won't send MIDI clock, patch its clock out jack to the ESQ's TAPE IN jack, and set the SYNC source to TAPE SYNC.) Now you'll need to start the song by hitting Start on the drum machine, and the ESQ will follow the drum machine's tempo. (If you're using the tape sync method, you'll need to press the Play button on the ESQ before starting the drum machine.) It is possible that this arrangement won't work any better, if your drum machine stores absolute tempos as part of each pattern, though I don't know of any that do this. The drum machines I'm most familiar with (Alesis HR-16, SCI Drumtraks, and Yamaha RX-11) all allow you to adjust the overall tempo in real time, even if you have tempo changes programmed as part of a song.

Q: I recently purchased a Casio DH-100 MIDI sax, which I'd like to use as a controller for my ESQ-1. The instrument is supposed to send aftertouch data, and it has a portamento key, but when I route the ESQ's PRESSURE input to the filter, the aftertouch acts like an on/off switch, and I can't get the ESQ to respond to the portamento key. Is PRESSURE a continuous controller on the ESQ-1, and will the instrument respond to portamento on/off commands?

A: If you're using a pressure (aftertouch) sensitive keyboard with the ESQ-1, it will indeed respond as if this signal is a continuous controller (that is, gradually increasing amounts of pressure cause the filter to open gradually, or whatever). If the ESQ-1 does not respond this way to your controller, the problem must lie with the other instrument. Since the Casio sax does sense continuous levels of breath pressure for its own internal volume control circuitry, my guess is that you've got a defective instrument, though this is just a guess; it could be that it is simply not intended to send 127 levels of aftertouch data.

Regarding the portamento key (which is MIDI controller 65), the ESQ is not designed to respond to portamento controls as such. You could assign the ESQ's XCTRL controller to the portamento switch by setting this control to 65 on the ESQ's MIDI page, but this will not let you change the portamento (GLIDE) setting, only those parameters that can be modulated from an external controller (oscillator pitch, LFO depth, filter frequency, etc.). Because your sax controller is a monophonic instrument, however, there is a way for you to control portamento with your playing technique. If a patch on the ESQ has the MONO switch (on the Modes page) turned on, then the GLIDE portion of the voice becomes what keyboard players call "fingered glide." To see how this works, set MONO on and set GLIDE to some value around 10. When you play staccato (separated) notes, there will be no glide, but legato notes will slide smoothly from one to the next. This will require some practice on your part, since this is not a part of traditional recorder technique (the Casio uses the same fingerings as a recorder), but you might find that it's worth the effort.

Q: I'd like to use my ESQ-1 to generate sinewaves at 100 Hz, 1 kHz, and 10 kHz for test purposes. How can I set the ESQ to generate these frequencies?

A: The solution to this problem requires two pieces of information: the frequency generated by the ESQ-1 for a particular key, and the amount of that the frequency changes when going from one key to the next. Fortunately, both of these facts are readily available. If you play the third A from the bottom of the keyboard, if OCT, SEMI, and FINE for the oscillator in question are all set to 0, and if the TUNING control on the Master page is set to 0, the frequency produced by the ESQ-1 is 440 Hz - the well-known A-440. The frequency ratio of an octave is 2:1, of course, and the frequency ratio from one key to the next is the twelfth root of 2 (1.059463), as with all equal-tempered instruments. This ratio also describes the amount of frequency change for the SEMI control on the OSC pages, and since the FINE control divides the semitone into 32 equal steps, the ratio for each increment of the FINE control is the 384th root of 2 (1.001867), since 12*32 = 384. Using these numbers and a little trial and error, it's possible to calculate the OCT, SEMI, and FINE settings for any frequency you desire, assuming you press A above middle C:

Frequency = 440 Hz * 2^OCT * 1.059643^SEMI * 1.001867^FINE

or, more exactly,

Frequency = 440 Hz * (2^(OCT + SEMI/12 + FINE/384))

Using this formula, we get the following values:

100 Hz: OCT = -3, SEMI = 10, FINE = 11
1 kHz: OCT = 1, SEMI = 2, FINE = 7
10 kHz: OCT = 4, SEMI = 6, FINE = 2

Since the ESQ's OCT setting only goes to a maximum of 3, and since SEMI and FINE can't be set to values above 0 when OCT is 3, you'll need to use an OCT setting of 2 for the 10 kHz value, and transpose up two octaves on the keyboard, to the highest A on the keyboard. (I understand that the latest versions of the ESQ software allow you to set OCT to a maximum of 5; in this case, no keyboard transposition is necessary.)

If you're planning on using these signals for calibrating a tape deck (or any other equipment for that matter) a few words of warning are in order. First of all, for this type of thing, you need a low distortion sinewave of known amplitude. While it's impossible to calculate the level of the signal produced by the ESQ with any real accuracy, you can circumvent this problem if you have a good AC voltmeter, with a frequency response capable of handling these signals. The distortion is something else, though. While you can remove the small amount of aliasing and digital distortion (remember, the ESQ is only an

eight-bit machine) found in the 100 Hz and 1 kHz signals with the ESQ's filter, I doubt that the 10 kHz signal can be cleaned up enough to be useful for test purposes, due to the aliasing present in this range. (Actually, I believe the useful range of the ESQ's oscillators stops just short of 10 kHz, which is another problem altogether.) ■

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

Current Ensoniq Operating Systems

INST	OS	DISK	EPROMS
EPS	2.2	X	
MASOS	2.0	X	
MIRAGE	3.2	X	
ESQ	3.5		X
ESQ-M	1.2		X
SQ-80	1.8		X

C & M Research Group's Remote Control

Reviewed by Brad Lund

For: ESQ-1, ESQ-M, SQ-80.
Product: Remote Control: ESQ, ver. 1.02b.
Requirements: IBM PC/XT/AT or compatible, DOS 3.0, 256k (640k recommended), single floppy or hard drive, Hercules, CGA, EGA, VGA, MCGA, Roland MPU-401 or compatible, Microsoft compatible mouse and printer are optional.
Price: $89.95 + $4.00 s & h (two day air).
From: C & M Research Group (C & M), 302 Ridgehaven Place, San Antonio, TX 78209. (512) 826-0721

Finally!!! Someone out there has written an editor program which is really useful, affordable and fast. Don't get me wrong, there have been from time to time programs written that do certain tasks very well, but every once in a while along comes a program which alters the way we've been used to doing things, thereby making our lives much easier. I am referring to Remote Control: ESQ (called RC from here on) from C & M.

WHAT IS REMOTE CONTROL: ESQ?

RC is a full featured patch editor/librarian and sequence librarian for the IBM PC/XT/AT and true compatible family of computers. Unlike other librarian software, RC is (believe it or not) truly user-friendly.

RC will allow even novice computer users to take full control of their synthesizer and increase productivity right from their computer terminal using a minimum amount of memory and disk space. This means you are not kept waiting around while the computer loads a bank. It has an on-line help feature and the folks at C & M are always available for questions either by voice or 24-hour message service. They will get back to you promptly. Best of all, RC is not copy protected.

Well, so much for all the fa-la-ra, let's see how this thing works. I must admit, that at first I was a little skeptical about an editor program with so many features for under $90.00. "HMMM..." I said, "they must have left something out." But after living with RC for a couple of weeks and using it on a daily basis I have very few complaints.

HOW DOES IT LOOK?

Let's start off with the packaging itself. RC comes in a very durable and professional looking plastic case with the phone numbers for voice and modem communications printed on the front. Inside you'll find a single 5-1/4" floppy disk (3- 1/2" on request) that contains all the program files, sample bank files and file utilities. Also, there is a pre-paid registration card and a 33-page user's manual. While the manual gives a brief discussion of every command used in the program, I could only find a page and a half of tutorial, which seems shocking at first until you TRY the program.

When RC is first brought up you see a blank screen with two lines of text at the top telling you what MIDI channel is set, what banks have been created, the current bank selection and how to get help if you're stuck. Hitting the return key will bring up the main menu which has been styled after the famous "Lotus 123" type of bar menu. From this menu you can go in to BANK or PATCH editing, DOS shell, HELP, invoke or record a MACRO, receive or transmit a SEQUENCE, temporarily change MIDI channels and type of synthesizer or just plain QUIT.

BANK EDITING

Selecting BANK from the main menu puts you into the bank sub-menu where you'll choose the NEW and LOAD commands to load a previously stored bank into memory. RC will then quickly fill a box with all of the corresponding patches and you're ready for editing.

Unlike other patch librarians I've used, RC lets you load and view up to 26 banks (1040 patches) from disk at one time, allowing for rapid patch management between different banks. I find this feature very useful for making up custom instrument banks.

Additionally, you can receive from or transmit to the internal bank of your synth without EVER touching a single button on the ESQ (except for the initial set-up). Remember, RC stands for Remote Control.

One minor drawback to having more than four banks on screen at one time, is that loading the fifth bank covers (visually only) the first bank, etc. There isn't a "Search For Patch" command, so locating a particular patch can require more key strokes and be rather taxing on the old eyes.

Before you go into the patch editor, you may want a printout of the banks appearing on your screen. This will relieve some of the problems of no "Search For Patch" command. You can add a comment field for each bank and the printout can either go to the printer or to an ASCII file for further processing, like maybe to a data base program to sort patches by category.

PATCH EDITING

Here, dear Hackers, is where this program radically differs from the others. You first start by selecting a patch from one of your banks. Then entering the edit mode, the screen immediately shows all of the parameters for that patch in a format not unlike the HackerPatch page. From here you simply TAB to the appropriate parameter, push the + or - keys or select RANDOM to change the value, hit AUDITION to have RC play an ascending chromatic scale and, Voila!!!, you have a new patch which you might choose to save.

Also, for ESQ-1/M owners, if a patch has been written using SQ-80 waveforms, RC will indicate this by showing SQ-80 in the upper left hand corner at which point you simply change the waveform to one that is ESQ-1/M acceptable. Note that if you configure RC for an ESQ-1 or ESQ-M you will not have access to the SQ-80 waveforms for programing.

What else could you want from an editor? RC has an On-Screen Graphic Envelope Editor that allows you to see the characteristics of each of the four envelopes. Choose the envelope you want to edit, select the parameter and watch as the curve expands or contracts, then hit "A" for audition and listen to the affect.

By selecting LISTEN RC will port the patch over to your synth so you can play it. The patch goes immediately into the WRITE page. Although this is temporary, you can choose to make it permanent by selecting a patch area from the front panel of the synth. This, by the way, is one of the few times you ever have to touch your synth.

If you choose to, you can print all of the patch parameters on a single sheet. The printout looks like a patch right from the HackerPatch page. I did, however, find one problem associated with this feature. The printer supported by RC uses the IBM graphic character set to draw such things as lines. If you're using an Epson Compatible printer you'll have to feed the appropriate control codes to switch into IBM mode prior to printing. If you don't, your patch print out will have a bunch of "3's" where lines should be.

WHAT ELSE?

There are three more features of this package which must be noted. Remember I said at the beginning that RC is a sequence librarian? For the ESQ-1 and SQ-80 owner, RC has the ability to accept and store sequences, either all or one sequence, so say good-bye to your tape deck.

Another important feature of RC is a utility program on the disk called RCXLAT, a translation program which quickly converts banks of patches created by other programs to RC format. If you are unsure which format another program has stored your banks in, you can run "WHATIS" to promptly find out.

Finally, RC has a built-in macro recording program which allows you to record any combination of commonly used key strokes. This greatly increases the speed of the program. You can, for instance, write a macro which when executed will create a new bank, extract from your synths internal bank all of its patches and put you right into the patch edit menu just from a single key stroke.

CONCLUSIONS

This program ran without flaw and, although it requires DOS 3.0, it was originally advertised for DOS 2.0 and higher, I must confess that this reviewer used DOS 2.1 in an attempt to try and make it fail and it did not. If you bought an earlier version and are upgrading while using DOS 2.x and this program does not work properly C & M assured me that you would be refunded. (Ed. - As of press time C & M has released a new version of this program which, among other things, does explicitly support the earlier versions of DOS.)

In future releases it would be nice to see better printer support for the Epson and some kind of Laser Jet as current pricing for both are becoming more and more reasonable. Also, while I'm wishing, a global "Search For Patch" command would be really handy for day to day patch management or for that special producer who wants it three minutes ago.

It's simple - at $ 89.95, if you have an ESQ-1, ESQ-M or SQ-80 and don't have this program, you are definitely doing things the hard way. There is, to the best of my knowledge, nothing else on the market which even comes close to the features RC offers. ■

Bio: Brad Lund, a Mechanical Engineer/Physicist, has been an electronic musician for several years. He is an independent producer and owns Westlund Recording Studios in Tucson, AZ. His newest album titled "Scenes From Above" is currently being recorded and scheduled for release in January '89. It will feature all Ensoniq equipment.

Random Access - The Doctor Is IN

by Page Hite

Recently, I had a conversation with Jane Talisman, editor of the Hacker. I like to call in the evening and bend her ear with various bits of info and product gossip from my nationwide network of spies (read "grapevine"). "Enough is enough," she said. "You've got to quit calling like this -- people are starting to talk. Put this stuff in an article or I'll cut off your subscription."

Having my monthly fix threatened was enough to start me thinking. All my life, I've been a student of "ee-oh" (audio, video, studio). If it's a box of electronics and you stick juice in one end and get neat things out of the other, I'm probably in the neighborhood to check it out.

During my evenings in my studio, while dinner gets cold and the data gets hot, I usually manage to stumble across a few interesting points in developing my Ensoniq world-view. Let's take a look at what's popped up recently.

****

INTERFACE FROM HELL DEPT.: In utilizing MIDI to connect one device to another, it becomes frustratingly obvious that the MIDI specification is subject to interpretation by the various manufacturers. If you're having problems getting your Ensoniq gear to communicate with some other brand of gear, let the Hacker know. I'll try to obtain the device for some serious stress testing. If you're considering the purchase of some new gear, perhaps this information will be of help in your decision. And, now, this month's contestants:

ROLAND MT-32 - If you like presets and nothing else, fine. Otherwise, without a computer-based MT-32 editor or a Roland sequencer, you're doomed. It handles note on/off/velocity, controller and program change data from Ensoniq gear with no problem, but anything else is a case of "I hear you knockin', but you can't come in." There's no front panel programming other than basic parameters like reverb level or MIDI channel assign and no memory worth mentioning once the power is shut down. Since Roland insists on a default value of 12 for pitch bend (a little rich for my blood), this box fairly flew out of the ol' A-frame.

ROLAND D-110 - A little higher on the evolutionary scale. The unit has more memory and front panel programming. Two problems bear mentioning if you use it with Ensoniq gear. First, Roland provides individual pitch bend parameters for each of the 128 programs. If you don't like the default value of 12, it will take 1536 (12 x 128) button pushes to modify all of the programs. Second, this puppy chokes on aftertouch data and blows its brains out with unpredictable results. Ten minutes powered down seems to cure the problem. A software reset will also fix the brain damage, but wipes out your programming (remember those buttons). Individual key pressure is out of the question, and channel pressure is chancy if you're in multi-timbral mode. I hope this problem is fixed in a future software release by Roland. SYS-EX dumps work fine since no hand-shake protocol is required. It takes about 10 seconds to dump and about 20 seconds to load using the SQ-80. My unit seems to be settling in for a long visit.

ROLAND PAD-8 OCTOPAD - When writing drum sequences, I've found that it's easier for me to use drum sticks and a pad controller than to attempt tapping in the drum parts on the keyboard. The OCTOPAD fills the bill nicely and works well with Ensoniq gear. One small warning may be of help: Don't put this unit in a chain of MIDI controllers. The only thing an OCTOPAD can handle on its MIDI-in port is another OCTOPAD. If more complex MIDI data arrives, the OCTOPAD's processor goes into a loop and starts spewing out stuff guaranteed to lock up your system. Fortunately, they do warn you about this in the owner's manual.

ALESIS HR-16 - This drum machine and the SQ-80 are very good friends. SYS-EX dumps work fine in no time at all. Keyboard response may need to be adjusted for best results when used as a controller for recording drum sequences. The only small problem I've encountered was in transferring sequences from the SQ-80 to the HR-16. There seems to be a very small timing delay between the two sequencers, but I haven't had time to ascertain whether the problem is the programmer (me) or the hardware. This unit is welded to my A-frame along with the SQ-80 and EPS.

****

ESQ/SQ-80 TIPS 'n' TRICKS: This item got one line in the SQ-80 manual, but I feel it deserves some amplification. If you're using an external device (keyboard controller or drum pads) to record multiple tracks using the same MIDI channel in order to be merged later, all tracks subsequent to the initial track must be recorded on lower track numbers. For example, let's say you have a kick and snare sequence on track 6. If you want to add hi-hat and merge them all together, the hi-hat should be recorded on track 5 or lower. Another sequencer trick is correcting controller information. Suppose track 8 has a solo line on an external device, but you're not happy with the pitch bends. You should remove controller data from track 8 and set a second track to the same parameters as track 8. Record only controller data on the second track and you'll hear the results on your external device. At this point, merge the two tracks together. This trick also works when you want multiple tracks to have perfectly matched controller data. Use the above method, then just merge the controller track to each track needing controller data. Unfortunately, this doesn't work as well with the internal voices since the controller's effect won't be heard until the tracks are merged.

****

EPS TIPS 'n' TRICKS: It's right there in the EPS Musician's Manual. All sample files referenced by a soundbank must be on the same disk as the soundbank files. Maybe...maybe not. I used a soundbank file to load 5 sample files. I then loaded two more samples from other disks. At this point I wanted to use performance presets to call up various combinations of instruments and then save the presets in the soundbank file. I did so and then attempted to reload the samples using the soundbank file. Strange things happened. Samples from the soundbank disk were loaded into the instruments previously occupied by samples from the other disks. A few experiments provided the solution. First, utilize the soundbank file to load all the samples you want from that disk and then load any samples from other disks. Second, perfect your presets. Now, here's the trick: Before saving the soundbank file which will contain your new presets, erase the samples which came from disks other than the soundbank disk. Presto! The soundbank will load files properly and the presets will work perfectly, even to the point of ignoring empty instruments if they haven't been loaded with samples from other disks.

That's enough for one dose, campers. As soon as a few more tricks collect in the corners of Serendipity's Revenge (the studio for the terminally curious), I'll sweep 'em out to you. ▬

Bio: Page Hite finances his MIDI adventures by working for a D.C. area software firm. He spends his spare time searching for a unified field theory which can be stated in SYS-EX commands.

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The First Multisample

Part II - "And now I'll do't" - *Hamlet III iii*

by Barry Carson

Now that we have all had a chance to seriously ponder the questions posed last issue, we can move onto the actual job of multisampling. By this time, you have an instrument to sample and somebody adept at the manipulation of that instrument to play it. You have made note of the instrument's sound envelope and discovered if the instrument can be easily tuned or not. Remember, an easily tuned instrument can be used for samples with short loops. Sustained sounds (violin, clarinet) can be used for samples with long or short loops. Complex sounds (string section, choir) must use long loops and decaying sounds (piano, guitar) must use short loops (it is possible to use a compressor to flatten the envelope of, say, a piano and attempt a long loop but this technique goes beyond the scope of this article). A quick look at this criteria will show us that the Steinway 9-foot grand piano you rented just for this occasion will not be very useful unless you can record it on a variable speed tape recorder or another sampler to change its pitch, compress the envelope out of it or just be able to climb in with your tuning hammer and go to town.

Anyway, set up your Mirage and everything else you need in a nice quiet room. (Remember that the chirping of those cute little birds outside your window will be recorded along with whatever you are sampling and be transposed up and down the keyboard adding some truly odd overtones to your sounds. The same goes for sampling out in the real world. If you have found a wonderful pipe organ in a church next to a noisy construction site, you may want to find something else to record.) Slide in a blank formatted disk and get ready to go. The question of whether the Advanced Sampler's Guide and MASOS disks are extras is moot. If you have the MASOS, use it. If not, consider getting it; the tables in the guide contain some pretty important information for any level of sampling and the software has some pretty useful features. It is important to use either a blank formatted disk (BFD) or the MASOS disk. If you are not sure if you are using a BFD, it will tell you. A MASOS disk, on the other hand, won't say what it is, but it will count for you. You should use one of these because the Mirage, unlike some samplers, will not play raw samples. A Mirage sample is always part of a preset. Sampling over a sound will record your sample into whatever analog parameters were used on the original sound. This can be an endless source of confusion and frustration. So, unless you like confusion and frustration (Rubic's cube type people), use a BFD or MASOS.

Boot up with one of these disks and go directly to Parameter 77, User Multisampling, and turn it on. The Mirage, like all computers, has a kind of moronic sense of humor. One of its favorite jokes is to take all the sampling parameters you have laboriously set by hand and return them to the default settings every time you sample anything. Turning Parameter 77 on will lobotomize that urge.

Next, go to Parameter 75 which is labeled "LINE/MIC LEVEL INPUT" and you will find that the display reads OFF or ON. Don't ask me why it does that; just be aware that OFF = mic level and that ON = line level. Choose the setting that matches what you are putting into the Mirage: mic for microphones and line for pre-amp and mixer outputs. For electronic instruments that you are plugging directly into the Mirage, you may want to experiment. To get an idea of where your levels are, press a sampling (lower or upper) switch and the display will turn into a little VU type meter. The middle bar shows a good solid input and the top bar indicates clipping or distortion. A little flicker of the top bar at the peak of the sound is what you are looking for. Aside from the mic/line switch, the Mirage gives you no control over the input level. This means that you have to adjust the volume before it gets to the Mirage. If you are using a simple microphone setup, you will have to move your mic closer to and farther away from the instrument you are sampling.

Once you get your levels set, you can begin thinking about allocating memory for the sounds you are going to sample. (I should mention at this point that these steps certainly do not have to be done in this order.) A BFD will give you access to all of the memory chopped in half. Each chunk will start at OO and end at FF. Parameter 60 will give you the number of the first page of the sample; Parameter 61, the number of the last page. Bank 1 of MASOS will divide the memory into 4 equal pieces, Bank 2 will divide it into 8 pieces, and Bank 3 into 16. You should know that you can divide the memory into no more than 16 sections and that the memory will always be split in at least half; it is not possible to record into all 128k of memory at once. You should also know that you are free to set Parameters 60 and 61 anyplace you want and allocate any amount of the available memory to any of the 16 sample locations you want. These "preset" allocations are just for convenience.

For the sake of simplicity, let us multisample 4 notes and use equal memory for each. Those who booted with MASOS are set. If you used a BFD, you need to go to Parameter 26, Wavesample Select, and make sure it is at 1 (it should be): Parameter 60 will be at OO and 61 will be at FF. Change the value of 61 to 7F; go to Parameter 26 again and change it to 2, and once again jump to Parameter 60 and change it to a value of 80 and you are set at last. Make sure Parameter 61 has a value of FF, and one half of the memory (upper or lower) has been divided into two parts. Use the program change switch to change to the other memory half and go through the exact same steps. Our memory is now allocated. Be sure to switch Parameter 26 back to 1 for both memory halves. Recording a perfect sample into the wrong place can lead to frustration and premature balditude (quick, call Mr. Wavesample!).

Now it is time to go to Parameter 73, Sample Time Adjust, and shoot it all the way up (down?) to a value of 30. Then go to Parameter 68, Relative Fine Tuning, and change the value to 80 for each of the four wavesamples we will be using; those are wavesample 1 and 2 in the lower memory half and wavesample 1 and 2 in the upper memory half. Use the program switch to get to the proper memory half and Parameter 26 to select the proper wavesample (or use the Seq Rec button for the upper wavesample and the Seq Play button for the lower wavesample if you are using MASOS).

These activities accomplish a couple of things. They give us the highest sampling rate available (without the external sampling filter), and they will locate our sample on the various "C" notes across the keyboard. Using the highest sampling rate is good because it will give our samples the highest frequency response. If we sample four "C" notes, the Mirage will now cheerfully put them on the right keys for us, therefore doing half the work of mapping for us. A quick glance at the five octave keyboard will show us that four sampled "C"s will spread our sounds evenly across the keyboard. The chart on page 73 of the Advanced Sampler's Guide shows us that with the sampling time set at 30, we can handle frequencies up to 16,666 Hz (more or less). Turning to page 75, another chart lets us know that setting the Input Sampling Freq (Parameter 74) at any value between 90 and 94 should take care of any frequencies too high for the Mirage to deal with (again, you should experiment with this setting to find an ideal for your sound).

Wake up your musician and get him or her ready to play a

perfect, clear, low "C" (the note you want to play from one octave above the lowest key on the five octave keyboard). Remind him that the pitch and volume cannot waver. Vibrato is not a good idea (some sampling people like to sample things like flutes and 'cello with vibrato. These people point out that real vibrato sounds better than what can be added with the LFO later. It can, but it can also add real headaches to looping and create utterly odd effects if the sound is transposed up or down too far. As the pitch changes, so does the vibrato rate. At one octave higher, the rate will be twice as fast. You won't fool anybody into thinking that that comes from a flute.)

Hit the Sample lower switch, check the levels one last time and when everything seems perfect, hit enter and do it (or hit cancel to leave the sample mode). When the machine is done sampling, play that "C" note and find out what you have. If the note is in the wrong octave, go to Parameter 68, Relative Coarse Tuning, and adjust it so you get the same note being played back as you recorded in. If it sounds really awful, try sampling it again. If it sounds all right, play with it; see how far you can transpose it up and down and still have it sound good. Play with the analog controls: velocity sensitivity, filters etc. If there's clipping or distortion, reduce the volume going into the Mirage. If the sample starts too soon with a silent period before the note sounds, raise the value of Parameter 76, Sampling Threshold. If the first part of the sound's attack is not included in your sample, lower the value of Parameter 76.

When it sounds pretty good, turn Parameter 65, Loop Switch, on. When playing with the loop, it is best to have the sustain level of the envelope cranked up, even for an instrument that does not sustain (this would be Parameter 53). The Mirage defaults to a short loop, so your sample will play itself out and then slip into a nice repeating waveform. Nice, that is, if your instrument is tuned to the right pitch. If you are using a short loop, listen carefully to the pitch of the loop; that is the pitch you want to sample. If you are going to try a long loop, don't worry about this; you will have problems of your own to worry about. If the loop is the same pitch as your sample and it is difficult to tell when one changes to the other, you have done it on you first try! Congratulations, it will most likely never happen again. If it doesn't match, keep re-playing your note and keep re-sampling it. Tune your instrument a little bit at a time and keep trying to match the sample and loop pitch. The closer these pitches match, the closer the tone color of the loop will match the sound of the sample.

Once you get a loop that matches the rest of the sample, you can move it to anyplace in the sample. First move the value of Parameter 62, Loop Start, to where you want the loop to begin, then follow it with the value of Parameter 63, Loop End (just move the loop end backwards; it will stop at the right place). Of course, moving a short loop to a different location in the sample may throw the loop out of tune if the pitch of the sample wavers. If so, move the loop elsewhere or re-sample the note. If the loop sound is an octave higher than the sample, you have two options: you can make the loop 2 pages long by moving the value of Parameter 62 back or the value of 63 up one number, or you can sample the note at a Sample Time of 60 (Parameter 73); this will take care of the loop problem and give twice as long a sample, but it will also lower the frequency response. I should mention that tuning the low string of your guitar up an octave is not a recommended option.

Another important point for short loop people is that you should not change Parameter 64, Loop End Fine Adjust. And why not? Well, we won't profane the holy mysteries of the Q-chip here by probing its workings with simian fingers, but the Advanced Sampler's Guide warns us that "very nasty things can happen if you make the loop shorter than a page." (Crime waves? Genocide? An increase in the price of 3.5" disks?) Let us just say that Parameter 64 exists solely for the entertainment of those people creating long loops.

Sometimes a short loop will make an odd sound as it begins, a click or dip in volume. If these anomalies cannot be removed by moving the loop or re-sampling the sound, you may have to hide the loop point. O.K., how can you hide a loop? In the same way that you hide stuff you can see - where there is other stuff to conceal it. You hide sounds where there is other noise to mask them. Almost all instrumental sounds have noise during their attacks: the chiff of a flute or organ, the thud of a piano, the twang of a guitar or harp. Move a noisy loop point right up to the end of these complex attack sounds and no one will be able to hear them. Hiding loops in this way is rarely needed in the lower ranges, but as you begin to sample in the higher ranges you will find it often necessary. With lower notes, it is usually possible to let the whole sample play out with its realistic sound before easing into the oscillating loop.

For those of you who want to try a long loop, roll up your sleeves; this will take some time. Leave Parameter 63 at the end of the sample and move the value of Parameter 62 up to a point in the sample after the attack sound is over. Move 62 slowly around looking for a loop that begins to sound not too rough (this will take some time). If you find only silence at the end of the sample, your note was not long enough. Record it again and make sure it goes the whole length of the sample - when using a long loop, every page of sound is important. If you can't find anything, move 63 up a little at a time, making sure to listen to what you have. Be aware that you must re-strike the key to hear any changes in the loop. Go back to 62 and, again, slowly try other loop points.

Be prepared to go through these steps many times. I do have a few comments about long loops. Don't be too hard to please; a little click or bump is okay for what we are doing, and what sounds really obvious by itself will be masked to some extent in the middle of a piece of music. Keep in mind that most sounds can be looped to some extent but it (almost) always takes a lot of time. Don't work too long on one loop. When you reach a point of frustration, stop. Save what you have to disk and go back to it later. It will wait for you. If there are huge bumps and swoops or clicks and thuds wherever you try to loop, don't waste time on it. Re-sample the note and try to avoid any changes in pitch or volume. These changes are what causes the swoops and thuds. As you get used to making long loops, your ear will become amazingly sensitive to any of these changes and you will be able to detect them as soon as you hear them and realize, at first listen, what samples are "unloopable." Those people using MASOS should check the Guide for tips on crossfade looping, waveform rotation and other tools to help with the long loop.

All right, you've got one done. It sounds pretty good and the loop works okay. The important question to address here is, how good should it be for you to be satisfied? The answer is, of course, "Who knows?" My suggestion is that, if this is your first multisample, don't ask too much of yourself, your Mirage, your musician, or your patience. Even the very best samples do not sound as good as the original sounds. Listen to the famous Mirage piano, then play a 9 foot grand and see what I mean. This is true of even the most expensive samplers. Don't kill yourself trying to do what is beyond the capabilities of the technology. If it sounds pretty good and is musically useful, you've done a good job. You are now set to go through the same steps for samples 2, 3, and 4. Make sure that you are working in the proper memory half and with the proper wavesample.

That is about all for this time. Next time we'll wrap it up with some tips for sampling notes in the higher ranges and avoiding noise and aliasing, the other half of mapping, and making presets. Of course the post-sample celebration will be discussed in some detail. ▬

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

Hackerpatch

By Sam Mims

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

The Patch: FLAPHS

by Garrett Butulis, Dayton, OH

FLAPHS is a unique sound that encompasses a flange effect, a phaser effect, and a digital delay effect as well as a solid bass tone. If not sustained, the sound will have a bright "phaser" effect. Sustained, the sound will have a slow metallic decay. The mod wheel dampens the sound which works well to "mod out" during the decay of a sustained chord, then in again slowly just before the sound drops out.

The Hack

This is an interesting sound, but not one you will use on every song. LFO1 creates the echo effect by applying a square wave as a modulator to the DCAs, thus cutting them on and off with regularity. The filter resonance adds the Star Trek "phaser" sound. If you want to eliminate this, turn RES to 0. A nice sound is made with the resonance off and the mod wheel up full.

Instead of tuning all three oscillators sharp, set FINE to 0, 3, and 6 for OSC 1, 2, and 3. To get a very sustained sound without having to hold keys down, simply go to the MODES page and switch CYC to ON. While you're there, try switching AM on for an interesting twist.

The Patch: BAGDAD

by Rob McAllister, Spokane, WA

This is an interesting almost analog type sound that works well as a lead voice. For a rougher sound, change OSC2 waveform to NOISE3. The mod wheel affects the filter and the stereo panning.

The Hack

This is a "split" sound, created by using KBD2 as a modulator on the DCAs fading in an oscillator as you play up (or down) the keyboard. Here, OSC1 is only predominant on the bottom octaves. Changing the waveform of OSC1, therefore, affects only the bass sound. Try SINE or ELPNO2 for a smoother bottom, or try NOISE3 for a gritty metallic bottom. The top octaves are organ-like, dominated by the VOICE2 wave of OSC3, plus OSC2 running in sync with OSC1. I made the sound a bit more ethereal by going to the ENV4 page and changing T1 to 14 and T4 to 35. Try playing with the filter/mod wheel combination as well by setting the filter FREQ to 62 and MOD1 depth to -49.

The Patch: DREAMR

by Michael Reeves

I am new at this ballgame, but was lucky and got close to the sound I wanted. This patch was created from scratch.

The Hack

I really like this ethereal synth sound - the name is appropriate. Michael used ENV1 as a modulator on DCA2 to produce a "plink" sound from OSC2 whenever a key is released within the first second or so. If a note is held longer, OSC2 swells in anyway, so the plink is no longer there. Playing with the filter FREQuency and RESonance is interesting, but I think Michael chose the best values; higher frequencies are too shrill. Turning on the AM on the MODES page, however, does add a spooky pseudo-helicopter effect.

The sound can be adapted to an ESQ-1 by simply turning DCA1 OFF, and disregarding the settings of OSC1. This loses the breath attack, but retains the main portion of the sound. But better yet - and this goes for SQ-80 owners as well - try changing the waveform of OSC1 for various timbres, leaving the other settings as listed (make sure DCA1 is ON). SQR2 is my *favorite choice for this alternate waveform. For the final touch of the ESQ adaptation, change MOD #2 of DCA2 from PRESS to either WHEEL or PEDAL (if you have one).*

The Patch: 03.ORGN

by Mik Adams, Sound Logic

This is a large cathedral organ sound. The mod wheel controls a moderate chorusing vibrato. The CV pedal controls the intensity of a slow sweeping pan.

The Hack

Mik has created a big organ sound, made with the VOICE2 waveform for fatness. I found the bottom octave to be so low that it was unusable, so I raised the whole patch up an octave by adding 1 to the OCT setting on all three oscillators. If the sound is a bit too "voicey" for you, try changing the waveforms of the oscillators of your choice to ORGAN, 4 OCTS, PRIME, OCTAVE, or OCT+5. This takes the sound closer to that of a clean organ, but then it is not nearly so big. You'll have to experiment where to make any changes here; OSC1 is the high harmonic of the sound, OSC2 is in the middle, and OSC3 is the low foundation.

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

ESQ-1 PROG: FLAPHS

BY: GARRETT BUTULIS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	2	SAW	OFF	-	OFF	-
OSC 2	1	0	5	SYNTH2	LFO3	5	OFF	-
OSC 3	-1	0	8	SAW	LFO2	7	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	ENV3	63	LFO1	-63
DCA 2	53	ON	ENV2	63	LFO1	-42
DCA 3	63	ON	ENV1	39	LFO1	-39

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	12	31	36	ENV3	63	WHEEL	-30

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	13	ON	OFF	SQR	63	63	63	OFF
LFO 2	12	OFF	ON	TRI	7	5	4	OFF
LFO 3	14	ON	ON	NOI	26	63	9	WHEEL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	31	0	-63	15	19	63	0	0	14	41
ENV 2	63	63	0	0	0	0	0	0	0	0
ENV 3	63	42	2	0	23	0	0	63	25	63
ENV 4	63	50	0	21	63	0	36	52	32	9

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

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

ESQ-1 PROG: BAGDAD

BY: ROB MC ALLISTER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	VOICE1	OFF	-	OFF	-
OSC 2	-3	5	0	NOISE1	OFF	-	OFF	-
OSC 3	0	7	0	VOICE2	OFF	-	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	55	ON	KBD2	-63	OFF	-
DCA 2	56	ON	KBD2	-15	OFF	-
DCA 3	55	ON	OFF	-	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	73	9	31	WHEEL	-20	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO1	-40

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	10	OFF	ON	TRI	0	0	0	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	63	63	30	0	3	43	26	28	0

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

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

ESQ-1 PROG: DREAMR

BY: MICHAEL REEVES

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

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	51	ON	LFO1	7	OFF	-
DCA 2	43	ON	ENV1	63	PRESS	19
DCA 3	35	ON	ENV2	37	LFO2	22

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	16	0	27	OFF	-	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	22	OFF	ON	TRI	4	1	20	LFO1
LFO 2	22	ON	OFF	TRI	0	0	63	ENV3
LFO 3	4	OFF	ON	TRI	0	3	37	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-25	19	0	0	0	0	37	34	0	2
ENV 2	19	-23	15	0	0	19	38	27	0	0
ENV 3	-19	40	11	0	0	10	50	22	0	0
ENV 4	63	63	63	0	0	0	0	0	32	0

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	3	ON	OFF	OFF	OFF

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

ESQ-1 PROG: 03.ORGN

BY: MIK ADAMS

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	VOICE2	LFO1	1	ENV1	2
OSC 2	-1	0	2	VOICE2	LFO2	1	ENV1	-2
OSC 3	-2	0	4	VOICE2	OFF	-	OFF	-

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

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	53	2	33	ENV3	5	KBD	25

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO3	61

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	20	OFF	ON	TRI	0	1	3	WHEEL
LFO 2	22	OFF	ON	TRI	0	1	5	WHEEL
LFO 3	6	OFF	ON	TRI	0	0	0	PEDAL

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	16	0	0	30	0	9	19	3	20	9
ENV 2	46	63	63	0	0	0	8	63	12	0
ENV 3	62	17	17	0	22	46	44	63	37	9
ENV 4	42	61	43	18	18	15	21	63	36	9

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

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

Classifieds

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EPS Samples. D-50, Moog, Kurzweil, piano, drums, etc. You configure your own disks from my sound list. Each disk $9.95. Send SASE to J.D.W. 715-E Main St., Albertville, AL 35950.

EPS Disks - Will trade or buy. Have large selection, but interested in more, particularly vocals. Also will accept/trade in Sound Designer format for the Macintosh. John Emerson, 101 Brickett's Mill, Hampstead, NH 03841. 603-329-6792.

D-50 sounds for your **MIRAGE** and **EPS** samplers. We sampled 64 great D-50 sounds. 10 disk set, $69.95 U.S. And now, introducing **MIDI TEXTURES;** a combination of Kurzweil modules, Korg M-1, D-50's and DX7. Incredible MIDI sounds including D. Foster piano, rich strings, great bells, hot brass and sounds you've only been dreaming of. 6 disk set, for the Mirage and EPS, only $59.95 U.S. EPS samples were made on the EPS. Order now, M.O. only, or send $8.00 for demo cassette (or disk) and sound list. PSL Productions, P.O. Box 602, Station K, Montreal, QUE, Canada, H1N 3R2.

Custom EPS samples. $12 per disk. Call after 6 pm EST for details. 802-296-6757.

EPS, DSK, Mirage samples. Also custom services. Every sound you need. Listings: $1.00. Demo tape: $6.00 (includes listings). Mr. Wavesample, 162 Maple Place, Keyport, NJ 07735. 201-264-3512. Make checks payable to Jack C. Loesch.

New stuff from "the Lush"! My "DeMiTy," "X," and "Lush" disks for Soundprocess and your Mirage - only $25 each. Over 100 sounds on each disk! Also, my library of samples for the EPS: D-50, TX81Z, acoustic instruments. Send for my list. Bob Spencer, #11 Warren Dr., Granite Falls, NC 28630.

Minotaur Studios is proud to offer a new sound disk for the Mirage. It includes: Harpsichord 2, a rich powerful harpsichord with a strong bass; Hammer Dulcimer, and Flutes/Piccolo. Barry Carson, Minotaur Studios, 4 College St., Canton, NY 13617. $20.00.

EQUIPMENT

Will trade EPS with 2X expander for ESQ-M, Mirage rackmount with Megabank, MME, or Triton Soundprocess Disk, TX-7 module and WX-7 wind synthesizer. Will consider EPS trade for ESQ-M, TX-7, D-550. Will also consider EPS for Kurzweil 1000. 203-564-8284 after 4 pm.

SQ-80, VGC with extras, 213-656-3515, Mike at Technosis. $1200 or trade toward EPS.

ESQ-1, expander, cover, thousands of voices (originals, not copies) on ROM cartridges and cassettes - $900. Prophet-600 (arpeggiation!), cover, 600 voices - $550. TEAC 10" tape deck, stereo, bi-directional record - $600. Everything mint, all documentation and manuals. Prepaid insured UPS shipping in original cartons. Bert, (904) 398-6888, pm before 8 Eastern and weekends.

Yamaha DX-7 & CX5M computer. Voicing program, 4 ROMs, 1 RAM, and breath controller. All for $675.00. Casio DG-20 MIDI guitar $175.00. Ensoniq E2PROMS (3) $90.00. Call 201-782-7527 (NJ) ask for Rob.

SUPER HEAVY DUTY STEEL RACK excellent for all rack mountable modules, 39 rack spaces, 6 ft. H by 21 in. W by 21 in D. $59.00 + FRT. ENSONIQ ESQ-1 Mint Condition! 2,300 Patches + Sequencer Expander only $895.00. LEAPING LIZARDS (IGUANA) $20.00. ORBITAL ACTION MUSIC, P.O. 55191, GRAND JUNCTION, CO 81505. 303-245-7639.

SOFTWARE

C-64 Software. Dr. T's VDS for Mirage $50. CZ Patch $30. FB-01/DX100 Editor $40. Convertifile Plus $20. Passport Music Shop $60. Caged Artist CZ Rider $30. John Wenberg, P.O. Box 561, West Dennis, MA 02670. 508-398-3990 after 6 EST.

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

PATCHES

ESQ-1/SQ-80: SS-40 Forty voice sound set. Incredible acoustics, keyboards, synths, basses, effects, and percussion. Data cassette $15.00 + $2.50 P/H. Specify if you own a CV-pedal. Make check out to: Sevan Simonian, 93 Powell Road, Emerson, NJ 07630.

You can now own the world-famous PATCHMAN MUSIC ESQ-1 Patches for only $10/volume!!! Highest quality. Volumes I-IV: 40 patches/volume. Cassette. Application tips with each volume. Specify instrument, Volume, format. PATCHMAN MUSIC, 2043 Mars Ave., Lakewood, OH 44107.

SOUND LOGIC ESQ-1/SQ-80 "Modular Voice System". 120 Stereo Voices - 80 Fundamental and 40 Unique. Extensive implementation of CV Pedal and Poly-pressure. 64-page Owner's Manual with program sheets and performance notes. SysEx, Mirage disk and all other standard formats supported. $39.95. FREE Shipping & Handling. For brochure or to order: SOUND LOGIC, 1125 Eleventh Street, Ramona, CA 92065.

PATCH UPGRADES

SOUND LOGIC UPGRADE: 11-2-88
MODEL: ESQMVS - FUNDAMENTAL 80
PATCH: 03ACPNO (3rd Acoustic Piano)
MODIFICATIONS:
DCA 4 DEPTH = +63
LFO 2 MOD = PEDAL
LFO 3 FREQ = 10; MOD = PRESS
NOTE: Changes control of the fast vibrato from PRESSure to CV Pedal and control of the width of the "automatic" PAN from CV Pedal to PRESSure. Notes can now be panned on an individual basis. MOD WHEEL still controls tuning.

OUT-OF-PRINT BACK ISSUES

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

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

I would be happy to accomodate requests for copies of no longer available back issues of the Hacker. 5 cents per page plus postage. Pat Finnigan, 4817 E 17th St., Indianapolis, IN 46218. 317-357-3225.

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

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Well, - within limits. We're offering free classified advertising (up to 40 words) to all subscribers for your sampled sounds or patches. Additional words, or ads for other products or services, are 25 cents per word per issue (**BOLD** type: 45 cents per word). Unless renewed, freebie ads are removed after 2 issues. While you're welcome to resell copyrighted sounds and programs that you no longer have any use for, ads for *copies* of copyrighted material will not be accepted.

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.

To: Transoniq

I have a couple of short questions for the Interface.

1.) When I play the Ensoniq patch FIDDL2 I get an awful buzzing noise on the B above middle C. The rest of the notes sound fine. Any ideas?

2.) Also, something very strange happened recently. I was on the INT4 page, I selected a patch to play, then accidentally I hit the data entry slider, and the letters in the name of the patch would scramble as I moved the data entry slider up and down. Also the sound changed - sounded as though the filter resonance was being changed by the data entry slider even though I was on the INT4 page. I "rebooted" the SQ-80, I have not re-initialized. The SQ-80 is not connected to any other equipment - computer or keyboard. Any ideas? Is there a new ROM I should know about? I have not replaced mine - and I bought it in Feb '88, not long after they came out.

Thanks,
Kevin L. Kitts,
Ellicott City MD.

[Ensoniq's response - 1) This probably has to do with limitations of the tuning resolution within the SQ-80. Some waveforms, when detuned by a certain amount from other waveforms, can react oddly on one or more keys.

By changing the Fine Tune amount of one, more, or all oscillators in the sound you can probably move the phenomenon to another key, if not eliminate it completely.

2) We've never heard that one before. It sounds like something got the software very confused. The Data Entry slider should, of course, have no effect when on Program Bank pages. We do recommend that you reinitialize the unit (save any valuable sounds and sequences first).

The current SQ-80 OS is 1.8.]

Dear Hacker

Okay, I've heard all of the controversy and warfare about adding more wavesamples to the ESQ-1 and how this would be incongruently complex. Hey! I'm in the same boat as all of you out there who, after recently buying the fantastic ESQ-1, were cordially introduced to the 'new and improved' SQ-80 which just came out. I agree that it would be highly impractical to add more waveforms, but there is another alternative.

Keep the wavesample quantity at 32 to concur with the existing internal operating system, but allow us, the customer to choose the 32 waves which we desire. There are a few waves I could easily give up such as "KICK" (what good is a bass drum without the rest of the set?), "VOICE2" (same as "VOICE1" but with slightly higher formants), and some of the band limited waveforms, "BASS2", "SQR2" which can be created by lowering the cutoff frequency on the original waves. I would subsequently love to replace these with some of the SQ-80's considerably more useful samples such as ".CHIF", "BRETH", and most importantly, "STRING" and "BOW". People pay over 2000 bucks just for the Kurzweil string expander sampler (strings ... nothing else.). This demonstrates the high importance and necessity of a good string sound.

I realize that individually customized wave-sample chips would be impractical, so Ensoniq should offer maybe five different combinations (one could be classical, more strings; one New Age with more drums) and each chip could still be inexpensively mass produced. For us who already have an ESQ-1, the sample chip could be relatively cheaply replaced without screwing up the O.S. or anything. I think that there are hoards of people out there who would quickly grab this opportunity, so it would be a financially sound endeavor for Ensoniq to risk.

And now for something completely different. To create a very realistic trumpet sound, select the factory preset, "3TRUMS" (INT 1) and simply change OSC1 from "PULSE" to "FORMT2" which is the closest formant frequency of the trumpet (about 1000 Hz).

Hopefully, you'll alert the masses of my concept by printing this letter. The Interface is a fantastic forum for customers to communicate and relate with Ensoniq. Keep up the great work.

Sincerely,
Jim Grote
Cincinnati, OH

[TH - Actually, this would be a nightmare for all the third-party patch vendors. They go into fits when an OS change inadvertently affects one of the waveforms.]

[Ensoniq's response - This would be a pretty chaotic scene; with multiple sets of waves out there you could never be quite sure that a given set of sounds would work with a given unit.

Two other considerations come to mind:

1. The sampled attacks and inharmonic loops in the SQ-80 take up much more memory than any of the ESQ-1 waveforms, so you simply couldn't "trade" one for the other.

2. In any case, you would absolutely have to rewrite the operating system for each new set of waves. The waves are arranged in ROM like a sort of jigsaw puzzle. They're not all the same size; each has a different number of multisamples, etc. The ESQ-1 voice code would have to be modified for each set of waves so it would know where to find them in ROM. We don't have any plans to implement anything of this kind.]

Dear Hacker,

Here is a copy of a letter I have sent to Ensoniq. Your readers may be interested in my comments.

Dear Ensoniq,

I just got myself an EPS with 2x expander and 1.5 software and am going through the usual teething problems. In particular, a problem with the Sysex recorder:

1. Load from ESQ-1 to EPS sysex recorder a bank of ESQ voices

2. Save voices to EPS disk as Bank 1

3. Load from IEPS disk a MIDI file called XYZ bank (a previously created bank of ESQ-1 voices)

4. Press enter on EPS to send voices to ESQ-1

5. ESQ-1 receives XYZ bank-No Problems

6. Press cancel on EPS

7. EPS responds with prompt "Resave to Disk?"

8. If I answer yes the EPS prompts "Delete old version?"

9. If I answer yes the EPS now wipes out not XYZ bank as expected but Bank 1. It then writes its current data (XYZ Bank) to disk under the filename Bank 1.

I now have two files on disk - Bank 1 and XYZ bank but they both contain the same data (XYZ bank data).

This also means of course that I can't read a MIDI file and back it up on another disk (because the EPS doesn't give me a chance to rename the file, it will attempt to write every file to disk under the same filename (sys ex file). This is a MAJOR problem!

Using the EPS with an RX-11 causes problems. The EPS sequencer transport controls function perfectly to control the RX-11, but if a sequence is allowed to finish playing, the RX-11 RUN light stays on, indicating that a stop code hasn't been sent. Consequently when EPS play is pushed, the RX-11 is still mid-sequence and starts up in the middle of a bar.

Please give us more than one song in memory. 80 sequences for just one song is kind of impractical. We should have the choice of 1 to 10 songs, that can be chain played.

I also expected to be able to back up my disks with one simple command - but no - I have to manually copy every last file on the disk by reading instruments, bank, songs and sequences in to memory then saving everything back out again to my backup floppy.

C'mon Ensoniq, you produce great instruments but fall down in bug testing. I realize pressure to get a new instrument out to the market is high, but your users are not patient laboratory animals. OK, so that's off my chest.

My comments are made in the hope that you will keep improving this great instrument.

The letter to Ensoniq ends there.

I wonder how many of us have experienced the "patronizing" look from sales/service staff when we report bugs? I suspect that a lot of service persons mutter "user error" to themselves. Sure, these are complicated instruments but the musicians using them are quite often pushing the device to the ultimate bug test. It's just possible that many musicians are capable of knowing when an instrument is on the blink. After all, if the users didn't dream, the engineers wouldn't have something to keep them awake thinking about.

I once resorted to taking a polaroid of an offending instruments display panel (not an Ensoniq) - only then did the service person believe there was an intermittent problem.

Thankfully I've never received that sort of treatment from Ensoniq or its dealers.

Thanks for a very informative magazine - Long live the Hacker!

Yours in music'
Brendon Sidebottom
Victoria, Australia

[Ensoniq's response - The sysex problem you have described has been found and corrected in OS Version 2.2. As far as the RX-11 is concerned, the EPS previously wasn't sending a STOP command when a sequence was finished playing. This was fixed in OS 1.95.

Although we never knowingly release an operating system with bugs, it's simply not possible to try every combination of equipment. Also, a limited amount of beta testers couldn't possibly imitate what several thousand end users will do with their instruments.

Our systems tend to be more powerful than most so there is always a chance of a bug. We take upgrades very seriously, but be aware that we won't upgrade a system until we're fairly sure that all known bugs are caught.]

Dear Hacker:

Have you ever published a survey of the relative merits of the various editor/librarians on the market for the ESQ-1/SQ-80? I have a Macintosh, and the word is that Opcode is the best, but why? What makes it better than Beaverton? Also, Blank Software makes a librarian for the ESQ-1 (which I assume is compatible with the ESQ-80 -- I own one of those) which includes the naming and moving of sequences. Does the Opcode ed/lib do this too? How about Beaverton?

Does anyone have a good patch for Tablas, that elusive Hindu percussion instrument?

Are you thinking of coming out with a cumulative index of the TH for those of us who are not charter subscribers (even for them too!) and would like make some informed choices about back issues?

Yours sincerely,
Joel Simpson
New Orleans, Louisiana

[TH - You should see our stack of unpublished articles! We're looking into maybe publishing some kind of chart to compare the various librarians/editors (and maybe an cumulative index too), but it's got to be short and sweet. A real comparison review covering all existing packages would dominate an entire issue. Tablas vendors, let us know who you are!]

Dear TH:

Does anybody have a solution to the compatibility problem with Yamaha's TX81Z? I have given up program change, control changes, aftertouch, modulation, pitch bend - almost everything, just to get these synths to come back on when I press their instrument button on the EPS. I have better things to do with my fingers than to reach over and diddle on each TX81Z so they will come back on! I have also had the update installed to correct the compatibility problem with ESQ-1's - that did not help me either.

I'll put in my vote for Ensoniq to help stamp out abandoned KEY ON's. Being right, Ensoniq, is not good enough when your horn won't shut-up without rebooting. Give us a way to stop single instruments. And while you're at it, add a selectable MIDI channel receive for each instrument.

What does MIDI XCTRL NUM do? There's only so much time for bumping around in the dark, ya know.

Sincerely,
Tom Jordan
Cincinnati, Ohio

[Ensoniq's response - 1. We haven't heard of any incompatibility problems with the TX-81Z. If it works with the ESQ-1, there isn't any reason why it wouldn't work with the EPS. However, we would be glad to check into it.

2. What can we say? This isn't a voting situation. The undesirable consequences of responding to ALL NOTES OFF would make the EPS unusable with Roland equipment. We know; we went through months of problems when we did it with the MIRAGE and the ESQ-1. If the transmitting sequencer or instrument isn't performing properly and not transmitting KEY UP commands, then there isn't anything we can do.

3. MIDI XCTRL NUM selects which MIDI controller will be used when XCTRL is selected as a modulator.]

Dear Th,

I have an ESQ-1 version 3.4 and an Atari 1040ST with Master Tracks Pro software. Using the sysex function of Master Tracks, I'm able to transmit and receive patches but unable to do so with sequences. The computer recognized that it receives 2 messages from the ESQ, but the ESQ doesn't respond when the computer sends the sequences back. Has anyone experienced similar problems?

I did find out that in order to send patches to the ESQ with this setup, I had to enable sysex on the ESQ before opening and sending patch files from the ST, opening the file, then enabling sysex, and then sending the patches will not work.

Thanks for any suggestions.

Sincerely,
Andy Pederson
Crystal, MN

[Ensoniq's response - The ESQ-1 sequencer dump consists of 2 "packets". When these are retransmitted into the ESQ-1 from the sequencer, there must be a pause of about 80 milliseconds or more between the messages. Otherwise, the ESQ-1 misses the second message (which contains the data) because it is busy responding to the first message

(which is an "alert").

See if your software lets you insert a pause between the two sysex messages when they are sent to the ESQ-1.]

Dear TH,

Thanks for the review of my "Lush" disk in Oct. TH. Steven's comments have already been acted upon and I now have Wavesample maps mailed with my disks. The reality of being possibly the first "fourth party" developer for Mirage has had huge repercussions.

My way of thinking in this regard has been to consider the Mirage/Soundprocess as a completely different instrument than the Mirage only. I have had extensive practice with both DX and older analog synth programming and was anxious to get my feet wet with ESQ/D-50 type programming with a minimum of cost - enter Soundprocess!

Also, I had the added bonus of getting a chance to work with simple additive synthesis - Christmas in July! Now I can use all my programming knowledge, learn new synthesis techniques, and use all those nifty DX7/TX81Z samples I made, in one swoop.

To top it all off, I seem to have found a niche in the market to be of service to other musicians. Who knows, maybe one of my "Lush", "X", or "DeMiTy" programs will be heard on Top 40 Radio someday (ha, ha)!

P.S. The secret to the filter parameters (87 and 88) is to be hooked up to a top quality hi-fi system or monitor system. Also, opening or closing parameter 85 will make a big difference.

"Lushly" yours,
Bob Spencer
Granite Falls, NC

Dear Sir,

I purchased my EPS in May, and have slowly built a fairly good understanding of the concepts involved in sampling, as well as the major points of operating the EPS. I am very interested in a SCSI interface, and I plan on getting one as soon as possible. I would like to know more regarding the advanced capabilities of the EPS.

1) What will the SCSI operating system consist of? I read about the file structure, described as a hierarchical folder concept of 32 files within a directory. Will it have fairly broad features and functionality, or will it format and partition the disk with minimal librarian functionality, and have a toggle for direct to disk mode?

2) I am most interested in direct-to-disk recording on the EPS. I have heard from VERY reliable sources that direct-to-disk will be a feature for the SCSI interface. I am interested in why Ensoniq does not advertise this feature, or is my information incorrect?

3) Could you tell me when to expect my user manual from Ensoniq? I am really in need of more information about the finer points of the operation of this beast.

4) Could the 4X memory board be sold to me unpopulated? Ensoniq says they are waiting for memory to go down in price, but I have two (read by lips! (2)) 2X expander boards, and I paid a lot for them. I don't need them if I have a 4X board. I could have the DRAM chips transferred to the new board.

5) I heard that Ensoniq may offer to exchange the new 2X board for the 4X when it becomes available; is this true? Ensoniq could offer a trade-in for both the old and the new 2X; otherwise there are a lot of people out there who have perfectly good 2X memory boards collecting dust.

6) And finally, this is one of the most incredible machines ever invented for a musician. The possibilities of this machine alone are enormous. Two put together would serve as a 16-track automated mega-studio. Does Ensoniq have any plans to offer some kind of tandem mode, or functions similar to the SQ-80? Some kind of multi-mode/slave setup in software, and rack mounted expander for 16 or 32 midi/output channels?

Thanks a lot,
Jeff Papineau
San Jose, CA

[Ensoniq's response - 1) The SCSI OS is an enhancement to the original OS. It allows selection of devices on the SCSI bus and supports formatting SCSI devices. The directory structure allows up to 38 files per subdirectory, any or all of which can be subdirectories.

The formatting software can automatically create a directory structure if you wish.

2) There no plans whatsoever for direct-to-disk sampling. There is nothing we could do that can't already be done with a DAT recorder. Also, there is the simple fact that whenever the EPS goes into sampling, all of the computer functions (including the SCSI port) are shut down to minimize noise in the system.

3) The AAG-1 is now at the printer and as soon as it's available it will be sent out to all registered owners. So get those warranty cards in!

4) The 4X expander uses 1 Megabit memory chips as opposed to the 256k chips used in the 2X expander.

5) There no plans at the present time to implement an exchange program for the 4X expander.

6) The OVERFLOW mode on the ESQ-1/SQ-80 has not really been that popular and it is very difficult to keep track of all the possibilities of an EPS if this mode were used. It is always possible to sync the sequencers.]

Good riddance, TH!!!

I think it's time somebody spoke the truth about your little "magazine". I get sick and tired of all the cute little praises everybody writes in the Interface, saying how much valuable information you provide and how much they depend on you. Well, that just tells how stupid your readership is. I can read one page - no, make that one paragraph - of KEYBOARD and come away with more pertinent information than the Hacker could in a year's subscription. Not to mention your ugly design and confusing index.

Come on! I don't care what the authors do in their spare time! Wake up, will ya! There's a real world out there! Wake up and smell the marshmallow! I bet you pocket $22.95 of the $23 you get from yearly subscriptions. Just another money-making scheme, I say. And I don't like your attitude. You throw all the blame on your poor readership, saying "it's your own dumb fault". Do you even care about their needs? And you can't even spell... Soniq (sic) is spelled S-O-N-I-C. You probably dropped out of 4th grade because it was too tough.

My personal opinion is that you guys are much better suited at doing something else, like collecting garbage or working the counter at McDonalds. I can tell this is your first attempt at media. I can tell by all the classic blunders you make. Like RND NOTES. How stupid! What you tell me in that section is so wimpy only people without brains could learn anything. And what about HACKERPATCH? Sam Mims isn't your resident patch analyst! He lives in CALIFORNIA, for pete's sake! He certainly doesn't live in your house or whatever. Not a resident by any stretch of imagination!

You like to call yourself a HACKER. You don't care that HUNDREDS among THOUSANDS of greedy, immoral so-called yuppie computer experts are ripping HUNDREDS among THOUSANDS of dollars off from the average American business. And you say America is great...HA? People like you are bent on destroying this world within 5 or so years. And when you do, don't cry to me! I'll be LAUGHING when your world comes crashing down on you!!

Again I say, good riddance!

P.S. I'm just kidding. I figure you never get hate mail so I wanted to give you something different.

Garth Hjelte
Seattle, WA

[TH - Nuts, here we were all fired up to make a stinging point-by-point refutation, and it's just another dumb fan letter.]

Greetings--

The October issue carried yet another letter complaining of the Ensoniq 8-note limit with subsequent cut-offs. I've solved that problem --- with a rackmount ESQ-M. The OVERFLOW feature was put on Ensoniq keyboards for a reason!

Bert Evens
Jacksonville, FL

Dear Hacker,

Just one quick question.

I have an ESQ-1, purchased last February. When I turn it on, the Intro page says it's software version 2.0. After reading Transoniq Hacker, I find out the ESQ-1 is up to software version 3.5.

My question is what is the differences in my keyboard and the updated version?

Also, can mine be updated to 3.5? (O.K. two questions)

Thanks
Robert Graham
So. Wardsboro, Vt.

[TH - We've got an article in this issue that goes over the evolution of the OS. Meanwhile, yes, yours can be updated. As they say, go to an "Authorized Service Center." They'll upgrade you. No charge for the ROMs, usually less than $25 for the labor.]

Dear TH:

I was rather disappointed by Ensoniq's meager response to Gerry Carter's request for assistance in solving noise and Sample Rate Conversion problems with the EPS in the October Hacker. The response was this: "Make sure you are using the latest OS (1.5)." That's all. No other possibilities. No "we're working on it" or "we'll keep you informed," or anything else.

I'm not saying that this is what it was, but it sounded to me an awful lot like "I don't have time to work on this, do you, Fred? Okay, we'll use the old 'scapegoat the OS' bit to stall, maybe it'll go away." Come on, Ensoniq. A two-paragraph plea for help deserves more than a smug eight-word answer.

See, from time to time I too have problems with SR Conversion, and some of the other digital algorithms as well. I too get noise out of the background while nothing is being played. I also happen to be using EPS OS V 1.5.

If I may (on the hunch that no one else will follow it up) venture a hypothesis into the noise problem, which was formulated after a bit of research: The noise itself may be caused by crosstalk from the D/A converters (or from some other line carrying a data-stream on the Digital Oscillator Chip) bleeding into a nearby amplifier stage. This seems logical, as it's exactly the kind of noise one would expect to hear when high-density digital and analog circuits are crammed together inside the same VLSI housing, rather than each type of circuit in its own package, coupled with opto-isolators (cost, I know).

Since, when I initially power-up the EPS, none of the voice channels have yet been activated, they have no output path, and therefore produce no noise. I then create a WS, set its volume to zero, strike a key, a channel opens and Bzzzzzz... at a noticeable level, overall. This noise remains after the key is released. Striking subsequent single keys cause no increase in noise, since the same channel is reused. Only when I strike an additional key or keys does the noise increase (a second, third, etc., channel is activated). Apparently, the voice channels are never switched off once they are used; the noise would still be there while the notes played, it would simply be masked by the instrument (granted the WS level was hot enough) and wouldn't normally be heard.

It seems likely that Ensoniq may have elected to gate the voice channel outputs using the envelopes, rather than switching them off altogether (which could possibly end the ambient noise problem). Incidentally, the noise can be diminished considerably by entering and exiting Sample Mode (thus shutting down/re-routing various stages on the DOC). But as soon as you hit a key, the noise returns. The noise is annoying, but if Ensoniq still wants to put the blame on the OS, and if OS v1.95 (a pre-release obtained from a rep) is any indication of what v2.0 will be like, then they have done little or nothing to correct the problem, because it's just as noisy.

Hey, lighten up, the noise ain't THAT bad.

The other item of concern was the digital processing functions. It takes a fairly clever programmer to be able to cram the code for these algorithms into 64k of system space. Nevertheless, compromises must be made when you have a limited amount of memory. This is why I would like to suggest the implementation of a Virtual Memory scheme for the EPS. Rather than calling a complete overlay from disk for various functions, partition your system space for a) Resident Functions (Disk I/O and other often-used functions; b) Paging and Memory Mapping; and c) Program Space (for transient functions). This way, there would be no limit to the size of a function, and a better, more extensive job of processing could be done.

It could also open up a whole new world for third-party-software vendors, allowing them to write their own functions and utilities using the EPS VOS (Virtual Operating System, get it?) as a foundation. Imagine copying a floppy of 'Smart' OS-routines you just bought to the hard drive (SCSI, by the way, is what makes this all possible) and by pressing a couple buttons, having an altered or completely different EPS 'personality' to work with (and without all this reverse-engineering the OS B.S.).

The 68020 would have been better for this (internals, pipe-lining, etc.), but the 68000 could be made to work (or the 68010 if they're pull-plug compatible).

Some other brief items:

1) Why, when I Event-Edit a track, does the first pass work fine, but when I go back in later (even with a completely different track) I come out with every event Doubled (i.e. where there was once one A# V=nn at 02:03:23, there are now two)?

2) When will the AAGs be out (maybe a DATE, rather than 'soon'? Or even a Status Report on them would be nice.)?

3) Will we EVER be able to obtain EPS Internals and Software Technical references?

4) Dick Lord (where are you??): Great article in Sept. We anxiously await the technical writeup on the EPS OS!

And lastly but not leastly(??), to the great group who make TH live and breathe: Terrific job, people, I'm impressed, I'd like to shake your hands (but m' arm ain't that long).

Keep on keepin' on,
Gregg Lentz
Litchfield, MN

[TH - Dick Lord will return! Right now he's doing some consulting for Ensoniq and, unfortunately, this affects what he feels free to reveal about Ensoniq's products. This is just something that needs to get cleared up a little. Anyway... the good news is that whatever they are brewing at Ensoniq may have a little of the "Dick Lord touch" in it.]

[Ensoniq's response - Unfortunately in most cases, writers do not supply enough information in their letters for us to diagnose their problems. The first thing to do is to make sure that the latest OS is being used since it contains any fixes we know of. There have been many occasions in the past where we wasted a lot of time trying to help someone with an outdated OS.

Also, by calling Ensoniq Customer Service directly, the proper questions can be asked so that the problem can be contained, qualified, and corrected.

There is an inherent background level in any

digital instrument. Originally, unused voices were assigned to unused outputs which caused a gating effect. Later OS's left voices assigned to their previous positions to keep the noise level constant and not produce a gating effect.

While it is an interesting idea, people should remember that the EPS is a musical instrument, not a CAD system or a PC. There is little justification for undertaking such an effort and the 68000 itself is barely affordable. We're not likely to be looking at 68020's.

The brief items:

1) Event Editing has been made considerably more stable in recent OS versions.

2) See our response to Jeff Papineau's letter.

3) This information, like all ENSONIQ proprietary information, is only available to approved developers. If you would like to be considered for approval, submit a letter of intent and the specifications of your project and mail it to Ensoniq Attn: Marketing Department.]

Dear Hackers,

Thank you from Italy for your magazine: it's a very nice work! I got an ESQ'1 version 2.0 two years ago and I'm satisfied. When released, in Italy it was revolutionary, echoing the success that Ensoniq has had with its Mirage.

Now I need your help for these questions: after a day trying to use the pitch-bender wheel it still didn't work well, so I looked on the MASTER PAGE and I found out that the BEND RANGE value had changed from 0:12 to 48:60!

The bender now works over a range of 4:5 octaves!

(1) Can this problem be solved re-initializing the instrument?

(2) I don't know this procedure, could you explain it to me?

(3) How can I get new software versions and load them into my ESQ'1?

Ciao,
Loris Barbi
Massa Finalese, MO

[Ensoniq's response - This was a known bug in OS version 2.0 and was corrected in version 2.1.

Reinitialization works as follows: (First make sure that you save all important information, as this process will wipe out the entire memory.)

Hold down the record button and press the top left soft button above the display. A question will come up on your display asking you if you want to "ERASE ALL MEMORY?". Press the soft button above the word YES.

You will need to contact ENSONIQ Europe concerning their upgrade policy at 03465-69664. Also read the article about the history of the ESQ-1 operating system in this issue.]

Dear Hackers,

I've owned my ESQ-1 for two years now and a month ago I purchased an EPS. I use a HR-16 Drum Machine and no multi-track tape deck. That's right, I sequence everything! It seems that most people don't like this idea, but at this point it's best for me. I am a thirty-one year old bricklayer. I've been writing music now for five years.

I think the thing that amazes me most about these machines, is the fact that now I can make sounds that I could only hear on records and tapes before. Just ten years ago you could only create digital samples in a laboratory. Now I have this ability in my home. When I think about that, it's very hard to have any complaints at all, keeping in mind the fact the I'm no rich man, and these instruments are affordable. Thank you Ensoniq!

Here are my impressions of some of third-party sounds that I've bought for my ESQ-1.

Nick Longo mentioned in a letter that one of your reviewers, Chris Barth, recommended some sounds that took only two hours to program. They must have been Heaven's BBC series. I tried the Data Sheets - not only did it take four months for delivery, but also there were unnecessary values in things like LFO's and ENV's. And out of 80 presets, 40 were useless, 25 ok with reverb, 10 ok without reverb, and 5 useful sounds - definitely the worst sounds I've purchased.

Technosis - sure the FLY is killer but so is LAUGHS or any of what I call Effect presets. 80 presets - 30 ok with reverb, 30 ok without reverb, 20 useful presets.

Maartists 160 presets - 50 ok with reverb, 85 ok without reverb, 25 useful presets.

Cesium Sampler - a very well-rounded set. 80 presets all usable. Some require reverb or effect, and some real standouts.

Valhala Sound Library 757 presets Data Book - so far I'm through 440 sounds. Very well organized, many useful and standout presets. No time wasted by programming these (even without a computer).

After I finish with Valhala's Book, and taking into account the presets I've written myself, I'll have 2,500 sounds for my ESQ-1. I still feel that some of the best sounds I have are factory sounds. Out of 320 presets, all are useful in some way or another, and at least 120 are standouts.

That is also why I was impressed with the EPS. I guess I just like the Ensoniq sound. I was able to use the sounds that came with it (the EPS) just fine, even Ice Spinner.

And as for the Hacker itself, it's great, nothing like it, the best. I receive Roland's User Group Magazine also - a joke, all hype, no info.

As for me, I'm going back into my spare bedroom and keep learning and composing. So all you so-called Professional Musicians can keep slamming me for sequencing everything. But, beware, there are a lot of us doing the same thing. And in a few years you won't be able to tell the difference (some can't right now). Any users in the Phoenix area give me a call. Phone - (602) 486-0107.

Tim Porter
Glendale, AZ

Dear TH,

I would like to suggest, propose, inaugurate a new type of "networking" in the TH community (at least I think it would be new): Homespun Hacker Tapes. I am guessing that there are a lot of musicians out there who compose and produce their own music in their own home studios, and whose only realistic audience is going to be their friends and family. Nothing wrong with friends and family. But I have a hunch that a lot of you might be like me: I'm a marriage and family therapist who is addicted to MIDI in his "spare" time, and who really likes the music he produces, and loves to hear the creations of other amateur musicians. I fantasize producing and marketing an album from time to time, but I know it will probably never happen.

So, in the meantime, I accumulate my songs on cassette tapes, and listen to them while I drive around in my truck, and wonder how many other hackers there are who would like to share their music. Do any of you ever wish that your music was being listened to by the other hackers? Or do you ever wonder what kind of music that person is creating who wrote in to the Interface about the input sampling filter? If so, read on.

Here's my proposal: I would be happy to edit a collection of original songs produced by all of you closet composers out there. This is not for professionals who make a living this way; it's for us. You send me a cassette with your song(s) on it, and I will compile them into a collection which I will dub onto high-quality cassettes and make available to the whole Transoniq Hacker community, probably charging five bucks for materials, postage, etc. This is intended as a purely amateur endeavor, the only profit to anyone being pure listening pleasure, a sense of camaraderie with other musicians in a similar boat, and (here's the therapist coming out) a feeling of validation and worth knowing that a lot of fellow musicians are listening to and probably really liking your music.

Here's the procedure (learning as we go - this is all experimental at this point!): If you want to submit one song, record it on the highest quality cassette you can afford (I can handle metal tape, too), preferably first-generation (i.e., an "original" recording straight from the mixer). Please do not use Dolby or any other noise reduction, if possible. (Please send only audio, not MIDI data!) If you submit more than one song, tell me their priority in case I get so many responses that I can only include one per submitter. Include your name, address, a little bio info, song title, and any performance notes about the song--it may be interesting to include a paragraph about your song, e.g., "This was my first stab at New Age, and I did it with my ESQ and Mirage with an Alesis drum machine and DSP-128 effects on a Fostex 4-trak...that one weird sound in the intro is an inverted sample of popcorn popping...", and any other info we might find interesting, helpful, or amusing. I'll reserve the right to edit performance notes. Maybe even include a snapshot of yourself in front of your gear - I may be able to include it on a reduced photocopy of all the performance notes; we'll have to see (look out, Keyboard Magazine!)

I will collect all of the offerings, dub them onto a master tape, then run copies onto high quality Type II cassettes using a Yamaha dubbing deck (it does a really nice job). Once the project gets to this point, I will notify TH letting you all know the tape is available. Anyone who wants a copy can send me $5.00, and I'll send you a tape along with some sort of documentation including performance notes, etc. Then, all that's left to do is to listen, enjoy, and marvel at the creativity of a bunch of MIDI hackers!

All styles of music are welcome for this project. Copyrights are completely your responsibility; it might not be a bad idea if you feel you want that protection. This is only intended to be a real grass roots project, a way of getting our music to each other. So, send me your songs, and let's get moving on "Hacker Tapes, Volume 1"! Mail to:

Steve Vincent
3615 - 66th Ave W
Tacoma, WA 98466

Dear Hacker,

I use the SQ-80 a lot! Its sequencer is so much easier and quicker to use than any other including my Atari ST. Enough praise.

Recently, I was creating a sequence in it - I used three different MIDI instruments. When I tried to erase one track (local 'wind'), the "editing please wait" did not disappear! It lingered at least two minutes before I shut off the unit, re-initialized and reloaded the same sequence! Also, there were messages like: CART - even though a cartridge was in, and empty/invisible sequences in the sequence page: Seq 01 Seq 03 Seq 05.

I panicked. I started planning a trip to NJ to fix the machine.

Ensoniq told me I had loaded the glitch again and created a vicious circle, cycle, whatever! Reinitializing does not mean all is well with a bad sequence. (Which I recently discovered.) I noticed that if I made another sequence this did not happen. So, the moral is: don't panic, call Ensoniq. Now, all of what I thought were fatal problems with the unit are simple glitches and correct themselves or need no help at all!

I have also found that bad wires (audio: IN and OUT) can cause strange clicks when the unit masters external slaves. Every time I played a note, a click was heard. "Hot wires" that were sick caused the problem. So, check the wires!

Thanks,
Glenn Losack MO
NY, NY

[Ensoniq's response - Reinitializing will always correct a scrambled unit, but if you're reloading already corrupted data, you'll only scramble it again.]

Dear TH,

To me, a great feature of the EPS is its ability to receive, store and send MIDI sysex data, especially patch data. I've started transferring my libraries of patch data for my TX-7, TX81Z, and ESQ-M and have run into problems involving the EPS locking up and becoming inoperative during the receiving and storing operations. It seems that I am able to receive and store 3-5 sets before this lockup occurs. But, once it happens, I have to turn off the EPS and start over. My question is whether this is a software error, and if it is, is Ensoniq aware of it?

I'm using O.S. 1.5 at this time. My experience with sysex and 1.3 was a bit more distressing. When the EPS transmitted the data, instead of patch data it sent such gobblygook that is put my ESQ-M into such a frenzy, blowing out the E2PROM plugged into the unit.

Thankfully, O.S. 1.5 has solved this problem, but other problems seem to still need resolution. Please advise if another O.S. update will be released in the near future. Thanks for your help.

Sincerely,
Mike McAfee
Allentown, PA

[Ensoniq's response - OS 2.2 has just been released. Contact your local dealer or Ensoniq Customer Service for more information.]

Dear Hacker,

Is there any way to send load, command, or edit changes over MIDI to an EPS? Being able to access all of the front panel buttons over MIDI would allow one to create their own editing program using MIDI Basic or even faster MIDI Pascal. Though the same commands would simply be performed on a computer instead of an EPS, the practicality of being able to view an entire screen worth of data compared to the EPS's 22-letter display would be a great asset to all EPS owners.

If these commands cannot be sent via MIDI, could they be sent through the SCSI port?

Also, here is a way to create incredible stereo samples:

Step 1. Copy a layer 3 times. After selecting a layer on the EDIT page, copy its parameters only by selecting copy layer from the

COMMAND LAYER menu.

Step 2. Fine tune the first two layers to -3 and the third and fourth to +3 by adjusting FINE on the LEDIT PITCH page.

Step 3. Pan the first and third layers hard left and the second and fourth hard right by selecting PAN on the EDIT AMP page.

Step 4. Now, invert all wavesamples on layers two and three by selecting each individual wavesample on the EDIT page. Then, choose "invert data" on the COMMAND LFO page.

Even though each note now takes up four voices, the spacious effect is well worth it. Using the PATCH SELECT buttons one could switch between the first and fourth layers sounding, for normal stereo, and all four layers sounding for Huge Stereo.

Thank you very much,
Michael L. Schmitt
Bloomington, IN

[Ensoniq's response - All the functions of the EPS are available over MIDI when SYSEX is enabled (on the EDIT/MIDI page). And see our response to Gregg Lentz's letter, brief item #3].

Dear Hacker:

Finally broke down and got myself an SQ-80 last week. This machine is great! Personally speaking, I bought it for the improved audio quality and the disk drive. Everything else is icing on the cake.

One thing that takes some getting used to is the keyboard action. To my ears, it seems that the SQ's action is much more sensitive to softer dynamics than any other MIDI keyboard that I've played. It's difficult to play a scale using all 5 fingers while keeping the levels even, something that I can do on other keyboards with no problem. I'm sure that I'll be able to adjust after a little practice, but there is a simple cure for anyone else who feels the same way I do:

Go to any patches that seem overly sensitive, and lower the LV parameter on each of the four envelope pages to taste. For example, I found that Jim Johnson's wonderful piano patch in the September Hacker (bitchin' tweak, Jim), required the LV numbers to be lowered by about 20 or so, something that I didn't need to do on my ESQ-1. Is this just me, or has anyone else out there noticed the same thing?

I'd also like to suggest that Ensoniq make one tiny little tweak to the SQ's operating system to make life easier for all of us. If you're in the middle of recording a sequence, and you find your memory disappearing at an alarming rate, you have to go back to the MIDI page to defeat the pressure sensitivity - and then go back and erase any pressure data recorded on earlier tracks using the REM-CTRLS command. I'd like to know where I'm at BEFORE I start recording.

On the track select page, there's a little blank spot above the tempo indicator. I'd like to see Ensoniq place a mnemonic to show the user what's going on - just a PO (pressure off), CP (channel pressure), or KP (key pressure). Soft button #1 could be used so the user can change things without leaving the page. How 'bout it, Ensoniq?

Also, I'd like to comment on Graham Doig's letter in the October Interface. Graham is experiencing "pops" in his ESQ-1's audio outputs when he splits two patches and pans each to a separate output. I can sympathize with Graham and I understand why he is P.O.'d, but the fault does not lie with Ensoniq. It lies with the CEM3379 Analog Signal Processor ICs inside the ESQ-1. My guess is that voltage offsets in the 3379's panning VCA's is causing the panning control voltage to "feed-through" the VCAs, causing the pops.

Way back in the modular Moog era, it was incredibly hard to make a popless VCA - all VCAs seemed to pop whenever the gain control voltage changed rapidly. This pop was caused by a small offset voltage (a small error voltage that exists in all DC amplifiers) at the VCA's signal input. In those days, the solution was to add a trimpot to null out the offending offset - and with it most of the pop. And that's why my monophonic Minimoog has a few dozen trims - because it was easier to tune out errors in the circuitry.

If the ESQ-1 used the same technology, it would require several hundred tweaks, and the cost and size would be ridiculous! In order to keep costs reasonable, Ensoniq selected a design that contained a VCF, VCA, and two panning VCAs on a single chip. Our offset voltages are still there, it's just harder to hear them in most situations. Unfortunately, Graham is using his ESQ-1 in such a fashion that the pops are audible. It's really not Ensoniq's fault, or a bug in the operating system. It's just an engineering compromise ... and to make a popless VCA (which wouldn't be noticed by many users) would have increased the cost and complexity of the ESQ-1.

There is a solution to the problem, if someone would like to undertake it. It would involve adding a trimpot and resistor for each 3379, and adjusting each for a minimal pop. This wouldn't be an easy modification, and I can't guarantee it will COMPLETELY remove the pops. If Graham or anyone else would like to give it a try, please send me a SASE c/o Mescal Music and I'll explain the mod in detail.

Best wishes,
Charles R Fischer
Mescal Music
PO Box 5372
Hercules, CA 94547

[Ensoniq's response - You can adjust the keyboard response sensitivity for both velocity and pressure on the MASTER page. See page 19 of the manual.

There are no plans to implement the change to the TRACK SELECT page, but it is a good suggestion.

Congratulations on a very accurate and concise explanation! Unfortunately, because there are two VCA's with a common input in the panner, it isn't necessarily possible to null out the DC offset as the VCA's may have different offsets.]

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