

# TRANSONIQ HACKER

*The Independent News Magazine for Ensoniq Users*

## Sorting Through The EPS Public Domain Part I

*By Steven Fox*

Having had a Mirage from practically the very day the first few washed ashore in England back in 1985, I have since acquired a wide variety of sound disks for it. My modest library of 130 Mirage disks probably won't be growing much larger since I am now concentrating on my latest acquisition, the EPS.

I have known several people who have nearly twice as many disks in their Mirage library as I have. These are people who simply save every last thing that comes their way, but I have found that having a larger library is not necessarily better.

I recently acquired 30 EPS disks from Bob Wehrman, the local Ensoniq rep, when he stopped by to do his song and dance at the local music store. I copied the disks with an ATARI ST running a program called PROCOPY, which is a heck of a lot faster than loading and saving each file on the EPS. When I got home and actually had a listen to them I was rather disappointed. The quality of the samples was not wonderful, especially considering these were EPS sounds. Still, my first attempts weren't terribly thrilling either, nor for that matter, were Ensoniq's own disks. Still, these 30 disks varied from good to worse, with just a couple of disks really standing out.

Of course I suppose we all can be forgiven for our first sampling attempts on the EPS since the Advanced Applications Guide has just now been published and we can really begin to understand what's going on inside the EPS.

Anyway, after weeding out the obligatory car sound effects, the lion roars, someone's dog named Rover, Peter Gabriel's shakuhachi, a half dozen Mirage-to-EPS transfers (I already got 'em on the Mirage), and another half dozen similar sounding D-50 STRINGS attempts, I ended up with 18 disks, down from the original 30. Now you might call me picky, and I wouldn't want to try to define what is worth keeping and what isn't, but at \$1.40 each, disks ain't cheap. I tend to throw anything out that doesn't approach the quality you would expect out of a super sampler like the EPS.

What I did with the sounds which I DID keep however is what I want to share in this article. I suddenly started having flashbacks of experiences I had when I collected Mirage disks. I often would sift through dozens of disks and come out with just a handful of useful sounds. And among those few sounds I would later tweak and perfect them to achieve better sound quality or adjust them for my own personal requirements.

Now after going through these remaining 18 EPS disks I've come up with several relatively simple tricks which will dramatically improve the quality of even your most mediocre public domain sounds, and make them more memory efficient by recovering wasted blocks of memory. I eventually managed to condense all the sounds on the 18 disks down to 12 disks.

You most certainly should apply these tricks to your own samples too. Especially if your sounds will be travelling the public domain circuit, perhaps all around the world, with YOUR name on them!

### CONVERT THE SAMPLE RATE

Many of the sounds you get will have been sampled at a much higher rate than necessary. You can make your sounds take up less memory since a lower sample rate

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uses less memory. However, converting the sample rate too low will lower the sound quality of the sample. What you must do is find the lowest sample rate while still keeping the sound quality the same.

Press **EDIT** and select the correct **LAYER** and **WAVE-SAMPLE**, as shown on page 28 of the EPS Musicians Manual. Press **COMMAND**, then **WAVE**, and use the **LEFT/RIGHT** arrows to find **CONVERT SAMPLE RATE** and press **ENTER** (have your OS disk handy).

Now the trick is, to knock the sample rate down about four increments (you have to press the **UP** arrow to lower the sample rate, oddly), then press **ENTER**. When the conversion is finished, play the keyboard and compare using the **KEEP=OLD/NEW** option. If the **WAVESAMPLE** sounds the same, press **CANCEL** and then **REDO CONVERSION** again, each time knocking the sample rate down a bit further until you **DO** hear an audible difference between the **OLD** and the **NEW** sound. When you do, press **CANCEL** again and redo the previous conversion you made, then move the cursor to **NEW** and press **ENTER** to keep it.

If you do this you might as well do it to every **WAVESAMPLE**, in every **LAYER**, of that **INSTRUMENT**. However, most public domain stuff tends to be just one or two wavesamples across the entire keyboard, and rarely do you find more than one **LAYER**. In fact, if you do find multiple wavesamples and multiple layers, the guy who did the samples probably knew what he was doing so you might want to just leave it alone.

I have found a couple problems when converting the sample rate. With larger instruments you might not always have enough spare memory in your EPS. Rather than proceeding with the conversion, the EPS might display **NO AUDITION, OK?** or **NO ROOM FOR OPERATION**. If you don't have enough memory, see below for a possible quick fix.

The other problem appears with the loop points of the converted **WAVESAMPLE**. A perfectly silent loop may end up clicking after it has been converted. There's no cure really except to leave the sample rate unconverted after all, or to go in and redo the loop after converting. I guess it just depends on how much effort you want to put into it.

### TRUNCATE THE WAVESAMPLE

Several of the wavesamples I've looked at showed their **SAMPLE END** to be way after their **LOOP END**. Except when a **WAVESAMPLE** is set to **BACKWARD-NO LOOP** or to **LOOP AND RELEASE**, you can use the **TRUNCATE** feature to recover several more blocks of otherwise wasted memory. Select the correct **LAYER** and **WAVESAMPLE**, then press **WAVE**. Use the **LEFT/RIGHT** arrows to move the cursor to **SAMPLE END=xxxxxx (xx)** under the percent amount (the number in brackets). Move the data entry slider up, then down, until the amount won't go any lower. Notice that this is the same value as the **LOOP END** value. Now press **COMMAND**, then press **WAVE**. Use the **LEFT/RIGHT** arrows until you see **TRUNCATE WAVESAMPLE**, press **ENTER** (keep your OS disk handy). When finished you will have recovered a sizable chunk of memory, and it will have no effect on the sound whatsoever.

Beware though, if other wavesamples (in other layers usually) use the same **WAVESAMPLE** data, you'll have to go and **TRUNCATE** each one of them before the **TRUNCATE** will have any effect.

### TUNING

Many of the sounds I got were out of tune. Sometimes the entire **INSTRUMENT** was out of tune, other times only certain

**WAVESAMPLES** were out of tune. In either case, an **INSTRUMENT** is practically useless until it has been tuned. You will need a tuner of some sort, or if you have another keyboard, play the corresponding note on its keyboard as you tune the wavesamples on the EPS.

Press **EDIT** and move the cursor under the **WS=x** value. Play the keyboard and select the **WAVESAMPLE** that is out of tune. If the entire **LAYER** is out of tune, then moving the cursor under the **LYR=x** value lets you make a **LAYER EDIT**, that is, any edits you make to the envelopes, panning, filter, tuning, LFO, etc will affect all the wavesamples in that **LAYER**.

Press **PITCH** and use the **LEFT/RIGHT** arrows until you see **ROOT KEY=xx FINE=xx**. Adjust the root key and the fine tuning until you are in tune.

### NORMALIZE GAIN

To **NORMALIZE GAIN** in the EPS means that if a **WAVESAMPLE** was recorded at a low level, normalizing the gain will boost the entire **WAVESAMPLE** to its maximum amplitude level, which would be just below the level where its loudest point would begin to distort. This will make a quiet **WAVESAMPLE** louder, thereby giving you a little more control over what you can do with it later. Select the correct **LAYER** and **WAVESAMPLE**, press **COMMAND**, then **AMP**, and use the **LEFT/RIGHT** arrows to find **NORMALIZE GAIN**, then press **ENTER**.

### FADE OUT

Some sounds, particularly sounds with ambience, like a gun shot or other sound effects, once sampled sometimes cut-off abruptly when they're played back on the keyboard. You could use the amplitude envelope to fade out the **WAVESAMPLE** but there is a better way. Using **FADE OUT** will usually soften the decay so that you don't need to mess with the envelopes at all.

Select the correct **LAYER** and **WAVESAMPLE**. Press **COMMAND**, then **AMP**, and use the **LEFT/RIGHT** arrows to find **FADE OUT**. Set **START ADDR=xxxxx (xx)** to anywhere from 85 to 98 percent. Set **END ADDR=xxxxx (xx)** to 99 percent. A quick tip here, due to a bug in the EPS' software, simply setting the end address to 99 won't always automatically set the end address. You now have to go to the value to the left of the percent and move the data entry slider down, then all the way up. Finally, press the **UP** arrow once to increment the value to the actual end address in the **WAVESAMPLE**. Press **ENTER**, leave the **SCALE DEPTH** at 3.0 for now, and press **ENTER** again. If you don't like the fade, press **CANCEL**, then **REDO FADE OUT**, and adjust the start address accordingly.

In Part II, we'll cover converting to stereo, keyboard panning, detuning, and delay.



Steve 'n Fox.

*Bio: Steven Fox is 23, programs software as a hobby, and sells it to make a living. He is currently looking for a proper job (anywhere in the world except Seattle) either in the recording biz or as a programmer. Any offers???*

# Front Panel

## RND (♪♪♪)

We've just returned from our second trip to Ensoniq. (We don't get a chance to get out there as often as we'd like.) Somehow those folks have managed to maintain the same high level of enthusiasm and excitement that they had when we first met them a couple of years ago. We're including a few photos from this visit elsewhere in this issue. Special thanks to all at Ensoniq for spending the time to show us around.

\* \* \*

If you can still find a copy of the May issue of *Venture* magazine you'll find an interesting article about Ensoniq - from a "How-did-these-clever-upstarts-do-it?" point-of-view.

\* \* \*

Mirage-specific coverage is a little skimpy this month - but, never fear, several interesting articles are in process.

\* \* \*

Ensoniq has asked us to repeat the following from last month's *Front Panel*:

### Information and Precautions Regarding The EPS Output Expander Connector

The 9-pin Output Expander connector on the rear panel of the EPS should only be used to connect to the OEX-8 Output Expander. This connector does not simply supply audio outputs and signal ground, it cannot be used to generate separate outputs without the OEX-8.

The EPS generates a multiplexed audio waveform which must be distributed and filtered externally. The signals present on this connector include differential multiplexed audio, de-multiplexing control signals and +/- 12 volts DC. Improper connections to these signals could easily damage the EPS or any external device being connected (for example: mixing boards, speakers, etc.)

## TRANSONIQ-NET

### HELP WITH QUESTIONS

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

**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 Eastern Standard time.

**SAMPLING & MOVING SAMPLES** - all over the place. "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.

## 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, 13-19, 21, 22, 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.

## HYPERSONIQ

### NEW PRODUCT RELEASES

**TURTLE BEACH SOFTWARES** has announced a new version of their *SampleVision* IBM visual editing program. *SampleVision* provides a mouse based, graphical user interface, many new sound analysis and editing tools, and several digital signal processing algorithms such as normalization, mixing, inversion, equalization, interpolation, muting, fading, and crossfading. It also has the most comprehensive frequency analysis section of any micro-based waveform editing system. All functions are calculated in 16-bit resolution. *SampleVision* uses a "driver" architecture to interface with a variety of samplers: the EPS, the Yamaha TX16W, the E-MU EMAX, the Akai S900, and any device supporting the MMA sample dump standard. Retail price: \$349.00. Previously distributed by Digidesign, *SampleVision* is now distributed by Turtle Beach Softworks, PO Box 5074, York, PA 17405. 717-757-2348.

**SOUND LOGIC** of Ramona, Calif. has announced "*The Pedal Organizer*," a simple and effective means of organizing your foot pedals. "*The Pedal Organizer*" measures 4" by 14", is made of heavy-gauge black anodized aluminum, and uses a Velcro fastening system which allows you to organize your foot pedals any way you like. \$14.95. Sound Logic, 1125 Eleventh St., Ramona, CA 92065.

**CYBERSONIQ** has announced the release of *Synthbank Volume 2* for the Mirage. While *Synthbank Volume 1* bridged the gap between sampling and synthesis on the Mirage, *Volume 2* takes the Mirage to its true potential--with advanced wavetables derived from Crosswave, FM and Harmonic Additive Synthesis. *Synthbank Vol. 2* features 48 advanced wavetables to create unique sounds that combine the power of samplers and synthesizers. The wavetables were derived from complex sources and were computer edited for glitch free loops. *Synthbank Vol. 2* will come with two disk versions (whole/split), a user guide and a listing of the *Synthbank* patches. The package will be available August 1. Price to be announced. For more info write: CYBERSONIQ, PO BOX 1771, Madison Square Station, New York, NY 10159.

# Feed your Mirage some Leaping Lizards.

## • THE IGUANA •

MIDI System Exclusive Librarian... \$39.95

"...worth its weight in gold" KEYBOARD, Jan. 88.

If you own a Mirage, DON'T buy a MIDI disk drive! You can turn your Mirage into a MIDI disk drive at a fraction of the cost of the real thing! • Store all your MIDI System Exclusive data on ordinary Mirage sound disks • Transmits MIDI data request messages • 128k memory • Play your other instruments from the Mirage keyboard • MIDI delay feature for use with older keyboards • Professionally written for ease of use, with an easy to understand instruction manual • **THE IGUANA** is more than just a MIDI disk drive, it's a patch librarian. For example, you can store up to 2976 DX-7 or TX81Z voices on a single Mirage disk and be able to download any single bank of sounds in a matter of seconds. • A much more flexible alternative for Mirage/ESQ owners, store 1920 ESQ voices, or 6 or more sequences on a single disk • **THE IGUANA** is quickly being regarded as a standard, already third party voices & patches are available in **THE IGUANA** format • You won't find any MIDI disk drive or similar software with ALL these features, nor will they be as compatible with as many MIDI devices as **THE IGUANA**.

*Here is but a brief list of compatible devices, please call us for more information if you have an instrument not listed below:*

**YAMAHA** • ALL - including all keyboards, rack modules, drum machines, effects units, & sequencers  
**ALESIS** • HR-16, MMT-8  
**ROLAND** • D-50, D-550, S-10, GM-70, MT-32, JX-8P, Octapad, & more  
**AKAI** • ALL  
**KORG** • DDD-1, DDD-5, DS-8, EX-800, DW-8000, & more  
**KAWAI** • ALL  
**OBERHEIM** • ALL  
**SEQUENTIAL** • ALL  
**ENSONIQ** • ESQ-1, ESQ-m

## • THE CHAMELEON •

The ultimate Multi-Utility disk... \$39.95

A collection of 15 unique utility programs. **THE CHAMELEON** incorporates all the features of our best selling **LLDU-1** and **DIAGNOS**, improved them, then added even more features. Format a disk in 30 seconds and place the operating system of your choice on the disk at the same time. Copy any operating system. Make backups of your previously uncopiable "boot" disks, make foolproof backups of your library disks. Copies disks using a single Mirage or using two Mirages linked together. Repair disk error and recover lost data! Our unique "Auto-Detect" feature detects when you have inserted a new disk and begins disk functions automatically. But that's not all!!! You can give your Mirage a complete check-up. Check for common problems such as: a sticky keypad, a sticky disk drive, an off center pitch wheel or modulation wheel, keys that don't play, or keys that sound louder or softer than the other keys. You can easily check these & other problems. No other utility disk offers as many features as **THE CHAMELEON**.

## • THE IGUANA JUNIOR •

For the performing musician... \$24.95

**THE IGUANA JUNIOR** is a small version of **THE IGUANA** plus **O.S. 3.d**, both incorporated within the normal Mirage operating system environment. It lets you play your Mirage sounds like normal, but with all the additional features of **O.S. 3.d** (see above), then at a touch of a button you can send MIDI SysEx data to all your other instruments. At a touch of a button again, you're back to the normal **O.S. 3.d** operating system and playing sounds again. Ideal for the performing musician, since you no longer need to boot and re-boot operating systems for different tasks. Requires **THE IGUANA** to record and store your SysEx data dumps on the same disks as your Mirage sounds. With the additional performance enhancements of **O.S. 3.d**, no similar operating system offers nearly as much. Includes three banks of new sounds, including the infamous "10 STORY BUILDING" & "BUBBLIN' BASS".

## • O.S. 3.d •

Improve your performance... \$24.95

"...no Mirage keyboard owner should do without" T.H. 4/88

Turn your Mirage into the ultimate controller keyboard! **O.S. 3.d** is an update to Ensoniq's **O.S. 3.2** which adds new performance enhancements to the Mirage while retaining all of **O.S. 3.2**'s features (except sampling): Receive and transmit over separate MIDI channels. Re-define the modulation wheel to transmit other MIDI controller data in real time, such as breath control, volume, portamento time, data entry, etc. Re-define the footswitch to transmit other MIDI switch information other than sustain. Transpose by semi-tones to give the Mirage keyboard an effective range of 128 notes. Transposing affects the Mirage's internal voices as well as the voices of your other instruments. A MIDI "panic button" sends an all notes off message to the Mirage and to your other instruments. Parameter changes are now more than three times faster. Plus three new banks of sounds.

## • MIRAGE MONITOR V1.0 •

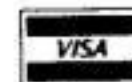
Design your own O.S.... \$49.95

For the C-64 or C-128. Not a visual editor! This program allows you to disassemble & assemble the entire 160k of Mirage memory in true 6809 assembly language. **MIRAGE MONITOR V1.0** gives you direct access to the operating system memory, sequencer memory, sample memory, disk drive, VIA, ROM, MIDI UART, Q-chip, etc., entirely from the Commodore. Use **MIRAGE MONITOR V1.0** to customize your Mirage O.S., or create entirely new O.S.'s.

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# The FSK Footswitch Adapter

Reviewed by Larry Church

For: All Ensoniq Keyboards.  
Product: FSK (Footswitch Adapter Kit).  
Price: \$12.50.  
From: Mescal Music, PO Box 5372, Hercules, CA 94547.

Mescal Music's FSK (footswitch adapter kit) provides the interface to allow use of the Yamaha FC-4 footswitch (normally closed) with Ensoniq keyboards (normally open). The FSK is neatly assembled with quality parts and materials. The PCB (printed circuit board) provides a mechanically stable point to attach the wiring necessary to execute a polarity inversion inside the pedal.

Mounted on the PCB is a socketed CD 4066 (CMOS quad bi-lateral analog switch), one capacitor, one resistor, and attached wires for the 9 volt battery and circuit completion.

The documentation is accurate and informative. It includes a warning about the static sensitive nature of the CMOS chip and some tips on inserting the IC in the socket. A complete amateur, when following a procedure such as this one, is sometimes inclined to read and execute the directions one sentence at a time without looking ahead for additional information. With this in mind, the installation procedure could be better written. For example, the sentence explaining how to

carefully insert the IC in the socket comes before the sentence saying to make sure that pin one is facing the correct direction (proper insertion polarity).

Using a CD 4066 to accomplish one simple polarity inversion does not equate to engineering excellence, especially considering the static sensitive nature of CMOS. A 15 cent transistor and two resistors will do the same job, never be subject to failure due to accidental static exposure, require less current from the battery, and reduce the materials cost of the kit. ■

## SUBSCRIPTION INFORMATION

### 12 MONTHLY ISSUES

US: \$23/year. All others: \$30/year. (Please use International Money Order, payable in US funds.) Please make payable and mail to:

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

## LAST CHANCE...

To purchase the MIDICASTER at the incredibly low price of \$39.95. That's because our price is going up. Soon. Real soon. So now's the time to take advantage of this insanely low pricing on the fabulous MIDICASTER. What's MIDICASTER, you say? So glad you asked.

### 1. MIDICASTER IS A SYSTEM EXCLUSIVE DATA STORAGE DEVICE.

Y MIDICASTER will read System Exclusive data from almost any device capable of sending it. This eliminates the need to purchase costly dedicated disk storage devices to store your synth patches, sequences, etc.

Y MIDICASTER is very easy to use. MIDICASTER has been carefully designed to allow even the least experienced user to take full advantage of all functions.

Y MIDICASTER supports most MIDI devices that have the capability to transfer sysex data - sequencers, drum machines, even synthesizers that require two-way communications, such as the Casio CZ synthesizers!

Y Most importantly, MIDICASTER reads and sends files directly from disk, without disturbing the contents of the Mirage's memory. This means that you needn't re-boot operating systems after using MIDICASTER. As a matter of fact, YOU NEEDN'T EVEN RE-LOAD MIRAGE SOUNDS!

### 2. MIDICASTER IS A DISK COPIER AND FORMATTER.

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Y MIDICASTER formats disks WITHOUT DISTURBING THE CONTENTS OF MIRAGE MEMORY!

### 3. MIDICASTER IS A PERFORMANCE SETUP LIBRARIAN.

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Y MIDICASTER is the only product of its kind that will work with devices that use non-sysex data for setup, such as the Axes Mapper™.

### 4. MIDICASTER IS AN IMPROVED MIRAGE OPERATING SYSTEM.

Y MIDICASTER actually speeds up many Mirage functions - making parameter changes is noticeably quicker (MIDICASTER will not speed up disk load time).

YES! I've got to have my very own MIDICASTER! Enclosed is my check or money order for \$39.95 (allow 4-6 weeks for delivery).

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7280 S.W. 104th, Beaverton, Oregon 97005

# Recreating Outboard Effects With The ESQ-1

by C. R. Fischer

In studio and live concert situations, the use of outboard signal processors is almost as important as the instruments themselves. No matter how great that favorite patch of yours is, sooner or later you will want to stick a little chorusing or reverb on it. It's a law of physics that no matter how much money you spend on your equipment, you know it's inevitable that you will always need another box to round things out.

A synthesizer like the ESQ-1 probably means a major expenditure to most Hacker readers. The bucks spent on the ESQ could have bought a lot of other goodies - especially effects boxes to increase the versatility of the ESQ. Frankly, I can't afford a separate digital delay, flanger, or reverb for all the instruments I own. That means that the instruments that really need a little echo or reverb get first call, and the newer stuff (like the ESQ-1) waits for their owner to reach stardom and a five-figure advance.

Until then, we are forced to substitute imagination and creativity for that extra Lexicon or AMS. But the same versatile voice architecture that allows the ESQ-1 to replace other instruments can also allow it to replace various effects! With care and a little knowledge, one can obtain some very satisfying imitations of outboard effects boxes like echo and flanging. While the techniques described in this article won't replicate the effects exactly, they do duplicate the audible ambience that the effects provide - and leave the boxes free for use elsewhere.

## FLANGING AND CHORUSING

Both flanging and chorusing have been extremely popular since the inception of delay line ICs in the mid-70's. Both effects rely on a very short (.5 to 15 msec for flanging, 20 to 40 msec for chorusing) delay which is modulated by a low frequency triangle wave. The delayed signal is mixed with the unmodified input, which causes a number of peaks and valleys in the frequency response (also known as a "comb filter"). The effect is similar to detuning banks of oscillators to obtain a fatter sound. Except with chorusing all voices are swept together in unison.

As you can imagine, we can recreate this effect by detuning oscillators -- except we make sure the OSC (oscillator restart) feature on the MODES page is on. By starting two identical waveforms at the same time and detuning one with an LFO, we get a remarkable recreation of the flanging effect. Let's try it ourselves. Call up the BASIC patch on your ESQ-1, and make the following changes:

DCO 2: OCT=0; WAVE=SAW; MOD2=LFO 2=+01  
DCA 2: LEVEL=63; OUTPUT=ON  
LFO 2: FREQ=01; HUMAN=OFF; WAV=TRI; MOD=OFF, DELAY=00  
MODES: OSC=ON

The result should be a very intense flanging type of sound. However, the detuning is probably too much for all but the least susceptible to seasickness. The intensity can be lowered by bringing L1 and L2 down - although this cuts off part of the sweep, especially at very low levels. Turning the HUMAN mode of the LFO off keeps all voices swept in parallel, which is how an outboard flanger acts. Both DCO waveforms should be the same. Try other waveforms, especially NOISE 1 and 3! Flanged noise is great for cosmic wind and electronic drum sounds.

Chorusing is very similar to flanging, and a simple way to imitate it is to feed the same LFO used to detune the oscillators into the PAN modulation input. This is great for

thickening electric pianos, strings, and other types of orchestral pads. If you want to make things incredibly fat, use DCO 3 and modulate it with a negative-going LFO (Depth = -01). This detunes DCO 3 flat while DCO2 is sharp, and vice-versa, giving an especially lush texture.

## ECHO AND DELAY

Because of the ESQ-1's versatile envelope generators, we can do a pretty fair job at simulating a digital delay for various effects. However, there are some limitations to this technique. For example, all delay lines have a repeat control that allows the creation of multiple echoes. Since we are using the ESQ's envelopes to simulate an echo, we are limited to one or two repeats at best. This is okay for slapback echoes and ambience, but a lot of delay fiends seem to love the sound of an echo repeating dozens of times. These folks are out of luck on this one.

The key to this technique is the CYC feature on the MODES page. When activated, this feature forces the envelopes to go through their full cycle regardless how long the key is held down. This allows us to make sure that we will be able to hear our delayed envelopes no matter what, but unfortunately, it also means that all but shorter percussive sounds will sustain too much to be musically useful.

By setting Level 1 of any envelope to zero, time 1 becomes a delay control. By giving one DCA a zero delay time, and the other a longer delay time, we can get a fairly realistic delay line effect. My patch "ECHOES" demonstrates this technique:

ESQ-1 PROG: ECHOES										BY: CHARLES FISCHER	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	0	SQR	LFO2	2	OFF	-			
OSC 2	0	0	1	SQR2	LFO1	2	OFF	-			
OSC 3	0	0	2	SQR2	LFO1	2	OFF	-			
	LEVEL	OUTPUT		MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	0	ON		ENV1	60	OFF	-				
DCA 2	0	ON		ENV2	52	OFF	-				
DCA 3	0	ON		ENV3	46	OFF	-				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	90	0	00	OFF	-	OFF	-				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	-	-							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	22	OFF	ON	TRI	0	0	0	WHEEL			
LFO 2	-	-	-	-	-	-	-	-			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	63	63	63	0	0	0	0	0	20	0	
ENV 2	0	63	63	0	0	26	0	0	26	0	
ENV 3	0	63	63	0	0	33	0	32	30	0	
ENV 4	63	63	63	0	0	0	55	48	42	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	-	OFF	OFF	OFF	ON			
	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

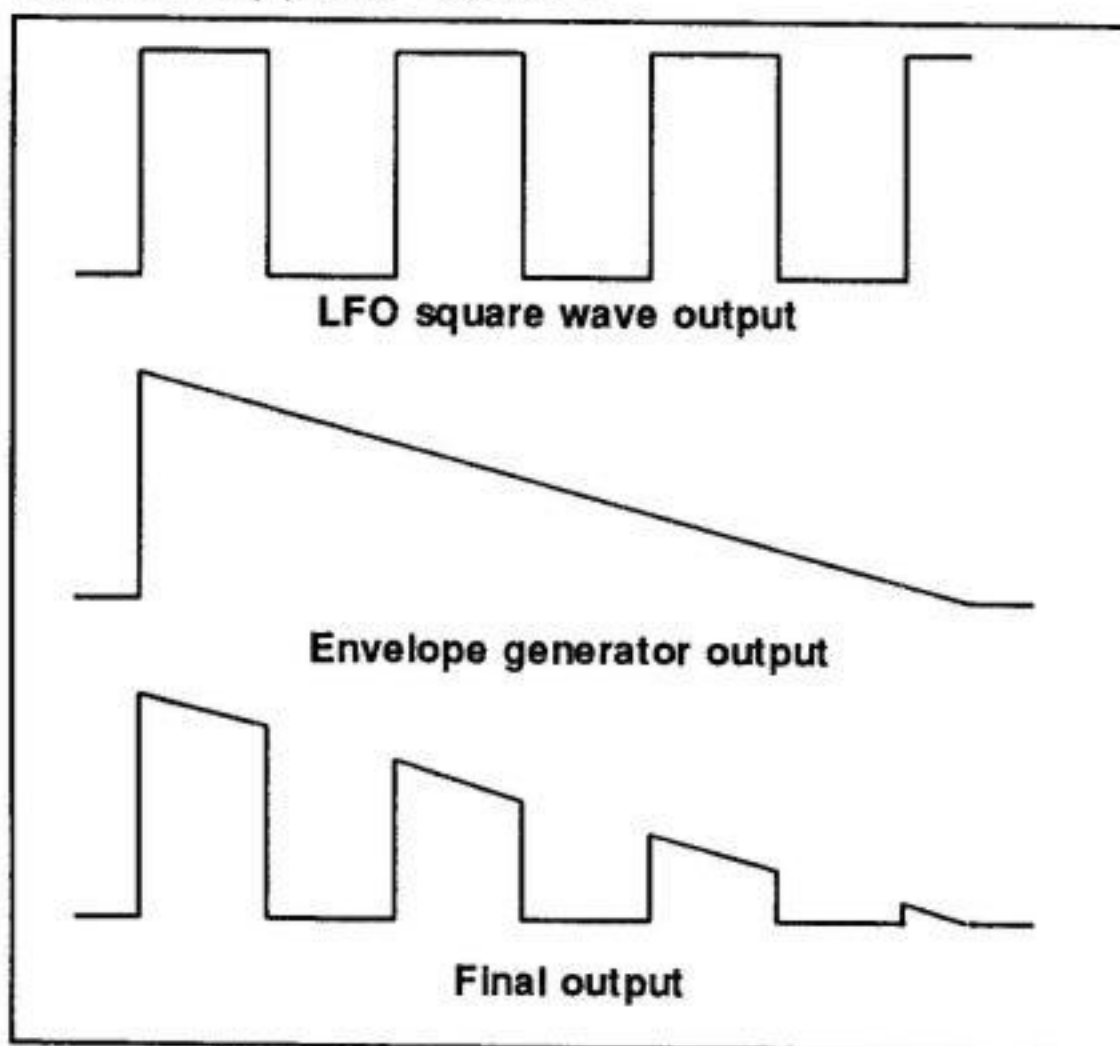
Figure 1. "ECHOES" patch.

T1 of envelopes 2 and 3 control the delay times. Since ENV 4 controls the dynamics of the overall sound, we have to give it a long enough release time (T4) or the echoes will not be heard. Notice that the velocity level (LV) of the delayed envelopes has been turned on, while it is not applied to the primary envelope ENV1. This gives us a velocity-sensitive echo feature--softer velocities give no echoes, while pounding away gives us the full effect!

While this technique is fun, the real power comes from using the synthesizer to do things that a delay line can't. For example, try using a different waveform for each DCA to get echoes with changing timbres. Or set them to different octaves to get an arpeggiator effect. There is a lot of room for experimentation here. Try it!

A better alternative to simulating echo effects is to use the LFOs to open and close the DCAs (see Figure 2). By using an LFO square wave, the DCA will be completely "on" or "off" if the modulation depth is turned up. By using 1 DCA turned on, we have a primary signal. Now apply the LFO to a second DCA, and turn up the release time (T4) on ENV 4. If everything is properly set, you should hear a remarkably realistic delay effect. An advantage of this method is that there can be more than three repeats.

The LFO frequency will set the delay time; the release time will determine the number of repeats. In addition, the LFO RESET must be turned ON and the HUMAN feature disabled or the repeats will not stay in sync. Some very important information on determining LFO tempi was covered in an article by Jim Johnson back in the August '87 TH. To hear this effect, check out the factory preset "ECHO 1".



**Figure 2.** - Another method of simulating echoes is to use an LFO square wave and an envelope generator as in the factory patch "ECHO 1".

## REVERBERATION

Reverberation is a very complex effect, as some top of the line digital reverbs have dozens of parameters that can be dealt with. Since the subject has been thoroughly discussed in dozens of articles and books, we will leave it to study the effect

in depth elsewhere. Suffice it to say, reverberation is a simulation of the ambience that an acoustic space adds to a sound, similar to an added sustain or "tail" on the end of a sound. The novice might expect that adding a little release time to the envelopes might produce this effect. Alas, doing so quickly proves that realistic reverb is a little tougher than we first thought.

If you're looking to duplicate an expensive digital reverb with the ESQ-1, forget it. But if we look at the effects that reverb has on a signal, we can mimic these elements somewhat. First, reverb takes a finite time to build up, and a longer time to fade away. Second, due to the complex reflections in a reverberant room, the ambient sound tends to have a lot of anomalies in the frequency response. Third, in most rooms, high frequencies tend to die out much more quickly than lower frequencies.

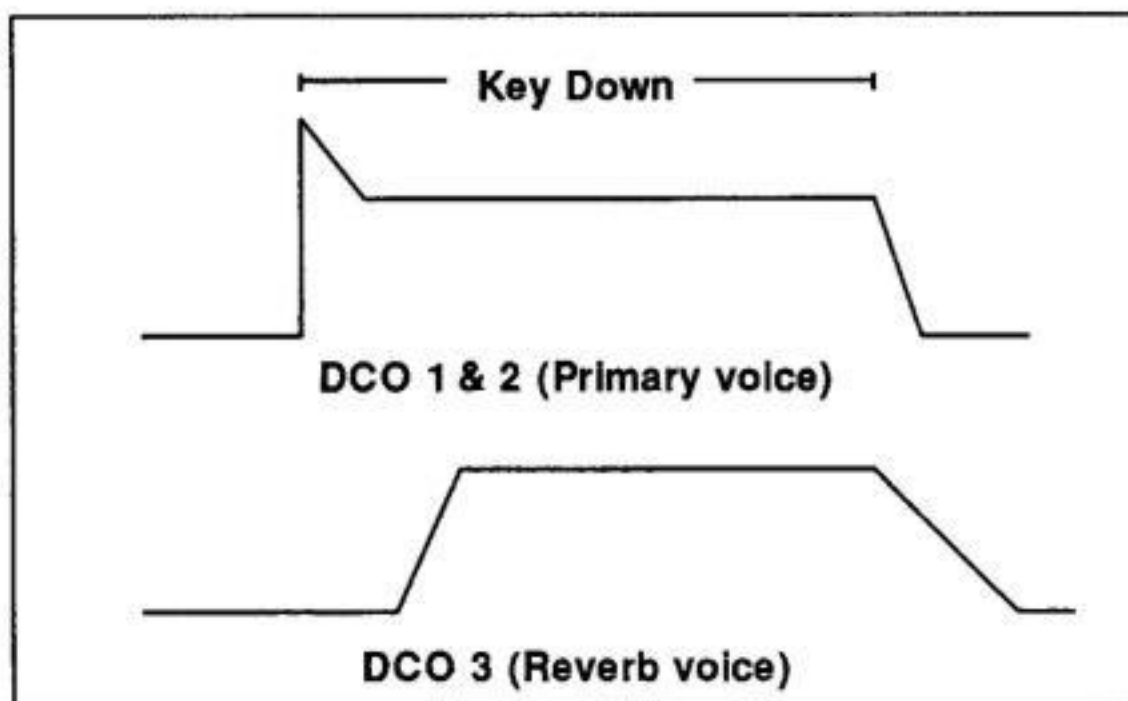
A good place to start in synthesizing reverb is to use one or more formant waveforms for the reverb sound. While the formants are a bit sharper than we'd like, they are still useful here. Choose them to match your patch--lower numbers for dull sounds, higher numbers for brighter timbres. As an example, take the patch in Fig. 3:

ESQ-1 PROG: MOOG/R										BY: CHARLES FISCHER	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	0	SQR	LFO1	5	-	-			
OSC 2	0	0	1	SQR	LFO1	5	-	-			
OSC 3	0	0	2	FORMT2	LFO1	5	-	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	0	ON	ENV1	63	-	-					
DCA 2	0	ON	ENV1	63	-	-					
DCA 3	0	ON	ENV2	53 <sup>a</sup>	-	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	51	0	29	-	-	-	-				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	51	15	ENV2	-63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	22	OFF	ON	TRI	0	0	0	WHEEL			
LFO 2	-	-	-	-	-	-	-	-			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	63	63	63	0	0	0	17	0	20	0	
ENV 2	0	63	63	0	0	3 <sup>b</sup>	9 <sup>b</sup>	0	41 <sup>c</sup>	0	
ENV 3	-	-	-	-	-	-	-	-	-	-	
ENV 4	63	63	63	0	0	0	63	63	41 <sup>c</sup>	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	ON	OFF	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

a. Sets Reverb Level.  
b. Sets Reverb Pre-delay Time.  
c. Sets Reverb Decay Time.

**Figure 3.** "MOOG/R" patch.

DCOs 1 and 2 are the "primary" (unreverbed) signal, and DCO 3 is used for the reverb effect. Notice that the envelopes for DCAs 1 and 2 have a short release time, while DCA 3 sustains a bit longer. (See Figure 4.) For best results, keep DCA 3 at a much lower level than the primary signal to avoid blurring or muddying the sound.



**Figure 4.** Generic envelope shapes for a patch with reverb added. DCO 1 & 2 are the main voice; DCO 3 adds the reverb with a slightly longer sustain time.

If you don't mind having only 4 voices, it's even better to create a special REVERB patch to layer with your original patch. Having three formats at once gives a much fuller effect. Ideally, each DCA should use a different format, and envelopes should be scaled so that the higher formats die away sooner than the lower frequencies. To enhance the effect, use panning so that the reverb blooms as it fades in. Once again, be sure to keep the reverb voice at a lower level than the primary patch to avoid muddying up things.

A final bit of advice: when fine tuning your reverb sounds, be sure to do it with a band or live mix. What sounds great when

sitting by yourself might cause problems when playing with other instruments. And tacky sounds might come across great with other instruments filling up the loose ends! The only way to be sure is to try it out yourself.

*Bio: Charles R. Fischer is a professional keyboardist, synthesizer programmer, writer, and electronic designer. He runs Mescal Music, an electronic music consulting and design firm, and has written articles for magazines like Electronic Musician and Modern Electronics. He has also gigged everything from C/W to Rap. ■*

### Ensoniq Clinic schedule for July and August 1988

CITY/STATE	DEALER	PHONE	DATE
Abilene, TX	Caldwell Music	915-677-2471	7/19
Binghamton, NY	McNeil Music	607-729-1548	7/12
Bristol, TN	Morrell Music	615-764-2171	7/26
Goleta, CA	Castle Music	805-964-9827	7/12
Ithaca, NY	McNeil Music	607-257-1142	7/13
Long Beach, CA	Whittaker Music	213-598-2461	7/27
Moline, IL	Simon Music	309-762-6834	7/21
Odessa, TX	Caldwell Music	915-368-4084	7/20
San Angelo, TX	Caldwell Music	915-655-7381	7/21
Santa Fe, NM	Candyman Ltd	505-983-2742	7/28
Sea Girt, NJ	Music Place Inc	201-223-8452	8/9

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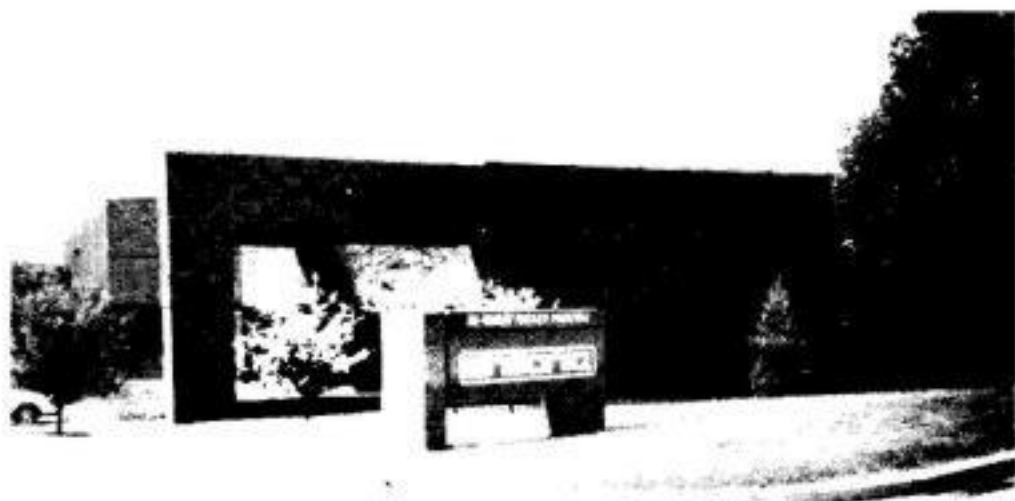
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# Who Are These Guys, Anyway?



Rob Weber of Marketing tries to cheer up Bill McCutcheon who's wondering when he can get back to work.



"Tom's new place." Sampling Wizard Tom Metcalf's studio.



The main production floor (and ceiling).



Claire - The Voice of Ensoniq.



Steve Mash doing what they do in Customer Service.



John Greenland, soundman, cornered in hallway.



New manual writer, Charles Alexander, demonstrates the David-Lee-Roth technique to Headmaster Roy (Ensoniq School).



Why is this man smiling?



Mysterious Editor invades Reception Area.

# The ESQ-1, System Exclusives, and You

by Jim Johnson

Recently, I've noticed a spate of inquiries in the Interface, regarding the use of system exclusive information with the ESQ-1. I touched on the subject in an earlier article in the Hacker ("ESQ-1 System Applications", January 1988), but apparently there is a need for more detailed information.

System exclusive information in the ESQ-1 is used for two basic purposes: bulk data dumps of sequences and patches, and remote operation of the ESQ's front panel buttons. The latter function was not included in the original ESQ-1 software (versions 1.3 to 1.7), and is therefore not too well publicized. Between these functions, it's possible to do an awful lot of neat things with the ESQ synths that aren't discussed in any of the literature I've seen; but first, let's talk about the basic operation of the ESQ's system exclusive implementation. (By the way, throughout this article, I'll assume that you, the reader, have a working knowledge of MIDI, including the basics of system exclusive operation. If you don't, skip ahead to this month's patch reviews.)

All system exclusive messages used by the ESQ-1, ESQ-M, and SQ-80 start with a packet of four bytes that Ensoniq calls, logically enough, the ESQ System Exclusive Header. The contents of this header are listed in a rather cryptic binary format (who uses binary notation these days?) in Appendix 2 of the ESQ-1 manual, but since most sequencer programs use decimal notation, here is the sysex header listed in decimal:

```
240  Start of System Exclusive Message
 15  Ensoniq ID
  2  ESQ ID
 XX  MIDI Channel - 1
```

The last entry, MIDI Channel - 1, deserves a little special attention. Ensoniq, like all other manufacturers in my experience, simply lists this as "MIDI Channel" in their documentation. This can cause all kinds of confusion for the synthesist who is not also a computer engineer. Why the discrepancy? The reason is that the MIDI channel is encoded into each MIDI status byte as a number from 0 to 15, rather than from 1 to 16, for reasons that really aren't important at the moment and the engineers who end up writing the sysex documentation apparently forget that not everyone has their level of familiarity with the subject. Suffice it to say that if you come across the words "MIDI Channel" in *anyone's* system exclusive documentation, you should substitute "MIDI Channel - 1".

The fact that the MIDI channel is encoded into the sysex header has one other implication that you'll need to keep in mind: unless your sequencer allows you to go in and edit your system exclusive messages, any dumps sent by the ESQ-1 can only be received by an instrument that is on that channel. Any other sysex messages sent to the ESQ must also contain the correct channel number, or they will be ignored.

After the sysex header comes a byte which indicates what type of command is being sent to the ESQ. The values for this byte, and their meanings, are scattered throughout Appendix 2 of the ESQ manual and Ensoniq's software update documentation. Here is a list of the command bytes that are most useful to musicians who use an external sequencer:

```
1  Single Program Dump
2  All Program Dump
6  All Sequence Dump
8  Single Sequence Dump
9  Single Program Dump Request
10 All Program Dump Request
11 All Sequence Dump Request
```

```
12 Single Sequence Dump Request
14 External Keypad Event
```

The ESQ also supports a few other message types, mostly concerned with dumping sequences to a Mirage and accept/reject messages for single sequences, but these aren't really too useful for sequencer purposes.

The first four codes in this list (the dump messages) are followed by a variable amount of patch or sequence data, along with the end of system exclusive code (247). The dump request messages are followed by the end of sysex code, and the External Keypad Event message is followed by a number of bytes representing keypad events, along with the end of sysex byte. (I'll cover the External Keypad Event in detail in a few more paragraphs.)

Because Ensoniq provided us with such a complete means of dumping patches and sequences from the front panel, I suggest that you forget about the dump request messages. If your sequencer allows you to record while simultaneously playing back a sequence, as most do, you could use these messages to automatically dump the ESQ's data to your sequencer - a technique which is essential with Casio and certain Roland synths, but which is really more trouble than it is worth on the ESQ.

Dumps can be recorded in your external sequencer quite easily. Simply plug the ESQ-1's MIDI out into the sequencer's MIDI in, enable sysex recording on your sequencer, and press the appropriate button on the ESQ. There are a few unexpected quirks which may throw you if you're not prepared for them, though. One is that the ESQ sends a "Sequence Dump Alert" message before any sequence dumps, so these dumps actually consist of two separate sysex messages, both of which must be sent when you send the sequence dump at a later date. The other, which has me totally stumped, is that the ESQ sends a couple of pitch bend messages after each dump! I can see no reason for these messages; they're not mentioned in any of the literature, and dumps sent from the sequencer to the synth seem to work fine without them, but they are definitely there, at least with my version 2.2 software. One apparent quirk that I'm honestly not too sure of is that the ESQ doesn't seem to always send sequence dumps when it's supposed to. For a while, I was convinced that pressing one particular button on the ESQ's front panel caused a partial dump to be sent, but when I tried to duplicate the phenomenon in the course of writing this article, everything worked fine. If anyone else has experienced a similar bug, please get in touch with me through the Hacker; if I can't get confirmation, I'll just assume that I stayed up too late the night I discovered this, and let it go at that.

Sending dumps back to the ESQ is just a bit trickier. The ENABLE switch on the ESQ's MIDI page must be set to enable sysex reception, of course, and the MIDI channel must be properly set, as mentioned earlier. The real problem has to do with MIDI clocks. If you are sending a patch or sequence dump from your sequencer, and if any MIDI clocks are sent by the sequencer during the dump, the ESQ won't recognize the dump, at the very least, and may lose its memory at worst! (I have never seen an ESQ erase its memory due to this problem, I should add, but it seems to me that it could happen if the clocks came at the wrong time.) The solution to this is simple: either disable the transmission of MIDI clocks in your sequencer, or make sure that your entire dump is sent on a single "step" in the sequencer. The first solution is the one I recommend, since MIDI clocks are pretty much unnecessary

with a powerful computer sequencer (you ARE sequencing your drums in the same machine, aren't you?) The second solution may be simple or impossible, depending on the design of your sequencer. On the sequencer that I use (Dr. T's KCS), for example, the program is designed such that if it has a large amount of data to send on a single clock step (a 5000 byte patch dump, for example), the program will wait until that data is sent before any MIDI clocks are sent, and then it will "spew out" the clocks it should have sent while it was busy sending the data dump. Other sequencers may not work this way; in this case, you're on your own.

This technique is, in my view, most useful for sending All Sequence dumps to the ESQ. If you haven't recorded any sequences in your ESQ, the All Sequence dump only contains about 390 bytes, which describe the track settings for each sequence in the machine. This is ideal if you want to change the configuration of the ESQ's tracks with each song - simply set the channel assignment, program number, track status, and volume for each track in sequence 0 (leave the other sequences undefined), record the All Sequence dump in your sequencer, and then send this dump back to the ESQ at the beginning of the song.

You could also use this technique to send individual patches to the ESQ-1, as some people have suggested in the Interface. To do this, you'll need to be sure that a patch bank (any one will do) is displayed in the ESQ's window, then just send the patch data to the synth. This data goes into the ESQ's compare/edit buffer, so you won't overwrite any of your internal patches when you do this.

But, suppose your ESQ-1 is NOT displaying a patch bank? Then the patch data won't be received by the synth. This could be a royal pain in the butt, especially if you had to select a patch bank manually before sending a dump, but fortunately, this isn't necessary, thanks to the External Keypad Event I mentioned earlier. This command is described thoroughly in Ensoniq's Version 2.0 software update literature, but since not everyone has a copy of this document, I'll describe it. Using this message, it's possible to select ANY page on the ESQ directly from the sequencer, without touching the synth at all!

Unlike the other sysex messages discussed in this article, the ESQ-1 does NOT generate External Keypad Event messages; it only receives them. This means you'll need to become familiar with the format of these messages, because you'll need to program them yourself, byte by byte, in your sequencer program or other external controller. This is not as tough as it sounds.

The External Keypad Event message starts with the same sysex header that other ESQ sysex messages use, followed by the External Keypad Event code (decimal 14), a number of "keypad event" codes, and the end of system exclusive status byte. Each of the buttons on the ESQ's front panel has two associated keypad event codes - one that simulates the button being pressed (called a "button down event"), and another to simulate the buttons release (a "button up event"). Therefore, a complete "button press" consists of two keypad event codes. The codes for each button are listed below:

Button	Down	Up	Button	Down	Up
ENV 1	1	52	Edit	27	78
ENV 2	2	53	Tracks Select	28	79
ENV 3	3	54	Locate	29	80
ENV 4	4	55	Tracks Mix/MIDI	30	81
LFO 1	5	56	Record	31	82
LFO 2	6	57	Stop/Cont	32	83
LFO 3	7	58	Play	33	84
OSC 1	8	59	Bank 1	34	85
OSC 2	9	60	Bank 2	35	86
OSC 3	10	61	Bank 3	36	87
DCA 1	11	62	Bank 4	37	88
DCA 2	12	63	Internal	38	89
DCA 3	13	64	Cart A	39	90

Button	Down	Up	Button	Down	Up
DCA 4	14	65	Cart B	40	91
Filter	15	66	SEQ	41	92
Modes	16	67	Softkey 0	42	93
Split/Layer	17	68	Softkey 1	43	94
Master	18	69	Softkey 2	44	95
MIDI	19	70	Softkey 3	45	96
Control	20	71	Softkey 4	46	97
Storage	21	72	Softkey 5	47	98
Write	22	73	Softkey 6	48	99
Compare	23	74	Softkey 7	49	100
Increment (^)	24	75	Softkey 8	50	101
Decrement (v)	25	76	Softkey 9	51	102
Create/Erase	26	77			

A single External Keypad Event message can contain as many keypad event codes as you want to cram in, so it's possible to create messages that combine multiple key strokes. The only caveat here is that you need to be sure that you send a corresponding button up event for each button down event, or you'll be left with "dangling buttons", which the ESQ doesn't like at all. You should also be sure not to send any button codes outside the range listed above.

So what good are these messages? I have used this message countless times in my own sequences, and can think of a lot of other ways it could be used in other situations. One that immediately comes to mind is the patch bank select message mentioned earlier; send the following message before any patch dumps, and you'll be guaranteed that your patch data will be received:

```

240 Start of System Exclusive Message
15 Ensoniq ID
2 ESQ ID
0 MIDI Channel 1 (for example)
14 External Keypad Event
38 Internal (down)
89 Internal (up)
34 Bank 1 (down)
85 Bank 1 (up)
247 End of System Exclusive

```

Suppose that you've got one of those new-fangled digital reverbs that receives patch changes only, and that you're short on MIDI channels in your system. Using the External Keypad Event, you can save one MIDI channel in your system by putting the reverb on the same channel as the ESQ-1, and then sending patch changes to the reverb, followed by an External Keypad Event message to select the appropriate patch on the ESQ directly, via the front panel buttons. The ESQ will respond to the patch change for the reverb, of course, but since the reverb won't respond to the ESQ-1 sysex messages, the External Keypad Event will cancel the effect of the patch change on the ESQ-1 only. The result: independent patch selections for two instruments on the same MIDI channel! This technique can be applied to any instrument that shares the ESQ's channel, not just reverbs, which is a tremendous help if you like to layer synths from your sequencer.

So there you have it - the ESQ-1 system exclusive implementation in a nutshell. Spend a little time playing with your sequencer and the messages I've outlined above, after backing up the ESQ's data to prevent disasters. You'll probably find a lot more labor saving applications for your own system that I could never think of.



*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.*

# Leaping Lizards' Chameleon

*Reviewed by Gary Morrison*

FOR: Mirage.  
PRODUCT: Chameleon.  
PRICE: \$39.95 + \$2.50 shipping.  
FROM: Leaping Lizards, 1614 1/2 NE 80th, Seattle, WA 98115. (206) 527-3431.

You know, in a way there really isn't very much to say about Leaping Lizards' Chameleon. Sampling keyboards may be the simplest and cheapest way to get natural-sounding timbres, but making good samples is still not an easy process. That means that you're either going to spend lots of time or lots of money to get a good sample library together. Whether you spend lots of time or lots of money on your samples, you ought to be willing to spend about \$40 on full Chameleon insurance coverage on them.

## What is Chameleon?

Chameleon is a series of fifteen disk utilities and diagnostics for the Mirage. Other companies offer disk utilities for the Mirage, so what makes these different? Two things: completeness and ease of use. As an example of completeness, not only can you format a disk and put the operating system onto it, but you can also back up an entire disk - operating system, samples, sequences, and all - in one simple operation. As for ease, when you swap disks during the copy, it senses when you've inserted the source or destination disk, so you don't have to hit ENTER or anything like that.

Chameleon basically breaks down into two separate sets of utilities: disk utilities and diagnostics. The disk utilities help you avoid losing your sample library, and the diagnostics help you find any subtle problems with your Mirage itself. Chameleon is yet another alternative operating system for your Mirage. When you boot Chameleon, you don't have any of the normal Mirage functions, such as sequencing, sampling, or even playing. (This, of course, in no way affects your Mirage's ability to do these functions under the normal operating system.) For most of the functions, you won't use your keyboard at all so, for the most part, it works equally well on rack-mounted Mirages as it does on keyboard Mirages.

## What can You do with Chameleon?

Chameleon uses single-digit keystroke commands. It prompts you either with "du" for "disk utilities" or with "di" for "diagnostics". You can toggle between the two using the "0/Prog" key. After you select one of those modes, you choose a command using the digit keys. Here are the commands in each mode:

### Disk-Utility Mode:

1. Format Disk (and optionally place an operating system onto it).
2. Load operating system to place onto the disks you format.
3. Save operating system onto already formatted disk (good for upgrading your disks to a newer revision of the operating system).
4. Backup entire disk.
5. Check to see if a disk is formatted and if it has any formatting errors on it.
6. Recover data on an errant disk. This is listed as a last-ditch effort.
7. "Easy Backup" - Now here's a real nice touch! Suppose you are at a friend's place jamming on your Mirages and you find a

really cool sample that you want. Swapping disks is a pain, so... just hook your MIDI OUT to your friend's MIDI IN and vice-versa, boot the Chameleon on both machines, and tada! No disk-swapping necessary - they do it all over MIDI.

8. Reboot the Mirage.

### Diagnostic Mode:

1. Check pitch-bend wheel range and centering.
2. Check modulation wheel range.
3. Check keyboard MIDI note numbers.
4. Check attack velocity.
5. Check release velocity.
6. Check sustain pedal.
7. Check keypad.
8. Verify that the disk-drive can sense a disk being present or not.

## Did it work as advertised?

Generally, I was quite impressed with how well Steven Fox (the Leaping Lizard himself) did his homework on this one. I found Chameleon to be a well-thought-out and very comprehensive utility. For the most part, not only did it work as it was advertised to work, but it worked very well. For instance, if an error is encountered while doing some sort of disk operation, not only does it tell you what the error was, but you can push "Param" to find the track and "Value" to get the sector on which the error occurred. Also, if you've loaded up an operating system to put onto your formatted disks, you can push "value" instead of a command digit to find out what version number that operating system is. Little things like that make a lot of difference.

In general, I found the diagnostics to be less useful than the disk utilities. The documentation, almost apologetically, states that rack-mounted Mirage owners won't be able to use all of Chameleon's features. I guess I don't see it that way. The question that immediately comes to my mind about the diagnostics is this: If your keyboard plays incorrect MIDI note numbers, you'll most likely notice that right away. How does knowing that key number 4E plays a 21 help you? You'll hand it to a dealer for repairs in either case. Certainly I don't want to imply that they are useless by any means; it's just that some of them are more useful than others. I found out, for instance, that my pitch-bend wheel didn't have quite full range and that my modulation wheel had a small dead-spot at the bottom of its range.

Actually, I found the attack velocity test very nice from a keyboard technique standpoint - you can use it to precisely monitor your attack velocities as you play melodies and work for even volume. In general, however, I suspect that most Mirage owners will find that the information you get from Chameleon's diagnostic section is either readily visible in normal playing, more information than an owner would need to tell a repair man about, or too subtle to be of practical value. Others may get a different impression, however.

The only thing that just simply didn't seem to work was the sustain pedal check. Even though my sustain pedal clearly worked in normal playing, it didn't register it on the test. The only other thing that struck me as a little annoying is that you can't abort a disk copy while it is reading the source disk. Normally this isn't a problem since it doesn't take very long to read the disk. If, however, you accidentally insert a blank disk, you'll have to wait awhile for it to finish up.

Even though I found the diagnostics only moderately useful, the disk utilities are absolutely excellent and are in themselves easily worth the price.

A logical question: will Chameleon's backup function back itself up? No dice, Bub. Don't count on backing up anything other than standard Ensoniq-formatted disks. I tried a few other alternative operating systems and most of them didn't work. It wouldn't, for instance, back-up Soundprocess or Upward Concepts' Mirage Monitor Disk. However, if you accidentally destroy your copy of Chameleon you can get a backup from Leaping Lizards for \$5.00 plus \$2.50 shipping and handling.

#### How about the documentation?

Chameleon was definitely well-documented. It was organized well, and I saw no technical errors, bad phrasing, distracting grammatical mistakes.

#### Should I Buy It?

Well, if you haven't gotten the point yet, the answer is "yes". I definitely recommend it highly. Having worked in the computer industry for quite some time now, I can certainly testify to how much trouble you can get yourself into without properly backing up critical information. Chameleon is the most convenient way I am aware of to do backups, and its other utilities are also very useful.

*Bio: Gary Morrison's day gig is computer design engineering. His main fascination in music is xen-harmonics (unusual tunings). He aspires to become a recognized composer in that field.* ■

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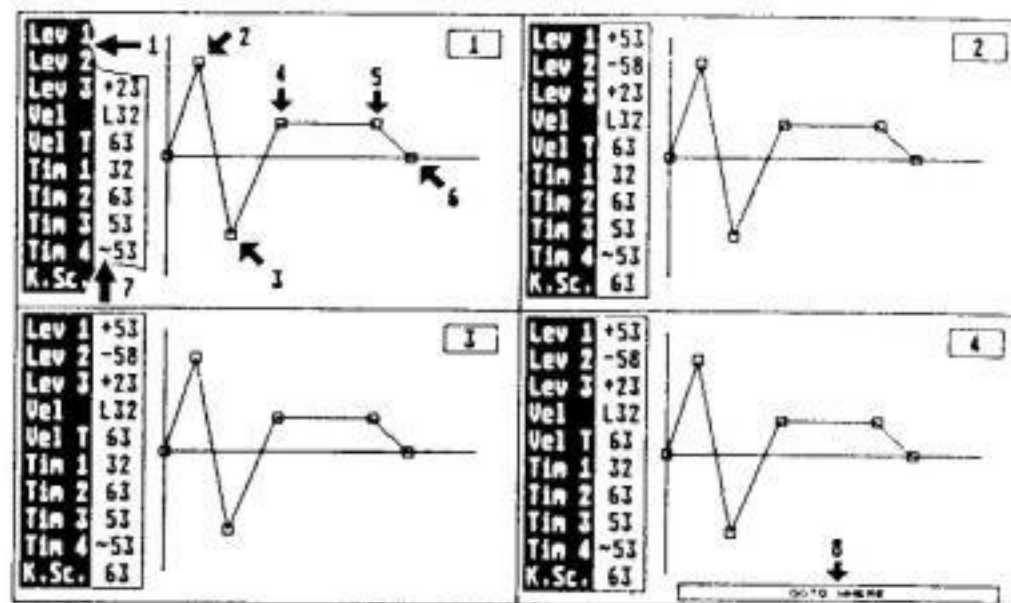
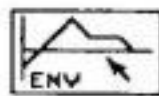
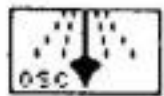
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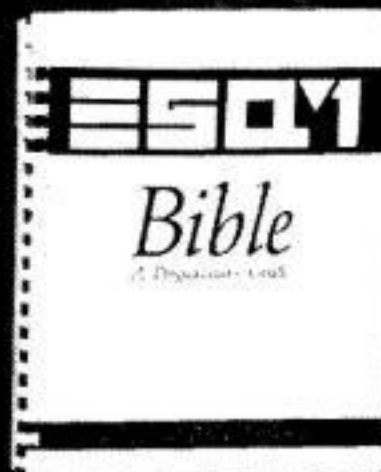
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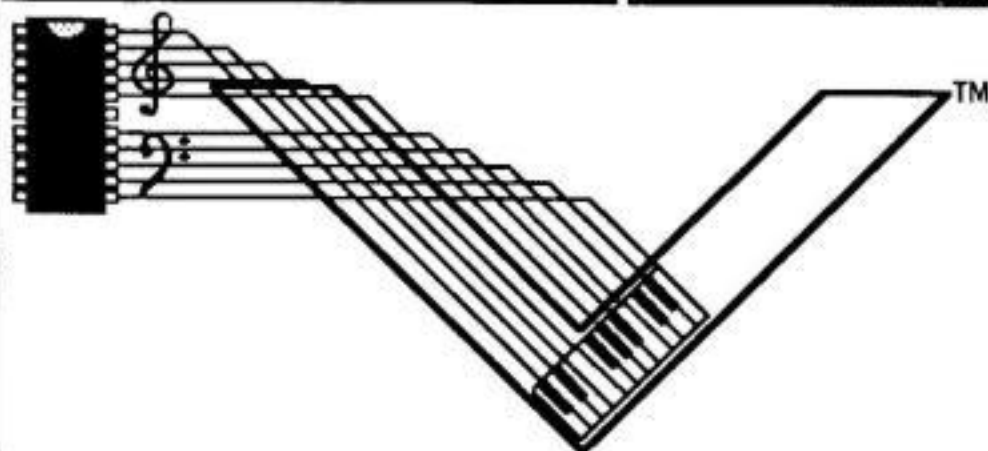
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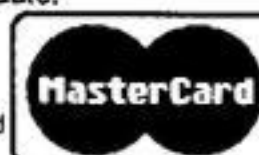
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# The IVM MidiDisk

Review by Larry Church

For: ESQ, D-50, HR-16, Mirage, MMT8, TX-7, etc.  
Product: MidiDisk  
Price: \$449.95  
From: Indian Valley Manufacturing, 69 Madison Ave., Telford, PA 18969. Sales and marketing: (303) 239-6601. Orders: (800) 441-8900.

As modern MIDI musicians we all share at least one common problem. Every productive session yields another batch of data files to be cataloged and integrated with existing libraries. These files must then be safely stored away two or three times to avoid the "all-important lost data file disaster syndrome."

Indian Valley Manufacturing has engineered the MidiDisk specifically to deal with this problem. This device eliminates the need to integrate a computer and librarian software into the MIDI studio set-up. The file management system and buffer size (128K) make for extremely efficient use of space on 3 1/2" DS/DD micro-floppy disks (800K format). MidiDisk is packaged in a single space 19" chassis ready to rack up in a convenient location. If you're not satisfied with your current MIDI data storage/back-up system, read on. This may be just what you're looking for.

The day the MidiDisk arrived the DANLAR studio was in pieces getting the keyboard set-up overhauled to make room for the recently acquired EPS. It would be a couple of days before things were re-assembled, so the MidiDisk wound up downstairs in the shop for a bench inspection.

The first visual impression was a bit "so-so". The chassis is not ventilated and not sturdy enough to survive a crash from a falling light tree or runaway road case. The panel graphics are very plain with no flashy fonts or logos. The switches don't have a positive feel when depressed, and protrude further than necessary from the face plate.

MidiDisk is powered from an external supply, but it is larger than the calculator variety, and has a separate cord for the AC connection. The external supply is actually a good feature as it eliminates most of the internal heat build-up allowing for an inexpensive non-ventilated chassis. It also exempts the main unit from the UL listing requirement (the supply is UL listed). UL listings are a hassle to get, and take large amounts of time to process.

The inside of the chassis shows more signs of industrial construction than the exterior. The main PCB (printed circuit board) is double sided and thru-hole plated with the important IC's socketed. The drive module itself is a typical Japanese unit just about like the ones used by Ensoniq. Everything is neatly laid out and easy to get to. These features are all necessary for reliability and serviceability.

With the studio reassembled, the performance test commences. It took only a few minutes to get familiar with the modes of operation and all the functions necessary to begin. Skimming the instructions, one item leaped from the page and caught my full attention. "The MidiDisk is particularly well suited for use with the ESQ1, including those equipped with the SQX 20 sequencer memory expander." "Hey," I thought, "wouldn't it be nice if the ESQ can load sequences and patches from the MidiDisk in one transfer operation?" It does, and it is! The procedure is basic. 1: Depress Receive button on the MidiDisk. 2: Send first patches, then sequences to MidiDisk using MIDI to ESQ function on the storage page of

the ESQ1. 3: Execute a disk store command. In no time at all I had three songs transferred and stored to disk.

Each song seemed to take noticeably longer to store. A quick look through the utility commands was very enlightening. The first utility function in the chain is CLR (clear). This command must be used after each operation unless you intend to combine system exclusive files into groups for system configuration etc. My third song file on the disk actually had all three songs back to back because I didn't execute the clear function each time. The instructions don't really explain this, but for combining files into groups you wouldn't want it to work any other way.

Another manufacturer of a similar device using Quick disk format tells us that it takes two internal bytes of buffer space to deal with each byte of MIDI data. Their 60K buffer overflows with 30K of data. MidiDisk does not work this way. 30K of MIDI data occupies 30K of space in the buffer and on disk. Excitement and joy filled the studio as the first disk approached capacity with ESQ sequence and patch files. These sequence files average around 6000 notes each. We got 29 songs on the disk including a set of patches for each title. I like it! We're going to save hundreds of dollars on disks just backing up our song library.

MidiDisk has the capability of assembling and sending MIDI dump requests to devices lacking internal system exclusive data dump routines in their operating system. This feature is simple in concept, but should be identified as an "advanced user function." These messages include a manufacturers ID code that must be obtained from the documentation for the device the message is written for. The MidiDisk manual states that this code may be given in hexadecimal, binary, or decimal, and must be converted to decimal before entering the code into the dump request instruction. Necessary conversion charts and some examples are included, but there is no discussion of base number theory. If you don't know about hex and binary numbers this might leave you wanting to know more. Sixteen different dump request messages can be written and ready to send at any time. The contents of the sixteen dump request memories can also be stored to disk.

MidiDisk has a ROM based operating system, but the utility command chain includes a boot message. Operating system updates can be distributed on disk and user installed to RAM using this function. The Indian Valley engineers have designed a great deal of value and flexibility into the MidiDisk. It rates a big thumbs up. ■

## Current Ensoniq Operating Systems

INST	OS	DISK	EPROMS
EPS	1.5	X	
MASOS	2.0	X	
Mirage	3.2	X	
ESQ	3.5		X
ESQ-M	1.2		X
SQ-80	1.8		X

# Island MIDI ESQ-O-Matic Patch/Sequence Librarian

*Reviewed by Rick Hall*

For: ESQ-1.  
Product: ESQ-O-MATIC Patch/Sequence Librarian including 40 patches.  
Price: \$39.95 (plus \$2.50 p+h).  
From: ISLAND MIDI, PO Box 1102 Bayshore, NY 11706. (516) 666-4167.

So you say you wanted a happening synth and a nice user-friendly sequencer but you didn't have much bucks so you went out and got an ESQ-1. Good move. But then you say you wanted a really nice computer for all your burgeoning high-tech needs but your waiter's job just wasn't paying so great and it looked bad until you found out about the Atari ST. Another good move, congratulations! But hey, now you're really low on the old dinero and to top it off, your cassette player just bit the big one, and being the prodigious unstoppable composing force that you are, you find yourself filling up that sequencer faster than Giorgio Moroder, so the obvious solution is a sequencer librarian for the ST but... hey! these things cost, like, a hunderd bucks or sumpin', man...like, that's a week's pay!!!! Is this truly where the good deals come to a grinding halt, and once again the noble campesino becomes the victim of cruel economic reality?

Never fear, oh impoverished ones. Redemption is nigh, this time in the form of Island MIDI's ESQ-O-Matic Patch and Sequence Librarian, designed by Scott O'Hare for the Atari ST. This is the kind of inexpensive, user-friendly and useful program that my poor non-technical musician's brain (in cahoots with my moth-eaten wallet) constantly craves and rarely finds. Brilliant in its simplicity, this thing does a small number of basic but essential tasks with a no-nonsense mouse-driven scheme that provides for the minimum technical distraction from your creative musings.

ESQ-O-Matic comes up on your monitor as a single screen, presenting you with simple icons representing your ESQ-1, your disk drive, your printer (if you have one; not necessary to run the program) and three files of ESQ sounds (each file holding four banks of ten patches, just like on the ESQ). There is a small icon which you click with the mouse to set the MIDI channel you wish to use, which should be the same as your ESQ-1. That's all the setting up you need to do.

Operating the program consists of merely dragging one icon with the mouse to whatever other icon, representing a destination, you wish to go to. For example, to get a load of sequences from the 'Squid onto a disk, just drag the ESQ icon over onto the Disk icon. Release the mouse button and viola!, a dialog box appears asking if you wish to save all sequences or just one (or cancel, if you've changed your mind). Making your choice activates the program, which then brings your sequences over to the computer, showing you a typical GEM file box in which to name and store them. This program operates with any of the expander cartridges for the ESQ-1, so no file is too big or too small!

Saving voice files and individual patches is just as easy. Again, you merely drag the ESQ icon over to a File icon and let 'er rip. You can then mix and re-arrange your sounds, either individually or in banks of ten, by the same process of dragging the appropriate icons around the screen. Folks, this is what the Atari mouse-driven graphic system is all about.

Loading to the Squid is the same process in reverse - move the disk icon onto the ESQ icon to load sequences, or a file,

bank or patch icon to load voices. You get the idea. When you write a single patch to the ESQ, it comes up on the ESQ's WRITE page, and you must then assign it to the desired location on the synth using the ESQ's panel controls, but other than in this instance you shouldn't have to monkey with the ESQ's controls very much at all.

Wait - there's more! (Did I mention that this program goes for \$39.95?) If you want a printed data sheet of any given patch or bank, or a 40-patch directory of your file, simply drag the appropriate icon on over to the printer icon. Bingo. Want to look at that patch data before you print it? No problem. Double-clicking on the desired patch icon causes the screen to display the data on two screens, which you switch between using the RETURN button on the Atari keyboard. This is for viewing only, because this program is NOT a patch editor.

Not that we're complaining about that, mind you, not at these prices. As the manual states, "...This is a deliberate design decision on the part of Island MIDI, since the best place to edit a patch is by far the ESQ-1 keyboard itself!...No amount of graphics, or other software 'bells & whistles', can replace the immediacy and control of the ESQ-1 keyboard console for development of sounds -- they can only contribute to processor overhead and software cost." A fair argument, I say, especially since I myself own a very sophisticated ESQ patch editor for my Atari ST that I almost never use, for just that reason.

This program uses your storage space efficiently, too. A single-sided disk will hold well over 3000 patches - do you even have that many ESQ sounds? You must set up your storage disk to contain a folder, or directory, to hold your ESQ-O-MATIC files, but this is a ridiculously easy procedure that any Atari ST owner should be familiar with.

I would like to go on record as "raving" about this product. It does more functions - useful functions- for less cost than any other ESQ program I've seen. Best of all, it works so intuitively that it scarcely impedes the creative process - a complaint I hear often from musicians using today's sophisticated computer software. The accompanying manual is extremely clear, well-written and complete in every detail. If you own an ST and you're still saving your stuff to cassette, well, all I can say is, don't come crying to me about it... there aren't many less expensive programs of any kind for this elegant and classy computer, and this one would be well worth having at twice the price. HIGHLY RECOMMENDED.

## Island MIDI Patch Review

Oh yeah... one more little thing. This program comes with a bank of 40 original patches. Which in itself would be nifty but in this instance is a bonanza beyond imagining because -- and folks, I wouldn't lie to ya -- these sounds are among the absolute best and most useful I have come across in my whole ESQ sound-reviewing career. That's a strong statement, which I don't make lightly, and believe me, I've heard A LOT of ESQ sounds. But it seems that ol' Scott O'Hare has a certain knack for coming up with very useful stuff...

So, what's good about them? Let me count the ways... There is a very nice, rich string patch, ADAGIO - a standard. There is a very utilitarian string and organ blend called STRGOR. There's a great jangly Rickenbacker guitar emulation, BURNT2, that immediately had me doing "Day Tripper" with

my wedding band. There is a wonderful pair of warm, classic church organ sounds, HERALD and ROEHR, which are extremely well-crafted and sound even better layered together - good, tasteful programming here.

There are several digital electric piano sounds of varying timbres, giving you a fairly wide choice for that pad sound you've gotten tired of using DIGPNO for. I've got dozens of these from other soundbanks I've reviewed, but these are the ones I'm using lately. There's a very decent flute (FLAUTE), an even better fife (FIFE), and - my favorite in the set - a violin patch, VIOLS, that is the first real-sounding solo violin that I have heard on any synth. This is a subject dear to my heart, as I am an enthusiastic (but rather wretchedly bad) fiddler myself. You must hear this voice to believe it; nothing else comes close. (You will get some aliasing when you bend the pitch - the only drawback to the voice - and I did tweak the amount and frequency of LFO1 slightly to improve the vibrato, but now it sounds like Sugar Cane Harris on HOT RATS... Wow!) Double stops sound so accurate it's scary! And it sounds great in every register, too. Electric cello, anyone?

There are a couple of wonderfully fresh and eccentric lead sounds: MONGOL (which is indescribable) and MODWHL, which uses the mod wheel to control the pitch of OSC2, allowing you to harmonize the voice with itself at intervals up to a major sixth - very effective in catching the audience's attention as you go soloing merrily along... There is a truly unique patch that emulates a guitar being played through an amp with tremolo. This will be much appreciated by anyone trying to do oldies - it's a very accurate representation of that sound.

Scott includes in his set three great, fat bass sounds. This is a definite case of quality over quantity. He has one that sounds

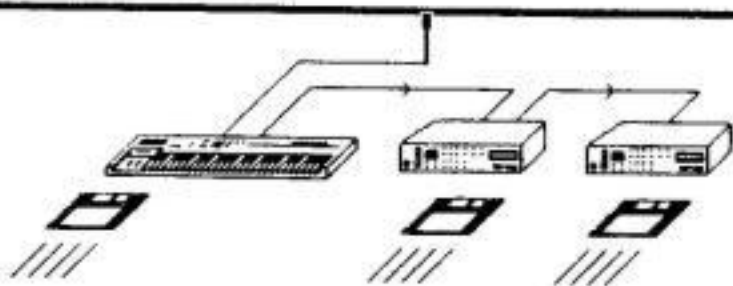
sort of like a piano (JZBASS) that I've been using for the song "Cool Jerk". Also included is one of the meatiest, most solid Hammond organ sounds I've heard yet on the ESQ-1, COOLB3. Just the right amount of brightness and attack; right "in there". I wish the mod wheel added a real Leslie effect rather than the sort of cheesy tremolo that exists now, but I haven't tried to fix it yet, so who knows? I also am in love with the patch called ZYDECO. In the program notes (yes, there are three pages of supplied program notes, and they are good, useful, even witty, comments on the sounds) Scott says: "When you get a request for Rockin' Sydney, you'll be ready with this one! Very authentic above C3." I totally concur.

Enough! You get the picture. Even if you don't have an Atari ST, find somebody who does. Order this package and give him the program and you get the sounds. It will be worth every penny of your forty bucks. Yes, indeed!



*Bio: Rick Hall is a well-known -- some say notorious -- denizen of the Philadelphia music scene who keeps himself busy writing, performing, producing and recording with numerous ensembles of every conceivable nature, including his own R&B group DANIELS/HALL. He frequently sluffs off his serious obligations in order to go fly hot air balloons and indulge a passion for fiddle-making. He is in love with a large white dog named Lady.*

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# Tuning the EPS

by Robert Rich

I have waited a long time for a high resolution, inexpensive, retuneable sampler. When I saw the EPS at the Winter NAMM, I cornered one of the designers and asked him whether they had provided access to the tuning tables. (After all, Dick Lord had already successfully hacked the Mirage's tuning tables.) Within a few button-pushes, he showed me what I had longed to see: a very intelligently organized tuning editor. Needless to say, I ordered an EPS as soon as it came out.

Now that I have had the EPS in my studio for a little while, I am growing increasingly fond of it. Despite some glaring omissions in the scanty preliminary manual (it doesn't even mention tuning) I think I have managed to figure out most of the tuning features. Here is a brief description:

The EPS can hold up to eight "instruments" at once. Each instrument can carry with it up to eight tuning tables. This translates into a maximum of 64 tunings in the machine at once - memory permitting. The tunings get stored with each instrument, which I find somewhat inconvenient, but Ensoniq kindly provided a command to copy tuning tables stored with that instrument.

Two buttons located near the modulation wheels give the performer instant access to four combinations of layers within an instrument. These can allow real-time tuning changes. The default tuning could play when no buttons are pressed. Pressing the left button provides alternative #1; pressing the right button provides #2, and pressing both at once provides #3.

Ensoniq also made it fairly easy to create new tunings. Two button presses ("Command" then "Pitch") place you into the tuning table editing pages. The EPS first asks, "Edit pitch table?" If no tunings have been created when you press "yes" it

then asks "Create new pitch table?" Press "yes" again and the screen shows something like: KEY \*\* = \*\* 0 CENTS, where \*\* will be note names like A2 or E4#. Now you just move the cursor under the desired value and change it with the slider or inc/dec buttons. You can also select the key you want to edit by playing that key on the keyboard when the cursor is next to "KEY".

If your scale is octave repeating, you need only tune one octave. A command then lets you extrapolate the rest of the scale from that octave. Happily, this need not be a 12-note octave either. If you wish you can even create alternate ET's by extrapolating the scale from one semitone. Other commands let you name the scale and copy it to other instruments. The "Copy Scale" command also provides the means for creating multiple pitch tables within one instrument. The range of a pitch table covers the 88 notes of the piano keyboard, not the 128 notes of MIDI, but I'm not complaining.

What I will complain about is the deceptive nature of the editing display. The tuning resolution seems less than the implied 1 cent. The machine simply refused to stay at certain values (the fifth kept jumping back to +1 cent rather than the desired +2). I will guess that the resolution is the same as the DX711- about 1.2 cents, or 1024 steps per octave. Despite my griping, I must admit that I would rather edit a display in cents than in binary tuning units.

I think Ensoniq did a great job with the tuning implementation on the EPS. Personally, I prefer tunings to be completely separate from the sounds within an electronic instrument, but given the memory architecture of the EPS, that would have been pretty messy. As for the rest of the EPS...I love it! ■

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# Hackerpatch

**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 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 in Erick Hailstone's "Hacking Part" and comments by Sam Mims - our resident patch analyst. If you send in a patch, **PLEASE** include your phone number.

## The Hacking Part...

**PROGRAM: WURCLV** (by Doug Fietsch)

Doug's patch has a very "reedy" quality which is indeed similar to the Wurlitzer electric piano. You might try making use of the MOD wheel to produce a slight chorus. Select OSC2 and set MOD1 to WHEEL, DEPTH=2. When you engage the wheel a small amount you will now produce a pleasing chorus effect. If you push the wheel forward too much you produce a nauseating chorusing effect. Don't do that.

I enjoy this patch enough so that I wouldn't want to change its basic tonal qualities, so here is a slight variation (a programmer's lick if you will) involving the ESQ's stereo outputs. To achieve this effect you must be using a stereo playback system.

Select DCA4 and make the following changes:

PAN=4, ENV4=DEPTH 58, MOD=ENV2 with DEPTH=63.

Select ENV2 and make the following changes:

L1=63, L2=0, L3=63, LV=30, T1V=0, T1=0, T2=59, T3=44, T4=0, TK=0.

Select ENV4 and make the following changes:

L1=63, L2=47, L3=0, LV=38, T1V=0, T1=0, T2=41, T3=63, T4=27, TK=51.

### SQ-80 Modifications:

Start with the above changes. Select another patch that has a long sustain. Select DCA4 and change PAN to 15. Make the following changes to DCAs 1, 2, and 3. Set LEVEL to 0. Set MOD1 to PRESS with DEPTH=63. Set MOD2 to OFF. Select the SPLIT/LAYER page and turn LAYER ON. Select the WURCLV patch. If you play normally you will hear Doug's Wurlitzer electric piano with a quick right to left stereo pan as you release the notes. If you press down harder, whichever sustained patch you layered with WURCLV will be heard through the right speaker.

Erick Hailstone  
The MIDI Connection

## The Patching Part...

**PROGRAM: YAHC**  
by Tom McCaffrey, ESQUPA

"YAHC" stands for "Yet Another Heli-Copter". (Just what you needed, right?) It features the sound of the helicopter motor (made by the NOISE2 waveform) in addition to the obligatory rotor sound, which uses the SQ-80 METAL for realism.

[Sam Mims: This patch can be set up on the ESQ-1 by changing the waveform of OSC2 to SINE rather than METAL. I rather preferred NOISE1 on OSC1 over using NOISE2. See what you think. The patch, to me, sounds like what you would hear from INSIDE the cockpit - it's not as harsh as most 'copter sounds. So, it's really more than just "Yet Another..."]

**PROGRAM: TACKY**  
by Bryce Inman

I programmed a detuned tack piano and then decided to experiment with waveforms other than PIANO. I found that using the vocal waveforms gave a refreshing quality to a familiar sound.

[Sam Mims: This is sort of a "human" tack piano sound. For more attack noise, try using NOISE2 on OSC1. I had fun boosting the filter resonance to maximum (Q=31), and dropping the FREQUENCY (to 16 or so). I hate to leave the mod wheel doing nothing, so I set up LFO2 with a SAW wave (FREQ=49) controlled by the WHEEL, and sent this to the filter as modulator (MOD1=LFO2, DEPTH=63). This gives a "space bubbles" effect when you crank the mod wheel.]

**PROGRAM: WURCLV**  
by Doug Fietsch

This sound is a cross between a Wurlitzer electric piano and a clavinet.

[Sam Mims: I like this sound. How about also programming the mod wheel to do something, getting a more versatile patch? I tried using it to add a touch of vibrato by changing MOD1 on all three oscillators to LFO1, with DEPTH=5. On the LFO1 page, I set FREQ=22, WAVE=TRI, L1=0, Delay=1, L2=5, and MOD=WHEEL. On the other hand, you could use the wheel to fade either the clav or the Wurlitzer sound out, leaving just the other. (See "ESQ ABC's" on page 10 of the October '87 Hacker #28 for pointers on this.)

**PROGRAM: LAYER2**  
by Charles R. Fischer, Mescal Music

This patch was created to emulate the timbre of an FM celeste or bell MIDI'd to an analog synth brass. Oscillators 1 and 3 produce the chorused brass sound, while OSC2 contributes the celeste. This is a good way to get complex timbres without resorting to the LAYER mode - and its accompanying loss of voices.

[Sam Mims - This is a nice sound that used to require two keyboards to produce. I brought the level of DCA2 up to 30 for a more pronounced bell. Try turning on the AM (MODES page) for an interesting effect.]

## SQ80 PROG: YAHC

BY: TOM McCAFFREY

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-3	0	0	NOIS2	KBD2	-63	OFF	-
OSC 2	-3	0	0	METAL	KBD2	-63	ENV1	63
OSC 3	-3	0	0	NOIS1	KBD2	-63	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	25	ON	OFF	-	OFF	-
DCA 2	0	ON	OFF	-	LFO1	-63
DCA 3	0	ON	OFF	-	LFO1	63

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	82	0	0	OFF	-	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	38	ON	ON	SAW	63	0	63	LFO1
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	0	0	-63	0	0	0	0	48	0	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	63	63	0	0	0	44	63	26	0

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

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

## ESQ-1 PROG: TACKY

BY: BRYCE INMAN

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-3	0	5	NOIS3	OFF	-	OFF	-
OSC 2	-1	0	0	VOICE1	OFF	-	OFF	-
OSC 3	-1	0	3	VOICE1	OFF	-	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	ON	ENV1	63	ENV1	63
DCA 2	63	ON	OFF	-	OFF	-
DCA 3	52	ON	OFF	-	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	86	0	48	OFF	-	OFF	-

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	8	OFF	OFF	TRI	63	0	63	OFF
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	31	0	0	0	0	0	8	0	0	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	52	41	34	0	0	36	40	23	11

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

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

## ESQ-1 PROG: WURCLV

BY: DOUG FIETSCH

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	3	BELL	OFF	-	OFF	-
OSC 2	-1	0	3	BASS	OFF	-	OFF	-
OSC 3	-1	0	3	SQR	OFF	-	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	36	ON	OFF	-	OFF	-
DCA 2	60	ON	OFF	-	OFF	-
DCA 3	46	ON	ENV1	35	ENV1	-28

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	42	10	2	VEL	10	ENV1	22

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

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	-	-	-	-	-	-	-	-
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	8	20	0	0	0	42	63	20	8
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	52	15	0	0	0	17	63	8	63

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

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

## ESQ-1 PROG: LAYER2

BY: CHARLES FISCHER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	SAW	LFO1	2	OFF	-
OSC 2	2	0	0	SYNTH2	OFF	-	OFF	-
OSC 3	0	0	2	SAW	LFO1	2	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	ON	ENV2	54	OFF	-
DCA 2	0	ON	ENV1	63	OFF	-
DCA 3	0	ON	ENV2	54	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	35	0	12	ENV3	63	VEL	8

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	KYBD2	28

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

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	63	50	0	26	0	0	6	48	38	9
ENV 2	63	55	62	0	32	20	18	39	20	9
ENV 3	63	25	0	26	0	0	28	45	32	0
ENV 4	63	63	63	20	0	0	32	0	38	0

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

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

# Classifieds

## USER GROUPS

Ensoniq User's Group of the Philadelphia Area (ESQUPA). Public domain patches and samples, programming/sequencing/MIDI tips, special events, and more. Dues: \$10 per year, meetings first week of each month. Contact Tom McCaffrey, 215-750-0352.

Boston Area Ensoniq User Group. Exchange ideas, public domain patches and samples, and more. Contact Mike Bullock, EUGOB, 26 Beacon St., #13-C, Bollington, MA 01803. 617-229-6523.

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## SOFTWARE

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

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In the March '88 TH Interface I wrote a letter which, in retrospect, was premature. For any readers who have an ESQ-1 and an Apple II with a Passport MIDI interface, I NOW have full programs written which load and save all data to disk, and which also contain some librarian and print functions. \$20.00! Includes disk files of all my patches (see Hackerpatch May '88). Please specify computer type and accessories. Also interested in YOUR programs. Tim Edwards, PO Box 56, Smithfield, VA 23430. 804-357-3054.

## PATCHES

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ESQ-1, ESQ-1, ESQ-1, Send us your very best patches and we'll send you an equal number of "better" patches (at least we think so) FREE. DATA CASSETTES ONLY - indicate number of banks. THE PATCH EXCHANGE, Cooper River Plaza East, Suite 1110, Pennsauken, NJ 08109.

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## PATCH UPGRADES

VOICE CRYSTAL UPGRADE #8-A1-6.5

MODEL: VC1

PATCH: PNOT1

LOCATION: BANK A1

ENV 2: LV=16, TK=00

ENV 4: LV=18, T4=30

NOTE: Increases pedal-off sustain time and increase output level to match other VC1 voice levels.

## SEQUENCES

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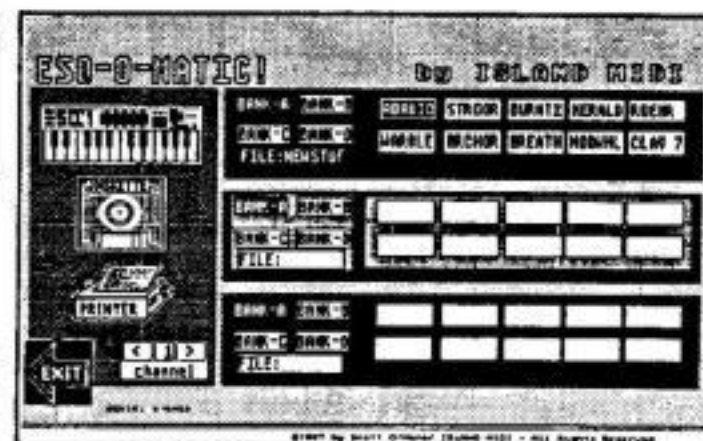
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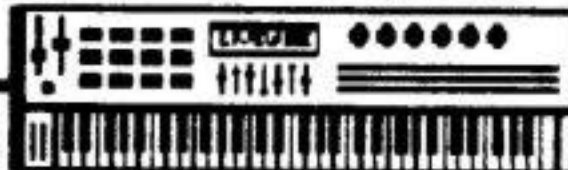
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# The Interface

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.

Dear Transoniq Hacker,

What a great magazine you have! A question, if I may. I have an ESQ-M attached to my ESQ-1, and normally I equip it with identical cartridges and banks and keep OVERFLOW on on the ESQ-1. This supplies me with an additional eight voices. Can I play eight voices on the ESQ-1 and simultaneously send a different eight to the ESQ-M from the sequencer? This would permit me to use different programs in the ESQ-M. I've tried this, but I have trouble hearing the results. What do you think?

Yours,  
Sam ("the man") Buttrey  
CompuServe [71231,306]  
Scenic, Historic Brooklyn, NY

*[Ensoniq's response - Turn Overflow OFF on the ESQ-1. The ESQ-M must be set to MULTI so that each voice will respond to the appropriate program on each track. See pages 93-94 of the ESQ-M manual on "Using the ESQ-M with a Sequencer".]*

Dear Hacksters,

Okay. This time I have a real question. Am I the only ESQ-1 owner to have sprung for the ESQ-M module? (Obviously not. I'm just leading up at this stage.) I see little mention of it in your otherwise delightful rag, so I don't know if people design things with this in mind. I see there is no MIDI "thru" jack on the ESQ-1. I use the "ESQLIB" librarian, reviewed in the April issue, from S. N. Musser, and I like it. How can I use that, or anything else, to load a program or bank from my PC directly to the ESQ-M (whose MIDI IN is normally connected to the MIDI OUT of the ESQ-1)? Obviously I could re-connect everything, or send it to the ESQ-1 first. Is either of these necessary? Or can the ESQ-1 pass on MIDI information over the sequencer tracks, or in some other way?

Thanks for your help and your great mag,  
Sam ("Witty Nickname") Buttrey  
CompuServe [71231,306]  
Wacky, Zany Brooklyn, NY

*[Ensoniq's response - The easiest solution is to get an inexpensive MIDI switch box or MIDI patch bay. Virtually all rackmount sound modules have this problem. A MIDI-thru jack on the ESQ-1 would not help the situation at all.]*

Greetings and salutations,

I have some questions/comments for you to pass on to Ensoniq if you would, please?

Don't get me wrong with any of this, I have said it before, "I love my SQ-80", but... 1. Is it possible in future software updates to be able to send data to my Mirage? Seem silly? Not really. Through the Hacker (thanks very much to them) I am corresponding with people in Canada and the U.S., (Hi! Nicole, Vinnie and Kevin) and exchanging data. Some of these people have Mirages (and not SQ-80's) and disk is highly superior to cassette data transfers. Please consider this. (I am hoping 1.8 will clear up my "step time equals seq. disruption" problem.)

2. Why was the idea of a distorted guitar string not included in the waveforms? I know you couldn't include everything but it's next to impossible to get anything that sounds like an electric guitar out of that SQ-80! I'm a drummer and I could have lived if one (even two) of the drum kits were not in the bank (two strings vibrating together would have been a good addition, too.)

3. While we're on drums, how come so much repetition in the sounds? A cymbal, open hi hat, cowbell, wood block (pot lid?) would have made a nice difference in the selections. What's the chance you might make a change in them in the future (even a purchasable replacement - alternate) even a custom made one? (I'm dying to make this thing sound like an electric guitar).

4. Next, what things should we be careful about when loading SQ-80 data, sequences.. to an ESQ-1 (besides the extra waveforms and sequences 31-60, and songs 10-19)?

I'm sorry if it seems like I'm being petty, but I am investing a lot of time, effort and praise into the Ensoniq equipment (it's great to have such excellent domestic equipment with such great back-up for it) and these things have been on my mind. Thank you in advance for the time you spend pondering this. Also thanks to The Hacker for making this method available for us to voice our concerns.

L. Benny Sanders  
Toronto, ONT, Canada

*[Ensoniq's response - 1. We have no plans at this time to allow the SQ-80 to*

*load data to the Mirage.*

*2. There are many different waveforms that could have been used. Ultimately, it was a question of what waveforms "worked" and would fit in the available memory. If you really want a distorted guitar sound, running almost any sound through an inexpensive fuzz box will make it sound like a distorted guitar.*

*3. Once again, the limitation is available memory. The multiple drum sets are simply different arrangements of a set of drum samples. These waveforms are contained in masked ROM (which is very expensive to change) and we have no plans to alter them.*

*4. See "ESQ-1 Compatibility" on page 185 of your SQ-80 Musicians' Manual.]*

Dear Hacker,

I am a new EPS owner, and wish to thank you for Clark Salisbury's article in your May issue. I am a classical musician, and this is my first electronic instrument. Trying to find my way around the EPS through trial-and-error was beginning to make me feel, well, stupid.

To others like us, just think of it as the price we had to pay to get one of the first of these beauties without going on a long waiting list. Someday, after we've suffered enough, Ensoniq will send us all "The Real Manual" and bring us out of purgatory.

The sound disks that came with the EPS were a joke, but owners should also be aware of the bug in the 1.3 operating system. Try event editing - then take a tranquilizer and call Ensoniq. I'm sure they'll send the 1.4 O.S. right out.

P.S. Misery loves company, so feel free to print my address for other EPS hackers.

Rod Hershon  
134 Woodview Ct #309  
Rochester, MI 48063

*[Ensoniq's response - It was never our intention that the EPS Musicians' Manual would be the only manual offered. The EPS is an extraordinarily powerful system compared to our competition and requires a great deal of explanation.*

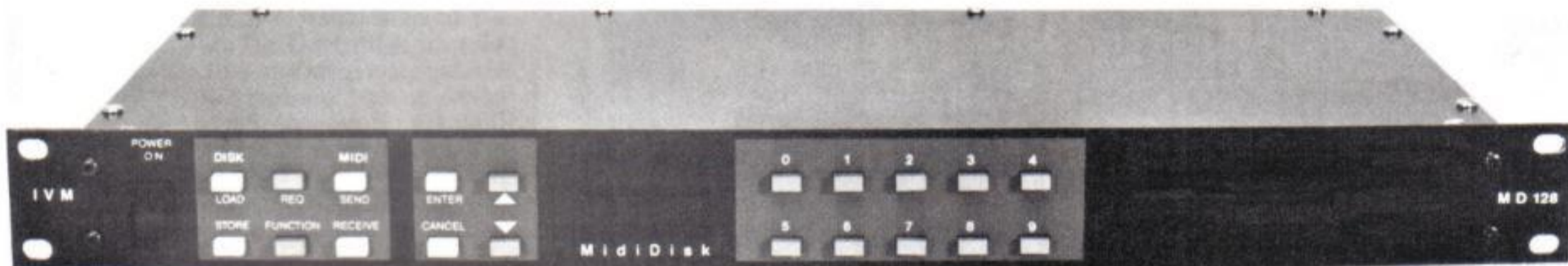
*Putting out a bad manual would be a mistake and holding off shipping the EPS until the technical manual was finished would not have been a wise business decision.*

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Interface -

I was delighted with the review of MIDICASTER in the May '88 issue of TH. Just thought that a few things could be brought up to date.

MIDICASTER is in v2.2 and now has transient routines that will format disks in 30 seconds without disturbing Sound RAM, Copy an OS, and get patches from Casio CZ synths (again, without leaving OS 3.2). Also, a couple of OS enhancements have been added. The first is separate MIDI transmit and receive channels and the second is an increase in the repeat rate for the <increment> and <decrement> keys, which makes editing much quicker.

Although Mr. Daniel mentions the fact that some MIDICASTER operations take over Sequencer memory, he didn't come out and say that the Sequencer is still functional. It is!

MIDICASTER is still being distributed by the MIDI Connection, 7280 SW 104th, Beaverton, Oregon 97005. If anybody out there has any questions about compatibility or features, get in touch with me.

Thanks for the help!  
Tim Martin  
2054 Sauter Lane  
Missoula, MT 59801

*[TH - Thanks for the update.]*

Hackers

Keep up the good work - as a new ESQ-1 owner (my first electronic keyboard) I'm interested in basics - can you help me with two questions?

1. The ESQ-1 musician's manual recommends a "decent" tape deck - can you recommend (or have any of your contributors rated) tape decks to help in the selection?

2. I'd like to produce some sequences that sound like a multi instrument band organ (the mechanical musical instrument) that provides music for merry-go-rounds. Have any of our readers taken on a similar project or created the appropriate programs?

Thanks  
Gerald Barkdoll  
Bethesda, MD

*[Ensoniq's response - The real intention was to avoid the \$12.00 "K-MART Specials". We have had good luck with the Radio Shack computer cassette recorder and similar tape decks.]*

*[TH - In Issue #25 Sam Mims offered his CALIOP in Hackerpatch. It's available also from his Syntaur Productions - see classifieds.]*

Dear Transoniq Hacker:

I have several things on my mind. First of all, I'd like to say that I back-up Craig Haggart on his letter in Issue 35 about problems with Valhala's ESQ-1 Bible. I have enclosed a photocopy of one of their voicing programs to show you that, in addition to the problems that Craig mentioned, some of these programs just don't make sense. I wanted to bring this to your attention because I became aware of their product through ads like the one on page 13 of Issue 35. I was disappointed in the product and even more disappointed with Valhala when the gentleman I spoke with there failed to make good on his offer to send me a few of their better patches as sort of an apology and as a token of good faith. I guess I'll take that as an indication of the existence of these "better patches". I do plan on taking him up on his offer of a refund. Hey - I know that pay ads are valuable, but perhaps you guys might feel differently if you knew that at least his particular product is junk.

Now that that is off my chest, let me compliment you on your excellent informative publication. My original interest in TH was my desire to learn about synthesis and programming a synthesizer. The ESQ-1's wavetable, analog features, sequencer, and voice architecture made it a perfect choice for my first synth. I was delighted to find a complimentary copy of TH was included. TH has provided me with as much fun as the instrument itself.

I would especially like to compliment you for the articles: "Inside the Q Chip" by Dick Lord and "LFO's, Usable Or What" by Clark Salisbury and Erick Hailstone. These kinds of articles are exactly what I look for in TH. I must say however, since I am not a computer owner and not overly familiar with computer jargon, Dick's article was a little hard to get through during my first eight or nine readings! MSB's? Bank Select Bits? Barrel Shifters? Vector Tables? Dictionaries? Encyclopedias????? HELP!!! See my point? I do realize that this is a very specific kind of article and very technical, but remember it is still most interesting to the less

technically immersed. Just keep an eye on us.

Now a question. Do you think it would be possible to get one of the members of your brain trust to write an article that would begin with an acoustic sound -- a piano for instance -- analyze its sonic components (harmonics, wave characteristics, attack, timbre, etc.) to find out why a piano sounds like a piano, then talk about how you can emulate those qualities with the ESQ-1? This would be a more in-depth look at the kind of stuff that is talked about in Hackerpatch every month. If you could come up with a couple of articles like that, I would probably have to sign up for a lifetime subscription, as well as probably drive my girlfriend nuts trying to make her understand how critical an article like that is to 20th century man.

OK-- one more question then I'm done. Can anyone tell me why both the C and the G# in the second octave from the bottom of the keyboard have a kind of buzzy flat sound on the factory Piano 1 patch? I did talk to Ensoniq about this and they told me it is an inherent problem with the wavesample on which the patch is built. Is this true? Is there any way around this? Got any answers?

Anyway, here is a check for \$23.00 for another year's subscription. I'm sending it well in advance of my current sub's expiration date to: pat you on the back for Dick and Clark's articles, to say a general job well done, as a reward for reading a long but hopefully not too boring letter, and finally just to show you that your readers aren't afraid of a little rate increase (still a deal at twice the price... but don't get any ideas!).

Thanks again:  
Steve Hodak  
Van Nuys, Ca

*[TH - Thanks for the compliments. Don't worry about us getting ideas about the \$23 rate increase - we regret having to do that as it is.]*

*Regarding the ads: we've mentioned before - we're not going to get into a "third-party police" role. The ads are just ads, not endorsements. Take them as such. The letters column is an open forum. Here is where you can see what others are griping about or complimenting. We'll take the flack for the products we review, so we try to be pretty careful about what goes in them. Each feature, (letters, ads and reviews), has its own source, function and associated credibility.*

*Regarding a "sound analysis" article: Jim Johnson did just such a thing for brass sounds in TH #28 and has touched on it in other articles since. We would also like to see more on this subject. Any*

writers interested?]

[Ensoniq's response - The sound that you hear in the PIANO1 program has to do with the tuning resolution versus the sample size of the wavesample.

You can shift the effect by detuning the oscillators differently, but it can't be eliminated.]

Dear TH,

I have had my EPS since March and I thought other readers might be interested in some user input.

First, I'd like to comment on memory and using Mirage sounds. The EPS comes with 1018 blocks of internal memory. Converting a Mirage upper and lower sound to EPS format takes, on the average, 534 blocks of memory. A little math will tell you that two full Mirage sounds cannot be in memory together. You must delete one to load the other, you cannot keep playing to do this. However, for many samples you can trim some memory with the truncate command and delete un-used wavesamples, so you can squeeze more into the EPS. You still won't have much memory if you plan to use the sequencer. Many Mirage sounds need editing after the conversion. Strings and horns generally need adjustments to the attack portions of the envelopes and percussion needs to be trimmed to get rid of "clicking" at the end of samples, etc. Because of the EPS's ease of operation it's not hard to do this, just time-consuming when converting a large number of samples. If you get an EPS you should get a memory expander. I have the 2x installed and since I don't use the sequencer I usually get 3-4 full Mirage sounds or more into memory. The 2x is about \$250 - reasonable. I've heard the 4x will be about \$895 - ridiculous!!

I'd also like to comment on the MIDI capabilities of the EPS. EPS instruments can SEND on any MIDI channel, play local, MIDI, or both ("smart MIDI out"). Yet, when receiving, the EPS in multimode receives only on CONSECUTIVE MIDI channels and receives program changes on those eight channels. This means even if you don't want an instrument to load in #7, the EPS will try to do it if you send a program change to another synth on channel 7 (not a "smart" MIDI in). Each instrument should have a separate program change ON/OFF, send and receive channel. This would significantly increase the EPS's value for MIDI applications. Since it is a software-based instrument hopefully Ensoniq will correct this shortsightedness.

General comments:

## Q - SPECTRUM

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marks of Ensoniq Corp.

1. I think the sequencer should be an add-on module and not share memory with samples. I would rather see on-board effects like Korg and Roland or, even better, additional on-board memory.

2. Without the Advanced Application Guide, working with many functions on the EPS is trial and error. Hopefully, getting it to us is one of Ensoniq's priorities.

3. I think those of you who are planning on using your ESQ/Mirage case for the EPS are out-of-luck; it's too big for my ESQ-1 case.

A couple of tips:

1. The EPS creates two layers when it converts a Mirage sound. If you have trouble getting rid of clicks, etc., you will have to find the same sample in layer #2 and also edit it.

2. Before sending system exclusive data follow this procedure:

- A. Command - MIDI = MIDI sys ex recorder
- B. Yes/ENTER = must erase memory, OK?
- C. Yes/ENTER = waiting
- D. No/CANCEL

This clears everything so you can load MIDI files. If you send data before doing this, the synth buffers overload and the system locks up.

No one should be discouraged by my comments. I feel these are things that should have been made clear. The positive reasons for buying an EPS outweigh the negative by leaps and bounds, too many to list in a letter. I also feel the negatives can be addressed in future operating systems. The EPS is an astounding machine and I learn more about its capabilities every day. I have made many great samples already. I did very little sampling with the Mirage because it was difficult and time consuming; with the EPS I'll try to sample anything that moves air!!

Sincerely,  
Brian R. Williams  
Crarryville, NY

*[Ensoniq's response - The previously announced price of the 4X expander was based purely on the price of memory chips - which is skyrocketing now. We have decided not to produce the 4X until the price of 1 Meg bit memory chips is under control.]*

1. With the exception of four front panel buttons, the sequencer in the EPS has no additional hardware costs associated with it. The other items you mention would add significantly to the cost of the EPS. Add-on memory is already offered as an option for those who want it.

*Built-in effects just add cost for people who might not want them or who already have external effects devices.*

2. The Advanced Applications Guide is very much a priority but a quality manual takes time.

3. The EPS is the same size as the SQ-80, MIRAGE DSK-1, and the plastic case ESQ-1 (the ESQ's that have a serial number of 25000 or higher).

The dimensions are as follows: 40 1/2" wide X 4" high X 13 1/2" deep.]

[TH - Readers interested in using Mirage sounds on their EPS should also see "Mirage to EPS Sound Conversion" by Clark Salisbury in TH #36. More on this to follow.]

Dear Transoniq Hacker,

Having had my EPS for only one week now I've got to say it is absolutely brilliant. It sounds great and the keyboard is wonderful. The software is easy to get to grips with, and I keep finding all sorts of nifty shortcuts and tricks not mentioned in the Musician's Manual. But the less said about the Musician's Manual the better! Which reminds me, I do have several gripes about my EPS:

(1) Most of the sounds on the sound disks supplied with the EPS are of extremely poor quality. Several of the sounds are unnecessary and useless. How does Ensoniq expect to sell any EPS's with these disks? My local music store actually begged me to hurry up and make lots of samples so they can show off the real creative potential of the EPS. However, the Harpsichord and Pipe Organ samples on Disks 7 & 8 (not supplied with the EPS) are excellent. Keep up the good work, guys!

(2) To me this is most important, PLEASE make the EPS respond to MIDI ALL NOTES OFF!!! I'm running all my gear, including the EPS, from my computer sequencer. Whenever I stop a sequence in the computer, an ALL NOTES OFF message is sent to all instruments. However, any notes paying in the EPS continue to drone on. That's bad enough, but there is apparently no easy way to turn these notes off other than to slam both my arms flat along the keyboard to try to sound enough notes to deallocate the droning notes.

(3) The display should have been designed tilted slightly forward. Whichever way I place my EPS I find I'm still straining my neck to see where the underline is.

(4) Is it really necessary to reboot EVERY time I get an "ERROR ## -



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REBOOT?" It is so frustrating to instantly lose the last hour's work due to some unpredictable software bug.

(5) Why is it that after I have loaded several instruments into the EPS, or maybe multi-sample an instrument, and then later I delete all of the instruments, I often end up with fewer available blocks than when I started? I have to re-boot to get all my memory back again.

Now I'd like to begin my "wish list" for the EPS:

(1) I'd like a proper manual. I know it's coming, but when?

(2) Give the EPS the option to turn off the output during sampling. As it is now I have to turn the EPS all the way down during sampling because the output mixed with the original signal sounds out of phase and it makes it difficult to sample. I also get ear splitting feedback if I really goof up!

(3) Let the MIDI OUT optionally be a MIDI THRU.

(4) Why can the MIDI OUT channel of an instrument be assigned, when the MIDI IN channel is not assignable, but rather consecutive from the BASE MIDI channel upwards. I understand the concept of "MIDI INSTRUMENT", but I'm talking about the internal instruments. I'd like to have each instrument capable of transmitting AND receiving on whatever MIDI channel I wish.

(5) Make the software reset the SAMPLE START to 0000 (00) when re-recording a sample. If it isn't, it can fool you into thinking the sample didn't work.

(6) How come eight positions for panning, why not nine, or seven? Eight positions seemingly doesn't allow you to pan dead center, but only near dead center.

(7) I'd really like to see panning via an LFO, or for that matter, why not panning by velocity, envelope, key pressure, mod wheel, etc., just like the EQS or SQ-80? Or one other addition, pan each new note to the opposite output. These ideas would be a VERY useful addition.

(8) Make the data entry slider affect all functions (sampling parameters being a major oversight).

(9) How about a "soft-reset", similar to the Mirage's "LOAD ALL O"? This would avoid the loud "chirps" when switching the EPS off and then on (or would it?).

(10) How about the ability to crossfade separate samples when multisampling so that the keyboard split-point is less obvious? I could have sworn that Ensoniq's pre-publicity said that it did just that!

(11) How about Sostenuto?

(12) How about a pitch table compiler? For instance, define the bottom key pitch and the top key pitch. All the notes in between would be computed automatically.

(13) How about some digital synthesis OS, similar to the new EMAX SE software.

(14) This one might be a bit farfetched for Ensoniq, but who knows?: Since the EPS can load samples from Mirage disks, why not give it the ability to load sounds off disks from CASIO, ROLAND, EMAX, YAMAHA, AKAI, SEQUENTIAL, etc.? This would kind of turn the EPS into a super Oberheim DPX-1.

I have many other questions about some of the EPS's existing features, but I expect the new manual will cover them. I'm sure glad they aren't trying to sell the new manual as an "extra" for \$50 like the did with MASOS for the Mirage.

Needless to say, Ensoniq did their homework in the EPS. It'll be hard for us third-party guys to come up with anything, and frankly I'd rather not, I've got other things to do. I want to see Ensoniq continually improve their operating systems so that I can relax and PLAY MUSIC. How 'bout it guys?

P.S. PLEASE Ensoniq, make the EPS respond to MIDI ALL NOTES OFF. It's driving me crazy!

Steven Fox  
CEO, Leaping Lizards  
Seattle, WA

*[Ensoniq's response - 1. We are working on a new library and are constantly working on new sounds. Keep in mind that no sampler has ever hit the market with a full library of sounds; good sounds take time to develop (just ask any of the 3rd party developers).*

*Waiting to ship a product until you have a "complete" library could hold up a product forever. If you send in your warranty card, we will send you information about new sounds as soon as they are available.*

*2. In the MIDI Spec, a MIDI ALL NOTES OFF command is considered a "panic button", affecting only the receiving channel. It is our opinion that some companies do not implement this command correctly. In a multi-timbral instrument with a sequencer, it's better*

*to ignore this command and only respond to KEY-UP commands. Otherwise, a MIDI ALL NOTES OFF command will tend to shut everything down (including notes that you would want to sustain). It is for this reason that the EPS will only respond to a KEY-UP command and there are no plans at this time to change that.*

*4. It is necessary to reboot whenever you receive an error message (just like any other computer). Always boot-up with the latest operating system (1.5) to avoid errors. If you need an updated OS, contact ENSONIQ Customer Service.*

*5. Make sure there are no sequences in memory. If there are, delete them.*

*Now on to the "wish list":*

*1. If you have sent in your warranty card, you will automatically receive the manual when it is available.*

*2. We've had so many requests for output monitoring on the MIRAGE that we built it in to the EPS. Putting a mode switch is of no value since one is just as likely to forget to change modes as to turn down the mixer level. We suggest you monitor only the EPS output when sampling. That way you can hear clipping.*

*3. This wouldn't be possible without mechanical switching. A separate MIDI-thru box would be the way to go.*

*6. Both of the center panning positions are "dead center".*

*7. The pan is selectable and cannot be modulated. It was intended for mix positioning, not dynamic effects. The dynamic panning on the ESQ-1 and SQ-80 results from VCA's built into the Curtis filter chips. All filtering in the EPS is done digitally; there are no separate "voice" chips (which allows us to provide 20-voice operation at reasonable cost).*

*9. Because of the multiple micro-processors in the EPS, there is no way to restart the unit without turning it OFF.*

*10. Crossfading samples will be covered in the Advanced Applications Guide which will be available shortly.*

*11. Sostenuto is not supported in the EPS.*

*12. You can extrapolate a pitch table by setting a relationship between 2 notes. (COMMAND/PITCH, then scroll to EXTRAPOLATE PITCH TABLE.)*

*13. These are available with the various computer editor programs like SOFTSYNTH by Digidesign.*

2. We don't have the information on the other disk formats. The ALCHEMY program by Blank Software supports the Akai S-900, the Emax and SP1200, Emulator III, the EPS and MIRAGE, and the IMS Dyaxis sample-to-disk recording system.

When we began selling the MIRAGE DSK, we once again sold the ASG separately and few people complained. Adding extra cost to a product for features that many owners don't want is not a good idea. Obviously we do need a more advanced manual for even casual users of the EPS. When it is available, we will include it with the product.]

Dear Hacker,

I'm writing in reference to a really aggravating problem I'm experiencing with my ESQ-1 and KAWAI R-50 drum machine. I trigger the drum machine from the ESQ-1's clock, and when recording track one on the ESQ-1, the drum machine keeps defaulting to Pattern 49 no matter what pattern I've assigned to it originally, which means I have to manually step back to pattern one every time I re-do a take on the ESQ-1 track one!

I've tried re-setting the LOCAL/BOTH/MIDI parameters on the ESQ-1, and everything else, so it seems. The problem only occurs when I'm recording track one. I'm also having hassles trying to sequence my Roland Jupiter 6 from the ESQ-1. HELP!

2) Do you or any of your readers know of a place I can get reasonably priced custom SEE-THROUGH keyboard/drum machine/mixing console covers? I'm sorry guys, but twenty to forty greenbacks for a lousy plastic cover is outrageous! Maxell sells VCR covers for \$3.98, so what is this lechery? With all due respect to cover vendors like GOTCHA COVERED, who make quality products, THE PRICES ARE TOO DAMN HIGH! There's a guy here in Malibu that advertised in TH a ways back, but he wants \$20/\$30 for a cloth cover, which has to be cleaned and doesn't show off the instrument's natural beauty. Come out of the closet, cover vendors: show us your wares and make 'em cheap!

PATCH TRADER IN LA  
Mark Curran  
Van Nuys, CA

[TH - There's no way that a specialty item like a synth cover can compete with a VCR cover in price. The tooling and set-up costs are about the same. The marketing costs are probably higher. The cost per item is going to be very strongly dependent on the quantity sold. Same reason the VCR's them-

selves are so cheap.]

[Ensoniq's response - You may want to contact KAWAI on this one. This sounds like the same situation that another reader was experiencing with the ESQ-1 and the R-100 (see Dan Hobson's letter in the April '88 issue of the Hacker). Dan seems to have solved his problem by switching all of his tracks to LOCAL. However, the reason why this is happening is a mystery to us.

Remember that Maxell probably sells huge numbers of VCR covers. Don't assume that a small company with a limited-demand product is trying to rip you off when they charge what they have to in order to be profitable.]

To the editor,

Thank you for a great educational and support magazine about Ensoniq products. I benefit from both the articles and the Interface and even like and use the advertisements.

Having purchased an ESQ-1 (OS v. 2.2) in December, 1987 I am delighted by its overall performance. However, I am concerned about what appears to be a fault with the sequencer. My difficulty is much the same as that reported by Don Carlton (point 3) in the March 1988 issue: the track mix levels reset to 63 after a bar or two in playback when set to lower values. Unfortunately, the answer provided does not appear to be the solution. Having stopped the sequencer, I make the required level changes then select either the same or another sequence (the result does not differ) whereupon I am asked if I want to save any changes. I answer YES then return to the original sequence. Upon playback some of the changed tracks reset to 63 immediately, while others take a bar or two to reset.

Reinitialization has not resolved the problem. I do not have a sequencer memory expander yet, but doubt that this is the problem because at times I only have two sequences stored, both are very small and the problem persists.

Could this be a software problem? Would upgrading to V. 3.4 of the OS alleviate the problem?

Regards,  
Lindsey Jackel  
Victoria, Australia

[Ensoniq's response - This doesn't sound like any bug we have ever heard of. You could have a hardware problem. Contact the ELECTRIC FACTORY for your nearest ENSONIQ Authorized Service Facility.]



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